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ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES

KUSKOKWIM AREA
SALMON REPORT
to the
Alaska Board of Fisheries
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BACKGROUND

Area and District Boundaries

The Kuskokwim Area includes the Kuskokwim River drainage and all waters of Alaska between Cape Newenham and the Naskonat Peninsula (Figure 1). Commercial salmon fishing takes place in four districts: District 1 (Lower Kuskokwim River from Eek Island to Mishevik Slough below Tuluksak); District 2 (middle Kuskokwim River from Mishevik Slough upriver to the Kolmakof River near Aniak); District 4 (approximately five miles of Kuskokwim Bay shoreline adjacent to the village of Quinhagak); District 5 (Goodnews Bay). District 3 (upper Kuskokwim River above the Kolmakof River) has been closed to commercial salmon fishing since 1966.

Management Objectives and Strategies

The Division of Commercial Fisheries of the Alaska Department of Fish and Game is responsible for the management of commercial and subsistence fisheries in the Kuskokwim area. The main objective of the Department's program is to manage both fisheries on a sustained yield basis in accordance with policies set forth by the Alaska Board of Fisheries, including assignment of subsistence as the highest priority among beneficial uses of the resource. Establishment of management plan harvest guidelines and major fishing time reductions for commercial fishing and minor fishing time reductions for subsistence fishing have been promulgated in recent years to offset the increase in fishing effort and efficiency so that adequate spawning escapements could be maintained.

Due to the impact of Japanese high seas fisheries, the need to provide for subsistence users and problems associated with obtaining timely and accurate information regarding run and escapement magnitudes, the management strategy will continue to be a conservative one.

Subsistence has been designated by the Legislature (State Law 151) as the highest priority among beneficial uses of the fish and game resources. Except in areas where intensive commercial fisheries occur, the subsistence fishery is subject to very few restrictions in order to give preference to subsistence users. In all the commercial fishing areas the majority of the fishermen usually take salmon for both commercial and subsistence purposes. Short subsistence fishing closures each week are used in Districts 1, 4 and 5 to prevent the sale of subsistence caught fish and to provide for adequate spawning escapements. Substantially more subsistence fishing time is allowed by regulation compared to commercial fishing in all areas. For example, during a normal fishing season (June-August) in the lower Kuskokwim River, subsistence fishing is allowed for approximately 68 compared to 5 equivalent days for commercial fishing.

Fishery Resources

All five species of Pacific salmon are indigenous to the area: chinook or "king" salmon (Oncorhynchus tshawytscha), sockeye or "red" salmon (O. nerka), coho or "silver" salmon (O. kisutch), pink or "humpback salmon (O. gorbuscha) and chum or "dog" salmon (O. keta). The largest populations of kings, chums and cohos are found in the Kuskokwim River drainage, while reds and pinks are more numerous in the Kanektok and Goodnews River systems.

Major Strategies and Management Considerations

King Salmon

Timing of the king salmon run is characteristically variable in response to weather conditions. The opening of the commercial fishing season is delayed until the Kuskokwim River and Department test fishing catches indicate a sustained run is occurring. The Department attempts to give three to four days advance public notice of the season opening.

The season opening is normally after June 9 unless an early run is indicated. Benefits of a June 9 or later opening include:

1. Uninterrupted subsistence fishing early during the run.
2. The commercial harvest is spread over a greater portion of the peak of the run and therefore helps minimize overharvest of discrete stocks.
3. Allows additional time to determine early run strength through analysis of test fishing and subsistence catches.

Commercial fishing time during the king salmon season is regulated by emergency order. Fishing periods are usually six hours in duration (6 P.M.-12 midnight) and are scheduled two times per week to spread the harvest throughout as much of the run as possible. The 6 P.M. - 12 midnight schedule is preferred by local fishermen during this time of year. More frequent shorter fishing periods have been implemented on occasion in order to provide for optimum harvests.

If the run is of average magnitude the commercial harvest in District 1 should be 25-35 thousand fish during the king salmon season (prior to June 25) to maintain the proper allocation between subsistence, commercial, and spawning ground requirements. This should result in a total commercial harvest ranging from 30-51,000 for the entire river (includes 2-12,000 taken during the District 1 chum salmon season and 2-4,000 in District 2). The fishery may be terminated before or after the aforementioned harvest range is attained depending on indicated in-season run strength from examination of test fishing, sonar and subsistence and commercial catch data.

The commercial king salmon season in the two coastal districts, Quinhagak and Goodnews Bay, is normally opened approximately one week later than the main Kuskokwim River allowing for the later timing, smaller magnitude of the runs, and to reduce potential interception of Kuskokwim River salmon. Commercial fishing in these two districts is allowed only in marine waters. Commercial fishing is normally opened on a scheduled basis for two 12-hour periods per week from mid June through early July when king salmon is the primary target species. After that time a more liberal schedule consisting usually of three 12-hour openings per week is initiated for the remainder of the season for harvesting other species of salmon. Fishermen are required to use small mesh gear (6-inch stretched mesh or smaller) during the entire salmon season. This restriction minimizes the harvesting of the larger, more productive king salmon by the large mesh size, and enhances the harvests of the more abundant, smaller species (i.e. red, pink, chum and coho).

Based on past catch and escapement data, the commercial harvest of king salmon should not greatly exceed 15,000 and 5,000 for the Quinhagak and Goodnews Bay fisheries respectively unless very large runs are occurring.

Coho Salmon

The coho salmon season opens on or shortly after August 1. In District 1 a fishing schedule of two 6-hour fishing periods a week (normally 9:00 A.M. to 3:00 P.M. on Mondays and Thursdays) has been in effect since 1979. The 9:00 A.M. schedule was requested by fishermen for the purpose of enhancing their safety by providing more daylight hours of fishing and so that Fish and Wildlife Protection personnel may be better able to enforce the fishing period closures.

The commercial coho salmon harvest range for the Kuskokwim River should be 150-250 thousand fish. Commercial catches within this range should provide adequate spawning escapements and subsistence harvests under a wide range of return magnitudes.

A harvest guideline of between 2 to 4 thousand coho salmon is established by regulation for district 2 of the main Kuskokwim River.

Chum Salmon

In District 1, during June 26 to July 31, which is referred to as the chum salmon season, the open fishing area is restricted to that portion of the Kuskokwim River downstream from Bethel. The scheduled weekly fishing periods are similar to that described for the king season, i.e. two six hour fishing period a week from 6 P.M. to midnight on Mondays and Thursdays for most of the season. There is a maximum gillnet mesh restriction of 6 inches (stretched mesh) during the district chum salmon season which minimizes the capture of king salmon.

The commercial chum salmon harvest for the Kuskokwim River should range from 200 to 400 thousand fish, although during years of exceptionally high abundance an additional 50-100 thousand fish may be taken. Commercial catches within this range should provide for traditional subsistence requirements and adequate spawning escapements. The commercial harvest should not greatly exceed 400 thousand fish except under the following conditions:

1. Test fishing catches indicate large numbers of fish still entering the river.
2. Commercial catch per unit effort (especially late in the season) is above average.
3. Fish quality is acceptable to the buyers.
4. Observations indicate that no more than average subsistence fishing effort is occurring and that adequate subsistence catches have already been made.

The fishing fleet as a whole has become more efficient during the past few years. In order to compensate for this increased efficiency, a temporary season closure may be necessary to ensure that the harvest is taken from the entire chum salmon run and not just from portions of the run.

Also, if it is likely that the commercial harvest will exceed 400 thousand fish, the season may be temporarily closed. A temporary closure - one six hour fishing period - would allow time for additional compilation and examination of test fishing and subsistence catch data. The commercial chum salmon season is normally closed in mid-July, when the majority of the run has

passed through the fishery.

If the Kuskokwim River chum salmon run proves to be very small, management options for insuring adequate escapements include in order of priority:

1. Commercial harvest fishing time restrictions, including early season closures.
2. Subsistence harvest fishing time restrictions.

Historically fishermen have not accurately identified red and chum salmon in their commercial or subsistence catches. For this reason the true magnitude of the red and chum salmon harvest in the main Kuskokwim River has not been accurately documented. In recent years fishermen, processors and the Department employees have worked together to properly identify each species in the commercial harvest. The 1981 season was the first year that a significant red salmon harvest and run was documented. Red salmon comprised approximately 10% of the 1981 commercial salmon catch in District 1. Prior to the 1981 season, the magnitude of the red salmon catch was thought to be not greater than 2% of the chum salmon catch in this district.

District 2, (middle Kuskokwim River) has a harvest guideline of 4 to 8 thousand chum salmon established by regulation in 1980. District 2 commercial openings are normally scheduled concurrently with those of District 1 to spread fishing effort throughout the river and to discourage lower river fishermen from fishing in both districts.

STATUS OF FISHERY AND STOCKS

The Kuskokwim Area commercial fishery has expanded greatly during the last few years as a result of increased numbers of participants, improvements in fishing gear, and greater tendering and processing capabilities. Licensed boats in the area have increased from 210 in 1966 to over 800 in the 1980's. Prices offered for fish have increased dramatically since 1977 and as a result fishermen are more competitive. The present commercial fishery has become increasingly efficient over the past few years. The Division of Commercial Fisheries' records indicate commercial salmon fishermen within the Kuskokwim area were paid an approximate total of 2.7 million dollars during the 1983 season where eleven years ago only .4 million dollars were earned.

The Kuskokwim area subsistence salmon fishery is the largest in Alaska and probably in the world. Kuskokwim River annual subsistence catches of king and chum salmon often exceed commercial catches. Technological improvements in commercial fishing gear and equipment have benefited subsistence fishing since the same units of gear are frequently used in both fisheries. Table 1 shows annual commercial and subsistence catches made in the Kuskokwim Area since 1913.

Kuskokwim River King Salmon

Since statehood king salmon stocks have been used more intensively by Kuskokwim River fishermen. The combined king salmon commercial and subsistence harvest averaged only 56 thousand fish for the 10-year period 1960-1969, but increased to 81 thousand during 1970-1979, and 103 thousand during 1980-1982. The Kuskokwim River commercial and subsistence king salmon harvest in 1983 totaled 99,910.

Annual commercial catches in the Kuskokwim River ranged between 30,000 and 40,000 king salmon from 1968-1972 (Table 2). The attempt has been to stabilize the fishery within this range until additional data regarding run size and escapement was obtained. Small runs experienced during the years 1974, 1975 and 1976 indicate that the 30,000-40,000 harvest range was too high during weaker return years. Commercial harvests since 1974 have ranged from about 19,000 to the 1982 high of 48,000. The current management strategy for the entire river is to allow a harvest of 25,000-35,000 fish during the "king salmon season" where runs of average magnitude are experienced. A few thousand additional fish are taken during later seasons when fishing is directed to other species. The largest incidental king salmon catch of approximately 16,000 fish was made in 1983 during the "chum salmon" season.

Commercial fishing effort has been at record levels in recent years and remained high during 1983 (Table 4). The efficiency and intensity of the commercial fishing fleet has increased tremendously as evidenced in the 1981 season when over 18,000 kings were taken during a single six hour fishing period.

District 2, is located directly upriver in the main Kuskokwim River from District 1, and salmon harvested there have passed through district 1. Prior to 1981 this district operated under a regulatory quota of 2,000 king salmon per year. In recognition of the apparent stock recovery that occurred in 1976-1980, the Board of Fisheries adopted a more flexible harvest guideline of between 2 to 4 thousand fish for this district.

Kuskokwim River Coho Salmon

Commercial catches for the entire river since statehood have ranged from a low of 5 thousand in 1971 to a high of 447 thousand in 1982 (Table 2). The recent five year annual average is 263 thousand fish. Effort in terms of fishing vessels has ranged from 83 in 1971 to 613 in 1979. Until recently, commercial fishing effort declined after mid-August when fishermen turned to hunting pursuits. Mainly due to price increases, a high level of fishing effort is now sustained throughout the entire season.

Traditionally, relatively few cohos were taken in the subsistence fishery due to poor drying conditions and the fact that subsistence needs have normally been met by the earlier migrating species. This pattern has been changing gradually in the last five years since increasing numbers of families own freezers in which they store coho salmon. Coho is the preferred species for freezing, accounting in part for the increased documented subsistence use of coho salmon during the last five years.

The timing of subsistence surveys may also account for the lower harvest figures since subsistence fishermen are often still harvesting cohos when the Department's surveys are conducted in this area.

Kuskokwim River Chum Salmon

Estimated peak subsistence chum salmon harvest levels were reached during the 1930's when dog teams were extensively utilized for freight hauling, but catches declined during the 1940's. Little additional data is available for the twenty year span prior to statehood.

Prior to 1971 very small commercial chum salmon harvests were allowed and represented fish taken incidentally during the king and coho salmon fisheries. Expansion of the commercial chum salmon fishery was allowed in 1971 when it was apparent that a moderate increase in chum salmon utilization would be biologically sound. The Kuskokwim River subsistence chum salmon harvest was estimated to average 442 thousand fish annually between 1924-1943, while the harvest averaged only about 215 thousand fish annually between 1960-1965 and decreased to about 189 thousand fish annually between 1966-1972. Based upon past subsistence harvest estimates (for example, 1924-1943 levels), a 400 thousand combined commercial and subsistence harvest appeared to be consistent with the reproductive potential of the run. The 400,000 combined catch figure was a stated management goal during the early 1970's.

Subsistence catches for the entire river have ranged widely since the inception of the commercial fishery in 1971 (116 thousand to 277 thousand chums), however there was a general trend of increased harvests during the years 1974-77 when roe sales were permitted. The recent five year average annual harvest (1978-1982) is 160 thousand.

Commercial harvest levels since 1971 have ranged from 69,000 (1971) to 483,000 (1980) and the recent 5 year average (1978-1981) is 338,000. Prior to 1979 commercial chum salmon fishing in District 1 was only allowed in the lower 49 miles. Beginning with the 1979 season as a result of Board of Fisheries action the area open to commercial chum salmon fishing was expanded approximately 15 miles and is now from the present boundary of the north end of Eek Island upriver to markers placed immediately upstream of the city of Bethel.

Commercial fishing effort has ranged from 216 fishermen in 1971 to 622 fishermen in 1977. The efficiency of the commercial fishing fleet has increased tremendously as evidenced by a harvest of nearly 150 thousand chums during a single six hour fishing period in 1980.

Quinhagak (District 4) - All species

Salmon captured in this district are bound primarily for the Kanektok and Arolik Rivers. Commercial fishing effort has increased tremendously in recent years particularly during the king salmon season. Many lower Kuskokwim River fishermen now fish this district for king salmon as do several Goodnews Bay fishermen. An approximate average of 176 boats have fished this district annually during the last five seasons. Commercial and subsistence catches of all species have averaged 140 thousand and 8 thousand respectively during the last five seasons. The commercial fishery has been sporadic during some years due to the unavailability of processing facilities and inclement weather.

Goodnews Bay (District 5) - All Species

The commercial salmon fishery in this district was initiated in 1968 at the request of the local residents. Commercial harvests have been relatively small compared to other Kuskokwim area fisheries. An average of about 42 fishermen have fished this district during the last five seasons. Commercial catches of all five species have averaged 81 thousand salmon during the past five seasons. The subsistence harvest of all species of salmon for Goodnews Bay village is typically less than 1500 fish.

SEASON SUMMARY

The total season commercial catches for 1983 in the Kuskokwim Area (Districts 1, 2, 4 and 5) were 94,000 king, 307,000 chum, 91,000 sockeye, 249,000 coho and 400 pink salmon (Table 1). The commercial harvest this year for king salmon was the largest on record, 45% greater than the previous five-year average. However, half of this catch was taken in the Quinhagak fishing district. Noteworthy was the red salmon harvest which was 52% greater than the previous five-year average. The majority of this harvest was taken in the Kuskokwim River this represented a uniquely high abundance of this species for this drainage. Chum and coho catches were both below the previous five-year average, 21% and 28% less respectively.

Some 767 Kuskokwim Area fishermen received approximately \$2,670,000 for their 1983 catch. The average price per pound to the fishermen was \$0.54 for kings, \$0.33 for chums, \$0.51 for reds, \$0.39 for cohos, and \$0.05 for pinks. The average Kuskokwim area fisherman earned approximately \$3,482 for his 1983 catch.

Preliminary subsistence catch information indicated that the subsistence harvest in 1983 was 70,344 king and 203,420 "other salmon" (primarily chum and coho salmon). The reported king salmon harvest is the second highest on record for the Kuskokwim Area. The reported "other salmon" harvest was 25 percent above the previous 5 year average.

Commercial fishing during the king salmon season (no mesh size restrictions) in District 1 was limited to only two 6 hour fishing periods on June 13 and 16 when 13,900 kings were landed (Table 3). This was the smallest catch recorded for this season since 1963. Although a record incidental catch of 16,900 kings was made during the later chum salmon season (maximum 6 inch mesh), the total harvest of this species (33,174) for the Kuskokwim River was the smallest since 1976 (Table 2).

The commercial chum salmon catch of 276,700 made in the Kuskokwim River was about 20 percent below the previous five year average (Table 2). This catch was similar to that of 1982.

The commercial coho salmon catch of 196,900 for the Kuskokwim River was 25 percent below the previous five year average and less than half of the record 1982 harvest. Due to comparative catch and escapement data, which indicated a below average run was in progress, the District 1 season was closed approximately one week early on August 22. After this decision was made, an unprecedented late surge of fish entered the river and fishermen and fishermen groups began lobbying intensively for additional fishing time. The staff was reluctant to reopen the fishery since the late run was viewed as an important contributor to lagging escapements and the relative strength of this run could not be immediately assessed. Continued test fishing efforts by the staff eventually indicated that the late run was sufficiently strong to risk an additional limited harvest. The District was reopened for a 6 hour fishing period on August 26 when a catch of about 20,000 cohos was made. However, only a portion of the District downstream of Bethel was opened in an attempt to limit the harvest and benefit escapements. The final coho salmon escapement past the Holitna weir was 8,327 fish which is considered a minimally acceptable number. Escapements past this site were 11,532 and

35,565 in 1981 and 1982, respectively.

Record commercial king salmon catches were made in District 4 (Quinhagak) and District 5 (Goodnews Bay). The 46,385 harvest in the District 4 fishery was almost double the previous record for this District and even surpassed the Kuskokwim River catch for the first time (Table 2). More fishermen from the lower Kuskokwim River fished this District which led to record or near record effort levels (Table 4). Fishing time was decreased during portions of the king salmon run in District 4 in order to insure adequate escapement in the face of the large effort and harvest. Based on commercial catches, both the chum and coho returns to Districts 4 and 5 were below average.

King, sockeye and chum salmon aerial indices for the Kuskokwim area tributaries in 1983 show poor escapements which were also noted in escapement enumeration projects data. Low stream levels in 1983 created much better than usual conditions for viewing salmon from the air.

The 1983 counts obtained in individual Kuskokwim River spawning areas ranged from 10 to 33 percent below previous five year averages for king salmon and 24 to 50% below five year averages for chum salmon. However, when all spawning areas and their relative contribution to the total escapement are considered, it appeared that the king salmon escapement was proportionally smaller than the chum salmon escapement. Coho escapement data is limited and largely confined to a weir operated on the Holitna River. As previously indicated the coho escapement at this site was the smallest since 1981.

Kuskokwim Bay tributaries did not show the decreased king escapements noted for the Kuskokwim River. Fair to excellent king escapements were noted in the Kanektok River and in the Goodnews River and the middle and south forks of the Goodnews River. However, indications are that chum escapements in these streams were low.

Assessing run strength during the season constitutes the greatest management problem for all species in the Kuskokwim area. Post-season examination of the 1983 Kuskokwim River king salmon run revealed that the commercial fishery possibly over harvested the run with low numbers of kings present on the Kuskokwim River spawning grounds. Several research projects are presently planned to assist with assessing in-season run strength. They include a Bethel test drift project which is currently being tested for its feasibility. The second is a contracted analysis of migratory timing information collected from test fishing, sonar counting stations, commercial catches, and weir locations in an effort to better identify run timing and abundance at any given stage in the run.

In past years, illegal fishing activities have been common in the Kuskokwim fishery in some cases warranting temporary in-season closures in order to deal with the violations and preserve the integrity of the stocks. Such was the case during August 1981 in the Goodnews Bay fishery. In 1982 and 1983 the department staff worked together with highly motivated Fish and Wildlife Protection Officers in initiating the most aggressive enforcement program the Kuskokwim River has experienced in a long time. Numerous contacts were made throughout the seasons resulting in several cases of which went to court. These cases appear to indicate that numerous violations have been occurring in the fishery for some time. Problem areas still exist primarily during the

month of August when darkness hinders patrol activities.

OUTLOOK FOR 1984

The majority of the returning king salmon in 1984 will be five and six years of age. Based on average brood year escapements, the 1984 run is expected to be average in magnitude.

Chum salmon will return as five, four and three year old fish from 1979, 1980 and 1981 brood years. The majority of the run will be composed of four year olds which are the progeny of the 1980 spawners. Little comparative escapement information is available, but escapements past the Holitna weir during 1978-80 were strong. Comparative catch data from the brood years also indicate an average to above average return of chums during the 1984 season.

Little information is available to assess coho abundance in 1984. The majority of cohos mature at four years of age with a few maturing at five years. Very few coho salmon escapement surveys were made in the past because of funding limitations and other factors. Commercial catches and catch per unit effort during the 1979 and 1980 brood years were average. Escapement assessment were initiated at the Holitna weir site for the first time in 1981. The department looks forward to establishing a coho escapement data base from this project.

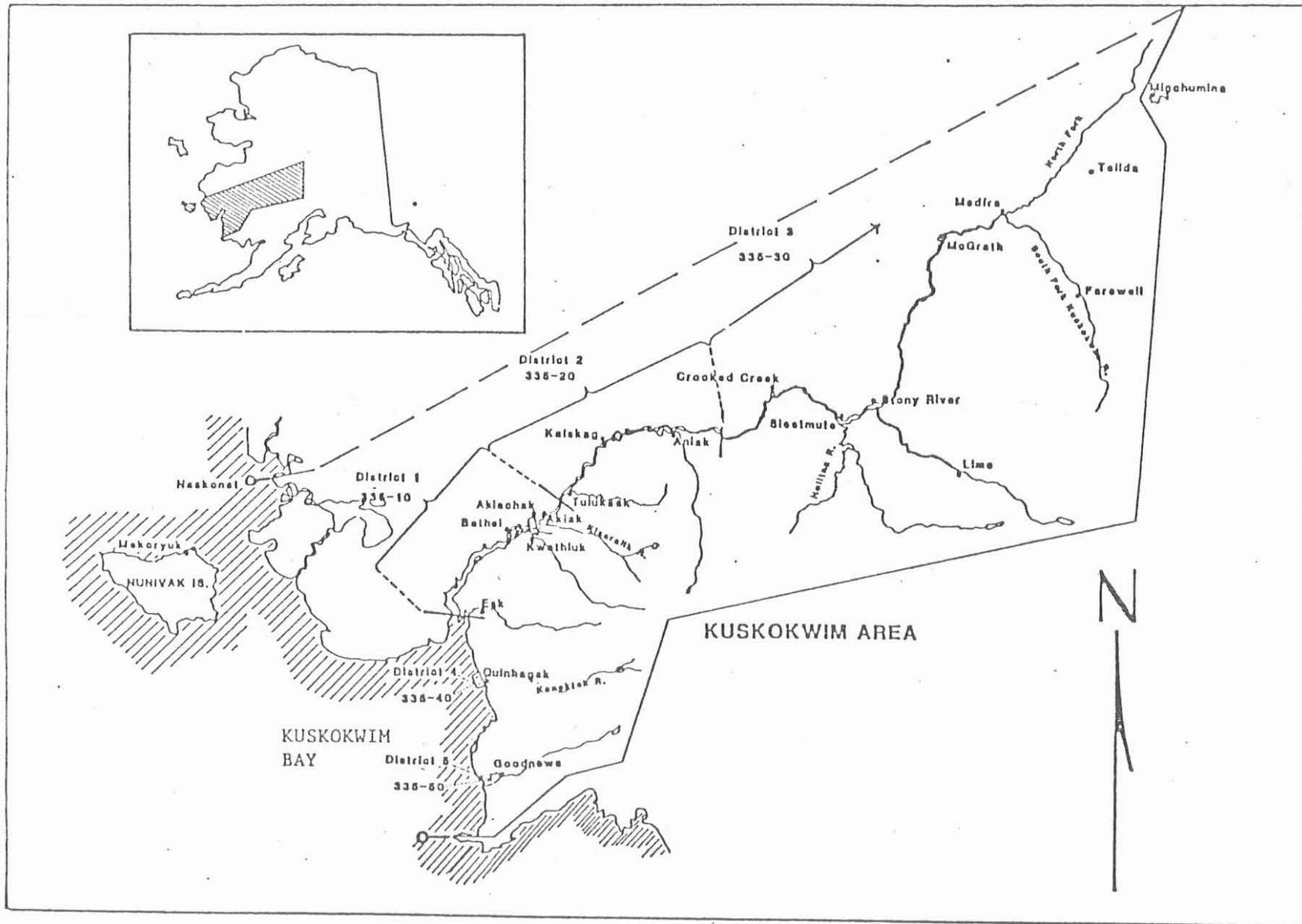


Figure 1. Kuskokwim Area Map

Table 1. Kuskokwim area commercial and subsistence salmon catches, 1913-1983.

Year	Commercial Catch						Subsistence Catch 1/		
	King	Red	Coho	Pink	Chum	Total	King	Other Salmon 2/	Total
1913	7,800					7,800			
1914		2,667				2,667			
1915									
1916	949					949			
1917	7,878					7,878			
1918	3,055					3,055			
1919	4,836					4,836			
1920	34,853					34,853			
1921	9,854					9,854			
1922	8,944	6,120				15,064			180,000
1923	7,254					7,254			
1924	19,253	900	7,167		7,167	34,487	14,700	203,148	217,848
1925	1,664	5,800				7,514	10,800	230,850	241,650
1926								738,576	738,576
1927								286,254	286,254
1928								481,090	481,090
1929								560,196	560,196
1930	7,626	2,448				9,963		538,650	538,650
1931	8,541					8,541		389,367	389,367
1932	9,339					9,339		746,415	746,415
1933							6,290	433,998	440,288
1934							20,800	597,132	617,932
1935	6,448		8,296			14,744	22,930	554,040	576,970
1936	624					624	33,500	549,423	582,923
1937	480					480		537,111	537,111
1938	624		828			1,452	10,153	400,242	410,395
1939	134					134	14,000	125,425	139,425
1940	247		500			747	8,000	415,523	423,523
1941	187		674			861	8,000	415,523	423,523
1942							6,400	325,339	331,739
1943							6,400	325,800	332,200
1946	2,288		674			2,962			
1947	5,356					5,356			
1951	4,210					4,210			
1954	57					57			
1959	3,760					3,760			
1960	5,969	5,649	5,498		3	17,119	20,361	327,297	347,658
1961	23,246	2,308	5,090	91	18,864	49,599	30,910	185,447	216,357
1962	20,867	10,313	12,598	4,340	45,707	93,831	14,642	165,626	180,268
1963	18,571		15,660			34,231	37,246	141,550	178,796
1964	21,230	13,422	28,992	939	707	65,290	30,853	214,942	245,795
1965	24,965	1,886	12,191		4,242	43,284	31,143	323,002	354,145
1966	25,823	1,030	22,985	268	2,610	52,716	53,606	201,002	254,608
1967	29,986	652	58,239		8,235	97,112	61,224	252,447	313,671
1968	43,157	5,884	154,302	75,818	19,694	298,845	34,986	301,531	336,517
1969	64,777	10,362	110,473	1,251	50,377	237,240	43,732	245,299	289,031
1970	65,082	12,654	62,245	27,422	60,566	227,979	71,376	263,746	335,112
1971	44,936	6,054	10,006	13	99,423	160,432	45,465	130,329	175,974
1972	55,482	4,312	23,880	1,952	97,197	182,823	43,335	131,514	184,849
1973	51,374	5,224	152,408	634	184,207	393,847	41,697	211,468	253,165
1974	30,670	29,003	179,579	60,052	196,127	495,431	29,590	321,358	350,848
1975	27,799	17,535	109,814	899	223,532	379,579	51,045	180,429	231,474
1976	49,262	14,636	112,130	39,998	231,877	447,903	60,603	239,461	300,064
1977	58,256	18,621	263,728	434	298,959	639,998	58,163	218,824	276,987 3/
1978	63,194	13,734	247,271	61,968	282,044	668,211	38,209	137,489	175,698
1979	53,314	39,463	308,683	574	297,167	699,201	57,283	190,582	247,865
1980	48,242	42,213	327,908	30,306	561,483	1,010,152	59,900	105,000	224,900
1981	79,378	105,940	278,587	463	485,635	950,003	63,640	187,932	251,572
1982	79,816	97,716	567,451	18,259	325,471	1,088,713	61,342	240,897	302,239
1983	93,676	90,834	249,018	379	306,554	740,461	70,344 4/	203,420 4/	273,764 4/
5 year ave.	64,789	59,813	345,980	22,314	390,360	883,256	56,036	163,041	219,077

1/ Subsistence catches for 1960-1976 have been revised and corrected.

2/ Primarily chum salmon and coho salmon.

3/ Goodnews Bay not surveyed prior to 1977.

4/ Preliminary Information.

Table 2. Kuskokwim area commercial catches by drainage, 1960-1983.

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		34,180
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	39,454	102	22,579	8	78,619	140,762
1973	32,838	369	130,876	33	148,746	312,862
1974	18,664	136	147,269	37	171,887	337,984
1975	21,720	23	81,945	10	181,840	285,538
1976	30,735	2,971	88,501	133	177,864	300,204
1977	35,830	9,379	241,364	203	248,721	535,451
1978	45,641	733	213,393	5,832	248,656	514,255
1979	38,966	1,054	219,060	78	261,874	521,032
1980	35,881	360	222,012	803	483,211	742,297
1981	47,663	48,375	211,251	292	418,677	726,258
1982	48,234	33,154	447,117	1,748	278,306	808,559
1983	33,174	68,855	196,916	211	276,698	575,854
5 year average (1978-1982)	43,277	16,735	262,567	1,751	338,145	662,475
1/ Includes districts 335-10 and 335-20						

Table 2. Kuskokwim Area Commercial Catches by Drainage, 1960-1983.
(Continued)

Quinhagak 2/	King	Red	Coho	Pink	Chum	Total
1960	0	5,649	3,000	0	0	8,649
1961	4,328	2,308	46	90	18,854	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	18,269	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
1973	14,993	2,783	16,515	277	19,680	54,248
1974	8,704	19,510	10,979	43,642	15,928	98,133
1975	3,928	8,584	10,742	486	35,233	58,973
1976	14,110	6,090	13,777	31,412	43,659	109,048
1977	19,090	5,519	9,028	202	43,707	77,546
1978	12,335	7,589	20,114	47,033	24,798	111,869
1979	11,144	18,828	47,525	295	25,995	103,787
1980	10,387	13,221	62,610	21,671	65,984	173,873
1981	24,525	17,292	47,587	160	53,316	143,080
1982	22,106	25,685	73,651	11,838	33,336	166,616
1983	46,385	10,263	32,442	168	23,090	112,348

5 Year Average
(1978-1982) 16,099 16,523 50,298 16,199 40,686 139,805

2/ District 335-40

Table 2. Kuskokwim Area Commercial Catches by Drainage, 1960-1983.
(Continued)

Goodnews Bay 3/ Goodnews River	King	Red	Coho	Pink	Chum	Total
1968			5,485			5,485
1969	3,987	6,256	11,631	298	5,006	27,169
1970	7,163	7,144	6,974	12,183	12,346	45,630
1971	477	330	1,771	0	301	2,879
1972	264	924	925	66	1,331	3,510
1973	3,543	2,072	5,017	324	15,781	26,737
1974	3,302	9,357	21,340	16,373	8,942	59,314
1975	2,151	8,928	17,127	403	6,459	35,068
1976	4,417	5,575	9,852	8,453	10,354	38,651
1977	3,336	3,723	13,335	29	6,531	26,954
1978	5,218	5,412	13,764	9,103	8,590	42,087
1979	3,204	19,581	42,098	201	9,298	74,382
1980	1,974	28,632	43,256	7,832	11,748	93,442
1981	7,190	40,273	19,749	11	13,642	80,865
1982	9,476	38,877	46,683	4,673	13,829	113,538
1983	14,117	11,716	19,660	0	6,766	52,259
5 Year Average (1978-1982)	5,484	26,555	33,110	4,364	11,421	80,934

3/ District 335-50 and includes Chagvan Bay.

Table 3. Kuskokwim Area Catch and Effort Data. 1983.

District	Inclusive Dates	Number of Periods	Hours Fished	Number Fishing Boats	King	Red	Coho	Pink	Chum
King salmon season (no mesh size restriction)									
1	6/13-6/16	2	12	544	13,406	264			1,805
2	6/16	1	6	14	510	13			165
Subtotal					13,916	277			1,879
Chum salmon season (6 inch mesh restriction)									
1	6/20-7/11	7	42	619	16,036	65,878		117	257,252
2	6/20-6/27	3	18	42	2,321	1,160			8,499
Subtotal					18,357	67,029		117	269,792
Coho salmon season (6 inch mesh restriction)									
1	8/1-8/26	8	48	577	901	1,533	195,816	94	8,879
2	8/11-8/18	3	18	9	0	1	1,100		98
Subtotal					901	1,534	196,916	94	8,977
Entire season									
1	6/13-8/26	17	102	679	30,343	67,681	194,816	211	267,936
2	6/16-8/18	7	42	43	2,831	1,174	1,174	0	8,762
Total					33,174	68,855	196,916	211	276,698
4	6/13-9/8	28	318	226	46,385	10,273	32,442	168	23,600
5	6/13-9/8	28	336	79	14,117	11,716	19,660	0	6,766
Subtotal					60,502	21,979	52,102	168	29,856
Entire season all Districts									
Total				767	93,676	90,834	249,018	379	306,554