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Jay S. Hammond, Governor

Annual Performance Report for

INVENTORY AND CATALOGING OF SPORT FISH AND
SPORT FISH WATERS OF THE LOWER SUSITNA RIVER
AND CENTRAL COOK INLET DRAINAGES

by

Stanley W. Kubik
Kevin Delaney

ALASKA DEPARTMENT OF FISH AND GAME
Ronald O. Skoog, Commissioner

SPORT FISH DIVISION
Rupert E. Andrews, Director

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 By: Stanley W. Kubik
 Kevin Delaney

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RESEARCH PROJECT SEGMENT

State: ALASKA Name: Sport Fish Investigations
of Alaska.

Project No.: F-9-12

Study No.: G-I Study Title: INVENTORY AND CATALOGING

Job No.: G-I-H Job Title: Inventory and Cataloging
of Sport Fish and Sport Fish
Waters of the Lower Susitna
River and Central Cook Inlet
Drainages.

Period Covered: July 1, 1979 to June 30, 1980

ABSTRACT

Creel census data obtained from the Deshka River disclosed that anglers fished an estimated 8,588 man-hours to harvest 620 coho salmon, Oncorhynchus kistuch (Walbaum), a seasonal success rate of 0.07 fish per hour.

Rainbow trout, Salmo gairdneri (Richardson), were experimentally stocked in 14 Anchorage area lakes and coho salmon were planted in three lakes.

A creel census conducted on four stocked lakes located on Elmendorf AFB revealed that a total of 12,989 angler days were expended to harvest 7,452 rainbow trout. This represents a return to the creel of 55 percent of the rainbow trout experimentally stocked in those waters.

Fall test netting conducted in four Fort Richardson lakes showed Gwen Lake to have the highest catch per net-hour and the largest average size for rainbow trout of the lakes sampled.

Creel census data obtained from three west side Susitna River streams disclosed that anglers fished an estimated 13,183 man-days to harvest 6,276 chinook salmon, O. tshawytscha (Walbaum).

The 1979 escapement of chinook salmon in west side Susitna streams was studied. A total of 42,216 were observed in 13 clear water streams.

A creel census conducted at Whittier in Prince William Sound indicated that 1,183 angler-days (4,528 angler-hours) were expended to harvest 813 coho salmon.

BACKGROUND

Concern over the low recreational harvest levels of coho salmon in upper Cook Inlet streams necessitated a continuation of a creel census program on the Deshka River, a popular sport fishing area, to obtain angling effort and harvest data. Periodic creel checks have been conducted in years past but have provided a less than accurate estimate of total catch. Comprehensive creel censuses have been conducted annually since 1977 (Kubik 1977, 1978).

The program of restocking Anchorage area lakes was continued in 1979. A creel census was conducted on four lakes, Green, Hillberg, Triangle and Fish, located on Elmendorf Air Force Base to obtain angler effort and harvest estimates and to determine the overall return to the creel of the rainbow trout stocked in these waters. Fort Richardson lakes are test netted in the fall to obtain growth data and estimates of relative survival through the summer-long fishery.

For the first time since 1972 several streams in upper Cook Inlet were opened to the taking of chinook salmon 508 mm and over in length. Three streams on the west side of the Susitna River and five streams on the east side were open during the special chinook salmon season. A seasonal quota of 13,100 was established for the eight streams. Other pertinent historical data are presented in Reports of Progress by Kubik (1962-1978) and Stock Status of Upper Cook Inlet Chinook Salmon (Sport Fish Division, ADF&G).

Located on Passage Canal in western Prince William Sound, Whittier, was the site of a creel census conducted to assess the success of a F.R.E.D. Division coho salmon smolt release and establish sport fish effort and harvest levels. On June 15, 1978 a total of 78,984 coho salmon smolts, of 1977 Bear Lake Seward origin, were released into Passage Canal at Whittier. Nineteen percent of these fish were marked with an adipose clip and contained a coded wire tag. Returns from this release were first seen as jack coho salmon present in the vicinity of the Whittier boat harbor in the fall of 1978. An adult return was therefore expected in the fall of 1979.

Whittier is the only community in western Prince William Sound accessible via ground transportation to the Anchorage population. Although there is presently no direct road connection, the Alaska Railroad provides a shuttle service for persons, vehicles and boats. A small boat harbor is available in Whittier and a growing fleet of pleasure boats are based there.

The creation of a coho salmon sport fishery is in response to increasing recreational demand in the Whittier area.

The study area is shown in Figure 1, and a list of common and scientific names of all species mentioned in the report is presented in Table 1.

Table 1. List of Common Names, Scientific Names and Abbreviations.

Common Name	Scientific Names & Author	Abbreviation
Coho salmon	<u>Oncorhynchus</u> <u>kisutch</u> (Walbaum)	SS
Chinook salmon	<u>Oncorhynchus</u> <u>tshawytscha</u> (Walbaum)	KS
Sockeye salmon	<u>Oncorhynchus</u> <u>nerka</u> (Walbaum)	RS
Pink salmon	<u>Oncorhynchus</u> <u>gorbuscha</u> (Walbaum)	PS
Rainbow trout	<u>Salmo</u> <u>gairdnari</u> Richardson	RT

RECOMMENDATIONS

1. Creel censuses should be continued on the Deshka River and Alexander and Lake Creeks to monitor angling effort and obtain estimates of the total chinook harvest.
2. Chinook salmon escapement counts should be continued on west side upper Cook Inlet streams.
3. Coho salmon sport fish effort and harvest data should continue to be collected in selected west side Cook Inlet drainages.
4. Coho salmon sport fish effort and harvest data should continue to be collected at Whittier.
5. Experimental stocking evaluations on Anchorage area lakes should be continued.

OBJECTIVES

1. To determine the environmental characteristics of the existing and potential recreational fishing waters of the job area and, where practical, obtain estimates of the sport fish harvest and angler participation rates.
2. To evaluate the impact of water use and urban development projects on fisheries, aquatic life, and water quality of lakes and streams in the area.
3. To determine stocking measures, formulate management practices and direct the course of future studies on area waters.
4. To investigate, evaluate, and develop plans for the enhancement of salmon stocks.

TECHNIQUES USED

The Deshka River coho salmon creel census program was designed to obtain effort and harvest data. The period July 7 through August 31 was stratified by week, weekday and weekend/holiday. Interviews of anglers who had finished fishing for the day were conducted throughout the period 6 a.m. to 10 p.m. on weekends and holidays and during 3 randomly selected weekdays from 6 a.m. to 2 p.m. or 2 p.m. to 10 p.m.

The statistical design utilized in summing and expanding the catch and effort data is the same used in a previous census (Kubik 1978).

The Whittier coho salmon creel census was designed to obtain effort and harvest data and evaluate the success of the 1978 F.R.E.D. coho salmon smolt release. The period from August 1 through September 24 was stratified by weekday and weekend/holiday. The schedule called for interviewing

anglers during a randomly chosen 8-hour period on all weekend holidays and 3 randomly chosen weekdays each week. Interviews of all anglers who had completed the day's fishing were attempted. The statistical design is similar to that used in the Deshka River coho salmon creel census. In addition to recording hours fished and the catch, length and weight data along with scale samples were collected. The fish were each checked for the adipose clip and the heads were retained from a number of clipped fish for examination purposes.

During the 1979 chinook salmon fishery, effort and harvest were evaluated by a creel census. The period of May 25 through July 6 was stratified by week, weekday, and weekend/holiday. Interviews of anglers who had finished fishing for the day were conducted through the period from 4 a.m. to 12 midnight on weekends and holidays. All 5 days of the week were sampled. The weekday schedule was divided into 5 four-hour interview periods. Two four-hour periods were randomly chosen for sampling each day. Interview procedures consisted of contacting anglers having completed their fishing, recording the number of hours fished, and chinook salmon kept for each angler. Total length (tip to snout to tip of tail) and scale samples were obtained from departing anglers' catches whenever possible.

Escapement surveys were conducted from July 20 through August 6. Streams at this time were generally low and clear, thus affording excellent viewing conditions. All surveys on the west side Susitna River were accomplished with a two passenger helicopter. Carcass surveys were initiated after the spawning peak to determine sex and size composition of the run.

The Elmendorf Air Force Base lakes creel census was designed to obtain estimates of angler effort in terms of angler days and angler hours and harvest of rainbow trout.

The period May 25 through September 3 was stratified by weekday and weekend/holiday. Interviews of anglers who had finished fishing for the day were conducted throughout the periods 6 a.m. to 2 p.m. or 2 p.m. to 10 p.m. chosen randomly on weekends and holidays and on 3 randomly selected weekdays each week. The statistical design for this creel census is identical to that used in the Deshka River and Whittier coho salmon censuses.

Prior to the onset of the Elmendorf creel census, three of the four lakes were test netted to determine the extent of overwinter survival from previous year's planting. Fall fish population sampling in Fort Richardson lakes was accomplished with 125 ft. variable mesh gill nets. All fish captured were measured to the nearest millimeter and a calculation of average weight was made. Two nets were fished for a period of 24 hours in each lake.

FINDINGS

Experimental Lake Stocking:

Seventeen lakes in the Anchorage management area were experimentally stocked with game fish in 1979. The location of each lake, species and number of fish released is shown in Table 2.

Table 2. Fish Stocking in Anchorage Area Lakes, 1979.

Lake	Location	Species Stocked	Number Stocked
Sand	Anchorage	RT Catchables	4,025
Lower Fire	Anchorage	RT Catchables	7,052
Jewell	Anchorage	RT Catchables	9,065
Campbell Pt.	Anchorage	RT Catchables	3,995
Beach	Birchwood	RT Catchables	4,026
Otter	Ft. Richardson	RT Catchables	12,941
Clunie	Ft. Richardson	RT Catchables	8,998
Thompson	Ft. Richardson	RT Catchables	4,208
Gwen	Ft. Richardson	RT Catchables	4,027
Hillberg	Elmendorf	RT Catchables	3,291
Green	Elmendorf	RT Catchables	6,004
Triangle	Elmendorf	RT Catchables	2,104
Fish	Elmendorf	RT Catchables	2,036
Derby Pond	Elmendorf	RT Catchables	1,211
Six Mile	Elmendorf	SS Fingerlings	20,100
Cheny	Anchorage	SS Fingerlings	20,100
C St. Gravel Pit	Anchorage	SS Fingerlings	20,100
Total Stocked:	RT - 72,983		
	SS - 60,300		

RT = Rainbow Trout
SS = Silver Salmon

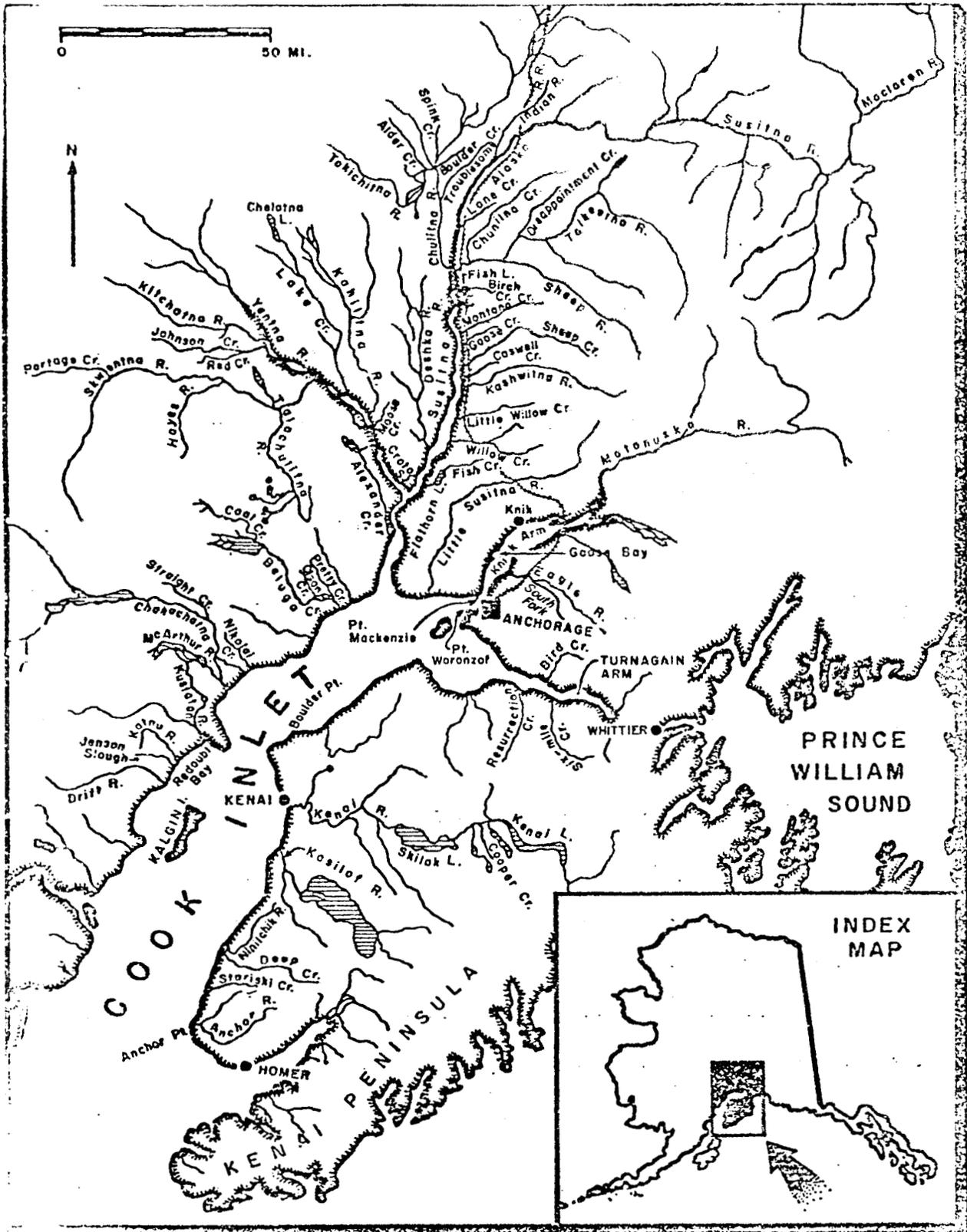


Figure 1. Lower Susitna River and Central Cook Inlet Drainages.

Creel Census:

A creel census program to evaluate current fishing levels in terms of angler effort and total rainbow trout harvest was conducted in four lakes within Elmendorf Air Force Base. These were Green, Triangle, Hillberg and Fish Lakes. Test netting conducted prior to stocking indicated minimal overwinter survival of trout stocked in 1978 in Green Lake and total winter kill in Triangle and Hillberg Lakes. A total of 12,980 angler days (26,097 angler hours) was spent by sport anglers in 1979 to harvest 7,452 rainbow trout, an overall catch rate of 0.29 rainbow trout per hour. Fish Lake had the most favorable catch rate, 0.51 fish per hour while Hillberg had the lowest, 0.23 per hour. Results are shown in Table 3. The return to the creel for rainbow trout stocked in these four lakes in 1979 was 55%, which is comparable to the 57% return to creel calculated for four Anchorage area stocked lakes in 1976 (Kubik 1976). Table 4 shows a breakdown by lake.

Test Netting:

Test netting conducted on four Fort Richardson lakes during October revealed that Gwen Lake rainbow trout had attained the largest average length and weight and were the most numerous in terms of catch per net.

All four lakes were stocked with the same size rainbow trout at 5.9 fish per pound on the same date. However, the exceptional rainbow trout growth in Gwen Lake can be attributed to a species of freshwater shrimp which seems to be the predominant food organism inhabiting this lake but not the others. Table 5 summarizes the test netting data.

Deshka River Coho Salmon Creel Census:

A creel census program to evaluate current fishing levels in terms of angler hours and total coho salmon harvest was conducted for the third consecutive year. The Deshka River is known to have provided excellent coho salmon fishing in the past, however, in recent years this has not always been the case. Coho salmon runs in the Deshka River have traditionally been stronger on the even years. In 1977, fishing was very poor overall, with a catch rate of 0.05 fish per hour. The total harvest for the entire 1977 season was estimated at 527 coho salmon. In 1978 the catch rate was 0.19 coho salmon per hour and the total harvest was 1,513 coho salmon. This year, 1979, was another poor year as 8,588 angler hours were expended to attain a total harvest of 620 coho salmon for a 0.07 catch per angler hour. Harvest and effort estimates for the last 3 years are presented in Table 6. Harvest and effort estimates for 1979 by weekly sampling periods from July 7 through August 31 are presented in Table 7.

Mean length and weight of 22 male coho salmon were 619 mm and 5.6 lbs, respectively. Twenty female coho salmon sampled averaged 599 mm long and weighed 5.6 lbs.

Whittier Coho Salmon Creel Census:

A creel census program to evaluate total coho salmon harvest and effort levels was conducted in Whittier. Data indicate that 1,183 angler days (4,528 angler hours) were expended to harvest 813 coho salmon between

Table 3. Summary of Elmendorf Air Force Base Lakes Creel Census, 1979.

Lake	Angler Hours	Angler Days	Catch	Catch per Angler Hour
Fish	3,298	1,658	1,680	.51
Green	10,985	4,903	2,931	.27
Hillberg	6,652	3,518	1,503	.23
Triangle	<u>5,162</u>	<u>2,910</u>	<u>1,338</u>	.26
Totals	26,097	12,989	7,452	.29

Total Number Stocked: 13,435

Table 4. Rainbow Trout Returned to Creel, by Lake, for Elmendorf Air Force Base Lakes, 1979.

Lake	Number Stocked	Number Harvested	Per Cent Harvested
Green	6,004	2,931	49%
Hillberg	3,291	1,503	46%
Fish	2,036	1,680	83%
Triangle	2,104	1,338	64%
Totals	13,435	7,452	55%

Table 5. Test Netting Results, Rainbow Trout, Fort Richardson Lakes, October 1979.

	Otter	Gwen	Clunie	Thompson
Rainbow trout/ 24 hr Net Set	13	15.5	7.5	3.5
Average length (mm)	312	373	295	269
Range of length (mm)	203-394	305-445	254-343	241-292
Average weight (pounds)	.83	1.8	.63	.43

Table 6. Deshka River Coho Salmon Harvest and Effort Estimates, 1977-1979.

	1977	1978	1979
Angler Hours	10,904	7,858	8,588
Angler Days	1,799	1,746	1,385
Coho Harvest	527	1,513	620
Hrs/Angler Day	6.1	4.5	6.2
Catch/hr	0.05	0.19	0.07

Table 7. Deshka River Coho Salmon Harvest and Effort Estimates by Week, 1979.

	Angler Hours	Angler Days	Coho Harvest	Hrs. per Angler Day	Catch per Angler Hour
7/07-7/13	74	11	0	6.7	0.00
7/14-7/20	577	55	0	10.5	0.00
7/21-7/27	1,188	206	283	5.8	0.24
7/28-8/03	1,572	287	109	5.5	0.07
8/04-8/10	2,372	371	74	6.4	0.03
8/11-8/17	2,149	305	79	7.0	0.04
8/18-8/24	438	99	10	4.4	0.02
8/25-8/31	<u>218</u>	<u>51</u>	<u>65</u>	<u>4.3</u>	<u>0.30</u>
Totals	8,588	1,385	620	6.2	0.07

August 21 when the first coho salmon was taken, and September 24 when the census was terminated.

Ninety-five percent of the coho salmon taken were harvested by shore anglers (Table 8). The remaining 5% were taken by boat anglers in the immediate vicinity of the Whittier boat harbor.

Of the 349 coho salmon creel checked, 39 (11.2%) were adipose clipped. Male coho salmon with an adipose clip averaged 559 mm in length at an average weight of 6.7 lbs while the unclipped males averaged 597 mm at a weight of 8.2 lbs. Female coho salmon with an adipose clip averaged 617 mm at a weight of 8.4 lbs while unclipped females averaged 610 mm and a weight of 8.3 lbs (Table 9).

Male coho salmon with an adipose clip averaged 559 mm in length at an average weight of 6.7 lbs while the unclipped males averaged 597 mm at a weight of 8.2 lbs. Female coho salmon with an adipose clip averaged 617 mm at a weight of 8.4 lbs while unclipped females averaged 610 mm and a weight of 8.3 lbs (Table 9).

The immediate Whittier area lacks a freshwater system of sufficient size and water quality to accommodate the spawning requirements of the unharvested adult coho salmon. This factor makes it difficult to make an accurate estimate of total run size. In 1979, the catch estimate combined with personal observations by Alaska Department of Fish and Game personnel produced a total run size estimate of approximately 2,000 coho salmon or a return rate of 2.5% from the initial plant of 78,984 smolts.

West Side Susitna River Chinook Salmon Fishery:

In 1979, for the first time since 1972, chinook salmon fishing in upper Cook Inlet freshwater streams was allowed on a limited basis. Three west side Susitna River streams, the Deshka River, Alexander Creek and Lake Creek were opened to chinook salmon fishing from May 25 through July 6 inclusive.

The quota set for the three streams was 11,000 chinook salmon over 508 mm in length. This quota was allocated by stream as follows: Deshka River 7,000; Alexander Creek 2,000; and Lake Creek 2,000. Total estimated harvest for the three streams was 6,276 chinook salmon while effort was estimated to be 13,183 man-days (Table 10).

The quota established for the west side Susitna streams was not obtained due primarily to three factors: heavy rains; a one-fish possession limit; and, movement of the fish upstream and beyond the area opened to sport fishing.

The summer of 1979 was among the wettest on record and high stream flows persisted throughout the season. Specifically, the west side Susitna chinook salmon fishery experienced high water and turbidity levels from June 24 through July 1.

West side streams are located in remote locations accessible only by aircraft or boat and, while anglers are currently allowed only one unpreserved

Table 8. Whittier Creel Census Summary, 8/1/79 - 9/24/79.

	Boat Anglers	Shore Anglers	Total
Angler-hours	1,732	2,796	4,528
Angler-days	197	986	1,183
Coho harvest	41	772	813
Pink harvest	132	0	132
Sockeye harvest	639	0	639
Coho per Angler-day	0.21	0.78	0.69
Coho per Angler-hour	0.02	0.28	0.18

Table 9. Coho Salmon Mean Weights (Pounds) and Lengths (Millimeters), Whittier, 1979.

	Adipose Clipped (No.)		Unclipped (No.)		Total (No.)	
	Weight (lbs)	Length (mm)	Weight (lbs)	Length (mm)	Weight (lbs)	Length (mm)
Males	6.7(12)	559(11)	8.2(31)	597(31)	7.8(43)	587(42)
Females	8.4(12)	617(12)	8.3(48)	610(47)	8.3(60)	612(59)
Total	7.6(24)	589(23)	8.3(79)	605(78)	8.1(103)	602(101)

Table 10. Effort and Harvest Data of the Chinook Salmon Sport Fishery on West Side Susitna River Tributaries, 1979.

Stream	Quota	Harvest	Effort		Harvest Per	
			Man-Days	Man-Hours	Man-Days	Man-Hours
Deshka River	7,000	2,954	6,451	30,771	0.46	0.09
Alexander Creek	2,000	1,277	2,778	10,295	0.46	0.12
Lake Creek	2,000	2,045	3,954	15,105	0.52	0.13
Total	11,000	6,276	13,183	56,171	0.48	0.11

fish in their possession, many persons enter the area for 2 or 3-day fishing trips. This restriction effectively reduced the total harvest. Harvest and effort estimates for 1979 by weekly sampling period from May 25 through July 6 are presented in Tables 11, 12 and 13.

Deshka River. The Deshka River has historically been the most important producer of chinook salmon in upper Cook Inlet. In 1979 the Deshka River contributed approximately 57% (Table 14) of the total observed run of chinook salmon in upper Cook Inlet. Chinook salmon were taken beginning the first day of the season, however, catch rates remained very low through the first week of the sport fishery. Peak catches were recorded during the third week, thereafter catches gradually declined. This drop in numbers of fish taken was due to heavy rains, and decline in angler participation as most fish moved beyond the open fishing area.

At the onset of the season sport fishing was allowed from the mouth of the Deshka River upstream approximately 6 miles to a marker located just below Jack Laub's homestead. In-season analysis of catch and effort data and aerial surveys noted a strong escapement of chinook salmon above the area open to sport fishing and prompted an emergency order opening an additional 18 miles of river (to Neil Lake) on June 23. This opening remained in effect through the season closure on July 6. Daily bag and possession limit remained one chinook salmon 508 mm and over in length.

A sample of 1,082 sport caught chinook salmon 508 mm and over were measured for size and sex composition. The salmon ranged in length from 508 mm to 1,346 mm, with an average of 889 mm. Males averaged 851 mm, and females 919 mm. Sex ratio of males to females in the sport fishery was 1:1.3. The 1979 catch was composed predominately of 5-year-old fish (1.3) ranging in length from 712 mm to 965 mm.

A total of 1,187 chinook salmon carcasses from the Deshka River were also examined for size and sex composition. The sampled fish ranged in length from 331 mm to 1,246 mm, with a mean of 911 mm. Males averaged 881 mm and females 942 mm. Age composition of the carcass population was similar to the sport fish catch in that 5-year-olds were the predominant age group. The 1979 escapement appears to have a high reproductive potential. Sex ratio of males to females was 1.04:1.

Chinook salmon escapement counts were made via helicopter on August 2 and 3. Counting conditions were good. A total of 27,385 chinook salmon were counted which, together with the sport catch of 2,954, gives a total count of 30,339. This makes 1979 the second largest run on record.

Alexander Creek. The first recorded chinook salmon was caught May 31 after which the catch rate gradually increased through the fourth and fifth week of the season. The largest number of fish were recorded taken during the fifth week of the season, June 22-28. Fishing success fell off during the last week of the season because large numbers of chinook salmon had moved upstream from the area opened to fishing.

Two hundred and thirty-five chinook salmon sampled from the Alexander Creek recreational fishery measured from 533 mm to 1,194 mm in length, with a mean of 798 mm. The strongest age group represented in the sport catch was

Table 11. Alexander Creek Chinook Salmon Sport Catch and Effort by Week, 1979¹.

Week	Catch				Effort (m-hrs)			
	Weekend	Weekday	Total	% Total	Weekend	Weekday	Total	% Total
5/25-5/31	0	40	40	3.1 ^(3.1) ²	667	518	1,185	11.5 ^(11.5) ²
6/01-6/07	136	65	201	15.7 ^(18.8)	675	1,017	1,692	16.4 ^(27.9)
6/08-6/14	109	155	264	20.7 ^(39.5)	1,111	1,117	2,228	21.6 ^(49.5)
6/15-6/21	200	105	305	23.9 ^(63.4)	778	856	1,634	15.9 ^(65.4)
6/21-6/28	141	221	362	28.4 ^(91.8)	862	1,173	2,035	19.8 ^(85.2)
6/29-7/06	59	46	105	8.2 ⁽¹⁰⁰⁾	902	619	1,521	14.8 ⁽¹⁰⁰⁾
Totals	645	632	1,277	100%	4,995	5,300	10,295	100%

- 1 Expanded estimates.
- 2 Cummulative percent.

Table 12. Deshka River Chinook Salmon Sport Catch and Effort by Week, 1979¹.

Week	Catch				Effort (m-hrs)			
	Weekend	Weekday	Total	% Total	Weekend	Weekday	Total	% Total
5/25-5/31	36	185	221	7.5 ^(7.5) ²	2,341	1,496	3,837	12.4 ^(12.4) ²
6/01-6/07	273	591	864	29.2 ^(36.7)	2,688	3,603	6,291	20.4 ^(32.8)
6/08-6/14	347	754	1,101	37.3 ^(74.0)	4,179	5,013	9,192	29.9 ^(62.7)
6/15-6/21	233	212	445	15.1 ^(89.1)	2,266	2,918	5,184	16.9 ^(79.6)
6/22-6/28	114	81	195	6.6 ^(95.7)	2,234	1,582	3,816	12.4 ⁽⁹²⁾
6/29-7/06	90	38	128	4.3 ⁽¹⁰⁰⁾	1,932	519	2,451	8.0 ⁽¹⁰⁰⁾
Totals	1,093	1,861	2,954	100%	15,640	15,131	30,771	100%

- 1 Expanded estimates.
 2 Cummulative percent.

Table 13. Lake Creek Chinook Salmon Sport Catch and Effort by Week, 1979¹.

Week	Catch				Effort (m-hrs)			
	Weekend	Weekday	Total	% Total	Weekend	Weekday	Total	% Total
5/25-5/31	0	0	0	0	0	0	0	0
6/01-6/07	2	82	82	4.0 ⁽⁴⁾ ²	23	546	569	3.8 ^(3.8) ²
6/08-6/14	255	574	829	40.5 ^(44.5)	2,242	3,822	6,064	40.2 ⁽⁴⁴⁾
6/15-6/21	175	459	634	31.0 ^(75.5)	1,540	3,057	4,597	30.4 ^(74.4)
6/22-6/28	183	158	341	16.7 ^(92.2)	1,608	1,056	2,664	17.6 ⁽⁹²⁾
6/29-7/06	80	77	157	7.8 ⁽¹⁰⁰⁾	702	509	1,211	8.0 ⁽¹⁰⁰⁾
Totals	695	1,350	2,043	100%	6,115	8,990	15,105	100%

1 Expanded estimates.
 2 Cummulative percent.

Table 14. Chinook Salmon Escapement Counts, Upper Cook Inlet and Deshka River, 1973-1979.

Year	Upper Cook Inlet Susitna River Drainage	Deshka River	Percent From Deshka River
1979	47,670	27,385	57.4
1978	60,728	24,639	40.6
1977	91,502	39,642	43.3
1976	56,288	21,693	38.5
1975	9,209	4,737	51.4
1974	12,548	5,279	42.1
1973	13,615	2,381	17.5
Total	291,560	125,756	43.1

5-year-old fish, however, Alexander Creek differed from the Deshka River and Lake Creek by having a larger incidence of 4-year-olds (1.2) that fell in the 508 mm to 710 mm length range, Table 15. Males averaged 734 mm and females 884 mm. Sex ratio of males to females was 1.3:1.

A total of 154 carcasses were checked. The first ranged in size from 494 mm to 1,132 mm, with an average of 854 mm. Five-year-old fish dominated the sample. Males averaged 763 mm and females 929 mm. Sex ratio of males to females was 1:1.2.

An aerial escapement survey was flown August 2 during which 6,215 chinook salmon were counted. Added to the sport catch of 1,277 this brings the total run to 7,492 fish which is the second largest run on record.

Lake Creek. The first recorded chinook salmon was caught June 4 after which the run built up swiftly. The catch rates increased immediately and held up well through the fifth week of the season when high water rendered Lake Creek unfishable for a period of 5 days. When water conditions improved during the last week of the season, catches were small as most chinook salmon had moved through the area open to fishing. Lake Creek recorded the highest catch per hour and had the largest average size for fish taken.

Five hundred eighteen sport caught chinook salmon sampled on Lake Creek varied in size from 508 mm to 1,270 mm. Males averaged 912 mm and females 983 mm. Approximately 53% of the sport catch were 6-year-old (1.4) fish ranging in size from 813 mm to 1,295 mm. The male to female sex ratio was 1:1.4.

Carcass surveys were not made on Lake Creek during 1979 due to high water conditions which washed out salmon carcasses prior to and during the sampling periods.

An aerial escapement survey was flown August 1 during which 4,196 chinook salmon were counted. Added to the estimated sport catch of 2,045, the total run figure is 6,241; the third largest run on record.

Escapement Surveys. In 1979 total chinook escapement counts indicated less chinook salmon counted than in the previous year. A total of 42,216 (Table 16) were observed as compared to 47,875 enumerated during 1978. However, inclement weather/water conditions precluded escapement surveys on several streams that are surveyed annually. Missed counts plus the sport fish harvest of 6,276 for west side Susitna River streams indicate that the 1979 escapement may be the second highest recorded since 1962.

Since 1973, when reliable comparisons could be made on the spawning populations, total stock estimates have ranged from 6,100 to 101,592 chinook salmon (Table 17).

Age Composition. Readable scales were collected for 517 fish harvested by recreational anglers from the Deshka River, Alexander and Lake Creeks. The predominant age class was 5-year-olds (1.3) which represented 55.7% of the sample harvest. Summarized age and length data for the major classes are presented in Table 18.

Table 15. Length, Range and Sex Composition Data from Sport Caught Chinook Salmon, 1979.

	Length (mm)	Male	Female	Total	% of Total
Deshka River:					
	508-710	126	8	134	12.4
	711-913	144	265	409	37.8
	914-1,117	167	316	483	44.7
	1,118-1,320	37	18	55	5.0
	1,321-1,346	1	0	1	0.1
Totals	508-1,346	475	607	1,082	100%
Sex Ratio - Male:Female 1:1.3					
Lake Creek:					
	508-710	60	10	70	13.5
	711-913	34	46	80	15.4
	914-1,117	60	223	283	54.7
	1,118-1,270	58	27	85	16.4
Totals	508-1,270	212	306	518	100%
Sex Ratio - Male:Female 1:1.4					
Alexander Creek:					
	508-710	70	0	70	29.8
	711-913	43	44	87	37.0
	914-1,117	20	57	77	32.8
	1,118-1,194	1	0	1	0.4
Totals	508-1,194	134	101	235	100%
Sex Ratio - Male:Female 1.3:1					

Table 16. Upper Cook Inlet (West Side Susitna River) Chinook Salmon Escapements, 1973-1979.

Stream	1973	1974	1975	1976	1977	1978	1979
Deshka River	2,381	5,279	4,737	21,693	39,642	24,639	27,385
Alexander Creek	875	2,193	1,878	5,412	13,385	5,854	6,215
Chuit River	149	171	629	1,984	1,891	1,130	1,246
Theodore River	205	205	95	1,032	2,263	547	512
Lewis River	173	135	75	380	454	561	546
Talachulitna River	333	303	120	1,319	1,856	1,375	1,648
Lake Creek	761	535	281	3,735	7,391	8,931	4,196
Martin Creek	-	23	6	791	1,060	205	108
Cache Creek	-	-	-	61	100	-	-
Bear Creek	-	-	-	15	298	-	-
Olson Creek	2	-	-	247	1,229	94	17
Pretty Creek	-	-	-	-	36	10	-
Bishop Creek	-	-	-	12	468	-	30
Nikolai Creek	-	-	2	11	143	-	-
Straight Creek	5	-	9	59	24	108	-
Red Creek	-	-	-	-	1,511	385	-
Peters Creek	59	124	8	1,489	3,042	1,130	-
Donkey Creek	25	-	-	-	159	163	-
Fish Creek (Quigs)	-	-	-	-	131	66	-
Fish Creek (Kroto S.)	-	-	-	-	132	-	-
Unnamed-Kichatna River	-	-	-	-	120	-	-
Clearwater Creek	6	-	-	-	47	-	-
Quartz Creek	-	-	-	-	8	-	-

Table 16. Cont. Upper Cook Inlet (West Side Susitna River) Chinook Salmon Escapements, 1973-1979.

Stream	1973	1974	1975	1976	1977	1978	1979
Canyon Creek	29	10	2	44	135	-	-
Dickason Creek	-	-	-	-	4	-	-
Unnamed-Hays River	-	-	-	-	2	-	-
Nokachna River	12	2	-	-	-	-	-
Coal Creek	31	-	-	17	-	1,551	178
Unnamed Creek #1	3	-	-	-	-	-	-
Unnamed Creek #2	3	-	-	-	-	-	-
Unnamed Creek #3	8	-	-	-	-	-	-
Unnamed Creek #4	11	-	-	-	-	-	-
Rabideaux Creek	-	-	-	-	99	-	-
Drill Creek	-	-	-	11	-	77	11
Indian Creek	5	-	-	-	-	-	-
Squaw Creek	10	-	-	-	-	-	-
<u>Anchorage Area</u>							
Ship Creek	165	146	120	806	1,011	867	124
S.F. Eagle	-	-	-	81	313	182	-
Campbell	201	79	-	210	349	-	-
Bird Creek	2	3	-	6	-	-	-
N.F. Eagle	-	-	-	20	-	-	-
Totals	5,454	9,208	7,962	39,435	77,303	47,875	42,216

Table 17. Upper Cook Inlet-West Side Chinook Salmon Escapement Counts and Population Estimates, 1973-1979.

Year	Observed Counts*	Estimated Counts
1979	42,216	54,719
1978	47,875	65,811
1977	77,303	101,592
1976	39,435	51,300
1975	7,962	10,000
1974	9,208	11,700
1973	5,454	6,100

* Includes Anchorage area streams.

Table 18. Age and Length Data from Sport Caught Chinook Salmon, West Side Susitna Streams, 1979.

Age Class	No. in Sample	% of Total Sample	Range mm	Sex Ratio Male:Female
Deshka River:				
IV	22	7%	522-754	All male
V	178	60%	660-1,103	1:1.8
VI	97	33%	893-1,393	1:1.7
Total	297	100%	522-1,393	1:1.4
Lake Creek:				
IV	9	7%	609-725	All male
V	49	40%	754-1,190	1:1.2
VI	65	53%	929-1,480	1:4.0
Total	123	100%	609-1,480	1:1.1
Alexander Creek:				
IV	19	20%	567-726	All male
V	61	63%	813-1,118	1:1.3
VI	17	17%	944-1,154	1:1.8
Total	97	100%	567-1,154	1.1:1
Combined Totals:				
IV	50	10%	522-754	All male
V	288	55%	754-1,190	1:1.6
VI	179	35%	893-1,480	1:1.6
Total	517	100%	522-1,480	1:1.2

DISCUSSION

The 1979 chinook salmon season in upper Cook Inlet was the first successful season since 1972, when all fishing for chinook salmon was closed due to drastic declines in run size. The 1979 run was strong and the sport fishing season was a success both in terms of angler harvest and escapement.

The 1979 coho salmon harvest in the Deshka River was generally poor, comparing closely to the 1977 run. Peak catches occurred early in the run, and this year an estimated 620 coho salmon were harvested providing 1,385 angler days of fishing. Although angler effort continued to increase, both the catch rate and coho salmon harvest dropped after the week ending August 3. The majority of coho salmon had moved through the fishery by this date. Angler success is currently used as an indication of run size for Deshka River coho salmon stocks. Estimates of total run size are presently unavailable due to the limited funds available for aerial survey work and the inaccessibility of much of the potential spawning habitat.

F.R.E.D. Division of ADF&G released 81,241 coho salmon smolts into Whittier Creek from May 15 through May 19, 1979 to produce an adult return in 1980. Thirty percent of the smolts released were marked with coded wire tags and adipose fin clips. Plans call for maintenance of this sport fishery through continued planting of coho salmon smolts.

As in previous years, the program for restocking Anchorage area lakes continued. A total of 17 lakes received 72,983 rainbow trout and 60,300 coho salmon. Catchable rainbow trout plants were scheduled for the same lakes in 1980, however, trout production at the local hatchery has fallen below request levels and shortages will be supplemented by catchable coho salmon.

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Prepared by:

Approved by:

Stanley W. Kubik
Fishery Biologist

Rupert E. Andrews, Director
Sport Fish Division

Kevin Delaney
Fishery Biologist

Mark C. Warner, Ph.D
Sport Fish Research Chief