



KUSKOKWIM RIVER CHINOOK AND CHUM SALMON
STOCK STATUS AND ACTION PLAN

A Report to the Alaska Board of Fisheries

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Table of Contents

	<u>Page</u>
LIST OF TABLES	v
LIST OF FIGURES	v
Executive Summary	1
Synopsis.....	1
Stock Assessment Background.....	1
Chinook Salmon.....	2
Chum Salmon.....	2
Stock of Concern Recommendation	3
Outlook	3
Alaska Board of Fisheries Action.....	4
Escapement Goal Evaluation	4
Chinook: List of Current and Proposed SEG for Stock.....	5
Chum: List of Current and Proposed SEG for Stock.....	5
Management Action Plan Options for Addressing StockS of Concern as Outlined in the Sustainable Fisheries Policy	5
Kuskokwim River Chinook and Chum Salmon Management Plan Review/Development	5
Current Stock Status.....	5
C&T Use Finding and the Amount Necessary.....	6
Habitat Factors Adversely Affecting The Stock.....	7
Mining.....	7
Logging	8
Projects Needed.....	8
Do New Or Expanding Fisheries On This Stock Exist?	9
Existing Management Plan.....	9
ACTION PLAN DEVELOPMENT	9
Kuskokwim River Chinook and Chum Salmon Action Plan Goal	9
Review of Management Action Plan.....	9
Regulation Changes Adopted in January 2001	9
Management Review.....	10

LIST OF TABLES

	<u>Page</u>
Table 1. Utilization of Chinook salmon in the Kuskokwim River, 1960-2003	17
Table 2. Aerial survey counts of chinook salmon in Kuskokwim River, 1975-2003	18
Table 3. Utilization of chum salmon in the Kuskokwim River, 1960-2003	19
Table 4. Kuskokwim River chum salmon escapement estimates, 1976-2003	20
Table 5. Utilization of sockeye salmon in the Kuskokwim River, 1981-2003	21

LIST OF FIGURES

	<u>Page</u>
Figure 1. Kuskokwim Area map	22
Figure 2. Kuskokwim River Chinook salmon subsistence and commercial harvests	23
Figure 3. Kuskokwim River Chinook Salmon Escapement Index	24
Figure 4. Kuskokwim River chum salmon subsistence and commercial harvests	25

EXECUTIVE SUMMARY

Synopsis

In response to the guidelines established in the *Sustainable Salmon Fisheries Policy* (SSFP) 5 AAC 39.222, the Alaska Board of Fisheries (Board) designated Kuskokwim River chinook and chum salmon stocks as yield concerns, under the stock of concern status classification, at the September 2000 work session. Action plans were subsequently developed by the department and acted upon by the Board in January 2001. The SSFP directs ADF&G to assess salmon stocks in areas addressed during the 2003-2004 regulatory cycle to identify stocks of concern and in the case of Kuskokwim River chinook and chum salmon, reassess the stock of concern status.

Based on definitions provided in SSFP 5 AAC 39.222(f)(42), the department recommended continuation of the stock of concern classification for the Kuskokwim River chinook and chum salmon stocks as yield concerns at the September 2003 Board work session. Because of the similarity in recent abundance trends of Kuskokwim River chinook and chum salmon, overlapping run timing and both species being addressed together within the current Rebuilding Management Plan, the department is presenting a single stock status and action plan covering both species for the January 2004 Board meeting.

Since 2000, Kuskokwim River chinook and chum salmon runs have been improving. The 2002 and 2003 chinook and chum salmon runs provided the opportunity for all Kuskokwim River subsistence fishers to achieve amounts necessary for subsistence. Additionally, escapements were above average. The department believes additional chinook and chum salmon were available for harvest during 2002 and 2003, but lack of a market for a directed chum salmon commercial fishery precluded harvest. However, there was no identified surplus of chinook salmon available for commercial harvest from 1999 to 2001 (three of the last five years) and very low numbers of chum salmon were available for harvest during 1999 and 2000, and to a lesser extent in 2001. Therefore, there has been a chronic inability to maintain near average yields despite specific management actions taken annually.

Review of escapement information indicates chinook salmon escapements from 1998 through 2000 were below average and escapements since 2000 were average or better. Weather conditions precluded aerial survey evaluation of chinook salmon escapements to many streams during 1998 and 1999. The existing SEG for chinook salmon at the Kogrukluk River weir was met in 2002 and 2003 and nearly met in 2001. The chum salmon escapements were below average in only two recent years, 1999 and 2000. The Aniak River SEG was met from 2001 through 2003.

Stock Assessment Background

The Kuskokwim Management Area is approximately 50,000 square miles in size including the Kuskokwim River drainage basin and all waters of Alaska that flow into the Bering Sea between Cape Newenham and the Naskonat Peninsula, plus Nunivak and St. Matthew Islands. There are four commercial salmon fishing districts within the Kuskokwim Area. Districts 1 and 2 are

average or better. The Aniak River SEG was met from 2001 through 2003. The Kogrukluk River SEG was met in 2001 and 2002.

Declining salmon markets increase the difficulty of evaluating abundance of chum salmon. No market existed for chum salmon in the Kuskokwim River fishery during the last two seasons, even though a harvestable surplus was identified. The potential harvests, had there been a market during the 2002 and 2003 seasons, have not been estimated. However, during 1999 and 2000, and to a lesser extent 2001, very low numbers of fish were available for harvest. Only one commercial opening was allowed each year in 1999 and 2000, and there were no openings in 2001. Total utilization of chum salmon in the Kuskokwim River drainage since 1960 has ranged from 66,000 to 1,539,000 fish (Table 3). Recent five-year average total utilization (1999-2003) was 69,200 fish; harvest ranged from 69,200 to approximately 80,000 fish. The previous 10-year average harvest (1989-1998) was 425,700 fish; harvest ranged from 57,900 to 893,000 fish. Average reduction in harvest was 356,500 fish during the recent five-year average (1999-2003) compared to the previous 10-year average (1989-1998).

STOCK OF CONCERN RECOMMENDATION

Based on the definitions provided in the sustainable salmon policy of 5 AAC 39.222(f)(42), the department recommends continuation of the stock of concern status for the Kuskokwim River chinook and chum salmon stocks as yield concerns. The 2002 and 2003 chinook and chum salmon runs provided the opportunity for all Kuskokwim River subsistence fishers to achieve amounts necessary for subsistence. Additionally, escapements were above average. The department believes additional chinook and chum salmon were available for harvest during 2002 and 2003, but lack of market for a chum salmon directed commercial fishery precluded harvest. However, there was no identified surplus of chinook salmon and there were very low numbers of chum salmon available for commercial harvest from 1999 to 2001 (three of the last five years). Therefore, there has been a chronic inability to maintain near average yields despite specific management actions taken annually.

Public support for implementation of the four-day-per-week subsistence fishing schedule beginning in 2001 has been an important factor in the improved escapements since 2001. Spreading the harvest over the run has likely reduced the harvest rate on earlier running stocks and resulted in meeting more escapement goals. Therefore, while the department recommends Kuskokwim River chinook and chum salmon stocks remain classified as yield concerns, we recognize that the chinook stock did not undergo a decline as substantial as that of some other stocks with yield concerns, such as Yukon River chinook salmon. Given the improvement observed in the last two years and continued public support for spreading harvest out over the run, the department is optimistic about the future of this stock.

Outlook

The preliminary outlook for 2004 is for similar or increased abundance from that observed in 2003. The chinook salmon returns of 5-year-old and the 6-year-olds are expected to be above average based on above average returns of 4 and 5-year-olds observed in 2003. The chum

Chinook: List of Current and Proposed SEG for Stock

Stream	Current Goal	Proposed Goal
Kwethluk River/Canyon Creek - Aerial	1,200 BEG	580-1800 SEG
Kisaralik River - Aerial	1,000 BEG	400-1,200 SEG
Aniak River drainage		
Aniak River – Aerial	1,500 BEG	1,200-2,300 SEG
Salmon River – Aerial	600 BEG	330-1,200 SEG
Holitna River drainage		
Holitna River – Aerial	2,000 BEG	970-2,100 SEG
Kogruklu River Weir	10,000 BEG	5,300 14,000 SEG
Salmon River (Pitka Fork) - Aerial	1,300 BEG	470-1,600 SEG
Swift River		
Cheeneetnuk - Aerial	Establish	340-1,300 SEG
Gagukryah - Aerial	Establish	300-830 SEG

Chum: List of Current and Proposed SEG for Stock

Stream	Current Goal	Proposed Goal
Aniak River Sonar	250,000 fish BEG	210,000-370,000 fish SEG
Holitna River drainage		
Kogruklu River Weir	30,000 BEG	15,000-49,000 SEG

MANAGEMENT ACTION PLAN OPTIONS FOR ADDRESSING STOCKS OF CONCERN AS OUTLINED IN THE SUSTAINABLE FISHERIES POLICY

Kuskokwim River Chinook and Chum Salmon Management Plan Review/Development

Current Stock Status

In response to the guidelines established in the Sustainable Salmon Fisheries Policy (5 AAC 39.222), the department during the September 2003 Board work session recommended stock of concern classification for the Kuskokwim River chinook and chum salmon remain as stocks of yield concern. After reviewing stock status information and public input during the January 2004 regulatory meeting, the Board is anticipated to continue the stock of concern classification for Kuskokwim River chinook and chum salmon as stocks of yield concern. This determination was based on the continued inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock's escapement needs for three of the last five years.

Habitat Factors Adversely Affecting The Stock

Freshwater salmon habitat within the Kuskokwim River drainage have remained generally healthy due primarily to undisturbed spawning, rearing, and migration habitat. Nonetheless, there are some habitat issues with the potential to adversely impact the production of salmon in the drainage.

Mining

Based on the Office of Habitat Management and Permitting's (OHMP) (formerly Habitat and Restoration Division) experience in the Kuskokwim River drainage over the last 20 years there has been fisheries habitat damage in the drainage, primarily from gold mining activities occurring over the last century (Lance Trasky and Wayne Dolezal, ADF&G, Anchorage, personal communication). Much of the mining-related impacts occurred prior to 1991 when Alaska's Mining Reclamation Act became law. Mining activity may have reduced the ability of the drainage to produce salmon, at least within specific impacted river reaches. OHMP's evaluation is based on review of individual projects and on an extensive stream survey of south side tributaries between Stony River and the Aniak River in the 1980's. Depending upon the drainage the relative level of damage ranges from severe to low to unknown. Affected drainages include:

Kwethluk River: Supports spawning populations of chinook, chum, coho, pink, and sockeye salmon. Impacts from gold mining have occurred in some upper tributaries. Effect on salmon spawning and rearing habitat is unknown.

Kisaralik River: Supports spawning populations of chinook, coho, sockeye, and chum salmon. Impacts from gold mining have occurred in some upper tributaries. Level of effect on salmon spawning and rearing habitat is unknown.

Tuluksak River: Supports spawning populations of chinook, coho, and chum salmon. This was a very productive system prior to mining. Gold mining from the early 1900's through the 1980's has heavily impacted the upper main stem and major tributaries. Twenty miles, or more, of salmon spawning and rearing habitat was severely damaged. It is reasonable to estimate that at least half of the salmon production of this river has been destroyed. Productivity of salmon in this area is reduced by inadequate stream flow in the main channel as water dissipates through tailings. The Tuluksak River would benefit greatly from restoration.

Aniak River: Supports spawning populations of chinook, chum, and coho salmon. Tributaries to the Aniak River have been placer mined since the early 1900's. The effect of this mining on salmon habitat is unknown.

Holitna River: Supports spawning chinook, chum, coho, pink and sockeye salmon. Tributaries to the Holitna have been mined since the early 1900's. The effect on salmon spawning and rearing has not been assessed.

Do New Or Expanding Fisheries On This Stock Exist?

Federal regulations allowing sale of salmon caught by rural residents under subsistence regulations in applicable waters may increase the subsistence salmon harvest by an unknown amount. Kuskokwim River bound chinook salmon are caught as bycatch in the Bering Sea groundfish fishery. Otherwise, there are no new or expanding fisheries on this stock. However, one proposal before the Board would allow the use of more efficient gillnet gear for subsistence fishing (Proposal 136) potentially effecting historic harvest levels of chinook salmon.

Existing Management Plan

5 AAC 07.365 KUSKOKWIM RIVER SALMON REBUILDING MANAGEMENT PLAN

ACTION PLAN DEVELOPMENT

Kuskokwim River Chinook and Chum Salmon Action Plan Goal

Conservatively manage harvests in order to meet spawning escapement goals, to provide for subsistence levels within the ANS range, and to reestablish historic range of harvest levels by other users.

Review of Management Action Plan

Management of the Kuskokwim River salmon fishery is complex due to the overlapping multispecies salmon runs, generally high efficiency of existing fisheries, and the large size of the drainage.

Regulation Changes Adopted in January 2001

In January 2001, after review of the management action plan options addressing this stock of concern, the Board modified the KUSKOKWIM RIVER SALMON REBUILDING MANAGEMENT PLAN 5 AAC 07.365.

The plan was re-titled as a Rebuilding management plan and was modified to provide guidelines for management of the subsistence, commercial and sport fisheries for Kuskokwim River salmon. The main changes in this rebuilding plan were:

1. The primary objectives in management of Kuskokwim River salmon fisheries in June and July will be to provide for escapement and subsistence needs. Salmon fisheries management will be very conservative and the Board's intent is that the commercial fishery remains closed in June and July unless chinook and chum salmon run strength is clearly adequate to provide for escapement and subsistence needs and allow for other uses.
2. Established a subsistence fishing schedule in the Kuskokwim River and all salmon tributaries. During June and July, subsistence fishing will be open for four consecutive days

allowing a higher proportion of large females to reach the spawning grounds which gave those fishers in the upper river greater opportunity to meet their subsistence needs. The days of the week open to subsistence fishing was selected through the public process.

The fishing schedule remained in effect during June and July during the 2001 season, through June 29 during the 2002 season and through July 6 during the 2003 season. The subsistence fishing schedule was terminated during 2002 and 2003 based on the determination of a surplus of chinook and chum salmon above that necessary to provide for escapement and subsistence uses 5 AAC 07.365. (d)(3). A directed commercial fishery for chum salmon would have been allowed in 2002 and 2003, except there were no buyers interested in chum salmon. The extremely poor market for chum salmon is not expected to change in the near future.

The Kuskokwim River Salmon Management Working Group (Working Group) met frequently during the 2001- 2003 seasons. Fishery management information discussed and reviewed at each meeting included reports from members, state and federal staff, native organizations, fishery partners, and people to be heard. Information discussed included subsistence harvest reports by species, test fish project summaries, and as fish began reaching clear water tributaries, reports from weir, sonar and aerial survey programs.

Since the 2001 season, chinook and chum salmon run size has been increasing. During the 2001 season, in response to poor chinook and chum runs to the George River that drainage was closed to subsistence fishing through July 31. The 2002 runs of chinook and chum salmon were a marked improvement from the lower returns of 2001. From the beginning of the 2003 season there was a good showing of all species of fish that returned in greater numbers than projected. Based on a recommendation from the Working Group a seven day per week subsistence fishing schedule was established July 6, 2003.

The northern boundary of District 4 was moved three miles south to Oyak Creek during the January 2001 Board meeting to lower the potential harvest of Kuskokwim River salmon in the District 4 commercial fishery. In review of this conservation measure for Kuskokwim River chinook and chum salmon since the 2001 season it was not possible to quantify any reduction in harvest of Kuskokwim River salmon. In fact, because of declining salmon markets and prices paid for salmon, the harvest in District 4 has declined due to lower fishing effort and processing capacity.

In general, recreational harvests by sport anglers in the Kuskokwim Area are very small when compared to commercial and subsistence harvests. By regulation within the Kuskokwim Area sport fishing for salmon begins on May 1. Prior to the Federal Subsistence Special Action in the Kuskokwim in 2001, a sport fishing emergency order was issued to reduce the possession and bag limit to one chinook or one chum salmon in the entire Kuskokwim River drainage. In 2002 and 2003 similar sport fishing emergency orders were issued prohibiting the retention of chinook and chum salmon from May 1 through June 15 and after June 15 the possession and bag limits were established at one fish a day for either chinook or chum salmon.

In summary, chinook and chum salmon fisheries management has been very conservative the last three years resulting in most escapement goals being met. An available surplus of chinook and

Performance Measures

Measures of performance would be to assess commercial harvest, effort and value, subsistence harvest falling within the range of ANS and achieving adequate escapements.

Board of Fisheries Regulatory Proposals Addressing Kuskokwim River Chinook and Chum Salmon Stocks of Concern

- Subsistence fishing schedule and fishing periods - proposal numbers: 130, 131, 132, 133, and 134.
- Increasing depth of subsistence fishing gillnet gear - proposal number: 136.
- Eliminate gear, bag, season, etc. limits on rod and reel subsistence fishing in Aniak River - proposal number: 137.
- Commercial fishing boundary changes in Districts W-4 and W-5 - proposal numbers: 138 and 139.
- Close commercial fishing until June 16 in District W-4 - proposal number: 140.
- Sport fish management - proposal numbers: 143, 144 and 145.

RESEARCH PLAN

AYK-SSI Research Plan

The AYK Sustainable Salmon Initiative (AYK SSI) emerged as a collaborative response to recent sharp declines of chinook and chum salmon runs in the Yukon River, Kuskokwim River, and rivers draining into Norton Sound. Through this initiative, native regional organizations have joined with state and federal agencies to form an innovative partnership to cooperatively address salmon research and restoration needs. This partnership includes the Association of Village Council Presidents (AVCP), the Tanana Chiefs Conference (TCC), Kawerak, Inc., Bering Sea Fishermen's Association (BSFA), Alaska Department of Fish and Game (ADF&G), National Marine Fisheries Service (NMFS), US Fish & Wildlife Service (USFWS), plus additional native, governmental and nongovernmental ex-officio partner institutions.

In addition to funding high quality salmon research projects, the AYK SSI is undertaking the development of a comprehensive Research and Restoration Plan for AYK. This long range, strategic science plan, to be developed over the next two years, will identify major research themes, significant knowledge gaps and research questions, and will establish research priorities for the region. Pending development of a draft Research and Restoration Plan, the AYK SSI has identified a set of interim research priorities for 2004-05 that reflect the need to address pressing fisheries information needs while a longer range research plan is under development.

CURRENT PROGRAMS

Aerial survey, weir, sonar, mark-recapture, and radio telemetry projects operated in the Kuskokwim Area allow estimation of entire spawning populations or major segments of those populations. Other information collected at ground based projects may include salmon sex and

Chinook Salmon Radio Telemetry

A radio telemetry study was conducted in 2002 and 2003 to estimate the total passage of chinook salmon in the mainstem Kuskokwim River, upstream of Birch Tree Crossing at river mile 221 (Stuby 2002). The estimated passage, excluding Aniak River, is 100,733 (SE 24,267) chinook salmon for 2002. A preliminary estimate for 2003, which also excludes the Aniak River, is 110,900 (SE = 20,290) (L. Stuby, ADF&G Sport Fish Division, Fairbanks, personal communication). Aniak River was excluded due to suspected sampling bias. ADF&G Sport Fish Division operated the project with assistance from Kuskokwim Native Association. Project funding was through a grant from Office of Subsistence Management (OSM).

Mark Recapture

Mark-recapture studies were conducted in 2002, and 2003 to estimate the total passage of chum, sockeye and coho salmon in the mainstem Kuskokwim River, upstream of Kalskag at river mile 192. This was the third year of the project; however, in 2001 the study was limited to coho salmon (Kerkvliet and Hamazaki 2003, and Kerkvliet et. al. 2003). In 2002, abundance estimates upstream from Kalskag were 675,659 (SE=59,232) chum salmon and 316,068 (SE=62,342) coho salmon (Kerkvliet et al 2003). Abundance estimates for 2003 have not been finalized. Fish were captured with fish wheels and gillnets deployed near Kalskag (river mile 192) and Birch Tree Crossing (river mile 221), and marked with uniquely number spaghetti tags. The recapture event was considered from two aspects: the recovery of tags from catches in the fish wheels and gillnets fished at Birch Tree Crossing, and the observation of tagged fish at Aniak River sonar and at George, Tatlawiksuk, Kogrukluuk and Takotna River weirs. ADF&G Commercial Fisheries Division operated the project with assistance from Kuskokwim Native Association. Project funding was through grants from the Western Alaska Fishery Disaster Relief Program administered by the National Marine Fisheries Service, the AYK SSI administered by BSFA, and OSM, coupled with matching funds from the State of Alaska. Details of the study are reported in the Regional Information Report series of ADF&G Commercial Fisheries Division.

Table 1. Utilization of chinook salmon in the Kuskokwim River, 1960-2003.

Year	Commercial Harvest	Subsistence Harvest ^a	Test Fishery Harvest	Sport Fish Harvest	Total Utilization	10-Year Average
1960	5,969	18,887			24,856	
1961	18,918	28,934			47,852	
1962	15,341	13,582			28,923	
1963	12,016	34,482			46,498	
1964	17,149	29,017			46,166	
1965	21,989	24,697			46,686	
1966	25,545	49,325	285		75,155	
1967	29,986	59,913	766		90,665	
1968	34,278	32,942	608		67,828	
1969	43,997	40,617	833		85,447	56,008
1970	39,290	69,612	857		109,759	64,498
1971	40,274	43,242	756		84,272	68,140
1972	39,454	40,396	756		80,606	73,308
1973	32,838	39,093	577		72,508	75,909
1974	18,664	27,139	1,236		47,039	75,997
1975	22,135	48,448	704		71,287	78,457
1976	30,735	58,606	1,206		90,547	79,996
1977	35,830	56,580	1,264	33	93,707	80,300
1978	45,641	36,270	1,445	116	83,472	81,864
1979	38,966	56,283	979	74	96,302	82,950
1980	35,881	59,892	1,033	162	96,968	81,671
1981	47,663	61,329	1,218	189	110,399	84,284
1982	48,234	58,018	542	207	107,001	86,923
1983	33,174	47,412	1,139	420	82,145	87,887
1984	31,742	56,930	231	273	89,176	92,100
1985	37,889	43,874	79	85	81,927	93,164
1986	19,414	51,019	130	49	70,612	91,171
1987	36,179	67,325	384	355	104,243	92,225
1988	55,716	70,943 ^b	576	528	127,763	96,654
1989	43,217	81,176	543	1,218	126,154	99,639
1990	53,504	85,979	512	394	140,389	103,981
1991	37,778	85,554	117	401	123,850	105,326
1992	46,872	64,795	1,380	367	113,414	105,967
1993	8,735	87,512	2,483	587	99,317	107,685
1994	16,211	93,242	1,937	1,139	112,529	110,020
1995	30,846	96,436	1,421	541	129,244	114,752
1996	7,419	78,063	247	1,432	87,161	116,406
1997	10,441	81,577	332	1,227	93,577	115,340
1998	17,359	81,265	210	1,434	100,268	112,590
1999	4,705	73,194	98	252	78,249	107,800
2000	444	64,893	874	105	66,316	104,029
2001	90	73,610	86	290	74,076	98,000
2002	72	74,746	288	300 ^c	75,406	93,596 ^c
2003	150	78,941 ^c	409	500 ^c	80,000 ^c	90,558 ^c
10-Yr. Ave. (1993-2002)	9,632	80,454	798	731	91,614	108,022

^a Estimated subsistence harvest expanded from villages surveyed.

^b Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

^c Preliminary estimates.

Table 3. Utilization of chum salmon in the Kuskokwim River, 1960-2003.

Year	Commercial Harvest	Subsistence Harvest ^{abc}	Test Fishery Harvest	Sport Fish Harvest	Total Utilization	Running 10-Year Average
1960	0	301,753			301,753	
1961	0	179,529			179,529	
1962	0	161,849			161,849	
1963	0	137,649			137,649	
1964	0	190,191			190,191	
1965	0	250,878			250,878	
1966	0	175,735	502		176,237	
1967	148	208,445	338		208,931	
1968	187	275,008	562		275,757	
1969	7,165	204,105	384		211,654	209,443
1970	1,664	246,810	1,139		249,613	204,229
1971	68,914	116,391	254		185,559	204,832
1972	78,619	120,316	486		199,421	208,589
1973	148,746	179,259	675		328,680	227,692
1974	171,887	277,170	2,021		451,078	253,781
1975	184,171	176,389	1,062		361,622	264,855
1976	177,864	223,792	2,101		403,757	287,607
1977	248,721	198,355	576	125	447,777	311,492
1978	248,656	118,809	2,153	555	370,173	320,933
1979	261,874	161,239	412	259	423,784	342,146
1980	483,751	165,172	2,058	324	651,305	382,316
1981	418,677	157,306	1,793	598	578,374	421,597
1982	278,306	190,011	504	1125	469,946	448,650
1983	276,698	146,876	1,069	922	425,565	458,338
1984	423,718	142,542	1,186	520	567,966	470,027
1985	199,478	94,750	616	150	294,994	463,364
1986	309,213	141,931	1,693	245	453,082	468,297
1987	574,336	70,709	2,302	566	647,913	488,310
1988	1,381,674	151,967	4,379	764	1,538,784	605,171
1989	749,182	139,687	2,082	2023	892,974	652,090
1990	461,624	126,508	2,107	533	590,772	646,037
1991	431,802	93,075	931	378	526,186	640,818
1992	344,603	96,491	15,330	608	457,032	639,527
1993	43,337	59,396	8,451	359	111,543	608,125
1994	271,115	72,025	11,998	1280	356,418	586,970
1995	605,918	67,862	17,473	226	691,479	626,618
1996	207,877	88,965	2,864	280	299,986	611,309
1997	17,026	39,970	790	86	57,872	552,305
1998	207,809	63,537	1,140	291	272,777	425,704
1999	23,006	43,601	562	180	67,349	343,141
2000	11,570	51,696	1,038	26	64,330	317,795
2001	1,272	49,874	1,743	112	53,001	243,179
2002	1,900	76,842	2,666	150 ^d	81,558	228,486 ^d
2003	2,760	75,377 ^d	1,713	150 ^d	80,000 ^d	202,477 ^d
10-Yr. Ave. (1993-2002)	139,083	61,377	4,873	299	205,631	454,363

^a Estimated subsistence harvest expanded from villages surveyed.^b May include small numbers of small chinook, sockeye and coho salmon, 1960-1988.^c Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.^d Preliminary estimates.

Table 5. Utilization of sockeye salmon in the Kuskokwim River, 1981-2003.

Year	Commercial Harvest	Subsistence Harvest	Test Fishery Harvest	Total Utilization	10-Year Average
1981	48,375				
1982	33,154				
1983	68,855				
1984	48,575				
1985	106,647				
1986	95,433				
1987	136,602				
1988	92,025				
1989	42,747	35,224		77,971	
1990	84,870	36,276		121,146	
1991	108,946	52,984		161,930	
1992	92,218	32,066		124,284	
1993	27,008	49,347		76,355	
1994	49,365	37,159		86,524	
1995	92,500	27,791		120,291	
1996	33,878	34,213		68,091	
1997	21,989	40,097		62,086	
1998	60,906	35,425		96,331	99,501
1999	16,976	46,677		63,653	98,069
2000	4,130	41,783		45,913	90,546
2001	84	50,065	510	50,659	79,419
2002	84	26,610	228	26,922	69,683
2003	158	50,000 a/	646	50,804	67,127
10-Year Average 1992-2001	39,905	39,462		79,419	

a/ Preliminary estimate

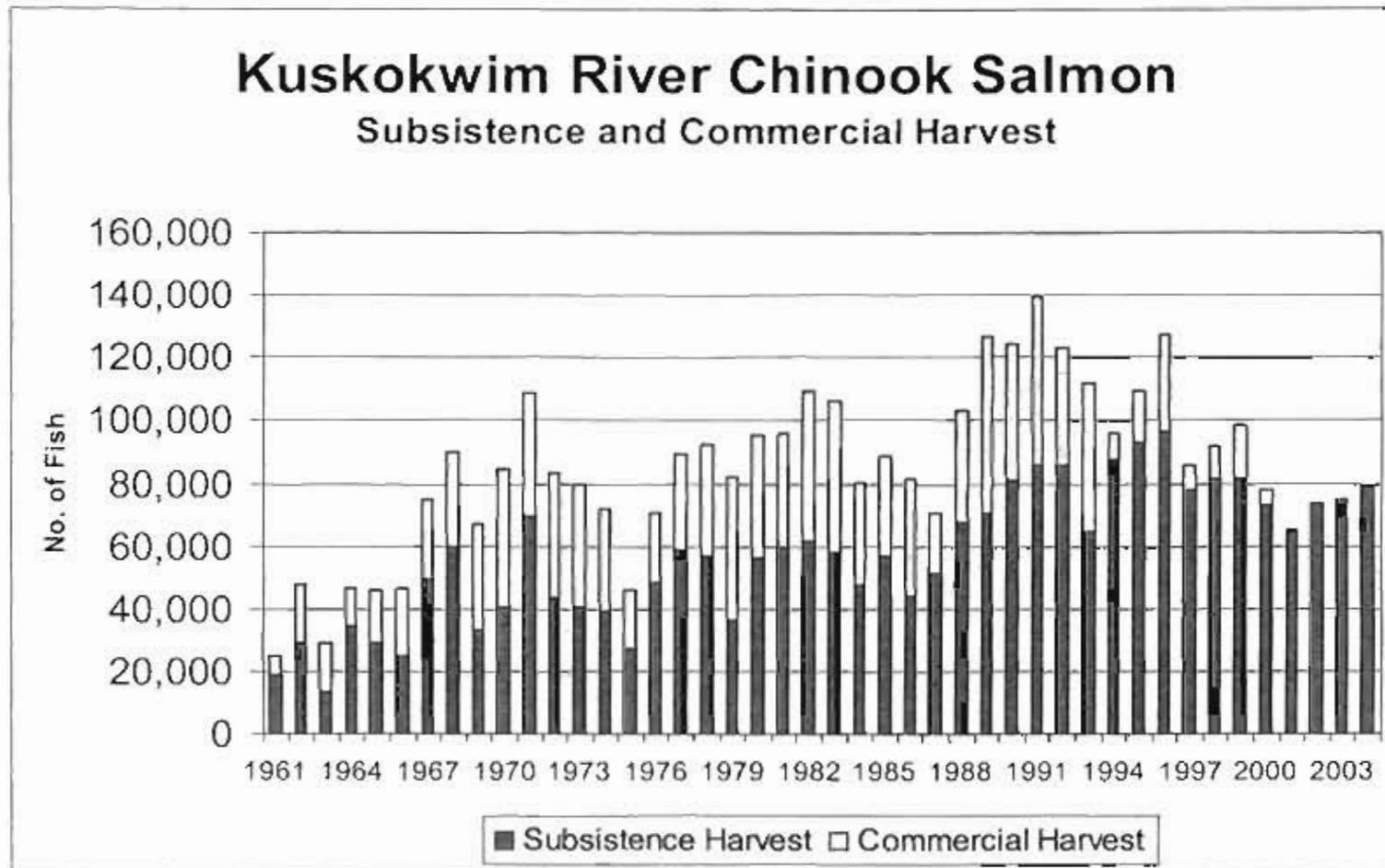


Figure 2. Kuskokwim River chinook salmon subsistence and commercial harvests compared to the 1989-1998 average (110,800 fish) and the 1999-2003 average (74,200 fish).

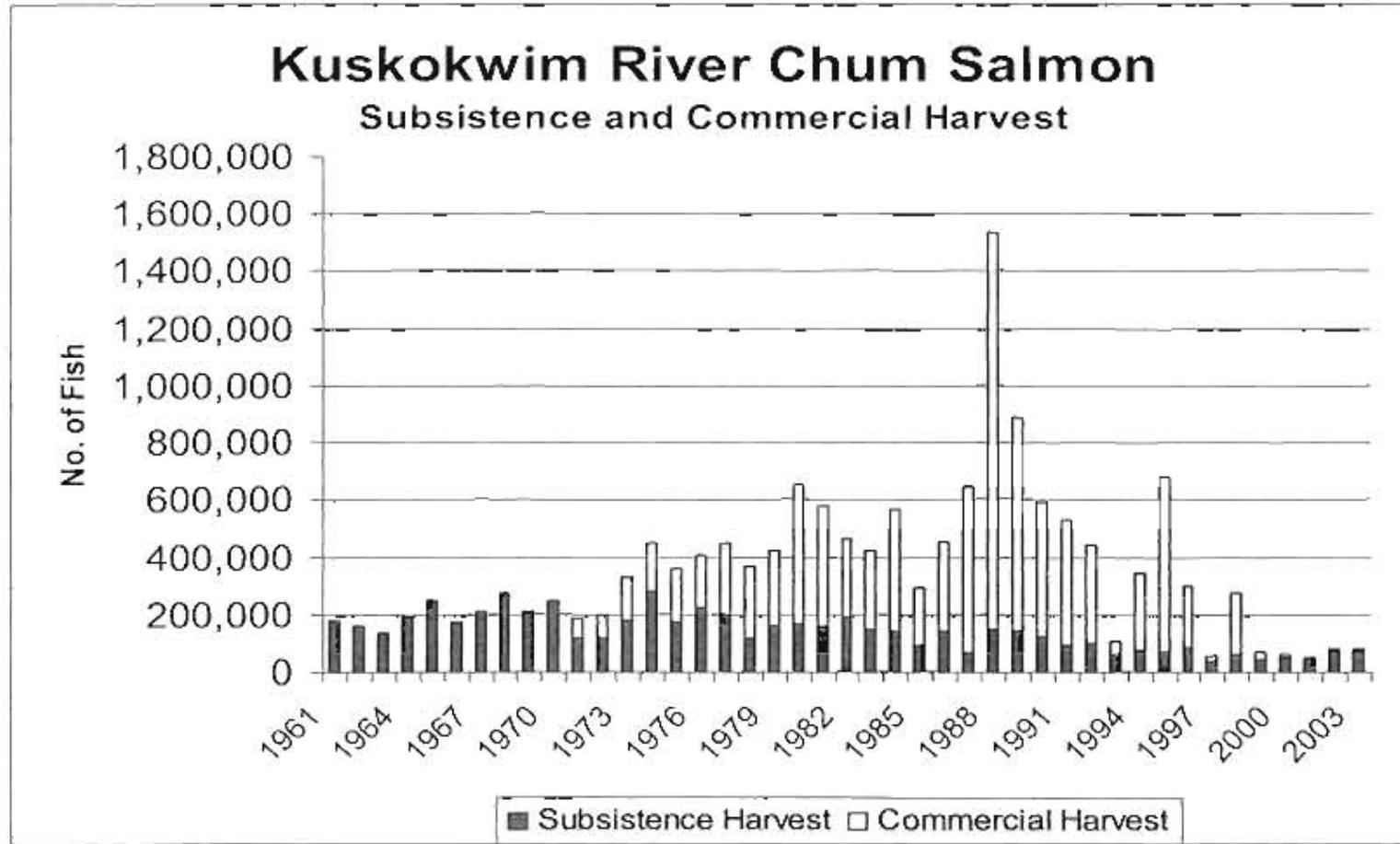


Figure 4. Kuskokwim River chum salmon subsistence and commercial harvests compared to the 1989-1998 average (418,800 fish) and the 1999-2003 average (67,400 fish).