

AYK REGION

SALMON BOF RPT #10

ARCTIC-YUKON-KUSKOKWIM REGION
SALMON FISHERY REPORT

A REPORT TO THE ALASKA BOARD
OF FISH AND GAME

November 1974

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES

INTRODUCTION

The Arctic-Yukon-Kuskokwim Region is that portion of the state north of the Alaska Range and the Bristol Bay drainage. It includes all of the drainages of the Bering Sea and the Arctic Ocean from Cape Newenham to Demarcation Point at the Canadian border. In addition, it includes the following Bering Sea Islands: Nunivak, St. Lawrence and St. Matthew. This is the largest management area in the state comprising over 400,000 square miles, which is equal to the combined areas of California, Oregon, Washington and Idaho. The region is subdivided into several management areas or districts as indicated in Figure 1.

There are approximately 30,000-40,000 Eskimo and Indian people in the region, the majority of whom reside in excess of 110 small villages scattered along the coast and the major river systems. Nearly all of these native people are dependent to varying degrees on the fish and game resources for their livelihood.

REGIONAL SUMMARY

Commercial Fishery

A record harvest was made in the region during 1974 totaling 2.4 million salmon which exceeded the previous high catch made in 1973 by approximately 843,000 fish. Catches of red, coho, pink and chum salmon were also the largest ever recorded. The 1974 harvest represented 18.6 million pounds (round weight) of salmon. Fishermen earnings totaled \$5.2 million.

The 1974 commercial catches made in each management area are shown below:

<u>Area</u>	<u>King</u>	<u>Red</u>	<u>Coho</u>	<u>Pink</u>	<u>Chum</u>	<u>Total</u>
Kuskokwim	30,700	29,000	179,300	60,000	196,100	495,100
Yukon	96,900		16,800		877,400	991,100
Norton Sound	2,500		1,800	147,900	149,800	302,000
Kotzebue					631,200	631,200
Totals, 1974	<u>130,100</u>	<u>29,000</u>	<u>197,900</u>	<u>207,900</u>	<u>1,854,500</u>	<u>2,419,400</u>
Previous season record	161,500	13,500	174,500	147,000	1,196,700	1,576,100
5-year average (1969-73)	148,800	8,800	96,300	56,000	717,200	1,026,000

Commercial harvests in the region have increased about thirty times since 1960. Recent increases have been largely due to development of chum salmon fisheries in the Yukon River, Kuskokwim River and Kotzebue areas.

The region-wide license registration in 1974 of 2,685 commercial, 2,042 vessel and 2,285 gear licenses was a record high total. License registration in the region increased at a rate of about 6 percent annually during the 1968-72 period. In 1973, the rate increase over the previous year was 15 percent for vessel and 12 percent for gear licenses. In 1974 vessel and gear license registration increased 24 and 16 percent respectively over that for 1973. Most of this increase was in the Kuskokwim and Kotzebue areas. This expansion is largely the result of increasing numbers of subsistence fishermen who are beginning to also participate in the commercial fishery. The vast majority of commercial fishermen are Eskimo and Indian residents of the region.

Trends in license registrations and commercial harvests in the region during 1960-1974 are illustrated in Figure 2.

Figure 3 shows commercial, subsistence and total catches of king and other salmon species made in the region during 1960-1974:

The decline in subsistence utilization has resulted in the Department allowing greater commercial harvests, especially of chum salmon. Department studies have revealed that unharvested surpluses of pink and chum salmon exist in some areas. In addition there has been increased demand from Japanese markets for fresh frozen A-Y-K salmon. Barring significant increases in offshore utilization by foreign nations or unusually severe environmental conditions, the A-Y-K commercial salmon fishery can be expected to increase moderately in terms of production and economic value during the next few years.

Subsistence Fishery

Subsistence harvest information prior to 1960 is incomplete or entirely lacking for many years, but there are also records indicating that in excess of two million salmon annually were taken during the early 1900's.

About 1930 the airplane began replacing the sled dog as a mail carrier, and this started the gradual decline of the subsistence salmon fishery. This decline has been accelerated in the past few years as increased welfare payments and employment opportunities, including commercial fishing activities, have become available to the native people. Another very important factor tending to affect subsistence fishing effort during recent years is the increasing use of snow vehicles which may be replacing sled dogs at a faster rate than did the airplane. Since considerable numbers of salmon and other fish are fed to sled dogs, fewer fish will be required for subsistence purposes as the canine population declines. The decline in subsistence fishing is not related necessarily to fish abundance, but mainly reflects decreases in effort and dependence due to a changing way of life.

Subsistence catch data for 1974 is very preliminary at this time since a few late catch reports are still being received. The projected 1974 harvest should approximate 620,000 salmon, a moderate increase over the 1973 catch. The average annual subsistence harvest recorded during 1960-1973 was 600,000 salmon (Figure 3).

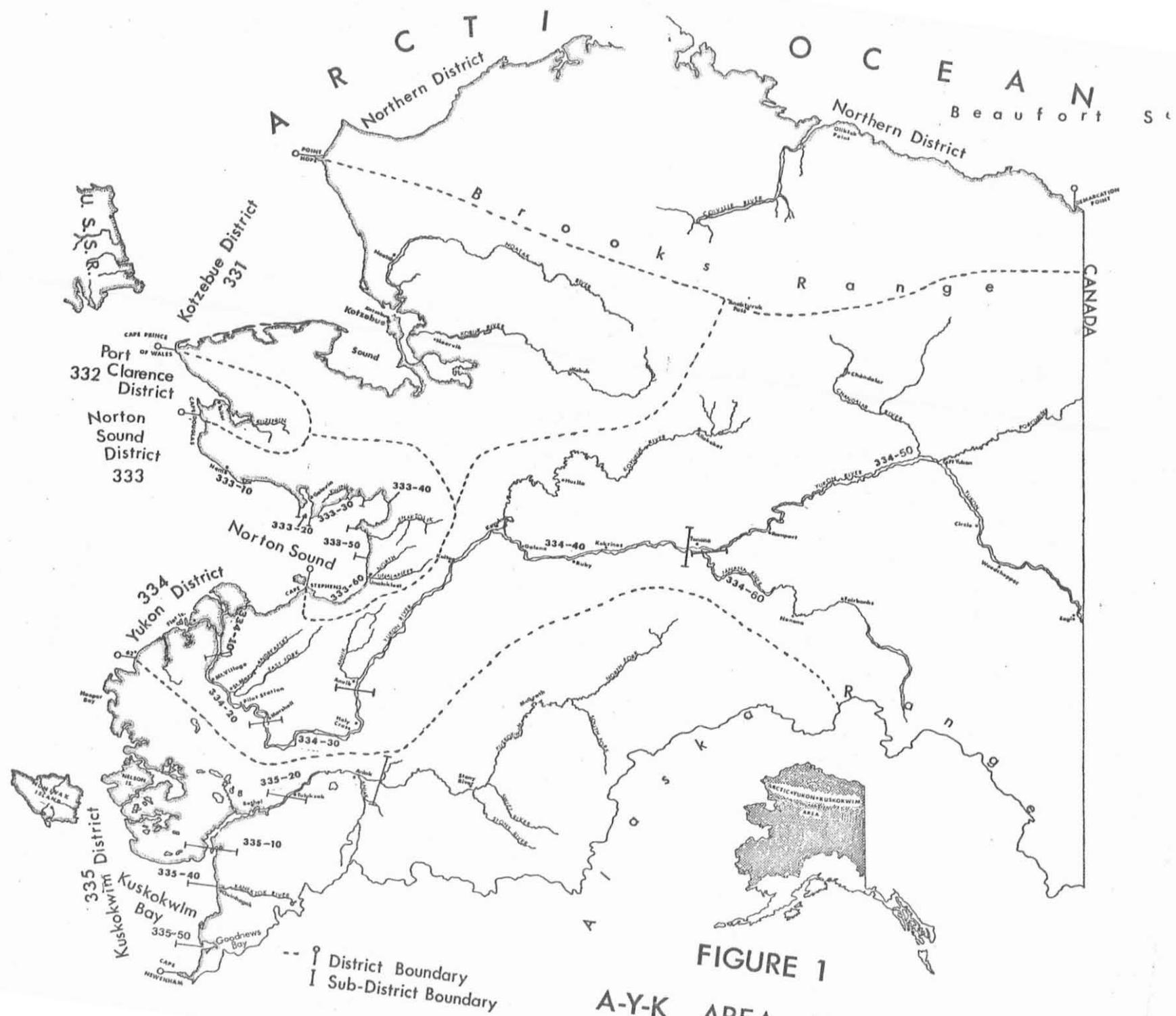
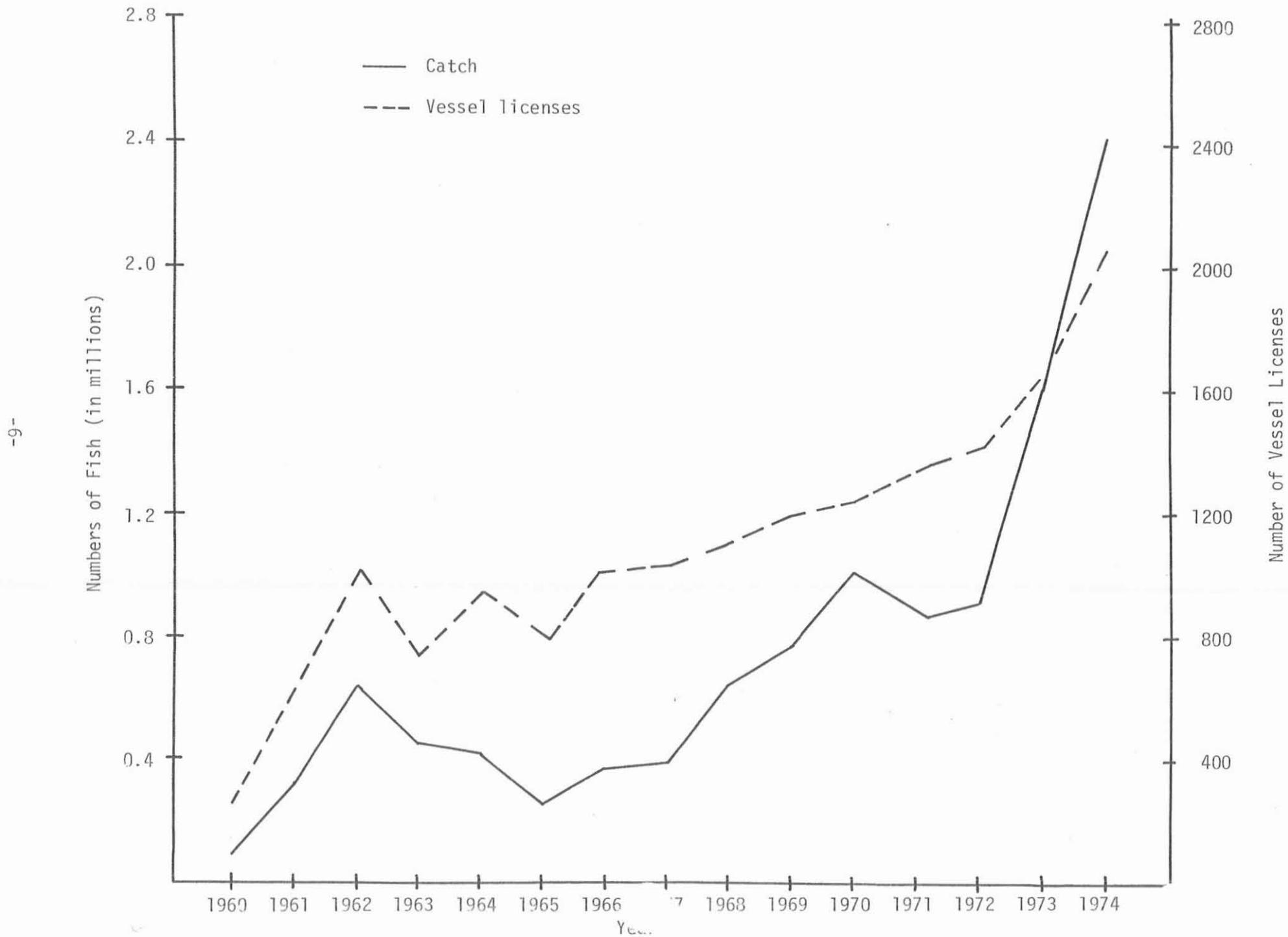


Figure 2. Total commercial salmon catch and fishing vessel registration for the Arctic-Yukon-Kuskokwim region, 1960-1974.



KUSKOKWIM AREA

The 1974 commercial salmon catch of 495,431 fish was the largest ever recorded and greatly exceeded the previous 5-year average of 240,773 fish. Species composition was 30,670 king, 29,003 red, 179,259 coho, 60,052 pink and 196,127 chum salmon. Table 1 presents annual commercial catches for the Kuskokwim River, Quinhagak and Goodnews Bay subdistricts.

License registration increased tremendously for the second consecutive year. Commercial registration rose to 1,138, a 53 percent increase over the previous record high set in 1973. Vessel licenses increased to 905 (58 percent increase). Drift and set gill net registration rose to 853 and 70, representing increases of 54 percent and 180 percent respectively. Overall, the 1974 registration increased 56 percent. Most of this increase occurred in the lower Kuskokwim River (subdistrict 1).

Kuskokwim River

Although commercial fishing effort increased 33 percent over the previous record 1973 season, the commercial harvest of 18,664 king salmon was the smallest since 1964. This year's catch was more than 53 percent below the recent 5-year average and 43 percent below the recent 10-year average. In addition, catch per vessel/hour figures were the lowest ever documented.

A record commercial chum salmon catch of 171,887 was made in 1974. The vast majority of these were taken during the "chum salmon season" (late June-mid July) which has been in existence only since 1971. The harvest was influenced by increased fishing effort which was 37 percent greater than that for 1973. When commercial catches are added to subsistence catches, the total utilization of 437,000 was the largest documented

since 1960 (Table 2).

The record commercial coho salmon catch of 147,260 was largely a function of increased effort which increased 26 percent over that for 1973.

The Kuskokwim River subsistence harvest of approximately 25,000 king salmon was the smallest since statehood and more than 20,000 fish below the recent 5-year average of 46,190 kings. The catch of the other species, primarily chums, was in excess of 265,000 salmon. This harvest was significantly above the recent 5-year average catch and 65,000 fish above the 1960-73 average. The large chum salmon harvest may have been the result of a large run and increased effort stemming from the sale of subsistence roe that was authorized for the 1974 season. Also due to the relative lack of king salmon, subsistence fishermen began operating small mesh gill nets for chums much earlier in the season than normal.

Once again escapement information was severely limited by poor weather conditions. Aerial surveys did not indicate any large spawning concentrations of king salmon. The Kognukluk tower count of 3,410 kings was relatively good but the majority of these fish were small males that contributed little to future run productivity (Table 3).

Information regarding the comparative magnitude of the 1974 chum salmon escapement was limited to the Kognukluk tower count. The chum count at this site of 5,607 in 1974 was the smallest recorded since 1970.

Quinhagak and Goodnews Bay

These are two fisheries located south of the Kuskokwim River mouth (Figure 1). A total of 157,475 salmon were taken commercially in both of these fisheries. King salmon catches of 12,729 in Quinhagak and 3,255 in

Goodnews Bay were of average magnitude even though a maximum gill net mesh size of 6 inches stretched mesh was in effect during the entire season. A record red salmon catch, 19,510 in Quinhagak and 9,357 in Goodnews Bay, was made. Species composition of the commercial catches are presented in Table 1 .

Table 1 . Kuskokwim district commercial catches by drainage, 1960-1974

Kuskokwim River ^{1/}	King	Red	Coho	Pink	Chum	Total
1960	5,969	0	2,498	0		8,467
1961	18,918	0	5,044	0		23,962
1962	15,341	0	12,432	0		27,773
1963	12,016	0	15,660	0		27,676
1964	17,149	0	28,613	0		45,762
1965	21,989	0	12,191	0		34,180
1966	25,545	0	22,985	0		48,530
1967	29,986	0	56,313	0	148	86,447
1968	34,278	0	127,306	0	187	161,771
1969	43,997	322	83,765	0	7,165	135,249
1970	39,290	117	38,601	44	1,664	79,716
1971	40,274	2,606	5,253	0	68,914	117,047
1972	40,795	102	22,579	8	78,619	142,103
1973	32,838	369	130,876	33	148,746	312,862
1974	18,664	136	147,260	37	171,887	337,984

Quinhagak (Kanektok River) ^{2/}	King	Red	Coho	Pink	Chum	Total
1960	0	5,649	3,000	0	0	8,649
1961	4,328	2,308	46	90	18,864	25,636
1962	5,526	10,313	0	4,340	45,707	65,886
1963	6,555	0	0	0	0	6,555
1964	4,081	13,422	379	939	707	19,528
1965	2,976	1,886	0	0	4,242	9,104
1966	278	1,030	0	268	2,610	4,186
1967	0	652	1,926	0	8,087	10,665
1968	8,879	5,884	21,511	75,818	19,497	131,589
1969	16,802	3,784	15,077	953	38,206	74,822
1970	18,629	5,393	16,850	15,195	46,556	102,623
1971	4,185	3,118	2,982	13	30,208	40,506
1972	15,880	3,286	376	1,878	17,247	38,667

Table 2 . Kuskokwim River commercial and subsistence harvests, 1960-74.

Year	Kings			Other Salmon ^{3/}		
	Commercial	^{1/} Subsistence	^{2/} Total	Commercial	^{1/} Subsistence	^{2/} Total
1960	5,969	20,931	26,900		327,297	327,297
1961	18,918	31,136	50,054		185,447	185,447
1962	15,341	14,656	29,997		165,626	165,626
1963	12,016	34,615	46,631		141,550	141,550
1964	17,149	29,017	46,166		189,660	189,660
1965	21,989	27,143	49,132		283,459	283,459
1966	25,545	49,606	75,151		174,660	174,660
1967	29,986	57,875	87,861	148	205,263	205,411
1968	24,278	30,230	64,508	187	260,023	260,210
1969	43,997	40,138	84,135	7,165	198,628	205,793
1970	39,290	69,219	108,509	1,165	245,550	247,214
1971	40,274	42,926	83,200	68,914	116,391	185,305
1972	40,795	40,145	80,940	78,619	120,316	198,935
1973	32,838	38,526	71,364	148,746	179,259	328,005
1974 ^{4/}	18,664	24,000	42,664	171,887	265,000	436,887

^{1/} Subdistricts 335-10, 335-20 and 335-30.

^{2/} Catches are expanded and include all villages surveyed each year. Data includes a few villages not included in Annual Report catch tables.

^{3/} Primarily chums.

^{4/} Preliminary data.

Table 3 . Index counts of Kuskokwim River king salmon spawning escapements, 1965-1974. ^{1/}

Year	Aerial Surveys				Counting Tower
	Kisaralik River	Aniak River (Above Salmon R.)	Chukowan River	Kogrukluk River	Kogrukluk River
1965	194 ^{2/}	-	-	-	-
1966	204 ^{2/}	485	986	1,645	-
1967	-	758 ^{2/}	-	1,033	-
1968	487	783	1,260	2,180	-
1969	-	537	-	-	2,980
1970	531	592	1,118	1,598	3,815
1971	-	144 ^{2/}	-	636 ^{2/}	-
1972	-	93 ^{2/}	163 ^{2/}	476 ^{2/}	1,934
1973	152	200 ^{2/}	229	610 ^{2/}	1,725
1974	4 ^{2/}	15 ^{2/}	43 ^{2/}	-	3,410

^{1/} ADF&G Annual Management Report, Arctic-Yukon-Kuskokwim area, 1971.

^{2/} Surveys rated poor.

YUKON AREA

The Yukon area includes all waters of the Yukon River drainage in Alaska and all waters from Cape Stephens southward to 62° North latitude. Commercial salmon fishing is allowed along 1,400 river miles in six sub-districts managed under various regulations. Data presented in this report incorporates catch and escapement data for the entire Yukon area. However, primary emphasis is placed on the long established and more intensive fishery in the lower Yukon River. A separate special report dealing with the recently expanded upper Yukon area commercial fishery has been prepared under special cover.

The 1974 commercial harvest of 991,095 salmon was the largest in history and was more than double the previous 5-year average of 436,328. The 1974 catch exceeded the previous record total of 630,029 in 1973 by nearly 360,000 fish. Species composition of the 1974 catch was 96,902 kings; 16,825 cohos and 877,368 chums. Table 4 presents annual commercial catches by subdistrict since 1960. Yukon River commercial fishermen received an estimated \$2,132,000 for their catch and the first wholesale value of the pack was estimated at \$5,500,000.

A total of 897 commercial, 769 vessel, 683 set gill net and 298 drift gill net licenses was issued for the area in 1974, very similar to the 1973 totals. License registration actually declined in the lower Yukon (subdistricts 1, 2 and 3), however this was balanced by a substantial increase in the upper Yukon area (subdistricts 4, 5 and 6) where the commercial fishery is undergoing expansion.

The 1974 Yukon River commercial king salmon catch was approximately 4,800 less fish than the previous 13-year average. It is difficult to ascertain the abundance of the Yukon River king run in 1974 due to limited

or incomplete comparative commercial catch and escapement data. Lower Yukon catch data was not comparable because many fishermen used 5 1/2-inch mesh gill nets to harvest the more abundant chums rather than 8 1/2-inch gill nets during the king salmon season. Also, most of the processors did not buy fish during the period June 20-22 because of being swamped with fish from the previous period. There are indications however, based on the data available, that the overall size of the Yukon River king run was larger than last year's below-average run.

The 1974 commercial chum salmon catch was the largest in history (69 percent greater than record 1973 catch of 517,934) and exceeded the previous 5-year average by 550,559 fish. The record chum catch this year was attributed to the exceptional large run of summer chums and to a lesser extent on the above-average run of fall chums. Fishing effort, especially on the summer chum run, was up substantially, due in part to increased prices paid to the fishermen (double that of two years ago).

Subsistence utilization of summer chums, which are more abundant than the fall run, has decreased in recent years due to a decline in effort and dependence. In order to encourage greater commercial harvesting of summer chums, regulations have been relaxed. All minimum mesh size restrictions were removed during the king salmon season (June-early July) and the second or fall season was opened earlier in July in subdistricts 1 and 2. In 1974, a record total of 604,210 summer chums was commercially harvested in the Yukon area, mostly in subdistricts 1 and 2 where 90 percent of the catch was taken. A total of 349,758 summer chums was taken during the king salmon season (June 1-29) this year in these subdistricts, more than triple the catch of any previous year. Many fishermen for the first time operated 5 1/2-inch mesh nets during June in order to harvest the exceptionally large summer chum run. In the past, nearly all nets operated during the king

salmon season were 8-8 1/2-inch mesh size. A new regulation requiring a maximum 6-inch mesh size after July 3 in subdistricts 1 and 2 resulted in an additional catch of 174,228 summer chums during the early portion of the fall season (July 4-13) yet resulted in a minimal take of king salmon (1,452 fish).

A record total of 273,158 fall chums was harvested in the Yukon area in 1974, compared to a previous high of 264,899 in 1973. The Yukon River fall chum fishery has expanded rapidly in recent years. The Department has established a 250,000 optimum fall chum salmon harvest goal until future returns from current harvest levels can be evaluated. For the 1974 season the Board established quotas of 200,000 chum salmon for the lower three subdistricts (combined) and 50,000 combined chum and coho salmon for the upper three subdistricts. The Yukon River fall chum salmon run was of above average magnitude in 1974 and this, coupled with extreme fluctuations in the timing of various segments of this run, resulted in quotas being exceeded substantially in two of the quota fisheries (subdistricts 1, 2 and 3 combined and subdistrict 6).

The 1974 commercial coho salmon catch was 2,836 less fish than the previous 5-year average. The commercial fishery in subdistricts 1, 2 and 3 was closed by emergency order in mid August when the 200,000 chum salmon quota was taken, at which time the coho run was at its peak. A significantly larger coho salmon catch would have been taken if the fishery continued through August. Cohos are generally of minor importance and are taken incidentally to the more abundant fall chum salmon.

Subsistence catches tabulated to date total 16,356 king and 255,173 other salmon, primarily chums. With late catch reports still being received, final catch figures may be closer to 17,500 kings and 275,000 other salmon.

The final 1974 "other salmon" harvest is expected to be the largest since 1967 and is attributed to the very large run of summer chums (Table 5).

King salmon escapements in index spawning areas varied from poor to excellent (see Table 6). Escapements were judged fair in the Anvik River and excellent in the Tanana River system. Elsewhere, due to logistical problems and stream and weather conditions, it was difficult to assess escapements.

Good comparative data is lacking for chum salmon escapements. Summer chum escapements were judged excellent throughout the drainage based on selected surveys. In the Anvik River, for example, preliminary tower counting data indicate an escapement of around 200,000 chums past the tower. During the past three years the Department has initiated intensive surveys of fall chum and coho salmon spawners in the upper Yukon River drainage. Several previously major undocumented spawning areas have been identified. In 1974, large concentrations of spawning fall chums were documented for the Toklat, Sheenjek and Chandalar Rivers. Comparable surveys of portions of the upper Tanana River drainage indicate that fall chum escapements were one-half the magnitude observed in 1972 and 1973. (Table 7). Tanana River coho salmon escapements appeared excellent.

Table 4 . Commercial salmon catches by species and subdistrict, Yukon district, 1960-1974.

Year	King salmon				Total	Coho salmon				
	334-10	334-20	334-30	334-40		334-10	334-20	334-30	334-40	Total
1960	50,713	15,994	-	884	67,591	-	-	-	-	-
1961	84,463	29,028	4,965	1,804	120,260	2,855	-	-	-	2,855
1962	67,099	22,224	4,687	724	94,734	22,926	-	-	-	22,926
1963	85,004	24,211	6,976	803	116,994	5,572	-	-	-	5,572
1964	67,555	20,246	4,705	1,081	93,587	2,446	-	-	-	2,446
1965	89,268	23,763	3,204	1,863	118,098	350	-	-	-	350
1966	70,788	16,927	3,612	1,988	93,315	19,254	-	-	-	19,254
1967	104,350	20,289	3,618	1,449	129,706	9,925	-	1,122	-	11,047
1968	79,465	21,392	4,543	1,126	106,526	13,153	-	150	-	13,303
1969	70,862	14,799	3,577	985	90,223	14,041	-	845	95	14,981
1970	57,681	17,210	3,712	1,666	80,269	12,245	-	-	-	12,245
1971	86,042	19,226	3,490	1,749	110,507	12,165	-	-	38	12,203
1972	70,052	17,855	3,841	1,092	92,840	21,705	506	-	22	22,233
1973	56,981	13,859	3,204	1,309	75,353	34,860	1,781	-	-	36,641
1974	71,067	17,587	3,413	4,835 ^{2/}	96,902	13,761	176	-	2,888 ^{2/}	16,825

Year	Chum salmon				Total	Total salmon				
	334-10	334-20	334-30	334-40		334-10	334-20	334-30	334-40	Total
1960	-	-	-	-	-	50,713	15,994	-	884	67,591
1961	42,577 ^{1/}	-	-	-	42,577 ^{1/}	129,895	29,028	4,965	1,804	165,692
1962	53,160 ^{1/}	-	-	-	53,160 ^{1/}	143,185	22,224	4,687	724	170,820
1963	-	-	-	-	-	90,576	24,211	6,976	803	122,566
1964	8,347	-	-	-	8,347	78,348	20,246	4,705	1,081	104,380
1965	22,936	-	-	381	23,317	112,554	23,763	3,204	2,244	141,765
1966	69,836	-	1,209	-	71,045	159,878	16,927	4,821	1,988	183,614
1967	46,148	1,425	1,880	-	49,453	160,423	21,714	6,620	1,449	190,206
1968	62,852 ^{1/}	1,407	3,136	-	67,395	155,470	22,799	7,829	1,126	187,224
1969	184,411	5,024	1,722	703	191,860	269,314	19,823	6,144	1,783	297,064
1970	320,138	22,394	3,285	907	346,724	390,064	39,604	6,997	2,573	439,238
1971	282,461	6,112	50	1,061	289,684	380,668	25,338	3,540	2,848	412,394
1972	250,945	33,805	1,840	1,254	287,844	342,702	52,166	5,681	2,368	402,917
1973	395,427	109,041	463	13,003	517,934	487,272 ^{1/}	124,778 ^{1/}	3,667	14,312	630,029 ^{1/}
1974	641,052	125,821	2,157	108,338 ^{2/}	877,368	725,880	143,584	5,570	116,045 ^{2/}	991,095

^{1/} includes small numbers of pink or red salmon

^{2/} subdistrict 334-40 was redesignated as subdistricts 334-40, 334-50 and 334-60 in 1974.

Table 5. Yukon River comparative subsistence catch and effort data, 1961-1974 (numbers per fishing family are in parenthesis). ^{5/}

Year	Total Catch		Equivalent Catch ^{1/}		Mean Equivalent Catch per Family ^{1/}	
	King Salmon	Other salmon ^{2/}	King salmon	Other salmon ^{2/}	King salmon	Other salmon ^{2/}
1961	23,719	407,814	23,719	405,632	38	650
1962	19,910	358,441	13,010	329,144	23	583
1963	32,656	421,625	26,141	372,578	44	624
1964	22,817	485,630	19,480	460,712	32	765
1965	19,723	458,379	16,950	436,306	31	806
1966	14,017	214,236	11,507	204,913	23	415
1967	19,661	288,595	16,306	256,926	35	545
1968 ^{3/}	14,832	189,607	11,883	170,522	25	358
1969	14,946	213,725	13,916	195,476	30	426
1970	15,926	223,237	13,474	199,163	34	498
1971	24,755	200,568	21,670	171,247	51	399
1972	19,541	140,102	17,079	119,335	43	298
1973	22,215	186,179	19,458	167,106	42	360
1974	16,356 ^{4/}	255,173 ^{4/}	15,859	235,983	38	570

Year	Fishing families surveyed ^{1/}	People in fishing families ^{1/}	Snowmachines ^{1/}	Sled dogs ^{1/}	Gear operated ^{1/}	
					Gill nets	Fishwheels
1961	624	3,626 (5.8)		4,806 (7.7)	577	169
1962	564	3,279 (5.8)		3,848 (6.8)	613	138
1963	597	3,460 (6.9)		4,155 (7.0)	716	156
1964	602	3,524 (6.0)		4,003 (6.6)	840	155
1965	541	3,453 (7.3)		3,974 (7.3)	647	127
1966	494	3,144 (6.4)		3,112 (6.3)	578	116
1967	471	2,756 (5.9)	192 (0.4)	2,752 (5.8)	530	87
1968	476	3,109 (6.5)	262 (0.6)	2,719 (5.7)	565	71
1969	459	2,974 (6.5)	349 (0.8)	2,442 (5.3)	594	63
1970	400	2,679 (6.7)	346 (0.9)	2,214 (5.5)	647	55
1971	429	2,795 (6.5)	414 (1.0)	1,894 (4.4)	683	56
1972	401	2,508 (6.3)	423 (1.1)	1,375 (3.4)	698	57
1973	463	2,894 (6.3)	485 (1.0)	2,030 (4.4)	840	77
1974	414	2,608 (6.3)	479 (1.2)	1,724 (4.2)	600	76

^{1/} Data from villages surveyed each year since 1961: Mouth to Fort Yukon and Tanana River (does not include Fairbanks area).

^{2/} Mostly chum salmon, some pinks and cohos.

^{3/} Total king and other salmon catches have been corrected.

^{4/} Does not include Yukon Territory catches.

^{5/} Does not include catches of 170 kings and 5,262 other salmon taken at Stebbins, a small coastal village located outside the Yukon River drainage.

Table 6. Comparative Yukon River drainage king salmon escapement counts 1959-1974 ^{1/}

Year	Andreafsky River (East fork)	Andreafsky River (West fork)	Anvik River
1960	1,020	1,220	1,950
1961	1,003 ^{2/}		1,226
1962	675 ^{2/}	762 ^{2/}	
1963			
1964	867	705	
1965		355 ^{2/}	650 ^{2/}
1966	361	303	638
1967		276 ^{2/}	336 ^{2/}
1968	380	383	297 ^{2/}
1969	231 ^{2/}	274 ^{2/}	296 ^{2/}
1970	665	574 ^{2/}	368 ^{2/}
1971	1,904	1,284	
1972	798	582 ^{2/}	1,172 ^{4/}
1973	825	788	613 ^{4/}
1974	-	285	442

Year	Salcha River	Nisutlin River (Sidney-100 Mile Cr.)	Whitehorse Dam Fishway
1959			1,054
1960	1,660		660
1961	2,878		1,068
1962	937		1,500
1963			484
1964	450		587
1965	408		903
1966	800		563
1967			533
1968	735 ^{2/}	407	407
1969	461 ^{2/}	105	334
1970	1,882 ^{2/}	615	625
1971	159 ^{2/}	640 ^{3/}	856
1972	1,193	317	392
1973	249	36 ^{2/}	228
1974	1,857	48 ^{2/}	273

- ^{1/} With exception of Whitehorse fishway counts, the data was obtained from aerial surveys which were made only of the main stem of each river listed.
- ^{2/} Incomplete survey or poor survey conditions resulting in a very minimal count.
- ^{3/} Canadian Department of Fisheries survey.
- ^{4/} Combination tower counts and aerial survey estimates.

Table 7. Comparative Yukon River drainage chum salmon aerial survey escapement estimates, 1958-1974.

Year	SUMMER CHUMS				FALL CHUMS		
	Andraefsky River (East Fork)	Andraefsky River (West Fork)	Anvik River	Salcha River	Tanana River	Delta River	Fishing Branch River
1958			100-200,000				
1959			200,000				
1960	3,830		11,110	670			
1961	8,110			1,152			
1962	18,040	19,530	20,600	1,161	862	46 ^{1/}	
1963							
1964		12,810	12-14,000 ^{1/}	250 ^{1/}			
1965		14,670 ^{1/}	100,000	2,375			
1966	25,619	18,145	37,500	2,200			
1967		14,495 ^{2/}	116,000				
1968	17,600 ^{2/}	74,600 ^{2/}	51,580 ^{1/}	3,790			
1969	119,000	159,500		425 ^{1/}			
1970	84,090	91,710 ^{1/}	232,780	7,879	800	800	
1971	98,095	71,745		306 ^{1/}			115,000+
1972	41,460	25,573	245,857 ^{3/}	947 ^{1/}	19,657	3,650	35,326 ^{4/}
1973	10,149 ^{1/}	51,835	86,665 ^{3/}	290	9,365	7,971	16,239 ^{5/}
1974	3,215 ^{1/}	33,258	188,744 ^{6/}	3,510 ^{1/}	11,207	4,010	35,000 ^{6/}

^{1/} Poor survey conditions.

^{2/} Includes some pinks.

^{3/} Combined tower and aerial survey estimates.

^{4/} Combined weir count and population estimate.

^{5/} Weir count.

^{6/} Preliminary data.

NORTON SOUND AREA

A record total of 302,095 salmon of all species was commercially harvested in Norton Sound in 1974. This catch was nearly twice the annual average harvest made since the inception of the fishery in 1961. Species composition of the 1974 commercial harvest was 2,531 king; 1,843 coho; 147,905 pink and 149,816 chum salmon. The pink salmon catch was also a record. Comparative commercial catches are presented in Table 8.

The 1974 subsistence harvest of 20,713 salmon was 47 percent below the average annual harvest and was the lowest harvest on record.

A total of 249 commercial, 194 vessel and 190 set gill net (18,100 fathoms) licenses was issued in 1974. This represents a 13 percent, 12 percent and 13 percent decrease, respectively, from the 1973 licensing.

Pink and chum salmon runs, although smaller than brood year returns, were judged average compared to previous year magnitudes. The Unalakleet River pink salmon run was an exception since it was of above-average abundance. The record pink salmon harvest was also influenced by the increased use of small-mesh gill nets, especially in the Unalakleet area. The king salmon run, based on Unalakleet River system observations, was below average in magnitude.

Comparative escapement data is presented for several index streams in Table 9.

Table 8. Commercial and subsistence catches by species, Norton Sound district, 1961-1974.

Year	Commercial						Subsistence				
	King	Red	Coho	Pink	Chum	Total	King	Coho	Pink	Chum	Total
1961	5,300	35	13,807	34,237	48,332	101,711	-	-	-	-	-
1962	7,286	18	9,156	33,187	182,784	232,431	-	-	-	-	-
1963	6,613	71	16,765	55,625	154,789	233,863	5	118	16,607	17,635	34,365
1964	2,018	126	98	13,567	148,862	164,671	565	2,567	9,225	12,486	24,843
1965	1,449	30	2,030	220	36,795	40,524	574	4,812	19,131	30,772	55,289
1966	1,553	14	5,755	12,778	80,245	100,345	269	2,210	14,335	21,873	38,687
1967	1,804	-	2,379	28,879	41,756	74,818	817	1,222	17,516	22,724	42,279
1968	1,045	-	6,885	71,179	45,390	124,499	237	2,391	36,912	11,661	51,201
1969	2,392	-	6,836	89,949	82,795	178,972	436	2,191	18,562	15,615	36,804
1970	1,853	-	4,423	64,908	107,034	178,218	561	4,675	26,127	22,763	54,126
1971	2,593	-	3,127	4,895	131,362	141,977	1,026	4,097	10,863	21,815	^{1/} 37,801
1972	2,885	-	450	45,143	101,235	149,713	756	1,928	12,214	12,942	^{2/} 27,840
1973	1,918	-	9,282	46,499	119,098	176,797	392	520	14,770	7,185	22,867
1974	2,531	-	1,843	147,905	149,816	302,095	419	1,064	15,882	3,348	20,713

Year	Combined					
	King	Red	Coho	Pink	Chum	Total
1961	5,300	35	13,807	34,237	48,332	101,711
1962	7,286	18	9,156	33,187	182,784	232,431
1963	6,618	71	16,883	72,232	172,424	268,228
1964	2,583	126	2,665	22,792	161,348	189,514
1965	2,023	30	6,842	19,351	67,567	95,813
1966	1,822	14	7,965	27,113	102,118	139,032
1967	2,621	-	3,601	46,395	64,480	117,097
1968	1,282	-	9,276	108,091	57,051	175,700
1969	2,828	-	9,027	105,511	98,410	215,776
1970	2,414	-	9,098	91,035	129,797	232,374
1971	3,619	-	7,224	15,758	153,177	179,778
1972	3,641	-	2,378	57,357	114,084	177,553
1973	2,310	-	9,802	61,269	126,283	199,664
1974	2,950	-	2,907	163,787	153,164	322,808

^{1/} Includes 197 red salmon recorded in all subdistricts.

^{2/} Includes 93 red salmon in all subdistricts.

Table 9. Comparative aerial survey counts of Norton Sound streams, 1961-1974.^{1/}

Year	King	Chum	Pink	Pink & Chum ^{2/}	Year	King	Chum	Pink	Pink & Chum ^{2/}
<u>Boston Creek</u>					<u>Niukluk River</u>				
1963	67	1,669			1962	11			27,879
1964	10	3,315			1963		13,687	4,103	
1966 ^{3/}	153	761			1964		8,395	10,495	
1968	7	2,500	2,500		1966		21,300	8,600	4,700
1969	100	7,000	16,000		1967			20,546	
1970	246	8,200	12,900		1968				85,125
1971	42	7,045	80		1969		10,240	92,650	
1972	56	4,252	3,950		1970		7,300	60,350	
1973	153	2,282	3,213		1971		22,605	8,370	
1974	225	2,201	749		1972 ^{3/}		10,500	22,600	
					1973		15,156	14,326	
					1974	4	13,684	9,210	
<u>Fish River</u>					<u>Kachavik Creek</u>				
1961	1			14,100	1963		16,000	16,000	
1962	48			28,918	1964		5,284	3,675	
1963	21			25,728	1966		758	1,788	
1964		18,670	10,935	14,550	1967 ^{3/}				1,780
1966	7			17,955	1969		600	4,525	
1967	20			13,510	1970		500		
1968	10			164,000	1971		10,000	5,323	
1969		2,080	124,000		1972		3,100	16,950	
1970	33	76,550	198,000		1973		10,325	22,275	
1971	1	13,185	1,670		1974		1,645	2,723	
1972 ^{3/}		3,616	13,050						
1973	31	6,887	14,364						
1974	3	10,945	15,690						
<u>Kwiniuk River</u>					<u>Tubutulik River</u>				
1962	3			23,249	1962	3			16,690
1963	2	11,340	3,779		1963	9	16,069	4,355	
1964		14,533			1964		15,469	10,043	3,420
1965 ^{4/}	14	26,634	8,301		1966		4,363	26,000	
1966 ^{4/}	7	32,786	10,629		1967	1			22,475
1967 ^{4/}	13	24,444	3,508		1968		5/	5/	
1968 ^{4/}	27	18,813	126,764		1969	3	12,040	12,788	3,045
1969 ^{4/}	12	19,687	56,683		1970		53,290	136,590	
1970 ^{4/}		68,004	235,131		1971		16,820	7,500	5,065
1971 ^{4/}	37	39,046	16,742		1972 ^{3/}		8,070	21,100	
1972 ^{4/}		30,305	62,299		1973	131	15,665	5,383	
1973 ^{4/}		28,614	38,426		1974	136	9,560	17,940	
1974 ^{4/}	61	34,444	37,991						

^{1/} King salmon count is the "high count" for the season, chum and pink salmon counts collectively taken as "high counts" for season.

^{2/} Surveyer unable to distinguish between the two species.

^{3/} Poor survey conditions or partial survey.

^{4/} Total counts from counting tower.

^{5/} Counts not obtained, but numbers believed to be similar to Kwiniuk River.

KOTZEBUE AREA

A record commercial harvest of 631,200 chum salmon was made in the Kotzebue area during 1974. This included 7,464 chums taken in a new fishery adjacent to the village of Deering.

Exclusive of the Deering fishery, the 1974 harvest exceeded the previous record catch made in 1973 by 243,000 fish. The previous twelve-year annual harvest has been only 109,500.

A record total of 401 commercial, 174 vessel and 191 gear licenses (26,500 fathoms of set gill nets) was issued in 1974. This represented an increase of 3, 28 and 22 percent respectively over the 1973 licensing.

The two buyers stationed in the Kotzebue area had difficulty in processing and transporting this large catch, especially during the peak of the run. As a result, fish quality suffered and a minimum of 76,000 pounds were discarded due to spoilage.

A subsistence harvest of 26,729 chum salmon was reported for the Kotzebue area in 1974. This represents an increase from the 1973 harvest of 19,000 but a slight decrease from the 1962-73 annual average of 31,000.

Chum salmon abundance in this area has been above average for the past five seasons and the 1974 run was probably the largest experienced since at least 1959. Escapement indices recorded for the Noatak and Kobuk River systems were above average with a record escapement obtained for the Kobuk and the third highest escapement ever recorded for the Noatak (Table 11).

Deering Fishery

Based on a 1973 reconnaissance survey, a limited commercial fishery was allowed in a small portion of southern Kotzebue Sound adjacent to the village of Deering. Regulations were established by emergency regulation and included a fishing season of August 1-31; two 48-hour fishing periods per week; fishing only south of a line extending from Nine Mile Point and Cape Deceit. A total of 7 commercial, 4 vessel and 6 set gill net (300 fathoms) was issued. The harvest of 7,464 chums was worth \$10,500 to the fishermen. The catch was transported in the round to Kotzebue by chartered aircraft for further processing and shipping.

Table 10. Commercial and subsistence catches, Kotzebue district, 1914-1974.

Year <u>1/</u>	Chum <u>2/</u>	Commercial Catch Other <u>3/</u>	Total	Subsistence Catch - Chum	Combined Catches
1914	8,550		8,550		200,358
1915	4,750		4,750		
1916	19,000		19,000		
1917	44,612		44,612		
1918	27,207		27,407		
1957 <u>4/</u>				298,430	
1962	129,948	127	130,075	70,283	200,358
1963	54,445	143	54,588	31,069	85,657
1964	76,499	5	76,504	29,762	106,266
1965	40,034		40,034	30,500	70,534
1966	30,764	1	30,765	35,588	66,353
1967	29,400		29,400	40,108	69,508
1968	30,384		30,384	20,814	51,198
1969	59,335	48	59,383	29,812	89,195
1970	159,664		159,664	28,486	188,150
1971	154,956	1	154,957	23,959	178,916
1972	169,664	3	169,667	11,085	180,752
1973	380,312	3	380,315	18,942	399,257
1974	631,200 <u>5/</u>		631,200	26,729	657,929

1/ There was no commercial fishing during 1919-1961.

2/ Catches for 1914-1918 from pack data only; numbers of chums estimated at 9.5 per case (48#) and 34 per barrel.

3/ Mostly pinks but includes king salmon, red salmon.

4/ Estimated mean annual catches prior to 1957. (Study by Raleigh)

5/ Includes 7,464 chums captured at Deering.

Table 11 . Comparative aerial survey chum salmon counts of Kotzebue area streams, 1962-74.

Year	Noatak River <u>1/</u>	Upper Kobuk River <u>2/</u>	Kobuk River Tributaries <u>3/</u>
1962	168,000	23,150	39,827
1963	1,970 <u>4/</u>	4,535	8,940
1964	89,798	7,985	20,047
1965	4,177 <u>2/</u>	2,750	8,730 <u>4/</u>
1966	101,640	1,474	6,690
1967	28,620	2,495	5,618
1968	39,394	2,370	10,936
1969	33,395	7,500	9,434
1970	138,145	13,908	9,418 <u>4/</u>
1971	41,064	17,202	13,465
1972	64,315	18,155	34,199 <u>4/</u>
1973	32,144	2,470 <u>4/</u>	19,236 <u>4/</u>
1974	129,640	27,309	66,978

1/ Mouth to Kelly River.

2/ Kobuk village to Reed River.

3/ Squirrel, Salmon, Tutuksuk Rivers.

4/ Poor survey conditions or incomplete survey.