

1984 Western Alaska Chinook Salmon Returns
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by

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Introduction

Following is a synopsis of inshore return information for western Alaska chinook salmon in 1984. Included are preliminary catch and escapement data for 1984 as well as data for 1961 to 1983 for comparison (Tables 1 and 2).

The area referred to as western Alaska in this report consists of all coastal waters of the eastern Bering Sea from the north side of the Alaska Peninsula to Cape Prince of Wales, in Norton Sound, and includes all rivers which empty into the eastern Bering Sea between these reference points.

The chinook salmon resource is of immense value in western Alaska and is considered fully exploited by existing subsistence and commercial fisheries of the region. During the past five years (1979-1983) the inshore commercial harvest of chinook salmon in western Alaska has comprised 54% of the total statewide harvest of this species.

North Alaska Peninsula

Total commercial harvest was 25,000 chinook salmon. Most of the catch was taken from the Port Heiden, Bear River and Nelson Lagoon areas. The 1984 harvest was less than that reported in either 1983 or 1982, but slightly more than the recent five year average (1979-1983, 22,200 chinook salmon). Subsistence harvest, spawning escapement and age composition estimates are not yet available for 1984.

Bristol Bay Area

Total commercial harvest from all five Districts (Nushagak, Togiak, Naknek-Kvichak, Egegik, and Ugashik) was 102,000 chinook salmon (approximately 2,040,000 lbs.). This was 49 percent lower than the recent five year average (1979-1983, 202,000 chinook salmon) and 20 percent lower than the 20 year average (1964-1983, 128,000 chinook salmon) harvest. Subsistence harvest estimates are not yet available for 1984, however, it is assumed that landings will be similar to recent levels (five year mean, 1979-1983, 13,000 chinook salmon).

Spawning escapement to the Nushagak River, which usually accounts for over 70 percent of the total chinook salmon return to Bristol Bay, is estimated to be 85,000 chinook salmon. Several commercial fishing closures were necessary within Nushagak District to obtain this level of escapement, which is within the desired range of 50,000 to 100,000 spawners. Escapement to the Togiak

River, which usually accounts for about 15 percent of the total return to Bristol Bay, is estimated to be 26,000 chinook salmon. This level of escapement is greater than the recent five year average (1979-1983, 19,600 chinook salmon). Preliminary age composition analysis of the Nushagak District commercial catch indicates that five and seven year old chinook salmon were more abundant, and four year old chinook salmon were less abundant, than in past years:

	Age (Total years)			
	4	5	6	7
1984	1%	44%	43%	12%
1956-1983	15%	34%	46%	5%

In summary, total returns of chinook salmon to Bristol Bay appear to be below recent and, possibly, long term levels of abundance.

Kuskokwim Area

Total commercial harvest from the area, which includes the Kuskokwim River, Quinhagak and Goodnews Bay fisheries, was 73,900 chinook salmon (approximately 1,500,000 lbs.). Estimated subsistence harvest from the Kuskokwim River only is 76,500 chinook salmon, bringing the combined commercial and subsistence harvest to 150,400. This combined harvest is approximately 15 percent greater than the average for the past five years (1979-1983). The commercial harvest alone, while less than any one of the past three years, is similar to the past five year average. Commercial fishing effort in 1984 was comparable to that of recent past years, but early restrictions had to be placed upon the Kuskokwim River commercial fishery to ensure that adequate numbers of chinook salmon were available for subsistence use and spawning goal requirements. Commercial catches on Kuskokwim Bay were, as in 1983, greater than those made in recent past years.

Escapements to Kuskokwim Bay drainage systems met or exceeded Department of Fish and Game goals. Kuskokwim River escapements were weaker, and goals were not achieved in most index streams. Preliminary age composition analysis of commercial catches and escapements indicates that six year old chinook salmon, usually the dominant age class, were less abundant than normal in the Kuskokwim area. Five year old chinook salmon, mostly males, were the most abundant age class in the return.

In summary, returns of chinook salmon to the Kuskokwim River were about average while returns to Kuskokwim Bay streams were above average in abundance. In contrast to past years, when six year old chinook salmon predominated in returns, five year old chinook salmon were the the most abundant age class.

Yukon Area

Commercial harvest in the Yukon River (including reported Canadian catches) was 129,300 (approximately 2,600,000 lbs). The commercial catch was the smallest since 1978; approximately 15 percent less than the recent five year (1979-1983) average. Subsistence harvest values have not been finalized at

this time, however, the average harvest estimate during the most recent five years is 44,600. Assuming this level of subsistence harvest was achieved in 1984, the combined subsistence and commercial harvest was approximately 173,900.

Surveys throughout the drainage, although limited by unfavorable weather and stream conditions, indicate that escapement objectives were achieved in all major chinook salmon spawning streams. To obtain adequate escapement levels, the Department has been required to reduce the amount of time allowed for commercial fishing due to increases in fishing power of the fleet. The number of fishing hours allowed during 1984 represents a 70% reduction in time since 1974, and is the fewest number of fishing hours allowed. Preliminary age composition analysis indicates a normal predominance of six year old chinook salmon in the commercial catch.

In summary, the 1984 return of chinook salmon to the Yukon River was approximately average in abundance and age composition.

Norton Sound Area

The commercial harvest of 8,400 chinook salmon was less than that landed in 1983, but greater than of the three preceding years (1980-82). Most of the harvest was taken from the Unalakleet and Shaktoolik Districts in eastern Norton Sound. Escapements to area streams appear to be excellent.

Summary

A total of 333,700 chinook salmon was harvested in western Alaska commercial fisheries. This represents the smallest harvest since 1980, and is 26 percent below the most recent five year (1979-1983) average. Total inshore returns in 1984 varied greatly in magnitude from area to area, but were relatively strong in Kuskokwim Bay drainages, the Yukon River, and Norton Sound; average in the Kuskokwim River; and relatively weak in Bristol Bay. It cannot be determined at this time whether a general downward trend in abundance is beginning to occur, or if 1984 returns merely reflect isolated brood year failures in a few systems.

Table 1. Commercial harvest of western Alaska chinook salmon by area and year, 1961-1984.

Year	Norton Sound	Yukon 1/	Kuskokwim 2/	Bristol Bay	Alaska Peninsula	Total
1961	5,300	123,706	23,462	88,656	6,050	243,132
1962	7,286	98,771	20,869	84,047	6,098	213,060
1963	6,613	119,277	18,581	62,269	3,601	208,123
1964	2,034	96,795	21,246	139,536	3,592	259,996
1965	1,449	120,363	24,428	112,967	6,131	262,989
1966	1,553	95,257	25,823	77,472	9,342	207,507
1967	1,804	131,893	29,986	117,193	5,523	283,938
1968	1,045	108,732	43,157	103,723	4,483	258,973
1969	2,394	91,863	64,777	124,908	4,846	287,647
1970	1,845	82,880	65,273	140,511	3,854	290,790
1971	2,583	113,685	44,936	123,015	2,189	283,241
1972	2,938	94,609	56,939	69,546	1,792	224,058
1973	2,041	77,224	51,374	44,044	4,554	177,376
1974	3,000	100,303	30,739	45,664	2,720	180,482
1975	2,394	66,838	27,803	29,992	2,093	126,248
1976	2,248	92,276	50,103	95,968	4,953	240,649
1977	4,500	101,377	58,256	130,526	5,500	296,432
1978	10,002	102,143	63,194	191,539	14,259	381,543
1979	10,706	133,848	53,314	212,873	16,900	427,641
1980	6,100	163,485	48,242	95,708	18,000	331,535
1981	7,900	166,211	79,700	239,065	18,000	510,976
1982	5,900	132,284	79,100	265,000	30,000	505,284
1983	10,308	160,937	93,586	201,000	28,000	493,952
1984 3/	8,400	129,300	73,900	102,000	25,000	337,700

1/ Includes catches made in Canada.

2/ Includes Kuskokwim River, Quinhagak and Goodnews Bay Fisheries.

3/ Preliminary data subject to change.

Table 2. Escapement estimates and indices of western Alaska chinook salmon by area and year, 1961-1983.

Year	Yukon 1/	Kuskokwim 2/	Bristol Bay 3/
1961	1,650	-	-
1962	1,218	-	-
1963	484	-	-
1964	652	-	-
1965	655	-	-
1966	507	824	-
1967	533	-	74,000
1968	476	972	86,000
1969	334	537	43,000
1970	1,057	932	65,000
1971	1,348	-	-
1972	794	476	39,000
1973	523	191	46,000
1974	805	73	85,000
1975	696	419	81,000
1976	783	596	114,000
1977	1,247	1,079	85,000
1978	1,943	2,540	170,000
1979	2,063	-	115,000
1980	2,651 4/	-	153,000
1981	4/	4,355 5/	177,000
1982	1,285	6/	164,000
1983	1,433	447	184,000
1984	1,515	1,364	111,000

- 1/ Index based on average number of chinook salmon counted in four indicator streams: West Fork, Andreafsky; East Fork, Andreafsky; Salcha; Whitehorse fishway.
- 2/ Index based on average number of chinook salmon counted during aerial surveys of the following streams in the Kuskokwim River drainage: Kwethluk, Kisaralik, Aniak (above Salmon River), Kipchuk, Chukowan, and Kogrukluk.
- 3/ Estimated total for Nushagak and Togiak Districts, only.
- 4/ Index areas not surveyed due to high, turbid water.
- 5/ Based on poor surveys of both Kwethluk and Kisaralik and a fair survey of Aniak (other streams not surveyed).
- 6/ Surveyed after peak of spawning; stream totals not comparable with prior years.