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AYK REGION  
SALMON BOF RPT #7

STATUS REPORT OF COMMERCIAL  
AND SUBSISTENCE SALMON FISHERIES  
IN THE ARCTIC-YUKON-KUSKOKWIM REGION  
(with emphasis on the 1972 season)

A REPORT TO THE ALASKA BOARD  
OF FISH AND GAME

November, 1972

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 which 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

The 1972 salmon harvest of 903,357 fish was the second largest in the history of the region. A record total of 1,005,089 salmon was taken in 1970. The 1972 catch included 152,748 king and 651,983 chum salmon, economically the most important species in the region. Red, coho and pink catches were 4,426, 46,956 and 47,244 respectively.

The 1972 commercial catches made in each management area or district 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	57,704	4,426	23,516	2,101	99,146	189,893
Yukon	92,159		22,990		280,820	395,969
Norton Sound	2,885		450	45,143	101,235	149,713
Kotzebue					<u>170,782</u>	<u>170,782</u>
Total	152,748	<u>4,426</u>	<u>46,956</u>	<u>47,244</u>	651,983	903,357
5-year Average (1967-71)	155,000	7,100	96,500	72,300	404,900	735,900

Commercial harvests in the region have increased about 1,000% since 1960. Recent increases have been largely due to expanded chum salmon harvests in the Yukon River, Kuskokwim River and Kotzebue areas.

The region-wide license registration in 1972 of 1,794 commercial, 1,422 fishing vessel and 1,756 gear licenses was a record high total. Vessel registration in the region since 1960 has increased 417 percent and has been increasing about 6 percent annually since 1968. This expansion is 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 1960-1972 are illustrated in Figure 2.

Figure 3 shows commercial, subsistence and total catches of king and other salmon species made in the region during 1960-1972.

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



Figure 2. Total commercial salmon catch fishing vessel registration for the Arctic-Yukon-Kuskokwim region, 1960-1972.

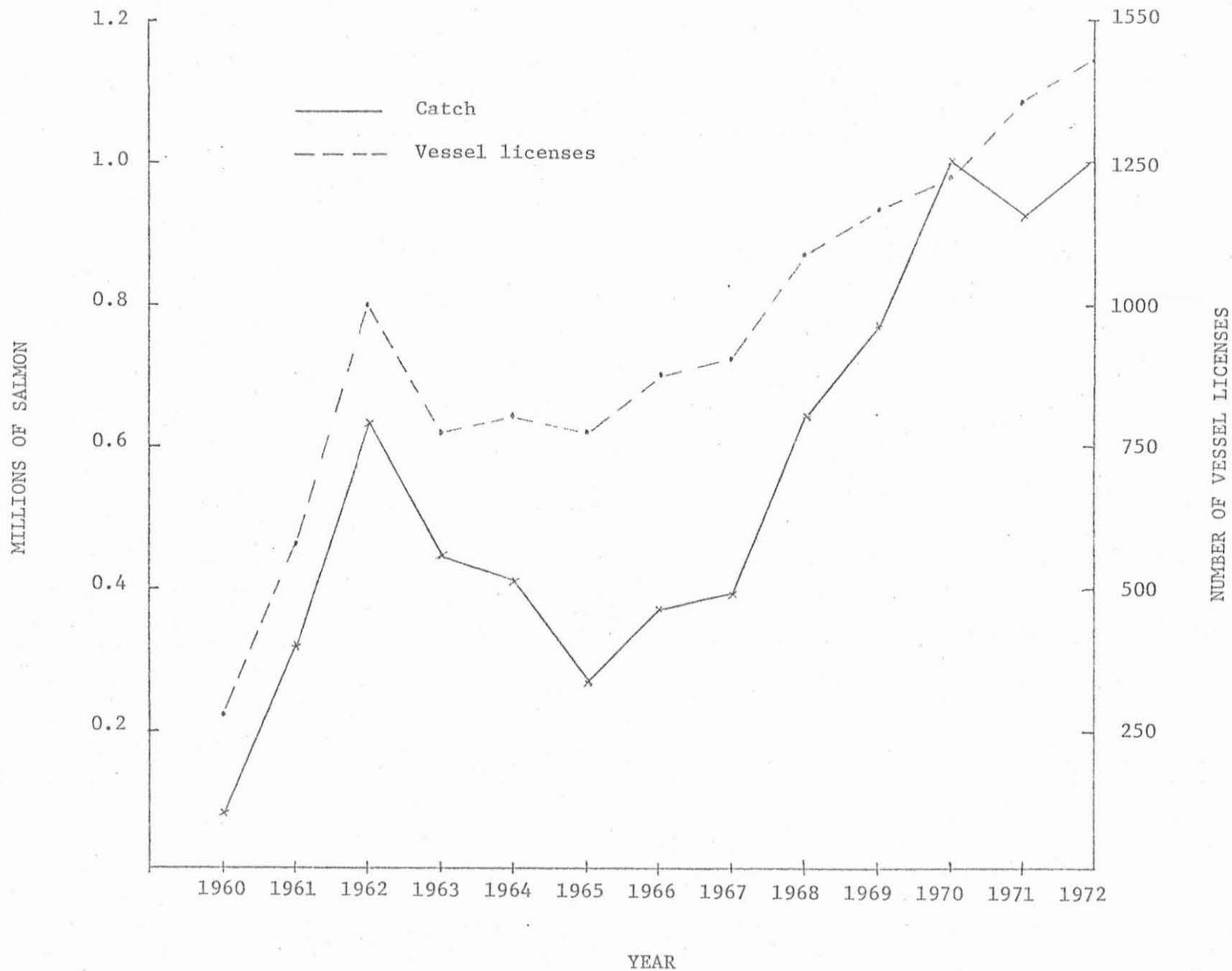
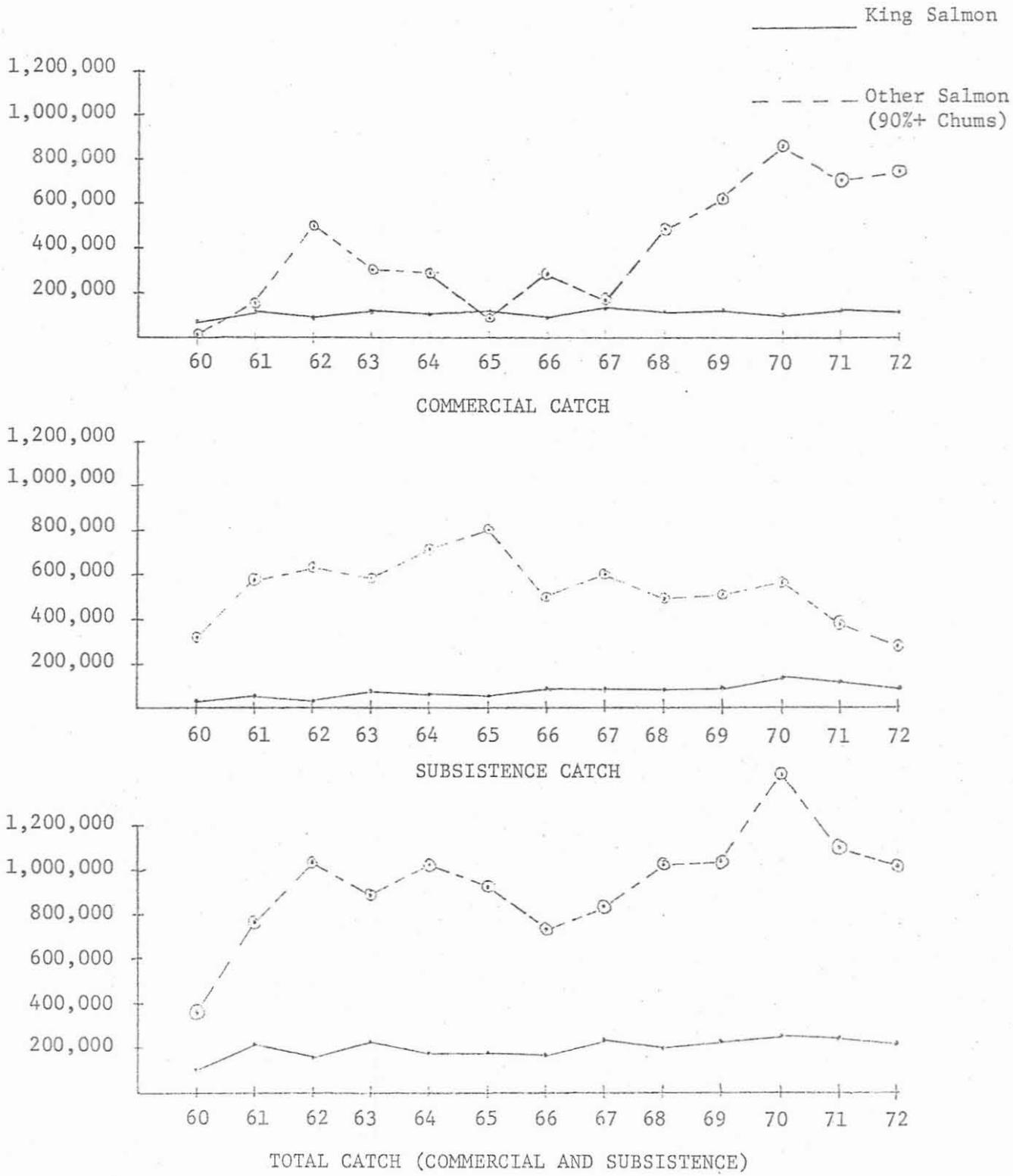


Figure 3. Commercial, subsistence and total catch in numbers of salmon for the Arctic-Yukon-Kuskokwim region, 1960-1972



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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 1972 is very preliminary at this time since a few late catch reports are still being received. The projected 1972 harvest should not exceed 350,000 salmon, and is expected to be the smallest harvest ever made in the region. The average annual subsistence harvest recorded during 1960-1971 was 627,000 salmon.

KUSKOKWIM AREA

There were 186,893 salmon taken commercially in this area during 1972 compared to the previous five year average of 204,300. Species composition of the 1972 catch was 57,704 king, 4,426 red, 23,516 coho, 2,101 pink and 99,146 chum salmon. Table 1 presents annual commercial catches for the Kuskokwim River, Quinhagak and Goodnews Bay districts since 1960.

There were 613 commercial, 512 vessel, 498 drift gill net and 43 set gill net licenses issued for the area in 1972. This represents a slight decrease from the record high registration of 1971.

Based on comparative catch and limited escapement data, the king, chum and red salmon runs were judged average to slightly below average in abundance. Pink and coho salmon runs were considerably below average in magnitude, although parent year runs (1970 for pinks and 1968 for cohos) were quite large.

Enforcement problems relating to subsistence fishing restrictions were encountered in the lower Kuskokwim River during the 1972 season. Beginning in 1971, subsistence fishing in the major fisheries--lower Kuskokwim River, Quinhagak and Goodnews Bay--was reduced from 7 to 5 days a week during the commercial salmon fishing season. This was done to assure adequate salmon spawning escapements in addition to minimizing the illegal sale and wastage of subsistence caught salmon. Lower Kuskokwim River fishermen after two seasons continued to show strong opposition to this restriction. Many fishermen purposely violated the regulation although the Department conducted an intense public relations and enforcement program during this time. The staff is proposing a modification of this regulation for the 1973 season.

The 1972 Kuskokwim River subsistence harvest is 38,557 king and 118,054 other salmon species, primarily chums. The king salmon catch was similar to the 1960-1971 average of 39,000 (Table 2). The "other salmon" catch was 96,500

Table 1. Kuskokwim district commercial catches by drainage, 1960-1972.

Kuskokwim River <sup>1/</sup>	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	40,701	99	22,198	5	78,398	141,401

Quinhagak (Kanektok River) <sup>2/</sup>	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	16,739	3,403	392	2,030	17,587	40,151

Goodnews Bay (Goodnews River) <sup>3/</sup>	King	Red	Coho	Pink	Chum	Total
1968			5,485			5,485
1969	3,978	6,256	11,631	298	5,006	27,169
1970	7,163	7,144	6,794	12,183	12,346	45,630
1971	477	330	1,771	0	301	2,879
1972	264	924	926	66	3,161	5,341

1/ Includes subdistricts 335-10, 335-20, and 335-30. Commercial fishing in 335-30 has been prohibited since 1966.

2/ Subdistrict 335-40.

3/ Subdistrict 335-50 and includes Chagvan Bay.

Table Comparative Kuskokwim River king salmon subsistence catches by village, 1960-1972

Village	1960-71													1960-71	1960-71
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	Total	Average
Kwigillingok, Kipnuk, Kongiganak	250	283	54 <sup>3/</sup>	229 <sup>3/</sup>	414	0 <sup>1/</sup>	205	957	70	385	1,111	241	10	4,199	382 <sup>2/</sup>
Eek	1,474 <sup>3/</sup>	2,238 <sup>3/</sup>	1,060 <sup>3/</sup>	2,697 <sup>3/</sup>	1,857	2,737	2,872	4,375	2,760	2,037	2,065	1,882	1,969	28,054	2,338
Tuntutuliak	226	2,226	842	2,853	1,826	1,578	3,061	3,338	2,026	2,195	3,558	1,841	3,214	25,970	2,164
Kasigluk	135	1,215	127	1,302	4 <sup>1/</sup>	513	1,875	2,766	1,360	2,888	3,931	1,645	1,292	17,757	1,614 <sup>2/</sup>
Nunapitchuk <sup>6/</sup>	683	2,042	848	1,874	636	490	2,875	1,926	1,360	2,279	4,680	1,978	2,506	21,671	1,806
Atmauthluak <sup>6/</sup>											1,205	548	813	1,753	878
Napakiak	1,830	2,573	2,191	3,148	2,677	1,670	3,592	3,922	2,317	3,546	4,960	1,868	2,009	34,294	2,858
Oscarville	1,968	282	75	309	339	678	301	1,327	393	457	542	570	196	7,241	603
Napaskiak	536	1,258	759	1,569	2,201	1,412	2,935	3,091	1,647	2,227	3,446	1,916	1,578	22,997	1,916
Bethel	1,923	4,150	1,378	7,019	4,114	3,342	7,604	11,772	4,900	7,472	17,026	8,731	7,333	79,431	6,619
Kwethluk	2,692	3,763	2,329	5,050	3,262	4,538	6,135	6,867	3,549	3,187	7,932	5,564	5,225	54,890	4,574
Akiakchuk	1,626	3,052	1,800	2,533	3,488	3,952	4,957	5,543	3,415	2,602	7,022	4,818	3,709	44,808	3,734
Akiak	1,865	3,159	906	2,869	2,495	1,774	3,941	3,790	1,332	1,275	3,290	2,688	1,485	29,384	2,449
Tuluksak	737	1,486	493	1,295	572	1,019	1,559	1,710	1,048	1,131	1,995	1,280	1,318	14,325	1,194 <sup>8/</sup>
Lower Kalskag	961	571	805	2,661	710	841	1,918	1,733	1,463	2,083	2,146	2,355	2,604	18,247	1,825 <sup>8/</sup>
Upper Kalskag	667	1,049	7 <sup>1/</sup>	7 <sup>1/</sup>	1,143	719	1,333	1,699	1,404	1,623	734	601	401	10,972	1,097 <sup>8/</sup>
Aniak	1,057	688	185	602	1,104	494	2,002	1,415	467	1,406	2,136	1,076	2,188	13,744	1,145
Chunthbaluk	64	54	10	30	74	29	139	217	40	180	219	179	200	1,235	103
Napamute	20	16	44	52	134	2	78	60	100	19	22	17	20	564	47
Crooked Creek	747	518	561	859	1,358	353	1,249	638	77	541	684	291	181	7,876	656
Georgetown	10 <sup>1/</sup>	10 <sup>1/</sup>	10 <sup>1/</sup>	10 <sup>1/</sup>	10 <sup>1/</sup>	10 <sup>1/</sup>	12	10 <sup>1/</sup>	10 <sup>1/</sup>	9	2	0	0	23	6
Red Devil	10 <sup>1/</sup>	40	144	228	314	10 <sup>1/</sup>	182	10 <sup>1/</sup>	111	142	232	135	142	1,528	170
Sleetmute	465	222	9 <sup>1/</sup>	9 <sup>1/</sup>	9 <sup>1/</sup>	401	149	343	200	267	161	181 <sup>11/</sup>	69	2,497	277
Stony River	435	25	31	67	299	101	632	364	191	2,187	105	2,521 <sup>11/</sup>	95	6,958	580
Totals	20,361	30,910	14,642	37,246	29,017	27,113	49,606	57,875	30,230	40,138	69,204	42,926	38,557		39,035

1/ Included with other villages.

2/ Does not include 1965.

3/ Estimates based on catch data through 1969.

4/ Included with Eek.

5/ Does not include 1964.

6/ New village of Atmauthluak segregated in 1970 from parent village of Nunapitchuk.

7/ Included with Lower Kalskag.

8/ Does not include 1962 and 1963.

9/ Included with Red Devil.

10/ Data not available.

11/ Includes Lima Village.

Table 3. arative Kuskokwim River "other salmon" subsist catches by village, 1960-1972. <sup>1/2/</sup>

Village	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1960-71 Total	1960-71 Average
Kipnuk, Kongiganak, Kwigillingok	1,430	3,279 <sup>4/</sup>	1,990	2,562 <sup>4/</sup>	2,323	0	680	2,846	2,800	2,481	3,937	1,110	1,284	25,438	2,313 <sup>3/</sup>
Eek	4,094 <sup>4/</sup>	2,321 <sup>4/</sup>	2,072 <sup>4/</sup>	1,771 <sup>4/</sup>	3,151	2,898	3,324	1,922	3,503	3,436	4,855	2,213	780	33,560	2,797
Tuntutuliak	4,101	8,526	9,692	6,791	8,421	18,993	9,747	11,531	14,090	17,462	10,600	9,964	11,103	129,919	10,827 <sup>6/</sup>
Kesigluk	1,400	3,657	1,705	1,020	5/	4,041	3,058	2,309	4,311	3,308	5,731	2,043	1,934	32,583	2,962 <sup>6/</sup>
Nemopitchuk	2,743	4,868	7,474	2,462	1,171	4,251	6,145	6,278	7,731	6,934	11,412	3,375	5,506	62,844	5,237
Atnauthluk											1,191	1,197	891	2,388	1,194
Napaklak	19,888	5,789	6,167	3,711	12,312	12,928	9,275	12,685	12,700	12,390	16,371	4,427	5,191	128,643	10,720
Oscarville	3,948	1,680	1,723	1,025	487	8,010	407	2,580	2,104	2,743	4,669	1,675	498	31,051	2,538
Napaklak	5,199	4,286	5,546	3,584	6,275	26,206	1,743	8,585	12,409	11,655	11,169	7,039	8,858	110,696	9,225
Bethel	12,972	12,845	8,470	8,623	15,623	19,099	14,011	14,055	28,603	14,613	33,475	9,905	16,309	192,294	16,025
Kwethluk	32,975	21,106	22,788	13,188	19,186	37,780	11,707	23,872	36,645	23,462	27,702	13,941	11,578	291,802	24,317
Akiakchuk	15,932	12,518	10,521	6,725	10,096	25,138	11,049	13,584	19,461	10,306	29,776	12,298	9,289	181,404	15,117
Akiak	13,061	8,205	6,551	8,478	9,659	12,297	10,622	9,332	13,775	9,854	13,003	9,264	4,077	124,101	10,342
Tuluksak	19,261	7,928	8,526	10,289	9,777	12,820	11,679	8,898	11,114	6,058	7,626	5,115	5,127	119,082	9,924
Lower Kalskag	11,563	7,764	16,478	23,249	9,472	21,906	10,346	16,018	8,114	8,468	11,158	3,509	3,470	148,045	12,337
Upper Kalskag	38,398	27,149	7/	7/	11,391	11,970	6,236	8,354	9,733	9,413	5,309	3,530	1,363	131,493	13,149
Antak	36,673	15,935	10,120	10,608	17,874	11,353	11,484	16,788	17,341	15,127	10,030	4,933	5,660	179,266	14,939
Chuathbaluk	22,370	2,922	3,784	2,629	5,059	6,507	5,625	7,249	11,588	7,523	10,971	5,632	8,334	91,859	7,655
Napnute	11,017	6,235	3,898	5,192	4,873	704	1,704	5,750	1,774	1,453	1,224	1,863	4,645	47,686	3,974
Crooked Creek	41,263	17,558	27,259	23,166	32,550	18,986	18,467	14,365	12,704	6,810	9,216	3,094	3,481	226,438	18,870
Georgetown	9/	9/	9/	9/	9/	9/	70	9/	2,030	3,664	800	0	0	6,494	1,624
Red Devil	9/	1,350	9,007	5,367	5,706	9/	1,746	9/	2,400	1,130	2,454	1,067	1,383	31,227	2,602
Sleetmute	17,259	6,884	10/	10/	10/	11,707	1,611	6,875	11,218	8,258	4,464	3,203	11/4,293	72,479	8,053
Stony River	11,750	2,642	1,855	1,110	4,254	15,855	933	11,377	13,875	12,080	8,407	5,995	3,000	93,143	7,762
Totals	327,297	185,447	165,626	141,550	189,660	283,459	174,660	205,263	260,023	198,628	245,550	116,391	118,054	2,145,533	214,553

1/ Catches include a majority of chum salmon but include small numbers of red, coho, pink and small king salmon.  
 2/ 1965 to 1971 catches do not include late coho salmon catches.  
 3/ Does not include 1965.  
 4/ Estimate based on catch data through 1970.  
 5/ Included with Eek.  
 6/ Does not include 1964.  
 7/ Included with Lower Kalskag.  
 8/ Does not include 1962 and 1963.  
 9/ Data not available.  
 10/ Included with Red Devil.  
 11/ Includes Lime Village.

fish below the 1960-1971 average. Subsistence harvests of "other salmon" made during 1971 and 1972 are the smallest recorded since the inception of the Department's survey in 1960 (Table 3).

Aerial surveys of spawning escapements were hampered by inclement weather and high, turbid streams. Some comparative data are available for the Kogrukluuk River, an important spawning tributary to the Kuskokwim River, where a counting station has been established since 1969. Counts made at this site are indicated below:

<u>Year</u>	<u>Kings</u>	<u>Reds</u>	<u>Chums</u>
1969 <sup>1/</sup>	3,626	256	8,090
1970 <sup>1/</sup>	4,835	1,811	10,245
1971 <sup>2/</sup>	42	180	1,159
1972 <sup>1/</sup>	1,926	705	8,838

<sup>1/</sup> Tower count.

<sup>2/</sup> Weir count--weir damaged by flood and inoperable for majority of season.

### YUKON AREA

The 1972 commercial harvest of 395,969 salmon compares favorably with the previous 5 year average of 305,200. Species composition of the 1972 catch was 92,159 king, 22,990 cohos and 280,820 chums. Table 4 presents annual commercial catches by subdistrict since 1960.

A record total of 765 commercial, 660 vessel, 634 set gill net and 319 drift gill net licenses was issued for the area in 1972. Much of the increase in total license registration occurred in subdistricts 334-20 and 334-40. Licenses are not required for fishwheels, but our records indicate a total of 26 fishermen indicated they planned to operate fishwheels in the upper Yukon River.

Table 4. Commercial salmon catches by species subdistrict, Yukon district, 1960-1972.

Year	King salmon				Total	Coho salmon			
	334-10	334-20	334-30	334-40		334-10	334-20	334-30	334-40
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	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	-	-	12,203
1972	69,784	17,414	3,870	1,091	92,159	22,462	506	-	22,990

Year	Chum salmon				Total	Total salmon				
	334-10	334-20	334-30	334-40		334-10	334-20	334-30	334-40	
1960	-	-	-	-	-	50,713	15,994	-	884	67,591
1961	42,577 <sup>1/</sup>	-	-	-	42,577 <sup>1/</sup>	129,895	29,028	4,965	1,804	165,692
1962	53,160 <sup>1/</sup>	-	-	-	53,160 <sup>1/</sup>	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 <sup>1/</sup>	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	246,003	32,628	1,824	365	280,820	338,249	50,548	5,694	1,478	395,969

<sup>1/</sup> includes small numbers of pink or red salmon

A majority of the available comparative data indicated that the 1972 king salmon run was slightly below average in magnitude. The 1972 commercial king salmon catch was about 13,000 less than compared to the previous 11 year average. The 1972 subsistence catch was also below average but escapements in index areas ranged from poor to good.

The 1972 commercial chum catch exceeded the previous 11 year average by 166,500 fish. This catch included 77,870 taken during the "king salmon season" (summer chums) and 202,950 taken during the later "fall season" (fall chums). Based on comparative catch and escapement data, the magnitudes of the summer and fall chum runs were judged average and below average respectively.

Based on past research, the summer chum run should be able to sustain an annual commercial harvest of at least 150,000-300,000 fish. Therefore, a total of 150,000-200,000 additional summer chums could have been taken in 1972. The staff is proposing innovative changes in the 1973 regulations for increasing the summer chum commercial harvest which will have little appreciable effect on the king salmon harvest.

The 1972 commercial coho catch, the largest since statehood, exceeded the previous 5 year average by 10,235 fish, which reflects the magnitude of the run.

Subsistence catches tabulated to date total 13,418 king and 92,064 other salmon, primarily chums. With late catch reports still being received, final catch figures may be closer to 15,000 kings and 130,000 salmon. The final 1972 "other salmon" harvest is expected to be the smallest in the history of this fishery (Table 5).

As mentioned previously king salmon escapements in index spawning areas varied from poor to good (See Table 6). Although not as large as in 1971, an unusually strong showing of late arriving king salmon entered the river during the closure between the "king salmon season" and the "fall season."

Table 5. Yukon River comparative subsistence catch and effort data, 1961-1972 (numbers per fishing family are in parenthesis)

Year	Total catch		Equivalent catch <sup>1/</sup>		Mean equivalent catch per family <sup>1/</sup>	
	King salmon	Other salmon <sup>2/</sup>	King salmon	Other salmon <sup>2/</sup>	King salmon	Other salmon <sup>2/</sup>
1961	23,719	407,814	23,719	405,632	38	650
1962	19,110	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 <sup>3/</sup>	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	13,478	92,064	13,268	87,632	41	282

Year	Fishing families surveyed <sup>1/</sup>	People in fishing families <sup>1/</sup>	Snow machines <sup>1/</sup>	Sled dogs <sup>1/</sup>	Gear operated <sup>1/</sup>	
					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	327	2,063(6.3)	344(1.1)	1,107(3.4)	590	46

<sup>1/</sup> Data from villages surveyed each year since 1961: mouth to Fort Yukon and Tanana River (does not include Fairbanks area)

<sup>2/</sup> Mostly chum salmon, some pinks and cohos.

<sup>3/</sup> Total king and other salmon catches have been corrected.

Table 6. Comparative Yukon River drainage king salmon escapement counts 1959-1972.

Year	Andreafsky River (East fork)	Andreafsky River (West fork)	Anvik River
1960	1,020	1,220	1,950
1961	1,003 <sup>2/</sup>		1,226
1962	675 <sup>2/</sup>	762 <sup>2/</sup>	
1963			
1964	867	705	
1965		355 <sup>2/</sup>	650 <sup>2/</sup>
1966	361	303	638
1967		276 <sup>2/</sup>	336 <sup>2/</sup>
1968	380	383	297 <sup>2/</sup>
1969	231 <sup>2/</sup>	274 <sup>2/</sup>	296 <sup>2/</sup>
1970	665	574 <sup>2/</sup>	368 <sup>2/</sup>
1971	1,904	1,284	-
1972	798	582 <sup>2/</sup>	418

Year	Salcha River	Nisutlin River (Sidney-100 Mile Cr.)	Whitehorse Dam Fishway
1959			1,054
1960	1,660		660
1961	2,378		1,068
1962	937		1,500
1963			484
1964	450		587
1965	408		903
1966	800		563
1967			533
1968	735	407	407
1969	461 <sup>2/</sup>	105	334
1970	1,882	615	625
1971	159 <sup>2/</sup>	640 <sup>3/</sup>	856
1972	1,187	237	392

- <sup>1/</sup> 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.
- <sup>2/</sup> Incomplete survey or poor survey conditions resulting in a very minimal count.
- <sup>3/</sup> Canadian Department of Fisheries survey.

This late run segment contributed heavily to the overall escapement which was judged to be adequate.

Good comparative data are lacking for chum salmon escapements. The 1972 count of 211,633 chums in the Anvik River system is similar to the count of 232,780 made in 1970. The Anvik River was not surveyed in 1971 due to poor survey conditions.

#### NORTON SOUND

There were 149,713 salmon taken commercially in the area compared to the previous 5 year average of 139,700. Species composition of the 1972 catch was 2,885 king, 450 coho, 45,143 pink and 101,235 chum salmon. Table 7 presents annual commercial, subsistence and total catches made in the area since 1961.

A record total of 223 commercial, 163 vessel and 166 set gill net licenses were issued in the area during 1972.

Based on comparative catch and escapement data, the salmon runs to various drainages were judged average in magnitude except that the Unalakleet River chum salmon run was quite small. Although average in magnitude, the pink salmon run was considerably smaller than the large parent year run of 1970.

The 1972 subsistence harvest of 27,840 salmon represented a decline from the average annual catch of 41,710 made during the previous nine years.

Comparative escapement data for index spawning areas is presented in Table 8. Kwiniuk River escapements since 1965 have been obtained from a counting tower project. In 1972 another counting tower site was established on the North River, a tributary to the Unalakleet River. A count of 529 king, 53,372 pink and 2,299 chum salmon was obtained, which further substantiated the small chum run to the Unalakleet River system.

Table 7. Commercial and subsistence catches by species, Norton Sound district, 1961-1972.

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 <sup>1/</sup>	37,801
1972	2,885	-	450	45,143	101,235	149,713	756	1,928	12,214	12,942 <sup>2/</sup>	27,840

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

<sup>1/</sup> Includes 197 red salmon recorded in all subdistricts.

<sup>2/</sup> Includes 93 red salmon in all subdistricts.

Table 8. Comparative aerial survey counts of Norton Sound Streams, 1961-1972.<sup>1/</sup>

<u>Year</u>	<u>King</u>	<u>Chum</u>	<u>Pink</u>	<u>Pink and Chum</u> <sup>2/</sup>
<u>Boston Creek</u>				
1963	67	1,669		
1964	10	3,315		
1966 <sup>3/</sup>	153	761		
1968	7	2,500	2,500	
1969	100	7,000	16,000	
1970	246	8,200	12,900	
1971	42	7,045	80	
1972	57	4,252	3,950	
<u>Niukluk River</u>				
1962	11			27,879
1963		13,687	4,103	
1964		8,395	10,495	
1966		21,300	8,600	4,700
1967			20,546	
1968				85,125
1969		10,240	92,650	
1970		7,300	60,350	
1971		22,605	8,370	
1972 <sup>3/</sup>		10,500	22,600	
<u>Fish River</u>				
1961	1			14,100
1962	48			28,918
1963	21			25,728
1964		18,670	10,935	14,550
1966	7			17,955
1967	20			13,510
1968	10			164,000
1969		2,080	124,000	
1970	33	76,550	198,000	
1971	1	13,185	1,670	
1972 <sup>3/</sup>		3,616	13,050	

Table 8. (continued) Comparative aerial survey counts of Norton Sound Streams, 1961-1972<sup>1/</sup>

<u>Year</u>	<u>King</u>	<u>Chum</u>	<u>Pink</u>	<u>Pink and Chum</u> <sup>2/</sup>
<u>Kachavik Creek</u>				
1963		16,000	16,000	
1964		5,284	3,675	
1966		758	1,788	
1967 <sup>3/</sup>				1,780
1969		600	4,525	
1970		500		
1971		10,000	5,323	
1972		3,100	16,950	
<u>Kwiniuk River</u>				
1962	3			23,249
1963	2	11,340	3,779	
1964		14,533		
1965 <sup>4/</sup>	14	26,634	6,301	
1966 <sup>4/</sup>	7	32,786	10,629	
1967 <sup>4/</sup>	13	24,444	3,508	
1968 <sup>4/</sup>	27	18,813	126,764	
1969 <sup>4/</sup>	12	19,687	56,683	
1970 <sup>4/</sup>		68,004	235,131	
1971 <sup>4/</sup>	37	39,046	16,742	
1972 <sup>4/</sup>		30,305	62,299	
<u>Tubutulik River</u>				
1962	3			16,690
1963	9	16,069	4,355	
1964		15,469	10,043	3,420
1966		4,363	26,000	
1967	1			22,475
1968		5/	5/	
1969	3	12,040	12,788	3,045
1970		53,290	136,590	
1971		16,820	7,500	5,065
1972 <sup>3/</sup>		8,070	21,100	

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

2/ Surveyor unable to distinguish between the two species.

3/ Poor survey conditions or partial survey.

4/ Total counts obtained from counting tower.

5/ Count not obtained but numbers believed to be similar to Kwiniuk River.

PORT CLARENCE AREA

There has not been a commercial fishery in this area since 1966 when a total of 1,216 salmon was taken. This is traditionally an important subsistence fishing area, although utilization has declined considerably in recent years.

One unique feature of this area is the Pilgrim River-Salmon Lake red salmon run, one of the northernmost occurrences of this species on the continent. Because of diminishing red salmon escapements, several important subsistence fishing restrictions have been promulgated in recent years as follows:

1. In 1964 portions of the spawning ground area (Grand Central River and within 300 feet of the outlet of Salmon Lake) were closed to subsistence fishing for salmon.
2. During 1966-1971 subsistence fishermen in the Pilgrim River-Salmon Lake area were restricted to the numbers of salmon that could be taken under authority of permit.
3. In 1972 the entire spawning ground area was closed to subsistence fishing for salmon and subsistence fishing throughout the remainder of the area was prohibited for two days a week during July 1- August 15.

Subsistence catch data is incomplete as of this date, but a total of 3,091 salmon, including only 68 red salmon, has been recorded.

Peak counts made during aerial and boat surveys of the spawning area totaled 980 red salmon compared to the average count of 897 made during the previous eight seasons. It should be noted that the 1972 Salmon Lake survey was earlier than normal and probably did not include late arriving fish.

KOTZEBUE AREA

A record total of 170,782 chum salmon was taken commercially in 1972. The previous 5 year average annual commercial harvest was 86,700. Historical

commercial and subsistence catches are presented in Table 9.

A total of 193 commercial, 87 vessel and 96 set gill net licenses was issued in 1972. This was the second highest license registration for this area.

Chum salmon abundance in this area has been above average in each of the last three seasons. Based on comparative catch and escapement data, the 1972 chum salmon run was one of the largest to be recorded for the area. Commercial fishing time was extended from 4 to 5-1/2 days a week effective August 16 based on excellent escapements that had been realized.

Subsistence catch data is still being tabulated, but it is estimated that an above average catch of at least 30,000 chums was made.

The Kobuk River system escapement index count of 52,504 chums was the second highest on record. An early survey of the Noatak River was made under poor counting conditions and yet an above average escapement of 64,300 chums was recorded.

Table 9. Commercial and subsistence salmon catches, Kotzebue district, 1914-1972.

Year <sup>1/</sup>	Chum <sup>2/</sup>	Commercial catch		Total	Subsistence catch		Combined catches
			Other <sup>3/</sup>		Chum		
1914	8,550			8,550			
1915	4,750			4,750			
1916	19,000			19,000			
1917	44,612			44,612			
1918	27,407			27,407			
1957 <sup>4/</sup>					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 <sup>5/</sup>			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	170,782			170,782	30,000 (est.)		200,782

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

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

<sup>3/</sup> Mostly pinks but includes king salmon, red salmon.

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

<sup>5/</sup> Corrected from 1968 annual report due to addition of late catches.