

STATE OF ALASKA
Bill Sheffield, Governor

Annual Performance Report for
CHINOOK SALMON POPULATION AND ANGLER USE
STUDIES OF UPPER COOK INLET WATERS

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RESEARCH PROJECT SEGMENT

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of Upper Cook Inlet
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ABSTRACT

In 1983, for the fifth consecutive year, selected northern Cook Inlet streams were opened to sport fishing for chinook salmon, Oncorhynchus tshawytscha (Walbaum). The area open to chinook salmon fishing was expanded from previous years. The 1983 chinook salmon harvest of 11,031 fish and 35,916 angler-days of effort are the highest recorded harvest and effort estimates since the fisheries were reopened in 1979. The chinook salmon escapement count for northern Cook Inlet was the highest recorded since 1977.

KEY WORDS

Northern Cook Inlet, chinook salmon, creel census, escapement counts.

BACKGROUND

For the fifth consecutive year, selected northern Cook Inlet streams were opened to the taking of chinook salmon 20-inches or more in length. In the past, fishing was permitted on three streams on the west side of the Susitna River, four on the east side of Susitna River and Little Susitna River which drains directly into Cook Inlet. In 1983 the Board of Fisheries expanded the areas open to fishing to include the Chuitna River near Tyonek, and the entire Yentna and Talkeetna River drainages (Figure 1). The opening date for the season was also changed from the fourth Saturday in May to January 1. For reporting purposes reference to west side streams will include all streams west of the Susitna River and all east side streams will include all streams east of the Susitna River which flow into northern Cook Inlet.

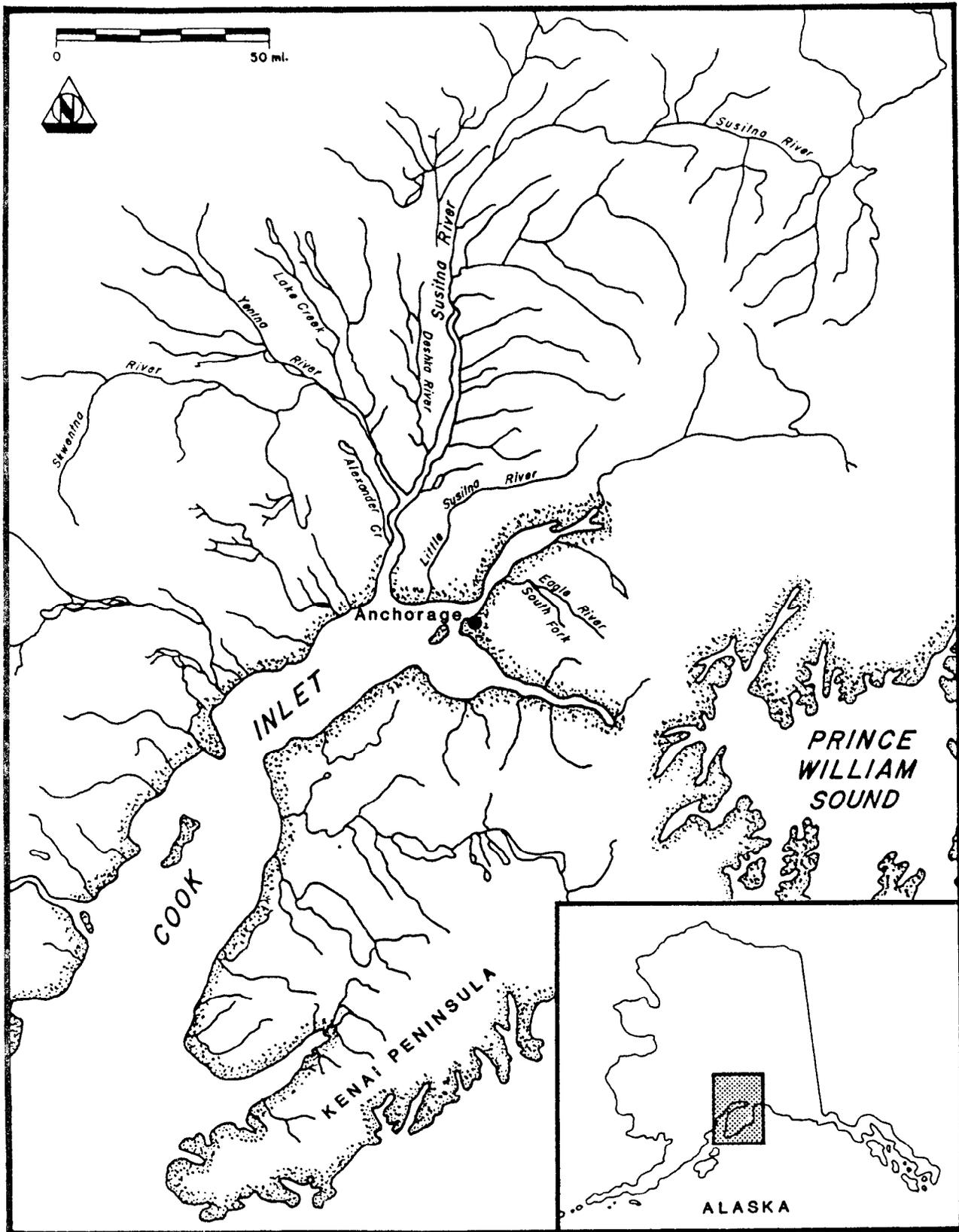


Figure 1. Upper Cook Inlet study area.

A king salmon/steelhead stamp was not required in 1983 but a nontransferable harvest record was once again mandatory for participation in these fisheries. A five fish (over 20-inches or more in length) yearly bag limit also continued to govern the annual take from all Cook Inlet chinook salmon fisheries. In 1979, the northern Cook Inlet daily bag and possession limit was one chinook 20-inches or more in length. The following year the daily bag and possession limit was changed to two chinook salmon, one of which could exceed 28 inches. In 1981 the daily limit was changed to one chinook 20-inches or more in length and two in possession. This regulation remained in effect for 1983.

The 1983 fisheries were monitored closely for enforcement purposes, and to collect data such as angling effort, harvest, sex and age composition information.

Other pertinent historical data are presented in Annual Performance Reports by Kubik (1980-1981), Hepler and Kubik (1982), Delaney and Hepler (1983), Watsjold (1980-1981) and Bentz (1982-1983).

RECOMMENDATIONS

1. A creel census should be continued on selected northern Cook Inlet streams to determine sport angling effort, obtain harvest estimates and collect biological data from the chinook salmon fisheries.
2. Chinook salmon enumerations should be continued on selected northern Cook Inlet streams to ascertain the abundance, timing and distribution of chinook salmon escapement in the spawning streams.
3. Chinook salmon carcass surveys should be continued to provide a comparative source of biological data including age, length and sex composition.

OBJECTIVES

1. To determine sport fish effort for, and harvest of chinook salmon from late May to early July on nine upper Cook Inlet streams.
2. To determine escapement levels and biological characteristics of chinook salmon stocks in 29 upper Cook Inlet streams between July 15 and August 15.
3. To evaluate current regulations governing these sport fisheries and provide recommendations for future management and research.

TECHNIQUES USED

Techniques utilized in the 1983 field season are described by Bentz (1983) and Delaney and Hepler (1983). The only differentiations from

techniques previously described was an economic survey conducted in conjunction with the chinook sport fish creel census. The number of creel census sites were expanded to include the Chuitna River, Peters/Martin Creek and Talachulitna River; the Talkeetna River creel census was moved from Chunilna Creek to the boat launch in Talkeetna; the Willow Creek creel census site was expanded to include the Parks Highway bridge crossing during the last weekend open to chinook fishing.

FINDINGS

Northern Cook Inlet Chinook Salmon Sport Fishery

Table 1 shows northern Cook Inlet chinook salmon harvest and effort estimates for 1979-1983. It is important to recognize that these data are not always directly comparable between streams and from year to year because emergency closures have influenced both effort and harvest. Willow Creek illustrates the effect of annual fluctuations in fishing time. In 1979, for example, 8 days of fishing provided a harvest of 285 chinook and 975 angler-days of effort. Seven days of fishing yielded nearly the same number of salmon (292) in 1980; and this year 393 chinook were caught in 1,811 angler-days of effort during an 8-day season. The accumulative harvest of 2,780 chinook from the east side streams in 1983 was the highest recorded since the chinook sport season reopened in 1979.

Harvest and effort data for the west side systems are generally more comparable from year to year because, unlike the east side, seasons have not been shortened by emergency closures. Changes in areas opened to fishing and alterations in bag and possession limits have, however, had some influence on annual harvests from these streams. The accumulative harvest of 8,251 chinook from the three previously opened west side streams and the newly opened fishing areas was the highest recorded since 1979.

Total fishing effort for chinook salmon on northern Cook Inlet streams in 1983 was estimated at 35,916 angler-days, which is the highest recorded since 1979. The harvest rate of 0.31 fish per angler-day compares favorably with previous years (Table 2).

The following is a review of the 1983 chinook salmon sport fishery for individual streams within northern Cook Inlet.

Little Susitna River:

Since the area open to chinook salmon fishing on the Little Susitna River encompasses 70 miles, it was necessary to conduct a creel census at both major access sites which are 42 river miles apart. These access points are referred to as the Burma Road and Parks Highway, which access the lower and upper river, respectively. Total chinook salmon harvest was estimated at 813 with 9,137 angler-days of effort and an average harvest per hour and per angler-day of 0.02 and 0.09, respectively. Effort in 1983 increased 27% over chinook fishing effort in 1982 and represents the highest effort since the river was re-opened to fishing

Table 1. Chinook Salmon Sport Harvest and Effort Estimates for Northern Cook Inlet, 1979-1983.

<u>East Side</u>	<u>Harvest</u>					<u>Angler-Days</u>				
	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Caswell Creek	155	255 ^{1/}	185	220	215 ^{5/}	1,070	1,038	1,320	1,225	1,802
Clear Creek	358	161	340	441	1,048 ^{5/}	1,160	801	1,300	1,764	2,799
Little Susitna River	728	337 ^{2/}	945 ^{3/}	792	813 ^{6/}	3,857	2,877	6,660	7,185	9,137
Montana Creek	125	375 ^{2/}	360 ^{4/}	85	311 ^{6/}	2,470	1,901	4,845	897	1,433
Willow Creek	285	292 ^{2/}	345 ^{4/}	390	393	975	612	540	504	1,811
Total	1,651	1,420	2,175	1,928	2,780	9,532	7,229	14,665	11,575	16,982
<u>West Side</u>										
Alexander Creek	1,277	2,281	630	2,252	1,830	2,778	4,411	1,714	4,735	5,440
Deshka River	2,954	4,023	1,895	4,000	2,802	6,451	8,397	5,086	7,843	5,462
Lake Creek	2,045	1,044	641	1,474	2,141	3,954	2,237	1,180	3,657	4,203
Chuitna River	<u>7/</u>	<u>7/</u>	<u>7/</u>	<u>7/</u>	1,052	<u>7/</u>	<u>7/</u>	<u>7/</u>	<u>7/</u>	2,364
Talachulitna River	<u>7/</u>	<u>7/</u>	<u>7/</u>	<u>7/</u>	312	<u>7/</u>	<u>7/</u>	<u>7/</u>	<u>7/</u>	1,198
Peters/Martin Creek	<u>7/</u>	<u>7/</u>	<u>7/</u>	<u>7/</u>	114	<u>7/</u>	<u>7/</u>	<u>7/</u>	<u>7/</u>	267
Total	6,276	7,348	3,166	7,726	8,251	13,183	15,045	7,980	16,235	18,934
Combined Totals	7,927	8,768	5,341	9,654	11,031	22,715	22,274	22,645	27,810	35,916

- 1/ In 1980 emergency closure reduced fishing days from a scheduled 8 to 5.
2/ In 1980 emergency closure reduced fishing days from a scheduled 8 to 7.
3/ In 1981 emergency closure reduced fishing days from a scheduled 8 to 5.
4/ In 1981 emergency closure reduced fishing days from a scheduled 8 to 6.
5/ Talkeetna River drainage, including Clear Creek.
6/ In 1983 emergency closure reduced fishing days from a scheduled 8 to 6.
7/ King salmon sport fishery was not opened until 1983.

Table 2. Chinook Salmon Sport Harvest per Angler-Day Estimates for Northern Cook Inlet, 1979-1983.

<u>East Side</u>	<u>Harvest per Angler-Day</u>				
	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Caswell Creek	0.14	0.25	0.14	0.18	0.12
Clear Creek	0.31	0.20	0.26	0.25	0.37
Little Susitna River	0.19	0.12	0.14	0.11	0.09
Montana Creek	0.05	0.20	0.07	0.09	0.22
Willow Creek	<u>0.29</u>	<u>0.48</u>	<u>0.64</u>	<u>0.77</u>	<u>0.22</u>
Total	0.17	0.20	0.15	0.17	0.16
<u>West Side</u>					
Alexander Creek	0.46	0.52	0.48	0.37	0.34
Deshka River	0.46	0.48	0.37	0.51	0.51
Lake Creek	0.52	0.47	0.35	0.40	0.51
Chuitna River	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	0.45
Talachulitna River	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	0.26
Peters/Martin Creek	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>0.43</u>
Total	0.48	0.49	0.37	0.47	0.44
Combined Totals	0.35	0.39	0.24	0.35	0.31

1/ Chinook salmon sport fishery was not opened until 1983.

in 1979 (Table 1). Boat anglers harvested 74% of the chinook and represented 45% of the total effort in 1983.

Anglers interviewed at the Burma Road access site harvested 439 chinook salmon in 4,796 angler-days, which represented 54 and 52% of the respective total harvest and effort. Harvest per hour and per angler-day was 0.02 and 0.09, respectively. Anglers in boats fished 2,159 days and harvested 324 chinook while shore anglers harvested 115 chinook in 2,637 angler-days. Included in these estimates are anglers which floated from the Parks Highway to the Burma Road. These anglers harvested 49 chinook salmon in 388 angler-days of effort which represent 6 and 4.3% of the river's respective harvest and effort totals. These figures reflect a slight increase from 1982 estimates when floaters comprised 1.3 and 3.2% of the total harvest and effort, respectively (Bentz, 1983).

Anglers that boated across the marine waters of Knik Arm from Anchorage during high tide to fish in the lower river harvested 42 chinook salmon during 336 angler-days, 5 and 4% of the respective harvest and effort totals. Harvest per hour was 0.02 and per angler-day was 0.13.

Parks Highway anglers harvested 332 chinook with 4,005 angler-days of effort. These figures represent 41 and 44% of the respective harvest and effort totals for the entire river. Boat anglers harvested 236 chinook salmon in 1,540 angler-days while shore anglers fished 2,465 days and harvested 96 chinook. Anglers that chartered comprised 17% of the total Parks Highway boat fishing effort and harvested 21% of all chinook salmon taken by boat anglers in the upper river. These anglers were usually transported to a downstream fishing area, dropped off and picked up again later in the day, although charter operators would occasionally remain with their clients and guide them to different areas. Chartered boat anglers experienced a slightly higher chinook harvest per angler-day than private boat anglers because their average hours fished per day was higher. Harvest per hour was exactly the same between the two angler groups at 0.03.

Talkeetna River:

In 1983 the entire Talkeetna River drainage was open to sport fishing for chinook salmon. During previous years only Chuniilna Creek, a tributary stream of the Talkeetna River, was open to chinook fishing. Total chinook salmon harvest on the Talkeetna River in 1983 was estimated at 1,048 with 2,799 angler-days of effort and an average harvest per hour and per angler-day of 0.06 and 0.37, respectively. These estimates represent the highest harvest and effort since the fishery was reopened in 1979. Fishing effort increased 59% from 1982 effort estimates, while the chinook salmon harvest increased 138% from 1982 (Table 1). One reason for the large increases in harvest and effort in 1983 is that chinook salmon arrived at the Talkeetna River earlier in the season and were available to anglers for a longer period of time. In 3 of the past 4 years large numbers of chinook were not present until the final week of the fishing season. In 1983, large numbers of chinook salmon were available to anglers for over 3 weeks.

Although the entire Talkeetna River drainage was open to chinook fishing in 1983 nearly all of the harvest and effort occurred at Chunilna Creek. Creel census data indicates that 98 and 94% of the respective total harvest and effort took place at Chunilna Creek.

Anglers that chartered boats from Talkeetna comprised 51% of the total fishing effort and harvested 42% of all chinook salmon taken in 1983. Most of these anglers were transported upstream to Chunilna Creek, dropped off and picked up again later in the day, although charter operators would sometimes remain with their clients and guide them to different streams flowing into the Talkeetna river. Anglers fishing from private boats experienced a chinook harvest rate of 0.44 fish per angler-day while chartered anglers' harvest rate was 0.30 fish per angler-day.

Willow Creek:

The total chinook salmon harvest at Willow Creek, a weekend-fishing-only stream, was estimated at 393 with 1,811 angler-days of effort in 1983. When compared with previous years, effort in 1983 increased while the harvest per angler-day decreased substantially. These fluctuations are a result of an intense fishery at the Parks Highway area during the last weekend of the chinook season. Over 1,200 angler-days of effort were estimated during these 2 days with a harvest of 72 kings. Harvest per angler-day was 0.06. Harvest and effort estimates at the mouth of Willow Creek, where nearly all fishing effort has occurred in past years, remained fairly constant in comparison with previous years. Anglers expended 539 angler-days of effort and harvested 321 chinook for a harvest per angler-day of 0.60.

Seventy-nine percent of all anglers that fished at the mouth of Willow Creek utilized the Willow Creek highway bridge launch site. The remaining 21% of the anglers utilized the Susitna Landing and Little Willow Creek bridge access points. Anglers that chartered to the mouth of Willow Creek comprised 63% of the fishing effort and harvested 61% of chinook salmon taken at the mouth in 1983. Nearly all of these anglers were transported down Willow Creek from the highway bridge, dropped off and picked up again later in the day or at the end of the weekend. Anglers from private boats and charter boats experienced harvest rates of 0.12 and 0.10 chinook salmon per hour, respectively.

Montana Creek:

The total chinook salmon harvest at Montana Creek, a weekend-fishing-only stream, was estimated at 311 with 1,433 angler-days of effort in 1983. Harvest per hour and per angler-day averaged 0.06 and 0.22, respectively.

The final weekend open to chinook salmon fishing at Montana Creek was closed by Emergency Order in 1983. An elevated harvest because of low, clear water conditions coupled with poor escapement into upstream spawning areas at that time led to the closure. The chinook salmon fishery at Montana Creek has been closed by Emergency Order three times since 1979.

Caswell Creek:

The total chinook salmon harvest at Caswell Creek, a weekend-fishing-only stream, was estimated at 215 with 1,802 angler-days of effort in 1983. Chinook salmon harvest per hour and per angler-day averaged 0.03 and 0.12 respectively.

Budget limitations precluded a complete census at Caswell Creek in 1983. Harvest and effort estimates for this stream were derived through periodic inspections of the fishery several times a day throughout the fishing season. Biological data were not obtained from Caswell Creek chinook.

Deshka River:

The Deshka River was open to chinook salmon fishing from its mouth upstream 31 river miles to the confluence of Moose and Kroto Creeks. An estimated 2,802 chinook were harvested in 5,462 days of angler effort. The 1983 estimates represent a 30% decrease from the 1982 estimates (Table 1). Anglers enjoyed a harvest rate of 0.51 chinook per angler-day.

The decrease of harvest and effort in 1983 can be attributed mainly to the low clear water conditions that prevailed throughout the season. Large numbers of chinook were available to anglers in the lower reaches of the Deshka River early in the season. The availability of chinook coupled with low water resulted in favorable fishing success. Over 60% of the season harvest occurred by the end of the 1st week of June. Chinook passed rapidly through the lower reaches and by the third week in June were distributed in the upper reaches of the Deshka. Fishing success was excellent in the upper reaches but low water conditions restricted travel to only floaters or shallow draft riverboats. This factor effectively reduced the harvest and effort in the latter part of the season, and therefore, reduced the overall seasonal estimates.

Alexander Creek:

Alexander Creek was open to chinook fishing from its mouth upstream to Alexander Lake. An estimated 1,830 chinook were harvested in 5,440 days of angler effort. The 1983 harvest compares favorably with previous years and the effort estimate was the highest recorded since the chinook salmon sport fishery was reopened in 1979 (Table 1). The harvest rate of 0.34 fish per angler-day is comparable with the 1982 harvest rate of 0.37, but is the lowest recorded since 1979.

Fishing was once again excellent the first 3 weeks of the season on Alexander Creek. Angler effort and harvest expended during the first 3 weeks accounted for over 80% of the total season estimates. The majority of the angler effort expended during that time occurred on the lower 5 miles of Alexander Creek; principally at the mouth located at the confluence of the Susitna River.

The mouth area of Alexander, as well as other clear water Susitna and Yentna River tributaries, is utilized by many different stocks of

schooling chinooks as a holding area. These mouth areas essentially create an interception fishery and can substantially contribute to the overall harvest that is normally attributed to a specific stream such as Alexander Creek. The mouth of Alexander Creek is located only 5 miles from Cook Inlet and is the first clear water tributary that chinook can utilize as a holding area. It is important to also note that Alexander Creek is probably the only holding area that is utilized by both Yentna and Susitna River chinook stocks.

Both angler effort and harvest decreased during the latter part of the season. This is mainly attributed to the low water conditions that restricted angler access to the upper reaches of Alexander Creek. Normally the effort upstream is split between riverboats and fly-in "float trip" anglers but low water conditions restricted the area to mainly floaters.

Yentna River:

In 1983 the entire Yentna River drainage was open to sport fishing for chinook salmon. During the previous years only the lower 2 miles of Lake Creek, a tributary stream of the Yentna River, was open to chinook fishing. Total chinook harvest on the Yentna River in 1983 was estimated at 2,817 with 6,168 angler-days of effort.

Although the entire Yentna River drainage was open to chinook fishing in 1983 nearly 90% of the harvest and effort occurred at Lake Creek, Talachulitna River and Peters Creek. Lake Creek accounted for 83 and 74% of the respective total harvest and effort for these three streams. The remaining angler effort and chinook harvest occurred on small clear water tributaries to the Yentna River. Fish Lake Creek, located 1 mile north of Lake Creek, accounted for the majority of the harvest and effort associated with these small tributaries.

Total chinook salmon harvest on Lake Creek was estimated at 2,141 with 4,203 angler-days of effort. These estimates represent the highest harvest and effort since the fishery was reopened in 1979 (see Table 1). The harvest per angler day of 0.51 was the highest recorded since the 1979 harvest of 0.52 (see Table 2). The peak fishing period on Lake Creek was once again between June 10-June 20. This period accounted for 68 and 52% of the respective harvest and effort for the season. During this 10-day period, anglers enjoyed an exceptionally high harvest rate of 0.67 chinook per angler-day.

A chinook salmon sport fishery was opened on the Talachulitna River for the first time in 1983. A total of 312 chinook were harvested in 1,198 days of angler effort. The harvest per angler-day of 0.26 was the lowest recorded for any west Susitna River stream in 1983. There are a number of factors that influenced the low harvest rate. The majority of effort expended on the Talachulitna River was attributable to guided anglers originating from local lodges. The average number of hours the Talachulitna River angler spent fishing during the day was less than anglers on other west Susitna River streams and correspondingly, the actual harvest per angler-hour was higher than Deshka River and Alexander Creek. The Talachulitna River is also the only west Susitna

River stream that has restrictive terminal gear regulations; only single-hook artificial lures are allowed. This regulation reduces the anglers efficiency which in turn reduced the overall harvest.

Peters Creek, a clear water tributary to the Kahiltna River, was also opened to chinook salmon sport fishing for the first time in 1983. Anglers harvested 114 chinook in 267 angler-days and had a harvest rate of 0.43 chinook per angler-day. Peters Creek is located on the west end of the Petersville Road and is the only west Susitna River stream that is connected to the road system that is open to chinook salmon sport fishing. In addition to the road access, anglers can gain float plane access through Shulin Lake which is located 1.5 miles from the mouth of Peters Creek.

Two factors influenced the low chinook harvest at Peters Creek in 1983. The first factor is that chinook were only available to the angler at the Petersville Road crossing during the last 2 weeks of the season. The other factor is that many anglers did not realize that Peters Creek was included in the regulation that opened the entire Yentna River drainage to chinook salmon sport fishing. A growing angler awareness is expected to increase angling effort and harvest in Peters Creek in 1984.

Chuitna River:

Chuitna River, near Tyonek, was opened to chinook salmon sport fishing, from tide water to a point a quarter mile downstream from Lone Creek in 1983. Total chinook salmon harvest on the Chuitna River in 1983 was 1,052 with 2,364 angler-days of effort and a harvest per angler-day of 0.45.

The first chinook was caught the first week of June and the fishery built quickly reaching a peak during the second and third weeks of June. Creel census data indicate that 73 and 68% of the respective harvest and effort occurred during this 2-week period.

Anglers utilized three main access points on the Chuitna River during the chinook sport fishery. The first access point was the Chuitna River mouth area. The mouth area was accessible through the village of Tyonek on the south bank, by three-wheeler access along the beach, and by wheel plane access at low tide on the northern bank. The second access point is the road crossing approximately 4 miles upstream from the mouth. The road crossing is accessible from the southern bank through the village of Tyonek and from the northern bank through the road system from the Chugach power plant airstrip. The bridge that linked the two road systems has washed out and has isolated the two river banks except for the infrequent three wheeler crossings at the mouth of the Chuitna River. The third access point is the cable crossing located approximately 8 miles upstream from the mouth. Access is gained to the cable crossing from the southern road system, a small wheel plane strip near the cable crossing, and a larger wheel plane strip approximately 1 mile from the cable crossing.

As with Peters Creek, angler awareness is expected to increase harvest and effort on the Chuitna River in 1984.

Population Structure:

Scales were collected from all chinook salmon over 20 inches in length and age determined by scale analysis. Age 1.3 fish, which comprised 40% of the northern Cook Inlet sport fish harvest, was the dominant age class in 1983. This represented an increase of 8% from the 1982 returns (Table 3). Age 1.2 comprised 25% of the sport fish harvest, an increase of 9% from 1982. The strong showing of Age 1.2 and 1.3 fish indicate good survival from the respective parent years, 1979 and 1978.

Age 1.4 chinook comprised 35% of the sport fish harvest in 1983. This is a 17% decrease from the 1982 Age 1.4 return and represents the lowest percentage harvest of Age 1.4 chinook since the fishery reopened in 1979. The poor showing was expected because these fish, which had originated from the 1977 record high parent escapement, had previously exhibited poor returns in 1981 and 1982. In 1981 Age 1.2 chinook from the 1977 brood year composed 20% of the sport fish harvest, a decrease of 10% from the 1980 Age 1.2 harvest. In 1982 Age 1.3 chinook from the 1977 brood year composed 32% of the sport fish harvest, a decrease of 12% from the 1981 Age 1.3 return. As indicated previously, the trend continued in 1983, as Age 1.4 chinook from the 1977 brood year showed a large decrease from the Age 1.4 chinook in 1982.

These data support the results of Bentz (1983), Delaney and Hepler (1983) that large escapements are not necessarily going to propagate even larger returns in an increasingly stair step manner.

The changes in chinook salmon age structure for west and east side Susitna River streams from 1979 to 1983 are listed in Tables 4 and 5, respectively. Age 1.4 chinook were once again the dominant age for east side Susitna River streams, whereas Age 1.3 chinook were dominant for the west side Susitna River streams. The west side Susitna River streams showed the strongest return of Age 1.2 since the fishery reopened in 1979.

Table 6 indicates the overall sex ratio for aged chinook from the sport fish harvest was 1.62 males to 1.0 females. This figure is consistent with sex ratios from previous sport fish harvests. The sport fish harvest is dominated by males because females only return as Age 1.3 and 1.4 adults whereas males are represented in all the dominant age classes; 1.2, 1.3 and 1.4.

In past years the male-to-female sex ratio for chinook salmon spawning populations was obtained from carcass surveys. Carcass surveys were not conducted on northern Cook Inlet streams in 1983 due to budget constraints.

Escapements:

Results of chinook salmon escapement surveys on east side and west side streams revealed excellent escapements (Table 7). The total observed escapement and estimated population of 67,083 and 91,800 chinook, respectively, was the highest recorded for the northern Cook Inlet since 1977 (Table 8). Low and clear water conditions contributed to excellent

Table 3. Chinook Salmon Age Class Frequency from the Sport Fish Harvest for Northern Cook Inlet, 1979-1983.

Year	Sample Size	Age Group by Percent		
		1.2	1.3	1.4
1979	1146	13	36	51
1980	991	30	33	37
1981	739	20	44	36
1982	1408	16	32	52
1983	<u>2225</u>	<u>25</u>	<u>40</u>	<u>35</u>
Combined	6509	21	37	42

Table 4. Chinook Salmon Age Class Frequency from the Sport Fish Harvest for Deshka River, Alexander Creek, Lake Creek, Chuitna River*, Peters Creek* and Talachulitna River*, 1979-1983.

Year	Sample Size	Age Group by Percent		
		1.2	1.3	1.4
1979	516	9	56	35
1980	293	13	55	32
1981	300	13	57	30
1982	722	17	40	43
1983	1329	21	46	33

* Age class data only available for 1983.

Table 5. Chinook Salmon Age Class Frequency from the Sport Fish Harvest for Caswell Creek*, Chunilna Creek**, Little Susitna River, Montana Creek, and Willow Creek, 1979-1983.

Year	Sample Size	Age Group by Percent		
		1.2	1.3	1.4
1979	630	16	20	64
1980	698	38	24	38
1981	439	25	35	40
1982	686	16	23	61
1983	896	30	30	40

* Age class data not available for 1982-1983.

** Includes age class data from Talkeetna River drainage for 1983.

Table 6. Chinook Salmon Mean Fork Lengths and Sex Ratios by Age Class from the Sport Fish Harvest for Northern Cook Inlet, 1983.

Age Class	Sample Size	Mean Fork Length*			Sex Ratio Male:Female
		Male	Female	Sexes Combined	
1.2	553	600	0	600	All Male
1.3	881	784	813	796	1.2:1.0
1.4	791	987	933	<u>956</u>	<u>1.0:1.35</u>
Combined	2,225			802	1.62:1.0

* Fork length measured from mid-eye to fork-of-tail in millimeters.

Table 7. Chinook Salmon Escapement Counts for Northern Cook Inlet, 1976-1983.

<u>Stream</u>	<u>West Side</u>							
	<u>1976*</u>	<u>1977*</u>	<u>1978*</u>	<u>1979</u>	<u>1980**</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Alexander	5,412	9,246	5,854	6,215	nc	nc	2,546	3,755
Deshka	21,693	39,642	24,369	27,385	nc	nc	16,000	19,237
Lake	3,735	7,391	8,931	4,196	nc	nc	3,577	7,075
Chuitna	1,984	1,981	1,130	1,246	nc	1,362	3,438	4,043
Theodore	1,032	2,263	547	512	nc	535	1,368	1,519
Lewis	380	454	561	546	nc	560	606	nc
Talachulitna	1,319	1,856	1,375	1,648	nc	2,025	3,101	10,014
Olson	247	1,229	94	17	nc	116	188	nc
Coal	17	nc	1,551	178	nc	223	250	nc
Red	nc	1,511	385	nc	nc	749	nc	nc
Straight	59	24	108	nc	nc	126	383	nc
Nikolai	11	143	nc	nc	nc	26	520	nc
Bishop	12	468	nc	30	nc	174	387	nc
Peters/Martin Creek	2,280	4,102	1,335	nc	nc	nc	nc	2,272
Cache Creek	<u>61</u>	<u>100</u>	<u>nc</u>	<u>nc</u>	<u>nc</u>	<u>nc</u>	<u>nc</u>	<u>497</u>
Totals	38,242	70,410	46,240	41,973	0	5,896	32,364	48,412
	<u>East Side</u>							
Willow	1,660	1,065	1,166	848	nc	991	592	777
Deception	nc	nc	495	239	nc	366	229	121
Montana	1,445	1,443	881	1,094	nc	814	887	1,641
Moose	116	153	237	253	nc	239	407	452
Kashwitna (NF)	203	236	362	457	nc	557	156	297
Little Willow	833	598	436	327	nc	459	316	1,042
Sheep	455	630	1,209	778	nc	1,013	527	975
Goose	160	133	283	nc	nc	262	140	477
Indian	537	393	114	386	nc	422	1,050	1,193
Portage	702	374	140	190	nc	659	1,111	3,140

Table 7 (cont.). Chinook Salmon Escapement for Northern Cook Inlet, 1976-1983.

<u>Stream</u>	<u>1976</u> *	<u>1977</u> *	<u>1978</u> *	<u>East Side</u>				
				<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Chunilna	1,237	769	997	864	nc	nc	982	938
Prairie	6,513	5,790	5,154	nc	nc	nc	3,844	3,200
Chulitna (EF)	112	168	59	nc	nc	nc	119	nc
Chulitna (MF)	1,870	1,782	900	nc	nc	nc	644	3,845
Chulitna	<u>124</u>	<u>229</u>	<u>62</u>	<u>nc</u>	<u>nc</u>	<u>nc</u>	<u>100</u>	<u>213</u>
Totals	15,967	13,763	12,495	5,436	0	5,782	11,104	18,311
Combined Totals	54,209	84,173	58,735	47,409	0	11,678	43,468	67,723

* No sport fishery 1976-1978.

** No count was conducted this year.

Table 8. Chinook Salmon Observed Escapement Counts and Population Estimates for Northern Cook Inlet, 1973-1983.

Year	Observed Escapement Counts	Estimated Population
1973	13,615	15,000
1974	12,548	15,000
1975	9,209	11,500
1976	54,209	71,200
1977	84,173	118,600
1978	58,735	81,200
1979	47,409	77,200
1980*	nc	nc
1981**	11,678	
1982	43,468	82,800
1983	67,723	91,800

* No count available.

** Partial count.

counting conditions in all northern Cook Inlet streams. Eight east side streams experienced the highest counts since 1976 and the combined east side counts are higher than any previous year. Two west side streams had record escapements and combined west side counts were the highest since the record escapement in 1977.

Due to budget constraints, escapement counts were only conducted on 22 of the expected 29 streams.

Management Recommendations

The area staff has submitted the following quoted proposal to the Board of Fisheries:

Open to king salmon fishing (January 1 - July 6), that portion of the west side Susitna River drainage downstream of and including the Deshka River and west Cook Inlet drainages from the Susitna River mouth to the west foreland, except Deshka River drainage upstream of the forks (confluence of Moose and Kroto Creeks), and except the Chuitna (Chuit) River upstream of a Department marker placed $\frac{1}{4}$ mile below the confluence of Lone Creek.

This proposal effectively opens the entire west side Susitna River downstream from the mouth of the Deshka River to chinook salmon sport fishing. The staff quoted the following justification to support this proposal:

The Department has monitored chinook salmon escapement in west Susitna River drainage and drainages of west Cook Inlet consistently since 1973 and has managed intensive chinook salmon sport fisheries on selected streams in this area since 1979. Chinook salmon stocks are at healthy levels and the additional streams contained in this proposal can accommodate a sport harvest without endangering the populations.

These additional streams are remote and all require aircraft or boat access. This proposal will also allow sport fish effort to be spread over a greater number of waters.

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