Subtask 7.10
Phase 1 Final Draft Report
Juvenile Anadromous Fish Study on the Lower Susitna River
ADF&G / Su Hydro 1981

ALASKA
DEPARTMENT OF FISH AND GAME

ALASKA POWER AUTHORITY

SUSITNA HYDROELECTRIC PROJECT

Subtask 7.10
Phase 1 Final Draft Report
Juvenile Anadromous Fish Study on the Lower Susitna River
ADF&G / Su Hydro 1981

by
Alaska Department of Fish and Game
Susitna Hydro Aquatic Studies
2207 Spenard Road
Anchorage, Alaska 99503

for

Acres American Incorporated
Liberty Bank Building, Main at Court
Buffalo, New York 14202

TABLE OF CONTENTS

	Title	Page
1.	SUMMARY	E-1-1
2.	INTRODUCTION	E-2-1
3.	SPECIES REPORTS - JUVENILE ANADROMOUS FISH	E-3-1
	3.1 CHINOOK SALMON JUVENILES	E-3-1
	3.1.1 Abstract	E-3-1
	3.1.2 Introduction	E-3-3
	3.1.3 Methods	E-3-5
	3.1.4 Results and Discussion - Winter	E-3-6
	3.1.4.1 Distribution and Relative Abundance	E-3-6
	3.1.4.2 Age and Length Composition	E-3-12
	3.1.5 Results and Discussion - Summer	E-3-15
	3.1.5.1 Distribution and Relative Abundance	E-3-15
	3.1.5.2 Age and Length Composition	E-3-35
	3.2 COHO SALMON JUVENILES	E-3-50
	3.2.1 Abstract	E-3-50
	3.2.2 Introduction	E-3-51
	3.2.3 Methods	E-3-53
	3.2.4 Results and Discussion - Winter	E-3-54
	3.2.3.1 Distribution and Relative Abundance	E-3-54
	3.2.3.2 Age and Length Composition	E-3-64
	3.2.5 Results and Discussion - Summer	E-3-68
	3.2.5.1 Distribution and Relative Abundance	E-3-68
	3.2.5.2 Age and Length Composition	E-3-82
	3.3 OTHER JUVENILE SALMON	E-3-96
	3.3.1 Abstract	E-3-96
	3.3.2 Introduction	E-3-96
	3.3.3 Methods	E-3-97
	3.3.4 Results and Discussion	E-3-97

Title	Page
3.3.4.1 Distribution and Relative Abundance.....	E-3-97
3.3.4.2 Age and Length Composition.....	E-3-100
4. LITERATURE CITED.....	E-4-1
5. ACKNOWLEDGEMENTS.....	E-5-1

LIST OF TABLES

		Page
Table E.2.1	Estuary to Little Willow Creek	E-2-5
Table E.2.2	Rustic Wilderness to Montana Creek	E-2-6
Table E.2.3	Mainstem near Parks Highway bridge to Mainstem below Curry	E-2-7
Table E.2.4	Mainstem Susitna (opposite Curry) to Portage Creek	E-2-8
Table E.3.1.1	Chinook salmon juveniles, catch per unit effort at selected fish habitat sites on Indian River and Portage Creek, January through April, 1981.	E-3-8
Table E.3.1.2	Chinook salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, January through April, 1981.	E-3-9
Table E.3.1.3	Chinook salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Talkeetna and Devil Canyon January through April, 1981.	E-3-10
Table E.3.1.4	Chinook salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, November, 1980 to May, 1981.	E-3-13
Table E.3.1.5	Chinook salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Cook Inlet and Talkeetna, November, 1980 to May, 1981.	E-3-14
Table E.3.1.6	Chinook Salmon (age 0+), catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.	E-3-20
Table E.3.1.7	Chinook salmon (age I+), catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.	E-3-24

Table E.3.1.8	Chinook salmon (age 0+), catch per unit effort at selected fish habitat sites on Indian River and Portage Creek, June, August, and October, 1981.	E-3-28
Table E.3.1.9	Chinook salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981.	E-3-32
Table E.3.1.10	Chinook salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Cook Inlet and Devil Canyon, June through September, 1981.	E-3-34
Table E.3.1.11	Chinook salmon juveniles, age-length frequency at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.	E-3-38
Table E.3.2.1	Coho salmon juveniles, percent incidence at habitat location sites on the mainstem Susitna River and its tributary mouths between Cook Inlet and Devil Canyon, November, 1980 to May, 1981.	E-3-56
Table E.3.2.2	Coho salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, November, 1980 to May, 1981.	E-3-57
Table E.3.2.3	Coho salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Cook Inlet and Talkeetna, November, 1980 to May, 1981.	E-3-59
Table E.3.2.4	Coho salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, November, 1980 to May, 1981.	E-3-61
Table E.3.2.5	Coho salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Talkeetna and Devil Canyon, November, 1980 to May, 1981.	E-3-62
Table E.3.2.6	Coho salmon juveniles, age-length analysis at habitat location sites on the Susitna River between Cook Inlet and Devil Canyon, November, 1980 to May, 1981.	E-3-67

Table E.3.2.7	Coho salmon juveniles, percent incidence at habitat location sites on the mainstem Susitna River and its tributary mouths between Cook Inlet and Talkeetna, June to September, 1981.	E-3-70
Table E.3.2.8	Coho salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Cook Inlet and Devil Canyon, June to September, 1981.	E-3-72
Table E.3.2.9	Coho salmon juveniles, catch per unit effort at habitat locations on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981.	E-3-73
Table E.3.2.10	Coho salmon juveniles, percent incidence at habitat location sites on the mainstem Susitna River and its tributary mouths between Talkeetna and Devil Canyon, June to September, 1981.	E-3-78
Table E.3.2.11	Coho salmon (age 0+), catch per trap day at selected fish habitat location sites on Indian River and Portage Creek, June, August, and October, 1981.	E-3-79
Table E.3.2.12	Coho salmon (age 0+), catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.	E-3-80
Table E.3.2.13	Coho salmon (age I+), catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.	E-3-81
Table E.3.2.14	Coho salmon (age 0+ and I+), length analysis at habitat location sites between Talkeetna and Devil Canyon, June to September, 1981.	E-3-90
Table E.3.2.15	Coho salmon juvenile, length analysis at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, Talkeetna and Devil Canyon, and also at selected fish habitat sites on Indian River and Portage Creek, June to October, 1981.	E-3-91

Table E.3.3.1	Pink, chum and sockeye juvenile catches in the Susitna River between Cook Inlet and Devil Canyon, November, 1980 to October, 1981.	E-3-98
Table E.3.3.2	Pink, chum and sockeye juvenile length composition in the Susitna River between Cook Inlet and Devil Canyon, November, 1980 to September, 1981.	E-3-101

LIST OF FIGURES

		Page
Figure E.2.1	Map of the lower Susitna River study area from Cook Inlet to the proposed Devil Canyon dam site.	E-2-2
Figure E.2.2	Resident and juvenile anadromous study, catch and effort form, fixed gear, 1980-81.	E-2-10
Figure E.2.3	Resident and juvenile anadromous study, catch and effort form, movile gear, 1980-81.	E-2-11
Figure E.2.4	Resident and juvenile anadromous study, biological data form, 1980-81.	E-2-12
Figure E.2.5	Resident and juvenile anadromous study, tag and recapture form, 1980-81.	E-2-13
Figure E.3.1.1	Length frequency composition of juvenile chinook salmon captured at habitat location and selected fish habitat sites on the Susitna River between Talkeetna and Devil Canyon, November, 1980 to May, 1981.	E-3-16
Figure E.3.1.2	Length frequency composition of juvenile chinook salmon captured at habitat location and selected fish habitat sites on the Susitna River between Cook Inlet and Talkeetna, November, 1980 to May, 1981.	E-3-17
Figure E.3.1.3	Numbers of juvenile chinook salmon captured per trap day at Whiskers Creek Slough, Slough 6A, Slough 10, and Slough 20 on the Susitna River, June to September, 1981.	E-3-21
Figure E.3.1.4	Percent incidence of chinook salmon (age 0+) captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.	E-3-22
Figure E.3.1.5	Percent incidence of chinook salmon (age 0+) at habitat location sites on the mainstem Susitna River and its tributary mouths between Talkeetna and Devil Canyon, June to September, 1981.	E-3-25

Figure E.3.1.6	Percent incidence of chinook salmon (age I+) captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.	E-3-27
Figure E.3.1.7	Percent incidence of chinook salmon juveniles captured at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981.	E-3-29
Figure E.3.1.8	Percent incidence of juvenile chinook salmon at habitat location sites on the mainstem Susitna River and its tributary mouths between Cook Inlet and Talkeetna, June to September, 1981.	E-3-31
Figure E.3.1.9	Length frequency composition of juvenile chinook salmon captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981. Lengths are total.	E-3-36
Figure E.3.1.10	Length frequency of juvenile chinook salmon captured at habitat location sites on Indian River and Portage Creek, June to October, 1981. Lengths are total.	E-3-40
Figure E.3.1.11	Length frequency composition of juvenile chinook salmon captured at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981. Lengths are total.	E-3-42
Figure E.3.1.12	Mean lengths of juvenile chinook salmon captured at Indian River and Portage Creek, and at the Susitna River between Talkeetna and Devil Canyon, and between Cook Inlet and Talkeetna, June to September, 1981.	E-3-45
Figure E.3.2.1	Length frequency composition of juvenile coho salmon at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, and between Talkeetna and Devil Canyon, December, 1980 to March, 1981. Lengths are total.	E-3-65

Figure E.3.2.2	Age-length frequency composition of juvenile coho salmon in the Susitna River between Cook Inlet and Devil Canyon, December, 1980 to March, 1981. Age determined by scale analysis. Lengths are total.	E-3-66
Figure E.3.2.3	Percent incidence of coho salmon juveniles captured at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981.	E-3-69
Figure E.3.2.4	Percent incidence of coho salmon (age 0+) captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.	E-3-76
Figure E.3.2.5	Percent incidence of coho salmon (age I+) captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.	E-3-77
Figure E.3.2.6	Age-length frequency composition of juvenile coho salmon in the Susitna River between Cook Inlet and Devil Canyon during August and early September, 1981 determined by scale analysis. Lengths are total.	E-3-83
Figure E.3.2.7	Length frequency composition of juvenile coho salmon at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981. Lengths are total.	E-3-86
Figure E.3.2.8	Length frequency composition of juvenile coho salmon at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981. Lengths are total.	E-3-88
Figure E.3.2.9	Length frequency composition of juvenile coho salmon at habitat location sites and selected fish habitat sites on Indian River and Portage Creek, June to early October, 1981. Lengths are total.	E-3-93

LIST OF APPENDIX TABLES EB

EB-1.1 Chinook salmon juveniles, catch per unit effort at habitat locations on the lower Susitna River between Cook Inlet and Devil Canyon, November, 1981 to October, 1981.

EB-1.2 Chinook salmon (age 0+), catch per unit effort at habitat locations on the lower Susitna River between Cook Inlet and Devil Canyon, November, 1981 to October, 1981.

EB-1.3 Chinook salmon (age 1+), catch per unit effort at habitat locations on the lower Susitna River between Cook Inlet and Devil Canyon, November, 1981 to October, 1981.

EB-2.1 Coho salmon juveniles, catch per unit effort at habitat locations on the lower Susitna River between Cook Inlet and Devil Canyon, November, 1981 to October, 1981.

EB-2.2 Coho salmon (age 0+), catch per unit effort at habitat locations on the lower Susitna River between Cook Inlet and Devil Canyon, November, 1981 to October, 1981.

EB-2.3 Coho salmon (age 1+), catch per unit effort at habitat locations on the lower Susitna River between Cook Inlet and Devil Canyon, November, 1981 to October, 1981.

1. SUMMARY

(1) This study was designed to gather information describing the presence, abundance, geographical and seasonal distribution, age class composition, length distribution, and smolt migration timing of juvenile salmon in the Susitna River between Cook Inlet and Devil Canyon as part of a feasibility study regarding the proposed Susitna Hydroelectric project.

(2) Field collection of data on juvenile salmon fish species took place from November, 1980 to October, 1981. Sampling gear used included variable mesh gillnets, minnow traps, beach seines, electrofishing units, and dip nets.

(3) Five juvenile salmon species were captured during the course of this study.

(4) Juvenile chinook salmon were captured throughout the study area. The majority of juvenile chinook salmon captured during winter between Cook Inlet and Devil Canyon occurred at slough and mainstem Susitna River sites and in summer at tributary mouth sites. Two age classes (0+ and I+) were captured. Age I+ were not captured after July between Talkeetna and Devil Canyon and were not captured after August in the Cook Inlet to Talkeetna reach.

(5) Juvenile coho salmon occurred throughout the study area. The majority of juvenile coho salmon captured between Cook Inlet and Talkeetna during winter and summer occurred at tributary mouth sites. Between Talkeetna

and Devil Canyon occurrence was greater at slough sites in winter and at slough and tributary mouth sites in summer. Three age classes (0+, I+ and II+) were captured. Age II+ were not captured after May in the Talkeetna to Devil Canyon reach and were not captured after mid June in the Cook Inlet to Talkeetna reach.

(6) Relatively small numbers of juvenile pink, chum and sockeye salmon were collected in 1980-1981. Sampling scheme bias imposed by gear types and by location of effort can account for the limited numbers of these juvenile salmon species encountered. Further seasonal distribution, relative abundance, and biological information on these three juvenile salmon species is needed to evaluate their life histories.

(7) Further information is needed on the winter distribution and habits of all five species of juvenile salmon.

(8) Further information is needed on the timing of the smolt outmigration and also on the incubation of embryos of all five juvenile salmon species.

2. INTRODUCTION

The lower Susitna River extends 152 River Miles (RM) from Cook Inlet upstream to the proposed Devil Canyon dam site (Figure E.2.1). The study area for the 1980-81 field work was limited to the mainstem Susitna River, its sloughs and side channels, and those reaches of tributary streams directly influenced by Susitna River stage fluctuations. Over its course from Devil Canyon to Cook Inlet, the Susitna River loses nearly 950 feet of vertical elevation and undergoes numerous morphological changes.

From Cook Inlet to Talkeetna, the first 98 river miles, the Susitna rises 350 feet in elevation and combines with three major tributaries; the Yentna (RM 30), Talkeetna (RM 98) and Chulitna (RM 98.5), all glacial rivers. The Cook Inlet to Talkeetna reach includes the Susitna River Delta, the relatively stable Susitna Station (RM 29) area, the Delta Islands (RM 40-61), and an extensively braided area from the Kashwitna River (RM 61) upstream to Talkeetna (RM 97).

Major salmon and resident fish producing tributary streams such as Alexander Creek, Willow Creek, Deshka River and Montana Creek flow into the Susitna River in the Cook Inlet to Talkeetna reach. These streams provide a substantial contribution to Susitna River fish production and account for over one hundred thousand man days of sport fishing effort annually in their multi-species fisheries (Mills, 1980).

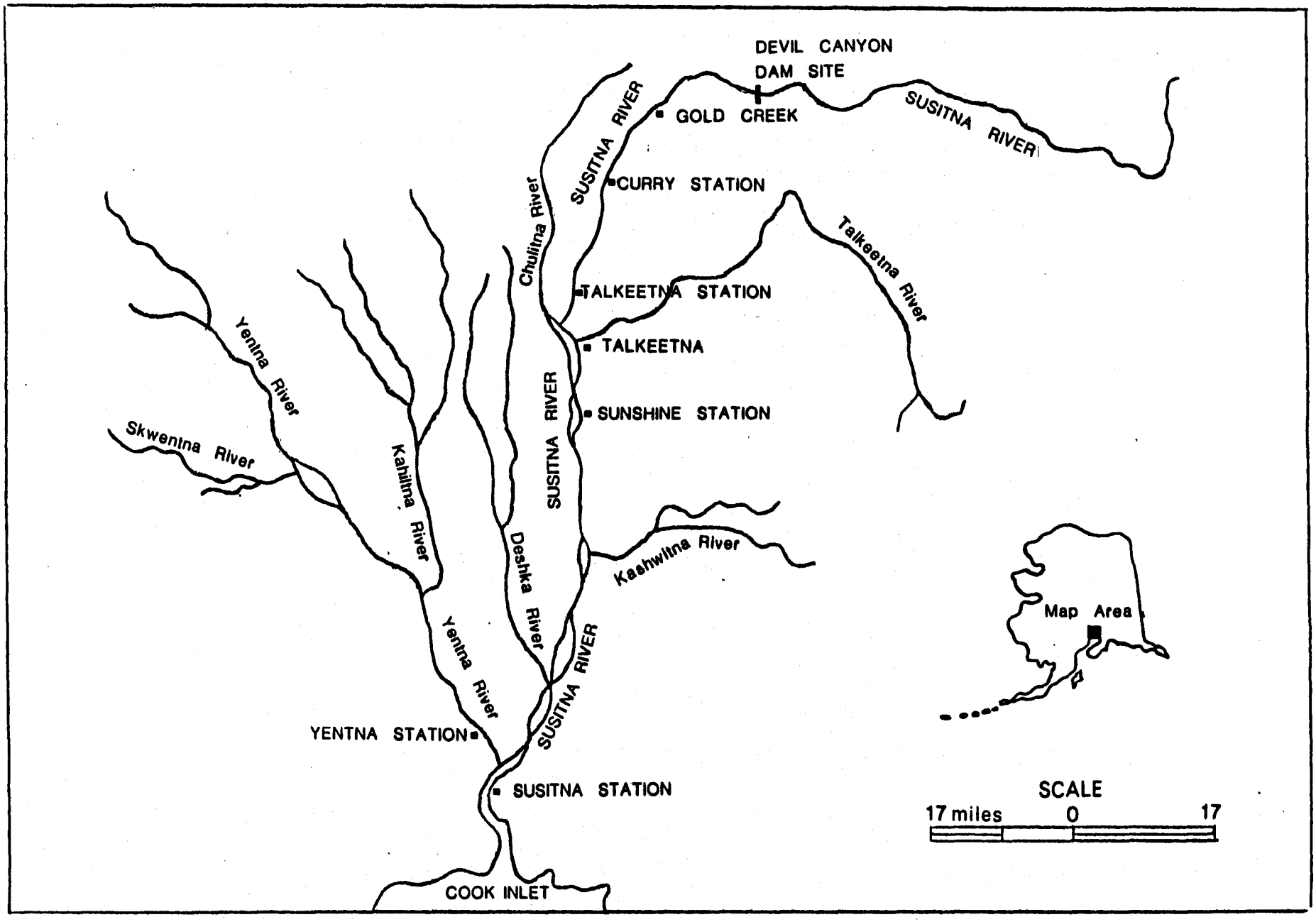


Figure E.2.1. Map of the lower Susitna River study area from Cook Inlet to the proposed Devil Canyon dam site.

Above Talkeetna, the Susitna river begins to gain elevation more rapidly as it enters the foothills of the Talkeetna mountains. The river channel is relatively stable restricted by the surrounding hills. However, numerous islands, sloughs and braided areas still exist.

Streams tributary to the Susitna River in the Talkeetna to Devil Canyon reach include Whiskers Creek, Lane Creek, Fourth of July Creek, Gold Creek, Indian River and Portage Creek in addition to numerous smaller streams draining the surrounding hillsides. These streams together with the mainstem Susitna River, its side channels and sloughs combine to sustain substantial resident and anadromous fish populations.

Access to the fisheries resources of the lower Susitna River may be gained by various means including road, railroad, riverboat, and aircraft.

Prior to the initiation of 1980-81 Susitna Hydroelectric Aquatic Studies juvenile anadromous fisheries data describing species composition, seasonal distribution, relative abundance, migrational movement patterns and aspects of species life history within the lower Susitna River study area, consisted of various studies conducted within individual tributary streams and preliminary Susitna Hydro environmental assessments. Engel and Watsjold (1978) and Delaney, Hepler and Roth (1981) researched juvenile salmon populations in Willow Creek and the Deshka River. Barrett (1975a,b,c) and Riis and Friese (1978), in documents prepared for the United States Fish and Wildlife Service, reported preliminary environmental assessments of hydroelectric development on the Susitna River.

For the purposes of this study, the lower Susitna River was divided into two reporting reaches: Cook Inlet (RM 0) to Talkeetna (RM 98) and Talkeetna to Devil Canyon (RM 152.0). Studies were conducted from November, 1980 to October, 1981. The data collected beginning November, 1980 and extending through May, 1981 will be reported as winter studies. This time period included exploratory sampling as well as project development. In June, 1981, 39 specific areas hereafter referred to as habitat locations were selected for study along the Susitna River from Cook Inlet to Devil Canyon to represent the available aquatic habitat. Habitat locations consisted of one to three sampling sites and included many of the areas examined during the winter studies. Additional areas identified in earlier studies and areas selected to provide additional representation of unique aquatic habitats were also included. These areas are referred to as selected fish habitat sites. Tables E.2.1 to E.2.4 list the 39 habitat locations, 44 sampling sites included within these, and the corresponding river miles and geographic codes for each. A sampling scheme was devised whereby each habitat location site would be examined twice each month using standard fisheries sampling gear such as wire mesh minnow traps, variable mesh gillnets, beach seine, electrofishing units, dip nets and fish traps. Appendix Table EA presents a summary of sampling effort by habitat location, sampling period, and gear type on the lower Susitna River for the 1980-1981 season.

Minnow traps and set variable mesh gill nets were considered "fixed gear" and fished for two consecutive 18 to 24 hour periods. The remaining gear types including electrofishing and beach seine, were considered mobile gear and were utilized as river condition or gear availability permitted. Fish traps

Table E.2.1. Estuary to Little Willow Creek

Habitat Location	Site	R.M.	Geographic Location
Alexander Creek	A	10.1	15N 07W 06 DCA
Alexander Creek	B	10.1+2.0	16N 07W 32 CCB
Alexander Creek	C	10.1+4.0	16N 07W 30 ACD
Anderson Creek		23.8	17N 07W 29 DDD
Kroto Slough Mouth		30.1	17N 07W 01 DBC
Mainstem Susitna Slough		31.0+2.5	17N 06W 05 CAB
Mid Kroto Slough		36.3	18N 06W 16 BBC
Deshka River	A	40.6	19N 06W 35 BDA
Deshka River	B	40.6+1.0	19N 06W 26 BCB
Deshka River	C	40.6+3.5	19N 06W 14 BCA
Delta Islands		44.0	19N 05W 19 ACB
Little Willow Creek		50.5	20N 05W 27 AAD

Total - 12

Table E.2.2. Rustic Wilderness to Montana Creek

Habitat Location	Site	R.M.	Geographic Location
Rustic Wilderness		58.1	21N 05W 25 CBD
Kashwitna River		61.0	21N 05W 13 AAA
Caswell Creek		63.0	21N 04W 06 BDD
Slough West Bank		65.6	22N 05W 27 ADC
Sheep Creek Slough		66.1	22N 04W 30 BAB
Goose Creek	1	72.0	23N 04W 31 BBC
Goose Creek	2	73.1	23N 04W 30 BBB
Mainstem Susitna West Bank		74.4	23N 05W 13 CCD
Montana Creek		77.0	23N 04W 07 ABA

Total - 9

Table E.2.3. Mainstem near Parks Highway bridge to mainstem below Curry

Habitat Location	Site	R.M.	Geographic Location
Mainstem 1		84.0	24N 05W 10 DCC
Sunshine Creek		85.7	24N 05W 14 AAB
Birch Creek Slough		88.4	25N 05W 25 DCC
Birch Creek		89.2	25N 05W 25 ABD
Cache Creek Slough		95.5	26N 05W 35 ADC
Cache Creek		96.0	26N 05W 26 DCB
Whiskers Creek Slough		101.2	26N 05W 03 ADB
Whiskers Creek		101.4	26N 05W 03 AAC
Slough 6A		112.3	28N 05W 13 CAC
Lane Creek		113.6	28N 05W 12 ADD
Mainstem 2		114.4	28N 04W 06 CAB

Total - 11

Table E.2.4. Mainstem Susitna (opposite Curry) to Portage Creek

Habitat Location	Site	R.M.	Geographic Location
Mainstem Susitna - Curry		120.7	29N 04W 10 BCD
Susitna Side Channel		121.6	29N 04W 11 BBB
Mainstem Susitna - Gravel Bar		123.8	30N 04W 26 DDD
Slough 8A		125.3	30N 03W 30 BCD
Fourth of July Creek		131.1	30N 03W 03 DAC
Slough 10		133.8	31N 03W 36 AAC
Slough 11		135.3	31N 02W 19 DDD
Mainstem Susitna Gold Creek		136.9	31N 02W 17 CDA
Indian River		138.6	31N 02W 09 CDA
Slough 20		140.1	31N 02W 11 BBC
Mainstem Susitna - Island		146.9	32N 01W 27 DBC
Portage Creek		148.8	32N 01W 25 CDB

Total - 12

were experimental in nature and were only fished occasionally. Catch by species and effort by gear type was recorded on field catch data collection forms illustrated in Figures E.2.2 and E.2.3.

Biological data for juvenile salmon including date and location of catch, fork length, sex, and a scale or otolith sample for age analysis were collected from a subsample of all fish captured. The biological data collection form is illustrated in Figure E.2.4.

Winter field studies were carried out by three crews of three biologists each operating from lodging facilities at Alexander Creek, Deshka River, Montana Creek, Talkeetna and Gold Creek. Transportation was provided by pickup truck, snow machine, helicopter, and fixed-wing ski plane.

The winter studies were considered to be an exploratory phase of the Resident and Juvenile Anadromous project. A large number of sites were visited in an attempt to achieve wide coverage and identify representative aquatic habitat. This period from November, 1980 to May, 1981 was also used to obtain project equipment and hire and train project personnel.

A total of eleven biologists, seven from the Resident and Juvenile Anadromous project and four from the Aquatic Habitat project operated as four distinct crews to accomplish the objectives of the summer (June - September) field program. The crews were based in semi-permanent tent camps located at the Yentna, Sunshine and Talkeetna fishwheel stations and at Gold Creek. Each crew utilized a pickup truck, outboard jet powered riverboat and helicopter

File No. 03-81-7.10-2.71 Page 1 of _____

SUSITNA HYDRO RESIDENT & JUVENILE ANADROMOUS STUDY
FIXED GEAR CATCH DATA RJ 81-01

Habitat Location _____ Sampling Site _____ River Mile _____ __/__/__/__/__/__/__/__

DATE: Gear Set _____ Gear Pulled _____ Collector(s) _____

gear type code	PSN	net length	mesh size	hook size	bait type	TIME set	TIME pulled	TIME total	CATCH - SPECIES CODE NO.	REMARKS
1										
5										
10										

GEAR TYPE CODE

gillnet	1
minnow trap	5
trot line	10
burbot set	10a

SPECIES CODE

burbot	590
chinook 0+	410
chinook 1+	411
chum salmon	460
coho 0+	430
coho 1+	431
coho 2+	432
cottid	910
dolly varden	630
grayling	810
humpback whitefish	562
lake trout	550
longnose sucker	820
pink salmon	440
rainbow trout	541
round whitefish	566
smelt/eulachon	511
sockeye 0+	420
sockeye 1+	421
stickleback	860

BAIT CODE

artificial	1
fish	2
eggs	3
other (specify in remarks)	4

Figure E.2.2. Resident and juvenile anadromous study, catch and effort form, fixed gear, 1980-1981.

File No. 03-81-7.10-2.74 Page 1 of ____

SUSITNA HYDRO RESIDENT & JUVENILE ANADROMOUS STUDY
MOBILE GEAR CATCH DATA RJ 81-04

Habitat Location _____ Sampling Site _____ River Mile _____ ___/___/___/___/___/___

DATE: Gear Set _____ Gear Pulled _____ Collector(s) _____

gear type code	PSM	net length	mesh size	bait type	hook size	TIME set	TIME pulled	TIME total*	CATCH - SPECIES CODE NO.											REMARKS

* total time for beach seine haul, electroshock and hook & line

GEAR TYPE CODE

drift gillnet	1a
electroshock	2
beach seine	3
hook & line	9
other (specify)	0

SPECIES CODE

burbot	590	humpback whitefish	662
chinook 0+	410	lake trout	650
chinook 1+	411	longnose sucker	920
chum salmon	450	pink salmon	440
coho 0+	430	rainbow trout	641
coho 1+	431	round whitefish	666
coho 2+	432	smelt/eulachon	811
cottid	910	sockeye 0+	420
dolly varden	630	sockeye 1+	421
grayling	610	stickleback	660

BAIT TYPE CODE

artificial	1
fish	2
eggs	3
other	4

Figure E.2.3 Resident and juvenile anadromous study, catch and effort form, mobile gear, 1980-1981.

File No. 03-81-7.10-2.72 Page ____ of ____

SUSITNA HYDRO RESIDENT & JUVENILE ANADROMOUS STUDY
BIOLOGICAL DATA RJ 81-02

Habitat Location _____ Sampling Site _____ River Mile _____ __/__/__/__/__

Date(s) Collected _____ Collector(s) _____

	species code	length (mm)	sex	age	scale card #	gear type code	PSN	mesh size	remark on back		species code	length (mm)	sex	age	scale card #	gear type code	PSN	mesh size	remark on back
1										26									
2										27									
3										28									
4										29									
5										30									
6										31									
7										32									
8										33									
9										34									
10										35									
11										36									
12										37									
13										38									
14										39									
15										40									
16										41									
17										42									
18										43									
19										44									
20										45									
21										46									
22										47									
23										48									
24										49									
25										50									

GEAR TYPE CODE

beach seine	3
burbot set	10
drift gillnet	1
electroshock	2
gillnet	1
hook & line	9
minnow trap	5
trot line	10

SPECIES CODE

burbot	590	humpback whitefish	582
chinook 0+	410	lake trout	550
chinook 1+	411	longnose sucker	920
chum salmon	450	pink salmon	440
coho 0+	430	rainbow trout	541
coho 1+	431	round whitefish	586
coho 2+	432	smelt/eulachon	511
cottid	910	sockeye 0+	420
dolly varden	530	sockeye 1+	421
grayling	810	stickleback	660

Figure E.2.4. Resident and juvenile anadromous study, biological data form, 1980-1981.

for transportation and provided their own logistical support (i.e. gas, food). The number of habitat location sites assigned to each crew consisted of: Yentna-12, Sunshine-9, Talkeetna-11, and Gold Creek-12.

3. SPECIES REPORTS - JUVENILE ANADROMOUS FISH

3.1 CHINOOK SALMON JUVENILES

3.1.1 Abstract

Juvenile chinook salmon Oncorhynchus tshawytscha Walbaum were observed from Alexander Creek (R.M. 10.1) upstream to Portage Creek (R.M. 148.8) during studies conducted on the Susitna River from November, 1980 through October, 1981. Minnow traps were the primary collection technique for juvenile chinook salmon in this study. Eighty seven habitat location and selected fish habitat sites were surveyed from November through May, 53 between Talkeetna and Devil Canyon and 34 between Cook Inlet and Talkeetna. Seventy seven percent of the 707 juvenile chinook salmon recorded during the winter surveys were captured between Talkeetna and Devil Canyon. The highest winter catch rate of 20 fish per trap occurred at Slough 6A (R.M. 112.3) during March.

Juvenile chinook salmon were observed at 43 of 44 (98%) habitat location sites surveyed from June through October. A total of 6,579 juvenile chinook salmon were captured during the summer surveys with a slough (R.M. 136.9) recording the highest catch rate of 32.0 fish per trap. Juvenile chinook salmon were captured at selected fish habitat sites on Indian River (R.M. 138.6) and Portage Creek (R.M. 148.8) during both summer and winter surveys.

Juvenile chinook salmon from the 1979 brood year (age I+) were observed throughout the winter surveys and had a mean total length of 77 mm and a length range from 54 mm to 110 mm. The first capture of 1980 brood year fish (age 0+) occurred April 18 at Indian River. Two age classes were present

until late July when no further captures of age I+ fish were recorded between Talkeetna and Devil Canyon. Analysis of scales and length frequency data showed the presence of age I+ chinook salmon in the reach between Cook Inlet and Talkeetna through the end of August. The length of age 0+ fish averaged 70 mm throughout the river by late September and ranged from 54 mm to 108 mm.

Juvenile chinook salmon populations varied in abundance and distribution by river habitat type and seasonal period. Mainstem river and slough sites were the most important winter rearing habitat type observed between Talkeetna and Devil Canyon. Juvenile chinook salmon were captured at 88 percent of these sites surveyed during the winter. Percent incidence in habitat location site catches increased during the summer from 20 percent in late June to 88 percent in early September. All juvenile chinook salmon captured at sites between Talkeetna and Devil Canyon are believed to have migrated from associated streams as no adult chinook salmon spawning in the mainstem river or slough sites has been recorded to date.

Slough and mainstem Susitna River sites were found to be the most important winter rearing area for juvenile chinook salmon of habitat sites located between Cook Inlet and Talkeetna. Small numbers of juveniles were also observed in the tributary mouth habitat locations in this reach. Juvenile chinook salmon were observed at 60 to 93 percent of the tributary mouth habitat location sites during summer surveys conducted between Cook Inlet and Talkeetna. Tributary sites accounted for 95 percent of all juvenile chinook salmon captured in this reach between June and October. Percent occurrence at mainstem river and slough sites in this reach ranged from 27 percent in early August to 88 percent in late September.

3.1.2 Introduction

Chinook or king salmon Onchorhynchus tshawytscha Walbaum, the largest of the five species of Pacific salmon, is an important target species for Alaskan commercial, sport, and subsistence fishermen. The Susitna River drainage is the major producer of chinook salmon in Cook Inlet and numerous studies have been conducted on the adult phase of this species in the Susitna River (Barrett 1974; Friese 1975; Kubik and Wadman 1978; Watsjold 1977).

The native range of chinook salmon in North America is from southern California north to Point Hope, Alaska and extends from Siberia to Japan (Aro and Shepard 1967). Numerous introductions of chinook salmon outside their native range have been attempted, but a self-sustaining population has been successfully established only in New Zealand (Davidson and Hutchinson 1938).

The chinook salmon is an anadromous fish having a juvenile freshwater phase and a marine growing phase with the mature adults returning to their natal streams to spawn. Susitna River chinook salmon return to the streams as age III to VII adults from May to July. Ages IV and V predominate (Adult Anadromous Investigations, Alaska Department of Fish and Game Su Hydro Studies 1981). Spawning occurs from July to September and takes place in deeper water and over larger substrate than the other salmon species (Scott and Crossman, 1973). Each female deposits an average of 7,000 eggs which incubate in the gravel through the winter and hatch the following spring as water temperatures begin to rise. The alevins remain in the nest a period of two to three weeks,

until the yolk sac is absorbed and then emerge from the gravel and become free swimming, feeding fry. The fry school at first but become territorial and aggressive as they grow (Scott and Crossman 1973). Terrestrial insects, chironomid larvae, caddis flies, and small crustaceans are the major food sources for juvenile chinook salmon (Riis and Friese 1978).

Chinook salmon remain in freshwater up to two years before migrating to the ocean as smolts. Adult Anadromous Investigations, Alaska Department of Fish and Game Su Hydro Studies (1981) concluded from analysis of adult chinook salmon scales that most Susitna River chinook salmon remained in freshwater for one year before smolting.

Juvenile chinook salmon are characterized by six to 12 parr marks which are broader than the interspaces, black spots on both lobes of the caudal fin, an unspotted dorsal fin, black gums along the base of the lower teeth, and spots on all but the anterior portion of the adipose fin (McConnell and Snyder 1972). The smolting process is characterized by a loss of parr marks and a change to a silvery color as the fish seek deeper water and avoid light (Scott and Crossman 1973).

Studies of the juvenile life history of chinook salmon in upper Cook Inlet tributary streams have been conducted by Kubik and Wadman (1978), Delaney and Wadman (1979), and Delaney, Hepler, and Roth (1981). Barrett (1974) and Friese (1975) have previously identified 28 clearwater sloughs and nine tributaries as observed or potential rearing sites between Talkeetna and Devil Canyon.

3.1.3 Methods

Juvenile chinook salmon were collected from November, 1980 through September, 1981. During the winter sampling, November through May, eleven habitat locations located between Cook Inlet and Devil Canyon were surveyed on three or more occasions. A large percentage of the sampling effort during this period was exploratory to determine suitable survey sites. Beginning June 1, sampling was essentially limited to 44 habitat location sites in the lower Susitna River and was conducted on a bimonthly schedule as set forth previously in this report.

Indian River (RM 138.6) and Portage Creek (RM 148.8) were surveyed at their mouth habitat locations and upstream selected fish habitat sites from January through April. Three selected fish habitat sites, determined by the stream's interceptions with geological section lines and ease of access, were sampled in both Indian River and Portage Creek in June, August, and October.

Indian River selected fish habitat Site 3 was relocated in August from Indian River Mile 13.5 to Site 3A (Indian River RM 12.0) to provide better accessibility. Portage Creek selected fish habitat Site 3 (Portage Creek RM 15.6) was relocated in August from the east fork to the north fork Site 3A, (Portage Creek RM 15.5) due to a hydraulic barrier below the east fork site, and because of the presence of adult salmon observed in the north fork.

The primary collection technique for chinook salmon juveniles utilized 1/4 inch (6.4 mm) wire mesh minnow traps baited with preserved salmon roe sus-

pended in a perforated container. Incidental catches were made using 1/8 inch (3.2 mm) mesh beach seines, 1/8 inch (3.2 mm) mesh minnow traps, and backpack electrofishing units.

A representative sample of all juvenile chinook salmon were measured for total length in millimeters (mm) and released. Age determinations were made by length frequency analysis of measured fish and scale analysis of preserved specimens.

3.1.4 Results and Discussion - Winter

3.1.4.1 Distribution and Relative Abundance

Juvenile chinook salmon were captured beginning with the first winter sampling conducted in November, 1980. Surveys continued through May and noted the presence of rearing chinook salmon from Alexander Creek (RM 10.1) upstream to Portage Creek (RM 148.8).

Eighty-seven habitat locations and selected fish habitat sites were sampled during the winter surveys, 53 between Talkeetna and Devil Canyon and 34 between Cook Inlet and Talkeetna. A total of 707 juvenile chinook salmon were captured at 59% of the sites surveyed. Whiskers Creek accounted for 27.0% of all juvenile chinook salmon captured during the winter surveys while the Talkeetna to Devil Canyon reach provided 77.4% of the total winter captures.

Sampling was conducted at selected fish habitat sites on Indian River (RM 138.6) and Portage Creek (RM 148.8) from February through April, 1981. Indian River was surveyed from its mouth upstream to Indian River Mile 8.0 and Portage Creek was surveyed from its mouth upstream to Portage Creek River Mile 11.8.

Small numbers of juvenile chinook salmon, all from the 1979 brood class, were observed in Indian River during March while April surveys showed the presence of both 1979 and 1980 brood classes. The highest catch rate of 0.3 fish per trap was recorded during March at River Mile 2.7 (Table E.3.1.1). Juvenile chinook salmon, all from the 1979 brood class, were observed in March at Portage Creek. The highest catch rate of 0.7 fish per trap was recorded at River Mile 9.5.

Juvenile chinook salmon were captured at eight of the 12 (75%) habitat locations sampled between Talkeetna and Devil Canyon from January through April, 1981 (Table E.3.1.2). Juvenile chinook salmon were collected at seven of eight (88%) mainstem and slough habitat locations and one of four (25%) tributary mouth habitat locations in this reach. The presence of rearing chinook salmon was consistently noted at Slough 8A (RM 125.3), Slough 10 (RM 133.8), and Slough 20 (RM 140.1). Juvenile chinook salmon were captured at 18 of 30 (60%) selected fish habitat sites surveyed in this reach (Table E.3.1.3). High catch rates were observed at Oxbow II (R.M. 119.2) and Susitna Side Channel (R.M. 136.1).

Eleven of 18 (61%) habitat location sites sampled in the Cook Inlet to Talkeetna reach from November through May demonstrated the presence of juvenile

Table E.3.1.1. Chinook salmon juveniles, catch per unit effort at selected fish habitat sites on Indian River and Portage Creek, February through April, 1981.

INDIAN RIVER				PORTAGE CREEK			
River Mile	Catch per trap day			River Mile	Catch per trap day		
	Feb	Mar	Apr		Feb	Mar	Apr
0.5-1.2	-	0.0	0.1	3.0	-	-	0.0
2.7	0.0	0.3	-	5.5	-	-	0.0
4.0-7.0	-	-	0.1	6.5	-	-	0.0
7.0	0.0	0.0	-	9.5	0.0	0.7	-
8.0	-	-	0.0	10.0	-	-	0.0
				11.8	0.0	0.3	-

Table E.3.1.2. Chinook salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, January through April, 1981.

Habitat Location	River Mile	Catch per trap day			
		Jan	Feb	Mar	Apr
Whiskers Creek Slough	101.2	1.5	-	-	-
Whiskers Creek	101.4	-	0.5	3.9	-
Slough 6A	112.3	-	-	20.0	-
Lane Creek	113.6	-	-	0.0	-
Susitna Curry	120.7	-	-	-	0.0
Susitna Side Channel	121.6	-	Trace 0.0	0.0	0.1
Slough 8A	125.3	0.0	0.1	1.7	1.0
Slough 10	133.8	2.3	2.4	1.1	1.1
Slough 11	135.3	2.0	0.0	0.0	0.0
Indian River Mouth	138.6	0.0	0.0	0.0	0.0
Slough 20	140.1	-	5.9	0.7	3.8
Portage Creek Mouth	148.8	-	0.0	0.0	-

Table E.3.1.3. Chinook salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Talkeetna and Devil Canyon, January to April, 1981.

Selected Fish Habitat Site	River Mile	Catch per trap day			
		Jan	Feb	Mar	Apr
Mainstem Susitna at Chulitna River	98.8-101.6	0.1	0.0	0.1	-
Oxbow II	119.2	-	-	2.5	-
Mainstem Susitna	121.0	-	-	-	0.0
Susitna Side Channel	125.0	-	0.1	-	0.0
Slough 8A (upper reach)	126.1	-	0.0	-	-
Mainstem Susitna below Slough 9	127.8	-	-	-	0.0
Slough 9 (lower reach)	128.5	0.5	0.0	0.0	0.0
Slough 9 (middle reach)	128.9	-	-	-	0.3
Slough 9 (upper reach)	129.2	-	-	0.2	-
Susitna Side Channel	130.2	-	-	0.4	-
Mainstem Susitna	131.0	-	0.0	0.1	0.1
Susitna Side Channel	131.1	-	0.1	0.0	-
Beaver Stream above Fourth of July Creek	131.4	-	0.0	0.1	-
Slough 9A (lower reach)	133.3	0.0	0.0	0.1	1.0
Mainstem Susitna	133.4	0.2	0.1	0.3	-
Mainstem Susitna below Slough 10	133.6	-	0.0	-	-
Mainstem Susitna below Slough 11	134.3	-	-	0.4	-

Table E.3.1.3 (Continued)

Selected Fish Habitat Site	River Mile	Catch per trap day			
		Jan	Feb	Mar	Apr
Susitna Side Channel	135.3	-	-	-	0.0
Slough 11 (headwaters)	135.8	-	0.0	-	-
Slough 14	136.0	-	0.0	0.0	-
Susitna Side Channel	136.1	0.5	-	-	5.0
Mainstem Susitna	136.7	0.0	-	-	0.0
Gold Creek Confluence	136.7	-	-	-	0.0
Mainstem Susitna	136.8	0.0	-	-	-
Slough 16	137.7	0.1	0.2	0.1	0.0
Mainstem Susitna	138.6	-	0.0	0.0	0.0
Slough 17	138.9	-	Trace 0.0	0.0	0.0
Mainstem Susitna	139.3	-	0.0	-	-
Susitna Side Channel	141.3	-	1.1	0.0	0.1
Slough 21	141.8	-	0.2	0.6	0.0

chinook salmon (Table E.3.1.4). Juvenile chinook salmon were collected at four of six (67%) mainstem and slough habitat locations and seven of 12 (58%) tributary mouth habitat location sites in this reach. Consistent catches were observed at Sunshine Creek (RM 85.7) and Rustic Wilderness (RM 58.1). The highest catch rate for juvenile chinook salmon in this reach occurred during March at Rustic Wilderness where 2.7 fish per trap were captured. Juvenile chinook salmon were observed at nine of 16 (56%) selected fish habitat sites surveyed in this reach (Table E.3.1.5).

Juvenile chinook salmon were captured at 79 percent of the mainstem and slough habitat location sites sampled between Cook Inlet and Devil Canyon during the winter surveys, while only 50 percent of the tributary mouth habitat location sites produced fish. The highest individual catch of juvenile chinook salmon during winter sampling was observed in March in an open lead at Slough 6A (R.M. 112.3). Twenty fish were captured in a single trap set at this location.

3.1.4.2 Age and Length Composition

Six hundred sixty eight juvenile chinook salmon (162 fish collected between Cook Inlet and Talkeetna, 506 fish collected between Talkeetna and Devil Canyon) were measured in millimeters for total length during the winter sampling of Susitna River habitat location and selected fish habitat sites. Six hundred fifty six (98.2%) of the fish measured were from the 1979 brood year and were experiencing their first winter in freshwater. Fish collected at Indian River (Rm 138.8) and Portage Creek (RM 148.8) habitat location and selected fish habitat sites are included in the calculations.

Table E.3.1.4. Chinook salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, November, 1980 to May, 1981.

Habitat Location	River Mile	Catch per trap day						
		Nov	Dec	Jan	Feb	Mar	Apr	May
Alexander Creek A	10.1	-	-	0.1	-	0.0	-	-
Alexander Creek B	10.1	-	-	-	-	0.0	-	-
Deshka River A	40.6	-	-	-	-	0.0	-	-
Deshka River B	40.6	-	-	-	-	0.0	-	0.0
Deshka River C	40.6	-	-	-	-	0.1	-	-
Little Willow Creek	50.5	-	-	-	-	0.0	-	-
Rustic Wilderness	58.1	0.0	-	2.0	-	2.7	-	0.1
Kashwitna River	61.0	0.2	0.0	-	-	-	-	-
Caswell Creek	63.0	0.6	-	-	-	-	-	0.1
Sheep Creek Slough	66.1	-	0.2	0.0	-	-	-	-
Mainstem West Bank	74.4	-	-	-	0.0	-	-	-
Montana Creek	77.0	0.5	-	-	0.0	0.0	-	0.0
Mainstem 1	84.0	0.0	-	-	0.0	0.0	0.0	-
Sunshine Creek	85.7	0.4	0.0	0.6	0.0	0.1	0.0	0.0
Birch Creek Slough	88.4	-	-	0.5	-	-	-	-
Birch Creek	89.2	-	-	0.1	0.0	0.0	-	-
Cache Creek Slough	95.5	-	0.0	0.1	-	-	0.0	0.1
Cache Creek	96.0	-	-	-	-	-	-	0.0

Table E.3.1.5. Chinook salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Cook Inlet and Talkeetna, November, 1980 to May, 1981.

Selected Fish Habitat Site	River Mile	Catch per trap day						
		Nov	Dec	Jan	Feb	Mar	Apr	May
Mainstem Susitna West Channel	9.5-10.8	-	-	0.0	-	0.0	-	-
Rolly Creek Mouth	39.0	-	-	-	-	0.1	-	-
Deshka River Beaver Pond	40.6	-	-	-	-	0.0	-	-
Mainstem Susitna East Channel	43.2-43.9	-	-	-	-	0.2	-	-
Willow Creek Mouth	49.3	-	-	-	-	0.1	-	-
Willow Creek at Parks Highway	49.3	0.4	-	-	-	-	-	-
Mainstem Susitna Braided Channel	59.0-62.0	-	-	0.0	-	0.0	-	-
Gray Creek at Parks Highway	60.0	-	-	-	-	-	0.0	0.0
Mainstem Susitna near Sheep Creek	66.8-68.0	-	-	-	0.1	-	-	-
Mainstem Susitna above Montana Creek	77.7-80.0	-	-	-	0.2	-	-	-
Beaver Slough West Bank	78.6-79.2	-	-	-	0.1	-	-	-
Rabideux Creek	83.2	-	-	-	-	-	0.0	0.0
Mainstem Susitna below Sunshine Creek	84.2	-	-	-	0.0	-	-	-
Mainstem Susitna below Cache Creek	91.9-94.8	-	-	0.0	0.2	-	-	-
Mainstem Susitna East Channel	96.7	-	-	-	-	1.4	-	-
Billion Slough	97.8	-	-	0.0	-	-	-	-

Figure E.3.1.1 provides the percent length frequency distribution for juvenile chinook salmon collected from Talkeetna to Devil Canyon. Mean length for 1979 brood class fish collected during November, 1980 through May, 1981 was calculated to be 79.6 mm total length with a range of 55 mm to 108 mm.

The percent length frequency distribution for juvenile chinook salmon from the Cook Inlet to Talkeetna reach is presented in Figure E.3.1.2. Chinook salmon from the 1979 brood class in this reach ranged from 54 mm to 110 mm total length and had a mean length of 77.3 mm.

Scale analysis conducted during the winter sampling on 34 juvenile chinook salmon with a length range of 69 mm to 110 mm showed all specimens to be from the 1979 brood year.

Twelve juvenile chinook salmon from the 1980 brood class were measured during April and May, 1981. The first captures of this age class were made April 18 at Indian River. The calculated mean length for these fish was 33.9 mm with a range from 31 mm to 41 mm.

3.1.5 Results and Discussion - Summer

3.1.5.1 Distribution and Relative Abundance

Juvenile chinook salmon were captured at habitat location sites from Alexander Creek (RM 10.1) upstream to Portage Creek (RM 148.8) during sampling conducted from June 1 to September 30, 1981. Selected fish habitat sites located in

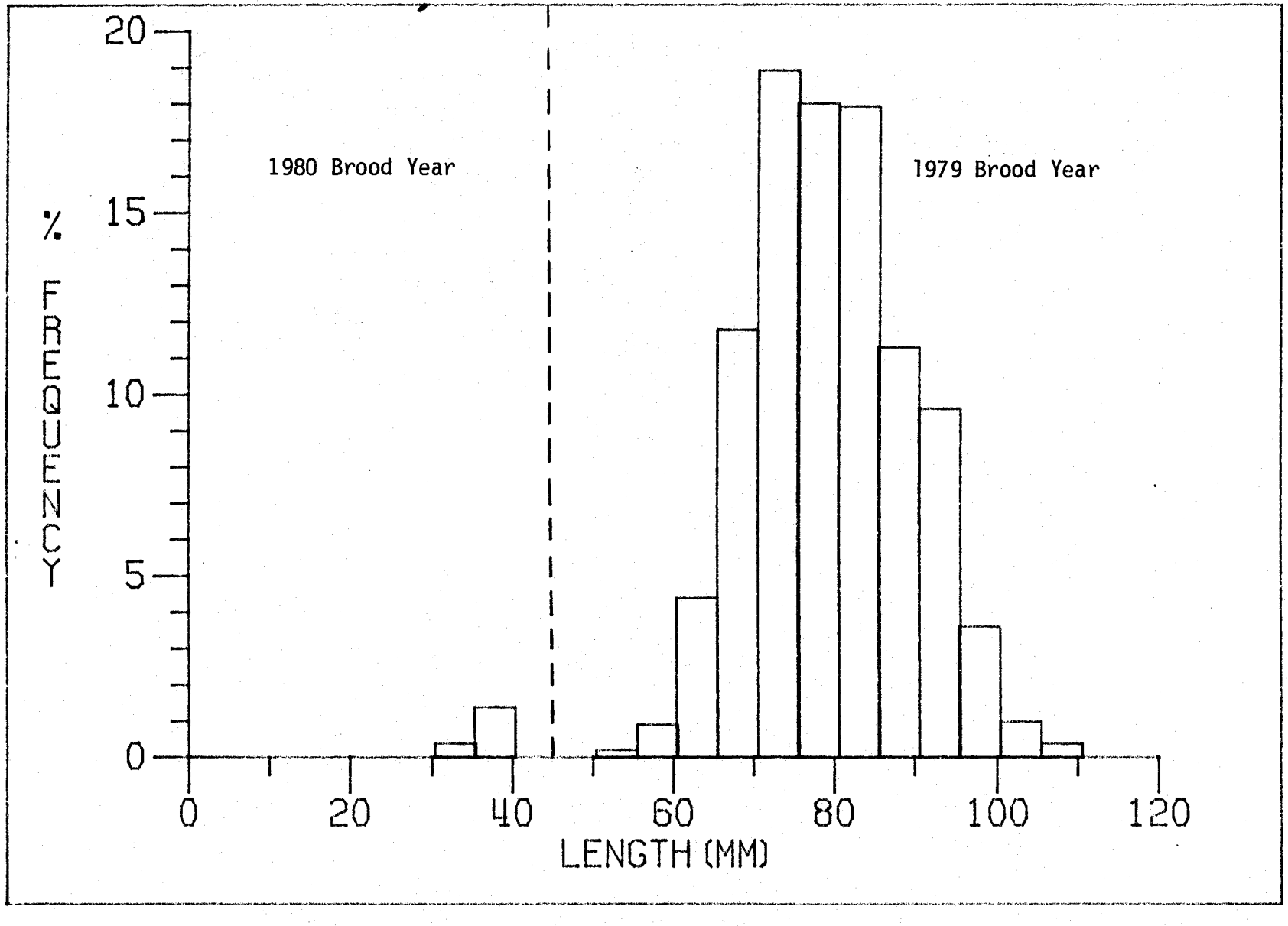


Figure E.3.1.1. Length frequency composition of juvenile chinook salmon captured at habitat location and selected fish habitat sites on the Susitna River between Talkeetna and Devil Canyon, November, 1980 to May, 1981.

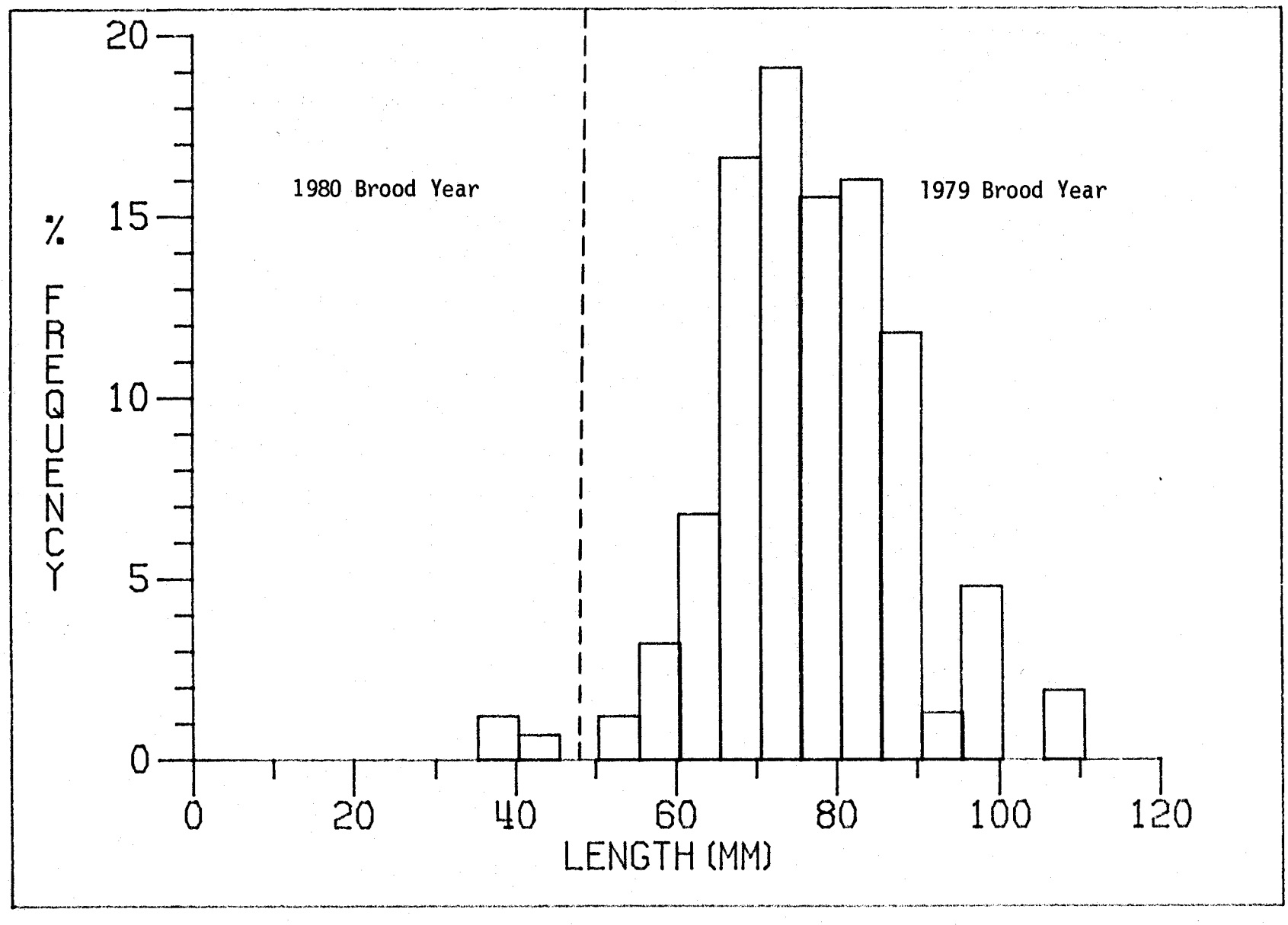


Figure E.3.1.2. Length frequency composition of juvenile chinook salmon captured at habitat location and selected fish habitat sites on the Susitna River between Cook Inlet and Talkeetna November, 1980 to May, 1981.

Indian River (RM 138.6) and Portage Creek produced catches of juvenile chinook salmon when sampled in June, August, and October. Chinook salmon juveniles were not observed above Susitna River Mile 148.8 during the 1981 studies.

A total of 6,579 juvenile chinook salmon were captured during the summer surveys at habitat location and selected fish habitat sites between Cook Inlet and Devil Canyon. The reach between Talkeetna and Devil Canyon accounted for 34.2% of the total captures. Total numbers of juvenile chinook salmon captured by reach of river are: Cook Inlet to Willow Creek, 1005 fish; Willow Creek to Talkeetna, 3,325 fish; Talkeetna to Devil Canyon, 1,893 fish; and Indian River and Portage Creek, 356 fish.

Juvenile chinook salmon were captured at 43 of 44 (97.8%) of the habitat location sites surveyed between Cook Inlet and Devil Canyon during the summer months. Kroto Slough mouth (RM 30.1) was the only habitat location site where juveniles were not observed.

Beginning in April with the first captures of juvenile chinook salmon from the 1980 brood year, two age classes, age 0+ and age I+, were present. Size frequency distribution and scale analysis were utilized to determine the age of the fish captured. It was possible to distinguish between age 0+ and I+ chinook salmon in the Talkeetna to Devil Canyon reach and Indian River and Portage Creek, however separation of the two ages in the Cook Inlet to Talkeetna reach was not possible due to the extensive overlap in length ranges. This situation will be detailed later in the discussion of length and age composition.

The following discussion will differentiate age 0+ and age I+ chinook salmon in the Talkeetna to Devil Canyon reach and Indian River and Portage Creek, while both age classes will be combined for the discussion of the reach between Cook Inlet and Talkeetna.

The catch per unit effort of chinook salmon age 0+ at habitat location sites in the Talkeetna to Devil Canyon reach ranged from a trace at Mainstem-Curry (RM 120.7) throughout the season to a catch rate of 12.0 fish per trap recorded at Fourth of July Creek (RM 131.1) in early August (Table E.3.1.6 and Appendix Table EB-1.2).

An increase in catch per unit effort of age 0+ fish was apparent as the season progressed at most habitat location sites in this reach. This was most obvious at Whiskers Creek Slough (RM 101.2), Slough 6A (RM 112.3), Slough 10 (RM 133.8), and Slough 20 (RM 140.1), where catches increased from 0.1 chinook salmon age 0+ per trap in the first two weeks of June to up to 11.7 fish per trap at Slough 20 in the late September survey (Figure E.3.1.3). As none of these sites are known spawning areas for chinook salmon, this seasonal change indicates a redistribution of chinook salmon age 0+ from areas of high post-emergent density to more favorable conditions as size and season progressed. This movement was also noted in the Deshka River (Delaney, Hepler, and Roth, 1981) the Little Susitna River (Delaney and Wadman, 1979), and Montana Creek (Riis and Friese, 1978) and was observed as a predominantly downstream movement. The percent incidence of age 0+ chinook salmon in habitat location catches in the Talkeetna to Devil Canyon reach increased from 15 percent of the locations sampled in late June to 92 percent of the locations in early September (Figure E.3.1.4).

Table E.3.1.6. Chinook salmon (age 0+), catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.

Habitat Location	River Mile	Catch per trap day							
		June 1-15	June 16-30	July 1-15	July 16-31	Aug 1-15	Aug 16-31	Sept 1-15	Sept 16-30
Whiskers Creek Slough	101.2	0.1	0.1	0.0	0.1	0.2	0.4	0.7	2.8
Whiskers Creek	101.4	0.0	0.0	0.2	0.7	0.8	0.0	0.3	2.0
Slough 6A	112.3	0.0	0.0	0.0	0.2	0.0	0.1	3.1	2.4
Lane Creek	113.6	0.0	0.0	0.1	0.0	0.1	0.3	1.9	8.0
Mainstem 2	114.4	0.0	0.0	0.1	0.0	0.1	0.2	0.9	0.0
Susitna Curry	120.7	-	0.0	0.0	0.0	0.0	0.0	-	0.0
Susitna Side Channel	121.6	-	0.0	0.0	0.0	0.0	0.1	-	0.1
Susitna Gravel Bar	123.8	-	0.0	0.0	0.0	0.0	0.1	-	0.4
Slough 8A	125.3	-	0.0	0.1	0.1	0.0	1.9	-	0.7
Fourth of July Creek	131.1	-	0.0	0.7	3.8	12.0	4.5	1.3	3.0
Slough 10	133.8	-	0.0	0.0	0.5	1.5	1.8	0.7	5.5
Slough 11	135.3	-	0.1	0.0	0.0	0.0	2.3	0.1	1.9
Susitna Gold Creek	136.9	-	0.0	0.0	0.0	0.0	0.8	0.1	0.2
Indian River Mouth	138.6	0.1	-	0.1	0.5	1.6	0.2	8.0	6.5
Slough 20	140	0.0	-	0.0	0.1	0.1	1.2	4.1	11.7
Susitna Island	146.9	0.1	-	0.1	0.0	0.0	0.0	0.0	0.0
Portage Creek Mouth	148.8	0.0	-	0.3	0.1	0.0	0.2	0.1	0.3

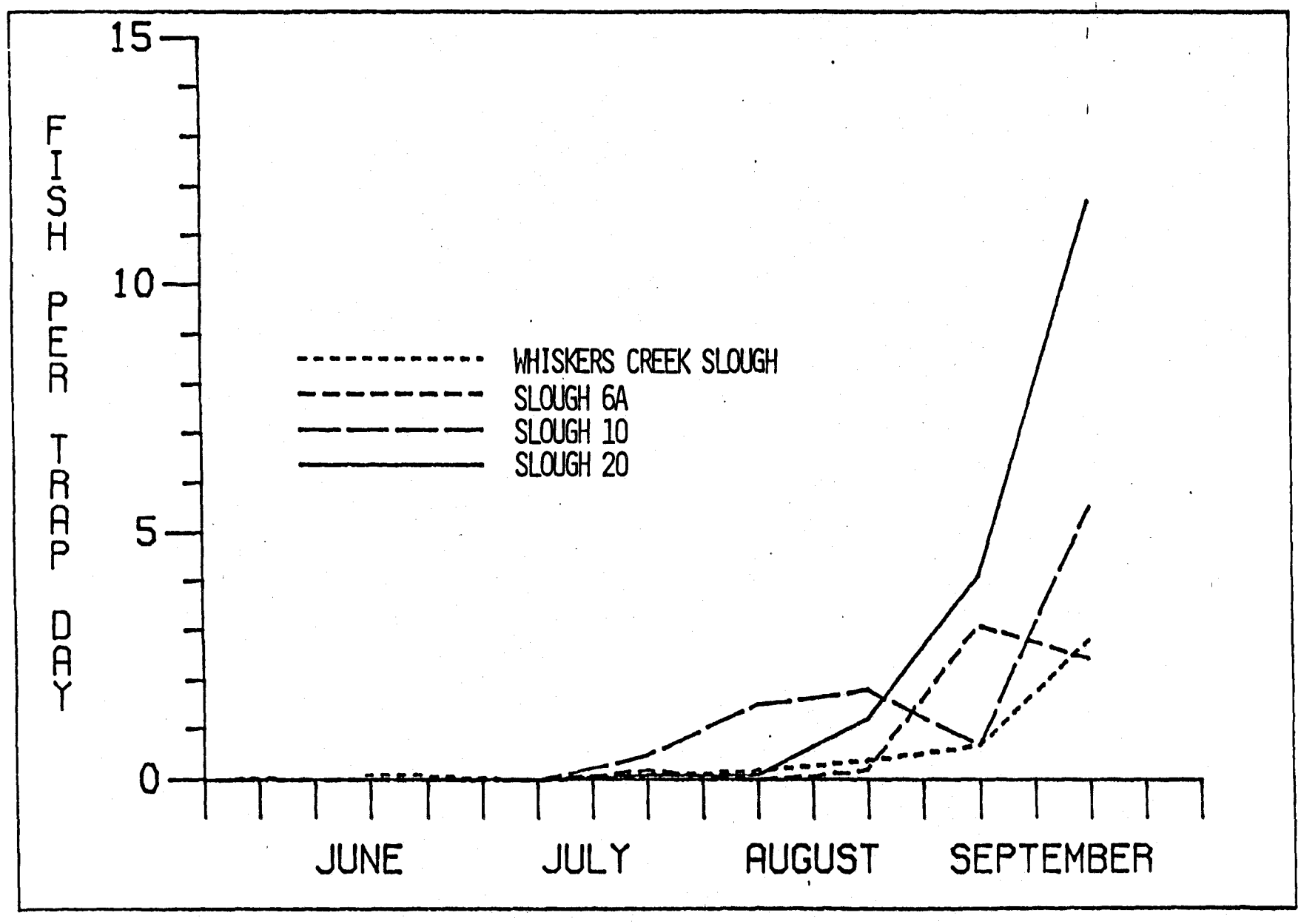


Figure E.3.1.3. Numbers of juvenile chinook salmon captured per trap day at Whiskers Creek Slough, Slough 6A, Slough 10, and Slough 20 on the Susitna River, June to September, 1981.

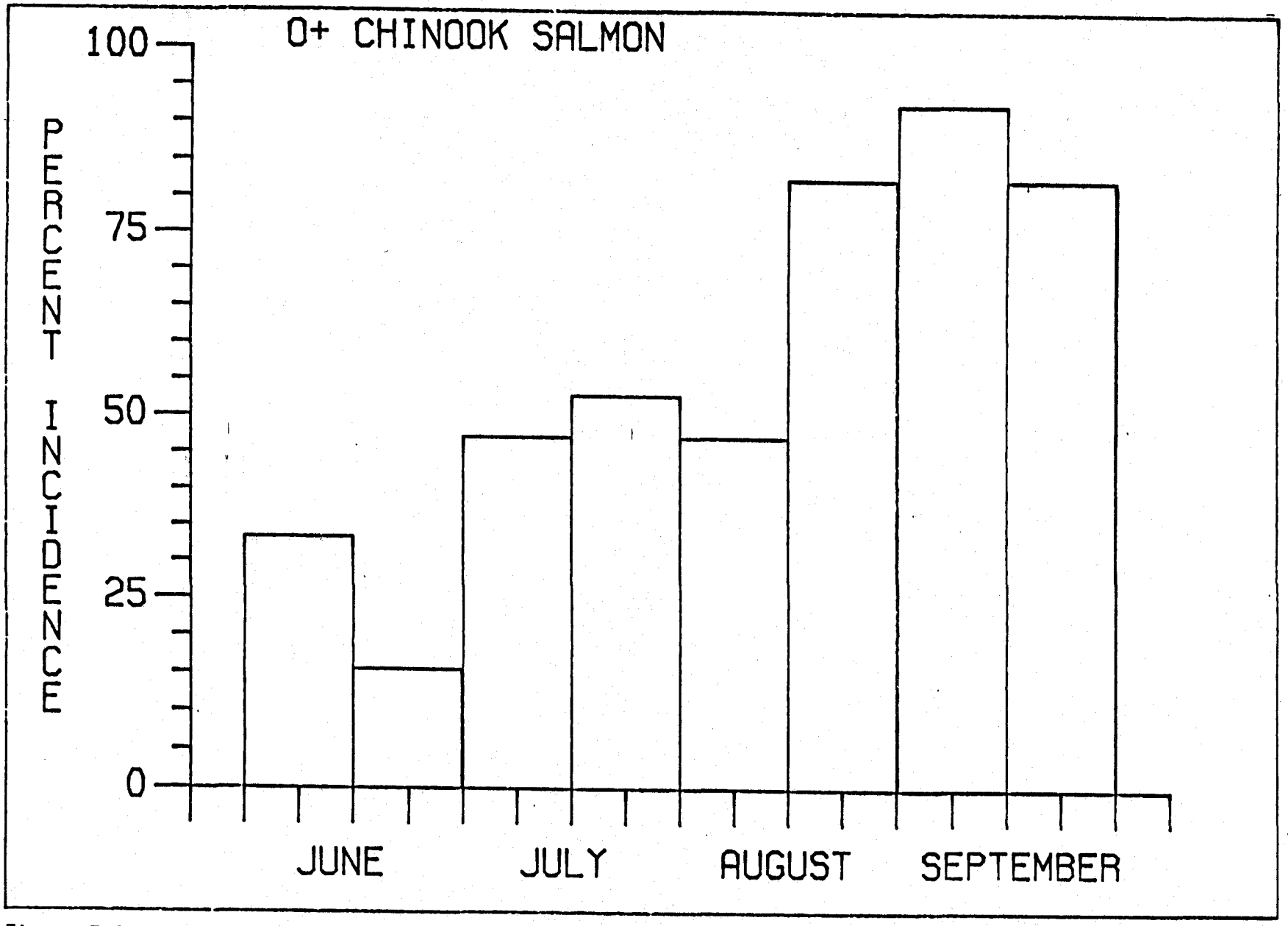


Figure E.3.1.4. Percent incidence of chinook salmon (age 0+) captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.

The chinook salmon age I+ catch rates recorded during the summer in the Talkeetna to Devil Canyon reach were low compared to those catch rates observed in this reach during the winter surveys. Winter catch rates reached a high of 20.0 fish per trap compared to a high of 0.4 fish per trap for summer surveys. This reduction in catch rate indicates a majority of age I+ chinook salmon move out of the Talkeetna to Devil Canyon reach prior to the initiation of sampling in early June (Table E.3.1.7 and Appendix Table EB-1.3). A total of 44 chinook salmon age I+ were captured in this reach during the summer surveys.

Figure E.3.1.5 provides a comparison of the percent incidence of chinook salmon age 0+ in tributary mouth and mainstem slough habitat location sites located between Talkeetna and Devil Canyon by two week period. Age 0+ chinook salmon catches were recorded at 80 to 100 percent of the tributary mouth habitat locations surveyed from early July through late September. Mainstem and slough habitat location catches indicated a net increase in percent incidence as the season progressed from a low of 20.0 percent in late June to a high of 87.5 percent in early September. Age 0+ chinook salmon appear to extend their distribution from tributary streams and stream mouth sites into mainstem and slough sites as the summer progressed. Indian River mouth was the only habitat location in this reach which produced chinook salmon age 0+ for 100 percent of the surveys.

Chinook salmon age I+ were observed at 45 percent of the sites surveyed during the first two weeks of June, decreasing through late July, and were completely absent from the Talkeetna to Devil Canyon reach prior to the early August

Table E.3.1.7. Chinook salmon (age 1+), catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.

Habitat Location	River Mile	Catch per trap day							
		June 1-15	June 16-30	July 1-15	July 16-31	Aug 1-15	Aug 16-31	Sept 1-15	Sept 16-30
Whiskers Creek Slough	101.2	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Whiskers Creek	101.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slough 6A	112.3	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Lane Creek	113.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mainstem 2	114.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Susitna Curry	120.7	-	0.1	0.0	0.0	0.0	0.0	-	0.0
Susitna Side Channel	121.6	-	0.0	0.0	0.0	0.0	0.0	-	0.0
Susitna Gravel Bar	123.8	-	0.4	0.1	0.0	0.0	0.0	-	0.0
Slough 8A	125.3	-	0.0	0.0	0.0	0.0	0.0	-	0.0
Fourth of July Creek	131.1	-	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Slough 10	133.8	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slough 11	135.3	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Susitna Gold Creek	136.9	-	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Indian River Mouth	138.6	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0
Slough 20	140.1	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0
Susitna Island	146.9	0.1	-	0.1	0.0	0.0	0.0	0.0	0.0
Portage Creek Mouth	148.8	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0

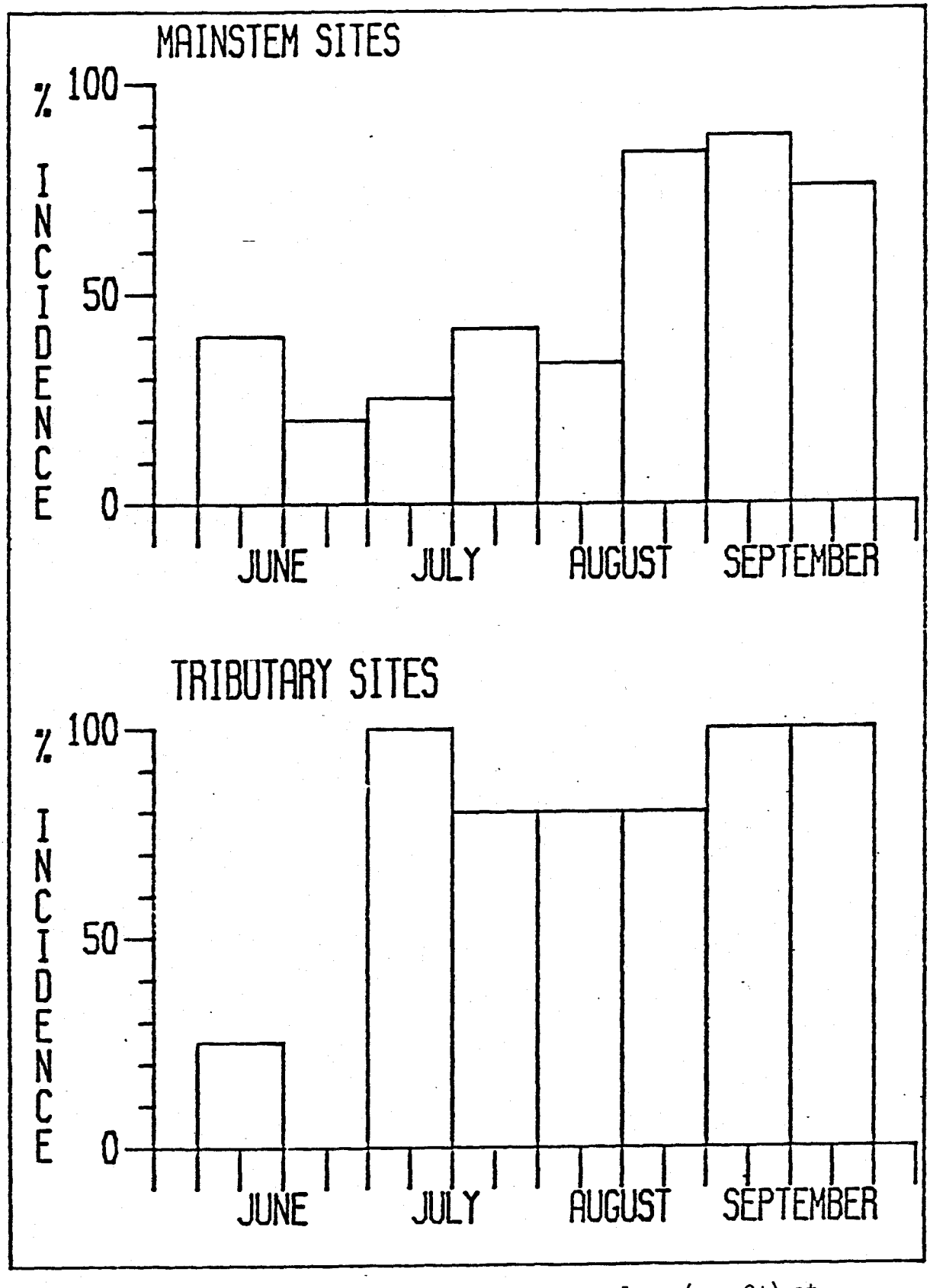


Figure E.3.1.5. Percent incidence of chinook salmon (age 0+) at habitat location sites on the mainstem Susitna River and its tributary mouths between Talkeetna and Devil Canyon, June to September, 1981.

survey (Figure E.3.1.6). It is presumed these age I+ chinook salmon were smolts undertaking a seaward migration with the peak movement occurring prior to the early June sampling.

Juvenile chinook salmon were captured during all three ice free sampling periods conducted at Indian River selected fish habitat sites. All sites sampled in August and October recorded the presence of juvenile chinook salmon, with the highest catches occurring at site 2 (Indian River RM 7.2) in August where 7.0 fish per trap were observed. Indian River selected fish habitat Site 3A (Indian River RM 12.0) produced the highest catch in October of 2.9 fish per trap (Table E.3.1.8).

Juvenile chinook salmon were not captured in Portage Creek during the June survey. The highest catch for Portage Creek was observed at site 1 (Portage Creek RM 4.5) in August where 10.4 chinook salmon age 0+ per trap were recorded. A decrease to 4.4 fish per trap was observed at this site in October.

Chinook salmon juveniles were observed at over 50 percent of the habitat location sites surveyed in the Cook Inlet to Talkeetna reach from June through September, 1981 (Figure E.3.1.7). The highest incidence of juvenile chinook salmon was recorded during early July and late September when over 75 percent of the sites surveyed produced fish. Ten (37.0%) of the habitat location sites in this reach showed a 100 percent incidence of juvenile chinook salmon for the surveys, while 19 (70.4%) of the sites had at least a 50 percent incidence of occurrence.

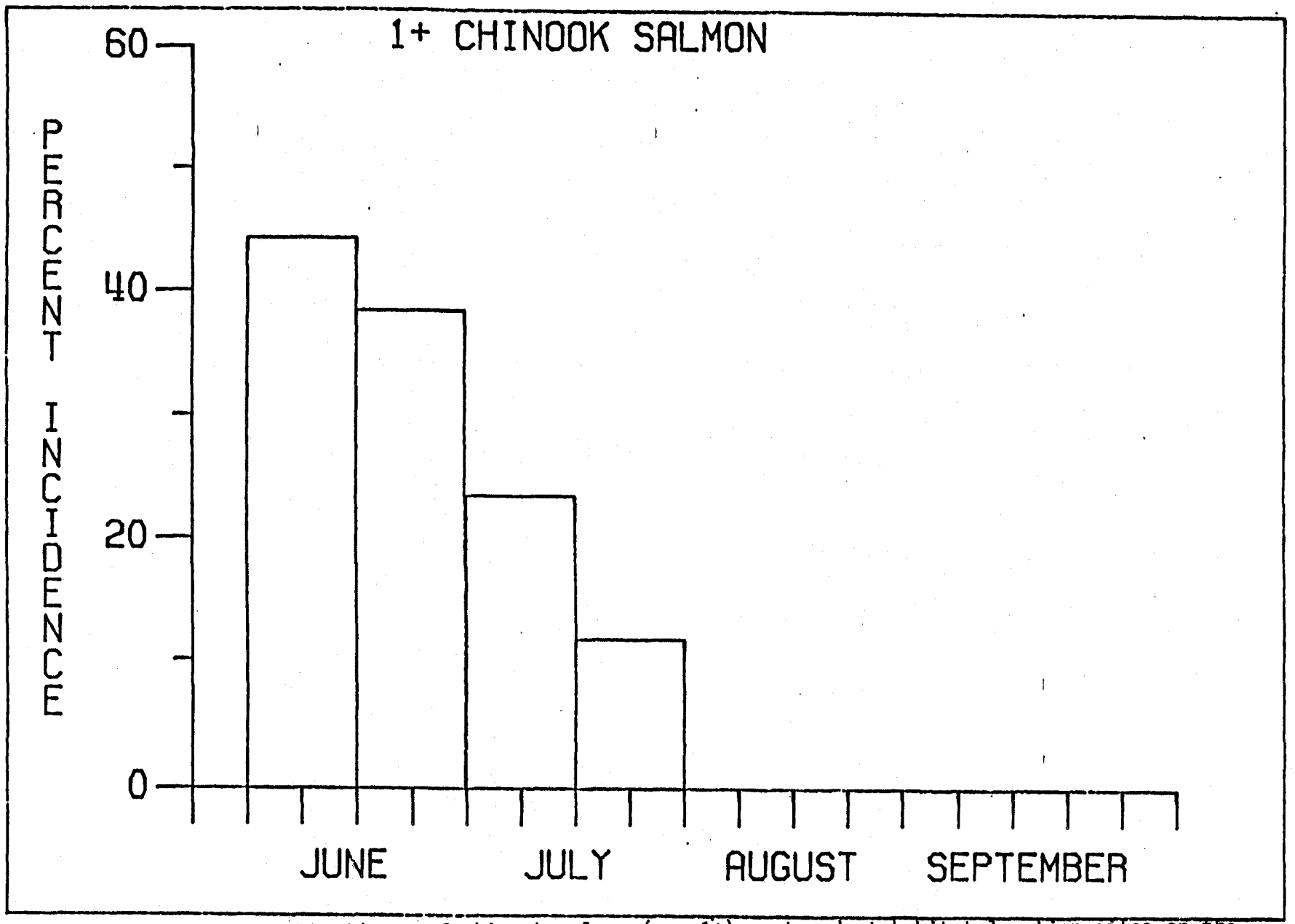


Figure E.3.1.6. Percent incidence of chinook salmon (age 1+) captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.

Table E.3.1.8. Chinook salmon (age 0+) catch per unit effort at selected fish habitat location sites on Indian River and Portage Creek, June, August, and October, 1981.

Selected Fish Habitat Site	INDIAN RIVER				PORTAGE CREEK			
		Catch per trap day				Catch per trap day		
	River Mile	June 1-15	Aug. 16-31	Oct. 1-15	River Mile	June 1-15	Aug. 16-31	Oct. 1-15
Site 1	2.7	0.1	5.9	1.7	4.5	0.0	10.4	4.4
Site 2	7.2	0.0	7.0	1.9	9.2	0.0	0.5	0.6
Site 3	13.5	0.0	-	-	15.6	0.0	-	-
Site 3A	12.0	-	4.4	2.9	15.5	-	0.0	0.0

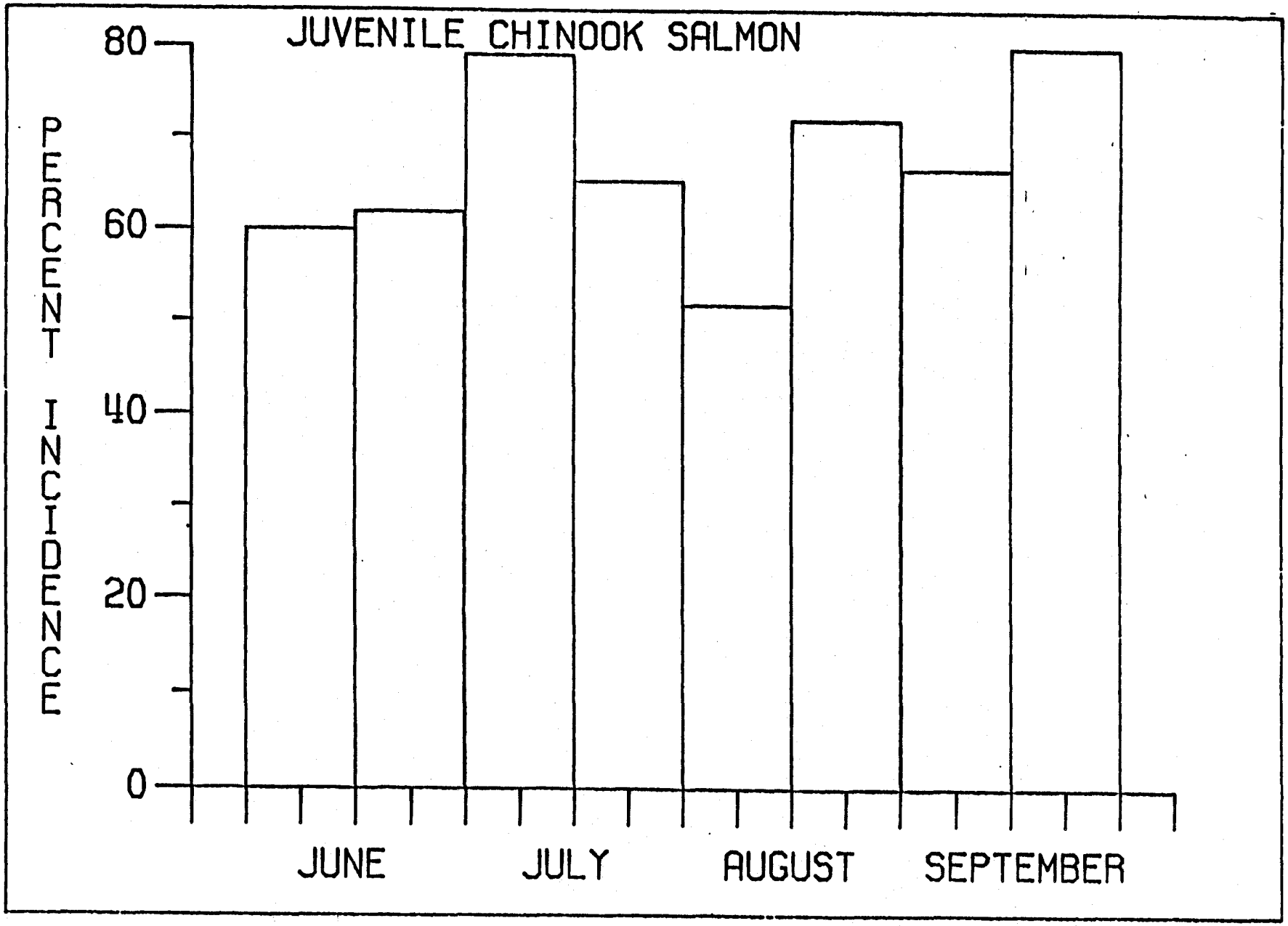


Figure E.3.1.7. Percent incidence of chinook salmon juveniles captured at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981

Figure E.3.1.8 provides the percent incidence by tributary mouth and mainstem slough habitat location sites for juvenile chinook salmon between Cook Inlet and Talkeetna. Tributary mouth habitat location site catches illustrated a high incidence of occurrence throughout the summer ranging from 60.0 percent of the sites sampled in early June to 93.3 percent in early July. The percent incidence of juvenile chinook salmon in mainstem and slough habitat location site catches ranged from 27.3 percent in early August to 87.5 percent in late September.

Catches during the June through September surveys were generally higher at tributary location sites than those observed at mainstem river or slough sites in this reach. The highest catch rate for juvenile chinook salmon between Cook Inlet and Talkeetna was 23.5 fish per trap recorded at Montana Creek (RM 77.0) during the first two weeks of August. Catch rates were highest from late June through August while catch rates at most sites decreased in September (Table E.3.1.9 and Appendix Table EB-1.1).

Nine selected fish habitat sites were sampled between Cook Inlet and Devil Canyon during the summer surveys (Table E.3.1.10). Juvenile salmon were observed in a clearwater slough adjacent to the Gold Creek camp (R.M. 136.8) following a high water period in July. A single minnow trap was set overnight in September 200 feet upstream from the slough mouth to identify the juveniles present. A total of 32 chinook salmon age 0+ were captured providing the highest catch rate for the 1981 study.

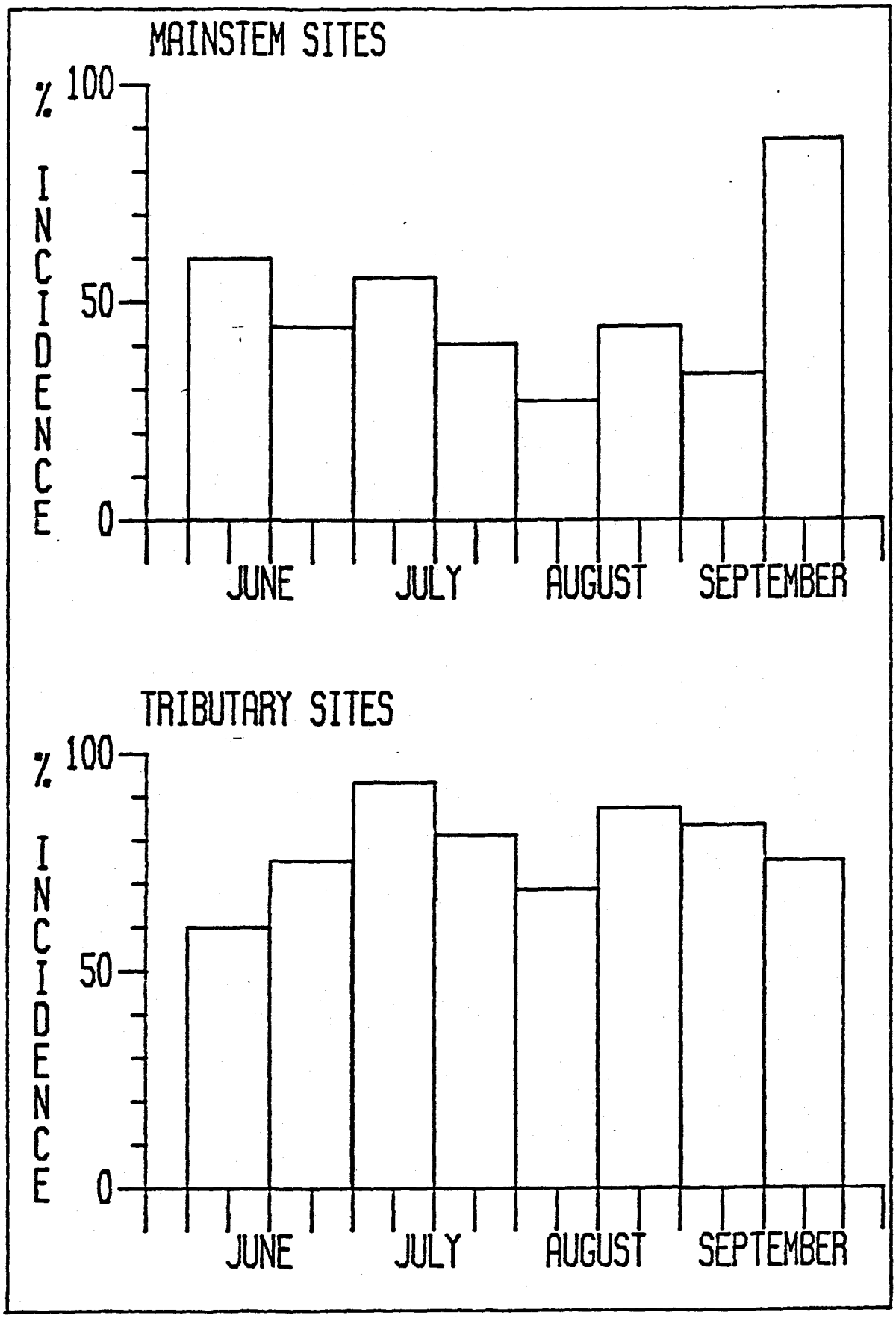


Figure E.3.1.8. Percent incidence of juvenile chinook salmon at habitat location sites on the mainstem Susitna River and its tributary mouths between Cook Inlet and Talkeetna, June to September, 1981

Table E.3.1.9. Chinook salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981.

Habitat Location	River Mile	Catch per trap day							
		June 1-15	June 16-30	July 1-15	July 16-31	Aug 1-15	Aug 16-31	Sept 1-15	Sept 16-30
Alexander Creek A	10.1	0.0	-	0.7	0.6	0.0	0.2	0.0	-
Alexander Creek B	10.1	-	-	0.6	1.6	0.0	0.4	0.6	-
Alexander Creek C	10.1	-	0.4	0.7	0.5	0.1	0.2	0.2	-
Anderson Creek	23.8	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.0
Kroto Slough Mouth	30.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mainstem Slough	31.0	-	-	0.0	0.0	0.0	0.0	0.0	0.3
Mid Kroto Slough	36.3	0.0	0.0	0.2	0.0	0.0	-	0.0	-
Deshka River A	40.6	-	0.0	4.5	1.6	0.1	0.1	0.1	0.0
Deshka River B	40.6	-	0.2	4.5	2.2	0.2	0.3	0.2	0.2
Deshka River C	40.6	-	-	2.6	0.6	0.8	0.1	0.3	0.1
Lower Delta Islands	44.0	-	0.1	0.0	0.0	0.0	-	-	-
Little Willow Creek	50.5	-	2.7	3.6	12.0	3.2	3.6	0.3	0.4
Rustic Wilderness	58.1	-	1.0	-	0.6	0.2	0.1	-	-
Kashwitna River	61.0	-	13.2	0.4	2.7	1.6	0.9	-	2.0
Caswell Creek	63.0	-	1.9	2.5	11.9	7.7	9.4	-	3.2
Slough West Bank	65.6	-	-	-	-	0.0	0.0	-	0.1
Sheep Creek Slough	66.1	-	0.1	0.2	1.3	1.4	2.4	-	0.1
Goose Creek 1	72.0	-	3.9	2.1	17.8	1.7	2.1	-	0.3
Goose Creek 2	73.1	-	-	-	4.5	0.2	1.4	-	1.1
Mainstem West Bank	74.4	-	0.0	0.0	0.0	0.0	0.1	-	0.1
Montana Creek	77.0	-	2.9	6.4	14.5	23.5	6.9	1.0	3.2

Table E.3.1.9 (Continued)

Habitat Location	River Mile	Catch per trap day							
		June 1-15	June 16-30	July 1-15	July 16-31	Aug 1-15	Aug 16-31	Sept 1-15	Sept 16-30
Mainstem 1	84.0	0.7	0.0	0.3	0.1	0.0	0.0	0.1	0.2
Sunshine Creek	85.7	2.5	0.3	0.5	0.1	0.0	0.0	0.1	0.2
Birch Creek Slough	88.4	0.2	0.3	0.1	0.4	0.0	0.8	0.2	0.2
Birch Creek	89.2	0.0	0.0	0.1	0.0	0.1	0.1	0.1	-
Cache Creek Slough	95.8	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.2
Cache Creek	96.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0

Table E.3.1.10. Chinook salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Cook Inlet and Devil Canyon, June through September, 1981.

Selected Fish Habitat Site	River Mile	Date	Catch per Trap Day
Fish Creek Mouth	7.0	6/21-23	0.0
Fish Creek (Kroto Slough)	31.4	8/11-12	0.0
Whitsol Lake Slough Mouth (Kroto Slough)	35.2	8/10-11	0.0
Mainstem Susitna Slough	72.3	9/9-10	4.0
Beaver Slough West Bank	78.6	7/8-9	0.0
Side Channel West Bank	79.2	7/8-9	0.0
West Bank Slough	79.8	7/8-9	0.0
Rabideux Creek	83.2	6/18-20	0.0
Slough Adjacent to Gold Creek Camp	136.8	9/16-17	32.0

3.1.5.2 Age and Length Composition

Two age classes of juvenile chinook salmon were collected at habitat location sites in the lower Susitna River from June to September, 1981, and represent brood years 1979 and 1980.

One thousand four hundred eighty one juvenile chinook salmon were measured for total length in millimeters (mm) during June to September between Talkeetna and Devil Canyon. Juvenile chinook salmon collected in this reach were separated into age classes 0+ and I+ using size frequency distribution and scale analysis. The percent length frequency for juvenile chinook salmon by two week period in this reach is presented in Figure E.3.1.9. A length of 70 mm was determined to represent the minimum length of chinook salmon age I+ in this reach for the first two weeks of June. The minimum lengths for chinook salmon age I+ for late June, early July, and late July were set at 75 mm, 80 mm, and 85 mm respectively. No chinook salmon age I+ were captured between Talkeetna and Devil Canyon after the last two weeks of July.

The mean length and range of lengths for chinook salmon age 0+ and I+ by two week sampling periods captured between Talkeetna and Devil Canyon is presented in Table E.3.1.11. Chinook salmon age 0+ showed a mean length increase from 50.7 mm in early June to 67.0 mm in late September. Chinook salmon age I+ in this reach had a calculated mean length of 90.2 mm to 92.2 mm and ranged from 78 mm to 108 mm during June and July.

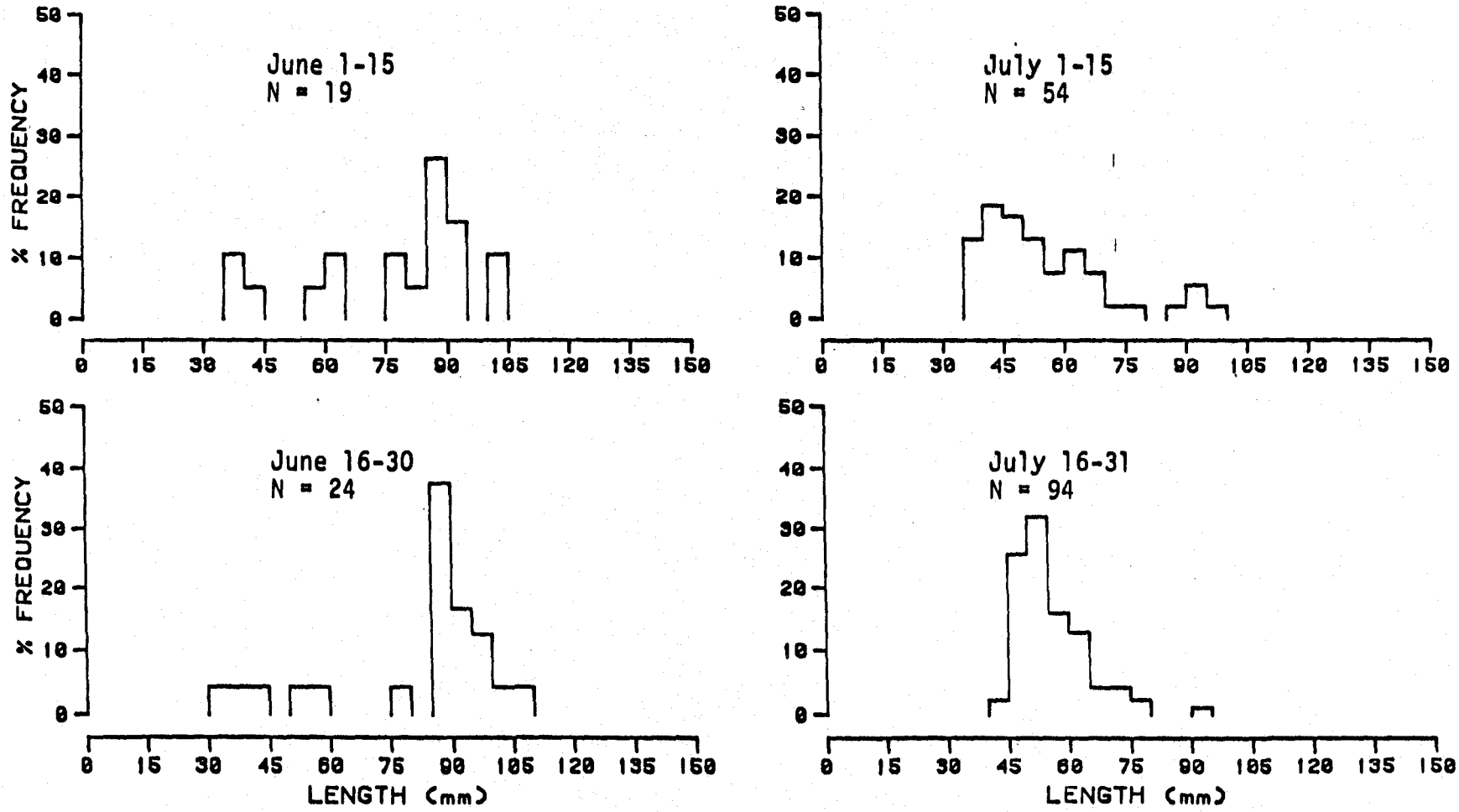


Figure E.3.1.9. Length frequency composition of juvenile chinook salmon captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981. Lengths are total.

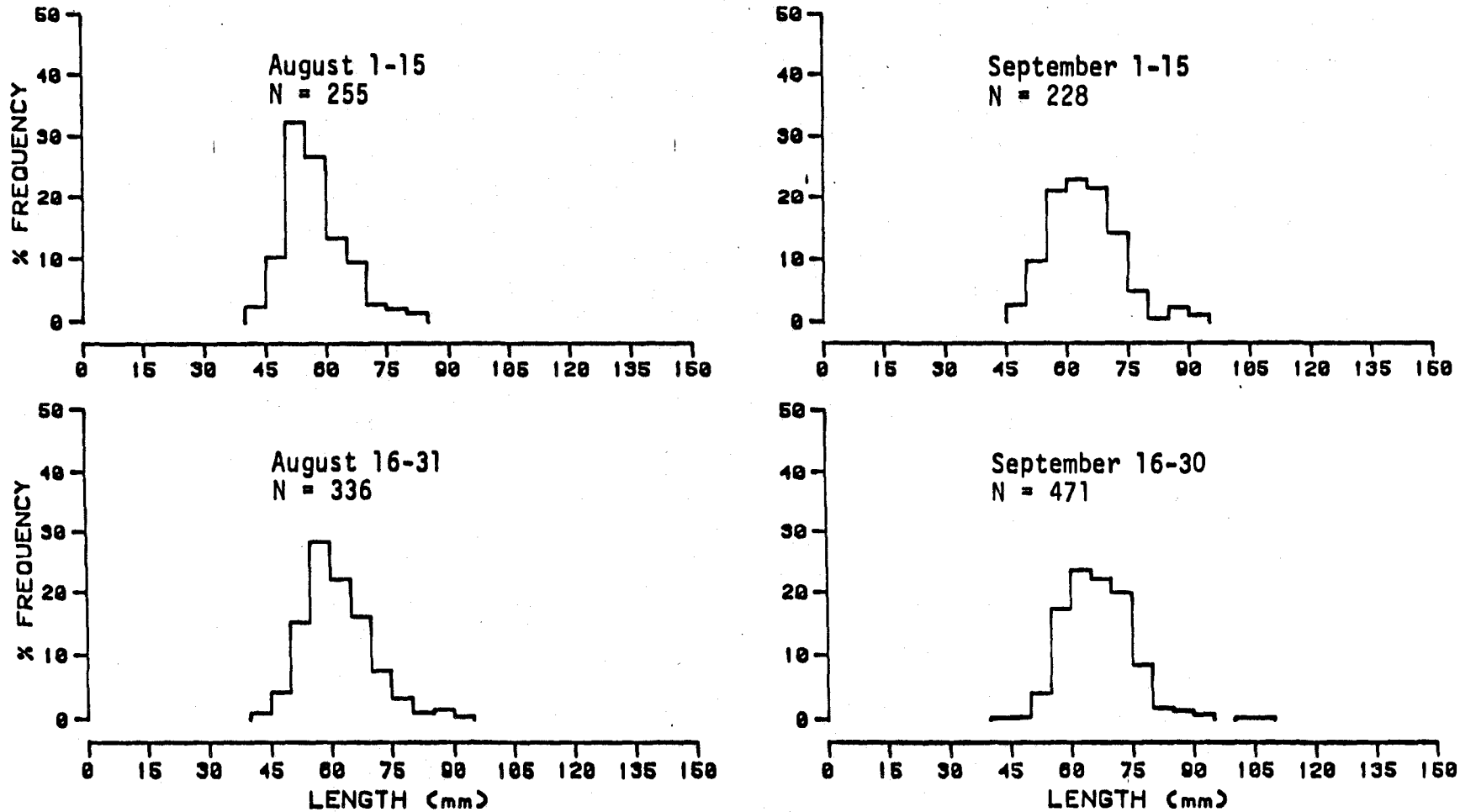


Figure E.3.1.9. (continued) Length frequency composition of juvenile chinook salmon captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981. Lengths are total.

Table E.3.1.11. Chinook salmon juveniles, age - length frequency at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.

	Age 0+			Age 1+		
Date	Number of Fish	Mean Length (mm)	Range of Length (mm)	Number of Fish	Mean Length (mm)	Range of Length (mm)
June 1-15	6	50.7	40-63	13	90.2	78-105
June 16-30	5	45.8	32-60	19	92.0	80-108
July 1-15	49	52.0	39-76	5	92.2	88-96
July 16-31	93	55.6	42-78	1	91	-
Aug. 1-15	225	57.7	43-84	0	-	-
Aug. 16-31	336	62.0	41-94	0	-	-
Sept. 1-15	228	64.9	47-93	0	-	-
Sept. 16-30	471	67.0	42-108	0	-	-

Eight hundred forty juvenile chinook salmon were measured for total length in Indian River and Portage Creek from June through October and were all from the 1980 brood class, age 0+. Mean lengths for chinook salmon age 0+ for these streams during the first two weeks of June was 40.8 mm with a range from 39 mm to 43 mm, while during the last two weeks of September and the first week of October, mean lengths had increased to 70.0 mm with a range from 54 mm to 108 mm (Figure E.3.1.10).

Two age classes of juvenile chinook salmon were present in habitat location site catches made during early June between Cook Inlet and Talkeetna. Analysis of length frequency composition by two week periods for 3,646 juvenile chinook salmon measured during June through September indicates that age I+ chinook salmon were no longer present in this reach after August 31 (Figure E.3.1.11) . Age 0+ chinook salmon were present throughout the summer. The range of lengths for age 0+ and age I+ can be approximated from the length frequency data, however it is impossible to determine the extent of overlap or accurately establish a point of division between these two ages of chinook salmon in the Cook Inlet to Talkeetna reach of the Susitna River from length frequency alone.

A comparison of the range of lengths for Deshka River juvenile chinook salmon in 1980 and 1981 indicate the lack of captures of the smaller age 0+ chinook salmon during 1981. Juvenile chinook salmon ranged from 72 mm to 90 mm in the Deshka River from its mouth to 3.5 miles upstream in 1981 while the fish ranged from 49 mm to 95 mm in this same reach in 1980. The smallest juvenile chinook salmon captured on the Deshka River in 1981 was 62 mm while the smallest recorded in 1980 was 39 mm.

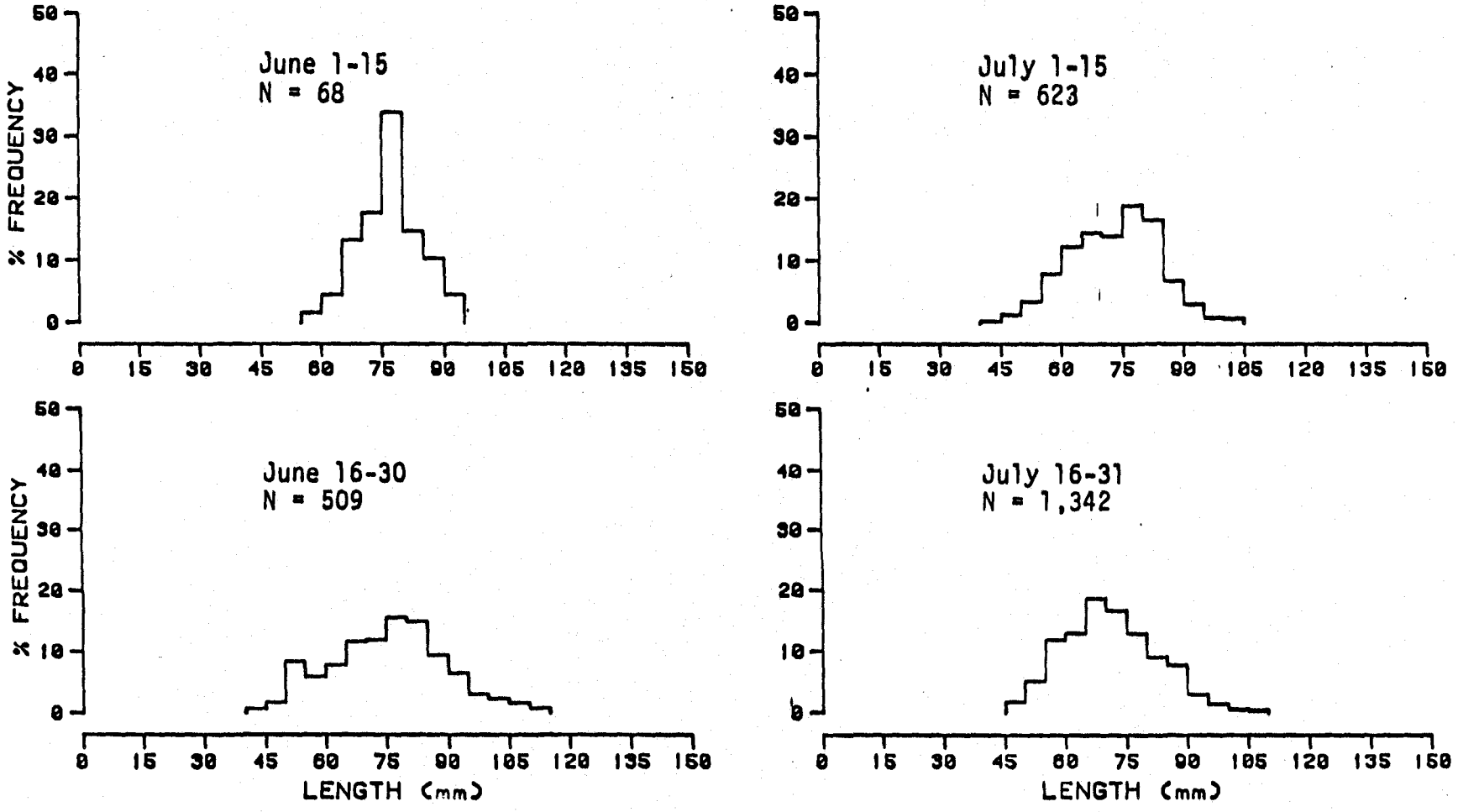


Figure E.3.1.10. Length frequency composition of juvenile chinook salmon at habitat location sites and selected fish habitat sites on Indian River and Portage Creek, June to early October, 1981. Lengths are total.

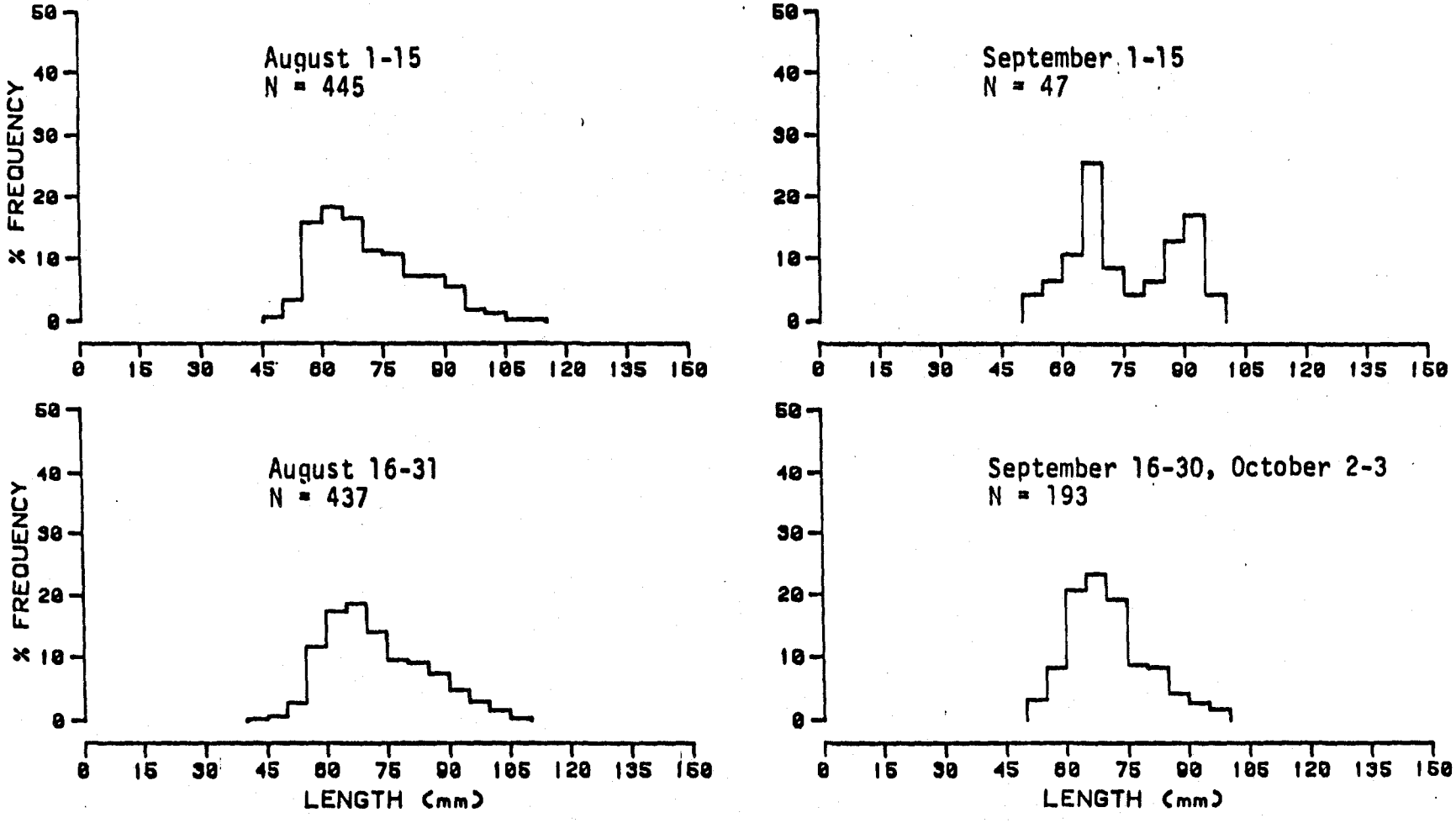


Figure E.3.1.10. (continued) Length frequency composition of juvenile chinook salmon at habitat location sites and selected fish habitat sites on Indian River and Portage Creek, June to early October, 1981. Lengths are total.

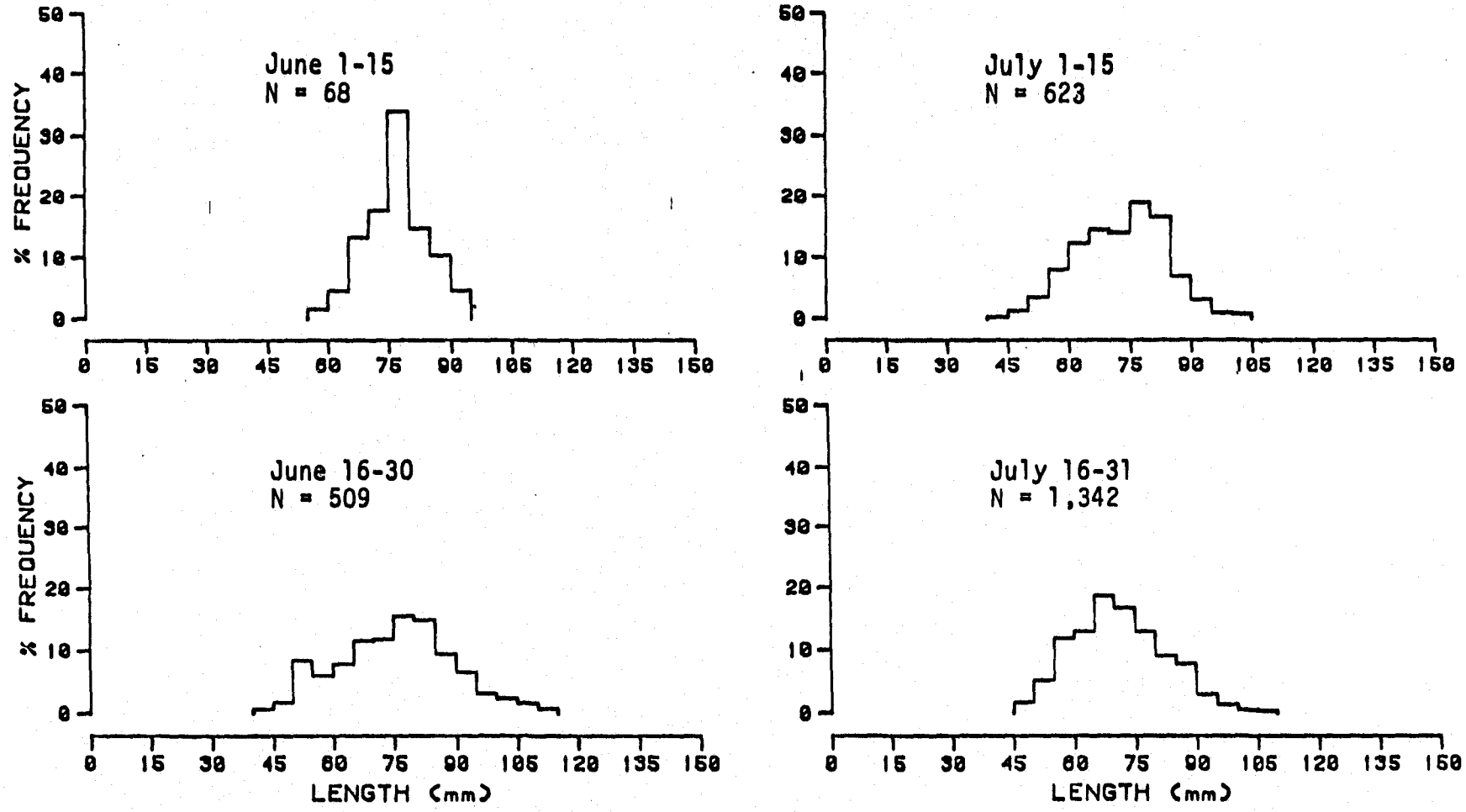


Figure E.3.1.11. Length frequency composition of juvenile chinook salmon captured at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981. Lengths are total.

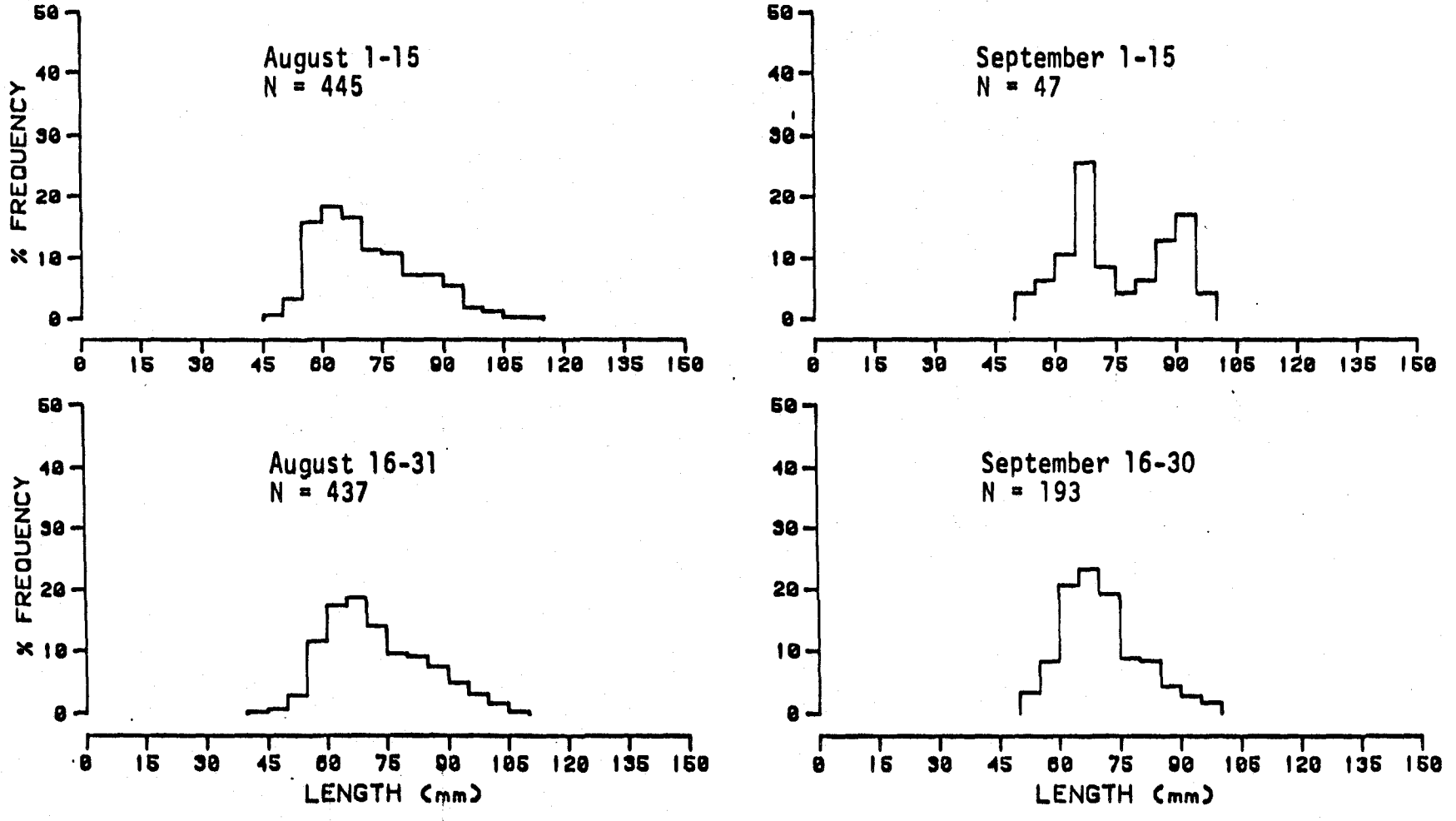


Figure E.3.1.11. (continued) Length frequency composition of juvenile chinook salmon captured at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981. Lengths are total.

Scale analysis conducted on juvenile chinook salmon captured during August and September indicated that chinook salmon age I+ were present in the Cook Inlet to Talkeetna reach during the last two weeks of August. Scale analysis beginning in August showed five of 53 (9.4%) juvenile chinook salmon analyzed to be age I+ fish while only one of 135 (0.7%) fish was observed to be age I+ in late August. Chinook salmon age I+ were not observed in the subsample of juvenile chinook salmon collected in September.

With no clear separation by age class being possible in 1981, the problem of distinguishing brood class by length frequency analysis in the area between Cook Inlet and Talkeetna becomes apparent when evaluated over time as shown in Figure E.3.1.12. Chinook salmon juveniles captured at Indian River and Portage Creek were all age 0+ fish and showed a mean length increase of 30 mm from June through September with a net mean length increase observed for each sampling period.

Juvenile chinook salmon mean lengths for the Talkeetna to Devil Canyon reach indicate a mean length decrease of 27 mm between the late June and early July surveys. This decrease was caused by the outmigration of the larger age I+ smolts. Age I+ fish were absent from this reach by the end of July as indicated by an increase in mean length at this time.

The Cook Inlet to Talkeetna reach shows a continued decrease in mean length for juvenile chinook salmon through the last two weeks of July, with a small increase beginning in August. Large numbers of chinook salmon age I+ were present in this reach through late July creating a high calculated mean length for juveniles. During the first two weeks of June, juvenile chinook salmon in

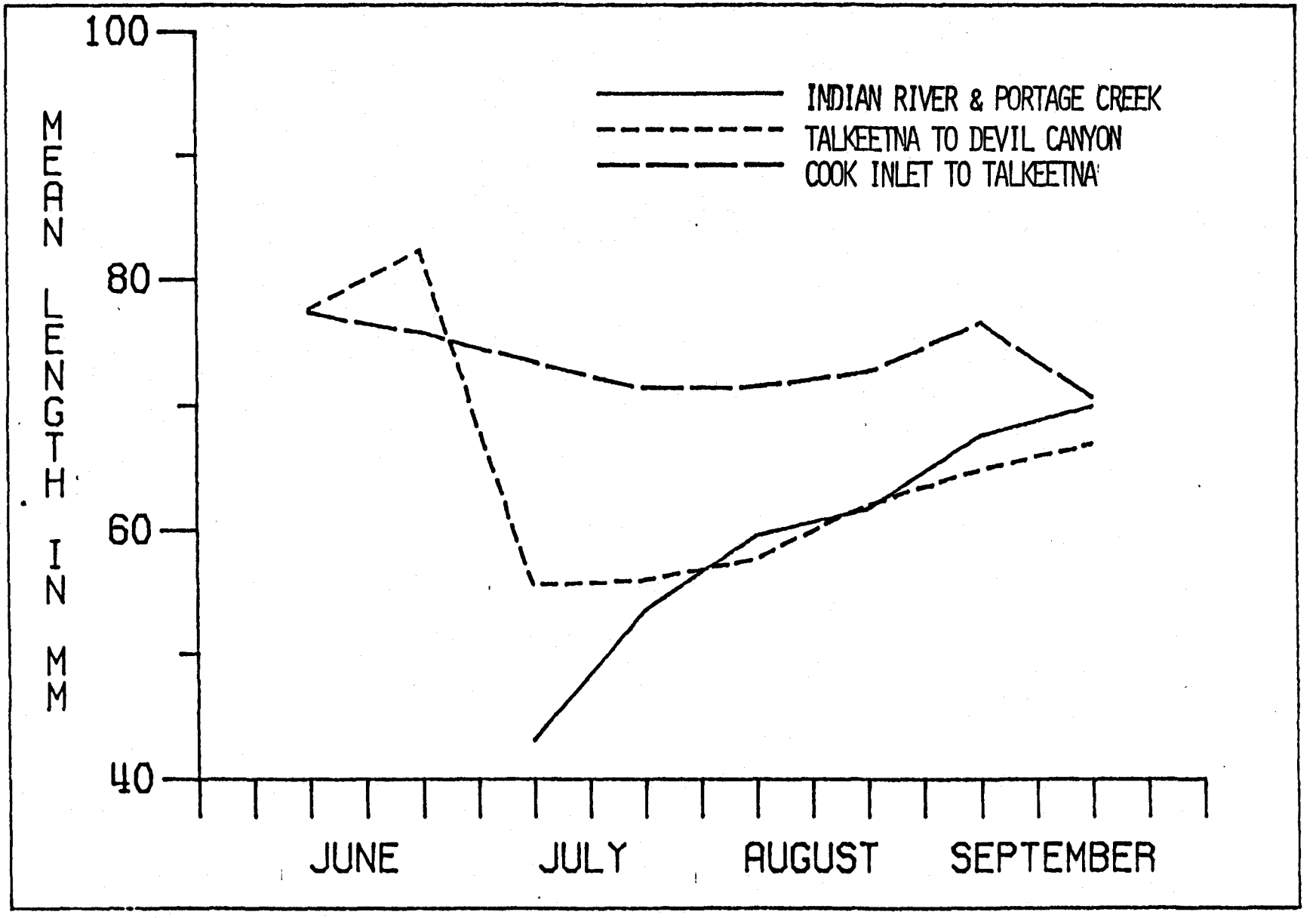


Figure E.3.1.12. Mean length of juvenile chinook salmon captured at Indian River and Portage Creek, and at the Susitna River between Talkeetna and Devil Canyon, and between Cook Inlet and Talkeetna, June to September, 1981.

this reach had a mean length of 77 mm with a range of 56 mm to 94 mm. This is essentially equal to the early September survey which showed chinook salmon to have a mean length of 77 mm and a range of 52 mm to 100 mm. Age I+ fish appear to have outmigrated from the Susitna River by the end of August, by which time the age 0+ fish had obtained a mean length equal to that calculated in the first two weeks of June when both age classes were present. It is interesting to note that by late September, juvenile chinook salmon in all reaches had a calculated mean length of approximately 70 mm, 70.0 mm for Indian River and Portage Creek, 67.0 mm between Talkeetna and Devil Canyon, and 70.8 mm between Cook Inlet and Talkeetna.

A comparison of 1981 Susitna Hydro studies juvenile chinook salmon data to previous studies conducted on the Deshka River (Delaney, Hepler, and Roth 1981) and Montana Creek (Riis and Friese 1978) illustrate a substantial decrease in the abundance of age 0+ chinook salmon observed at these sites in 1981. Catch rates for the Deshka River mouth to 1.5 miles upstream during the summer of 1980 reached a high of 42.3 juvenile chinook salmon per trap during late June while 1981 recorded a high catch rate of only 4.5 fish per trap during early July in this same reach.

Similar results were observed at the mouth of Montana Creek. A high catch rate of 69.3 juvenile chinook salmon per trap was recorded during the 1977 study while a high of 23.5 fish per trap was observed during 1981. Adult escapement counts indicate an average return of chinook salmon for Montana Creek during 1980 while hydraulic conditions precluded a count for the Deshka River although initial assessments indicate a successful escapement for this river in 1980.

A comparison of catch rates of threespine stickleback in the lower reach of the Deshka River in 1980 and 1981 indicates a tremendous population increase during the 1981 surveys. Up to 3.1 stickleback per trap were observed in 1980 while a high of 48.9 stickleback per trap was recorded in this same reach during 1981. Results for stickleback in Montana Creek during 1977 are not available but a high catch rate of 8.3 was observed during 1981.

Present and past surveys of the Susitna River and its tributaries indicate juvenile chinook salmon populations are not static but varying in abundance and distribution by river habitat type and seasonal period.

The redistribution of juvenile chinook salmon from areas of emergence to more favorable habitat conditions begin as the fish reach a mobility size. Some age 0+ fish remain in the streams through the summer while others enter the mainstem river and its associated clearwater sloughs.

Juvenile chinook salmon were observed at Indian River and Portage Creek selected fish habitat sites during both summer and winter surveys. Tributary mouths in the Talkeetna to Devil Canyon reach maintained an 80 to 100 percent incidence of occurrence for juvenile chinook salmon during the summer surveys while juveniles were observed at only 25 percent of these sites sampled during the previous winter.

Mainstem river and slough habitat location sites in this reach had an 88 percent incidence of occurrence for juvenile chinook salmon during the winter

surveys. Many of the sloughs were partially ice free throughout the winter and provided clear water habitat during much of the summer, providing excellent year-round rearing conditions. Catches were consistently recorded in these sloughs during the summer sampling, and juvenile chinook salmon percent incidence for mainstem and slough sites increased from 20 percent in late June to 88 percent in early September. As none of these sloughs are known chinook salmon spawning areas, the juveniles observed at these sites had migrated from associated spawning streams.

Juvenile chinook salmon were observed at 27 percent of the mainstem and slough habitat location sites in the Cook Inlet to Talkeetna reach during early August and up to 88 percent of the sites in late September although catch rates at these sites were considerably lower than those observed at mainstem slough sites in the reach above Talkeetna during this same period. Winter surveys in the lower reach averaged a 67 percent incidence at the mainstem and slough sites. Although relatively small, it appears a portion of the juvenile chinook salmon population in the Cook Inlet to Talkeetna reach are present in the mainstem river and sloughs throughout the year.

Sites associated with tributary mouths appear to provide important milling areas for juvenile chinook salmon in the Cook Inlet to Talkeetna reach. Consistently high catch rates were observed at most of these habitat locations during this and previous studies. The dramatic change to clear water which occurs during the winter makes the Susitna River and its sloughs primary sites of overwintering as icing and lowered instream flow conditions develop in the tributary streams.

The mainstem river and associated sloughs provide a most important link in the overwintering success of juvenile chinook salmon and the ultimate natural survival of this species in the Susitna River.

3.2 COHO SALMON JUVENILES

3.2.1 Abstract

Juvenile coho salmon, Oncorhynchus kisutch, were collected between Alexander Creek (R.M. 10.1) and Slough 21 (R.M. 141.8) at 39 of 44 (88.6%) habitat location and 16 of 55 (29.1%) selected fish habitat sites from November, 1980 to October, 1981. During this same period of time, juvenile coho salmon were also collected at 5 of 19 (26.3%) selected fish habitat sites in Indian River (R.M. 138.6) and Portage Creek (R.M. 148.8).

Three hundred thirty seven juvenile coho salmon were collected from the Cook Inlet to Devil Canyon reach of the Susitna River during November to May; 4,821 juvenile coho salmon were collected from this reach during June to October. In Indian River and Portage Creek one juvenile coho salmon was collected during winter sampling and 170 during summer.

The principal sampling gear utilized one quarter inch minnow traps baited with salmon roe, accounted for over 99 percent of the total catch of juvenile coho salmon.

Juvenile coho salmon from the Talkeetna to Devil Canyon reach were aged by correlating complementary length frequency and scale analysis data. Juvenile coho salmon captured between Cook Inlet and Talkeetna could not be aged by length frequency alone due to the extensive overlap in lengths for age classes in this reach of the river. Additional scale analysis is necessary to provide length age relationships for this reach.

The predominant age class for smolts in the Susitna River system is age II+. In the Talkeetna to Devil Canyon reach the majority of smolting took place prior to June 1, 1981 and between Cook Inlet to Talkeetna by June 15.

Juvenile coho salmon in the Cook Inlet to Talkeetna reach of river occur more frequently at tributary mouth sites than at slough and mainstem sites during both winter and summer. In the Talkeetna to Devil Canyon reach, juvenile coho salmon occurred more frequently at slough sites during winter and at both tributary mouth and slough sites in summer.

The maximum catch rate for juvenile coho salmon recorded at the habitat location and selective fish habitat sites during summer was 41.0 fish per trap at Caswell Creek (R.M. 63.0) in late August and during winter was 8.0 fish per trap at Slough 6A in March. Catch rates of juvenile coho salmon collected from Cook Inlet to Devil Canyon generally increased from winter to summer, peaking in late August and early September. Catch rates then decreased in late September indicating an apparent migration into lateral tributaries.

3.2.2 Introduction

Coho salmon, Oncorhynchus kisutch Walbaum, also known as silver salmon, is one of five Pacific salmon native to the Susitna River drainage. In North America, coho salmon are native to streams extending from Point Hope, Alaska south to Monterey Bay, California (Scott and Crossman 1973). In Alaska, coho salmon commonly spawn in coastal streams within 150 miles of the sea, however,

they are also known to spawn in the Tanana (Pearse 1974) and Porcupine (Geiger 1975) river drainages, both major tributaries of the upper Yukon River approximately 1,000 miles upstream from salt water.

Coho salmon inhabit the Susitna River drainage below Devil Canyon (RM 152.0) and although adults of the species are considered common, the extent of its spawning and rearing distribution is not well known, particularly with regard to the mainstem Susitna River. The peak of the coho salmon migration into the Susitna River drainage occurs in mid-July and early August, but extends from late June into September. Spawning takes place from late August through October (Barrett personal communication 1981).

Upon emergence in March and April, the majority of fry spend one to three years in fresh water (Wallis 1968); preferred habitat includes areas of low velocity. These areas provide adequate cover, low water velocities, and moderate water temperatures for optimum growth (Gray et al. 1978; Delaney and Wadman 1979; Watsjold and Engel 1978).

Aquatic drifting immature stages of terrestrial insects are the predominant diet of juvenile coho salmon in the spring while adult stages of these insects predominate during the summer and fall (Riis and Friese 1978). Juvenile pink, chum and sockeye salmon can be an important supplemental food source to age I or older coho salmon (Roos 1960; Scott and Crossman 1973).

Juvenile coho salmon are identified by eight to 12 parr marks, which are centered along the lateral line and narrower in width than the area between them. The adipose fin is clear and uniformly spotted while the caudal and

anal fins are reddish orange in color. The body coloration is blue-green on the dorsal surface, changing to silver and white on the sides and the ventral surface. Actual coloration however, may vary from one population to another.

In Alaska streams, coho salmon smolt migration to sea is from March to July with the peak during April and May (Meehan and Siniff 1962; Elliot 1976). The predominant age class for smolts in the Susitna River system is age II+; identified by two annulus checks (Delaney et al. 1981; Adult Anadromous Investigations, Alaska Department of Fish and Game Su Hydro Studies 1981; Kubik and Wadman 1978). Wallis (1968) observed mean total lengths for coho salmon smolts to range from 95 to 120 mm, however he also found smolts can range from 65 to 170 mm.

During smoltification, the juveniles undergo a physiological change in preparation for salt water. At this time, their body coloration changes to a bright silver and their parr marks fade. It appears that larger than average sized individual smolts migrate first (Delaney and Wadman 1979). Migration is usually in small schools and occurs nocturnally (Meehan and Siniff 1962).

3.2.3 Methods

Juvenile coho salmon were collected in the lower Susitna River habitat location sites from Alexander Creek (RM 10.1) to Slough 20 (RM 140.1), and at selected fish habitat sites from R.M. 39.0 to R.M. 141.8, Indian River (RM 138.6) and Portage Creek (RM 148.8) during 1980-81. One fourth inch minnow traps baited with preserved salmon roe were the principal sampling gear

utilized and accounted for over 99 percent of the total juvenile coho salmon catch. Beach seines, variable mesh gillnets and electrofishing units accounted for the small number of remaining fish caught. For the purposes of this study, only minnow trap catch results will be used to reflect relative abundance.

A subsample of each age juvenile coho salmon was measured to determine average total length in millimeters (mm) during each month for November, 1980 to May, 1981 and each two weeks for June to September, 1981. Juvenile coho salmon age determinations were made by correlating complementary length frequency and scale analysis data. Discussion of distribution and relative abundance is provided by age class for juvenile coho salmon in the Talkeetna to Devil Canyon reach only. Due to the extensive overlap in lengths for age classes of juvenile coho salmon captured downstream of Talkeetna, distribution and relative abundance for all age classes will be discussed collectively for this reach.

Juvenile coho salmon data presentation will be grouped by month for November, 1980 to May, 1981 and by two week period for June to September, 1981.

3.2.4 Results and Discussion - Winter

3.2.4.1 Distribution and Relative Abundance

Juvenile coho salmon were collected at 17 of 30 (57.7%) habitat location and 16 of 46 (34.8%) selective fish habitat sites in the lower Susitna River from

November, 1980 to May, 1981. Juvenile coho salmon were also observed at one of 11 (9.1%) selected fish habitat sites on Indian River (R.M. 138.6) and Portage Creek (R.M. 148.8) from February to April, 1981.

Sampling conducted from November, 1980 to May, 1981 between Cook Inlet and Talkeetna collected 151 juvenile coho salmon at 21 of 34 (61.8%) habitat location and selective fish habitat sites.

Juvenile coho salmon were captured at a total of 11 of the 18 (61%) habitat location sites sampled in the Cook Inlet to Talkeetna reach from November to May. During this time, juvenile coho salmon were collected at two of six (33%) mainstem habitat location sites and nine of 12 (75%) tributary mouth habitat location sites. Juvenile coho salmon occurred in greater than 40 percent of the habitat location site catches each month from November to May except during December and April when no catch was recorded (Table E.3.2.1). Limited sampling effort was expended during these two months due to extreme cold and dangerous ice travel conditions respectively.

Juvenile coho salmon were also collected at ten of 16 (62.4%) selected fish habitat sites between Cook Inlet and Talkeetna from November to May.

The highest individual catch per unit effort in the Cook Inlet to Talkeetna reach was 1.2 fish per trap day observed at the habitat location site Sunshine Creek mouth (RM 85.7) in November, 1980 (Table E.3.2.2 and Appendix Table EB-2.1). Relatively high catch rates at habitat location sites were also recorded for a side channel site located near Rustic Wilderness (RM 58.1) in January and March, and at the mouth of Montana Creek (RM 77.0) in November.

Table E.3.2.1. Coho salmon juveniles, percent incidence at habitat location sites on the mainstem Susitna River and its tributary mouths between Cook Inlet and Devil Canyon, November, 1980 to May, 1981.

	Percent Incidence						
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Cook Inlet to Talkeetna	83.3	0.0[a]	42.9	60.0	63.6	0.0[b]	57.7
Tributary Mouth Sites	100.0	0.0	66.7	66.7	66.7	0.0	83.3
Mainstem and Slough Sites	50.0	0.0	25.0	50.0	50.0	0.0	50.0
Talkeetna to Devil Canyon	-	-	0.0	42.9	50.0	42.9	-
Tributary Mouth Sites	-	-	0.0	0.0	25.0	0.0	-
Mainstem and Slough Sites	-	-	0.0	75.0	66.7	50.0	-

[a] Extreme cold (-25° to -40°F) hampered sampling efforts during December, 1980.

[b] Hazardous ice conditions prior to spring breakup limited sampling efforts to three habitat location sites in April, 1981.

Table E.3.2.2. Coho salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, November, 1980 to May, 1981.

Habitat Location	River Mile	Catch per trap day						
		Nov	Dec	Jan	Feb	Mar	Apr	May
Alexander Creek Site A	10.1			0.3		0.1		
Alexander Creek Site B	10.1					0.3		
Deshka River Site A	40.6					0.0		
								Trace
Deshka River Site B	40.6					0.0		0.0
Deshka River Site C	40.6					0.1		
Little Willow Creek	50.5					0.0		
Rustic Wilderness	58.1	0.1		0.6		0.7		0.1
Kashwitna River	61.0	0.1	0.0					
Caswell Creek	63.0	0.2						0.1
Sheep Creek Slough	66.1		0.0	0.0				
Mainstem West Bank	74.4				0.3			
Montana Creek	77.0	0.4			0.1	0.2		0.1
Mainstem 1	84.0	0.0			0.0	0.0	0.0	
Sunshine Creek	85.7	1.2	0.0	0.0	0.0	1.0	0.0	0.3
Birch Creek Slough (Mouth)	88.4			0.0				
Mouth of Birch Creek	89.2			0.2	0.1	0.2		
Cache Creek Slough	95.5		0.0	0.0			0.0	0.0
Cache Creek	96.0							0.0

The maximum catch rate at selected fish habitat sites was 0.5 juvenile coho salmon per trap occurring at a beaver pond adjacent to the mouth of the Deshka River (R.M. 40.6) in March (Table E.3.2.3).

Sampling conducted between Talkeetna and Devil Canyon during November to May captured 147 coho salmon from the brood year 1979 (I+) and 39 from the brood year 1978 (II+) at 12 of 42 (28.6%) habitat location and selected fish habitat sites.

Juvenile coho salmon were captured at six of the 12 (50%) habitat location sites sampled between Talkeetna and Devil Canyon during December, 1980 to April, 1981. During this time, juvenile coho salmon were collected at five of eight (62%) mainstem and slough habitat location sites and at one of four (25%) tributary mouth habitat location sites.

Of the four tributary mouth habitat location sites sampled in the Talkeetna to Devil Canyon reach, juvenile coho salmon were found only during the March sampling of Whiskers Creek (RM 101.4) (Table E.3.2.1). No juvenile coho salmon were encountered at the mouths of either Lane Creek (RM 113.6), Indian River (RM 138.6) or Portage Creek (RM 148.8) in 1980-81 winter sampling.

Juvenile coho salmon were present at 50 percent or more of the mainstem and slough habitat location sites sampled in the Talkeetna to Devil Canyon reach each month from February, 1980 to April, 1981.

Coho salmon (Age I+) were collected at all six of the habitat location sites observing juvenile coho salmon between Talkeetna and Devil Canyon during

Table E.3.2.3. Coho salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Cook Inlet and Talkeetna, November, 1980 to May, 1981.

Selected Fish Habitat Sites	Mile	Catch per trap day						
		Nov	Dec	Jan	Feb	Mar	Apr	May
Mainstem Susitna West Channel	9.5-10.8	-	-	0.0	-	0.0	-	-
Rolly Creek Mouth	39.0	-	-	-	-	0.3	-	-
Deshka River Beaver Pond	40.6	-	-	-	-	0.5	-	-
Mainstem Susitna East Channel	43.2-43.7	-	-	-	-	0.2	-	-
Willow Creek Mouth	49.3	-	-	-	-	0.0	-	-
Willow Creek at Parks Highway	49.3	1.5	-	-	-	-	-	-
Mainstem Susitna Braided channel	59.0-62.0	-	-	0.0	-	0.0	-	-
Gray's Creek at Parks Highway	60.0	-	-	-	-	-	0.3	0.1
Mainstem Susitna Near Sheep Creek	66.8-68.0	-	-	-	0.0	-	-	-
Mainstem Susitna Above Montana Creek	77.7-80.0	-	-	-	0.1	-	-	-
Beaver Slough West Bank	78.6-79.2	-	-	-	0.0	-	-	-
Rabideux Creek	83.2	0.0	-	-	-	-	0.1	0.4
Mainstem Susitna Below Sunshine Creek	84.2	-	-	-	0.1	-	-	-
Mainstem Susitna Below Cache Creek	91.9-94.8	-	-	0.0	0.4	-	-	-
Mainstem Susitna East channel	96.7	-	-	-	-	0.4	-	-
Billion Slough	97.8			0.0				

winter 1980-81 sampling. Coho salmon (Age II+) were collected at three of the six sites at which juvenile coho salmon were observed. The three sites where both age classes of juvenile coho salmon were observed were Whiskers Creek (R.M. 101.4), Slough 10 (R.M. 133.8) and Slough 8A (125.3).

In the Talkeetna to Devil Canyon reach juvenile coho salmon were captured at six of 30 (20%) selected fish habitat sites. Coho salmon (Age I+) were collected at all six of the sites where juvenile coho salmon were observed. Five of the six sites were sloughs: Slough 9 (R.M. 128.9) during March and April, Slough 16 (R.M. 137.7) in March, and Slough 17 (R.M. 138.9) and Slough 21 (R.M. 141.8) in February. Coho salmon (Age I+) were also observed at a mainstem site, R.M. 98.8 to 101.6, during March. Coho salmon (Age II+) were collected at only one of the 30 (3.0%) selected fish habitat sites between Talkeetna and Devil Canyon. These juvenile coho salmon were collected at R.M. 98.8 to 101.6 during March.

Five selected fish habitat sites in Indian River (Indian RM 0.5 to 8.0) and six selected fish habitat sites in Portage Creek (Portage RM 3.0 to 11.8) were sampled in February, March and April 1981. A single juvenile coho salmon was collected at Indian (Indian RM 0.5) during April. No juvenile coho salmon were encountered in Portage Creek at these times.

The highest individual catch per unit effort for juvenile coho salmon collected between Talkeetna and Devil Canyon occurred at Slough 6A (R.M. 112.3) in March, where 8.0 coho salmon from the brood year 1979 were collected (Tables E.3.2.4 and E.3.2.5; Appendix Tables EB-2.2 and EB-2.3). Relatively high catch rates for coho salmon (Age I+) were also observed at habitat

Table E.3.2.4. Coho salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, November, 1980 to May, 1981.

Catch per unit effort for coho salmon from the 1979 brood year, Age I+.

Habitat Location	Mile	Catch per trap day						
		Nov	Dec	Jan	Feb	Mar	Apr	May
Whisker Creek Slough	101.2			0.0				
Whisker Creek	101.4				0.0	1.7		
Slough 6A	112.3					8.0		
Lane Creek	113.6					0.0		
Susitna Curry	120.7						0.0	
Susitna Side Channel	121.6					0.0	0.0	
Slough 8A	125.3			0.0	0.0	0.2	0.1	
Slough 10	133.8			0.0	0.2	0.1	0.0	
Slough 11	135.3			0.0	0.1	0.0	0.3	
Indian River	138.6			0.0	0.0	0.0	0.0	
Slough 20	140.1				0.1	0.2	0.3	
Portage Creek	148.8				0.0	0.0		

Catch per unit effort for coho salmon from the 1978 brood year, Age II+.

Habitat Location	Mile	Catch per trap day						
		Nov	Dec	Jan	Feb	Mar	Apr	May
Whisker Creek Slough	101.2			0.0				
Whisker Creek	101.4				0.0	0.7		
Slough 6A	112.3					0.0		
Lane Creek	113.6					0.0		
Susitna Curry	120.7						0.0	
Susitna Side Channel	121.6					0.0	0.0	
Slough 8A	125.3			0.0	0.0	0.3	0.1	
Slough 10	133.8			0.0	0.0	0.1	0.0	
Slough 11	135.3			0.0	0.0	0.0	0.0	
Indian River	138.6			0.0	0.0	0.0	0.0	
Slough 20	140.1				0.0	0.0	0.0	
Portage Creek	148.8				0.0	0.0		

Table E.3.2.5. Coho salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Talkeetna and Devil Canyon, January to April, 1981.

Catch per unit effort for coho salmon from the 1979 brood year, Age I+.

Selected Fish Habitat Site	River Mile	Catch per trap day			
		Jan	Feb	Mar	Apr
Mainstem Susitna at Chulitna River	98.8-101.6	0.0	0.0	0.4	
Oxbow II	119.2			0.0	
Mainstem Susitna	121.0				0.0
Susitna Side Channel	125.0		0.0		0.0
Slough 8A (upper reach)	126.1		0.0		
Mainstem Susitna below Slough 9	127.8				0.0
Slough 9 (lower reach)	128.5	0.0	0.0	0.0	0.0
Slough 9 (middle reach)	128.9				0.3
Slough 9 (upper reach)	129.2			0.1	
Susitna Side Channel	130.2			0.0	
Mainstem Susitna	131.0		0.0	0.0	0.0
Susitna Side Channel	131.1		0.0	0.0	
Beaver Stream above Fourth of July Creek	131.4		0.0	0.0	
Slough 9A (lower reach)	133.3	0.0	0.0	0.0	0.0
Mainstem Susitna	133.4	0.0	0.0	0.0	
Mainstem Susitna below Slough 10	133.6		0.0		
Mainstem Susitna below Slough 11	134.3			0.0	

Table E.3.2.5 (Continued)

Selected Fish Habitat Sites	River Mile	Catch per trap day			
		Jan	Feb	Mar	Apr
Susitna Side Channel	135.3		0.0		
Slough 11 (headwaters)	135.8				
Slough 14	136.0	0.0			
Susitna Side Channel	136.1	0.0			0.0
Mainstem Susitna	136.7	0.0			0.0
Gold Creek Confluence	136.7				0.0
Mainstem Susitna	136.8	0.0			
Slough 16	137.7	0.0	0.0	0.4	0.0
Mainstem Susitna	138.6		0.0	0.0	0.0
Slough 17	138.9		0.1	0.0	0.0
Mainstem Susitna	139.3		0.0		
Susitna Side Channel	141.3		0.0	0.0	0.0
Slough 21	141.8		0.4	0.0	0.0

Catch per unit effort for coho salmon from the 1978 brood year, Age II+

Selected Fish Habitat Sites	Mile	Catch per trap day						
		Nov	Dec	Jan	Feb	Mar	Apr	May
Only one selected fish site recorded from the above 30 sites								
Mainstem Susitna	98.8-101.6			0.0	0.0	0.1		

location site Whiskers Creek mouth (R.M. 101.4) in March, at selected fish habitat sites from R.M. 98.8-101.6 in March, and Slough 16 (R.M. 137.7) and Slough 21 (R.M. 141.8) in February. Relatively high catch rates for coho salmon (Age II+) also occurred at Whiskers Creek mouth in March.

3.2.4.2 Age and Length Composition

Length frequency and scale analysis indicates two age classes of juvenile coho salmon, from brood years 1978 and 1979, were captured at habitat location sites on the lower Susitna River from November, 1980 to May, 1981 (Figures E.3.2.1 and E.3.2.2). Although an inflection point is visible in Figure E.3.2.1 at 105 mm between salmon of brood years 1978 and 1979 captured between Cook Inlet and Talkeetna during winter sampling, for purposes of this study these brood years will be discussed collectively for this reach of river. An inflection point occurs at approximately 110 mm between coho salmon of brood years 1978 and 1979 in the Talkeetna to Devil Canyon reach.

Ninety six juvenile coho salmon collected between Cook Inlet and Talkeetna during November to May ranged in lengths from 58 mm to 149 mm with a mean of 98.9 mm (Table E.3.2.6).

One hundred fifteen coho salmon collected from the 1979 brood year between Talkeetna and Devil Canyon during January to April ranged in lengths from 56 mm to 108 mm with a mean of 90.3 mm. Thirty one coho salmon from the brood year 1978 collected at this time and in the same reach of river ranged in lengths from 110 mm to 152 mm with a mean of 126.2 mm.

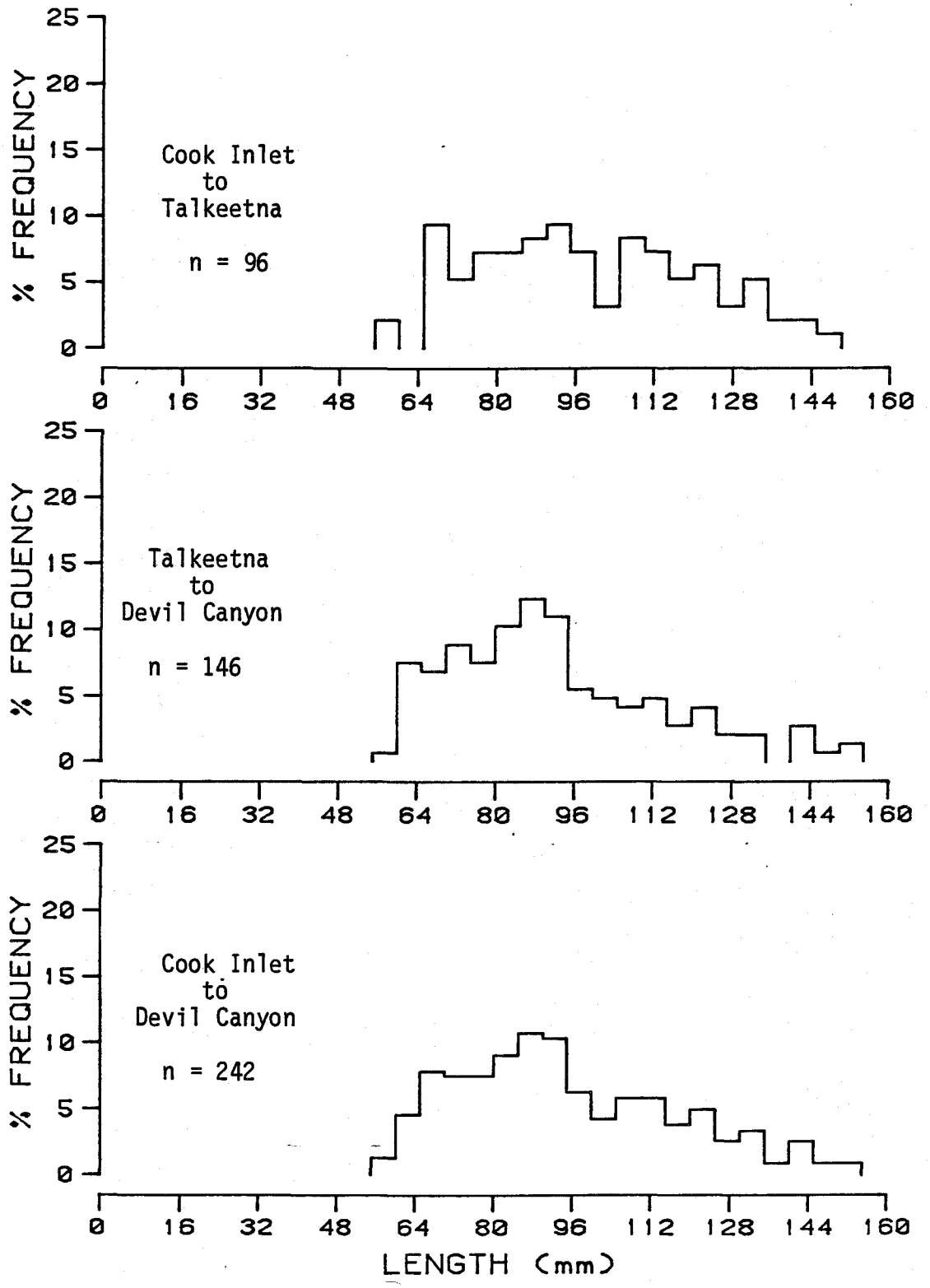


Figure E.3.2.1. Length frequency composition of juvenile coho salmon at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, and between Talkeetna and Devil Canyon, December 1980 to March, 1981. Lengths are total.

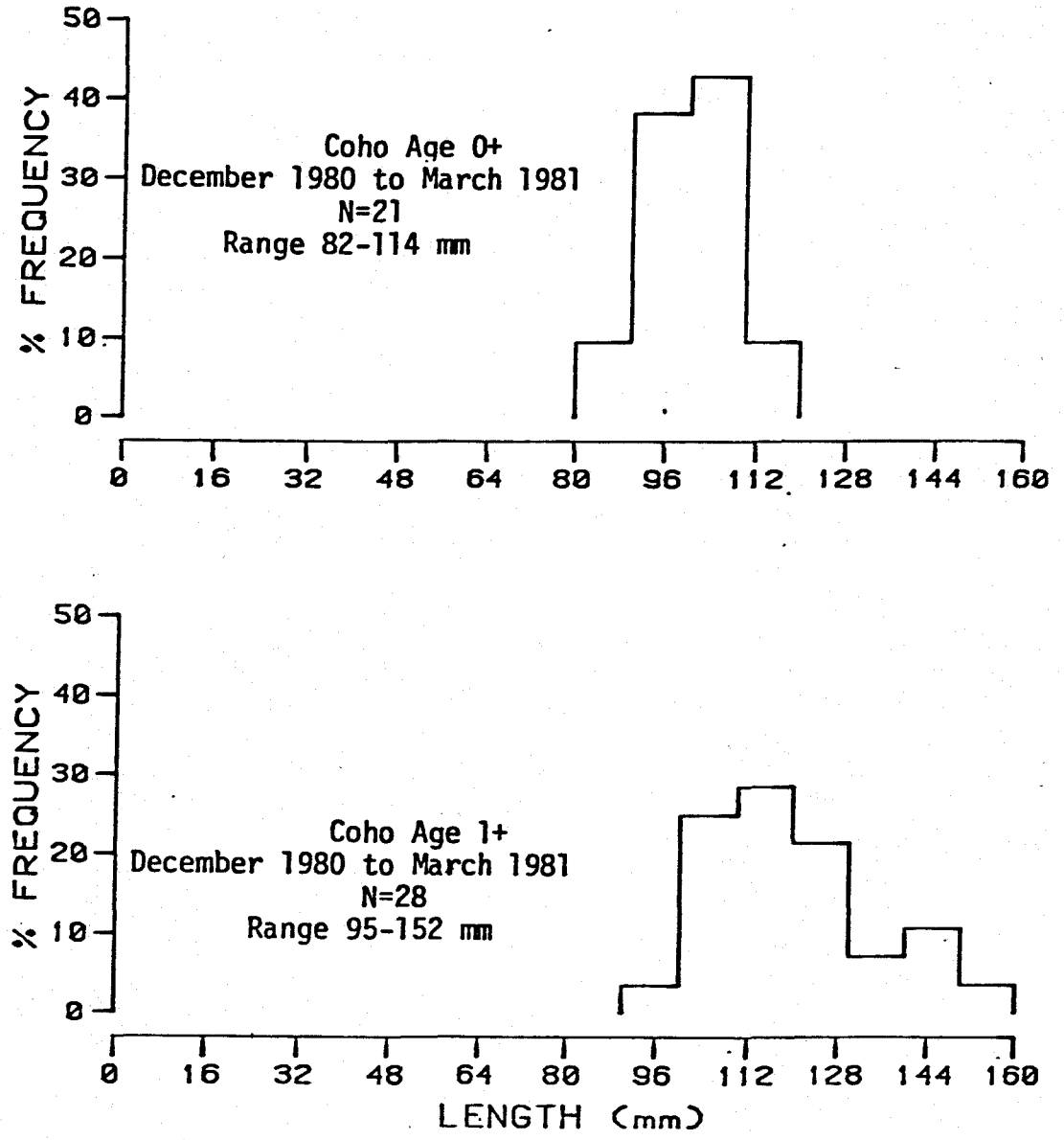


Figure E.3.2.2. Age-length frequency composition of juvenile coho salmon on the Susitna River between Cook Inlet and Devil Canyon, December 1980 to March, 1981. Age determined by scale analysis. Lengths are total.

Table E.3.2.6. Coho salmon juveniles, age-length analysis at habitat location sites on the Susitna River between Cook Inlet and Devil Canyon, November, 1980 to May, 1981.

	NO. OF FISH SAMPLED	MEAN LENGTH (MM)	RANGE (MM)
Cook Inlet to Talkeetna			
All Juvenile coho salmon	96	98.9	58-149
Talkeetna to Devil Canyon			
Brood Year 1978 (Age II+)	31	126.2	110-152
Brood Year 1979 (Age I+)	115	90.3	56-108
All juvenile coho salmon	146	97.9	56-152
Cook Inlet to Devil Canyon			
All juvenile coho salmon	242	98.3	56-152

3.2.5 Results and Discussion - Summer

3.2.5.1 Distribution and Relative Abundance

Juvenile coho salmon were collected at 38 of 44 (86.4%) habitat location and 0 of 9 (0.0%) selective fish habitat sites on the lower Susitna River from June to September, 1981. Juvenile coho salmon were also observed at four of eight (50%) selected fish habitat sites on Indian River (R.M. 138.6) and Portage Creek (R.M. 148.8) from June to October, 1981.

Sampling conducted from June to September collected 3,605 juvenile coho salmon between Cook Inlet and Talkeetna at 25 of 35 (71.4%) habitat location and selected fish habitat sites.

Juvenile coho salmon were collected at 25 of the 27 (92.6%) habitat location sites in the Cook Inlet to Talkeetna reach during June to September. The incidence of juvenile coho salmon in catches at habitat location sites ranged from 42.9 percent in late June to 83.3 percent in early September (Figure E.3.2.3). Juvenile coho salmon catches were recorded at all of the tributary mouth habitat location sites (100%) in the Cook Inlet to Talkeetna River reach one or more times during the summer of 1981. The incidence of juvenile coho salmon in catches at tributary mouth habitat location sites ranged from 66.7 percent in late June to 100 percent in late August and early September (Table E.3.2.7).

Catches of juvenile coho salmon were recorded at 82 percent of the mainstem and slough habitat location sites in the Cook Inlet to Talkeetna reach from

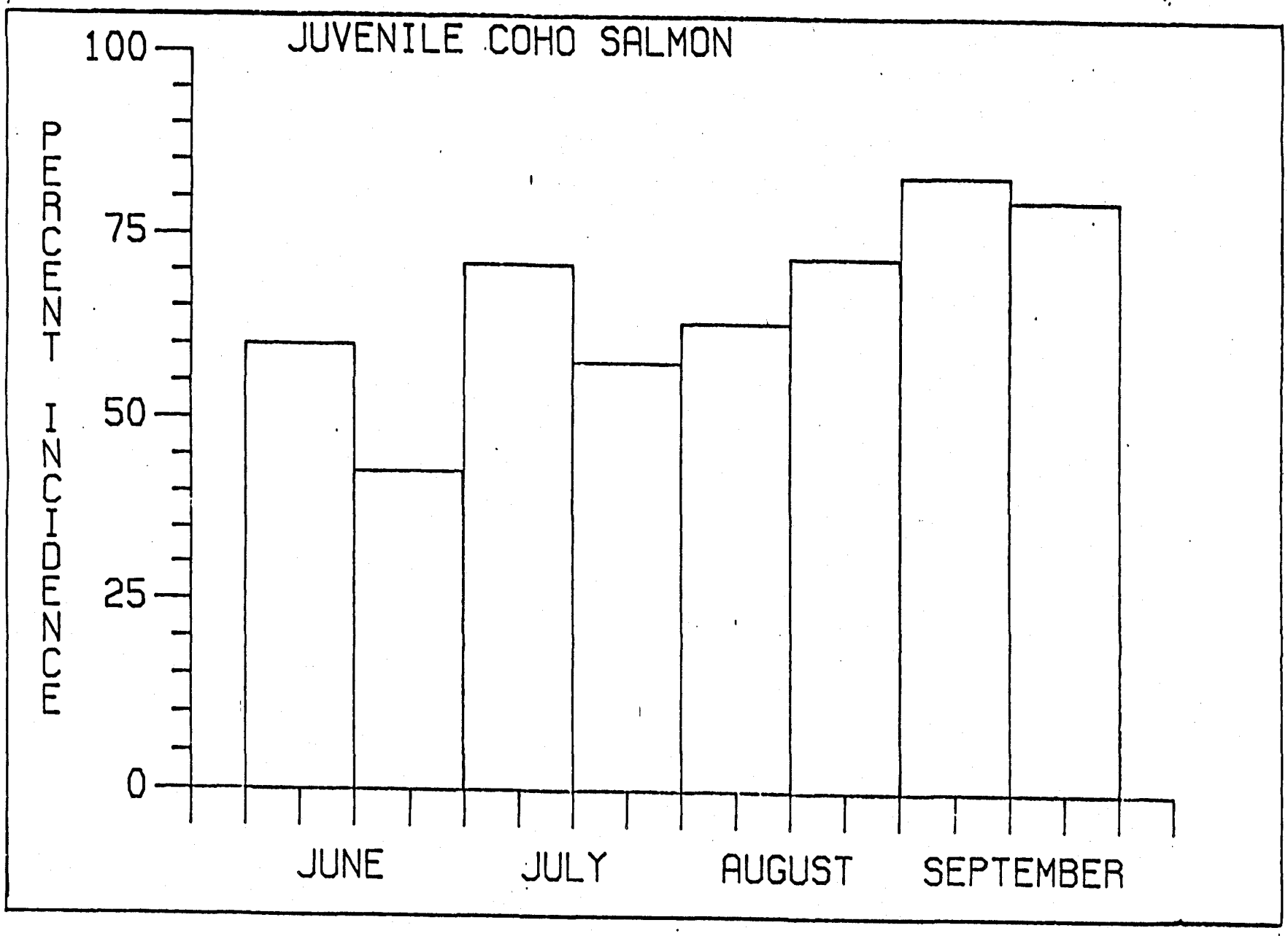


Figure E.3.2.3. Percent incidence of coho salmon juveniles captured at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981.

Table E.3.2.7. Coho salmon juveniles, percent incidence at habitat location sites on the mainstem Susitna River and its tributary mouths between Cook Inlet and Talkeetna, June to September, 1981.

	Percent Incidence							
	June 1-15	June 16-30	July 1-15	July 16-31	Aug. 1-15	Aug. 16-31	Sept. 1-15	Sept. 16-31
Tributary (mouth) Habitat Sites	80.0	66.7	80.0	81.3	93.8	100.0	100.0	91.7
Mainstem Habitat Sites	40.0	11.1	55.6	20.0	18.2	22.2	50.0	62.5
Combined Habitat Sites	60.0	42.9	70.8	57.7	63.0	72.0	83.3	80.0

June to September. The incidence of juvenile coho salmon at mainstem and slough habitat location sites ranged from 11.1 percent in late June to 62.5 percent in late September.

Eight selected fish habitat sites were also sampled during June to September between Cook Inlet and Talkeetna resulting in no juvenile coho salmon being captured (Table E.3.2.8).

The highest catch per unit effort between Cook Inlet and Talkeetna, 41.0 juvenile coho salmon per trap, was recorded at the mouth of Caswell Creek (RM 63.0) in late August (Table E.3.2.9). Relatively high catch rates were also observed at the mouths of Birch Creek (RM 89.2), Sheep Creek Slough (RM 66.1), Sunshine Creek (RM 85.7) and Montana Creek (RM 77.0) in late July to early September (Appendix Table EB-2.1).

Between Talkeetna and Devil Canyon 1,138 coho salmon from the brood year 1980 (Age 0+) and 78 (Age I+) were collected at 12 of 18 (66.7%) habitat location and selective fish habitat sites during June to September.

In the Talkeetna to Devil Canyon reach during June to September, juvenile coho salmon were collected at 13 of 17 (76.5%) habitat locations. Age 0+ coho salmon, offspring of brood year 1980 were collected at 12 of the 17 (70.6%) Talkeetna to Devil Canyon habitat locations while age I+, from brood year 1979, were observed at seven of the 17 (41.2%) sites. No juvenile coho salmon from brood year 1978, age II+, were observed in Talkeetna to Devil Canyon habitat location catches during the summer, 1981. Age 0+ coho salmon distribution increases progressively from early June through the summer and is most

Table E.3.2.8. Coho salmon juveniles, catch per unit effort at selected fish habitat sites on the Susitna River between Cook Inlet and Devil Canyon June to September, 1981.

Selected Fish Habitat Sites	River Mile	Catch per trap day							
		June 1-15	June 16-31	July 1-15	July 16-31	Aug. 1-15	Aug. 16-31	Sept. 1-15	Sept. 16-30
Fish Creek Mouth	7.0	-	0.0	-	-	-	-	-	-
Fish Creek (Kroto Slough)	31.4	-	-	-	-	0.0	-	-	-
Whitsol Lake Slough Mouth (Kroto Slough)	35.2	-	-	-	-	0.0	-	-	-
Mainstem Susitna Slough	72.3	-	-	0.0	-	-	-	-	-
Beaver Slough West Bank	78.6	-	-	0.0	-	-	-	-	-
Side Channel West Bank	79.2	-	-	0.0	-	-	-	-	-
West Bank Slough	79.8	-	-	0.0	-	-	-	-	-
Rabideux Creek	83.2	-	0.0	-	-	-	-	-	-
Slough Adjacent to Gold Creek Camp	136.8	-	-	-	-	-	-	0.0	-

Table E.3.2.9. Coho salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981.

Habitat Location	River Mile	Catch per trap day							
		June 1-15	June 16-31	July 1-15	July 16-31	Aug. 1-15	Aug. 16-31	Sept. 1-15	Sept. 16-30
Alexander Creek	10.1								
Site A (mouth)		0.1	-	0.1	0.2	0.1	0.3	0.3	-
Site B (2.0 miles upstream of mouth)		-	-	0.0	0.4	0.2	1.5	0.3	-
Site C (4.0 miles upstream of mouth)		-	0.2	0.1	0.4	0.4	1.3	0.4	-
Anderson Creek	23.8	0.0	0.0	0.0	0.0	0.0	0.4	1.0	0.2
Kroto Slough (mouth)	30.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Mainstem Slough	31.0			0.0	0.0	0.0	0.0	0.0	0.2
Mid Kroto Slough	36.3	0.0	0.0	0.1	0.0	0.0		0.0	-
Deshka River	40.6								
Site A (mouth)		-	0.0	0.4	0.2	0.1	0.3	0.2	0.0
Site B (1.0 miles upstream of mouth)		-	0.1	0.4	0.3	0.7	1.3	0.4	0.3
Site C (3.5 miles upstream of mouth)		-	-	0.5	0.2	1.4	1.7	1.0	0.3
Lower Delta Islands	44.0	-	0.0	0.0	0.0	0.0	-	-	-
Little Willow Creek	50.5	-	0.0	0.1	0.0	0.2	0.4	0.2	0.5

Table E.3.2.9. Coho salmon juveniles, catch per unit effort at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981.

Habitat Location	River Mile	Catch per trap day							
		June 1-15	June 16-31	July 1-15	July 16-31	Aug. 1-15	Aug. 16-31	Sept. 1-15	Sept. 16-30
Rustic Wilderness	58.1	-	0.0		0.0	0.0	0.0	-	-
Kashwitna River	61.0	-	0.1	0.0	0.0	0.1	0.1	-	0.1
Caswell Creek	63.0	-	0.2	1.2	9.1	19.1	41.0	-	2.0
Slough West Bank	65.6	-	-	-	-	0.0	0.0	-	0.2
Sheep Creek Slough	66.1	-	0.0	0.4	1.9	3.5	3.5	-	0.6
Goose Creek									
Site 1	72.0	-	0.2	0.4	0.3	0.1	2.1	-	0.1
Site 2	73.1	-	-	-	0.1	0.1	1.7	-	1.4
Mainstem West Bank	74.4	-	0.0	0.0	0.0	0.0	0.0	-	0.6
Montana Creek	77.0	-	1.7	1.7	0.4	4.1	2.1	1.1	0.1
Mainstem 1	84.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Sunshine	85.7	3.6	0.0	1.4	1.8	2.8	1.5	2.6	0.2
Birch Creek Slough	88.4	1.3	0.2	1.4	0.5	0.2	0.3	5.6	2.6
Birch Creek	89.2	1.1	4.1	2.0	11.6	18.2	17.9	10.0	
Cache Creek Slough	95.5	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Cache Creek	96.0	0.0	1.3	0.2	0.2	0.2	0.7	0.1	0.2

extensive in early September when they were collected at 53.9 percent of the habitat locations located from Talkeetna to Devil Canyon (Figure E.3.2.4). The incidence of age I+ coho salmon in catches at habitat locations ranged from 11.8 percent in late July and late September to 30.8 percent in early September (Figure E.3.2.5). Occurrence of age 0+ coho salmon was more consistent at tributary mouth locations than at mainstem or slough locations throughout the summer (Table E.3.2.10). Age I+ coho salmon appear in a lesser percentage of both tributary mouth and mainstem-slough habitat location catches during this same time.

Age 0+ coho salmon were also observed in Indian River and Portage Creek at selected fish habitat sites. Distribution was more extensive in Indian River where 154 age 0+ coho salmon were collected from Indian River miles 2.7, 7.2 and 12.0 (Table E.3.2.11). Six age 0+ coho salmon were observed in Portage Creek at mile 4.5 only once during the season in October.

The highest age 0+ coho salmon catch per unit effort, 7.0 fish per trap, was recorded at Whiskers Creek (RM 101.4) in late August (Table E.3.2.12). Comparatively high age 0+ coho salmon catch rates were recorded at Whiskers Creek mouth during each two week interval throughout the summer. Relatively high catch rates for age 0+ coho salmon were also recorded at Slough 6A (RM 112.3) and Fourth of July Creek (RM 131.1) during August and September and at Indian River mile 12.0 in August (Appendix Table EB-2.2).

The highest age I+ coho salmon catch per unit effort, 0.6 juvenile coho per trap, was recorded at both Whiskers Creek (RM 101.4) during early July and at Slough 6A (RM 112.3) during late August (Table E.3.2.13). Consistent catches

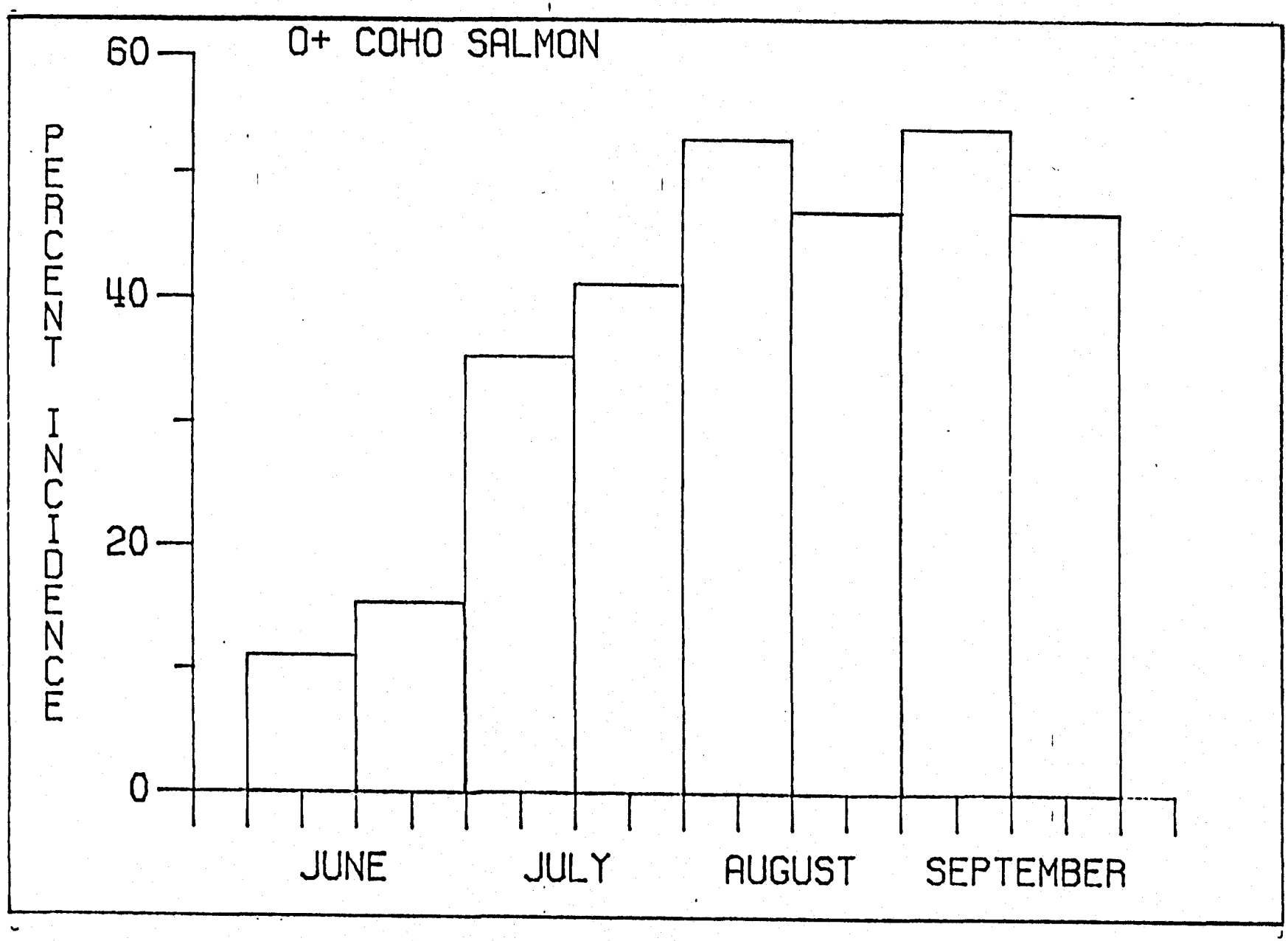


Figure E.3.2.4. Percent incidence of coho salmon (age 0+) captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.

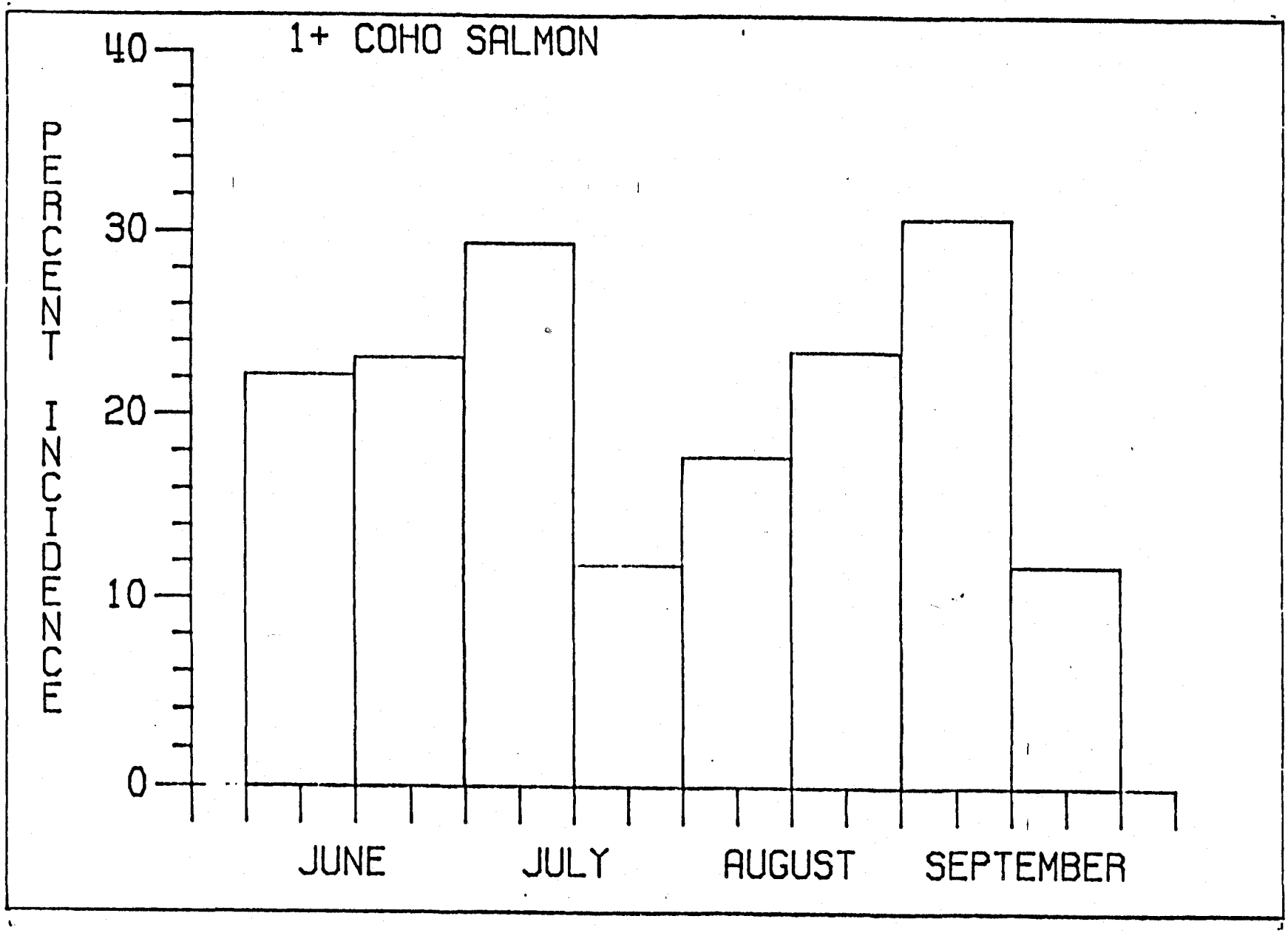


Figure E.3.2.5. Percent incidence of coho salmon (age 1+) captured at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.

Table E.3.2.10. Coho salmon juveniles, percent incidence at habitat location sites on the mainstem Susitna River and its tributary mouths between Talkeetna and Devil Canyon, June to September, 1981.

	Percent Incidence							
	June 1-15	June 16-30	July 1-15	July 16-31	Aug 1-15	Aug 16-31	Sept 1-15	Sept 16-30
Coho 0+								
Tributary habitat sites	25.0	33.3	60.0	60.0	60.0	60.0	80.0	80.0
Mainstem habitat sites	0.0	10.0	25.0	33.0	50.0	41.7	37.5	33.3
Combined habitat sites	11.1	15.4	35.3	41.2	52.9	47.1	53.9	47.1
Coho I+								
Tributary habitat sites	25.0	33.3	40.0	40.0	40.0	20.0	20.0	0.0
Mainstem habitat sites	20.0	20.0	25.0	0.0	8.3	25.0	37.5	16.7
Combined habitat sites	22.2	23.1	29.4	11.8	17.7	23.5	30.8	11.8
All Coho Juvenile								
Tributary habitat sites	25.0	33.3	60.0	60.0	60.0	60.0	80.0	80.0
Mainstem habitat sites	20.0	20.0	41.7	33.3	50.0	41.7	62.5	41.7
Combined habitat sites	22.2	23.1	66.7	41.2	52.9	47.1	69.2	52.9

Table E.3.2.11. Coho salmon (age 0+), catch per trap day at selected fish habitat location sites on Indian River and Portage CReek, June, August and October, 1981.

INDIAN RIVER				PORTAGE CREEK			
	Catch per trap day				Catch per trap day		
River Mile	June 1-15	August 16-31	October 1-15	River Mile	June 1-15	August 16-31	October 1-15
2.7	0.0	0.4	0.4	4.5	0.0	0.0	0.6
7.2	0.0	2.4	0.3	9.2	0.0	0.0	0.0
12.0	-	4.0	2.7	15.5	-	0.0	0.0
13.5	0.0	-	-	15.6	0.0	-	-

Table E.3.2.12. Coho salmon (age 0+), catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.

Habitat Location	River Mile	Catch per trap day							
		June 1-15	June 16-31	July 1-15	July 16-31	Aug. 1-15	Aug. 16-31	Sept. 1-15	Sept. 16-30
Whisker Creek Slough	101.2	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0
Whisker Creek Mouth	101.4	0.5	2.4	2.6	2.9	3.0	7.0	1.7	1.8
Slough 6A	112.3	0.0	0.0	0.3	0.2	1.4	4.7	4.2	4.3
Lane Creek Mouth	113.6	0.0	0.0	0.1	0.6	0.2	0.1	0.2	0.4
Mainstem 2	114.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Susitna Curry	120.7	-	0.0	0.0	0.0	0.0	0.0	-	0.0
Susitna Side Channel	121.6	-	0.0	0.0	0.0	0.0	0.0	-	0.0
Susitna Gravel Bar	123.8	-	0.0	0.0	0.0	0.0	0.0	-	0.0
Slough 8A	125.3	-	0.0	0.0	0.4	0.1	2.5	-	0.5
Fourth of July Creek Mouth	131.1	-	0.0	0.2	0.4	2.8	2.5	2.6	0.6
Slough 10	133.8	-	0.0	0.0	0.8	0.2	1.4	0.2	0.1
Slough 11	135.3	-	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Susitna Gold Creek	136.9	-	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Indian River Mouth	138.6	0.0	-	0.0	0.0	0.0	0.0	3.1	0.1
Slough 20	140.1	0.0	-	0.0	0.2	0.1	0.0	3.1	0.5
Susitna Island	146.9	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0
Portage Creek Mouth	148.8	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0

Table E.3.2.13. Coho salmon (age I+), catch per unit effort at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981.

Habitat Location	River Mile	Catch per trap day							
		June 1-15	June 16-31	July 1-15	July 16-31	Aug. 1-15	Aug. 16-31	Sept. 1-15	Sept. 16-30
Whisker Creek Slough	101.2	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.1
Whisker Creek Mouth	101.4	0.4	0.5	0.6	0.2	0.3	0.1	0.1	0.0
Slough 6A	112.3	0.0	0.1	0.1	0.0	0.2	0.6	0.3	0.1
Lane Creek Mouth	113.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mainstem 2	114.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Susitna Curry	120.7	-	0.0	0.0	0.0	0.0	0.0	-	0.0
Susitna Side Channel	121.6	-	0.0	0.0	0.0	0.0	0.0	-	0.0
Susitna Gravel Bar	123.8	-	0.0	0.1	0.0	0.0	0.0	-	0.0
Slough 8A	125.3	-	0.0	0.1	0.0	0.0	0.1	-	0.0
Fourth of July Creek Mouth	131.1	-	0.0	0.1	0.1	0.2	0.0	0.0	0.0
Slough 10	133.8	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slough 11	135.3	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Susitna Gold Creek	136.9	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Indian River Mouth	138.6	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0
Slough 20	140.1	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0
Susitna Island	146.9	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0
Portage Creek Mouth	148.8	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0

were recorded throughout the summer at Whiskers Creek and at Slough 6A (Appendix Table EB-2.3).

3.2.5.2 Age and Length Composition

Three age classes of juvenile coho salmon were collected at habitat locations in the lower Susitna River from June to September, 1981. These fish represent brood years 1978, 1979 and 1980.

During August and September, 143 juvenile coho salmon from Cook Inlet to Devil Canyon were aged using scale analysis and measured for total length in millimeters (mm) to determine the range of length overlap and establish the inflection point between ages by two week period. Figure E.3.2.6 illustrates that by August and September there is overlap in the length ranges determined for age 0+ and age I+ coho salmon. Inflection points between ages were established at 90 mm, 95 mm and 100 mm for early August, late August and early September respectively. No age II+ coho salmon were present in the scale analysis sample.

Two thousand four hundred twelve juvenile coho salmon were measured for total length (mm) during June to September between Cook Inlet and Talkeetna. An additional 1,030 juvenile coho salmon were measured in the Talkeetna to Devil Canyon reach.

Three age classes of juvenile coho salmon were present in habitat location catches made during early June between Cook Inlet and Talkeetna. Analysis of length frequency composition by two week period indicates that age II+ coho

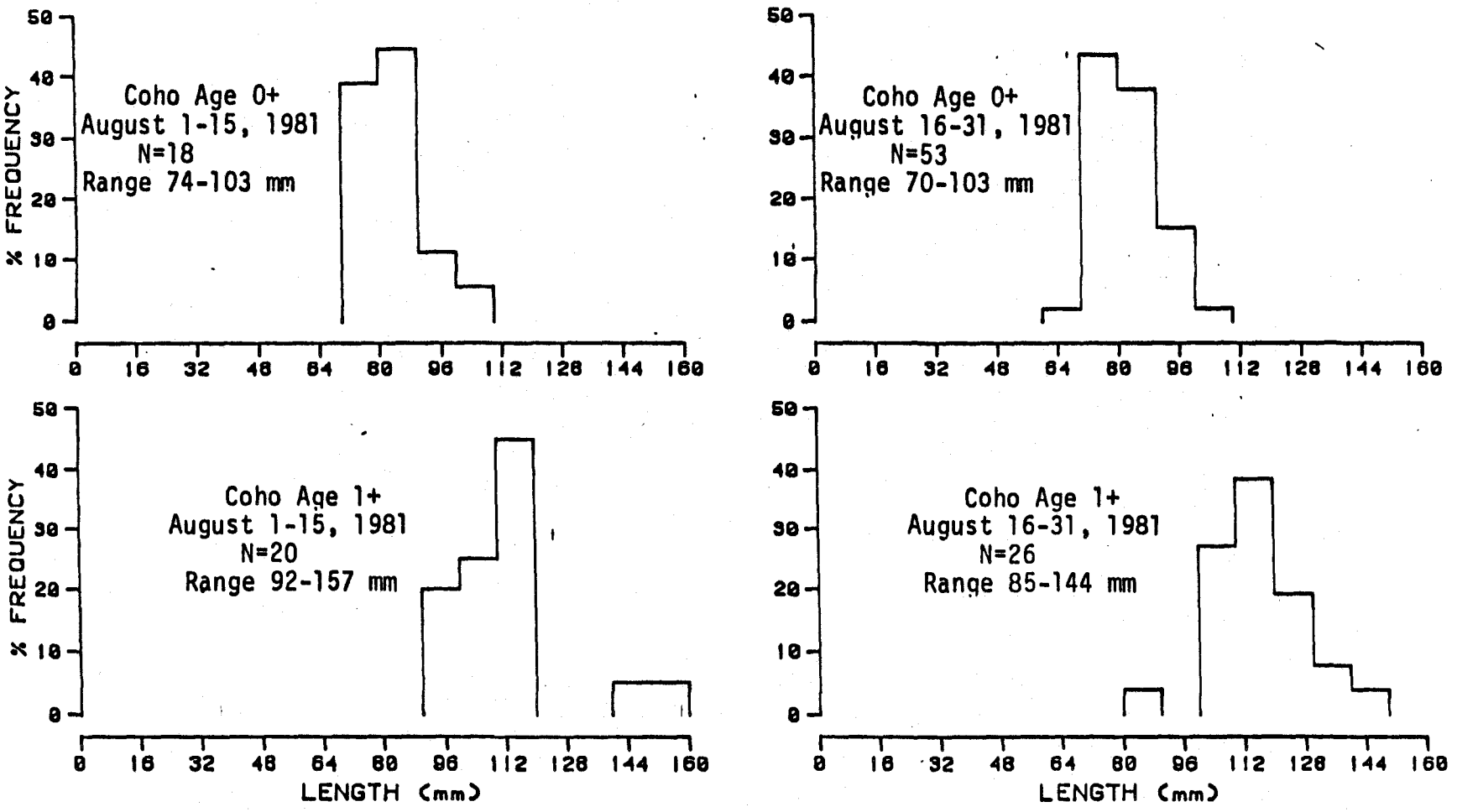
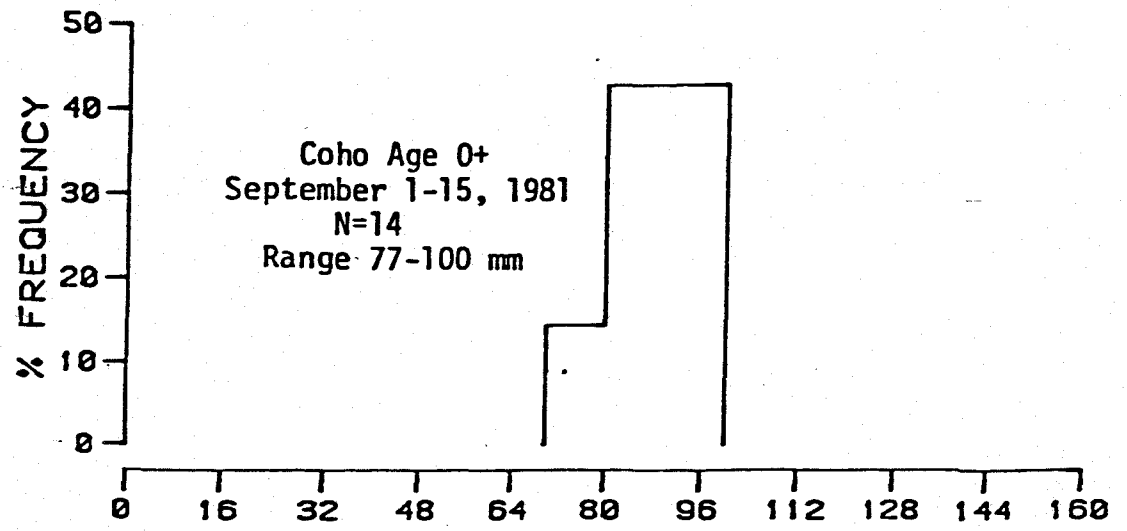


Figure E.3.2.6. Age-length frequency composition of juvenile coho salmon on the Susitna River between Cook Inlet and Devil Canyon, August, 1981. Age determined by scale analysis. Lengths are total.



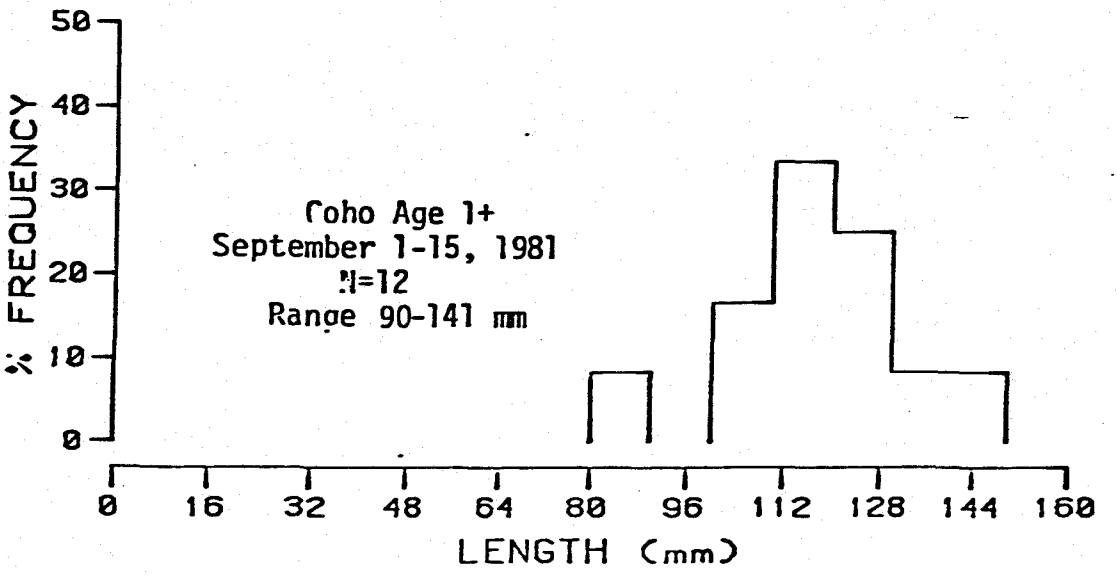


Figure E.3.2.6. (continued) Age-length frequency composition of juvenile coho salmon on the Susitna River between Cook Inlet and Devil Canyon, September 1 to 15, 1981. Age determined by scale analysis. Lengths are total.

salmon were no longer present in the Cook Inlet to Talkeetna reach after June 15 (Figure E.3.2.7). Age 0+ and age I+ coho salmon were present throughout the summer. The range of lengths for age 0+ and age I+ can be approximated from the length frequency data. However, it is impossible to determine the amount of overlap or accurately establish an inflection point between these ages of coho salmon in the Cook Inlet to Talkeetna reach from length frequency alone.

Two age classes of juvenile coho salmon, age 0+ and age I+, were present in habitat location catches made throughout June to September between Talkeetna and Devil Canyon. Analysis of the length frequency composition illustrated by two week period in Figure E.3.2.8 indicates that a length distinction between age 0+ and age I+ can be determined for late June to September in the Talkeetna to Devil Canyon reach. Age I+ coho salmon in this reach appear to be greater than 75 mm total length by late June. This value increased five mm in length each two weeks through late September when age I+ were determined to be 105 mm and greater.

The average length of age 0+ coho salmon collected between Talkeetna and Devil Canyon ranged from 55.6 mm in late June to 64.1 mm in late August (Table E.3.2.14). The average length of age I+ coho salmon ranged from 89.0 mm in late July to 126.4 mm in early September.

Juvenile coho salmon collected from Cook Inlet to Talkeetna ranged from 31 mm to 172 mm during June to September (Table E.3.2.15).

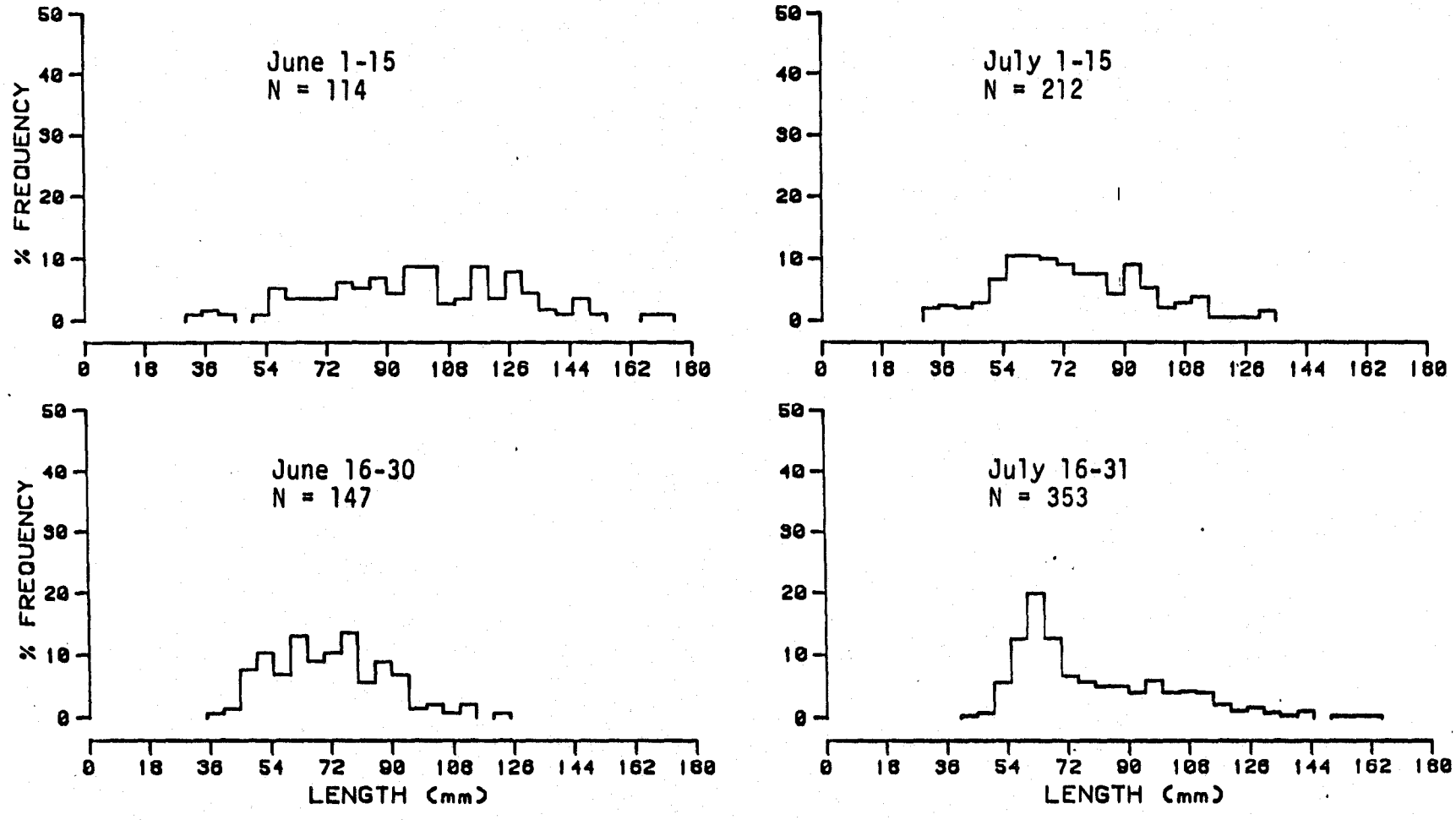


Figure E.3.2.7. Length frequency composition of juvenile coho salmon at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, June to September, 1981. Lengths are total.

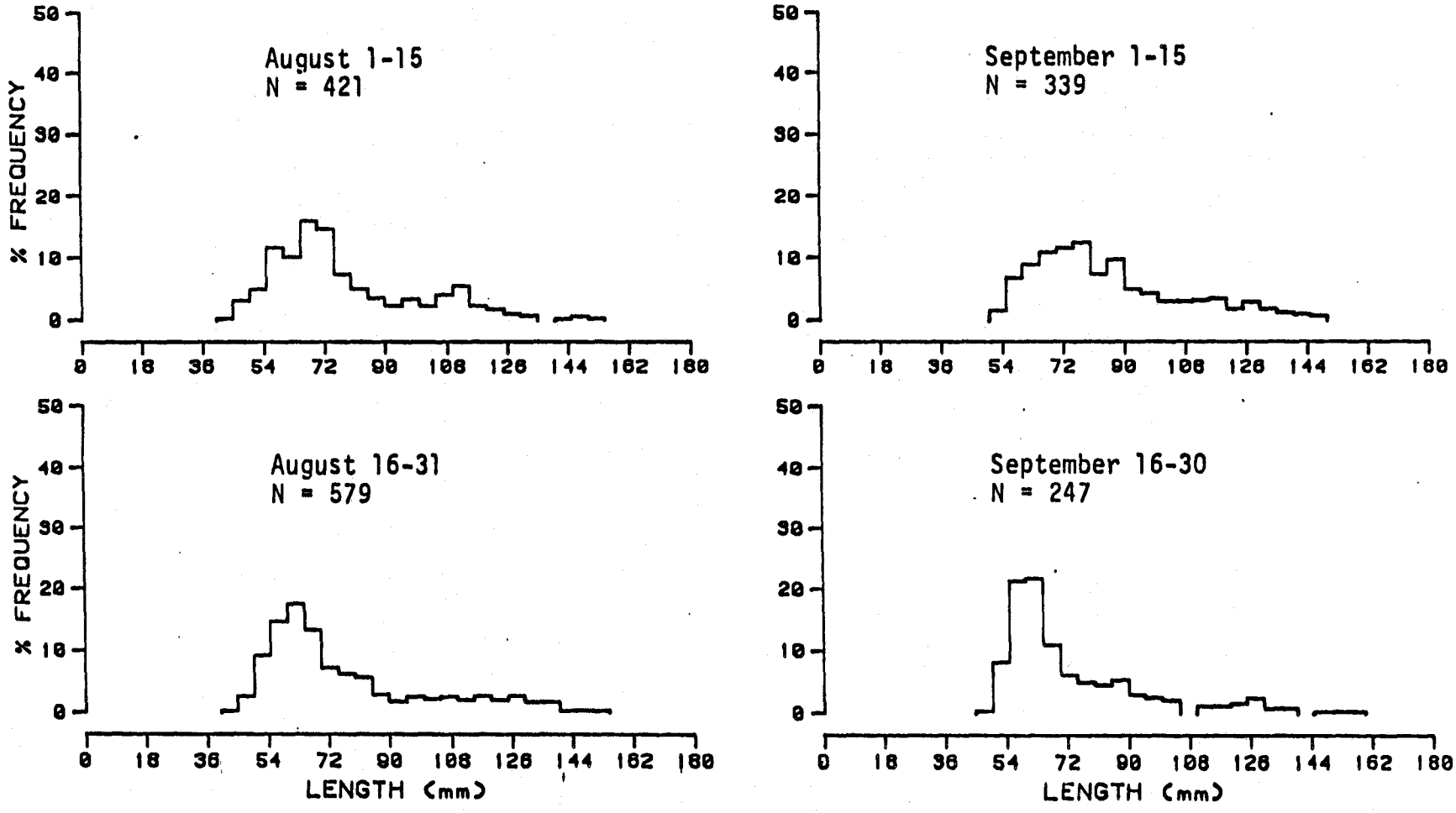


Figure E.3.2.7. (continued) Length frequency composition of juvenile coho salmon at habitat location sites on the Susitna River between Cook Inlet and Devil Canyon, June to September, 1981. Lengths are total.

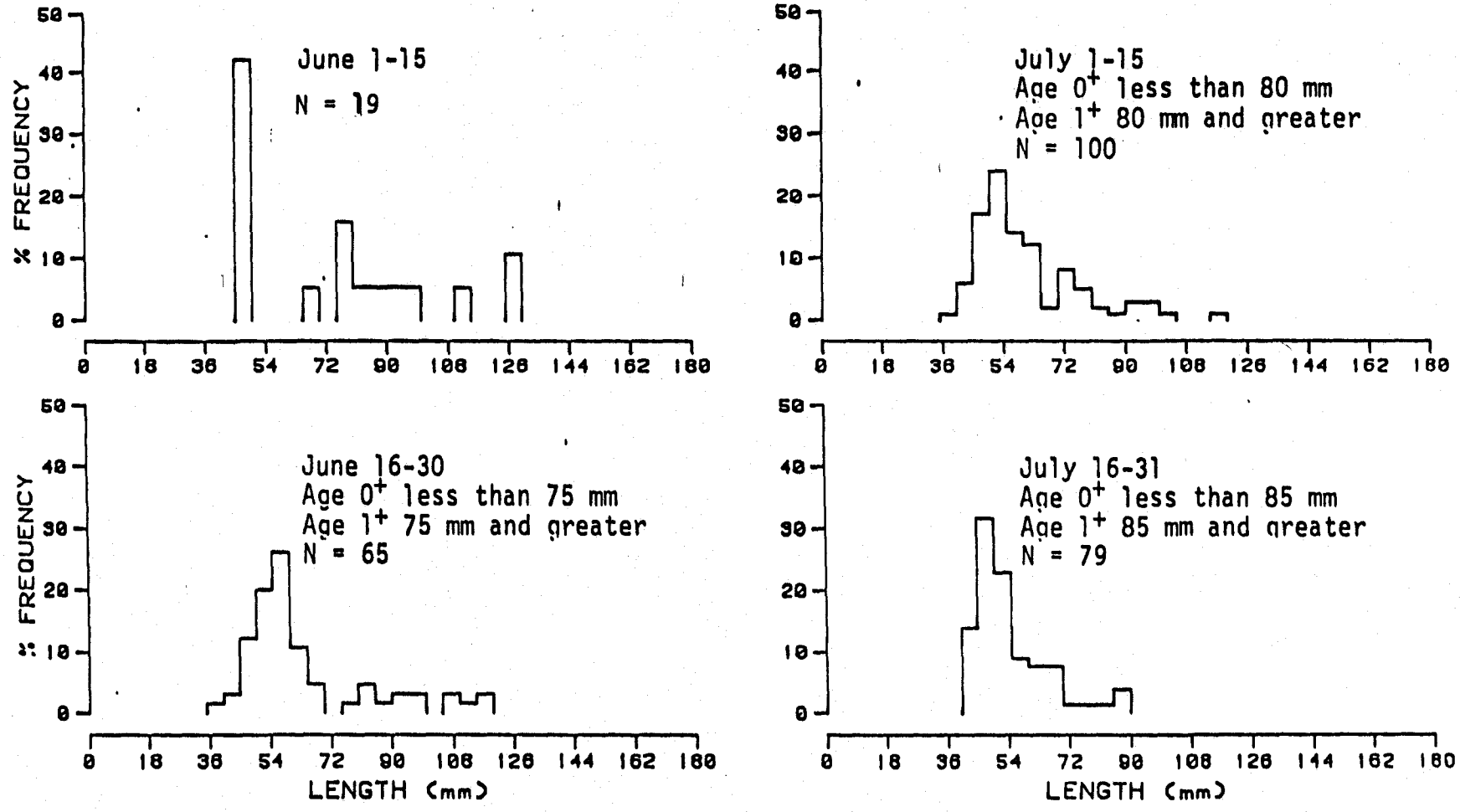


Figure E.3.2.8. Length frequency composition of juvenile coho salmon at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981. Lengths are total.

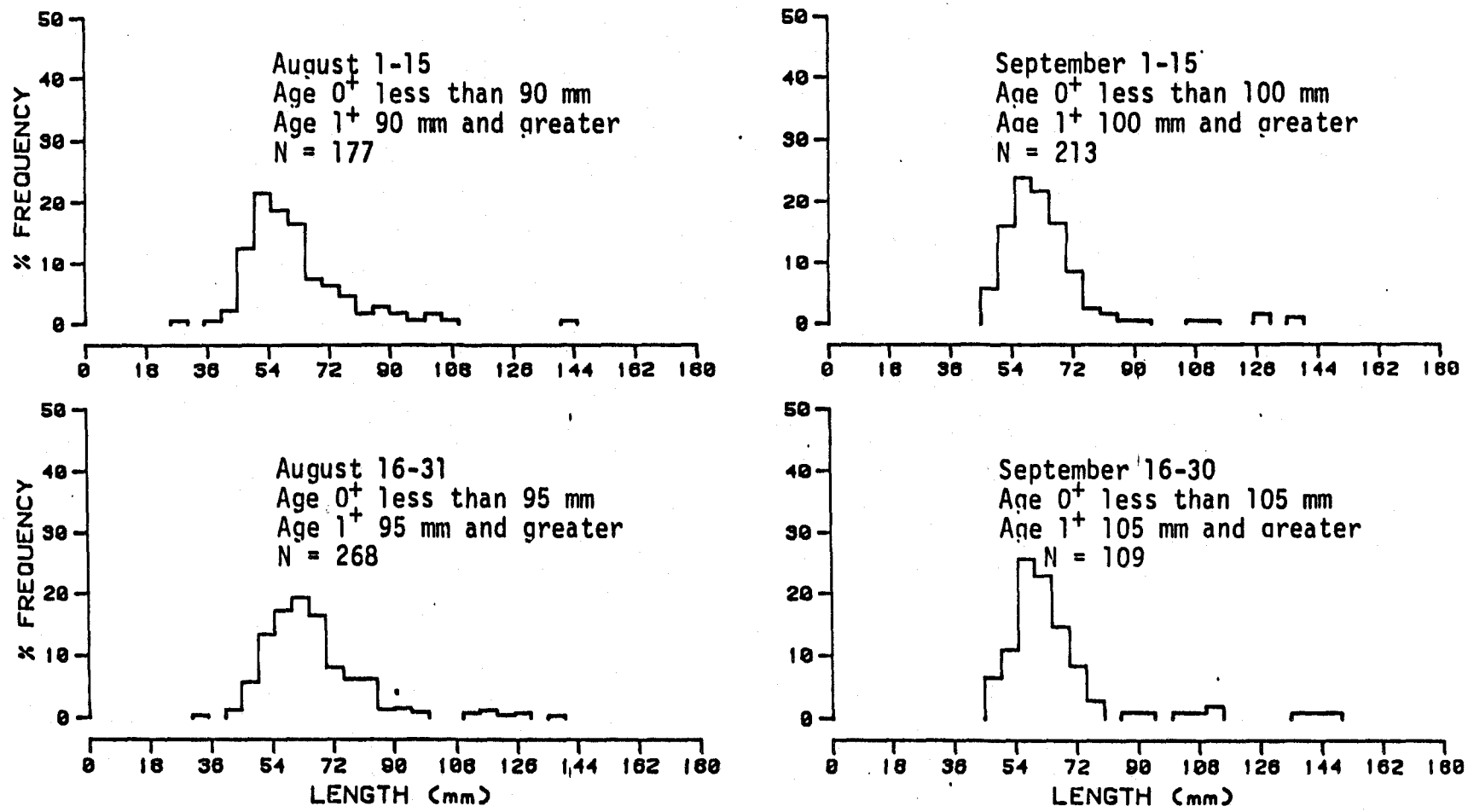


Figure E.3.2.8. (continued) Length frequency of juvenile coho salmon at habitat location sites on the Susitna River between Talkeetna and Devil Canyon, June to September, 1981. Lengths are total.

Table E.3.2.14. Coho salmon (age 0+ and I+), length analysis at habitat location sites between Talkeetna and Devil Canyon, June to September, 1981.

Date	Age 0+ Coho Salmon			Age 1+ Coho Salmon		
	Total No. of fish Sampled	Mean Length (mm)	Range of Length (mm)	Total No. of fish Sampled	Mean Length (mm)	Range of Length (mm)
6/16-30	51	55.59	38-70	14	97.57	80-119
7/1-15	86	56.22	40-78	14	92.00	80-120
7/16-31	76	53.54	42-82	3	89.0	87-90
8/1-15	167	59.67	30-89	10	102.60	90-143
8/16-31	256	64.10	35-94	12	116.33	95-138
9/1-15	206	62.05	47-95	7	126.43	108-140
9/16-30	102	62.55	46-94	7	125.0	105-150

Table E.3.2.15. Coho salmon juveniles, length analysis at habitat location sites on the Susitna River between Cook Inlet and Talkeetna, Talkeetna and Devil Canyon and also at selected fish habitat sites on Indian River and Portage Creek, June to October, 1981.

	Indian River and Portage Creek			Susitna River								
				Cook Inlet to Talkeetna			Talkeetna to Devil Canyon			Combined Total		
Date	No. of Fish	Mean Length (mm)	Range of Length (mm)	No. of Fish	Mean Length (mm)	Range of Length (mm)	No. of Fish	Mean Length (mm)	Range of Length (mm)	No. of Fish	Mean Length (mm)	Range of Length (mm)
6/1-15	0.0			114	100.03	31-172	19	75.21	48-127	133	96.48	31-172
6/16-30	0.0			147	72.34	38-125	65	64.63	39-119	212	69.98	38-125
7/1-15	0.0			212	75.36	34-135	100	61.23	40-120	312	70.83	34-135
7/16-31	1	68.00		353	78.87	43-161	79	54.89	42-90	432	74.49	42-161
8/1-15	18	57.56	50-67	421	78.43	44-155	177	62.00	30-143	598	73.59	30-155
8/16-31	62	55.45	32-76	579	76.86	45-152	268	66.44	35-138	847	73.56	35-152
9/1-15	24	67.83	54-80	339	86.01	54-150	213	64.17	47-140	552	77.58	47-150
9/16-30	1	54.0		247	73.91	48-156	109	66.56	46-150	356	71.66	46-156
10/1-15	25	63.68	52-85									

One hundred and thirty one juvenile coho salmon captured at habitat location and selected fish habitat sites in Indian River (RM 138.6) and Portage Creek (RM 148.8) during June to October were exclusively age 0+. Figure E.3.2.9 illustrates the length frequency composition for Indian River and Portage Creek. Mean lengths of juvenile coho salmon were not compared by two week period due to the insufficient number of fish captured.

Extensive minnow trapping for juvenile coho salmon in the Susitna River drainage was conducted in previous years by ADF&G staff at two of the 39 habitat locations sampled by Su Hydro staff in 1980-81. The two habitat locations sampled were Montana Creek mouth (R.M. 77.0) by Riis and Friese in 1977-78 and Deshka River mouth (R.M. 40.6) by Delaney et al. in 1980.

Sampling conducted on Montana Creek from Parks Highway to the mouth during late August 1977 to February 1978 recorded a maximum catch rate of 1.9 juvenile coho salmon per trap during early October, then decreasing to 0.1 juvenile per trap. Sampling conducted by Su Hydro staff from the railroad bridge to the mouth of Montana Creek during November, 1980 to September, 1981 recorded a catch rate of 0.4 juvenile coho salmon per trap in November and reached a maximum during early August of 4.1 juveniles per trap. The Deshka River juvenile chinook and coho study from May to October 1980 was conducted at eight individual sections of the river ranging from the mouth (R.M. 0.0) to the river interception of the Petersville road. Two sections of the river established in the 1980 study, VI and V, encompasses three habitat location

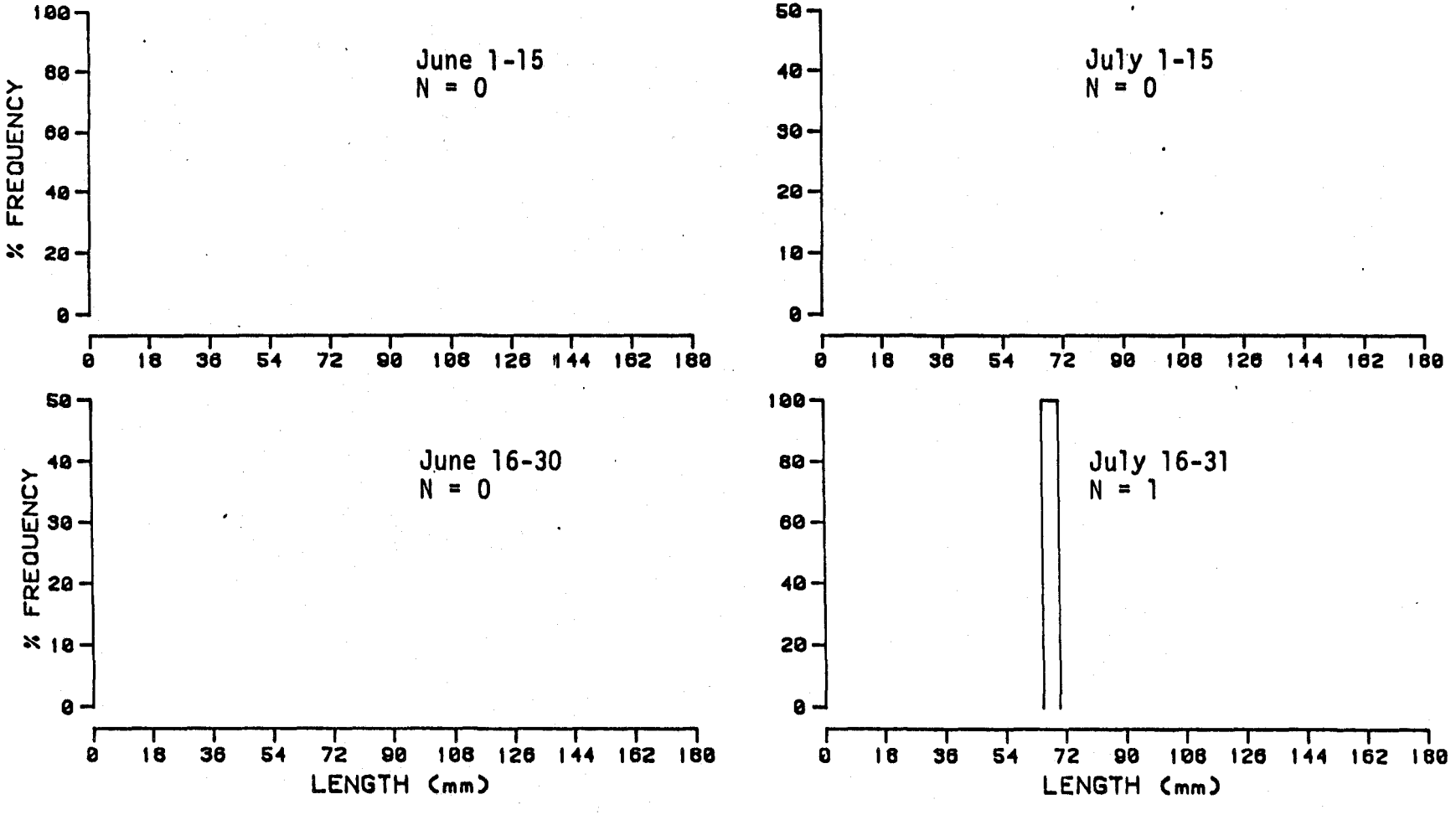


Figure E.3.2.9. Length frequency composition of juvenile coho salmon at habitat location sites and selected fish habitats on Indian River and Portage Creek, June to early October, 1981. Lengths are total.

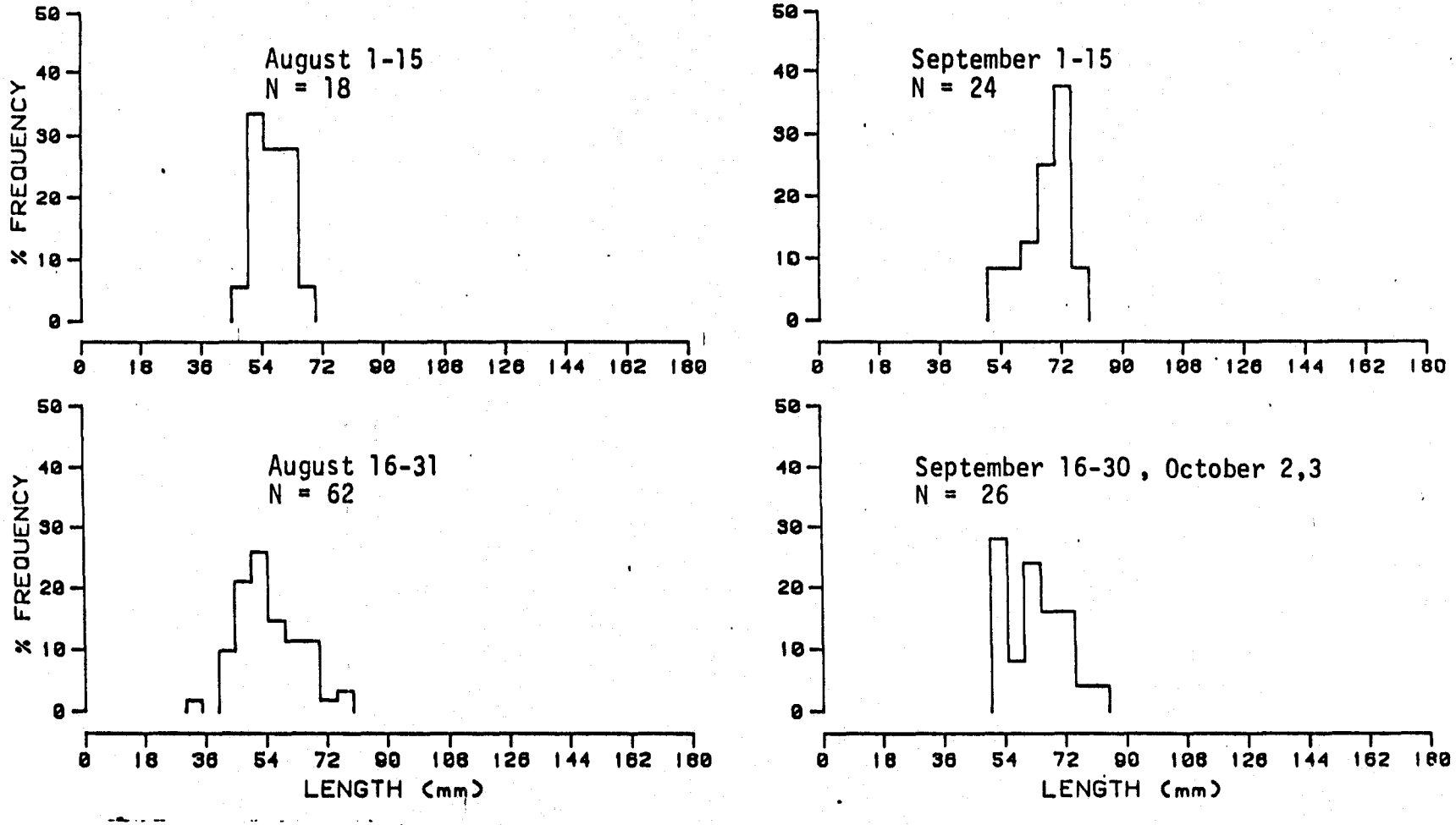


Figure E.3.2.9. (continued) Length frequency composition of juvenile coho salmon at habitat location sites and selected fish habitat sites on Indian River and Portage Creek, June to early October, 1981. Lengths are total.

sites (A, B and C) which were sampled by Su Hydro staff during 1981. Section VI (R.M. 0.0 to R.M. 1.5), encompasses habitat location sites A (R.M. 0.0) and B (R.M. 1.0), and section V (R.M. 1.5 to R.M. 4.0) site C (R.M. 3.5).

Catch rates during 1980 from May to October at Section V in the Deshka River recorded two peaks, reaching a maximum catch rate of 2.0 juvenile coho salmon per trap during early June and peaking again in early August at 1.8 juveniles per trap; catch rates then decreased to 0.0 juveniles per trap in October. Catch rates during 1981 from late June to late September at the same area (habitat location site C) recorded a maximum catch rate of 1.7 juvenile coho salmon per trap in late August, then decreasing to 0.3 juveniles per trap in late September.

Catch rates at Section VI in 1980 recorded a maximum of 1.3 juvenile coho salmon per trap in early August and decreasing to 0.0 in October. Sampling conducted in 1981 at the same area (habitat location sites (A and B) recorded a maximum catch rate of 0.7 juveniles per trap.

Inventory sampling was also conducted by Riis and Friese from July 1 to October 5, 1977 on the Susitna River between Talkeetna and Devil Canyon. Juvenile coho salmon were captured in 12 sloughs and at two tributary creek mouths.

3.3 OTHER JUVENILE SALMON

3.3.1 Abstract

Beach seines, minnow traps, shovels and dipnets were utilized to capture approximately 1,750 juvenile pink salmon, Oncorhynchus gorbuscha; chum salmon, O. keta; and sockeye salmon, O. nerka during 1981 studies of the Susitna River. Chum salmon were captured at Alexander (R.M. 10.1) and Slough 11 (R.M. 135.3). Juvenile pink salmon were observed from Mainstem Slough (R.M. 31.0) upstream to Indian River (R.M. 138.6). Sockeye fry were captured at Alexander Creek, Birch Creek (R.M. 89.2), Cache Creek Slough (R.M. 95.5) and Cache Creek (R.M. 96.0).

Distribution, abundance, and time of emergence of juvenile chum, pink, and sockeye salmon could not be determined strictly from the capture techniques utilized during this study. A downstream migrant trap and extensive surveys of slough and mainstem spawning sites are necessary to provide qualitative estimate of spawning success, overwinter survival of eggs, and timing of emergence and outmigration for those species.

3.3.2 Introduction

Five species of Pacific salmon inhabit the Susitna River. Sampling conducted from November, 1980 to October, 1981 in the Susitna River between Cook Inlet and Devil Canyon produced catches of juveniles of all five species. Included

in these catches were the following three species: pink salmon, Oncorhynchus gorbuscha; chum salmon, Oncorhynchus keta; and sockeye salmon, Oncorhynchus nerka.

3.3.3 Methods

Minnow traps, beach seines, shovels and dipnets were used to collect samples of juvenile and pre-emergent salmon.

3.3.4 Results and Discussion

3.3.4.1 Distribution and Relative Abundance

Approximately 1,700 chum, 20 pink, and 35 sockeye fry were captured from November, 1980 to October, 1981.

Beach seining at Slough 11 (Gold Creek area) June 19, accounted for 1,650 chum fry, while 13 chum fry were captured by beach seine in Slough 20 during this time. Chum fry were also captured in Alexander Creek in July.

Pink fry were collected at Mainstem Slough (Yentna), Slough 8A, Fourth of July Creek, and Slough 10 in June and July. Sockeye fry were collected at Alexander Creek, Birch Creek and Cache Creek in September (Table E.4.3.1).

Winter sampling in March and April produced 25 sockeye fry at Slough 11, one at Slough 9, and one below Talkeetna. During March, shovels and beach seines were used to collect pre-emergents in the Gold Creek area where approximately

Table E.3.3.1. Pink, chum and sockeye salmon juvenile catches in the Susitna River between Cook Inlet and Devil Canyon, November, 1980 to October, 1981.

	River Mile	Date	Gear	Pink	Chum	Sockeye
Mainstem Susitna	97.5	March	Minnow Trap			1
Slough 9 Upper Reach	129.1	March	Minnow Trap			1
Indian River (R.M. 138.6)	1.0	April	Minnow Trap	3		
	5.0-7.0	March	Minnow Trap	1		
	5.0-7.0	April	Minnow Trap	1		
Slough 11	135.3	April	Beach Seine		2	25
Slough 11	135.3	6/19/81	Beach Seine		1,650	
Slough 20	140.1	6/19/81	Beach Seine		13	
Alexander Creek	10.1	7/1/81	Beach Seine		14	5
Alexander Creek	10.1	7/2/81	Beach Seine		11	
Slough 11	135.3	7/4/81	Beach Seine		13	
Slough 11	135.3	7/6/81	Minnow Trap		6	
Slough 8A	125.3	7/23/81	Minnow Trap	3		
4th of July Creek	131.1	6/16/81	Beach Seine	4		
Slough 10	133.8	6/17/81	Beach Seine	3		
Indian River (Mouth)	138.6	6/9/81	Minnow Trap	1		
Mainstem Slough	31.0	7/5/81	Beach Seine	1		
Birch Creek	89.2	9/14/81	Minnow Trap			3
Cache Creek	96.0	9/10/81	Minnow Trap			2
Cache Creek Slough	95.5	9/10/81	Minnow Trap			1
TOTALS		March - 9/14	Minnow Trap/ Beach Seine	17	1,709	35

2,000 pink, chum and sockeye sac fry were observed in Slough 11 and in Indian River. An incidence of dead pink salmon pre-emergents were observed in two redds uncovered. Surveys conducted April 11 showed yolk sac absorbtion to be 95 to 100 percent complete for chum fry and 50 percent for pink salmon fry. The first emergents observed were captured March 23 in both Slough 11 and Indian River. The majority of the first emerging fry observed were pink salmon.

Although juvenile chum, pink, and sockeye salmon were captured during this study, the techniques utilized were unable to collect the qualitative data necessary to determine the early life histories of the species in the Susitna River. Following emergence, chum and pink salmon fry remain in the river only a short period before undergoing their seaward migration. Beach seines are effective in capturing these species only if hydraulic conditions exist such as smooth substrate and minimum debris. Few such areas occur in the Talkeetna to Devil Canyon reach at which mainstem and slough spawning occurs. Minnow traps have proven ineffective for the capture of these species. Sockeye salmon juveniles are in the Susitna River in catchable concentrations only during their downstream migration to the ocean and present methods were unable to collect adequate numbers of this species. Intensive examination of mainstem spawning sites are necessary to determine spawning success, overwinter survival of eggs and alevins, and timing of emergence for juvenile chum, pink, and sockeye salmon. Timing of outmigration can be adequately assessed from data collected from downstream migrant traps and a comparison to information collected at mainstem and slough spawning sites.

3.3.4.2 Age, Length and Sex Composition

Lengths, ranges and their means are given in Table E.3.3.2.

Table E.3.3.2. Pink, chum and sockeye juvenile length compostion in the Susitna River between Cook Inlet and Devil Canyon, November, 1980 to September, 1981.

Cook Inlet to Talkeetna	Sample Size	Range	Mean (mm)
Pink	15	30-42	33
Chum	45	26-48	33
Sockeye	4	53-55	54

Talkeetna to Devil Canyon	Sample Size	Range	Mean (mm)
Pink	1	37	37
Chum	25	37-56	50
Sockeye	5	50-80	60

4. LITERATURE CITED

Adult Anadromous Investigations. 1981. Alaska Department of Fish and Game. Susitna Hydroelectric Aquatic Studies. Phase I Final Draft Report. Subtask 7.10.

Aro, K.V., and M.P. Shepard. 1967. Salmon of the North Pacific Ocean - Part IV. Spawning populations of North Pacific Salmon. 5. Pacific salmon in Canada. Bull. Int. N. Pac. Fish. Comm. 23:225-327.

Barrett, B.M. 1974. An assessment study of the anadromous fish populations in the upper Susitna River watershed between Devil Canyon and the Chulitna River. Cook Inlet Data Report No. 74-2. Alaska Department of Fish and Game. Div. of Comm. Fish. 56 pp.

Davidson, F.A., and S.J. Hutchinson. 1938. The geographical distribution and environmental limits of the Pacific salmon (genus Oncorhynchus). Bull. U.S. Bur. Fish. 48(26):667-692.

Delaney, K.J., K. Hepler, and K. Roth. 1981. Deshka River chinook and coho salmon study. Alaska Department of Fish and Game. Fed. Aid in Fish Restor., Project AFS-49, Volume 22.

Delaney, K.J., and R. Wadman. 1979. Little Susitna River juvenile chinook and coho salmon study. Alaska Department of Fish and Game. Division of Sport Fish. 41 pp.

Elliot, S.T. 1976. A study of land use activities and their relationship to the sport fish resources in Alaska. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Report of Progress, 1975-1976. Project F-9-8, Job No. D-I-B, 17:1-21 pp.

Friese, N.V. 1975. Preauthorization assessment of anadromous fish populations of the upper Susitna River watershed in the vicinity of the proposed Devil Canyon hydroelectric project. Cook Inlet Data Report No. 75-2. Alaska Department of Fish and Game. Div. of Comm. Fish. 121 pp.

Geiger, M.F. and F.W. Anderson. 1975. Annual Management Report 1975 Yukon River. Alaska Department of Fish and Game. Div. of Commercial Fisheries. 65 pp.

Gray, P., Florey, K., Koerner, J., Marriott, R., 1978. Coho salmon, Oncorhynchus kisutch. Fluorescent pigment mark-recovery program for the Taku, Berners and Chilkat rivers in southeastern Alaska (1972-1974). Alaska Department of Fish and Game. Informational leaflet No. 176, 77 pp.

Kubik, S., and R.D. Wadman. 1978. Inventory and cataloging of sport fish waters of the lower Susitna River and central Cook Inlet drainages. Alaska Department of Fish and Game. Fed. Aid in Fish Restor., Annual Report of Progress, 1978-1979, Project F-9-11, 20(G-I-H). 21 pp.

McConnell, R.J., and G.R. Snyder. 1972. Key to field identification of anadromous juvenile salmonids in the Pacific Northwest. National Oceanic and Atmospheric Administration Technical Report Nat. Mar. Fish. Ser. CIRC-366. 6 pp.

Meehan, W.R., and D.B. Siniff. 1962. A study of the downstream migrations of anadromous fishes in the Taku River, Alaska. Trans. Amer. Fish. Soc. 91(4):399-407.

Noble, R.E. 1959. Downstream migration of silver salmon, timing-age-size, jack silvers-growth or inheritance. Proc. N.W. Fish Cult. Conf. (1958):48-51.

Pearse, G.A. 1974. A study of typical spring fed streams of interior Alaska. Alaska Department of Fish and Game. Annual Performance Report. Project F-9-6, Job G-III-G. 15:1-29.

Roos, J.F. 1960. Predation of young coho salmon on young sockeye salmon fry at Chignik, Alaska. Trans. Amer. Fish. Soc. 89(4):377-379.

Ricker, W.E. 1941. The consumption of young sockeye salmon by predaceous fishes. J. Fish. Res. Bd. Canada 5(3):293-313.

Riis, J.C. and N.V. Friese. 1978. Preliminary environmental assessment of hydroelectric development on the Susitna River. Alaska Department of Fish and Game. Div. of Sport Fish and Comm. Fish. 116 pp.

Scott, W.B., and E.J. Crossman. 1973. Freshwater fishes of Canada. Bull. Fish. Res. Bd. Canada 184. Ottawa. 966 pp.

Wallis, J. 1968. Recommended time, size, and age for release of hatchery reared salmon and steelhead trout. Fish Comm. of Oregon Research Div. Clackamas, Oregon. 61 pp.

Watsjold, DA.A 1977. Inventory, cataloging and population sampling of the sport fish and sport fish waters in the upper Cook Inlet. Alaska Department of Fish and Game. Fed. Aid Fish Restor. Annual Report of Progress, 1976-1977. Project F-9-9, vol. 18, No. G-I-D. 48 pp.

Watsjold, D.A., Engel, L. 1978. New Capital City environmental assessment program - Phase I. Source Document 2. Fish and Wildlife Studies. Alaska Dept. of Fish and Game, U.S. Soil Cons. Ser., 122 pp.

5. ACKNOWLEDGEMENTS

This study was funded by the State of Alaska, Alaska Power Authority. It was conducted by the following Alaska Department of Fish and Game staff biologists:

Kevin Delaney, Project Leader

Resident and Juvenile Anadromous Fisheries Studies

Drew Crawford

Larry Dugan

Stephen Hale

Karl Kuntz

Bob Marshall

James Mauney

James Quinn

Kent Roth

Paul Suchanek

Richard Sundet

Mike Stratton

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Alexander Creek Site A, R.M. 10.1, T.R.M. 0.0, S/15N/07W/06/DCA								
JAN	x	x	o	o	o	o	o	o
MAR	x	x	x	o	o	o	o	o
E JUN	x	o	o	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
Alexander Creek Site B, R.M. 10.1, T.R.M. 2.0, S/16N/07W/32/CCB								
JAN	o	x	o	o	o	o	o	o
MAR	x	x	x	x	o	o	o	o
E JUL	x	x	o	x	o	o	o	o
L JUL	x	x	o	x	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Alexander Creek Site C, R.M. 10.1, T.R.M. 4.0, S/16N/07W/30/ACD								
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	o	o	x	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	x
L AUG	x	x	o	o	o	o	o	x
E SEP	x	x	x	o	x	o	o	o
Anderson Creek, R.M. 23.8, S/17N/07W/29/DDD								
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	x	o	o	o	o	o
E SEP	x	x	x	o	o	o	o	o
L SEP	x	x	x	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Kroto Slough Mouth, R.M. 30.1, T.R.M. 2.0, S/17N/07W/01/DBC								
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	x	o	o	o	o	o
L SEP	x	x	o	o	o	o	o	o
Mainstem Slough, R.M. 31.0, S/17N/06W/05/CAB								
E JUN	x	o	o	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	x	o
E SEP	x	x	o	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mid-Kroto Slough, R.M. 36.3, S/18N/06W/16/BBC								
E JUL	x	x	x	o	x	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	x	o
L AUG	x	x	x	o	x	o	o	o
E SEP	x	x	o	o	x	o	o	o
L SEP	x	x	x	o	o	o	o	o
Deshka River Site A, R.M. 40.6, T.R.M. 0.0, S/19N/06W/35/BDA								
MAR	x	x	x	o	o	o	o	o
MAY	o	o	x	o	o	o	o	o
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Deshka River Site B, R.M. 40.6, T.R.M. 1.0, S/19N/06W/26/BCB								
MAR	x	x	x	o	o	o	o	o
MAY	x	o	x	o	o	o	o	o
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	x	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	x	o	o	o	o
L SEP	x	x	x	o	o	o	o	o
Deshka River Site C, R.M. 40.6, T.R.M. 3.5, S/19N/06W/14/BCA								
MAR	x	x	o	o	o	o	o	o
MAY	o	o	x	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	x	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Lower Delta Island, R.M. 44.0, S/19N/05W/19/ACB								
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	x	o
Little Willow Creek, R.M. 50.5, S/20N/05W/27/AAD								
MAR	x	x	x	o	o	o	o	o
L JUN	x	x	o	x	o	o	o	o
E JUL	x	x	o	x	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	x	o
L AUG	x	x	o	o	o	o	x	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	o	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Rustic Wilderness, R.M. 58.1, S/21N/05W/25/CBD								
NOV	x	o	o	o	o	o	o	o
JAN	x	x	o	o	o	o	o	o
MAR	x	x	x	o	o	o	o	o
MAY	x	x	x	o	o	o	o	o
L JUN	x	x	o	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	x	o	o	o	o	o
L AUG	x	x	x	o	o	o	o	o
Kashwitna River, R.M. 61.0, S/21N/05W/13/AAA								
NOV	x	o	o	o	o	o	o	o
DEC	x	x	o	o	o	o	o	o
MAY	o	o	o	o	o	o	x	o
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	x	o	x	o	x	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	x	o	o
E OCT	o	o	o	o	o	x	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Caswell Creek, R.M. 63.0, S/21N/04W/06/BDD								
NOV	x	o	o	o	o	o	o	o
MAY	x	o	x	x	o	o	o	o
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	o	o	o
E OCT	o	o	o	o	o	x	o	o
Slough West Bank, R.M. 65.6, S/22N/05W/27/ADC								
E AUG	x	x	x	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Sheep Creek Slough, R.M. 66.1, S/22N/04W/30/BAB								
DEC	x	x	o	o	o	o	o	o
JAN	x	x	o	o	o	o	o	o
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	x	o	o
E OCT	o	o	o	o	o	x	o	o
Goose Creek 1, R.M. 72.0, S/23N/04W/31/BBC								
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	x	o	x	o	x	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	x	x	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Goose Creek 2, R.M. 73.1, S/23N/04W/30/BBB								
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	o	o	o
E OCT	o	o	o	o	o	x	o	o
Mainstem West Bank, R.M. 74.4, S/23N/05W/13/CCD								
FEB	x	x	x	o	o	o	o	o
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	x	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	x	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Montana Creek, R.M. 77.0, S/23N/04W/07/ABA								
NOV	x	o	o	o	o	o	o	o
FEB	x	x	x	o	o	o	o	o
MAR	x	x	o	o	o	o	o	o
MAY	x	x	o	x	o	o	o	x
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	o	o	o	o	o	o
E OCT	o	o	o	o	o	x	o	o
Mainstem 1, R.M. 84.0, S/24N/05W/10/DCC								
NOV	x	o	o	o	o	o	o	o
JAN	o	x	o	o	o	o	o	o
FEB	x	x	o	o	o	o	o	o
MAR	x	x	o	o	o	o	o	o
APR	x	x	x	o	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	x	o	o

Values - x indicate that this gear type was utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Sunshine Creek, R.M. 85.7, S/24N/05W/14/AAB								
NOV	x	o	o	o	o	o	o	o
DEC	x	o	o	o	o	o	o	o
JAN	x	x	o	o	o	o	o	o
FEB	x	o	o	o	o	o	o	o
MAR	x	o	x	o	o	o	o	o
APR	x	o	o	o	o	o	o	o
MAY	x	o	x	x	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Birch Creek Slough, R.M. 88.4, S/25N/05W/25/DCC								
JAN	x	o	o	o	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	o	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	o	o	o	x	o	o
E OCT	o	o	o	o	o	x	o	o
Birch Creek, R.M. 89.2, S/25N/05W/25/ABD								
JAN	x	x	x	o	o	o	o	o
FEB	x	x	x	o	o	o	o	o
MAR	x	o	x	o	o	o	o	o
E JUN	x	x	o	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	x	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Cache Creek Slough, R.M. 95.5, S/26N/05W/35/ADC								
DEC	x	x	o	o	o	o	o	o
JAN	x	x	o	o	o	o	o	o
APR	x	x	x	o	o	o	o	o
MAY	x	x	x	x	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	o	o	o	o	o	o
E OCT	o	o	o	o	o	x	o	o
Cache Creek, R.M. 96.0, S/26N/05W/26/DCB								
MAY	x	o	x	o	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	o	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Whiskers Creek Slough, R.M. 101.2, S/26N/05W/03/ADB								
JAN	x	x	o	o	o	o	o	o
MAR	o	x	x	o	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	x	o	o	o	x	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	x	o	o	o	o
L SEP	x	x	x	o	o	o	o	o
Whiskers Creek, R.M. 101.4, S/26N/05W/03/AAC								
FEB	x	x	x	o	o	o	o	o
MAR	x	o	o	o	o	o	o	o
E JUN	x	x	x	x	o	o	o	o
L JUN	x	x	x	x	o	o	o	o
E JUL	x	x	o	x	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	o	x	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 6A, R.M. 112.3, S/28N/05W/13/CAC								
MAR	x	x	o	o	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	x	o	x	o	o	o
E SEP	x	x	o	o	o	x	o	o
L SEP	x	x	x	o	o	o	o	o
Lane Creek, R.M. 113.6, S/28N/05W/12/ADD								
MAR	x	x	o	o	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	x	o	o	o
E SEP	x	x	o	o	o	x	o	o
L SEP	x	x	o	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem 2, R.M. 114.4, S/28N/04W/06/CAB								
E JUN	x	x	x	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	o	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	x	o	o	o
E SEP	x	x	o	o	o	x	o	o
L SEP	x	x	x	o	o	o	o	o
Mainstem Susitna - Curry, R.M. 120.7, S/29N/04W/10/BCD								
MAR	o	x	o	o	o	o	o	o
APR	x	x	o	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	x	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	x	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Susitna Side Channel, R.M. 121.6, S/29N/04W/11/BBB								
MAR	x	o	o	o	o	o	o	o
APR	x	o	o	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	x	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	o	o	o
Mainstem Susitna - Gravel Bar, R.M. 123.8, S/30N/04W/26/DDD								
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	x	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
L SEP	x	x	x	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 8A, R.M. 125.3, S/30N/03W/30/BCD								
JAN	x	o	o	o	o	o	o	o
FEB	x	x	o	o	o	o	o	o
MAR	x	o	o	o	o	o	o	o
APR	x	o	o	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	x	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	x	o	o	o	o
L SEP	x	x	x	x	o	o	o	o
Fourth of July Creek, R.M. 131.1, S/30N/03W/03/DAC								
L JUN	x	x	x	o	x	o	o	o
E JUL	x	x	x	x	x	o	o	o
L JUL	x	x	x	x	o	o	o	o
E AUG	x	x	o	x	o	o	o	o
L AUG	x	x	o	x	o	o	o	o
E SEP	x	x	o	x	o	o	o	o
L SEP	x	x	o	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 10, R.M. 133.8, S/31N/03W/36/AAC								
JAN	x	x	o	o	o	o	o	o
FEB	x	x	o	o	o	o	o	o
MAR	x	o	o	o	o	o	o	o
APR	x	o	o	o	o	o	o	o
L JUN	x	x	x	o	x	o	o	o
E JUL	x	x	x	x	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	x	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	x	o
L SEP	x	x	x	o	o	o	o	o
Slough 11, R.M. 135.3, S/31N/02W/19/DDD								
JAN	x	o	o	o	o	o	o	o
FEB	x	o	o	o	o	o	o	o
MAR	x	o	o	o	o	o	o	o
APR	x	o	o	o	x	o	o	x
L JUN	x	x	o	o	x	o	o	o
E JUL	x	x	o	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	o	o	o	o	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem Susitna - Inside Bend, R.M. 136.9, S/31N/02W/17/CDA								
JAN	o	x	o	o	o	o	o	o
L JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	x	o	o	o	o	o
L SEP	x	x	o	o	o	o	o	o
Indian River, R.M. 138.6, S/31N/02W/09/CDA								
JAN	x	x	o	o	o	o	o	o
FEB	x	x	o	o	o	o	o	o
MAR	x	x	o	o	o	o	o	o
APR	x	x	o	o	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	x	o	o	o	o
L JUL	x	x	x	x	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	x	o	o	o	o
E SEP	x	x	x	x	o	o	x	o
L SEP	x	x	x	o	o	x	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 20, R.M. 140.1, S/31N/02W/11/BBC								
FEB	x	o	o	o	o	o	o	o
MAR	x	o	o	o	o	o	o	o
APR	x	o	o	o	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
E JUL	x	x	o	o	x	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	o	o	o	o	o	o
L SEP	x	x	o	o	o	o	o	o
Mainstem Susitna - Island, R.M. 146.9, S/32N/01W/27/DBC								
E JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	o	o	o	o	o
L JUL	x	x	x	o	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	o	o	o	o	o
E SEP	x	x	x	o	o	o	x	o
L SEP	x	x	x	o	o	x	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EA Sampling effort by habitat location, sampling period, and gear type on the lower Susitna River, 1980-1981.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Portage Creek, R.M. 148.8, S/32N/01W/25/CDB								
FEB	x	x	o	o	o	o	o	o
MAR	x	x	o	o	o	o	o	o
E JUN	x	x	x	o	o	o	o	o
E JUL	x	x	x	x	x	o	o	o
L JUL	x	x	x	x	o	o	o	o
E AUG	x	x	o	o	o	o	o	o
L AUG	x	x	o	x	o	o	o	o
E SEP	x	x	x	x	o	o	x	o
L SEP	x	x	x	o	o	x	o	o

Values - x indicate that this gear type was utilized during the sampling period
o indicate that this gear type was not utilized during the sampling period

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Alexander Creek Site A, R.M. 10.1, T.R.M. 0.0, S/15N/07W/06/DCA								
JAN	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.70	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUL	.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
Alexander Creek Site B, R.M. 10.1, T.R.M. 2.0, S/16N/07W/32/CCB								
E JUL	.60	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L JUL	1.60	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L AUG	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
Alexander Creek Site C, R.M. 10.1, T.R.M. 4.0, S/16N/07W/30/ACD								
L JUN	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.70	0.00	-.00	-.00	1.80	-.00	-.00	-.00
L JUL	.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	0.00
L AUG	.20	0.00	-.00	-.00	-.00	-.00	-.00	0.00
E SEP	.20	0.00	0.00	-.00	.30	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Anderson Creek, R.M. 23.8, S/17N/07W/29/DDD								
E JUN	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E SEP	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Mainstem Slough, R.M. 31.0, S/17N/06W/05/CAB								
E JUL	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Mid-Kroto Slough, R.M. 36.3, S/18N/06W/16/BBC								
E JUL	0.00	0.00	0.00	-.00	.40	-.00	0.00	-.00
E SEP	0.00	0.00	0.00	-.00	.40	-.00	0.00	-.00
L SEP	.30	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Deshka River Site A, R.M. 40.6, T.R.M. 0.0, S/19N/06W/35/BDA								
E JUL	4.50	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUL	1.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
Deshka River Site B, R.M. 40.6, T.R.M. 1.0, S/19N/06W/26/BCB								
L JUN	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUL	4.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	2.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.20	0.00	-.00	-.00	-.00	-.00	0.00	-.00
L AUG	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.20	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L SEP	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Deshka River Site C, R.M. 40.6, T.R.M. 3.5, S/19N/06W/14/BCA								
MAR	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	2.60	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUL	.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.80	0.00	-.00	-.00	-.00	-.00	0.00	-.00
L AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Lower Delta Island, R.M. 44.0, S/19N/05W/19/ACB								
L JUN	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Little Willow Creek, R.M. 50.5, S/20N/05W/27/AAD								
L JUN	2.70	0.00	0.00	0.00	-.00	-.00	0.00	-.00
E JUL	3.60	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L JUL	12.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	3.20	0.00	-.00	-.00	-.00	-.00	0.00	-.00
L AUG	3.60	0.00	-.00	-.00	-.00	-.00	0.00	-.00
E SEP	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Rustic Wilderness, R.M. 58.1, S/21N/05W/25/CBD								
JAN	2.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00
MAR	2.70	0.00	0.00	-.00	-.00	-.00	-.00	-.00
MAY	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUN	1.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.60	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L AUG	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Kashwitna River, R.M. 61.0, S/21N/05W/13/AAA								
NOV	.20	-.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUN	13.20	0.00	-.00	-.00	-.00	-.00	0.00	-.00
E JUL	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	2.70	0.00	0.00	-.00	9.00	-.00	0.00	-.00
E AUG	1.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.90	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	2.00	0.00	0.00	-.00	-.00	0.00	-.00	-.00
E OCT	-.00	-.00	-.00	-.00	-.00	12.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Caswell Creek, R.M. 63.0, S/21N/04W/06/BDD								
NOV	.60	-.00	-.00	-.00	-.00	-.00	-.00	-.00
MAY	.10	-.00	0.00	0.00	-.00	-.00	-.00	-.00
L JUN	1.90	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	2.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	11.90	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	7.70	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	9.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	3.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Slough West Bank, R.M. 65.6, S/22N/05W/27/ADC								
L SEP	.10	0.00	0.00	-.00	-.00	0.00	-.00	-.00
Sheep Creek Slough, R.M. 66.1, S/22N/04W/30/BAB								
DEC	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUN	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUL	1.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	1.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	2.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.10	0.00	0.00	-.00	-.00	0.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Goose Creek 1, R.M. 72.0, S/23N/04W/31/BBC								
L JUN	3.90	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	2.10	0.00	0.00	-.00	0.00	-.00	0.00	-.00
L JUL	17.80	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	1.70	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	2.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.30	0.00	0.00	-.00	-.00	0.00	0.00	-.00
Goose Creek 2, R.M. 73.1, S/23N/04W/30/BBB								
L JUL	4.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	1.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	1.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem West Bank, R.M. 74.4, S/23N/05W/13/CCD								
L AUG	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L SEP	.10	0.00	0.00	-.00	-.00	4.00	-.00	-.00
Montana Creek, R.M. 77.0, S/23N/04W/07/ABA								
NOV	.50	-.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUN	2.90	0.00	0.00	0.00	-.00	-.00	-.00	0.00
E JUL	6.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	14.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	23.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	6.90	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	1.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	3.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem 1, R.M. 84.0, S/24N/05W/10/DCC								
E JUN	.70	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUL	.30	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUL	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.20	0.00	0.00	-.00	-.00	0.00	-.00	-.00
Sunshine Creek, R.M. 85.7, S/24N/05W/14/AAB								
NOV	.40	-.00	-.00	-.00	-.00	-.00	-.00	-.00
JAN	.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
MAR	.10	-.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUN	2.50	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L JUN	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Birch Creek Slough, R.M. 88.4, S/25N/05W/25/DCC								
JAN	.50	-.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUN	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUN	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.80	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.20	0.00	-.00	-.00	-.00	0.00	-.00	-.00
Birch Creek, R.M. 89.2, S/25N/05W/25/ABD								
JAN	.10	0.00	0.00	-.00	-.00	0.00	-.00	-.00
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	-.00	-.00	-.00	0.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Cache Creek Slough, R.M. 95.5, S/26N/05W/35/ADC								
JAN	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
MAY	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E JUN	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUL	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
Cache Creek, R.M. 96.0, S/26N/05W/26/DCB								
E JUN	.10	0.00	0.00	-.00	-.00	0.00	-.00	-.00
L JUN	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUL	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Whiskers Creek Slough, R.M. 101.2, S/26N/05W/03/ADB								
JAN	1.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUN	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUN	.10	0.00	0.00	-.00	-.00	-.00	0.00	-.00
L JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.70	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L SEP	2.80	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Whiskers Creek, R.M. 101.4, S/26N/05W/03/AAC								
FEB	.50	0.00	0.00	-.00	-.00	-.00	-.00	-.00
MAR	3.90	-.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.20	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L JUL	.70	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.80	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	2.00	0.00	-.00	0.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 6A, R.M. 112.3, S/28N/05W/13/CAC								
MAR	20.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L AUG	.10	0.00	0.00	-.00	0.00	-.00	-.00	-.00
E SEP	3.10	0.00	-.00	-.00	-.00	0.00	-.00	-.00
L SEP	2.40	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Lane Creek, R.M. 113.6, S/28N/05W/12/ADD								
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.30	0.00	-.00	-.00	0.00	-.00	-.00	-.00
E SEP	1.90	0.00	-.00	-.00	-.00	0.00	-.00	-.00
L SEP	8.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem 2, R.M. 114.4, S/28N/04W/06/CAB								
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.20	0.00	-.00	-.00	0.00	-.00	-.00	-.00
E SEP	.90	0.00	-.00	-.00	-.00	0.00	-.00	-.00
Mainstem Susitna - Curry, R.M. 120.7, S/29N/04W/10/BCD								
L SEP	0.00	0.00	0.00	-.00	-.00	10.00	-.00	-.00
Susitna Side Channel, R.M. 121.6, S/29N/04W/11/BBB								
MAR	.01	-.00	-.00	-.00	-.00	-.00	-.00	-.00
APR	.10	-.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L SEP	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem Susitna - Gravel Bar, R.M. 123.8, S/30N/04W/26/DDD								
L AUG	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L SEP	.40	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Slough 8A, R.M. 125.3, S/30N/03W/30/BCD								
FEB	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
MAR	1.70	-.00	-.00	-.00	-.00	-.00	-.00	-.00
APR	1.00	-.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L AUG	1.90	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L SEP	.70	0.00	0.00	0.00	-.00	-.00	-.00	-.00
Fourth of July Creek, R.M. 131.1, S/30N/03W/03/DAC								
L JUN	0.00	0.00	0.00	-.00	2.00	-.00	-.00	-.00
E JUL	.70	0.00	0.00	0.00	0.00	-.00	-.00	-.00
L JUL	3.80	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E AUG	12.00	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L AUG	4.50	0.00	-.00	0.00	-.00	-.00	-.00	-.00
E SEP	1.30	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L SEP	3.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 10, R.M. 133.8, S/31N/03W/36/AAC								
JAN	2.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
FEB	2.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
MAR	1.10	-.00	-.00	-.00	-.00	-.00	-.00	-.00
APR	1.10	-.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.50	0.00	0.00	0.00	0.00	-.00	-.00	-.00
E AUG	1.50	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L AUG	1.80	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.70	0.00	-.00	-.00	-.00	-.00	0.00	-.00
L SEP	5.50	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Slough 11, R.M. 135.3, S/31N/02W/19/DDD								
JAN	2.00	-.00	-.00	-.00	-.00	-.00	-.00	-.00
APR	0.00	-.00	-.00	-.00	0.00	-.00	-.00	2.00
L JUN	.10	0.00	-.00	-.00	0.00	-.00	-.00	-.00
L AUG	2.30	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	1.90	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem Susitna - Inside Bend, R.M. 136.9, S/31N/02W/17/CDA								
L AUG	.80	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L SEP	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
Indian River, R.M. 138.6, S/31N/02W/09/CDA								
E JUN	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUL	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L JUL	.50	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E AUG	1.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.20	0.00	-.00	0.00	-.00	-.00	-.00	-.00
E SEP	8.00	0.00	0.00	0.00	-.00	-.00	0.00	-.00
L SEP	6.50	0.00	0.00	-.00	-.00	0.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 20, R.M. 140.1, S/31N/02W/11/BBC								
FEB	5.90	-.00	-.00	-.00	-.00	-.00	-.00	-.00
MAR	.70	-.00	-.00	-.00	-.00	-.00	-.00	-.00
APR	3.80	-.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.10	0.00	0.00	-.00	0.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	1.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	4.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	11.70	0.00	-.00	-.00	-.00	-.00	-.00	-.00
Mainstem Susitna - Island, R.M. 146.9, S/32N/01W/27/DBC								
E JUN	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Portage Creek, R.M. 148.8, S/32N/01W/25/CDB								
E JUL	.30	0.00	0.00	0.00	21.00	-.00	-.00	-.00
L JUL	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L AUG	.20	0.00	-.00	0.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	0.00	0.00	-.00	-.00	0.00	-.00
L SEP	.30	0.00	0.00	-.00	-.00	0.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.3 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 1+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Whiskers Creek Slough, R.M. 101.2, S/26N/05W/03/ADB								
E JUN	.40	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUN	.10	0.00	0.00	-.00	-.00	-.00	0.00	-.00
L JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Whiskers Creek, R.M. 101.4, S/26N/05W/03/AAC								
MAR	.01	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E JUN	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00
Slough 6A, R.M. 112.3, S/28N/05W/13/CAC								
E JUN	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L JUN	.40	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.3 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 1+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem 2, R.M. 114.4, S/28N/04W/06/CAB								
E JUL	.10	0.00	0.00	-.00	0.00	0.00	-.00	-.00
Mainstem Susitna - Curry, R.M. 120.7, S/29N/04W/10/BCD								
L JUN	.10	0.00	0.00	-.00	0.00	0.00	-.00	-.00
Mainstem Susitna - Gravel Bar, R.M. 123.8, S/30N/04W/26/DDD								
L JUN	.40	0.00	0.00	-.00	-.00	0.00	-.00	-.00
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Fourth of July Creek, R.M. 131.1, S/30N/03W/03/DAC								
L JUN	0.00	0.00	0.00	0.00	1.00	-.00	-.00	-.00
E JUL	.10	0.00	0.00	0.00	0.00	-.00	-.00	-.00
L JUL	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB1.3 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 1+ chinook.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem Susitna - Inside Bend, R.M. 136.9, S/31N/02W/17/CDA								
L JUN	.10	0.00	0.00	0.00	0.00	-.00	0.00	0.00
Mainstem Susitna - Island, R.M. 146.9, S/32N/01W/27/DBC								
E JUN	.10	0.00	0.00	0.00	0.00	0.00	0.00	-.00
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Alexander Creek Site A, R.M. 10.1, T.R.M. 0.0, S/15N/07W/06/DCA								
JAN	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
MAR	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUN	.10	-.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
Alexander Creek Site B, R.M. 10.1, T.R.M. 2.0, S/16N/07W/32/CCB								
MAR	.30	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L JUL	.40	0.00	-.00	0.00	-.00	-.00	-.00	-.00
E AUG	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	1.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Alexander Creek Site C, R.M. 10.1, T.R.M. 4.0, S/16N/07W/30/ACD								
L JUN	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.10	0.00	-.00	-.00	2.00	-.00	-.00	-.00
L JUL	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.40	0.00	-.00	-.00	-.00	-.00	-.00	0.00
L AUG	1.30	0.00	-.00	-.00	-.00	-.00	-.00	0.00
E SEP	.40	0.00	0.00	-.00	0.00	-.00	-.00	-.00
Anderson Creek, R.M. 23.8, S/17N/07W/29/DDD								
L AUG	.40	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E SEP	1.00	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L SEP	.20	0.00	4.00	-.00	-.00	-.00	-.00	-.00
Kroto Slough Mouth, R.M. 30.1, T.R.M. 2.0, S/17N/07W/01/DBC								
E SEP	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem Slough, R.M. 31.0, S/17N/06W/05/CAB								
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Mid-Kroto Slough, R.M. 36.3, S/18N/06W/16/BBC								
L AUG	0.00	0.00	0.00	-.00	.20	-.00	0.00	-.00
L SEP	.20	0.00	0.00	-.00	0.00	-.00	-.00	-.00
Deshka River Site A, R.M. 40.6, T.R.M. 0.0, S/19N/06W/35/BDA								
MAY	0.00	0.00	.50	-.00	-.00	-.00	-.00	-.00
E JUL	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Deshka River Site B, R.M. 40.6, T.R.M. 1.0, S/19N/06W/26/BCB								
MAY	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUN	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.70	0.00	-.00	-.00	-.00	-.00	0.00	-.00
L AUG	1.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.40	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L SEP	.30	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Deshka River Site C, R.M. 40.6, T.R.M. 3.5, S/19N/06W/14/BCA								
E JUL	.50	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUL	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	1.40	0.00	-.00	-.00	-.00	-.00	0.00	-.00
L AUG	1.70	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	1.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.30	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Little Willow Creek, R.M. 50.5, S/20N/05W/27/AAD								
E JUL	.10	0.00	0.00	0.00	-.00	-.00	0.00	-.00
E AUG	.20	0.00	-.00	-.00	-.00	-.00	0.00	-.00
L AUG	.40	0.00	-.00	-.00	-.00	-.00	0.00	-.00
E SEP	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
Rustic Wilderness, R.M. 58.1, S/21N/05W/25/CBD								
NOV	.10	-.00	-.00	-.00	-.00	-.00	-.00	-.00
JAN	.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
MAR	.70	0.00	0.00	-.00	-.00	-.00	-.00	-.00
MAY	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Kashwitna River, R.M. 61.0, S/21N/05W/13/AAA								
NOV	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUN	.10	0.00	-.00	-.00	-.00	-.00	0.00	-.00
E AUG	.10	0.00	0.00	-.00	0.00	-.00	0.00	-.00
L AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.10	0.00	0.00	-.00	-.00	0.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Caswell Creek, R.M. 63.0, S/21N/04W/06/BDD								
NOV	.20	-.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUN	.20	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E JUL	1.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	9.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	19.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	41.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	2.00	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Slough West Bank, R.M. 65.6, S/22N/05W/27/ADC								
L SEP	.20	0.00	2.00	-.00	-.00	0.00	-.00	-.00
Sheep Creek Slough, R.M. 66.1, S/22N/04W/30/BAB								
E JUL	.40	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUL	1.90	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	3.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	3.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.60	0.00	0.00	-.00	-.00	0.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Goose Creek 1, R.M. 72.0, S/23N/04W/31/BBC								
L JUN	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.40	0.00	0.00	-.00	0.00	-.00	0.00	-.00
L JUL	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	2.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.10	0.00	0.00	-.00	-.00	0.00	0.00	-.00
Goose Creek 2, R.M. 73.1, S/23N/04W/30/BBB								
L JUL	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	1.70	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	1.40	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem West Bank, R.M. 74.4, S/23N/05W/13/CCD								
FEB	.30	0.00	.30	-.00	-.00	-.00	-.00	-.00
L SEP	.60	0.00	0.00	-.00	-.00	20.00	-.00	-.00
Montana Creek, R.M. 77.0, S/23N/04W/07/ABA								
NOV	.40	-.00	-.00	-.00	-.00	-.00	-.00	-.00
FEB	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
MAR	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
MAY	.10	0.00	-.00	0.00	-.00	-.00	-.00	0.00
L JUN	1.70	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	1.70	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	4.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	2.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	1.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem 1, R.M. 84.0, S/24N/05W/10/DCC								
E JUN	.20	0.00	.10	-.00	-.00	-.00	-.00	-.00
E JUL	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Sunshine Creek, R.M. 85.7, S/24N/05W/14/AAB								
NOV	1.20	0.00	0.00	-.00	-.00	0.00	-.00	-.00
MAR	1.00	0.00	0.00	-.00	-.00	-.00	-.00	-.00
MAY	.30	-.00	0.00	0.00	-.00	-.00	-.00	-.00
E JUN	3.60	0.00	20.50	-.00	-.00	-.00	-.00	-.00
E JUL	1.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	1.80	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	2.80	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	1.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	2.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Birch Creek Slough, R.M. 88.4, S/25N/05W/25/DCC								
E JUN	1.30	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUN	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	1.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	5.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	2.60	0.00	-.00	-.00	-.00	0.00	-.00	-.00
Birch Creek, R.M. 89.2, S/25N/05W/25/ABD								
JAN	.20	0.00	0.00	-.00	-.00	0.00	-.00	-.00
FEB	.10	0.00	2.00	-.00	-.00	-.00	-.00	-.00
MAR	.20	-.00	1.00	-.00	-.00	-.00	-.00	-.00
E JUN	1.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUN	4.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUL	2.00	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUL	11.60	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	18.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	17.90	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	10.00	0.00	-.00	-.00	-.00	75.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.1 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for juvenile coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Cache Creek Slough, R.M. 95.5, S/26N/05W/35/ADC								
APR	0.00	0.00	1.00	-.00	-.00	-.00	-.00	-.00
E JUL	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
Cache Creek, R.M. 96.0, S/26N/05W/26/DCB								
L JUN	1.30	0.00	0.00	-.00	-.00	0.00	-.00	-.00
E JUL	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.70	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Whiskers Creek Slough, R.M. 101.2, S/26N/05W/03/ADB								
L JUN	.10	0.00	0.00	-.00	-.00	-.00	0.00	-.00
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L AUG	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
Whiskers Creek, R.M. 101.4, S/26N/05W/03/AAC								
MAR	2.40	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E JUN	.50	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L JUN	2.40	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E JUL	2.60	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L JUL	2.90	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	3.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	7.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	1.70	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	1.80	0.00	-.00	0.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 6A, R.M. 112.3, S/28N/05W/13/CAC								
MAR	8.00	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.30	0.00	.10	-.00	-.00	-.00	-.00	-.00
L JUL	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	1.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	4.70	0.00	1.00	-.00	4.00	-.00	-.00	-.00
E SEP	4.20	0.00	-.00	-.00	-.00	0.00	-.00	-.00
L SEP	4.30	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Lane Creek, R.M. 113.6, S/28N/05W/12/ADD								
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L JUL	.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.10	0.00	-.00	-.00	0.00	-.00	-.00	-.00
E SEP	.20	0.00	-.00	-.00	-.00	0.00	-.00	-.00
L SEP	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem 2, R.M. 114.4, S/28N/04W/06/CAB								
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Slough 8A, R.M. 125.3, S/30N/03W/30/BCD								
MAR	.50	0.00	0.00	-.00	0.00	0.00	-.00	-.00
APR	.20	-.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.40	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	2.50	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L SEP	.50	0.00	0.00	0.00	-.00	-.00	-.00	-.00
Fourth of July Creek, R.M. 131.1, S/30N/03W/03/DAC								
E JUL	.20	0.00	0.00	0.00	0.00	-.00	-.00	-.00
L JUL	.40	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E AUG	2.80	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L AUG	2.50	0.00	-.00	0.00	-.00	-.00	-.00	-.00
E SEP	2.60	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L SEP	.60	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 10, R.M. 133.8, S/31N/03W/36/AAC								
FEB	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
MAR	.30	-.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.80	0.00	0.00	0.00	0.00	-.00	-.00	-.00
E AUG	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L AUG	1.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.20	0.00	-.00	-.00	-.00	-.00	0.00	-.00
L SEP	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Slough 11, R.M. 135.3, S/31N/02W/19/DDD								
FEB	.10	-.00	-.00	-.00	-.00	-.00	-.00	-.00
APR	.30	-.00	-.00	-.00	0.00	-.00	-.00	0.00
E AUG	.10	0.00	0.00	-.00	0.00	-.00	-.00	-.00
L AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.2 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Mainstem Susitna - Inside Bend, R.M. 136.9, S/31N/02W/17/CDA								
E AUG	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Indian River, R.M. 138.6, S/31N/02W/09/CDA								
E SEP	3.10	0.00	0.00	0.00	-.00	-.00	0.00	-.00
L SEP	.10	0.00	0.00	-.00	-.00	0.00	-.00	-.00
Slough 20, R.M. 140.1, S/31N/02W/11/BBC								
FEB	.10	-.00	-.00	-.00	-.00	-.00	-.00	-.00
MAR	.20	-.00	-.00	-.00	-.00	-.00	-.00	-.00
APR	.30	-.00	-.00	-.00	-.00	-.00	-.00	-.00
L JUL	.20	0.00	0.00	-.00	0.00	-.00	-.00	-.00
E AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	3.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L SEP	.50	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.3 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 1+ coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Whiskers Creek Slough, R.M. 101.2, S/26N/05W/03/ADB								
E JUN	.20	0.00	.50	-.00	-.00	-.00	-.00	-.00
L JUN	.20	0.00	0.00	-.00	-.00	-.00	0.00	-.00
L AUG	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L SEP	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Whiskers Creek, R.M. 101.4, S/26N/05W/03/AAC								
MAR	.80	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUN	.40	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L JUN	.50	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E JUL	.60	0.00	-.00	0.00	-.00	-.00	-.00	-.00
L JUL	.20	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E AUG	.30	0.00	-.00	-.00	-.00	-.00	-.00	-.00
L AUG	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00
E SEP	.10	0.00	-.00	-.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.3 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 1+ coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 6A, R.M. 112.3, S/28N/05W/13/CAC								
L JUN	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E JUL	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
E AUG	.20	0.00	0.00	-.00	-.00	-.00	-.00	-.00
L AUG	.60	0.00	0.00	-.00	0.00	-.00	-.00	-.00
E SEP	.30	0.00	-.00	-.00	-.00	0.00	-.00	-.00
L SEP	.10	0.00	0.00	-.00	-.00	-.00	-.00	-.00
Mainstem 2, R.M. 114.4, S/28N/04W/06/CAB								
E SEP	.10	0.00	0.00	-.00	0.00	0.00	-.00	-.00
Mainstem Susitna - Gravel Bar, R.M. 123.8, S/30N/04W/26/DDD								
E JUL	.10	0.00	0.00	-.00	-.00	0.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB2.3 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 1+ coho.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 8A, R.M. 125.3, S/30N/03W/30/BCD								
MAR	.40	0.00	-.00	-.00	-.00	-.00	-.00	-.00
APR	.10	-.00	-.00	-.00	-.00	-.00	-.00	-.00
E JUL	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00
L AUG	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00
Fourth of July Creek, R.M. 131.1, S/30N/03W/03/DAC								
E JUL	.10	0.00	0.00	0.00	0.00	-.00	-.00	-.00
L JUL	.10	0.00	0.00	0.00	-.00	-.00	-.00	-.00
E AUG	.20	0.00	-.00	0.00	-.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB3 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ Pink.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Fourth of July Creek, R.M. 131.1, S/30N/03W/03/DAC								
L JUN	0.00	0.00	0.00	-.00	4.00	-.00	-.00	-.00
Slough 10, R.M. 133.8, S/31N/03W/36/AAC								
L JUN	0.00	0.00	0.00	0.00	3.00	-.00	-.00	-.00
Slough 11, R.M. 135.3, S/31N/02W/19/DDD								
APR	0.00	0.00	0.00	0.00	2.00	-.00	0.00	0.00

Values= -.00 indicate no sample taken

Appendix Table EB4 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for: 0+ Chum.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 11, R.M. 135.3, S/31N/02W/19/DDD								
L JUN	0.00	0.00	-.00	-.00	1600.00	-.00	-.00	0.00
Slough 20, R.M. 140.1, S/31N/02W/11/BBC								
E JUL	0.00	0.00	0.00	-.00	13.00	-.00	-.00	-.00

Values= -.00 indicate no sample taken

Appendix Table EB5 Catch per unit effort lower Susitna River habitat locations, 1980-1981, for 0+ Sockeye.

SAMPLE	MINNOW TRP (CTCH/TRP)	TROT LINE (CTCH/LNE)	GILL NET (CTCH/24H)	HOOK&LINE (CTCH/HR)	BEACH SN (CTCH/TME)	ELECTRO (CTCH/HR)	GILL DRFT (CTCH/DRF)	DIP NET (CTCH)
Slough 11, R.M. 135.3, S/31N/02W/19/DDD								
APR	0.00	-.00	-.00	-.00	1.00	-.00	-.00	0.00

Values= -.00 indicate no sample taken