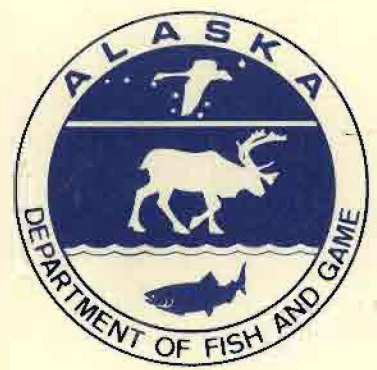
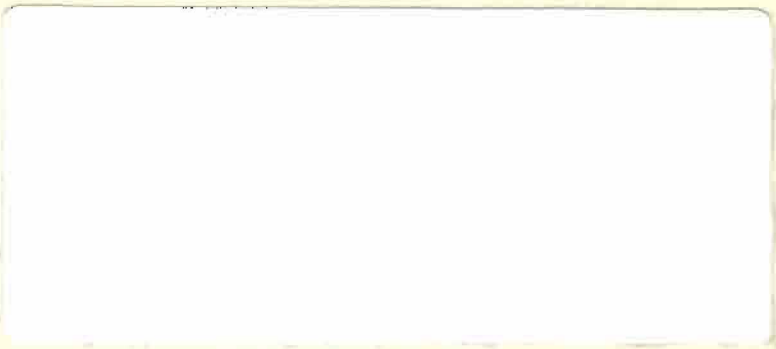
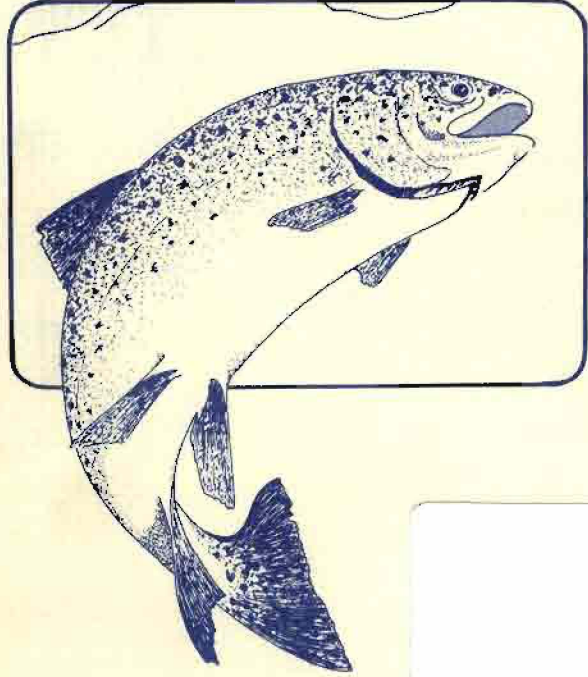
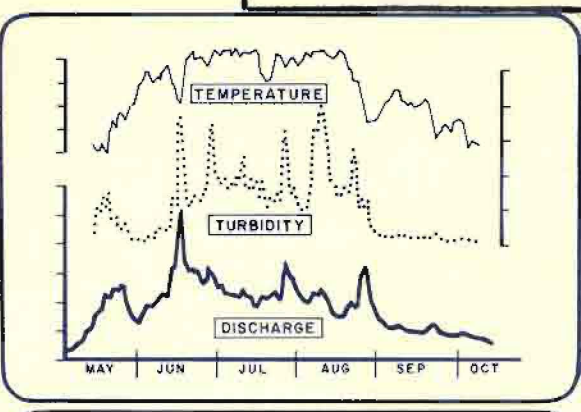


Merged With
ARLIS
ANCHORAGE, ALASKA
EST. 1997

LIBRARY
ALASKA DEPT. OF FISH & GAME
333 Raspberry Rd.
Anchorage, Alaska 99510-1509



29

ALASKA DEPARTMENT OF FISH AND GAME
SUSITNA HYDRO AQUATIC STUDIES REPORT SERIES

F+G#29
APA Doc#2748

3 3755 000 27445 6

TK
1425
.58
A68
no. 2748

ALASKA DEPARTMENT OF FISH AND GAME
SUSITNA HYDRO AQUATIC STUDIES

REPORT NO. 6

ADULT SALMON INVESTIGATIONS
MAY - OCTOBER 1984

By:

Bruce M. Barrett
Frederick M. Thompson
Susan N. Wick

Prepared for:

ARLIS
Alaska Resources
Library & Information Services
Anchorage, Alaska

Alaska Power Authority
334 W. Fifth Avenue, Second Floor
Anchorage, Alaska 99501

JUNE 1985

DCNO: 2748

PREFACE

The Susitna River is the largest watershed in the Cook Inlet basin encompassing about 19,400 square miles from its origin in the Alaska Mountain Range to its discharge into Upper Cook Inlet (Figure A).

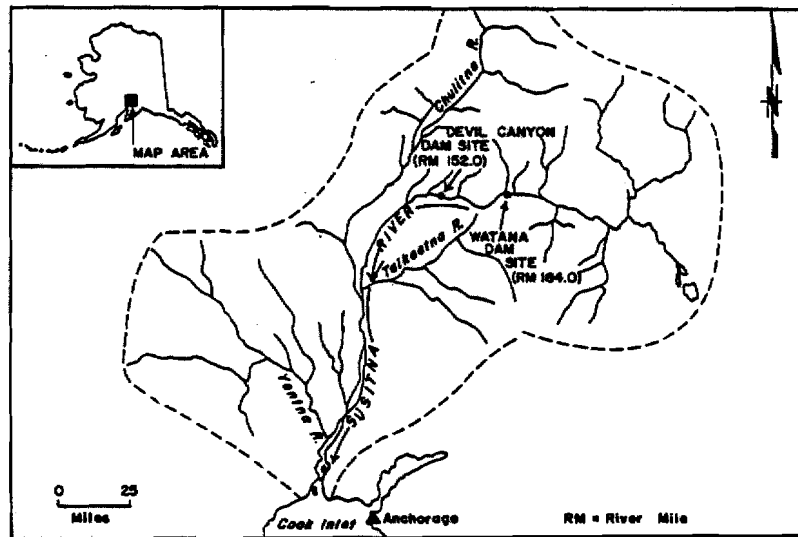


Figure A. Susitna River drainage, 1984.

The Alaska Power Authority (APA) proposes construction of two hydroelectric dams at Watana and Devil Canyons on the upper Susitna River (Figure A). The Alaska Department of Fish and Game (ADF&G) has been contracted by APA to assess the fishery resources that might be impacted by the proposed hydroelectric project. The APA-ADF&G contract, initiated in November 1980, is still in effect.

This is one of a series of ADF&G reports for 1984 that will be submitted to APA. This document addresses the adult anadromous fish investigations contracted for the Susitna River open water period of May through October, 1984 and specifically covers the following Pacific salmon species:

Pacific Salmon	<u>Oncorhynchus sp.</u>
Chinook Salmon	<u>O. tshawytscha</u>
Sockeye Salmon	<u>O. nerka</u>
Pink Salmon	<u>O. gorbuscha</u>
Chum Salmon	<u>O. keta</u>
Coho Salmon	<u>O. kisutch</u>

TITLES IN THIS SERIES

<u>Report Number</u>	<u>Title</u>	<u>Publication Date</u>
1	Adult Anadromous Fish Investigations: May - October 1983	April 1984
2	Resident and Juvenile Anadromous Fish Investigations: May - October 1983	July 1984
3	Aquatic Habitat and Instream Flow Investigations: May - October 1983	September 1984
4	Access and Transmission Corridor Aquatic Investigations: May - October 1983	September 1984
5	Winter Aquatic Investigations: September 1983 to May 1984	March 1985
6	Adult Salmon Investigations: May - October 1984	June 1985
7	Resident and Juvenile Anadromous Fish Investigations: May - October 1984	1985

Questions concerning this report should be directed to:

Alaska Power Authority
334 W. 5th Avenue, Second Floor
Anchorage, Alaska 99501
Telephone (907) 276-0001

TABLE OF CONTENTS

	<u>Page</u>
PREFACE.....	i
TABLE OF CONTENTS.....	iii
LIST OF TABLES.....	vi
LIST OF FIGURES.....	xiii
LIST OF APPENDIX TABLES.....	xix
LIST OF APPENDIX FIGURES.....	xxii
1.0 OBJECTIVES.....	1
2.0 METHODS.....	2
2.1 Main Channel Escapement Monitoring.....	2
2.2 Spawning Ground and Tag Recovery Surveys.....	5
2.2.1 Lower Reach.....	5
2.2.2 Middle Reach.....	6
2.3 Data Analysis.....	7
2.3.1 Escapement Monitoring by SSS Counter.....	7
2.3.2 Tag and Recapture Estimates.....	7
2.3.3 Escapement Timing.....	7
2.3.4 Age Samples.....	7
2.3.5 Slough Escapements.....	7
3.0 RESULTS AND DISCUSSION.....	9
3.1 Chinook Salmon.....	9
3.1.1 Lower Reach.....	9
3.1.1.1 Main Channel Escapements.....	9
3.1.1.2 Spawning Areas.....	14
3.1.2 Middle Reach.....	18
3.1.2.1 Main Channel Escapements.....	18
3.1.2.2 Spawning Areas.....	22
3.1.3 Escapement Index Surveys.....	25

<u>TABLE OF CONTENTS (Continued)</u>	<u>Page</u>
3.2 Sockeye Salmon.....	25
3.2.1 First-Run.....	25
3.2.1.1 Lower Reach.....	30
3.2.1.1.1 Main Channel Escapements.....	30
3.2.1.1.2 Spawning Areas.....	31
3.2.2 Second-Run.....	37
3.2.2.1 Lower Reach.....	37
3.2.2.1.1 Main Channel Escapements.....	37
3.2.2.1.2 Spawning Areas.....	46
3.2.2.2 Middle Reach.....	46
3.2.2.2.1 Main Channel Escapements.....	46
3.2.2.2.2 Spawning Areas.....	48
3.3 Pink Salmon.....	56
3.3.1 Lower Reach.....	56
3.3.1.1 Main Channel Escapements.....	56
3.3.1.2 Spawning Areas.....	63
3.3.2 Middle Reach.....	63
3.3.2.1 Main Channel Escapements.....	63
3.3.2.2 Spawning Areas.....	65
3.4 Chum Salmon.....	70
3.4.1 Lower Reach.....	70
3.4.1.1 Main Channel Escapements.....	70
3.4.1.2 Spawning Areas.....	76
3.4.2 Middle Reach.....	81
3.4.2.1 Main Channel Escapements.....	81
3.4.2.2 Spawning Areas.....	83
3.5 Coho Salmon.....	94
3.5.1 Lower Reach.....	94
3.5.1.1 Main Channel Escapements.....	94
3.5.1.2 Spawning Areas.....	105

<u>TABLE OF CONTENTS (Continued)</u>	<u>Page</u>
3.5.2 Middle Reach.....	105
3.5.2.1 Main Channel Escapements.....	105
3.5.2.2 Spawning Areas.....	108
4.0 SUMMARY.....	111
4.1 Chinook Salmon.....	113
4.2 Sockeye Salmon.....	117
4.2.1 First-Run.....	117
4.2.2 Second-Run.....	121
4.3 Pink Salmon.....	128
4.4 Chum Salmon.....	134
4.5 Coho Salmon.....	145
REFERENCES.....	154
ACKNOWLEDGEMENTS.....	157
APPENDICES	
APPENDIX 1. Adult Salmon Lower River Susitna River Sampling Surveys.....	A1
APPENDIX 2. Susitna and Yentna Rivers - Sampling Locations.....	A124
APPENDIX 3. Daily Fishwheel Catch Data and Migrational Rate Histograms.....	A130
APPENDIX 4. Daily Yentna Station Sonar Counts and Cumulative Percent Sonar Counts by Species.....	A209
APPENDIX 5. Length Frequencies of Chinook, Sockeye, Pink, Chum, and Coho Salmon.....	A229
APPENDIX 6. Spawning Data.....	A255

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Operation schedules at main channel Susitna and Yentna rivers escapement monitoring stations, 1984.....	2
2	Lower reach Susitna River stream mouths surveyed weekly from July 21 to October 7, 1984.....	5
3	Minimum escapements of chinook, sockeye, pink, chum and coho salmon to the Susitna River, 1984.....	10
4	Escapements of chinook salmon 350 mm or less in length to Sunshine, Talkeetna and Curry stations, 1984.....	11
5	Estimated chinook salmon escapements to Sunshine, Talkeetna and Curry stations, by the Petersen method, with associated confidence intervals, 1984.....	11
6	Fishwheel catch by species and station, 1984.....	13
7	Analysis of chinook salmon lengths, in millimeters, by sex and age class from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	15
8	Age composition by percent of the chinook salmon escapements to Flathorn, Yentna, Sunshine, Talkeetna and Curry stations based on catch samples weighted by fishwheel CPUE, 1984.....	17
9	Sex ratios of male and female chinook salmon by age from fishwheel CPUE weighted escapement samples collected at Sunshine, Talkeetna and Curry stations, 1984.....	17
10	Distribution of chinook salmon to middle reach streams based on peak counts, 1984.....	22
11	Chinook salmon escapement counts of index streams in the Susitna River drainage, 1984.....	26
12	Highest survey counts of chinook salmon in Susitna River sub-basin index streams, 1976-84.....	28

LIST OF TABLES (Continued)Page

13	Petersen population estimate for first-run sockeye salmon to Sunshine Station, 1984.....	30
14	Analysis of sockeye salmon lengths, in millimeters, by sex and age class from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	32
15	Age composition by percent of the sockeye salmon escapements to Flathorn, Yentna, Sunshine, Talkeetna and Curry stations based on catch samples weighted by fishwheel CPUE, 1984.....	35
16	Sex ratios of male and female sockeye salmon by age from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	36
17	Escapement survey counts of tagged and untagged first-run sockeye salmon tagged at Sunshine Station in 1984.....	31
18	Estimated sockeye salmon escapements to Flathorn, Sunshine, Talkeetna and Curry stations, by the Petersen method, with associated confidence intervals, 1984.....	38
19	Apportioned sonar counts of sockeye, pink, chum and coho salmon at Yentna Station, 1984.....	40
20	Comparison of numbers of sockeye salmon tagged by east and west channel fishwheels at RM 22 to the number of tag numbered recaptures by bank at Yentna Station and at RM 80, 103 and 120 combined, 1984.....	44
21	Sockeye salmon escapement counts for sloughs in the middle reach, 1984.....	50
22	Estimated sockeye salmon slough escapements to the middle reach sloughs, 1984.....	51
23	Percentages of sockeye salmon monitored for residence life that initiated spawning by habitat zone at sloughs 8A and 11, 1984.....	52
24	Egg retention of sockeye salmon at selected sloughs in the middle Susitna River reach, 1984.....	54

LIST OF TABLES (Continued)Page

25	Estimated pink salmon escapements to Flat-horn, Sunshine, Talkeetna and Curry stations, by the Petersen method, with associated confidence intervals, 1984.....	57
26	Comparison of numbers of pink salmon tagged by east and west channel fishwheels at RM 22 to the number of tag numbered recaptures by bank at Yentna Station and at RM 80, 103 and 120 combined, 1984.....	60
27	Analysis of pink salmon lengths, in millimeters, by sex from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	62
28	Pink salmon escapement counts for sloughs in the middle reach in order of contribution, 1984.....	65
29	Estimated pink salmon slough escapements to the middle reach, 1984.....	67
30	Pink salmon escapement counts for streams in the middle reach in order of contribution, 1984.....	68
31	Estimated chum salmon escapements to Flat-horn, Sunshine, Talkeetna and Curry stations, by the Petersen method, with associated confidence intervals, 1984.....	70
32	Comparison of numbers of chum salmon tagged by east and west channel fishwheels at RM 22 to the number of tag numbered recaptures by bank at Yentna Station and at RM 80, 103 and 120 combined, 1984.....	75
33	Age composition by percent of the chum salmon escapements to Flathorn, Yentna, Sunshine, Talkeetna and Curry stations based on catch samples weighted by fishwheel CPUE, 1984.....	76
34	Analysis of chum salmon lengths, in millimeters, by sex and age class from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	78

LIST OF TABLES (Continued)Page

35	Sex ratios of male and female chum salmon by age from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	80
36	Chum salmon escapement counts for streams in the middle reach, 1984.....	85
37	Chum salmon escapement counts for sloughs in the middle reach, 1984.....	87
38	Percentages of chum salmon monitored for residence life that initiated spawning by habitat zone at sloughs A', 8A and 11, 1984.....	90
39	Estimated chum salmon slough escapements to the middle reach, 1984.....	92
40	Estimated chum salmon spawning in the middle reach by habitat type, 1984.....	94
41	Egg retention of chum salmon at selected sloughs in the middle Susitna River reach, 1984.....	93
42	Estimated coho salmon escapements to Flathorn, Sunshine, Talkeetna and Curry stations, by the Petersen method, with associated confidence intervals, 1984.....	95
43	Comparison of numbers of coho salmon tagged by east and west channel fishwheels at RM 22 to the number of tag numbered recaptures by bank at Yentna Station and at RM 80, 103 and 120 combined, 1984.....	99
44	Age composition by percent of the coho salmon escapements to Flathorn, Yentna, Sunshine, Talkeetna and Curry stations based on catch samples weighted by fishwheel CPUE, 1984.....	100
45	Analysis of coho salmon lengths, in millimeters, by sex and age class from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	102
46	Sex ratios of male and female coho salmon by age from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	104

LIST OF TABLES (Continued)Page

47	Number of eggs, length, weight and associated statistics for coho salmon sampled for fecundity at Sunshine Station, 1984.....	104
48	Coho salmon escapement counts for streams in the middle reach in order of contribution, 1984.....	109
49	Escapements by species and sampling locations for 1981-84.....	114
50	Migration rates of chinook salmon between sampling stations, based on fishwheel tag recoveries in 1982-84.....	115
51	Analysis of chinook salmon age data by percent from escapement samples collected at Sunshine, Talkeetna and Curry stations in 1981-84.....	118
52	Male to female chinook salmon ratios and average mean lengths from Sunshine, Talkeetna and Curry stations in 1981-84.....	119
53	Peak survey counts and percent distribution of chinook salmon in streams above RM 98.6 in 1981-84.....	120
54	Analysis of sockeye salmon age data by percent from escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.....	122
55	Male to female sockeye salmon ratios and average mean lengths from Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.....	121
56	Migration rates of sockeye salmon between sampling stations, based on fishwheel tag recoveries in 1981-84.....	126
57	Peak survey counts and percent distribution of second-run sockeye salmon in sloughs above RM 98.6 in 1981-84.....	127
58	Migration rates of pink salmon between sampling stations, based on fishwheel tag recoveries in 1981-84.....	130

LIST OF TABLES (Continued)Page

59	Male to female pink salmon ratios and average mean lengths from Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.....	132
60	Peak survey counts and percent distribution of pink salmon in sloughs above RM 98.6 in 1981-84.....	133
61	Peak survey counts and percent distribution of pink salmon in stream index reaches above RM 98.6 in 1981-84.....	135
62	Peak survey counts and percent distribution of pink salmon in streams above RM 98.6 in 1983 and 1984.....	134
63	Migration rates of chum salmon between sampling station, based on fishwheel tag recoveries in 1981-84.....	139
64	Analysis of chum salmon age data by percent from escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.....	140
65	Male to female chum salmon ratios and average mean lengths from Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.....	141
66	Number of mainstem chum salmon spawning areas identified in the Susitna River middle reach in 1981-84 and the corresponding highest fish counts.....	142
67	Peak survey counts and percent distribution of chum salmon in stream index reaches above RM 98.6 in 1981-84.....	143
68	Peak survey counts and percent distribution of chum salmon in streams above RM 98.6 in 1983 and 1984.....	145
69	Peak survey counts and percent distribution of chum salmon in sloughs above RM 98.6 in 1981-84.....	144
70	Migration rates of coho salmon between sampling stations, based on fishwheel tag recoveries in 1981-84.....	149

LIST OF TABLES (Continued)

Page

71	Analysis of coho salmon age data by percent from escapement samples collected at Flat-horn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.....	150
72	Male to female coho salmon ratios and average mean lengths from Flat-horn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.....	149
73	Peak survey counts and percent distribution of coho salmon in stream index reaches above RM 98.6 in 1981-84.....	152
74	Peak survey counts and percent distribution of coho salmon in streams above RM 98.6 in 1983 and 1984.....	153

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Susitna River basin map showing field stations and major glacial streams, 1984.....	3
2	Chinook salmon escapements by sampling stations, 1984.....	10
3	Migration preference of Chulitna River, Talkeetna River and middle reach Susitna River chinook salmon stocks to the east and west banks of the Susitna River at RM 80, 1984.....	12
4	Mean hourly and cumulative percent fishwheel catch by chinook salmon by two day periods at Sunshine Station, 1984.....	13
5	Provisional USGS discharge data for station No. 15292780 from May 15 through September, 1984.....	14
6	Age composition of fishwheel intercepted chinook salmon weighted by CPUE at Sunshine, Talkeetna and Curry stations, 1984.....	18
7	Mean hourly and cumulative percent fishwheel catch of chinook salmon by two day periods at Talkeetna and Curry stations, 1984.....	20
8	Provisional USGS discharge data for station No. 15292000 from May 15 through September, 1984.....	19
9	Migrational rates of chinook salmon between three lower and middle Susitna River reach sampling stations, 1984.....	21
10	The three major streams in the middle reach occupied by chinook salmon and the respective percent escapement based on peak counts, 1984.....	23
11	Chinook salmon ground and helicopter counts of Indian River, 1984.....	23
12	Chinook salmon ground and helicopter counts of Portage Creek, 1984.....	24
13	Susitna River basin with chinook salmon index streams defined, 1984.....	27

LIST OF FIGURES (Continued)Page

14	Destination of first-run sockeye salmon tagged at Sunshine Station (RM 80), 1984.....	25
15	Suspected destination of first-run sockeye salmon into the Yentna River drainage, 1984.....	30
16	A comparison of the sockeye salmon escapement to Flathorn Station with the escapements to Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	37
17	Known sockeye salmon spawning systems below RM 80, excluding the Yentna River, 1984.....	39
18	Mean hourly and cumulative percent fishwheel catch of sockeye salmon by two day periods at Flathorn Station, 1984.....	40
19	Mean hourly and cumulative percent fishwheel catch of sockeye salmon by two day periods at Yentna and Sunshine stations, 1984.....	41
20	Migrational rates of sockeye salmon between five lower and middle Susitna River reach sampling stations, 1984.....	42
21	Migrational preference of sockeye salmon, to the east and west channels at Flathorn Station, 1984.....	43
22	Age composition of fishwheel intercepted sockeye salmon weighted by CPUE at selected locations on the Susitna River, 1984.....	45
23	Mean hourly and cumulative percent fishwheel catch of sockeye salmon by two day periods at Talkeetna and Curry stations, 1984.....	47
24	Sockeye salmon spawning areas in the Susitna River mainstem middle reach, 1984.....	49
25	The three major sloughs in the middle reach occupied by sockeye salmon and the respective percent escapement based on peak counts, 1984.....	49
26	Sockeye salmon live counts by date in sloughs 8A, 11 and 21, 1984.....	52
27	Observed residence life of sockeye salmon at Sloughs 8A and 11 by percent frequency, 1984.....	53

LIST OF FIGURES (Continued)Page

28	Percent frequency of the number of days tagged sockeye salmon spent in the Susitna River mainstem between Curry Station and sloughs 8A and 11, 1984.....	55
29	Percent frequency of the numbers of eggs retained by sockeye salmon at sloughs 8A, 11 and 21 combined, 1984.....	56
30	A comparison of the pink salmon escapement to Flathorn Station with the escapements to Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	57
31	Mean hourly and cumulative percent fishwheel catch of pink salmon by two day periods at Flathorn and Yentna stations, 1984.....	58
32	Mean hourly and cumulative percent fishwheel catch of pink salmon by two day periods at Sunshine Station, 1984.....	59
33	Migrational preference of pink salmon to the east and west channels at Flathorn Station, 1984.....	60
34	Migrational rates of pink salmon between five lower and middle Susitna River reach sampling stations, 1984.....	61
35	Mean hourly and cumulative percent fishwheel catch of pink salmon by two day periods at Talkeetna and Curry stations, 1984.....	64
36	The three major streams and sloughs in the middle reach occupied by pink salmon and the respective percent escapement based on peak counts, 1984.....	66
37	Pink salmon ground and helicopter counts of Indian River, 1984.....	69
38	A comparison of the chum salmon escapement to Flathorn Station with the escapements to Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	71
39	Mean hourly and cumulative percent fishwheel catch of chum salmon by two day periods at Flathorn and Yentna stations, 1984.....	72

LIST OF FIGURES (Continued)Page

40	Mean hourly and cumulative percent fishwheel catch of chum salmon by two day periods at Sunshine Station, 1984.....	73
41	Migrational rates of chum salmon between five lower and middle Susitna River reach sampling stations, 1984.....	73
42	Provisional USGS discharge data for station No. 15294345 from May 15 through September, 1984.....	74
43	Migrational preference of chum salmon to the east and west channels at Flathorn Station, 1984.....	75
44	Age composition of fishwheel intercepted chum salmon weighted by CPUE at selected stations on the Susitna River, 1984.....	77
45	Mean hourly and cumulative percent fishwheel catch of chum salmon by two day periods at Talkeetna and Curry stations, 1984.....	82
46	Chum salmon spawning areas in Susitna River mainstem middle reach, 1984.....	84
47	The three major streams and sloughs in the middle reach occupied by chum salmon and the respective percent escapement based on peak counts, 1984.....	85
48	Chum salmon ground and helicopter counts of Indian River, 1984.....	86
49	Chum salmon ground and helicopter counts of Portage Creek, 1984.....	86
50	Chum salmon live counts by date in sloughs 8A, 11 and 21, 1984.....	88
51	Percent frequency of the number of days tagged chum salmon spent in the Susitna River mainstem between Curry Station and sloughs A', 8A and 11, 1984.....	89
52	Observed residence life of chum salmon at sloughs A', 8A and 11 by percent frequency, 1984.....	91

LIST OF FIGURES (Continued)Page

53	Percent frequency of the numbers of eggs retained by chum salmon at eleven middle reach sloughs, 1984.....	94
54	A comparison of the coho salmon escapement to Flathorn Station with the escapements to Yentna, Sunshine, Talkeetna and Curry stations, 1984.....	96
55	Mean hourly and cumulative percent fishwheel catch of coho salmon by two day periods at Flathorn and Yentna stations, 1984.....	97
56	Mean hourly and cumulative percent fishwheel catch of coho salmon by two day periods at Sunshine Station, 1984.....	98
57	Migrational preference of coho salmon to the east and west channels at Flathorn Station, 1984.....	98
58	Migrational rates of coho salmon between five lower and middle Susitna River reach sampling stations, 1984.....	100
59	Age composition of fishwheel intercepted coho salmon weighted by CPUE at selected stations on the Susitna River, 1984.....	101
60	Number of eggs for coho salmon sampled at Sunshine Station on August 22, 1984 as a function of length and weight.....	106
61	Mean hourly and cumulative percent fishwheel catch of coho salmon by two day periods at Talkeetna and Curry stations, 1984.....	107
62	The three major streams in the middle reach occupied by coho salmon and the respective percent escapement based on peak counts, 1984.....	109
63	Susitna River sockeye, pink, chum and coho salmon escapements to the Yentna and Sunshine stations combined (Y/S) in 1981-84 and to Flathorn Station in 1984.....	112
64	Susitna River chinook salmon escapements by station for 1982-84.....	114

LIST OF FIGURES (Continued)Page

65	Migrational timing of chinook salmon based on fishwheel CPUE at Sunshine, Talkeetna and Curry stations in 1981-84.....	116
66	Migrational timing of first-run sockeye salmon based on fishwheel CPUE at Sunshine Station in 1982-84.....	121
67	Susitna River sockeye salmon escapements by station for 1981-84.....	124
68	1981-84 Susitna River sockeye salmon escapements based on population estimates at Flathorn, Yentna and Sunshine stations.....	124
69	Migrational timing of second-run sockeye salmon based on fishwheel CPUE at selected stations in 1981-84.....	125
70	1981-84 Susitna River pink salmon escapements based on population estimates at Flathorn, Yentna and Sunshine stations.....	129
71	Susitna River pink salmon escapements by station for 1981-84.....	129
72	Migrational timing of pink salmon based on fishwheel CPUE at selected stations in 1983-84.....	131
73	1981-84 Susitna River chum salmon escapements based on population estimates at Flathorn, Yentna and Sunshine stations.....	136
74	Susitna River chum salmon escapements by station for 1981-84.....	137
75	Migrational timing of chum salmon based on fishwheel CPUE at selected stations in 1981-84.....	138
76	Susitna River coho salmon escapements by station for 1981-84.....	147
77	1981-84 Susitna River coho salmon escapements based on population estimates at Flathorn, Yentna and Sunshine stations.....	147
78	Migrational timing of coho salmon based on fishwheel CPUE at selected stations in 1981-84.....	148

LIST OF APPENDIX TABLES

<u>Appendix Table</u>		<u>Page</u>
3-1	Flathorn Station east channel fishwheels daily and cumulative catch by species, 1984.....	A131
3-2	Flathorn Station west channel fishwheels daily and cumulative catch by species, 1984.....	A134
3-3	Flathorn Station fishwheels daily and cumulative catch by species, 1984.....	A137
3-4	Yentna Station north bank fishwheel daily and cumulative catch by species, 1984.....	A140
3-5	Yentna Station south bank fishwheel daily and cumulative catch by species, 1984.....	A143
3-6	Yentna Station fishwheels daily and cumulative catch by species, 1984.....	A146
3-7	Sunshine Station east bank fishwheels daily and cumulative catch by species, 1984.....	A149
3-8	Sunshine Station lower east bank fishwheel daily and cumulative catch by species, 1984.....	A153
3-9	Sunshine Station upper east bank fishwheel daily and cumulative catch by species, 1984.....	A157
3-10	Sunshine Station west bank fishwheels daily and cumulative catch by species, 1984.....	A161
3-11	Sunshine Station fishwheels daily and cumulative catch by species, 1984.....	A165
3-12	Talkeetna Station east bank fishwheels daily and cumulative catch by species, 1984.....	A169
3-13	Talkeetna Station west bank fishwheels daily and cumulative catch by species, 1984.....	A173

LIST OF APPENDIX TABLES (Continued)Page

3-14	Talkeetna Station fishwheels daily and cumulative catch by species, 1984.....	A177
3-15	Curry Station east bank fishwheel daily and cumulative catch by species, 1984.....	A181
3-16	Curry Station west bank fishwheel daily and cumulative catch by species, 1984.....	A185
3-17	Curry Station fishwheels daily and cumulative catch by species, 1984.....	A189
4-1	Yentna Station north bank daily and cumulative sonar counts by species, 1984.....	A210
4-2	Yentna Station south bank daily and cumulative sonar counts by species, 1984.....	A213
4-3	Yentna Station daily and cumulative sonar counts by species, 1984.....	A216
4-4	Sector distribution on north bank sonar counts adjusted for debris, at Yentna Station, 1984.....	A219
4-5	Sector distribution of south bank sonar counts, adjusted for debris, at Yentna Station, 1984.....	A223
6-1	Mainstem Susitna River salmon spawning locations and survey results above RM 98.6, 1984.....	A302
6-2	Escapement survey counts of Susitna River streams between RM 98.6 and 195.0, 1984.....	A310
6-3	Escapement survey counts of Susitna River sloughs between RM 98.6 and 161.0, 1984.....	A317
6-4	Chinook salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.....	A324

LIST OF APPENDIX TABLES (Continued)

Page

6-5	Sockeye salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.....	A325
6-6	Pink salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.....	A327
6-7	Chum salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.....	A330
6-8	Coho salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.....	A335

LIST OF APPENDIX FIGURES

<u>Appendix Figure</u>		<u>Page</u>
2-1	Flathorn Station with fishwheel sites defined, 1984.....	A125
2-2	Yentna Station with sonar and fishwheel sites defined, 1984.....	A126
2-3	Sunshine Station with fishwheel sites defined, 1984.....	A127
2-4	Talkeetna Station with fishwheel sites defined, 1984.....	A128
2-5	Curry Station with fishwheel sites defined, 1984.....	A129
3-1	Migrational rates of tagged chinook salmon between mainstem Susitna River sampling locations, 1984.....	A193
3-2	Migrational rates of tagged sockeye salmon between Flathorn and Yentna stations, and Flathorn and Sunshine stations, 1984.....	A194
3-3	Migrational rates of tagged sockeye salmon between Flathorn and Talkeetna stations, and Flathorn and Curry stations, 1984.....	A195
3-4	Migrational rates of tagged sockeye salmon between Sunshine and Talkeetna stations, and Sunshine and Curry stations, 1984.....	A196
3-5	Migrational rates of tagged sockeye salmon between Talkeetna and Curry stations, 1984.....	A197
3-6	Migrational rates of tagged pink salmon between Flathorn and Yentna stations, and Flathorn and Sunshine stations, 1984.....	A198
3-7	Migrational rates of tagged pink salmon between Flathorn and Talkeetna stations, and Flathorn and Curry stations, 1984.....	A199

LIST OF APPENDIX FIGURES (Continued)Page

3-8	Migrational rates of tagged pink salmon between Sunshine and Talkeetna stations, and Sunshine and Curry stations, 1984.....	A200
3-9	Migrational rates of tagged pink salmon between Talkeetna and Curry stations, 1984.....	A201
3-10	Migrational rates of tagged chum salmon between Flathorn and Yentna stations, and Flathorn and Sunshine stations, 1984.....	A202
3-11	Migrational rates of tagged chum salmon between Flathorn and Talkeetna stations, and Flathorn and Curry stations, 1984.....	A203
3-12	Migrational rates of tagged chum salmon between Sunshine and Talkeetna stations, and Sunshine and Curry stations, 1984.....	A204
3-13	Migrational rates of tagged chum salmon between Talkeetna and Curry stations, 1984.....	A205
3-14	Migrational rates of tagged coho salmon between Flathorn and Yentna stations, and Flathorn and Sunshine stations, 1984.....	A206
3-15	Migrational rates of tagged coho salmon between Sunshine and Talkeetna stations, and Sunshine and Curry stations, 1984.....	A207
3-16	Migrational rates of tagged coho salmon between Talkeetna and Curry stations, 1984.....	A208
4-1	Daily sonar counts of sockeye, pink, chum, and coho salmon at Yentna Station, 1984.....	A227
4-2	Cumulative percent of sonar counts by species at Yentna Station, 1984.....	A228

LIST OF APPENDIX FIGURES (Continued)Page

5-1	Chinook salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.....	A230
5-2	Chinook salmon length frequencies at Talkeetna Station weighted by fishwheel catch per unit of effort, 1984.....	A231
5-3	Chinook salmon length frequencies at Curry Station weighted by fishwheel catch per unit of effort, 1984.....	A232
5-4	Sockeye salmon length frequencies at Flathorn Station weighted by fishwheel catch per unit of effort, 1984.....	A233
5-5	Sockeye salmon length frequencies at Yentna Station weighted by fishwheel catch per unit of effort, 1984.....	A234
5-6	First-run sockeye salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.....	A235
5-7	Second-run sockeye salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.....	A236
5-8	Combined first-run and second-run sockeye salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.....	A237
5-9	Sockeye salmon length frequencies at Talkeetna Station weighted by fishwheel catch per unit of effort, 1984.....	A238
5-10	Sockeye salmon length frequencies at Curry Station weighted by fishwheel catch per unit of effort, 1984.....	A239

LIST OF APPENDIX FIGURES (Continued)Page

5-11	Pink salmon length frequencies at Flathorn Station weighted by fishwheel catch per unit of effort, 1984.....	A240
5-12	Pink salmon length frequencies at Yentna Station weighted by fishwheel catch per unit of effort, 1984.....	A241
5-13	Pink salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.....	A242
5-14	Pink salmon length frequencies at Talkeetna Station weighted by fishwheel catch per unit of effort, 1984.....	A243
5-15	Pink salmon length frequencies at Curry Station weighted by fishwheel catch per unit of effort, 1984.....	A244
5-16	Chum salmon length frequencies at Flathorn Station weighted by fishwheel catch per unit of effort, 1984.....	A245
5-17	Chum salmon length frequencies at Yentna Station weighted by fishwheel catch per unit of effort, 1984.....	A246
5-18	Chum salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.....	A247
5-19	Chum salmon length frequencies at Talkeetna Station weighted by fishwheel catch per unit of effort, 1984.....	A248
5-20	Chum salmon length frequencies at Curry Station weighted by fishwheel catch per unit of effort, 1984.....	A249
5-21	Coho salmon length frequencies at Flathorn Station weighted by fishwheel catch per unit of effort, 1984.....	A250

LIST OF APPENDIX FIGURES (Continued)Page

5-22	Coho salmon length frequencies at Yentna Station weighted by fishwheel catch per unit of effort, 1984.....	A251
5-23	Coho salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.....	A252
5-24	Coho salmon length frequencies at Talkeetna Station weighted by fishwheel catch per unit of effort, 1984.....	A253
5-25	Coho salmon length frequencies at Curry Station weighted by fishwheel catch per unit of effort, 1984.....	A254
6-1	Susitna River slough, stream and mainstem spawning locations from the confluence of the Talkeetna and Chulitna rivers to RM 150.0, 1984.....	A256
6-2	Bushrod Slough located at RM 117.8, 1984.....	A263
6-3	Anna Creek Slough located at RM 143.2, 1984.....	A264
6-4	Slough 8A map with habitat locations (zones) defined, 1984.....	A265
6-5	Slough 11 map with habitat locations (zones) defined, 1984.....	A266
6-6	Mainstem Susitna River chum salmon spawning area at RM 100.9R, 1984.....	A267
6-7	Mainstem Susitna River chum salmon spawning area at RM 110.1L, 1984.....	A268
6-8	Mainstem Susitna River chum salmon spawning area at RM 114.0C, 1984.....	A269
6-9	Mainstem Susitna River chum salmon spawning areas at RM 114.6R, 115.0R, and 115.1R, 1984.....	A270
6-10	Mainstem Susitna River chum salmon spawning areas at RM 118.9L, 119.1L, 119.4L, and 119.8L, 1984.....	A271

LIST OF APPENDIX FIGURES (Continued)Page

6-11	Mainstem Susitna River chum salmon spawning area at RM 120.9L, 1984.....	A272
6-12	Mainstem Susitna River chum salmon spawning area at RM 121.6R, 1984.....	A273
6-13	Mainstem Susitna River chum salmon spawning area at RM 124.9C, 1984.....	A274
6-14	Mainstem Susitna River chum salmon spawning areas at RM 128.3R and 128.6R, 1984.....	A275
6-15	Mainstem Susitna River chum salmon spawning areas at RM 129.8R, 130.0R, and 130.5R, 1984.....	A276
6-16	Mainstem Susitna River chum salmon spawning areas at RM 131.1L, 131.3L, 131.5L, 131.7L, and 131.8L and coho salmon spawning at RM 131.5L, 1984.....	A277
6-17	Mainstem Susitna River chum salmon spawning area at RM 132.9R, 1984.....	A278
6-18	Mainstem Susitna River sockeye salmon spawning areas at RM 134.6R, 135.0R, 135.1R, and 135.2R, and chum salmon spawning areas at RM 135.1R, 135.2R, 1984.....	A279
6-19	Mainstem Susitna River chum salmon spawning areas at RM 136.1R, 136.3R, and 136.8R, 1984.....	A280
6-20	Mainstem Susitna River sockeye and chum salmon spawning areas at RM 138.7L and 139.0L, 1984.....	A281
6-21	Mainstem Susitna River chum salmon spawning area at RM 140.5L, 1984.....	A282
6-22	Mainstem Susitna River sockeye and chum salmon spawning area at RM 141.6R and chum salmon spawning area at RM 140.8R, 1984.....	A283
6-23	Mainstem Susitna River chum salmon spawning area at RM 143.3L, 1984.....	A284

LIST OF APPENDIX FIGURES (Continued)Page

6-24	Spawning areas and distribution of chinook, pink, and coho salmon in Whiskers Creek (RM 101.4), 1984.....	A285
6-25	Spawning areas and distribution of chinook, pink, and coho salmon in Chase Creek (RM 106.9), 1984.....	A286
6-26	Spawning areas and distribution of chinook, pink, and coho salmon in Slash Creek (RM 111.2), 1984.....	A287
6-27	Spawning areas and distribution of pink and coho salmon in Gash Creek (RM 111.6), 1984.....	A288
6-28	Spawning areas and distribution of chinook, pink, chum, and coho salmon in Lane Creek (RM 113.6), 1984.....	A289
6-29	Spawning area and distribution of pink salmon in Clyde Creek (RM 113.8), 1984.....	A290
6-30	Spawning areas and distribution of pink, chum, and coho salmon in Lower McKenzie Creek (RM 116.2), 1984.....	A291
6-31	Spawning areas and distribution of pink and chum salmon in McKenzie (RM 116.7) and Little Portage (RM 117.7) creeks, 1984.....	A292
6-32	Spawning area and distribution of pink salmon in Deadhorse Creek (RM 120.8), 1984.....	A293
6-33	Spawning areas and distribution of pink and chum salmon in Fifth of July Creek (RM 123.7), 1984.....	A294
6-34	Spawning areas and distribution of pink and chum salmon in Skull Creek (RM 124.7), 1984.....	A295
6-35	Spawning areas and distribution of pink and chum salmon in Sherman Creek (RM 130.8), 1984.....	A296

LIST OF APPENDIX FIGURES (Continued)Page

6-36	Spawning areas and distribution of chinook, pink, chum, and coho salmon in Fourth of July Creek (RM 131.1), 1984.....	A297
6-37	Spawning areas and distribution of chinook, pink, and chum salmon in Gold Creek (RM 136.7), 1984.....	A298
6-38	Spawning areas and distribution of chinook, pink, chum, and coho salmon in Indian River (RM 138.6), 1984.....	A299
6-39	Spawning areas and distribution of chinook, pink, chum, and coho salmon in Jack Long Creek (RM 144.5), 1984.....	A300
6-40	Spawning areas and distribution of chinook, pink, chum, and coho salmon in Portage Creek (RM 148.9), 1984.....	A301

1.0 OBJECTIVES

The fourth consecutive year of study of the Susitna River adult salmon populations in association with proposed hydroelectric development at Watana and Devil Canyon was completed in 1984. The primary emphasis of the 1984 study were to quantify mainstem escapements and to define spawning locations. More explicitly, the objectives, by river reach, were:

- A. Lower River (Intertidal at RM 0.0 to the Chulitna River confluence at RM 98.6).
 - 1. define the abundance, timing and stock characteristics of sockeye, pink, chum and coho salmon escapements to the Susitna River at Flathorn (RM 22) and Sunshine (RM 80) stations and into the Yentna River (RM 28) at Yentna Station (TRM 04); additionally, evaluate the same parameters for chinook salmon at Sunshine Station;
 - 2. define timing, distribution and extent of salmon spawning in Susitna River slough, main channel, side channel and stream mouth habitats upstream of Yentna River.
- B. Middle River (Chulitna River confluence at RM 98.6 to upper Devil Canyon at RM 161.0).
 - 1. define the abundance, timing and stock characteristics of chinook, sockeye, pink, chum and coho salmon escapements to the Susitna River at Talkeetna (RM 103) and Curry (RM 120) stations;
 - 2. define timing, distribution and extent of salmon spawning in main channel, side channel, stream and slough habitats; additionally, to determine the average resident time (observed residence) of sockeye and chum salmon in middle-reach sloughs.

2.0 METHODS

2.1 Main Channel Escapement Monitoring

In 1984, salmon escapements were monitored at five mainstem locations on the Susitna and Yentna rivers (Figure 1). In the lower Susitna River reach, a tagging site was operated at Flathorn Station, a sonar site at Yentna Station on the Yentna River and a second tagging site at Sunshine Station between Montana Creek and the George Parks Highway bridge. In the middle Susitna River reach, a tagging station was operated at Talkeetna Station and another at Curry Station. With the exception of Flathorn Station, a new tagging site this year, the other four monitoring stations were at the same river mile locations in 1984 as in 1981 through 1983.

The five lower- and middle-river escapement monitoring stations in 1984 were operated according to the schedule in Table 1. Flathorn and Sunshine stations each had four fishwheels in operation. At Yentna Station, two side scan sonars (SSS) and two fishwheels were run concurrently. In the middle reach, four fishwheels at Talkeetna Station and two fishwheels at Curry Station were used. The specific placement sites of the 16 fishwheels and two sonars at the five sampling stations can be found in Appendix 2.

Table 1. Operation schedules at main channel Susitna and Yentna rivers escapement monitoring stations, 1984.

Station	Location		Period	
	River	River Mile	Begin	End
Flathorn	Susitna	20	6/29	9/3
Yentna	Yentna	04	7/1	9/5
Sunshine	Susitna	80	6/4	9/10
Talkeetna	Susitna	103	6/3	9/11
Curry	Susitna	120	6/9	9/14

The two sonars operated in 1984 at Yentna Station were 1980 Model Side Scan Sonar Counters (Bendix Corporation). The sonar installation and operating procedures were in accordance with the manufacturer's operational manual (Bendix Corporation 1980). Except for occasional

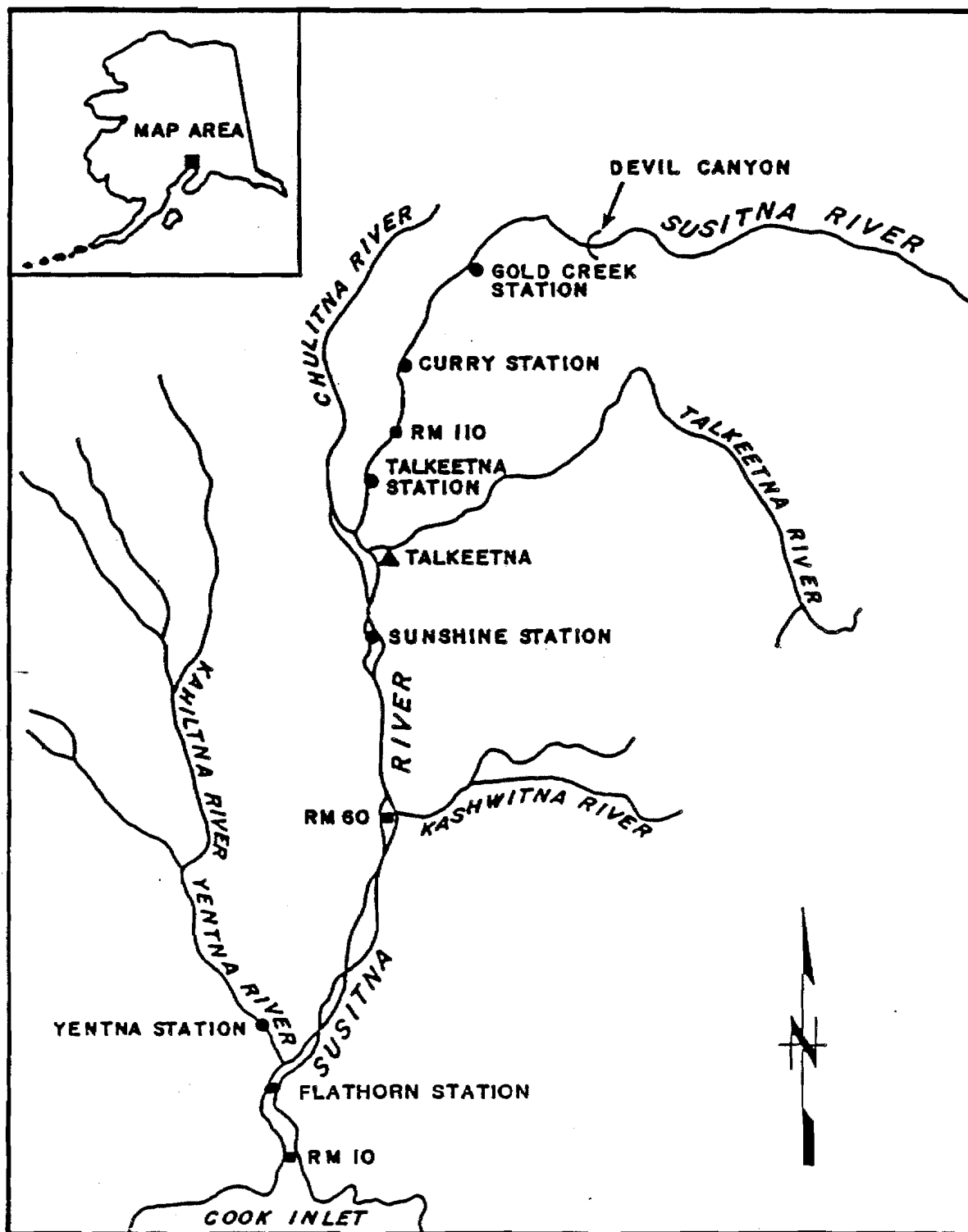


Figure 1. Susitna River basin map showing field stations and major glacial streams, 1984.

heavy-debris flow periods associated with extreme high water, the two sonar counters at Yentna Station were run continuously, 24 hours per day, through the season. The two fishwheels, one near each sonar off the north and south Yentna River banks, were operated a minimum of 12 hours daily during the season for apportioning the sonar counts by species and for tag recovery data from Flathorn Station. Detailed sonar monitoring and apportioning methodology is described by Barrett et al. (1984).

All fishwheels were designed by ADF&G Su Hydro staff (ADF&G 1981, 1982). The fishwheels at Flathorn, Sunshine, Talkeetna and Curry stations were run 24 hours per day except for occasional down time for maintenance, debris problems and high catches that exceeded manpower capabilities. Each fishwheel was checked four or more times daily. Salmon catches were tagged and released, except for the following, which were not tagged:

1. fish that visually appeared lethargic or stressed;
2. post-spawning condition fish;
3. fish previously tagged;
4. 90% of the pink salmon at Flathorn and Sunshine stations, and 50% of the pink salmon caught at Talkeetna and Curry stations;
5. chinook salmon at Flathorn Station, and chinook salmon less than 351 mm in fork length at the other three stations.

All recaptured fish were checked for species identification and tag type, color and number before being released.

In 1984, two tag types were used. All chinook salmon were tagged with Petersen discs. The other species were tagged with Floy FT-4 spaghetti tags. The exception was at Curry Station where Petersen disc tags were used for all species. A percentage of the tags used at all the tagging stations were numbered to determine migrational travel time. The methodology used to implant the Petersen and spaghetti tags can be found in ADF&G (1981).

At each sampling station on the Susitna and Yentna rivers, an age, fork length and sex composition sample was collected daily for the following number of each species regardless of size:

1. chinook salmon--30 consecutively caught fish, except at Sunshine Station, where the sample was 30 consecutively caught fish from both the east and west bank fishwheels;
2. sockeye salmon--30 consecutively caught fish, except at Flathorn Station, where the sample was 30 consecutively caught fish from both the east and west channels;

3. pink salmon--30 consecutively caught fish;
4. chum salmon--20 consecutively caught fish;
5. coho salmon--20 consecutively caught fish.

The procedures followed in 1984 for collecting salmon age, length and sex samples can be found in ADF&G (1982).

On August 22, 1984, 25 coho salmon were collected at Sunshine Station for a fecundity study. The collection procedures used for sampling fecundity can be found in Barrett et.al. (1984).

2.2 Spawning Ground and Tag Recovery Surveys

Drainage-wide surveys of pre-selected chinook spawning areas were conducted cooperatively by ADF&G Region II Sport Fish Division and ADF&G Su Hydro. The surveyed areas have been routinely monitored for chinook since 1976 (ADF&G 1981). The 1984 surveys were performed from helicopter, fixed-wing airplane, raft and by foot, depending on access. Between mid-July and mid-August, most lower-river areas were surveyed once and most middle-river areas were surveyed twice.

The next two subsections outline additional 1984 salmon spawning ground and tag recovery survey work by ADF&G Su Hydro staff, specific to river reach.

2.2.1 Lower Reach

The mouths of lower-reach streams listed in Table 2 were surveyed weekly for salmon presence (by foot and occasionally by helicopter) from July 21 to October 7, 1984. A "stream mouth" began at the confluence and extended one-third mile into the reach.

Table 2. Lower reach Susitna River stream mouths surveyed weekly from July 21 to October, 7, 1984.

Stream	River Mile	Stream	River Mile
Unnamed Creek	31.7	Fish Creek	31.2
Whitsol Creek	35.2	Rolly Creek	39.0
Willow Creek	49.1	Little Willow Creek	50.5
Grays Creek	59.5	Kashwitna River	61.0
Caswell Creek	64.0	Sheep Creek	66.1
Goose Creek	72.0	Montana Creek	77.0
Rabideux Creek	83.1	Sunshine Creek	85.1
Birch Creek	89.2	Trapper Creek	91.5
Cache Creek	95.5		

Mainstem and slough habitats above RM 28 were surveyed weekly from August 21 to October 17 by helicopter. Suspected salmon-spawning areas were checked by foot and boat between scheduled surveys and classified as spawning areas if one or more of the following conditions were met:

1. visual identification of one or more actively mating pairs of fish;
2. presence of one or more distinct redds;
3. confirmed presence of live eggs by intragravel sampling.

The mouths of the streams listed in Table 2, and confirmed mainstem and slough salmon-spawning habitats in the lower reach were mapped and described in terms of channel morphology, substrate composition and ground water presence.

Precise evaluations of substrates at stream mouths were performed as time permitted using a McNeil sampler and sieves. Substrates were sampled for eggs by excavation with a shovel or backpack-mounted Homelite water pump and screen.

2.2.2 Middle Reach

Salmon-spawning surveys were conducted between July 21 and October 14. Specific chinook surveys were made between July 21 and August 18 of all suspected middle-reach spawning streams. Each stream was generally surveyed twice by helicopter or on foot to the upper limit of fish migration.

All sloughs and streams of suspected adult salmon use were surveyed weekly from August 6 to October 11. Sloughs were surveyed on foot over their entire distance, and streams to standard index markers. Exceptions were Indian River (RM 138.6) and Portage Creek (RM 148.9), in which the entire reaches accessible to salmon were surveyed. Three streams located in Devil Canyon: Cheechako Creek (RM 152.4), Chinook Creek (RM 157.0) and Devil Creek (RM 161.0) were similarly surveyed.

Observed residence data was taken for chum and sockeye at three-day intervals from sloughs Moose (RM 123.5), A' (RM 124.6), 8A (RM 125.1) and 11 (RM 135.3). Observers used polarized glasses and polarized 7 x 35 Bushnell binoculars to detect and identify tagged chum and sockeye from Curry Station. Observers recorded sighting date, tag number, species, location in the slough and activity of each tagged salmon.

Main channels and side channels were surveyed weekly by helicopter from August 27 to October 13. Criteria presented in Section 2.2.1 were used to identify spawning sites.

Tag recovery surveys were conducted in conjunction with spawning ground surveys by recording numbers of live tagged and untagged fish of each species.

Egg retention sampling of sockeye and chum salmon carcasses was conducted at sloughs during escapement surveys. The sample size was based on fish availability and time. An incision was made in the abdomen of each fish and retained eggs were counted by hand.

2.3 Data Analysis

2.3.1 Escapement Monitoring by SSS Counter

The SSS counters operated at Yentna Station had a counting range of 60 feet, which was divided into 12 equal sectors. Counts for individual sectors were registered hourly on a printer. The printer tapes were edited in the field and rechecked in the office to eliminate debris counts (Barrett et al. 1984).

The daily fish counts by each SSS counter at Yentna Station were apportioned by species based on the composition of the catch by the fishwheel operating on the same day off the same bank. When the daily fishwheel catch was less than 150 fish, the SSS counts were apportioned according to the cumulative fishwheel catch for the succeeding number of days required to reach a 150 fish threshold catch sample.

2.3.2 Tag and Recapture Estimates

Salmon escapements to Flathorn, Sunshine, Talkeetna and Curry stations were estimated using the modified Petersen model by Ricker (1975). The exception was for jack chinook salmon measuring less than 351 mm. Barrett et al. (1984) discuss the procedure for calculating the jack chinook salmon escapements, the assumptions and suitability of the Petersen model and the calculation of the associated 95 percent confidence limits.

2.3.3 Escapement Timing

Salmon escapement timings were calculated for each species by station based on fishwheel catches. Species migration at a sampling station was defined to have started, reached a midpoint and ended on the date when 5, 50 and 95 percent of the cumulative station fishwheel catch-per-unit-effort (CPUE) was attained.

Escapement timings by salmon species are presented graphically as fishwheel CPUE curves, smoothed by the von Hann linear filter method (BMDP 1981).

2.3.4 Age Samples

Standard scale analysis techniques (Clutter and Whitesel 1956) were used to determine the ages of migrating salmon. The Gilbert-Rich notation is used to describe salmon ages.

2.3.5 Slough Escapements

Sockeye and chum salmon escapements to individual sloughs above RM 98.6 were calculated using spawner abundance data adjusted by average fish

observed residence (Cousens et al. 1982). Two exceptions to this method were: 1) when a peak escapement count for a slough was less than 15 live and dead fish and 2) when only one spawning ground survey was made. Total slough escapements in these cases were calculated using the following formula:

$$x = \frac{A}{B} (T)$$

where x = estimated escapement of Slough x

A = sum of escapements to all sloughs having peak counts ≥ 50 fish

B = sum of peak counts of all sloughs having peak counts ≥ 50 fish

T = single highest fish count at Slough x .

Pink salmon escapements to sloughs above RM 98.6 were adjusted by multiplying the peak live and dead survey counts by a factor of 1.2. This correction factor assumes that 80 to 90 percent of the spawning population was present at the peak of the escapement count (Cousens et al. 1982).

3.0 RESULTS AND DISCUSSION

In 1984, the Susitna River supported an escapement of at least 5.4 million salmon, determined from Petersen estimates of sockeye, pink, chum and coho salmon reaching Flathorn Station and chinook salmon reaching Sunshine Station. The species composition was about 2 percent chinook, 11 percent sockeye, 68 percent pink, 15 percent chum and 4 percent coho salmon.

The following subsections of this report will address the 1984 salmon migrations past five mainstem locations on the Susitna and Yentna rivers (Figure 1), and define where spawning occurred, emphasizing the Susitna River from the Yentna River to upper Devil Canyon. The reader will find the subsections formatted by species order and Susitna River reach. The species order is: chinook, sockeye, pink, chum and coho salmon. The river division is: lower reach and middle reach.

3.1 Chinook Salmon

3.1.1 Lower Reach

3.1.1.1 Main Channel Escapements

In 1984, chinook salmon were intercepted late in the migration at Flathorn and Yentna stations. Monitoring operations commenced at those locations on June 29 and July 1, respectively. Historically most of the chinook salmon escapement has already moved through the Susitna River lower reach by these dates (ADF&G 1982). Chinook salmon daily fishwheel catches at Flathorn and Yentna stations are listed in Appendix Tables 3-3 and 3-6. Chinook salmon SSS counts for Yentna Station are in Appendix Tables 4-1 and 4-2.

An estimated 121,700 chinook salmon reached Sunshine Station in 1984 (Figure 2 and Table 3). Less than four percent of those fish were jack salmon 350 mm or smaller (Table 4) and the remainder (96%) were chinook salmon over 350 mm (Table 5).

Fishwheels at Sunshine Station intercepted 7,550 chinook salmon in 1984 (Table 6). Based on these catches, migration there began on June 9, reached a midpoint on June 21, and ended on July 6 (Appendix Table 3-11). Migration began and ended about four days earlier on the west side than the east side, based on differences in east and west bank fishwheel catches.

At Sunshine Station most chinook going to the Chulitna River migrated along the west bank. Most of those going to the Talkeetna River passed Sunshine along the east bank. Middle Susitna River populations ran in about even numbers along both banks (Figure 3). These migrational differences were determined by comparing the ratios of east-tagged to west-tagged fish from Sunshine that later were found in the Chulitna and Talkeetna drainages and in the middle Susitna River (Appendix Table 6-4).

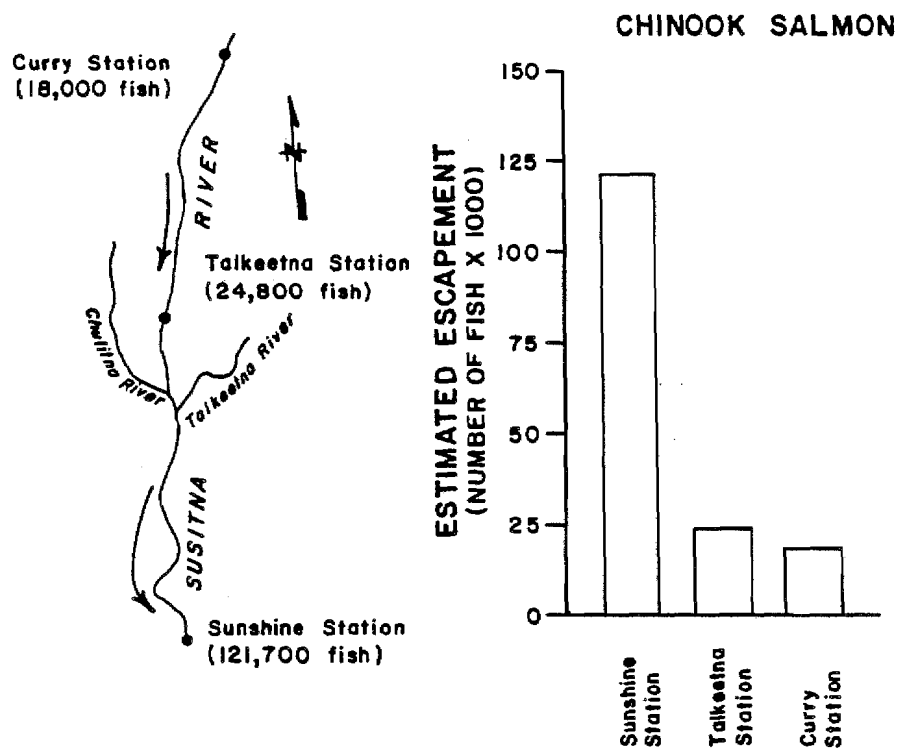


Figure 2. Chinook salmon escapements by sampling stations, 1984.

Table 3. Minimum escapements of chinook, sockeye, pink, chum and coho salmon to the Susitna River, 1984.

Year	Escapement Estimates ¹				
	Chinook	Sockeye ²	Pink	Chum	Coho
1984	121,700	605,800	3,629,900	812,700	190,100

¹ Sockeye, pink, chum and coho salmon escapements are based on Petersen estimate escapements to Flathorn Station (RM 22). Chinook salmon escapement is based on the Petersen population estimate for Sunshine Station (RM 80).

² Sockeye salmon escapement estimates do not include first-run sockeye salmon.

Table 4. Escapements of chinook salmon 350 mm or less in length to Sunshine, Talkeetna and Curry stations, 1984.

Chinook Salmon Escapement ≤ 350 mm		
Sunshine Station	Talkeetna Station	Curry Station
4,596	253	639

Table 5. Estimated chinook salmon escapements to Sunshine, Talkeetna and Curry stations, by the Petersen method, with associated confidence intervals, 1984.

Parameter ¹	Population Estimate Location ²		
	Sunshine Station	Talkeetna Station	Curry Station
m	7,172	2,464	1,242
c	10,648	2,026	475
r	652	203	34
\hat{N}	117,128	24,591	17,351
95% C.I.	109,020- 126,539	21,753- 28,282	13,106- 25,663

¹ m = Number of fish marked

c = Total number of fish examined for marks during sampling census.

r = Total number of marked fish observed during sampling census.

\hat{N} = Population estimate.

C.I. = Confidence Interval around \hat{N} .

² Chinook salmon escapements do not include fish 350 mm and less in length (FL).

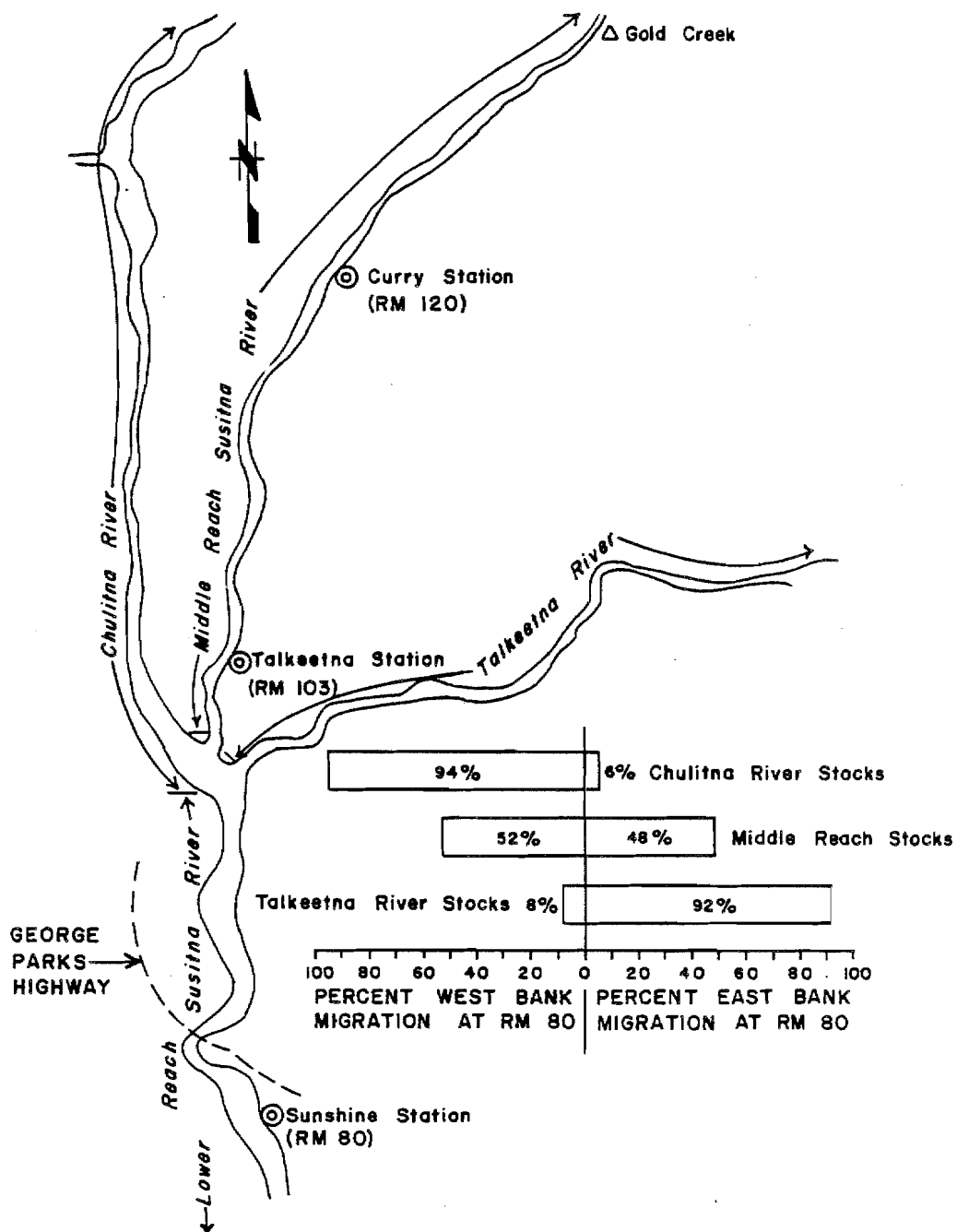


Figure 3. Migration preference of Chulitna River, Talkeetna River and middle reach Susitna River chinook salmon stocks to the east and west banks of the Susitna River at RM 80, 1984

Table 6. Fishwheel catch by species and station, 1984.

Station	Catch					
	Chinook	Sockeye	Pink	Chum	Coho	Total
Flathorn	92	8,300	35,136	7,519	2,746	53,793
Yentna	21	6,825	20,842	1,431	970	30,089
Sunshine	7,550	18,791	93,919	56,681	9,787	186,728
Talkeetna	3,407	1,731	29,236	12,749	1,526	48,649
Curry	1,589	379	17,394	4,228	350	23,940

Chinook salmon fishwheel catches at Sunshine Station are plotted in Figure 4. The curves generally reflect a bell-curve distribution, except for a six-day low period from June 13 through 19. River discharge levels during that period fluctuated dramatically from 54,000 cfs (June 13) to 93,000 cfs (June 17) to 71,000 cfs (June 19) (Figure 5). The reduced catch was probably due to those flow changes. In other studies, salmon responded to high water events by reducing their migration speed (ADF&G 1981 and Barrett et al. 1984).

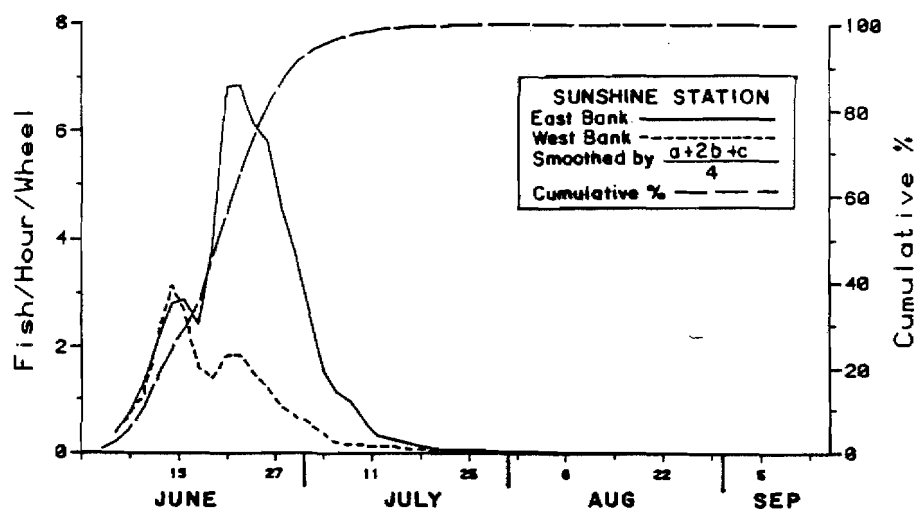


Figure 4. Mean hourly and cumulative percent fishwheel catch of chinook salmon by two day periods at Sunshine Station, 1984.

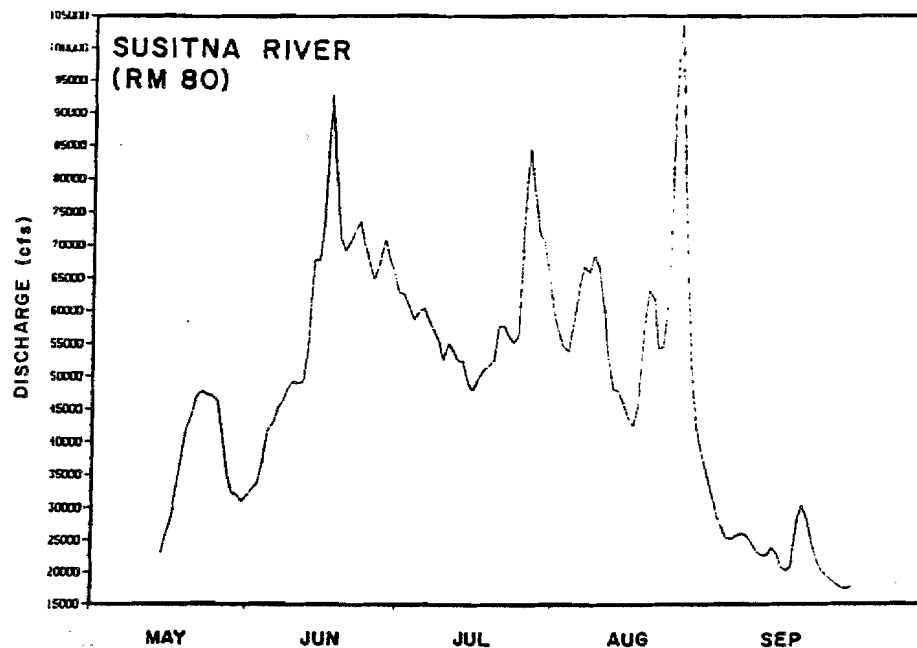


Figure 5. Provisional USGS discharge data for station No. 15292780 from May 15 through September, 1984.

Length, age and sex information collected from a sample of the chinook salmon escapement at Sunshine Station are summarized in Tables 7, 8 and 9 and Figure 6. Based on scale analysis, the 1984 escapement at Sunshine Station was comprised of three- to seven-year-old fish. The largest component was five-year-old fish (38%) (1979 parent-year escapement), followed by six-year-olds (34%). The average chinook salmon length at Sunshine Station was 765 mm (Appendix Figure 5-1). Males averaged 150 mm shorter than females due to a higher percentage of males in the younger age classes (Table 7). Overall at Sunshine Station, males were equally as abundant as females (Table 9). However males were more abundant among the three- and four-year-olds, and females were more numerous in older age classes.

3.1.1.2 Spawning Areas

In 1984, there was no evidence of chinook salmon spawning in the lower-river mainstem above the Susitna/Yentna River confluence (Appendix 1). Mainstem surveys were performed from August 21 through October 17, which was well after the peak spawning occurred in local streams. Additionally, fish-tagging crews at Flathorn, Yentna and Sunshine stations in June, July and early August saw no evidence of chinook spawning such as repeated surfacing of ripe fish or carcasses on gravel bars and shoals not related to washouts from known spawning streams.

Table 7. Analysis of chinook salmon lengths, in millimeters, by sex and age class from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.

Collection Site	Age Class	n		Range		Mean		95% Conf. Interval 1		Median	
		M	F	M	F	M	F	M	F	M	F
Flathorn Station	3 ₂	17	-	300-385	-	326	-	-	-	330	-
	4 ₂	5	-	330-520	-	454	-	-	-	450	-
	5 ₂	2	3	620-870	730-760	790	755	-	-	870	760
	6 ₂	1	2	1,015	745-835	1,015	790	-	-	1,015	835
	All ²	37	5	300-1,015	730-835	391	763	-	-	340	760
Yentna Station	3 ₂	1	-	300	-	300	-	-	-	300	-
	4 ₂	3	2	435-540	500-555	503	527	-	-	520	500
	5 ₂	-	1	-	697	-	697	-	-	-	697
	6 ₂	3	3	825-970	810-940	888	875	-	-	850	875
	All ²	9	8	300-970	500-940	633	730	-	-	540	810
Sunshine Station	3 ₁	6	-	340-540	-	434	-	-	-	370	-
	3 ₂	91	-	240-435	-	348	-	341-355	-	350	-
	4 ₁	2	2	555-645	640-760	634	692	-	-	645	640
	4 ₂	182	51	370-750	500-780	585	618	575-594	601-636	585	620
	5 ₁	4	5	830-935	775-915	927	815	-	-	935	820
	5 ₂	197	263	515-995	555-1000	792	807	779-805	799-814	800	810
	6 ₁	1	2	855	835-850	855	849	-	-	855	850
	6 ₂	128	289	575-1140	550-1150	932	912	915-949	904-920	935	905
	7 ₂	6	6	950-1100	865-1005	1037	950	-	-	1050	1005
	All ²	853	774	240-1140	500-1150	693	840	-	-	710	850

Table 7 (Continued).

Collection Site	Age Class	n		Range		Mean		95% Conf. Interval 1		Median	
		M	F	M	F	M	F	M	F	M	F
Talkeetna Station	2	7	-	310-410	-	343	-	-	-	-	-
	4 ₁	2	2	490-640	540-640	565	590	-	-	640	640
	4 ₂	104	15	480-860	520-850	612	753	598-626	-	610	840
	5 ₁	1	1	700	890	700	890	-	-	700	890
	5 ₂	138	138	520-1000	660-1000	821	824	805-837	816-833	820	820
	6 ₁	-	1	-	900	-	900	-	-	-	900
	6 ₂	73	164	750-1150	510-1100	960	907	941-979	897-916	970	910
	7 ₂	3	5	930-1030	830-1020	949	899	-	-	930	890
	All ²	419	412	300-1150	510-1100	775	863	-	-	800	870
Curry Station	3 ₁	3	-	350-390	-	372	-	-	-	360	-
	3 ₂	47	-	300-590	-	362	-	347-378	-	350	-
	4 ₂	77	1	390-920	620	610	620	594-626	-	600	620
	5 ₂	84	93	650-990	670-910	829	828	812-845	819-836	830	830
	6 ₁	-	1	-	950	-	950	-	-	-	950
	6 ₂	61	113	750-1090	790-1000	953	928	934-972	920-936	970	930
	7 ₂	1	3	980	950-990	980	971	-	-	980	960
	All ²	331	265	300-1090	620-1000	737	881	-	-	770	880

¹ Confidence Interval of the Mean.

² Composite of all aged and non-aged samples.

Table 8. Age composition by percent of the chinook salmon escapements to Flathorn, Yentna, Sunshine, Talkeetna and Curry stations based on catch samples weighted by fishwheel CPUE, 1984.

Collection Site	n	Age Class ¹								
		3 ₁	3 ₂	4 ₁	4 ₂	5 ₁	5 ₂	6 ₁	6 ₂	7 ₂
Flathorn Station	30	-	56.7	-	16.7	-	16.7	-	10.0	-
Yentna Station	13	-	7.7	-	38.5	-	7.7	-	46.2	-
Sunshine Station	1,236	0.5	7.4	0.3	18.9	0.7	37.2	0.2	33.8	1.0
Talkeetna Station	654	-	1.1	0.6	18.2	0.3	42.2	0.2	36.2	1.2
Curry Station	484	0.6	9.7	-	16.1	-	36.6	0.2	36.0	0.8

¹ Gilbert-Rich Notation.

Table 9. Sex ratios of male and female chinook salmon by age from fishwheel CPUE weighted escapement samples collected at Sunshine, Talkeetna and Curry stations, 1984.

Collection Site	Age	Sample Size	Number		Sex Ratio (M:F)
			Males	Females	
Sunshine Station	3	97	97	0	-
	4	237	186	51	3.6:1
	5	469	198	271	0.7:1
	6	421	136	285	0.5:1
	7	12	6	6	1.0:0
	All ¹	1,628	828	800	1.0:1
Talkeetna Station	3	7	7	0	-
	4	123	115	8	14.4:1
	5	278	146	132	1.1:1
	6	238	80	158	0.5:1
	7	8	2	6	0.3:1
	All ¹	831	441	390	1.1:1
Curry Station	3	50	50	0	-
	4	78	76	2	38.0:1
	5	177	86	91	0.9:1
	6	175	67	108	0.6:1
	7	4	1	3	0.3:1
	All ¹	596	330	266	1.2:1

¹ Includes all aged and non-aged samples.

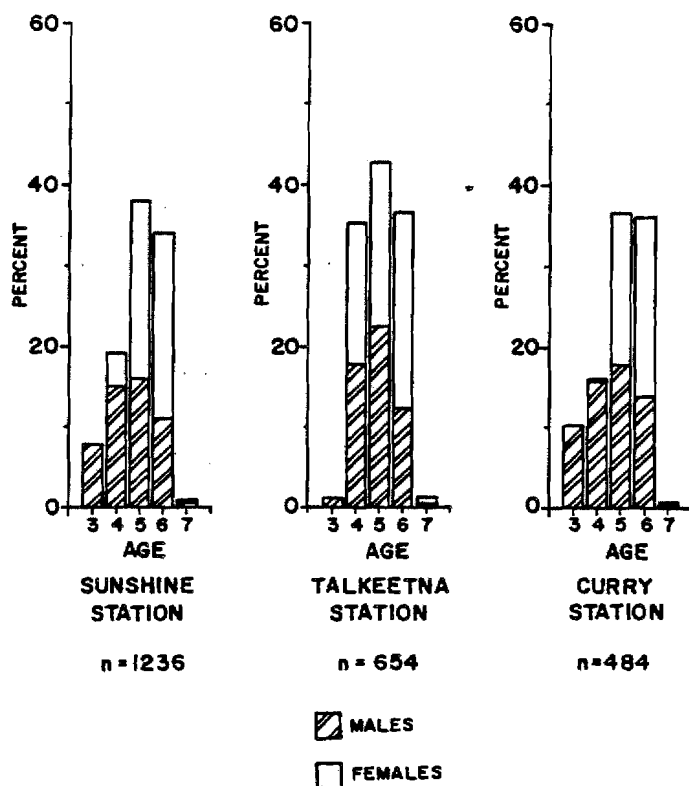


Figure 6. Age composition of fishwheel intercepted chinook salmon weighted by CPUE at Sunshine, Talkeetna and Curry stations, 1984.

There was no indication that stream mouths or sloughs in the lower reach served as spawning areas for chinook. These areas were surveyed weekly from July 21 to October 21 (Appendix 1).

3.1.2 Middle Reach

3.1.2.1 Main Channel Escapements

In 1984, the chinook salmon escapement to the middle reach was an estimated 24,800 fish at Talkeetna Station and 18,000 fish at Curry Station (Tables 4 and 5). About one percent of the Talkeetna chinooks were jacks (≤ 350 mm). At Curry, four percent were jacks. Approximately 45 percent and 24 percent, respectively, of the escapements reaching those stations were milling fish that returned downstream and spawned. These percentages were determined by spawning ground counts conducted above the two stations (Section 3.1.2.2). Most of the chinook salmon that milled to Talkeetna and Curry stations subsequently spawned in the Talkeetna and Chulitna river systems (Appendix Table 6-4).

Chinook salmon were abundant in the middle-reach mainstem for about 25 days in 1984. At Talkeetna Station, migration began on June 15 and

ended on July 12, with a midpoint on June 26 (Appendix Table 3-14). Migration at Curry Station began on June 19, reached a midpoint on June 25 and ended on July 13.

A plot of daily fishwheel catches at Talkeetna and Curry stations (Figure 7) indicates that there was a surge in chinook at those stations around June 19, 1984. The increase in fish numbers can be attributed to a flow change in the Susitna River. On June 16, river flow at the USGS station at Gold Creek increased 9,400 cfs over the previous day to 40,600 cfs and continued to rise. On June 17, the flow peaked at 52,000 cfs. By June 19 the flow had receded to 33,600 cfs (Figure 8). At Talkeetna and Curry stations, fishwheel catches were relatively weak at about 0.4 fish per wheel per hour during the high flow event. When the flow decreased to near pre-flood levels, catches increased to about 1.6 fish per wheel per hour.

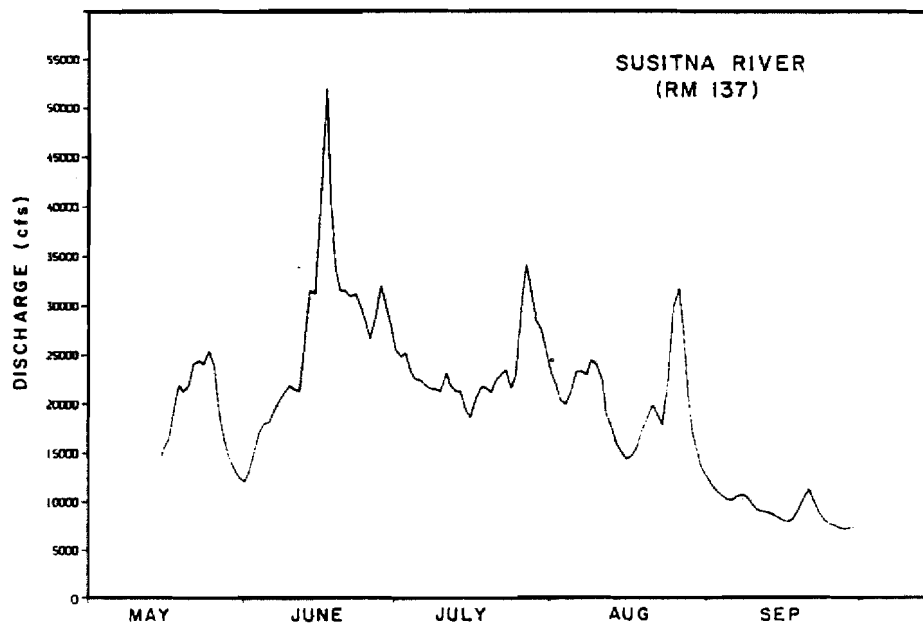


Figure 8. Provisional USGS discharge data for station No. 15292000 from May 15 through September, 1984.

In 1984, chinook salmon were slightly more abundant along the east side of the river at Talkeetna and Curry stations than along the west side (Appendix 3). At Talkeetna Station, the fishwheels caught 3,407 chinook, 57 percent in the east bank wheels and 43 percent in the west bank wheels. At Curry Station, 1,589 chinook were caught, 54 percent in the east bank wheels and 46 percent in the west bank wheels.

The 1984 migrational rates of tagged chinook salmon between Sunshine, Talkeetna and Curry stations are presented in Appendix 3 and summarized in Figure 9. Chinook travel speeds were slower between Sunshine and

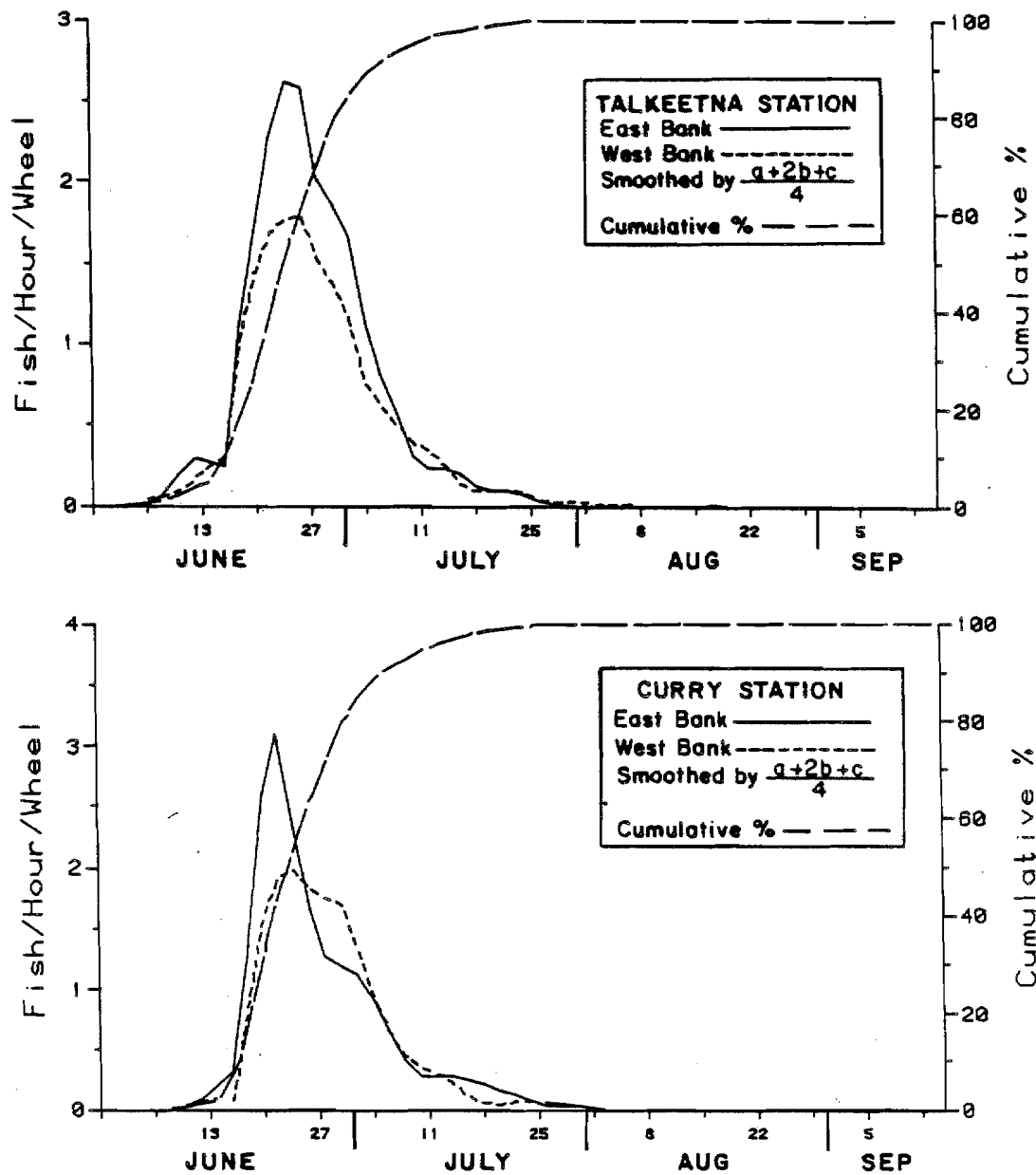


Figure 7. Mean hourly and cumulative percent fishwheel catch of chinook salmon by two day periods at Talkeetna and Curry stations, 1984.

Talkeetna Stations (3.3 mpd) than between Talkeetna and Curry Stations (4.3 mpd). Slower migration speeds from Sunshine Station may have been due to milling in the confluence area of the Talkeetna, Chulitna and Susitna rivers.

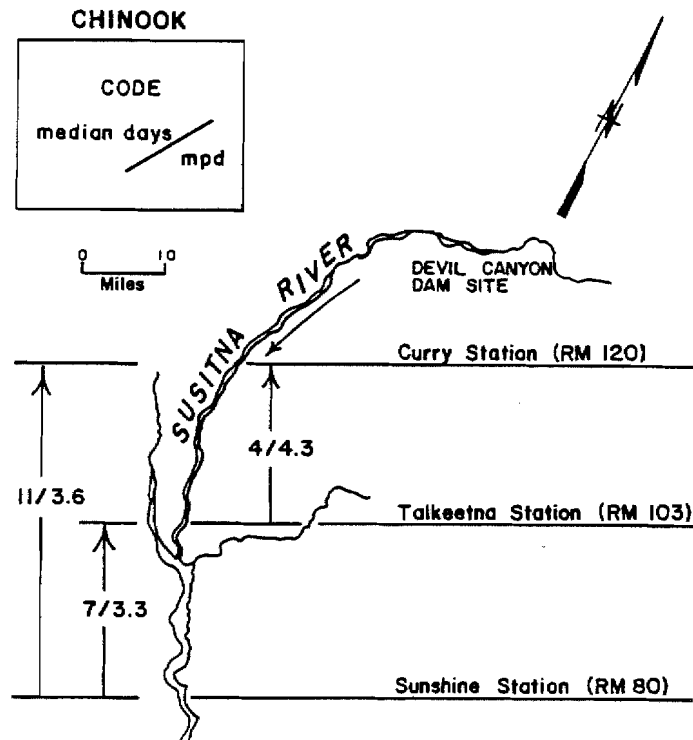


Figure 9. Migrational rates of chinook salmon between three lower and middle Susitna River reach sampling stations, 1984.

The 1984 chinook escapement at Talkeetna Station was comprised of three- to seven-year-old fish (Table 8). The majority were five- and six-year-olds. Average chinook length at Talkeetna Station in 1984 was 816 mm (Appendix Figure 5-2). Males averaged 90 mm shorter than females. Overall, male and female chinook were about equally abundant (1.1:1) at Talkeetna Station. However, males were more abundant than females among the three- and four-year-olds but less abundant among the five- to seven-year-olds.

At Curry Station, the 1984 chinook escapement was also comprised of three- to seven-year-old fish (Table 8). Five- and six-year-olds were dominant. The average length was 801 mm (Appendix Figure 5-3). Females averaged 140 mm longer than males (Appendix Figure 5-3). Overall, males were more abundant than females (1.2:1). Males were more numerous in the three- and four-year-old age classes, but less numerous in the five- to seven-year-old age classes.

3.1.2.2 Spawning Areas

In 1984, no chinook spawning was found in the middle-reach mainstem. Several chinook salmon carcasses were found on gravel bars in the mainstem in early August, but all were considered to be fish that washed out from nearby spawning streams.

Chinook did not use middle-reach sloughs for spawning or milling in 1984 (Appendix 6). However, 12 streams were used (Table 10). Nearly all the fish (96%) were found in Indian River and Portage Creek (Figure 10). Surveys of those two streams indicated that spawning commenced prior to July 25 and was completed by the end of August, with a peak the last week in July and the first week in August (Figures 11 and 12).

Table 10. Distribution of chinook salmon to middle reach streams based on peak counts, 1984.

Stream	River Mile	Date Surveyed	Peak Number Counted			Percent Distribution
			Live	Dead	Total	
Portage Creek	148.9	8/1	5,236	210	5,446	75.9
Indian River	138.6	7/25	1,440	16	1,456	20.3
4th of July Cr.	131.1	7/22	90	2	92	1.3
Whiskers Creek	101.4	7/21	67	0	67	0.9
Cheechako Cr.	152.5	8/1	28	1	29	0.4
Gold Creek	136.7	8/1	20	3	23	0.3
Lane Creek	113.6	7/22	23	0	23	0.3
5th of July Cr.	123.7	7/23	17	0	17	0.2
Chinook Creek	156.8	8/1	15	0	15	0.2
Jack Long	144.5	7/21	7	0	7	0.1
Chase Creek	106.9	8/16	0	3	3	0.1
Fog Creek	176.7	7/21	2	0	2	<0.1
TOTALS			6,945	235	7,180	100.0

Chinook salmon spawning occurred at the mouths of Indian River, Portage Creek, Fourth of July Creek and Whiskers Creek in 1984 (Appendix 6). In Portage and Fourth of July creeks, spawning was about evenly distributed to the upper limit of migration. At Indian River, most of the spawning occurred in the first two miles from the mouth. At Whiskers Creek, nearly all chinook spawned at the mouth.

Spawning in middle-reach streams occurred from mid-July to mid-August (Appendix 6). The peak spawning occurred in the last week of July.

In 1984, approximately 13,800 chinook salmon spawned in the middle reach, assuming that all spawning areas were surveyed and that a peak stream count represented about 52 percent of the spawning population

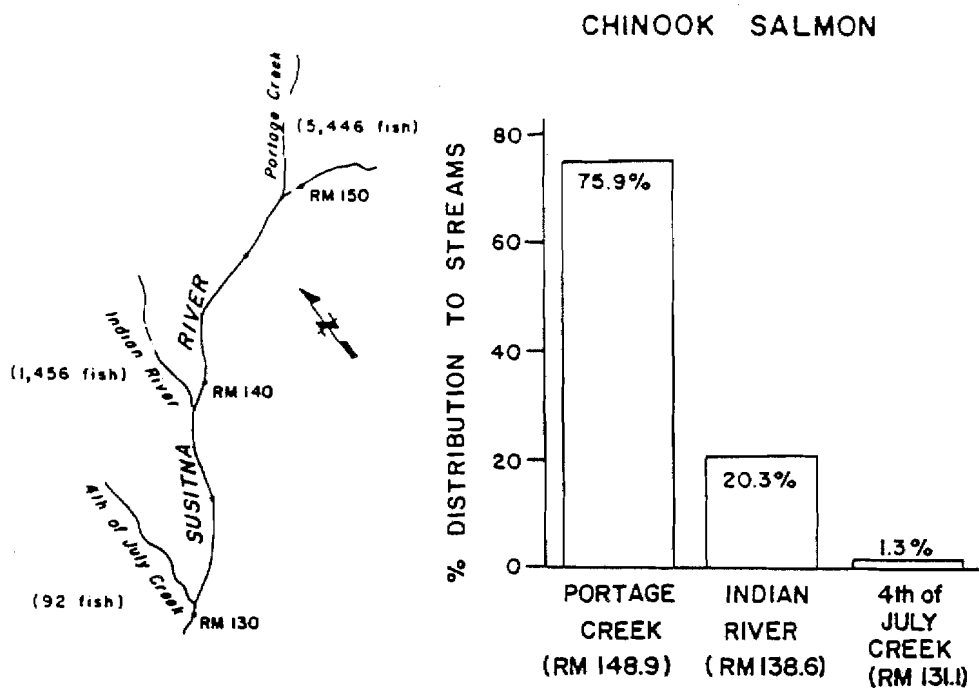


Figure 10. The three major streams in the middle reach occupied by chinook salmon and the respective percent escapement based on peak counts, 1984.

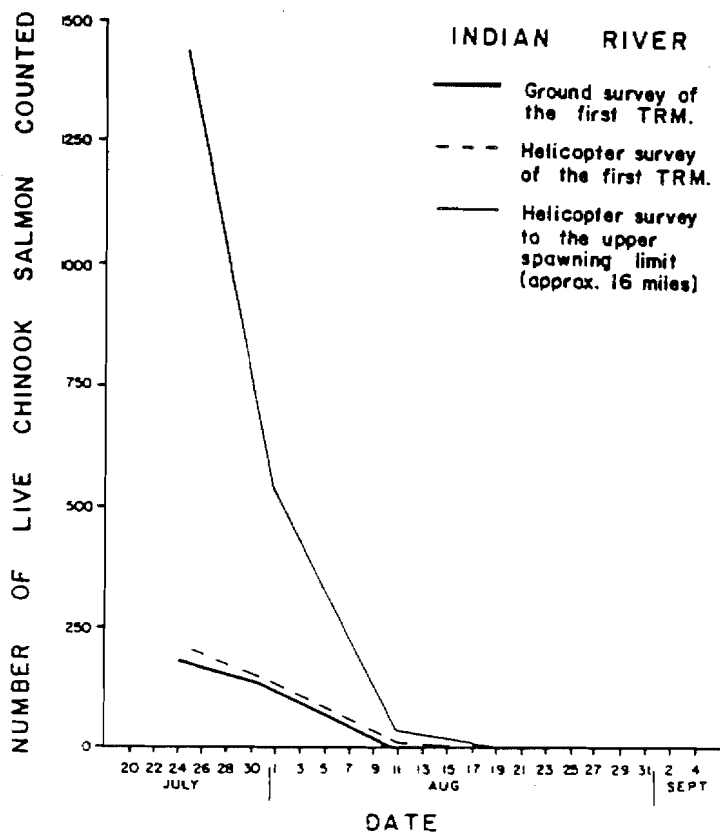


Figure 11. Chinook salmon ground and helicopter counts of Indian River, 1984.

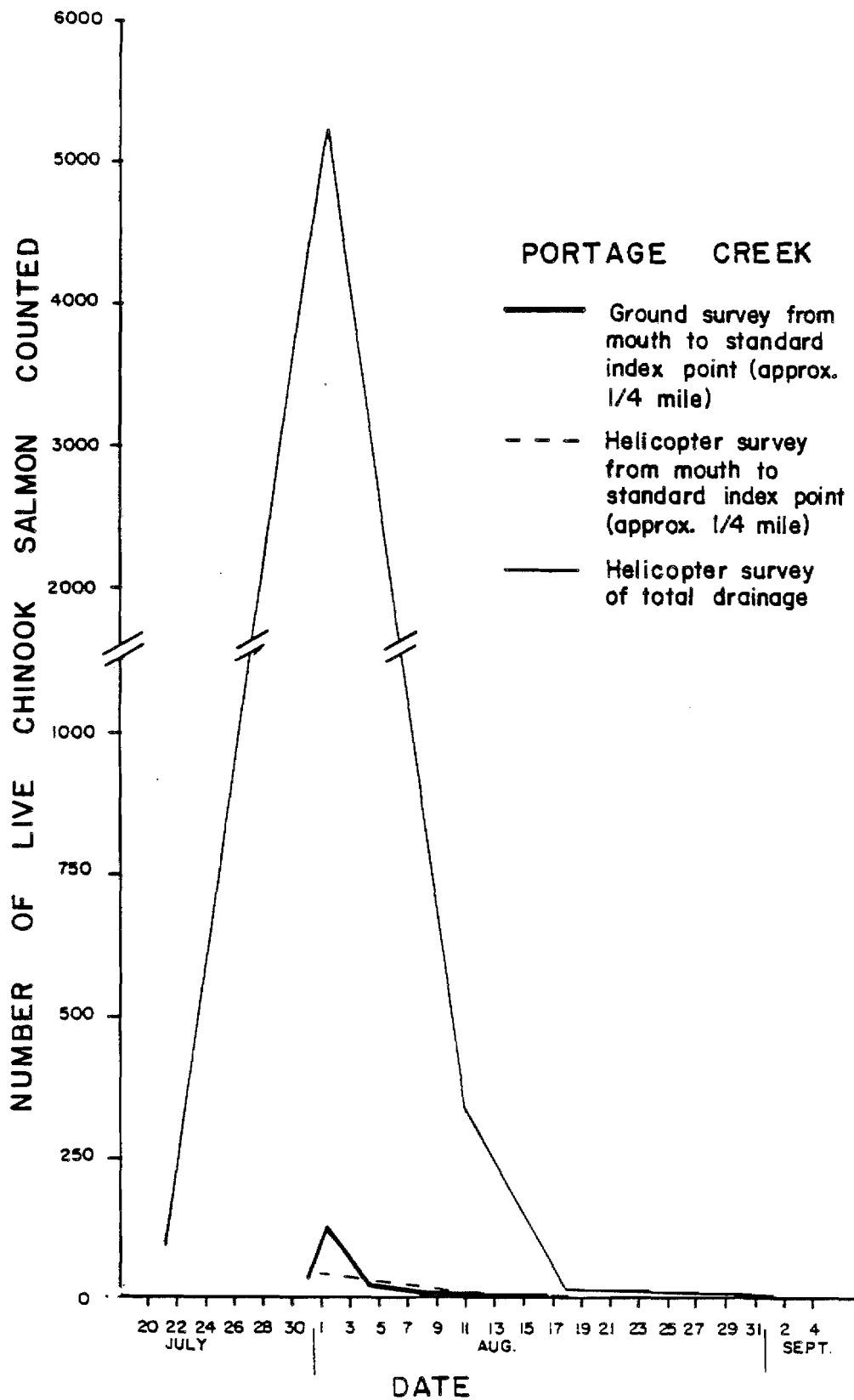


Figure 12. Chinook salmon ground and helicopter counts of Portage Creek, 1984.

(Neilsen and Green 1981). About 44 and 23 percent of the respective Talkeetna and Curry stations escapements were milling fish that returned downstream to spawn, based on the above estimate of spawners in the middle reach.

3.1.3 Escapement Index Surveys

Fourteen index streams in the Susitna River basin were surveyed in 1984 for chinook salmon (Table 11 and Figure 13). Based on those surveys, the escapement was well within or slightly above the escapement average for the past eight years (Table 12). The escapement on the west side of the Susitna River drainage, below the Chulitna River confluence, was lower than the eight-year average. All other subreaches supported higher escapements than in previous years from 1976 to 1983.

3.2 Sockeye Salmon

3.2.1 First-Run

One confirmed and another suspected population of first-run sockeye salmon passes through the lower Susitna River reach each year between late May and mid-June. The confirmed population migrates past Sunshine Station and spawns in the Talkeetna River drainage in the Papa Bear Lake system (Figure 14). (ADF&G 1983). A second population may utilize the Fish Lake Creek system in the Yentna River drainage (unpublished report, Barrett 1973) (Figure 15). With the exception of a few milling fish, first-run sockeye salmon do not enter or spawn in the middle reach of the Susitna River (Barrett et al. 1984).

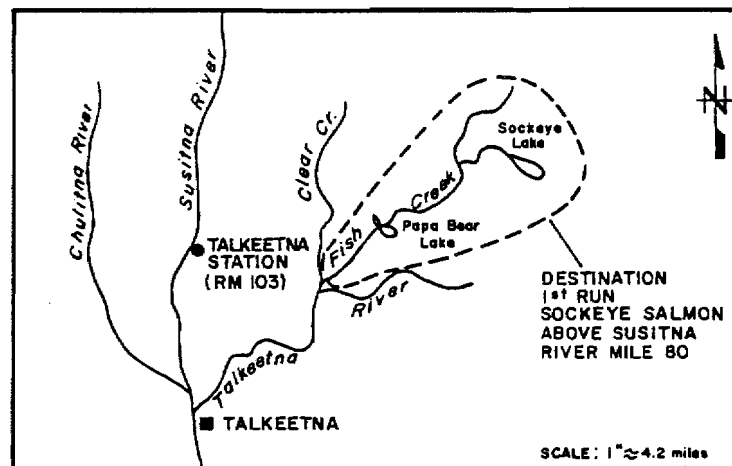
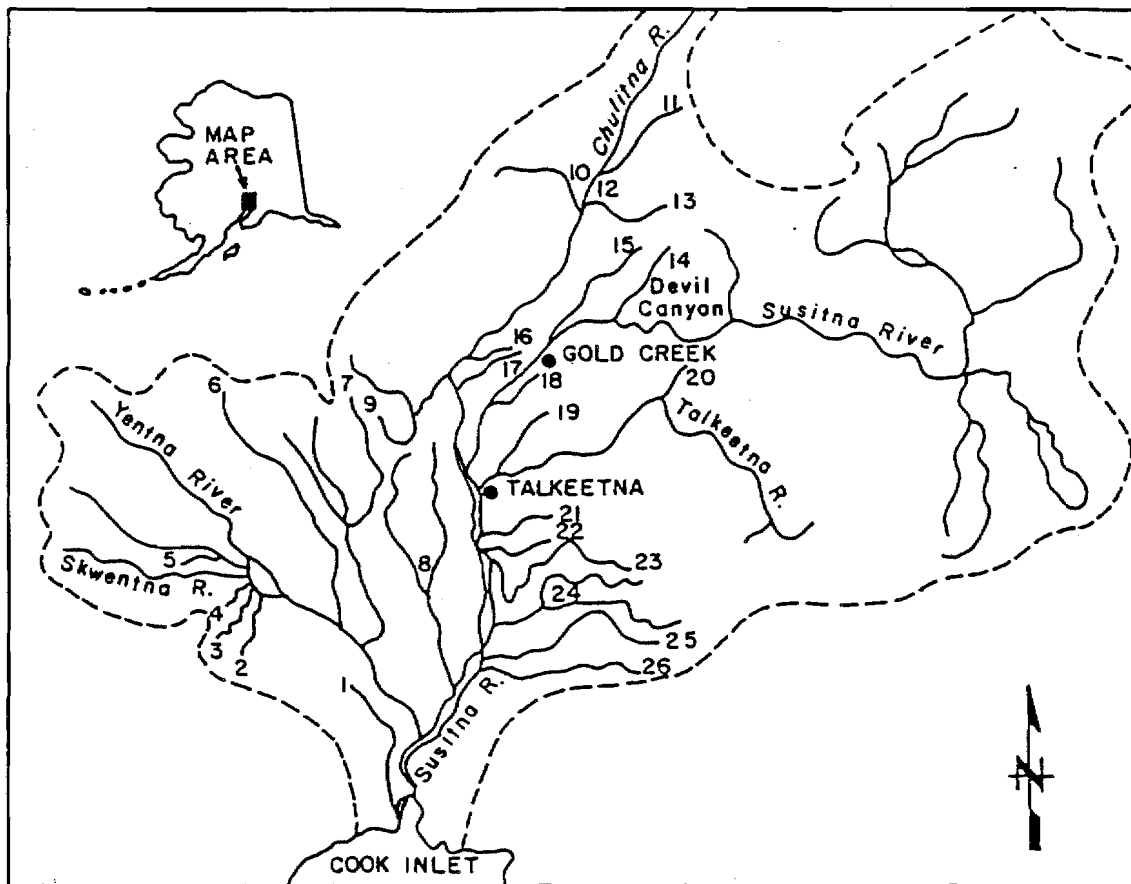


Figure 14. Destination of first-run sockeye salmon tagged at Sunshine Station (RM 80), 1984.

Table 11. Chinook salmon escapement counts of index streams in the Susitna River drainage, 1984.

Stream	Survey			Number Chinook Salmon Observed		
	Date	Method	Conditions	Live	Dead	Total
Alexander Creek	7/20	Hel.	good	4,610	10	4,620
Bunco Creek	8/10	Hel.	good	18	33	51
Chulitna River	7/24	Raft	excellent	4,110	81	4,191
	8/4	Raft	good	839	197	1,036
Clear Creek	7/25	Hel.	poor	1,453	67	1,520
Deshka River	8/4	Hel.	good	16,852	40	16,892
Goose Creek	7/31	Hel.	fair	200	58	258
Indian River	7/21	Hel.	poor	0	0	0
	7/25	Hel.	good	1,440	16	1,456
	8/1	Hel.	good	525	90	615
	8/11	Hel.	excellent	41	0	41
	8/18	Hel.	good	6	0	6
Kashwitna River (North Fork)	7/31	Hel.	poor	111	0	111
Lane Creek	7/22	Hel.	excellent	22	0	22
	7/23	Hel.	excellent	5	0	5
	7/30	Foot	good	6	0	6
Montana Creek	7/24	Foot	fair	2,268	41	2,309
Portage Creek	7/25	Hel.	fair	2,310	31	2,341
	8/1	Hel.	excellent	5,236	210	5,446
	8/18	Hel.	good	11	0	11
	8/11	Hel.	excellent	347	242	589
Prairie Creek	7/24	185 Cess.	good	9,000	--	9,000
Sheep Creek	7/31	Hel.	fair	778	250	1,028
Talachulitna River	7/31	Hel.	poor	6,038	100	6,138



- | | | |
|-----------------------|--------------------------|--------------------------------|
| 1. ALEXANDER CREEK | 10. CHULITNA MIDDLE FORK | 19. CLEAR CREEK |
| 2. TALACHULITNA RIVER | 11. CHULITNA EAST FORK | 20. PRAIRIE CREEK |
| 3. QUARTZ CREEK | 12. CHULITNA RIVER | 21. MONTANA CREEK |
| 4. CANYON CREEK | 13. HONOLULU CREEK | 22. GOOSE CREEK |
| 5. RED CREEK | 14. PORTAGE CREEK | 23. SHEEP CREEK |
| 6. LAKE CREEK | 15. INDIAN RIVER | 24. KASHWITNA RIVER NORTH FORK |
| 7. PETERS CREEK | 16. BYERS CREEK | 25. LITTLE WILLOW CREEK |
| 8. DESHKA RIVER | 17. TROUBLESOME CREEK | 26. WILLOW CREEK |
| 9. BUNCO CREEK | 18. LANE CREEK | |

Figure 13. Susitna River basin with chinook salmon index streams defined, 1984.

Table 12. Highest survey counts of chinook salmon in Susitna River sub-basin index streams, 1976-84.

Sub-basin	1976	1977	1978	1979	1980	1981	1982	1983	1984
Lower Susitna sub-basin¹									
Alexander Creek	5,412	9,246	5,854	6,215	a	a	2,546 ^e	3,755	4,620
Deshka River	21,693	39,642	24,639	27,385	a	a	16,000 ^e	19,237	16,892
Goose Creek	160	133	283	b	a	262	140 ^d	477	258
Kashwitna River (North Fork)	203	336	362	457	a	557	156 ^d	297	111 ^c
Little Willow Creek	833	598	436	324 ^c	a	459	316 ^d	1,042	b
Montana Creek	1,445	1,443	881	1,094 ^c	a	814	887 ^d	1,641	2,309
Sheep Creek	455	630	1,209	778	a	1,013	527 ^d	945	1,028
Sucker Creek (Alexander Creek)	b	b	b	b	b	b	b	597	b
Willow Creek	1,660	1,065	1,661	1,086	a	1,357	592 ^d	777	2,789
Wolverine Creek (Alexander Creek)	b	b	b	b	b	b	b	491	b
Subtotal	31,861	53,093	35,325	37,339	---	4,462	21,164	29,259	28,007
Yentna sub-basin²									
Camp Creek (Lake Creek)	b	b	b	b	b	b	b	1,050	b
Canyon Creek	44	135	b	b	b	84	b	575	b
Lake Creek	3,735	7,391	8,931	4,196	a	a	3,577	7,075	a
Peters Creek	2,280	4,102	1,335	a	a	a	a	2,272	a
Quartz Creek	b	8	b	b	b	8	b	b	b
Red Creek	b	1,511	385	b	b	749	b	b	b
Sunflower Creek (Lake Creek)	b	b	b	b	b	b	b	2,250	b
Talachulitna River	1,319	1,856	1,375	1,648	a	2,129	3,101	10,014	6,138 ^c
Subtotal	7,378	15,003	12,026	5,844	---	2,970	6,678	23,236	6,138
Talkeetna-Chulitna sub-basin³									
Bunco Creek	112	136	a	58	a	a	198 ^d	523	51 ^d
Byers Creek	53	69	a	28	a	a	7 ^d	b	39
Chulitna River	124	229	62	a	a	a	100 ^d	b	b
Chulitna River (East Fork)	112	168	59	a	a	a	119 ^d	b	b
Chulitna River (Middle Fork)	1,870	1,782	900	a	a	a	644 ^d	3,846	4,191
Clear Creek (Chunilna)	1,237	769	997	864 ^c	a	a	982 ^d	806	1,520 ^c
Honolulu Creek	24	36	13	37	a	a	27 ^d	b	b
Prairie Creek	6,513	5,790	5,154	a	a	1,900	3,844 ^d	3,200 ^e	9,000
Troublesome Creek	92	95	a	a	a	a	36 ^d	b	b
Subtotal	10,137	9,074	7,185	987	---	1,900	5,957	8,375	14,801

Table 12 (Continued).

Sub-basin	1976	1977	1978	1979	1980	1981	1982	1983	1984
Middle Susitna sub-basin ⁴									
Chase Creek	b	b	b	b	b	b	15	15	3
Cheechako Creek	b	b	b	b	b	b	16	25	29
Chinook Creek	b	b	b	b	b	b	5	8	15
Devil Creek	b	b	b	b	b	b	0	1	0
Fifth of July Creek	b	b	b	b	b	b	3	0	17
Fog Creek	b	b	b	b	b	b	b	b	2
Fourth of July Creek	b	b	b	b	b	b	56	6	92
Gold Creek	b	b	b	b	b	b	21	23	23
Indian River	537	393	114	285	a	422	1,053	1,193	1,456
Jack Long Creek	b	b	b	b	b	b	2	6	7
Lane Creek	b	b	b	b	b	40	47	12	23
Portage Creek	702	374	140	190	a	659	1,253	3,140	5,446
Whiskers Creek	b	b	b	b	b	b	0	3	67
Subtotal	1,239	767	254	475	---	1,121	2,471	4,432	7,180
TOTAL	50,615	77,937	54,790	44,645	---	10,453	36,270	65,302	56,126

^a No total count due to high turbid water

^b Not counted

^c Poor counting conditions

^d Counts conducted after peak spawning

^e Estimated peak spawning count

1 RM 0-97.1 excluding the Yentna sub-basin

2 RM 28, Yentna River drainage

3 RM 97.1-98.6

4 Above RM 98.6

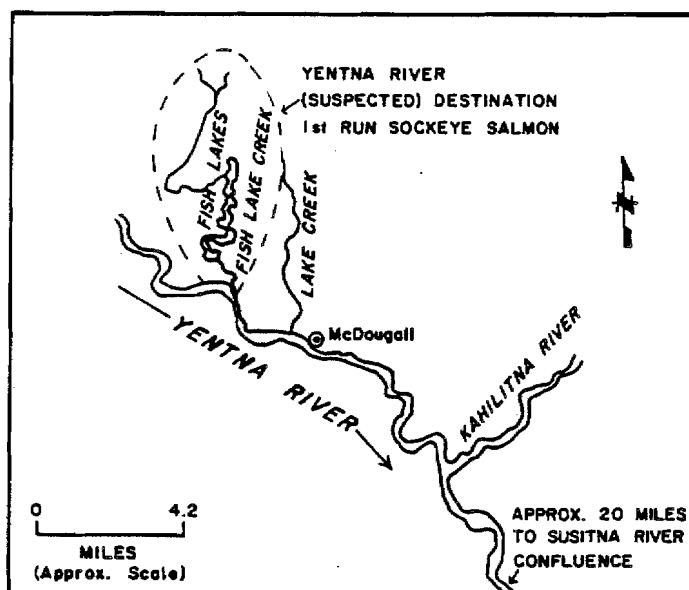


Figure 15. Suspected destination of first-run sockeye salmon into the Yentna River drainage, 1984.

3.2.1.1 Lower Reach

3.2.1.1.1 Main Channel Escapements

Yentna Station on the Yentna River was not operational early enough in 1982 to monitor first-run escapement. Sunshine Station was operational on June 4 in time to monitor the escapement into the Talkeetna River system. The escapement to Sunshine Station was approximately 4,800 sockeye (Table 13).

Table 13. Petersen population estimate for first-run sockeye salmon to Sunshine Station, 1984.

Location	River Mile	Tagged (m)	Examined for tags (c)	Recaptures (r)	Population Estimate (\hat{N})	95% Confidence Interval
Sunshine	80	492	1,977	204	4,768	4,220-5,480

¹ Migration period of first-run sockeye salmon extended from June 4 through June 22, 1984.

The four fishwheels at Sunshine Station caught approximately 500 first-run sockeye in 1984 (Table 13). Based on an analysis of the catch, the migration began on June 4, reached midpoint on June 10 and was over by June 22 (Appendix Table 3-11). The peak migration occurred on June 9 with an average catch per wheel hour of 0.6 fish.

At Sunshine Station, the migration of first-run fish was concentrated on the east bank with the two east bank wheels catching 99 percent of the fish in 1984 (Appendix Table 3-7).

First-run sockeye salmon were sampled at Sunshine Station to determine representative escapement age, length and sex composition (Table 14). Nearly the entire 1984 escapement (96%) was five-year-old fish (1979 brood year) (Table 15). The remainder of the escapement (4%) included four- and six-year-old fish. Most of the returning first-run sockeye salmon had spent one winter in freshwater before entering the marine environment. The average length was 531 mm (Appendix Figure 5-6). Males averaged 34 mm longer than females. Overall, males were less numerous than females (0.5:1) (Table 16).

3.2.1.1.2 Spawning Areas

The first-run sockeye salmon that migrated past Sunshine Station in early June 1984 spawned in the inlet stream of Papa Bear Lake. The spawning extended from the creek mouth upstream about 1.5 miles and took place mainly over the last three weeks of July. Spawning probably peaked July 20. These findings are based on two escapement surveys conducted on July 14 and 26 (Table 17). On the first date, there were about 1,500 sockeye in Papa Bear Inlet stream that were just beginning to spawn and another 500 to 1,000 fish holding off the creek mouth in Papa Bear Lake. There were no sockeye carcasses in the creek other than several bear-killed fish. On the second date, most of the fish in the creek were in post-spawning condition, and there were no sockeye salmon observed holding off the stream mouth.

Table 17. Escapement survey counts of tagged and untagged first-run sockeye salmon tagged at Sunshine Station in 1984.

Area Surveyed	River ¹ Mile	Date	Survey Conditions	Sunshine Tags			Ratio (c/r)
				Tagged (r)	Untagged	Total (c)	
Papa Bear Lake	97.1	7/14	Poor ²				
Papa Bear Lake Inlet Stream	97.1	7/14	Excellent	131	1,405	1,536	11.7
Papa Bear Lake Inlet Stream	97.1	7/26	Good	72	360	432	6.0

¹ Confluence of stream or receiving system with Susitna River mainstem.

² Fish not surveyed for tag recovery data. Approximately 500-1,000 sockeye salmon milling at the lake inlet.

Table 14. Analysis of sockeye salmon lengths, in millimeters, by sex and age class from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Interval ¹		Median	
		M	F	M	F	M	F	M	F	M	F
Flathorn Station	3 ₁	17	1	320-465	420	410	420	-	-	410	420
	3 ₂	103	-	230-420	-	330	-	322-338	-	330	-
	4 ₁	22	5	445-620	465-585	547	486	525-568	-	560	465
	4 ₂	458	314	345-630	390-590	481	486	477-486	482-490	480	485
	4 ₃	16	3	300-530	375-495	378	454	340-416	-	385	470
	5 ₁	11	6	540-660	520-615	599	541	-	-	585	525
	5 ₂	430	288	420-690	400-645	564	542	560-567	539-546	570	540
	5 ₃	38	41	405-615	420-585	499	506	485-514	491-521	505	510
	6 ₂	1	1	545	545	545	545	-	-	545	545
	6 ₃	13	12	480-620	470-575	539	529	-	-	550	535
	All ²	1,314	768	230-690	375-645	520	517	-	-	535	520
Yentna Station	3 ₁	4	1	390-425	455	413	455	-	-	423	455
	3 ₂	29	-	310-403	-	347	-	338-356	-	338	-
	4 ₁	16	19	487-610	515-620	572	571	-	-	587	568
	4 ₂	290	245	340-601	411-650	472	488	467-477	484-493	459	489
	4 ₃	6	-	335-387	-	351	-	-	-	350	-
	5 ₂	624	720	458-640	425-611	575	550	573-577	548-551	577	550
	5 ₃	60	87	375-570	403-557	498	484	487-509	478-490	509	489
	6 ₂	-	2	-	490-530	-	527	-	-	-	530
	6 ₃	58	92	530-620	465-612	580	552	574-585	547-556	585	550
	All ²	1,324	1,415	310-640	403-650	538	532	-	-	558	540

Table 14 (Continued).

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Interval ¹		Median	
		M	F	M	F	M	F	M	F	M	F
Sunshine Station First-Run	4 ₁	-	1	-	575	-	575	-	-	-	575
	4 ₂	7	4	390-545	410-480	488	434	-	-	530	420
	5 ₁	-	1	-	550	-	550	-	-	-	550
	5 ₂	121	230	375-685	410-605	559	519	552-556	515-523	560	520
	6 ₂	-	1	-	535	-	535	-	-	-	535
	All ²	139	261	375-685	410-605	554	520	-	-	560	520
Sunshine Station Second-Run	3 ₁	7	1	370-425	380	402	380	-	-	410	380
	3 ₂	31	1	275-420	375	370	375	352-388	-	340	375
	3 ₃	1	-	365	-	365	-	-	-	-	-
	4 ₁	8	13	445-600	405-585	574	526	-	-	600	520
	4 ₂	258	317	355-630	375-585	512	484	506-517	479-488	515	490
	4 ₃	9	1	335-450	475	380	475	-	-	375	475
	5 ₂	119	165	380-640	450-620	568	536	561-575	531-541	570	540
	5 ₃	12	20	420-575	420-540	505	491	-	483-499	530	490
	6 ₃	-	7	-	495-535	-	511	-	-	-	500
	All ²	523	608	575-640	370-620	530	500	-	-	535	500

Table 14 (Continued).

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Interval ¹		Median	
		M	F	M	F	M	F	M	F	M	F
Talkeetna Station	3 ₁	2	1	440-450	420	445	420	-	-	450	420
	3 ₂	2	-	320-430	-	409	-	-	-	430	-
	4 ₁	25	15	515-585	450-580	564	529	-	-	580	540
	4 ₂	157	201	390-680	400-590	522	495	514-529	490-500	525	500
	4 ₃	2	-	330-485	-	356	-	-	-	330	-
	5 ₁	-	2	-	565-575	-	570	-	-	-	575
	5 ₂	29	28	520-640	500-645	588	553	578-598	540-566	590	555
	5 ₃	1	6	540	510-555	540	534	-	-	540	520
	6 ₃	1	1	600	585	600	585	-	-	600	585
	All ²	262	326	320-680	400-645	525	503	-	-	530	500
Curry Station	3 ₁	4	-	410-430	-	421	-	-	-	420	-
	3 ₂	4	-	335-375	-	359	-	-	-	350	-
	4 ₁	2	6	555-570	540-585	562	567	-	-	555	560
	4 ₂	92	46	330-600	425-560	475	491	464-485	482-501	465	490
	4 ₃	8	-	335-460	-	393	-	-	-	380	-
	5 ₁	1	-	600	-	600	-	-	-	600	-
	5 ₂	10	25	510-610	495-600	592	550	-	539-561	590	550
	5 ₃	2	10	515-530	470-530	523	509	-	-	530	505
	6 ₂	-	1	-	540	-	540	-	-	-	540
	6 ₃	-	1	-	570	-	570	-	-	-	570
	All ²	139	107	330-640	415-600	479	519	-	-	465	520

¹ Confidence Interval of the Mean.² Composite of all aged and non-aged samples.

Table 15. Age composition by percent of the sockeye salmon escapements to Flathorn, Yentna, Sunshine, Talkeetna and Curry stations based on catch samples weighted by fishwheel CPUE, 1984.

Collection Site	n	Age Class ¹										
		3 ₁	3 ₂	3 ₃	4 ₁	4 ₂	4 ₃	5 ₁	5 ₂	5 ₃	6 ₂	6 ₃
Flathorn Station	1,780	1.0	5.8	-	1.5	43.4	1.1	1.0	40.3	4.4	0.1	1.4
Yentna Station	2,258	0.2	1.3	-	1.6	23.7	0.3	-	59.7	6.5	0.1	6.6
Sunshine Station												
First-Run	365	-	-	-	0.3	3.0	-	0.3	96.2	-	0.3	-
Second-Run	972	0.8	3.3	0.1	2.2	59.2	1.0	-	29.4	3.3	-	0.7
Talkeetna Station	453	0.7	0.4	-	4.4	79.0	0.4	0.4	12.6	1.5	-	0.4
Curry Station	212	1.9	1.9	-	3.8	65.1	3.8	0.5	16.5	5.7	0.5	0.5

¹ Gilbert-Rich Notation.

Table 16. Sex ratios of male and female sockeye salmon by age from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.

Collection Site	Age	Sample Size	Number		Sex Ratio (M:F)
			Males	Females	
Flathorn Station	3	121	121	0	-
	4	818	482	336	1.4:1
	5	814	476	338	1.4:1
	6 ¹	27	14	13	1.1:1
	All ¹	2,082	1,249	833	1.5:1
Yentna Station	3	34	33	1	33:1
	4	577	325	252	1.3:1
	5	1,495	652	843	0.8:1
	6 ¹	152	57	95	0.6:1
	All ¹	2,746	1,279	1,467	0.9:1
Sunshine Station First-Run	4	12	10	2	5:1
	5	352	116	236	0.5:1
	6 ¹	1	0	1	0:1
	All ¹	400	133	267	0.5:1
Sunshine Station Second-Run	3	41	29	12	2.4:1
	4	606	245	361	0.7:1
	5	318	131	187	0.7:1
	6 ¹	7	0	7	0:1
	All ¹	1,133	464	669	0.7:1
Talkeetna Station	3	5	5	0	-
	4	380	154	226	0.7:1
	5	66	31	35	0.9:1
	6 ¹	2	1	1	1:1
	All ¹	588	250	338	0.7:1
Curry Station	3	8	8	0	-
	4	154	105	49	2.1:1
	5	48	14	34	0.4:1
	6 ¹	2	0	2	0:1
	All ¹	246	143	103	1.4:1

¹ Includes all aged and non-aged samples.

The results of tag recovery surveys for first-run sockeye salmon are listed in Table 17. About 9 percent of the 1,536 fish observed on the July 14 survey of Papa Bear Lake inlet stream were tagged, compared to 17 percent of the 432 fish counted on the last survey (July 26). These figures indicate that the first-run migration at Sunshine Station began a few days before tagging operations started, or that the fishwheels at Sunshine were more efficient at the end of the migration than at the beginning. The daily fishwheel catches at Sunshine Station support the conclusion that some first-run fish passed there prior to the beginning of site operations on June 4. Inasmuch as the first-run escapement spawned over a relatively short time period (three weeks), and the two escapement surveys were random, the Petersen method is still appropriate for calculating the escapement, even though some early migrants were not intercepted.

3.2.2 Second Run

3.2.2.1 Lower Reach

3.2.2.1.1 Main Channel Escapements

In 1984, second-run escapements were monitored at three locations in the lower-river reach. At the lowest downstream sampling site, Flathorn Station, the escapement was about 605,800 fish (Table 18 and Figure 16). Not all of those fish spawned above Flathorn, based on reported milling behavior of sockeye at other locations. Stocks destined to Alexander Lake and the Flathorn Lake drainages probably milled in the lower reach up to and beyond the Flathorn fishwheels. However, no spawning surveys were performed below Flathorn, and therefore it is not possible to quantify the level of milling. For these reasons, the estimated escapement of 605,800 sockeye to Flathorn Station should be considered an estimate of fish that reached this location, and not the number of fish which spawned upstream of this location.

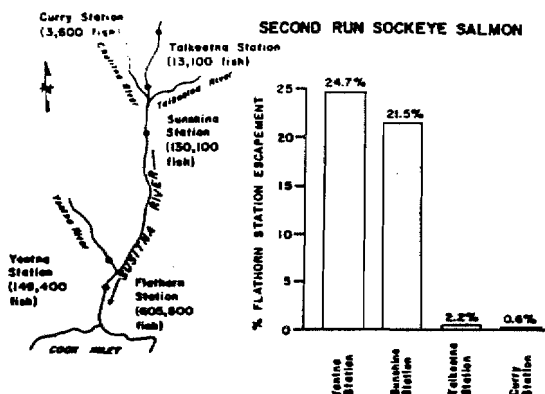


Figure 16. A comparison of the sockeye salmon escapement to Flathorn Station with the escapements to Yentna, Sunshine, Talkeetna and Curry stations, 1984.

Table 18. Estimated sockeye salmon escapements to Flathorn, Sunshine, Talkeetna and Curry stations, by the Petersen method, with associated confidence intervals, 1984.

Parameter ¹	Population Estimate Location			
	Flathorn Station	Sunshine Station ²	Talkeetna Station	Curry Station
m	8,226	17,794	1,494	274
c	47,356	24,315	3,293	2,911
r	643	3,306	377	222
\hat{N}	605,833	130,071	13,050	3,593
95% C.I.	562,640- 656,209	126,852- 135,154	11,918- 14,419	3,190- 4,113

¹ m = Number of fish marked.

c = Total number of fish examined for marks during sampling census.

r = Total number of marked fish observed during sampling census.

\hat{N} = Population estimate.

C.I. = Confidence Interval around \hat{N} .

² Sockeye salmon escapement estimate for Sunshine Station does not include the population estimate for first-run sockeye.

Yentna Station escapement was approximately 149,000 sockeye, representing 25 percent of the escapement to Flathorn Station (Table 19). An estimated 130,100 sockeye, or 21 percent of the Flathorn escapement, reached Sunshine Station (Table 18). Based on the estimated escapements to Flathorn, Yentna and Sunshine stations, roughly 300,000 sockeye spawned in areas of the Susitna River basin between RM 0 and Sunshine Station, excluding the Yentna River drainage. The four known sockeye spawning systems below Sunshine excluding the Yentna River are defined in Figure 17. Of these, the Fish Creek drainage is probably the most productive based on previous surveys (ADF&G 1982). Alexander Creek, Deshka River and Whitsol Lake drainages are minor sockeye salmon-producing systems (pers. comm. K. Delaney).

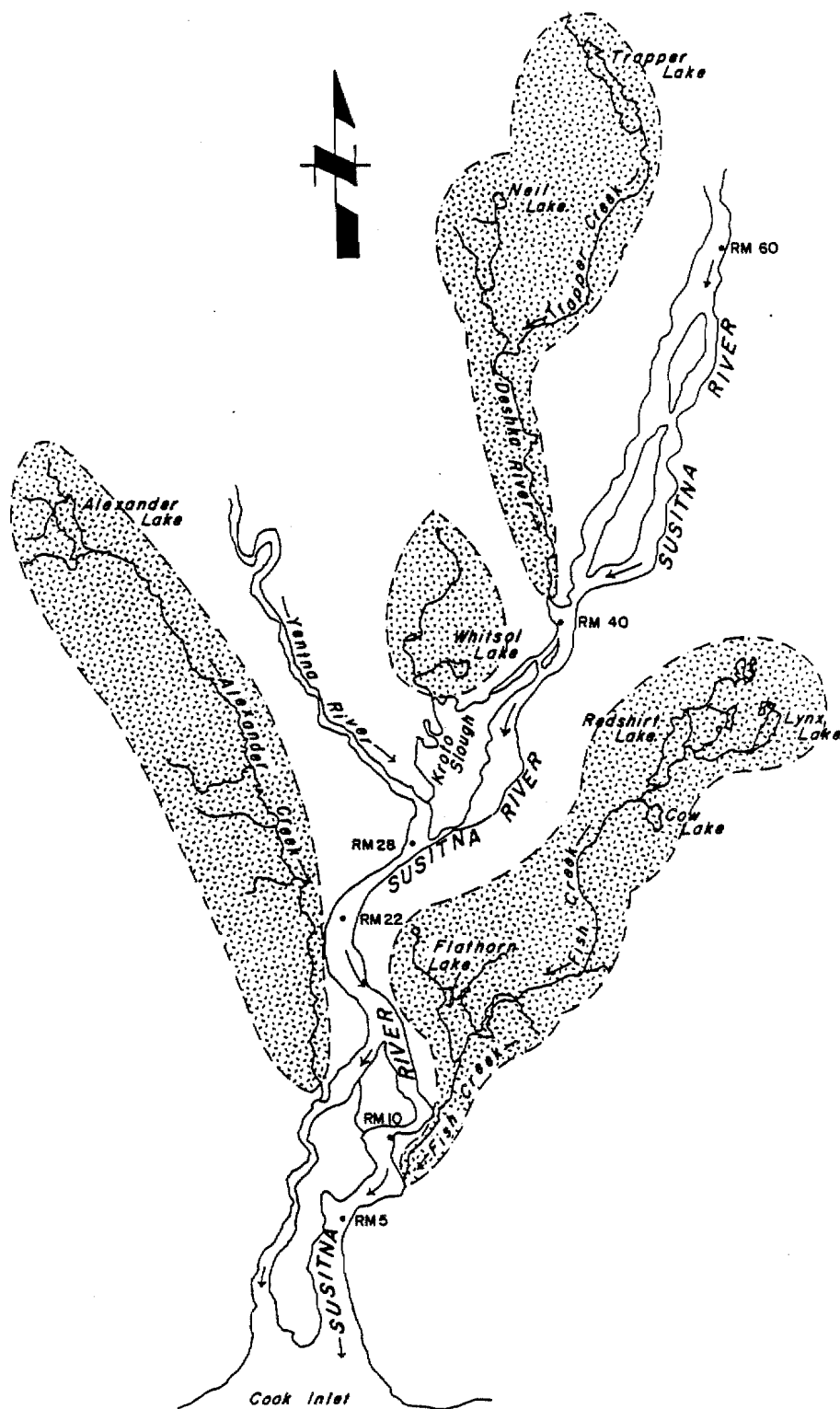


Figure 17. Known sockeye salmon spawning systems below RM 80, excluding the Yentna River, 1984.

Table 19. Apportioned sonar counts of sockeye, pink, chum and coho salmon at Yentna Station, 1984.

Sampling Location	Operational Period	Apportioned Sonar Counts			
		Sockeye	Pink	Chum	Coho
Yentna Station	7/1 to 9/5	149,375	369,299	26,508	18,172

The migrational timing of the 1984 second-run escapements in the lower Susitna River reach can be determined by station fishwheel catches (Figures 18 and 19). At Flathorn Station, the migration extended from July 16 to August 9, with a midpoint around July 21. There was no difference in the escapement timing between fish migrating in the east and west channels at Flathorn. At Yentna Station, the second-run escapement migration began on July 17, reached a midpoint on July 22 and ended on August 8. These dates were about one day later than at Flathorn Station (Figure 18). At Sunshine Station, the sockeye migration extended from July 20 through August 5. The midpoint occurred on July 24, just four days after the start (Figure 19).

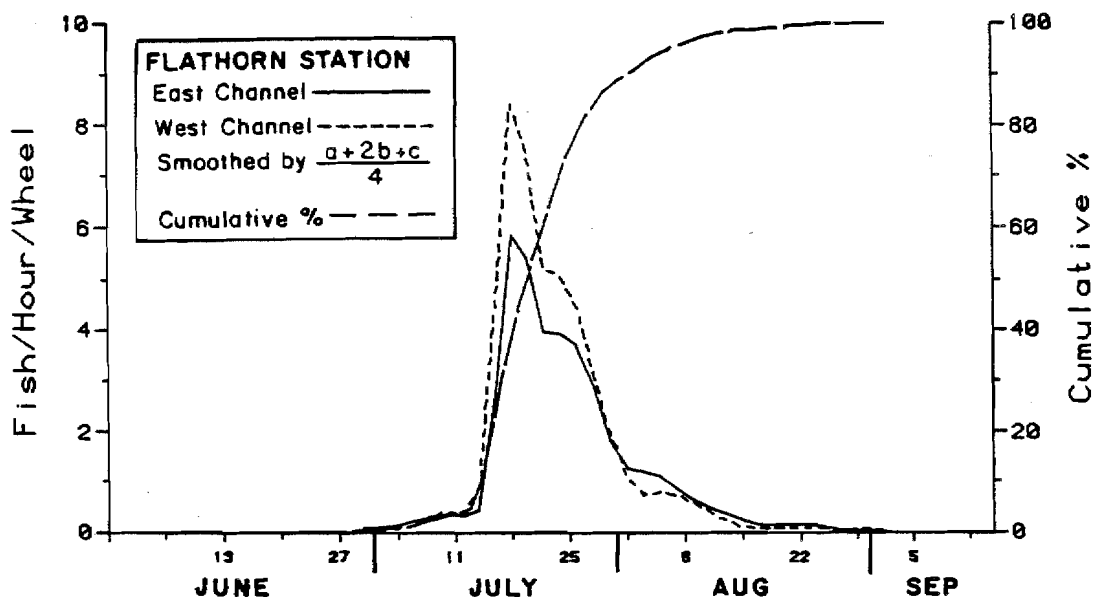


Figure 18. Mean hourly and cumulative percent fishwheel catch of sockeye salmon by two day periods at Flathorn Station, 1984.

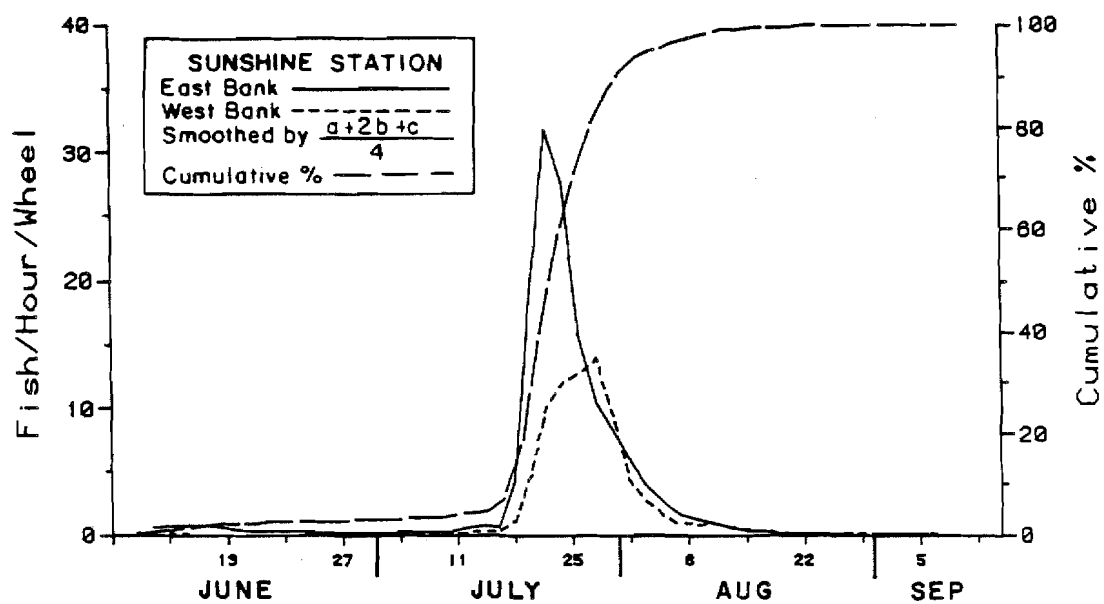
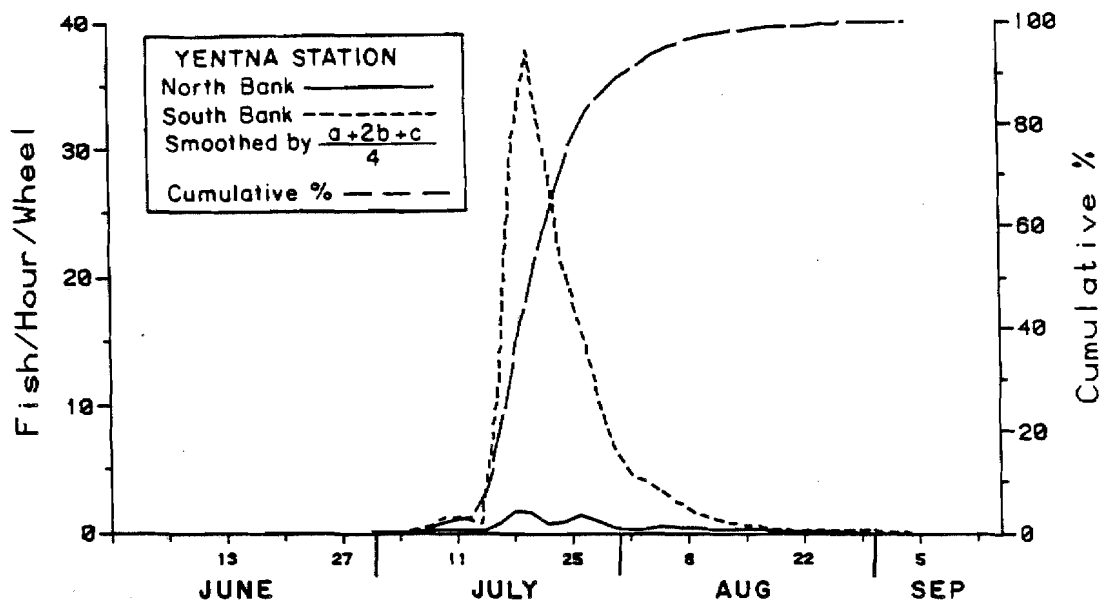


Figure 19. Mean hourly and cumulative percent fishwheel catch of sockeye salmon by two day periods at Yentna and Sunshine stations, 1984.

Sockeye salmon tagged at Flathorn Station were recaptured at upriver sampling stations on the mainstem of the Yentna and Susitna rivers. The results are presented in Appendix 6 and summarized in Figure 20. The data indicate that most tagged sockeye salmon migrated the 10 miles between Flathorn and Yentna stations in three days (3.3 mpd) and the 58 miles from Flathorn to Sunshine stations in eight days (7.3 mpd). The difference in these migration rates may have been caused by temporary tagging stress and/or more milling by sockeye salmon in the reach between Flathorn and Yentna stations than in the reach between Flathorn and Sunshine stations. The latter seems most likely, based on the similar migration rates observed in the middle reach (Figure 20).

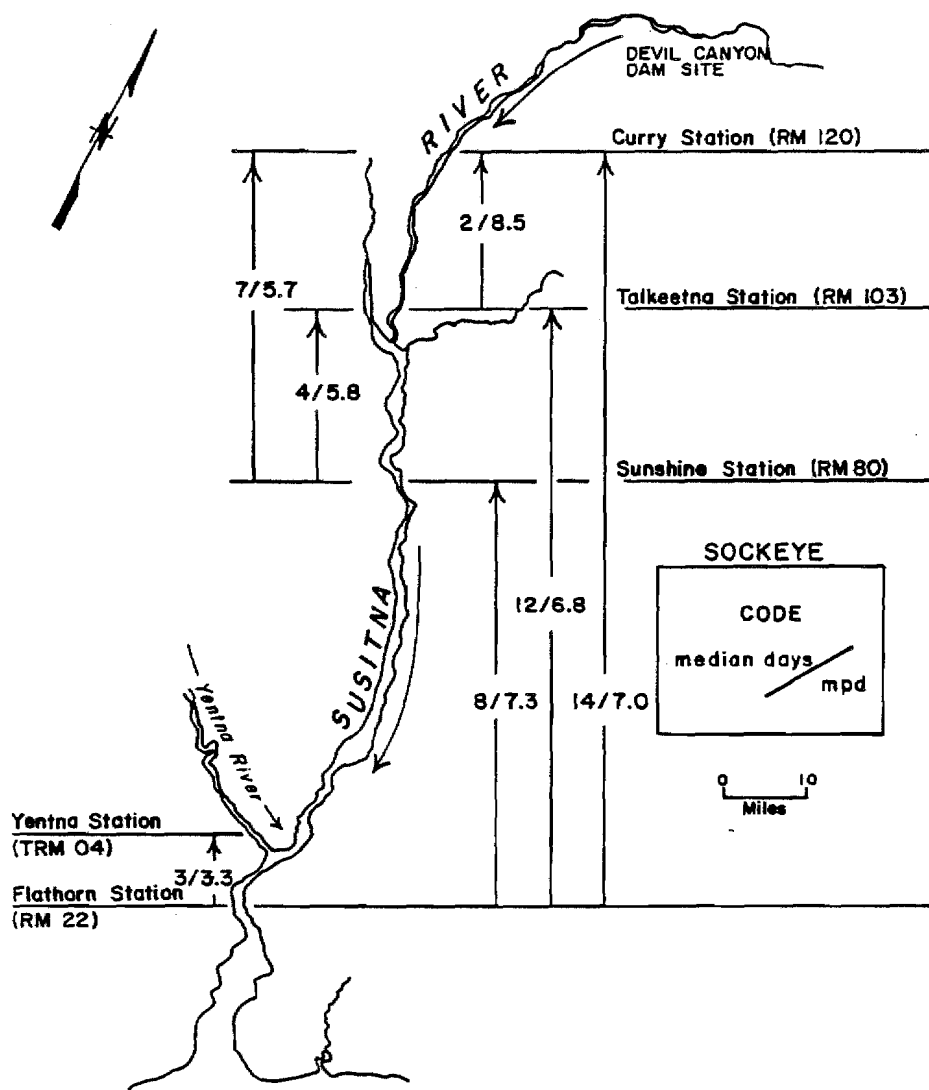


Figure 20. Migrational rates of sockeye salmon between five lower and middle Susitna River reach sampling stations, 1984.

The fishwheel catches of second-run sockeye salmon at Flathorn, Yentna and Sunshine stations are listed in Table 6. The catches between those stations are not directly comparable because the catch efficiencies varied due to site difference and because two more wheels were operated at Flathorn and Sunshine stations than at Yentna Station. Physical factors affecting fishwheel catches included nearshore water velocities, channel configuration, bank slope and bed material.

Catch differences between station fishwheels can indicate fish migration preferences. At Flathorn Station, sockeye salmon slightly favored the west channel over the east channel for migration. The west fishwheels intercepted 55 percent of the station sockeye catch, the east fishwheels 45 percent (Appendix Tables 3-1 and 3-2, and Figure 21).

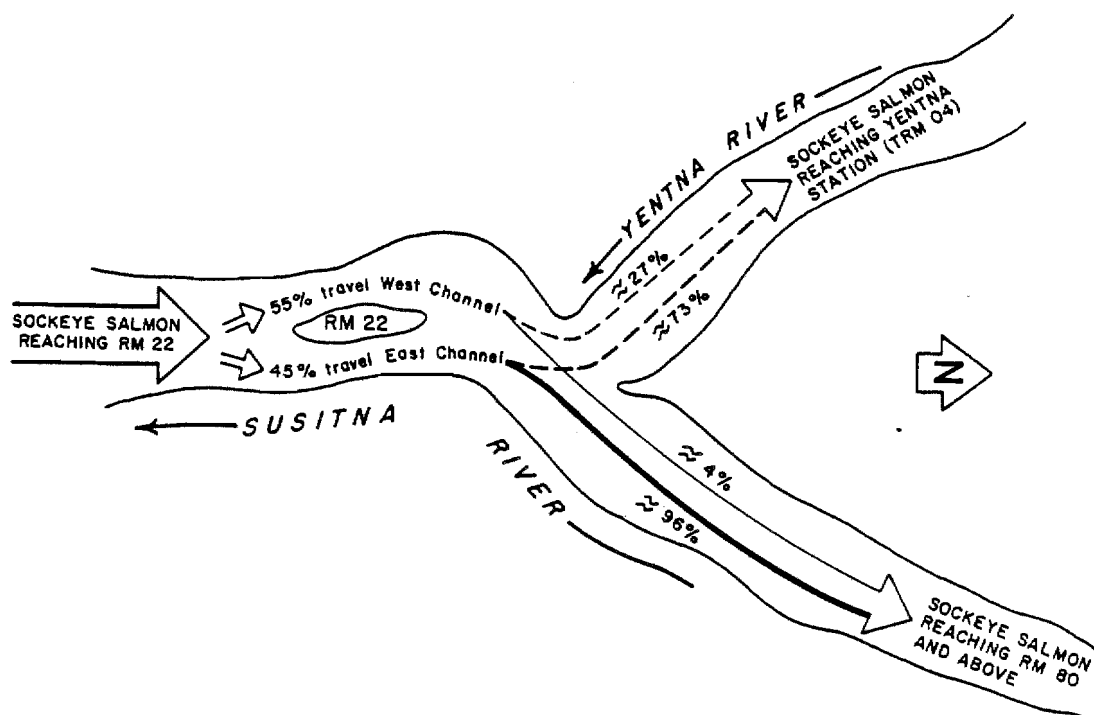


Figure 21. Migrational preference of sockeye salmon to the east and west channels at Flathorn Station, 1984.

At Yentna Station, sockeye salmon favored the south bank over the north bank for migration. The south bank fishwheel caught 92 percent of the station catch and the north bank fishwheel made eight percent of the catch. The same trend was observed with the SSS counters at Yentna Station. About 95 percent of the apportioned sockeye salmon counts were logged by the south bank counter. At Sunshine Station, most of the sockeye migrated along the east bank. The east bank fishwheels caught 77 percent of the station catch while 23 percent was taken in the west bank fishwheels.

Tagged sockeye salmon released in the east and west channels of Flathorn Station were recaptured at Yentna, Sunshine, Talkeetna and Curry stations (Table 20). The recapture information indicated 73 percent of the sockeye salmon entering the Yentna River migrated past Flathorn Station in the east channel.

Table 20. Comparison of numbers of sockeye salmon tagged by east and west channel fishwheels at RM 22 to the number of tag numbered recaptures by bank at Yentna Station and at RM 80, 103 and 120 combined, 1984.

River Channel at RM 22	Number of Sockeye Tagged at RM 22	Number of RM 22 Tag Numbered Recaptures at Yentna Station	Number of RM 22 Tag Numbered Recaptures for RM 80, 103 and 120
East	3,701	69	179
West	4,525	25	7
TOTALS	8,226	94	186

Sockeye salmon extending to Sunshine Station and above also preferred the east channel at Flathorn Station. About 96 percent of the tag numbered recaptures were releases from the east channel fishwheels compared to about four percent from the west channel wheels. Around 90 percent of the sockeye salmon which did not enter either the Yentna River or migrate to Sunshine Station reached Flathorn Station via the west channel. Most of these fish may have been destined to the Flathorn Lake drainage as previously discussed.

Representative age, length and sex samples were collected from the 1984 sockeye salmon escapements to Flathorn, Yentna and Sunshine stations. Most of the lower-reach escapement were four- and five-year-old fish (Figure 22). Nearly all had spent one winter in freshwater before entering the sea. Lengths at Flathorn averaged 519 mm, at Yentna 535 mm and at Sunshine 512 mm (Appendix Figures 5-4, 5-5 and 5-7). The longer average at Yentna Station was due to a larger return of five-year-olds to the Yentna River than to the other stations. At all stations, males averaged from three to 30 mm longer than females. Males were slightly less abundant than females at Yentna (0.9:1) and Sunshine (0.7:1), but more abundant at Flathorn (1.5:1) (Table 16).

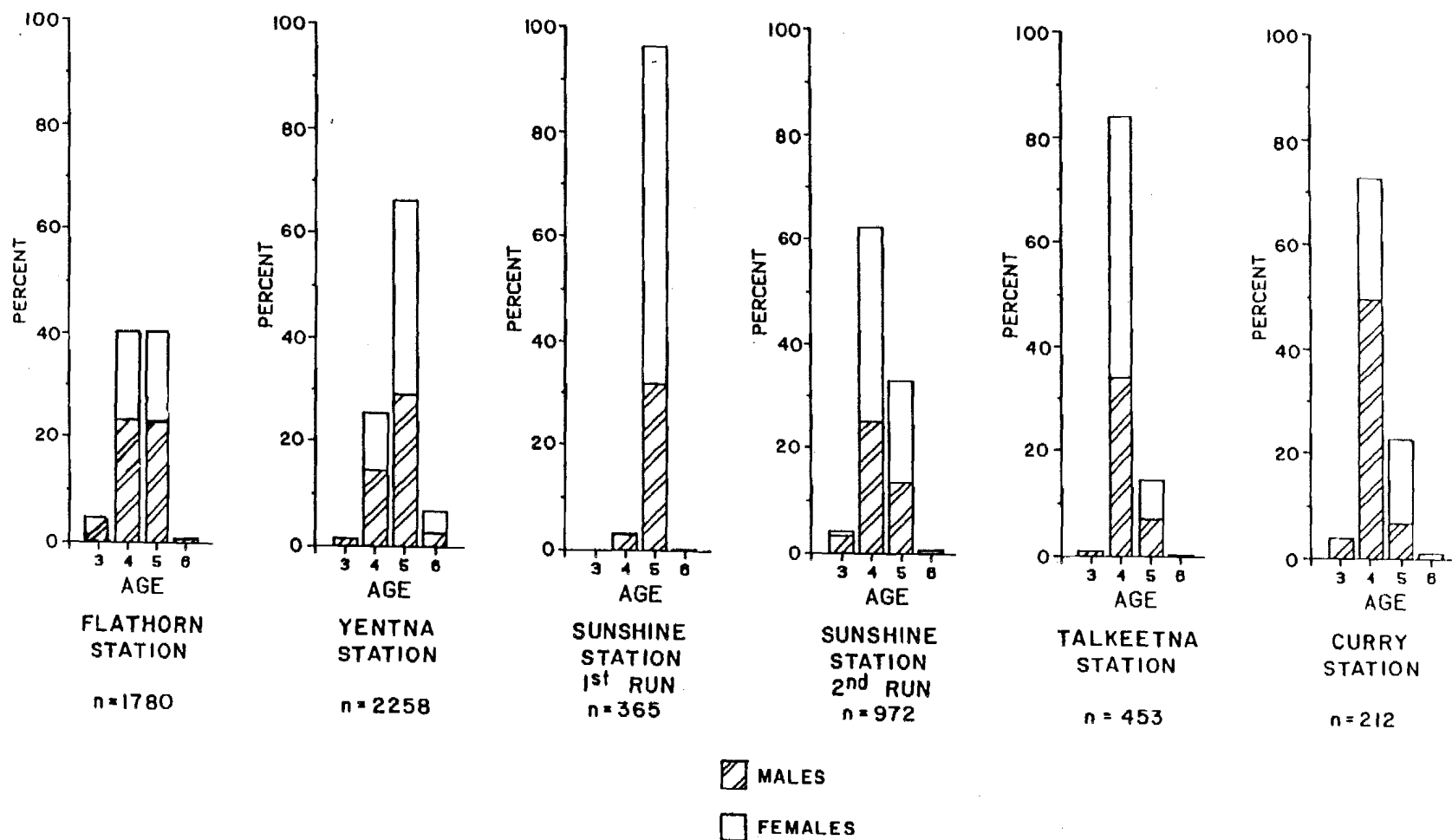


Figure 22. Age composition of fishwheel intercepted sockeye salmon weighted by CPUE at selected locations on the Susitna River, 1984.

3.2.2.1.2 Spawning Areas

In the lower Susitna River above the Yentna River confluence, sockeye salmon did not spawn in the mainstem or associated sloughs or in any stream mouths in 1984 (Appendix 1).

3.2.2.2 Middle Reach

3.2.2.2.1 Main Channel Escapements

Middle-reach sockeye escapements to Talkeetna and Curry stations in 1984 were approximately 13,100 fish and 3,600 fish respectively (Table 18). However, not all of these fish remained in the middle reach to spawn. About 83 percent of the escapement to Talkeetna Station were milling fish that spawned in the lower Susitna reach. At Curry Station, 35 percent of the escapement were milling fish.

In 1984, second-run sockeye were abundant in the Susitna River mainstem for three to five weeks, based on fishwheel catches at Talkeetna and Curry stations (Figure 23). At Talkeetna Station, migration began July 22, reached a midpoint July 28, and ceased August 12. At Curry Station, the migration period was 13 days longer, beginning July 22, reaching a midpoint August 1, and ending August 25.

Migrational rates of tagged sockeye salmon recovered in the lower and middle reaches are summarized in Figure 20. The data indicated that these fish migrated much more slowly in the lower reach. The slower rate of travel may have been associated with milling at the mouths of the Yentna, Talkeetna and Chulitna rivers. In the middle reach, there are no such glacial tributaries.

An inseason catch reduction occurred at Talkeetna and Curry stations that may have been related to a flow change in the Susitna River. At Talkeetna Station between July 26 and 27, sockeye salmon catches dropped from a high of 1.2 fish per fishwheel hour (CPUE) to 0.2 CPUE and then climbed again to 0.9 CPUE on July 28 (Figure 23). This coincided with a high water event when mainstem discharge measurements at Gold Creek increased from 22,800 cfs on July 25 to 34,200 cfs on July 27 and then declined and remained stable around 24,000 cfs for the next two weeks (USGS provisional data 1984) (Figure 8). The fishwheel catches also changed at Curry Station at about the same time, but less dramatically. On July 26, the CPUE was 0.6; for the next two days catches dropped 50 percent to 0.3 CPUE, and then rose again to 0.6 CPUE on July 29 as high flows subsided (Appendix Table 3-17).

The migrational rates of second-run sockeye salmon between Sunshine, Talkeetna and Curry stations were determined from tag recaptures (Figure 20). Migrational speeds between Sunshine and Talkeetna stations were about 50 percent slower than between Talkeetna and Curry stations (8.5 mpd). The slower rates may have been related to milling at the confluence of the Talkeetna, Chulitna and Susitna rivers.

A representative age, length and sex composition sample was collected from second-run sockeye salmon intercepted by fishwheels at Talkeetna

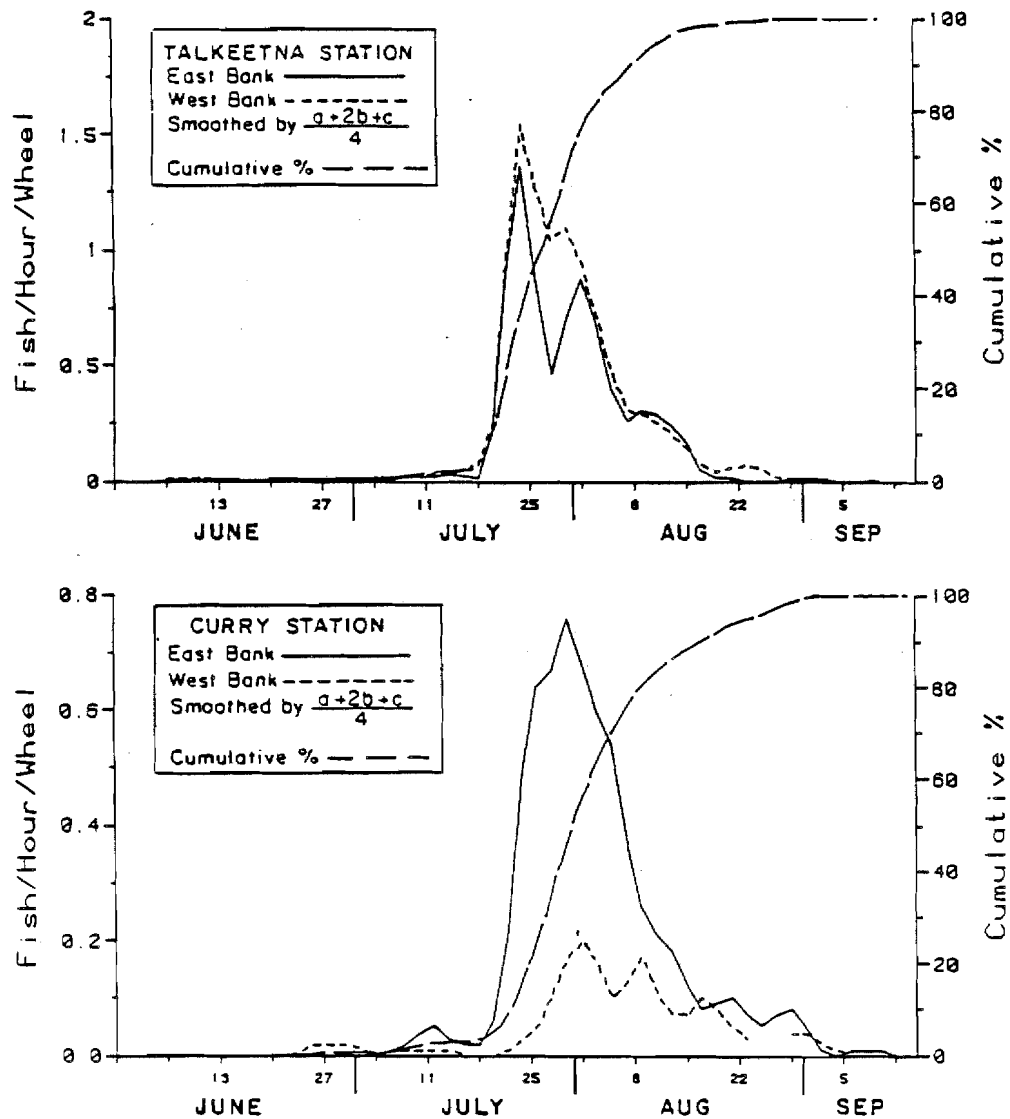


Figure 23. Mean hourly and cumulative percent fishwheel catch of sockeye salmon by two day periods at Talkeetna and Curry stations, 1984.

and Curry stations. The data indicated that the Talkeetna Station escapement was predominantly four- (84%) and five- (15%) year-old fish (Table 15). About 92 percent of the four- and five-year-old fish had smolted in their second year of life following completion of one winter in freshwater as fry. The same trend was apparent at Curry Station. Four-year-olds represented 73 percent and five-year-olds 22 percent of the escapement population. About 82 percent of the four- and five-year-old fish reaching Curry Station had smolted in their second year. Three- and six-year-old sockeye salmon represented less than five percent of the escapement populations to Talkeetna and Curry stations. The average length of second-run sockeye salmon at Talkeetna Station was 513 mm and at Curry Station 495 mm (Appendix Figures 5-9 and 5-10). Generally among all age classes sampled at Talkeetna Station, males averaged about 20 mm longer than the females (Table 14). At Curry Station, the males averaged about 40 mm shorter. Sex composition data indicated that males were less numerous at Talkeetna Station than females (0.7:1) but more numerous than females at Curry Station (1.4:1) (Table 16).

3.2.2.2.2 Spawning Areas

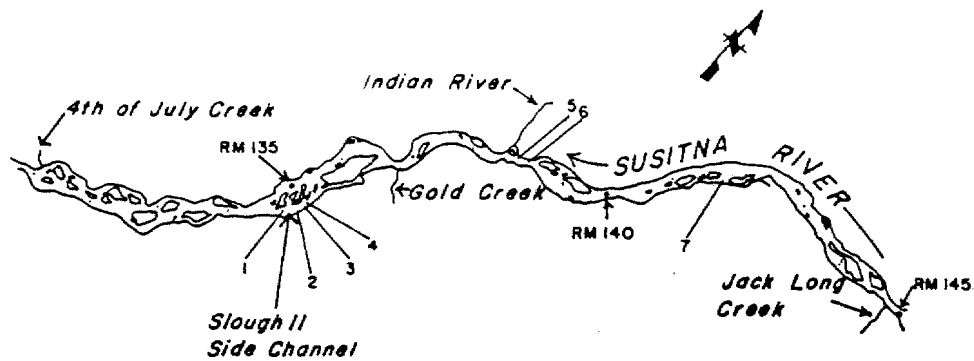
In the middle reach, sockeye salmon spawned in the mainstem and several associated sloughs. Seven mainstem spawning sites were identified, all of which were in an area upstream of Curry Station between RM 131.0 and 141.6 (Figure 24). Individual maps of these locations are in Appendix 6. Four of the seven mainstem areas were in Side Channel 11 (RM 134.5 to 135.3) which is immediately below Slough 11, the major sockeye spawning area in the middle reach. All spawning observed in the mainstem was in the last two weeks of September but peak spawning was probably in mid-September (Figure 24).

About 100 sockeye salmon spawned in the middle-reach mainstem in 1984. This estimate is based on the assumption that the single highest fish count (33) of all mainstem spawning areas represented about one-third of the spawning population. At sloughs, a peak count represents about one-half of the spawners (Barrett et al. 1984). A peak count was not confirmed for the mainstem spawning areas due to high flow and turbidity. Therefore it was assumed that the single highest fish count was less than one-half of the spawning population and probably near the one-third level.

Two streams in the middle reach had sockeye salmon present in 1984 (Appendix Table 6-2). These were Indian River and Portage Creek. Respective peak counts were 1 and 12 fish. Spawning was only observed in Portage Creek at its confluence with the Susitna River. The sighting was limited to a pair of sockeye occupying a redd on September 2.

A total of 25 sockeye salmon occupied middle-reach stream habitats, assuming that the peak count (13 fish) represented about one-half of the population (Barrett et al. 1984). This estimate is probably liberal because some of the fish may have been milling and there was only one observation of spawning.

Eighteen sloughs in the middle reach were occupied by sockeye (Table 21). Thirteen of those were spawning areas. The three major spawning sloughs, in order of importance, were: 11, 8A and 21 (Figure 25).



Map Identification Number	Location		Highest Fish Count	Spawning Observation Dates
	River Mile	Bank		
1	134.6	L	2	9/29/84
2	135.0	R	8	9/29/84
3	135.1	R	2	9/15/84
4	135.2	R	5	9/15/84
5	138.7	L	4	9/15/84
6	139.0	L	3	9/8-22/84
7	141.6	R	9	9/15/84

Figure 24. Sockeye salmon spawning areas in the Susitna River mainstem middle reach, 1984.

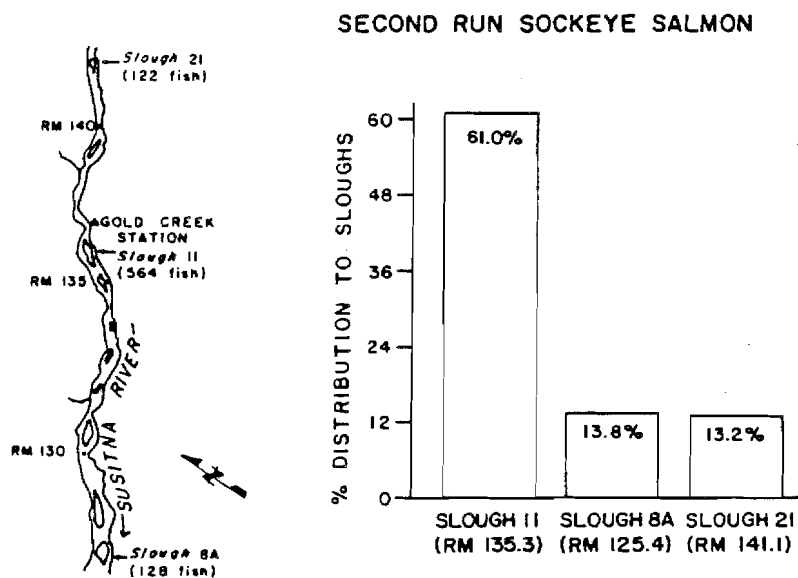


Figure 25. The three major sloughs in the middle reach occupied by sockeye salmon and the respective percent escapement based on peak counts, 1984.

Table 21. Sockeye salmon escapement counts for sloughs in the middle reach, 1984.

Slough	River Mile	Date	Number Counted		Total
			Live	Dead	
1	99.6	9/6	8	2	10
2	100.2	9/6	7	0	7
3B	101.4	9/6	18	2	20
3A	101.9	8/17	11	0	11
5	107.6	9/28	0	1	1
8	113.7	9/5	2	0	2
8B	122.2	8/17	1	0	1
Moose	123.5	8/19	8	0	8
8A	125.4	9/3	123	5	128
8	126.3	9/4	8	1	9
9	128.3	9/4	6	0	6
9B	129.2	8/26	7	0	7
11	135.3	9/9	546	18	564
15	137.2	8/8	1	0	1
17	138.9	8/8	16	0	16
19	139.7	9/10	11	0	11
21	141.1	9/10	116	6	122
22	144.5	9/2	2	0	2
TOTALS			891	35	926

Sloughs 5, 8, 8B, 9 and 15 were occupied, but were not spawning areas as no redds or spawning pairs were observed. The peak survey counts of live and dead sockeye salmon for the 18 occupied sloughs totaled 926 fish. Sloughs 8A, 11 and 21 supported about 88 percent of the peak counts. Spawning occurred in these sloughs from the first week of August through the first week of October. The peak of spawning for sockeye in sloughs occurred between the last week of August and the second week of September (Figure 26). Based on results of spawning ground counts and observed residence surveys, the total escapement to middle-reach sloughs was about 2,200 sockeye (Table 22).

From a combined estimate of 2,325 sockeye that spawned in middle-reach streams (1%), slough (95%) and mainstem (4%) habitats, it was determined that most (82%) of the 1984 sockeye escapement to Talkeetna Station were milling fish, and that most (65%) of the sockeye that reached Curry Station were middle-reach spawners. There was more milling at Talkeetna Station than at Curry Station among other salmon species also (Section 4.0).

In 1984, the mean average observed residence of sockeye salmon in Sloughs 8A and 11 was 8.4 days (Figure 27). Considerable differences existed in the observed-residence periods of individual fish at both sloughs, evident from the large standard deviations of the means. The main cause was probably milling. Approximately 42 percent of the 131 fish monitored at the two sloughs did not initiate spawning (Table 23).

Table 22. Estimated sockeye salmon slough escapements to the middle reach sloughs, 1984.

Slough	River Mile	Total Fish ¹ Days	Peak Live-Dead Survey Count	Mean Observation Life in Days	Slough Escapement	% of Total Slough Escapement	% of Curry ² Station Escapement
1	99.6		10		26 ³	1.2	0.8
2	100.2		7		18 ³	0.8	0.6
3B	101.4	300.3	20	8.4	36	1.6	1.1
3A	101.9		11		29 ³	1.3	0.9
5	107.6		1		3 ³	0.1	0.1
8	113.7		2		5 ³	0.2	0.2
8B	122.2		1		3	0.1	0.1
Moose	123.5		8		21	0.9	0.7
8A	125.1	4,149.7	128	7.8	532	23.9	16.6
B	126.3		9		23 ³	1.0	0.7
9	128.3		6		16 ³	0.7	0.5
9B	129.2		7		18 ³	0.8	0.6
11	135.3	11,395.8	564	8.9	1,280	57.5	40.0
15	137.2		1		3 ³	0.1	0.1
17	138.9	221.0	16	8.4	26	1.2	0.8
19	139.7		11		29 ³	1.3	0.9
21	141.1	1,293.5	122	8.4	154	6.9	4.8
22	144.5		2		5 ³	0.2	0.2
TOTALS		17,360.3	926	-	2,227	99.8 ⁴	69.7

¹ Number of fish days were calculated for sloughs tht had peak survey counts >15 fish. Refer to Section 2.3.5 for detailed data analysis procedures.

² 1984 Curry Station sockeye salmon escapement was approximately 3,600 fish.

³ Total slough escapement into sloughs having peak life-dead survey counts of ≤ 15 fish were computed by multiplying the peak live-dead survey count by 2.6. This value represents the summation of the estimated slough escapement divided by the summation of the peak live-dead survey counts for all sloughs with peak survey counts ≥ 50 fish.

⁴ Rounding error.

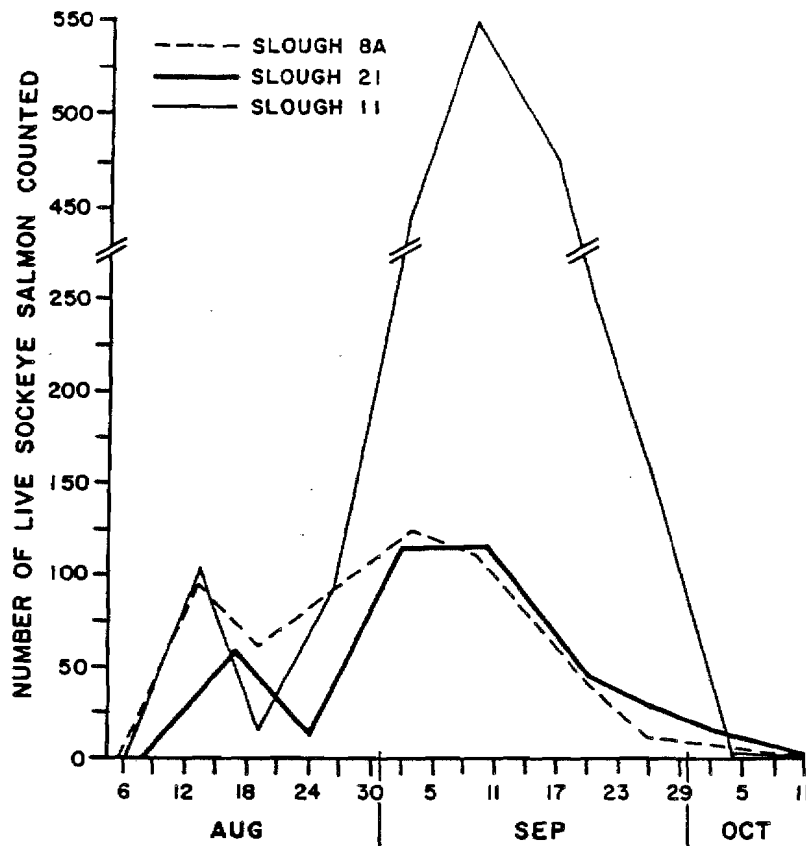


Figure 26. Sockeye salmon live counts by date in sloughs 8A, 11 and 21, 1984.

Table 23. Percentages of sockeye salmon monitored for residence life that initiated spawning by habitat zone at sloughs 8A and 11, 1984.

Slough ¹ with RM	n ²	Percent Spawning	Spawning Location ³ by Habitat Zone							Percent Not Spawning ⁴
			1	2	3	4	5	6	7	
8A RM 125.1	44	61.4	14.8	11.1	74.1	-	-	-	-	38.6
11 RM 135.3	90	55.6	4.0	8.0	22.0	10.0	10.0	18.0	28.0	44.4

¹ RM = River Mile

² Total sample for sloughs 8A and 11 equals 134 fish; 131 individual fish were actually monitored as three individuals spent time in both sloughs.

³ Habitat zones defined in Appendix Figures 6-4 and 6-5.

⁴ Includes milling fish and bear killed and other pre-spawning mortalities.

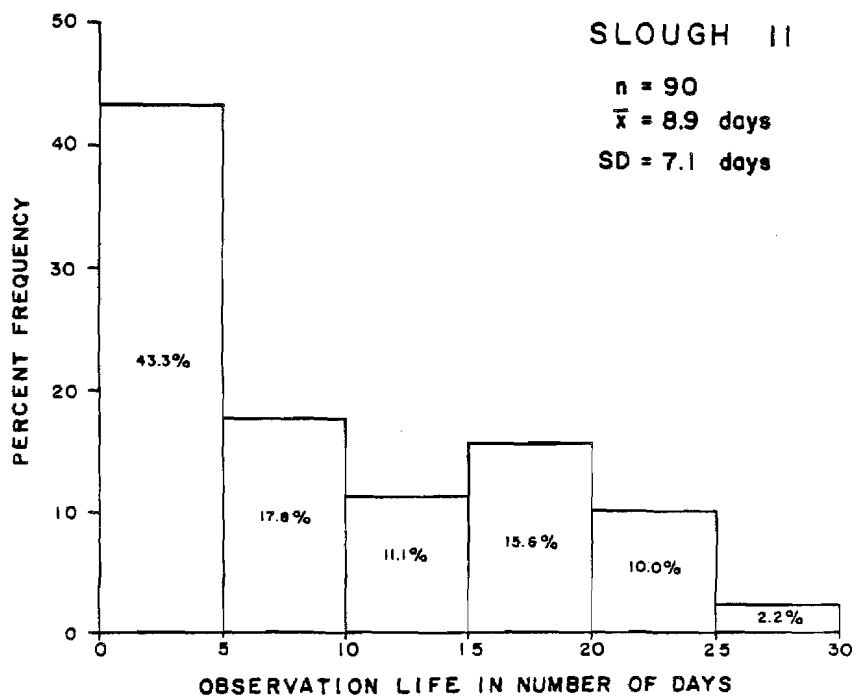
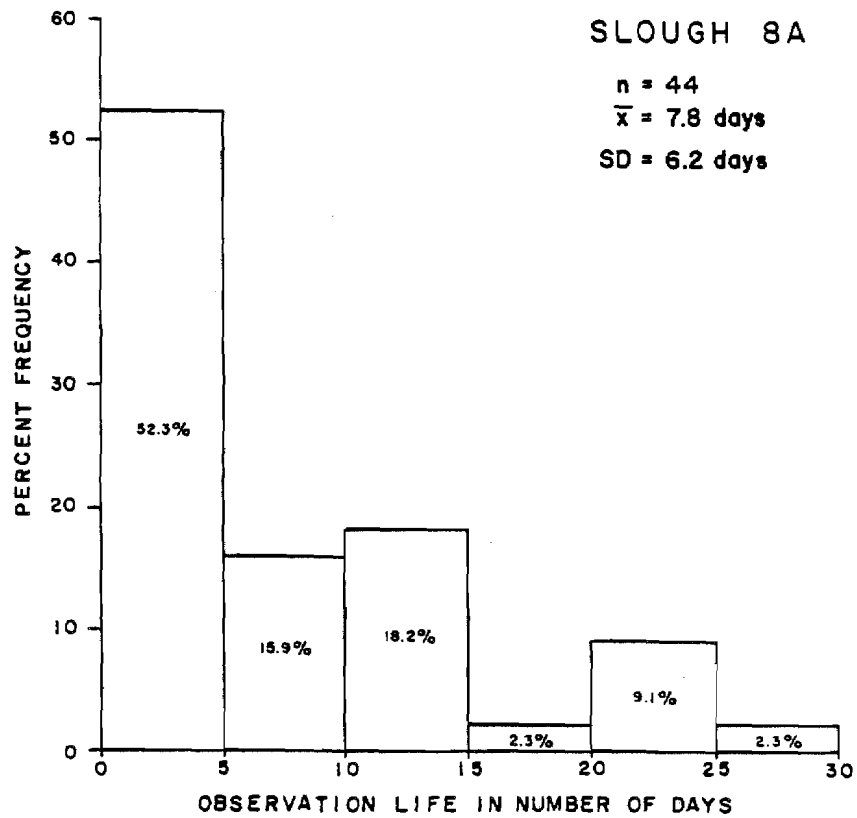


Figure 27. Observed residence life of sockeye salmon at Sloughs 8A and 11 by percent frequency, 1984.

Presumably many left to spawn in other systems and some may have been removed by predators.

Sockeye seemed to prefer to spawn in the upper areas of sloughs. The highest concentration of observed-residence monitored fish spawned at the head of Sloughs 8A and 11. By comparison, chum salmon preferred the lower areas (Section 3.4).

Most of the sockeye entering middle-river sloughs in 1984 spent several weeks ripening in the Susitna River main channel. Fish monitored at Sloughs 8A and 11 for observed residence averaged 36 days from release at Curry Station to slough entrance (Figure 28). The distances from Curry to Sloughs 8A and 11 are 5.1 and 15.3 miles respectively. Since sockeye migrated at an average speed of 7 mpd between Flathorn and Curry stations, they could easily have traveled from Curry to the sloughs in two days (Figure 20).

There are several possible advantages to ripening in the mainstem rather than in an associated slough. For example, the middle-reach sloughs are relatively small and shallow and non-turbid, making predation a greater factor than in the main channel. Also, sloughs serve as a spawning area for more than one species. Consequently, crowding and associated disease problems would be more prevalent in sloughs than in the main channel. In drainages where there is a lake associated with a spawning stream or slough, sockeye commonly ripen in the lake before initiating spawning. For example, in the Kasilof River drainage, sockeye spend three to four weeks ripening in Tustumena Lake rather than in inlet spawning streams and sloughs, which are characteristically similar to middle-reach Susitna River sloughs (Barrett 1972). Similar to the Susitna River main channel, Tustumena Lake provides good escape cover and dispersion area for tens of thousands of adult salmon.

Female sockeye salmon were examined for egg retention at Sloughs 8A, 11 and 21 (Table 24). Most (88%) had spawned completely (Figure 29). The average egg retention for the three sloughs was 64 eggs, the median was 0 eggs.

Table 24. Egg retention of sockeye salmon at selected sloughs in the middle Susitna River reach, 1984.

Spawning Slough with RM	Sample Size	Egg Retention		
		Mean	Median	Range
Slough 8A RM 125.1	16	17	0	0-243
Slough 11 RM 135.3	57	126	0	0-3,043
Slough 21 RM 141.1	3	50	0	0-150
Composite	76	64	0	0-3,043

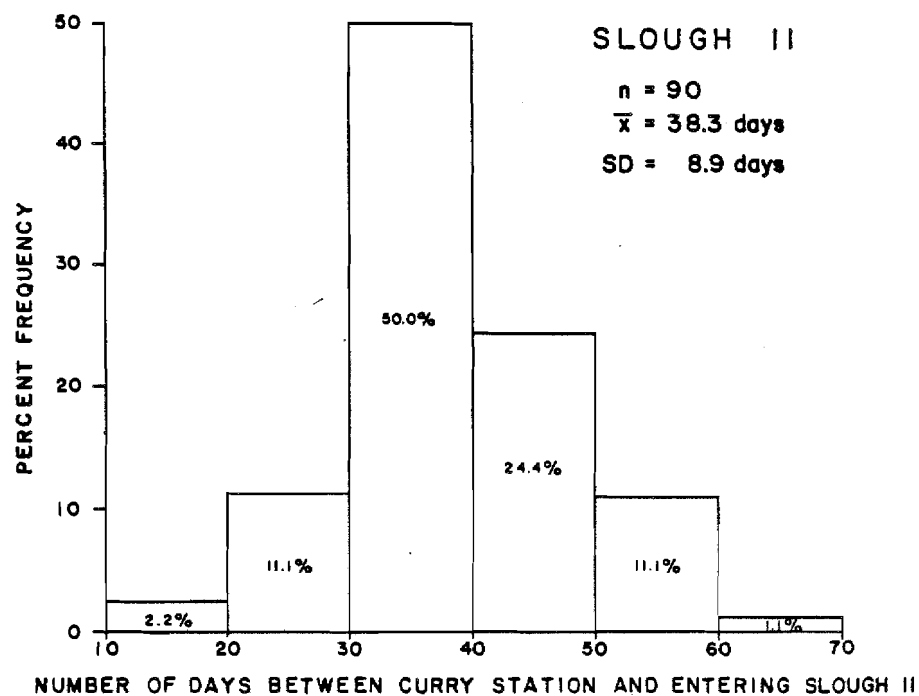
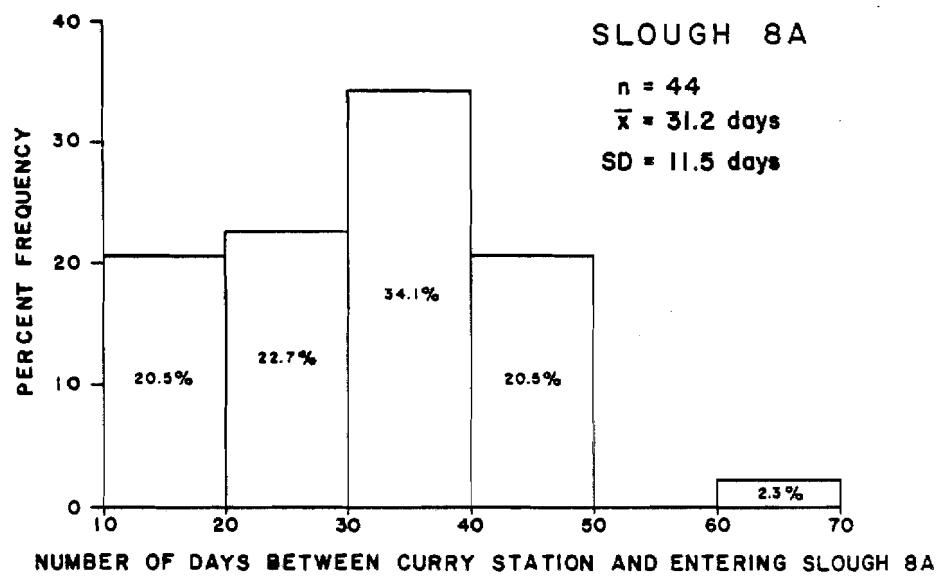


Figure 28. Percent frequency of the number of days tagged sockeye salmon spent in the Susitna River mainstem between Curry Station and Sloughs 8A and 11, 1984.

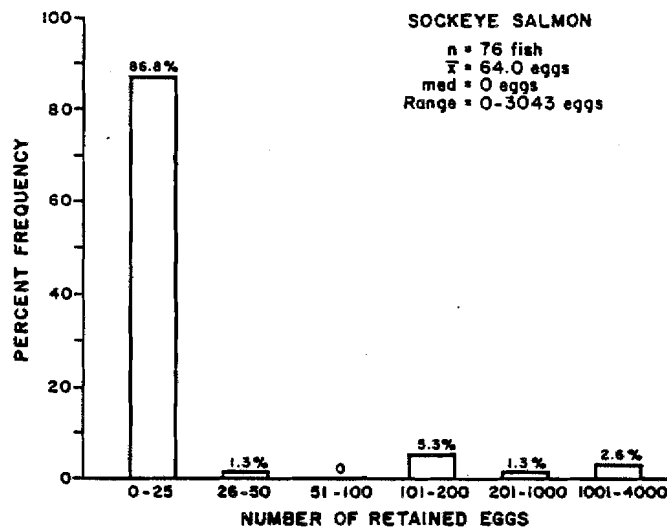


Figure 29. Percent frequency of the numbers of eggs retained by sockeye salmon at sloughs 8A, 11 and 21 combined, 1984.

3.3 Pink Salmon

3.3.1 Lower Reach

3.3.1.1 Main Channel Escapements

The escapements of pink salmon in the Susitna River to Flathorn and Sunshine stations were estimated by the Petersen tag and recapture method. The Yentna River escapement at Yentna Station was quantified using side scan sonar. The estimated 1984 pink salmon escapements were 3,629,900 fish to Flathorn Station, 369,300 fish to Yentna Station and 1,017,000 fish to Sunshine Station (Tables 25 and 19).

The Yentna River and Sunshine Station escapements comprised about 38 percent of the Flathorn Station estimate (Figure 30). The spawning population below Sunshine Station, excluding the Yentna River, comprised the remaining 62 percent. Based on previous Susitna River escapement monitoring and tag recovery surveys, an unknown number of pink salmon migrating to Flathorn Station were milling fish that spawned downstream (ADF&G 1983).

The migrational timings of the pink salmon escapements to Flathorn, Yentna and Sunshine stations were calculated from fishwheel catches (Figures 31 and 32 and Appendix 3). At Flathorn Station, pinks were abundant from July 21 to August 7. The migration reached a midpoint on July 28 in both the east and west channels (Appendix Table 3-3). Overall, there was little difference in the pinks migration timing between east and west channels. Up river at Sunshine Station, pink

Table 25. Estimated pink salmon escapements to Flathorn, Sunshine, Talkeetna and Curry stations, by the Petersen method, with associated confidence intervals, 1984.

Parameter ¹	Population Estimate Location			
	Flathorn Station	Sunshine Station ²	Talkeetna Station	Curry Station
m	3,506	10,395	14,688	6,528
c	164,617	84,336	34,600	13,032
r	159	862	2,857	728
\hat{N}	3,629,857	1,017,022	177,881	116,858
95% C.I.	3,141,746- 4,297,535	953,682- 1,089,373	171,845- 184,356	109,154- 125,733

¹ m = Number of fish marked.

c = Total number of fish examined for marks during sampling census.

r = Total number of marked fish observed during sampling census.

\hat{N} = Population estimate.

C.I. = Confidence Interval around \hat{N} .

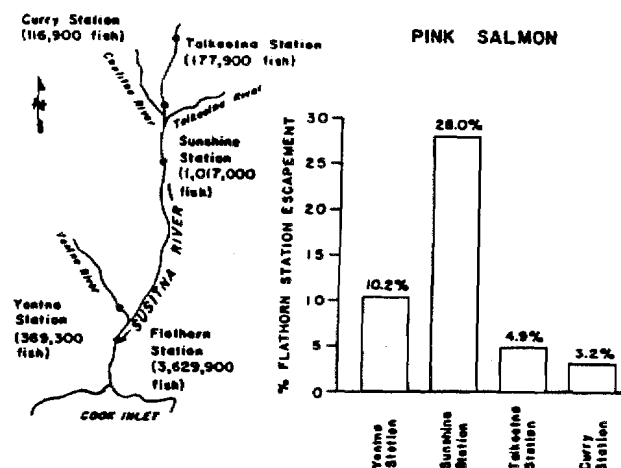


Figure 30. A comparison of the pink salmon escapement to Flathorn Station with the escapements to Yentna, Sunshine, Talkeetna and Curry stations, 1984.

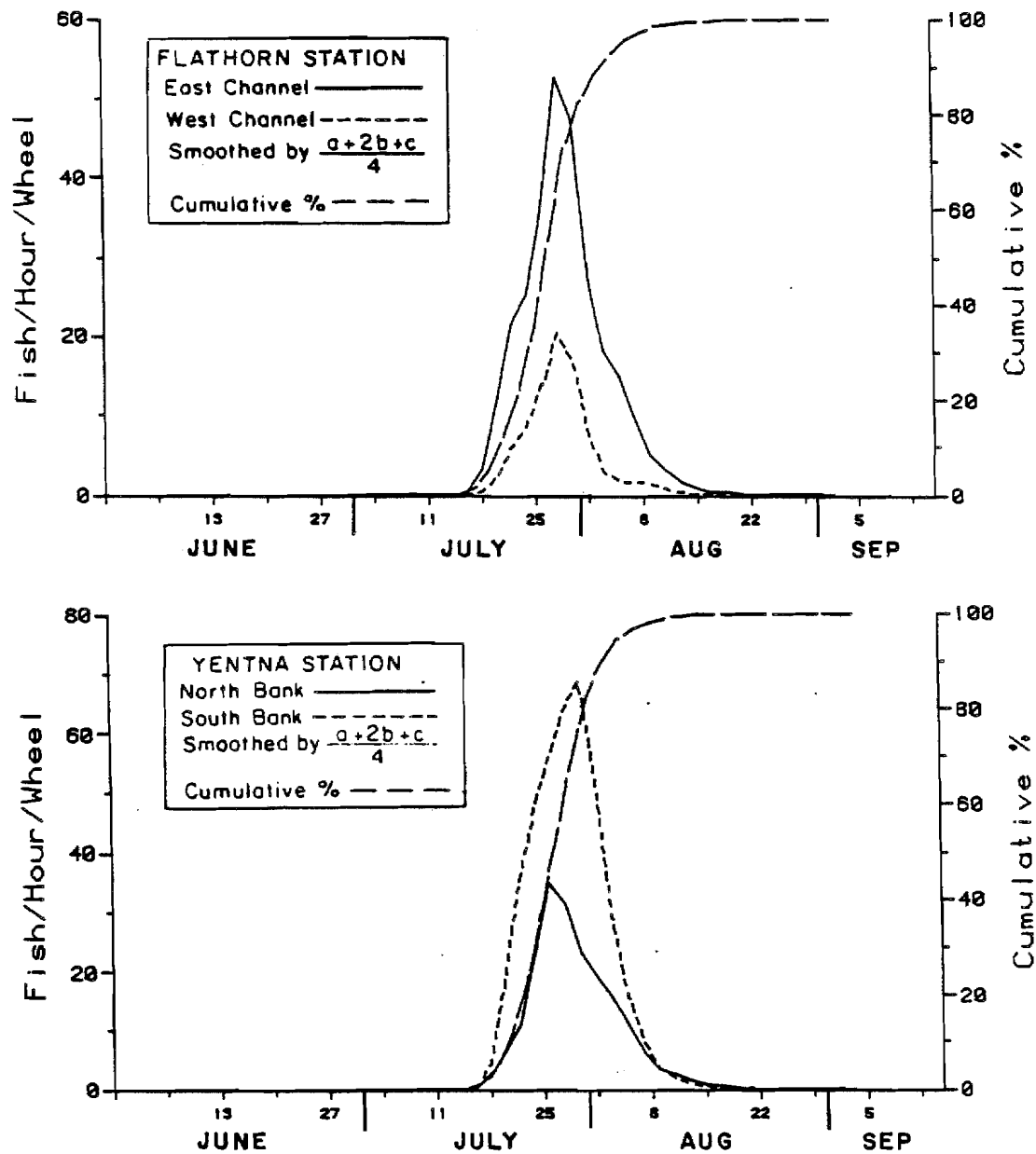


Figure 31. Mean hourly and cumulative percent fishwheel catch of pink salmon by two day periods at Flathorn and Yentna stations, 1984.

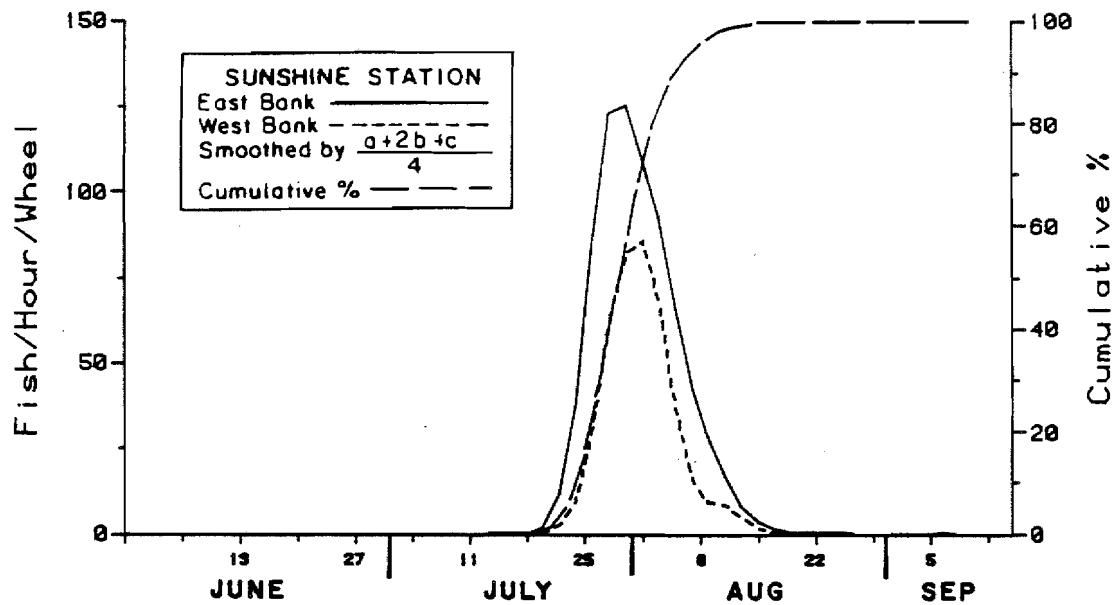


Figure 32. Mean hourly and cumulative percent fishwheel catch of pink salmon by two day periods at Sunshine Station, 1984.

salmon were abundant from July 25 to August 8, with a midpoint on July 31. At Yentna Station, pinks were abundant from July 21 to August 5, with a midpoint on July 28. The peak one-day fishwheel catches of pink salmon at Flathorn, Yentna and Sunshine stations occurred on July 28, July 25 and July 30, respectively (Figures 31 and 32).

At Flathorn Station, the river is comprised of two channels formed by a large island complex. Fishwheels were located on the east and west mainland banks and on the east and west banks of the largest island (Appendix Figure 2-1). Fishwheel catches of pink salmon were distributed among the four fishwheels as follows: 48 percent left east channel (island fishwheel), 28 percent right east channel, 17 percent right west channel (island fishwheel) and 7 percent left west channel. Most (76%) of the pinks migrated in the east channel (Figure 33). In the Yentna River at Yentna Station, migrating pinks favored the south bank. The south fishwheel intercepted 64 percent of the catch and the north fishwheel 36 percent. Most (64%) of the 93,919 pink salmon intercepted at Sunshine Station were captured in the east bank fishwheels.

Pink salmon tagged at Flathorn Station were recaptured at Yentna, Sunshine, Talkeetna and Curry stations (Figure 33 and Table 26). Tag recovery information indicated that pinks destined for the Yentna River passed Flathorn Station in numbers divided evenly between the east and west channels. Pinks reaching Sunshine Station and above preferred the east channel. About 87 percent of the recaptured Flathorn pinks were originally caught in east channel fishwheels at that station.

Recoveries of tagged pink salmon were used to determine migration rates between stations in 1984. These data are presented in Appendix 3 and

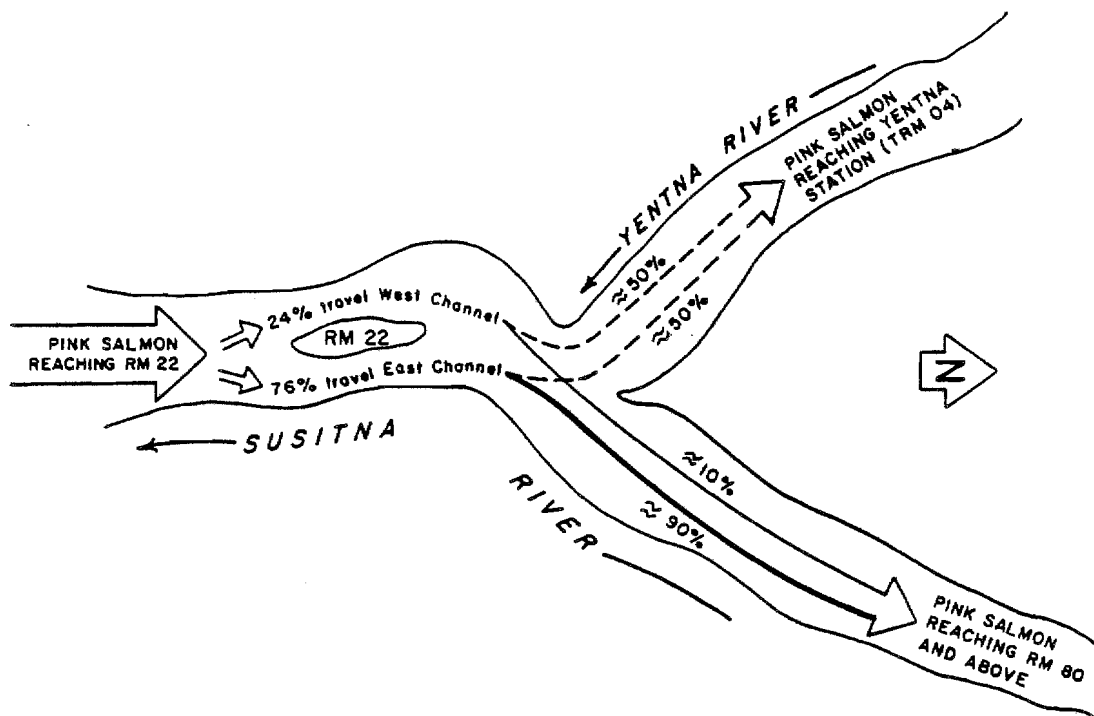


Figure 33. Migrational preference of pink salmon to the east and west channels at Flathorn Station, 1984.

Table 26. Comparison of numbers of pink salmon tagged by east and west channel fishwheels at RM 22 to the number of tag numbered recaptures by bank at Yentna Station and at RM 80, 103 and 120 combined, 1984.

River Channel at RM 22	Number of Pink Salmon Tagged at RM 22	Number of RM 22 Tag Numbered Recaptures at Yentna Station	Number of RM 22 Tag Numbered Recaptures for RM 80, 103 and 120
East	2,694	7	54
West	812	7	8
TOTALS	3,506	14	62

summarized in Figure 34. Pink salmon required about 2 days to travel the 10-mile distance between Flathorn and Yentna stations, based on a small sample size of 12 fish. This represented a migrational rate of 5.0 mpd based on median travel days. Pink salmon spent about 6 days traveling between Flathorn and Sunshine stations, for a migrational rate of 9.7 mpd. The slower travel rate between Flathorn and Yentna stations may have been due to: 1) tagging related stress experienced at Flathorn and/or 2) milling at the confluence of the Yentna and Susitna rivers.

Males at Flathorn Station averaged 450 mm in length, 15 mm longer than females. Combined average lengths of males and females at Yentna and Sunshine stations were 445 mm and 441 mm respectively (Appendix Figures 5-12 and 5-13). Males averaged 15 and 16 mm longer than females at these stations. Males were more common than females at Flathorn (1.3:1), Yentna (1.2:1) and Sunshine (1.1:1) stations (Table 27).

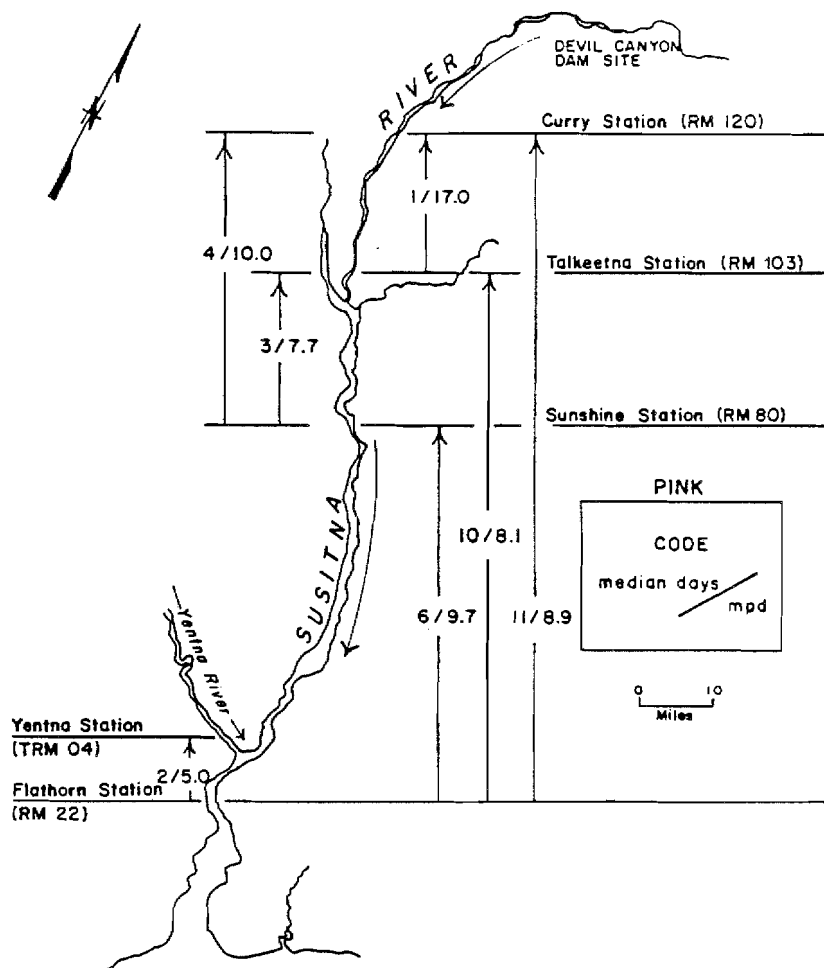


Figure 34. Migrational rates of pink salmon between five lower and middle Susitna River reach sampling stations, 1984.

Table 27. Analysis of pink salmon lengths, in millimeters, by sex from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.

Collection Site	n		Ratio (M:F)	Range Limits		Mean		95% Conf. Interval ¹		Median	
	M	F		M	F	M	F	M	F	M	F
Flathorn Station	1,055	789	1.3:1	295-600	335-560	450	435	448-452	433-437	445	435
Yentna Station	334	314	1.2:1	370-580	365-545	452	436	449-456	434-439	454	440
Sunshine Station	601	506	1.1:1	300-585	325-565	448	433	445-451	431-436	445	430
Talkeetna Station	454	390	1.1:1	330-575	360-520	453	440	449-456	438-443	450	440
Curry Station	503	337	1.6:1	325-610	340-490	443	439	441-446	436-441	445	440

¹ Confidence Interval of the Mean.

3.3.1.2 Spawning Areas

Pink salmon did not spawn in lower-river mainstem or slough habitats in 1984 (Appendix 1).

Pinks were observed in 12 of 17 stream-mouths between RM 28 and 98.6 (Appendix 1). Between 4,500 to 9,000 spawned in 10 of the stream mouths, mainly Willow, Birch and Sunshine creeks. The spawning period was from July 28 to September 25 with a peak during the first two weeks of August.

3.3.2 Middle Reach

3.3.2.1 Main Channel Escapements

The Petersen tag and recapture method was used to determine the 1984 pink salmon escapements to Talkeetna and Curry stations. By this method, the pink salmon escapement to Talkeetna Station was 177,900 fish with a 95 percent confidence interval of approximately 171,800 to 184,400 fish. The escapement to Curry Station was 116,900 pink salmon with a 95 percent confidence interval of approximately 109,200 to 125,700 fish (Table 25).

Based on the estimated number of pink salmon spawning in stream and slough habitats above Talkeetna Station, 85 and 80 percent of the respective escapements to Talkeetna and Curry stations were milling fish (Section 3.3.2.2).

Pink salmon fishwheel catches were used to evaluate migrational timing at Talkeetna and Curry stations (Figure 35 and Appendix 3). Pinks were abundant at Talkeetna Station from July 25 through August 10. The migration reached a median on August 3. At Curry Station, pinks were abundant from July 29 to August 13. The midpoint of the migration was August 4. Peak fishwheel catches occurred on August 3 at Talkeetna Station and on August 5 at Curry Station.

Fishwheel catches at Talkeetna and Curry stations indicated that the escapements to those stations migrated primarily along the west bank (Figure 35). A total of 29,236 pink salmon were intercepted by Talkeetna Station fishwheels; 75 percent were captured in west bank fishwheels (Appendix Tables 3-12 and 3-13). At Curry Station, the total pink salmon fishwheel catch was 17,394 with 70 percent of these fish intercepted by the west bank fishwheel (Appendix Tables 3-15 and 3-16).

The migrational rates of tagged pink salmon recaptured in the lower and middle Susitna River reaches are presented in Appendix 3 and Figure 34. Based on median numbers of days between captures, pinks traveled at a rate of 7.7 mpd between Sunshine and Talkeetna stations, at 10.0 mpd between Sunshine and Curry stations, and at 17.0 mpd between Talkeetna and Curry stations. Slower travel speeds between Sunshine and the two middle-river stations were probably due to milling in the confluence areas of the Susitna, Talkeetna and Chulitna rivers.

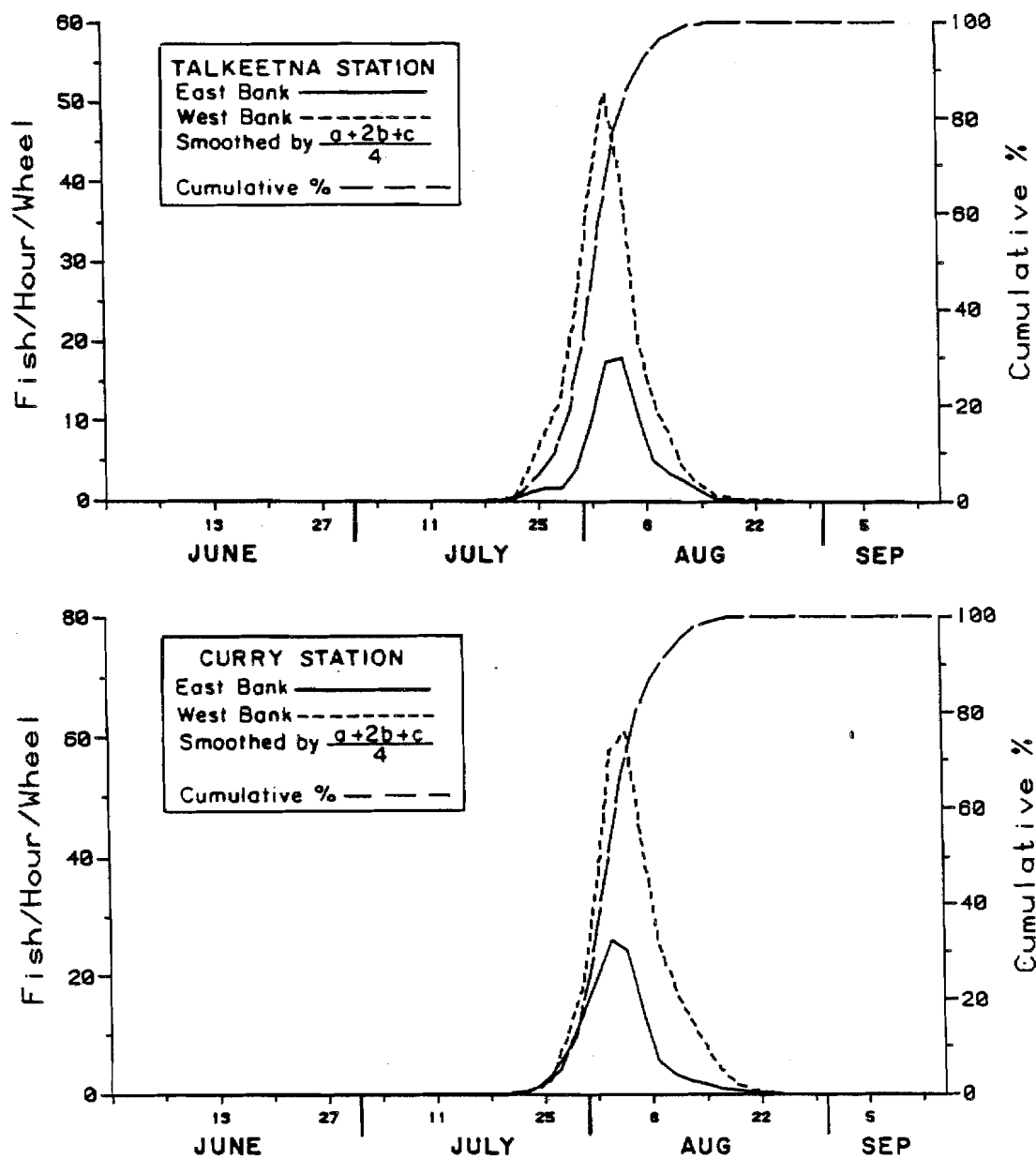


Figure 35. Mean hourly and cumulative percent fishwheel catch of pink salmon by two day periods at Talkeetna and Curry stations, 1984.

Length data from the Talkeetna and Curry stations escapements are presented in Table 27 and Appendix 5. The average length of combined sexes were 447 mm at Talkeetna Station and 442 mm at Curry Station. Male pinks averaged 13 mm longer than females at Talkeetna Station, and 4 mm longer than females at Curry Station (Table 27). Males were more numerous than females at both Talkeetna (1.1:1) and Curry stations (1.6:1) (Table 27).

3.3.2.2 Spawning Areas

ADF&G field personnel observed no pink salmon spawning in the Susitna River main channel (Appendix 6). However, an employee of E. Woody Trihey and Associates reported an unquantified number of pink salmon that spawned near the east bank at RM 119.1 (Trihey 1984).

Pink salmon occupied 17 of the 37 sloughs surveyed in 1984 (Appendix Table 6-3 and Table 28). They spawned in only 10 sloughs: 3B, 3A, 5, Bushrod, 9B, A', 8A, 11, 20 and 21. The most important (accounting for 63%) were 8A, 11 and 20 (Figure 36).

Pink salmon spawned in slough habitats from the second week of August to the first week of September in 1984. Peak spawning occurred during the second and third weeks of August.

Table 28. Pink salmon escapement counts for sloughs in the middle reach in order of contribution, 1984.

Slough	River Mile	Date	Number Counted			Percent Contribution
			Live	Dead	Total	
15	137.2	8/8	500	0	500	46.8
8A	125.4	8/19	118	16	134	12.5
11	135.3	8/19	83	38	121	11.3
20	140.0	8/17	74	11	85	8.0
8B	122.2	8/17	57	11	68	6.4
3A	101.9	9/6	46	10	56	5.2
3B	101.4	9/24	11	17	28	2.6
Moose	123.5	8/6	25	0	25	2.3
A'	124.6	8/6	24	0	24	2.2
Bushrod	117.8	8/13	8	2	10	0.9
21	141.1	8/17	1	7	8	0.7
5	107.6	8/9	4	0	4	0.4
2	100.2	8/17	2	0	2	0.2
8	113.7	8/14	0	1	1	0.1
8C	121.9	8/13	0	1	1	0.1
9	128.3	8/13	0	1	1	0.1
17	138.9	8/8	1	0	1	0.1
TOTALS			954	115	1,069	99.9

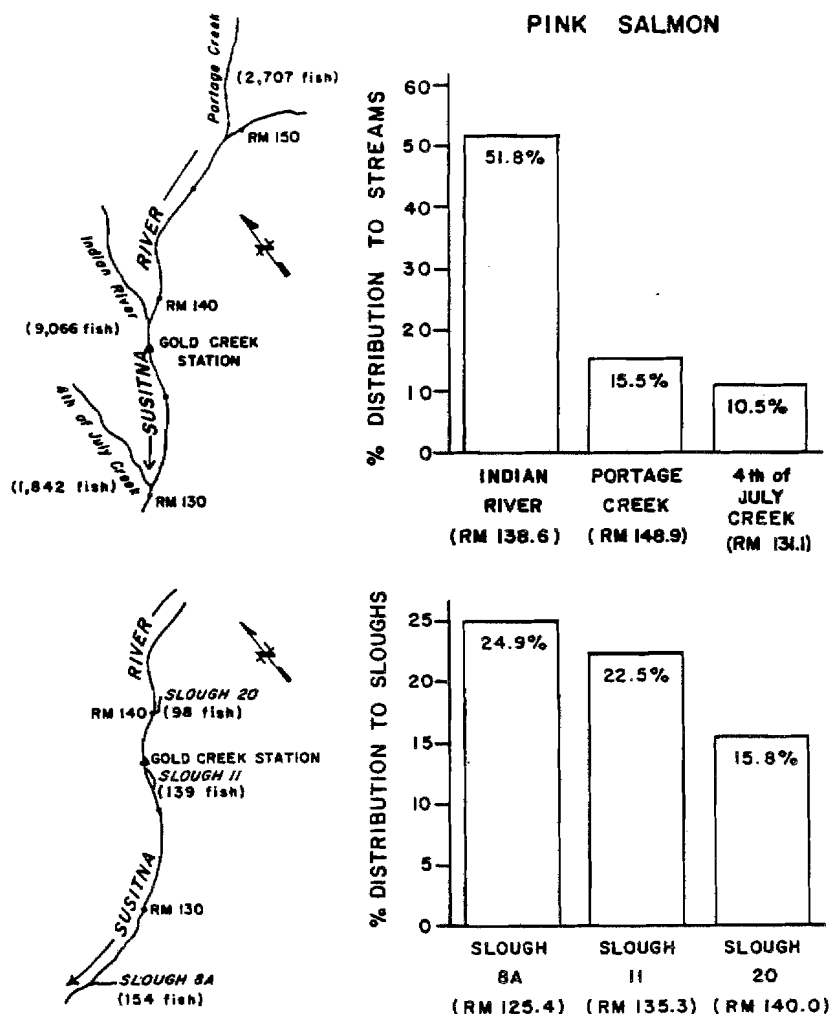


Figure 36. The three major streams and sloughs in the middle reach occupied by pink salmon and the respective percent escape- ment based on peak counts, 1984.

The pink salmon escapement to sloughs in 1984 was about 650 fish (Table 29). Pinks that spawned in sloughs represented about one-half of one percent of the escapement reaching Curry Station, re-enforcing the premise that pink salmon are distributed primarily in stream habitats in the middle reach.

Pink salmon occupied 22 middle-reach streams in 1984 (Appendix Table 6-2). The combined peak counts for those streams was 17,505 pinks (Table 30). Most were at Indian River (52%), Portage Creek (16%) and Fourth of July Creek (11%) (Figure 36).

Table 29. Estimated pink salmon slough escapements to the middle reach, 1984.

Slough	River Mile	Peak Live-Dead ¹ Survey Count	Slough ² Escapement	% of Total Slough Escapement	% of Curry ³ Station Escapement
3B	101.4	28	34	5.3	< 0.1
3A	101.9	56	67	10.4	0.1
5	107.6	4	5	0.8	< 0.1
Bushrod	117.8	10	12	1.9	< 0.1
8B	122.2	68	82	12.7	0.1
A'	124.6	24	29	4.5	< 0.1
8A	125.4	134	161	24.9	0.1
11	135.3	121	145	22.4	0.1
20	140.0	85	102	15.8	0.1
21	141.1	8	10	1.6	< 0.1
TOTALS		538	647	100.3 ⁴	0.5

¹ Peak live-dead survey counts represent counts of spawning fish only. Milling fish were not considered in the analysis.

² Slough escapement was calculated by multiplying peak live-dead counts by 1.2.

³ Curry Station pink salmon escapement for 1984 was 116,900 fish.

⁴ Rounding error.

Table 30. Pink salmon escapement counts for streams in the middle reach in order of contribution, 1984.

Stream	River Mile	Date	Number Counted			Percent Contribution
			Live	Dead	Total	
Indian River	138.6	8/18	7,561	1,505	9,066	51.8
Portage Creek	148.9	8/11	2,703	4	2,707	15.5
4th of July Cr.	131.1	8/13	1,459	383	1,842	10.5
Lane Creek	113.6	8/14	1,147	37	1,184	6.8
L. McKenzie Cr.	116.2	7/30	585	0	585	3.3
Chase Creek	106.9	8/16	246	192	438	2.5
5th of July Cr.	123.7	8/13	391	20	411	2.4
Deadhorse Cr.	120.8	8/13	327	10	337	1.9
Whiskers Creek	101.4	8/15	266	27	293	1.7
Lt. Portage Cr.	117.7	8/20	148	14	162	0.9
Skull Creek	124.7	8/13	117	4	121	0.7
Maggot Creek	115.6	8/7	107	0	107	0.6
Gold Creek	136.7	8/8	82	0	82	0.5
Sherman Creek	130.8	8/13	43	5	48	0.3
Fromunda Cr.	119.3	8/13	38	2	40	0.2
Clyde Creek	113.8	8/21	34	0	34	0.2
Jack Long Cr.	144.5	8/8	14	0	14	0.1
McKenzie Cr.	116.7	8/7	11	0	11	0.1
Tulip Creek	120.9	8/7	8	0	8	< 0.1
Downunda Cr.	119.4	8/7	6	0	6	< 0.1
Gash Creek	111.6	8/21	5	1	6	< 0.1
Slash Creek	111.2	8/27	2	1	3	< 0.1
TOTALS			15,300	2,205	17,505	100.1

The mouths of these three streams were spawning areas (Appendix 6). At Indian River and Fourth of July Creek, most spawning occurred within the first two miles. At Portage Creek, most spawning was from TRM 2 to 5.

Pinks spawned in the streams during the first three weeks of August in 1984, based on surveys at Fourth of July Creek, Indian River and Portage Creek (Appendix 6). The spawning peak was between the second and third weeks of August.

An estimated 29,300 pink salmon spawned in middle-river stream, slough and mainstem habitats. This estimate was reached by assuming:

1. stream escapements were equal to peak survey counts expanded by a factor of 1.2 (Cousens et al. 1982);
2. helicopter survey counts represented about 48 percent of the fish present in Indian River (Figure 37);

3. at least 90 percent of the pink salmon spawned in Indian River, Portage Creek or the index reaches of surveyed streams.

Therefore, in 1984, about 84 percent of the Talkeetna Station escapement were milling fish. At Curry Station, milling fish were an estimated 78 percent of the escapement.

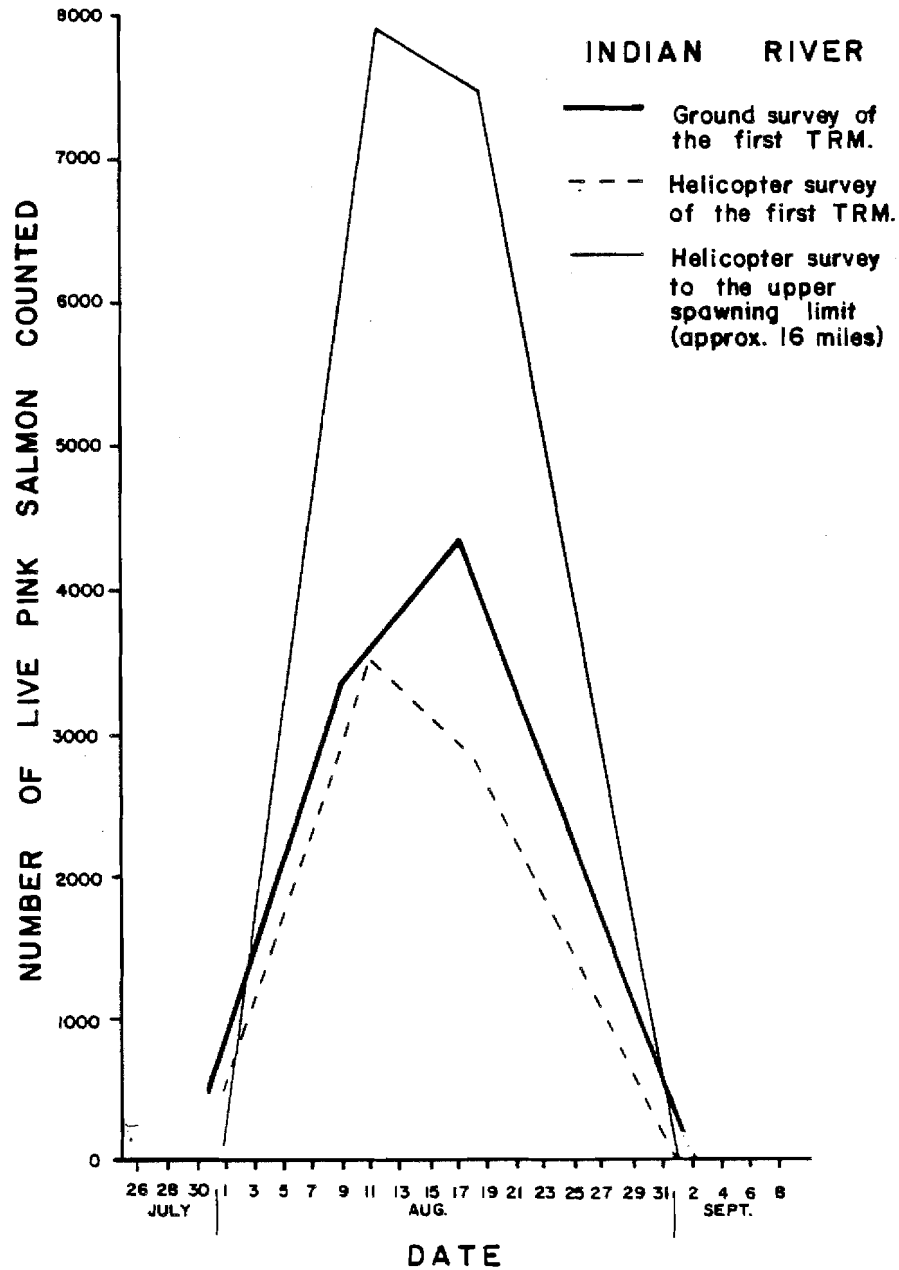


Figure 37. Pink salmon ground and helicopter counts of Indian River, 1984.

3.4 Chum Salmon

3.4.1 Lower Reach

3.4.1.1 Main Channel Escapements

An estimated 812,700 chum salmon migrated to Flathorn Station in 1984 (Table 31). Of these, about 26,500 reached Yentna Station (Table 19) and 765,000 reached Sunshine Station.

Minimal chum spawning occurred below Flathorn Station. The known spawning area is Alexander Creek where the highest escapement was approximately 500 fish in 1963 (ADF&G 1983). With such minimal spawning, the chum escapement estimate to Flathorn Station can be considered an estimate of the entire Susitna River escapement for that species.

Table 31. Estimated chum salmon escapements to Flathorn, Sunshine, Talkeetna and Curry stations, by the Petersen method, with associated confidence intervals, 1984.

Parameter ¹	Population Estimate Location			
	Flathorn Station	Sunshine Station	Talkeetna Station	Curry Station
m	7,299	55,162	11,332	3,132
c	75,268	35,057	18,430	13,877
r	676	2,528	2,126	882
\hat{N}	812,694	764,958	98,236	49,278
95% C.I.	755,963- 878,631	737,273- 794,803	94,459- 102,327	46,319- 52,639

¹ m = Number of fish marked.

c = Total number of fish examined for marks during sampling census.

r = Total number of marked fish observed during sampling census.

\hat{N} = Population estimate.

C.I. = Confidence Interval around \hat{N} .

Figure 38 illustrates the distribution of the Susitna River chum escapement in 1984. About 97 percent of the total escapement was to the Yentna River and Sunshine Station. The Yentna River population was three percent and for Sunshine, 94 percent. About three percent of the escapement was destined to spawn in the lower-reach mainstem and associated tributaries below Sunshine Station excluding the Yentna.

In 1984 the fishwheels at Flathorn, Yentna and Sunshine stations caught 7,519, 1,431 and 56,681 chum respectively or about one percent, five percent and seven percent of the estimated escapements to those stations (Table 6). These fishwheel catches provided the basis for determining escapement timing (Figures 39 and 40). At Flathorn Station, chum salmon were abundant in the mainstem for 41 days. The migration began in the east channel at Flathorn Station on July 18, reached a midpoint on July 25 and ended on August 25. At Yentna Station, the chum salmon migration lasted 42 days. The onset was July 18, the midpoint was August 1 and the end was August 29. At Sunshine Station, 58 miles above Flathorn Station, the migration lasted 27 days, beginning July 23, with a midpoint August 4, and ending August 19.

Chum salmon migrational rates in the lower river are presented in Appendix 3 and summarized in Figure 41. The data are based on tagged fish recoveries between the Flathorn, Yentna and Sunshine stations.

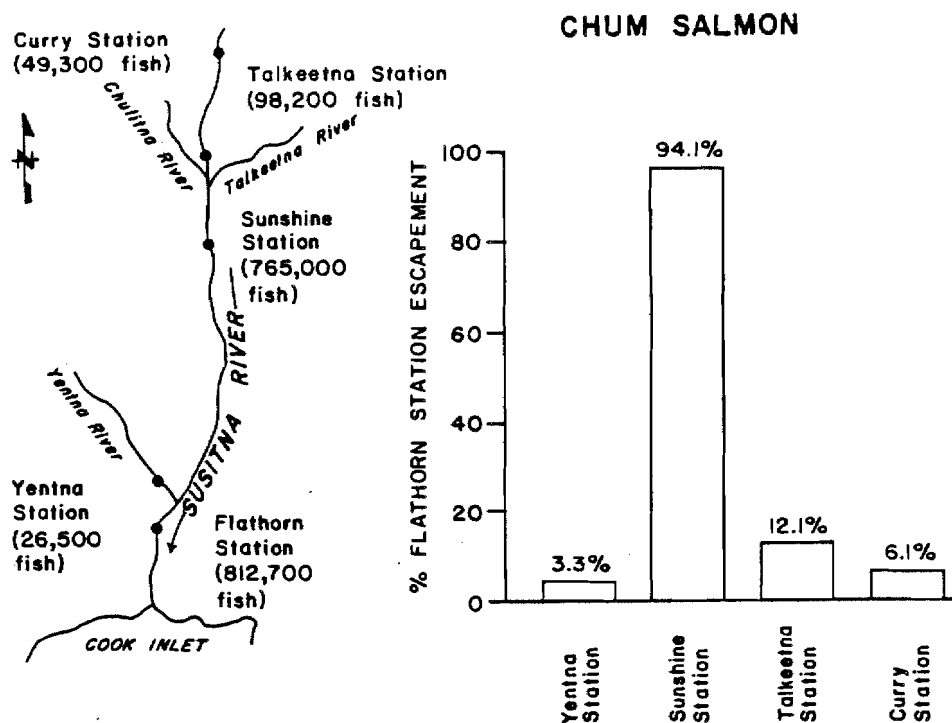


Figure 38. A comparison of the chum salmon escapement to Flathorn Station with the escapements to Yentna, Sunshine, Talkeetna and Curry stations, 1984.

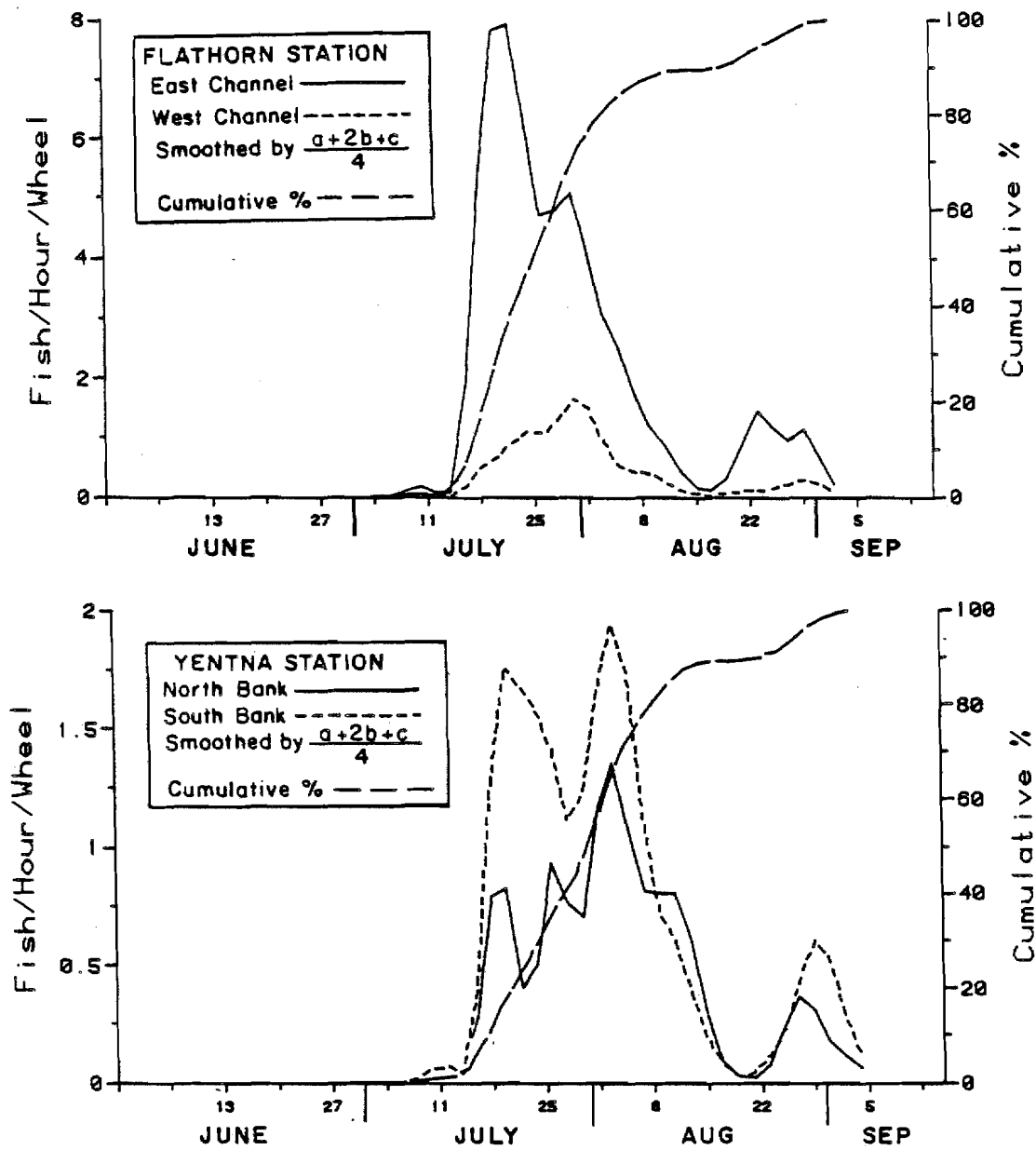


Figure 39. Mean hourly and cumulative percent fishwheel catch of chum salmon by two day periods at Flathorn and Yentna stations, 1984.

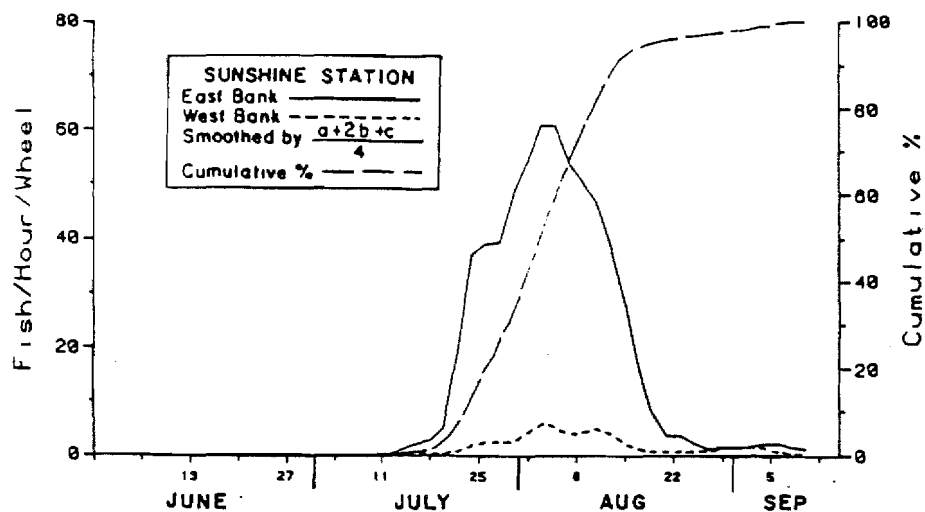


Figure 40. Mean hourly and cumulative percent fishwheel catch of chum salmon by two day periods at Sunshine Station, 1984.

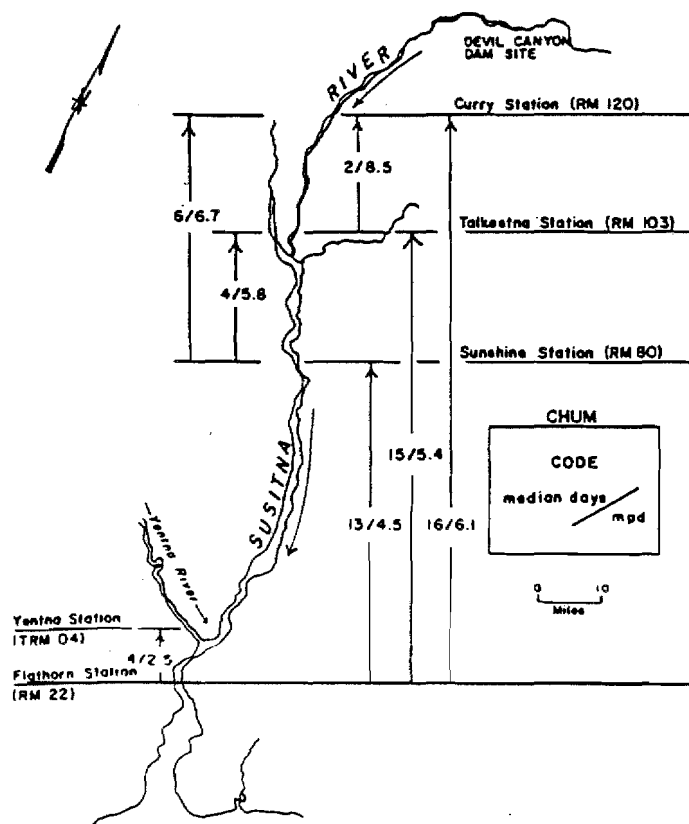


Figure 41. Migrational rates of chum salmon between five lower and middle Susitna River reach sampling stations, 1984.

Most of the chum salmon tagged at Flathorn Station reached Yentna Station within four days and Sunshine Station within 13 days. Chum salmon migrated more slowly or milled more in the lower river between Flathorn Station and Yentna Station than between the Yentna Station and Sunshine Station as evident by respective median travel speeds of 2.5 and 4.5 mpd.

Chum salmon migrations in the lower reach were influenced at least twice in the 1984 season by high discharges. For example, the highest mainstem discharges from mid-July to mid-August in the Yentna and Susitna rivers occurred on July 27 and 28 (USGS, provisional data). On those dates, there was a sharp drop in catches in the fishwheels at Flathorn, Yentna and Sunshine stations (Appendix 3). A second migrational response to discharge probably occurred toward the end of the chum salmon migration. Discharges on August 20 and 21, were between 133,000 cfs and 146,000 cfs at Susitna Station (Figure 42). This coincided with a major reduction in chum salmon fishwheel catches at Flathorn and Sunshine stations.

Catch differences between opposite river-banks fishwheels at a sampling station can indicate fish migrational patterns (Appendix 3). In 1984, 83 percent of the chum salmon escapement that reached Flathorn Station migrated in the east channel. Seventeen percent of the chum escapements to Flathorn passed in the west channel (Figure 43). In the Yentna River, 57 percent of the chum passed Yentna Station along the south bank. At Sunshine Station, the east bank wheels caught 92 percent of the station's chum and the west bank wheels caught the remaining eight percent.

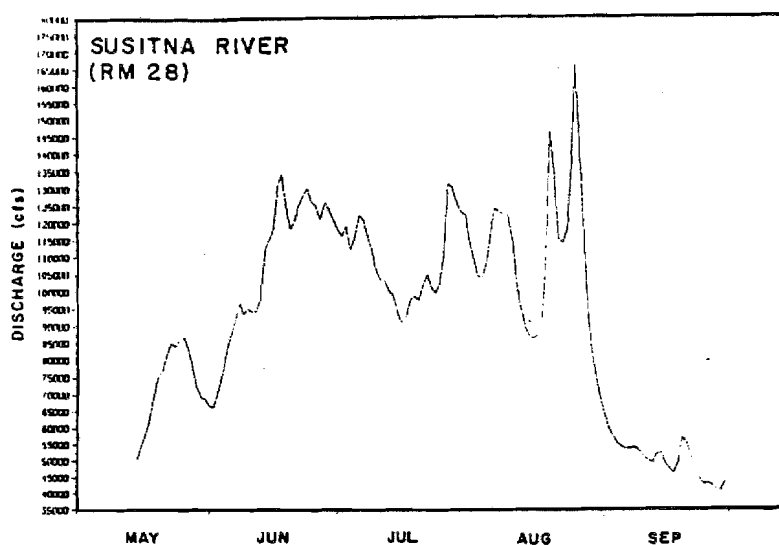


Figure 42. Provisional USGS discharge data for Station No. 15294345 from May 15 through September, 1984.

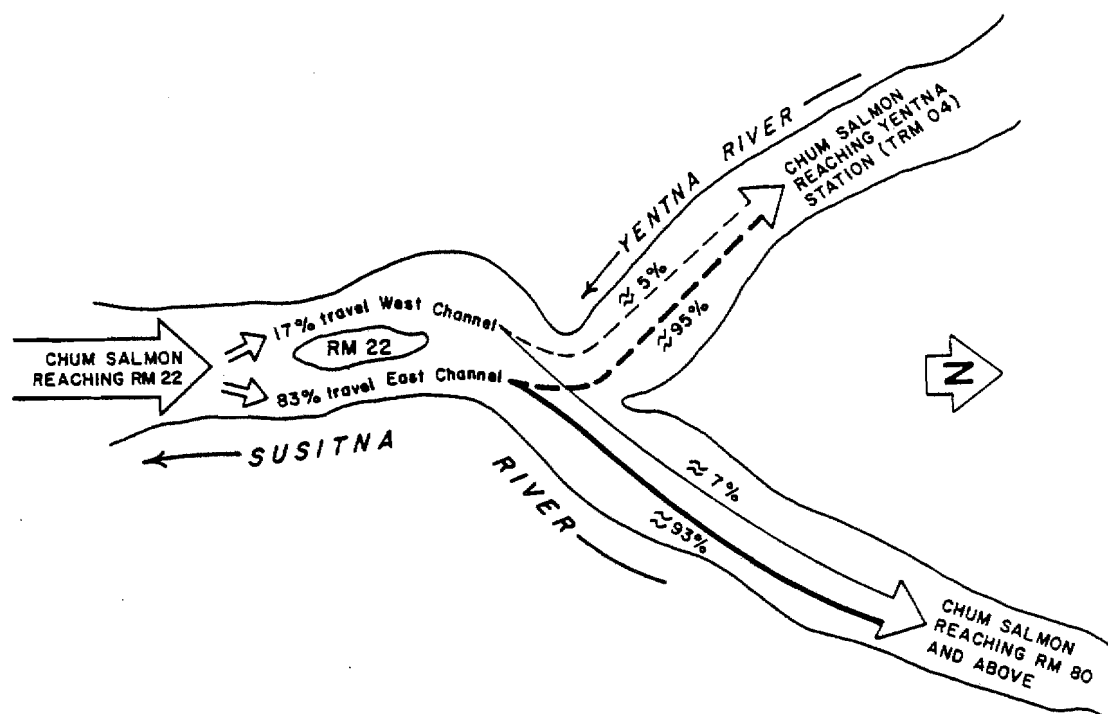


Figure 43. Migrational preference of chum salmon to the east and west channels at Flathorn Station, 1984.

Based on tag recoveries, 95 percent of the chum salmon that entered the Yentna River migrated in the east channel past Flathorn Station (Table 32). This channel was also favored by chum reaching Sunshine Station, where 93 percent of the chum recoveries from Flathorn were originally tagged in the east channel.

Table 32. Comparison of numbers of chum salmon tagged by east and west channel fishwheels at RM 22 to the number of tag numbered recaptures by bank at Yentna Station and at RM 80, 103 and 120 combined, 1984.

River Channel at RM 22	Number of Chum Tagged at RM 22	Number of RM 22 Tag Numbered Recaptures at Yentna Station	Number of RM 22 Tag Numbered Recaptures for RM 80, 103 and 120
East	6,107	18	378
West	1,192	1	28
TOTALS	7,299	19	406

Chum were sampled for age, length and sex composition at Flathorn, Yentna and Sunshine stations. Nearly all (99%) of the chum returning to those stations were three-, four- and five-year-old fish (Figure 44 and Table 33). Most prevalent were four-year-olds, accounting for about 75 percent of the chum escapement. All chum had migrated to sea as juveniles in their first year of life. The average chum lengths at Flathorn, Yentna and Sunshine stations in 1984 were 586 mm, 584 mm and 593 mm respectively (Table 34 and Appendix 5). At all stations, males averaged from 11 to 20 mm longer than females (Table 34). Sexes were nearly equal in abundance, except at Yentna Station, where males were 30% less abundant (Table 35).

Table 33. Age composition by percent of the chum salmon escapements to Flathorn, Yentna, Sunshine, Talkeetna and Curry stations based on catch samples weighted by fishwheel CPUE, 1984.

Collection Site	n	Age Class ¹				
		2 ₁	3 ₁	4 ₁	5 ₁	6 ₁
Flathorn Station	1,363	-	15.5	73.9	10.2	0.4
Yentna Station	706	0.1	19.7	69.1	10.3	0.7
Sunshine Station	881	-	12.0	75.7	12.1	0.1
Talkeetna Station	711	-	6.5	69.2	22.9	1.4
Curry Station	576	-	10.4	71.0	16.7	1.9

¹ Gilbert-Rich Notation.

3.4.1.2 Spawning Areas

In the 1984, chum salmon spawning occurred at mainstem, slough and stream-mouth habitats in the lower reach above the Yentna River. Twelve mainstem and five slough sites were identified. Numbers of mainstem spawners totalled 2,600 to 3,900 fish and slough spawners 700 to 1,000 fish. Spawning in the mainstem and slough habitats occurred in September and early October. Peak spawning probably occurred in the first and second weeks of September.

Chum salmon occupied 10 stream mouths in the lower reach study area. Five of those were spawning areas. Spawning occurred from mid-August to the end of September. The peak occurred in the last week of August and the first week of September. Total numbers of spawners were between 100 and 225 chum; most of those spawned at the mouth of Caswell Creek.

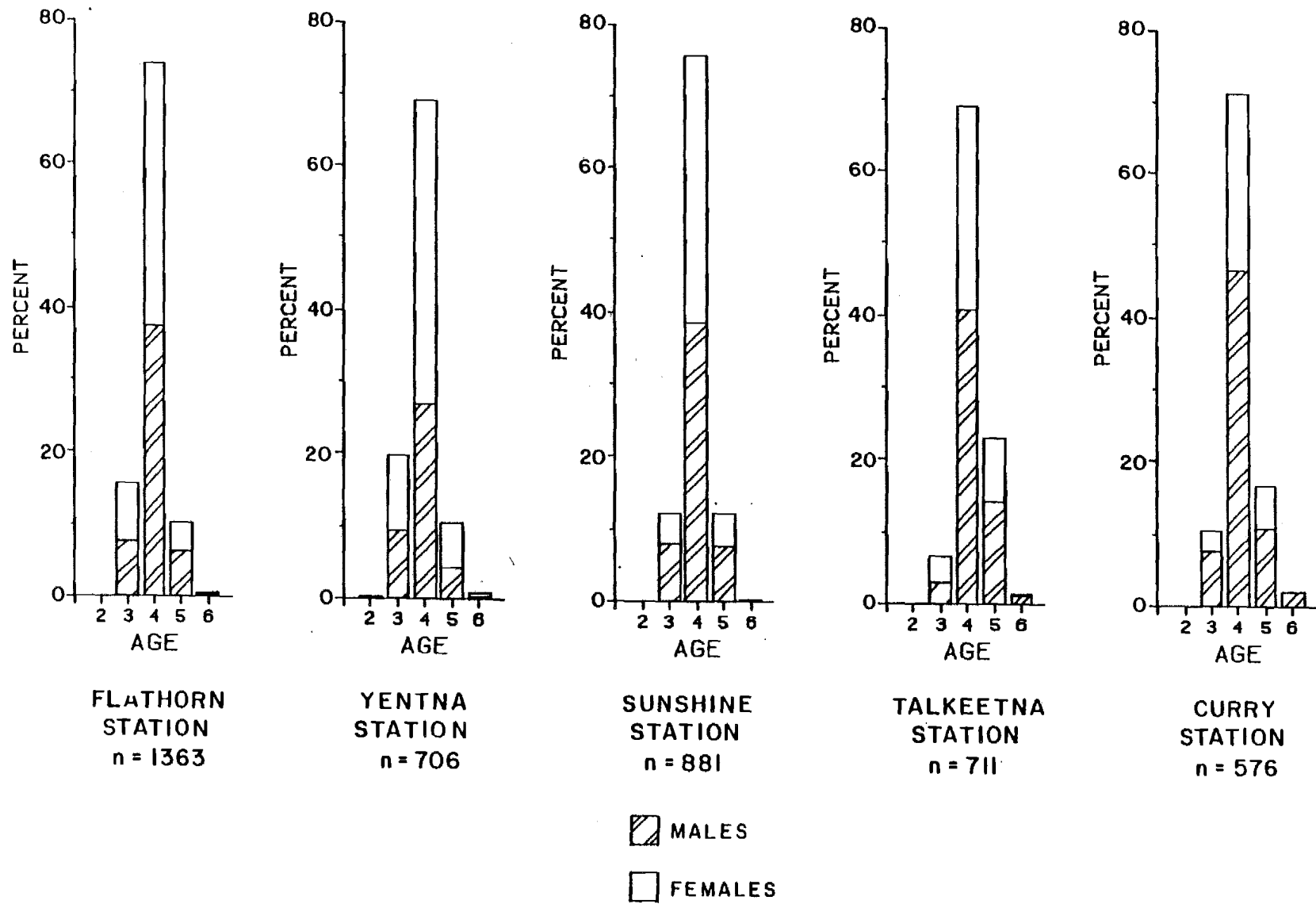


Figure 44. Age composition of fishwheel intercepted chum salmon weighted by CPUE at selected stations on the Susitna River, 1984.

Table 34. Analysis of chum salmon lengths, in millimeters, by sex and age class from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.

Collection Site	Age Class	n		Range		Mean		95% Conf. Interval ¹		Median	
		M	F	M	F	M	F	M	F	M	F
Flathorn Station	3 ₁	87	124	350-635	470-605	563	541	557-570	537-546	565	540
	4 ₁	497	510	455-690	465-800	595	578	592-598	575-580	595	580
	5 ₁	78	61	545-700	515-710	625	597	618-631	590-605	620	600
	6 ₁	2	4	630-655	605-670	638	628	-	-	630	620
	All ²	720	750	350-700	465-800	595	575	-	-	595	580
Yentna Station	2 ₁	1	-	423	-	423	-	-	-	423	-
	3 ₁	58	80	510-625	485-600	559	546	553-566	540-552	560	545
	4 ₁	189	297	501-675	505-668	596	582	592-601	579-585	598	581
	5 ₁	29	43	580-670	532-682	622	613	613-631	605-622	625	615
	6 ₁	3	2	615-675	550-625	638	588	-	-	625	625
	All ²	308	455	423-684	485-682	591	580	-	-	588	580
Sunshine Station	3 ₁	58	48	425-630	490-585	560	557	551-562	550-563	555	555
	4 ₁	356	310	480-775	490-670	603	587	599-607	584-590	600	590
	5 ₁	70	37	515-745	540-670	630	600	622-638	590-609	625	600
	6 ₁	1	-	645	-	645	-	-	-	645	-
	All ²	548	459	425-775	490-680	600	586	-	-	600	590
Talkeetna Station	3 ₁	23	23	490-585	510-580	547	552	538-555	545-559	550	555
	4 ₁	302	190	500-690	500-700	600	593	596-604	588-598	600	590
	5 ₁	109	54	550-710	580-720	645	632	639-651	623-641	645	620
	6 ₁	9	1	610-725	630	664	630	-	-	640	630
	All ²	509	310	490-730	465-720	614	597	-	-	610	600

Table 34 (Continued).

Collection Site	Age Class	n		Range		Mean		95% Conf. Interval		Median	
		M	F	M	F	M	F	M	F	M	F
Curry Station	3 ₁	42	18	505-620	505-585	555	553	549-562	-	555	545
	4 ₁	257	152	470-685	530-660	598	588	593-602	584-592	600	590
	5 ₁	64	32	530-700	545-650	626	603	617-636	593-613	630	610
	6 ₁	10	1	595-700	625	666	625	-	-	680	625
	All ²	443	240	470-705	505-660	601	589	-	-	600	590

¹ Confidence Interval of the Mean.

² Composite of all aged and non-aged samples.

Table 35. Sex ratios of male and female chum salmon by age from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.

Collection Site	Age	Sample Size	Number		Sex Ratio (M:F)
			Males	Females	
Flathorn Station	3	211	104	107	1.0:1
	4	1,007	510	497	1.0:1
	5	139	86	53	1.6:1
	6 ¹	6	3	3	1:1
	All ¹	1,470	764	706	1.1:1
Yentna Station	2	1	1	0	-
	3	139	66	73	0.9:1
	4	488	190	298	0.6:1
	5	73	29	44	0.7:1
	6 ¹	5	2	3	0.7:1
	All ¹	767	314	453	0.7:1
Sunshine Station	3	106	70	36	1.9:1
	4	667	339	328	1.0:1
	5	107	67	40	1.7:1
	6 ¹	1	1	0	-
	All ¹	1,008	533	475	1.1:1
Talkeetna Station	3	46	19	27	0.7:1
	4	492	289	203	1.4:1
	5	163	100	63	1.6:1
	6 ¹	10	8	2	4:1
	All ¹	819	475	344	1.4:1
Curry Station	3	60	43	17	2.5:1
	4	409	267	142	1.9:1
	5	96	62	34	1.8:1
	6 ¹	11	11	0	-
	All ¹	683	455	228	2.0:1

¹ Includes all aged and non-aged samples.

A complete report on spawning in the lower reach mainstem, sloughs and stream mouths can be found in Appendix 1.

3.4.2 Middle Reach

3.4.2.1 Main Channel Escapements

The 1984 escapement to Talkeetna Station was approximately 98,200 chum and for Curry Station, 49,300 (Table 31). Based on these figures, only 13 percent of the escapement to Sunshine entered the middle reach of the Susitna. Most of those entering the middle reach were milling fish from the lower reach. Only about 25 percent of the escapement to Talkeetna Station spawned in the middle reach. The rest were milling fish. In comparison, about 55 percent of the chum that reached Curry Station spawned in the middle reach, and 45 percent were milling fish. These estimates were derived by calculating the number of chum spawning in mainstem, stream and slough-habitats within the middle reach (Section 3.4.2.2).

Chum salmon catches in fishwheels at Talkeetna Station totaled 12,749 fish and at Curry Station 4,228 (Table 6), which represented 13 and 9 percent of the respective intercepted escapements to those stations. Based on catch timing, chum migration in the middle reach lasted for five to six weeks (Figure 45). At Talkeetna Station, chum migration began on July 25, reached a midpoint on August 5 and ended on August 15. At Curry Station, the respective dates were July 28, August 5 and August 21.

Chum salmon migrated faster (or milled less) in the middle reach than in the lower reach. For example, the median travel speed of tagged fish between Flathorn and Sunshine stations was 4.5 mpd, between Sunshine and Talkeetna stations 5.4 mpd, and between Talkeetna and Curry stations 8.5 mpd (Figure 41). Slower migration rates in the lower reach may have been due to fish milling at the confluences of glacial tributaries (the Yentna, Talkeetna and Chulitna rivers).

In the vicinity of Talkeetna Station, chum migration was about equally distributed, with the east and west bank fishwheels taking 46 and 54 percent respectively of the catch. In the vicinity of Curry Station, most chum migrated along the east bank (75%), on the same side of the river as most major spawning sloughs.

Chum migration in the middle reach generally followed a bell-curve distribution, based on fishwheel catches at Talkeetna and Curry stations (Figure 45). The exception in the second week of August was probably related to a high discharge (Figure 8). Fishwheel catches at both stations indicated that chum migration slowed when mainstem discharge increased and accelerated after peak discharge. Previous studies also indicated that chum salmon responded to rapid increases in mainstem discharge by slowing migrational travel (ADF&G 1981, 1982).

Representative age, length and sex samples were collected from middle-river chum salmon at Talkeetna and Curry stations in 1984. Escapements to both stations were comprised of three-to six-year-old fish (Table 34 and Figure 44). About 70 percent were four-year-olds. All

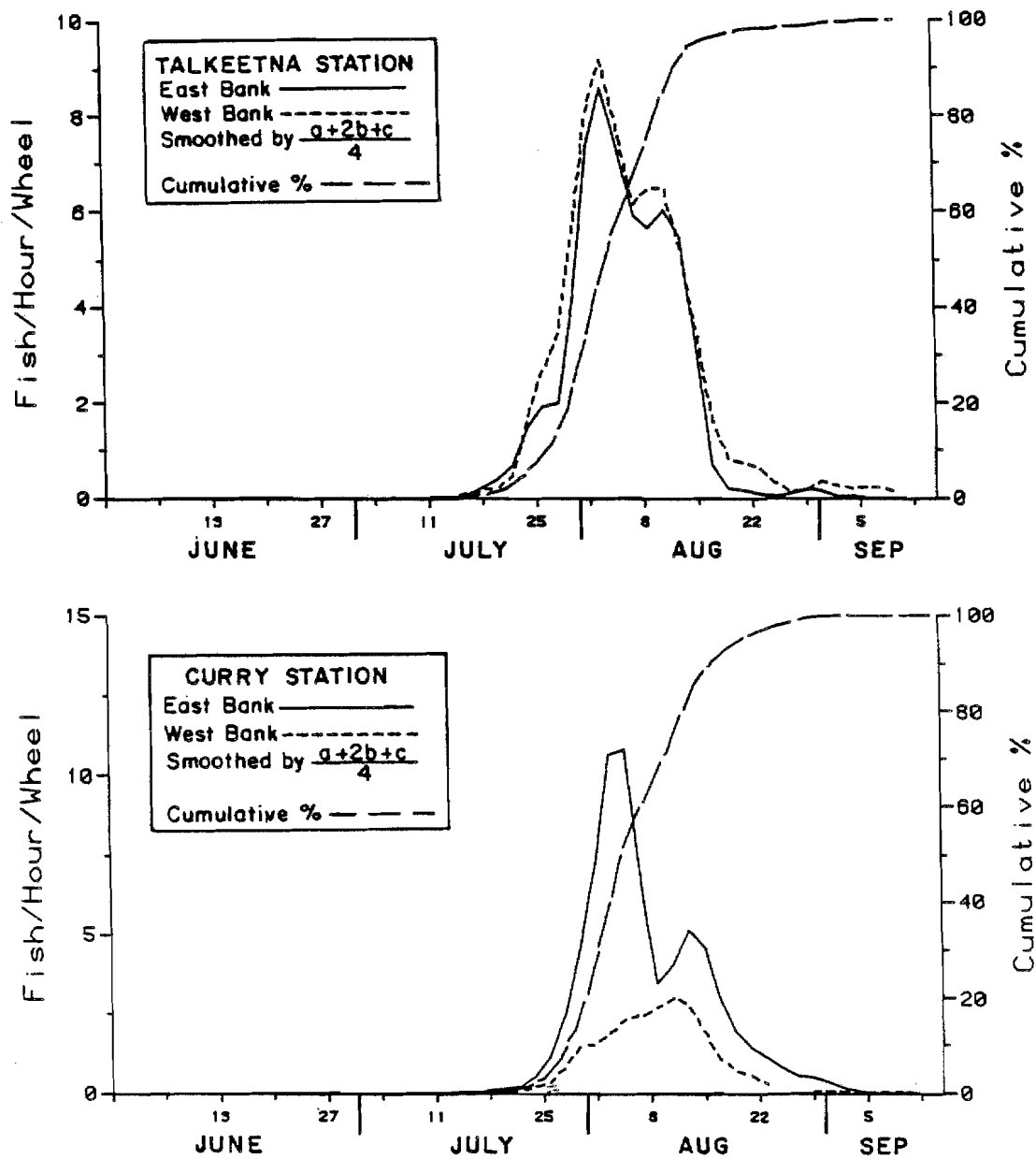


Figure 45. Mean hourly and cumulative percent fishwheel catch of chum salmon by two day periods at Talkeetna and Curry stations, 1984.

had migrated to sea as juveniles in their first year of life. The average chum length at Talkeetna and Curry stations was 600 mm (Table 34). Males averaged 12 mm longer than females (Table 34). The male-to-female ratio was slightly less at Talkeetna (1.4.1) than at Curry (2.0.1).

3.4.2.2 Spawning Areas

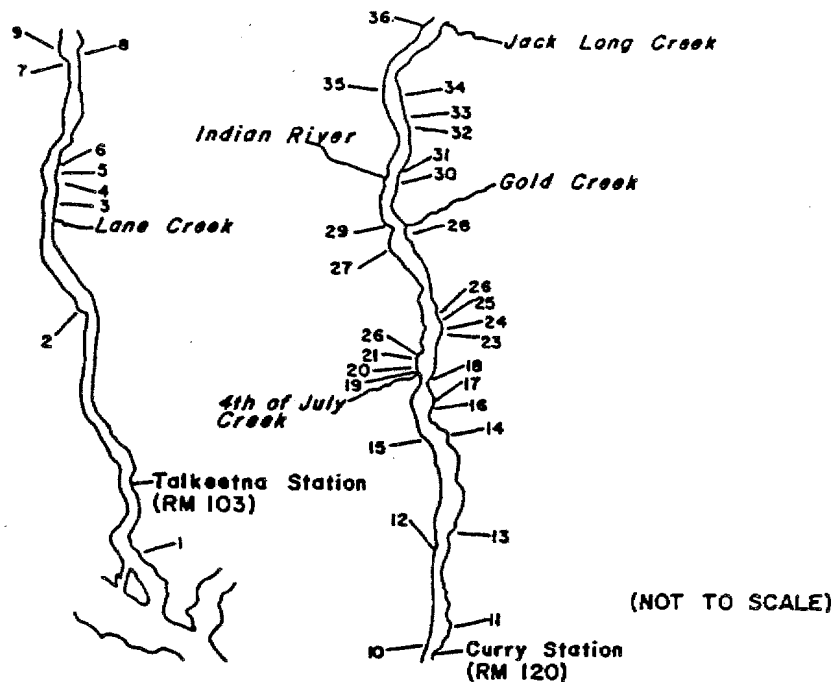
In 1984, 36 mainstem chum spawning areas were identified in the middle reach, nine downstream of Curry Station and 27 upstream. Spawning was observed from September 1 to September 29 (Appendix Table 6-1). Peak spawning probably occurred in the first two weeks of September, based on peak live fish counts. However, spawning may have peaked as much as a week earlier. Turbid mainstem conditions through the month of August resulted in poor survey visibility, and may have prevented documentation of earlier spawning, if it did occur.

The highest single count of live chum salmon in the 36 mainstem spawning areas was 1,266 fish (Figure 46). Assuming this count represented about a third of the total population, approximately 3,800 fish spawned in the middle mainstem Susitna River reach. The reason for expanding the peak count by a factor of 3.0 is based on information which indicates that a peak live and dead count of chum salmon represents about 50 percent of an actual escapement under ideal survey conditions (Cousens et al. 1982). Considering that there were poor mainstem survey conditions in late August near the peak of spawning, and that dead fish were not counted due to the uncertainty of their origin, an expansion factor of 3.0 the authors considered reasonable.

In 1984, 11 streams were occupied by chum salmon in the middle river reach (Appendix Table 6-2). Peak counts of those streams totaled 3,814 fish (Table 36). Most (98%) of the fish were in Indian River, Portage Creek and Fourth of July Creek (Figure 47). Spawning in those streams occurred from about the last week of July through the first week in October with the peak in the second and third weeks of August (Appendix Table 6-2).

The spawning areas and upper migration limits for the 11 chum-occupied streams used are illustrated in Appendix 6. Most of the mouths of those creeks were spawning areas. In Indian River, chum salmon spawned in the first nine miles, with major spawning in the first two miles. At Portage Creek, spawning extended about 7.5 miles upstream to Thorofare Creek (TRM 7.5). Spawning was discontinuous in that reach. Chum entering Fourth of July Creek spawned from the mouth to a point about 1.5 miles upstream. The majority of spawning was at the mouth.

The general importance of the chum spawning habitat in this reach, including the mouths of Indian River and Portage Creek, was determined by comparing escapement counts within subreaches (Appendix Table 6-2). As illustrated in Figures 48 and 49, relatively high counts of live chum were recorded (by ground and helicopter surveys) in the index reaches of those streams throughout the entire spawning period. About 45 percent of the peak count of Indian River was in the first mile, and 21 percent of the peak count of Portage Creek was logged in the first one-quarter mile.



Map Id Number	Location		Highest Fish Count	Spawning Observation Dates	Peak X3 = Escapement	Map Id Number	Location		Highest Fish Count	Spawning Observation Dates
	RM	EWA Bank					RM	Bank		
1	100.9	100.7 RR R ₆	89	9/15-29/84		19	131.1	131.3 L 7	81	9/1-8/84
2	110.1	110.4 LL 3	4	9/1-8/84		20	131.3	131.7 LL 4	57	9/8-29/84
3	114.0	114.1 RC 7	46	9/15/84		21	131.5	131.7 LL 4	102	9/8-24/84
4	114.6	115.0 RR 3	69	9/1-22/84		22	131.7	131.7 LL 4	20	9/8-22/84
5	115.0	115.0 RR 3	15	9/1-29/84		23	131.8	131.8 LL 2	18	9/15/84
6	115.1	115.6 RR 2	50	9/8/84		24	134.6	134.9 RR 4	2	9/29/84
7	118.9	118.9 LL 5	21	9/1-15/84		25	135.1	134.9 RR 4	8	9/15/84
8	119.1	119.1 LL 10	15	9/1-15/84		26	135.2	134.9 RR 4	40	9/15/84
9	119.4	119.4 LL 3	2	9/8/84		27	136.1	136.3 RR 6	131	9/1-8/84
10	120.9	121.1 LL 7	5+redds	10/13/84		28	136.3	136.3 RR 6	31	9/8/84
11	121.6	121.7 RR 4	2	9/15/84		29	136.8	136.3 RR 6	6	9/15/84
12	124.0	124.1 LL 4	18	9/22/84		30	138.7	138.7 LL 10	36	9/8-15/84
13	124.9	124.8 RC 8	8	9/8-29/84		31	139.0	139.0 LL 5	87	9/1-22/84
14	128.3	128.3 RR 9	73	9/8-15/84		32	140.5	140.4 RR 4	6	9/15/84
15	128.6	128.5 RR 3	77	9/1-29/84		33	140.8	140.8 RR 6	2	9/15/84
16	129.8	130.2 RR 3	18	9/1-15/84		34	141.4	141.3 RR 6	45	9/1/84
17	130.0	" R 3	5	9/8/84		35	141.6	141.3 RR 9	1	9/15/84
18	130.5	" R 3	36	9/1-15/84		36	143.3	143.0 LL 5	45	9/1/84

Figure 46. Chum salmon spawning areas in Susitna River mainstem middle reach, 1984.

The escapement to middle-reach streams was approximately 7,630 fish. This estimate was determined by expanding the total peak count by a factor of two (Table 36) (Cousens et al. 1982).

In 1984, adult chum were observed in 30 middle-reach sloughs, 28 of which were spawning areas (Table 37). Sloughs 14 (RM 135.9) and 15 (RM 137.2) were considered milling areas due to the absence of observed

Table 36. Chum salmon escapement counts for streams in the middle reach, 1984.

Stream	River Mile	Date	Number Counted		Total
			Live	Dead	
Chase Creek	106.9	8/16	0	1	1
Lane Creek	113.6	8/21	17	14	31
L. McKenzie Creek	116.2	8/27	23	0	23
Little Portage Cr.	117.7	8/20	17	1	18
5th of July Creek	123.7	8/6	2	0	2
Skull Creek	124.7	8/20	2	2	4
Sherman Creek	130.8	8/13	6	0	6
4th of July Creek	131.1	8/13	172	21	193
Indian River	138.6	8/11	2,247	0	2,247
Jack Long Creek	144.5	8/8	4	0	4
Portage Creek	148.9	8/18	1,151	13	1,285
TOTALS			3,641	173	3,814

CHUM SALMON

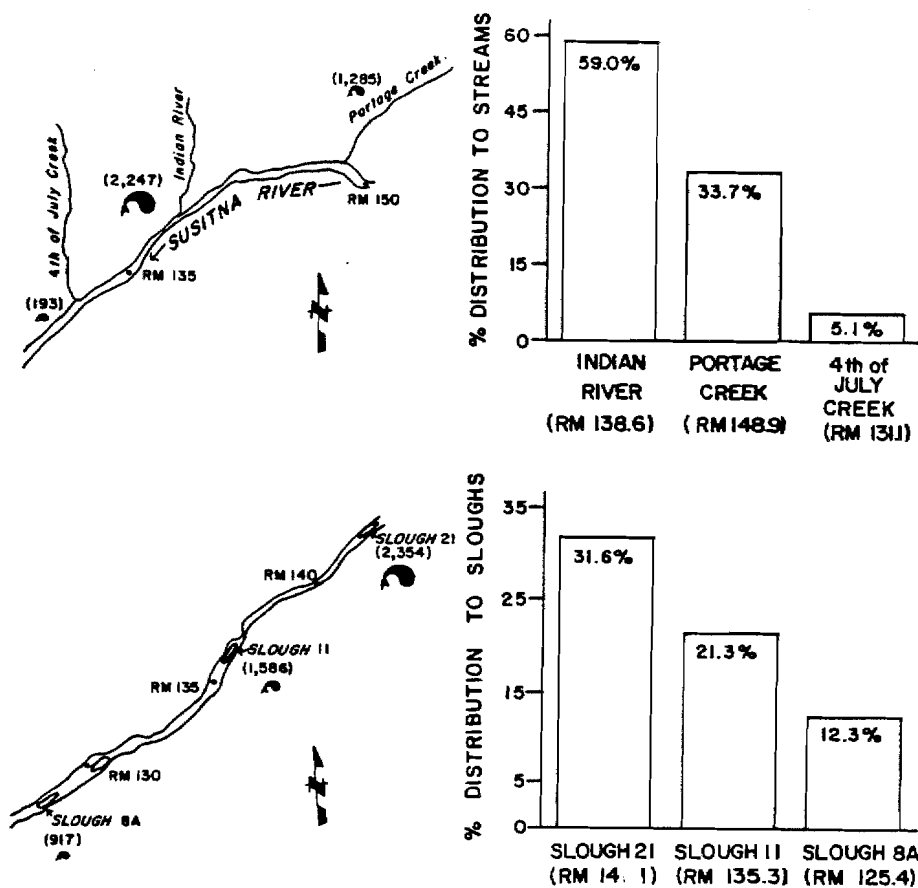


Figure 47. The three major streams and sloughs in the middle reach occupied by chum salmon and the respective percent escapement based on peak counts, 1984.

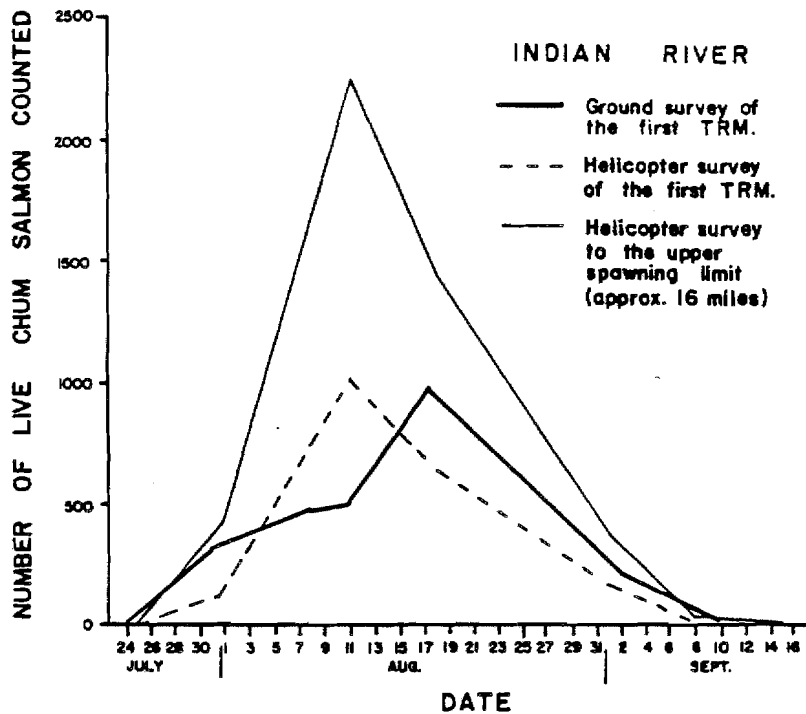


Figure 48. Chum salmon ground and helicopter counts of Indian River, 1984.

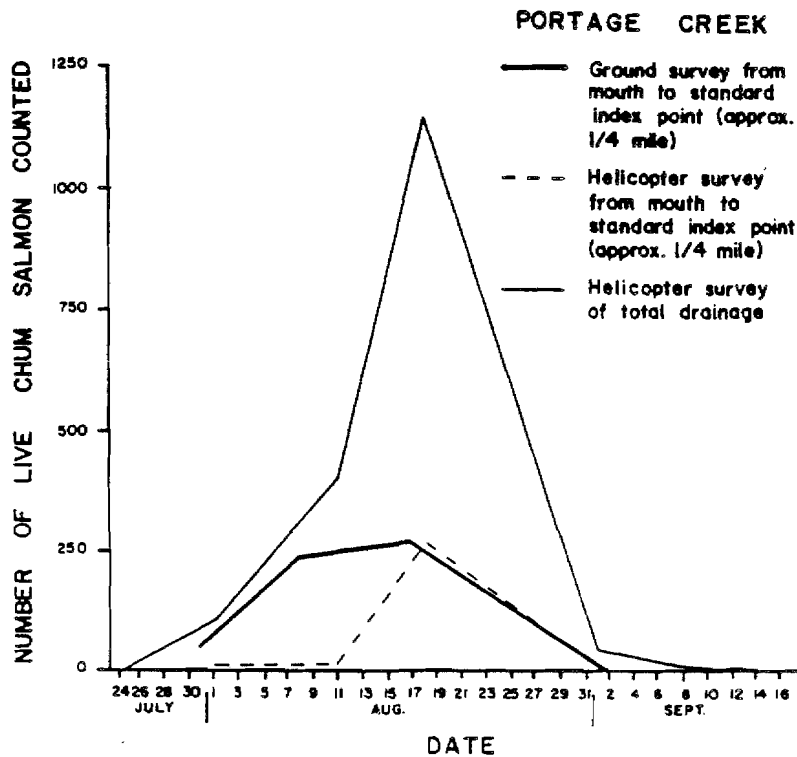


Figure 49. Chum salmon ground and helicopter counts of Portage Creek, 1984.

spawning. The 100 chum salmon that milled in Slough 15 were probably destined for Indian River (RM 138.6) due to the early date (August 8) of the observation and the proximity of Slough 15 to Indian River. The single chum salmon recorded in Slough 14 was probably a stray from a nearby spawning area.

Table 37. Chum salmon escapement counts for sloughs in the middle reach, 1984.

Slough	Representative Group (RM)	River Mile	Date	Number Counted		
				Live	Dead	Total
1	-	99.6	9/6	11	1	12
2	2 (100.6R)	100.2	9/6	118	11	129
3B	2 (101.6L)	101.4	9/6	46	10	56
3A	1 (102.2L)	101.9	9/17	1	16	17
8	2 (113.7R)	113.7	9/5	51	14	65
Bushrod	2 (117.4L)	117.8	8/20	86	4	90
8D	2 (121.8R)	121.8	9/6	8	41	49
8C	1 (121.9R)	121.9	9/13	49	72	121
8B	1 (122.5R)	122.2	8/31	379	21	400
Moose	2 (123.6R)	123.5	9/3	38	38	76
A1	-	124.6	8/13	109	2	111
8A	2 (126.0R)	125.4	9/3	646	271	917
B	2 (126.3R)	126.3	9/4	76	32	108
9	3 (128.6R)	128.3	9/4	221	129	350
9B	1 (129.4R)	129.2	8/26	71	2	73
9A	3 (133.7R)	133.8	9/4	261	42	303
10	1 (133.9L)	133.8	8/26	36	0	36
11	1 (135.6R)	135.3	9/17	44	1,542	1,586
13	2 (135.7R)	135.9	8/27	19	3	22
14	4 (136.0L)	135.9	8/27	1	0	1
15	2 (137.5L)	137.2	8/8	100	0	100
16	2 (137.84.4L)	137.3	9/1	15	0	15
17	1 (139.0L)	138.9	9/2	47	19	66
18	-	139.1	9/2	10	1	11
19	5+1 (139.74.9R)	139.7	9/2	30	15	45
20	2 (140.2R)	140.0	9/2	117	163	280
21	5 (141.6R)	141.1	9/2	1,643	711	2,354
22	2 (144.4L)	144.5	9/2	109	42	151
21A	8 (145.6R)	145.3	8/17	0	10	10
TOTALS				4,343	3,213	7,556

The highest chum concentrations were observed in Sloughs 8A, 11 and 21 (Figure 47). Peak counts in those sloughs totaled 4,857 fish, 64 percent of the total peak count of all middle-reach sloughs (Table 37).

Chum salmon spawned in Sloughs 8A, 11 and 21 between the first week of August and the last week of September (Figure 50). The peak spawning occurred during the last week of August and first week of September.

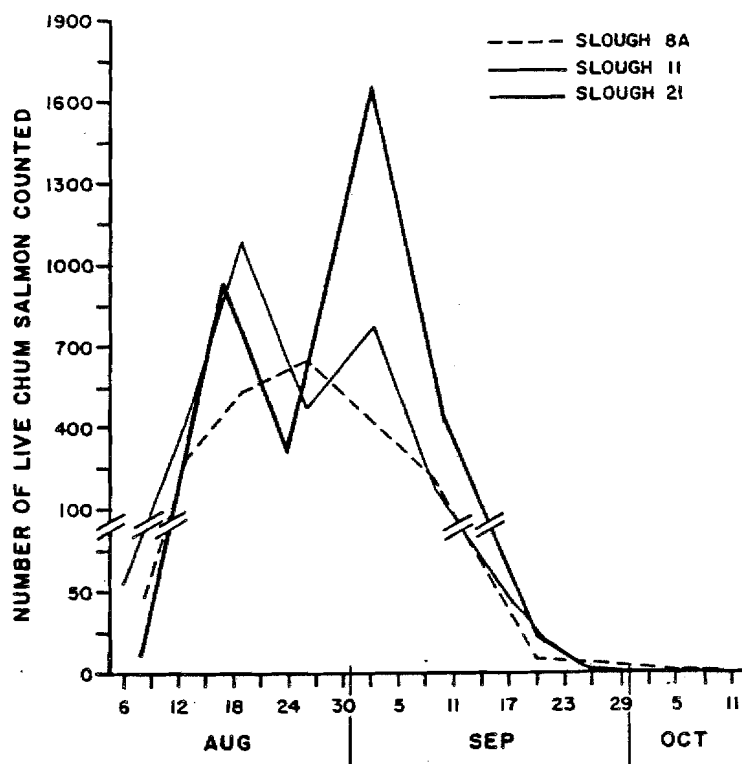


Figure 50. Chum salmon live counts by date in sloughs 8A, 11 and 21, 1984.

Chum salmon monitored for observed residence at sloughs A', 8A and 11 averaged from 14 to 20 days in the Susitna River mainstem between the time they were tagged and the time they entered one of those study sloughs (Figure 51). The mean average time was 19 days. The majority of that time was probably spent ripening in the Susitna River mainstem. Chum salmon averaged 8.5 mpd travel between Talkeetna and Curry stations (Figure 41). The furthest study slough (Slough 11) is 15 miles upstream from Curry, or about two days if migration were direct. Further evidences that the mainstem was used as a ripening area were 1) the several-week period between peak fishwheel catches at Talkeetna and Curry stations; 2) dates of peak live counts at sloughs 8A, 11 and 21 (Figure 50 and Appendix Table 6-3); and 3) fish spawning in areas downstream from their tagging sites, indicating that not all chum migrated directly to spawning areas. Milling upstream of a spawning area is probably more frequently an artifact of fish using the mainstem for ripening than a by-product of seeking out a new spawning habitat or not initially recognizing a natal area.

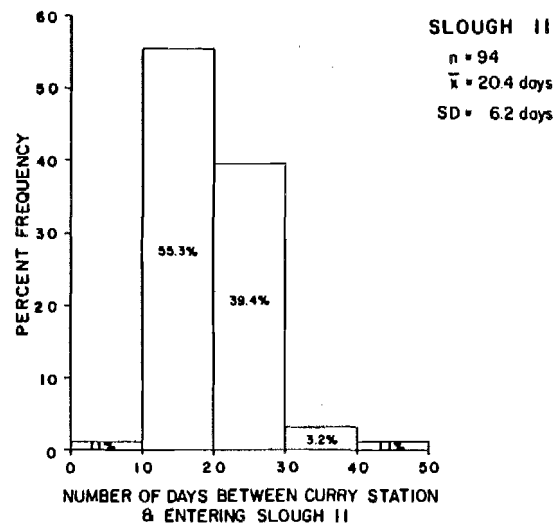
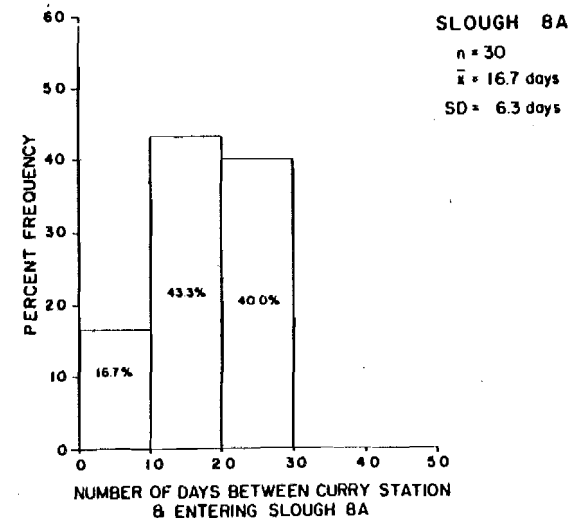
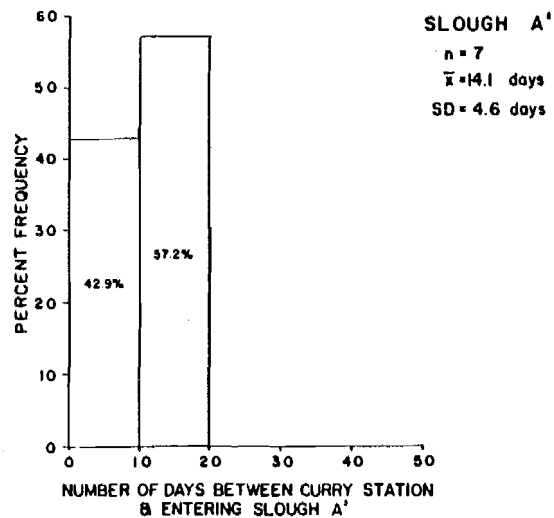


Figure 51. Percent frequency of the number of days tagged chum salmon spent in the Susitna River mainstem between Curry Station and Sloughs A', 8A and 11, 1984.

Chum salmon had a mean average observed residence at sloughs A', 8A and 11 of 6.8 days (Figure 52). The lowest average was at Slough 11 (6.1 days) and the highest at Slough 8A (7.9 days). These estimates do not represent the spawning life of chum salmon in the sloughs because not all monitored fish initiated spawning.

Some chum salmon which entered sloughs A', 8A, and 11 spawned elsewhere. At least three of the 131 fish monitored at those sloughs entered more than one slough. For example, one chum entered Slough 8A, remained there for about a week and four days later entered Slough 11, where it finally spawned. About 18 percent of the chum monitored for observed residence were located only once in the three study sloughs. Those fish probably entered the study sloughs for milling or ripening purposes only. An unknown percentage of fish may have been removed by bears.

The zonal distribution of spawning in sloughs 8A and 11 is outlined in Table 38. The lower reaches were used more by chum than the upper reaches, based on observed residence data. In contrast, sockeye spawned more frequently in the upper reaches.

Table 38. Percentages of chum salmon monitored for residence life that initiated spawning by habitat zone at sloughs A', 8A, and 11, 1984.

Slough ¹ with RM	n ²	Percent Spawning	Spawning Location ³ by Habitat Zone							Percent Not Spawning ⁴
			1	2	3	4	5	6	7	
A' RM 124.6	7	85.7	-	-	-	-	-	-	-	14.3
8A RM 125.1	30	83.3	3.3	33.3	46.7	-	-	-	-	16.7
11 RM 135.3	94	74.7	2.1	16.0	16.0	23.4	4.3	11.7	1.1	25.3

¹ RM = River Mile

² Total sample for sloughs A', 8A and 11 equals 131 fish; 128 individual fish were actually monitored as three individuals spent time in both sloughs.

³ Habitat zones defined in Appendix Figures 6-4 and 6-5.

⁴ Includes milling fish and bear killed and other pre-spawning mortalities.

In 1984, about 14,630 chum spawned in middle-reach sloughs (Table 39 and Appendix 6). Overall, that represented about 56 percent of the chum spawning in the middle reach (Table 40).

Most (77%) of the female chum that spawned in sloughs deposited all of their eggs (Table 41 and Figure 53). Egg retentions were highest at Sloughs 11 and 21. Those sloughs also supported the highest escapement.

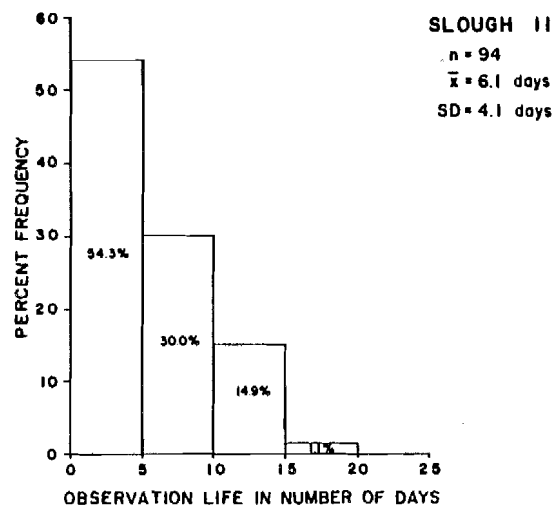
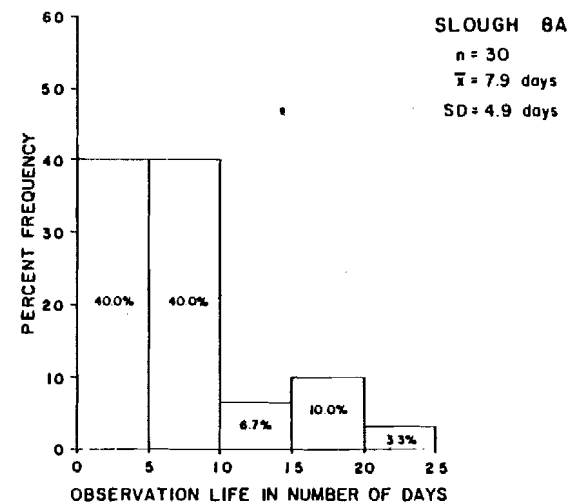
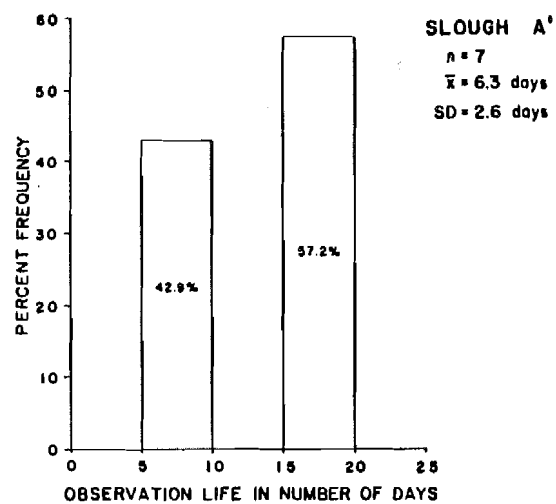


Figure 52. Observed residence life of chum salmon at Sloughs A', 8A and 11 by percent frequency, 1984.

Table 39. Estimated chum salmon slough escapements to the middle reach, 1984.

Slough	EWT+A's R.G.	River Mile	Total Fish ¹ Days	Peak Live-Dead Survey Count	Mean Observation Life in Days	Slough Escapement	% of Total Slough Escapement	% of Curry ² Station Escapement
1	2	99.6		12 ³	-	46	0.3	0.1
2	2	100.2	1,261.8	129	6.7	188	1.3	0.4
3B	2	101.4	729.5	56	6.7	109	0.7	0.2
8	2	113.7	1,451.8	65	6.7	217	1.5	0.4
Bushrod	2	117.8	1,077.5	90	6.7	161	1.1	0.3
8D	2	121.8	402.0	49	6.7	60	0.4	0.1
8C	1	121.9	1,387.4	121	6.7	207	1.4	0.4
8B	1	122.2	5,764.5	400	6.7	860	5.9	1.7
Moose	2	123.5	1,900.5	150	6.7	284	1.9	0.6
A'	-	124.6	1,367.3	111 ³	6.3	217	1.5	0.4
A	-	124.7		2 ³	-	8	0.1	0.1
8A	2	125.4	18,826.2	917	7.9	2,383	16.3	4.8
B	2	126.3	1,126.1	108	6.7	168	1.2	0.3
9	3	128.3	2,036.5	350	6.7	304	2.1	0.6
9B	1	129.2	882.1	73	6.7	132	0.9	0.3
10	1	133.8	602.2	36	6.7	90	0.6	0.2
9A	3	133.8	3,535.4	303	6.7	528	3.6	1.1
11	1	135.3	20,851.2	1,586	6.1	3,418	23.4	6.9
13	2	135.9	86.5	22 ³	6.7	16	0.1	0.1
14	4	135.9		1 ³	-	4	0.1	0.1
15	2	137.2	450.9	100	6.7	67	0.5	0.1
16	2	137.3	136.1	15	6.7	20	0.1	0.1
17	1	138.9	1,365.4	70 ³	6.7	204	1.4	0.4
18	-	139.1		11 ³	-	42	0.3	0.1
19	541	139.7	681.4	45	6.7	102	0.7	0.2
20	2	140.0	2,204.5	280	6.7	329	2.3	0.7
21	5	141.1	28,443.0	2,354	6.7	4,245	29.0	8.6
22	2	144.5	1,253.4	151 ³	6.7	187	1.3	0.4
21A	8	145.3		10 ³	-	38	0.3	0.1
TOTALS			97,823.21	7,617	-	14,634	100.2 ⁴	29.3

¹ Number of fish days were calculated for sloughs that had peak survey counts > 15 fish. Refer to Section 2.3.5 for detailed data analysis procedures.

² 1984 Curry Station chum salmon escapement was approximately 49,300 fish.

³ Total slough escapement into sloughs having peak life-dead survey counts of ≤ 15 fish were computed by multiplying the peak live-dead survey count by 3.8. This value represents the summation of the estimated slough escapement divided by the summation of the peak live-dead survey counts for all sloughs with peak survey counts ≥ 50 fish.

⁴ Rounding error.

Table 41. Egg retention of chum salmon at selected sloughs in the middle Susitna River reach, 1984.

Spawning Sloughs with RM ¹	Sample Size	Egg Retention		
		Mean	Median	Range
Slough 8D RM 121.8	8	48	9	0-300
Slough 8C RM 121.9	7	227	1	0-1,498
Slough 8B RM 122.2	16	43	1	0-500
Moose Slough RM 123.5	6	0	-	-
Slough A' RM 124.6	44	159	1	0-2,936
Slough 8A RM 135.4	92	210	1	0-2,936
Slough 9B RM 129.2	1	2,936	-	-
Slough 11 RM 135.3	97	835	2	0-2,936
Slough 20 RM 140.0	4	113	98	5-251
Slough 21 RM 141.1	31	485	5	0-2,936
Slough 22 RM 144.5	9	39	0	0-350
TOTALS	315	463	1	0-2,936

¹ RM = River Mile

Table 40. Estimated chum salmon spawning in the middle reach by habitat type, 1984.

Habitat	Estimated Spawning Escapement	Percent of Total Spawning Escapement
Sloughs	14,630	56.1
Streams	7,630	29.3
Mainstem	3,800	14.6
TOTALS	26,060	100.0

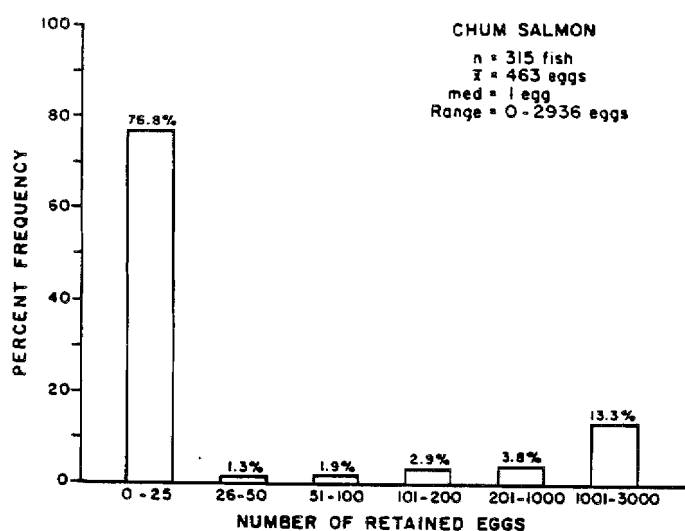


Figure 53. Percent frequency of the numbers of eggs retained by chum salmon at eleven middle reach sloughs, 1984.

3.5 Coho Salmon

3.5.1 Lower River

3.5.1.1 Main Channel Escapements

The 1984 coho escapements estimated for the lower reach were 190,100 fish (Flathorn Station), 18,200 fish (Yentna Station) and 94,700 fish (Sunshine Station) (Tables 42 and 19). These estimates were derived by the Petersen tag and recapture method at Flathorn and Sunshine stations

and by SSS at Yentna Station. The approximate 95 percent confidence intervals associated with the Petersen estimates are presented in Table 42.

The coho salmon escapement into the Susitna River drainage was defined as the estimated escapement to Flathorn Station. Below Flathorn Station, only Fish and Alexander creeks drainages are known to support coho spawning populations (ADF&G 1982). Historically, the highest counts were 380 fish in Red Shirt Creek (1952) (Fish Creek drainage) and 2,000 fish in Alexander Creek (1964) (ADF&G 1982).

The geographic distribution of coho salmon in the lower reach above Flathorn Station, based on 1984 escapement monitoring at Flathorn, Yentna and Sunshine stations, is illustrated in Figure 54. As shown, the combined escapements to Yentna and Sunshine stations accounted for about 60 percent of the escapement to Flathorn Station. The remaining 40 percent spawned in the lower river below Sunshine Station excluding the Yentna River.

Table 42. Estimated coho salmon escapements to Flathorn, Sunshine, Talkeetna and Curry stations, by the Petersen method, with associated confidence intervals, 1984.

Parameter ¹	Population Estimate Location			
	Flathorn Station	Sunshine Station	Talkeetna Station	Curry Station
m	2,703	9,448	1,304	262
c	12,727	3,839	1,817	165
r	181	383	200	20
\hat{N}	190,061	94,702	11,847	2,162
95% C.I.	166,044- 222,202	86,484- 104,646	10,477- 13,629	1,532- 3,669

¹ m = Number of fish marked.

c = Total number of fish examined for marks during sampling census.

r = Total number of marked fish observed during sampling census.

\hat{N} = Population estimate.

C.I. = Confidence Interval around \hat{N} .

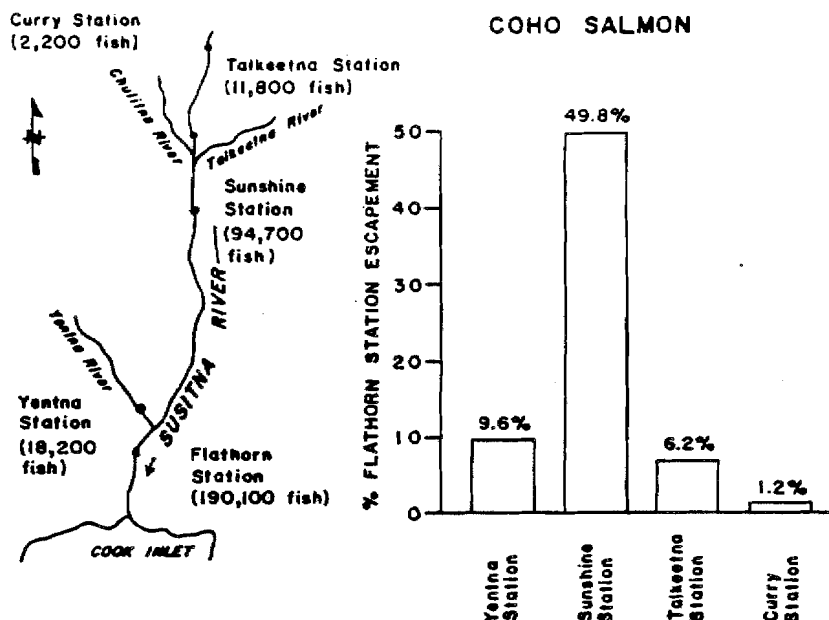


Figure 54. A comparison of the coho salmon escapement to Flathorn Station with the escapements to Yentna, Sunshine, Talkeetna and Curry stations, 1984.

The migration at Flathorn Station extended from July 18 to August 24 (Figure 55). The migration midpoint occurred on July 29 in the east channel and on July 25 in the west channel. There was little difference between east and west channel passage timing based on fishwheel catches. At Yentna Station, the coho migration was from July 21 to August 22, with a midpoint on August 3 (Figure 55). At Sunshine Station, coho salmon were abundant from July 29 to August 29. The migration midpoint was on August 11 (Figure 56).

Migratory distributions at Flathorn, Yentna and Sunshine stations were based on fishwheel catches (Table 6 and Appendix 3). At Flathorn Station, individual fishwheel catches were as follows: 18 percent right east channel, 38 percent left east channel, 35 percent right west channel and 10 percent left west channel. The majority of the coho (55 percent) migrated in the east channel (Figure 57). The data also indicated a strong preference for coho to migrate midriver at that site. The two midriver fishwheels intercepted a combined 72 percent of the total catch. At Yentna Station coho migrated primarily (81 percent) along the south bank. At Sunshine Station, 58 percent of the coho migrated along the east bank and 42 percent along the west bank.

Coho salmon migrating past Flathorn Station enroute to Yentna Station migrated primarily (67%) in the east channel (Table 43). Coho salmon reaching Sunshine Station and above also passed Flathorn Station predominately (90 percent) in the east channel.

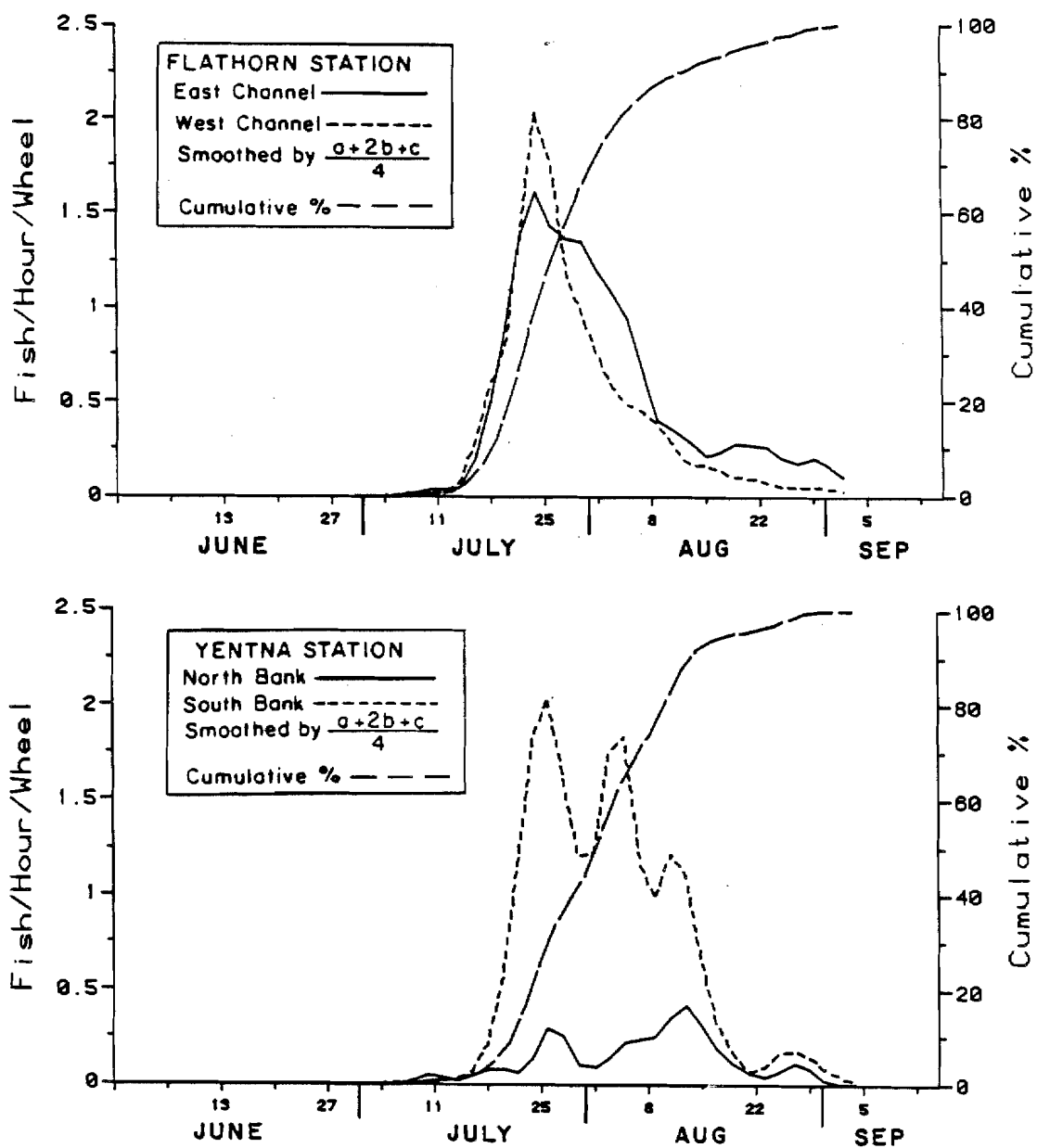


Figure 55. Mean hourly and cumulative percent fishwheel catch of coho salmon by two day periods at Flathorn and Yentna stations, 1984.

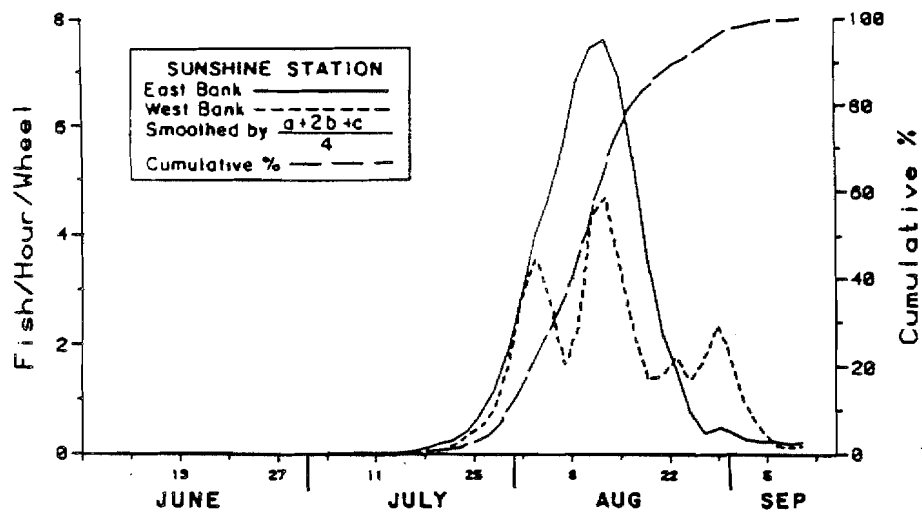


Figure 56. Mean hourly and cumulative percent fishwheel catch of coho salmon by two day periods at Sunshine Station, 1984.

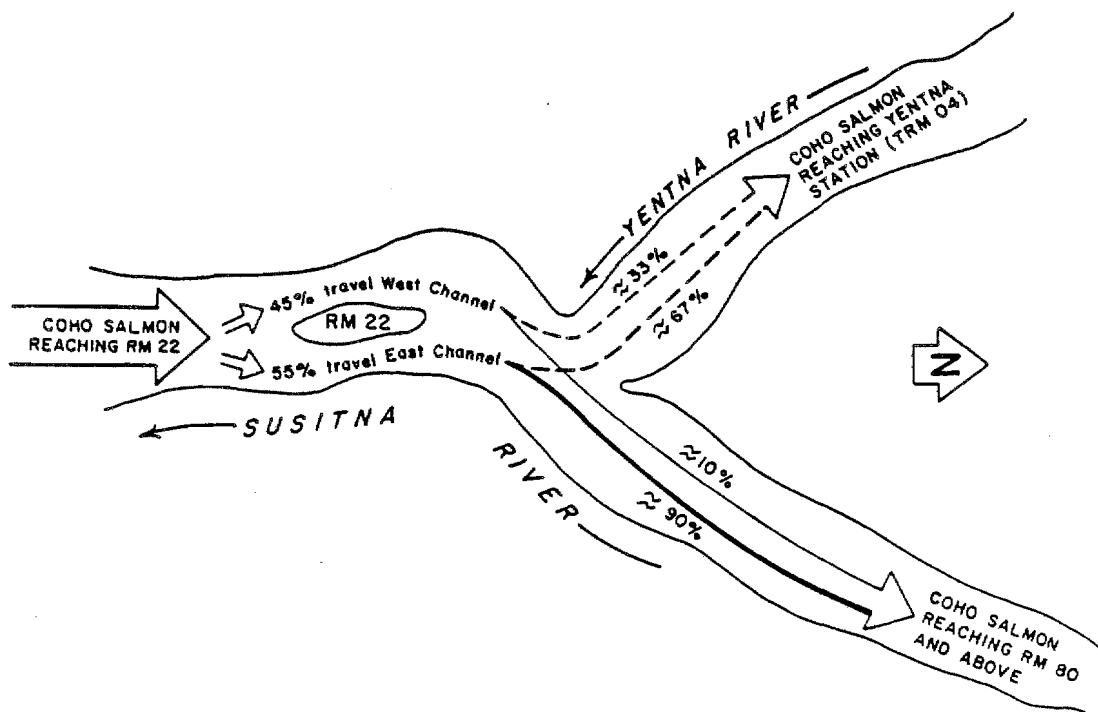


Figure 57. Migrational preference of coho salmon to the east and west channels at Flathorn Station, 1984.

Table 43. Comparison of numbers of coho salmon tagged by east and west channel fishwheels at RM 22 to the number of tag numbered recaptures by bank at Yentna Station and at RM 80, 103 and 120 combined, 1984.

River Channel at RM 22	Number of Coho Tagged at RM 22	Number of RM 22 Tag Numbered Recaptures at Yentna Station	Number of RM 22 Tag Numbered Recaptures for RM 80, 103 and 120
East	1,484	10	69
West	1,219	5	8
TOTALS	2,703	15	77

Migrational rates between Flathorn and Yentna stations and Flathorn and Sunshine stations, based on median days traveled, were 1.0 mpd and 2.3 mpd, respectively (Figure 58). The slower travel rate between Flathorn and Yentna stations was probably due to milling activity in the vicinity of the Susitna and Yentna rivers confluence.

Age, length and sex composition information was collected from the escapements reaching Flathorn, Yentna and Sunshine stations in 1984. Four-year-old fish represented 64, 70 and 64 percent respectively of the escapements (Table 44 and Figure 59). Three-year-old fish were the second most abundant at all three sites. Of the coho salmon returning to Flathorn, Yentna and Sunshine stations, 64, 70 and 64 percent respectively had migrated to the ocean in their third year of life. The respective mean lengths of the cohos sampled at Flathorn, Yentna and Sunshine stations were 542 mm, 557 mm and 546 mm (Appendix Figures 5-21 to 5-23). The slightly longer average length recorded at Yentna Station was due to a higher percentage of four-year-old fish returning there than to the other two stations (Table 45). At Flathorn and Yentna, males were generally longer than females. At Sunshine Station, the male and female average lengths were the same. Generally, males were more abundant than females at Flathorn and Sunshine stations and fewer in number at Yentna Station (Table 46).

Coho salmon fecundities were determined from 22 samples collected at Sunshine Station in 1984. All samples were collected on August 22. The average fecundity was 2,964 eggs per female, ranging from 1,394 to 3,984 eggs (Table 47). The fecundity samples were collected prior to the full egg maturation and they became fragile and difficult to count after freezing and thawing. Those difficulties introduced an unknown error component in the analysis.

Table 44. Age composition by percent of the coho salmon escapements to Flathorn, Yentna, Sunshine, Talkeetna and Curry stations based on catch samples weighted by fishwheel CPUE, 1984.

Collection Site	n	Age Class ¹							
		1.0	1.1	2.0	2.1	3.0	3.1	4.0	
		2 ₁	3 ₂	3 ₃	4 ₂	4 ₃	4 ₄	5 ₄	5 ₅
Flathorn Station	845	0.4	31.4	2.5	0.1	61.9	2.4	1.1	0.4
Yentna Station	377	-	27.9	-	-	69.5	0.5	2.1	-
Sunshine Station	562	-	34.2	-	0.2	64.2	-	1.4	-
Talkeetna Station	309	-	31.7	-	-	67.3	-	1.0	-
Curry Station	166	-	46.4	-	-	51.8	0.6	1.2	-

¹ Gilbert-Rich Notation.

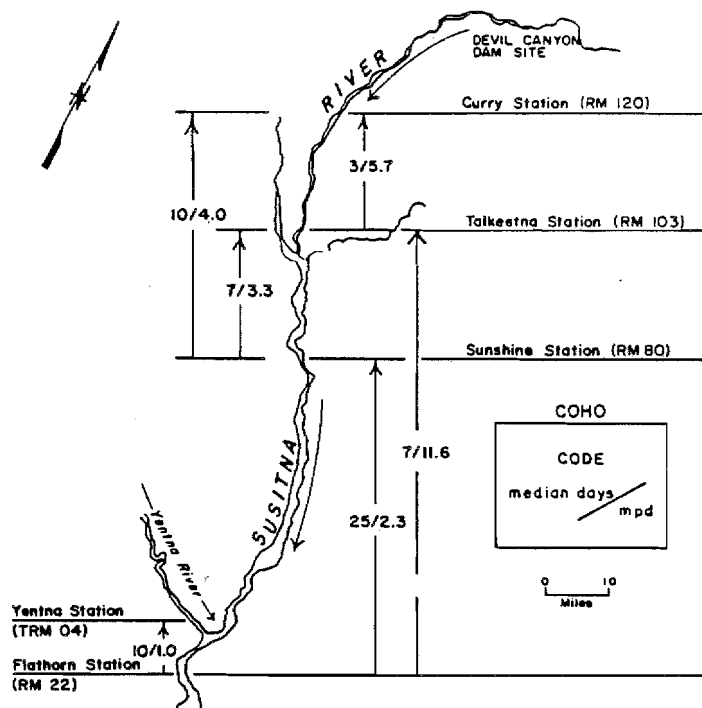


Figure 58. Migrational rates of coho salmon between five lower and middle Susitna River reach sampling stations, 1984.

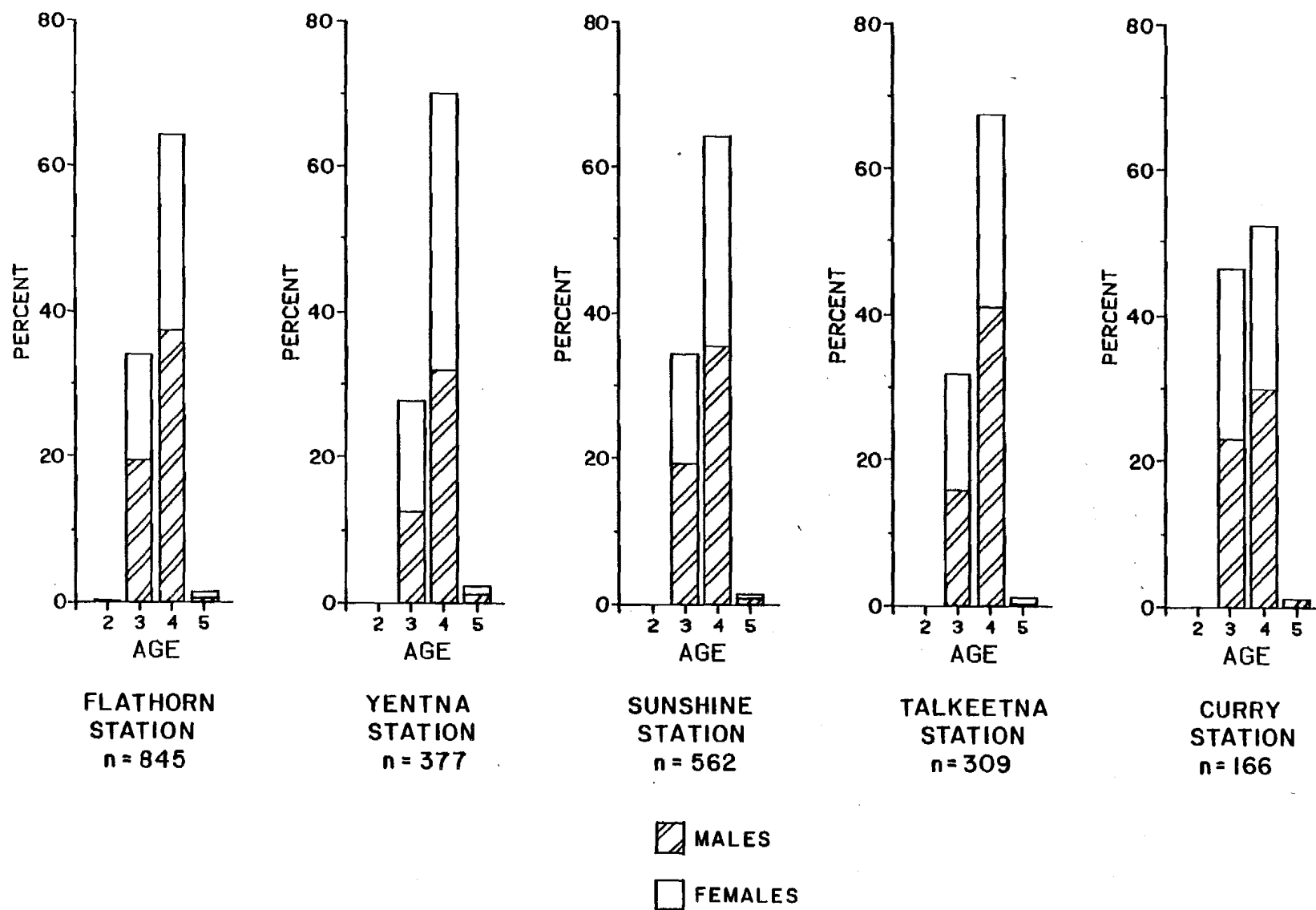


Figure 59. Age composition of fishwheel intercepted coho salmon weighted by CPUE at selected stations on the Susitna River, 1984.

Table 45. Analysis of coho salmon lengths, in millimeters, by sex and age class from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Interval ¹		Median	
		M	F	M	F	M	F	M	F	M	F
Flathorn Station	2 ₁ 1.0	-	3	-	400-440	-	437	-	-	-	440
	3 ₂ 1.1	154	111	320-635	390-600	534	521	526-543	511-530	540	530
	3 ₃ 2.0	21	-	240-370	-	289	-	274-304	-	285	-
	4 ₂ -	-	1	-	565	-	565	-	-	-	565
	4 ₃ 2.1	326	197	325-660	405-650	562	555	558-567	545-556	565	555
	4 ₄ 3.0	20	-	270-435	-	321	-	303-339	-	320	-
	5 ₄ 3.1	3	6	600-635	430-650	615	512	-	-	600	540
	5 ₅ 4.0	3	-	300-360	-	331	-	-	-	345	-
	All ²	845	475	240-660	390-650	545	538	-	-	560	545
		527	316								
Yentna Station	3 ₂ 1.1	46	59	378-635	442-610	544	528	528-561	517-538	560	535
	4 ₃ 2.1	126	136	475-640	425-640	573	558	567-579	551-565	580	565
	4 ₄ 3.0	1	1	315	285	315	285	-	-	315	285
	5 ₄ 3.1	4	4	485-645	240-600	578	565	-	-	602	552
	All ²	280	321	290-660	285-655	564	550	-	-	574	555
Sunshine Station	3 ₂ 1.1	97	95	380-610	400-600	512	528	501-523	520-536	515	530
	4 ₂ -	1	-	625	-	625	-	-	-	625	-
	4 ₃ 2.1	203	158	415-665	420-670	561	554	554-567	548-560	565	560
	5 ₄ 3.1	4	4	585-645	520-600	623	576	-	-	630	590
	All ²	485	442	380-665	370-670	546	546	-	-	560	550

Table 45 (Continued).

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Interval ¹		Median	
		M	F	M	F	M	F	M	F	M	F
Talkeetna Station	3 ₂	53	45	400-620	440-610	525	530	511-538	516-544	540	535
	4 ₃	125	93	410-690	450-685	573	566	564-582	558-575	585	570
	5 ₄	1	2	550	580-600	555	590	-	-	550	600
	All ²	300	249	400-690	410-695	563	555	-	-	565	560
Curry Station	3 ₂ 1/1	39	38	405-595	430-600	495	528	479-511	516-541	505	535
	4 ₃ 2/1	50	36	430-630	440-610	532	553	515-551	539-568	545	560
	4 ₄ 3/1	1	-	190	-	190	-	-	-	190	-
	5 ₄ 3/1	2	-	540-555	-	547	-	-	-	540	-
	All ²	138	126	190-635	420-610	520	542	-	-	525	550

¹ Confidence Interval of the Mean.² Composite of all aged and non-aged samples.

Table 46. Sex ratios of male and female coho salmon by age from fishwheel CPUE weighted escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations, 1984.

Collection Site	Age	Sample Size	Number		Sex Ratio (M:F)
			Males	Females	
Flathorn Station	2	3	0	3	0:1
	3	286	165	121	1.4:1
	4	544	316	228	1.4:1
	5 ¹	12	4	8	0.5:1
	All ¹	1,319	773	546	1.4:1
Yentna Station	3	105	47	58	0.8:1
	4	264	121	143	0.9:1
	5 ¹	8	4	4	1:1
	All ¹	601	275	326	0.8:1
Sunshine Station	3	192	108	84	1.3:1
	4	362	199	163	1.2:1
	5 ¹	8	4	4	1:1
	All ¹	927	502	425	1.2:1
Talkeetna Station	3	98	49	49	1:1
	4	208	127	81	1.6:1
	5 ¹	3	1	2	0.5:1
	All ¹	549	291	258	1.1:1
Curry Station	3	77	38	39	1.0:1
	4	87	50	37	1.4:1
	5 ¹	2	2	0	-
	All ¹	264	138	126	1.1:1

¹ Includes all aged and non-aged samples.

Table 47. Number of eggs, length, weight and associated statistics for coho salmon sampled for fecundity at Sunshine Station, 1984.

Variables	Sample Size	Statistic		
		Mean	Standard Deviation	Range
Number of eggs	22	2,964	741	1,394 - 3,984
Length (mm)	22	558	26	510 - 600
Weight (g)	22	2,307	471	1,400 - 3,100

The Susitna River coho salmon mean fecundity, predicted from a mean length of 546 mm recorded for 485 females at Sunshine Station, was 2,800 eggs (Figure 60). This estimate assumes that coho salmon stocks sampled on August 22 were mixed and representative of the entire escapement.

Susitna River coho fecundities may be greater than other Alaskan and Canadian stocks. Hart (1973) reported the mean fecundity of 550 mm coho salmon at 2,500 eggs. Based on regression analysis, the estimated fecundity of similarly sized Susitna coho would be 2,860 eggs, or 360 more than reported by Hart (Figure 60).

3.5.1.2 Spawning Areas

Coho salmon spawned in two lower-river mainstem sites in 1984. An estimated 200 to 400 fish spawned at RM 87.5 and 90.3 during the last week of September and first two weeks of October (Appendix 1).

In 1984, coho utilized 11 of 17 lower-river stream mouths for either passage or holding. They were present from the first week of August through the last week of September and were most abundant the last two weeks of August. Coho did not spawn in any lower-river stream mouths in 1984 (Appendix 1).

Coho spawned in one lower-river slough (RM 57.0) in 1984. Approximately 10 to 20 coho spawned in the slough during the first two weeks of October (Appendix 1).

3.5.2 Middle Reach

3.5.2.1 Main Channel Escapements

The 1984 coho salmon escapements to Talkeetna and Curry stations were quantified using the Petersen tag and recapture method. About 11,800 coho salmon migrated to Talkeetna Station. The approximate 95 percent confidence interval associated with this estimate was 10,500 to 13,600 fish. The estimated escapement at Curry Station was 2,200 fish, with an approximate 95 percent confidence interval of 1,500 to 3,700 fish (Table 42).

Migrations reaching Talkeetna and Curry stations comprised six percent and one percent respectively of the Susitna River escapement as recorded at Flathorn Station (Figure 54). Based on the estimated number of coho that spawned in the middle reach (Section 3.5.2.2), about 57 percent of the Talkeetna Station escapement and 45 percent of the Curry Station escapement were milling fish.

Based on fishwheel catches, coho salmon were abundant at Talkeetna Station from July 31 to August 29 (Appendix Table 3-14). The migration reached a midpoint on August 12. At Curry Station, coho salmon were abundant from August 1 to August 28. The migration median was August 11.

Fishwheel interceptions at Talkeetna and Curry stations were used to determine migrational characteristics at those sites (Figure 61). A total of 1,526 coho salmon were captured at Talkeetna Station. The west

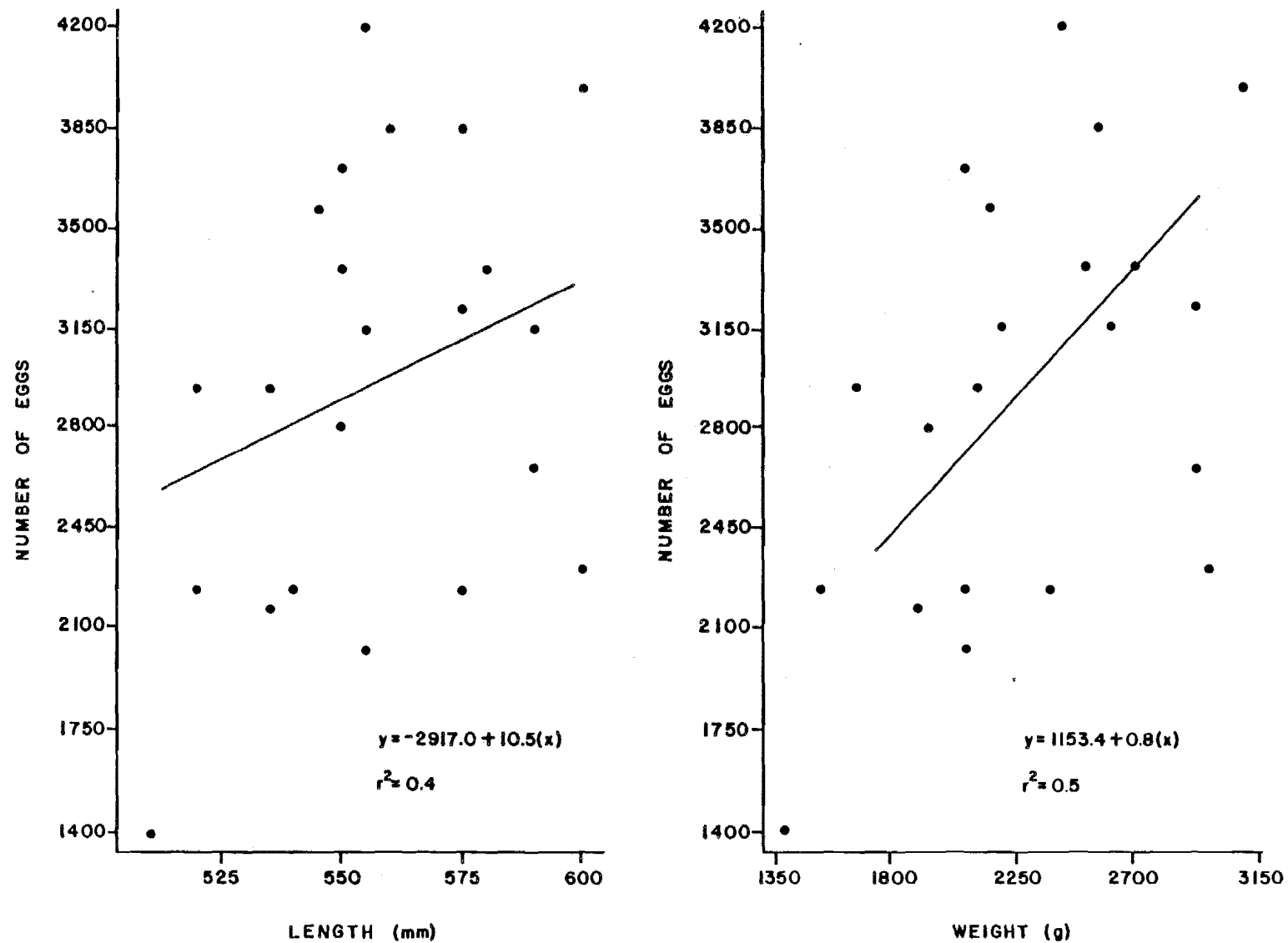


Figure 60. Number of eggs for coho salmon sampled at Sunshine Station on August 22, 1984 as a function of length and weight.

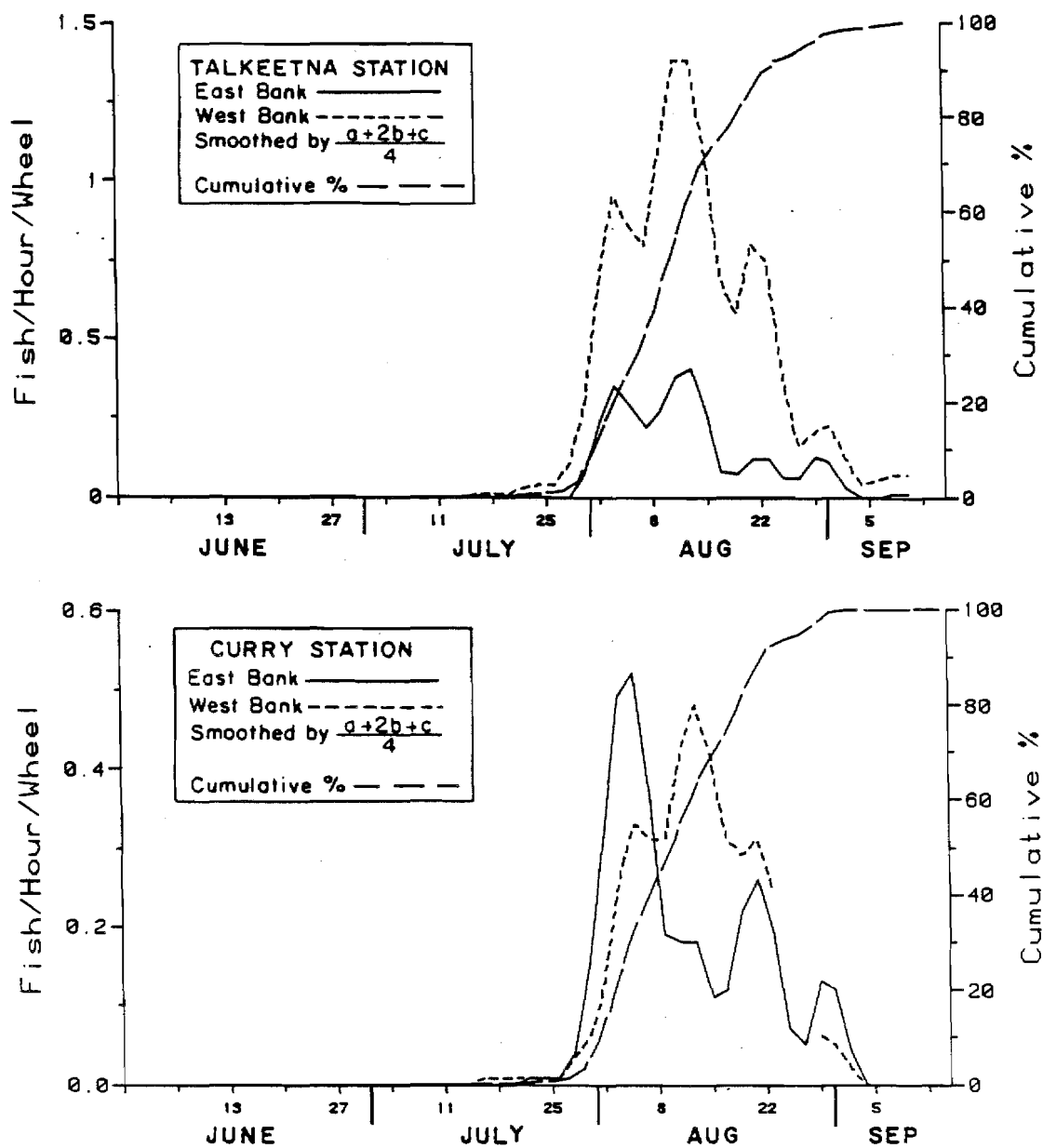


Figure 61. Mean hourly and cumulative percent fishwheel catch of coho salmon by two day periods at Talkeetna and Curry stations, 1984.

bank fishwheels accounted for 80 percent of the catch, indicating a strong preference by coho to migrate along that bank. At Curry Station, a total of 350 coho were intercepted. The west and east bank fishwheels intercepted 53 and 47 percent of the station catch, which indicated approximately equal distribution along both banks.

Based on median travel days, the travel speed between Sunshine and Talkeetna stations was 3.3 mpd, between Sunshine and Curry stations 4.0 mpd, and between Talkeetna and Curry stations 5.7 mpd (Figure 58).

Age, length and sex data were collected from coho escapements at Talkeetna and Curry stations. Based on that information, the escapements to both stations were primarily four-year-old fish, 67 and 52 percent respectively (Table 44). Most of the returning escapements to Talkeetna (67%) and Curry (52%) stations had smolted in their third year of life. The average lengths recorded at Talkeetna and Curry stations were 559 and 531 mm (Appendix Figures 5-24 and 5-25). The shorter average coho length at Curry was due to a larger percentage of three-year-old fish at that station (Table 44). Males were slightly more abundant than females at both Talkeetna and Curry stations (1.1:1) (Table 46).

3.5.2.2 Spawning Areas

Coho spawned in one middle-river mainstem site in 1984 (Appendix Figure 6-16). On August 24, two coho were observed spawning off the Susitna River west bank at RM 131.5. No other mainstem sites were identified.

Coho salmon occupied three of 37 middle river sloughs surveyed in 1984. Fish observed in those three sloughs--Moose, 11 and 15--were considered milling (not spawning) fish based on single sightings, no observed carcasses and no observations of spawning activity.

Coho salmon occupied 10 of 25 streams surveyed in the middle reach (Appendix Table 6-2). The peak coho survey count of the 10 streams was 1,434 fish. Based on those counts, the majority (70%) of the coho salmon in middle reach were in Indian River, Whiskers Creek and Chase Creek (Table 48 and Figure 62).

Coho salmon spawned in streams from the third week of September to the second week of October (Appendix Table 6-2). The spawning period in streams reached a peak during the last week of September.

The upper limits of migration in Whiskers Creek, Chase Creek and Indian River were 0.9 miles, 1.1 miles and 8.7 miles, respectively (Appendix 6). Coho salmon in Whiskers Creek spawned intermittently to the upper limit of their migration. The stream mouth was the most important spawning area. In Chase Creek spawning occurred discontinuously to the upper migration limit. Coho spawned throughout Indian River from the stream mouth to TRM 8.1. Two major coho spawning reaches were located from TRM 2.7 to 5.3 and from TRM 7.6 to 8.1. Major spawning was also observed in a small Indian River tributary located at approximately TRM 8.1.

Table 48. Coho salmon escapement counts for streams in the middle reach in order of contribution, 1984.

Stream	River Mile	Date	Number Counted			Percent Contribution
			Live	Dead	Total	
Indian River	138.6	9/15	465	0	465	32.4
Whiskers Cr.	101.4	9/8	301	0	301	21.0
Chase Creek	106.9	8/28	239	0	239	16.7
Gash Creek	111.6	9/24	232	2	234	16.3
Portage Creek	148.9	9/15	128	0	128	8.9
Lane Creek	113.6	9/29	24	0	24	1.7
L. McKenzie Cr.	116.2	8/27	24	0	24	1.7
4th of July Cr.	131.1	9/29	8	0	8	0.6
Jack Long Cr.	144.5	9/29	5	1	6	0.4
Slash Creek	111.2	9/30	5	0	5	0.4
TOTALS			1,431	3	1,434	100.1

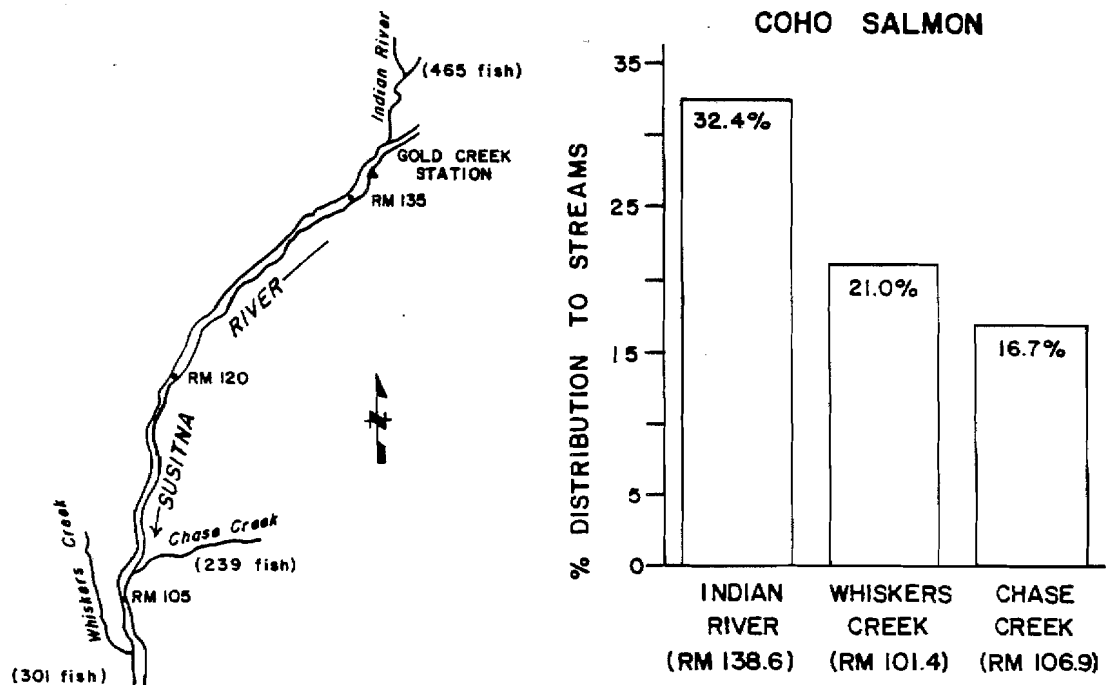


Figure 62. The three major streams in the middle reach occupied by coho salmon and the respective percent escapement based on peak counts, 1984.

Approximately 2,900 coho salmon spawned in middle-river stream and mainstem habitats in 1984. Most (99%) spawned in streams. The following assumptions were made in deriving this estimate:

1. peak counts of coho represented 50 percent of stream escapement (Cousens et al. 1984) and
2. surveys of coho-producing streams encompassed the entire spawning range.

4.0 SUMMARY

This section will cover 1981 through 1984 adult salmon investigations contracted to the ADF&G Su Hydro study team by the APA. Unless otherwise noted, all references to 1981 through 1983 salmon data originate from the ADF&G Phase I (1981), ADF&G Phase II (1983) and Barrett et al. (1984) Adult Anadromous Fish reports.

The study stations and their locations were:

Flathorn at RM 22, operational for the first time in 1984;

Yentna at TRM 4, upstream from the mouth of the Yentna River at RM 28;

Sunshine at RM 80;

Talkeetna at RM 103;

Curry at RM 120.

The river divisions were:

Lower reach from RM 0 to the Chulitna River confluence at RM 98.6;

Middle reach from the Chulitna confluence to upper Devil Canyon at RM 161.

The surveys referred to in the text were:

1976 through 1980, by ADF&G Sport Fish, of chinook index streams (Table 12);

1981 through 1984, by ADF&G Su Hydro and Sport Fish cooperatively, of chinook index streams;

1981 through 1982, by ADF&G Su Hydro of all species, of lower-reach main channel and of middle-reach main channel, side channels, sloughs and streams;

1983, as 1981 through 1982, but no main channel surveys;

1984, as 1981 through 1982, but both lower- and middle-reach main channel, side channels, sloughs and streams.

After a review of overall salmon escapements, this section follows a general format addressing each salmon species by river reach and by year on these topics:

escapement estimates

migrational timing

migrational characteristics
channel/bank preference
rates of travel

age, length, sex, fecundity data

- spawning
main channel
sloughs
streams

The annual combined escapements of sockeye, pink, chum and coho salmon to Yentna and Sunshine stations ranged between 0.7 and 2.6 million fish from 1981 to 1984 (Figure 63). Most of the variation was due to pink escapements, which averaged 15 times higher in even years (1982-84) than in odd years (1981-83). A high 1984 chum escapement was also influential.

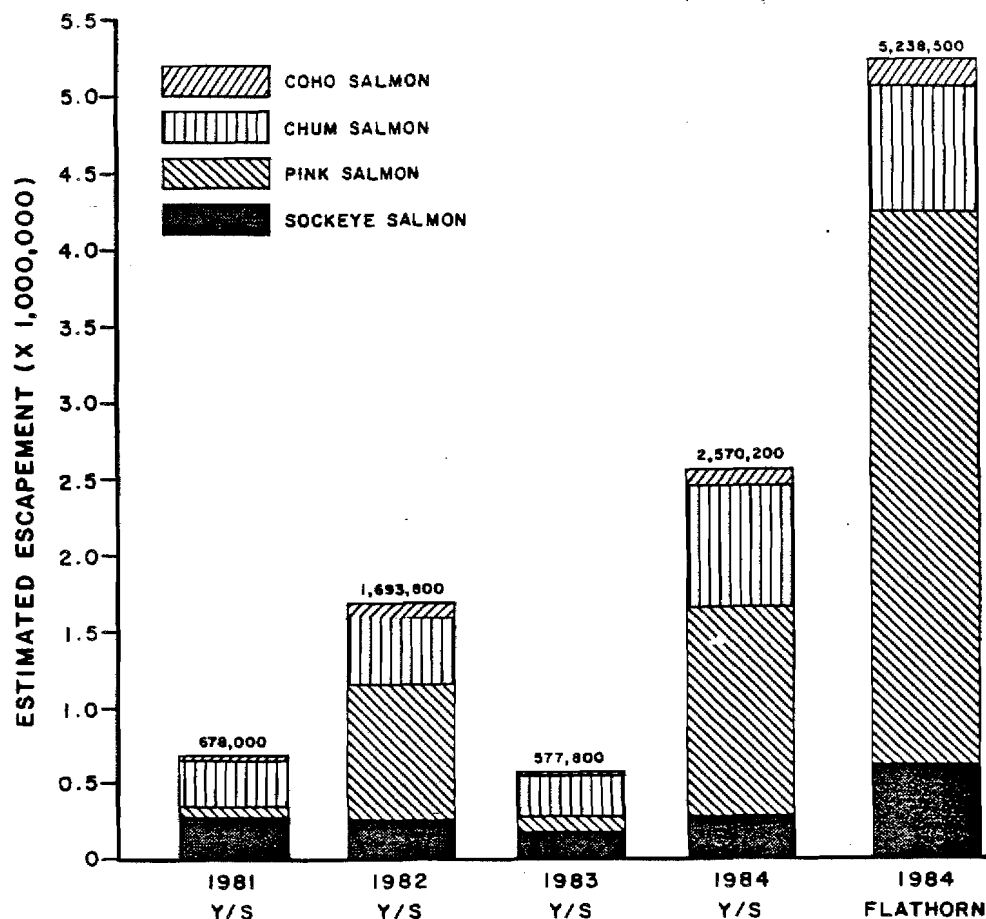


Figure 63. Susitna River sockeye, pink, chum and coho salmon escapements to the Yentna and Sunshine stations combined (Y/S) in 1981-84 and to Flathorn Station in 1984.

Monitoring of sockeye, pink, chum and coho salmon at Yentna and Sunshine stations provided a measure of the minimum Susitna River escapement of these species from 1981 through 1983 (Figure 63). A better indication of total river escapement was provided in 1984 by escapement monitoring at Flathorn Station, a site downstream from all but two major spawning tributaries (Alexander and Fish creeks). The combined escapement of the four species at Flathorn Station in 1984 was approximately 5.2 million fish--twice the combined same-year escapement to Yentna and Sunshine stations. A comparison of the 1984 escapements to Flathorn, Yentna and Sunshine stations indicated major spawning by sockeye, pink and coho below Yentna and Sunshine stations, but only minor chum spawning.

An estimate of the total Susitna River chinook escapement is not available. The only monitoring of chinook salmon in the lower reach was at Sunshine Station, where escapements have been quantified since 1982. Drainage-wide surveys undertaken since 1981 established most chinook escapement below Sunshine Station.

4.1 Chinook Salmon

In the last 10 years chinook salmon returning to the Susitna River have not been a target species in the commercial fishery of Upper Cook Inlet because the early migration of this species precedes the annual opening date of the fishery (ADF&G 1982). However, there is a freshwater sport fishery for Susitna River chinook salmon. The annual harvest for 1981 through 1983 averaged 7,800 fish (pers. comm, K. Delaney). The sport take is principally from tributary-spawning stocks in the lower-river reach. In the Susitna River drainage, there are about 60 chinook salmon spawning populations (ADF&G 1982). The most important spawning areas are Alexander Creek (RM 9.8), Deshka River (RM 40.5), Lake Creek (RM 28) and Prairie Creek (RM 97.1) (Barrett et al. 1984).

In the lower reach, estimated chinook escapements to Sunshine Station were 52,900 in 1982, 90,100 in 1983 and 121,700 in 1984, for a three-year average of 88,200 fish (Table 49 and Figure 64).

Middle-reach chinook escapements have also improved over the last three years (Figure 64). At Talkeetna Station the escapement has ranged from 10,900 to 24,800 fish and averaged 16,700 fish since 1982. At Curry Station escapement has ranged from 9,700 to 18,000 fish and averaged 13,000 fish. The 1984 escapements to these stations doubled those of 1982 and 1983.

The escapement increases since 1982 may be partly due to reduced foreign fishing in the Gulf of Alaska (pers. comm, K. Middleton, Middleton and Associates).

Milling fish comprised some of the middle-reach chinook escapements. For example, in 1984, 45 and 24 percent of the respective Talkeetna and Curry stations escapements returned downstream to spawn in the lower reach, primarily in the Talkeetna and Chulitna river drainages. The lower percentage for Curry was typical of all years.

Table 49. Escapements by species and sampling locations for 1981-84.

Sampling Location	Year	Escapement ¹					Total
		Chinook	Sockeye ²	Pink	Chum	Coho	
Flathorn Station	1984	³	605,800	3,629,900	812,700	190,100	5,238,500
Yentna Station	1981	⁴	139,400	36,100	19,800	17,000	212,300
	1982		113,800	447,300	27,800	34,100	623,000
	1983		104,400	60,700	10,800	8,900	184,800
	1984		149,400	369,300	26,500	18,200	563,400
Sunshine Station	1981	³	133,500	49,500	262,900	19,800	465,700
	1982	52,900	151,500	443,200	430,400	45,700	1,123,700
	1983	90,100	71,500	40,500	265,800	15,200	483,100
	1984	121,700	130,100	1,017,000	765,000	94,700	2,128,500
Talkeetna Station	1981	³	4,800	2,300	20,800	3,300	31,200
	1982	10,900	3,100	73,000	49,100	5,100	141,200
	1983	14,400	4,200	9,500	50,400	2,400	80,900
	1984	24,800	13,100	177,900	98,200	11,800	325,800
Curry Station	1981	³	2,800	1,000	13,100	1,100	18,000
	1982	11,300	1,300	58,800	29,400	2,400	103,200
	1983	9,700	1,900	5,500	21,100	800	39,000
	1984	18,000	3,600	116,900	49,300	2,200	190,000

¹ Escapement estimates were derived from tag/recapture population estimates except Yentna Station escapements which were obtained using side scan sonar.

² Second-run sockeye salmon escapements only.

³ Chinook salmon were not monitored for escapement.

⁴ Yentna Station side scan sonar equipment was not operational on the dates required to estimate the total Yentna River chinook salmon escapements for 1981-84.

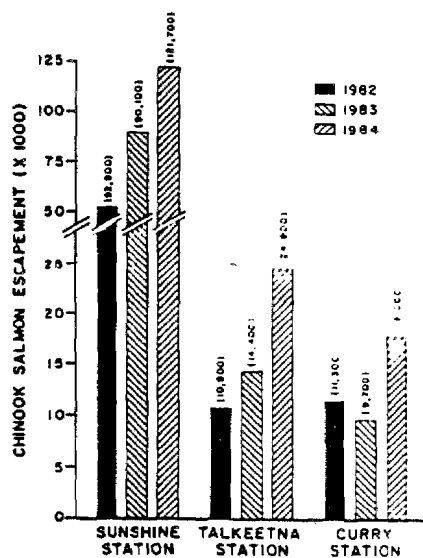


Figure 64. Susitna River chinook salmon escapements by station for 1982-84.

During the last three years, chinook salmon have been abundant in the lower reach at Sunshine Station from the second week of June through the second week of July (Figure 65). Peak abundance normally occurred in the last two weeks of June. In the middle reach, fish have been abundant from the third week of June to the third week of July, with the peak in the last two weeks of June.

In 1984, some chinook stocks migrating past Sunshine Station were segregated. Chulitna River spawners preferred the west bank, Talkeetna River spawners the east bank. Middle-river fish migrated in even numbers along both banks.

There was indication of a similar pattern in 1983. However, in 1981 and 1982 sampling methods at Sunshine Station did not differentiate specific populations.

Chinook migration was slower during high flows. In 1984, a peak high-water discharge of 93,000 cfs (USGS) at the Parks Highway Bridge (RM 83), resulted in a sharp catch reduction in the Sunshine Station fishwheels. The same flow event coincided with similar catch reductions at Talkeetna and Curry stations. In 1981 and 1982, migration of radio-tagged fish was delayed at high flows.

Chinook migrated more slowly between Sunshine and Talkeetna stations than between Talkeetna and Curry stations for the last three years (Table 50). The slower migration may be associated with milling in the confluence area of the Talkeetna and Chulitna rivers.

Table 50. Migration rates of chinook salmon between sampling stations, based on fishwheel tag recoveries in 1982-84.

Tagging Station Year	Recapture Station			
	Talkeetna		Curry	
	Days ¹	Mpd ²	Days	Mpd
Sunshine				
1982	10.0	2.3	12.0	3.3
1983	13.0	1.8	12.0	3.3
1984	7.0	3.3	11.0	3.6
Talkeetna				
1982			6.0	2.8
1983			6.0	3.8
1984			4.0	4.3

¹ Days = number of days between captures.

² Mpd = miles per day. This value is based on the median number of days between captures.

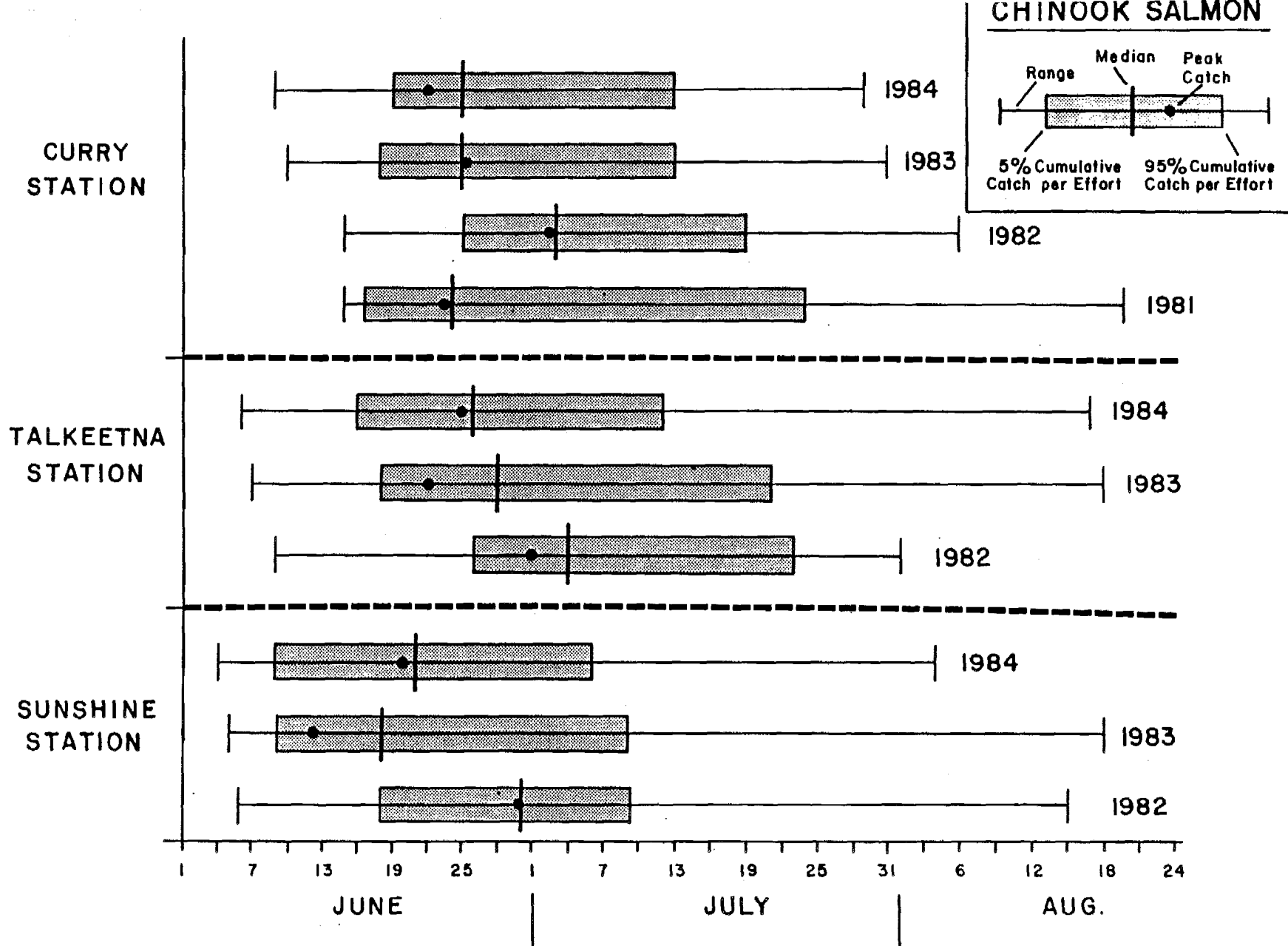


Figure 65. Migrational timing of chinook salmon based on fishwheel CPUE at Sunshine, Talkeetna and Curry stations in 1981-84.

Ages of returning chinook ranged from three to seven years, with six-year-olds predominant (Tables 51 and 52). An abundance of three-year-old males partially accounted for uneven sex ratios. Lengths averaged from 602 to 816 mm. Greater mean lengths in 1984 reflected a higher proportion of older fish than in previous years.

All chinook spawning occurred in streams. There was no evidence of spawning in the mainstem or associated sloughs downstream of Devil Canyon from 1981 through 1984. Stream mouths in the lower reach were used for passage only, but in the middle reach, many stream mouths were both spawning and passage areas. In 1984 there was spawning at the mouths of Whiskers Creek, Fourth of July Creek, Indian River and Portage Creek (Appendix 6). Since 1982, chinook have been documented in two Devil Canyon streams, Cheechako and Chinook creeks (Table 53). About one percent of the middle-reach escapement have spawned in those streams for the last three seasons.

In the middle reach, there has been an 87 percent annual increase in chinook stream escapements over the last four years (Table 53). Most of the increase has been in Indian River and Portage Creek. Those streams supported 95 percent of the middle-river spawning.

4.2 Sockeye Salmon

The Susitna River supports two runs of sockeye salmon. The first-run is smaller, and unlike the second-run is not subject to a commercial fishery. The first-run probably is in the range of 5,000 to 10,000 fish, based on three years of escapement monitoring at Sunshine Station (Barrett et al. 1984) and an unpublished sighting of suspected first-run sockeye in Fish Lake Creek in the Yentna River drainage by Barrett in 1973. The second-run of sockeye salmon is substantially larger, comprised of over 50 separate populations. Second-run stocks are harvested by drift and set net fishermen in Upper Cook Inlet. The commercial contribution of Susitna River stocks to that fishery is in the range of 10 to 30 percent (Barrett et al. 1984). Susitna River second-run sockeye escapements have not been completely quantified. However, minimum annual escapements of 175,900 to 272,900 second-run fish have been estimated for 1981 through 1983. The estimates were determined by escapement monitoring to Yentna and Sunshine Stations (Barrett et al. 1984). In 1984, the minimum drainage-wide escapement was an estimated 605,800 sockeye, based on a first-year tag-and-recapture operation at Flathorn Station (Section 3.2).

4.2.1 First-run

First-run sockeye salmon escapements to Sunshine Station were approximately 5,800 fish in 1982, 3,300 fish in 1983 and 4,800 in 1984. These reflect escapements to the inlet stream of Papa Bear Lake, the only known first-run spawning area above Sunshine Station.

First-run sockeye were abundant in the lower river at Sunshine Station from the first through the third weeks of June for the last three years (Figure 66). Most migrated along the east bank. First-run fish milled in the middle river as far as Talkeetna Station, but returned to the inlet stream of Papa Bear Lake to spawn.

Table 51. Analysis of chinook salmon age data by percent from escapement samples collected at Sunshine, Talkeetna and Curry stations in 1981-84.

Location	Year	Age Group					Brood Year							
		3	4	5	6	7	74	75	76	77	78	79	80	81
Sunshine Station	1981	27.6	31.9	23.1	16.9	0.5	0.5	16.9	23.1	31.9	27.6			
	1982	15.1	27.4	20.9	36.2	0.4		0.4	36.2	20.9	27.4	15.1		
	1983	1.5	3.9	39.0	45.0	10.6			10.6	45.0	39.0	3.9	1.5	
	1984	7.9	19.2	37.9	34.0	1.0				1.0	34.0	37.9	19.2	7.9
Talkeetna Station	1981	15.8	29.8	21.4	30.1	2.9	2.9	30.1	21.4	29.8	15.8			
	1982	20.7	35.8	20.6	22.3	0.6		0.6	22.3	20.6	35.8	20.7		
	1983	22.5	9.4	34.0	27.9	6.2			6.2	27.9	34.0	9.4	22.5	
	1984	1.1	18.8	42.5	36.4	1.2				1.2	36.4	42.5	18.8	1.1
Curry Station	1981	18.5	34.3	27.8	19.4	0	0	19.4	27.8	34.3	18.5			
	1982	17.0	29.3	22.4	30.8	0.5		0.5	30.8	22.4	29.3	17.0		
	1983	9.4	3.9	24.4	43.5	18.8			18.8	43.5	24.4	3.9	9.4	
	1984	10.3	16.1	36.6	36.2	0.8				0.8	36.2	36.6	16.1	10.3

Table 52. Male to female chinook salmon ratios and average mean lengths from Sunshine, Talkeetna and Curry stations in 1981-84.

Location	1981		1982		1983		1984	
	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)
Sunshine Station	3.5:1	602	1.2:1	707	1.2:1	761	1.0:1	765
Talkeetna Station	2.7:1	711	2.3:1	642	2.4:1	626	1.1:1	816
Curry Station	1.9:1	668	1.5:1	725	1.4:1	743	1.2:1	801

Table 53. Peak survey counts and percent distribution of chinook salmon in streams above RM 98.6 in 1981-84.

Stream	River Mile	1981		1982		1983		1984		Average % Distribution
		Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	
Whiskers Creek	101.4	-	-	0	0	3	0.1	67	0.9	0.6
Chase Creek	106.9	-	-	15	0.6	15	0.3	3	*	0.4
Lane Creek	113.6	40	3.6	47	1.9	12	0.3	23	0.3	0.8
5th of July Creek	123.7	-	-	3	0.1	0	0	17	0.2	0.2
Sherman Creek	130.8	-	-	3	0.1	0	0	0	0	*
4th of July Creek	131.1	-	-	56	2.3	6	0.1	92	1.3	1.3
Gold Creek	136.7	-	-	21	0.9	23	0.5	23	0.3	0.6
Indian River	138.6	422	37.6	1,053	42.6	1,193	26.9	1,456	20.3	26.8
Jack Long Creek	144.5	-	-	2	0.1	5	0.1	7	0.1	0.1
Portage Creek	148.9	659	58.8	1,253	50.7	3,140	70.9	5,446	75.9	68.3
Cheechako Creek	152.5	-	-	16	0.7	25	0.6	29	0.4	0.6
Chinook Creek	152.5	-	-	16	0.7	25	0.6	29	0.4	0.6
Devil Creek	161.0	-	-	0	0	1	*	0	0	*
Fog Creek	176.1	-	-	0	0	0	0	2	*	*
TOTALS ²		1,121	100.0	2,474	100.2	4,432	100.0	7,180	99.9	99.9

¹ Peak count includes live plus dead fish.

² Percent distribution totals may not equal 100 due to rounding errors.

* Trace.

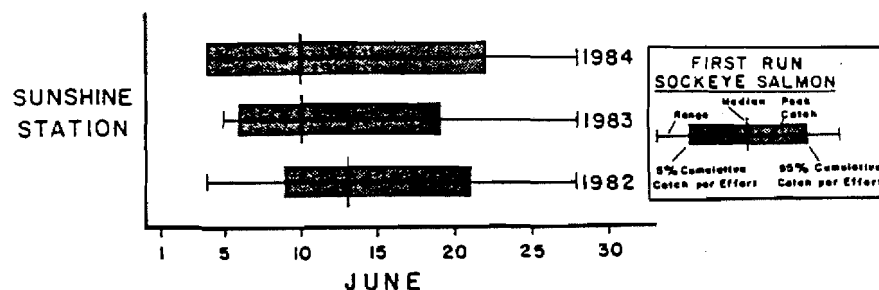


Figure 66. Migrational timing on first-run sockeye salmon based on fishwheel CPUE at Sunshine Station in 1982-84.

First-run sockeye ages ranged from four to six years, with five-year-olds dominant (Table 54). Nearly all had spent a year in freshwater prior to going to sea. Average lengths ranged from 515 to 535 mm (Table 55). Females were twice as numerous as males except in 1983. The turn-around in sex ratio in that year was attributed to a high return of four-year-old males.

Table 55. Male to female sockeye salmon ratios and average mean lengths from Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.

Location	YEAR							
	1981		1982		1983		1984	
	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)
Flathorn Station	-	-	-	-	-	-	1.5:1	519
Yentna Station	1.2:1	580	2.1:1	532	1.5:1	494	0.9:1	535
Sunshine Station								
First-Run	1	1	0.6:1	535	1.3:1	515	0.5:1	531
Second-Run	1.0:1	554	0.9:1	550	0.9:1	506	0.7:1	512
Talkeetna Station	0.6:1	548	1.3:1	548	1.6:1	509	0.7:1	513
Curry Station	0.8:1	549	2.1:1	466	1.6:1	484	1.4:1	495

¹ Sunshine Station was not operational until after the first-run had passed RM 80.

4.2.2. Second-Run

Since 1981, second-run sockeye salmon escapements in the lower river have averaged 126,800 fish to Yentna Station and 121,700 fish to

Table 54. Analysis of sockeye salmon age data by percent from escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.

Location	Year	Age Group					Brood Year							
		3	4	5	6	7	74	75	76	77	78	79	80	81
Flathorn Station	1984	6.8	46.0	45.7	1.5	0				0	1.5	45.7	46.0	6.8
Yentna Station	1981	0.8	8.6	86.2	4.4	0	0	4.4	86.2	8.6	0.8			
	1982	3.9	28.5	56.7	10.9	0		0	10.9	56.7	28.5	3.9		
	1983	5.1	68.1	24.9	1.9	0			0	1.9	24.9	68.1	5.1	
	1984	1.5	25.6	66.1	6.8	0				0	6.8	66.1	25.6	1.5
Sunshine Station First-run	1981 ¹	-	-	-	-	-	-	-	-	-	-	-	-	-
	1982	0	6.4	89.5	4.1	0		0	4.1	89.5	6.4	0		
	1983	0	26.9	72.1	1.0	0			0	1.0	72.1	26.9	0	
	1984	0	3.3	96.4	0.3	0				0	0.3	96.4	3.3	0
Second-run	1981	1.1	22.2	72.8	3.9	0	0	3.9	72.8	22.2	1.1			
	1982	3.1	23.8	70.6	2.3	0.2		0.2	2.3	70.6	23.8	3.1		
	1983	0.1	64.0	35.5	0.4	0			0	0.4	35.5	64.0	0.1	
	1984	4.2	62.5	32.6	0.7	0				0	0.7	32.6	62.5	4.2
Talkeetna Station	1981	0	24.5	71.9	3.6	0	0	3.6	71.9	24.5	0			
	1982	4.3	23.3	71.6	0.8	0		0	0.8	71.6	23.3	4.3		
	1983	4.4	55.8	39.8	0	0			0	0	39.8	55.8	4.4	
	1984	1.1	83.9	14.6	0.4	0				0	0.4	14.6	83.9	1.1
Curry Station	1981	0.7	28.5	69.3	1.5	0	0	1.5	69.3	28.5	0.7			
	1982	22.9	39.9	37.2	0	0		0	0	37.2	39.9	22.9		
	1983	6.7	72.1	21.2	0	0			0	0	21.2	72.1	6.7	
	1984	3.8	72.6	22.6	1.0	0				0	1.0	22.6	72.6	3.8

¹ Sunshine Station was not operational until after passage of first-run sockeye.

Sunshine Station (Figure 67 and Table 49). Combined escapements to those stations ranged from 175,900 to 279,500 fish, averaging 248,400 fish (Figure 68). The 1984 combined escapement was the highest on record at 279,500 fish. The escapement to Flathorn Station in 1984 was over twice that at 605,800 fish. This indicates that a major segment of the Susitna River escapement (326,300 sockeye) spawned below Yentna and Sunshine stations in 1984. Known spawning areas downstream of Sunshine Station include Fish Creek, Alexander Creek, Whitsol Lake and Deshka River drainages. Based on the milling that occurs at other stations, it is possible that a portion of the Flathorn Station escapement spawned below this station. The major spawning area below Yentna and Sunshine stations is Fish Creek drainage, which enters the Susitna River about 14 miles downstream of Flathorn Station.

Middle-river sockeye escapements to Talkeetna Station ranged from 3,100 to 13,100 fish, with a four-year average of 6,300 (Figure 67). At Curry Station, the range was 1,300 to 3,600 fish with a 2,400 fish average. The 1984 escapements to these stations were the highest on record.

A majority of sockeyes at Talkeetna Station were milling fish that returned downstream, spawning primarily in the Talkeetna and Chulitna river drainages. Of that stations escapement, milling fish comprised 54 percent in 1981, 52 percent in 1982, 62 percent in 1983 and 83 percent in 1984. Less milling occurred at Curry Station. Portions of the Curry escapement that later spawned downstream were 11 percent in 1981, none in 1982, 16 percent in 1983 and 38 percent in 1984.

Sockeye were abundant annually in the lower reach between the second week of July and the second week of August, with a peak near the fourth week of July (Figure 69). In the middle river, fish have been abundant from the third week of July to the fourth week of August, with a peak between the last week of July and the first week of August.

In 1984, the majority of the sockeye escapement destined for Yentna and Sunshine stations passed Flathorn in the east channel. Annual migrations past Yentna and Sunshine were heaviest along the south and east banks. In the middle river at Talkeetna Station, travel was evenly divided between east and west banks, while at Curry Station most migration was along the east bank.

Migration speeds have been generally slower in the lower reach than in the middle reach (Table 56). Slower travel speeds may be associated with milling, particularly at major river confluences.

Lower- and middle-river sockeye escapements for the last four years included fish ranging in age from three to seven years (Table 54). Most were four and five years old. Nearly all sockeye had smolted after one winter in fresh water. Fish lengths averaged between 466 and 580 mm (Table 55). Sex ratios varied considerably from year to year and station to station (Table 55).

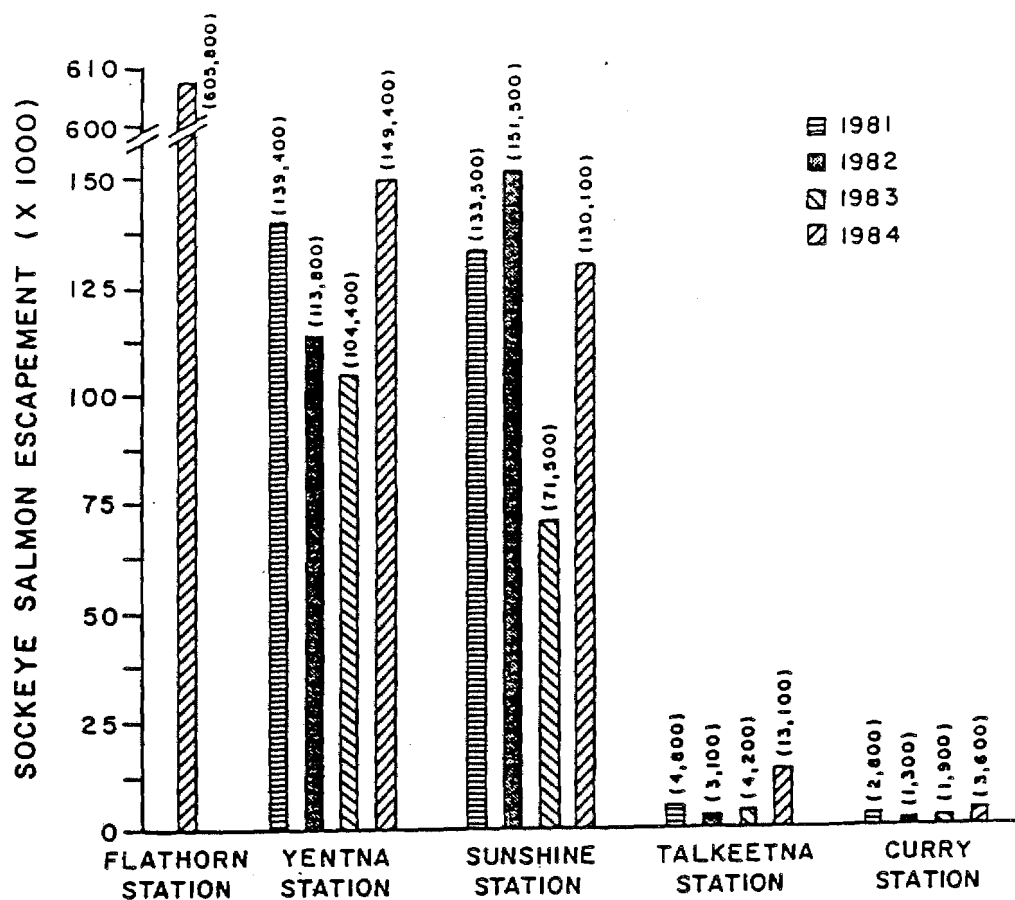


Figure 67. Susitna River sockeye salmon escapements by station for 1981-84.

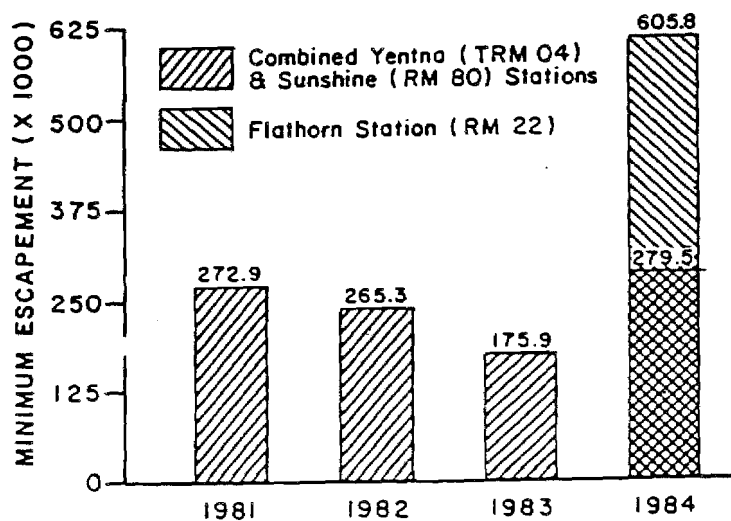


Figure 68. 1981-84 Susitna River sockeye salmon escapements based on population estimates at Flathorn, Yentna and Sunshine stations.

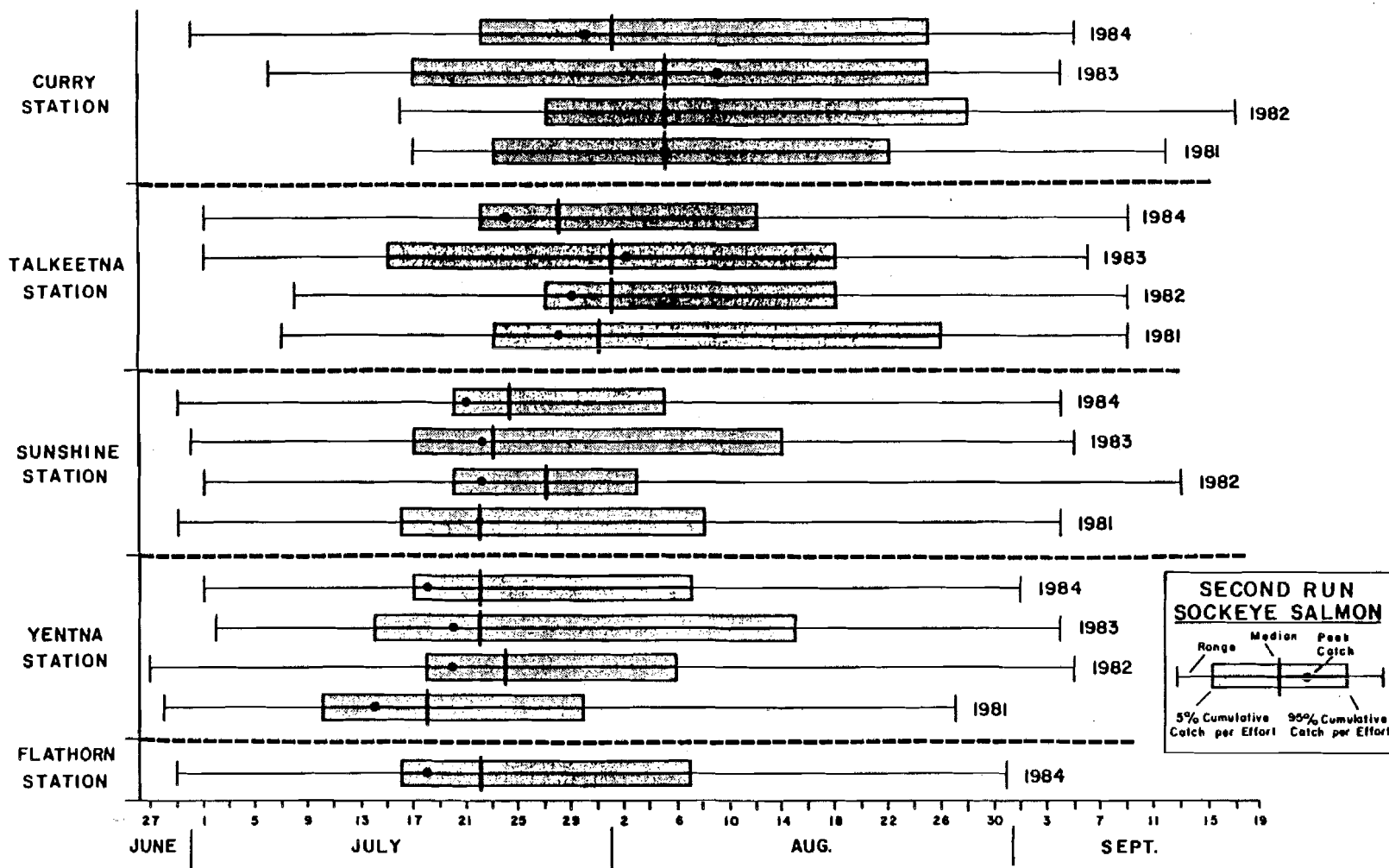


Figure 69. Migrational timing of second-run sockeye salmon based on fishwheel CPUE at selected stations in 1981-84.

Table 56. Migration rates of sockeye salmon between sampling stations, based on fishwheel tag recoveries in 1981-84.

Tagging Station	Recapture Station							
	Yentna		Sunshine		Talkeetna		Curry	
	Days ¹	Mpd ²	Days	Mpd	Days	Mpd	Days	Mpd
Flathorn								
1984	3	3.3	8	7.3	11.0	7.4	14.0	7.0
Sunshine								
1981					9.0	2.6	14.0	2.9
1982					9.0	2.6	11.0	3.6
1983					9.0	2.6	9.0	4.4
1984					4.0	5.8	7.0	5.7
Talkeetna								
1981							7.0	2.4
1982							2.0	8.5
1983							6.0	2.8
1984							2.0	8.5

¹ Days = number of days between captures.

² Mpd = miles per day. This value is based on the median number of days between captures.

In a 1983 study, estimated sockeye fecundity was 3,350 eggs per female. This represents about 350 eggs less than the mean fecundity of North American stocks reported by Hart (1973).

There was no evidence of spawning in the lower-river main channel or side channels in the last four years. In addition, stream mouths and sloughs, surveyed only in 1984, were not spawning areas.

Minor spawning occurred in the middle-reach mainstem for two of the last four years. Eleven fish were observed spawning at one site in 1983, and 33 fish at seven other sites in 1984. The total numbers of mainstem spawners in 1983 and 1984 were about 35 and 100 fish respectively, assuming that about one-third of the spawners were present at the time the highest counts were recorded. Streams in the middle reach had little or no spawning activity in the last four years. Only one pair of stream-spawning sockeye was observed in 1984, at the mouth of Portage Creek.

Essentially all sockeye spawning in the middle reach occurred in sloughs (Table 57). Since 1981, sloughs 11, 8A and 21 have supported 90 percent of the spawning. Peak spawning in sloughs occurred around the second week of September.

In 1983 and 1984, sockeye salmon were monitored at several middle-reach sloughs for observed-residence data. The average time from slough entry to mortality or departure was 11.8 days per fish in 1983 and 8.4 days per fish in 1984. Sockeye escapements to middle-reach sloughs were

Table 57. Peak survey counts and percent distribution of second-run sockeye salmon in sloughs above RM 98.6 in 1981-84.

Slough	River Mile	1981		1982		1983		1984		Average % Distribution
		Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	
1	99.6	0	0	0	0	0	0	10	1.1	0.3
2	100.2	0	0	0	0	0	0	7	0.8	0.2
3B	101.4	1	0.1	0	0	5	0.9	20	2.2	0.8
3A	101.9	7	0.5	0	0	0	0	11	1.2	0.5
5	107.6	0	0	0	0	0	0	1	0.1	*
6A	112.3	1	0.1	0	0	0	0	0	0	*
8	113.7	0	0	0	0	0	0	2	0.2	0.1
8C	121.9	0	0	2	0.3	0	0	0	0	0.1
8B	122.2	0	0	5	0.8	0	0	1	0.1	0.2
Moose	123.5	0	0	8	1.3	22	4.0	8	0.9	1.1
8A	125.4	177	14.3	68	11.2	66	11.9	128	13.8	13.2
B	126.3	-	-	8	1.3	2	0.3	9	1.0	0.8
9	128.3	10	0.8	5	0.8	2	0.3	6	0.6	0.7
9B	129.2	81	6.5	1	0.2	0	0	7	0.8	2.7
9A	133.8	2	0.1	1	0.2	1	0.2	0	0	0.1
10	133.8	0	0	0	0	1	0.2	0	0	*
11	135.3	893	72.0	456	75.2	248	44.7	564	61.0	64.8
15	137.2	0	0	0	0	0	0	1	0.1	*
17	138.9	6	0.5	0	0	6	1.1	16	1.7	0.8
19	139.7	23	1.9	0	0	5	0.9	11	1.2	1.2
20	140.0	2	0.1	0	0	0	0	0	0	0.1
21	141.1	38	3.1	53	8.7	197	35.5	122	13.2	12.3
22	144.5	-	-	-	-	0	0	2	0.2	0.1
TOTALS ²		1,241	100.0	607	100.0	555	100.0	926	100.2	100.1

¹ Peak count includes live plus dead fish.

² Percent distribution totals may not equal 100 due to rounding errors.

* Trace.

about 2,200 fish in 1981, 1,500 in 1982, 1,600 in 1983 and 2,325 in 1984. The estimates were calculated using two years of observed-residence data and four years of live fish counts.

In 1983 and 1984, female sockeyes were examined for egg retention at several middle-reach sloughs. The average was 249 eggs per female in 1983 and 64 eggs per female in 1984. For chum salmon, there was a positive correlation between egg retention and spawner density in sloughs in 1983 and 1984. That was not apparent in sockeye. Slough escapements were 40 percent higher in 1984 than in 1983, but egg retention was about three times lower.

4.3 Pink Salmon

Susitna River pink salmon stocks annually comprise about 85 percent of the Upper Cook Inlet pink salmon commercial catch (Barrett et al. 1984). They are commercially of least value and comparatively not as intensely fished as sockeye, chum and coho salmon. Returning Susitna River pink salmon stocks utilize a minimum of 40 tributaries within the drainage. Enroute to or in their natal spawning streams, pinks are subjected to a recreational sport fishery. The Susitna River even-year (1982) sport harvest of pinks was about 17,400 fish (Mills 1983). That represented 32 percent of the pink salmon harvest recorded for the entire South Central region. Odd-year harvests were approximately 8,700 fish (1981) and 4,700 fish (1983) (Mills 1983, 1984).

Since 1981, the combined Yentna and Sunshine stations pink escapements have been estimated at 86,000 (1981), 891,000 (1982), 101,200 (1983) and 1,386,300 (1984) (Table 49). The 1984 pink escapement to Flathorn Station was about 3,629,900 fish, 60 percent higher than the combined Yentna/Sunshine figure for that year. Combined Yentna and Sunshine escapements averaged 93,400 pinks in odd years and 1,138,400 in even years (Figure 70). Yentna and Sunshine escapements were within 30 percent of each other except in 1984, when higher-than-average numbers of pinks were recorded at Sunshine Station.

In the middle river at Talkeetna Station, odd-year pink salmon escapements averaged 5,900 fish, while even-year escapements averaged 125,500 (Table 49 and Figure 71). Average odd- and even-year escapements at Curry Station were 3,300 and 87,900 fish. At both stations, the 1984 escapement was about twice the previous even-year escapement.

Based on spawning ground surveys in 1984, 85 and 80 percent of the pink salmon reaching Talkeetna and Curry stations were milling fish.

The lower reach below Sunshine Station produced most of the pink salmon escapement. In 1984, 10 percent of the escapement reaching Flathorn Station spawned in Yentna River tributaries, 60 percent spawned in lower-reach tributaries between the Yentna River and Sunshine Station, and 30 percent spawned above Sunshine Station, mainly in Talkeetna River, Chulitna River and middle-reach tributaries. These are approximate values because a portion of the escapement reaching Flathorn Station probably spawned below that site, primarily in Alexander Creek.

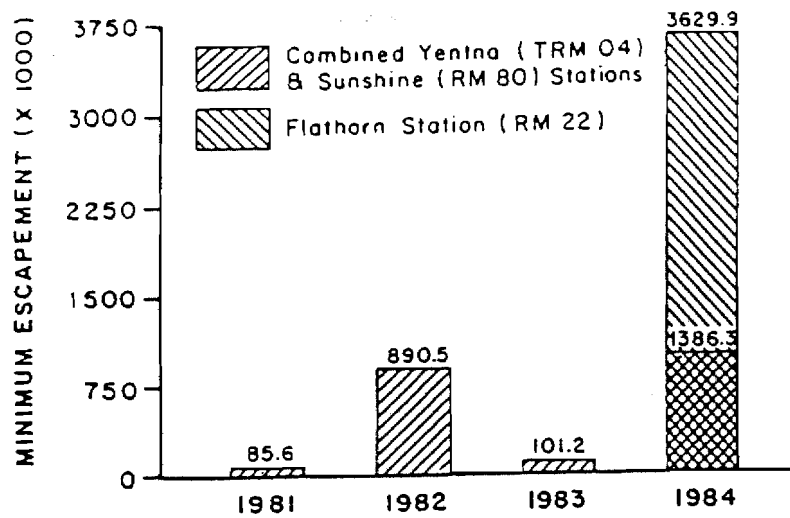


Figure 70. 1981-84 Susitna River pink salmon escapements based on population estimates at Flathorn, Yentna and Sunshine stations.

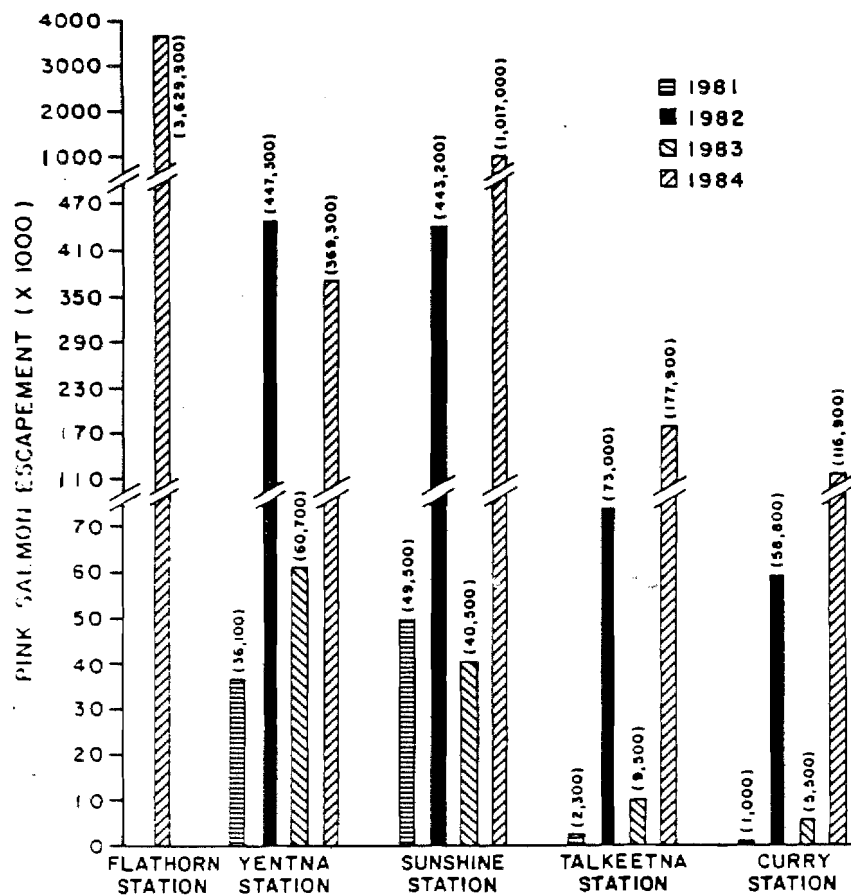


Figure 71. Susitna River pink salmon escapements by station for 1981-84.

Pink salmon were abundant in the lower river from the second week of July to the third week of August in odd years, and from the fourth week of July to the second week of August in even years (Figure 72). In the middle river, they were abundant from the last week of July to the third week of August in odd years, and from the last week of July to the second week of August in even years.

At Flathorn Station, most pinks migrated in the east channel in 1984. Four years of data from Yentna and Sunshine stations indicated heaviest migration along the south and east banks. In the middle river, east bank travel was predominant at both Talkeetna and Curry stations.

Recovery of pink salmon tagged at Flathorn Station in 1984 indicated that Yentna River fish were evenly distributed in the east and west channels at Flathorn, whereas pinks destined for Sunshine Station migrated mainly in the east channel.

Pinks traveled at a slower rate between Flathorn and Yentna stations than between Flathorn and Sunshine stations (Table 58). Milling in the Susitna/Yentna confluence might have been responsible. Pinks migrated more slowly between Sunshine and Talkeetna stations than between Talkeetna and Curry stations. Again, the difference might have been due to milling, this time in the confluences of the Talkeetna, Susitna and Chulitna rivers. Migration was slower in even years than in odd years.

Table 58. Migration rates of pink salmon between sampling stations, based on fishwheel tag recoveries, 1981-84.

Tagging Station	Recapture Station ¹							
	Yentna		Sunshine		Talkeetna		Curry	
	Days ²	Mpd ³	Days	Mpd	Days	Mpd	Days	Mpd
Flathorn								
1984	2.0	5.0	6.0	9.7	10.0	8.1	11.0	8.9
Sunshine								
1981					9.0	2.6	-	-
1982					3.0	7.7	4.0	10.0
1983					4.0	5.8	4.0	10.0
1984					3.0	7.7	4.0	10.0
Talkeetna								
1981							3.0	5.7
1982							2.0	8.5
1983							2.0	8.5
1984							1.0	17.0

¹ Dash denotes insufficient sample size to determine migration rates.

² Days = number of days between captures.

³ Mpd = miles per day. This value is based on the median number of days between captures.

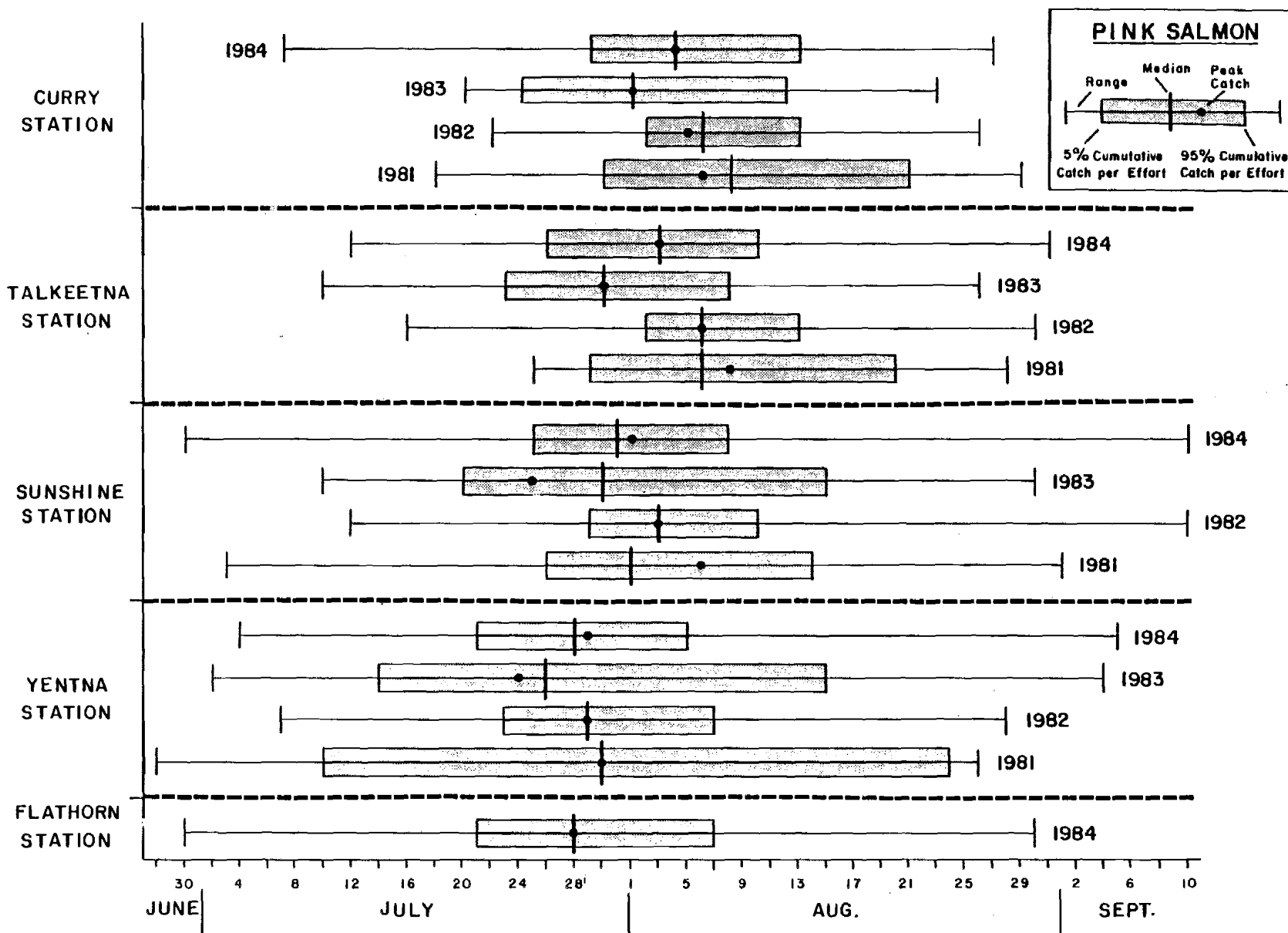


Figure 72. Migrational timing of pink salmon based on fishwheel CPUE at selected stations in 1981-84.

No age information was collected for pink salmon because they are almost exclusively two-year-olds. Fish lengths averaged 419 to 474 mm, with no major differences between odd and even years (Table 59). Because this species has essentially no freshwater rearing, between- and within-year length variation may be due to ocean growth. Generally, males were slightly more abundant than females in both reaches, with no major distinction between odd and even years (Table 59).

Table 59. Male to female pink salmon ratios and average mean lengths from Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.

Location	YEAR							
	1981		1982		1983		1984	
	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)
Flathorn Station	-	-	-	-	-	-	1.3:1	443
Yentna Station	0.8:1	474	1.0:1	428	0.9:1	426	1.2:1	445
Sunshine Station	0.8:1	447	1.8:1	435	1.0:1	429	1.1:1	441
Talkeetna Station	1.2:1	434	1.6:1	426	0.8:1	427	1.1:1	447
Curry Station	0.8:1	432	1.5:1	419	1.0:1	425	1.6:1	442

Estimated pink salmon fecundity in a 1983 study was 1,350 eggs per female. This falls within the range (800 to 2,000) reported by Morrow (1980).

Since 1981, there has been no confirmed pink spawning in the middle- or lower-reach mainstem. However, possible spawning may have occurred in 1984 at RM 119.1, based on a report from E. Woody Trihey and Associates (1984).

The 1984 surveys produced no indication of slough spawning by pinks in the lower reach above the Susitna/Yentna River confluence. In the middle reach, minor spawning did occur, notably in sloughs 8A, 11 and 20 (Table 60). Total slough spawning escapements were 40 pinks in 1981, 300 in 1982 and 650 in 1984.

In the lower reach, above the Susitna/Yentna River confluence, an estimated 4,500 to 9,000 pink salmon spawned in the mouths of 10 streams, based on 1984 surveys. Willow, Birch and Sunshine creek mouths were the most important sites, collectively utilized by three to six thousand pinks. In the middle river, pink salmon spawned in 10 of the

Table 60. Peak survey counts and percent distribution of pink salmon in sloughs above RM 98.6 in 1981-84.

Slough	River Mile	1981		1982		1983		1984		Average % Distribution
		Peak Count ¹	Percent Distribution	Peak Count ¹	Percent Distribution	Peak Count ¹	Percent Distribution	Peak Count ¹	Percent Distribution	
2	100.2	0	0	0	0	0	0	2	0.2	0.1
3B	101.4	0	0	0	0	0	0	28	2.6	1.7
3A	101.9	1	3.6	0	0	0	0	56	5.2	3.4
5	107.6	0	0	0	0	0	0	4	0.4	0.2
6A	112.3	0	0	35	6.9	0	0	0	0	2.1
B	113.7	25	89.3	0	0	0	0	1	0.1	1.6
Bushrod	117.8	-	-	-	-	-	-	10	0.9	2.4
8C	121.9	0	0	0	0	0	0	1	0.1	0.1
8B	122.2	0	0	0	0	0	0	68	6.4	4.1
Moose	123.5	0	0	8	1.6	0	0	25	2.3	2.0
A'	124.6	0	0	0	0	0	0	24	2.2	1.4
A	124.7	2	7.1	0	0	1	4.8	0	0	0.2
8A	125.4	0	0	28	5.5	3	14.2	134	12.5	10.0
B	126.3	-	-	32	6.3	0	0	0	0	2.6
9	128.3	0	0	12	2.4	0	0	1	0.1	0.8
11	135.3	0	0	131	25.8	7	33.3	121	11.3	15.5
15	137.2	0	0	132	26.0	1	4.8	500	46.8	38.0
17	138.9	0	0	0	0	0	0	1	0.1	0.1
19	139.7	0	0	1	0.2	1	4.8	0	0	0.1
20	140.0	0	0	64	12.6	7	33.3	85	8.0	9.4
21	141.1	0	0	64	12.6	1	4.8	8	0.7	4.4
TOTALS ²		28	100.0	507	99.9	21	100.0	1,069	99.9	100.2

¹ Peak count includes live plus dead fish.

² Percent distribution totals may not equal 100 due to rounding errors.

* Trace.

22 stream mouths surveyed in 1984. Based on peak index survey counts over the last four years, Indian River, Fourth of July Creek and Lane Creek were the primary spawning streams (Table 61). Almost all spawning occurred from the second to the fourth weeks of August in these tributaries.

The entire spawning reaches of Indian River and Portage Creek were surveyed in 1983 and 1984 (Table 62). Results showed that index counts of Portage Creek were not indicative of that streams spawning importance. For example, in 1984 the peak index count was 302 fish while a survey of the entire spawning reach gave a peak count of 2,707 fish. Of the 9,066 pinks counted in Indian River, 58 percent were within the index reach, signifying the importance of that area as spawning habitat. Based on peak counts, the estimated escapement to middle-reach streams was about 26,700 fish in 1984.

Table 62. Peak survey counts and percent distribution of pink salmon in streams above RM 98.6 in 1983 and 1984.

Stream	River Mile	1983		1984		Average % Distribution
		Peak ¹ Count	Percent Distribution	Peak ¹ Count	Percent Distribution	
Whiskers Creek	101.4	0	0	293	1.7	1.5
Chase Creek	106.9	6	0.5	438	2.5	2.3
Slash Creek	111.2	0	0	3	*	*
Gash Creek	111.6	0	0	6	*	*
Lane Creek	113.6	28	2.1	1,184	6.8	6.3
Clyde Creek	113.8	-	-	34	0.2	0.4
Maggot Creek	115.6	-	-	107	0.6	1.1
Lower McKenzie Cr.	116.2	17	1.3	585	3.3	3.1
McKenzie Creek	116.7	0	0	11	0.1	0.1
Little Portage Cr.	117.7	7	0.5	162	0.9	0.9
Fromunda Creek	119.3	-	-	40	0.2	0.4
Downunda Creek	119.4	-	-	6	*	0.1
Deadhorse Creek	120.8	-	-	337	1.9	3.5
Tulip Creek	120.9	-	-	8	0.1	0.1
5th of July Creek	123.7	9	0.7	411	2.4	2.2
Skull Creek	124.7	1	0.1	121	0.7	0.6
Sherman Creek	130.8	0	0	48	0.3	0.2
4th of July Creek	131.1	78	5.9	1,842	10.5	9.9
Gold Creek	136.7	7	0.5	82	0.5	0.5
Indian River	138.6	886	66.7	9,066	51.8	51.4
Jack Long Creek	144.5	5	0.4	14	0.1	0.1
Portage Creek	148.9	285	21.4	2,707	15.5	15.4
TOTALS ²		1,329	100.1	17,505	100.1	100.1

¹ Peak count includes live plus dead fish.

² Percent distribution totals do not equal 100 due to rounding errors.

* Trace.

4.4 Chum Salmon

Chum salmon are a major target species in the combined Upper Cook Inlet drift and set gill net fishery. Most of the commercial harvest is

Table 61. Peak survey counts and percent distribution of pink salmon in stream index reaches above RM 98.6 in 1981-84.

Stream	River Mile	1981		1982		1983		1984		Average % Distribution
		Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	
Whiskers Creek	101.4	1	0.3	138	4.8	0	0	293	2.6	2.5
Chase Creek	106.9	38	10.1	107	3.8	6	0.5	438	3.9	3.4
Slash Creek	111.2	-	-	-	-	0	0	3	*	*
Gash Creek	111.6	-	-	-	-	0	0	6	*	*
Lane Creek	113.6	291	77.0	640	22.4	28	2.1	1,184	10.5	12.2
Clyde Creek	113.8	-	-	-	-	-	-	34	0.3	0.8
Maggot Creek	115.6	-	-	-	-	-	-	107	1.0	2.4
Lower McKenzie Creek	116.2	0	0	23	0.8	17	1.3	585	5.2	3.6
McKenzie Creek	116.7	0	0	17	0.6	0	0	11	0.1	0.2
Little Portage Cr.	117.7	-	-	140	4.9	7	0.5	162	1.4	2.2
Fromunda Creek	119.3	-	-	-	-	-	-	40	0.4	0.9
Downunda Creek	119.4	-	-	-	-	-	-	6	*	0.1
Deadhorse Creek	120.8	-	-	-	-	-	-	337	3.0	7.7
Tulip Creek	120.9	-	-	-	-	-	-	8	0.1	0.2
5th of July Creek	123.7	2	0.5	113	4.0	9	0.7	411	3.6	3.1
Skull Creek	124.7	8	2.1	12	0.4	1	0.1	121	1.1	0.8
Sherman Creek	130.8	6	1.6	24	0.8	0	0	48	0.4	0.5
4th of July Creek	131.1	29	7.7	702	24.6	78	5.9	1,842	16.3	15.1
Gold Creek	136.7	0	0	11	0.4	7	0.5	82	0.7	0.5
Indian River	138.6	2	0.5	738	25.9	886	66.7	5,282	46.7	39.3
Jack Long Creek	144.5	1	0.3	21	0.7	5	0.4	14	0.1	0.2
Portage Creek	148.9	0	0	169	5.9	285	21.4	302	2.7	4.3
TOTALS ²		378	100.1	2,855	100.0	1,329	100.1	11,316	100.1	100.1

¹ Peak count includes live plus dead fish.

² Percent distribution totals may not equal 100 due to rounding errors.

* Trace.

Susitna River stock (ADF&G 1982). The suspected contribution is in the range of 80 to 90 percent (Barrett et al. 1984). Within the Susitna River system, there are a minimum of 45 chum spawning populations (ADF&G 1982). The principle spawning areas are in the Talkeetna River drainage (Barrett et al 1984).

The minimum chum salmon escapements to the Susitna River have been reported for the last three years at 282,700 fish (1981), 458,200 fish (1982) and 276,600 fish (1983) (Barrett et al. 1984). These estimates reflect only the escapements to Yentna and Sunshine stations. In 1984, the minimum chum salmon escapement was about 812,700 fish, based on a Petersen estimate derived from a first year tagging operation at Flathorn Station (Section 3.4).

Lower-river chum escapements for the last four years to Yentna Station averaged 21,200 fish, and to Sunshine Station, 431,000 fish (Table 49). The combined 1984 escapement to those stations was 75 percent above the four-year average. Most of the increase was at Sunshine Station. The Flathorn escapement in 1984 was about 812,700 fish, three percent above the combined Yentna and Sunshine stations escapement for the same year (Figure 73). Essentially all of the Susitna River escapement reached Flathorn Station. Below that station, chum have been documented only in Alexander Creek (ADF&G 1982), where the highest recorded count was 500 chum in 1963.

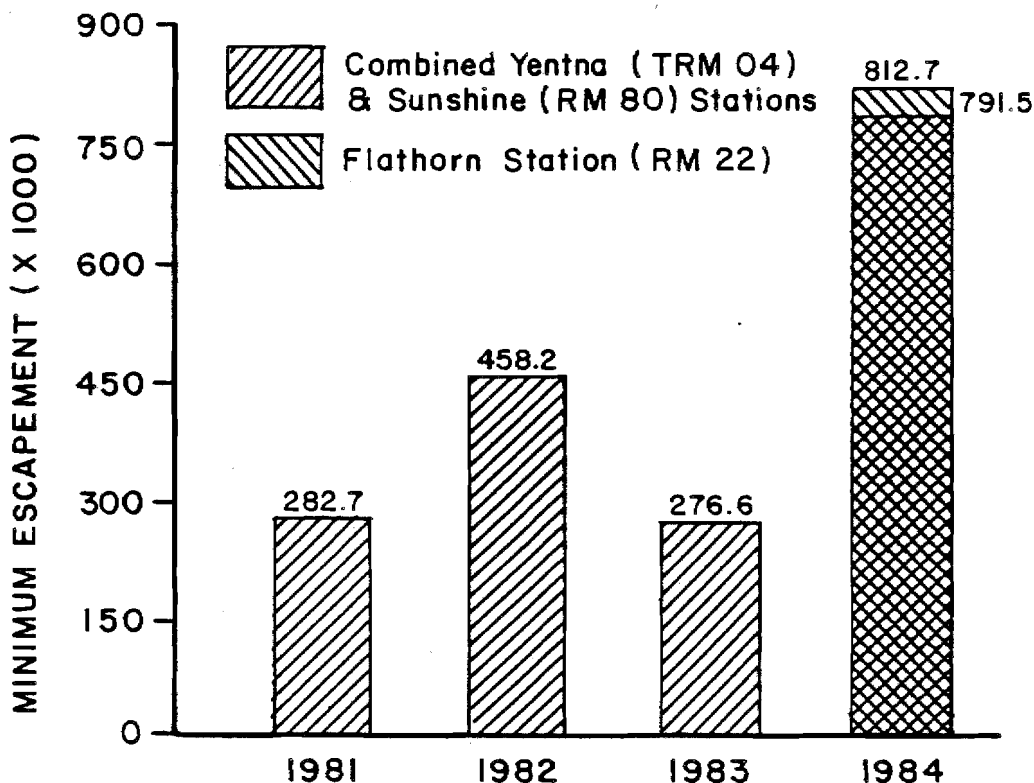


Figure 73. 1981-84 Susitna River chum salmon escapements based on population estimates at Flathorn, Yentna and Sunshine stations.

In the middle reach, annual escapements to Talkeetna Station ranged from 20,800 to 98,200 fish and averaged 54,600 fish (Figure 74). At Curry Station, escapements ranged from 13,100 to 49,300 fish and averaged 28,200 fish. The 1984 escapement to both stations was about 80 percent higher than average.

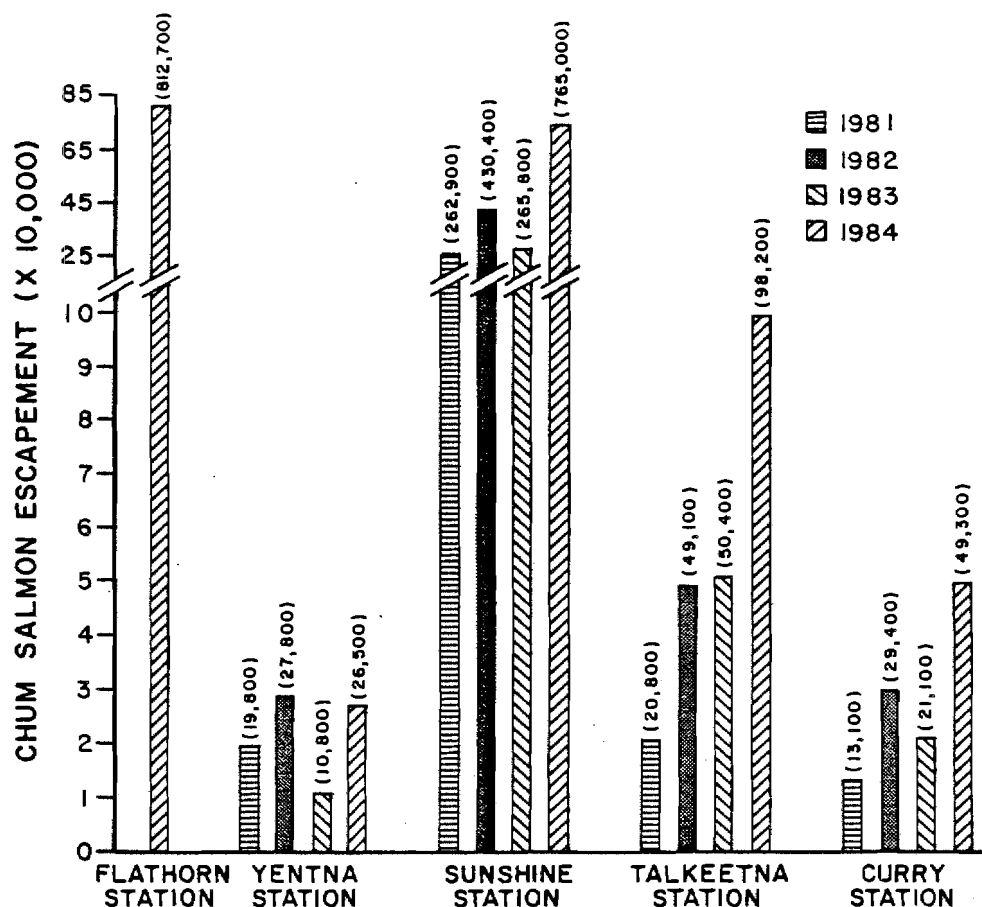


Figure 74. Susitna River chum salmon escapements by station for 1981-84.

During all four years, a high portion of the middle-river escapement spawned in the lower reach, mainly in the Talkeetna River drainage. For example, in 1981 and 1982 several radio-tagged chum released at Talkeetna and Curry stations spawned in the lower reach. In 1984, about 75 and 45 percent of the escapements to those stations were milling chum that spawned downstream.

In the lower river, chum salmon were abundant from the second week of July to the last week of August, with a peak the last week of July or the first week of August (Figure 75). In the middle reach, they were abundant from the third week of July to the last week of August. Peak abundance was in the first week of August.

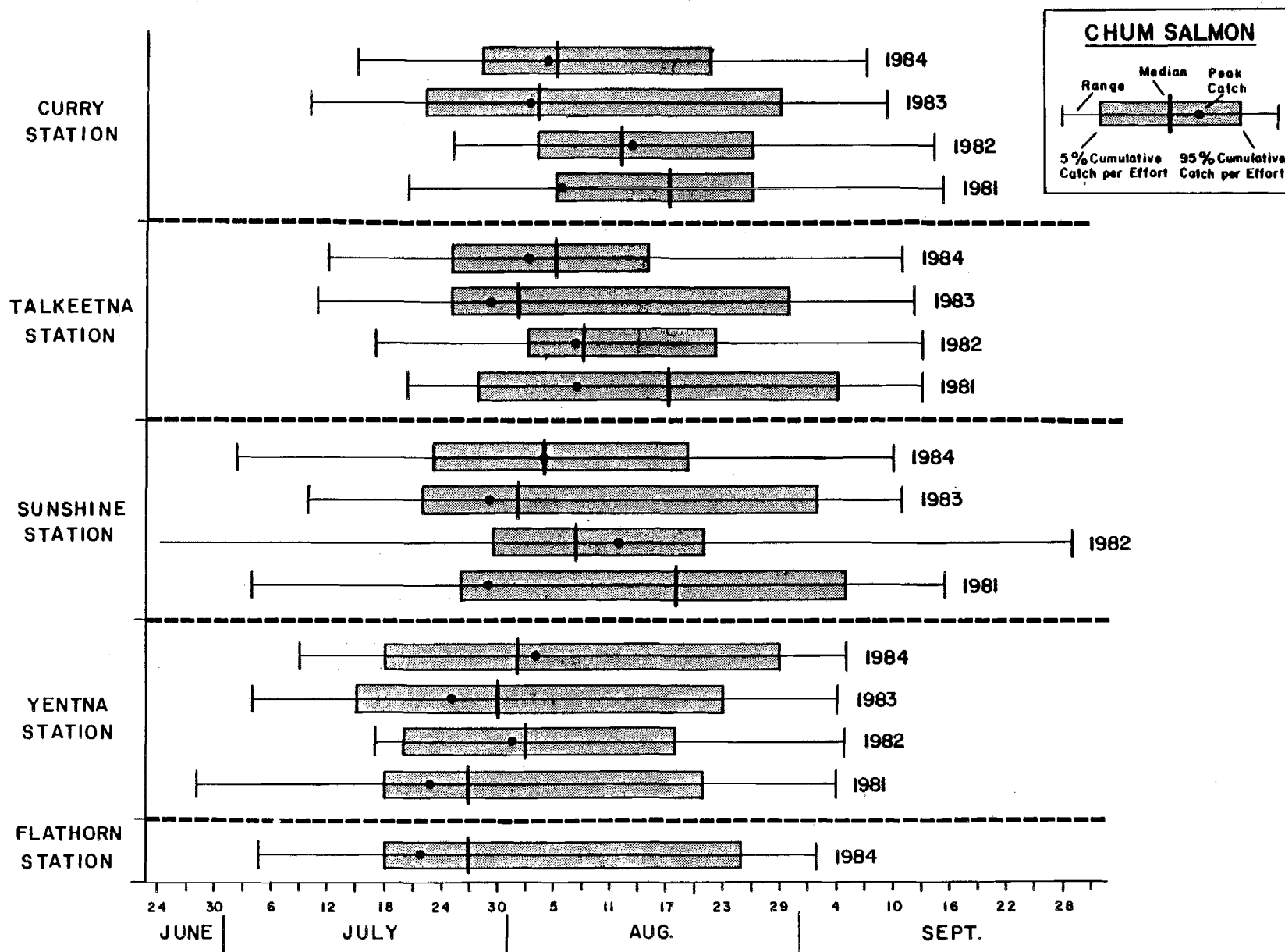


Figure 75. Migrational timing of chum salmon based on fishwheel CPUE at selected stations in 1981-84.

In 1984, nearly all the chum destined for Yentna and Sunshine stations traveled in the east channel past Flathorn Station. Apparently most of the Yentna Station fish crossed to the west side of the Susitna River in the six miles before the Yentna River confluence.

Migration speeds were slower in the lower river than in the middle river (Table 63). The slower migration speeds in the lower river may be associated with milling at major river confluences.

Returning chum ranged in age from two to six years old (Table 64). Most were four-year-olds, except in 1983 when the majority were five-year-olds. Average fish lengths ranged from 584 to 609 mm for all four years (Table 65). Generally males were more plentiful than females.

Table 63. Migration rates of chum salmon between sampling stations, based on fishwheel tag recoveries in 1981-84.

Tagging Station	Recapture Station ¹							
	Yentna		Sunshine		Talkeetna		Curry	
	Days ²	Mpd ³	Days	Mpd	Days	Mpd	Days	Mpd
Flathorn								
1984	4.0	2.5	13.0	4.5	15.0	5.4	16.0	6.1
Sunshine								
1981					7.0	3.3	-	-
1982					5.0	4.6	5.0	8.0
1983					5.0	4.6	8.0	5.0
1984					4.0	5.8	6.0	6.7
Talkeetna								
1981							4.0	4.2
1982							2.0	8.5
1983							4.0	4.2
1984							2.0	8.5

¹ Dash denotes insufficient sample size to determine migration rates.

² Days = number of days between captures.

³ Mpd = miles per day. This value is based on the median number of days between captures.

A study in 1983 at Sunshine Station indicated an average chum fecundity of 2,800 eggs per female, which is within the range for North American stocks (Bakkala 1970).

In the lower reach above the Susitna/Yentna confluence, chum spawning was documented in the mainstem, sloughs and stream mouths.

In 1981, six lower-reach mainstem sites were identified, all between RM 68.3 and 97.0. Approximately 180 chum spawned in those areas. In 1982, no mainstem chum spawning was documented. Appropriate surveys were not conducted in 1983. Comprehensive lower-river surveys were resumed in

Table 64. Analysis of chum salmon age data by percent from escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.

Location	Year	Age Group					Brood Year							
		2	3	4	5	6	75	76	77	78	79	80	81	82
Flathorn Station	1984	0	15.5	73.9	10.2	0.4				0.4	10.2	73.9	15.5	0
Yentna Station	1981	0	6.6	84.1	9.3	0	0	9.3	84.1	6.6	0			
	1982	0	3.3	90.4	5.3	0		0	5.3	90.4	3.3	0		
	1983	0	2.2	46.1	51.3	0.4			0.4	51.3	46.1	2.2	0	
	1984	0.1	19.7	69.3	10.2	0.7				0.7	10.2	69.3	19.7	0.1
Sunshine Station	1981	0	4.1	88.7	7.2	0	0	7.2	88.7	4.1	0			
	1982	0	5.5	91.1	3.4	0		0	3.4	91.1	5.5	0		
	1983	0	0.3	40.1	58.4	1.2			1.2	58.4	40.1	0.3	0	
	1984	0	12.0	75.7	12.2	0.1				0.1	12.2	75.7	12.0	0
Talkeetna Station	1981	0	4.1	85.2	10.7	0	0	10.7	85.2	4.1	0			
	1982	0	4.9	87.1	8.0	0		0	8.0	87.1	4.9	0		
	1983	0	0.8	30.3	68.7	0.2			0.2	68.7	30.3	0.8	0	
	1984	0	6.5	69.2	22.9	1.4				1.4	22.9	69.2	6.5	0
Curry Station	1981	0	1.9	84.0	14.1	0	0	14.1	84.0	1.9	0			
	1982	0	2.1	85.8	12.1	0		0	12.1	85.8	2.1	0		
	1983	0	0	27.9	72.1	0			0	72.1	27.9	0	0	
	1984	0	10.4	71.0	16.7	1.9				1.9	16.7	71.0	10.4	0

Table 65. Male to female chum salmon ratios and average mean lengths from Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.

Location	YEAR							
	1981		1982		1983		1984	
	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)
Flathorn Station	-	-	-	-	-	-	1.1:1	586
Yentna Station	1.0:1	592	1.3:1	598	1.3:1	593	0.7:1	584
Sunshine Station	0.8:1	603	1.0:1	606	1.0:1	594	1.1:1	593
Talkeetna Station	1.3:1	584	1.9:1	609	1.5:1	606	1.4:1	605
Curry Station	1.1:1	602	1.1:1	603	1.9:1	614	2.0:1	597

1984, when 12 mainstem spawning areas were found, all between RM 62.1 and 98.0. Approximately 2,700 chum utilized those sites. None of the 12 sites identified in 1984 were spawning areas in 1981. Spawning estimates for both years were based on the assumption that about one-third of the spawners were present at the time the highest counts were recorded. Visibility in the mainstem has been generally poor in early September with high flows and turbidity. From late September to freeze-up (mid-October), visibility improves. It was during that period that most of the 1981 and 1984 chum spawning was documented. In both years, it was likely that peak spawning occurred about mid-September, and that spawning ceased by the second week of October.

In the lower reach above the Susitna/Yentna confluence, 1984 surveys documented five spawning sloughs, used by about 900 chums. Spawning extended from mid-September to mid-October, probably peaking the last week of September. Ninety percent of that spawning occurred in Cache (RM 96.0) and Musher (RM 95.2) sloughs.

Chum salmon used 10 of 17 lower-reach stream mouths for passage, and to a lesser extent for spawning. Approximately 100 to 225 chum spawned in mouth areas in 1984. Most stream-mouth spawning occurred from the first to third weeks of August.

In the middle reach, chum spawning also occurred in the mainstem, sloughs and streams.

Most middle-reach mainstem spawning was found in 1984 surveys (Table 66). However, during 1981-82 surveys, visibility was poor in the mainstem due to high flows and turbidity, and some spawning areas

probably were missed. In addition, more spawning in the mainstem probably occurred in 1984 than other years due to the record-high escapement. In the last four years, almost all mainstem spawning areas were above Curry Station. Spawning occurred in September and early October, with the peak between the second and third weeks of September.

Table 66. Number of mainstem chum salmon spawning areas identified in the Susitna River middle reach in 1981-84 and the corresponding highest fish counts.

Year	Number of Middle Reach Mainstem Spawning Sites	Highest Fish Count (Catch)
1981	4	14
1982	9	550
1983	6	219
1984	36	1,266

In 1984, about 3,800 chums spawned in the mainstem middle reach. No estimates of the three previous spawning escapements are available because of inefficient sampling associated with high water and turbidity.

Since 1981, twelve streams in the middle reach have been used for spawning by chum salmon, with highest incidences in Indian River and Portage Creek. Spawning in middle-reach streams occurred from the fourth week of July to the second week of September, and peaked in the last two weeks of August. Based on index counts, the highest stream escapements were in 1984 (Table 67).

In 1983 and 1984, Indian River and Portage Creek spawning surveys were expanded beyond the index areas to the full lengths of the streams. Expanded surveys were not performed at other streams because essentially all spawning occurred in index areas. At Indian River, the majority of spawning occurred in the index area (Tables 67 and 68). At Portage Creek, most spawning occurred above the index area. These creeks averaged 92 percent of the entire chum middle-river stream escapement for the last two years, which was about 3,000 fish in 1983 and 7,600 fish in 1984.

Thirty-two sloughs in the middle reach have been used by chum salmon in the last four years (Table 69). In order of importance, most of the spawning was in sloughs 9, 8A, 11 and 21. Slough escapements totaled 5,200 chum in 1981, 4,500 in 1982, 2,950 in 1983 and 14,650 in 1984. The four-year average escapement was 6,800. All slough escapements were calculated using 1983 and 1984 observed-residence data and survey counts. The average observed residence of a chum in a slough was 6.9 days in 1983 and 6.8 days in 1984. Observed-residence studies were not conducted prior to 1983.

Table 67. Peak survey counts and percent distribution of chum salmon in stream index reaches above RM 98.6 in 1981-84.

Stream	River Mile	1981		1982		1983		1984		Average % Distribution
		Peak Count ¹	Percent Distribution	Peak Count ¹	Percent Distribution	Peak Count ¹	Percent Distribution	Peak Count ¹	Percent Distribution	
Whiskers Creek	101.4	1	0.4	0	0	0	0	0	0	*
Chase Creek	106.9	1	0.4	0	0	0	0	1	0.1	*
Lane Creek	113.6	76	31.5	11	0.6	6	0.5	31	1.7	2.5
Lower McKenzie Creek	116.2	14	5.8	0	0	1	0.1	23	1.3	0.8
Little Portage Creek	117.7	0	0	31	1.8	0	0	18	1.0	1.0
5th of July Creek	123.7	0	0	1	0.1	6	0.5	2	0.1	0.2
Skull Creek	124.7	10	4.2	1	0.1	0	0	4	0.2	0.3
Sherman Creek	130.8	9	3.7	0	0	0	0	6	0.3	0.3
4th of July Creek	131.1	90	37.3	191	11.0	148	12.0	193	10.6	12.4
Indian River	138.6	40	16.6	1,346	77.5	811	65.6	1,272	70.0	69.0
Jack Long Creek	144.5	0	0	3	0.2	2	0.2	4	0.2	0.2
Portage Creek	148.9	0	0	153	8.8	262	21.2	262	14.4	13.5
TOTALS ²		241	99.9	1,737	100.1	1,236	100.1	1,816	99.9	100.2

¹ Peak count includes live plus dead fish.

² Percent distribution totals may not equal 100 due to rounding errors.

* Trace.

Table 69. Peak survey counts and percent distribution of chum salmon in sloughs above RM 98.6 in 1981-84.

Slough	River Mile	1981		1982		1983		1984		Average % Distribution
		Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	
1	99.6	6	0.2	0	0	0	0	12	0.2	0.1
2	100.2	27	1.1	0	0	49	3.4	129	1.7	1.4
3B	101.4	0	0	0	0	3	0.2	56	0.7	0.4
3A	101.9	0	0	0	0	0	0	17	0.2	0.1
5	107.6	0	0	2	0.1	1	*	0	0	*
6A	112.3	11	0.4	2	0.1	6	0.4	0	0	0.1
8	113.7	302	11.6	0	0	0	0	65	0.9	2.5
Bushrod	117.8	-	-	-	-	-	-	90	1.2	2.5
8D	121.8	0	0	23	1.0	1	*	49	0.7	0.5
8C	121.9	0	0	48	2.1	4	0.3	121	1.6	1.2
8B	122.2	1	*	80	3.6	104	7.1	400	5.3	4.1
Moose	123.5	167	6.4	23	1.0	68	4.7	76	1.0	2.3
A'	124.6	140	5.4	0	0	77	5.3	111	1.5	2.3
A	124.7	34	1.3	0	0	2	0.1	2	*	0.3
8A	125.4	520	23.9	336	15.0	37	2.5	917	12.1	13.2
B	126.3	-	-	58	2.6	7	0.5	108	1.4	1.6
9	128.3	260	10.0	300	13.4	169	11.5	350	4.6	7.5
9B	129.2	90	3.5	5	0.2	0	0	73	1.0	1.2
9A	133.8	182	7.0	118	5.3	105	7.2	303	4.0	4.9
10	133.8	0	0	2	0.1	1	*	36	0.5	0.3
11	135.3	411	15.8	459	20.5	238	16.2	1,586	21.0	18.6
13	135.9	4	0.2	0	0	4	0.3	22	0.3	0.2
14	135.9	0	0	0	0	0	0	1	*	*
15	137.2	1	*	1	*	2	0.1	100	1.3	0.7
16	137.3	3	0.1	0	0	0	0	15	0.2	0.1
17	138.9	38	1.5	21	0.9	90	6.1	66	0.9	1.5
18	139.1	0	0	0	0	0	0	11	0.2	0.1
19	139.7	3	0.1	0	0	3	0.2	45	0.6	0.4
20	140.0	14	0.6	30	1.3	63	4.3	280	3.7	2.7
21	141.1	274	10.6	736	32.8	319	21.8	2,354	31.2	25.7
22	144.5	-	-	-	-	114	7.8	151	2.0	3.7
21A	145.3	8	0.3	0	0	0	0	10	0.1	0.1
TOTALS ²		2,596	100.0	2,244	100.0	1,467	100.0	7,556	100.1	100.3

¹ Peak count includes live plus dead fish.² Percent distribution totals may not equal 100 due to rounding errors.

* Trace.

Table 68. Peak survey counts and percent distribution of chum salmon in streams above RM 98.6 in 1983 and 1984.

Stream	River Mile	1983		1984		Average % Distribution
		Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	
Chase Creek	106.9	0	0	1	*	*
Lane Creek	113.6	6	0.4	31	0.8	0.7
Lower McKenzie Creek	116.2	1	0.1	23	0.6	0.5
Little Portage Creek	117.7	0	0	18	0.5	0.3
5th of July Creek	123.7	6	0.4	2	0.1	0.2
Skull Creek	124.7	0	0	4	0.1	0.1
Sherman Creek	130.8	0	0	6	0.2	0.1
4th of July Creek	131.1	148	9.9	193	5.1	6.4
Indian River	138.6	811	54.1	2,247	59.0	57.5
Jack Long Creek	144.5	2	0.1	4	0.1	0.1
Portage Creek	148.9	526	35.1	1,285	33.7	34.1
TOTALS ²		1,500	100.1	3,814	100.2	100.0

¹ Peak count includes live plus dead fish.

² Percent distribution totals may not equal 100 due to rounding errors.

* Trace.

Spawning in middle-reach sloughs extended from the second week of August to the last week of September. Peak spawning occurred in the first week of September, about one to two weeks later than in nearby streams.

Egg retention at sloughs in the middle river averaged 114 and 463 eggs per female in 1983 and 1984. Median retentions were five and one eggs per female respectively. The higher figure may have been associated with the record-high escapement. Bakkala (1970) reported that egg retention normally increased with spawner density. Egg retention was not studied in 1981 or 1982.

4.5 Coho Salmon

The Susitna River is the largest single coho-salmon-producing system in Upper Cook Inlet, annually contributing about 50 percent of the commercial harvest in the district (ADF&G 1982, 1983). Susitna River coho also contribute to a growing recreational fishery (Mills 1983). Within the Susitna River drainage, there are a minimum of 25 spawning populations, most of which spawn in the lower reach below Sunshine Station (ADF&G 1982, 1983).

Since 1981, Susitna River coho escapements have been 37,000 (1981), 80,000 (1982) and 24,100 (1983) (Barrett et al. 1984). These estimates do not include escapements to systems below Sunshine Station except the Yentna River. Based on population studies at Flathorn Station, the 1984 Susitna River coho escapement was 190,100 fish (Section 3.5).

Lower-river coho escapements for the last four years to Yentna Station averaged 19,600 fish and to Sunshine Station 43,900 fish (Figure 76). The combined 1984 escapement to those stations was the highest on record and 80 percent higher than the four-year average (Figure 77). This was due mainly to the large escapement at Sunshine Station. The Flathorn escapement in 1984 was about 190,100 fish or 40 percent higher than the same-year combined Yentna and Sunshine escapement.

Since 1981 annual middle reach escapements to Talkeetna Station have averaged 5,700 coho, and to Curry Station 1,600 coho. The 1984 escapement to Talkeetna Station was about double the previous record escapement of 1982. However, the 1984 Curry Station escapement, while above average, was 200 fish less than the 1982 record escapement, indicating that most of the 1984 escapement increase was downstream of Curry.

Coho escapement to the middle river was largely comprised of milling fish which ultimately spawned in the lower reach. In 1981 radio telemetry studies, three of six cohos tagged at Talkeetna Station and three of four tagged at Curry Station spawned below those sites. In 1982 radio telemetry studies, 10 of 11 coho tagged at Talkeetna and one of five tagged at Curry spawned downstream. There was no radio telemetry study or full survey coverage of spawning areas in 1983, but 1984 spawning area surveys indicated that 75 percent of the Talkeetna Station escapement and 45 percent of the Talkeetna Station escapement were milling fish. Proximity to the confluence of the Talkeetna, Chulitna and Susitna rivers probably accounts for the high Talkeetna milling percentage.

The reaches upstream of Sunshine Station supported most of the coho return. In 1984, 10 percent of the basin-wide escapement returned to spawn within the Yentna River drainage, 40 percent returned to areas between the Yentna River mouth and Sunshine Station, and 50 percent returned to spawning grounds above Sunshine Station. Specific spawning areas within the lower and middle reaches are discussed later in this section.

Coho were abundant in the lower river from the third week of July to the third week of August. In the middle reach, they were abundant from the last week of July to the first week of September (Figure 79).

In 1984, most coho destined for Yentna and Sunshine stations migrated in the east channel past Flathorn Station. Apparently, Yentna populations crossed to the west channel of the Susitna River before the Yentna River confluence. Annual migrations past Yentna and Sunshine were mainly along the south and east banks. At Talkeetna Station, most coho ran along the west bank. Migration was evenly divided between east and west banks at Curry.

Coho salmon migration rates in the lower river were slower between Flathorn and Yentna stations than between Flathorn and Sunshine stations (Table 70). The slower migration rate may be associated with milling at the Susitna/Yentna confluence. Fish migration rates between Sunshine and Talkeetna stations were slower than between Talkeetna and Curry stations. This was probably due to milling during passage through the confluence area of the Talkeetna, Chulitna and Susitna rivers.

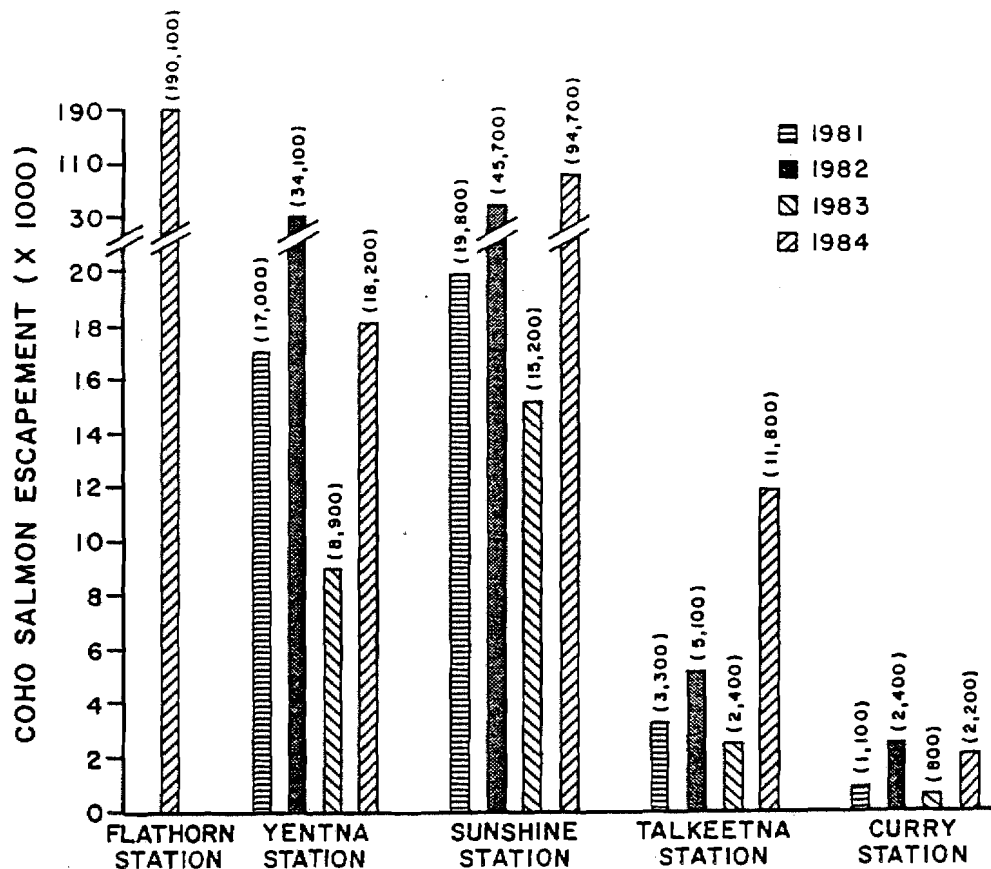


Figure 76. Susitna River coho salmon escapements by station for 1981-84.

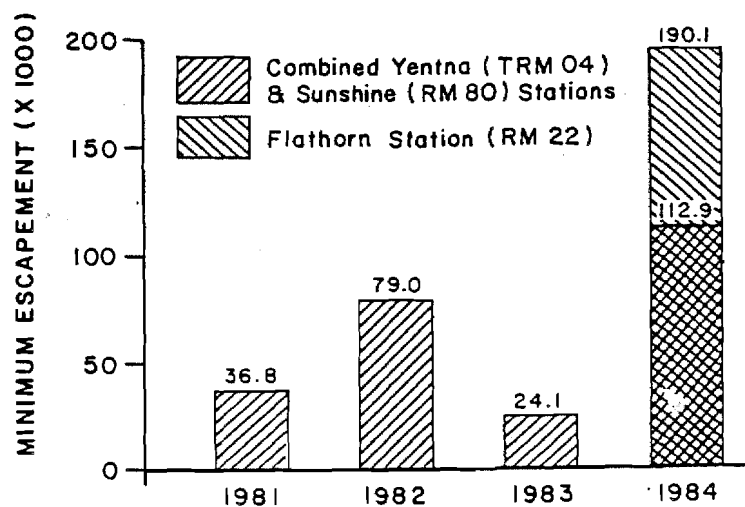


Figure 77. 1981-84 Susitna River coho salmon escapements based on population estimates at Flathorn, Yentna and Sunshine stations.

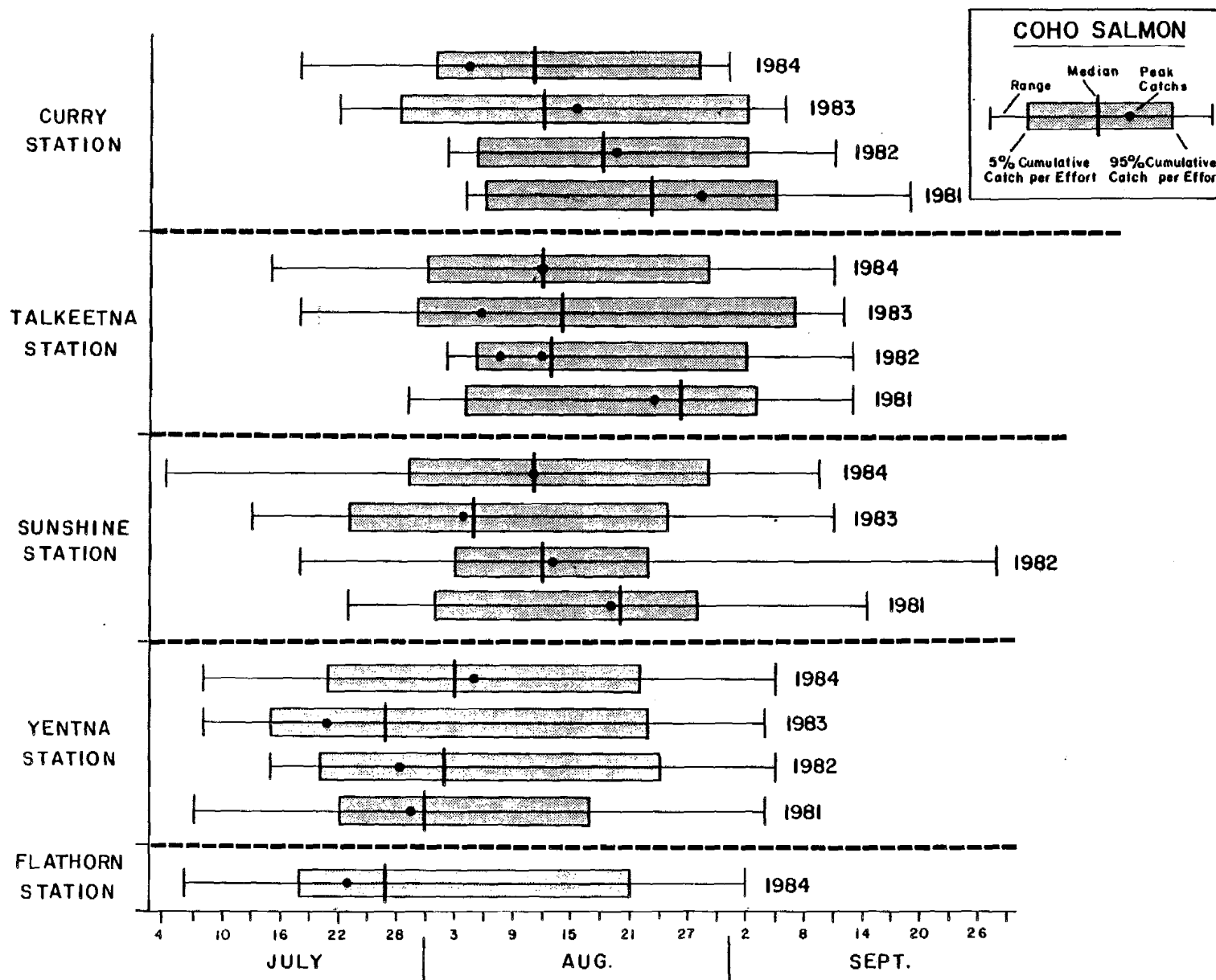


Figure 78. Migrational timing of coho salmon based on fishwheel CPUE at selected stations in 1981-84.

Table 70. Migration rates of coho salmon between sampling station, based on tag recoveries in 1981-84.

Tagging Station	Recapture Station ¹							
	Yentna		Sunshine		Talkeetna		Curry	
	Days ²	Mpd ³	Days	Mpd	Days	Mpd	Days	Mpd
Flathorn								
1984	10.0	1.0	25	2.3	7.0	11.6	-	-
Sunshine								
1981					-	-	-	-
1982					-	-	-	-
1983					15.0	1.5	20.0	2.0
1984					7.0	3.3	10.0	4.0
Talkeetna								
1981								
1982								
1983							3.0	5.7
1984							3.0	5.7

¹ Dash denotes insufficient sample size to determine migration rates.

² Days = number of days between captures.

³ Mpd = miles per day. This value is based on the median number of days between captures.

Table 72. Male to female coho salmon ratios and average mean lengths from Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.

Location	YEAR							
	1981		1982		1983		1984	
	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)	Sex Ratio (M:F)	Average Mean Length (mm)
Flathorn Station	-	-	-	-	-	-	1.4:1	542
Yentna Station	0.9:1	535	2.4:1	544	2.3:1	528	0.8:1	557
Sunshine Station	1.2:1	524	1.4:1	550	1.2:1	524	1.2:1	546
Talkeetna Station	1.5:1	531	1.5:1	550	1.7:1	528	1.1:1	559
Curry Station	2.0:1	517	1.3:1	531	2.0:1	524	1.1:1	531

Table 71. Analysis of coho salmon age data by percent from escapement samples collected at Flathorn, Yentna, Sunshine, Talkeetna and Curry stations in 1981-84.

Location	Year	Age Group				Brood Year						
		2	3	4	5	76	77	78	79	80	81	82
Flathorn Station	1984	0.4	33.9	64.2	1.5				1.5	64.2	33.9	0.4
Yentna Station	1981	0	16.1	82.9	1.0	1.0	82.9	16.1	0			
	1982	0	31.8	66.8	1.4		1.4	66.8	31.8	0		
	1983	0	16.1	80.4	3.5			3.5	80.4	16.1	0	
	1984	0	27.9	70.0	2.1				2.1	70.0	27.9	0
Sunshine Station	1981	0	31.8	65.1	3.1	3.1	65.1	31.8	0			
	1982	0	49.3	50.4	0.3		0.3	50.4	49.3	0		
	1983	0	35.9	63.3	0.8			0.8	63.3	35.9	0	
	1984	0	34.2	64.4	1.4				1.4	64.4	34.2	0
Talkeetna Station	1981	0	12.2	84.8	3.0	3.0	84.8	12.2	0			
	1982	0	59.0	41.0	0		0	41.0	59.0	0		
	1983	0	39.4	60.6	0			0	60.6	39.4	0	
	1984	0	31.7	67.3	1.0				1.0	67.3	31.7	0
Curry Station	1981	0	28.6	68.8	2.6	2.6	68.8	28.6	0			
	1982	0	54.0	46.0	0		0	46.0	54.0	0		
	1983	0	46.8	53.2	0			0	53.2	46.8	0	
	1984	0	46.4	52.4	1.2				1.2	52.4	46.4	0

The age-spread for returning cohos was three to five years, with four-year-olds most abundant (Table 71). An exception was the 1982 escapement to Talkeetna and Curry stations, when three-year-olds comprised a majority. Average lengths ranged from 517 to 559 mm in all years (Table 72). Males were usually more abundant than females.

The average coho fecundity at Sunshine Station in 1984 was 2,800 eggs per female. This was slightly greater (by 360 eggs per female) than reported by Hart (1973).

Coho spawning in the lower mainstem was limited. No spawning was documented in 1981 and 1982; no surveys were conducted in 1983. In 1984, approximately 330 coho spawned in two mainstem sites located at RM 87.5 and 94.5. Spawning occurred during the last two weeks of September and the first two weeks of October.

Sloughs were rarely utilized by coho. One site (RM 57.0) was verified when lower-river slough surveys were instituted in 1984. Six coho were observed spawning there on October 13. Four years of middle-river surveys confirmed only one site at Slough 8A, where two coho were observed spawning on October 2, 1982.

Susitna River coho salmon spawned almost exclusively in lower- and middle-river streams. In the lower river, they were observed in 11 of the 17 stream mouths surveyed in 1984. Coho utilized those areas for either passage or milling, but no spawning was observed.

In the middle river, coho salmon utilized 12 streams. In order of importance, the major spawning occurred at Gash Creek, Whiskers Creek, Chase Creek and Indian River (Table 73). In 1984, coho spawning occurred at the mouths of Whiskers, Slash, Fourth of July and Portage creeks. Stream-spawning in the middle river occurred from the first week of September to the second week of October, and peaked in the last two weeks of September during the study years.

The 1984 surveys of major coho streams in the middle reach included each stream's entire spawning range (Table 74). Based on the peak counts of those surveys, stream escapements to Indian River and Whiskers Creek, the two most important coho producers, were 930 and 602 fish. The 1984 escapement to all middle-reach streams was an estimated 2,900 fish.

Table 73. Peak survey counts and percent distribution of coho salmon in stream index reaches above RM 98.6 in 1981-84.

Stream	River Mile	1981		1982		1983		1984		Average % Distribution
		Peak Count ¹	Percent Distribution	Peak Count ¹	Percent Distribution	Peak Count ¹	Percent Distribution	Peak Count ¹	Percent Distribution	
Whiskers Creek	101.4	70	15.3	176	27.8	55	42.3	117	16.3	21.5
Chase Creek	106.9	80	17.5	36	5.7	1	0.8	239	33.2	18.2
Slash Creek	111.2	-	-	6	1.0	2	1.5	5	0.7	0.8
Gash Creek	111.6	141	30.8	74	11.7	19	14.6	234	32.6	24.0
Lane Creek	113.6	3	0.7	5	0.8	2	1.5	8	1.1	1.0
Lower McKenzie Creek	116.2	56	12.2	133	21.0	18	13.9	24	3.3	11.9
Little Portage Creek	117.7	-	-	8	1.3	0	0	0	0	0.6
4th of July Creek	131.1	1	0.2	4	0.6	3	2.3	1	0.1	0.4
Gold Creek	136.7	0	0	1	0.2	0	0	0	0	0
Indian River	138.6	85	18.6	101	16.0	27	20.8	70	9.7	14.6
Jack Long Creek	144.5	0	0	1	0.2	1	0.8	0	0	0.2
Portage Creek	148.9	22	4.8	88	13.9	2	1.5	21	2.9	6.8
TOTALS ²		458	100.1	633	100.2	130	100.0	719	99.9	100.0

¹ Peak count includes live plus dead fish.

² Percent distribution totals may not equal 100 due to rounding errors.

* Trace.

Table 74. Peak survey counts and percent distribution of coho salmon in streams above RM 98.6 in 1983 and 1984.

Stream	River Mile	1983		1984		Average % Distribution
		Peak ₁ Count	Percent Distribution	Peak ₁ Count	Percent Distribution	
Whiskers Creek	101.4	115	47.9	301	21.0	24.9
Chase Creek	106.9	12	5.0	239	16.7	15.0
Slash Creek	111.2	2	0.8	5	0.4	0.4
Gash Creek	111.6	19	7.9	234	16.3	15.1
Lane Creek	113.6	2	0.8	24	1.7	1.6
Lower McKenzie Creek	116.2	18	7.5	24	1.7	2.5
4th of July Creek	131.1	3	1.3	8	0.6	0.7
Indian River	138.6	53	22.1	465	32.4	30.9
Jack Long Creek	144.5	1	0.4	6	0.4	0.4
Portage Creek	148.9	15	6.3	128	8.9	8.5
TOTALS ²		240	100.0	1,434	100.1	100.0

¹ Peak count includes live plus dead fish.

² Percent distribution totals may not equal 100 due to rounding errors.

REFERENCES

- Alaska Department of Fish and Game. 1981. Phase I final draft report. Subtask 7.10. Adult anadromous fisheries project (June - September 1981). Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Anchorage, Alaska, USA.
- _____. 1982. Phase II final draft procedures manual. Subtask 7.10. Aquatic Studies procedures manual. Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Anchorage, Alaska, USA.
- _____. 1983. Susitna Hydro aquatic studies phase II final report. Volume 2. Adult anadromous fish studies, 1982. Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Anchorage, Alaska, USA.
- _____. 1984. Susitna Hydro aquatic studies (May 1983 - June 1984) procedures manual. Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Anchorage, Alaska, USA.
- Bakkala, R.G. 1970. Synopsis of biological data on the Chum Salmon, Oncorhynchus keta (Walbaum) 1972. FAO Species Synopsis No. 41, U.S. Fish and Wildlife Service Circular 315, Washington, D.C., USA.
- Barrett, B.M. 1972. 1972 Tustumena Sockeye Salmon Research Report. Alaska Department of Fish and Game, Division of Commercial Fisheries, Soldotna, Alaska, USA.
- _____. 1974. An assessment of the anadromous fish populations in the upper Susitna River watershed between Devil Canyon and the Chulitna River. Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage, Alaska, USA.
- _____. 1974. 1971-1973 sockeye salmon fry production studies on selected streams in the Kasilof River watershed. Alaska Department of Fish and Game, Division of Commercial Fisheries, Cook Inlet Data Report Series No. 73-8, Soldotna, Alaska, USA.
- _____. 1984. Summary of abundance and distribution of adult salmon in Susitna River sub-basins. Presented at: Aquatic Habitat Workshop No. 1, Susitna Hydroelectric Project, Northern Lights Inn, Anchorage, Alaska, February 15, 1984.
- Barrett, B.M., F.M. Thompson, and S.N. Wick, 1984. Adult anadromous fish investigations: May - October 1983. Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Report No. 1. Prepared for Alaska Power Authority. Anchorage, Alaska, USA.
- Bendix Corporation. 1980. Installation and operational manual side scan sonar counter (1980 Model). Report No. SP-78-017, North Hollywood, California, USA.
- BMDP. 1981. BMDP statistical software. University of California Press, Berkley, California, USA.

- Clutter, R.I. and L.E. Whitesel. 1956. Collection and interpretation of sockeye salmon scales. Bulletin of International Pacific Salmon Fisheries Commission, No. 9, Canada.
- Cousens, N.B.F., G.A. Thomas, C.G. Swann, and M.C. Healey. 1982. A review of salmon escapement estimation techniques. Canadian Technical Report of Fisheries and Aquatic Sciences, No. 1108, Nanaimo, British Columbia, Canada.
- Delaney, K. 1984. Personal Communication. Alaska Department of Fish and Game, Division of Sport Fish, Anchorage, Alaska, USA.
- Hart, J.L. 1973. Pacific fishes of Canada. Fisheries Research Board of Canada, Bulletin 180, Ottawa, Canada.
- Lagler, K.F., J.E. Bardach and R.R. Miller. 1962. Ichthyology. John Wiley and Sons, Inc., New York, New York, USA.
- McPhail, J.D. and C.C. Lindsey. 1970. Freshwater fishes of northwestern Canada and Alaska. Fisheries Research Board of Canada, Bulletin 173, Ottawa, Canada.
- Meehan, W.R. 1961. Use of a fishwheel in salmon research management. Transactions of the American Fisheries Society Vol. 90:490-494.
- Middleton, K. 1984. Personal Communication. Ken Middleton and Associates, Anchorage, Alaska, USA.
- Mills, M.J. 1983. Alaska Statewide Harvest Study. ADF&G Federal Aid in Fish Restoration. Volume 24. SW-I.
- Morrow, J.E. 1980. The freshwater fishes of Alaska. Alaska Northwest Publishing Company, Anchorage, Alaska, USA.
- Neilson, J.D., and G.H. Geen. 1981. Enumeration of spawning salmon from spawner residence time and aerial counts. Transactions of the American Fisheries Society 110:554-556.
- Ricker, W.E. 1975. Computations and interpretations of biological statistics of fish populations. Bulletin 191. Information Canada, Ottawa, Canada.
- Schaefer, M.B. 1951. A study of the spawning populations of sockeye salmon in the Harrison River system, with special reference to the problem of enumeration by means of marked members. International Pacific Salmon Fisheries Commission, Bulletin IV, New Westminster, British Columbia, Canada.
- Seber, G.A. and R. Felton. 1981. Tag loss and the Petersen mark-recapture experiment. Biometrika 68 (1):211-219.

Thompson, F.M. and B.M. Barrett. 1983. Analysis of the species selectivity of fishwheels for the capture of adult salmon in the Susitna River In Synopsis of the 1982 aquatic studies and analysis of fish and habitat relationships. Alaska Department of Fish and Game, Su Hydro Aquatic Studies Program, Anchorage, Alaska, USA.

Trihey, E.W. Memorandum to Andrew Hoffmann, 10 August 1984. Alaska Department of Fish and Game, 620 E. 10th Avenue, Anchorage, Alaska, USA.

U.S. Geological Survey (USGS). 1984. Provisional summary of 1984 water resources data for Alaska.

ACKNOWLEDGEMENTS

Project funding for this study was provided by the State of Alaska, Alaska Power Authority.

The authors sincerely appreciate the technical assistance provided by the following Department of Fish and Game (ADF&G) employees:

Fisheries Biologists

Beers, Dean
Bigler, Jeff
Gustin, Rick
Volk, Don
Wilkey, Robert

Fisheries Technicians

Badgley, Al
Bale, Bill
Brandenburg, Dale
Bulkow, Susan
Corzine, Dale
Crowe, Tom
Domeier, Michael
Filalo, Rose
Fink, Mark
Fusco, Robert
Harris, Patricia
Hausmann, Anne
Iglehart, Bruce
Johnson, Kathy
Jolley, Jeff
Kirkpatrick, Ben
Leatherman, Alden
Miyoshi-Daum, Lisa
Nelson, John
Parrin, Don
Patrick, James
Petersen, Roxanne
Richardson, Bev
Roseland, Kristine
Salmon, Dan
Sharp, Dan
Stratton, Barry
Talbott, Terry
White, Bruce

Appreciation is also extended to Dana Schmidt, Larry Bartlett, Sue Brown and other ADF&G staff for administrative support services.

Special thanks is given to Allen Bingham and ADF&G staff for data processing services, and ADF&G staff and Skeers Word Processing for typing this report.

APPENDIX 1
ADULT SALMON
LOWER SUSITNA RIVER SPAWNING SURVEYS

BY
Frederick M. Thompson
Donald R. Seagren
Kim M. Levesque

ALASKA DEPARTMENT OF FISH AND GAME
COMMERCIAL FISHERIES
SUSITNA HYDRO AQUATIC STUDIES
1985

TABLE OF CONTENTS

	<u>PAGE</u>
TABLE OF CONTENTS	A1
APPENDICES	A2
LIST OF FIGURES	A2
LIST OF TABLES	A3
LIST OF PLATES	A3
LIST OF APPENDIX FIGURES	A4
LIST OF APPENDIX TABLES	A8
 INTRODUCTION	 A9
 OBJECTIVES	 A9
 METHODS	 A9
Mainstem and Slough Habitats	A9
Stream Mouth Habitats	A9
 RESULTS AND DISCUSSION	 A24
Mainstem Habitats	A24
Slough Habitats	A26
Stream Mouth Habitats	A28
Chinook Salmon	A30
Sockeye Salmon	A31
Pink Salmon	A32
Chum Salmon	A33
Coho Salmon	A35
 SUMMARY	 A36
Mainstem Habitats	A36
Slough Habitats	A36
Stream Mouth Habitats	A36
 GLOSSARY	 A38
 REFERENCES	 A40
 CONTRIBUTORS	 A42
 ACKNOWLEDGEMENTS	 A43

APPENDICES

<u>Appendix</u>		<u>Page</u>
A	Site descriptions and maps of mainstem and slough salmon spawning areas located in the lower Susitna River between RM 28.0 and 98.6 in 1984.	A45
B	Site descriptions, site maps and the adult salmon usage of stream mouths in the lower Susitna River between RM 28.0 and 98.6 in 1984.	A63
C	Escapement counts of adult salmon in lower Susitna River mainstem, sloughs and stream mouths between RM 28.0 and 98.6 in 1984.	A108
D	Depth/substrate transect data collected at two mainstem discharges at lower Susitna River stream mouths between RM 28.0 and 98.6 in 1984.	A114

LIST OF FIGURES

<u>Figure</u>		
1	Lower Susitna River (RM 28.0-98.6) illustrating open leads observed on March 18, 1983.	A10
2	Lower Susitna River salmon spawning study area (RM 28.0-98.6), 1984.	A21
3	Mainstem salmon spawning areas identified in the lower Susitna River between RM 28.0 and 98.6, 1984.	A25
4	Slough salmon spawning areas identified in the lower Susitna River between RM 28.0 and 98.6, 1984.	A29

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Lower Susitna River stream mouths surveyed weekly from July 21 to October 1, 1984.	A23
2	Chinook salmon peak counts of stream mouths between RM 28.0 and 98.6 in order of contribution, 1984.	A30
3	Sockeye salmon peak counts in stream mouths between RM 28.0 and 98.6 in order of contribution, 1984.	A31
4	Pink salmon peak counts in stream mouths between RM 28.0 and 98.6 in order of contribution, 1984.	A32
5	Abundance of pink salmon spawners in lower-river stream mouths, 1984.	A33
6	Chum salmon peak counts in lower reach stream mouths in order of contribution, 1984.	A34
7	Abundance of chum salmon spawners in lower-river stream mouths, 1984.	A34
8	Coho salmon peak counts in stream mouths between RM 28.0 and 98.6 in order of contribution, 1984.	A35

LIST OF PLATES

<u>Plate</u>		
1	Aerial view of a salmon spawning area illustrating redds, 1984.	A22
2	Ground view of a salmon redd, 1984.	A22
3	Egg pumping a salmon area to verify the presence of eggs, 1984.	A23
4	Example of upwelling associated with slough and side channel spawning areas, 1984.	A27
5	Example of bank seepage associated with slough and side channel spawning area, 1984.	A27

LIST OF APPENDIX FIGURES

<u>Figure</u>	<u>Appendix A</u>	<u>Page</u>
A-1	Coho salmon slough spawning site at RM 57.0R in the lower Susitna River, 1984.	A50
A-2	Chum salmon mainstem spawning site at RM 62.1R in the lower Susitna River, 1984.	A51
A-3	Chum salmon slough spawning site at RM 63.2R in the lower Susitna River, 1984.	A52
A-4	Chum salmon mainstem spawning site at RM 71.6R in the lower Susitna River, 1984.	A53
A-5	Chum salmon mainstem and slough spawning sites between RM 73.9C and 74.5R in the lower Susitna River, 1984.	A54
A-6	Chum salmon mainstem spawning site at RM 75.0L in the lower Susitna River, 1984.	A55
A-7	Chum salmon mainstem spawning site at RM 79.2L in the lower Susitna River, 1984.	A56
A-8	Chum salmon mainstem spawning site at RM 87.0R in the lower Susitna River, 1984.	A57
A-9	Coho salmon mainstem spawning site at RM 87.5R in the lower Susitna River, 1984.	A58
A-10	Chum salmon mainstem and slough spawning sites between RM 88.7R and 90.1R in the lower Susitna River, 1984.	A59
A-11	Chum and coho salmon mainstem spawning sites between RM 92.0C and 93.5L in the lower Susitna River, 1984.	A60
A-12	Chum and coho salmon mainstem and slough spawning sites between RM 93.5L and 95.8L in the lower Susitna River, 1984.	A61
A-13	Chum salmon mainstem spawning sites at RM 98.6L in the lower Susitna River, 1984.	A62

LIST OF APPENDIX FIGURES (cont.)

<u>Figure</u>	<u>Appendix B</u>	<u>Page</u>
B-1	Locations of streams in the lower Susitna River (RM 28.0-98.6) and adult salmon usage for each stream mouth, 1984.	A71
B-2	Fish Creek (RM 31.2) stream mouth reach with transects, substrates and adult salmon usage indicated.	A74
B-3	Fish Creek Transects 1 and 2 depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A75
B-4	Noname Creek (RM 31.7) stream mouth reach with transect, substrates and adult salmon usage indicated.	A76
B-5	Transect at Noname Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A77
B-6	Whitsol Creek (RM 35.2) stream mouth reach with transects, substrates and adult salmon usage indicated.	A78
B-7	Transect at Whitsol Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A79
B-8	Rolly Creek (RM 39.0) stream mouth reach with transects, substrates and adult salmon usage indicated.	A80
B-9	Transect at Rolly Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A81
B-10	Willow Creek (RM 49.1) stream mouth reach with transect, substrates and adult salmon usage indicated.	A82
B-11	Transect at Willow Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A83

LIST OF APPENDIX FIGURES (cont.)

<u>Figure</u>	<u>Appendix B (cont.)</u>	<u>Page</u>
B-12	Little Willow Creek (RM 50.5) stream mouth reach with transect, substrates and adult salmon usage indicated.	A84
B-13	Transect at Little Willow Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A85
B-14	Grays Creek (RM 59.5) stream mouth reach with transect, substrates and adult salmon usage indicated.	A86
B-15	Transect at Grays Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A87
B-16	Kashwitna River (RM 61.0) stream mouth reach with substrates and adult salmon usage indicated.	A88
B-17	Caswell Creek (RM 64.0) stream mouth reach with transect, substrates and adult salmon usage indicated.	A89
B-18	Transect at Caswell Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A90
B-19	Sheep Creek (RM 66.0) stream mouth reach with transect, substrates and adult salmon usage indicated.	A91
B-20	Transect at Sheep Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A92
B-21	Goose Creek (RM 72.0) stream mouth reach with transect, substrates and adult salmon usage indicated.	A93
B-22	Transects at Goose Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A94

LIST OF APPENDIX FIGURES (cont.)

<u>Figure</u>	<u>Appendix B (cont.)</u>	<u>Page</u>
B-23	Montana Creek (RM 77.0) stream mouth reach with transect, substrates and adult usage indicated.	A95
B-24	Transects at Montana Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A96
B-25	Rabideux Creek (RM 83.1) stream mouth reach with transect, substrates and adult salmon usage indicated.	A97
B-26	Transects at Rabideux Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A98
B-27	Sunshine Creek (RM 85.1) stream mouth reach with transect, substrates and adult salmon usage indicated.	A99
B-28	Transects at Sunshine Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).	A100
B-29	Birch Creek (RM 89.2) stream mouth reach with transect, substrates and adult salmon usage indicated.	A101
B-30	Birch Creek Slough (RM 88.4) stream mouth reach with pink salmon spawning areas indicated.	A102
B-31	Transects at Birch Creek depicting water surface elevations at two different Susitna River discharges measured at Sunshine gaging station (RM 83.9).	A103
B-32	Trapper Creek (RM 91.5) stream mouth reach with transect, substrates and adult salmon usage indicated.	A104
B-33	Transects at Trapper Creek depicting water surface elevations at two different Susitna River discharges measured at Sunshine gaging station (RM 83.9).	A105

LIST OF APPENDIX FIGURES (cont.)

<u>Figure</u>	<u>Appendix B (cont.)</u>	<u>Page</u>
B-34	Cache Creek (RM 95.5) stream mouth reach with transect, substrates and adult salmon usages indicated.	A106
B-35	Transects at Cache Creek depicting water surface elevations at two different Susitna River discharges measured at Sunshine gaging station (RM 83.9).	A107

LIST OF APPENDIX TABLES

<u>Table</u>	<u>Appendix B</u>	
B-1	Summary of stream interface reach and adult salmon usage for streams between RM 28.0 and 98.6 of the Susitna River in 1984.	A73

	<u>Appendix C</u>	
C-1	Survey counts of adult salmon in mainstem sites between RM 28.0 and 98.6 in 1984.	A109
C-2	Survey counts of adult salmon in sloughs between RM 28.0 and 98.6 in 1984.	A110
C-3	Survey counts of adult salmon in stream mouths between RM 28.0 and 98.6 in 1984.	A111

	<u>Appendix D</u>	
D-1	Depth/substrate transect data collected at two mainstem discharges at lower Susitna River stream mouths between RM 28.0-98.6, 1984.	A115

INTRODUCTION

The proposed hydroelectric project may impact fish resources in the lower Susitna River through changes in flow, water quality and temperature in the slough, side channel, main channel, and stream mouth habitats. Information on the distribution, timing and magnitude of salmon spawning in these habitats is necessary to assess impacts and to plan appropriate mitigation measures.

OBJECTIVES

- 1) Identify distribution, timing and abundance of salmon spawning in main channel, side channel, slough and stream mouth habitats of the lower Susitna River (RM 28.0 - 98.6).
- 2) Identify the general habitat characteristics of those areas utilized by spawning salmon.

Anadromous fish species addressed in this report are:

<u>Pacific Salmon</u>	<u>Oncorhynchus sp</u>
<u>Chinook salmon</u>	<u>O. tshawytscha</u>
<u>Sockeye salmon</u>	<u>O. nerka</u>
<u>Pink salmon</u>	<u>O. gorbuscha</u>
<u>Chum salmon</u>	<u>O. keta</u>
<u>Coho salmon</u>	<u>O. kisutch</u>

METHODS

Mainstem and Slough Habitats

An aerial survey from RM 26.0 to 96.0 was conducted by R & M Consultants on March 18, 1983 (Coffin 1983). The open water leads observed during that survey were mapped as possible salmon spawning sites (Figure 1). No attempt was made to distinguish between velocity and warm water leads. Salmon, particularly chum, often select warm water upwelling areas for spawning (Vining et al. 1985; Bakkala 1970; Kogl 1965).

Aerial surveys in the lower-river study reach (Figure 2) were conducted weekly from August 21 to October 17, 1984 to locate salmon spawning sites (Plate 1). Suspected spawning sites identified from the air, were resurveyed on foot to verify spawning. Verification was determined through visual observation of salmon redds (Plate 2) and/or locating salmon eggs in the substrate with standard egg pumping equipment (Plate 3). Spawning areas were mapped with the species, numbers of live and dead salmon, number of redds and upwelling noted. More detailed methods can be found in Barrett et al. (1985).

Stream Mouth Habitats

Seventeen lower-river stream mouths between RM 28 and 98.6 were surveyed weekly from July 21 to October 1, 1984 (Table 1). The primary objectives of these surveys were to determine the distribution, timing and magnitude of salmon spawning.

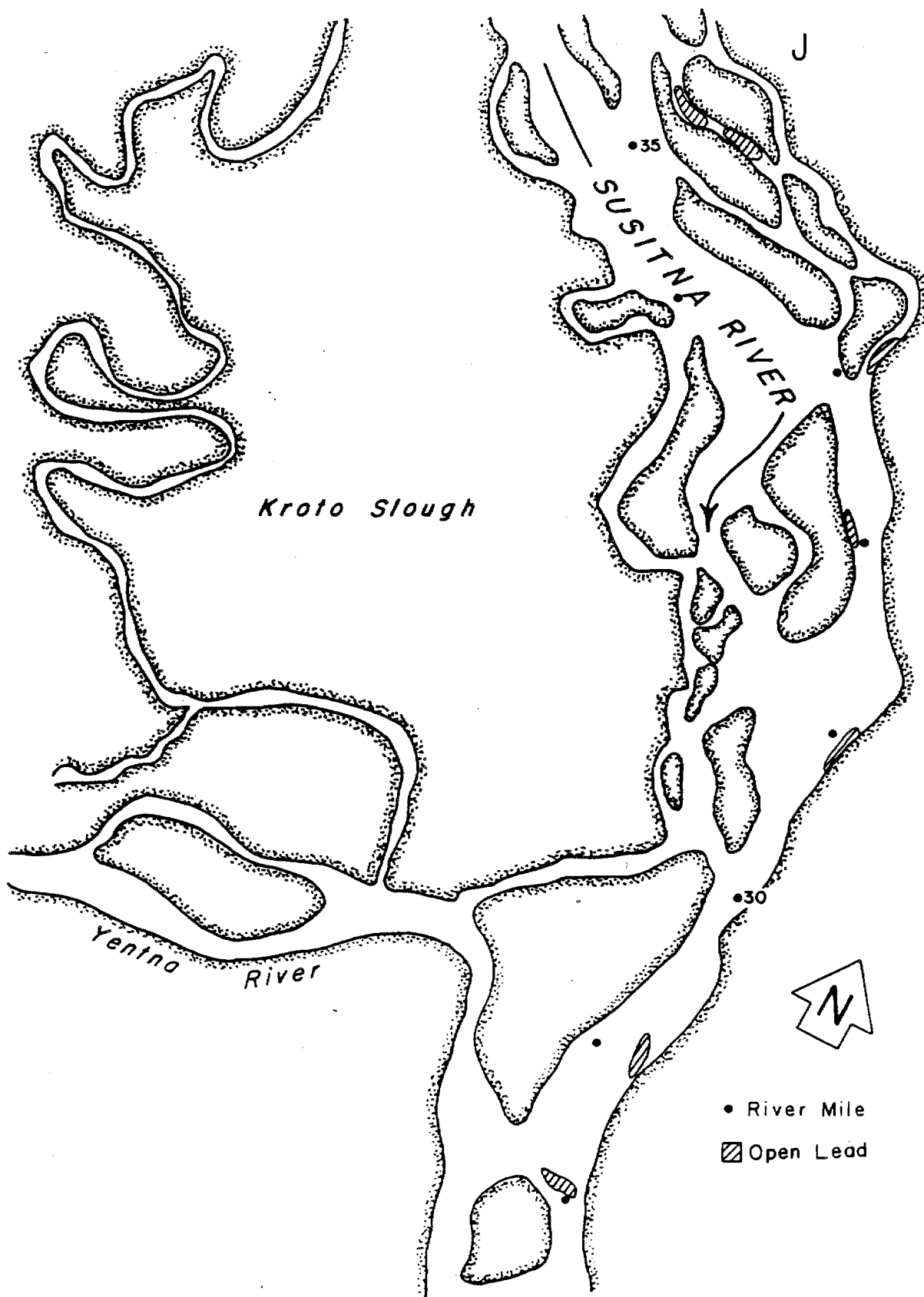


Figure 1. Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

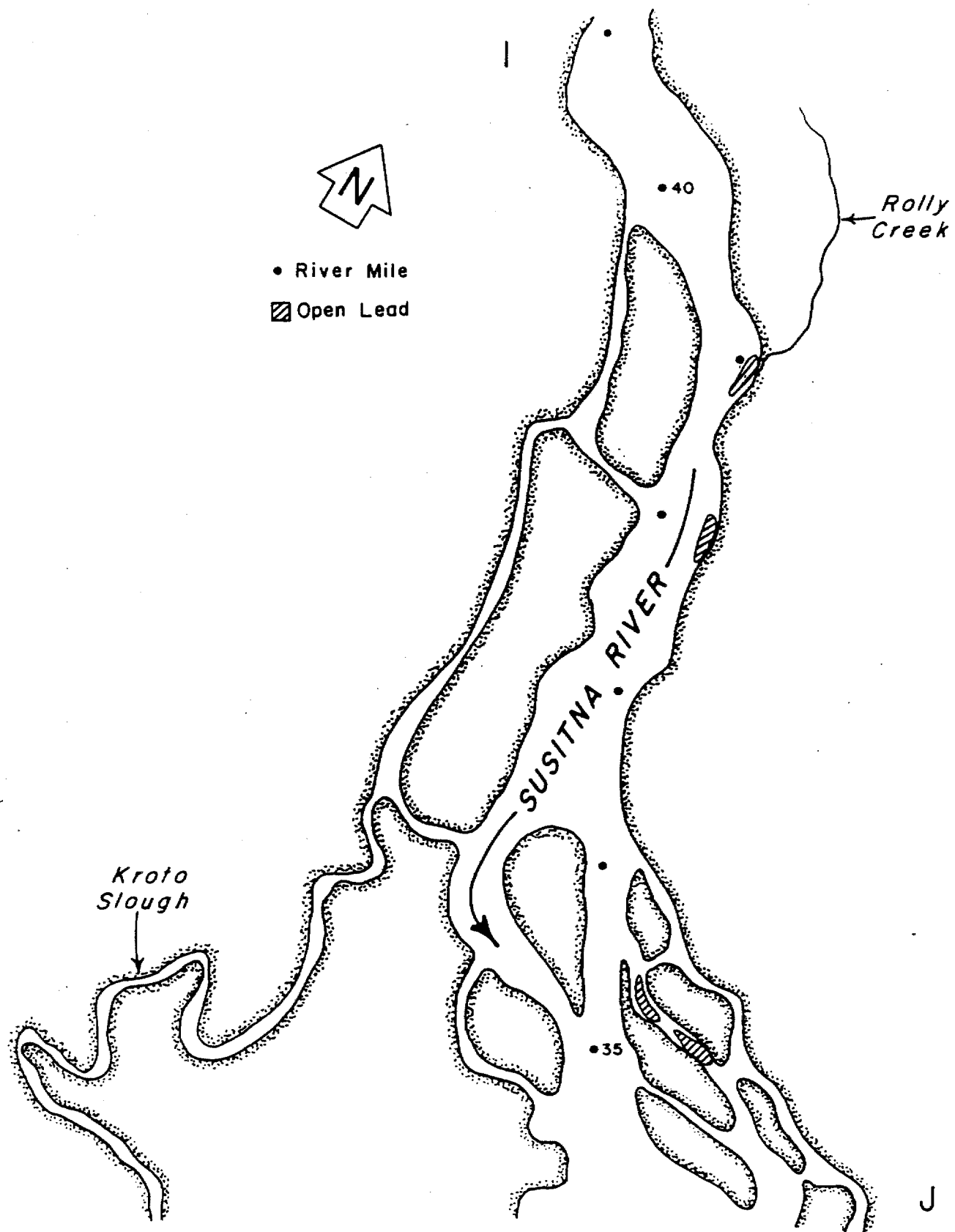


Figure 1 (cont.) Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

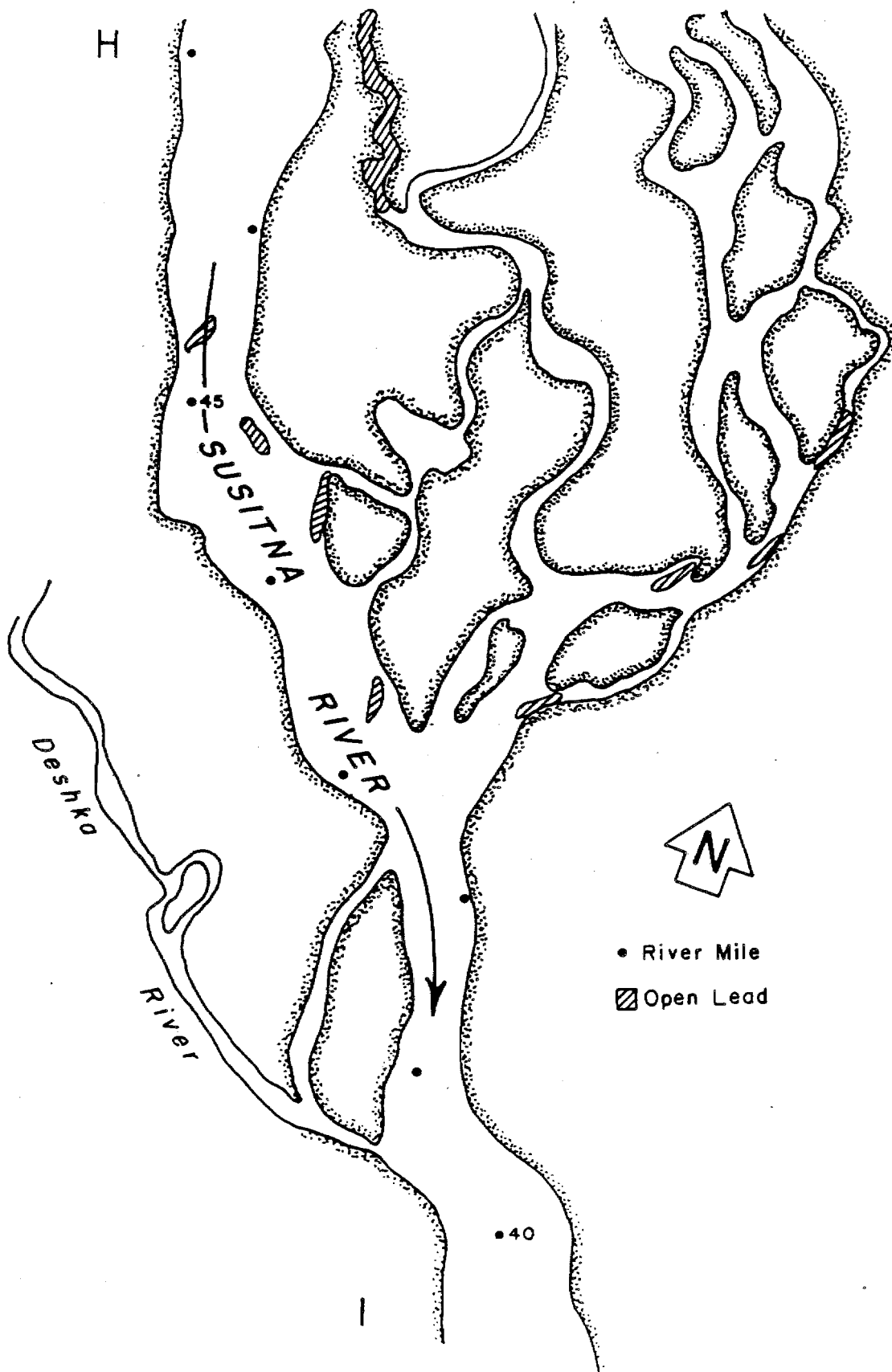


Figure 1 (cont.) Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

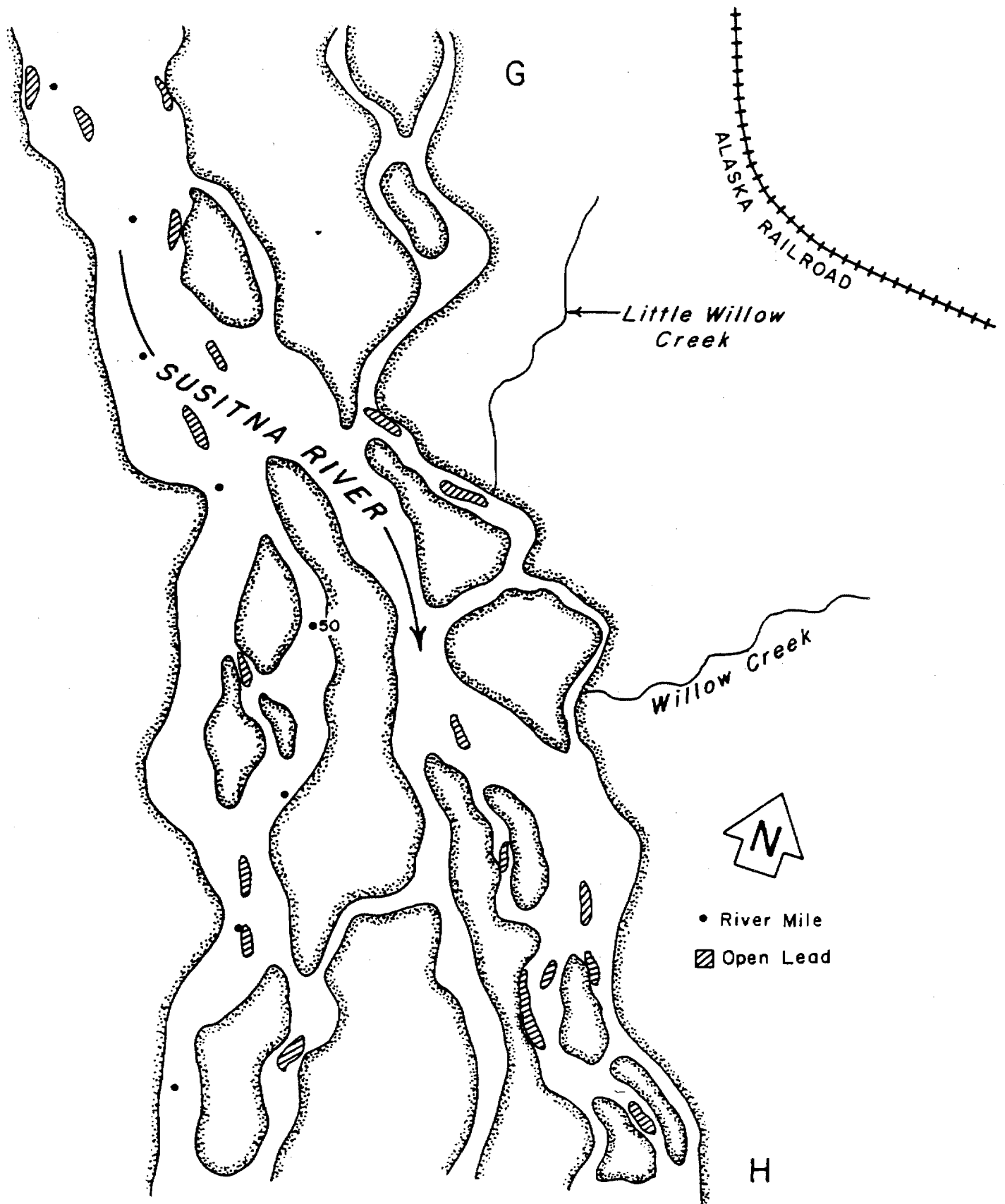


Figure 1 (cont.) Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

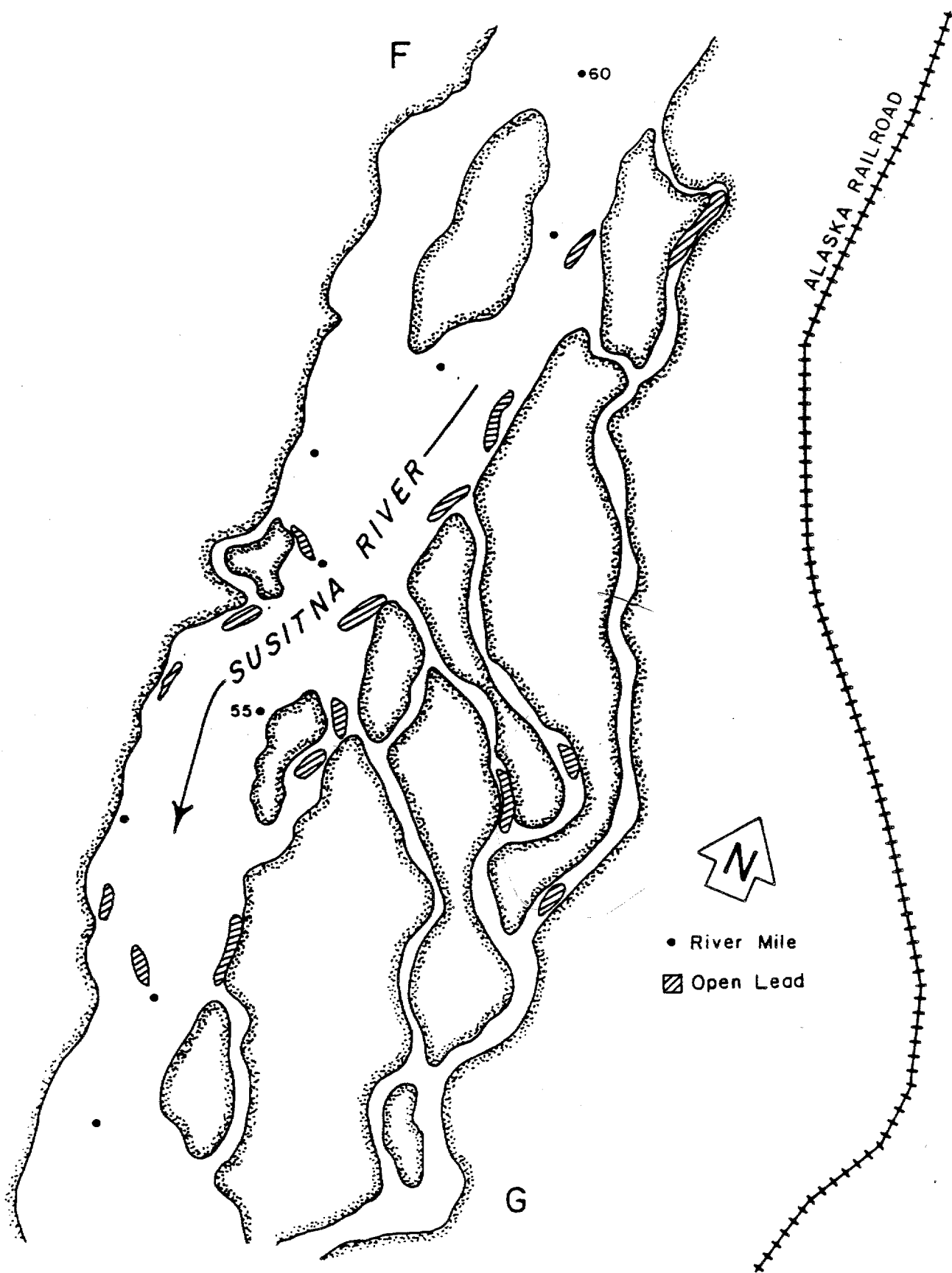


Figure 1 (cont.) Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

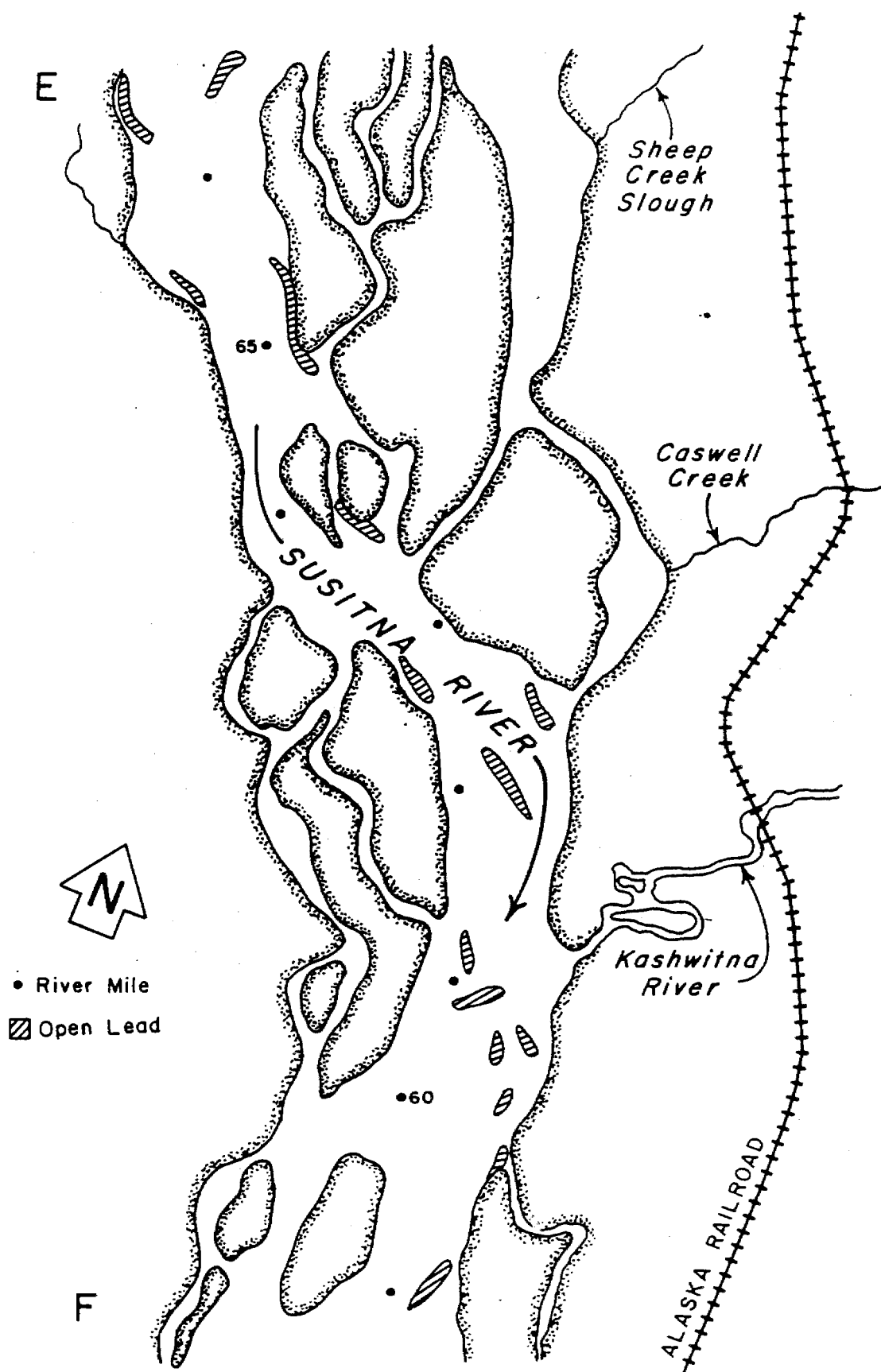


Figure 1 (cont.) Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

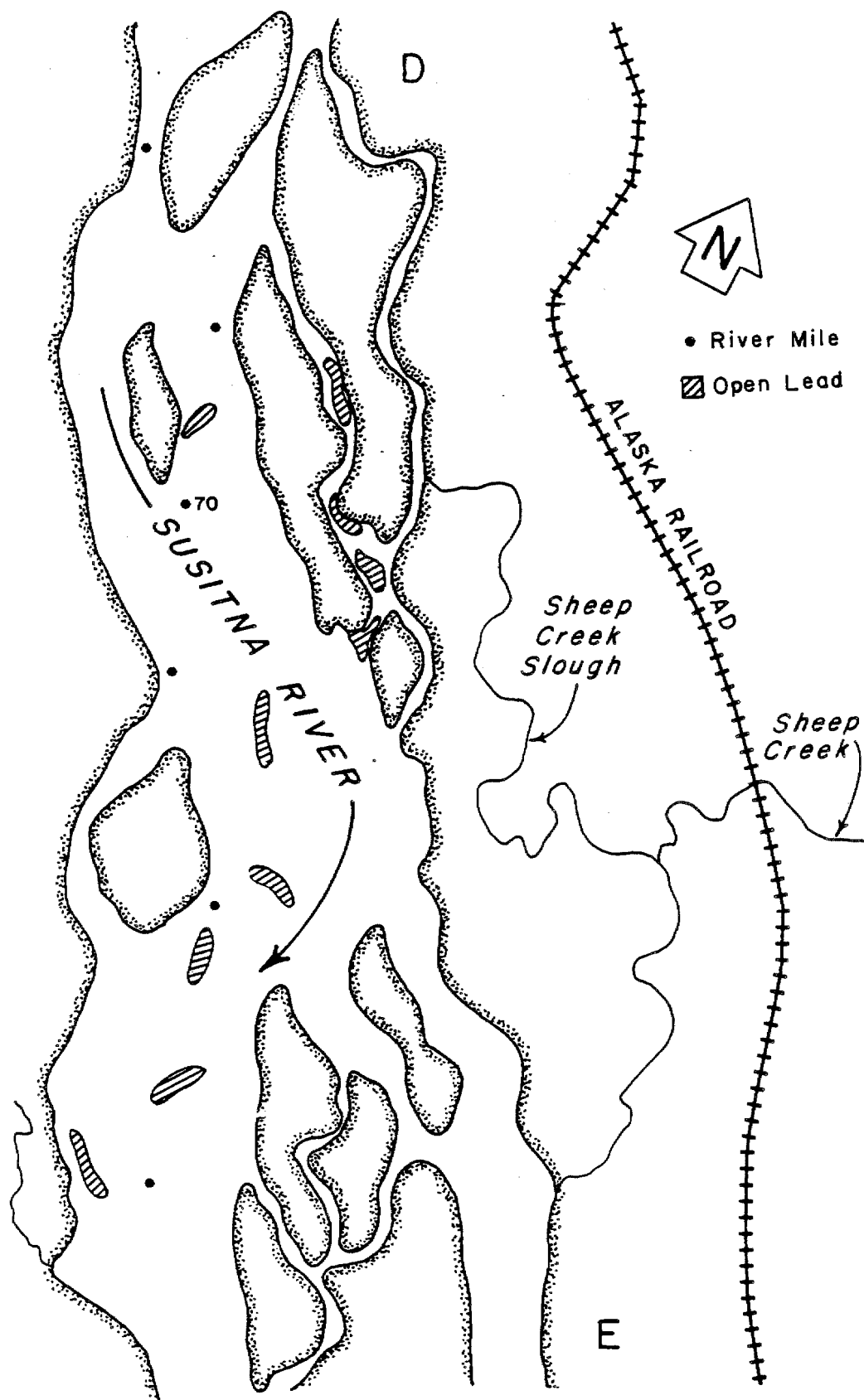


Figure 1 (cont.) Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

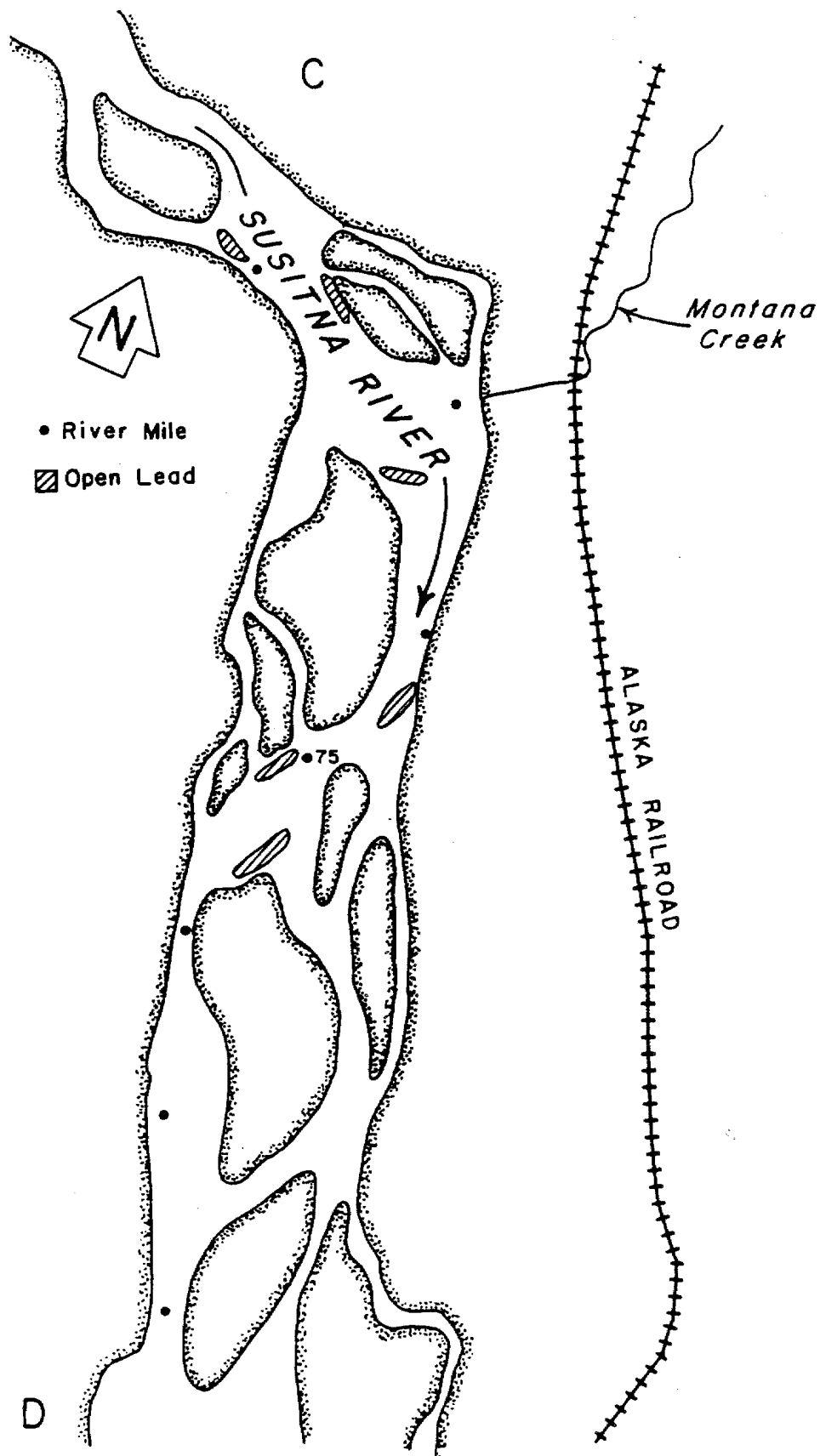


Figure 1 (cont.) Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

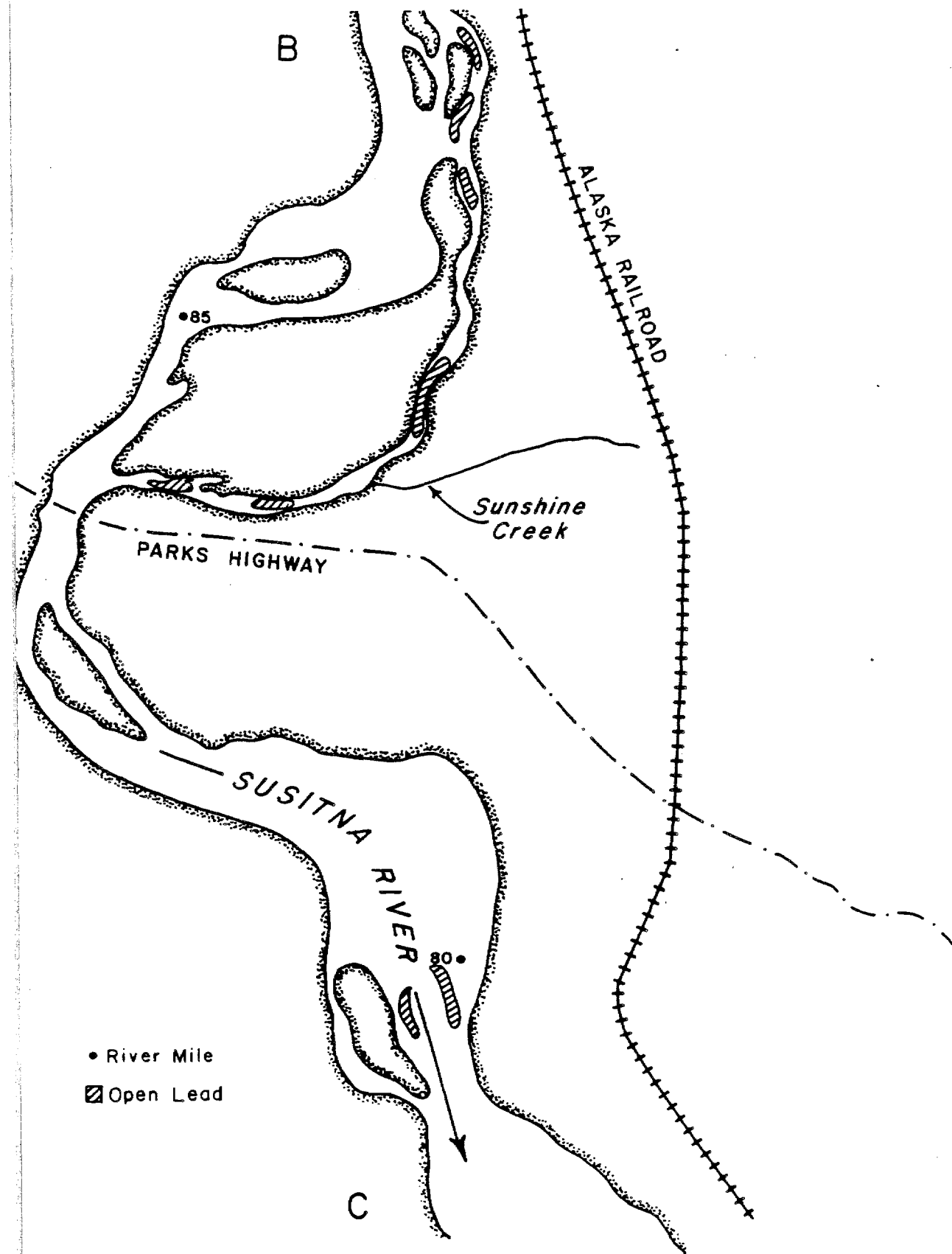


Figure 1 (cont.) Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

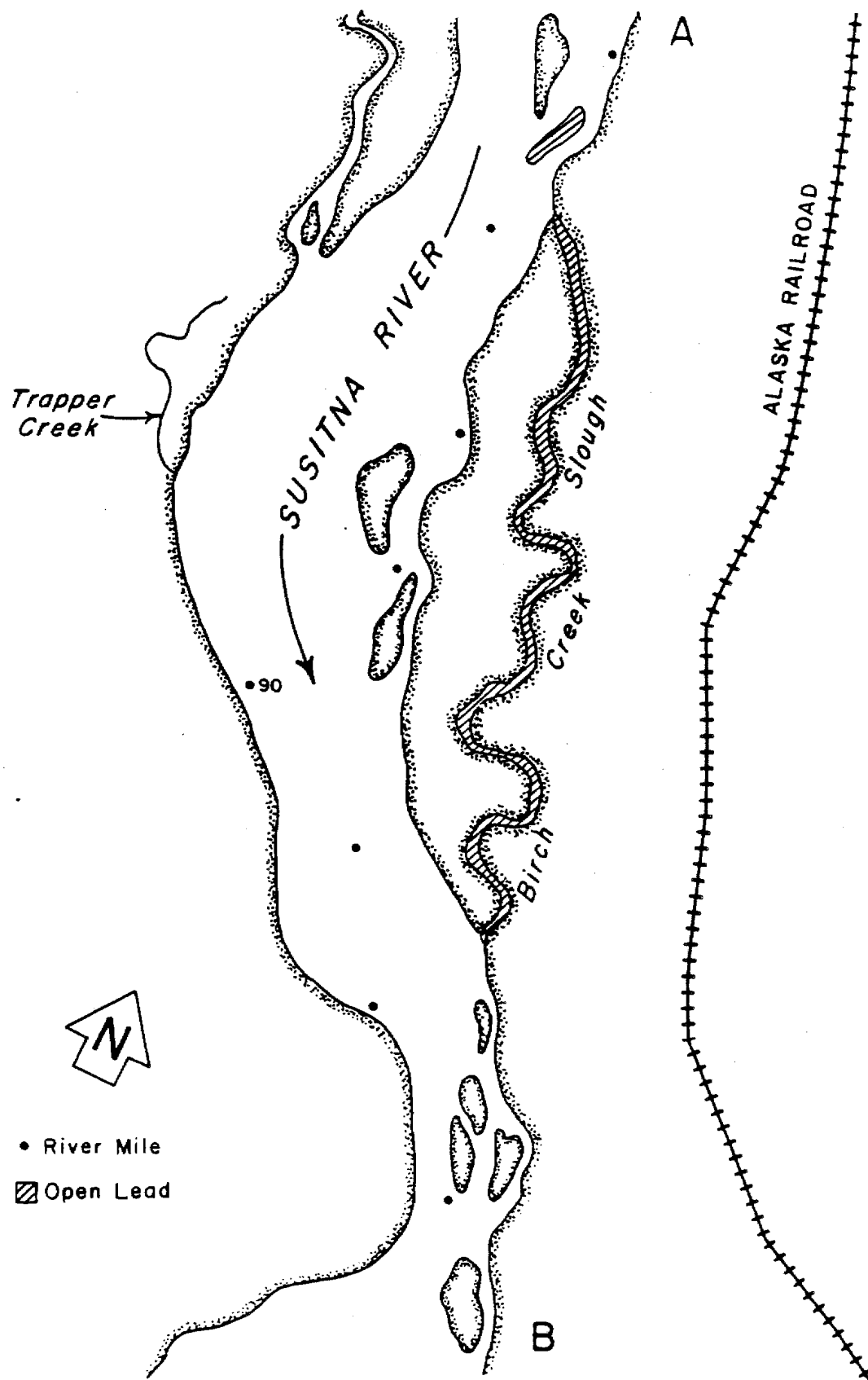


Figure 1 (cont.) Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

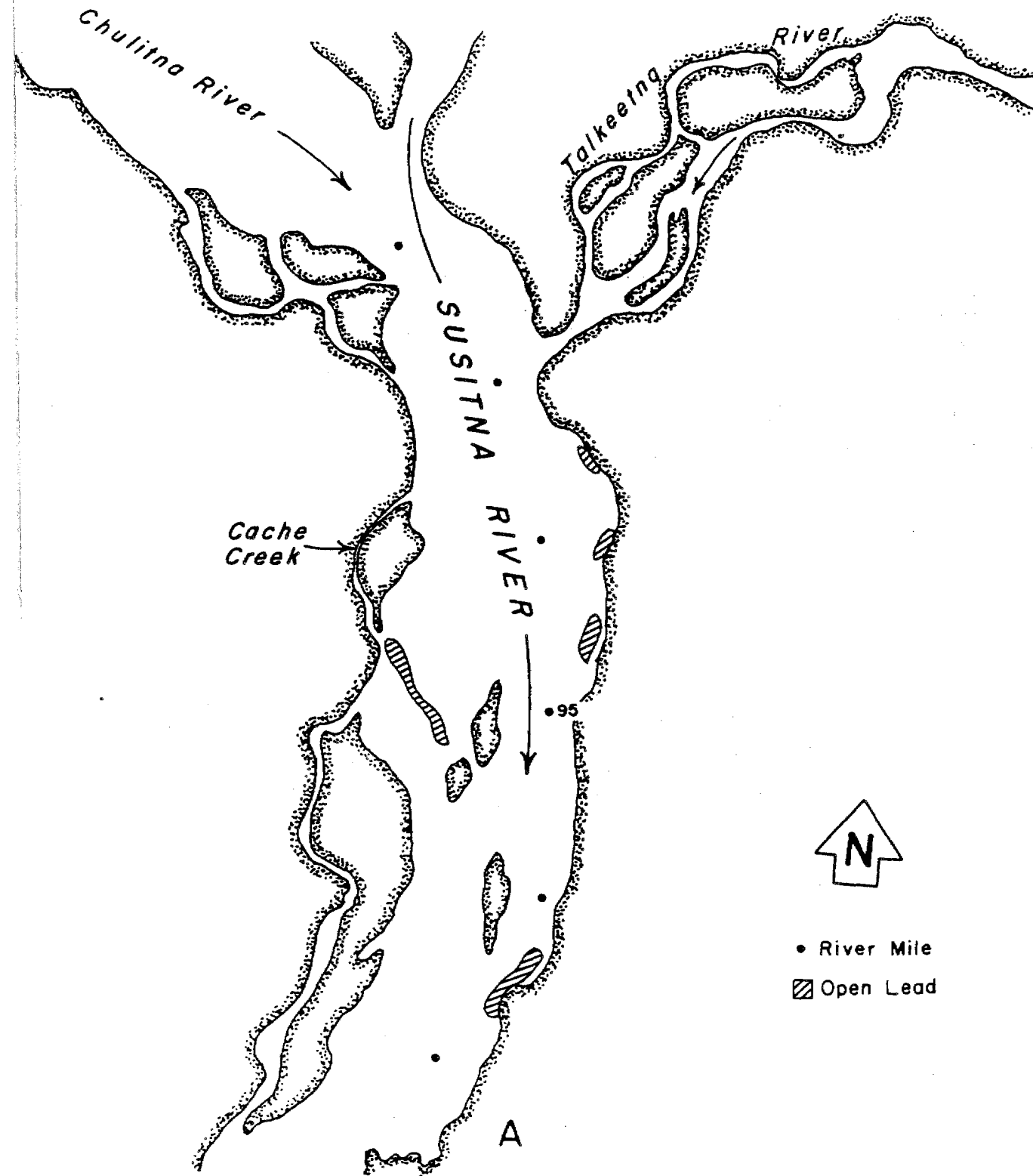


Figure 1 (cont.) Lower Susitna River (RM 28.0 - 98.6) illustrating open leads observed on March 18, 1983.

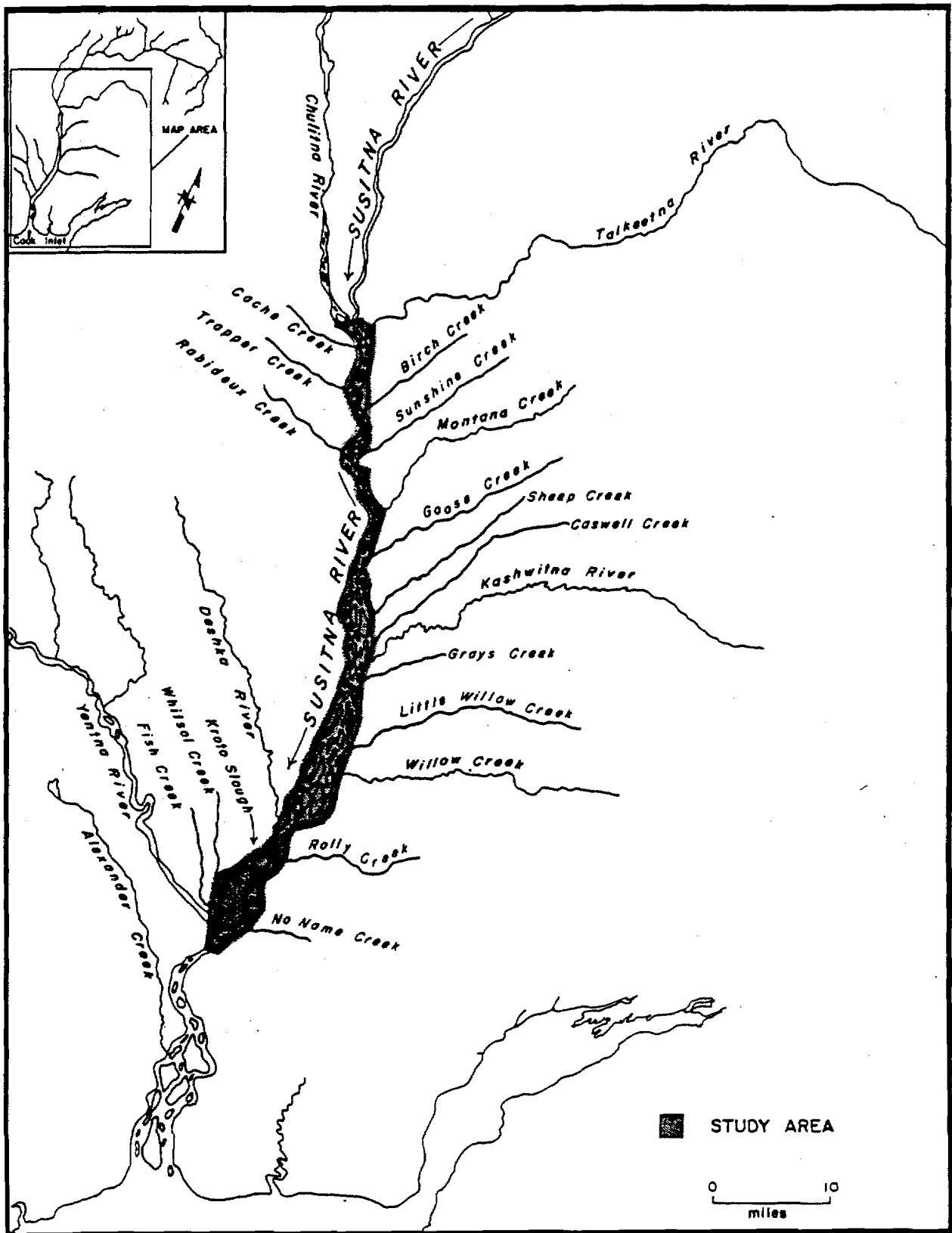


Figure 2. Lower Susitna River salmon spawning area (RM 28.0 - 98.6), 1984.



Plate 1. Aerial view of a salmon spawning area illustrating redds, 1984.



Plate 2. Ground view of a salmon redd, 1984.



Plate 3. Egg pumping a salmon area to verify the presence of eggs, 1984.

Table 1. Lower Susitna River stream mouths surveyed weekly from July 21 to October 1, 1984.

Stream	River Mile	Stream	River Mile
Unnamed Creek	31.7	Fish Creek	31.2
Whitsol Creek	35.2	Rolly Creek	39.0
Willow Creek	49.1	Little Willow Cr.	50.5
Grays Creek	59.5	Kashwitna River	61.0
Caswell Creek	64.0	Sheep Creek	66.0
Goose Creek	72.0	Montana Creek	77.0
Rabideux Creek	83.1	Sunshine Creek	85.1
Cache Creek	95.5		

The term stream mouth refers to the segment of stream extending from its confluence with the Susitna River mainstem, side-channel or slough to a distance one-third mile upstream. Data recorded during each weekly survey included the species and number of salmon present and if spawning was observed. To determine if spawning occurred the following criteria were used:

- 1) visual identification of one or more actively mating fish pairs;
- 2) one or more distinct redds;
- 3) confirmed presence of live eggs by intragravel sampling.

Surface substrate was assessed in accordance with standard procedures (ADF&G 1983d).

A profile of each stream mouth was developed by measuring the depth, at two foot intervals, along one or two transects. Stream mouth profiles were determined for two Susitna River discharges.

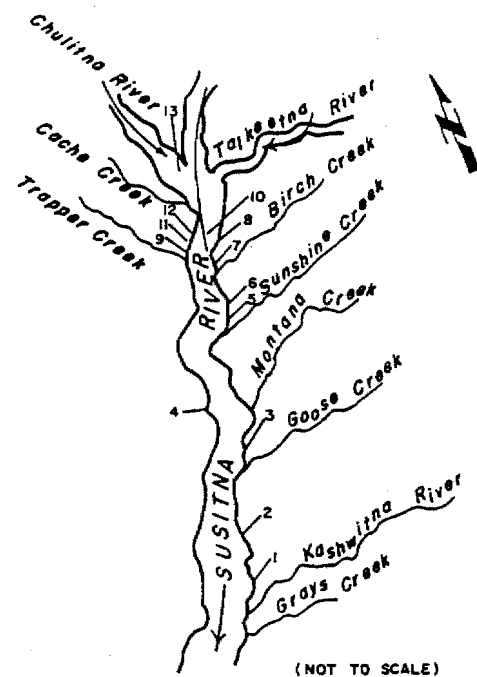
RESULTS AND DISCUSSION

Mainstem Habitats

The Susitna River mainstem is comprised of main-channel and side-channel habitats. Sautner et al. (1984) describes the main channel habitat in the middle reach of the Susitna River as being characterized by high water velocities and well-armored streambeds. Main-channel habitat downstream of the Chulitna River confluence has different characteristics than similar habitat in the middle reach. The main channel in the lower reach is highly braided and in places, not easily distinguishable. Main channel substrates in the lower river are generally less armored and less stable than those of the middle river. As a result, the morphological character of main-channel habitats in the lower river often changes during high mainstem discharges. Side-channel habitat is characterized by shallower depths, lower velocities and smaller streambed materials than the adjacent habitat of the main channel river (Sautner et al. 1984). Side channels in the lower river are often difficult to distinguish from the braided main-channel habitats. Side-channel habitats have generally narrower channels that are separated from the main channel by stable vegetated islands. For the purposes of this study, however, both main channel and side-channel habitats have been classified as mainstem habitats since our ability to distinguish between the two habitat types on the basis of their physical and hydraulic characteristics was limited.

Survey conditions prior to late September were poor due to high water and turbidity levels. As a result, earlier surveys may not have documented all of the spawning activity present. A flood in early September eliminated signs of spawning prior to that time. Lower water and turbidity levels beginning in late September improved visibility conditions which increased the frequency and accuracy of spawning observations.

Twelve mainstem spawning sites were identified in 1984 (Figure 3). Chum salmon spawned in 11 of these sites and coho salmon spawned at two. The other salmon species were not observed spawning in the mainstem. Maps and habitat descriptions of the 12 spawning sites can be found in Appendix A.



Site Number	Location		Observed Upwelling	Species	Observed Number of Redds	Fish Observed		Spawning Observation Date
	River Mile ^{1/}	Legal				Live	Dead	
1	62.1R	S21N05W12AAC	Upwelling	Chum	5	2	6	10/09
2	71.6R	S22N05W130BD	B. Seepage ^{3/}	Chum	4	4	0	10/09
3	73.9C	S23N05W24DAB	Open Lead	Chum	7	0	3	10/10
4	79.2L	S23N05W35ADA	B. Seepage ^{3/} Open Lead	Chum	7	18	7	10/08
5	87.0R	S24N05W018DA	Open Lead	Chum	48	173	0	09/28
6	87.5R	S25N05W360BD	Open Lead	Coho	3	5	0	09/25
7	88.7R	S25N05W258CA	B. Seepage ^{3/}	Chum	11	23	0	10/09
8	90.1R	S25N05W13RCB	None	Chum	19	41	27	10/09
9	92.0C- 94.5L	S25N05W15DAB S25N05W020AA	Upwelling	Chum Coho	98	538 98	257 19	09/23 10/10
10	95.0C	S26N05W36BCD	None	Chum	1	3	0	09/27
11	95.5C ^{2/}	S26N05W36CBA	None	Chum				09/27
12	95.8C ^{2/}	S26N05W36BCB	None	Chum				09/27
13	98.0La	S26N05W140CD	Upwelling	Chum	11	27	0	10/09
	98.0Lb	S26N05W22AAC	None	Chum	7	12	0	10/09
	98.0Lc	S26N05W22ABA	None	Chum	7	10	0	10/09
	98.0Ld	S26N05W15CCB	None	Chum	26	67	0	10/09

^{1/} Looking upstream: R-right bank; C-center; L-left bank.
^{2/} Data was combined in the field with an adjacent slough site
^{3/} Bank Seepage

Figure 3. Mainstem salmon spawning areas identified in the lower Susitna River between RM 28.0 and 98.6, 1984.

The majority of mainstem spawning was documented from late September until mid-October, just prior to freeze up. High mainstem discharges and turbidity in early September limited our ability to observe earlier spawning activity. Based on the escapement counts at mainstem sites, it is likely that the peak of chum salmon spawning occurred during the first two weeks of September. Chum salmon spawning was essentially over by the second week of October. From the limited data available, it appears that the peak of coho spawning in mainstem sites occurred around the second week of October.

A conservative estimate of between 2,600 to 3,900 chum salmon spawned at mainstem sites in the lower Susitna River. This represents between 0.3 to 0.5 percent of the 1984 Susitna River escapement (Barrett et al. 1985). Observed residence studies conducted in 1983 and 1984 have determined that a peak count represents about 50 percent of a spawning escapement. The highest fish count (live and dead) for mainstem sites was probably not made at the peak spawning period due to high mainstem discharges and turbidity. Using this assumption, an expansion factor of three was used to determine the upper limit of the range (Barrett et al. 1985). Coho salmon exhibited a range of 200 to 400 fish spawning in two mainstem sites. This is between 0.1 to 0.2 percent of the 1984 Susitna River escapement.

The majority of the chum salmon spawning occurred at: Trapper Creek side channel (RM 90.3L); Sunset side channel (RM 87.0R); the Chulitna River mouth (RM 98.6L) and Circular side channel (RM 75.0L). Collectively, these sites supported 90 percent of the spawning while the other eight sites had the remaining 10 percent, based on survey counts. Trapper Creek side channel had 96 percent of the coho salmon spawning while Sunset side channel had the remaining four percent, based on survey counts. Surveys conducted by the Aquatic Habitat and Instream Flow Study of the Susitna Hydro Project indicated that several of these sites may have had more utilization than our survey counts indicate (Bigler 1985a).

Upwelling (Plate 4), bank seepage (Plate 5) or open leads in winter were observed at 10 of the 12 spawning sites. The major chum salmon spawning sites and the two coho salmon spawning sites all had associated upwelling or bank seepage. It is likely that some degree of upwelling occurs at the remaining sites although it was not detected during our surveys. Other studies have shown that chum salmon select upwelling areas in which to spawn (Vining et al. 1985; Bakkala 1970; Kogl 1965).

Slough Habitats

Slough habitats can be divided into two types: upland sloughs and side sloughs. The main difference between the two types is that the upstream end of an upland slough does not connect with the mainstem even at high mainstem discharges (Sautner et al. 1984). A feature that distinguishes side slough habitat from side-channel habitat is that side sloughs usually convey clear water from small tributaries and/or upwelling groundwater in an unbreached condition (Sautner et al. 1984). All of the slough salmon spawning sites located in this study fall in the side slough category.



Plate 4. Example of upwelling associated with slough and side channel spawning areas, 1984.

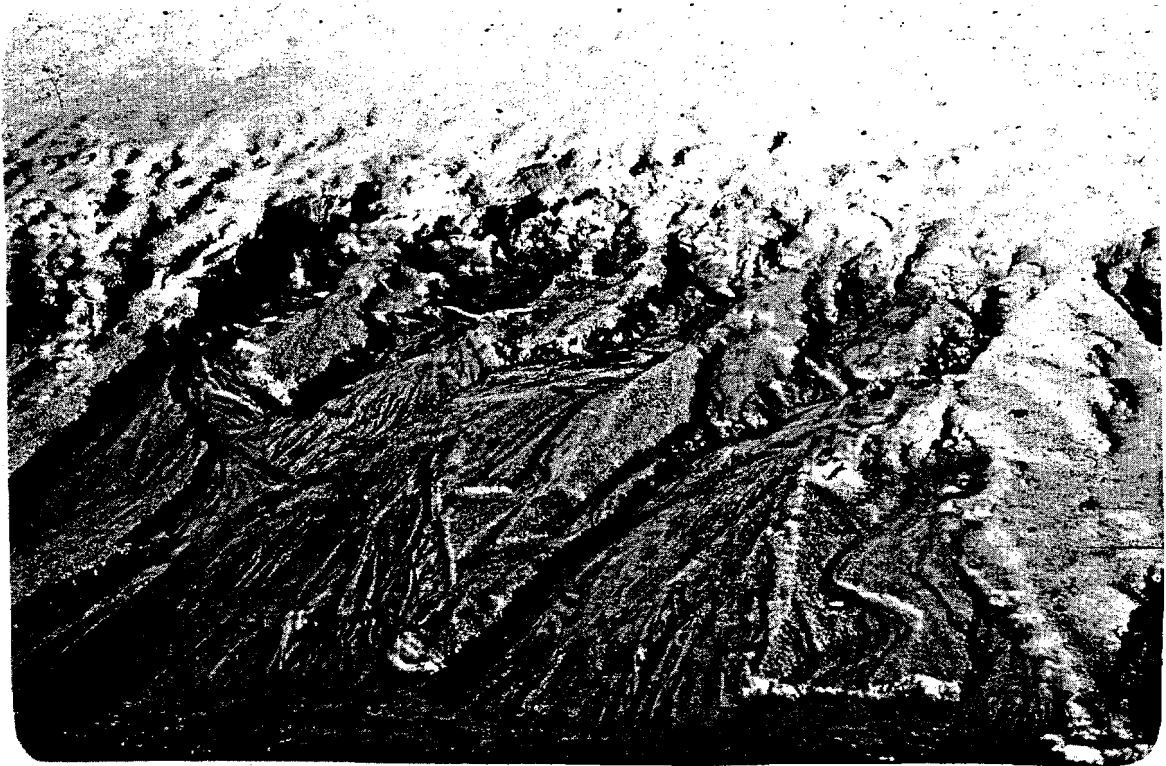


Plate 5. Example of bank seepage associated with slough and side channel spawning areas, 1984.

Survey conditions encountered in slough surveys were similar to those encountered in the mainstem. Survey conditions improved as mainstem discharges fell in late fall, which increased the frequency and accuracy of spawning observations.

Spawning was observed in six sloughs (Figure 4), five of which were used by chum salmon and one by coho salmon. The other salmon species were not observed spawning in lower-river sloughs. Maps and habitat descriptions of the six sloughs can be found in Appendix A.

Slough spawning by chum and coho salmon was documented in late September and early October as visibility improved just prior to freeze up. It is probable that earlier spawning occurred that was not observed due to high mainstem discharges and turbidity. The peak of spawning in lower-river slough sites appears to follow a pattern similar to the mainstem. Peak chum salmon spawning probably occurred the first two weeks of September and was essentially over by the second week in October. Similarly, the peak coho salmon spawning, in the single slough site, occurred during the second week of October.

Using procedures outlined in Barrett et al. (1985), it was estimated that 700 to 1,000 chum and 10 to 20 coho spawned in slough sites in the lower river. Both of these ranges are less than 0.1 percent of the Susitna River escapement.

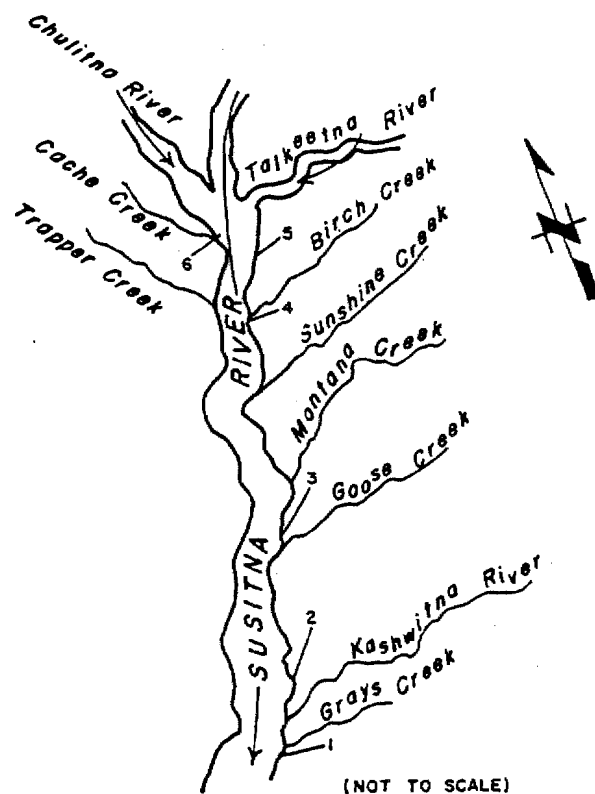
Most of the spawning occurred at Cache Creek Slough (RM 96.0L) and Musher Slough (RM 95.2R). Collectively, these sloughs supported 90 percent of the spawning while the other three sloughs supported the remaining 10 percent as determined by spawning ground counts. The only slough found to have spawning coho salmon was Rustic Wilderness Slough (RM 57.0R), in which six fish and nine redds were observed.

Four sloughs, in which salmon spawned, had associated upwelling, bank seepage or were identified as an open lead area. Cache Creek Slough, which had most of the chum salmon spawning, had no visible upwelling or bank seepage. Cache Creek flows into the slough and probably provides adequate intragravel flows that attracted the spawning.

Stream - Mouth Habitats

Descriptions of individual stream-mouth habitat characteristics and a summary of adult salmon use is provided in Appendix B. Also included in Appendix B are maps depicting the spawning areas within each stream mouth. Additional habitat and stream-mouth depth profiles are provided in Appendix D.

The Deshka River was not specifically included in the survey program because high densities of sport fishermen use the stream mouth, and water depths and lack of clarity thwarted definitive results. Historically, chinook, sockeye, pink and coho salmon have spawned in this drainage (ADF&G 1982b).



Site Number	Location		Observed Upwelling	Observed Species	Fish Observed		Spawning	
	River ^{1/} Mile	Legal			Number of Redds	Live	Dead	Observation Date
1	57.0R	S21N05W25CCD	Upwelling	Coho	9	6	0	10/13
2	63.2R	S21N05W01DCD	Upwelling	Chum	3	4	0	10/11
3	74.5R	S23N05W19RCB	Open Lead	Chum	12	0	16	10/08
4	89.5R	S25N05W24BBC	None	Chum	4	12	0	10/09
5	95.2R	S26N05W36ADB	B. Seepage ^{2/}	Chum	41	84	52	09/28
6	96.0L	S26N05W35ABB	None	Chum	4	160	--	09/27

1/ Looking upstream: R-right bank; C-center; L-left bank.
 2/ Bank seepage

Figure 4. Slough salmon spawning areas identified in the lower Susitna River between RM 28.0 and 98.6, 1984.

Chinook Salmon

The chinook migration at Sunshine Station was essentially complete 15 days prior to the first survey on July 21 (Barrett et al. 1985). Therefore, assessment of spawning and passage in stream mouths was not representative of the entire migration.

Chinook salmon used five stream mouths for either passage to upstream spawning areas or as holding areas prior to continuation of their Susitna River migration. The most important were Birch and Montana creeks (Table 2 and Appendix Table C-3). Twenty-six of the 39 fish counted were at these stream mouths.

Table 2. Chinook salmon peak counts of stream mouths between RM 28.0 and 98.6 in order of contribution, 1984.

Stream	River Mile	Date	Number Counted			Percent Contribution	Spawning Observed
			Live	Dead	Total		
Birch Creek	89.2	8/9	13	3	16	41.0	no
Montana Creek	77.0	8/14	4	6	10	25.6	no
Rabideux Creek	83.1	7/7	8	0	8	20.5	no
Goose Creek	72.0	7/27	3	0	3	7.8	no
Caswell Creek	64.0	8/6	1	1	2	5.1	no
TOTAL			29	10	39	100.0	

Chinook were documented in lower-river stream mouths from July 23 to August 21 (Appendix Table C-3). Sport fish harvests and fishwheel catches at Sunshine Station indicate chinook salmon are generally abundant in the lower river and probably stream mouths beginning in early June (ADF&G 1983a).

Chinook did not spawn in the five stream mouths they occupied (Appendix Table B-1).

The Deshka River, not included in the lower river survey program, was a major chinook-producing system. Spawning probably did not occur in the mouth of the Deshka because a 1984 assessment of the substrate indicate a composition of primarily silt and sand, which is not preferred by chinook for spawning (Burner 1951). Passage through the mouth of the Deshka River began in May and probably ended, as in other lower-river stream mouths, sometime in August.

Sockeye Salmon

Sockeye salmon were observed in eight of 17 lower-river streams surveyed between July 23 and October 1 (Appendix Table C-3). All sockeye observed during these surveys were second-run fish. First-run sockeye had completely passed Sunshine Station by June 28 and were known to spawn above RM 28 in only the Fish Creek drainage (Talkeetna River System) (Barrett et al. 1985).

Sockeye salmon utilized eight lower-river stream mouths for either passage or holding. Most (88%) of the 608 sockeye were observed in Willow, Birch, Goose and Fish creeks (Table 3). Sockeye were present in stream mouths from July 23 to September 1 (Appendix Table C-3).

Ashton and Trihey (1985) reported possible fish access problems into several lower-river streams at with-project flows. Sockeye occupied three of these areas: Goose and Rabideaux creeks and Fish Creek, which enters Kroto Slough. A combined 25 percent of the sockeye were observed at these stream mouths (Table 3).

Table 3. Sockeye salmon peak counts in stream mouths between RM 28.0 and 98.6 in order of contribution, 1984.

Stream	River Mile	Date	Number Counted			Percent Contribution	Spawning Observed
			Live	Dead	Total		
Willow Creek	49.1	8/21	210	2	212	35.2	no
Birch Creek	89.2	7/29	174	0	174	28.9	no
Goose Creek	72.0	7/27	74	0	74	12.3	no
Fish Creek	31.2	8/17	68	1	69	11.5	no
Sunshine Creek	85.1	8/3	42	0	42	6.9	no
Little Willow Cr	50.5	8/21	11	1	12	2.0	no
Cache Creek	95.5	8/15	12	0	12	2.0	no
Rabideaux Creek	83.1	7/29	7	0	7	1.2	no
TOTAL			598	4	608	100.0	

High Susitna River discharges have been associated with alterations in salmon migration behavior, either slowing or stopping upstream movement (ADF&G 1983c; Barrett et al. 1984, 1985). Stream mouths increase in area during high discharges due to Susitna River backwater effects and probably were more important as holding areas during these periods. Ashton and Trihey (1985) identified five stream mouths, in which sockeye were observed, where with-project flows may moderately decrease the backwater area. These were Birch, Fish, Sunshine, Little Willow and Rabideaux creeks.

Sockeye salmon were not observed spawning in any lower-river stream mouths (Appendix Table B-1). Although the Deshka River was not included in the survey program, there was probably no spawning at the mouth of this river because the substrate was primarily a silt-sand composition, not suitable for spawning (Burner 1951).

Pink Salmon

Lower-river streams supported most of the Susitna River basin pink salmon spawning in 1984. Approximately 60 percent of the 3.6 million Susitna River pink escapement spawned in lower-river streams between Flathorn and Sunshine stations excluding the Yentna River (Barrett et al. 1985).

In 1984, pink salmon used 12 lower-river stream mouths for either passage to upstream spawning areas or as holding areas during their Susitna River migration (Table 4 and Appendix Table C-3). A total of 5,941 fish were counted in these streams during peak surveys. Most (76%) were in Willow, Sunshine and Birch creeks. Pinks were observed in stream mouths from July 28 to September 9, and were most abundant during the first two weeks of August. Passage did not appear to be a problem at natural flows, but may be restricted during with-project flows at Caswell, Goose, Montana and Trapper creeks, which collectively accounted for 12 percent of the fish counted in stream mouths.

Table 4. Pink salmon peak counts in stream mouths between RM 28.0 and 98.6 in order of contribution, 1984.

Stream	River Mile	Date	Number Counted			Percent Contribution	Spawning Observed
			Live	Dead	Total		
Willow Creek	49.1	8/6	2,871	0	2,871	48.3	yes
Birch Creek	89.2	8/9	889	15	904	15.2	yes
Sunshine Creek	85.1	8/10	750	16	766	12.9	yes
Little Willow Cr	50.5	8/21	287	125	412	6.9	yes
Goose Creek	72.0	7/31	279	3	282	4.7	yes
Trapper Creek	91.5	7/28	234	0	234	4.0	yes
Sheep Creek	66.1	8/13	209	2	211	3.6	yes
Montana Creek	77.0	8/14	170	12	182	3.1	yes
Rabideux Creek	83.1	8/17	35	0	35	0.6	no
Caswell Creek	64.0	8/20	26	3	29	0.5	yes
Cache Creek	95.5	8/22	14	0	14	0.2	yes
Grays Creek	59.5	8/20	1	0	1	0.0	no
TOTAL			5,765	176	5,941	100.0	

An estimated 4,500 to 9,000 pinks spawned in 10 of the 12 occupied stream mouths (Table 5). Most (75%) of the spawning occurred in Willow, Sunshine and Birch creeks. Specific spawning locations within each stream mouth are provided in Appendix B. All spawning occurred between July 28 and September 8 and peaked during the first two weeks of August.

Table 5. Abundance of pink salmon spawners in lower-river stream mouths, 1984.

Stream	River Mile	Number of Spawners				
		2- 100	101- 250	251- 500	501- 1,000	1,001- 2,000
Willow Creek	49.1					X
Little Willow Cr.	50.5				X	
Caswell Creek	64.0	X				
Sheep Creek	66.1		X			
Goose Creek	72.0		X			
Montana Creek	77.0		X			
Sunshine Creek	85.1					X
Birch Creek	89.2					X
Trapper Creek	91.5		X			
Cache Creek	95.5	X				

Pink salmon spawned in gravel-rubble substrates at the 10 stream mouths. This was consistent with the results of previous Susitna River studies (ADF&G 1983b).

Historically, pink salmon have used the mouth of the Deshka River for passage and possibly as a holding area (ADF&G 1982). Spawning probably does not occur in this stream mouth because the substrate was primarily comprised of silt and sand, not the preferred spawning substrate for salmon (ADF&G 1983b).

Chum Salmon

The lower river, between Flathorn and Sunshine stations excluding the Yentna River, supported about three percent of the 1984 chum salmon spawning in the Susitna River basin (Barrett et al. 1985).

Chum salmon utilized 10 stream mouths for either passage to upstream spawning areas or as holding areas during migration (Table 6 and Appendix Table C-3). Goose, Willow and Sheep creeks were the most important of those, with 72 percent of the fish. Chum were present in lower-reach stream mouths from July 27 to September 24. Peak abundance was in the last week of August and the first week of September.

Ashton and Trihey (1985) predicted potential fish-access problems into Caswell, Goose, Montana and Trapper creeks at with-project flows. Fifty-three percent of the chum were located in these stream mouths (Table 6).

Table 6. Chum salmon peak counts in lower reach stream mouths in order of contribution, 1984.

Stream	River		Number Counted			Percent Contribution	Spawning Observed
	Mile	Date	Live	Dead	Total		
Goose Creek	72.0	8/14	280	1	281	36.8	no
Willow Creek	49.1	8/6	157	0	157	20.6	yes
Sheep Creek	66.1	8/13	111	0	111	14.6	no
Trapper Creek	91.5	8/8	46	0	46	6.0	yes
Montana Creek	77.0	8/14	41	0	41	5.4	yes
Sunshine Creek	85.1	8/30	37	0	37	4.8	yes
Caswell Creek	64.0	8/13	33	1	34	4.5	yes
Cache Creek	95.5	8/15	28	0	28	3.7	no
Little Willow Cr	50.5	8/3	15	0	15	1.9	no
Rabideux Creek	83.1	7/29	13	0	13	1.7	no
TOTAL			761	2	763	100.0	

Fifteen percent of the count was attributed to Sheep Creek, where access may be severely affected at with-project flows.

Chum salmon spawned in five lower-river stream mouths (Table 7). Total number of spawners was in the range of 100 to 225 fish. Most were at Caswell Creek. Spawning occurred from the second week of August through the third week of September and reached a peak during the last week of August and first week of September.

Table 7. Abundance of chum salmon spawners in lower-river stream mouths, 1984.

Stream	River Mile	Number of Spawners		
		2-25	26-50	51-75
Willow Creek	49.1	X		
Caswell Creek	64.0			X
Montana Creek	77.0		X	
Sunshine Creek	85.1	X		
Trapper Creek	95.5		X	

All identified chum spawning at mouth areas occurred in primarily gravel-rubble substrates (Appendix B). These findings were consistent with other ADF&G Su Hydro studies (ADF&G 1983b).

Chum may have used the Deshka River mouth as a holding area, but there was no evidence of spawning there. The substrate was a silt-sand composition unsuitable for spawning (ADF&G 1983b). There is no documentation of this species spawning upstream in the Deshka River drainage (ADF&G 1982).

Coho Salmon

Lower-river streams supported about 50 percent of the 1984 Susitna River basin-wide coho salmon spawning (Barrett et al. 1985).

Coho salmon utilized eleven stream mouths for either passage or as holding areas (Table 8 and Appendix Table C-3). Most (84%) of the 1,430 fish counted were in Willow Creek. Coho occupied stream mouths from August 6 to September 27. Peak abundance occurred in the third week of August.

Of the stream mouths utilized by coho salmon, Whitsol, Caswell, Goose and Montana creeks may have restricted access at with-project flows (Ashton and Trihey 1985). Those streams accounted for about 12 percent of the coho peak survey counts at lower reach stream mouths.

Coho salmon did not spawn in any of the 17 lower-river stream mouths surveyed (Appendix Table B-1). Historically, the Deshka River has been utilized for passage and holding (ADF&G 1982). It was unlikely that coho spawned here because the substrate was comprised of mainly silt and sand, unsuitable for spawning (Burner 1951).

Table 8. Coho salmon peak counts in stream mouths between RM 28.0 and 98.6 in order of contribution, 1984.

Stream	River Mile	Date	Number Counted			Percent Contribution	Spawning Observed
			Live	Dead	Total		
Willow Creek	49.1	8/22	1,196	2	1,198	83.8	no
Montana Creek	77.0	9/14	50	0	50	3.5	no
Caswell Creek	64.0	8/6	44	0	44	3.1	no
Whitsol Creek	35.2	9/20	30	0	30	2.0	no
Sheep Creek	66.1	8/13	21	0	21	1.5	no
Rabideux Creek	83.1	9/26	9	12	21	1.5	no
Trapper Creek	91.5	9/15	21	0	21	1.5	no
Goose Creek	72.0	8/29	19	0	19	1.3	no
Cache Creek	95.5	9/15	13	0	13	0.9	no
Little Willow Cr	50.5	8/29	10	0	10	0.7	no
Sunshine Creek	85.1	9/16	3	0	3	0.2	no
TOTAL			1,416	14	1,430	100.0	

SUMMARY

Mainstem Habitats

Mainstem habitat is comprised of both main-channel and side-channel habitats. Due to the braided configuration and somewhat unstable nature of the lower Susitna River, it is sometimes difficult to distinguish between the two habitat types. In 1984, 12 mainstem spawning sites were identified. Chum and coho salmon were the only species observed spawning in the mainstem. Chum salmon utilized 11 of the areas while coho salmon spawned in only two. Poor visibility conditions due to high mainstem discharges and turbidity limited documentation of spawning prior to late September. Using survey counts, it is likely that chum salmon spawning peaked during the first two weeks in September, while coho salmon spawning peaked around the second week in October. A conservative estimate of between 2,600 and 3,900 chum salmon and 200 to 400 coho salmon spawned in mainstem sites in the lower Susitna River during 1984. Upwelling, bank seepage or open leads were observed at 10 of the 12 spawning sites.

Slough Habitats

All of the slough habitats found to contain spawning salmon in the lower Susitna River were in side sloughs. Alteration of channel morphology at high discharges may change a slough site to a side channel site. Poor visibility limited the accuracy of surveys until after late September. Six slough spawning sites were located in the lower river, five of these sites were used by chum salmon and one by coho salmon. It appears that the timing of spawning in the sloughs follows a similar pattern to that of the mainstem. Chum salmon probably peak during the first two weeks of September with coho salmon peaking during the second week of October. Between 700 to 1,000 chum salmon and 10 to 20 coho salmon are estimated to have spawned in sloughs. Only four of the sloughs were observed to have upwelling, bank seepage or open leads. Cache Creek may be providing adequate intragravel flow in one of the remaining sites.

Stream Mouth Habitats

Seventeen lower-river stream mouths were surveyed for adult salmon from July 21 to October 1. Pink salmon were most widely distributed, occupying 12 stream mouths and chinook occupying only five. Coho, chum and sockeye were observed in 11, 10 and 8 stream mouths, respectively. Salmon were present in stream mouths from July 23 to September 27.

Only pink and chum salmon spawned in lower-river stream mouths in 1984. Approximately 4,500 to 9,000 pinks spawned in 10 stream mouths. Five stream mouths supported in the range of 100 to 225 chum spawners. Pinks spawned from July 28 to September 8. The peak occurred during the first two weeks of August. Chum salmon spawned from the second week of August through the third week of September. Peak spawning occurred during the last week of August and first week of September.

Both pink and chum salmon selected gravel-rubble substrates for spawning. Neither species spawned in silt-sand substrates. This was consistent with previous ADF&G Su Hydro study results (ADF&G 1983b).

Historically, chinook, sockeye, pink and coho salmon have passed through the Deshka River stream mouth enroute to upstream spawning areas (ADF&G 1982). Examination of the stream-mouth revealed a silt-sand substrate and therefore, it was concluded that salmon did not spawn here.

GLOSSARY

General characteristics of habitat classifications that are associated with the Susitna River (adapted from Sautner et al. 1984).

Side-Slough Habitat: Consists of those portions of the Susitna River that usually convey water throughout the year. Both single and multiple channel reaches are included in this habitat category. Groundwater and tributary inflow appear to be inconsequential contributors to the overall characteristics of main-channel habitat. Main-channel habitat is typically characterized by high water velocities and well-armored streambeds. Substrates generally consist of boulder and cobble size materials with interstitial spaces filled with a grout-like mixture of small gravels and glacial sands. Suspended sediment concentrations and turbidity are high during summer months due to the influence of glacial melt-water. Discharges recede in early fall and the main channel clears appreciably in October.

Mainstem Habitat: Consists of main-channel and side-channel habitats.

Side-Channel Habitat: Consists of those portions of the Susitna River that normally convey water during the open water season but become appreciably dewatered during periods of low main channel discharge. Side-channel habitat may exist either in well defined overflow channels, or in poorly defined channels flowing through partially submerged gravel bars and islands along the margins of the main channel river. Side-channel streambed elevations are typically lower than the mean monthly water surface elevations of the main channel Susitna River observed during June, July and August. Side-channel habitats are characterized by shallower depths, lower velocities and smaller streambed materials than the adjacent habitat of the main-channel river.

Side-Slough Habitat: This habitat is located in overflow channels between the edge of the floodplain and the main channel and side channels of the Susitna River. It is usually separated from the main channel and side channels by well vegetated bars. An exposed alluvial berm often separates the head of the slough from main channel discharge or side channel flows. The controlling streambed/bank elevations at the upstream end of the side sloughs are slightly less than the water surface elevations of the mean monthly discharges of the mainstem Susitna River observed for June, July and August. At intermediate and low-discharge periods, the side sloughs convey clear water from small tributaries

and/or upwelling groundwater. These clear water inflows are essential contributors to the existence of this habitat type. The water surface elevation of the Susitna River generally causes a backwater area to extend well up into the slough from its lower end. Even though this substantial backwater area exists, the sloughs function hydraulically very much like small stream systems and several hundred feet of the slough channel often conveys water independent of mainstem backwater effects. At high discharges, the water surface elevation of the mainstem river is sufficient to overtop the upper end of the slough. Surface water temperatures in the side sloughs during summer months are principally a function of air temperature, solar radiation, and the temperature of the local runoff.

Stream Habitat: Consists of full complement of hydraulic and morphologic conditions that occur in the streams. Their seasonal flow, sediment, and thermal regimes reflect the integration of the hydrology, geology, and climate of the stream drainage. The physical attributes of stream habitat are not dependent on mainstem conditions.

Upland Slough Habitat: Differs from side-slough habitat in that the upstream end of the slough does not interconnect with the surface waters of the main-channel Susitna River or its side channels even at high mainstem discharges. These sloughs are characterized by the presence of beaver dams and an accumulation of silt covering the substrate resulting from the absence of mainstem scouring discharges.

REFERENCES

- Ashton, W.S. and E.W. Trihey. (in preparation). Assessment of access by spawning salmon into tributaries of the lower Susitna River. R&M Consultants, Inc. for Harza-Ebasco Susitna Joint Venture. Anchorage, Alaska.
- Alaska Department of Fish and Game (ADF&G). 1981. Phase I final draft report. Subtask 7.10. Adult anadromous fisheries project (June -September 1981). Alaska Department of Fish and Game, Susitna Hydro Aquatic Studies. Anchorage, Alaska.
- ADF&G. 1982. Phase I final draft report. Subtask 7.10. Stock separation feasibility report. Adult anadromous fisheries project, 1982. Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Anchorage Alaska, USA.
- _____. 1983a. Phase II Report. Synopsis of the 1982 Aquatic Studies and Analysis of Fish and Habitat Relationships. Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Anchorage, Alaska.
- _____. 1983b. Aquatic Habitat and Instream Flow Investigations. Chapters 6 and 7. Susitna Hydro Aquatic Studies Program. Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Anchorage, Alaska.
- _____. 1983c. Susitna Hydro Aquatic studies phase II final report. Volume 2. Adult anadromous fish studies, 1982. Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Anchorage, Alaska, USA.
- _____. 1983d. Procedures manual, final draft. Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Anchorage, Alaska.
- _____. 1984. An atlas to the catalog of Waters Important for spawning, rearing or migration of anadromous fishes. Southcentral Region Resources Management. Alaska Department of Fish and Game, Habitat Division. Region II. Anchorage, Alaska
- Bakkala, Richard G. 1970. Synopsis of Biological Data on the Chum Salmon, *Oncorhynchus keta* (Walbaum) 1792. U.S. Dept. of Interior, U.S.F.& W.S. FAO Species Synopsis No. 41. Circular 315. Washington, D.C. March, 1970. 89 p.
- Barrett, B.M., F.M. Thompson, and S.N. Wick, 1984. Adult anadromous fish investigations: May-October 1983. Alaska Department of Fish and Game Susitna Hydro Aquatic Studies. Report No. 1. Prepared for Alaska Power Authority. Anchorage, Alaska, USA.

- Barrett, B.M., F.M. Thompson, and S.N. Wick. 1985. 1984 Salmon Escapement Studies in the Susitna River Drainage. Susitna Hydro Aquatic Studies Report Series No. 1. Report no. 6. Alaska Department of Fish and Game. Anchorage, Alaska.
- Bigler, J. 1985a. Memorandum to Bruce Barrett, January 17, 1985. Alaska Department of Fish and Game. Susitna Hydro Aquatic Studies Project, 620 East Tenth Avenue, Anchorage, Alaska 99501.
- _____. 1985b. Memorandum to Andy Hoffmann, February 6, 1985. Alaska Department of Fish and Game. Susitna Hydro Aquatic Studies Project, 620 East Tenth Avenue, Anchorage, Alaska 99501.
- Burner, C.J., 1985. Characteristics of spawning nests of Columbia River salmon. United States Fish and Game Wildlife Service. Fisheries Bulletin 61 (52): 97-110.
- Coffin, Jeff. 1983. Memorandum on Lower Susitna River Open Leads, March 18, 1983. R&M Consultants, Inc. Anchorage, Alaska.
- Kogl, Dennis Raymond. 1965. Springs and spacing groundwater as factors affecting survival of chum salmon spawning in a sub-arctic stream. M.S. Thesis. University of Alaska, Fairbanks.
- Sautner, J.S., L.J. Vining, and L.A. Rundquist. 1984. An evaluation of passage conditions for adult salmon in sloughs and side channels of the middle Susitna River, Chapter 6, C.C. Estes and D.S. Vincent-Lang, editors. Aquatic habitat and instream flow investigations (May-October 1983). Alaska Department of Fish and Game Susitna Hydro Studies. Report Number 3. Prepared for Alaska Power Authority. Anchorage, Alaska.
- U.S. Geological Survey (USGS). 1985 Provisional data for Alaska: Water year 1985. Anchorage, Alaska.
- Vining, Leonard J., Jeffery S. Blakely, and Glenn M. Freeman. 1985. An evaluation of the Incubation Life Phase of Chum Salmon in the Middle Susitna River. Report No. 5: Volume 1 Winter Aquatic Investigations: September 1983-May 1984. Alaska Department of Fish and Game, Susitna Hydro Aquatic Studies. Anchorage, Alaska.

CONTRIBUTORS

Adult Anadromous (AA) Project Leader

Bruce Barrett

Graphics

Roxann Peterson
Carol Hepler
Bob Wilkey

Typing

Bobbie Greene
Anneliese Kohut

Data Processing

Allen Bingham
Donna Buchholz
Kristine Roseland
Kim Levesque

Data Collection

Bill Bale
Susan Bulkow
John Nelson
Don Perrin
Kristine Roseland
Dan Salmon

Text

Frederick M. Thompson
Don Seagren
Kim Levesque

Editors

Susan Wick
Bruce Barrett
Kristine Roseland

ACKNOWLEDGEMENTS

The authors express their appreciation to the other staff of the Alaska Department of Fish and Game Susitna Hydro Aquatic Studies Program who provided their support to this report.

APPENDICES

- Appendix A: Site descriptions and maps of mainstem and slough salmon spawning areas located in the lower Susitna River between RM 28.0 and 98.6 in 1984.
- Appendix B: Site descriptions, site maps and adult salmon usage of stream mouths in the lower Susitna River between RM 28.0 and 98.6 in 1984.
- Appendix C: Escapement counts of adult salmon in lower Susitna River mainstem, sloughs and stream mouths between RM 28.0 and 98.6 in 1984.
- Appendix D: Depth/substrate transect data collected at two mainstem discharges at lower Susitna River stream mouths between RM 28.0 and 98.6 in 1984.

APPENDIX A

Site descriptions and maps of mainstem and slough salmon spawning areas located in the lower Susitna River between RM 28.0 and 98.6 in 1984.

The following salmon spawning site descriptions are those located during 1984. They are ordered starting with the downstream most spawning site and moving upstream.

RM 57.0R

This is a slough spawning site located adjacent to the east bank side channel near the Rustic Wilderness subdivision (Appendix Figure A-1). It is the only slough site to be utilized by coho salmon. A survey on October 13, 1984 located six live coho salmon and nine redds. Based on the number of redds, this site was probably utilized by a greater number of salmon than were counted on this single survey. Upwelling was present throughout the spawning site.

RM 62.1R

This mainstem spawning site was observed immediately downstream of the mouth of Caswell Slough (Appendix Figure A-2). This site is separated from the main channel, at low discharges by an exposed gravel bar. A survey on October 9, 1984 identified five redd sites with two live and six dead chum salmon. Upwelling was also observed. The upwelling observation coincides with the open lead observations made in this area by R&M Consultants, Inc. on March 18, 1983 (Coffin 1983).

RM 63.2R

This is a minor slough spawning site located near the mouth of Caswell Creek Slough (Appendix Figure A-3). Four live chum salmon and three redds were observed during a survey conducted on October 11, 1984. Upwelling was observed in the vicinity of the spawning area. The influence of Caswell Creek Slough may also have had an influence on fish selecting this as a spawning site.

RM 71.6R

Twelve redds were observed at RM 71.6R on October 9, 1984 (Appendix Figure A-4). These redds were assumed to be chum salmon redds. No live fish were observed but eight dead chum salmon were in this vicinity. This side channel site, located near the head of Sheep Creek Slough, is separated from the main channel Susitna River by gravel bars that are exposed at low discharges. Bank seepage was observed at this site.

RM 73.9C

A main channel chum salmon spawning site was located at RM 73.9C, near Goose Creek Slough (Appendix Figure A-5). It is located in the center of the channel on a gravel bar dissected by the mainstem Susitna River. Only small portions of this complex are vegetated, indicating frequent inundation by the mainstem. A survey conducted on September 25, 1984 found seven redd sites and three dead chum salmon. The number of redds indicates that the site was utilized by a greater number of salmon than were observed on the single survey. The R&M survey indicated an open lead in this area. No upwelling was observed in this site. No observed upwelling and the site being directly on the mainstem indicates that the open lead may be velocity related.

RM 74.5R

This site is located at the upper end of Goose Creek Slough (Appendix Figure A-5). It is a chum salmon spawning site with 12 redds counted during a survey on October 8, 1984. While no upwelling was observed, the area has open leads, indicating the presence of upwelling.

RM 75.0L

This chum salmon spawning area, known as Circular Side Channel, is bordered by stable vegetated islands (Appendix Figure A-6). The average water depths in the spawning areas range from 0.5 to 4 feet. There are two main spawning areas that are separated by a 75 foot riffle in which no spawning occurred (Bigler 1985b). Upwelling and bank seepage was observed throughout the area. Approximately 30 redds and 68 live and 21 dead chum salmon were observed on September 25, 1985.

RM 79.2L

Site 79.2L is a chum salmon spawning location off the mouth of Sauna Slough (Appendix Figure A-7). The site is separated from the mainstem by a sparsely vegetated gravel bar. Seven redds and 18 chum salmon were observed on October 8, 1984. The area has an open lead and bank seepage was observed approximately one half mile upstream from the spawning site.

RM 87.0R

This site is located in the Sunrise - Sunset Side Channel area (Appendix Figure A-8). It had the second highest usage by chum salmon of all mainstem sites found in 1984. This high usage is reflected in peak live salmon counts of 173 fish and 48 redds observed. Numerous open leads were observed in the area indicating possible presence of upwelling.

RM 87.5R

The upper Sunset Side Channel was utilized by a small number of coho salmon (Appendix Figure A-9). Five coho salmon and three redds were observed at this site on September 25, 1984. Open leads are present at this site. The open leads may be due to upwelling or the influence of Birch Creek Slough, found immediately upstream.

RM 88.7R

A site upstream of the mouth of Birch Creek Slough is located directly on the mainstem at RM 88.7R (Appendix Figure A-10). The adjacent bank is high and steep with bank seepage present. Twenty three chum salmon and 11 redds were observed during a survey conducted on October 9, 1984.

RM 89.5R

This slough spawning site utilized by chum salmon is located approximately one mile upstream of the mouth of Birch Creek Slough

(Appendix Figure A-10). Peak counts of 12 chum salmon and four redds were observed on October 9, 1984. While no upwelling was observed in this specific site, bank seepage was observed in chum salmon spawning sites located upstream and downstream of this site.

RM 90.1R

A side channel habitat located at RM 90.1R was utilized by spawning chum salmon (Appendix Figure A-10). Bank seepage was observed during surveys of this site. A survey on October 9, 1984 observed 19 redds and 41 chum salmon. Based on the number of redds and live fish observed this site is the third most important mainstem spawning location in the lower reach.

RM 90.3L

A side channel located near Trapper Creek from RM 92.0C to RM 94.5L was the most important mainstem spawning site located (Appendix Figures A-11 and A-12). The channel is located along the left bank, separated from the main channel by a broad, sparsely vegetated gravel bar. A total of 90 redds were observed at this site. Due to the overlap of areas utilized by spawning chum and coho salmon, it was impossible to differentiate redds between the species. Surveys conducted between September 23 and October 2, 1984 observed 538 live chum salmon and 75 live coho salmon. Upwelling was observed extensively throughout this site. An aerial survey conducted February 18, 1985 found this site to be the only one in the lower reach (RM 60-98) with open leads at -40°F. Temperatures at -20°F and higher were warm enough to create numerous open leads throughout this lower river reach.

RM 95.0C

A minor chum salmon spawning site was located at RM 95.0C (Appendix Figure A-12). A single chum redd with eggs and three live chum salmon were found in a pool behind a beaver dam. Part of this area is vegetated indicating some present stability. No evidence of upwelling was observed.

RM 95.2R

This chum salmon spawning site is located in Musher Slough (Appendix Figure A-12). It is the most important slough spawning site in this reach with 41 redds and 84 live chum salmon observed on September 18, 1984. Bank seepage was observed at this site.

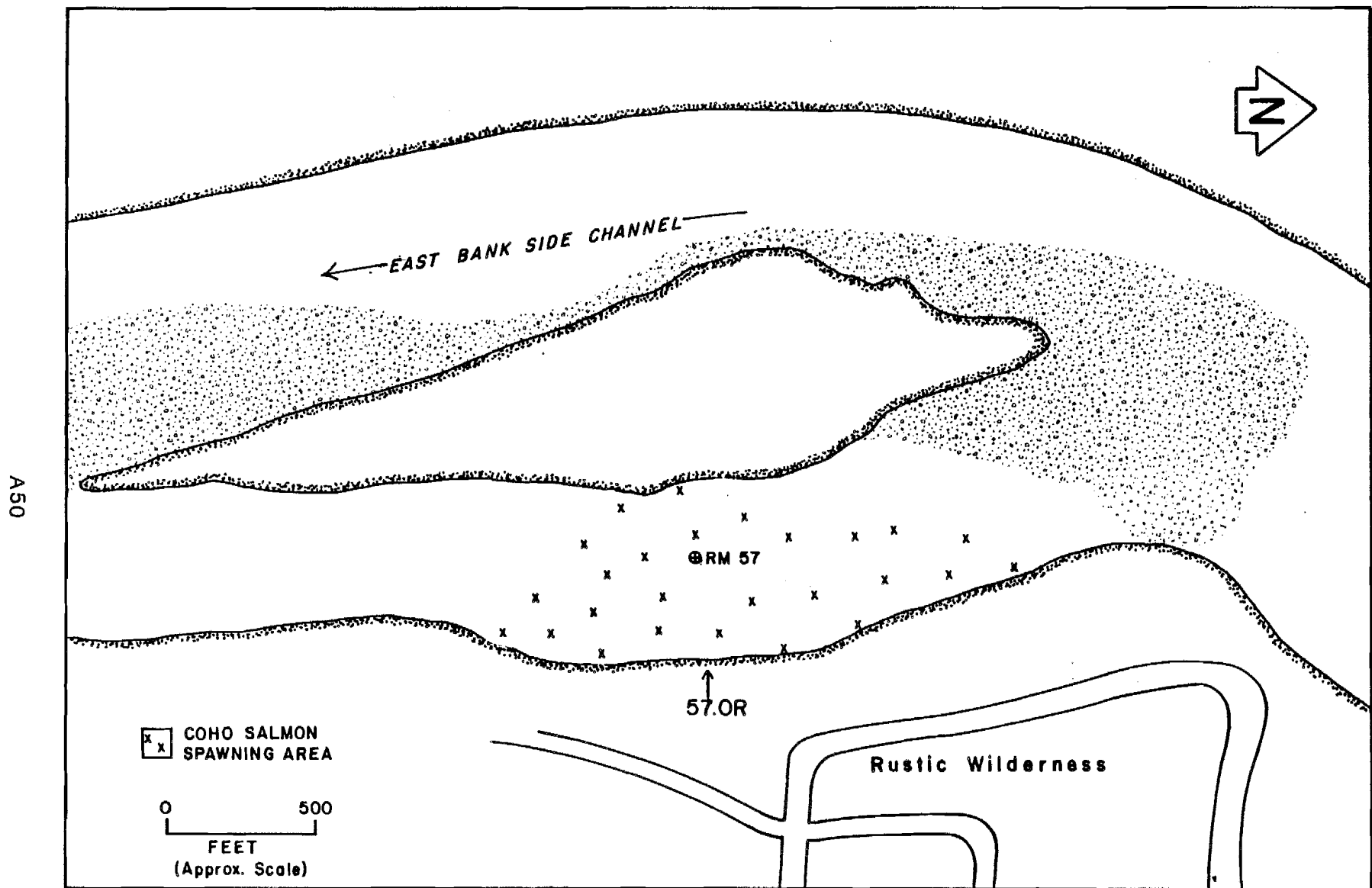
RM 95.8L

This slough site is directly across from Musher Slough (Appendix Figure A-12). It is called Cache Creek Slough since Cache Creek enters the left bank at the upper end of the slough. Personnel conducted a survey on September 27, 1984 and counted 160 live chum salmon but only 4 redds. The number of live fish to number of redds ratio is low compared to other sites. The chum salmon located at this site may have been milling

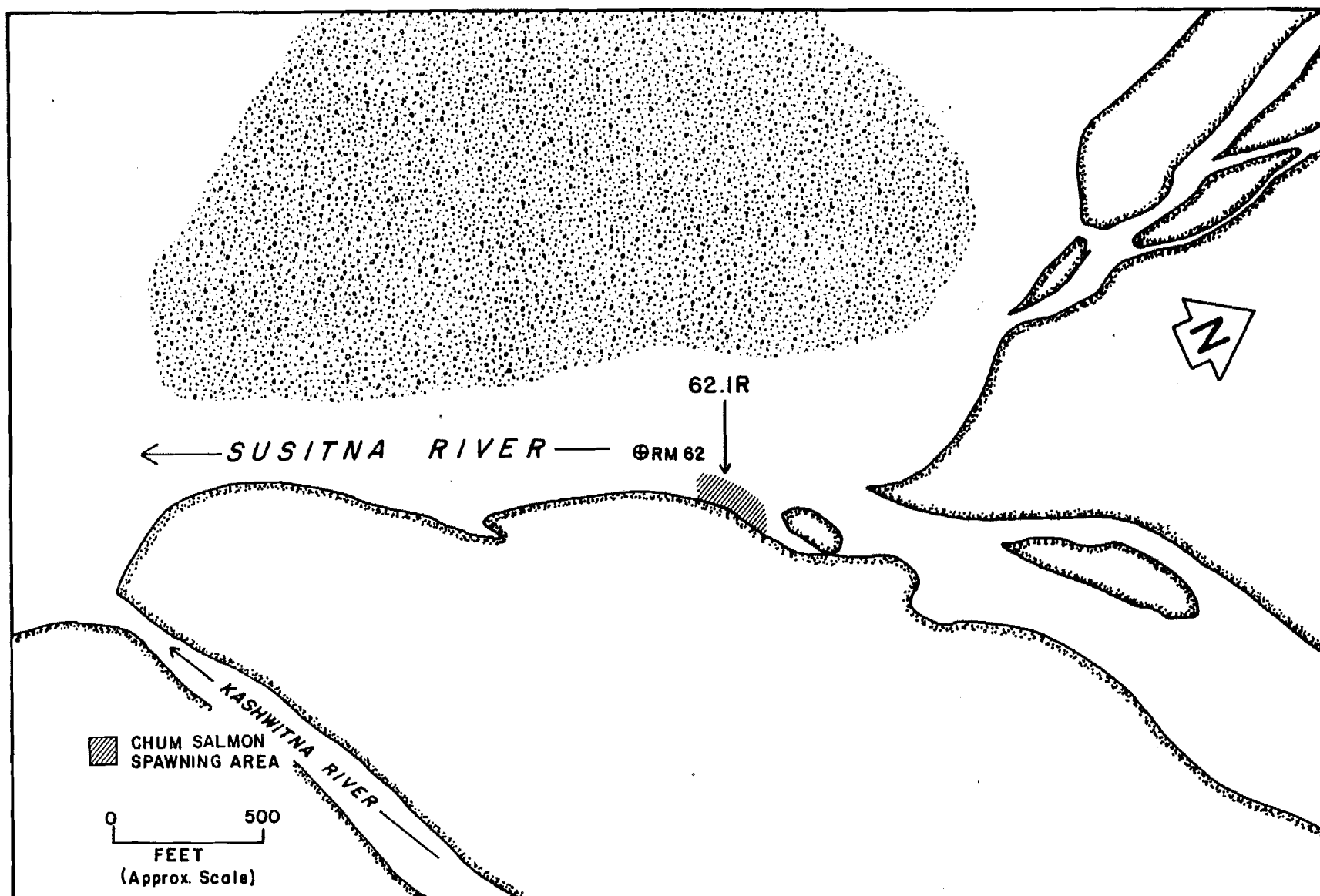
prior to moving to other spawning sites or may have spawned at a later date. No upwelling was observed at this site but the influence of Cache Creek may make conditions suitable for chum salmon spawning.

RM 98.6L

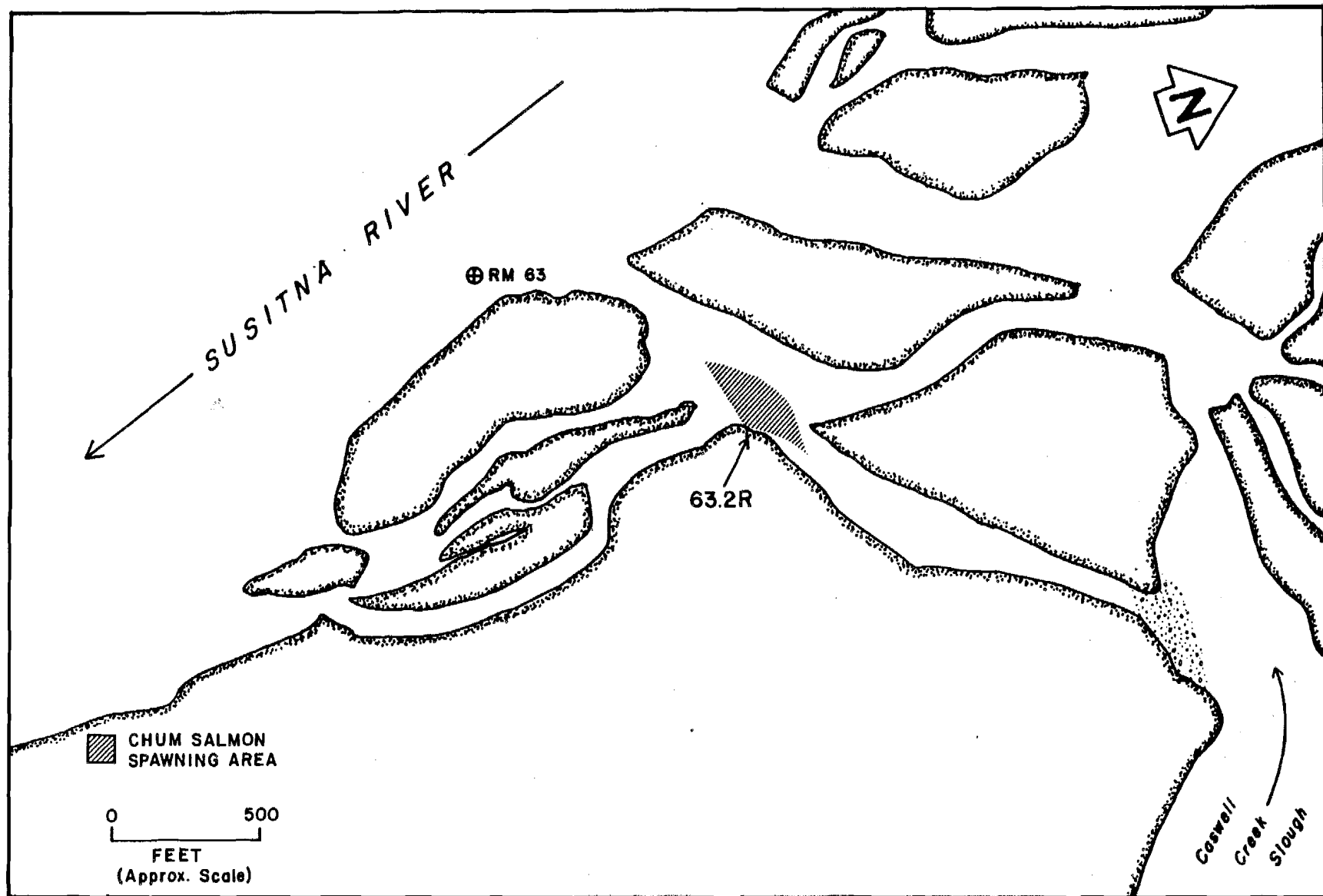
Four individual chum salmon spawning sites were located in the braided channels at the mouth of the Chulitna River (RM 98.0L) (Appendix Figure A-13). Collectively, this is the second most productive site located in 1984. A total of 51 redds and 116 chum salmon was observed during a survey conducted on October 9, 1984. Only one of the spawning sites had observed upwelling associated with it. The entire area is unstable due to yearly flood events. Sites utilized this year may be unavailable to spawning salmon in following years.



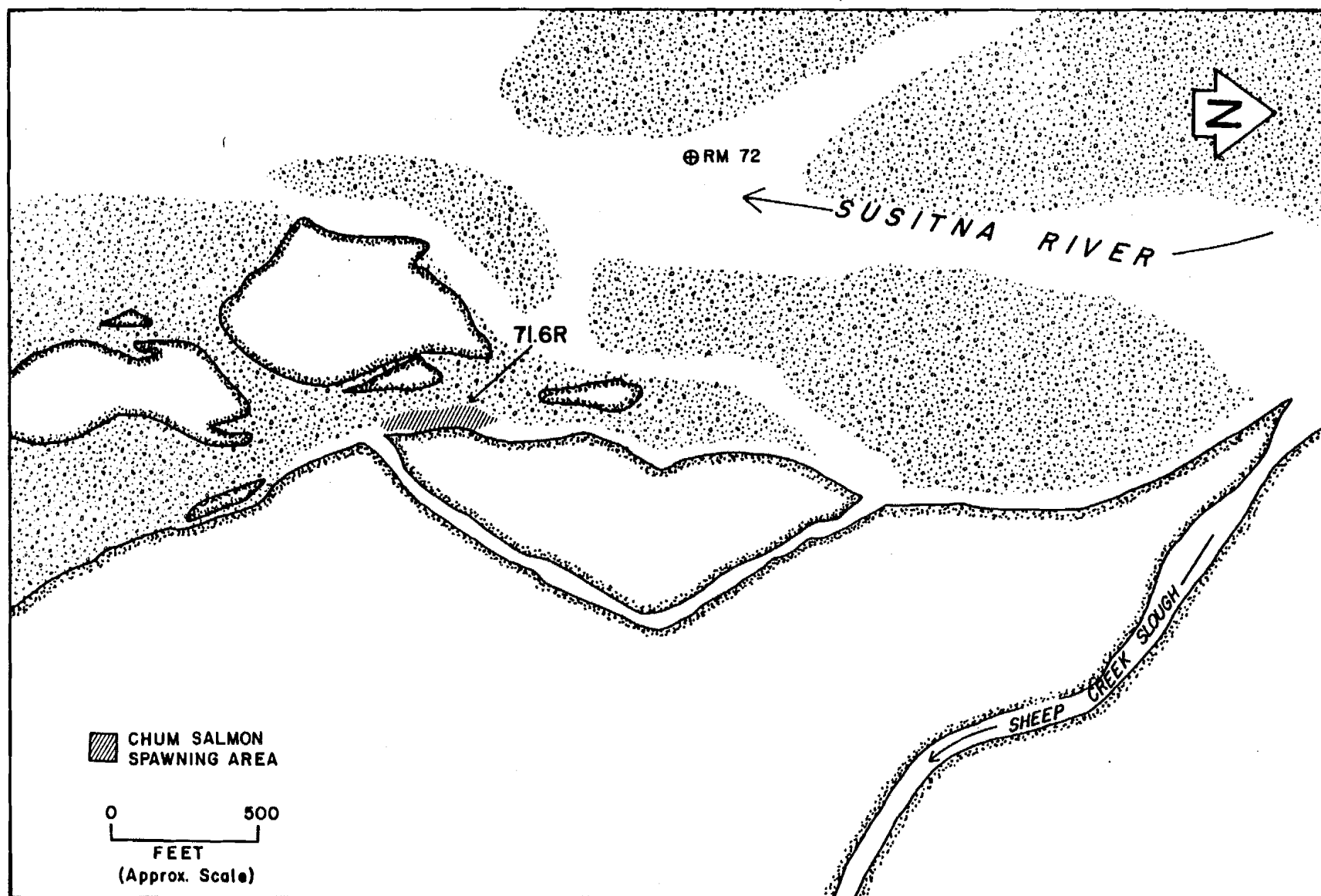
Appendix Figure A-1. Coho salmon slough spawning site at RM 57.0R in the lower Susitna River, 1984.



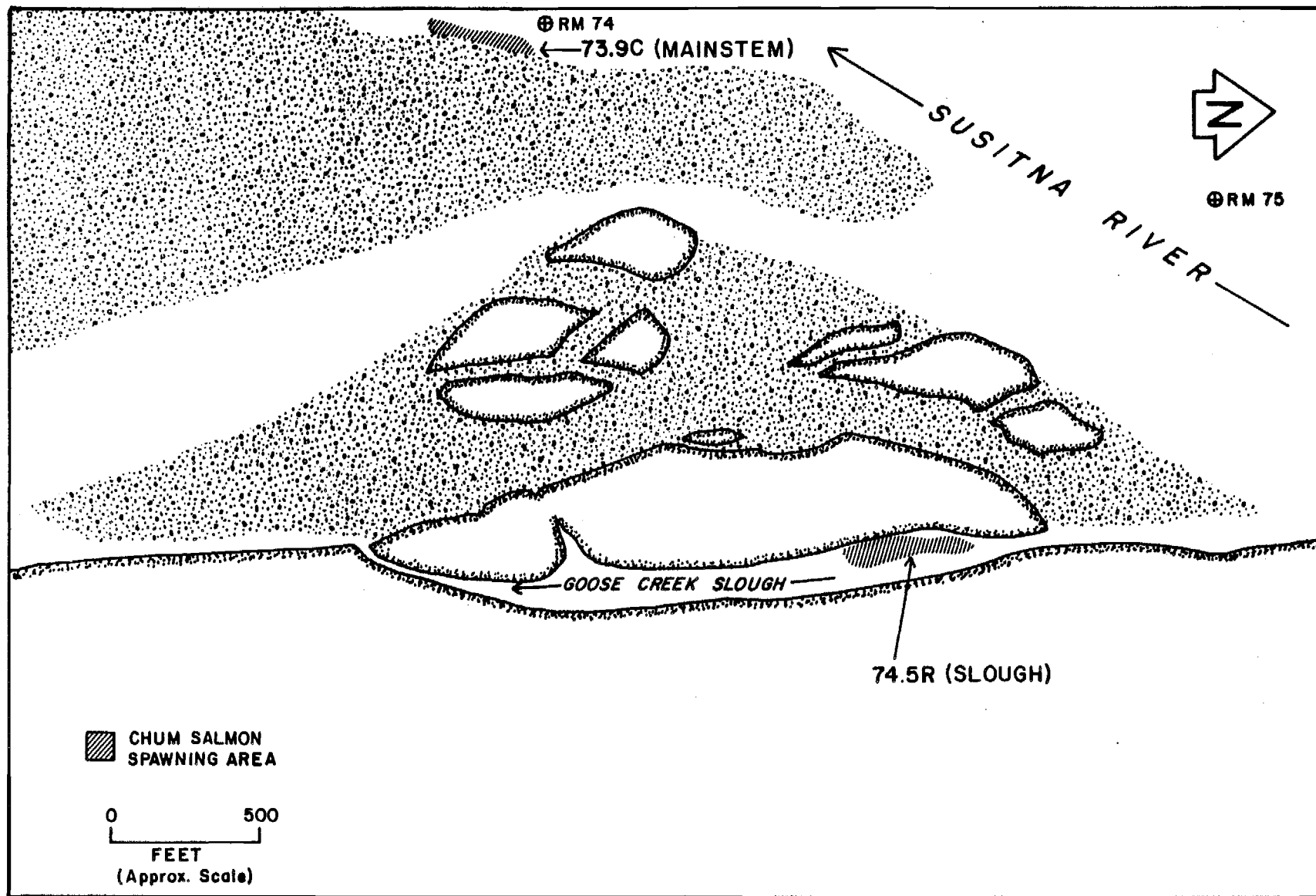
Appendix Figure A-2. Chum salmon mainstem spawning site at RM 62.1R in the lower Susitna River, 1984.



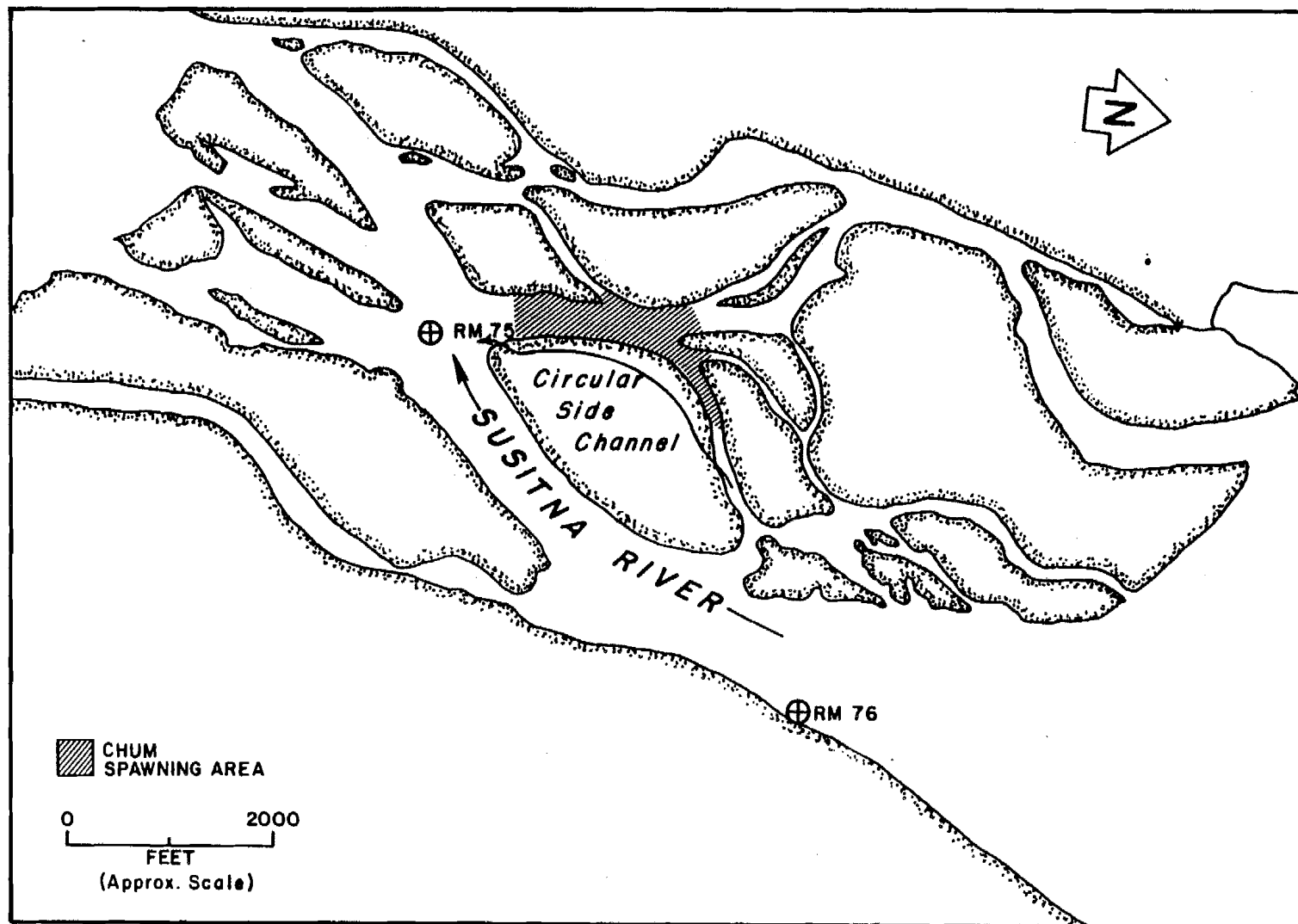
Appendix Figure A-3. Chum salmon slough spawning site at RM 63.2R in the lower Susitna River, 1984.



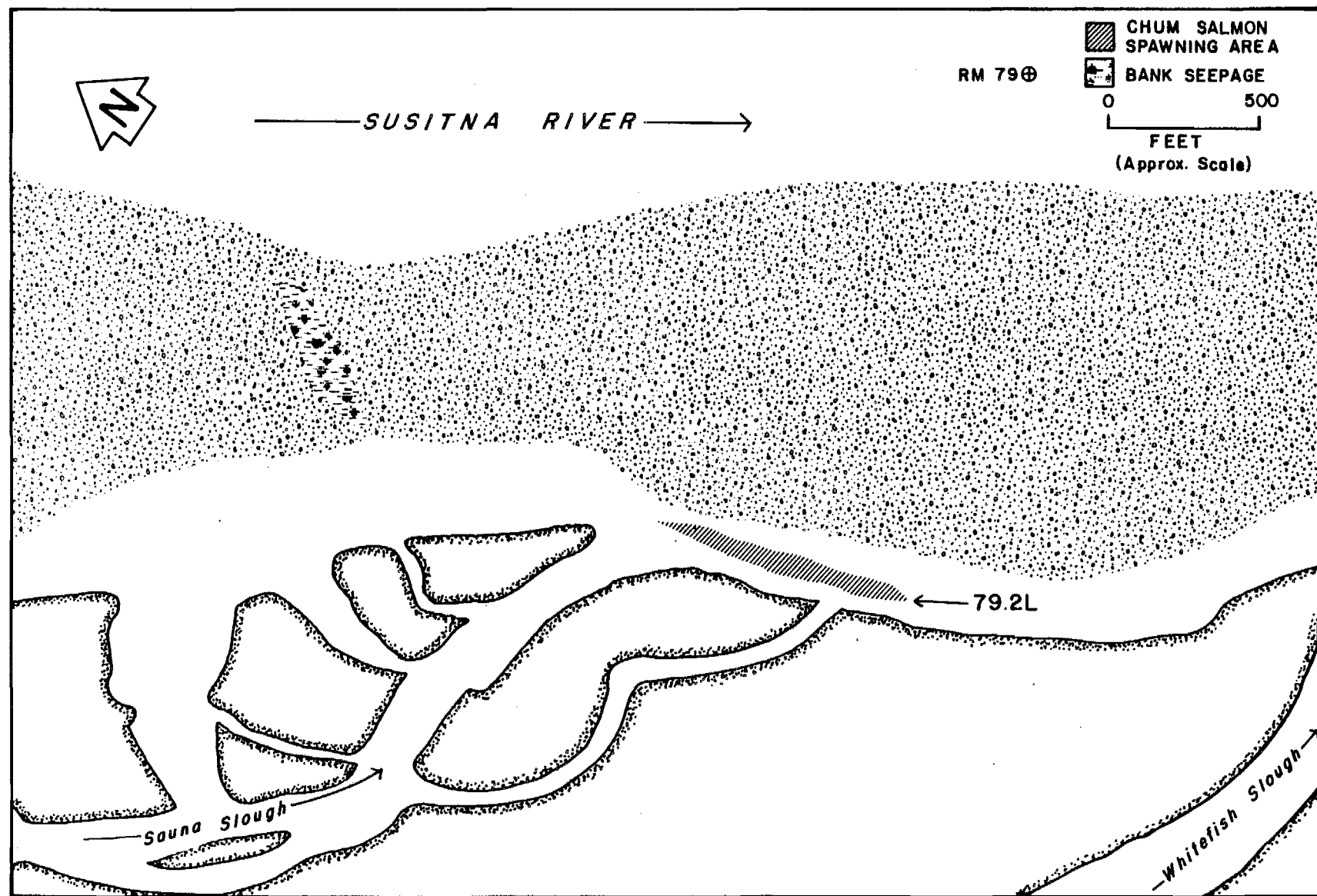
Appendix Figure A-4. Chum salmon mainstem spawning site at RM 71.6R in the lower Susitna River, 1984.



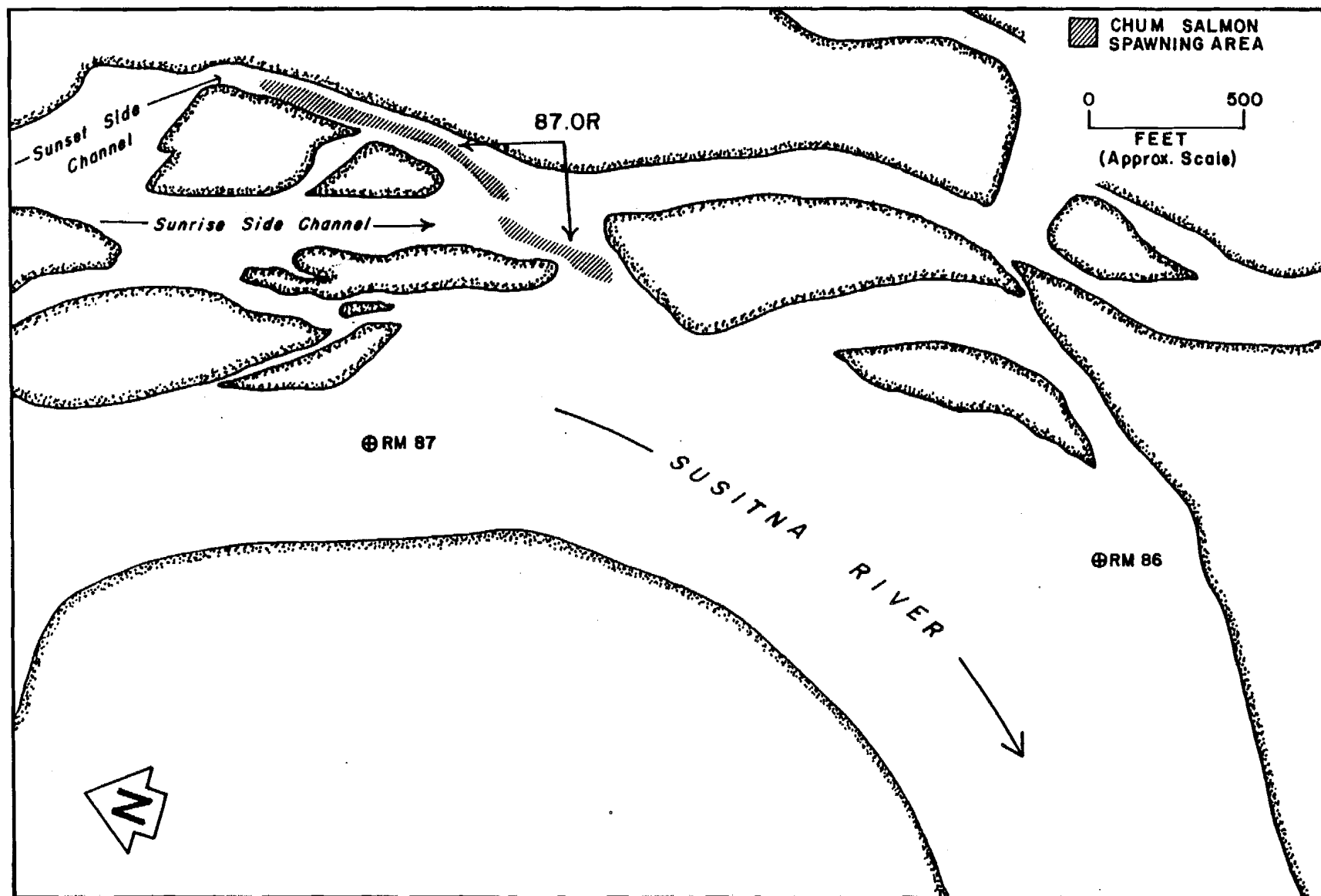
Appendix Figure A-5. Chum salmon mainstem and slough spawning sites between RM 73.9C and 74.5R in the lower Susitna River, 1984.



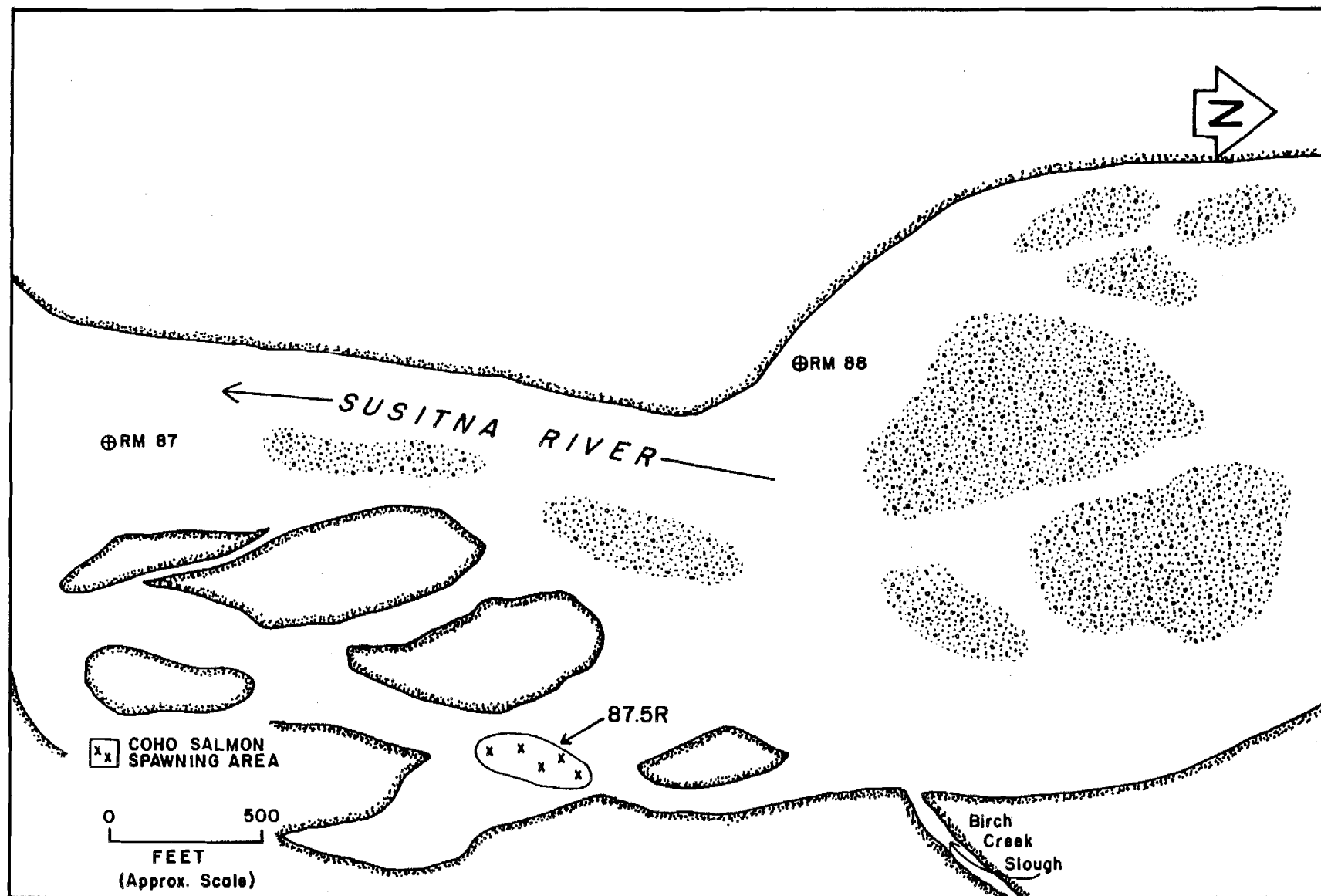
Appendix Figure A-6. Chum salmon mainstem spawning site at RM 75.0L in the lower Susitna River, 1984.



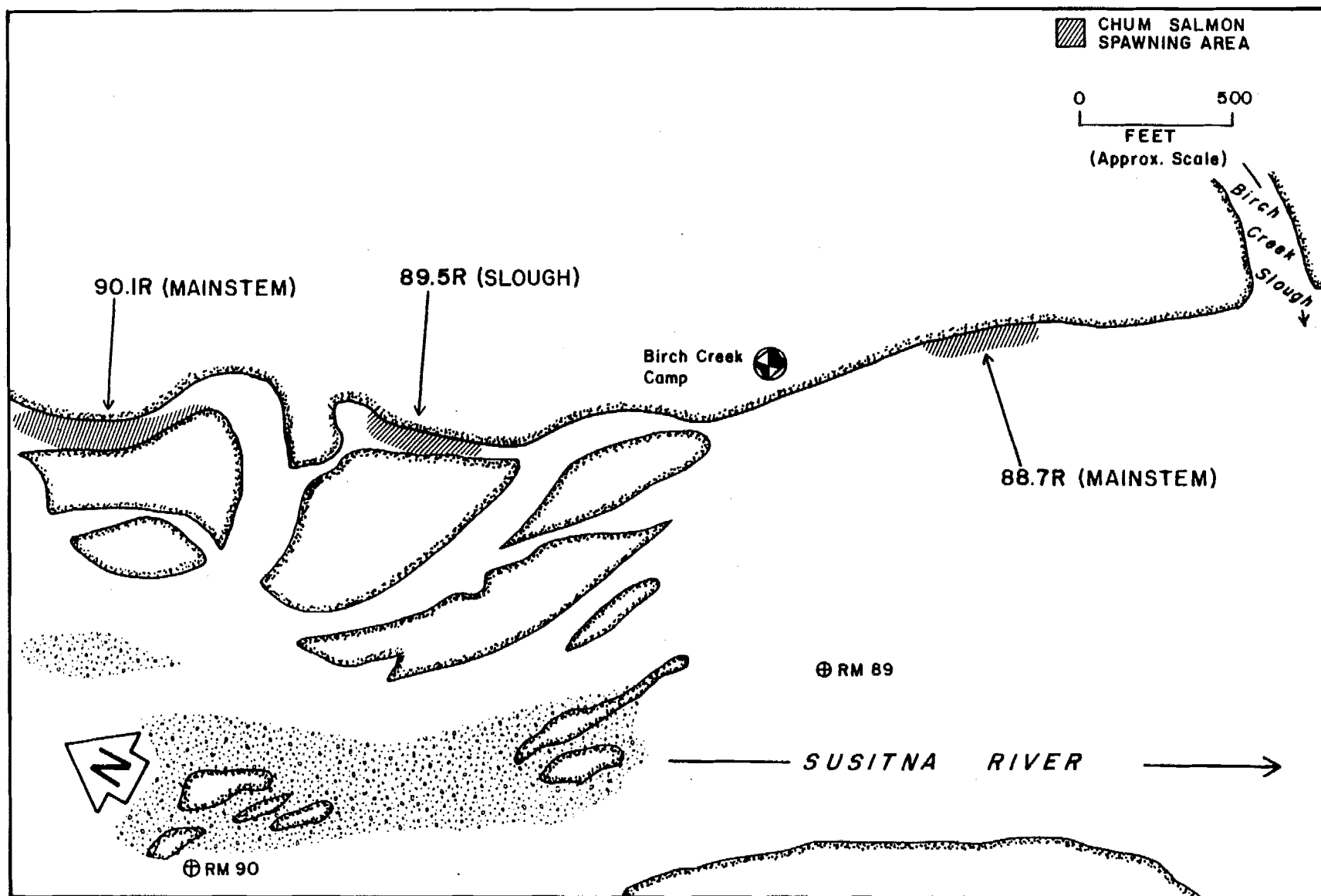
Appendix Figure A-7. Chum salmon mainstem spawning site at RM 79.2L in the lower Susitna River, 1984.



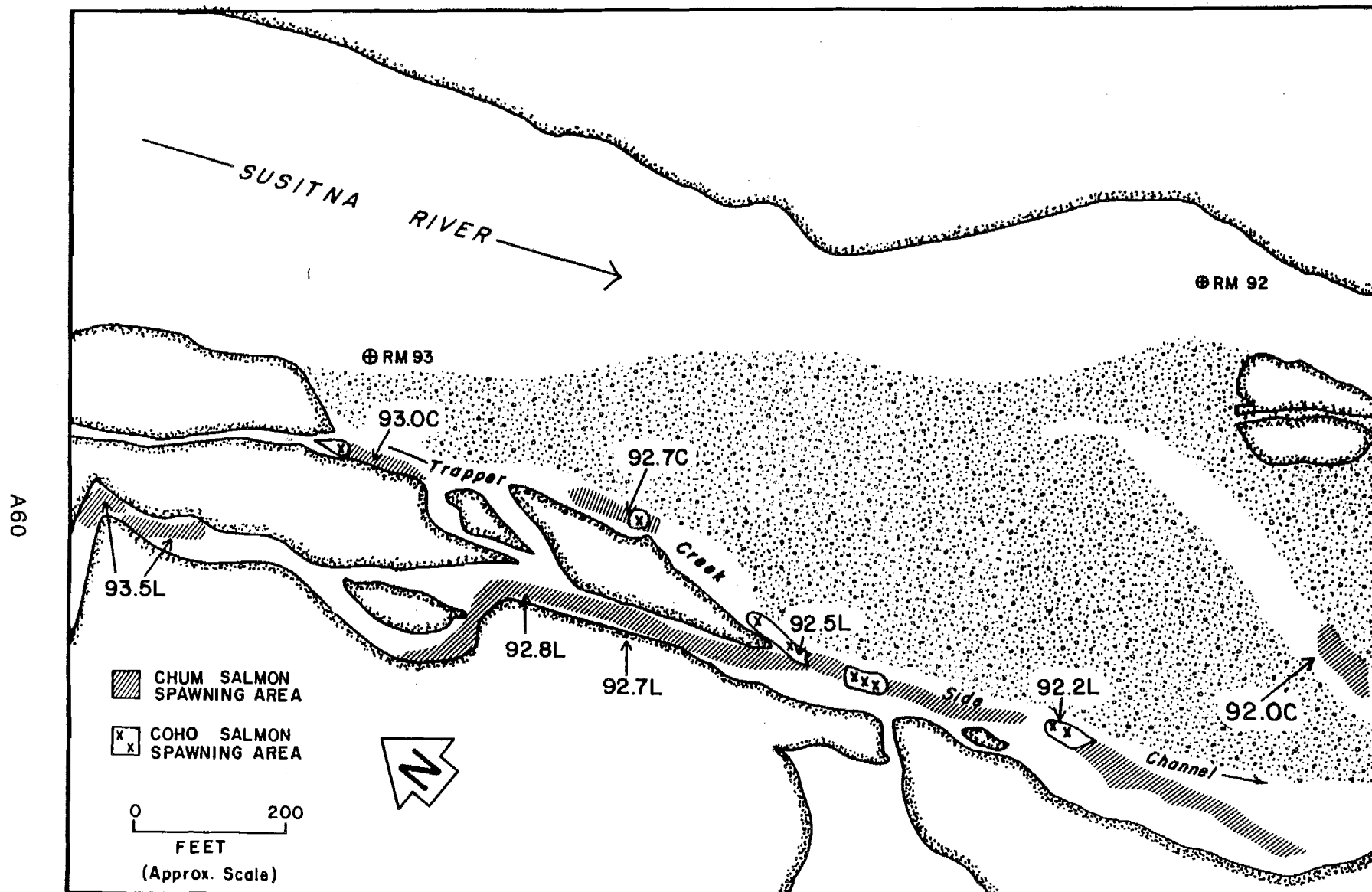
Appendix Figure A-8. Chum salmon mainstem spawning site at RM 87.0R in the lower Susitna River, 1984.



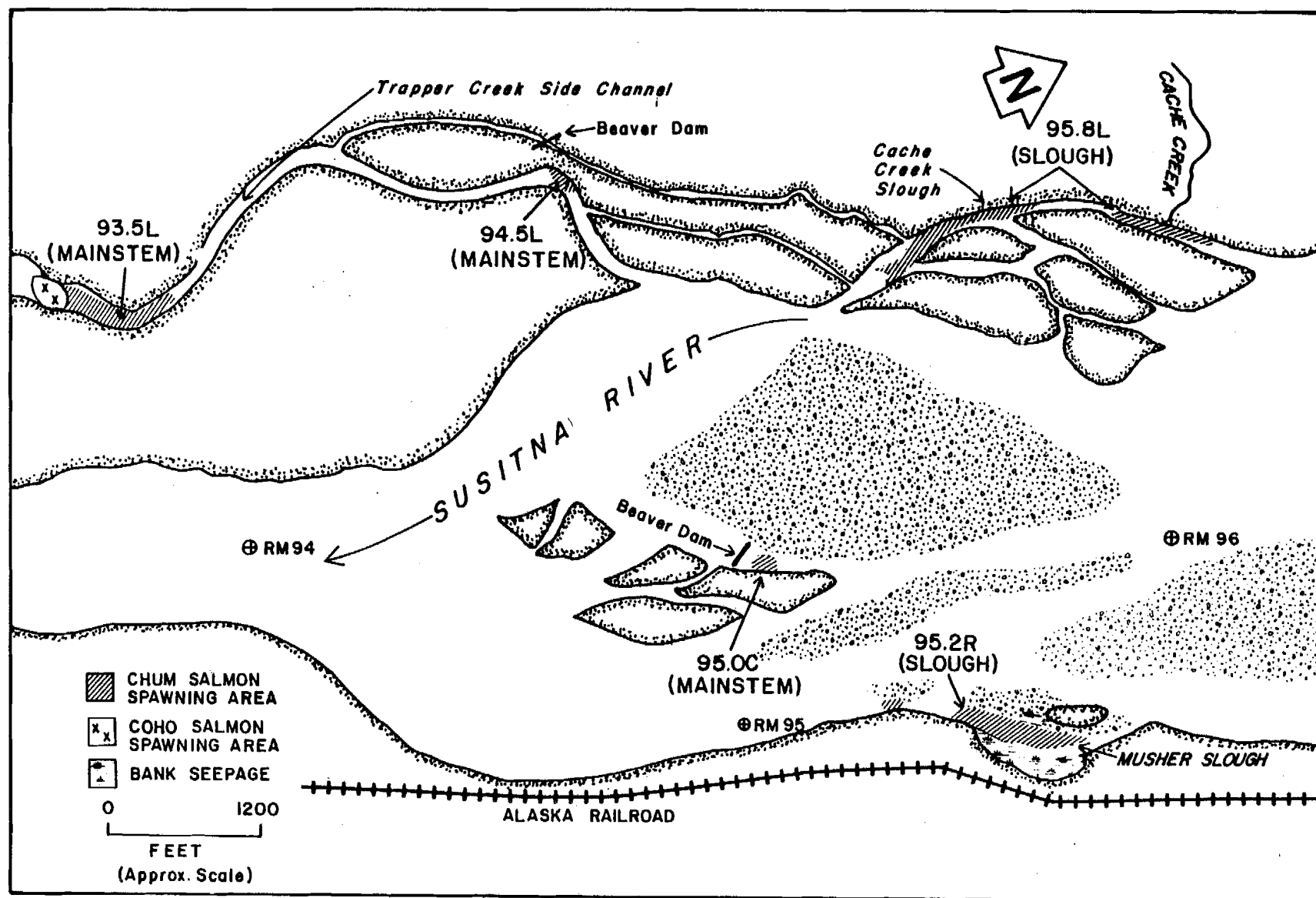
Appendix Figure A-9. Coho salmon mainstem spawning site at RM 87.5R in the lower Susitna River, 1984.



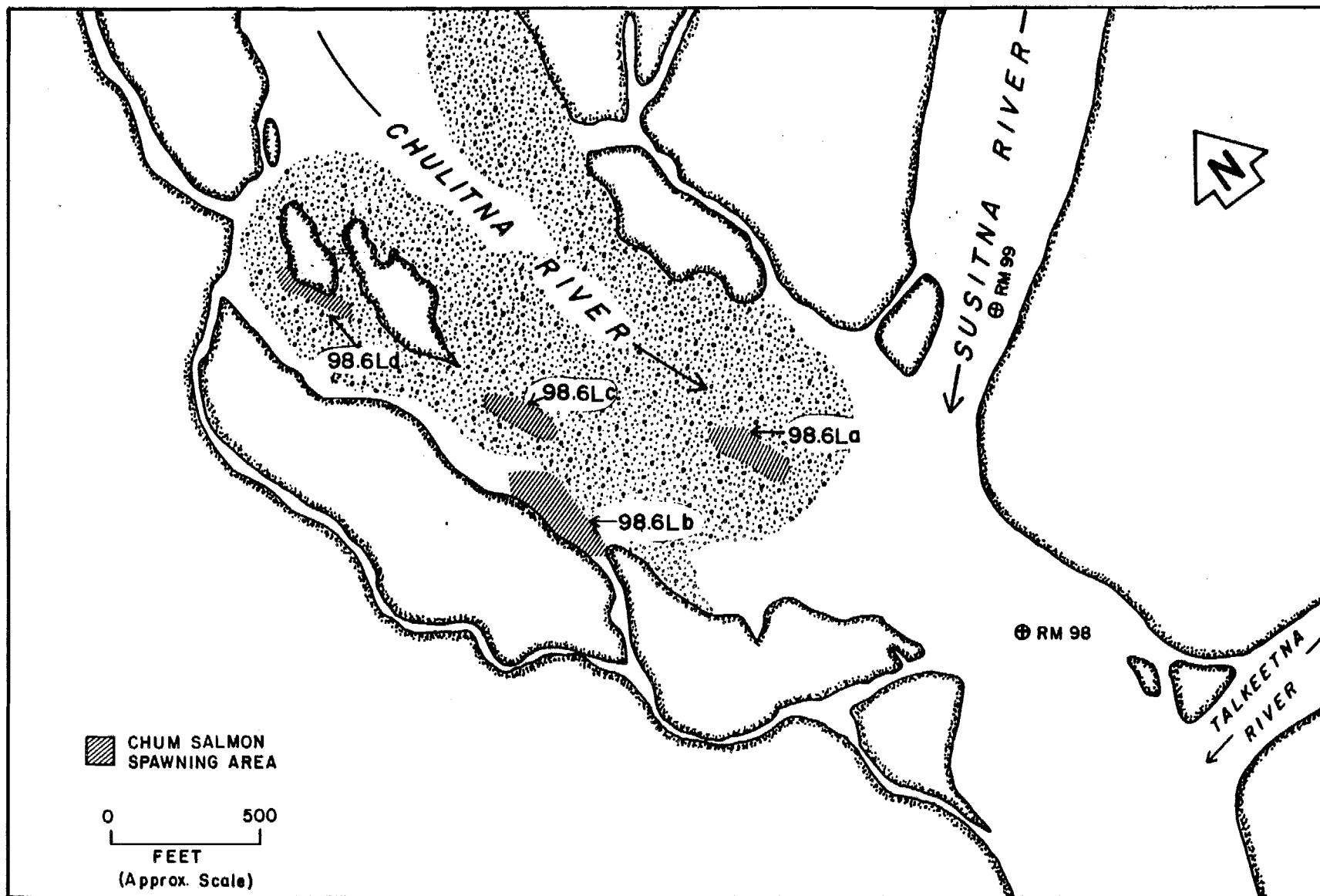
Appendix Figure A-10. Chum salmon mainstem and slough spawning sites between RM 88.7R and 90.1R in the lower Susitna River, 1984.



Appendix Figure A-11. Chum and coho salmon mainstem spawning sites between RM 92.0C and 93.5L in the lower Susitna River, 1984.



Appendix Figure A-12. Chum and coho salmon mainstem and slough spawning sites between RM 93.5L and 95.8L in the lower Susitna River, 1984.



Appendix Figure A-13. Chum salmon mainstem spawning sites at RM 98.6L in the lower Susitna River, 1984.

APPENDIX B

Site descriptions, site maps and adult salmon usage of stream mouths in the lower Susitna River between RM 28.0 and 98.6 in 1984.

Habitat data including channel width, depth and substrate components were measured in the mouth reach of 18 lower Susitna River streams located between RM 28.0 and 98.6 in 1984 (Appendix Figure B-1). These data were collected at two mainstem discharges as measured by U.S. Geological Survey at the Sunshine gaging station (RM 83.9) (Appendix Table B-1). Stream mouth profiles for each stream were also determined at two discharges. Depictions of these profiles with associated substrate types are present for each stream narrative. This appendix presents those findings by stream and in addition, defines individual use of the stream mouth reaches for adult salmon spawning and passage. Appendix Table B-1 summarizes the habitat characteristics and adult salmon use data for all lower Susitna River stream mouths sampled in 1984.

FISH CREEK (RM 31.2) Stream Mouth Habitat Description

The stream mouth of Fish Creek was up to 150 feet wide and ten feet deep at high discharges, but the average width was less than 120 feet with average depths less than six feet (Appendix Table B-1). The primary substrate was silt-sand and the water was tannin stained (Appendix Figure B-2).

Adult Salmon Use

Salmon did not spawn in the mouth reach of Fish Creek (RM 31.2) between July 21 and October 1, 1984. Two (1984) cross section transects revealed a substrate composition of mainly silts and sands which were unsuitable salmon spawning habitat (Appendix Figure B-2). The mouth reach was a passage area for chinook and coho salmon spawning in upstream habitats (ADF&G 1984).

NONAME CREEK (RM 31.7) Stream Mouth Habitat Description

The stream mouth of Noname Creek was typically 50 feet across with an average depth of two feet expanding to 95 feet with depths of 7.5 feet at higher Susitna River discharges (110,600 cfs) (Appendix Table B-1). Streambed substrates in the mouth area were silt-sand and the water was tannin stained (Appendix Figure B-3).

Adult Salmon Use

Salmon did not spawn in the stream mouth of noname creek between July 21 and October 17, 1984. A cross section transect revealed a streambed substrate composition mainly of silts and sands which was unsuitable as salmon spawning habitat (Appendix Figure B-3). The stream mouth was a passage area for coho salmon spawning in upstream habitats (ADF&G 1984).

WHITSOL CREEK (RM 35.2)

Stream Mouth Habitat Description

The stream mouth of Whitsol Creek was up to 160 feet wide and as deep as six feet at high discharges. The average width was less than 140 feet with depths less than two feet (Appendix Table B-1). Water was tannin stained and visibility was poor. Streambed substrates were silt and sand up to six inches deep (Appendix Figure B-4).

Adult Salmon Use

The stream mouth of Whitsol Creek was not used for salmon spawning between July 21 and October 17, 1984, as determined by ground and aerial surveys. Two cross section transects revealed a substrate composition mainly of silts and sands which were unsuitable as salmon spawning habitat (Appendix Figure B-4) (ADF&G 1983b). The stream mouth was a passage area for sockeye and coho salmon spawning in upstream habitats.

DESHKA RIVER (RM 40.6)

Stream Mouth Habitat Description

The Deshka River mouth was over six feet deep. Primary substrates were silts and sands and the water was tannin stained. Transects were not done at this site.

Adult Salmon Use

General substrate evaluations revealed the substrate composition is mainly silts and sands which were not suitable as salmon spawning habitat therefore salmon probably did not spawn in this stream mouth (ADF&G 1983b). The stream mouth was a passage area for chinook, sockeye, pink and coho salmon spawning to upstream habitats (ADF&G 1984).

ROLLY CREEK (RM 39.0)

Stream Mouth Habitat Description

Rolly Creek was approximately 70 feet across and generally less than six feet deep in the mouth area (Appendix Table B-1). Water was tannin stained and visibility poor. The primary substrate was silt-sand greater than six inches deep (Appendix Figure B-5).

Adult Salmon Use

Salmon spawning did not occur in the stream mouth of Rolly Creek between July 21 and October 17, 1984. Two 1984 cross-section transects revealed a substrate composition primarily of silts and sands which were not suitable as salmon spawning habitat (Appendix Figure B-5) (ADF&G 1983b). The stream mouth was a passage area for chinook and coho salmon spawning in upstream habitats (ADF&G 1984).

WILLOW CREEK (RM 49.1)

Stream Mouth Habitat Description

The stream mouth of Willow Creek was typically 50 feet across with depths of six and a half feet or less (Appendix Table B-1). Water was usually clear. Substrate was primarily gravel-rubble with two to four inches of silt overlaying suitable large gravel and rubble (Appendix Figure B-6).

Adult Salmon Use

Both pink salmon and chum salmon were observed spawning in the mouth of Willow Creek in 1984 (Appendix Figure B-6). Cross-section transects revealed substrate composition of large gravels and rubble which were suitable for salmon spawning (ADF&G 1983b). The stream mouth was a passage area for chinook, sockeye, pink, chum and coho salmon spawning in upstream habitats (Appendix Table D-1).

LITTLE WILLOW CREEK (RM 50.5)

Stream Mouth Habitat Description

The stream mouth of Little Willow Creek was approximately 70 feet wide with depths less than 2.5 feet. At high discharges, widths up to 90 feet and depths up to four feet were measured (Appendix Table B-1). Substrates in this area were generally rubble and large gravel with intermittent pockets of silt-sand (Appendix Figure B-7). Creek water was generally clear.

Adult Salmon Use

Pink salmon spawning was observed in the stream mouth of Little Willow Creek in 1984 (Appendix Figure B-7). Habitat data collected at transects in the stream mouth revealed a substrate composition consisting mainly of rubble and large gravel which were suitable for salmon spawning (ADF&G 1983b).

The stream mouth was a passage area for chinook, sockeye, pink, chum and coho salmon spawning in upstream habitats (Appendix Table D-1).

GRAYS CREEK (RM 59.5)

Stream Mouth Habitat Description

At its mouth, Grays Creek was typically 60 feet wide and less than five feet deep with tannin stained water (Appendix Table B-1). At higher flows, widths of 75 feet and depths up to six feet were measured. Visibility was usually poor. Substrates were primarily silt-sand with a few areas of gravel-rubble (Appendix Figure B-8).

Adult Salmon Use

Salmon spawning did not occur in the stream mouth of Grays Creek between July 21 and October 17, 1984. A cross-section transect revealed a substrate composition mainly of silt and sand indicating unsuitable

salmon spawning habitat (Appendix Figure B-8) (ADF&G 1983b). The stream mouth was a passage area for chinook and pink salmon spawning in upstream habitats (Appendix Table D-1).

KASHWITNA RIVER (RM 61.0)
Stream Mouth Habitat Description

The stream mouth of the Kashwitna River was typically over 100 feet across and over six feet deep. Visibility was poor due to depth and backwater effects until late September when water levels decreased. Substrates were primarily rubble-cobble (Appendix Figure B-9). High velocities combined with depths of over six feet precluded transect measurements being taken in this river mouth.

Adult Salmon Use

Salmon spawning activity was not observed in the stream mouth of the Kashwitna River between July 21 and October 17, 1984. Habitat observations revealed a substrate composition mainly of rubble-cobble which was within the range considered suitable for salmon spawning habitat (ADF&G 1983b). Spawning may have occurred in this reach however, high velocities and depths of over six feet precluded observations. The stream mouth was a known passage area for chinook, pink, chum and coho salmon spawning in upstream habitats (ADF&G 1984).

CASWELL CREEK (RM 64.0)
Stream Mouth Habitat Description

The stream mouth of Caswell Creek was an average of 70 feet wide and three feet deep (Appendix Table B-1). Substrates were primarily large gravel and rubble with one to three inches of silt overlaying (Appendix Figure B-10).

Adult Salmon Use

Pink and chum salmon were observed spawning in the stream mouth of Caswell Creek in 1984 (Appendix Figure B-10). A cross-section transect revealed a substrate composition mainly of large gravel and rubble which were considered to be suitable for salmon spawning (ADF&G 1983b). The stream mouth was a passage area for chinook, sockeye, pink, chum and coho salmon spawning in upstream habitats (Appendix Table D-1).

SHEEP CREEK (RM 66.1)
Stream Mouth Habitat Description

In the stream mouth Sheep Creek was up to 150 feet wide, six feet deep with clear water (Appendix Table B-1). Substrates were primarily small gravel-large gravel with some silt (Appendix Figure B-11).

Adult Salmon Use

Pink salmon were observed spawning in the stream mouth of Sheep Creek in 1984 (Appendix Figure B-11). A cross-section transect revealed a

substrate composition mainly of small gravel and large gravel which were considered suitable for salmon spawning (ADF&G 1983b). The stream mouth was a passage area for chinook, sockeye, chum and coho salmon spawning in upstream habitats (ADF&G 1984).

GOOSE CREEK (RM 72.0)

Stream Mouth Habitat Description

The stream mouth of Goose Creek was an average of 50 feet wide increasing to 80 feet wide with depths up to three feet at high discharges (Appendix Table B-1). Substrates were small gravel-large gravel with up to two inches of silt overlaying in some areas (Appendix Figure B-12). Stream water was typically clear.

Adult Salmon Use

Pink salmon were observed spawning in the stream mouth of Goose Creek in 1984 (Appendix Figure B-12). A cross-section transect revealed a substrate composition mainly of small gravel and large gravel which were suitable for salmon spawning (ADF&G 1983b). The stream mouth was a passage area for all five salmon species spawning in upstream habitats (Appendix Table D-1).

MONTANA CREEK (RM 77.0)

Stream Mouth Habitat Description

The stream mouth in Montana Creek was up to 60 feet wide and 2.5 feet deep with clear water (Appendix Table B-1). Substrates ranged from small gravel to cobble with rubble and large gravel predominating (Appendix Figure B-13). The slough Montana Creek empties into was sometimes turbid with mainstem flow.

Adult Salmon Use

The stream mouth of Montana Creek was used for spawning by pink and chum salmon in 1984 (Appendix Figure B-13). A cross-section transect revealed a substrate composition mainly of rubble and large gravel which were suitable for salmon spawning (ADF&G 1983). The stream mouth was a passage area for chinook and coho salmon spawning in upstream habitats (Appendix Table D-1).

RABIDEUX CREEK (RM 83.1)

Stream Mouth Habitat Description

The stream mouth of Rabideux Creek was approximately 140 feet wide and up to six and a half feet deep (Appendix Table B-1). Visibility was generally fair to poor and water was tannin stained. Above the first third mile, the creek narrows and clears, with the substrates ranging from gravel to cobble size. In the first third mile, substrates were primarily silt with some very large boulders and bedrock. (Appendix Figure B-14).

Adult Salmon Use

Salmon spawning did not occur in the stream mouth of Rabideux Creek between July 21 and October 17, 1984. A cross-section transect revealed a substrate composition mainly of silt with bedrock unsuitable for salmon spawning (Appendix Figure B-14) (ADF&G 1983b). The stream mouth was a passage area for chinook, sockeye, pink, chum and coho salmon spawning in upstream habitats (Appendix Table D-1).

SUNSHINE CREEK (RM 85.1)

Stream Mouth Habitat Description

Sunshine Creek was approximately 45 feet across and less than three feet deep in the mouth area with clear water (Appendix Table B-1). Substrates were rubble-large gravel with up to three inches of silt in some areas (Appendix Figure B-15). The slough which Sunshine Creek enters carries mainstem water much of the time.

Adult Salmon Use

Both pink and chum salmon spawned in the Sunshine Creek stream mouth (Appendix Figure B-15). One cross-section transect revealed a substrate composition mainly of rubble and large gravel which were suitable for salmon spawning (ADF&G 1983b). The stream mouth was a passage area for chinook, sockeye, pink, chum and coho spawning in upstream habitats (Appendix Table D-1).

BIRCH CREEK (RM 89.2)

Stream Mouth Habitat Description

Birch Creek stream mouth was less than 60 feet across and less than two feet deep (Appendix Table B-1). The stream water was clear and substrates were primarily small gravel and large gravel with a thin silt layer (Appendix Figure B-16). The slough at the stream mouth usually carries clear water.

Adult Salmon Use

Pink salmon were observed spawning in the stream mouth of Birch Creek and in the slough below the stream confluence in 1984 (Appendix Figures B-16 and B-17). A cross-section transect revealed a substrate composition of small gravel and large gravel which were suitable for salmon spawning (ADF&G 1983b). The stream mouth was a passage area for chinook, sockeye, pink, chum and coho salmon spawning in upstream habitats (Appendix Table D-1).

TRAPPER CREEK (RM 91.5)

Stream Mouth Habitat Description

The Trapper Creek stream mouth was generally 30 feet across and less than two feet deep with clear water (Appendix Table B-1). Substrates were primarily rubble and small gravel with between two and six inches of overlaying silt (Appendix Figure B-18).

Adult Salmon Use

Pink and chum salmon were observed spawning in the Trapper Creek stream mouth in 1984 (Appendix Figure B-18). A cross-section transect revealed a substrate composition mainly of rubble and large gravel, which were suitable for salmon spawning substrates (ADF&G 1983b). The stream mouth was a passage area for chinook, sockeye, pink, chum and coho salmon spawning in upstream habitats (Appendix Table D-1).

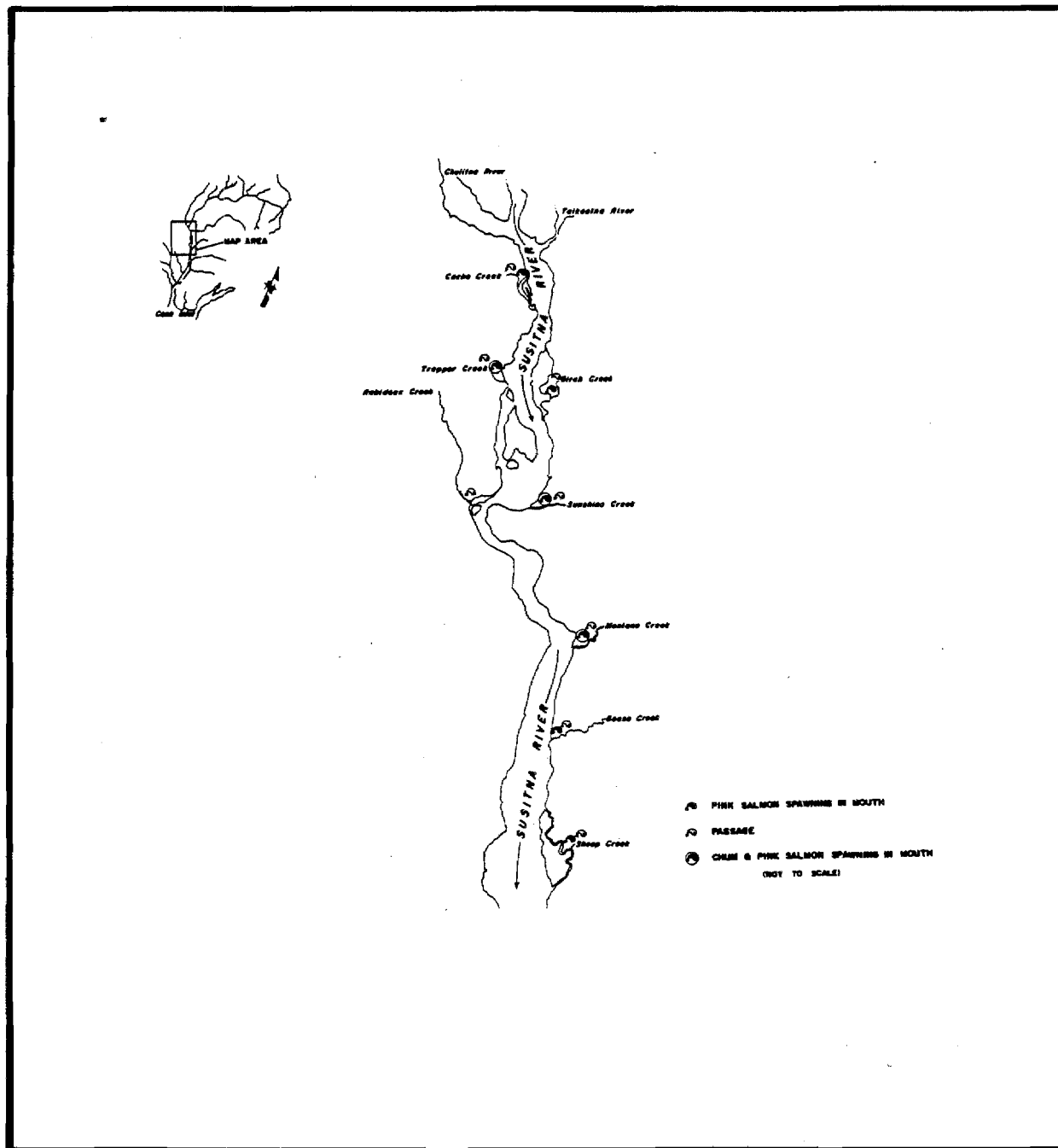
CACHE CREEK (RM 95.8)

Stream Mouth Habitat Description

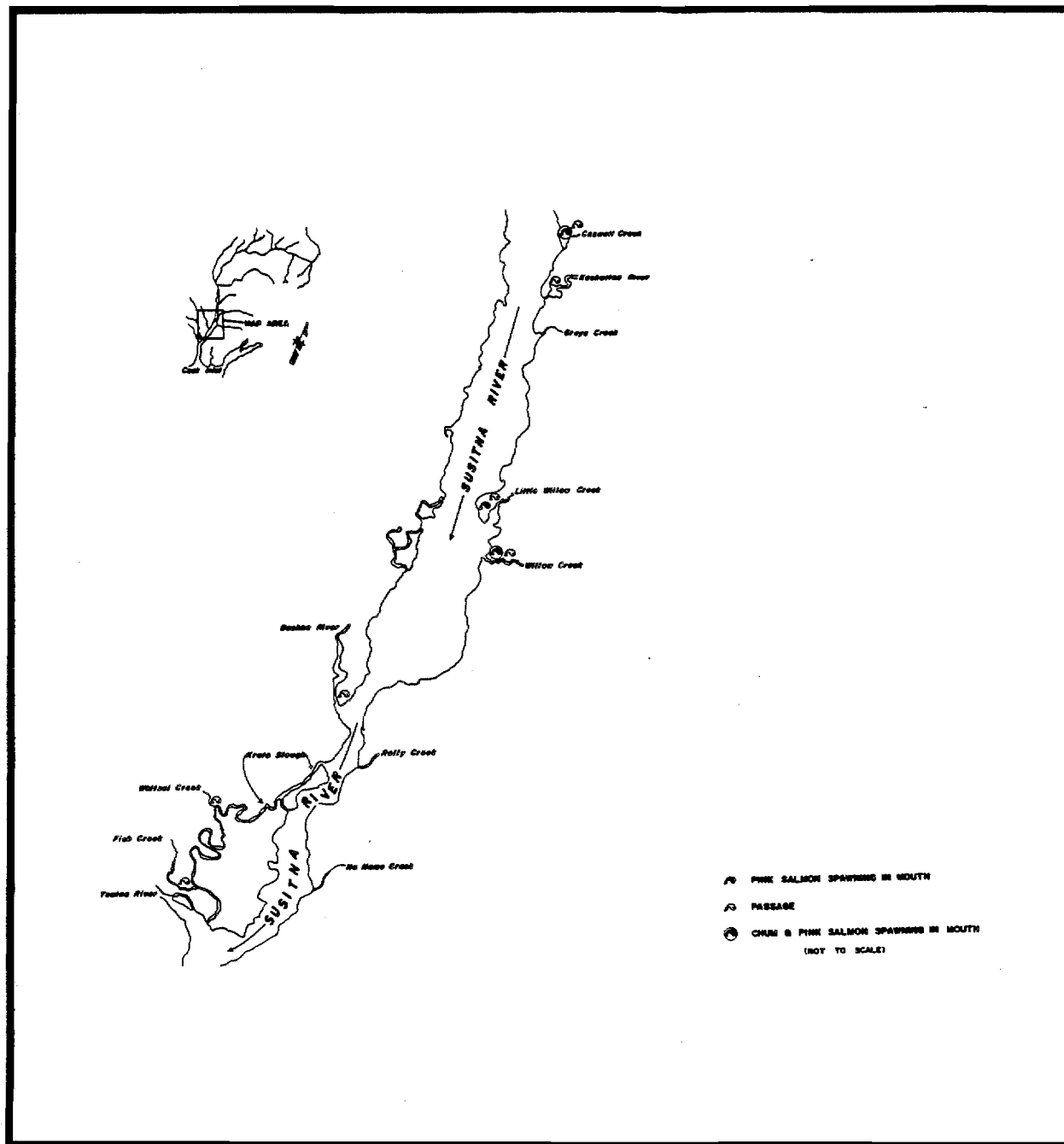
In the stream mouth, Cache Creek was approximately 45 feet across and less than two feet deep with clear water (Appendix Table B-1). Substrates in the first third mile were primarily small gravel and rubble with one-half inch to two inches of silt overlaying (Appendix Figure B-19).

Adult Salmon Use

Pink salmon were observed spawning in the Cache Creek stream mouth in 1984 (Appendix Figure B-19). A cross-section transect revealed a substrate composition mainly of small gravel and large gravel which were suitable for salmon spawning (ADF&G 1983b). The stream mouth was a passage area for chinook, pink, chum and coho salmon spawning in upstream habitats (ADF&G 1984) (Appendix Table D-1).



Appendix Figure B-1. Locations of streams in the lower Susitna River (RM 28.0 - 98.6) and adult salmon usage for each stream mouth, 1984.



Appendix Figure B-1 (cont.) Locations of streams in the lower Susitna River (RM 28.0 - 98.6) and adult salmon usage for each stream mouth, 1984.

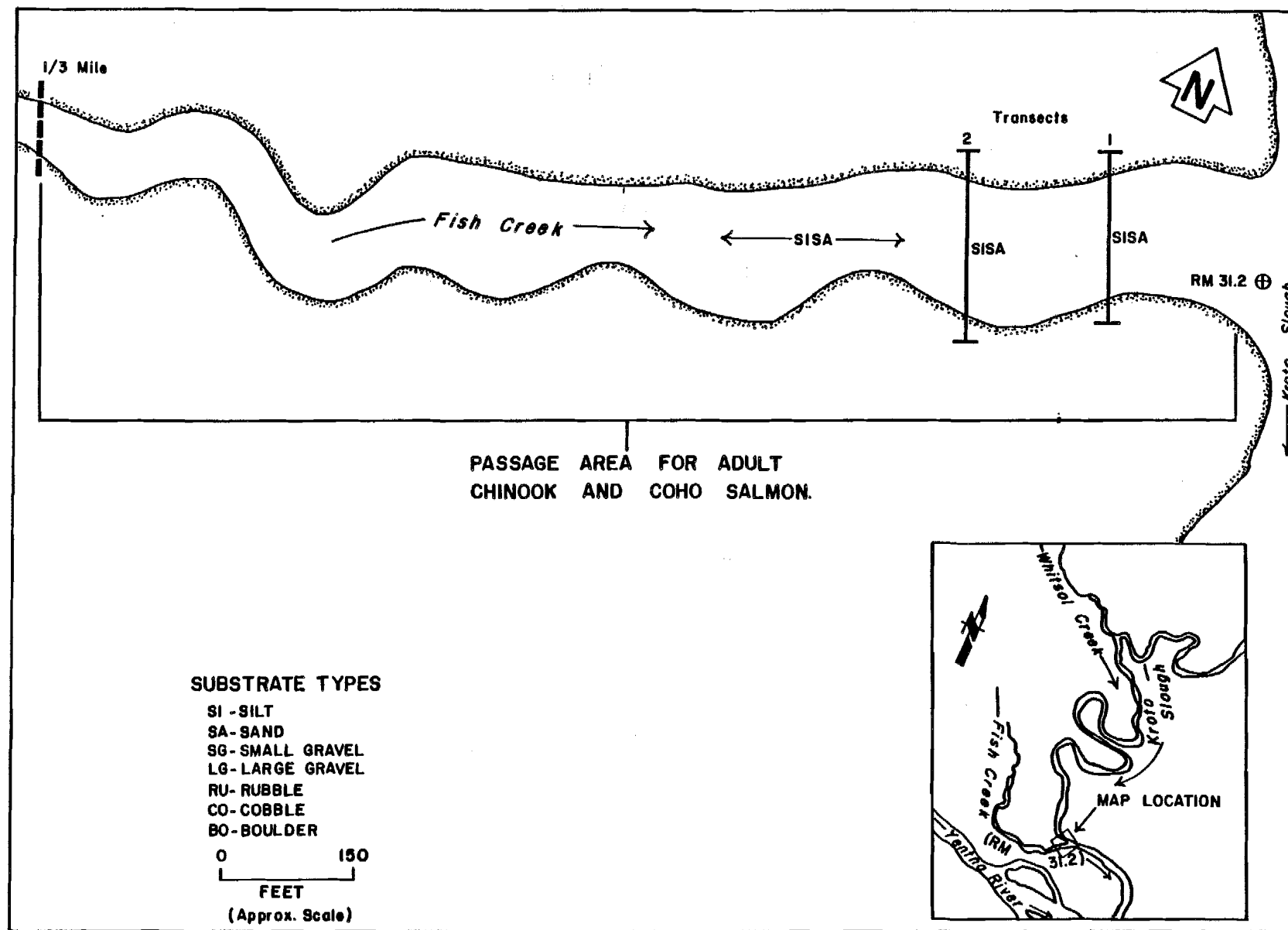
Appendix Table B-1. Summary of stream interface reach descriptions and adult salmon usage for streams between RM 28.0 and RM 98.6 of the Susitna River in 1984.

Stream	River Mile	Selected (Cross Section) Transects			Adult Salmon Use ^{2/}				
		Substrate Types ^{1/}	Average ^{3/} Depth(ft)	Average ^{3/} Width(ft)	Chinook	Sockeye	Pink	Chum	Coho
Fish	31.2	SISA	3.2	120	P	P			
Noname	31.7	SISA	2.1	50					
Whitsol	35.2	SISA	1.7	140		P			P
Rolly	39.0	SISA	3.2	70					
Deshka	40.6	SISA	6.0	200	P	P	P	P	P
Willow	49.1	LGRU	4.0	50		P	P,S	P,S	P
Little Willow	50.5	RULG	1.4	70	P	P	P,S	P	P
Gray's	59.5	SISA	3.0	60	P		P		
Kashwitna	61.0	RUCO	6.0	100			P		
Caswell	64.0	LGRU	3.1	70	P	P	P,S	P,S	P
Sheep	66.1	SGLG	4.0	150		P	P,S	P	P
Goose	72.0	SGLG	1.6	50	P	P	P,S	P	P
Montana	77.0	RULG	1.6	60	P		P,S	P,S	P
Rabideux	83.1	SISA	3.6	140	P	P	P	P	P
Sunshine	85.1	RULG	2.3	45	P	P	P,S	P,S	P
Birch	89.2	SGLG	1.0	60	P	P	P,S	P	P
Trapper	91.5	RULG	1.2	30	P	P	P,S	P,S	P
Cache	95.5	SGLG	1.2	45		P	P,S	P	P

^{1/} SI (silt), SA (sand), SG (small gravel), LG (large gravel), RU (rubble), CO (cobble), BO (boulder).

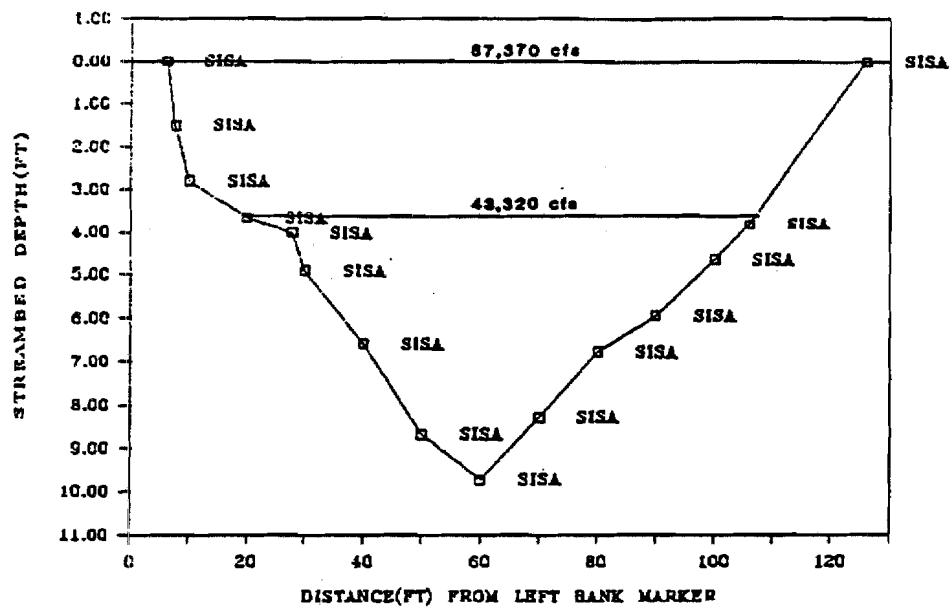
^{2/} P = Passage; S = Spawning

^{3/} Average depths and widths at Susitna mainstem discharges between 43,320 and 48,900 cfs measured at USGS gaging station RM 83.9

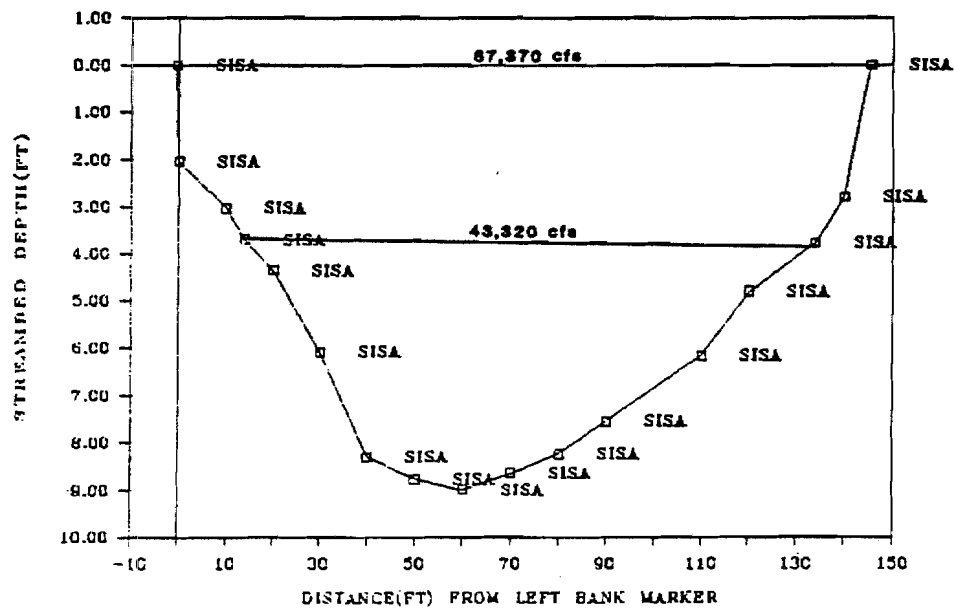


Appendix Figure B-2 Fish Creek (RM 31.2) stream mouth reach with transects, substrates and adult salmon usage indicated.

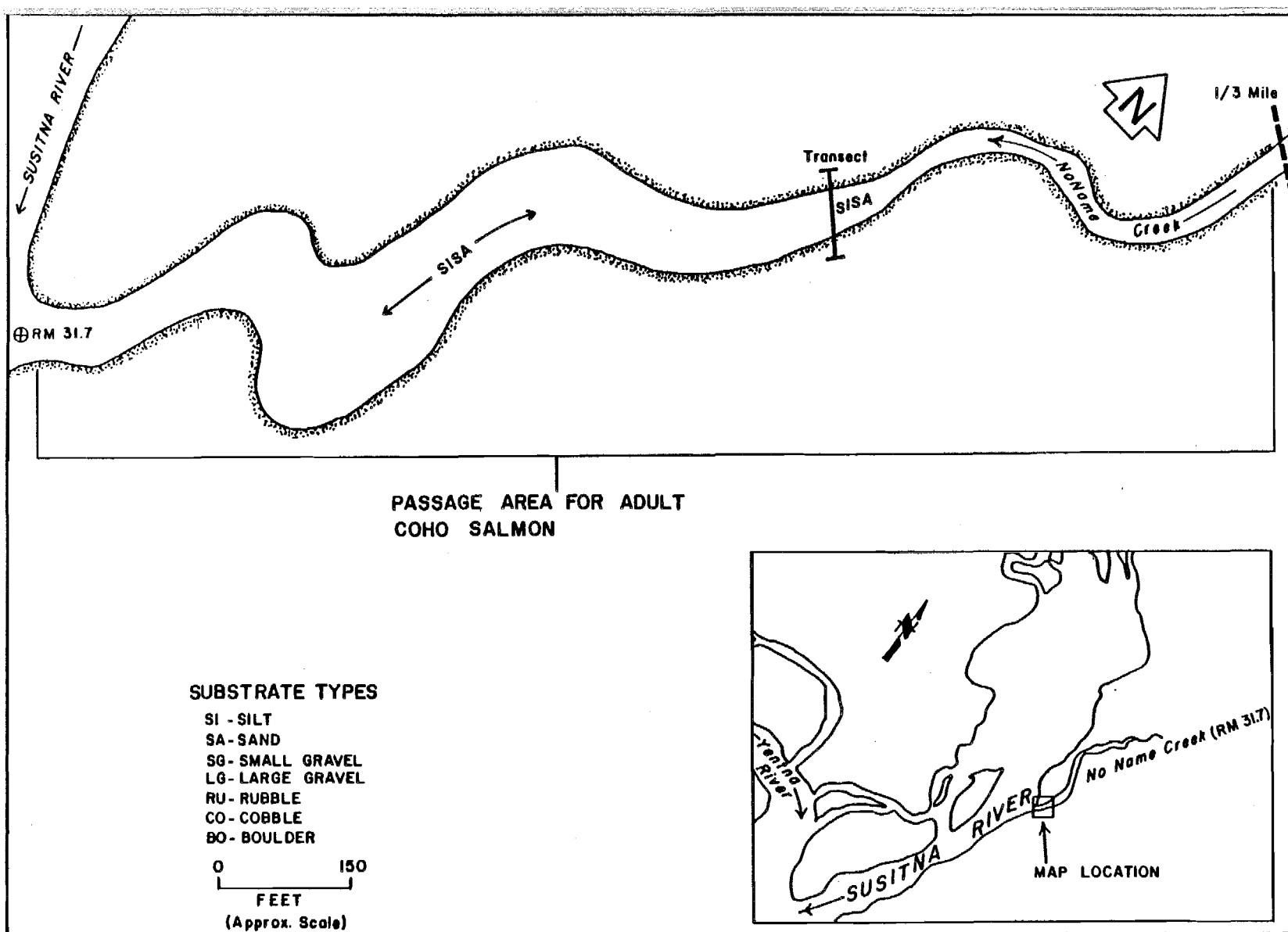
FISH CREEK TRANSECT 1



FISH CREEK TRANSECT 2

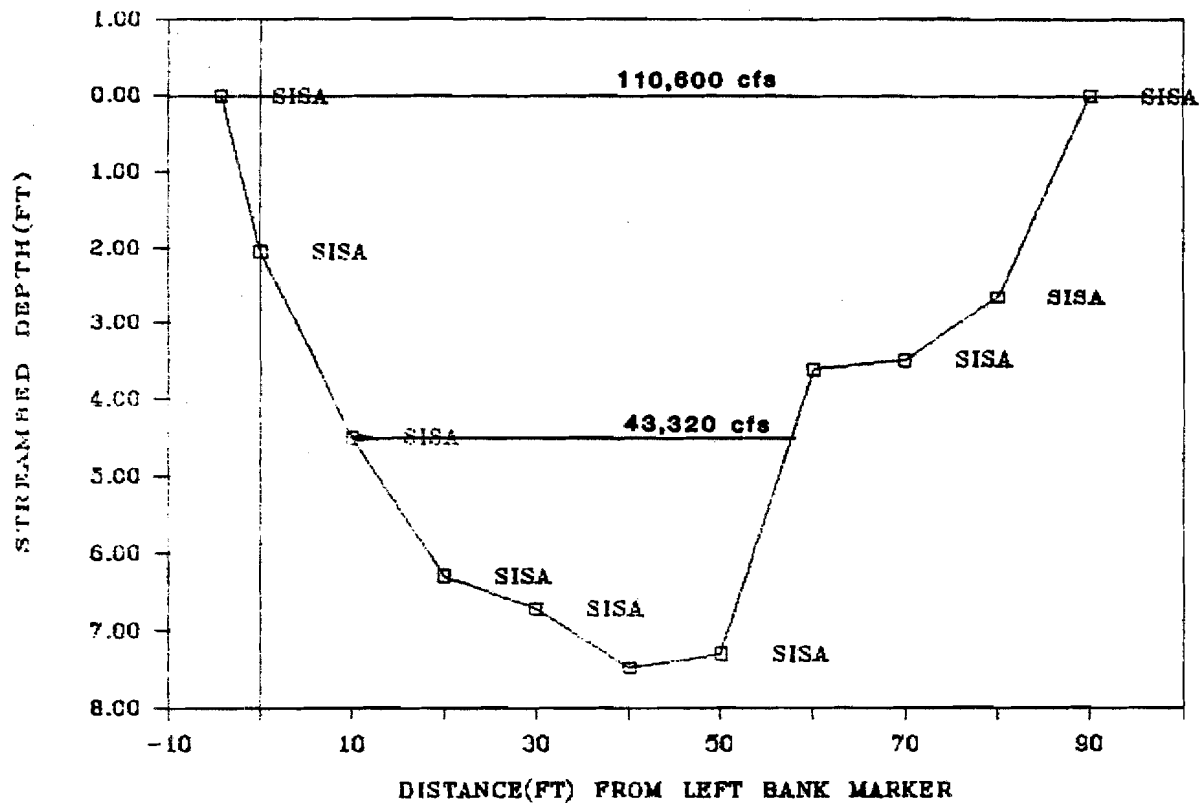


Appendix Figure B-3. Fish Creek Transects 1 and 2 depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

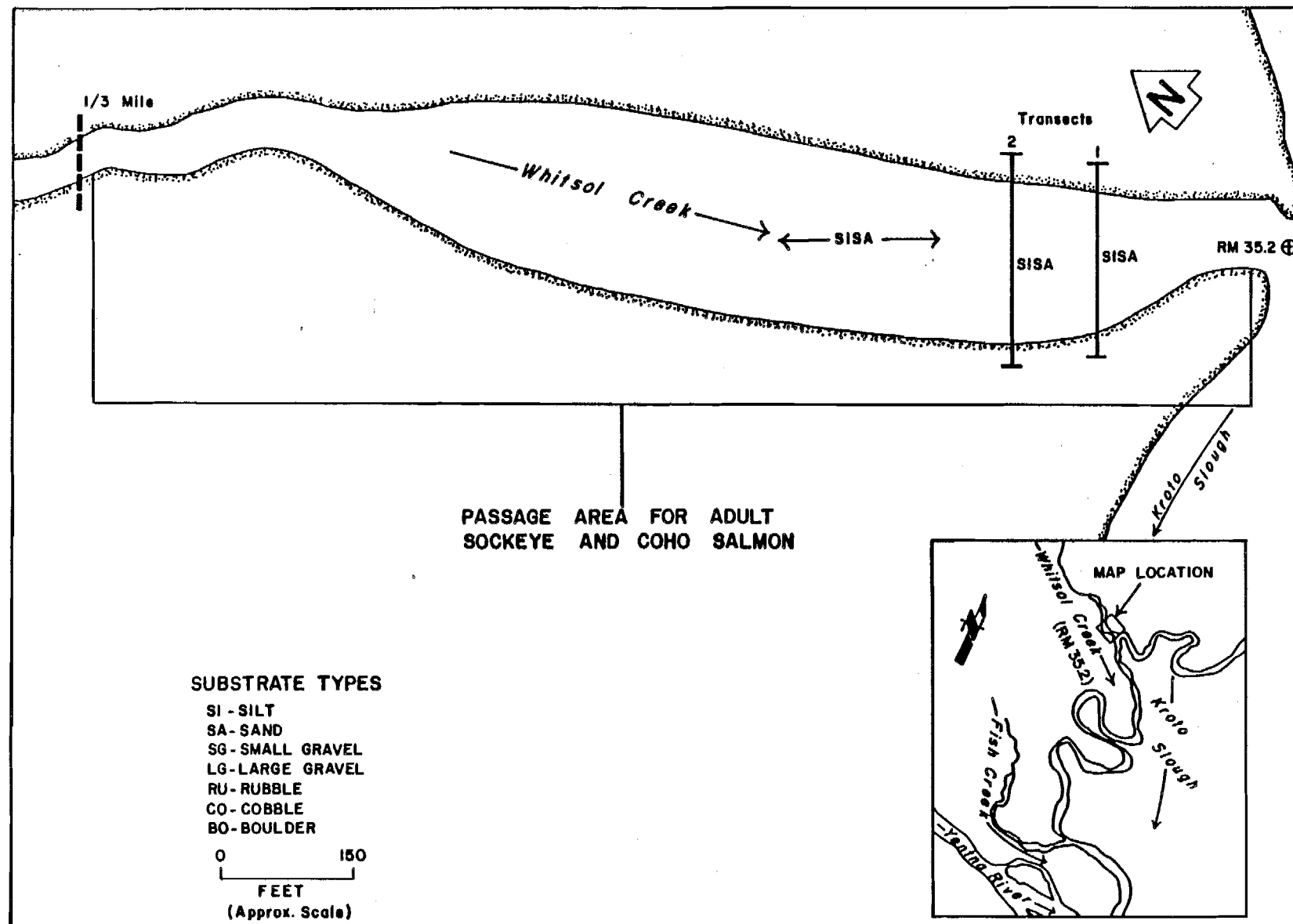


Appendix Figure B-4 Noname Creek (RM 31.7) stream mouth reach with transect, substrates and adult salmon usage indicated.

NONAME CREEK

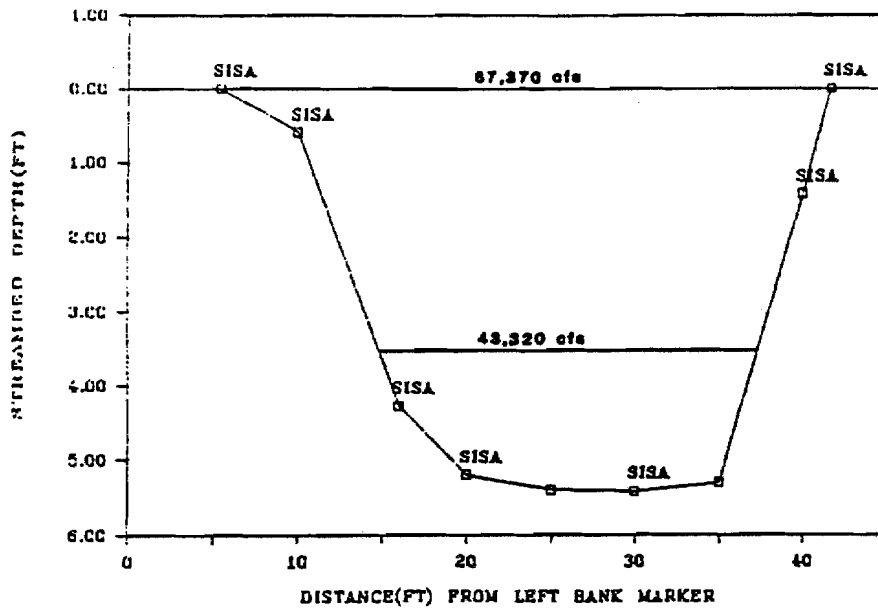


Appendix Figure B-5. Transect at Noname Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

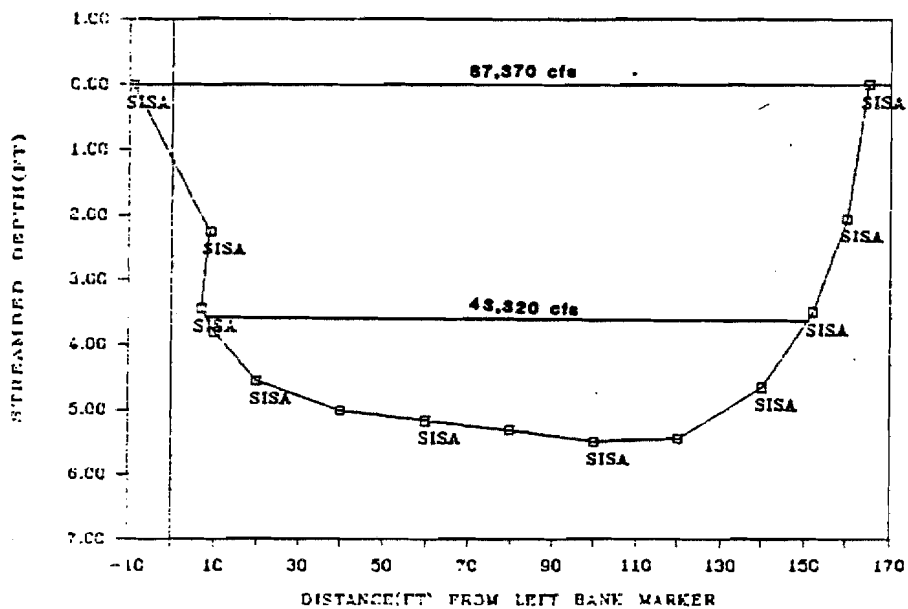


Appendix Figure B-6 Whitsol Creek (RM 35.2) stream mouth reach with transects, substrates and adult salmon usage indicated.

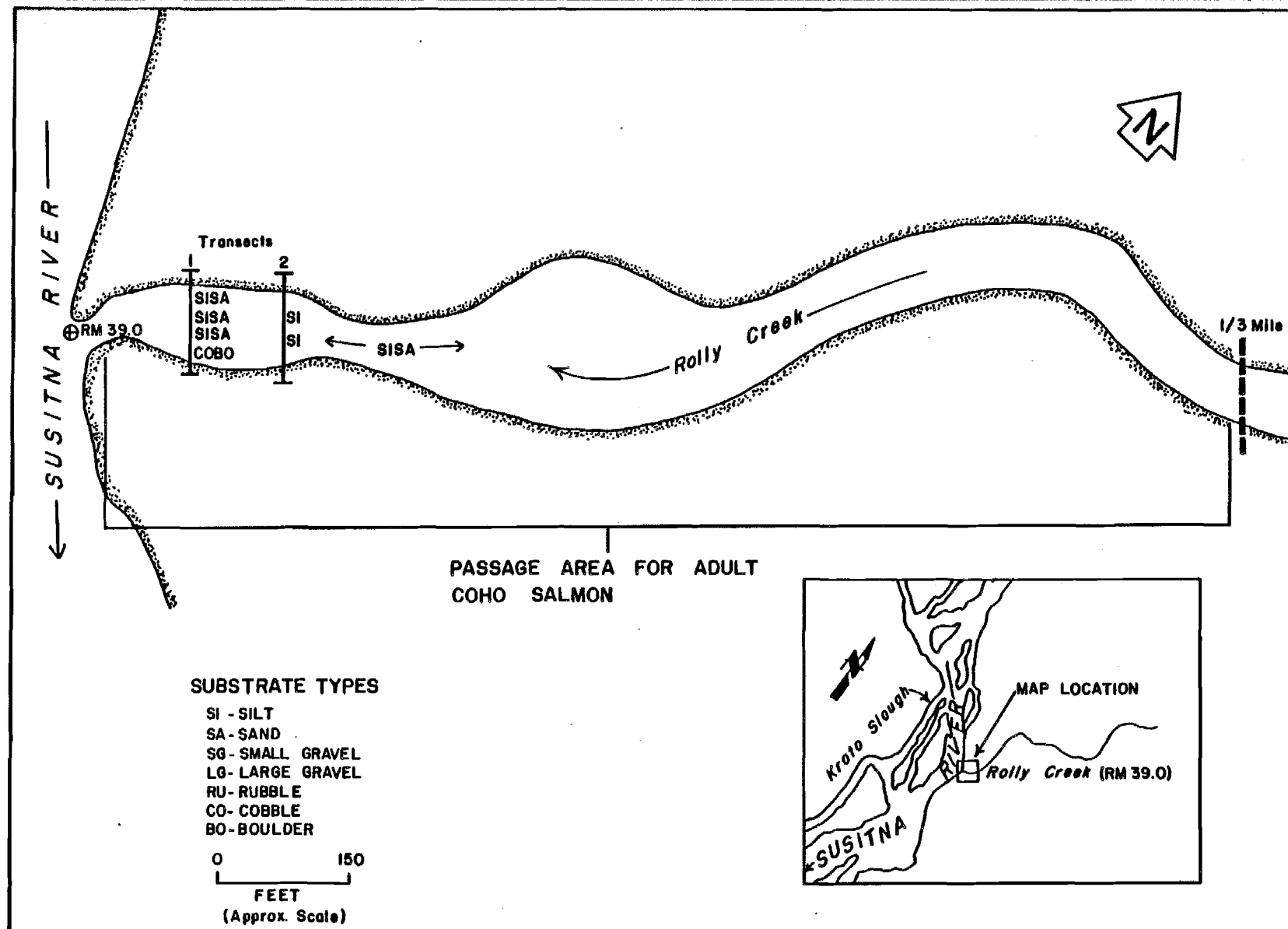
WHITSOL CREEK TRANSECT 1



WHITSOL CREEK TRANSECT 2

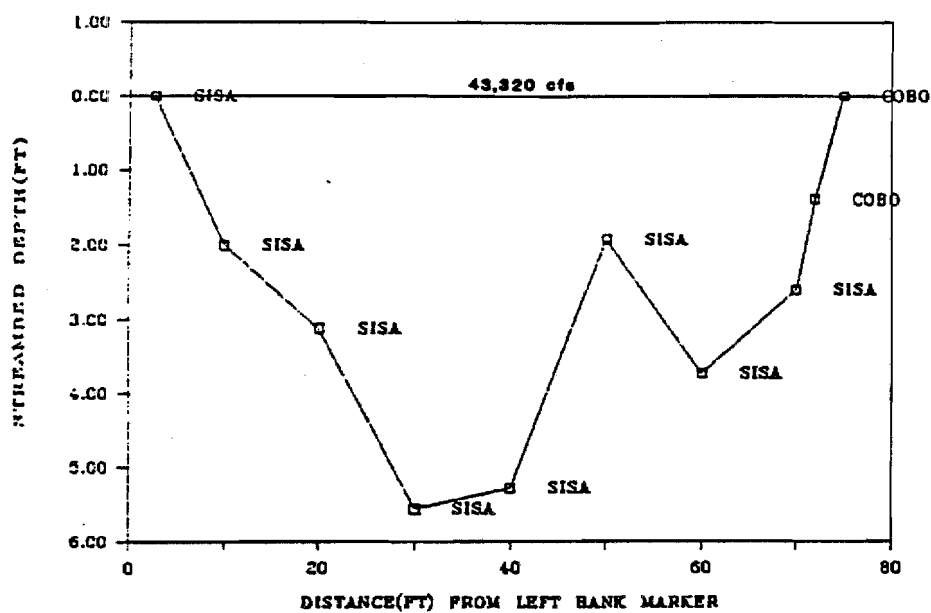


Appendix Figure B-7. Transect at Whitsol Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

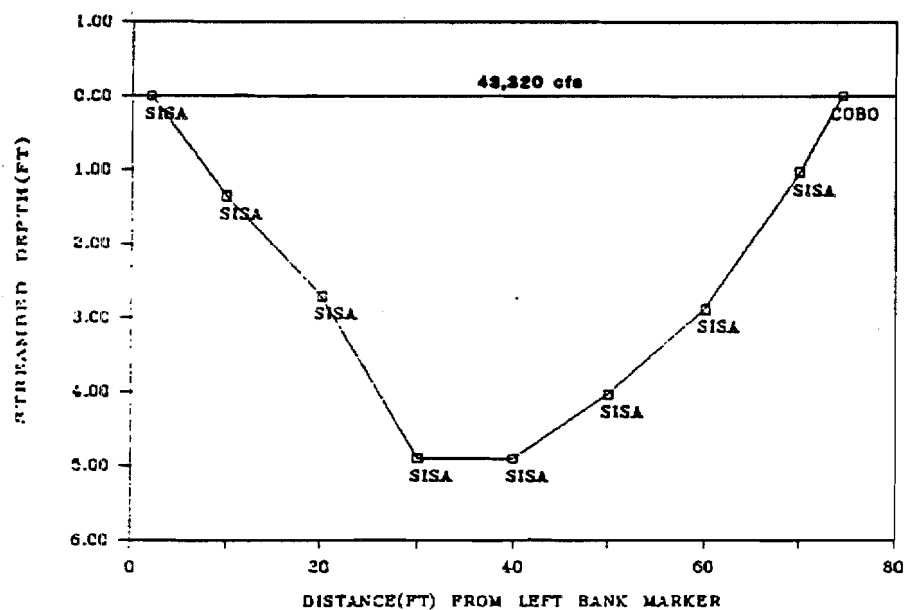


Appendix Figure B-8 Rolly Creek (RM 39.0) stream mouth reach with transects, substrates and adult salmon usage indicated.

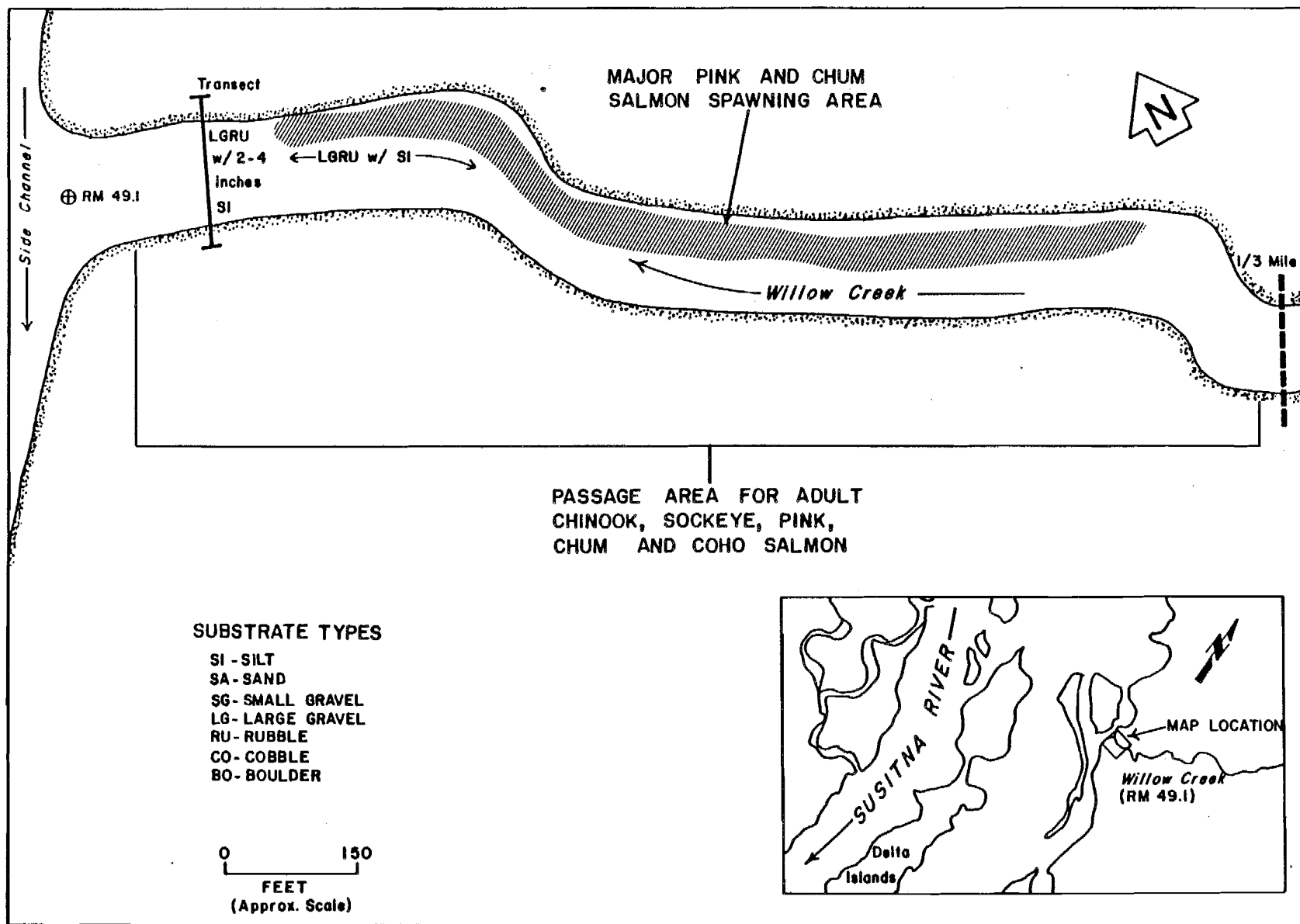
ROLLY CREEK TRANSECT 1



ROLLY CREEK TRANSECT 2

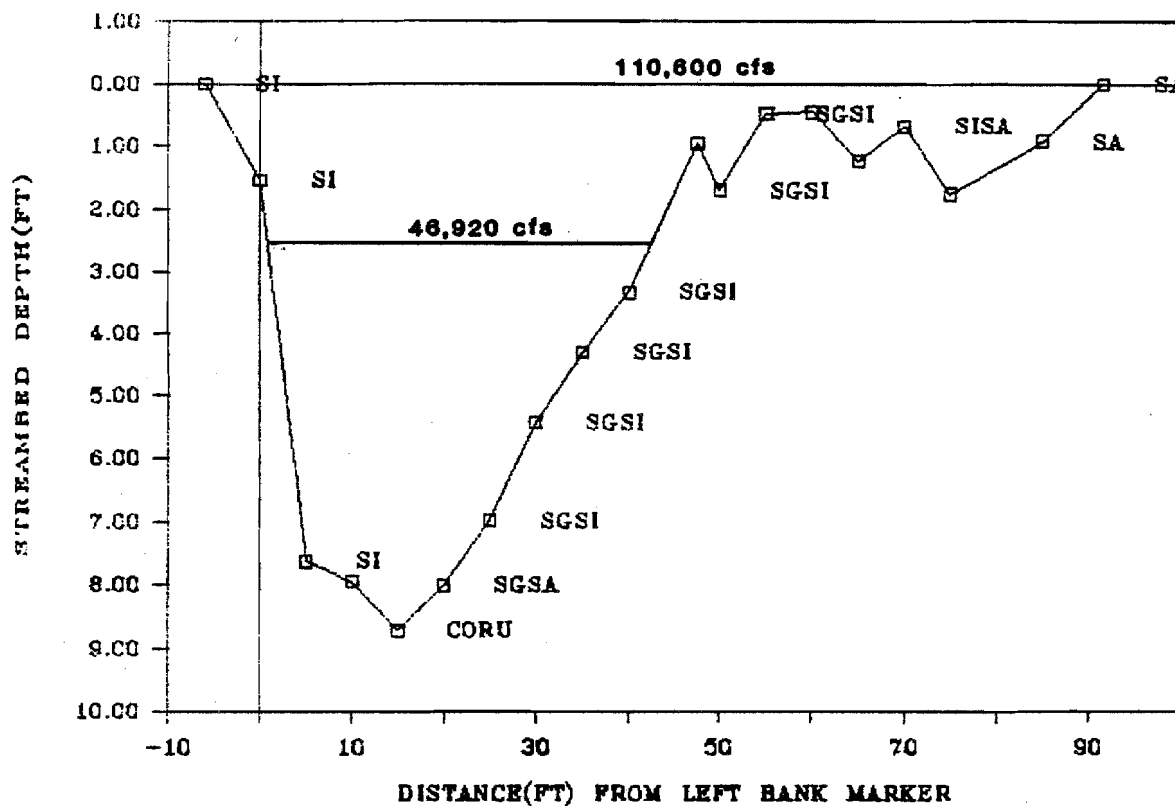


Appendix Figure B-9. Transect at Rolly Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

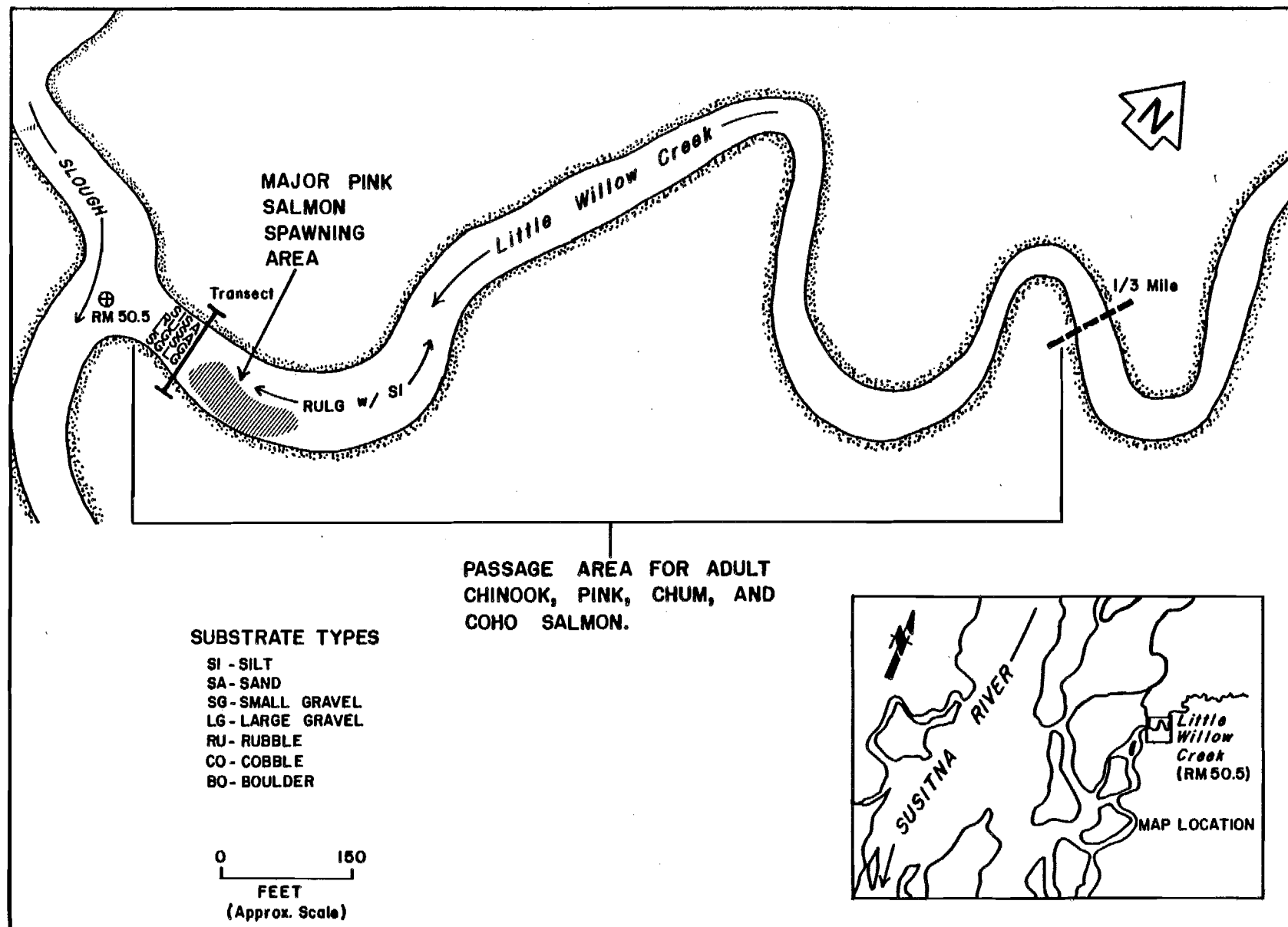


Appendix Figure B-10. Willow Creek (RM 49.1) stream mouth reach with transect, substrates and adult salmon usage indicated.

WILLOW CREEK

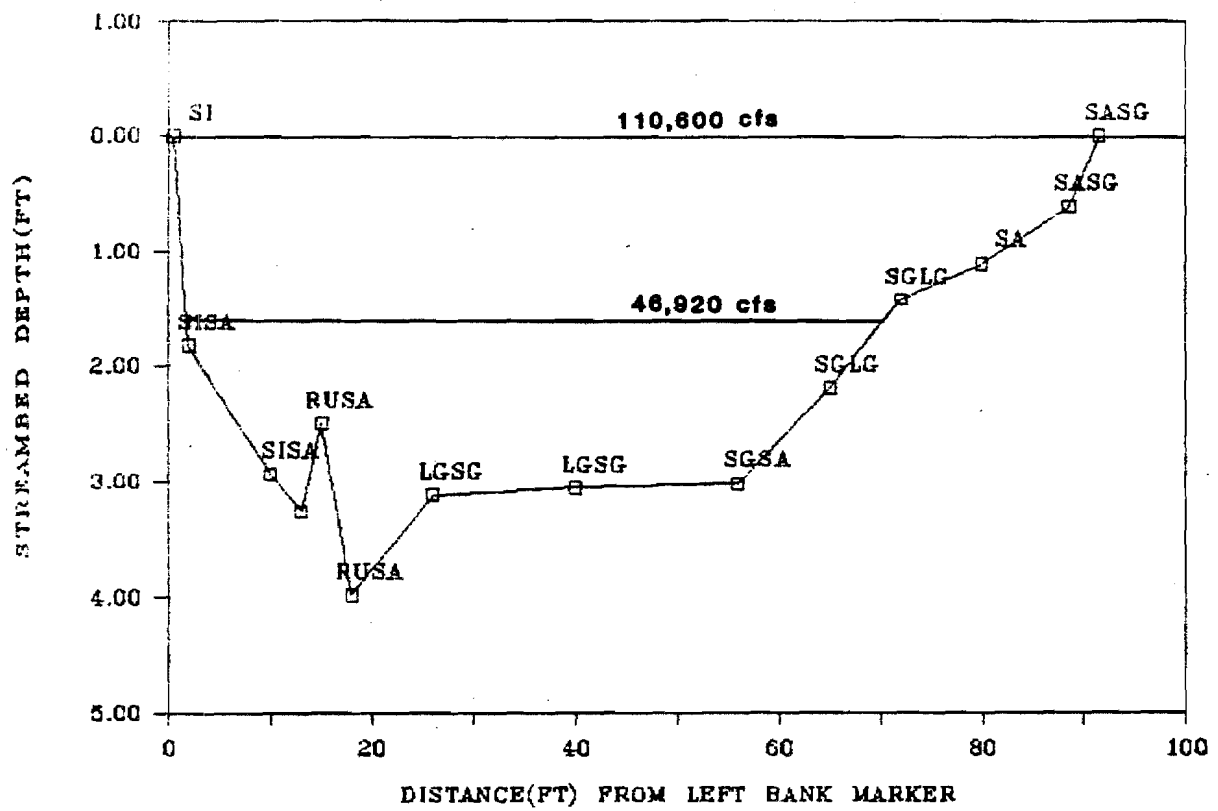


Appendix Figure B-11. Transect at Willow Creek depicting water surface elevations at two different Susitna River discharges measured at Sunshine gaging station (RM 83.9).

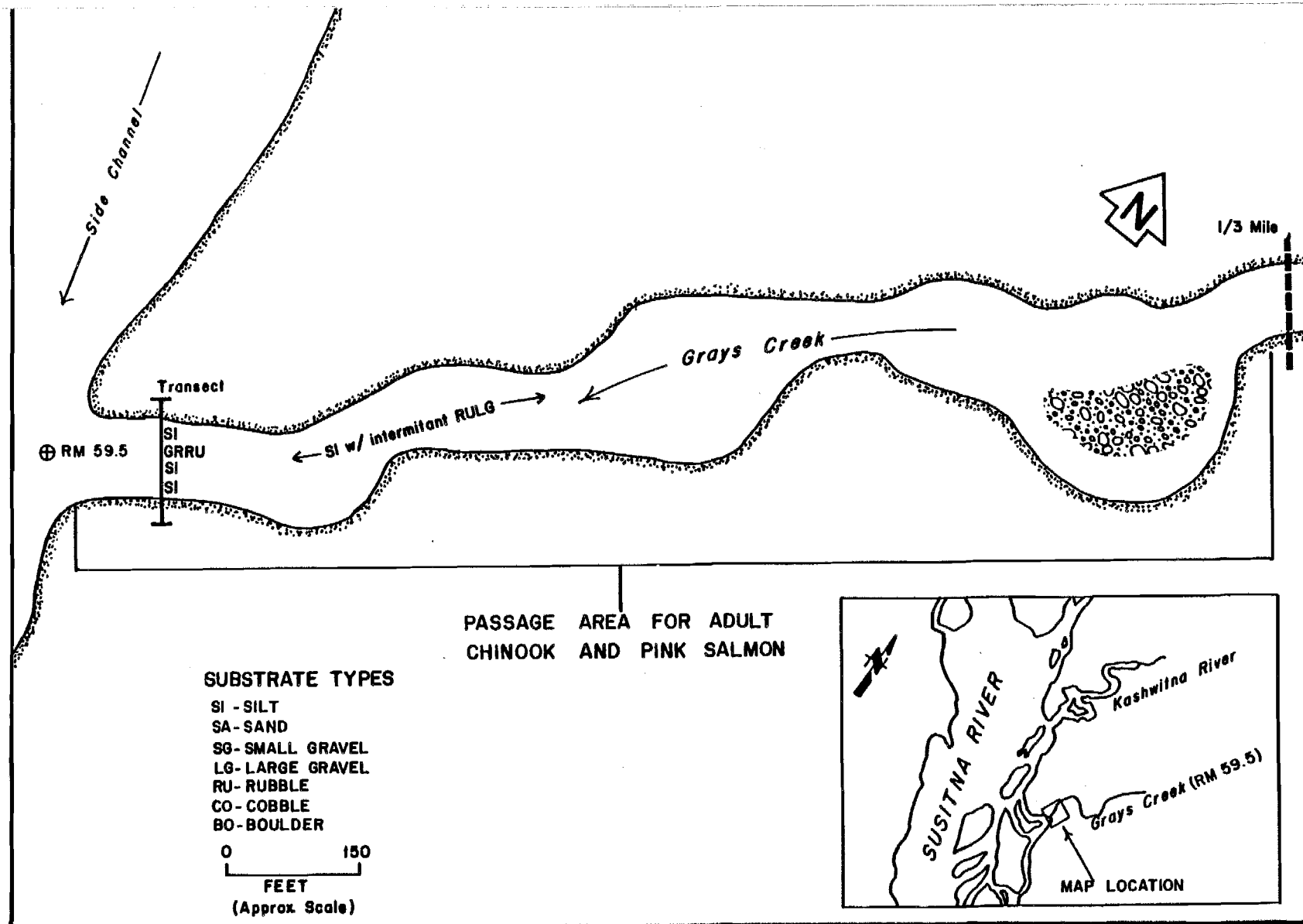


Appendix Figure B-12 Little Willow Creek (RM 50.5) stream mouth reach with transect, substrates and adult salmon usage indicated.

LITTLE WILLOW CREEK

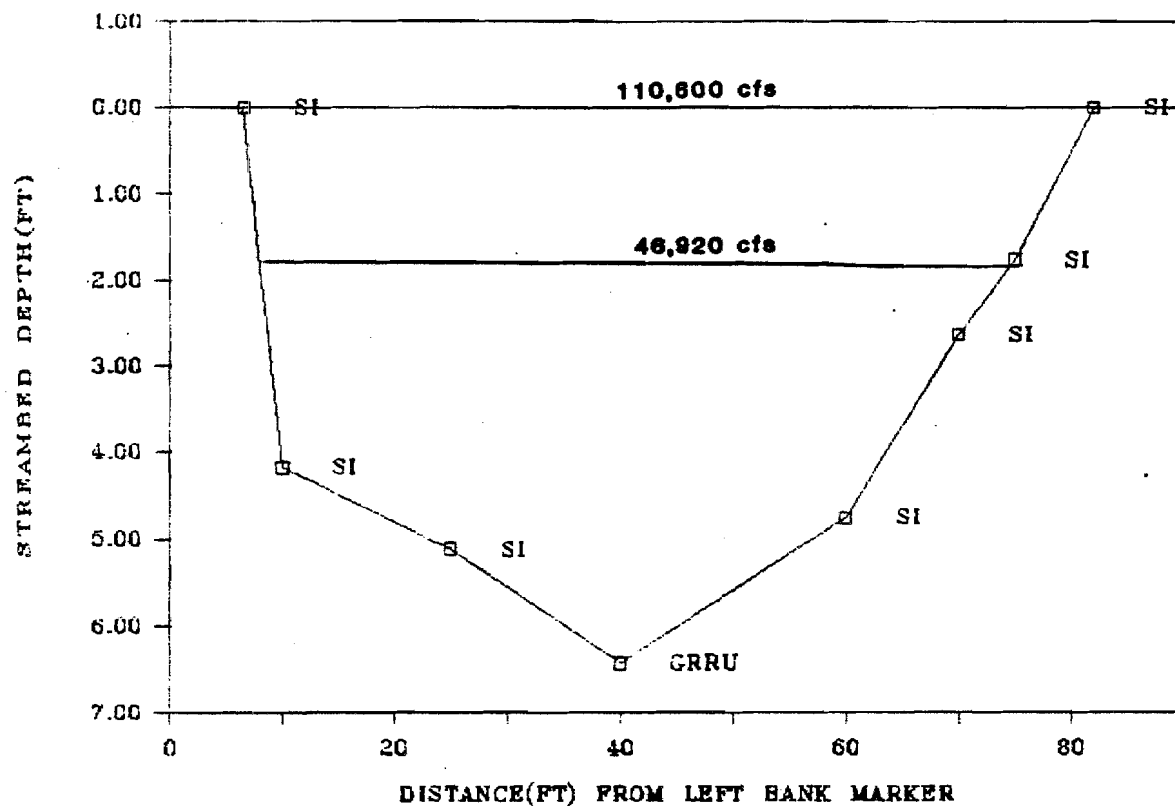


Appendix Figure B-13. Transect at Little Willow Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

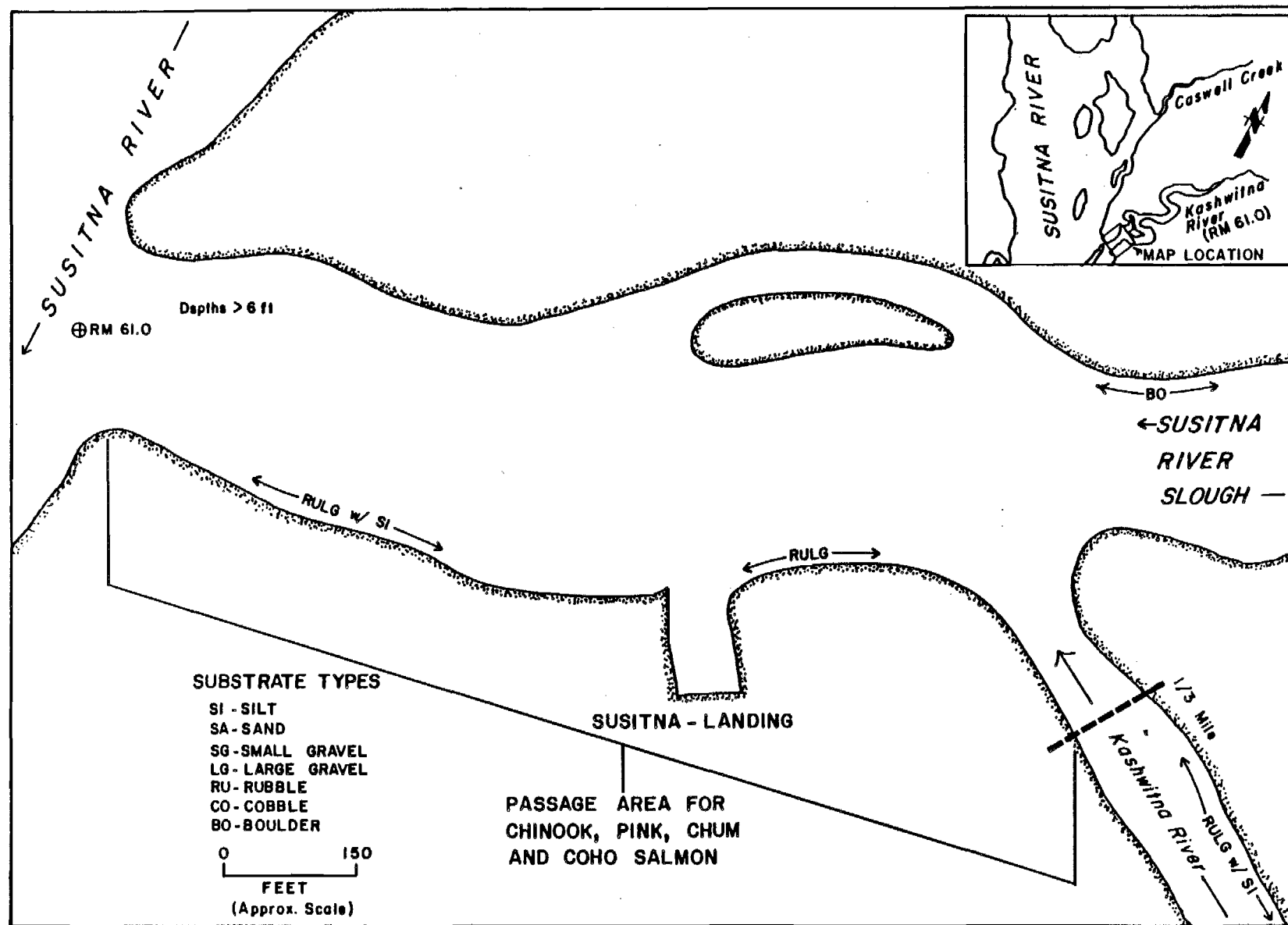


Appendix Figure B-14 Grays Creek (RM 59.5) stream mouth reach with transect, substrates and adult salmon usage indicated.

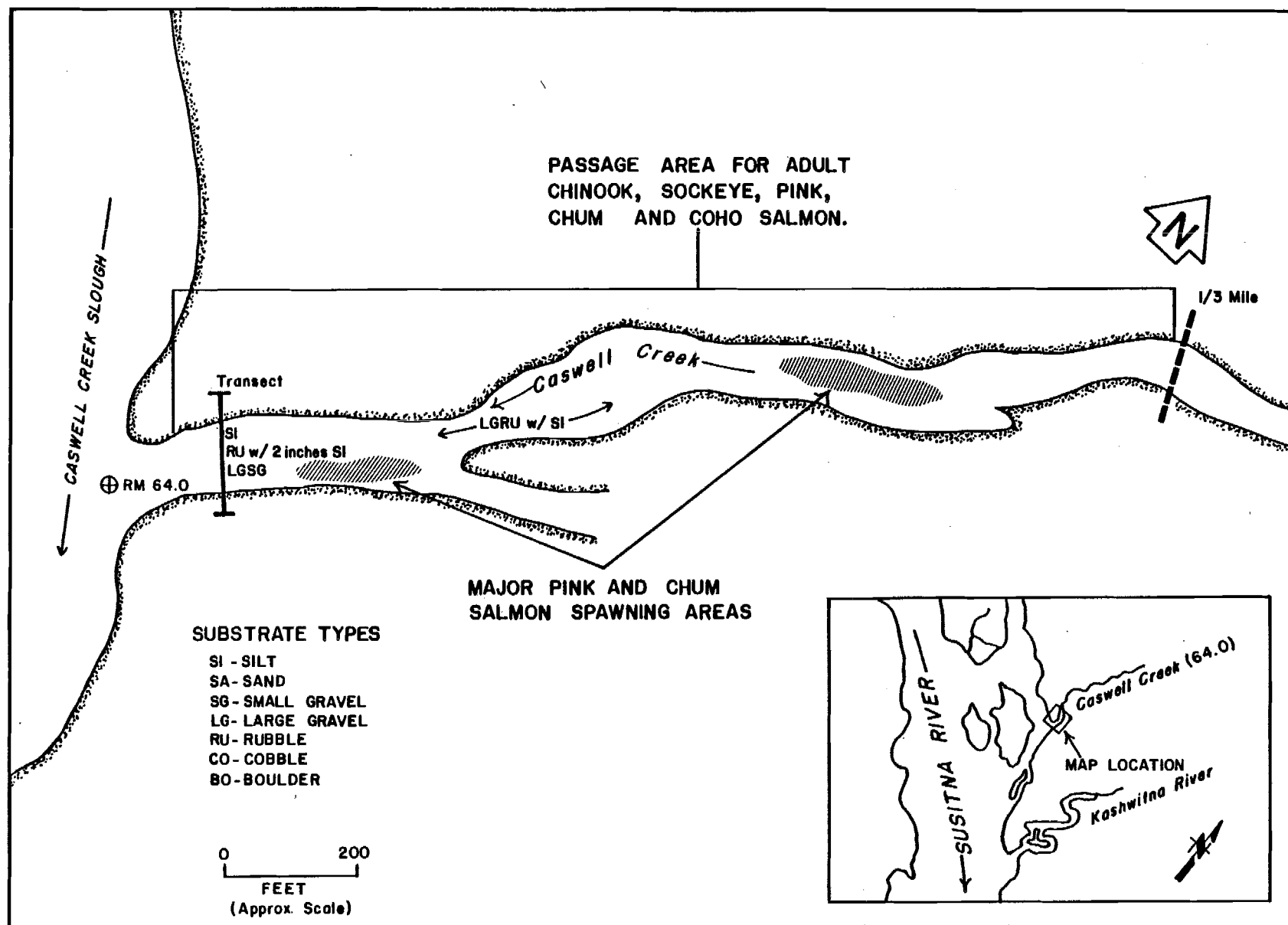
GRAYS CREEK



Appendix Figure B-15. Transect at Grays Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

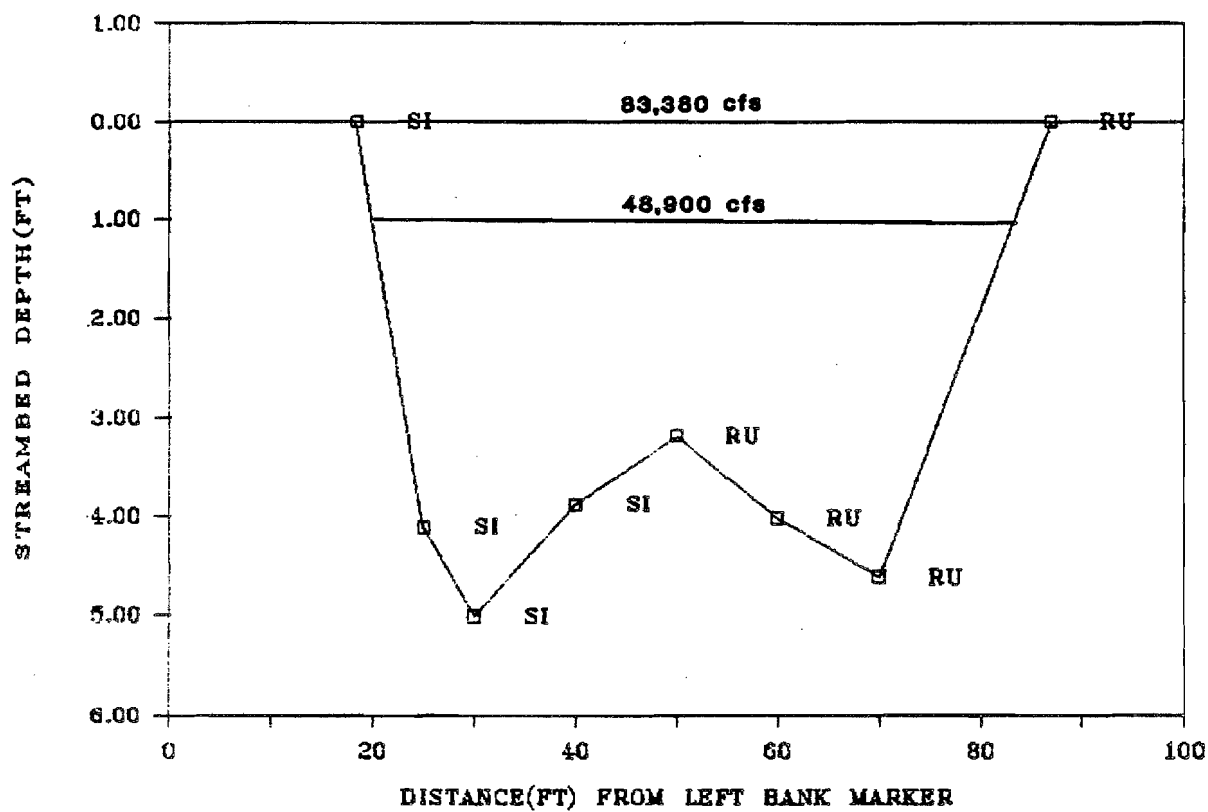


Appendix Figure B-16 Kashwitna River (RM 61.0) stream mouth reach with substrates and adult salmon usage indicated.

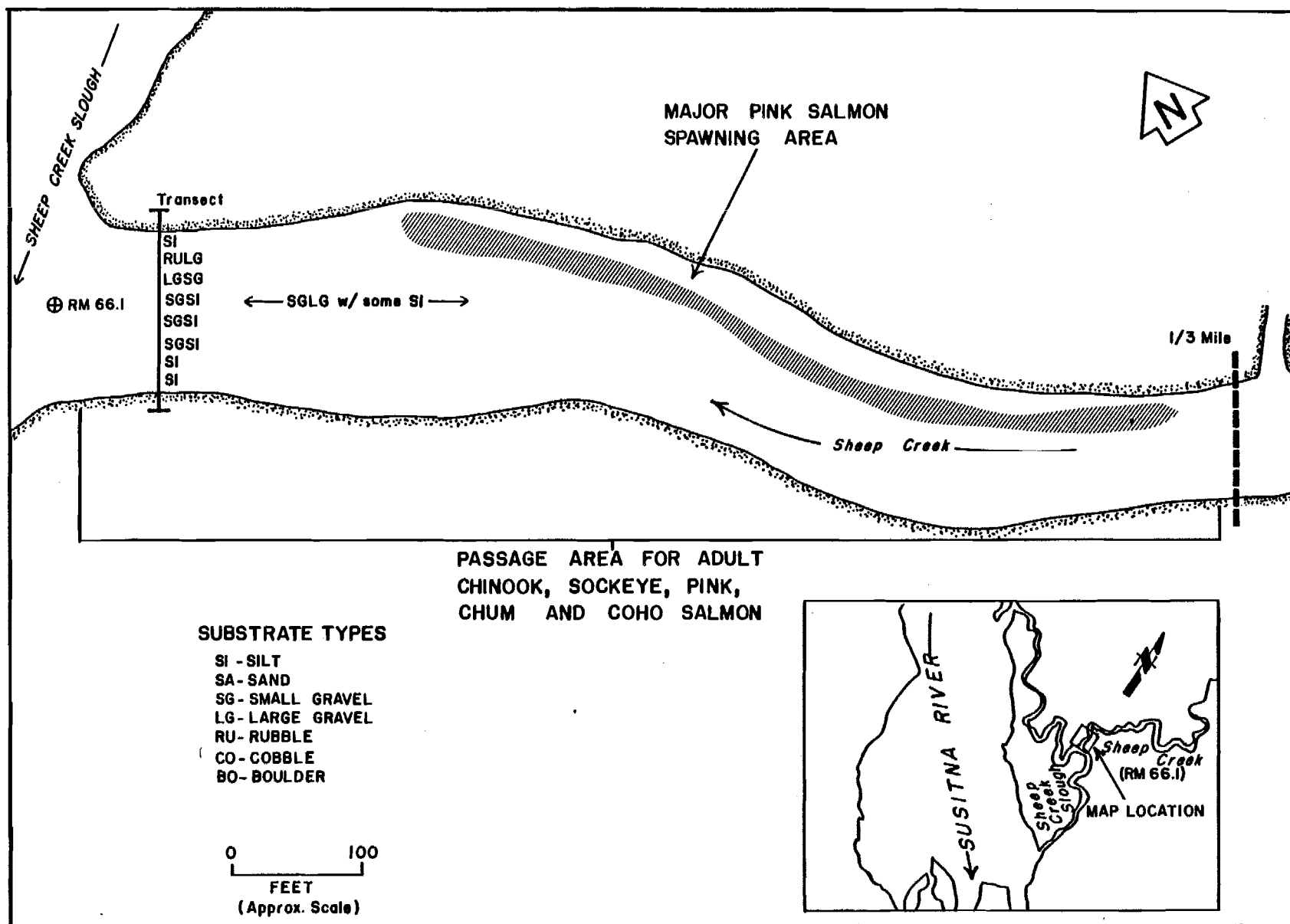


Appendix Figure B-17 Caswell Creek (RM 64.0) stream mouth reach with transect, substrates and adult salmon usage indicated.

CASWELL CREEK

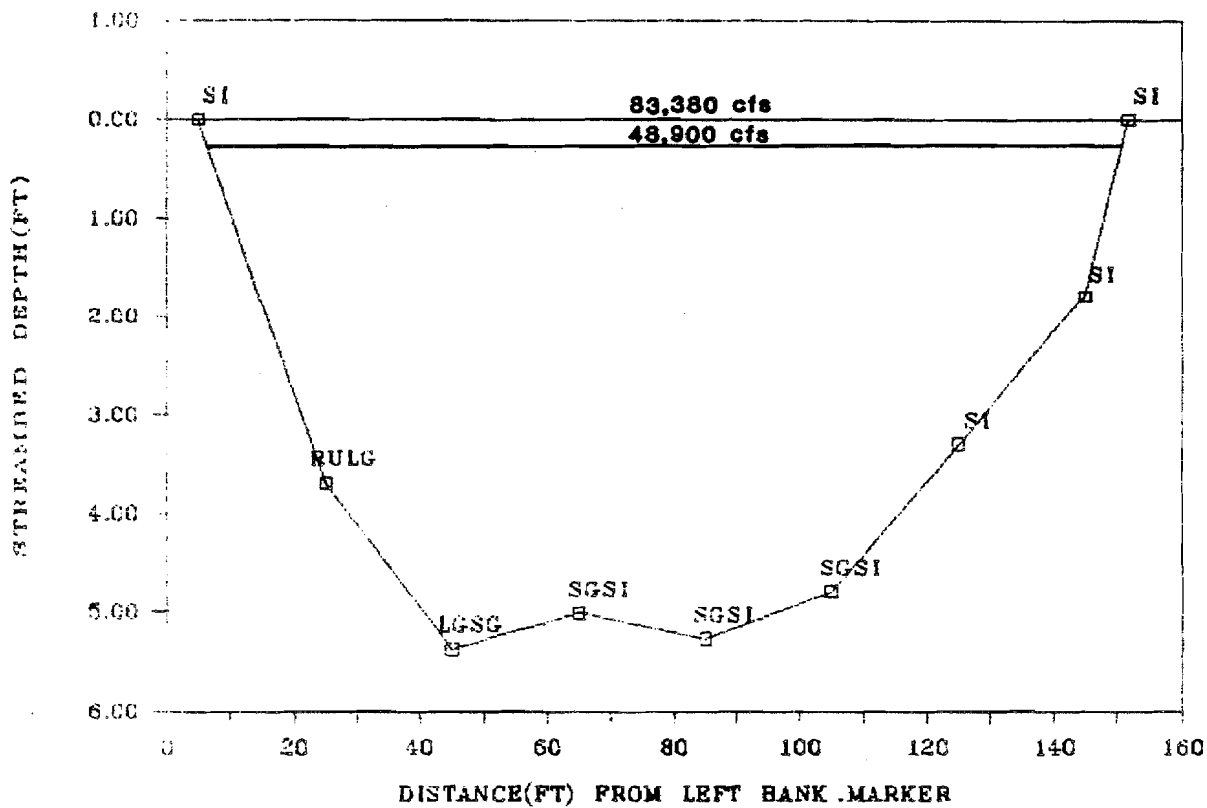


Appendix Figure B-18. Transect at Caswell Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

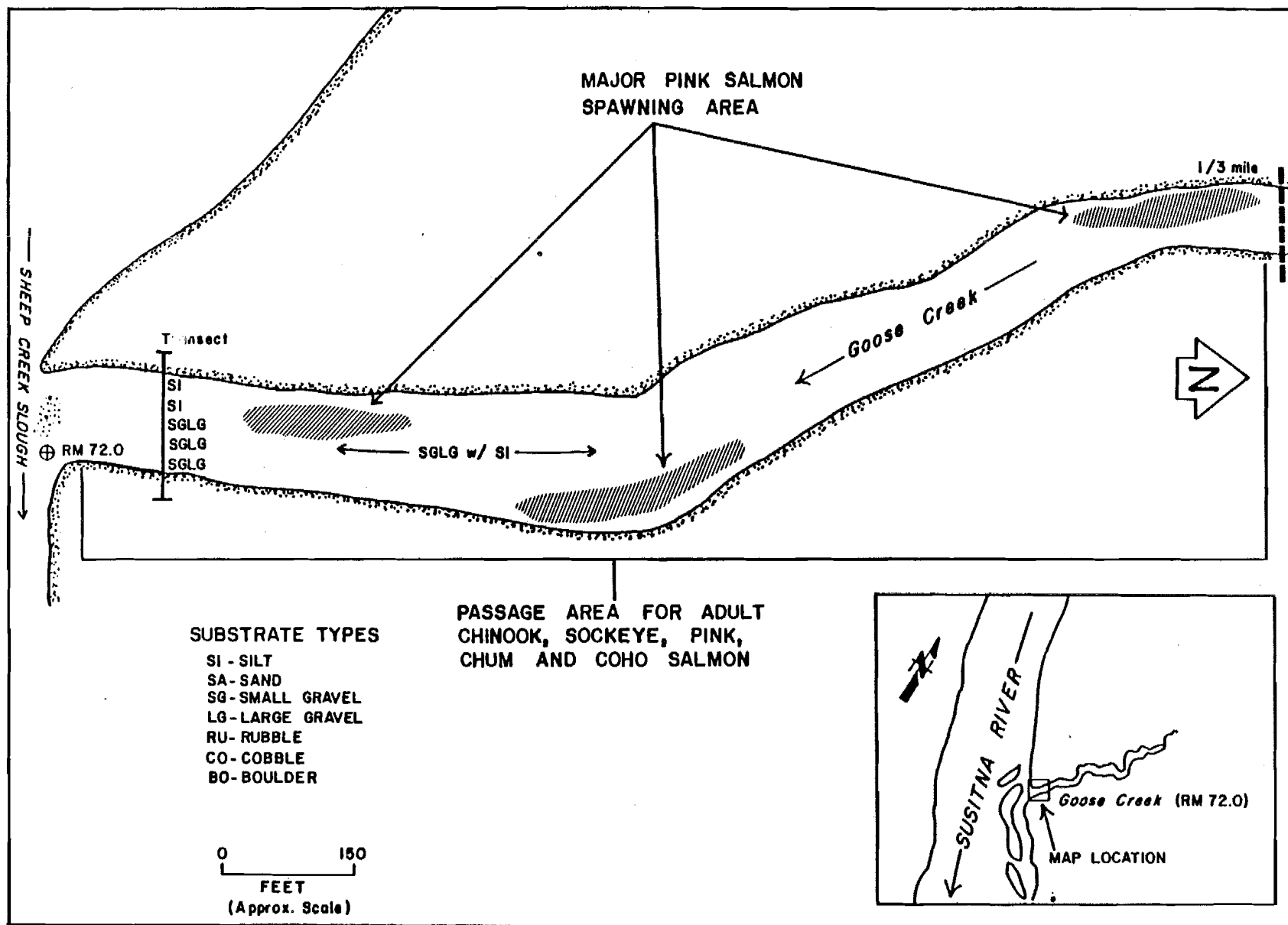


Appendix Figure B-19 Sheep Creek (RM 66.0) stream mouth reach with transect, substrates and adult salmon usage indicated.

SHEEP CREEK

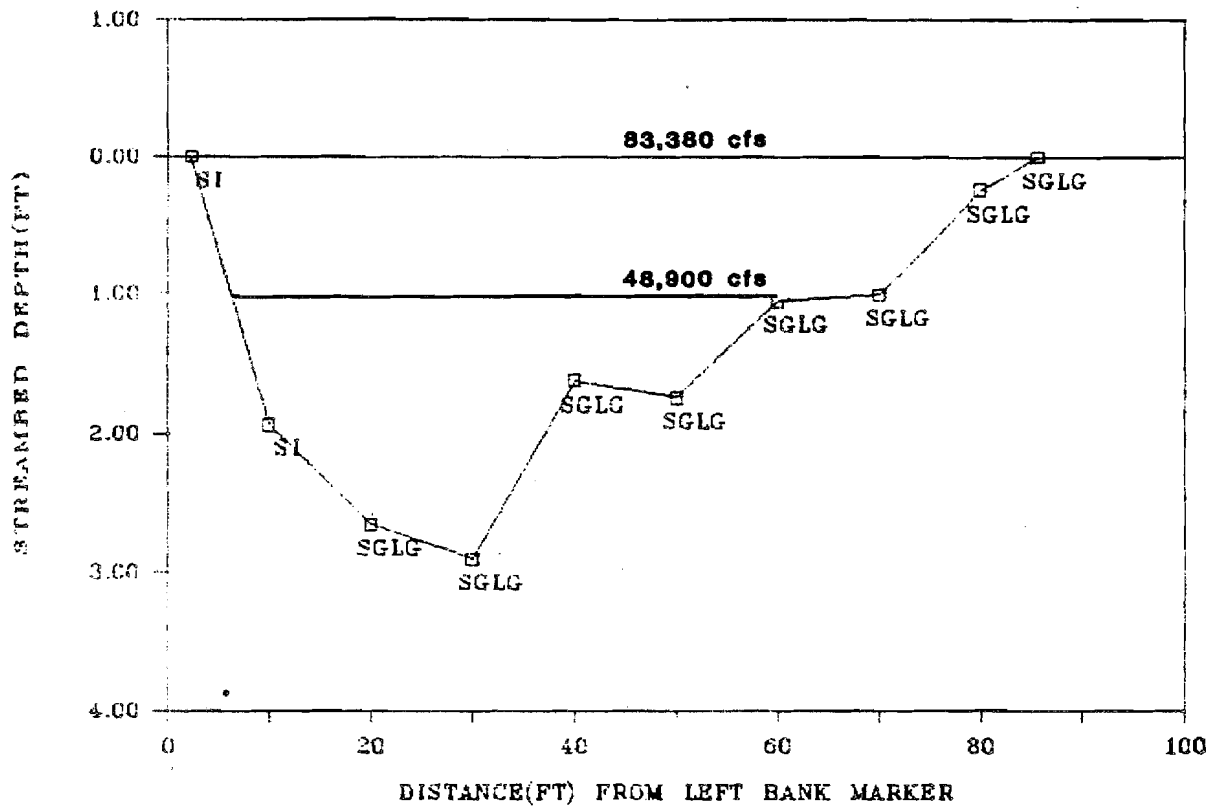


Appendix Figure B-20. Transect at Sheep Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

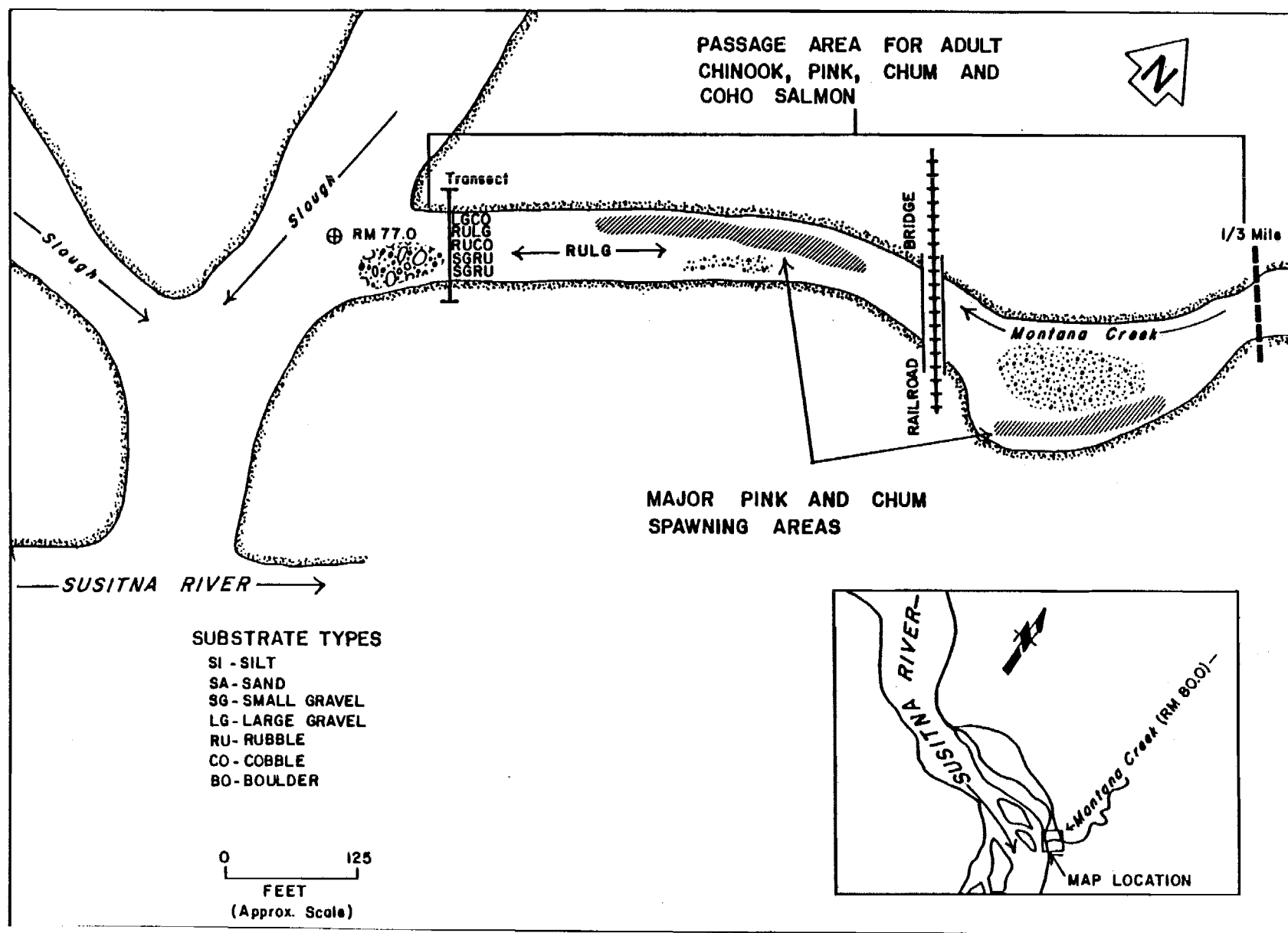


Appendix Figure B-21 Goose Creek (RM 72.0) stream mouth reach with transect, substrates and adult salmon usage indicated.

GOOSE CREEK

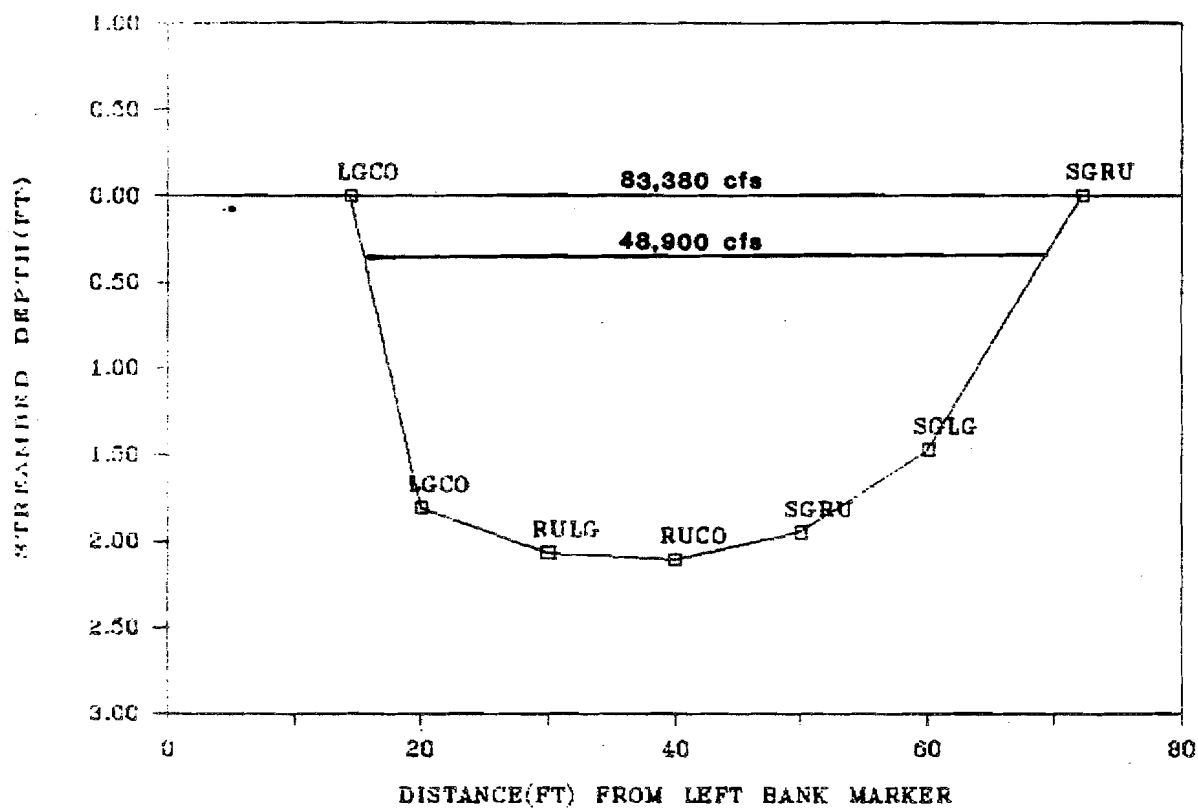


Appendix Figure B-22. Transects at Goose Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

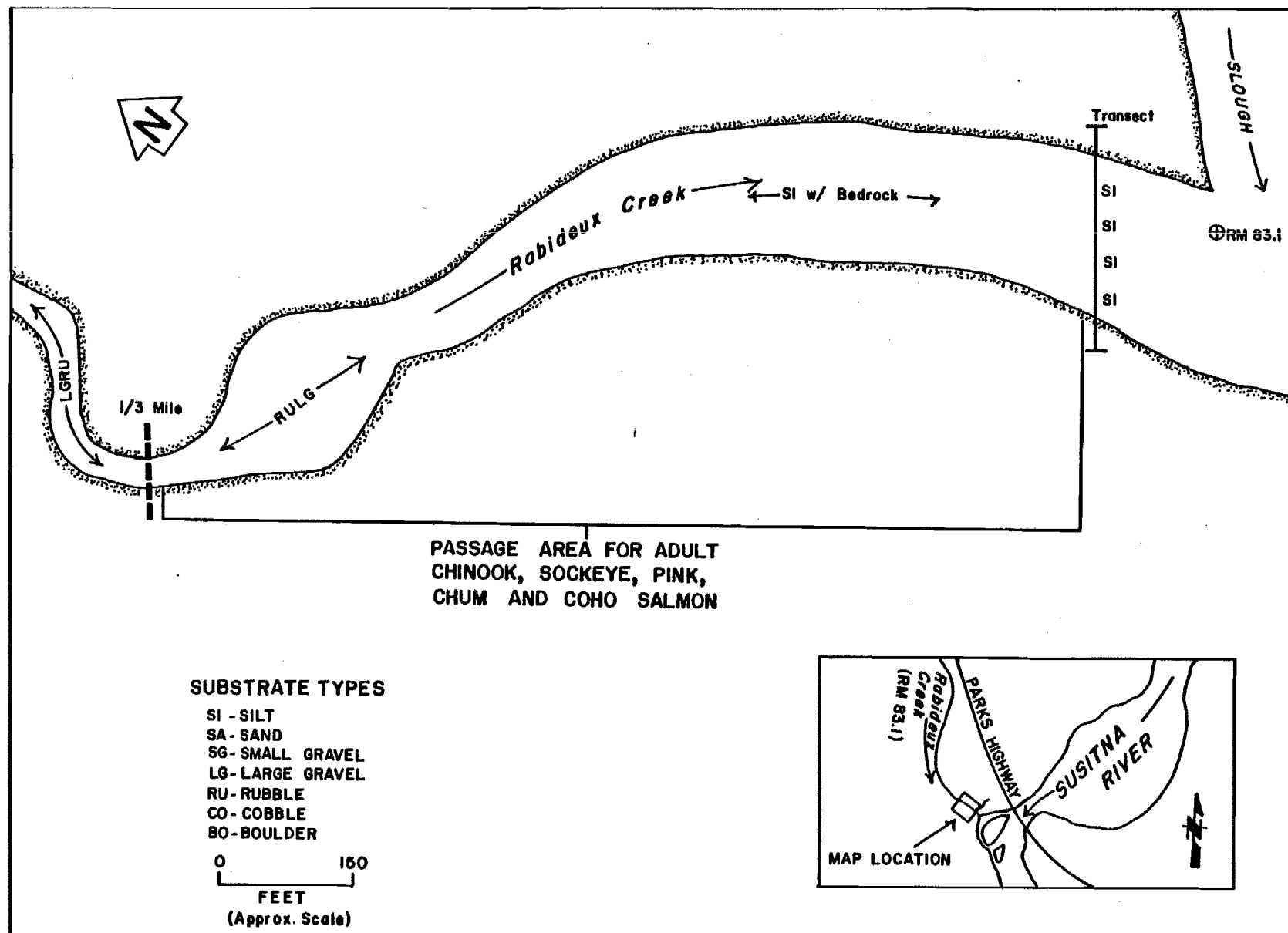


Appendix Figure B-23 Montana Creek (RM 77.0) stream mouth reach with transect, substrates and adult salmon usage indicated.

MONTANA CREEK

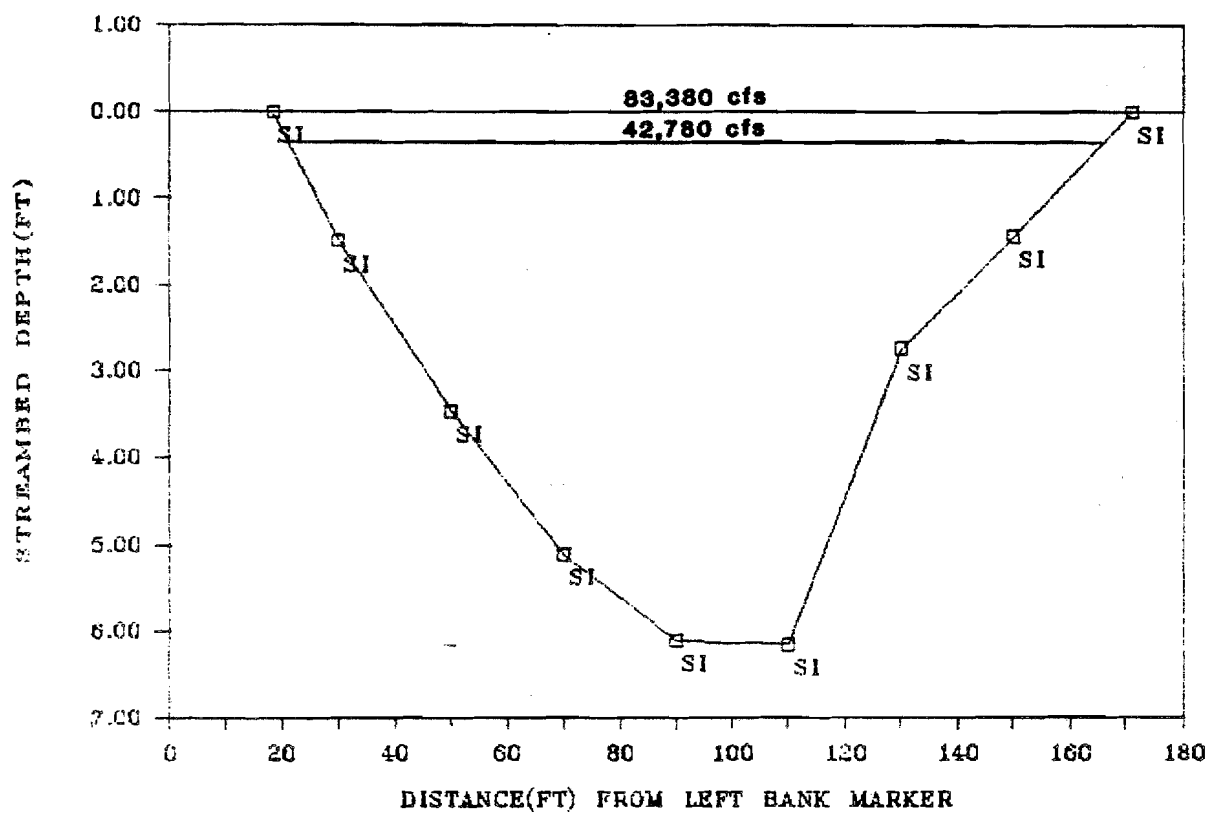


Appendix Figure B-24. Transects at Montana Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

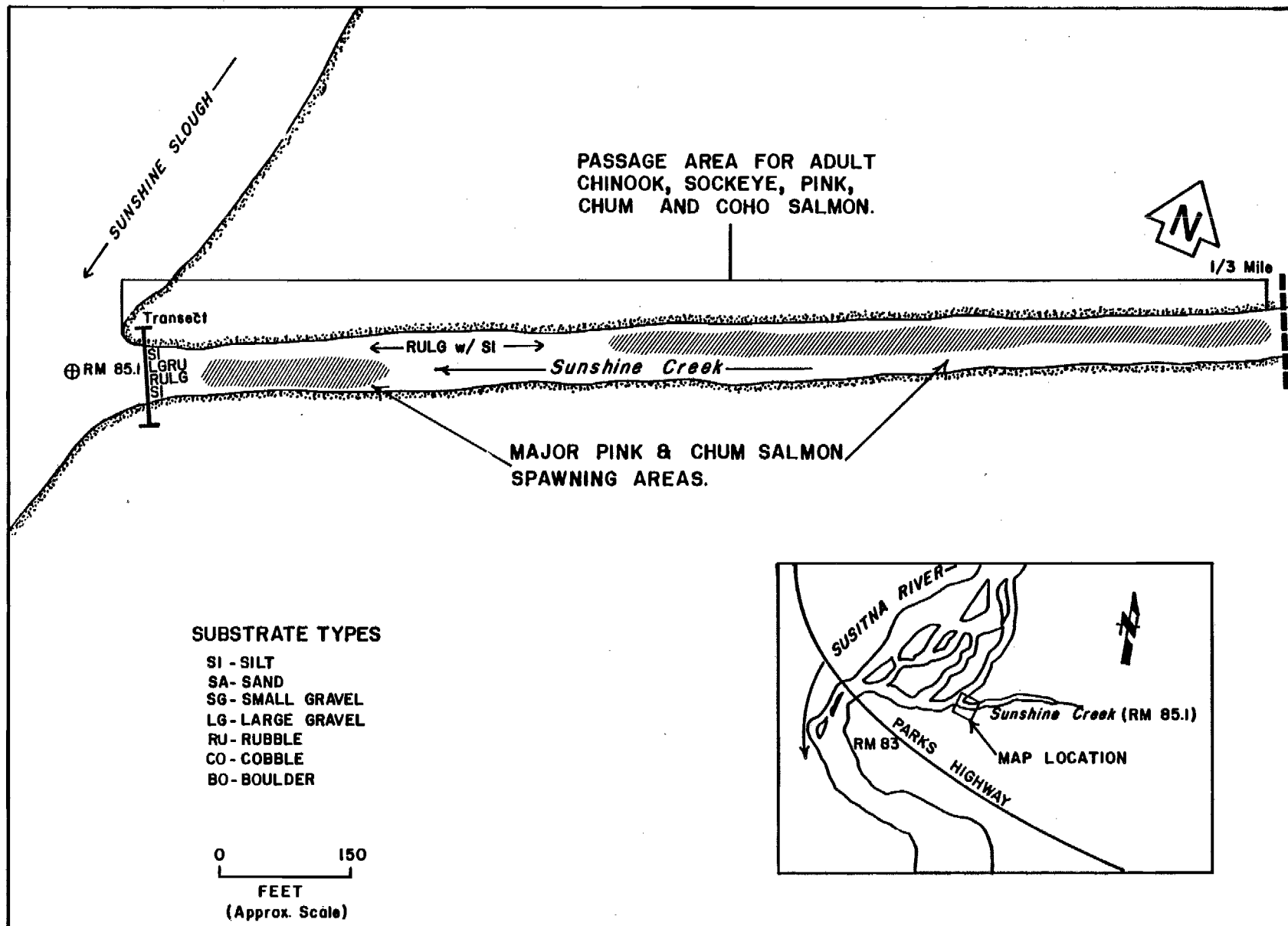


Appendix Figure B-25 Rabideux Creek (RM 83.1) stream mouth reach with transect, substrates and adult salmon usage indicated.

RABIDEAUX CREEK

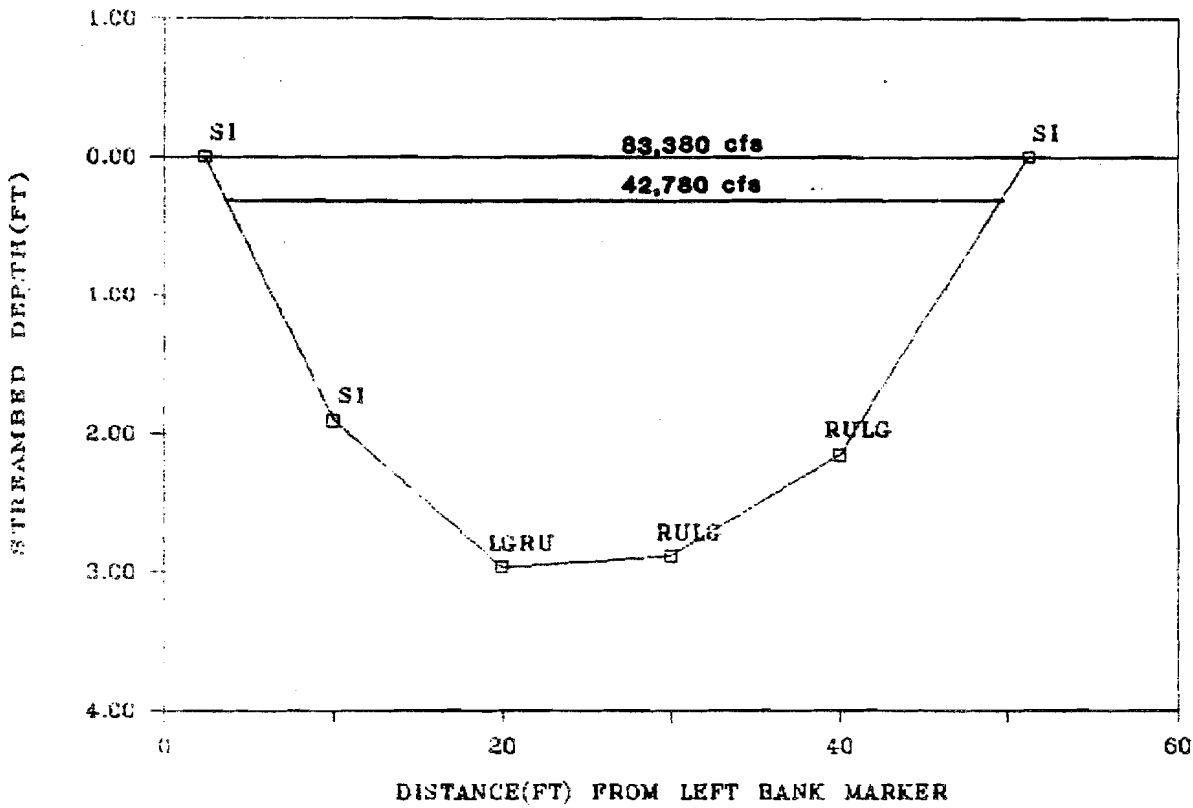


Appendix Figure B-26. Transects at Rabideaux Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

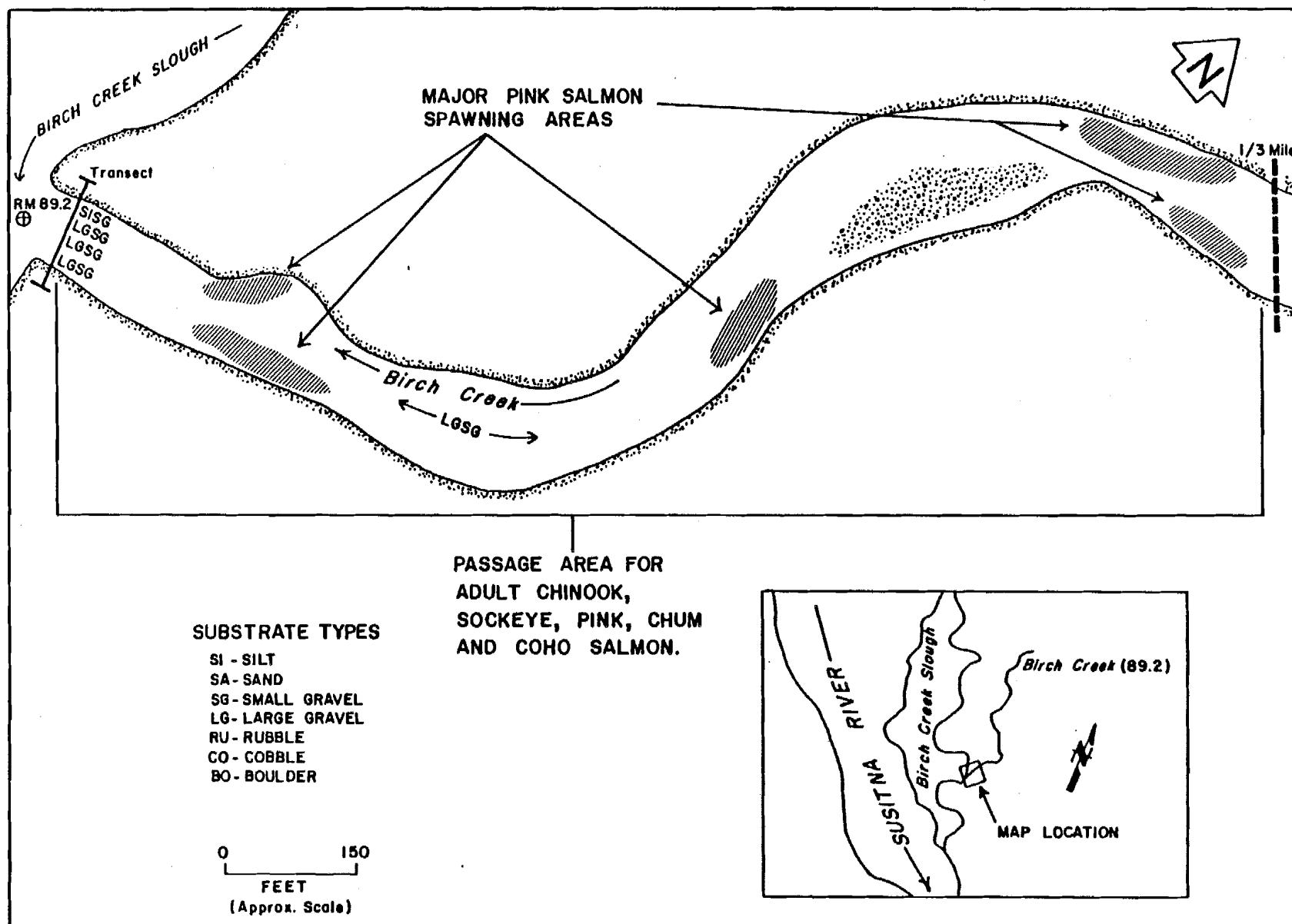


Appendix Figure B-27 Sunshine Creek (RM 85.1) stream mouth reach with transect, substrates and adult salmon usage indicated.

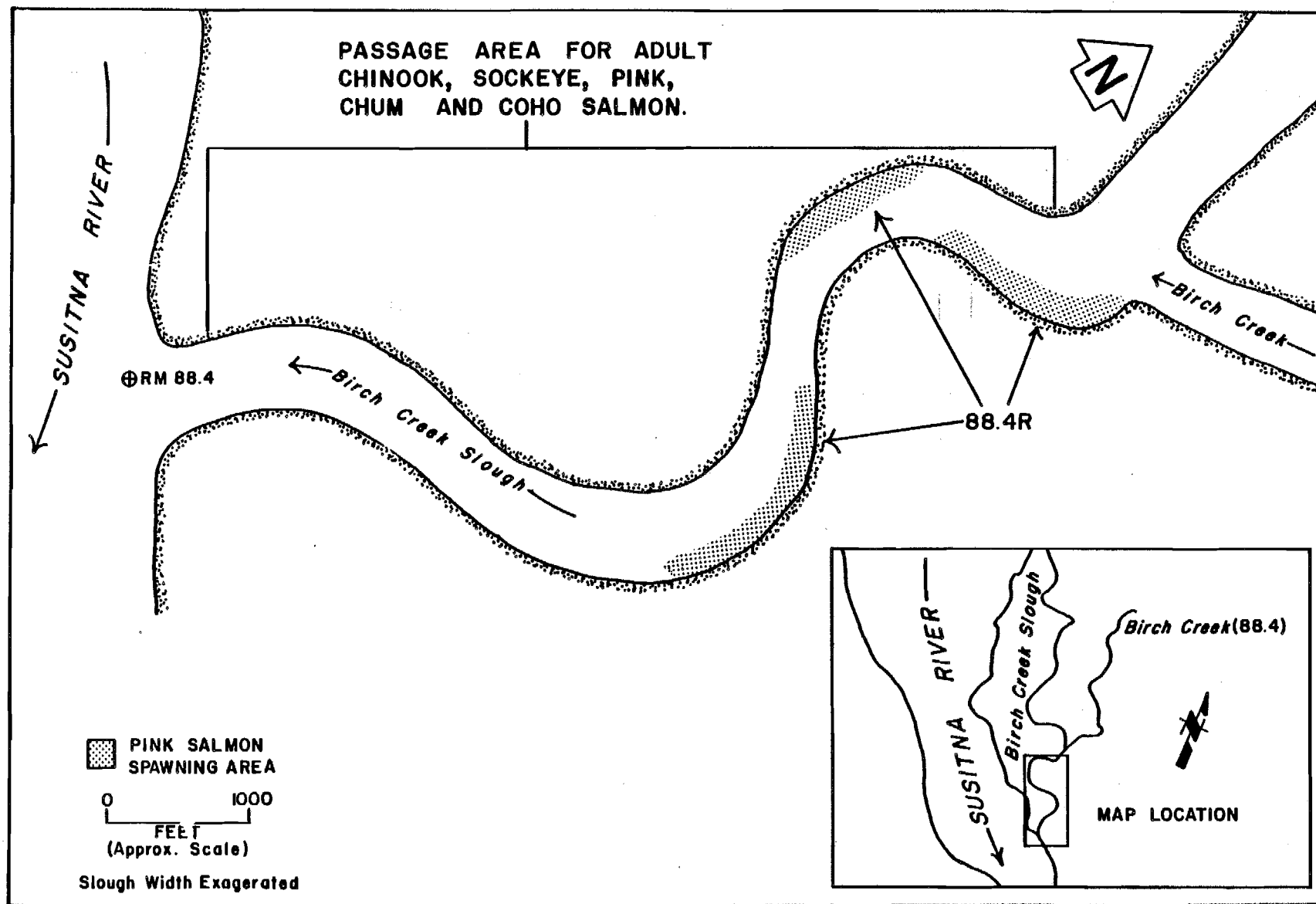
SUNSHINE CREEK



Appendix Figure B-28. Transects at Sunshine Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

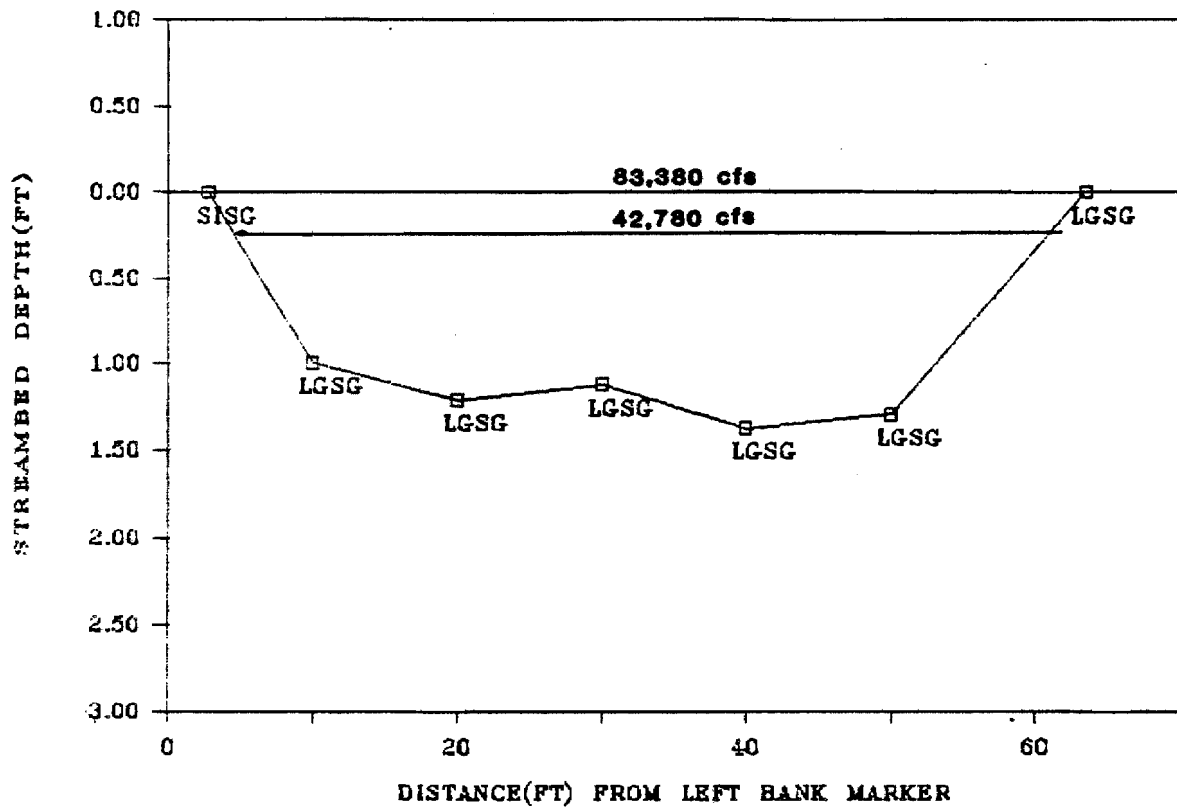


Appendix Figure B-29 Birch Creek (RM 89.2) stream mouth reach with transect, substrates and adult salmon usage indicated.

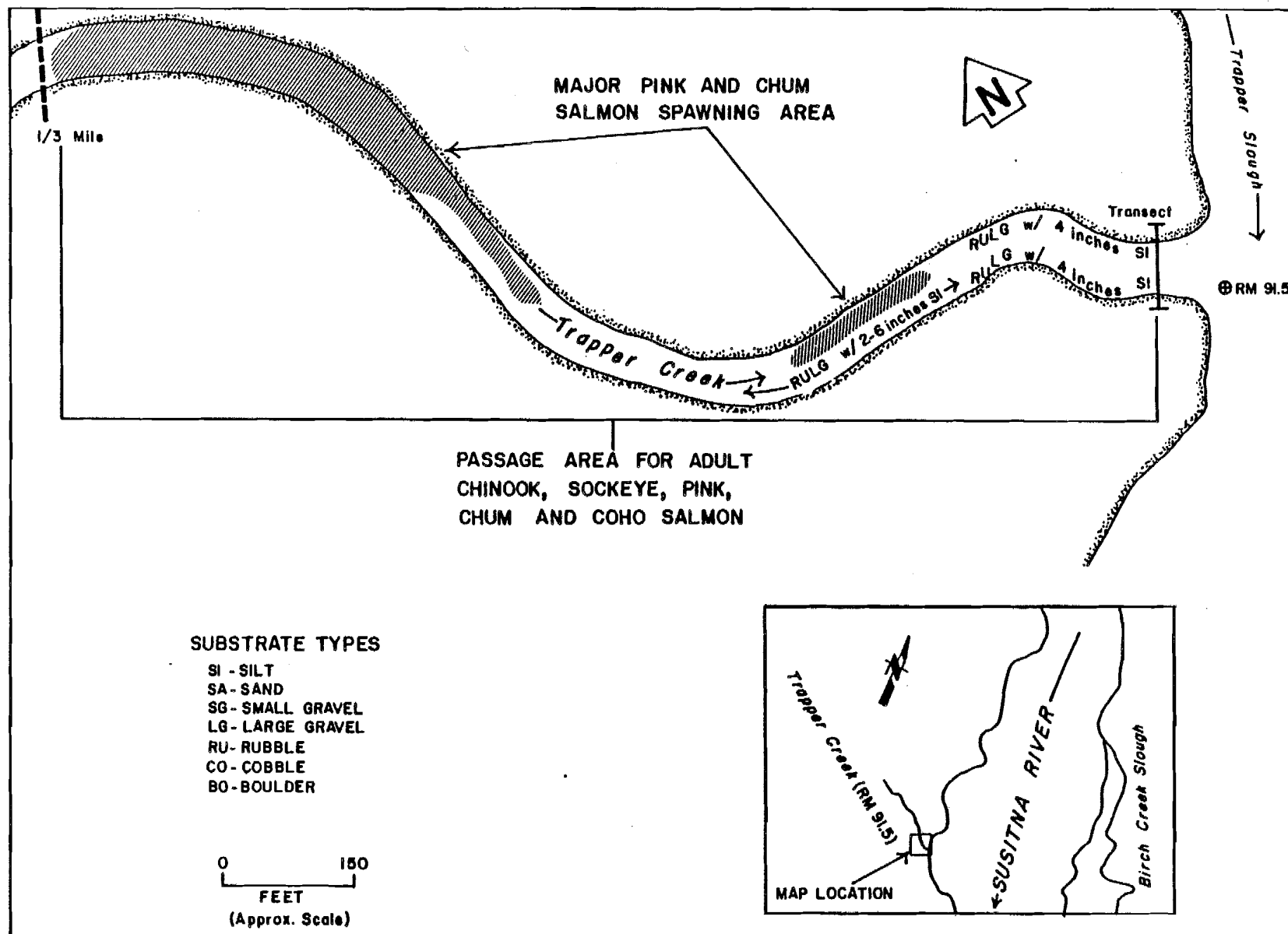


Appendix Figure B-30 Birch Creek Slough (RM 88.4) stream mouth reach with pink salmon spawning areas indicated.

BIRCH CREEK

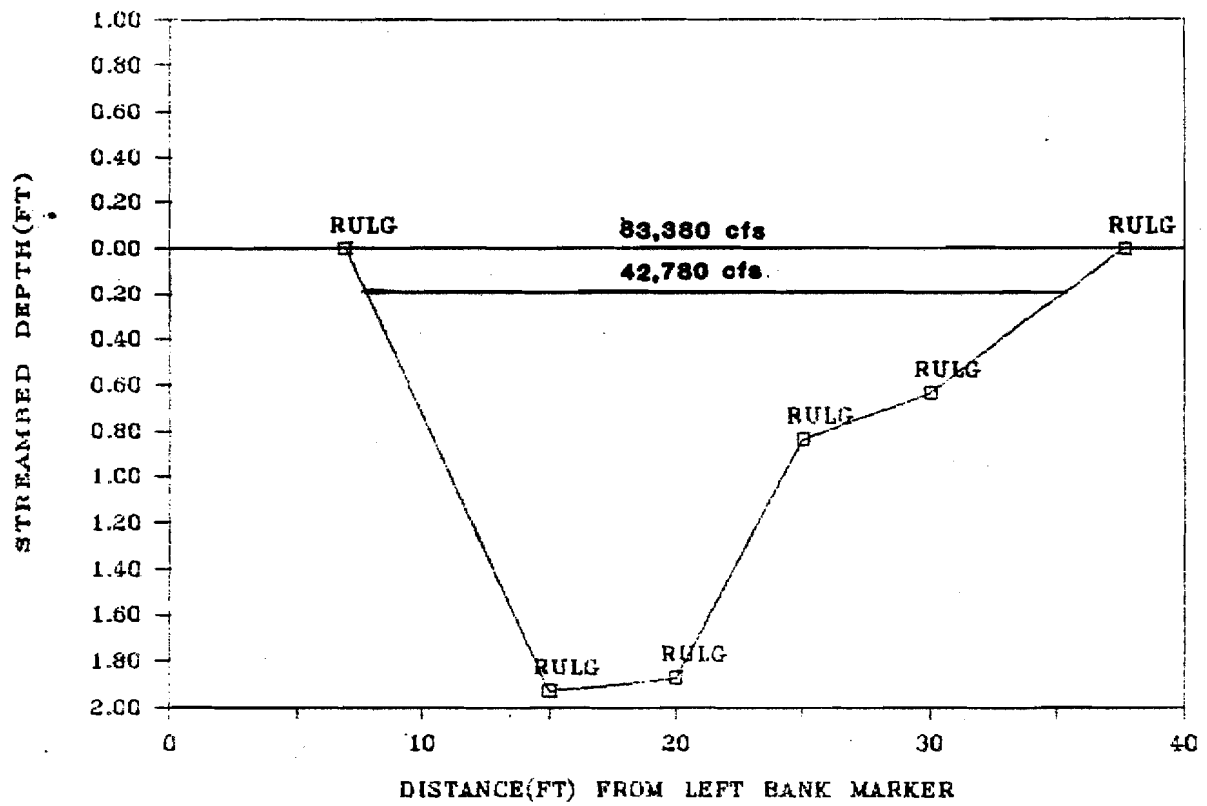


Appendix Figure B-31. Transects at Birch Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

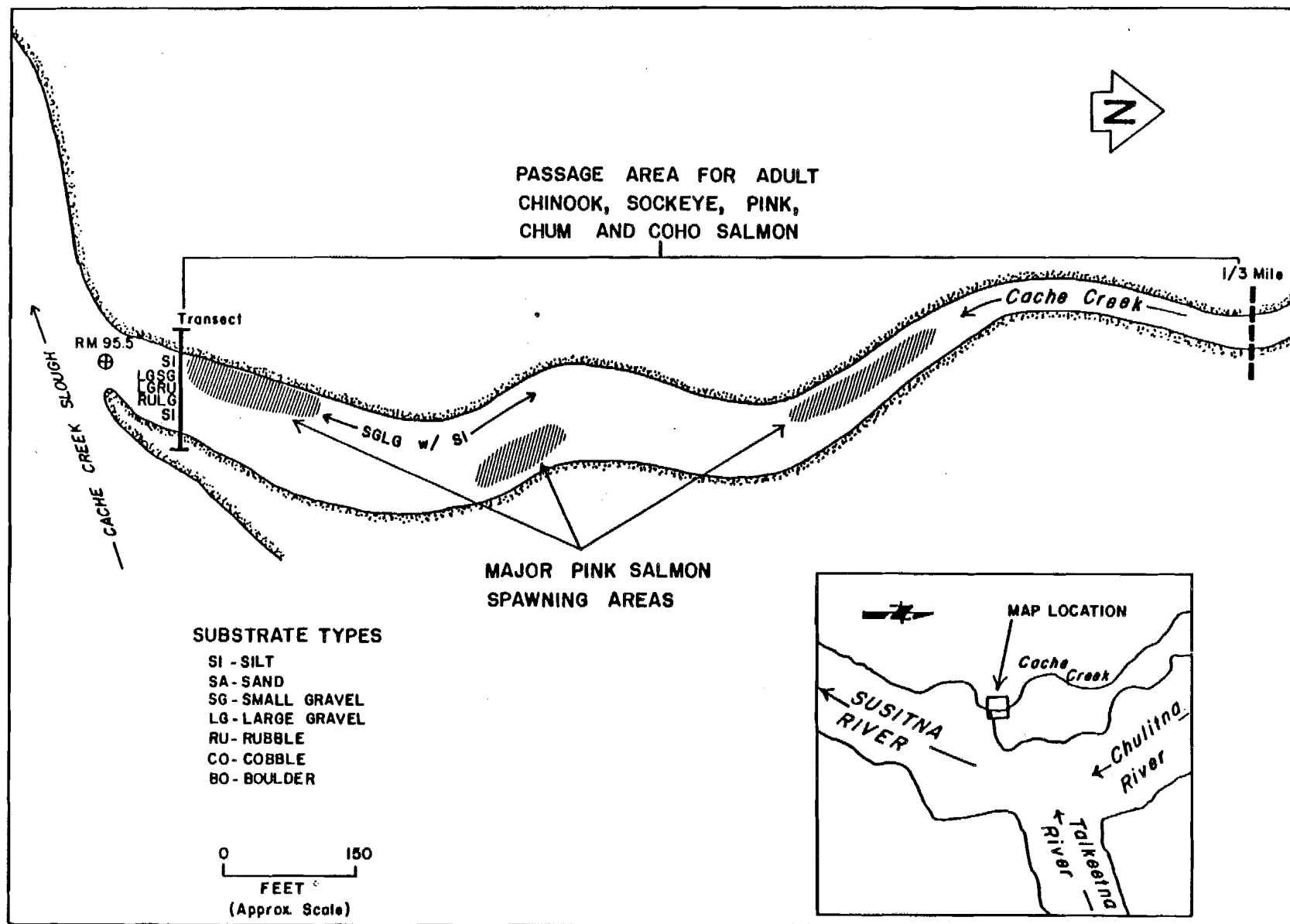


Appendix Figure B-32 Trapper Creek (RM 91.5) stream mouth reach with transect, substrates and adult salmon usage indicated.

TRAPPER CREEK

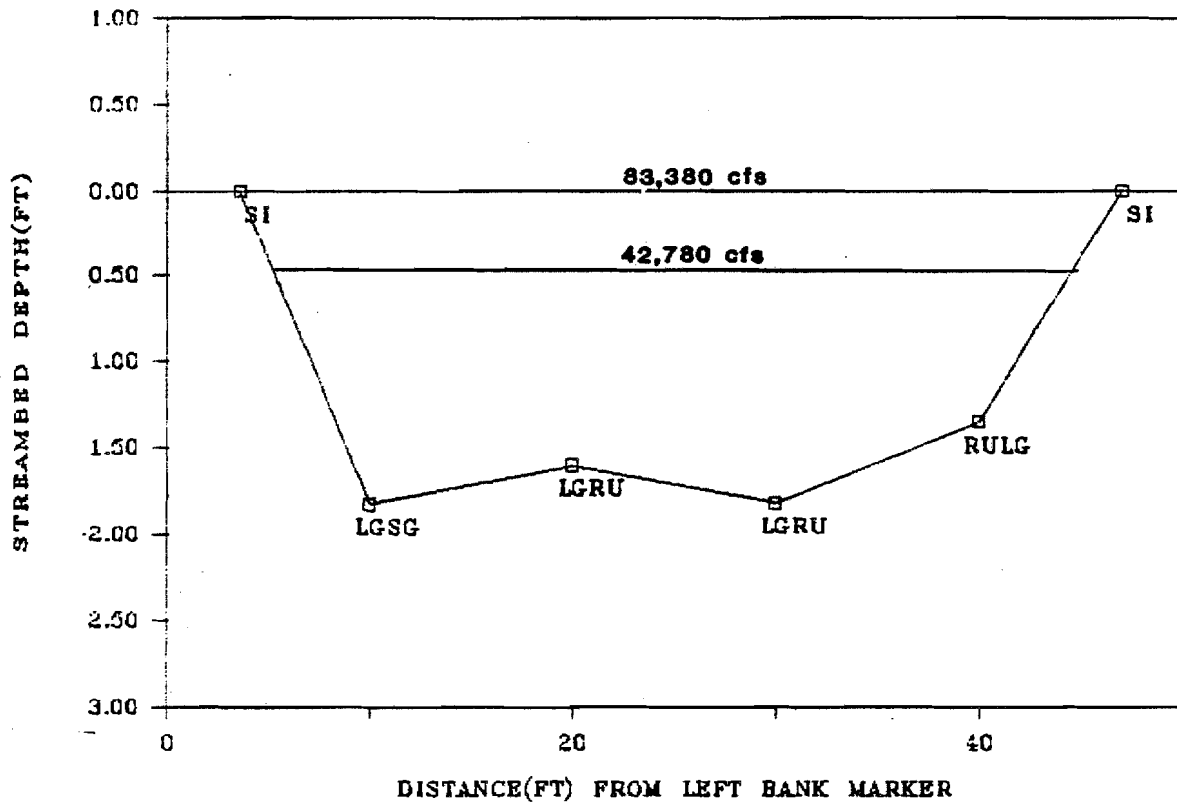


Appendix Figure B-33. Transects at Trapper Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).



Appendix Figure B-34 Cache Creek (RM 95.5) stream mouth reach with transect, substrates and adult salmon usage indicated.

CACHE CREEK



Appendix Figure B-35. Transects at Cache Creek depicting water surface elevations at two different Susitna River discharges measured at the Sunshine gaging station (RM 83.9).

APPENDIX C

Escapement counts of adult salmon in lower Susitna River mainstem, sloughs and stream mouths between RM 28.0 and 98.6 in 1984.

Appendix Table C-1. Survey counts of adult salmon in mainstem sites between RM 28.0 and 98.6 in 1984.

Site	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated															
					Live	Chinook Dead	Total	Live	Sockeye Dead	Total	Live	Pink Dead	Total	Live	Chum Dead	Total	Live	Coho Dead	Total	
• CASWELL SIDE CHANNEL MOUTH	62.1 R	10 / 9	B	100	0	0	0	0	0	0	0	0	0	0	2	6	8	0	0	0
• UNNAMED SIDE CHANNEL	71.6 R	10 / 9	B	100	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0
• MID-CHAN W GOOSE SL	73.9 C	10 / 10	P	100	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0
SW OF CIRCULAR	74.4 L	9 / 25	B	100	0	0	0	0	0	0	0	0	0	0	0	36	36	0	0	0
• CIRCULAR SIDE CHANNEL	75.3 L	9 / 18	B	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CIRCULAR SIDE CHANNEL	75.3 L	9 / 25	B	50	0	0	0	0	0	0	0	2	2	68	21	89	0	0	0	0
• SAUNA SLOUGH MOUTH	79.2 L	9 / 18	B	100	0	0	0	0	0	0	0	0	0	0	18	18	4	0	4	0
SAUNA SLOUGH MOUTH	79.2 L	10 / 8	F	100	0	0	0	0	0	0	0	0	0	0	7	7	0	0	0	0
• SUNSET SIDE CHANNEL	87.0 R	9 / 21	B	100	0	0	0	0	0	0	4	10	14	62	111	173	0	0	0	0
SUNSET SIDE CHANNEL	87.0 R	9 / 28	E	100	0	0	0	0	0	0	0	10	10	58	107	165	5	0	5	0
• NORTH SUNSET SIDE CHANNEL	87.5 R	9 / 21	B	60	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0
• LOWER BIRCH MAINSTEM	88.7 R	10 / 9	B	100	0	0	0	0	0	0	0	0	0	23	0	23	0	0	0	0
LOWER BIRCH MAINSTEM	88.7 R	10 / 11	B	100	0	0	0	0	0	0	0	0	0	23	0	23	0	0	0	0
• UPPER BIRCH SIDE CHANNEL	90.1 R	10 / 9	B	100	0	0	0	0	0	0	0	0	0	41	27	68	0	0	0	0
• TRAPPER CREEK SIDE CHANNEL	90.3 L	9 / 23	E	100	0	0	0	0	0	0	0	0	0	538	257	795	0	0	0	0
TRAPPER CREEK SIDE CHANNEL	90.3 L	9 / 26	E	100	0	0	0	0	0	0	0	2	2	10	131	141	1	1	2	0
TRAPPER CREEK SIDE CHANNEL	90.3 L	9 / 28	B	100	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0
TRAPPER CREEK SIDE CHANNEL	90.3 L	10 / 1	F	15	0	0	0	0	0	0	0	0	0	1	148	149	23	1	24	0
TRAPPER CREEK SIDE CHANNEL	90.3 L	10 / 2	B	100	0	0	0	0	0	0	0	0	0	4	117	121	40	5	45	0
TRAPPER CREEK SIDE CHANNEL	90.3 L	10 / 4	B	100	0	0	0	0	0	0	0	0	0	0	0	0	23	0	23	0
TRAPPER CREEK SIDE CHANNEL	90.3 L	10 / 9	B	100	0	0	0	0	0	0	0	0	0	10	48	58	0	0	0	0
TRAPPER CREEK SIDE CHANNEL	90.3 L	10 / 10	B	100	0	0	0	0	0	0	0	0	0	0	0	0	98	19	117	0
TRAPPER CREEK SIDE CHANNEL	90.3 L	10 / 11	P	100	0	0	0	0	0	0	0	0	0	0	12	12	0	0	0	0
• BEAVER DAM CHANNEL	95.0 C	9 / 27	B	100	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0
• CHULITNA RIVER MOUTH	98.6 L	10 / 9	B	100	0	0	0	0	0	0	0	0	0	116	4	120	0	0	0	0

• Documented spawning site

Appendix Table C-2. Survey counts of adult salmon in sloughs between RM 28.0 and 98.6 in 1984.

Site	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated											
					Chinook			Sockeye			Pink			Chum		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
* RUSTIC WILDERNESS SLOUGH	57.0 R	10 / 13	B	100	0	0	0	0	0	0	0	0	0	0	0	0
* CAGWELL CREEK SLOUGH	63.2 R	10 / 11	B	100	0	0	0	0	0	0	0	0	0	4	0	4
* GOOSE CREEK SLOUGH	74.5 R	10 / 1	B	100	0	0	0	0	0	0	0	0	0	0	0	0
GOOSE CREEK SLOUGH	74.5 R	10 / 8	F	100	0	0	0	0	0	0	0	0	0	0	16	16
WHITEFISH SLOUGH	79.4 L	8 / 16	P	100	0	0	0	0	0	0	0	0	0	0	0	0
WHITEFISH SLOUGH	79.4 L	8 / 25	P	15	0	0	0	0	0	0	0	2	2	0	1	1
WHITEFISH SLOUGH	79.4 L	9 / 18	B	22	0	0	0	0	0	0	0	0	0	0	1	1
WHITEFISH SLOUGH	79.4 L	9 / 28	E	100	0	0	0	0	0	0	0	0	0	0	0	0
** BIRCH CREEK SLOUGH	88.2 R	7 / 23	E	22	126	0	126	375	0	375	411	26	437	3	0	3
BIRCH CREEK SLOUGH	88.2 R	7 / 29	P	7	0	0	0	0	0	0	0	0	0	0	0	0
BIRCH CREEK SLOUGH	88.2 R	8 / 2	B	7	3	1	4	230	0	230	3298	4	3304	0	0	0
BIRCH CREEK SLOUGH	88.2 R	8 / 9	B	7	9	4	13	93	0	93	9917	17	9917	1061	3	1064
BIRCH CREEK SLOUGH	88.2 R	8 / 16	B	22	0	0	0	4	0	4	4480	38	4518	470	4	474
BIRCH CREEK SLOUGH	88.2 R	8 / 23	B	17	11	4	17	22	0	22	1128	222	1350	302	24	326
BIRCH CREEK SLOUGH	88.2 R	8 / 31	P	22	0	4	4	0	0	0	338	169	507	151	24	175
BIRCH CREEK SLOUGH	88.2 R	9 / 9	P	17	0	0	0	0	0	0	218	141	359	137	19	156
BIRCH CREEK SLOUGH	88.2 R	9 / 16	B	7	0	0	0	0	0	0	0	153	161	15	102	117
BIRCH CREEK SLOUGH	88.2 R	9 / 25	E	22	0	0	0	0	0	0	4	11	15	12	48	60
BIRCH CREEK SLOUGH	88.2 R	10 / 1	B	22	0	0	0	0	0	0	0	0	0	0	538	538
* UPPER BIRCH CAMP	89.5 R	9 / 29	E	100	0	0	0	0	0	0	0	0	0	12	0	12
UPPER BIRCH CAMP	89.5 R	10 / 9	B	100	0	0	0	0	0	0	0	0	0	12	0	12
* MUSHER SLOUGH	95.2 R	9 / 27	E	100	0	0	0	0	0	0	0	0	0	13	52	65
MUSHER SLOUGH	95.2 R	9 / 28	E	100	0	0	0	0	0	0	0	0	0	13	71	84
* CACHE CREEK SLOUGH	95.4 L	9 / 27	E	100	0	0	0	0	0	0	0	2	2	42	118	160
PERDIDULA SLOUGH	98.0 L	9 / 14	B	100	0	0	0	4	0	4	0	0	0	439	0	439

* Documented spawning site

** Surveyed from mouth to confluence with stream; only pink salmon observed spawning.

Appendix Table C-3. Survey counts of adult salmon in stream mouths between RM 28.0 and 98.6 in 1984.

Stream	River Mile	Survey Methods	Date	Survey Condition	Adult Salmon Enumerated											
					Chinook			Sockeye			Pink			Chum		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
NONAME CREEK	27.8	F	07/29	G	0	0	0	0	0	0	0	0	0	0	0	0
NONAME CREEK	27.8	F	08/01	E	0	0	0	0	0	0	0	0	0	0	0	0
NONAME CREEK	27.8	F	08/07	FB	0	0	0	0	0	0	0	0	0	0	0	0
NONAME CREEK	27.8	F	08/16	PF	0	0	0	0	0	0	0	0	0	0	0	0
FISH CREEK	31.2	H	09/10	P	0	0	0	0	0	0	0	0	0	0	0	0
FISH CREEK	31.2	H	09/20	F	0	0	0	0	0	0	0	0	0	0	0	0
FISH CREEK	31.2	H	09/27	F	0	0	0	0	0	0	0	0	0	0	0	0
FISH CREEK	31.2	H	10/06	G	0	0	0	0	0	0	0	0	0	0	0	0
FISH CREEK	31.2	F	07/31	P	0	0	0	0	0	0	0	0	0	0	0	0
FISH CREEK	31.2	F	08/08	P	0	0	0	0	0	0	0	0	0	0	0	0
FISH CREEK	31.2	F	08/17	FB	0	0	0	68	1	69	0	0	0	0	0	0
FISH CREEK	31.2	F	08/25	P	0	0	0	0	0	0	0	0	0	0	0	0
WHITSOL CREEK	35.2	H	09/10	G	0	0	0	0	0	0	0	0	0	0	55	0
WHITSOL CREEK	35.2	H	09/27	G	0	0	0	0	0	0	0	0	0	0	20	0
WHITSOL CREEK	35.2	H	10/06	G	0	0	0	0	0	0	0	0	0	0	0	0
WHITSOL CREEK	35.2	F	07/31	P	0	0	0	0	0	0	0	0	0	0	0	0
WHITSOL CREEK	35.2	F	08/09	PG	0	0	0	0	0	0	0	0	0	0	0	0
WHITSOL CREEK	35.2	F	08/19	P	0	0	0	0	0	0	0	0	0	0	0	0
WHITSOL CREEK	35.2	F	08/25	P	0	0	0	0	0	0	0	0	0	0	0	0
WHITSOL CREEK	35.2	F	09/20	F	0	0	0	0	0	0	0	0	0	0	30	0
ROLLY CREEK	39.0	F	07/30	P	0	0	0	0	0	0	0	0	0	0	0	0
ROLLY CREEK	39.0	F	08/07	VP	0	0	0	0	0	0	0	0	0	0	0	0
ROLLY CREEK	39.0	F	08/16	P	0	0	0	0	0	0	0	0	0	0	0	0
ROLLY CREEK	39.0	F	09/07	F	0	0	0	0	0	0	0	0	0	0	0	0
ROLLY CREEK	39.0	F	09/24	G	0	0	0	0	0	0	0	0	0	0	0	0
WILLOW CREEK	49.1	H	10/06	G	0	0	0	0	0	0	0	0	0	0	0	0
WILLOW CREEK	49.1	F	07/27	P	0	0	0	0	0	0	0	0	0	0	0	0
WILLOW CREEK	49.1	F	08/06	E	0	0	0	77	0	77	2871	0	2871	157	0	157
WILLOW CREEK	49.1	F	08/12	G	0	0	0	210	2	212	918	8	926	16	0	16
WILLOW CREEK	49.1	F	08/22	E	0	0	0	0	0	0	47	78	125	0	0	1196
WILLOW CREEK	49.1	F	08/30	F	0	0	0	0	0	0	7	3	10	1	0	91
WILLOW CREEK	49.1	F	09/09	E	0	0	0	0	0	0	3	4	7	0	0	5
WILLOW CREEK	49.1	F	09/18	G	0	0	0	0	0	0	0	2	2	0	0	1
WILLOW CREEK	49.1	F	09/25	E	0	0	0	0	0	0	0	8	8	0	0	3
LITTLE WILLOW CREEK	50.5	H	09/20	G	0	0	0	0	0	0	0	0	0	0	0	0
LITTLE WILLOW CREEK	50.5	H	10/06	G	0	0	0	0	0	0	0	0	0	0	2	0
LITTLE WILLOW CREEK	50.5	F	07/27	P	0	0	0	0	0	0	0	0	0	0	0	0
LITTLE WILLOW CREEK	50.5	F	08/03	BE	0	0	0	5	0	5	145	0	145	15	0	15
LITTLE WILLOW CREEK	50.5	F	08/11	FB	0	0	0	0	0	0	28	4	32	1	1	2
LITTLE WILLOW CREEK	50.5	F	08/21	E	0	0	0	11	1	12	287	125	412	0	0	3
LITTLE WILLOW CREEK	50.5	F	08/29	G	0	0	0	0	0	0	17	6	23	0	0	10
LITTLE WILLOW CREEK	50.5	F	09/08	E	0	0	0	0	0	0	5	7	12	2	0	0
LITTLE WILLOW CREEK	50.5	F	09/26	E	0	0	0	0	0	0	0	21	21	0	2	0

Appendix Table C-3 (cont.) Survey counts of adult salmon in stream mouths between RM 28.0 and 98.6 in 1994.

Stream	River Mile	Survey Methods	Date	Survey Condition	Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
GRAYS CREEK	59.5	H	10/06	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAYS CREEK	59.5	F	07/27	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAYS CREEK	59.5	F	08/02	VP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAYS CREEK	59.5	F	08/10	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAYS CREEK	59.5	F	08/20	P	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
GRAYS CREEK	59.5	F	08/28	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAYS CREEK	59.5	F	09/11	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAYS CREEK	59.5	F	09/20	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAYS CREEK	59.5	F	09/27	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KASHNITNA RIVER	61.0	H	09/10	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KASHNITNA RIVER	61.0	F	07/26	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KASHNITNA RIVER	61.0	F	08/02	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KASHNITNA RIVER	61.0	F	08/10	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KASHNITNA RIVER	61.0	F	08/20	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KASHNITNA RIVER	61.0	F	08/28	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KASHNITNA RIVER	61.0	F	09/27	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CASWELL CREEK	64.0	F	07/26	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CASWELL CREEK	64.0	F	07/30	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CASWELL CREEK	64.0	F	08/06	F	1	1	2	0	0	0	16	0	16	14	0	14	44	0	44
CASWELL CREEK	64.0	F	08/13	F	0	0	0	0	0	0	34	5	39	33	1	34	42	0	42
CASWELL CREEK	64.0	F	08/20	P	0	0	0	0	0	0	26	3	29	20	1	21	32	0	32
CASWELL CREEK	64.0	F	08/28	B	0	0	0	0	0	0	22	5	27	18	2	20	42	0	42
CASWELL CREEK	64.0	F	09/06	S	0	0	0	0	0	0	18	2	20	7	4	11	39	1	40
CASWELL CREEK	64.0	F	09/13	S	0	0	0	0	0	0	0	4	4	0	7	7	25	0	25
CASWELL CREEK	64.0	F	09/21	S	0	0	0	0	0	0	0	3	3	0	10	10	23	0	23
SHEEP CREEK	66.1	F	07/26	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHEEP CREEK	66.1	F	07/30	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHEEP CREEK	66.1	F	08/06	P	0	0	0	0	0	0	84	7	91	83	3	86	0	0	0
SHEEP CREEK	66.1	F	08/13	P	0	0	0	0	0	0	209	2	211	111	0	111	21	0	21
SHEEP CREEK	66.1	F	08/20	P	0	0	0	0	0	0	0	0	0	6	0	6	0	0	0
SHEEP CREEK	66.1	F	08/28	F	0	0	0	0	0	0	1	0	1	5	0	5	1	0	1
SHEEP CREEK	66.1	F	09/06	F	0	0	0	0	0	0	11	3	14	5	0	5	4	0	4
SHEEP CREEK	66.1	F	09/13	S	0	0	0	0	0	0	0	4	4	0	2	2	21	0	21
SHEEP CREEK	66.1	F	09/21	S	0	0	0	0	0	0	0	2	2	0	2	2	14	0	14
GOOSE CREEK	72.0	H	09/14	S	0	0	0	0	0	0	0	4	4	0	4	4	7	0	7
GOOSE CREEK	72.0	H	09/22	S	0	0	0	0	0	0	0	3	3	0	3	3	7	2	9
GOOSE CREEK	72.0	F	07/27	PF	3	0	3	74	0	74	0	0	0	128	0	128	0	0	0
GOOSE CREEK	72.0	F	07/31	F	0	0	0	0	0	0	279	3	282	72	0	72	0	0	0
GOOSE CREEK	72.0	F	08/07	F	0	0	0	0	0	0	178	0	178	263	15	278	8	0	8
GOOSE CREEK	72.0	F	08/14	S	0	0	0	3	0	3	211	12	223	280	1	281	7	0	7
GOOSE CREEK	72.0	F	08/21	S	0	0	0	0	0	0	9	16	25	7	4	11	13	0	13
GOOSE CREEK	72.0	F	08/29	S	0	0	0	0	0	0	7	12	19	9	3	12	19	0	19
GOOSE CREEK	72.0	F	09/07	E	0	0	0	0	0	0	4	11	15	7	2	9	14	0	14

Appendix Table C-3 (cont.) Survey counts of adult salmon in stream mouths between RM 28.0 and 98.6 in 1984.

Stream	River Mile	Survey Methods	Date	Survey Condition	Adult Salmon Enumerated															
					Chinook			Sockeye			Pink			Chum			Coho			
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	
MONTANA CREEK	77.0	F	07/27	FB	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
MONTANA CREEK	77.0	F	07/31	P	1	14	15	0	0	0	22	1	23	11	2	13	0	0	0	0
MONTANA CREEK	77.0	F	08/07	F	0	3	3	0	0	0	96	0	96	20	0	20	7	0	7	0
MONTANA CREEK	77.0	F	08/14	F	4	6	10	0	0	0	170	12	182	41	0	41	12	0	12	0
MONTANA CREEK	77.0	F	08/21	F	0	2	2	0	0	0	21	16	37	24	0	24	9	0	9	0
MONTANA CREEK	77.0	F	08/29	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MONTANA CREEK	77.0	F	09/07	B	0	0	0	0	0	0	12	4	16	4	0	4	9	1	10	0
MONTANA CREEK	77.0	F	09/14	B	0	0	0	0	0	0	0	0	0	0	0	0	50	0	50	0
MONTANA CREEK	77.0	F	09/23	B	0	0	0	0	0	0	0	0	0	0	2	2	0	7	7	0
RABIDEAU CREEK	83.1	H	09/26	B	0	0	0	0	1	1	0	0	0	0	0	0	9	12	21	0
RABIDEAU CREEK	83.1	F	07/23	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RABIDEAU CREEK	83.1	F	07/29	P	0	0	0	7	0	7	0	0	0	13	0	13	0	0	0	0
RABIDEAU CREEK	83.1	F	08/02	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RABIDEAU CREEK	83.1	F	08/10	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RABIDEAU CREEK	83.1	F	08/17	P	0	0	0	0	0	0	35	0	35	0	0	0	0	0	0	0
RABIDEAU CREEK	83.1	F	08/24	P	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
RABIDEAU CREEK	83.1	F	09/01	P	0	0	0	0	0	0	0	1	1	0	2	2	1	0	1	0
RABIDEAU CREEK	83.1	F	09/10	B	0	0	0	0	0	0	0	0	0	0	2	2	1	0	1	0
RABIDEAU CREEK	83.1	F	09/17	F	0	0	0	0	0	0	0	2	2	0	1	1	0	0	0	0
ANSWER CREEK	84.1	F	09/29	E	0	0	0	0	0	0	0	0	0	0	0	0	4	1	7	0
QUESTION CREEK	84.1	F	09/29	E	0	0	0	0	0	0	0	0	0	0	0	0	26	0	26	0
SUNSHINE CREEK	85.1	H	09/26	B	0	0	0	0	0	0	0	0	0	2	10	12	3	0	3	0
SUNSHINE CREEK	85.1	F	07/29	F	0	0	0	0	0	0	1608	3	1611	4	0	4	0	0	0	0
SUNSHINE CREEK	85.1	F	08/03	F	0	1	1	42	0	42	320	1	321	37	0	37	2	0	2	0
SUNSHINE CREEK	85.1	F	08/10	F	0	0	0	0	0	0	750	16	766	0	0	0	16	0	16	0
SUNSHINE CREEK	85.1	F	08/17	B	0	0	0	0	0	0	235	21	256	0	0	0	20	0	20	0
SUNSHINE CREEK	85.1	F	08/24	B	0	0	0	0	0	0	14	2	16	0	1	1	38	0	38	0
SUNSHINE CREEK	85.1	F	09/01	B	0	0	0	0	0	0	1	1	2	0	1	1	83	0	83	0
SUNSHINE CREEK	85.1	F	09/10	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUNSHINE CREEK	85.1	F	09/17	B	0	0	0	0	0	0	0	1	1	1	4	7	2	1	3	0
BIRCH CREEK	89.2	F	07/23	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIRCH CREEK	89.2	F	07/29	B	9	0	9	174	0	174	132	0	132	0	0	0	0	0	0	0
BIRCH CREEK	89.2	F	08/02	B	9	0	9	50	0	50	115	0	115	0	0	0	0	0	0	0
BIRCH CREEK	89.2	F	08/09	B	13	3	16	0	0	0	889	15	904	0	0	0	0	0	0	0
BIRCH CREEK	89.2	F	08/16	B	4	3	7	0	0	0	530	21	551	0	0	0	0	0	0	0
BIRCH CREEK	89.2	F	08/23	E	0	1	1	2	1	3	43	29	72	0	0	0	0	0	0	0
BIRCH CREEK	89.2	F	09/02	F	0	0	0	0	1	1	37	19	56	0	0	0	0	0	0	0
BIRCH CREEK	89.2	F	09/09	B	0	0	0	0	0	0	50	12	62	0	0	0	0	0	0	0
BIRCH CREEK	89.2	F	09/16	B	0	0	0	0	0	0	0	71	71	0	0	0	0	0	0	0
BIRCH CREEK	89.2	F	09/25	B	0	0	0	0	0	0	1	3	4	0	0	0	0	0	0	0
TRAPPER CREEK	91.5	F	07/23	E	15	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0
TRAPPER CREEK	91.5	F	07/28	F	2	0	2	45	0	45	234	0	234	5	0	5	0	0	0	0
TRAPPER CREEK	91.5	F	08/01	F	0	0	0	0	0	0	70	0	70	0	0	0	0	0	0	0
TRAPPER CREEK	91.5	F	08/08	F	0	1	1	0	0	0	221	3	224	46	0	46	2	0	2	0
TRAPPER CREEK	91.5	F	08/15	F	0	2	2	0	0	0	306	7	313	41	0	41	4	0	4	0
TRAPPER CREEK	91.5	F	08/22	P	0	0	0	2	0	2	15	4	19	20	1	21	8	0	8	0
TRAPPER CREEK	91.5	F	08/30	P	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0
TRAPPER CREEK	91.5	F	09/08	B	0	0	0	0	0	0	11	3	14	9	2	11	8	0	8	0
TRAPPER CREEK	91.5	F	09/15	E	0	0	0	0	0	0	0	7	7	3	11	14	21	0	21	0
TRAPPER CREEK	91.5	F	09/24	B	0	0	0	0	0	0	0	2	2	2	11	13	3	0	3	0
CACHE CREEK	95.5	F	07/23	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CACHE CREEK	95.5	F	07/28	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CACHE CREEK	95.5	F	08/01	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CACHE CREEK	95.5	F	08/08	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CACHE CREEK	95.5	F	08/15	B	0	0	0	12	0	12	17	0	17	28	0	28	0	0	0	0
CACHE CREEK	95.5	F	08/22	B	0	0	0	0	0	0	14	0	14	3	0	3	0	0	0	0
CACHE CREEK	95.5	F	08/30	P	0	0	0	0	0	0	11	2	13	0	1	3	0	0	3	0
CACHE CREEK	95.5	F	09/08	B	0	0	0	0	0	0	4	7	11	0	17	17	6	0	6	0
CACHE CREEK	95.5	F	09/15	B	0	0	0	0	0	0	0	0	0	0	37	37	13	0	13	0
CACHE CREEK	95.5	F	09/24	B	0	0	0	0	0	0	0	0	0	0	22	22	1	0	1	0

APPENDIX D

Depth/substrate transect data collected at two mainstem discharges at lower Susitna River stream mouths between RM 28.0 and 98.6 in 1984.

Appendix Table D-1. Depth/substrate transect data collected at two mainstem discharges at lower Susitna River stream mouths between RM 28.0 - 98.6, 1984.

[illegible][illegible]

Appendix Table D-1 (cont.). Depth/substrate transect data collected at two mainstem discharges
at lower Susitna River stream mouths between RM 28.0 - 98.6, 1984.

Moname Creek (RM 31.7)

Location in tributary: 225 ft from mouth at mixing zone

Mainstem Q: 43,320 cfs at Sunshine Station (RM 83.9) 8/14/84

Note	Distance	Depth	Substrate	Comments
LWE	9.50	0.00	SISA	
	13.00	0.62	SISA	
	20.00	1.94	SISA	
	30.00	2.36	SISA	
	40.00	2.98	SISA	
	50.00	2.82	SISA	
RWE	58.50	0.00	SISA	

Mainstem Q: 110,600 cfs at Sunshine Station (RM 83.9)

8/26/84

Note	Distance	Depth	Substrate	Comments
LWE	-4.3	0.0	SISA	
	0.0	2.0	SISA	
	10.0	4.5	SISA	
	20.0	6.3	SISA	
	30.0	6.7	SISA	
	40.0	7.5	SISA	
	50.0	7.3	SISA	
	60.0	3.6	SISA	
	70.0	3.5	SISA	
	80.0	2.7	SISA	
RWE	90.0	0.0	SISA	

Whitsoi Creek (RM 35.2)

Transect 1

Location in tributary: 30 ft above mouth

Mainstem Q: 43,320 cfs at Sunshine Station

8/14/84

Note	Distance	Depth	Substrate	Comments
LWE	16.00	0.00	SISA	
	20.00	1.66	SISA	
	25.00	1.88	SISA	
	30.00	1.82	SISA	
	35.00	1.98	SISA	
RWE	40.00	0.00	SISA	

Mainstem Q: 87,370 cfs at Sunshine Station (RM 83.9)

8/25/84

Note	Distance	Depth	Substrate	Comments
LWE	5.4	0.0	SISA	
	10.0	0.6	SISA	
	16.0	4.3	SISA	
	20.0	5.2	SISA	
	25.0	5.4	SISA	
	30.0	5.4	SISA	
	35.0	5.3	SISA	
	40.0	1.4	SISA	
RWE	41.7	0.0	SISA	

Appendix Table D-1 (cont.). Depth/substrate transect data collected at two mainstem discharges
at lower Susitna River stream mouths between RM 28.0 - 98.6, 1984.

Whitnel Creek (RM 35.2)

Transect 2

Location in tributary: 50 ft up from transect 1

Mainstem Q: 43,320 cfs at Sunshine Station (RM 83.9) 8/14/84

Note	Distance	Depth	Substrate	Comments
LWE	7.00	0.00	SISA	
	20.00	0.96	SISA	
	40.00	1.30	SISA	
	60.00	1.52	SISA	
	80.00	1.76	SISA	
	100.00	1.98	SISA	
	120.00	1.80	SISA	
	140.00	1.20	SISA	
RWE	152.00	0.00	SISA	

Mainstem Q: 87,370 cfs at Sunshine Station (RM 83.9) 8/25/84

Note	Distance	Depth	Substrate	Comments
LWE	-9.0	0.0	SISA	
	9.0	2.3	SISA	
	7.0	3.4	SISA	
	10.0	3.8	SISA	
	20.0	4.6	SISA	
	40.0	5.0	SISA	
	60.0	5.2	SISA	
	80.0	5.3	SISA	
	100.0	5.5	SISA	
	120.0	5.5	SISA	
	140.0	4.7	SISA	
	152.0	3.5	SISA	
	160.0	2.1	SISA	
RWE	165.0	0.0	SISA	

Rolly Creek (RM 39.0)

Transect 1

Location in tributary: 75 ft up from mouth

Mainstem Q: 43,320 cfs at Sunshine Station (RM 83.9) 8/14/84

Note	Distance	Depth	Substrate	Comments
LWE	2.60	0.00	SISA	
	10.00	2.00	SISA	
	20.00	3.12	SISA	
	30.00	5.56	SISA	
	40.00	5.28	SISA	
	50.00	1.94	SISA	
	60.00	3.73	SISA	
	70.00	2.62	SISA	
RWE	72.00	1.39	COBD	

Transect 2

Location in tributary: 100 ft above transect 1

Mainstem Q: 43,320 cfs at Sunshine Station (RM 83.9) 8/14/84

Note	Distance	Depth	Substrate	Comments
LWE	2.0	0.0	SISA	
	10.0	1.4	SISA	
	20.0	2.7	SISA	
	30.0	4.9	SISA	
	40.0	4.9	SISA	
	50.0	4.0	SISA	
	60.0	2.9	SISA	
	70.0	1.0	SISA	
RWE	74.4	0.0	COBD	

Appendix Table D-1 (cont.). Depth/substrate transect data collected at two mainstem discharges
at lower Susitna River stream mouths between RM 28.0 - 98.6, 1984.

Willow Creek (RM 49.1)
Location in tributary: 75 ft up from mouth

Mainstem Q: 46,920 cfs at Sunshine Station (RM 83.9) 8/13/84

Note	Distance	Depth	Substrate	Comments
LWE	1.50	1.68	SI	
	10.00	4.99	SI	
	15.00	6.51	CDRU	
	25.00	4.68	SSSA	
	30.00	3.50	SASI	
	35.00	2.58	SASI	
RWE	47.50	0.00	SASI	

Mainstem Q: 110,600 cfs at Sunshine Station (RM 83.9) 8/26/84

Note	Distance	Depth	Substrate	Comments
LWE	-6.0	0.0	SI	
	0.0	1.5	SI	
	5.0	7.6	SI	
	10.0	8.0	SI	
	15.0	8.7	CDRU	
	20.0	8.0	SSSA	
	25.0	7.0	SSSI	
	30.0	5.4	SSSI	
	35.0	4.3	SSSI	
	40.0	3.3	SSSI	
	47.5	1.0	SSSI	
	50.0	1.7	SSSI	
	55.0	0.5	SSSI	
	60.0	0.5	SI	
	65.0	1.2	SI	
	70.0	0.7	SISA	
	75.0	1.8	SA	
	85.0	0.9	SA	
RWE	91.6	0.0	SA	

Little Willow Creek (RM 50.5)
Location in tributary: 50 ft up from mouth

Mainstem Q: 46,920 cfs at Sunshine Station (RM 83.9) 8/13/84

Note	Distance	Depth	Substrate	Comments
LWE	2.50	0.26	SISA	
	10.00	1.02	SISA	
	13.00	1.26	RUSA	
	15.00	2.06	RUSA	
	18.00	2.34	RUSA	
	26.00	1.84	LBSS	
	40.00	1.61	LBSS	thin silt layer
	56.00	1.30	SSSA	
	65.00	0.64	SGLS	thin silt layer
RWE	72.00	0.00	SGLS	thin silt layer

Mainstem Q: 110,600 cfs at Sunshine Station (RM 83.9) 8/26/84

Note	Distance	Depth	Substrate	Comments
LWE	0.50	0.00	SI	Tributary water turbid.
	2.00	1.82	SISA	
	10.00	2.94	SISA	
	13.00	3.26	RUSA	
	15.00	2.50	RUSA	
	18.00	3.98	RUSA	
	26.00	3.12	LBSS	
	40.00	3.06	LBSS	
	56.00	3.02	SSSA	
	65.00	2.20	SGLS	
	72.00	1.42	SGLS	
	80.00	1.10	SA	
	88.60	0.61	SASS	
RWE	91.60	0.00	SASS	

Appendix Table D-1 (cont.). Depth/substrate transect data collected at two mainstem discharges at lower Susitna River stream mouths between RM 28.0 - 98.6, 1984.

Grays Creek (RM 59.5)
Location in tributary: 150 ft up from mouth

Mainstem Q: 46,920 cfs at Sunshine Station (RM 83.9) 8/13/84

Note	Distance	Depth	Substrate	Comments
LWE	10.00	2.13	SI	
	25.00	3.48	SI	
	40.00	4.63	GRRU	
	60.00	3.20	SI	
RWE	70.00	1.31	SI	

Mainstem Q: 110,600 cfs at Sunshine Station (RM 83.9) 8/26/84

Note	Distance	Depth	Substrate	Comments
LWE	6.5	0.0	SI	
	10.0	4.2	SI	
	25.0	5.1	SI	
	40.0	6.4	GRRU	
	60.0	4.8	SI	
	70.0	2.6	SI	
	75.0	1.8	SI	
RWE	82.0	0.0	SI	

Caswell Creek (RM 64.0)
Location in tributary: 75 ft up from mouth

Mainstem Q: 48,900 cfs at Sunshine Station (RM 83.9) 8/15/84

Note	Distance	Depth	Substrate	Comments
LWE	20.50	0.00	SI	
	25.00	3.04	SI	
	30.00	4.00	SI	
	40.00	3.53	SI	
	50.00	2.95	RU	silt layer 2 inches thick
	60.00	3.13	RU	silt layer 2 inches thick
	70.00	3.28	RU	silt layer 2 inches thick
	77.00	1.90	RU	silt layer 2 inches thick
RWE	83.00	0.00	LBSB	

Mainstem Q: 83,380 cfs at Sunshine Station (RM 83.9) 8/27/84

Note	Distance	Depth	Substrate	Comments
LWE	18.3	0.0	SI	
	25.0	4.1	SI	
	30.0	5.0	SI	
	40.0	3.9	SI	
	50.0	3.2	RU	silt layer 2 inches thick
	60.0	4.0	RU	silt layer 2 inches thick
	70.0	4.6	RU	silt layer 2 inches thick
RWE	87.0	0.0	RU	silt layer 2 inches thick

Appendix Table D-1 (cont.). Depth/substrate transect data collected at two mainstem discharges at lower Susitna River stream mouths between RM 28.0 - 98.6, 1984.

Sheep Creek (RM 66.1)
Location in tributary: 100 ft up from mouth

Mainstem Q: 48,900 cfs at Sunshine Station (RM 83.9) 8/15/84

Note	Distance	Depth	Substrate	Comments
LWE	6.50	0.00	SI	
	25.00	3.39	RULG	silt layer 1 inch thick
	45.00	5.15	LBSG	
	65.00	5.58	S6S1	
	85.00	5.00	S6S1	
	105.00	4.63	S6S1	
	125.00	3.02	SI	
	145.00	1.50	SI	
RWE	150.00	0.00	SI	

Mainstem Q: 83,380 cfs at Sunshine Station (RM 83.9) 8/27/84

Note	Distance	Depth	Substrate	Comments
LWE	4.9	0	SI	
	25	3.69	RULG	silt layer 1 inch thick
	45	5.37	LBSG	
	65	5.01	S6S1	
	85	5.27	S6S1	
	105	4.79	S6S1	
	125	3.31	SI	
	145	1.79	SI	
RWE	151.7	0	SI	

Goose Creek (RM 72.0)
Location in tributary: 50 ft up from mouth

Mainstem Q: 48,900 cfs at Sunshine Station (RM 83.9) 8/15/84

Note	Distance	Depth	Substrate	Comments
LWE	3.60	0.00	SI	
	10.00	1.62	SI	
	20.00	2.00	SGLB	silt layer 2 inches thick
	30.00	1.71	SGLB	silt layer 2 inches thick
	40.00	1.31	SGLB	silt layer 1 inch thick
RWE	50.00	1.20	SGLB	silt layer 1 inch thick

Mainstem Q: 83,380 cfs at Sunshine Station (RM 83.9) 8/27/84

Note	Distance	Depth	Substrate	Comments
LWE	2.3	0	SI	
	10	1.94	SI	
	20	2.66	SGLB	silt layer 2 inches thick
	30	2.91	SGLB	silt layer 2 inches thick
	40	1.63	SGLB	silt layer 1 inch thick
	50	1.75	SGLB	silt layer 1 inch thick
	60	1.06	SGLB	silt layer 1 inch thick
	70	1.01	SGLB	silt layer 1 inch thick
	80	0.24	SGLB	silt layer 1 inch thick
RWE	85.6	0	SGLB	silt layer 1 inch thick

Appendix Table D-1 (cont.). Depth/substrate transect data collected at two mainstem discharges
at lower Susitna River stream mouths between RM 28.0 - 98.6, 1984.

Montana Creek (RM 77.0)
Location in tributary: 50 ft up from mouth

Mainstem Q: 48,900 cfs at Sunshine Station (RM 83.9) 8/15/84

Note	Distance	Depth	Substrate	Comments
LNE	16.80	0.00	LGCO	
	20.00	1.41	LGCO	
	30.00	1.82	RULB	
	40.00	1.84	RUCO	
	50.00	1.62	SGRU	
	60.00	1.10	SGLG	
RNE	69.30	0.00	SGRU	

Mainstem Q: 83,380 cfs at Sunshine Station (RM 83.9) 8/27/84

Note	Distance	Depth	Substrate	Comments
LNE	14.4	0	LGCO	
	20	1.81	LGCO	
	30	2.07	RULG	
	40	2.11	RUCO	
	50	1.95	SGRU	
	60	1.47	SGLG	
RNE	72.2	0	SGRU	

Rabideux Creek (RM 83.1)
Location in tributary: 50 ft up from mouth

Mainstem Q: 42,780 cfs at Sunshine Station (RM 83.9) 8/16/84

Note	Distance	Depth	Substrate	Comments
LNE	22.10	0.00	SI	
	30.00	1.32	SI	
	50.00	3.38	SI	
	70.00	4.97	SI	
	90.00	5.85	SI	
	110.00	5.85	SI	
	130.00	2.32	SI	
	150.00	1.36	SI	
RNE	163.10	0.00	SI	

Mainstem Q: 83,380 cfs at Sunshine Station (RM 83.9) 8/27/84

Note	Distance	Depth	Substrate	Comments
LNE	18.4	0.0	SI	
	30.0	1.5	SI	
	50.0	3.5	SI	
	70.0	5.1	SI	
	90.0	6.1	SI	
	110.0	6.2	SI	
	130.0	2.8	SI	
	150.0	1.4	SI	
RNE	171.2	0.0	SI	

Appendix Table D-1 (cont.). Depth/substrate transect data collected at two mainstem discharges at lower Susitna River stream mouths between RM 28.0 - 98.6, 1984.

Sunshine Creek (RM 85.1)
Location in tributary: 25 ft up from mouth

Mainstem Q: 42,780 cfs at Sunshine Station (RM 83.9) 8/16/84

Note	Distance	Depth	Substrate	Comments
LWE	3.70	0.00	S1	
	10.00	1.85	S1	
	20.00	2.70	LGRU	silt layer 3 inches thick
	30.00	2.64	RULB	
	40.00	1.90	RULB	
RWE	48.00	0.00	S1	

Mainstem Q: 83,380 cfs at Sunshine Station (RM 83.9) 8/27/84

Note	Distance	Depth	Substrate	Comments
LWE	2.40	0.00	S1	
	10.00	1.91	S1	
	20.00	2.97	LGRU	silt layer 3 inches thick
	30.00	2.89	RULB	
	40.00	2.16	RULB	
RWE	51.20	0.00	S1	

Birch Creek (RM 89.2)
Location in tributary: 25 ft up from mouth

Mainstem Q: 42,780 cfs at Sunshine Station (RM 83.9) 8/16/84

Note	Distance	Depth	Substrate	Comments
LWE	4.90	0.00	S1S6	
	10.00	0.73	L6S6	thin silt layer
	20.00	1.04	L6S6	thin silt layer
	30.00	0.91	L6S6	thin silt layer
	40.00	1.17	L6S6	thin silt layer
	50.00	1.05	L6S6	thin silt layer
RWE	61.40	0.00	L6S6	thin silt layer

Mainstem Q: 83,380 cfs at Sunshine Station (RM 83.9) 8/27/84

Note	Distance	Depth	Substrate	Comments
LWE	2.80	0.00	S1S6	
	10.00	0.99	L6S6	thin silt layer
	20.00	1.21	L6S6	thin silt layer
	30.00	1.12	L6S6	thin silt layer
	40.00	1.37	L6S6	thin silt layer
	50.00	1.29	L6S6	thin silt layer
RWE	63.40	0.00	L6S6	thin silt layer

Appendix Table D-1 (cont.). Depth/substrate transect data collected at two mainstem discharges at lower Susitna River stream mouths between RM 28.0 - 98.6, 1984.

Trapper Creek (RM 91.5)
Location in tributary: 50 ft up from mouth

Mainstem Q: 42,780 cfs at Sunshine Station (RM 83.9) 8/16/84

Note	Distance	Depth	Substrate	Comments
LWE	9.50	0.00	RULG	silt layer 6 inches thick
	15.00	1.77	RULG	silt layer 6 inches thick
	20.00	1.59	RULG	silt layer 6 inches thick
	25.00	0.80	RULG	silt layer 6 inches thick
	30.00	0.48	RULG	silt layer 4 inches thick
RWE	35.00	0.00	RULG	silt layer 4 inches thick

Mainstem Q: 83,380 cfs at Sunshine Station (RM 83.9) 8/27/84

Note	Distance	Depth	Substrate	Comments
LWE	6.90	0.00	RULG	silt layer 6 inches thick
	15.00	1.93	RULG	silt layer 6 inches thick
	20.00	1.87	RULG	silt layer 6 inches thick
	25.00	0.84	RULG	silt layer 6 inches thick
	30.00	0.64	RULG	silt layer 4 inches thick
RWE	37.70	0.00	RULG	silt layer 4 inches thick

Cache Creek (RM 95.5)
Location in tributary: 50 ft up from mouth

Mainstem Q: 42,780 cfs at Sunshine Station (RM 83.9) 8/16/84

Note	Distance	Depth	Substrate	Comments
LWE	2.60	0.00	SI	
	10.00	1.26	LGSB	
	20.00	1.25	LGRU	thin silt layer
	30.00	1.36	LGRU	thin silt layer
	40.00	0.91	RULG	
RWE	45.10	0.00	SI	

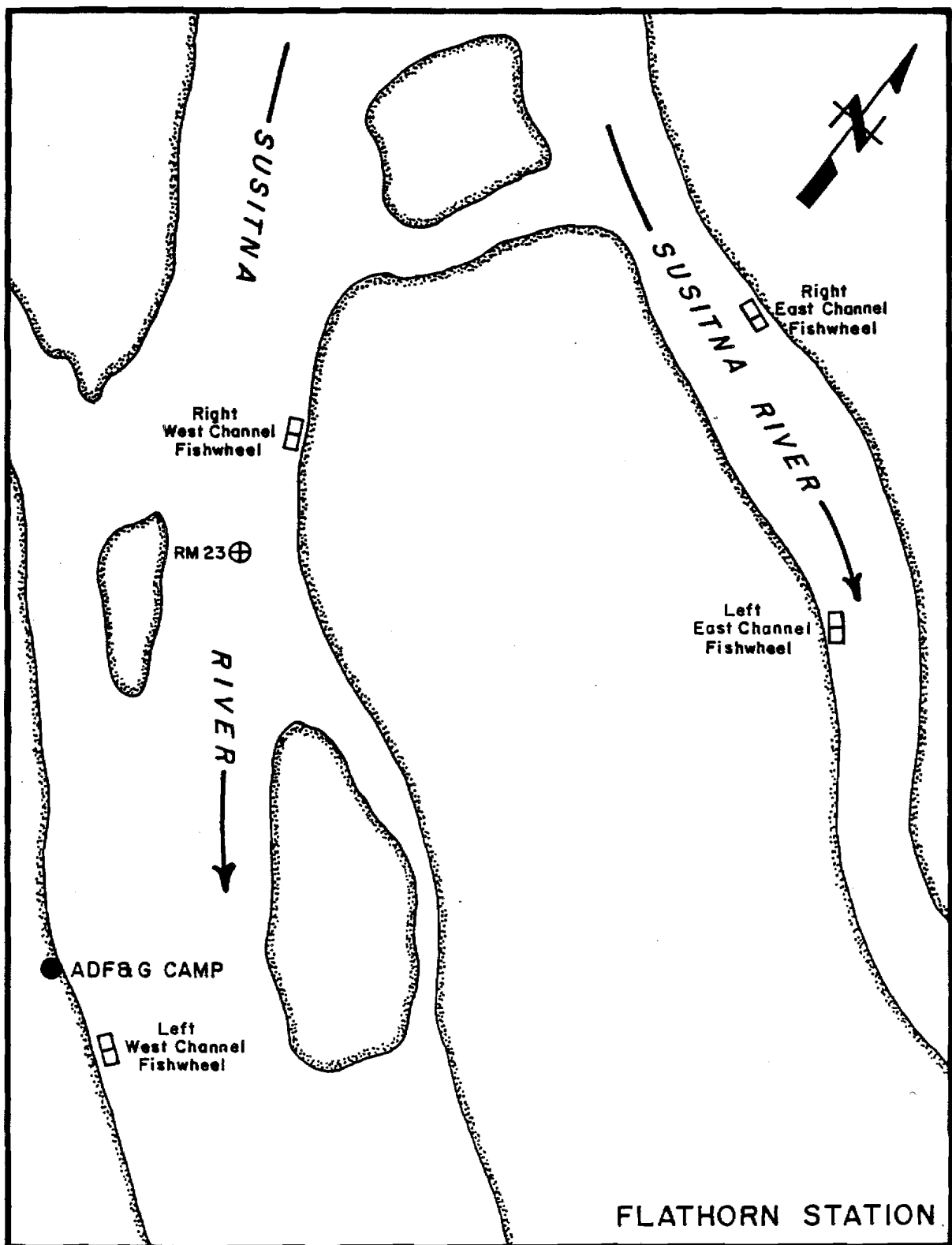
Mainstem Q: 83,380 at Sunshine Station (RM 83.9) 8/27/84

Note	Distance	Depth	Substrate	Comments
LWE	3.60	0.00	SI	
	10.00	1.83	LGSB	
	20.00	1.60	LGRU	thin silt layer
	30.00	1.82	LGRU	thin silt layer
	40.00	1.35	RULG	
RWE	47.10	0.00	SI	

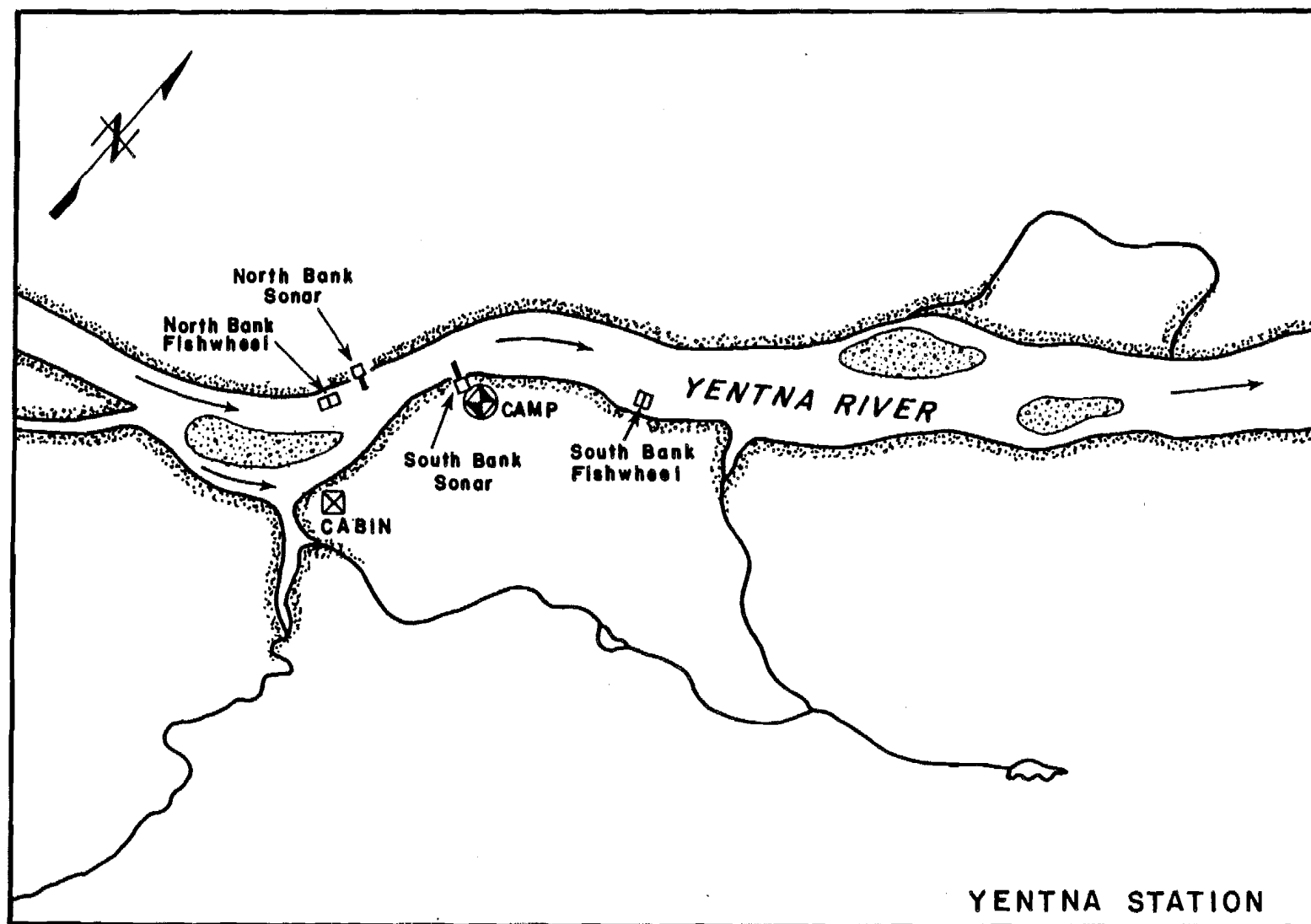
APPENDIX 2

Susitna and Yentna Rivers

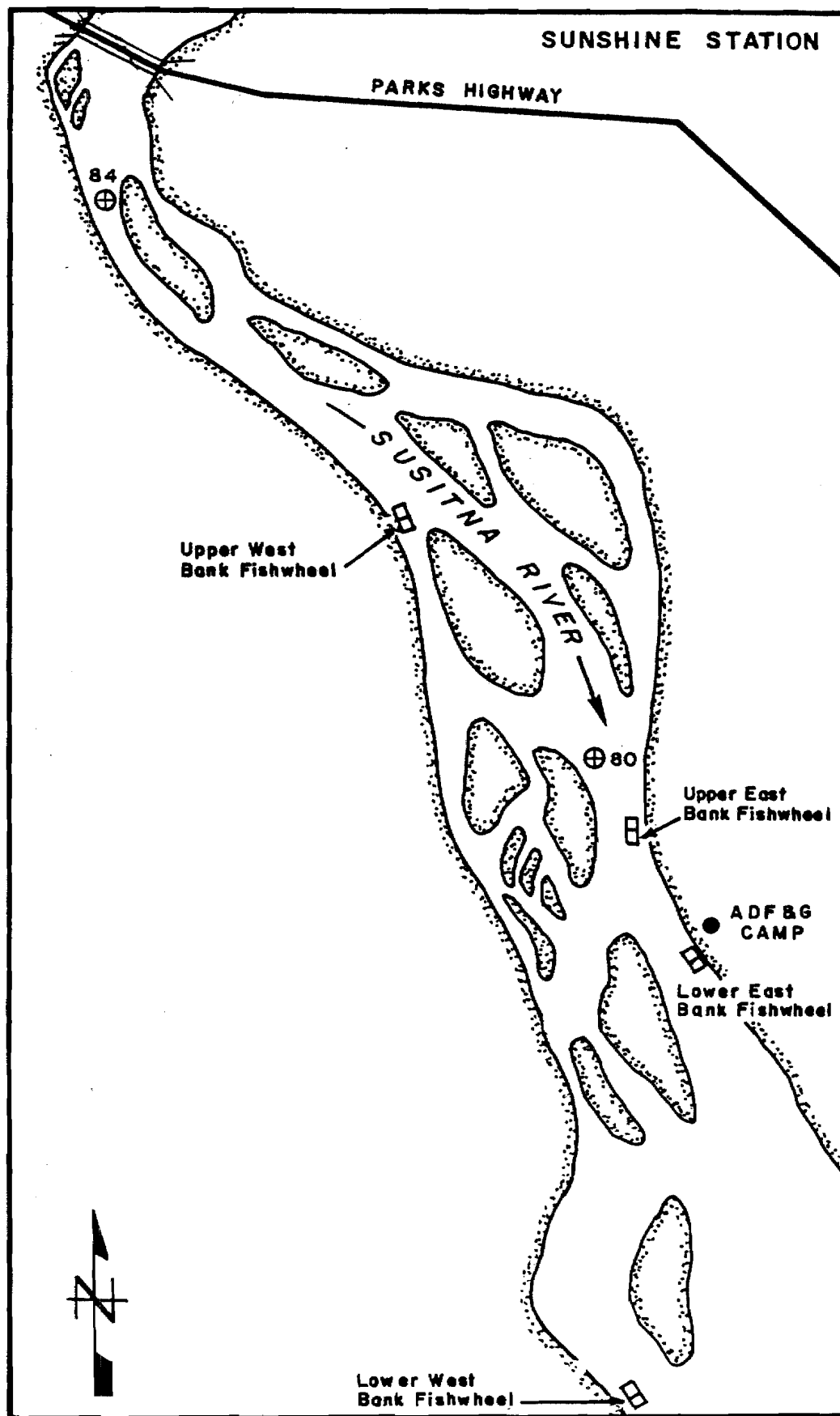
Sampling Locations



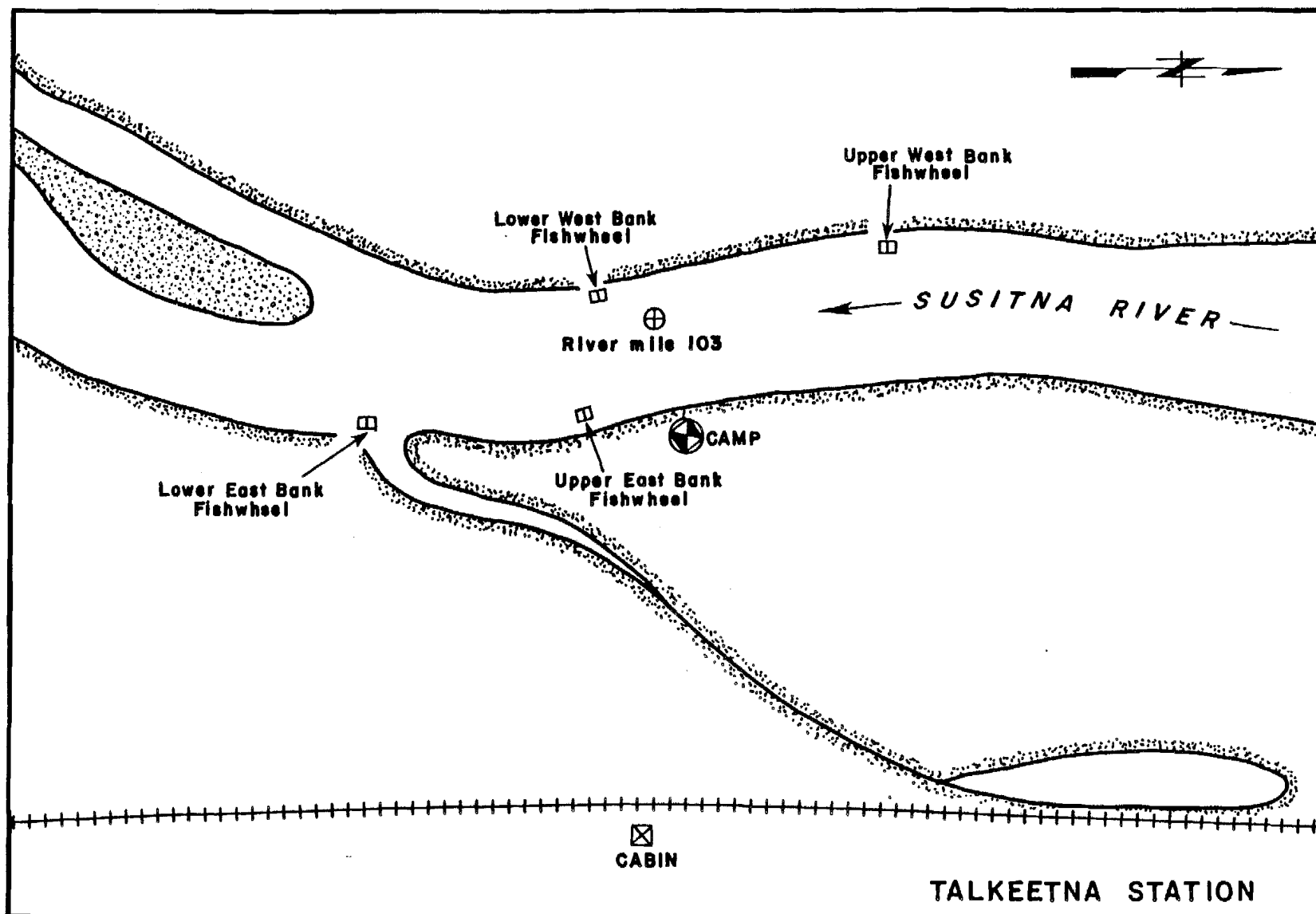
Appendix Figure 2-1. Flathorn Station with fishwheel sites defined.



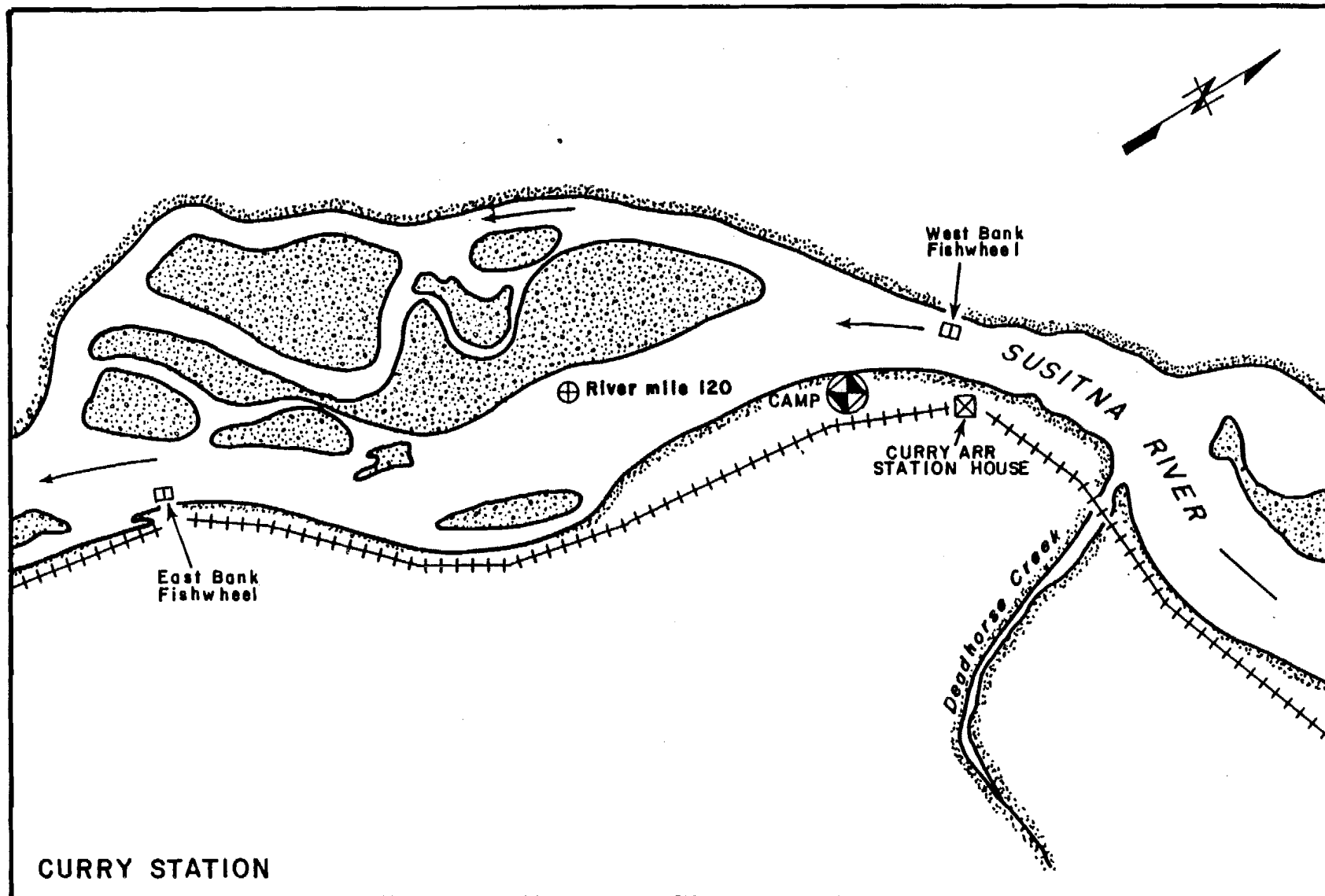
Appendix Figure 2-2. Yentna Station with sonar and fishwheel sites defined, 1984.



Appendix Figure 2-3. Sunshine Station with fishwheel sites defined, 1984.



Appendix Figure 2-4. Talkeetna Station with fishwheel sites defined, 1984.



Appendix Figure 2-5. Curry Station with fishwheel sites defined, 1984.

APPENDIX 3

Daily Fishwheel Catch Data
and
Migrational Rate Histograms

Appendix Table 3-1.

Flathorn Station east channel fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
062984	1 7.0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1
063084	1 24.0	6	6	3	4	1	1	0	0	0	0	0	3	3	13	14
070184	2 47.0	4	10	4	8	0	1	0	0	0	0	0	3	6	11	25
070284	2 48.0	5	15	4	12	1	2	0	0	0	0	0	9	15	19	44
070384	2 48.0	3	18	4	16	1	3	0	0	0	0	0	2	17	10	54
070484	2 48.0	3	21	8	24	3	6	0	0	0	0	0	3	20	17	71
070584	2 48.0	3	24	10	34	2	8	1	1	0	0	0	12	32	28	99
070684	2 48.0	5	29	15	49	2	10	1	2	1	1	0	0	32	24	123
070784	2 48.0	0	29	11	60	2	12	0	2	1	2	0	1	33	15	138
070884	2 47.7	2	31	10	70	0	12	4	6	1	3	0	1	34	18	156
070984	2 45.0	2	33	26	96	0	12	16	22	2	5	0	3	37	49	205
071084	2 48.0	1	34	23	119	5	17	16	38	2	7	0	1	38	48	253
071184	2 45.0	2	36	8	127	1	18	1	39	3	10	0	7	45	22	275
071284	2 48.0	2	38	12	139	5	23	0	39	0	10	1	9	55	29	304
071384	2 47.2	0	38	17	156	0	23	0	39	4	14	0	5	60	26	330
071484	2 48.0	0	38	9	165	5	28	1	40	0	14	0	10	70	25	355
071584	2 48.0	0	38	8	173	1	29	0	40	1	15	0	9	79	19	374
071684	2 48.0	1	39	82	255	8	37	35	75	7	22	0	20	99	153	527
071784	2 48.0	1	40	367	622	37	74	222	297	14	36	0	9	108	650	1177
071884	2 48.0	0	40	489	1111	128	202	455	752	41	77	0	3	111	1116	2293
071984	2 48.0	0	40	250	1361	311	513	373	1125	33	110	0	5	116	972	3265
072084	2 48.0	1	41	196	1557	664	1177	370	1495	41	151	0	1	117	1273	4538
072184	2 47.5	5	46	158	1715	1091	2268	364	1859	36	187	0	1	118	1655	6193
072284	2 48.0	1	47	173	1888	1192	3460	477	2336	98	285	0	1	119	1942	8135
072384	2 48.0	0	47	187	2075	1518	4978	385	2721	125	410	1	8	128	2224	10359
072484	2 48.0	2	49	216	2291	1138	6116	220	2941	63	473	0	5	133	1644	12003
072584	2 48.0	1	50	244	2535	1295	7411	230	3171	70	543	0	14	147	1854	13857
072684	2 48.0	0	50	121	2656	833	8244	141	3312	37	580	0	1	148	1133	14990
072784	2 48.0	4	54	193	2849	2250	10494	187	3499	70	650	0	2	150	2706	17696

Appendix Table 3-1 (cont.). Flathorn Station east channel fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
072884	2	48.0	1	55	99	2948	4423	14917	275	3774	76	726	1	2	153	4877	22573
072984	2	48.0	1	56	79	3027	2639	17556	259	4033	65	791	0	2	155	3045	25618
073084	2	48.0	1	57	70	3097	2177	19733	300	4333	60	851	0	6	161	2614	28232
073184	2	48.0	1	58	52	3149	983	20716	186	4519	48	899	2	3	166	1275	29507
080184	2	48.0	2	60	55	3204	1010	21726	188	4707	69	968	0	5	171	1329	30836
080284	2	48.0	0	60	62	3266	814	22540	121	4828	40	1008	3	10	184	1050	31886
080384	2	48.0	0	60	57	3323	857	23397	134	4962	55	1063	1	8	193	1112	32998
080484	2	48.0	0	60	64	3387	1044	24441	149	5111	62	1125	2	9	204	1330	34328
080584	2	48.0	0	60	43	3430	663	25104	141	5252	45	1170	0	4	208	896	35224
080684	2	48.0	0	60	45	3475	437	25541	51	5303	27	1197	0	2	210	562	35786
080784	2	48.0	0	60	35	3510	236	25777	71	5374	26	1223	3	2	215	373	36159
080884	2	48.0	0	60	19	3529	261	26038	77	5451	19	1242	3	3	221	382	36541
080984	2	48.0	1	61	43	3572	227	26265	50	5501	12	1254	5	2	228	340	36881
081084	2	48.0	0	61	32	3604	188	26453	53	5554	25	1279	4	2	234	304	37185
081184	2	48.0	1	62	12	3616	127	26580	33	5587	13	1292	1	10	245	197	37382
081284	2	47.5	0	62	16	3632	85	26665	15	5602	15	1307	3	4	252	138	37520
081384	2	48.0	0	62	20	3652	45	26710	14	5616	13	1320	6	16	274	114	37634
081484	2	48.0	0	62	13	3665	38	26748	10	5626	11	1331	12	9	295	93	37727
081584	2	48.0	0	62	11	3676	28	26776	4	5630	5	1336	11	14	320	73	37800
081684	2	48.0	1	63	7	3683	19	26795	2	5632	9	1345	7	14	341	59	37859
081784	2	43.0	0	63	6	3689	17	26812	2	5634	9	1354	3	9	353	46	37905
081884	2	48.0	0	63	11	3700	19	26831	9	5643	14	1368	4	15	372	72	37977
081984	2	48.0	0	63	3	3703	8	26839	14	5657	19	1387	4	1	377	49	38026
082084	2	48.0	0	63	3	3706	10	26849	34	5691	11	1398	10	1	388	69	38095
082184	2	47.0	0	63	7	3713	7	26856	42	5733	8	1406	6	1	395	71	38166
082284	2	48.0	1	64	14	3727	14	26870	83	5816	19	1425	4	3	402	138	38304
082384	2	48.0	0	64	9	3736	13	26883	93	5909	11	1436	6	12	420	144	38448
082484	2	48.0	1	65	6	3742	11	26894	68	5977	9	1445	9	5	434	109	38557
082584	2	48.0	1	66	2	3744	7	26901	56	6033	9	1454	21	4	459	100	38657

Appendix Table 3-1 (cont.). Flathorn Station east channel fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours		Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
082684	2	44.0	0	66	0	3744	2	26903	6	6039	0	1454	4	0	463	12	38669
082784	2	48.0	0	66	0	3744	7	26910	26	6065	10	1464	24	2	489	69	38738
082884	2	43.0	0	66	1	3745	9	26919	70	6135	8	1472	16	3	508	107	38845
082984	2	48.0	0	66	4	3749	12	26931	102	6237	18	1490	39	20	567	195	39040
083084	2	48.0	0	66	0	3749	0	26931	32	6269	6	1496	16	5	588	59	39099
083184	2	44.0	0	66	0	3749	0	26931	12	6281	7	1503	15	3	606	37	39136
090184	2	44.0	0	66	0	3749	0	26931	3	6284	2	1505	18	1	625	24	39160
090284	2	43.0	0	66	0	3749	0	26931	7	6291	5	1510	28	7	660	47	39207
090384	2	24.5	0	66	0	3749	0	26931	0	6291	0	1510	3	1	664	4	39211

Appendix Table 3-2.

Flathorn Station west channel fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
062984	2 47.0	0	0	2	2	0	0	0	0	0	0	0	0	0	2	2
063084	2 48.0	0	0	8	10	0	0	0	0	0	0	0	2	2	10	12
070184	2 47.0	1	1	3	13	0	0	0	0	0	0	0	0	2	4	16
070284	2 48.0	1	2	3	16	0	0	0	0	0	0	0	1	3	5	21
070384	2 48.0	1	3	1	17	0	0	0	0	0	0	0	2	5	4	25
070484	2 46.0	1	4	3	20	0	0	0	0	0	0	0	3	8	7	32
070584	2 46.0	1	5	3	23	0	0	0	0	0	0	0	2	10	6	38
070684	2 48.0	2	7	15	38	0	0	0	0	1	1	0	2	12	20	58
070784	2 48.0	0	7	7	45	1	1	0	0	1	2	0	3	15	12	70
070884	2 48.0	0	7	8	53	0	1	0	0	1	3	0	3	18	12	82
070984	2 47.5	0	7	36	89	0	1	6	6	0	3	0	3	21	45	127
071084	2 48.0	1	8	31	120	0	1	2	8	3	6	0	3	24	40	167
071184	2 48.0	0	8	7	127	1	2	0	8	0	6	0	1	25	9	176
071284	2 48.0	2	10	3	130	0	2	0	8	0	6	0	0	25	5	181
071384	2 47.0	0	10	15	145	1	3	0	8	0	6	0	4	29	20	201
071484	2 48.0	0	10	19	164	0	3	0	8	4	10	0	3	32	26	227
071584	2 46.5	0	10	1	165	0	3	0	8	1	11	0	2	34	4	231
071684	2 48.0	1	11	274	439	2	5	4	12	23	34	0	3	37	307	538
071784	2 48.0	0	11	643	1082	5	10	29	41	25	59	0	1	38	703	1241
071884	2 48.0	0	11	524	1606	17	27	40	81	38	97	0	0	38	619	1860
071984	2 48.0	1	12	337	1943	42	69	21	102	29	126	0	0	38	430	2290
072084	2 48.0	1	13	279	2222	114	183	32	134	43	169	0	0	38	469	2759
072184	2 48.0	0	13	202	2424	173	356	26	160	40	209	0	0	38	441	3200
072284	2 48.0	0	13	232	2656	413	769	61	221	63	272	0	0	38	769	3969
072384	2 48.0	3	16	271	2927	566	1335	64	285	144	416	0	1	39	1049	5018
072484	2 48.0	0	16	246	3173	452	1787	63	348	114	530	0	0	39	875	5893
072584	2 48.0	1	17	299	3472	364	2151	58	406	107	637	0	0	39	829	6722
072684	2 47.0	1	18	160	3632	460	2611	25	431	55	692	0	0	39	701	7423
072784	2 46.5	1	19	121	3753	889	3500	39	470	38	730	0	0	39	1088	8511

A134

Appendix Table 3-2 (cont.). Flathorn Station west channel fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
072884	2	48.0	1	20	140	3893	1753	5253	73	543	56	786	0	2	41	2025	10536
072984	2	46.0	1	21	113	4006	847	6100	76	619	46	832	0	1	42	1084	11620
073084	2	48.0	0	21	86	4092	784	6884	106	725	53	885	0	2	44	1031	12651
073184	2	48.0	1	22	52	4144	323	7207	83	808	33	918	0	0	44	492	13143
080184	2	48.0	1	23	28	4172	199	7406	68	876	33	951	0	0	44	329	13472
080284	2	48.0	0	23	25	4197	110	7516	60	936	28	979	0	0	44	223	13695
080384	2	48.0	0	23	30	4227	82	7598	21	957	28	1007	0	0	44	161	13856
080484	2	48.0	1	24	59	4286	86	7684	27	984	20	1027	0	1	45	194	14050
080584	2	48.0	0	24	37	4323	82	7766	10	994	22	1049	0	0	45	151	14201
080684	2	47.0	0	24	31	4354	80	7846	12	1006	24	1073	0	0	45	147	14348
080784	2	43.5	0	24	28	4382	66	7912	25	1031	17	1090	2	0	47	138	14486
080884	2	48.0	1	25	29	4411	102	8014	34	1065	15	1105	1	0	48	182	14668
080984	2	47.7	0	25	28	4439	75	8089	13	1078	24	1129	2	0	50	142	14810
081084	2	48.0	0	25	26	4465	45	8134	13	1091	14	1143	1	0	51	99	14909
081184	2	47.0	0	25	15	4480	11	8145	3	1094	5	1148	1	1	53	36	14945
081284	2	45.2	0	25	9	4489	14	8159	5	1099	2	1150	2	0	55	32	14977
081384	2	48.0	0	25	8	4497	12	8171	7	1106	15	1165	0	1	56	43	15020
081484	2	48.0	0	25	4	4501	9	8180	2	1108	7	1172	0	0	56	22	15042
081584	2	46.5	0	25	3	4504	5	8185	1	1109	6	1178	0	1	57	16	15058
081684	2	47.5	0	25	5	4509	4	8189	0	1109	10	1188	0	0	57	19	15077
081784	2	48.0	0	25	2	4511	3	8192	1	1110	7	1195	0	0	57	13	15090
081884	2	43.5	0	25	1	4512	0	8192	3	1113	2	1197	0	0	57	6	15096
081984	2	48.0	0	25	6	4518	4	8196	1	1114	2	1199	1	0	58	14	15110
082084	2	48.0	0	25	4	4522	2	8198	8	1122	6	1205	6	1	65	27	15137
082184	2	46.7	0	25	2	4524	2	8200	6	1128	7	1212	6	0	71	23	15160
082284	2	46.0	0	25	9	4533	2	8202	9	1137	1	1213	1	2	74	24	15184
082384	2	48.0	0	25	0	4533	0	8202	0	1137	2	1215	0	0	74	2	15186
082484	2	48.0	0	25	1	4534	1	8203	0	1137	4	1219	1	0	75	7	15193
082584	2	48.0	0	25	2	4536	0	8203	14	1151	2	1221	3	1	79	22	15215

Appendix Table 3-2 (cont.). Flathorn Station west channel fishwheels daily and cumulative catch by species, 1984.

Date	No. of wheels	Wheel hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
082684	2	43.0	1	26	2	4538	0	8203	3	1154	4	1225	4	0	83	14	15229
082784	2	48.0	0	26	1	4539	0	8203	12	1166	1	1226	10	3	96	27	15256
082884	2	41.0	0	26	2	4541	1	8204	6	1172	3	1229	5	2	103	19	15275
082984	2	48.0	0	26	3	4544	0	8204	31	1203	0	1229	10	0	113	44	15319
083084	2	48.0	0	26	3	4547	1	8205	14	1217	3	1232	2	3	118	26	15345
083184	2	48.0	0	26	4	4551	0	8205	8	1225	3	1235	1	2	121	18	15363
090184	2	48.0	0	26	0	4551	0	8205	0	1225	0	1235	1	1	123	2	15365
090284	2	48.0	0	26	0	4551	0	8205	3	1228	1	1236	2	0	125	6	15371
090384	2	24.2	0	26	0	4551	0	8205	0	1228	0	1236	0	0	125	0	15371

Appendix Table 3-3.

Flathorn Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
062984	3 54.0	0	0	3	3	0	0	0	0	0	0	0	0	0	3	3
063084	3 72.0	6	6	11	14	1	1	0	0	0	0	0	5	5	23	26
070184	4 94.0	5	11	7	21	0	1	0	0	0	0	0	3	8	15	41
070284	4 96.0	6	17	7	28	1	2	0	0	0	0	0	10	18	24	65
070384	4 96.0	4	21	5	33	1	3	0	0	0	0	0	4	22	14	79
070484	4 94.0	4	25	11	44	3	6	0	0	0	0	0	6	28	24	103
070584	4 94.0	4	29	13	57	2	8	1	1	0	0	0	14	42	34	137
070684	4 96.0	7	36	30	87	2	10	1	2	2	2	0	2	44	44	181
070784	4 96.0 ¹⁹⁶	0	36	18	105	3	13	0	2	24	4	0	4	48	27	208
070884	4 95.8	2	38	18	123	0	13	4	6	2	6	0	4	52	30	238
070984	4 92.5 ^{59.6}	2	40	62	185	0	13	22	28	2	8	0	6	58	94	332
071084	4 96.0	2	42	54	239	5	18	18	46	5 ²⁰	13	0	4	62	88	420
071184	4 93.0	2	44	15	254	2	20	1	47	3	16	0	8	70	31	451
071284	4 96.0	4	48	15	269	5	25	0	47	0	16	1	9	80	34	485
071384	4 94.3	0	48	32	301	1	26	0	47	4	20	0	9	89	46	531
071484	4 96.0	0	48	28	329	5	31	1	48	4	24	0	13	102	51	582
071584	4 94.5	0	48	9	338	1	32	0	48	2	26	0	11	113	23	605
071684	4 96.0 ^{670.5}	2	50	356	694	10	42	39	87	30	56	0	23	136	460	1065
071784	4 96.0	1	51	1010	1704	42	84	251	338	39 ³⁰⁰	95	0	10	146	1353	2418
071884	4 96.0	0	51	1013	2717	145	229	495	833	79	174	0	3	149	1735	4153
071984	4 96.0	1	52	587	3304	353	582	394	1227	62	236	0	5	154	1402	5555
072084	4 96.0	2	54	475	3779	778	1360	402	1629	84	320	0	1	155	1742	7297
072184	4 95.5	5	59	360	4139	1264	2624	390	2019	76	396	0	1	156	2096	9393
072284	4 96.0	1	60	405	4544	1605	4229	538	2557	161	557	0	1	157	2711	12104
072384	4 96.0	3	63	458	5002	2084	6313	449	3006	269 ¹¹⁸⁰	826	1	9	167	3273	15377
072484	4 96.0 ^{669.0}	2	65	462	5464	1590	7903	283	3289	177	1003	0	5	172	2519	17896
072584	4 96.0	2	67	543	6007	1659	9562	288	3577	177	1180	0	14	186	2683	20579
072684	4 95.0	1	68	281	6288	1293	10855	166	3743	92	1272	0	1	187	1834	22413
072784	4 94.5	5	73	314	6602	3139	13994	226	3969	108	1380	0	2	189	3794	26207

A137

Appendix Table 3-3. (cont.). Flathorn Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours		Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering			Daily	Cum
													Cisco	Other	Cum		
072884	4	96.0	2	75	239	6841	6176	20170	348	4317	132	1512	1	4	194	6902	33109
072984	4	94.0	2	77	192	7033	3486	23656	335	4652	111	1623	0	3	197	4129	37238
073084	4	96.0	1	78	156	7189	2961	26617	406	5058	113	1736	0	8	205	3645	40883
073184	4	96.0	2	80	104	7293	1306	27923	269	5327	81	1817	2	3	210	1767	42650
080184	4	96.0	3	83	83	7376	1209	29132	256	5583	102	1919	0	5	215	1658	44308
080284	4	96.0	0	83	87	7463	924	30056	181	5764	68	1987	3	10	228	1273	45581
080384	4	96.0	0	83	87	7550	939	30995	155	5919	83	2070	1	8	237	1273	46854
080484	4	96.0	1	84	123	7673	1130	32125	176	6095	82	2152	2	10	249	1524	48378
080584	4	96.0	0	84	80	7753	745	32870	151	6246	67	2219	0	4	253	1047	49425
080684	4	95.0	0	84	76	7829	517	33387	63	6309	51	2270	0	2	255	709	50134
080784	4	91.5	0	84	63	7892	302	33689	96	6405	43	2313	5	2	262	511	50645
080884	4	96.0	1	85	48	7940	363	34052	111	6516	34	2347	4	3	269	564	51209
080984	4	95.8	1	86	71	8011	302	34354	63	6579	36	2383	7	2	278	482	51691
081084	4	96.0	0	86	58	8069	233	34587	66	6645	39	2422	5	2	285	403	52094
081184	4	95.0	1	87	27	8096	138	34725	36	6681	18	2440	2	11	298	233	52327
081284	4	92.8	0	87	25	8121	99	34824	20	6701	17	2457	5	4	307	170	52497
081384	4	96.0	0	87	28	8149	57	34881	21	6722	28	2485	6	17	330	157	52654
081484	4	96.0	0	87	17	8166	47	34928	12	6734	18	2503	12	9	351	115	52769
081584	4	94.5	0	87	14	8180	33	34961	5	6739	11	2514	11	15	377	89	52858
081684	4	95.5	1	88	12	8192	23	34984	2	6741	19	2533	7	14	398	78	52936
081784	4	91.0	0	88	8	8200	20	35004	3	6744	16	2549	3	9	410	59	52995
081884	4	91.5	0	88	12	8212	19	35023	12	6756	16	2565	4	15	429	78	53073
081984	4	96.0	0	88	9	8221	12	35035	15	6771	21	2586	5	1	435	63	53136
082084	4	96.0	0	88	7	8228	12	35047	42	6813	17	2603	16	2	453	96	53232
082184	4	93.8	0	88	9	8237	9	35056	48	6861	15	2618	12	1	466	94	53326
082284	4	94.0	1	89	23	8260	16	35072	92	6953	20	2638	5	5	476	162	53488
082384	4	96.0	0	89	9	8269	13	35085	93	7046	13	2651	6	12	494	146	53634
082484	4	96.0	1	90	7	8276	12	35097	68	7114	13	2664	10	5	509	116	53750
082584	4	96.0	1	91	4	8280	7	35104	70	7184	11	2675	24	5	538	122	53872

C:\

WORD.

Appendix Table 3-3 (cont.). Flathorn Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
082684	4 87.0	1	92	2	8282	2	35106	9	7193	4	2679	8	0	546	26	53898
082784	4 96.0	0	92	1	8283	7	35113	38	7231	11	2690	34	5	585	96	53994
082884	4 84.0	0	92	3	8286	10	35123	76	7307	11	2701	21	5	611	126	54120
082984	4 96.0	0	92	7	8293	12	35135	133	7440	18	2719	49	20	680	239	54359
083084	4 96.0	0	92	3	8296	1	35136	46	7486	9	2728	18	8	706	85	54444
083184	4 92.0	0	92	4	8300	0	35136	20	7506	10	2738	16	5	727	55	54499
090184	4 92.0	0	92	0	8300	0	35136	3	7509	2	2740	19	2	748	26	54525
090284	4 91.0	0	92	0	8300	0	35136	10	7519	6	2746	30	7	785	53	54578
090384	4 48.7	0	92	0	8300	0	35136	0	7519	0	2746	3	1	789	4	54582

A139

Appendix Table 3-4.

Yentna Station north bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel	Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070184	1	9.0	0	0	1	1	0	0	0	0	0	0	0	1	1	2	2
070284	1	23.5	0	0	4	5	0	0	0	0	0	0	0	0	1	4	6
070384	1	24.0	0	0	0	5	0	0	0	0	0	0	0	0	1	0	6
070484	1	24.0	1	1	1	6	1	1	0	0	0	0	0	1	2	4	10
070584	1	9.0	0	1	2	8	0	1	0	0	0	0	0	0	2	2	12
070684	1	24.0	0	1	4	12	1	2	0	0	0	0	0	0	2	5	17
070784	1	24.0	1	2	6	18	0	2	0	0	0	0	0	0	2	7	24
070884	1	23.5	0	2	4	22	0	2	0	0	0	0	0	0	2	4	28
070984	1	23.0	0	2	6	28	1	3	3	3	2	2	0	1	3	13	41
071084	1	22.0	1	3	8	36	3	6	7	10	2	4	0	1	4	22	63
071184	1	23.0	0	3	4	40	1	7	1	11	1	5	0	6	10	13	76
071284	1	22.5	1	4	5	45	1	8	2	13	0	5	0	5	15	14	90
071384	1	24.0	1	5	2	47	2	10	0	13	0	5	0	7	22	12	102
071484	1	24.0	0	5	5	52	2	12	2	15	1	6	0	1	23	11	113
071584	1	24.0	0	5	3	55	2	14	0	15	1	7	0	9	32	15	128
071684	1	22.0	1	6	1	56	1	15	0	15	0	7	0	6	38	9	137
071784	1	24.0	0	6	75	131	25	40	34	49	3	10	0	1	39	138	275
071884	1	24.0	1	7	43	174	47	87	18	67	3	13	0	0	39	112	387
071984	1	24.0	0	7	55	229	139	226	27	94	3	16	0	1	40	225	612
072084	1	24.0	0	7	28	257	223	449	20	114	0	16	0	0	40	271	883
072184	1	24.0	0	7	15	272	310	759	12	126	2	18	0	0	40	339	1222
072284	1	24.0	1	8	8	280	159	918	0	126	2	20	0	0	40	170	1392
072384	1	21.0	0	8	3	283	203	1121	1	127	0	20	0	0	40	207	1599
072484	1	14.0	1	9	15	298	369	1490	3	130	0	20	0	0	40	388	1987
072584	1	22.0	0	9	76	374	1283	2773	49	179	18	38	0	0	40	1426	3413
072684	1	14.0	0	9	14	388	515	3288	12	191	2	40	0	0	40	543	3956
072784	1	15.0	0	9	8	396	238	3526	8	199	1	41	0	4	44	259	4215
072884	1	15.0	0	9	12	408	546	4072	7	206	6	47	0	2	46	573	4788
072984	1	15.0	0	9	8	416	387	4459	8	214	0	47	0	0	46	403	5191

Appendix Table 3-4 (cont.).

Yentna Station north bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel Wheels	Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
073084	1	14.0	0	9	2	418	330	4789	7	221	1	48	0	0	46	340	5531
073184	1	16.0	0	9	7	425	300	5089	19	240	1	49	0	0	46	327	5858
080184	1	24.0	0	9	6	431	365	5454	33	273	4	53	0	0	46	408	6266
080284	1	24.0	0	9	10	441	397	5851	31	304	0	53	0	0	46	438	6704
080384	1	24.0	0	9	8	449	433	6284	45	349	5	58	0	0	46	491	7195
080484	1	24.0	0	9	19	468	356	6640	27	376	6	64	0	1	47	409	7604
080584	1	23.5	0	9	10	478	194	6834	18	394	6	70	0	1	48	229	7833
080684	1	23.5	0	9	10	488	129	6963	16	410	8	78	0	0	48	163	7996
080784	1	24.0	0	9	15	503	77	7040	20	430	5	83	0	0	48	117	8113
080884	1	24.0	0	9	5	508	98	7138	18	448	7	90	0	0	48	128	8241
080984	1	24.0	0	9	10	518	84	7222	19	467	1	91	0	0	48	114	8355
081084	1	24.0	0	9	8	526	53	7275	27	494	12	103	0	0	48	100	8455
081184	1	23.0	0	9	8	534	46	7321	15	509	6	109	0	0	48	75	8530
081284	1	22.5	0	9	6	540	29	7350	13	522	7	116	0	0	48	55	8585
081384	1	24.0	0	9	6	546	47	7397	17	539	18	134	0	2	50	90	8675
081484	1	24.0	0	9	7	553	23	7420	5	544	7	141	0	2	52	44	8719
081584	1	24.0	0	9	6	559	21	7441	5	549	5	146	0	2	54	39	8758
081684	1	24.0	0	9	6	565	10	7451	2	551	5	151	0	0	54	23	8781
081784	1	24.0	0	9	6	571	6	7457	1	552	5	156	0	1	55	19	8800
081884	1	24.0	0	9	0	571	5	7462	1	553	4	160	0	0	55	10	8810
081984	1	24.0	0	9	2	573	1	7463	0	553	1	161	0	0	55	4	8814
082084	1	24.0	0	9	2	575	0	7463	0	553	0	161	0	0	55	2	8816
082184	1	24.0	0	9	0	575	0	7463	0	553	2	163	0	0	55	2	8818
082284	1	24.0	0	9	3	578	0	7463	3	556	2	165	0	0	55	8	8826
082384	1	24.0	0	9	0	578	0	7463	0	556	0	165	1	0	56	1	8827
082484	1	24.0	0	9	2	580	2	7465	7	563	1	166	0	2	58	14	8841
082584	1	24.0	0	9	1	581	1	7466	2	565	1	167	0	1	59	6	8847
082684	1	24.0	0	9	0	581	1	7467	9	574	5	172	0	2	61	17	8864
082784	1	24.0	0	9	0	581	4	7471	14	588	3	175	0	4	65	25	8889

Appendix Table 3-4(cont.). Yentna Station north bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel Wheels Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
082884	1 20.0	0	9	0	581	0	7471	5	593	3	178	0	5	70	13	8902
082984	1 20.0	0	9	1	582	0	7471	6	599	0	178	0	1	71	8	8910
083084	1 24.0	0	9	0	582	4	7475	4	603	0	178	1	0	72	9	8919
083184	1 24.0	0	9	0	582	0	7475	4	607	0	178	1	5	78	10	8929
090184	1 24.0	0	9	0	582	0	7475	5	612	0	178	0	1	79	6	8935
090284	1 24.0	0	9	0	582	1	7476	1	613	0	178	0	7	86	9	8944
090384	1 24.0	0	9	0	582	0	7476	1	614	0	178	1	4	91	6	8950
090484	1 24.0	0	9	0	582	0	7476	0	614	0	178	0	5	96	5	8955
090584	1 12.0	0	9	0	582	1	7477	2	616	2	180	0	0	96	5	8960

Appendix Table 3-5. Yentna Station south bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel Wheels	Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070184	1	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
070284	1	23.5	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1
070384	1	24.0	0	0	2	3	0	0	0	0	0	0	0	0	0	2	3
070484	1	24.0	3	3	2	5	0	0	0	0	0	0	0	0	0	5	8
070584	1	24.0	0	3	7	12	0	0	0	0	0	0	0	0	0	7	15
070684	1	24.0	0	3	5	17	0	0	0	0	0	0	0	0	0	5	20
070784	1	24.0	1	4	11	28	0	0	0	0	0	0	0	0	0	12	32
070884	1	23.5	0	4	7	35	0	0	0	0	1	1	0	0	0	8	40
070984	1	24.0	0	4	29	64	0	0	1	1	0	1	0	0	0	30	70
071084	1	24.0	1	5	75	139	3	3	3	4	0	1	0	0	0	82	152
071184	1	23.0	2	7	21	160	2	5	4	8	1	2	0	0	0	30	182
071284	1	23.0	0	7	14	174	2	7	0	8	0	2	0	0	0	16	198
071384	1	24.0	0	7	15	189	0	7	1	9	1	3	0	1	1	18	216
071484	1	24.0	0	7	27	216	1	8	1	0	1	4	0	1	2	31	247
071584	1	24.0	0	7	8	224	0	8	0	10	0	4	0	1	3	9	256
071684	1	23.0	1	8	15	239	0	8	0	10	1	5	0	2	5	19	275
071784	1	23.0	0	8	687	926	3	11	8	18	1	6	0	0	5	699	974
071884	1	15.0	1	9	735	1661	15	26	42	60	5	11	0	0	5	798	1772
071984	1	15.5	0	9	629	2290	125	151	31	91	5	16	0	0	5	790	2562
072084	1	12.5	0	9	531	2821	333	484	22	113	7	23	0	0	5	893	3455
072184	1	15.5	0	9	507	3328	588	1072	28	141	16	39	0	0	5	1139	4594
072284	1	15.3	2	11	377	3705	671	1743	24	165	19	58	0	0	5	1093	5687
072384	1	15.5	0	11	282	3987	746	2489	26	191	29	87	0	2	7	1085	6772
072484	1	15.5	0	11	310	4297	537	3026	19	210	28	115	0	2	9	896	7668
072584	1	15.0	0	11	294	4591	998	4024	26	236	43	158	0	2	11	1363	9031
072684	1	14.0	0	11	237	4828	862	4886	24	260	28	186	0	0	11	1151	10182
072784	1	15.0	1	12	190	5018	568	5454	9	269	16	202	0	1	12	785	10967
072884	1	15.0	0	12	144	5162	1004	6458	13	282	28	230	0	1	13	1190	12157
072984	1	15.0	0	12	84	5246	1544	8002	13	295	23	253	0	0	13	1664	13821

Appendix Table 3-5(cont.). Yentna Station south bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel Wheels	Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
073084	1	14.0	0	12	75	5321	968	8970	23	318	10	263	0	0	13	1076	14897
073184	1	14.0	0	12	95	5416	866	9836	18	336	13	276	0	0	13	992	15889
080184	1	24.0	0	12	83	5499	958	10794	47	383	29	305	0	3	16	1120	17009
080284	1	24.0	0	12	81	5580	665	11459	45	428	29	334	0	2	18	822	17831
080384	1	24.0	0	12	81	5661	495	11954	55	483	51	385	0	0	18	682	18513
080484	1	24.0	0	12	107	5768	431	12385	47	530	52	437	0	0	18	637	19150
080584	1	24.0	0	12	76	5844	374	12759	48	578	73	510	0	0	18	571	19721
080684	1	23.5	0	12	52	5896	175	12934	21	599	12	522	0	0	18	260	19981
080784	1	24.0	0	12	38	5934	105	13039	20	619	11	533	0	0	18	174	20155
080884	1	24.0	0	12	46	5980	76	13115	16	635	35	568	0	0	18	173	20328
080984	1	24.0	0	12	27	6007	81	13196	14	649	19	587	0	0	18	141	20469
081084	1	24.0	0	12	30	6037	48	13244	19	668	31	618	0	0	18	128	20597
081184	1	24.0	0	12	32	6069	41	13285	16	684	26	644	0	0	18	115	20712
081284	1	24.0	0	12	15	6084	18	13303	6	690	26	670	0	0	18	65	20777
081384	1	24.0	0	12	13	6097	24	13327	8	698	40	710	1	1	20	87	20864
081484	1	24.0	0	12	14	6111	13	13340	6	704	15	725	0	3	23	51	20915
081584	1	24.0	0	12	22	6133	5	13345	3	707	7	732	0	2	25	39	20954
081684	1	24.0	0	12	17	6150	4	13349	2	709	6	738	0	3	28	32	20986
081784	1	24.0	0	12	9	6159	3	13352	1	710	9	747	0	1	29	23	21009
081884	1	24.0	0	12	9	6168	3	13355	1	711	9	756	0	0	29	22	21031
081984	1	24.0	0	12	1	6169	1	13356	0	711	0	756	0	0	29	2	21033
082084	1	24.0	0	12	1	6170	0	13356	0	711	0	756	0	0	29	1	21034
082184	1	24.0	0	12	0	6170	1	13357	0	711	0	756	0	0	29	1	21035
082284	1	24.0	0	12	2	6172	2	13359	3	714	2	758	0	0	29	9	21044
082384	1	24.0	0	12	14	6186	0	13359	5	719	3	761	0	0	29	22	21066
082484	1	24.0	0	12	7	6193	1	13360	5	724	3	764	0	0	29	16	21082
082584	1	24.0	0	12	11	6204	0	13360	1	725	5	769	0	2	31	19	21101
082684	1	24.0	0	12	6	6210	1	13361	3	728	1	770	0	1	32	12	21113
082784	1	24.0	0	12	10	6220	0	13361	20	748	9	779	0	3	35	42	21155

Appendix Table 3-5 (cont.). Yentna Station south bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel Wheels Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
082884	1 20.0	0	12	6	6226	1	13362	15	763	5	784	2	3	40	32	21187
082984	1 20.0	0	12	8	6234	0	13362	11	774	1	785	0	0	40	20	21207
083084	1 22.0	0	12	6	6240	2	13364	21	795	3	788	1	3	44	36	21243
083184	1 21.0	0	12	2	6242	0	13364	6	801	0	788	3	5	52	16	21259
090184	1 24.0	0	12	1	6243	1	13365	11	812	1	789	2	2	56	18	21277
090284	1 24.0	0	12	0	6243	0	13365	0	812	1	790	0	2	58	3	21280
090384	1 18.0	0	12	0	6243	0	13365	3	815	0	790	0	2	60	5	21285
090484	1 12.0	0	12	0	6243	0	13365	0	815	0	790	0	0	60	0	21285
090584	1 2.0	0	12	0	6243	0	13365	0	815	0	790	0	0	60	0	21285

Appendix Table 3-6.

Yentna Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070184	2 18.0	0	0	1	1	0	0	0	0	0	0	0	1	1	2	2
070284	2 47.0	0	0	5	6	0	0	0	0	0	0	0	0	1	5	7
070384	2 48.0	0	0	2	8	0	0	0	0	0	0	0	0	1	2	9
070484	2 48.0	4	4	3	11	1	1	0	0	0	0	0	1	2	9	18
070584	2 33.0	0	4	9	20	0	1	0	0	0	0	0	0	2	9	27
070684	2 48.0	0	4	9	29	1	2	0	0	0	0	0	0	2	10	37
070784	2 48.0	2	6	17	46	0	2	0	0	0	0	0	0	2	19	56
070884	2 47.0	0	6	11	57	0	2	0	0	1	1	0	0	2	12	68
070984	2 47.0	0	6	35	92	1	3	4	4	2	3	0	1	3	43	111
071084	2 46.0	2	8	83	175	6	9	10	14	2	5	0	1	4	104	215
071184	2 46.0	2	10	25	200	3	12	5	19	2	7	0	6	10	43	258
071284	2 45.5	1	11	19	219	3	15	2	21	0	7	0	5	15	30	288
071384	2 48.0	1	12	17	236	2	17	1	22	1	8	0	8	23	30	318
071484	2 48.0	0	12	32	268	3	20	3	25	2	10	0	2	25	42	360
071584	2 48.0	0	12	11	279	2	22	0	25	1	11	0	10	35	24	384
071684	2 45.0	2	14	16	295	1	23	0	25	1	12	0	8	43	28	412
071784	2 47.0	0	14	762	1057	28	51	42	67	4	16	0	1	44	837	1249
071884	2 39.0	2	16	778	1835	62	113	60	127	8	24	0	0	44	910	2159
071984	2 39.5	0	16	684	2519	264	377	58	185	8	32	0	1	45	1015	3174
072084	2 36.5	0	16	559	3078	556	933	42	227	7	39	0	0	45	1164	4338
072184	2 39.5	0	16	522	3600	898	1831	40	267	18	57	0	0	45	1478	5816
072284	2 39.3	3	19	385	3985	830	2661	24	291	21	78	0	0	45	1263	7079
072384	2 36.5	0	19	285	4270	949	3610	27	318	29	107	0	2	47	1292	8371
072484	2 29.5	1	20	325	4595	906	4516	22	340	28	135	0	2	49	1284	9655
072584	2 37.0	0	20	370	4965	2281	6797	75	415	61	196	0	2	51	2789	12444
072684	2 28.0	0	20	251	5216	1377	8174	36	451	30	226	0	0	51	1694	14138
072784	2 30.0	1	21	198	5414	806	8980	17	468	17	243	0	5	56	1044	15182
072884	2 30.0	0	21	156	5570	1550	10530	20	488	34	277	0	3	59	1763	16945
072984	2 30.0	0	21	92	5662	1931	12461	21	509	23	300	0	0	59	2067	19012

Appendix Table 3-6 (cont.). Yentna Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch all species		
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum	
073084	2	28.0	0	21	77	5739	1298	13759	30	539	11	311	0	0	59	1416	20428
073184	2	30.0	0	21	102	5841	1166	14925	37	576	14	325	0	0	59	1319	21747
080184	2	48.0	0	21	89	5930	1323	16248	80	656	33	358	0	3	62	1528	23275
080284	2	48.0	0	21	91	6021	1062	17310	76	732	29	387	0	2	64	1260	24535
080384	2	48.0	0	21	89	6110	928	18238	100	832	56	443	0	0	64	1173	25708
080484	2	48.0	0	21	126	6236	787	19025	74	906	58	501	0	1	65	1046	26754
080584	2	47.5	0	21	86	6322	568	19593	66	972	79	580	0	1	66	800	27554
080684	2	47.0	0	21	62	6384	304	19897	37	1009	20	600	0	0	66	423	27977
080784	2	48.0	0	21	53	6437	182	20079	40	1049	16	616	0	0	66	291	28268
080884	2	48.0	0	21	51	6488	174	20253	34	1083	42	658	0	0	66	301	28569
080984	2	48.0	0	21	37	6525	165	20418	33	1116	20	678	0	0	66	255	28824
081084	2	48.0	0	21	38	6563	101	20519	46	1162	43	721	0	0	66	228	29052
081184	2	47.0	0	21	40	6603	87	20606	31	1193	32	753	0	0	66	190	29242
081284	2	46.5	0	21	21	6624	47	20653	19	1212	33	786	0	0	66	120	29362
081384	2	48.0	0	21	19	6643	71	20724	25	1237	58	844	1	3	70	177	29539
081484	2	48.0	0	21	21	6664	36	20760	11	1248	22	866	0	5	75	95	29634
081584	2	48.0	0	21	28	6692	26	20786	8	1256	12	878	0	4	79	78	29712
081684	2	48.0	0	21	23	6715	14	20800	4	1260	11	889	0	3	82	55	29767
081784	2	48.0	0	21	15	6730	9	20809	2	1262	14	903	0	2	84	42	29809
081884	2	48.0	0	21	9	6739	8	20817	2	1264	13	916	0	0	84	32	29841
081984	2	48.0	0	21	3	6742	2	20819	0	1264	1	917	0	0	84	6	29847
082084	2	48.0	0	21	3	6745	0	20819	0	1264	0	917	0	0	84	3	29850
082184	2	48.0	0	21	0	6745	1	20820	0	1264	2	919	0	0	84	3	29853
082284	2	48.0	0	21	5	6750	2	20822	6	1270	4	923	0	0	84	17	29870
082384	2	48.0	0	21	14	6764	0	20822	5	1275	3	926	1	0	85	23	29893
082484	2	48.0	0	21	9	6773	3	20825	12	1287	4	930	0	2	87	30	29923
082584	2	48.0	0	21	12	6785	1	20826	3	1290	6	936	0	3	90	25	29948
082684	2	48.0	0	21	6	6791	2	20828	12	1302	6	942	0	3	93	29	29977
082784	2	48.0	0	21	10	6801	4	20832	34	1336	12	954	0	7	100	67	30044

Appendix Table 3-6 (cont.). Yentna Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
082884	2 40.0	0	21	6	6807	1	20833	20	1356	8	962	2	8	110	45	30089
082984	2 40.0	0	21	9	6816	0	20833	17	1373	1	963	0	1	111	28	30117
083084	2 46.0	0	21	6	6822	6	20839	25	1398	3	966	2	3	116	45	30162
083184	2 45.0	0	21	2	6824	0	20839	10	1408	0	966	4	10	130	26	30188
090184	2 48.0	0	21	1	6825	1	20840	16	1424	1	967	2	3	135	24	30212
090284	2 48.0	0	21	0	6825	1	20841	1	1425	1	968	0	9	144	12	30224
090384	2 42.0	0	21	0	6825	0	20841	4	1429	0	968	1	6	151	11	30235
090484	2 36.0	0	21	0	6825	0	20841	0	1429	0	968	0	5	156	5	30240
090584	2 14.0	0	21	0	6825	1	20842	2	1431	2	970	0	0	156	5	30245

Appendix Table 3-7.

Sunshine Station east bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
060484	2	28.0	2	2	14	14	0	0	0	0	0	0	0	0	16	16
060584	2	48.0	23	25	36	50	0	0	0	0	0	0	0	0	59	75
060684	2	48.0	79	104	32	82	0	0	0	0	0	0	1	1	112	187
060784	2	48.0	37	141	50	132	0	0	0	0	0	0	0	1	87	274
060884	2	48.0	57	198	35	167	0	0	0	0	0	0	0	1	92	366
060984	2	46.0	134	332	50	217	0	0	0	0	0	0	0	1	184	550
061084	2	46.0	63	395	30	247	0	0	0	0	0	0	0	1	93	643
061184	2	48.0	134	529	32	279	0	0	0	0	0	0	0	1	166	809
061284	2	48.0	173	702	21	300	0	0	1	1	0	0	0	1	195	1004
061384	2	48.0	146	848	27	327	0	0	0	1	0	0	0	1	173	1177
061484	2	48.0	107	955	29	356	0	0	0	1	0	0	0	1	136	1313
061584	2	48.0	180	1135	24	380	0	0	0	1	0	0	0	1	204	1517
061684	2	48.0	105	1240	8	388	0	0	0	1	0	0	0	1	113	1630
061784	2	48.0	11	1251	0	388	0	0	0	1	0	0	0	1	11	1641
061884	2	48.0	93	1344	13	401	0	0	0	1	0	0	0	1	106	1747
061984	2	48.0	475	1819	27	428	0	0	0	1	0	0	0	2	503	2250
062084	2	44.0	485	2304	12	440	0	0	0	1	0	0	0	2	497	2747
062184	2	48.0	251	2555	19	459	0	0	0	1	0	0	0	2	270	3017
062284	2	48.0	258	2813	11	470	0	0	0	1	0	0	0	3	270	3287
062384	2	48.0	355	3168	3	473	0	0	0	1	0	0	0	3	358	3645
062484	2	48.0	258	3426	5	478	0	0	0	1	0	0	0	3	263	3908
062584	2	42.5	250	3676	2	480	0	0	0	1	0	0	0	3	252	4160
062684	2	48.0	338	4014	10	490	0	0	0	1	0	0	0	3	348	4508
062784	2	47.0	218	4232	2	492	0	0	0	1	0	0	0	3	220	4728
062884	2	48.0	155	4387	2	494	0	0	0	1	0	0	0	3	157	4885
062984	2	48.0	205	4592	8	502	0	0	0	1	0	0	0	3	213	5098
063084	2	46.5	198	4790	4	506	1	1	0	1	0	0	0	3	203	5301
070184	2	48.0	133	4923	7	513	1	2	0	1	0	0	0	3	141	5442
070284	2	46.0	109	5032	5	518	0	2	1	2	0	0	0	3	115	5557

Appendix Table 3-7 (cont.). Sunshine Station east bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070384	2	48.0	65	5097	12	530	1	3	0	2	0	0	0	0	3	78	5635
070484	2	48.0	52	5149	7	537	0	3	0	2	1	1	0	2	5	62	5697
070584	2	48.0	58	5207	14	551	1	4	1	3	1	2	0	2	7	77	5774
070684	2	48.0	57	5264	15	566	0	4	0	3	1	3	0	0	7	73	5847
070784	2	48.0	44	5308	7	573	3	7	1	4	1	4	0	0	7	56	5903
070884	2	46.5	49	5357	7	580	0	7	0	4	0	4	0	0	7	56	5959
070984	2	48.0	34	5391	18	598	1	8	2	6	1	5	0	0	7	56	6015
071084	2	48.0	21	5412	13	611	2	10	1	7	2	7	0	0	7	39	6054
071184	2	48.0	10	5422	8	619	1	11	3	10	0	7	0	0	7	22	6076
071284	2	48.0	9	5431	37	656	2	13	6	16	0	7	0	0	7	54	6130
071384	2	43.5	10	5441	45	701	3	16	32	48	0	7	0	0	7	90	6220
071484	2	48.0	19	5460	35	736	6	22	63	111	3	10	0	0	7	126	6346
071584	2	48.0	9	5469	19	755	8	30	70	181	1	11	0	0	7	107	6453
071684	2	48.0	11	5480	38	793	7	37	186	367	2	13	0	0	7	244	6697
071784	2	48.0	4	5484	18	811	9	46	137	504	5	18	0	0	7	173	6870
071884	2	48.0	3	5487	27	838	8	54	76	580	6	24	0	1	8	121	6991
071984	2	47.0	4	5491	422	1260	59	113	117	697	11	35	0	0	8	613	7604
072084	2	48.0	5	5496	1072	2332	99	212	245	942	13	48	0	0	8	1434	9038
072184	2	47.0	5	5501	2054	4386	176	388	336	1278	5	53	0	0	8	2576	11614
072284	2	48.0	1	5502	1955	6341	447	835	731	2009	9	62	0	0	8	3143	14757
072384	2	48.0	6	5508	1690	8031	1006	1841	2072	4081	17	79	0	0	8	4791	19548
072484	2	36.5	1	5509	724	8755	1663	3504	2054	6135	24	103	0	0	8	4466	24014
072584	2	40.5	2	5511	715	9470	3306	6810	2229	8364	29	132	0	0	8	6281	30295
072684	2	46.0	2	5513	377	9847	3525	10335	830	9194	20	152	0	0	8	4754	35049
072784	2	41.5	1	5514	437	10284	6389	16724	888	10082	31	183	0	0	8	7746	42795
072884	2	40.0	0	5514	346	10630	5260	21984	1736	11818	65	248	0	0	8	7407	50202
072984	2	35.0	0	5514	332	10962	4717	26701	1910	13728	65	313	0	0	8	7024	57226
073084	2	43.5	0	5514	372	11334	5311	32012	2480	16208	78	391	0	0	8	8241	65467
073184	2	42.5	1	5515	257	11591	4319	36331	2104	18312	87	478	0	0	8	6768	72235

A150

Appendix Table 3-7 (cont.).

Sunshine Station east bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours		Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080184	2	34.0	2	5517	153	11744	3564	39895	1614	19926	124	602	0	0	8	5457	77692
080284	2	33.0	2	5519	194	11938	4088	43983	2268	22194	160	762	0	0	8	6712	84404
080384	2	38.0	0	5519	92	12030	2966	46949	2201	24395	138	900	0	0	8	5397	89801
080484	2	34.5	1	5520	84	12114	2822	49771	2619	27014	180	1080	0	1	9	5707	95508
080584	2	37.0	0	5520	74	12188	1776	51547	2185	29199	160	1240	0	0	9	4195	99703
080684	2	46.0	0	5520	71	12259	1687	53234	1724	30923	197	1437	0	0	9	3679	103382
080784	2	43.0	0	5520	61	12320	1516	54750	2283	33206	256	1693	0	0	9	4116	107498
080884	2	45.5	0	5520	75	12395	1709	56459	2697	35903	412	2105	0	0	9	4893	112391
080984	2	23.0	0	5520	24	12419	616	57075	1284	37187	144	2249	0	0	9	2068	114459
081084	2	48.0	0	5520	56	12475	656	57731	1313	38500	218	2467	0	0	9	2243	116702
081184	2	45.5	0	5520	44	12519	711	58442	2623	41123	412	2879	0	0	9	3790	120492
081284	2	45.5	0	5520	24	12543	389	58831	2261	43384	461	3340	0	0	9	3135	123627
081384	2	48.0	0	5520	20	12563	241	59072	1849	45233	343	3683	0	1	10	2454	126081
081484	2	48.0	0	5520	22	12585	156	59228	1368	46601	330	4013	0	0	10	1876	127957
081584	2	48.0	0	5520	12	12597	89	59317	925	47526	293	4306	0	0	10	1319	129276
081684	2	48.0	0	5520	15	12612	77	59394	1120	48646	292	4598	0	0	10	1504	130780
081784	2	46.0	0	5520	7	12619	60	59454	788	49434	268	4866	0	0	10	1123	131903
081884	2	48.0	0	5520	12	12631	33	59487	305	49739	208	5074	0	0	10	558	132461
081984	2	48.0	0	5520	0	12631	12	59499	129	49868	117	5191	0	0	10	258	132719
082084	2	48.0	0	5520	2	12633	19	59518	84	49952	63	5254	0	0	10	168	132887
082184	2	48.0	0	5520	1	12634	10	59528	129	50081	100	5354	0	2	12	242	133129
082284	2	48.0	0	5520	4	12638	9	59537	264	50345	105	5459	0	0	12	382	133511
082384	2	48.0	0	5520	3	12641	17	59554	232	50577	86	5545	0	0	12	338	133849
082484	2	48.0	0	5520	2	12643	10	59564	151	50728	34	5579	1	1	14	199	134048
082584	2	40.0	0	5520	1	12644	3	59567	10	50738	4	5583	0	0	14	18	134066
082684	2	30.0	0	5520	0	12644	0	59567	6	50744	0	5583	0	0	14	6	134072
082784	2	46.5	0	5520	0	12644	3	59570	52	50796	26	5609	0	1	15	82	134154
082884	2	48.0	0	5520	0	12644	1	59571	82	50878	36	5645	0	1	16	120	134274
082984	2	48.0	0	5520	0	12644	6	59577	89	50967	21	5666	0	6	22	122	134396

Appendix Table 3-7 (cont.). Sunshine Station east bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
083084	2 48.0	0	5520	1	12645	2	59579	76	51043	18	5684	0	6	28	103	134499
083184	2 48.0	0	5520	2	12647	3	59582	74	51117	22	5706	1	14	43	116	134615
090184	2 46.0	0	5520	1	12648	1	59583	42	51159	4	5710	1	1	45	50	134665
090284	2 44.5	0	5520	0	12648	2	59585	77	51236	12	5722	0	2	47	93	134758
090384	2 48.0	0	5520	0	12648	1	59586	121	51357	14	5736	0	5	52	141	134899
090484	2 48.0	0	5520	3	12651	2	59588	141	51498	8	5744	0	4	56	158	135057
090584	2 48.0	0	5520	0	12651	8	59596	110	51608	13	5757	0	5	61	136	135193
090684	2 48.0	0	5520	0	12651	5	59601	112	51720	15	5772	1	10	72	143	135336
090784	2 48.0	0	5520	0	12651	0	59601	87	51807	4	5776	6	3	81	100	135436
090884	2 48.0	0	5520	0	12651	0	59601	34	51841	7	5783	6	6	93	53	135489
090984	2 48.0	0	5520	0	12651	0	59601	42	51883	12	5795	6	5	104	65	135554
091084	2 29.2	0	5520	0	12651	1	59602	31	51914	9	5804	1	4	109	46	135600

Appendix Table 3-8.

Sunshine Station lower east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
060484	1	24.0	2	2	14	14	0	0	0	0	0	0	0	0	16	16
060584	1	24.0	8	10	22	36	0	0	0	0	0	0	0	0	30	46
060684	1	24.0	35	45	16	52	0	0	0	0	0	0	1	1	52	98
060784	1	24.0	20	65	25	77	0	0	0	0	0	0	0	1	45	143
060884	1	24.0	31	96	21	98	0	0	0	0	0	0	0	1	52	195
060984	1	24.0	45	141	15	113	0	0	0	0	0	0	0	1	60	255
061084	1	24.0	34	175	13	126	0	0	0	0	0	0	0	1	47	302
061184	1	24.0	57	232	9	135	0	0	0	0	0	0	0	1	66	368
061284	1	24.0	94	326	10	145	0	0	1	0	0	0	0	1	105	473
061384	1	24.0	70	396	14	159	0	0	0	1	0	0	0	1	84	557
061484	1	24.0	40	436	14	173	0	0	0	1	0	0	0	1	54	611
061584	1	24.0	80	516	7	180	0	0	0	1	0	0	0	1	87	698
061684	1	24.0	43	559	2	182	0	0	0	1	0	0	0	1	45	743
061784	1	24.0	4	563	0	182	0	0	0	1	0	0	0	1	4	747
061884	1	24.0	36	599	5	187	0	0	0	1	0	0	0	1	41	788
061984	1	24.0	191	790	13	200	0	0	0	1	0	0	0	2	205	993
062084	1	21.5	247	1037	8	208	0	0	0	1	0	0	0	2	255	1248
062184	1	24.0	119	1156	8	216	0	0	0	1	0	0	0	2	127	1375
062284	1	24.0	116	1272	4	220	0	0	0	1	0	0	0	2	120	1495
062384	1	24.0	134	1406	2	222	0	0	0	1	0	0	0	2	136	1631
062484	1	24.0	116	1522	3	225	0	0	0	1	0	0	0	2	119	1750
062584	1	19.5	102	1624	0	225	0	0	0	1	0	0	0	2	102	1852
062684	1	24.0	154	1778	4	229	0	0	0	1	0	0	0	2	158	2010
062784	1	23.0	101	1879	0	229	0	0	0	1	0	0	0	2	101	2111
062884	1	24.0	47	1926	1	230	0	0	0	1	0	0	0	2	48	2159
062984	1	24.0	87	2013	6	236	0	0	0	1	0	0	0	2	93	2252
063084	1	22.5	95	2108	1	237	1	1	0	1	0	0	0	2	97	2349
070184	1	24.0	64	2172	5	242	0	1	0	1	0	0	0	2	69	2418
070284	1	24.0	75	2247	3	245	0	1	0	1	0	0	0	2	78	2496

A153

Appendix Table 3-8 (cont.). Sunshine Station lower east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070384	1 24.0	48	2295	7	252	0	1	0	1	0	0	0	0	2	55	2551
070484	1 24.0	37	2332	4	256	0	1	0	1	1	1	0	2	4	44	2595
070584	1 24.0	37	2369	5	261	1	2	1	2	0	1	0	1	5	45	2640
070684	1 24.0	37	2406	9	270	0	2	0	2	1	2	0	0	5	47	2687
070784	1 24.0	33	2439	4	274	3	5	0	2	0	2	0	0	5	40	2727
070884	1 24.0	33	2472	6	280	0	5	0	2	0	2	0	0	5	39	2766
070984	1 24.0	24	2496	11	291	1	6	0	2	1	3	0	0	5	37	2803
071084	1 24.0	18	2514	10	301	2	8	1	3	2	5	0	0	5	33	2836
071184	1 24.0	8	2522	7	308	0	8	2	5	0	5	0	0	5	17	2853
071284	1 24.0	8	2530	15	323	1	9	2	7	0	5	0	0	5	26	2879
071384	1 24.0	8	2538	35	358	3	12	25	32	0	5	0	0	5	71	2950
071484	1 24.0	14	2552	15	373	2	14	44	76	2	7	0	0	5	77	3027
071584	1 24.0	7	2559	12	385	7	21	56	132	1	8	0	0	5	83	3110
071684	1 24.0	10	2569	26	411	4	25	147	279	2	10	0	0	5	189	3299
071784	1 24.0	3	2572	10	421	6	31	110	389	4	14	0	0	5	133	3432
071884	1 24.0	3	2575	19	440	6	37	55	444	5	19	0	1	6	89	3521
071984	1 23.0	3	2578	285	725	50	87	90	534	9	28	0	0	6	437	3958
072084	1 24.0	4	2582	511	1236	54	141	163	697	10	38	0	0	6	742	4700
072184	1 24.0	4	2586	927	2163	89	230	212	909	1	39	0	0	6	1233	5933
072284	1 24.0	1	2587	849	3012	210	440	433	1342	4	43	0	0	6	1497	7430
072384	1 24.0	3	2590	733	3745	442	882	1167	2509	11	54	0	0	6	2356	9786
072484	1 18.0	0	2590	267	4012	702	1584	1077	3586	11	65	0	0	6	2057	11843
072584	1 20.0	2	2592	342	4354	1603	3187	1268	4854	11	76	0	0	6	3226	15069
072684	1 24.0	2	2594	179	4533	1587	4774	541	5395	11	87	0	0	6	2320	17389
072784	1 20.0	1	2595	205	4738	3410	8184	524	5919	12	99	0	0	6	4152	21541
072884	1 19.0	0	2595	112	4850	1982	10166	700	6619	17	116	0	0	6	2811	24352
072984	1 15.5	0	2595	128	4978	1848	12014	967	7586	17	133	0	0	6	2960	27312
073084	1 20.0	0	2595	159	5137	2240	14254	1348	8934	36	169	0	0	6	3783	31095
073184	1 20.0	0	2595	115	5252	2485	16739	998	9932	43	212	0	0	6	3641	34736

Appendix Table 3-8 (cont.). Sunshine Station lower east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080184	1 18.0	2	2597	44	5296	1904	18643	815	10747	66	278	0	0	6	2831	37567
080284	1 13.0	2	2599	61	5357	1063	19706	951	11698	72	350	0	0	6	2149	39716
080384	1 19.0	0	2599	30	5387	894	20600	1048	12746	69	419	0	0	6	2041	41757
080484	1 14.5	0	2599	24	5411	966	21566	1281	14027	87	506	0	0	6	2358	44115
080584	1 16.0	0	2599	33	5444	788	22354	1239	15266	97	603	0	0	6	2157	46272
080684	1 23.0	0	2599	39	5483	494	22848	900	16166	101	704	0	0	6	1534	47806
080784	1 22.0	0	2599	45	5528	627	23475	1233	17399	138	842	0	0	6	2043	49849
080884	1 21.5	0	2599	32	5560	791	24266	1596	18995	248	1090	0	0	6	2667	52516
080984	1 12.0	0	2599	14	5574	215	24481	736	19731	74	1164	0	0	6	1039	53555
081084	1 24.0	0	2599	45	5619	321	24802	906	20637	137	1301	0	0	6	1409	54964
081184	1 22.0	0	2599	24	5643	324	25126	1244	21881	174	1475	0	0	6	1766	56730
081284	1 22.5	0	2599	11	5654	198	25324	1449	23330	303	1778	0	0	6	1961	58691
081384	1 24.0	0	2599	9	5663	84	25408	1183	24513	202	1980	0	0	6	1478	60169
081484	1 24.0	0	2599	13	5676	61	25469	846	25359	197	2177	0	0	6	1117	61286
081584	1 24.0	0	2599	10	5686	58	25527	667	26026	208	2385	0	0	6	943	62229
081684	1 24.0	0	2599	5	5691	51	25578	905	26931	216	2601	0	0	6	1177	63406
081784	1 24.0	0	2599	4	5695	41	25619	673	27604	217	2818	0	0	6	935	64341
081884	1 24.0	0	2599	7	5702	21	25640	227	27831	152	2970	0	0	6	407	64748
081984	1 24.0	0	2599	0	5702	6	25646	108	27939	91	3061	0	0	6	205	64953
082084	1 24.0	0	2599	2	5704	17	25663	75	28014	52	3113	0	0	6	146	65099
082184	1 24.0	0	2599	0	5704	8	25671	103	28117	72	3185	0	2	8	185	65284
082284	1 24.0	0	2599	2	5706	7	25678	184	28301	71	3256	0	0	8	264	65548
082384	1 24.0	0	2599	1	5707	7	25685	146	28447	51	3307	0	0	8	205	65753
082484	1 24.0	0	2599	0	5707	7	25692	106	28553	18	3325	1	1	10	133	65886
082584	1 16.0	0	2599	0	5707	2	25694	7	28560	2	3327	0	0	10	11	65897
082684	1 6.0	0	2599	0	5707	0	25694	0	28560	0	3327	0	0	10	0	65897
082784	1 22.5	0	2599	0	5707	1	25695	35	28595	13	3340	0	1	11	50	65947
082884	1 24.0	0	2599	0	5707	1	25696	51	28646	15	3355	0	0	11	67	66014
082984	1 24.0	0	2599	0	5707	0	25696	35	28681	7	3362	0	0	11	42	66056

Appendix Table 3-8 (cont.). Sunshine Station lower east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
083084	1	24.0	0	2599	0	5707	0	25696	29	28710	5	3367	0	1	12	35	66091
083184	1	24.0	0	2599	1	5708	2	25698	56	28766	11	3378	0	7	19	77	66168
090184	1	24.0	0	2599	0	5708	0	25698	22	28788	1	3379	1	1	21	25	66193
090284	1	24.0	0	2599	0	5708	2	25700	68	28856	11	3390	0	1	22	82	66275
090384	1	24.0	0	2599	0	5708	0	25700	91	28947	10	3400	0	1	23	102	66377
090484	1	24.0	0	2599	1	5709	1	25701	99	29046	5	3405	0	4	27	110	66487
090584	1	24.0	0	2599	0	5709	7	25708	80	29126	11	3416	0	4	31	102	66589
090684	1	24.0	0	2599	0	5709	4	25712	84	29210	11	3427	1	6	38	106	66695
090784	1	24.0	0	2599	0	5709	0	25712	76	29286	4	3431	3	2	43	85	66780
090884	1	24.0	0	2599	0	5709	0	25712	30	29316	5	3436	3	4	50	42	66822
090984	1	24.0	0	2599	0	5709	0	25712	37	29353	7	3443	4	5	59	53	66875
091084	1	16.0	0	2599	0	5709	1	25713	26	29379	7	3450	1	2	62	37	66912

Appendix Table 3-9.

Sunshine Station upper east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
060484	1	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060584	1	24.0	15	15	14	14	0	0	0	0	0	0	0	0	29	29
060684	1	24.0	44	59	16	30	0	0	0	0	0	0	0	0	60	89
060784	1	24.0	17	76	25	55	0	0	0	0	0	0	0	0	42	131
060884	1	24.0	26	102	14	69	0	0	0	0	0	0	0	0	40	171
060984	1	22.0	89	191	35	104	0	0	0	0	0	0	0	0	124	295
061084	1	22.0	29	220	17	121	0	0	0	0	0	0	0	0	46	341
061184	1	24.0	77	297	23	144	0	0	0	0	0	0	0	0	100	441
061284	1	24.0	79	376	11	155	0	0	0	0	0	0	0	0	90	531
061384	1	24.0	76	452	13	168	0	0	0	0	0	0	0	0	89	620
061484	1	24.0	67	519	15	183	0	0	0	0	0	0	0	0	82	702
061584	1	24.0	100	619	17	200	0	0	0	0	0	0	0	0	117	819
061684	1	24.0	62	681	6	206	0	0	0	0	0	0	0	0	68	887
061784	1	24.0	7	688	0	206	0	0	0	0	0	0	0	0	7	894
061884	1	24.0	57	745	8	214	0	0	0	0	0	0	0	0	65	959
061984	1	24.0	284	1029	14	228	0	0	0	0	0	0	0	0	298	1257
062084	1	22.5	238	1267	4	232	0	0	0	0	0	0	0	0	242	1499
062184	1	24.0	132	1399	11	243	0	0	0	0	0	0	0	0	143	1642
062284	1	24.0	142	1541	7	250	0	0	0	0	0	0	1	1	150	1792
062384	1	24.0	221	1762	1	251	0	0	0	0	0	0	0	1	222	2014
062484	1	24.0	142	1904	2	253	0	0	0	0	0	0	0	1	144	2158
062584	1	23.0	148	2052	2	255	0	0	0	0	0	0	0	1	150	2308
062684	1	24.0	184	2236	6	261	0	0	0	0	0	0	0	1	190	2498
062784	1	24.0	117	2353	2	263	0	0	0	0	0	0	0	1	119	2617
062884	1	24.0	108	2461	1	264	0	0	0	0	0	0	0	1	109	2726
062984	1	24.0	118	2579	2	266	0	0	0	0	0	0	0	1	120	2846
063084	1	24.0	103	2682	3	269	0	0	0	0	0	0	0	1	106	2952
070184	1	24.0	69	2751	2	271	1	1	0	0	0	0	0	1	72	3024
070284	1	22.0	34	2785	2	273	0	1	1	1	0	0	0	1	37	3061

Appendix Table 3-9 (cont.). Sunshine Station upper east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070384	1 24.0	17	2802	5	278	1	2	0	1	0	0	0	0	1	23	3084
070484	1 24.0	15	2817	3	281	0	2	0	1	0	0	0	0	1	18	3102
070584	1 24.0	21	2838	9	290	0	2	0	1	1	1	0	1	2	32	3134
070684	1 24.0	20	2858	6	296	0	2	0	1	0	1	0	0	2	26	3160
070784	1 24.0	11	2869	3	299	0	2	1	2	1	2	0	0	2	16	3176
070884	1 22.5	16	2885	1	300	0	2	0	2	0	2	0	0	2	17	3193
070984	1 24.0	10	2895	7	307	0	2	2	4	0	2	0	0	2	19	3212
071084	1 24.0	3	2898	3	310	0	2	0	4	0	2	0	0	2	6	3218
071184	1 24.0	2	2900	1	311	1	3	1	5	0	2	0	0	2	5	3223
071284	1 24.0	1	2901	22	333	1	4	4	9	0	2	0	0	2	28	3251
071384	1 19.5	2	2903	10	343	0	4	7	16	0	2	0	0	2	19	3270
071484	1 24.0	5	2908	20	363	4	8	19	35	1	3	0	0	2	49	3319
071584	1 24.0	2	2910	7	370	1	9	14	49	0	3	0	0	2	24	3343
071684	1 24.0	1	2911	12	382	3	12	39	88	0	3	0	0	2	55	3398
071784	1 24.0	1	2912	8	390	3	15	27	115	1	4	0	0	2	40	3438
071884	1 24.0	0	2912	8	398	2	17	21	136	1	5	0	0	2	32	3470
071984	1 24.0	1	2913	137	535	9	26	27	163	2	7	0	0	2	176	3646
072084	1 24.0	1	2914	561	1096	45	71	82	245	3	10	0	0	2	692	4338
072184	1 23.0	1	2915	1127	2223	87	158	124	369	4	14	0	0	2	1343	5681
072284	1 24.0	0	2915	1106	3329	237	395	298	667	5	19	0	0	2	1646	7327
072384	1 24.0	3	2918	957	4286	564	959	905	1572	6	25	0	0	2	2435	9762
072484	1 18.5	1	2919	457	4743	961	1920	977	2549	13	38	0	0	2	2409	12171
072584	1 20.5	0	2919	373	5116	1703	3623	961	3510	18	56	0	0	2	3055	15226
072684	1 22.0	0	2919	198	5314	1938	5561	289	3799	9	65	0	0	2	2434	17660
072784	1 21.5	0	2919	232	5546	2979	8540	364	4163	19	84	0	0	2	3594	21254
072884	1 21.0	0	2919	234	5780	3278	11818	1036	5199	48	132	0	0	2	4596	25850
072984	1 19.5	0	2919	204	5984	2869	14687	943	6142	48	180	0	0	2	4064	29914
073084	1 23.5	0	2919	213	6197	3071	17758	1132	7274	42	222	0	0	2	4458	34372
073184	1 22.5	1	2920	142	6339	1834	19592	1106	8380	44	266	0	0	2	3127	37499

Appendix Table 3-9 (cont.). Sunshine Station upper east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080184	1 16.0	0	2920	109	6448	1660	21252	799	9179	58	324	0	0	2	2626	40125
080284	1 20.0	0	2920	133	6581	3025	24277	1317	10496	88	412	0	0	2	4563	44688
080384	1 19.0	0	2920	62	6643	2072	26349	1153	11649	69	481	0	0	2	3356	48044
080484	1 20.0	1	2921	60	6703	1856	28205	1338	12987	93	574	0	1	3	3349	51393
080584	1 21.0	0	2921	41	6744	988	29193	946	13933	63	637	0	0	3	2038	53431
080684	1 23.0	0	2921	32	6776	1193	30386	824	14757	96	733	0	0	3	2145	55576
080784	1 21.0	0	2921	16	6792	889	31275	1050	15807	118	851	0	0	3	2073	57649
080884	1 24.0	0	2921	43	6835	918	32193	1101	16908	164	1015	0	0	3	2226	59875
080984	1 11.0	0	2921	10	6845	401	32594	548	17456	70	1085	0	0	3	1029	60904
081084	1 24.0	0	2921	11	6856	335	32929	407	17863	81	1166	0	0	3	834	61738
081184	1 23.5	0	2921	20	6876	387	33316	1379	19242	238	1404	0	0	3	2024	63762
081284	1 23.0	0	2921	13	6889	191	33507	812	20054	158	1562	0	0	3	1174	64936
081384	1 24.0	0	2921	11	6900	157	33664	666	20720	141	1703	0	1	4	976	65912
081484	1 24.0	0	2921	9	6909	95	33759	522	21242	133	1836	0	0	4	759	66671
081584	1 24.0	0	2921	2	6911	31	33790	258	21500	85	1921	0	0	4	376	67047
081684	1 24.0	0	2921	10	6921	26	33816	215	21715	76	1997	0	0	4	327	67374
081784	1 22.0	0	2921	3	6924	19	33835	115	21830	51	2048	0	0	4	188	67562
081884	1 24.0	0	2921	5	6929	12	33847	78	21908	56	2104	0	0	4	151	67713
081984	1 24.0	0	2921	0	6929	6	33853	21	21929	26	2130	0	0	4	53	67766
082084	1 24.0	0	2921	0	6929	2	33855	9	21938	11	2141	0	0	4	22	67788
082184	1 24.0	0	2921	1	6930	2	33857	26	21964	28	2169	0	0	4	57	67845
082284	1 24.0	0	2921	2	6932	2	33859	80	22044	34	2203	0	0	4	118	67963
082384	1 24.0	0	2921	2	6934	10	33869	86	22130	35	2238	0	0	4	133	68096
082484	1 24.0	0	2921	2	6936	3	33872	45	22175	16	2254	0	0	4	66	68162
082584	1 24.0	0	2921	1	6937	1	33873	3	22178	2	2256	0	0	4	7	68169
082684	1 24.0	0	2921	0	6937	0	33873	6	22184	0	2256	0	0	4	6	68175
082784	1 24.0	0	2921	0	6937	2	33875	17	22201	13	2269	0	0	4	32	68207
082884	1 24.0	0	2921	0	6937	0	33875	31	22232	21	2290	0	1	5	53	68260
082984	1 24.0	0	2921	0	6937	6	33881	54	22286	14	2304	0	6	11	80	68340

Appendix Table 3-9 (cont.). Sunshine Station upper east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
083084	1 24.0	0	2921	1	6938	2	33883	47	22333	13	2317	0	5	16	68	68408
083184	1 24.0	0	2921	1	6939	1	33884	18	22351	11	2328	1	7	24	39	68447
090184	1 22.0	0	2921	1	6940	1	33885	20	22371	3	2331	0	0	24	25	68472
090284	1 20.5	0	2921	0	6940	0	33885	9	22380	1	2332	0	1	25	11	68483
090384	1 24.0	0	2921	0	6940	1	33886	30	22410	4	2336	0	4	29	39	68522
090484	1 24.0	0	2921	2	6942	1	33887	42	22452	3	2339	0	0	29	48	68570
090584	1 24.0	0	2921	0	6942	1	33888	30	22482	2	2341	0	1	30	34	68604
090684	1 24.0	0	2921	0	6942	1	33889	28	22510	4	2345	0	4	34	37	68641
090784	1 24.0	0	2921	0	6942	0	33889	11	22521	0	2345	3	1	38	15	68656
090884	1 24.0	0	2921	0	6942	0	33889	4	22525	2	2347	3	2	43	11	68667
090984	1 24.0	0	2921	0	6942	0	33889	5	22530	5	2352	2	0	45	12	68679
091084	1 13.3	0	2921	0	6942	0	33889	5	22535	2	2354	0	2	47	9	68688

A160

Appendix Table 3-10.

Sunshine Station west bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
060484	1	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060584	2	28.0	30	30	1	1	0	0	0	0	0	0	0	0	31	31
060684	2	46.0	59	89	1	2	0	0	0	0	0	0	4	4	64	95
060784	2	42.0	19	108	0	2	0	0	0	0	0	0	5	9	24	119
060884	2	45.0	34	142	1	3	0	0	0	0	0	0	3	12	38	157
060984	2	45.0	68	210	1	4	0	0	0	0	0	0	6	18	75	232
061084	2	47.0	109	319	0	4	0	0	0	0	0	0	2	20	111	343
061184	2	48.0	198	517	1	5	0	0	0	0	0	0	1	21	200	543
061284	2	48.0	204	721	0	5	0	0	0	0	0	0	1	22	205	748
061384	2	40.0	103	824	0	5	0	0	0	0	0	0	1	23	104	852
061484	2	31.5	60	884	0	5	0	0	0	0	0	0	0	23	60	912
061584	2	43.0	81	965	0	5	0	0	0	0	0	0	0	23	81	993
061684	2	32.0	51	1016	0	5	0	0	0	0	0	0	0	23	51	1044
061784	1	24.0	13	1029	0	5	0	0	0	0	0	0	0	23	13	1057
061884	2	37.0	29	1058	0	5	0	0	0	0	0	0	0	23	29	1086
061984	2	46.5	96	1154	0	5	0	0	0	0	0	0	0	23	96	1182
062084	2	48.0	138	1292	0	5	0	0	0	0	0	0	0	23	138	1320
062184	2	48.0	85	1377	1	6	0	0	0	0	0	0	1	24	87	1407
062284	2	48.0	87	1464	0	6	0	0	0	0	0	0	2	26	89	1496
062384	2	48.0	95	1559	0	6	0	0	0	0	0	0	1	27	96	1592
062484	2	48.0	33	1592	0	6	0	0	0	0	0	0	0	27	33	1625
062584	2	48.0	84	1676	0	6	0	0	0	0	0	0	2	29	86	1711
062684	2	48.0	55	1731	0	6	0	0	0	0	0	0	0	29	55	1766
062784	2	48.0	39	1770	0	6	0	0	0	0	0	0	0	29	39	1805
062884	2	48.0	19	1789	0	6	0	0	0	0	0	0	0	29	19	1824
062984	2	48.0	35	1824	1	7	0	0	0	0	0	0	0	29	36	1860
063084	2	48.0	36	1860	3	10	0	0	0	0	0	0	0	29	39	1899
070184	2	48.0	29	1889	1	11	0	0	0	0	0	0	1	30	31	1930
070284	2	48.0	27	1916	2	13	0	0	0	0	0	0	0	30	29	1959

Appendix Table 3-10(cont.). Sunshine Station west bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070384	2 48.0	21	1937	4	17	0	0	0	0	0	0	0	1	31	26	1985
070484	2 48.0	11	1948	8	25	0	0	0	0	0	0	0	1	32	20	2005
070584	2 46.5	6	1954	7	32	0	0	0	0	1	1	0	0	32	14	2019
070684	2 48.0	6	1960	0	32	0	0	0	0	0	1	0	1	33	7	2026
070784	2 47.0	9	1969	4	36	0	0	0	0	0	1	0	1	34	14	2040
070884	2 45.5	6	1975	0	36	0	0	0	0	0	1	0	0	34	6	2046
070984	2 44.0	5	1980	1	37	0	0	0	0	0	1	0	0	34	6	2052
071084	2 48.0	7	1987	3	40	0	0	0	0	0	1	0	0	34	10	2062
071184	2 48.0	8	1995	2	42	0	0	0	0	1	2	0	0	34	11	2073
071284	2 48.0	4	1999	13	55	0	0	1	1	0	2	0	0	34	18	2091
071384	2 48.0	7	2006	14	69	1	1	0	1	0	2	0	2	36	24	2115
071484	2 46.0	4	2010	16	85	0	1	1	2	1	3	0	0	36	22	2137
071584	2 48.0	4	2014	20	105	1	2	5	7	2	5	0	0	36	32	2169
071684	2 48.0	3	2017	22	127	5	7	11	18	0	5	0	0	36	41	2210
071784	2 48.0	1	2018	3	130	0	7	2	20	2	7	0	0	36	8	2218
071884	2 48.0	1	2019	11	141	0	7	0	20	1	8	0	0	36	13	2231
071984	2 45.5	2	2021	77	218	2	9	6	26	4	12	0	0	36	91	2322
072084	2 46.0	2	2023	245	463	4	13	13	39	3	15	0	0	36	267	2589
072184	2 46.5	0	2023	443	906	15	28	15	54	3	18	0	0	36	476	3065
072284	2 47.0	1	2024	607	1513	33	61	22	76	3	21	0	1	37	667	3732
072384	2 48.0	2	2026	785	2298	244	305	74	150	12	33	0	0	37	1117	4849
072484	2 44.5	0	2026	567	2865	760	1065	153	303	27	60	0	0	37	1507	6356
072584	2 48.0	1	2027	342	3207	885	1950	198	501	27	87	0	0	37	1453	7809
072684	2 28.0	1	2028	223	3430	361	2311	31	532	5	92	0	0	37	621	8430
072784	1 22.0	1	2029	595	4025	1753	4064	36	568	4	96	0	0	37	2389	10819
072884	2 28.5	0	2029	435	4460	2190	6254	92	660	38	134	0	0	37	2755	13574
072984	2 46.5	0	2029	341	4801	3084	9338	101	761	60	194	0	0	37	3586	17160
073084	2 46.5	0	2029	213	5014	3881	13219	96	857	63	257	0	0	37	4253	21413
073184	2 46.0	1	2030	180	5194	4119	17338	208	1065	97	354	0	0	37	4605	26018

Appendix Table 3-10 (cont.). Sunshine Station west bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080184	2 41.5	0	2030	196	5390	4664	22002	163	1228	159	513	0	0	37	5182	31200
080284	2 43.0	0	2030	134	5524	3830	25832	163	1391	219	732	0	0	37	4346	35546
080384	2 46.0	0	2030	73	5597	2126	27958	429	1820	151	883	0	0	37	2779	38325
080484	2 44.5	0	2030	68	5665	1988	29946	297	2117	156	1039	0	0	37	2509	40834
080584	2 48.0	0	2030	67	5732	1252	31198	208	2325	112	1151	0	0	37	1639	42473
080684	2 48.0	0	2030	24	5756	320	31518	83	2408	39	1190	0	0	37	466	42939
080784	2 46.5	0	2030	40	5796	626	32144	162	2570	74	1264	0	0	37	902	43841
080884	2 48.0	0	2030	40	5836	530	32674	200	2770	50	1314	0	0	37	820	44661
080984	2 24.0	0	2030	16	5852	113	32787	98	2868	34	1348	0	0	37	261	44922
081084	2 48.0	0	2030	57	5909	490	33277	182	3050	147	1495	0	0	37	876	45798
081184	2 45.0	0	2030	51	5960	549	33826	356	3406	357	1852	0	0	37	1313	47111
081284	2 47.5	0	2030	25	5985	238	34064	154	3560	236	2088	0	0	37	653	47764
081384	2 48.0	0	2030	18	6003	109	34173	189	3749	264	2352	0	0	37	580	48344
081484	2 48.0	0	2030	29	6032	62	34235	134	3883	144	2496	0	0	37	369	48713
081584	2 46.0	0	2030	11	6043	28	34263	58	3941	118	2614	0	0	37	215	48928
081684	2 48.0	0	2030	12	6055	16	34279	53	3994	161	2775	0	0	37	242	49170
081784	2 48.0	0	2030	13	6068	10	34289	41	4035	106	2881	0	1	38	171	49341
081884	2 48.0	0	2030	8	6076	7	34296	12	4047	40	2921	0	0	38	67	49408
081984	2 48.0	0	2030	4	6080	1	34297	10	4057	26	2947	0	0	38	41	49449
082084	2 48.0	0	2030	5	6085	3	34300	11	4068	36	2983	0	0	38	55	49504
082184	2 47.0	0	2030	4	6089	1	34301	26	4094	86	3069	0	0	38	117	49621
082284	2 48.0	0	2030	6	6095	3	34304	36	4130	132	3201	0	0	38	177	49798
082384	2 48.0	0	2030	5	6100	5	34309	58	4188	110	3311	0	3	41	181	49979
082484	2 48.0	0	2030	10	6110	2	34311	42	4230	67	3378	0	1	42	122	50101
082584	2 24.0	0	2030	1	6111	0	34311	2	4232	2	3380	0	0	42	5	50106
082684	1 6.0	0	2030	1	6112	0	34311	2	4234	3	3383	0	0	42	6	50112
082784	2 37.0	0	2030	4	6116	1	34312	21	4255	85	3468	0	0	42	111	50223
082884	2 46.0	0	2030	9	6125	3	34315	84	4339	174	3642	1	4	47	275	50498
082984	2 48.0	0	2030	3	6128	0	34315	112	4451	147	3789	0	2	49	264	50762

Appendix Table 3-10 (cont.). Sunshine Station west bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species		
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum	
083084	2	47.0	0	2030	4	6132	1	34316	70	4521	75	3864	0	0	49	150	50912
083184	2	45.0	0	2030	1	6133	0	34316	56	4577	40	3904	0	1	50	98	51010
090184	1	24.0	0	2030	2	6135	0	34316	40	4617	33	3937	0	3	53	78	51088
090284	1	21.5	0	2030	0	6135	1	34317	27	4644	9	3946	0	0	53	37	51125
090384	1	24.0	0	2030	2	6137	0	34317	71	4715	19	3965	2	3	58	97	51222
090484	1	24.0	0	2030	3	6140	0	34317	33	4748	7	3972	0	3	61	46	51268
090584	1	24.0	0	2030	0	6140	0	34317	5	4753	1	3973	7	0	68	13	51281
090684	1	16.0	0	2030	0	6140	0	34317	0	4753	0	3973	0	0	68	0	51281
090784	1	24.0	0	2030	0	6140	0	34317	1	4754	1	3974	4	0	72	6	51287
090884	1	24.0	0	2030	0	6140	0	34317	6	4760	3	3977	5	2	79	16	51303
090984	1	24.0	0	2030	0	6140	0	34317	3	4763	3	3980	4	3	86	13	51316
091084	1	10.5	0	2030	0	6140	0	34317	4	4767	3	3983	0	2	88	9	51325

Appendix Table 3-11.

Sunshine Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
060484	3	31.0	2	2	14	14	0	0	0	0	0	0	0	0	16	16
060584	4	76.0	53	55	37	51	0	0	0	0	0	0	0	0	90	106
060684	4	94.0	138	193	33	84	0	0	0	0	0	0	5	5	176	282
060784	4	90.0	56	249	50	134	0	0	0	0	0	0	5	10	111	393
060884	4	93.0	91	340	36	170	0	0	0	0	0	0	3	13	130	523
060984	4	91.0	202	542	51	221	0	0	0	0	0	0	6	19	259	782
061084	4	93.0	172	714	30	251	0	0	0	0	0	0	2	21	204	986
061184	4	96.0	332	1046	33	284	0	0	0	0	0	0	1	22	366	1352
061284	4	96.0	377	1423	21	305	0	0	1	1	0	0	1	23	400	1752
061384	4	88.0	249	1672	27	332	0	0	0	1	0	0	1	24	277	2029
061484	4	79.5	167	1839	29	361	0	0	0	1	0	0	0	24	196	2225
061584	4	91.0	261	2100	24	385	0	0	0	1	0	0	0	24	285	2510
061684	4	80.0	156	2256	8	393	0	0	0	1	0	0	0	24	164	2674
061784	3	72.0	24	2280	0	393	0	0	0	1	0	0	0	24	24	2698
061884	4	85.0	122	2402	13	406	0	0	0	1	0	0	0	24	135	2833
061984	4	94.5	571	2973	27	433	0	0	0	1	0	0	1	25	599	3432
062084	4	92.0	623	3596	12	445	0	0	0	1	0	0	0	25	635	4067
062184	4	96.0	336	3932	20	465	0	0	0	1	0	0	1	26	357	4424
062284	4	96.0	345	4277	11	476	0	0	0	1	0	0	3	29	359	4783
062384	4	96.0	450	4727	3	479	0	0	0	1	0	0	1	30	454	5237
062484	4	96.0	291	5018	5	484	0	0	0	1	0	0	0	30	296	5533
062584	4	90.5	334	5352	2	486	0	0	0	1	0	0	2	32	338	5871
062684	4	96.0	393	5745	10	496	0	0	0	1	0	0	0	32	403	6274
062784	4	95.0	257	6002	2	498	0	0	0	1	0	0	0	32	259	6533
062884	4	96.0	174	6176	2	500	0	0	0	1	0	0	0	32	176	6709
062984	4	96.0	240	6416	9	509	0	0	0	1	0	0	0	32	249	6958
063084	4	94.5	234	6650	7	516	1	1	0	1	0	0	0	32	242	7200
070184	4	96.0	162	6812	8	524	1	2	0	1	0	0	1	33	172	7372
070284	4	94.0	136	6948	7	531	0	2	1	2	0	0	0	33	144	7516

A165

Appendix Table 3-11 (cont.). Sunshine Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070384	4	96.0	86	7034	16	547	1	3	0	2	0	0	0	1	34	104	7620
070484	4	96.0	63	7097	15	562	0	3	0	2	1	1	0	3	37	82	7702
070584	4	94.5	64	7161	21	583	1	4	1	3	2	3	0	2	39	91	7793
070684	4	96.0	63	7224	15	598	0	4	0	3	1	4	0	1	40	80	7873
070784	4	95.0	53	7277	11	609	3	7	1	4	1	5	0	1	41	70	7943
070884	4	92.0	55	7332	7	616	0	7	0	4	0	5	0	0	41	62	8005
070984	4	92.0	39	7371	19	635	1	8	2	6	1	6	0	0	41	62	8067
071084	4	96.0	28	7399	16	651	2	10	1	7	2	8	0	0	41	49	8116
071184	4	96.0	18	7417	10	661	1	11	3	10	1	9	0	0	41	33	8149
071284	4	96.0	13	7430	50	711	2	13	7	17	0	9	0	0	41	72	8221
071384	4	91.5	17	7447	59	770	4	17	32	49	0	9	0	2	43	114	8335
071484	4	94.0	23	7470	51	821	6	23	64	113	4	13	0	0	43	148	8483
071584	4	96.0	13	7483	39	860	9	32	75	188	3	16	0	0	43	139	8622
071684	4	96.0	14	7497	60	920	12	44	197	385	2	18	0	0	43	285	8907
071784	4	96.0	5	7502	21	941	9	53	139	524	7	25	0	0	43	181	9088
071884	4	96.0	4	7506	38	979	8	61	76	600	7	32	0	1	44	134	9222
071984	4	92.5	6	7512	499	1478	61	122	123	723	15	47	0	0	44	704	9926
072084	4	94.0	7	7519	1317	2795	103	225	258	981	16	63	0	0	44	1701	11627
072184	4	93.5	5	7524	2497	5292	191	416	351	1332	8	71	0	0	44	3052	14679
072284	4	95.0	2	7526	2562	7854	480	896	753	2085	12	83	0	1	45	3810	18489
072384	4	96.0	8	7534	2475	10329	1250	2146	2146	4231	29	112	0	0	45	5908	24397
072484	4	81.0	1	7535	1291	11620	2423	4569	2207	6438	51	163	0	0	45	5973	30370
072584	4	88.5	3	7538	1057	12677	4191	8760	2427	8865	56	219	0	0	45	7734	38104
072684	4	74.0	3	7541	600	13277	3886	12646	861	9726	25	244	0	0	45	5375	43479
072784	3	63.5	2	7543	1032	14309	8142	20788	924	10650	35	279	0	0	45	10135	53614
072884	4	68.5	0	7543	781	15090	7450	28238	1828	12478	103	382	0	0	45	10162	63776
072984	4	81.5	0	7543	673	15763	7801	36039	2011	14489	125	507	0	0	45	10610	74386
073084	4	90.0	0	7543	585	16348	9192	45231	2576	17065	141	648	0	0	45	12494	86880
073184	4	88.5	2	7545	437	16785	8438	53669	2312	19377	184	832	0	0	45	11373	98253

Appendix Table 3-11(cont.). Sunshine Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of wheels	Wheel hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080184	4	75.5	2	7547	349	17134	8228	61897	1777	21154	283	1115	0	0	45	10639	108892
080284	4	76.0	2	7549	328	17462	7918	69815	2431	23585	379	1494	0	0	45	11058	119950
080384	4	84.0	0	7549	165	17627	5092	74907	2630	26215	289	1783	0	0	45	8176	128126
080484	4	79.0	1	7550	152	17779	4810	79717	2916	29131	336	2119	0	1	46	8216	136342
080584	4	85.0	0	7550	141	17920	3028	82745	2393	31524	272	2391	0	0	46	5834	142176
080684	4	94.0	0	7550	95	18015	2007	84752	1807	33331	236	2627	0	0	46	4145	146321
080784	4	89.5	0	7550	101	18116	2142	86894	2445	35776	330	2957	0	0	46	5018	151339
080884	4	93.5	0	7550	115	18231	2239	89133	2897	38673	462	3419	0	0	46	5713	157052
080984	4	47.0	0	7550	40	18271	729	89862	1382	40055	178	3597	0	0	46	2329	159381
081084	4	96.0	0	7550	113	18384	1146	91008	1495	41550	365	3962	0	0	46	3119	162500
081184	4	90.5	0	7550	95	18479	1260	92268	2979	44529	769	4731	0	0	46	5103	167603
081284	4	93.0	0	7550	49	18528	627	92895	2415	46944	697	5428	0	0	46	3788	171391
081384	4	96.0	0	7550	38	18566	350	93245	2038	48982	607	6035	0	1	47	3034	174425
081484	4	96.0	0	7550	51	18617	218	93463	1502	50484	474	6509	0	0	47	2245	176670
081584	4	94.0	0	7550	23	18640	117	93580	983	51467	411	6920	0	0	47	1534	178204
081684	4	96.0	0	7550	27	18667	93	93673	1173	52640	453	7373	0	0	47	1746	179950
081784	4	94.0	0	7550	20	18687	70	93743	829	53469	374	7747	0	1	48	1294	181244
081884	4	96.0	0	7550	20	18707	40	93783	317	53786	248	7995	0	0	48	625	181869
081984	4	96.0	0	7550	4	18711	13	93796	139	53925	143	8138	0	0	48	299	182168
082084	4	96.0	0	7550	7	18718	22	93818	95	54020	99	8237	0	0	48	223	182391
082184	4	95.0	0	7550	5	18723	11	93829	155	54175	186	8423	0	2	50	359	182750
082284	4	96.0	0	7550	10	18733	12	93841	300	54475	237	8660	0	0	50	559	183309
082384	4	96.0	0	7550	8	18741	22	93863	290	54765	196	8856	0	3	53	519	183828
082484	4	96.0	0	7550	12	18753	12	93875	193	54958	101	8957	1	2	56	321	184149
082584	4	64.0	0	7550	2	18755	3	93878	12	54970	6	8963	0	0	56	23	184172
082684	3	36.0	0	7550	1	18756	0	93878	8	54978	3	8966	0	0	56	12	184184
082784	4	83.5	0	7550	4	18760	4	93882	73	55051	111	9077	0	1	57	193	184377
082884	4	94.0	0	7550	9	18769	4	93886	166	55217	210	9287	1	5	63	395	184772
082984	4	96.0	0	7550	3	18772	6	93892	201	55418	168	9455	0	8	71	386	185158

Appendix Table 3-11(cont.). Sunshine Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
083084	4 95.0	0	7550	5	18777	3	93895	146	55564	93	9548	0	6	77	253	185411
083184	4 93.0	0	7550	3	18780	3	93898	130	55694	62	9610	1	15	93	214	185625
090184	3 70.0	0	7550	3	18783	1	93899	82	55776	37	9647	1	4	98	128	185753
090284	3 66.0	0	7550	0	18783	3	93902	104	55880	21	9668	0	2	100	130	185883
090384	3 72.0	0	7550	2	18785	1	93903	192	56072	33	9701	2	8	110	238	186121
090484	3 72.0	0	7550	6	18791	2	93905	174	56246	15	9716	0	7	117	204	186325
090584	3 72.0	0	7550	0	18791	8	93913	115	56361	14	9730	7	5	129	149	186474
090684	3 64.0	0	7550	0	18791	5	93918	112	56473	15	9745	1	10	140	143	186617
090784	3 72.0	0	7550	0	18791	0	93918	88	56561	5	9750	10	3	153	106	186723
090884	3 72.0	0	7550	0	18791	0	93918	40	56601	10	9760	11	8	172	69	186792
090984	3 72.0	0	7550	0	18791	0	93918	45	56646	15	9775	10	8	190	78	186870
091084	3 39.7	0	7550	0	18791	1	93919	35	56681	12	9787	1	6	197	55	186925

Appendix Table 3-12.

Talkeetna Station east bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
060384	1 4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060484	1 24.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060584	1 24.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060684	2 30.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060784	2 48.0	2	2	0	0	0	0	0	0	0	0	0	0	0	2	2
060884	2 48.0	3	5	0	0	0	0	0	0	0	0	0	0	0	3	5
060984	2 48.0	6	11	0	0	0	0	0	0	0	0	0	0	0	6	11
061084	2 48.0	9	20	0	0	0	0	0	0	0	0	0	0	0	9	20
061184	2 48.0	15	35	1	1	0	0	0	0	0	0	0	0	0	16	36
061284	2 48.0	23	58	0	1	0	0	0	0	0	0	0	0	0	23	59
061384	2 48.0	14	72	0	1	0	0	0	0	0	0	0	0	0	14	73
061484	2 47.0	6	78	1	2	0	0	0	0	0	0	0	0	0	7	80
061584	2 48.0	15	93	0	2	0	0	0	0	0	0	0	0	0	15	95
061684	2 35.5	7	100	0	2	0	0	0	0	0	0	0	0	0	7	102
061884	2 20.7	13	113	0	2	0	0	0	0	0	0	0	0	0	13	115
061984	2 48.0	75	188	0	2	0	0	0	0	0	0	0	0	0	75	190
062084	2 48.0	127	315	1	3	0	0	0	0	0	0	0	0	0	128	318
062184	2 48.0	113	428	0	3	0	0	0	0	0	0	0	0	0	113	431
062284	2 48.0	96	524	1	4	0	0	0	0	0	0	0	0	0	97	528
062384	2 48.0	163	687	0	4	0	0	0	0	0	0	0	0	0	163	691
062484	2 48.0	86	773	0	4	0	0	0	0	0	0	0	0	0	86	777
062584	2 48.0	178	951	1	5	0	0	0	0	0	0	0	1	1	180	957
062684	2 48.0	119	1070	0	5	0	0	0	0	0	0	0	0	1	119	1076
062784	2 48.0	92	1162	1	6	0	0	0	0	0	0	0	1	2	94	1170
062884	2 48.0	54	1216	0	6	0	0	0	0	0	0	0	0	2	54	1224
062984	2 48.0	72	1288	0	6	0	0	0	0	0	0	0	0	2	72	1296
063084	2 48.0	117	1405	0	6	0	0	0	0	0	0	0	0	2	117	1413
070184	2 48.0	101	1506	1	7	0	0	0	0	0	0	0	0	2	102	1515
070284	2 48.0	85	1591	1	8	0	0	0	0	0	0	0	0	2	86	1601

Appendix Table 3-12 (cont.). Talkeetna Station east bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070384	2	48.0	59	1650	0	8	0	0	0	0	0	0	0	0	2	59	1660
070484	2	46.0	15	1665	0	8	0	0	0	0	0	0	0	0	2	15	1675
070584	2	46.0	55	1720	1	9	0	0	0	0	0	0	0	0	2	56	1731
070684	2	48.0	40	1760	0	9	0	0	0	0	0	0	0	0	2	40	1771
070784	2	48.0	29	1789	0	9	0	0	0	0	0	0	0	0	2	29	1800
070884	2	48.0	14	1803	2	11	0	0	0	0	0	0	0	0	2	16	1816
070984	2	48.0	16	1819	0	11	0	0	0	0	0	0	0	0	2	16	1832
071084	2	48.0	14	1833	3	14	0	0	0	0	0	0	0	0	2	17	1849
071184	2	48.0	7	1840	0	14	0	0	0	0	0	0	0	0	2	7	1856
071284	2	48.0	9	1849	0	14	0	0	1	1	0	0	0	0	2	10	1866
071384	2	48.0	14	1863	2	16	0	0	2	3	0	0	0	0	2	18	1884
071484	2	48.0	14	1877	3	19	0	0	0	3	0	0	0	0	2	17	1901
071584	2	48.0	12	1889	0	19	1	1	0	3	0	0	0	0	2	13	1914
071684	2	48.0	5	1894	0	19	1	2	7	10	0	0	0	0	2	13	1927
071784	2	48.0	7	1901	0	19	0	2	12	22	0	0	0	0	2	19	1946
071884	2	46.0	2	1903	1	20	0	2	3	25	0	0	0	0	2	6	1952
071984	2	48.0	7	1910	0	20	0	2	27	52	0	0	0	0	2	34	1986
072084	2	48.0	4	1914	1	21	1	3	19	71	0	0	0	0	2	25	2011
072184	2	48.0	5	1919	4	25	4	7	19	90	0	0	0	0	2	32	2043
072284	2	48.0	4	1923	74	99	14	21	19	109	0	0	0	0	2	111	2154
072384	2	48.0	1	1924	67	166	4	25	31	140	0	0	0	0	2	103	2257
072484	2	48.0	7	1931	124	290	74	99	113	253	0	0	0	0	2	318	2575
072584	2	48.0	0	1931	51	341	139	238	175	428	0	0	0	0	2	365	2940
072684	2	48.0	1	1932	13	354	119	357	85	513	0	0	0	0	2	218	3158
072784	2	48.0	0	1932	1	355	2	359	9	522	0	0	0	0	2	12	3170
072884	2	48.0	1	1933	18	373	19	378	60	582	0	0	0	0	2	98	3268
072984	2	47.5	0	1933	56	429	188	566	202	784	0	0	0	0	2	446	3714
073084	2	48.0	0	1933	19	448	149	715	167	951	1	1	0	0	2	336	4050
073184	2	48.0	0	1933	66	514	345	1060	401	1352	9	10	0	0	2	821	4871

Appendix Table 3-12(cont.). Talkeetna Station east bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours		Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080184	2	46.0	0	1933	30	544	536	1596	385	1737	17	27	0	0	2	968	5839
080284	2	48.0	0	1933	24	568	531	2127	380	2117	14	41	0	0	2	949	6788
080384	2	47.0	0	1933	40	608	1227	3354	476	2593	25	66	0	0	2	1768	8556
080484	2	48.0	0	1933	22	630	1327	4681	337	2930	16	82	0	0	2	1702	10258
080584	2	48.0	0	1933	14	644	939	5620	420	3350	12	94	0	0	2	1385	11643
080684	2	48.0	0	1933	5	649	159	5779	123	3473	6	100	0	0	2	293	11936
080784	2	45.5	0	1933	7	656	391	6170	304	3777	10	110	0	0	2	712	12648
080884	2	48.0	0	1933	23	679	448	6618	424	4201	19	129	0	0	2	914	13562
080984	2	48.0	0	1933	17	696	164	6782	191	4392	6	135	0	0	2	378	13940
081084	2	48.0	0	1933	12	708	108	6890	228	4620	10	145	0	0	2	358	14298
081184	2	45.5	0	1933	10	718	87	6977	253	4873	24	169	0	0	2	374	14672
081284	2	47.0	0	1933	19	737	230	7207	567	5440	40	209	0	0	2	856	15528
081384	2	46.0	0	1933	7	744	68	7275	121	5561	9	218	0	0	2	205	15733
081484	2	48.0	0	1933	8	752	51	7326	125	5686	11	229	0	0	2	195	15928
081584	2	48.0	0	1933	9	761	30	7356	58	5744	9	238	0	0	2	106	16034
081684	2	48.0	0	1933	1	762	5	7361	18	5762	1	239	0	0	2	25	16059
081784	2	48.0	1	1934	0	762	4	7365	15	5777	3	242	0	0	2	23	16082
081884	2	48.0	0	1934	1	763	3	7368	8	5785	1	243	0	0	2	13	16095
081984	2	48.0	0	1934	0	763	1	7369	2	5787	3	246	0	0	2	6	16101
082084	2	46.0	0	1934	1	764	0	7369	15	5802	8	254	0	0	2	24	16125
082184	2	48.0	0	1934	0	764	0	7369	3	5805	6	260	0	0	2	9	16134
082284	2	48.0	0	1934	0	764	0	7369	1	5806	2	262	0	0	2	3	16137
082384	2	48.0	0	1934	0	764	0	7369	3	5809	12	274	0	0	2	15	16152
082484	2	48.0	0	1934	0	764	0	7369	2	5811	2	276	0	0	2	4	16156
082584	2	48.0	0	1934	0	764	0	7369	1	5812	1	277	0	0	2	2	16158
082684	2	46.0	0	1934	0	764	0	7369	2	5814	0	277	0	0	2	2	16160
082784	2	47.0	0	1934	0	764	0	7369	0	5814	1	278	0	0	2	1	16161
082884	2	44.0	0	1934	0	764	0	7369	17	5831	13	291	0	1	3	31	16192
082984	2	44.0	0	1934	1	765	0	7369	12	5843	4	295	0	1	4	18	16210

Appendix Table 3-12(cont.). Talkeetna Station east bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
083084	2 46.0	0	1934	1	766	0	7369	3	5846	5	300	0	1	5	10	16220
083184	2 48.0	0	1934	0	766	1	7370	6	5852	6	306	0	2	7	15	16235
090184	2 48.0	0	1934	1	767	0	7370	0	5852	0	306	0	2	9	3	16238
090284	2 48.0	0	1934	0	767	0	7370	1	5853	0	306	0	2	11	3	16241
090384	2 48.0	0	1934	0	767	0	7370	1	5854	0	306	0	0	11	1	16242
090484	2 46.0	0	1934	0	767	0	7370	0	5854	0	306	0	0	11	0	16242
090584	2 48.0	0	1934	0	767	0	7370	0	5854	0	306	0	0	11	0	16242
090684	2 48.0	0	1934	0	767	0	7370	0	5854	0	306	0	0	11	0	16242
090784	2 48.0	0	1934	0	767	0	7370	0	5854	0	306	0	1	12	1	16243
090884	2 48.0	0	1934	0	767	0	7370	0	5854	1	307	0	0	12	1	16244
090984	2 48.0	0	1934	0	767	0	7370	0	5854	0	307	1	0	13	1	16245
091084	2 48.0	0	1934	0	767	0	7370	0	5854	1	308	0	0	13	1	16246
091184	2 48.0	0	1934	0	767	0	7370	0	5854	1	309	0	1	14	2	16248

Appendix Table 3-13.

Talkeetna Station west bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
060584	1	5.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060684	1	24.0	2	2	0	0	0	0	0	0	0	0	0	0	0	2	2
060784	1	24.0	0	2	1	1	0	0	0	0	0	0	0	0	0	1	3
060884	2	32.0	5	7	0	1	0	0	0	0	0	0	0	0	0	5	8
060984	2	46.0	1	8	1	2	0	0	0	0	0	0	0	1	1	3	11
061084	2	48.0	2	10	0	2	0	0	0	0	0	0	0	0	1	2	13
061184	2	48.0	11	21	0	2	0	0	0	0	0	0	0	0	1	11	24
061284	2	48.0	11	32	0	2	0	0	0	0	0	0	0	0	1	11	35
061384	2	48.0	4	36	0	2	0	0	0	0	0	0	0	1	2	5	40
061484	2	48.0	12	48	1	3	0	0	0	0	0	0	0	0	2	13	53
061584	2	48.0	14	62	0	3	0	0	0	0	0	0	0	0	2	14	67
061684	2	25.5	12	74	0	3	0	0	0	0	0	0	0	0	2	12	79
061884	2	19.7	13	87	0	3	0	0	0	0	0	0	0	0	2	13	92
061984	2	48.0	76	163	0	3	0	0	0	0	0	0	0	0	2	76	168
062084	2	48.0	86	249	0	3	0	0	0	0	0	0	0	0	2	86	254
062184	2	48.0	92	341	0	3	0	0	0	0	0	0	0	0	2	92	346
062284	2	48.0	73	414	0	3	0	0	0	0	0	0	0	0	2	73	419
062384	2	48.0	94	508	0	3	0	0	0	0	0	0	0	0	2	94	513
062484	2	48.0	61	569	0	3	0	0	0	0	0	0	0	1	3	62	575
062584	2	48.0	123	692	0	3	0	0	0	0	0	0	0	0	3	123	698
062684	2	48.0	80	772	0	3	0	0	0	0	0	0	0	0	3	80	778
062784	2	48.0	71	843	0	3	0	0	0	0	0	0	0	0	3	71	849
062884	2	48.0	50	893	0	3	0	0	0	0	0	0	0	0	3	50	899
062984	2	48.0	65	958	0	3	0	0	0	0	0	0	0	0	3	65	964
063084	2	48.0	74	1032	0	3	0	0	0	0	0	0	0	0	3	74	1038
070184	2	48.0	73	1105	0	3	0	0	0	0	0	0	0	1	4	74	1112
070284	2	48.0	54	1159	2	5	0	0	0	0	0	0	0	0	4	56	1168
070384	2	48.0	38	1197	0	5	0	0	0	0	0	0	0	0	4	38	1206
070484	2	44.0	8	1205	0	5	0	0	0	0	0	0	0	0	4	8	1214

A173

Appendix Table 3-13(cont.). Talkeetna Station west bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070584	2	48.0	51	1256	0	5	0	0	0	0	0	0	0	0	4	51	1265
070684	2	48.0	22	1278	2	7	0	0	0	0	0	0	0	2	6	26	1291
070784	2	48.0	25	1303	2	9	0	0	0	0	0	0	0	0	6	27	1318
070884	2	48.0	15	1318	0	9	0	0	0	0	0	0	0	0	6	15	1333
070984	2	48.0	21	1339	2	11	0	0	0	0	0	0	0	0	6	23	1356
071084	2	48.0	18	1357	1	12	0	0	0	0	0	0	0	0	6	19	1375
071184	2	48.0	13	1370	3	15	0	0	0	0	0	0	0	0	6	16	1391
071284	2	48.0	19	1389	0	15	1	1	0	0	0	0	0	1	7	21	1412
071384	2	48.0	15	1404	2	17	0	1	0	0	0	0	0	0	7	17	1429
071484	2	48.0	11	1415	2	19	0	1	3	3	0	0	0	0	7	16	1445
071584	2	48.0	3	1418	2	21	2	3	2	5	1	1	0	0	7	10	1455
071684	2	48.0	8	1426	2	23	1	4	3	8	0	1	0	0	7	14	1469
071784	2	45.0	1	1427	5	28	0	4	10	18	0	1	0	0	7	16	1485
071884	2	48.0	5	1432	0	28	1	5	14	32	1	2	0	0	7	21	1506
071984	2	48.0	9	1441	3	31	2	7	7	39	1	3	0	0	7	22	1528
072084	2	48.0	3	1444	6	37	1	8	6	45	0	3	0	0	7	16	1544
072184	2	48.0	6	1450	5	42	4	12	5	50	0	3	0	0	7	20	1564
072284	2	48.0	3	1453	67	109	20	32	20	70	2	5	0	0	7	112	1676
072384	2	48.0	6	1459	40	149	26	58	21	91	1	6	0	0	7	94	1770
072484	2	48.0	4	1463	174	323	199	257	108	199	4	10	0	0	7	489	2259
072584	2	48.0	2	1465	65	388	533	790	176	375	1	11	0	0	7	777	3036
072684	2	48.0	1	1466	28	416	780	1570	189	564	2	13	0	0	7	1000	4036
072784	2	47.0	0	1466	16	432	93	1663	31	595	0	13	0	0	7	140	4176
072884	2	48.0	0	1466	71	503	307	1970	140	735	5	18	0	0	7	523	4699
072984	2	47.5	4	1470	79	582	1207	3177	279	1014	12	30	0	0	7	1581	6280
073084	2	47.5	1	1471	50	632	1711	4888	328	1342	12	42	0	0	7	2102	8382
073184	2	44.5	0	1471	53	685	1841	6729	510	1852	33	75	0	0	7	2437	10819
080184	2	46.0	0	1471	18	703	822	7551	177	2029	21	96	0	0	7	1038	11857
080284	2	48.0	1	1472	44	747	2977	10528	635	2664	57	153	0	0	7	3714	15571

Appendix Table 3-13 (cont.). Talkeetna Station west bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080384	2 48.0	1	1473	39	786	3306	13834	383	3047	58	211	0	0	7	3787	19358
080484	2 48.0	0	1473	19	805	2689	16523	367	3414	43	254	0	0	7	3118	22476
080584	2 48.0	0	1473	17	822	1543	18066	382	3796	36	290	0	0	7	1978	24454
080684	2 48.0	0	1473	11	833	229	18295	103	3899	13	303	0	0	7	356	24810
080784	2 47.5	0	1473	13	846	754	19049	349	4248	45	348	0	0	7	1161	25971
080884	2 48.0	0	1473	23	869	1063	20112	495	4743	64	412	0	0	7	1645	27616
080984	2 48.0	0	1473	10	879	509	20621	206	4949	43	455	0	0	7	768	28384
081084	2 48.0	0	1473	16	895	320	20941	298	5247	57	512	0	0	7	691	29075
081184	2 46.0	0	1473	5	900	331	21272	320	5567	80	592	0	0	7	736	29811
081284	2 47.0	0	1473	14	914	192	21464	329	5896	86	678	0	0	7	621	30432
081384	2 46.0	0	1473	7	921	105	21569	184	6080	52	730	0	0	7	348	30780
081484	2 48.0	0	1473	7	928	118	21687	195	6275	47	777	0	0	7	367	31147
081584	2 48.0	0	1473	6	934	76	21763	123	6398	60	837	0	0	7	265	31412
081684	2 46.0	0	1473	2	936	17	21780	56	6454	21	858	0	0	7	96	31508
081784	2 48.0	0	1473	4	940	20	21800	70	6524	37	895	0	3	10	134	31642
081884	2 48.0	0	1473	1	941	10	21810	25	6549	23	918	0	0	10	59	31701
081984	2 48.0	0	1473	0	941	6	21816	16	6565	13	931	0	0	10	35	31736
082084	2 47.0	0	1473	6	947	21	21837	52	6617	48	979	0	2	12	129	31865
082184	2 48.0	0	1473	1	948	12	21849	39	6656	44	1023	0	0	12	96	31961
082284	2 48.0	0	1473	4	952	12	21861	20	6676	39	1062	0	1	13	76	32037
082384	2 48.0	0	1473	4	956	5	21866	36	6712	47	1109	0	0	13	92	32129
082484	2 48.0	0	1473	5	961	0	21866	27	6739	19	1128	0	3	16	54	32183
082584	2 29.0	0	1473	0	961	0	21866	2	6741	1	1129	0	0	16	3	32186
082684	2 28.0	0	1473	0	961	0	21866	1	6742	1	1130	0	0	16	2	32188
082784	2 45.5	0	1473	1	962	0	21866	1	6743	10	1140	0	0	16	12	32200
082884	2 45.0	0	1473	0	962	0	21866	3	6746	9	1149	0	0	16	12	32212
082984	2 46.0	0	1473	0	962	0	21866	7	6753	7	1156	0	0	16	14	32226
083084	2 47.0	0	1473	1	963	0	21866	10	6763	11	1167	0	2	18	24	32250
083184	2 48.0	0	1473	0	963	0	21866	37	6800	22	1189	0	0	18	59	32309

Appendix Table 3-13 (cont.). Talkeetna Station west bank fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
090184	2 48.0	0	1473	0	963	0	21866	2	6802	1	1190	0	0	18	3	32312
090284	2 45.0	0	1473	0	963	0	21866	21	6823	5	1195	0	1	19	27	32339
090384	2 48.0	0	1473	0	963	0	21866	0	6823	0	1195	0	0	19	0	32339
090484	2 48.0	0	1473	0	963	0	21866	4	6827	0	1195	0	1	20	5	32344
090584	2 48.0	0	1473	0	963	0	21866	10	6837	5	1200	0	0	20	15	32359
090684	2 48.0	0	1473	0	963	0	21866	29	6866	3	1203	0	1	21	33	32392
090784	2 48.0	0	1473	0	963	0	21866	10	6876	1	1204	0	0	21	11	32403
090884	2 48.0	0	1473	0	963	0	21866	7	6883	5	1209	2	0	23	14	32417
090984	2 48.0	0	1473	1	964	0	21866	4	6887	3	1212	0	1	24	9	32426
091084	2 48.0	0	1473	0	964	0	21866	5	6892	4	1216	0	1	25	10	32436
091184	2 48.0	0	1473	0	964	0	21866	3	6895	1	1217	0	0	25	4	32440

Appendix Table 3-14.

Talkeetna Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
060384	1 4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060484	1 24.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060584	2 29.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060684	3 54.0	2	2	0	0	0	0	0	0	0	0	0	0	0	2	2
060784	3 72.0	2	4	1	1	0	0	0	0	0	0	0	0	0	3	5
060884	4 80.0	8	12	0	1	0	0	0	0	0	0	0	0	0	8	13
060984	4 94.0	7	19	1	2	0	0	0	0	0	0	0	1	1	9	22
061084	4 96.0	11	30	0	2	0	0	0	0	0	0	0	0	1	11	33
061184	4 96.0	26	56	1	3	0	0	0	0	0	0	0	0	1	27	60
061284	4 96.0	34	90	0	3	0	0	0	0	0	0	0	0	1	34	94
061384	4 96.0	18	108	0	3	0	0	0	0	0	0	0	1	2	19	113
061484	4 95.0	18	126	2	5	0	0	0	0	0	0	0	0	2	20	133
061584	4 96.0	29	155	0	5	0	0	0	0	0	0	0	0	2	29	162
061684	4 61.0	19	174	0	5	0	0	0	0	0	0	0	0	2	19	181
061884	4 40.5	26	200	0	5	0	0	0	0	0	0	0	0	2	26	207
061984	4 96.0	151	351	0	5	0	0	0	0	0	0	0	0	2	151	358
062084	4 96.0	213	564	1	6	0	0	0	0	0	0	0	0	2	214	572
062184	4 96.0	205	769	0	6	0	0	0	0	0	0	0	0	2	205	777
062284	4 96.0	169	938	1	7	0	0	0	0	0	0	0	0	2	170	947
062384	4 96.0	257	1195	0	7	0	0	0	0	0	0	0	0	2	257	1204
062484	4 96.0	147	1342	0	7	0	0	0	0	0	0	0	1	3	148	1352
062584	4 96.0	301	1643	1	8	0	0	0	0	0	0	0	1	4	303	1655
062684	4 96.0	199	1842	0	8	0	0	0	0	0	0	0	0	4	199	1854
062784	4 96.0	163	2005	1	9	0	0	0	0	0	0	0	1	5	165	2019
062884	4 96.0	104	2109	0	9	0	0	0	0	0	0	0	0	5	104	2123
062984	4 96.0	137	2246	0	9	0	0	0	0	0	0	0	0	5	137	2260
063084	4 96.0	191	2437	0	9	0	0	0	0	0	0	0	0	5	191	2451
070184	4 96.0	174	2611	1	10	0	0	0	0	0	0	0	1	6	176	2627
070284	4 96.0	139	2750	3	13	0	0	0	0	0	0	0	0	6	142	2769

Appendix Table 3-14 (cont.). Talkeetna Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070384	4 96.0	97	2847	0	13	0	0	0	0	0	0	0	0	6	97	2866
070484	4 90.0	23	2870	0	13	0	0	0	0	0	0	0	0	6	23	2889
070584	4 94.0	106	2976	1	14	0	0	0	0	0	0	0	0	6	107	2996
070684	4 96.0	62	3038	2	16	0	0	0	0	0	0	0	2	8	66	3062
070784	4 96.0	54	3092	2	18	0	0	0	0	0	0	0	0	8	56	3118
070884	4 96.0	29	3121	2	20	0	0	0	0	0	0	0	0	8	31	3149
070984	4 96.0	37	3158	2	22	0	0	0	0	0	0	0	0	8	39	3188
071084	4 96.0	32	3190	4	26	0	0	0	0	0	0	0	0	8	36	3224
071184	4 96.0	20	3210	3	29	0	0	0	0	0	0	0	0	8	23	3247
071284	4 96.0	28	3238	0	29	1	1	1	1	0	0	0	1	9	31	3278
071384	4 96.0	29	3267	4	33	0	1	2	3	0	0	0	0	9	35	3313
071484	4 96.0	25	3292	5	38	0	1	3	6	0	0	0	0	9	33	3346
071584	4 96.0	15	3307	2	40	3	4	2	8	1	1	0	0	9	23	3369
071684	4 96.0	13	3320	2	42	2	6	10	18	0	1	0	0	9	27	3396
071784	4 93.0	8	3328	5	47	0	6	22	40	0	1	0	0	9	35	3431
071884	4 94.0	7	3335	1	48	1	7	17	57	1	2	0	0	9	27	3458
071984	4 96.0	16	3351	3	51	2	9	34	91	1	3	0	0	9	56	3514
072084	4 96.0	7	3358	7	58	2	11	25	116	0	3	0	0	9	41	3555
072184	4 96.0	11	3369	9	67	8	19	24	140	0	3	0	0	9	52	3607
072284	4 96.0	7	3376	141	208	34	53	39	179	2	5	0	0	9	223	3830
072384	4 96.0	7	3383	107	315	30	83	52	231	1	6	0	0	9	197	4027
072484	4 96.0	11	3394	298	613	273	356	221	452	4	10	0	0	9	807	4834
072584	4 96.0	2	3396	116	729	672	1028	351	803	1	11	0	0	9	1142	5976
072684	4 96.0	2	3398	41	770	899	1927	274	1077	2	13	0	0	9	1218	7194
072784	4 95.0	0	3398	17	787	95	2022	40	1117	0	13	0	0	9	152	7346
072884	4 96.0	1	3399	89	876	326	2348	200	1317	5	18	0	0	9	621	7967
072984	4 95.0	4	3403	135	1011	1395	3743	481	1798	12	30	0	0	9	2027	9994
073084	4 95.5	1	3404	69	1080	1860	5603	495	2293	13	43	0	0	9	2438	12432
073184	4 92.5	0	3404	119	1199	2186	7789	911	3204	42	85	0	0	9	3258	15690

A178

Appendix Table 3-14(cont.). Talkeetna Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080184	4 92.0	0	3404	48	1247	1358	9147	562	3766	38	123	0	0	9	2006	17696
080284	4 96.0	1	3405	68	1315	3508	12655	1015	4781	71	194	0	0	9	4663	22359
080384	4 95.0	1	3406	79	1394	4533	17188	859	5640	83	277	0	0	9	5555	27914
080484	4 96.0	0	3406	41	1435	4016	21204	704	6344	59	336	0	0	9	4820	32734
080584	4 96.0	0	3406	31	1466	2482	23686	802	7146	48	384	0	0	9	3363	36097
080684	4 96.0	0	3406	16	1482	388	24074	226	7372	19	403	0	0	9	649	36746
080784	4 93.0	0	3406	20	1502	1145	25219	653	8025	55	458	0	0	9	1873	38619
080884	4 96.0	0	3406	46	1548	1511	26730	919	8944	83	541	0	0	9	2559	41178
080984	4 96.0	0	3406	27	1575	673	27403	397	9341	49	590	0	0	9	1146	42324
081084	4 96.0	0	3406	28	1603	428	27831	526	9867	67	657	0	0	9	1049	43373
081184	4 91.5	0	3406	15	1618	418	28249	573	10440	104	761	0	0	9	1110	44483
081284	4 94.0	0	3406	33	1651	422	28671	896	11336	126	887	0	0	9	1477	45960
081384	4 92.0	0	3406	14	1665	173	28844	305	11641	61	948	0	0	9	553	46513
081484	4 96.0	0	3406	15	1680	169	29013	320	11961	58	1006	0	0	9	562	47075
081584	4 96.0	0	3406	15	1695	106	29119	181	12142	69	1075	0	0	9	371	47446
081684	4 94.0	0	3406	3	1698	22	29141	74	12216	22	1097	0	0	9	121	47567
081784	4 96.0	1	3407	4	1702	24	29165	85	12301	40	1137	0	3	12	157	47724
081884	4 96.0	0	3407	2	1704	13	29178	33	12334	24	1161	0	0	12	72	47796
081984	4 96.0	0	3407	0	1704	7	29185	18	12352	16	1177	0	0	12	41	47837
082084	4 93.0	0	3407	7	1711	21	29206	67	12419	56	1233	0	2	14	153	47990
082184	4 96.0	0	3407	1	1712	12	29218	42	12461	50	1283	0	0	14	105	48095
082284	4 96.0	0	3407	4	1716	12	29230	21	12482	41	1324	0	1	15	79	48174
082384	4 94.0	0	3407	4	1720	5	29235	39	12521	59	1383	0	0	15	107	48281
082484	4 96.0	0	3407	5	1725	0	29235	29	12550	21	1404	0	3	18	58	48339
082584	4 77.0	0	3407	0	1725	0	29235	3	12553	2	1406	0	0	18	5	48344
082684	4 74.0	0	3407	0	1725	0	29235	3	12556	1	1407	0	0	18	4	48348
082784	4 92.5	0	3407	1	1726	0	29235	1	12557	11	1418	0	0	18	13	48361
082884	4 89.0	0	3407	0	1726	0	29235	20	12577	22	1440	0	1	19	43	48404
082984	4 90.0	0	3407	1	1727	0	29235	19	12596	11	1451	0	1	20	32	48436

Appendix Table 3-14 (cont.). Talkeetna Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
083084	4 93.0	0	3407	2	1729	0	29235	13	12609	16	1467	0	3	23	34	48470
083184	4 96.0	0	3407	0	1729	1	29236	43	12652	28	1495	0	2	25	74	48544
090184	4 96.0	0	3407	1	1730	0	29236	2	12654	1	1496	0	2	27	6	48550
090284	4 93.0	0	3407	0	1730	0	29236	22	12676	5	1501	0	3	30	30	48580
090384	4 96.0	0	3407	0	1730	0	29236	1	12677	0	1501	0	0	30	1	48581
090484	4 94.0	0	3407	0	1730	0	29236	4	12681	0	1501	0	1	31	5	48586
090584	4 96.0	0	3407	0	1730	0	29236	10	12691	5	1506	0	0	31	15	48601
090684	4 96.0	0	3407	0	1730	0	29236	29	12720	3	1509	0	1	32	33	48634
090784	4 96.0	0	3407	0	1730	0	29236	10	12730	1	1510	0	1	33	12	48646
090884	4 96.0	0	3407	0	1730	0	29236	7	12737	6	1516	2	0	35	15	48661
090984	4 96.0	0	3407	1	1731	0	29236	4	12741	3	1519	1	1	37	10	48671
091084	4 96.0	0	3407	0	1731	0	29236	5	12746	5	1524	0	1	38	11	48682
091184	4 96.0	0	3407	0	1731	0	29236	3	12749	2	1526	0	1	39	6	48688

Appendix Table 3-15.

Curry Station east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
060984	1	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
061084	1	24.0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
061184	1	24.0	2	3	0	0	0	0	0	0	0	0	1	1	3	4
061284	1	24.0	3	6	0	0	0	0	0	0	0	0	2	3	5	9
061384	1	18.5	2	8	0	0	0	0	0	0	0	0	1	4	3	12
061484	1	18.5	3	11	0	0	0	0	0	0	0	0	1	5	4	16
061584	1	24.0	2	13	0	0	0	0	0	0	0	0	0	5	2	18
061684	1	9.5	7	20	0	0	0	0	0	0	0	0	0	5	7	25
061884	1	12.5	4	24	0	0	0	0	0	0	0	0	0	5	4	29
061984	1	24.0	51	75	0	0	0	0	0	0	0	0	1	6	52	81
062084	1	23.0	98	173	0	0	0	0	0	0	0	0	0	6	98	179
062184	1	24.0	66	239	0	0	0	0	0	0	0	0	0	6	66	245
062284	1	24.0	110	349	0	0	0	0	0	0	0	0	0	6	110	355
062384	1	24.0	45	394	0	0	0	0	0	0	0	0	0	6	45	400
062484	1	24.0	44	438	0	0	0	0	0	0	0	0	1	7	45	445
062584	1	24.0	49	487	0	0	0	0	0	0	0	0	1	8	50	495
062684	1	23.0	45	532	0	0	0	0	0	0	0	0	0	8	45	540
062784	1	24.0	25	557	0	0	0	0	0	0	0	0	0	8	25	565
062884	1	24.0	14	571	0	0	0	0	0	0	0	0	0	8	14	579
062984	1	24.0	42	613	0	0	0	0	0	0	0	0	0	8	42	621
063084	1	24.0	27	640	0	0	0	0	0	0	0	0	0	8	27	648
070184	1	24.0	26	666	0	0	0	0	0	0	0	0	0	8	26	674
070284	1	24.0	25	691	0	0	0	0	0	0	0	0	0	8	25	699
070384	1	24.0	22	713	0	0	0	0	0	0	0	0	1	9	23	722
070484	1	24.0	22	735	0	0	0	0	0	0	0	0	0	9	22	744
070584	1	24.0	15	750	0	0	0	0	0	0	0	0	0	9	15	759
070684	1	24.0	18	768	0	0	0	0	0	0	0	0	0	9	18	777
070784	1	24.0	8	776	1	1	1	1	0	0	0	0	0	9	10	787
070884	1	24.0	10	786	0	1	1	2	0	0	0	0	0	9	11	798

Appendix Table 3-1^F(cont.). Curry Station east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070984	1	24.0	5	791	1	2	0	2	0	0	0	0	0	0	9	6	804
071084	1	24.0	3	794	1	3	0	2	0	0	0	0	0	1	10	5	809
071184	1	24.0	8	802	3	6	1	3	0	0	0	0	0	1	11	13	822
071284	1	24.0	9	811	0	6	1	4	0	0	0	0	0	1	12	11	833
071384	1	24.0	5	816	0	6	0	4	0	0	0	0	0	0	12	5	838
071484	1	24.0	7	823	1	7	1	5	0	0	0	0	0	3	15	12	850
071584	1	24.0	7	830	0	7	0	5	1	1	0	0	0	0	15	8	858
071684	1	24.0	4	834	1	8	0	5	0	1	0	0	0	0	15	5	863
071784	1	24.0	3	837	0	8	0	5	3	4	0	0	0	0	15	6	869
071884	1	24.0	10	847	0	8	0	5	2	6	0	0	0	0	15	12	881
071984	1	24.0	2	849	2	10	1	6	7	13	0	0	0	0	15	12	893
072084	1	24.0	2	851	1	11	0	6	3	16	0	0	0	0	15	6	899
072184	1	24.0	7	858	1	12	2	8	5	21	0	0	0	0	15	15	914
072284	1	24.0	2	860	4	16	2	10	5	26	0	0	0	0	15	13	927
072384	1	24.0	1	861	11	27	2	12	3	29	1	1	0	0	15	18	945
072484	1	24.0	1	862	14	41	5	17	11	40	0	1	0	0	15	31	976
072584	1	24.0	0	862	13	54	48	65	44	84	0	1	0	1	16	106	1082
072684	1	24.0	0	862	27	81	152	217	26	110	0	1	0	0	16	205	1287
072784	1	24.0	1	863	11	92	48	265	4	114	0	1	0	0	16	64	1351
072884	1	24.0	1	864	7	99	173	438	62	176	0	1	0	1	17	244	1595
072984	1	24.0	1	865	22	121	339	777	130	306	1	2	0	1	18	494	2089
073084	1	24.0	0	865	31	152	415	1192	153	459	6	8	0	0	18	605	2694
073184	1	24.0	0	865	11	163	417	1609	132	591	2	10	0	1	19	563	3257
080184	1	24.0	0	865	11	174	387	1996	142	733	12	22	0	0	19	552	3809
080284	1	24.0	0	865	16	190	573	2569	260	993	4	26	0	1	20	854	4663
080384	1	13.0	0	865	9	199	462	3031	162	1155	12	38	0	0	20	645	5308
080484	1	17.7	0	865	12	211	479	3510	269	1424	14	52	0	0	20	774	6082
080584	1	24.0	0	865	12	223	686	4196	289	1713	8	60	0	0	20	995	7077
080684	1	24.0	0	865	11	234	349	4545	139	1852	12	72	0	0	20	511	7588

Appendix Table 3-15(cont.). Curry Station east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080784	1	24.0	0	865	3	237	152	4697	77	1929	8	80	0	0	20	240	7828
080884	1	24.0	0	865	10	247	122	4819	92	2021	2	82	0	0	20	226	8054
080984	1	24.0	0	865	4	251	78	4897	44	2065	1	83	0	0	20	127	8181
081084	1	24.0	0	865	6	257	83	4980	99	2164	5	88	0	0	20	193	8374
081184	1	22.0	0	865	1	258	56	5036	70	2234	5	93	0	0	20	132	8506
081284	1	24.0	0	865	8	266	82	5118	176	2410	9	102	0	1	21	276	8782
081384	1	18.0	0	865	3	269	22	5140	88	2498	1	103	0	0	21	114	8896
081484	1	24.0	0	865	2	271	48	5188	114	2612	3	106	0	0	21	167	9063
081584	1	21.0	0	865	1	272	20	5208	94	2706	1	107	0	0	21	116	9179
081684	1	24.0	0	865	1	273	17	5225	79	2785	2	109	0	0	21	99	9278
081784	1	24.0	0	865	3	276	17	5242	64	2849	1	110	0	0	21	85	9363
081884	1	24.0	0	865	0	276	9	5251	43	2892	6	116	0	0	21	58	9421
081984	1	24.0	0	865	4	280	12	5263	43	2935	7	123	0	0	21	66	9487
082084	1	24.0	0	865	4	284	11	5274	37	2972	9	132	0	2	23	63	9550
082184	1	24.0	0	865	2	286	3	5277	25	2997	4	136	0	0	23	34	9584
082284	1	24.0	0	865	3	289	1	5278	34	3031	9	145	0	0	23	47	9631
082384	1	20.0	0	865	0	289	0	5278	18	3049	2	147	0	1	24	21	9652
082484	1	24.0	0	865	1	290	1	5279	24	3073	1	148	0	0	24	27	9679
082584	1	24.0	0	865	1	291	0	5279	10	3083	0	148	0	0	24	11	9690
082684	1	24.0	0	865	1	292	0	5279	4	3087	0	148	0	0	24	5	9695
082784	1	24.0	0	865	2	294	1	5280	19	3106	0	148	0	0	24	22	9717
082884	1	24.0	0	865	3	297	0	5280	12	3118	5	153	0	0	24	20	9737
082984	1	24.0	0	865	2	299	0	5280	14	3132	4	157	0	0	24	20	9757
083084	1	24.0	0	865	1	300	0	5280	13	3145	6	163	0	0	24	20	9777
083184	1	18.0	0	865	1	301	0	5280	4	3149	1	164	0	0	24	6	9783
090184	1	24.0	0	865	0	301	0	5280	3	3152	0	164	0	0	24	3	9786
090284	1	24.0	0	865	0	301	0	5280	3	3155	0	164	0	0	24	3	9789
090384	1	24.0	0	865	0	301	0	5280	0	3155	0	164	0	0	24	0	9789
090484	1	20.0	0	865	0	301	0	5280	0	3155	0	164	0	0	24	0	9789

Appendix Table 3-15 (cont.). Curry Station east bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
090584	1 18.0	0	865	0	301	0	5280	0	3155	0	164	0	0	24	0	9789
090684	1 12.0	0	865	0	301	0	5280	0	3155	0	164	0	0	24	0	9789
090784	1 24.0	0	865	0	301	0	5280	0	3155	0	164	0	0	24	0	9789
090884	1 24.0	0	865	1	302	0	5280	0	3155	0	164	0	0	24	1	9790
090984	1 18.0	0	865	0	302	0	5280	0	3155	0	164	0	0	24	0	9790
091084	1 8.0	0	865	0	302	0	5280	0	3155	0	164	0	0	24	0	9790
091184	1 10.0	0	865	0	302	0	5280	0	3155	0	164	0	0	24	0	9790
091284	1 24.0	0	865	0	302	0	5280	0	3155	0	164	0	0	24	0	9790
091384	1 24.0	0	865	0	302	0	5280	0	3155	0	164	0	0	24	0	9790

Appendix Table 3-16.

Curry Station west bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering			Daily	Cum
													Cisco	Other	Cum		
060984	1	11.0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1
061084	1	24.0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
061184	1	24.0	3	4	0	0	0	0	0	0	0	0	0	0	0	3	4
061284	1	24.0	0	4	0	0	0	0	0	0	0	0	0	1	1	1	5
061384	1	24.0	1	5	0	0	0	0	0	0	0	0	0	0	1	1	6
061484	1	24.0	5	10	0	0	0	0	0	0	0	0	0	0	1	5	11
061584	1	24.0	2	12	0	0	0	0	0	0	0	0	0	0	1	2	13
061684	1	14.5	0	12	0	0	0	0	0	0	0	0	0	0	1	0	13
061984	1	8.5	6	18	0	0	0	0	0	0	0	0	0	1	2	7	20
062084	1	23.0	37	55	0	0	0	0	0	0	0	0	0	0	2	37	57
062184	1	24.0	59	114	0	0	0	0	0	0	0	0	0	1	3	60	117
062284	1	24.0	55	169	0	0	0	0	0	0	0	0	0	0	3	55	172
062384	1	24.0	41	210	0	0	0	0	0	0	0	0	0	0	3	41	213
062484	1	24.0	42	252	0	0	0	0	0	0	0	0	0	0	3	42	255
062584	1	24.0	65	317	0	0	0	0	0	0	0	0	0	0	3	65	320
062684	1	24.0	36	353	1	1	0	0	0	0	0	0	0	0	3	37	357
062784	1	18.0	29	382	0	1	0	0	0	0	0	0	0	1	4	30	387
062884	1	24.0	25	407	1	2	0	0	0	0	0	0	0	0	4	26	413
062984	1	24.0	58	465	0	2	0	0	0	0	0	0	0	1	5	59	472
063084	1	24.0	48	513	1	3	0	0	0	0	0	0	0	1	6	50	522
070184	1	24.0	29	542	0	3	0	0	0	0	0	0	0	1	7	30	552
070284	1	24.0	21	563	0	3	0	0	0	0	0	0	0	0	7	21	573
070384	1	24.0	24	587	0	3	0	0	0	0	0	0	0	0	7	24	597
070484	1	24.0	28	615	0	3	0	0	0	0	0	0	0	1	8	29	626
070584	1	24.0	16	631	0	3	0	0	0	0	0	0	0	0	8	16	642
070684	1	24.0	10	641	0	3	0	0	0	0	0	0	0	0	8	10	652
070784	1	24.0	6	647	0	3	0	0	0	0	0	0	0	0	8	6	658
070884	1	24.0	16	663	1	4	0	0	0	0	0	0	0	1	9	18	676
070984	1	24.0	10	673	0	4	0	0	0	0	0	0	0	0	9	10	686

Appendix Table 3-16 (cont.). Curry Station west bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
071084	1	24.0	4	677	0	4	0	0	0	0	0	0	0	0	9	4	690
071184	1	24.0	8	685	1	5	0	0	0	0	0	0	0	1	10	10	700
071284	1	24.0	9	694	0	5	1	1	0	0	0	0	0	1	11	11	711
071384	1	24.0	5	699	0	5	0	1	0	0	0	0	0	0	11	5	716
071484	1	24.0	5	704	0	5	0	1	0	0	0	0	0	0	11	5	721
071584	1	24.0	1	705	0	5	0	1	0	0	0	0	0	0	11	1	722
071684	1	24.0	4	709	0	5	0	1	0	0	0	0	0	0	11	4	726
071784	1	24.0	2	711	0	5	0	1	0	0	0	0	0	0	11	2	728
071884	1	24.0	0	711	0	5	0	1	0	0	1	1	0	0	11	1	729
071984	1	24.0	3	714	0	5	0	1	3	3	0	1	0	1	12	7	736
072084	1	24.0	0	714	0	5	0	1	1	4	0	1	0	0	12	1	737
072184	1	24.0	1	715	0	5	1	2	0	4	0	1	0	0	12	2	739
072284	1	24.0	1	716	0	5	1	3	0	4	0	1	0	0	12	2	741
072384	1	24.0	6	722	1	6	3	6	3	7	0	1	0	0	12	13	754
072484	1	24.0	0	722	0	6	15	21	3	10	1	2	0	0	12	19	773
072584	1	24.0	1	723	2	8	70	91	10	20	0	2	0	0	12	83	856
072684	1	24.0	0	723	1	9	98	189	12	32	0	2	0	0	12	111	967
072784	1	9.0	0	723	0	9	6	195	1	33	0	2	0	0	12	7	974
072984	1	15.0	1	724	2	11	84	279	24	57	0	2	0	0	12	111	1085
073084	1	24.0	0	724	3	14	412	691	31	88	1	3	0	0	12	447	1532
073184	1	24.0	0	724	3	17	654	1345	41	129	1	4	0	0	12	699	2231
080184	1	24.0	0	724	9	26	771	2116	33	162	5	9	0	1	13	819	3050
080284	1	23.5	0	724	2	28	1136	3252	37	199	5	14	0	0	13	1180	4230
080384	1	13.0	0	724	3	31	1076	4328	25	224	4	18	0	2	15	1110	5340
080484	1	17.7	0	724	2	33	1490	5818	46	270	7	25	0	2	17	1547	6887
080584	1	24.0	0	724	0	33	1366	7184	77	347	9	34	0	0	17	1452	8339
080684	1	24.0	0	724	0	33	1092	8276	57	404	7	41	0	0	17	1156	9495
080784	1	24.0	0	724	6	39	668	8944	42	446	7	48	0	0	17	723	10218
080884	1	24.0	0	724	4	43	606	9550	76	522	5	53	0	0	17	691	10909

A186

Appendix Table 3-16 (cont.). Curry Station west bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080984	1	24.0	0	724	7	50	548	10098	60	582	8	61	0	0	17	623	11532
081084	1	24.0	0	724	1	51	502	10600	67	649	12	73	0	0	17	582	12114
081184	1	24.0	0	724	3	54	376	10976	83	732	8	81	0	0	17	470	12584
081284	1	24.0	0	724	1	55	270	11246	73	805	8	89	0	0	17	352	12936
081384	1	24.0	0	724	2	57	296	11542	74	879	19	108	0	0	17	391	13327
081484	1	24.0	0	724	1	58	226	11768	46	925	9	117	0	0	17	282	13609
081584	1	16.0	0	724	1	59	113	11881	25	950	6	123	0	1	18	146	13755
081684	1	23.0	0	724	2	61	110	11991	35	985	12	135	0	0	18	159	13914
081784	1	24.0	0	724	4	65	30	12021	11	996	3	138	0	1	19	49	13963
081884	1	24.0	0	724	3	68	51	12072	17	1013	9	147	0	0	19	80	14043
081984	1	24.0	0	724	1	69	14	12086	12	1025	2	149	0	1	20	30	14073
082084	1	24.0	0	724	1	70	17	12103	9	1034	10	159	0	0	20	37	14110
082184	1	24.0	0	724	1	71	4	12107	21	1055	8	167	0	0	20	34	14144
082284	1	24.0	0	724	1	72	2	12109	3	1058	9	176	0	0	20	15	14159
082384	1	24.0	0	724	1	73	3	12112	8	1066	4	180	0	0	20	16	14175
082484	1	15.5	0	724	0	73	1	12113	1	1067	1	181	0	0	20	3	14178
082884	1	13.0	0	724	1	74	0	12113	0	1067	1	182	0	0	20	2	14180
082984	1	24.0	0	724	0	74	1	12114	2	1069	1	183	0	0	20	4	14184
083084	1	24.0	0	724	1	75	0	12114	2	1071	1	184	0	0	20	4	14188
083184	1	24.0	0	724	1	76	0	12114	1	1072	2	186	0	0	20	4	14192
090184	1	24.0	0	724	0	76	0	12114	0	1072	0	186	0	0	20	0	14192
090284	1	24.0	0	724	1	77	0	12114	0	1072	0	186	0	0	20	1	14193
090384	1	24.0	0	724	0	77	0	12114	0	1072	0	186	0	0	20	0	14193
090484	1	24.0	0	724	0	77	0	12114	0	1072	0	186	0	0	20	0	14193
090584	1	24.0	0	724	0	77	0	12114	0	1072	0	186	0	0	20	0	14193
090684	1	24.0	0	724	0	77	0	12114	0	1072	0	186	0	0	20	0	14193
090784	1	24.0	0	724	0	77	0	12114	1	1073	0	186	0	0	20	1	14194
090884	1	24.0	0	724	0	77	0	12114	0	1073	0	186	0	0	20	0	14194
090984	1	24.0	0	724	0	77	0	12114	0	1073	0	186	0	0	20	0	14194

Appendix Table 3-16 (cont.). Curry Station west bank fishwheel daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
091084	1 24.0	0	724	0	77	0	12114	0	1073	0	186	0	0	20	0	14194
091184	1 24.0	0	724	0	77	0	12114	0	1073	0	186	0	1	21	1	14195
091284	1 22.0	0	724	0	77	0	12114	0	1073	0	186	0	0	21	0	14195
091384	1 24.0	0	724	0	77	0	12114	0	1073	0	186	0	0	21	0	14195
091484	1 8.0	0	724	0	77	0	12114	0	1073	0	186	0	0	21	0	14195

Appendix Table 3-17.

Curry Station fishwheels daily and cumulative catch by species, 1984.

Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
060984	2 16.0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1
061084	2 48.0	1	2	0	0	0	0	0	0	0	0	0	0	0	1	2
061184	2 48.0	5	7	0	0	0	0	0	0	0	0	0	1	1	6	8
061284	2 48.0	3	10	0	0	0	0	0	0	0	0	0	3	4	6	14
061384	2 42.5	3	13	0	0	0	0	0	0	0	0	0	1	5	4	18
061484	2 42.5	8	21	0	0	0	0	0	0	0	0	0	1	6	9	27
061584	2 48.0	4	25	0	0	0	0	0	0	0	0	0	0	6	4	31
061684	2 24.0	7	32	0	0	0	0	0	0	0	0	0	0	6	7	38
061884	1 12.5	4	36	0	0	0	0	0	0	0	0	0	0	6	4	42
061984	2 32.5	57	93	0	0	0	0	0	0	0	0	0	2	8	59	101
062084	2 46.0	135	228	0	0	0	0	0	0	0	0	0	0	8	135	236
062184	2 48.0	125	353	0	0	0	0	0	0	0	0	0	1	9	126	362
062284	2 48.0	165	518	0	0	0	0	0	0	0	0	0	0	9	165	527
062384	2 48.0	86	604	0	0	0	0	0	0	0	0	0	0	9	86	613
062484	2 48.0	86	690	0	0	0	0	0	0	0	0	0	1	10	87	700
062584	2 48.0	114	804	0	0	0	0	0	0	0	0	0	1	11	115	815
062684	2 47.0	81	885	1	1	0	0	0	0	0	0	0	0	11	82	897
062784	2 42.0	54	939	0	1	0	0	0	0	0	0	0	1	12	55	952
062884	2 48.0	39	978	1	2	0	0	0	0	0	0	0	0	12	40	992
062984	2 48.0	100	1078	0	2	0	0	0	0	0	0	0	1	13	101	1093
063084	2 48.0	75	1153	1	3	0	0	0	0	0	0	0	1	14	77	1170
070184	2 48.0	55	1208	0	3	0	0	0	0	0	0	0	1	15	56	1226
070284	2 48.0	46	1254	0	3	0	0	0	0	0	0	0	0	15	46	1272
070384	2 48.0	46	1300	0	3	0	0	0	0	0	0	0	1	16	47	1319
070484	2 48.0	50	1350	0	3	0	0	0	0	0	0	0	1	17	51	1370
070584	2 48.0	31	1381	0	3	0	0	0	0	0	0	0	0	17	31	1401
070684	2 48.0	28	1409	0	3	0	0	0	0	0	0	0	0	17	28	1429
070784	2 48.0	14	1423	1	4	1	1	0	0	0	0	0	0	17	16	1445
070884	2 48.0	26	1449	1	5	1	2	0	0	0	0	0	1	18	29	1474

Appendix Table 3-17(cont.). Curry Station fishwheels daily and cumulative catch by species, 1984.

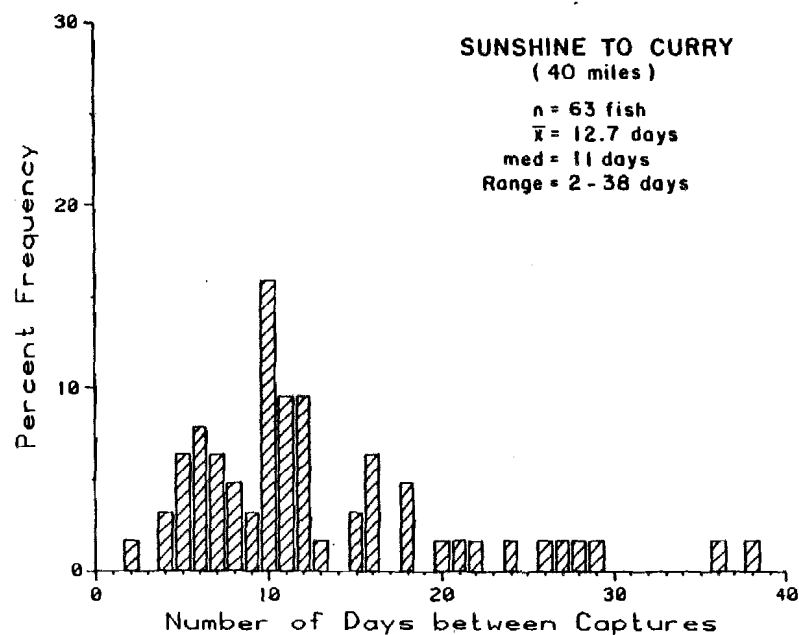
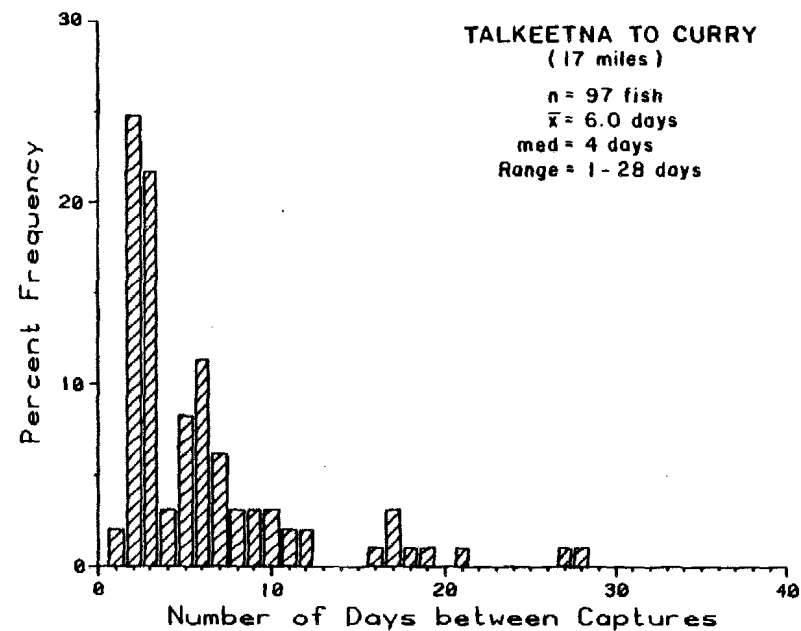
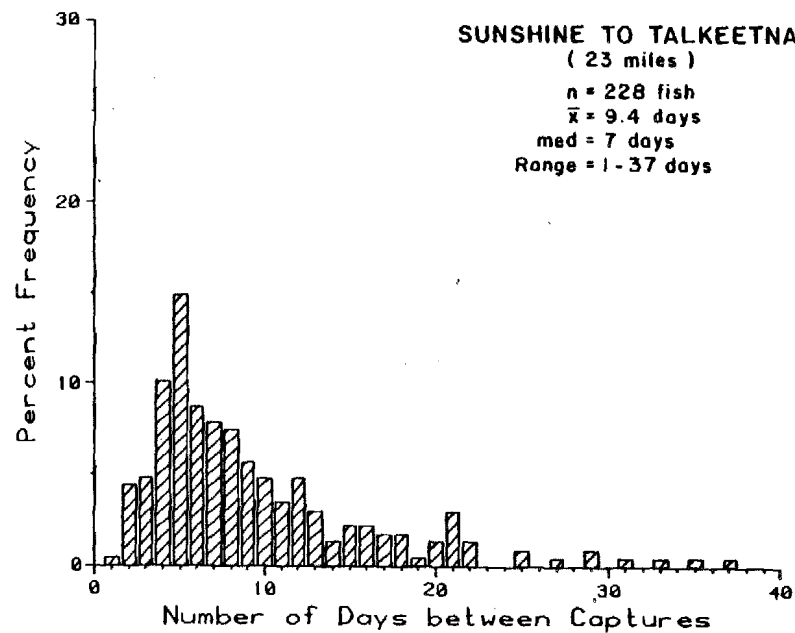
Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
070984	2 48.0	15	1464	1	6	0	2	0	0	0	0	0	0	18	16	1490
071084	2 48.0	7	1471	1	7	0	2	0	0	0	0	0	1	19	9	1499
071184	2 48.0	16	1487	4	11	1	3	0	0	0	0	0	2	21	23	1522
071284	2 48.0	18	1505	0	11	2	5	0	0	0	0	0	2	23	22	1544
071384	2 48.0	10	1515	0	11	0	5	0	0	0	0	0	0	23	10	1554
071484	2 48.0	12	1527	1	12	1	6	0	0	0	0	0	3	26	17	1571
071584	2 48.0	8	1535	0	12	0	6	1	1	0	0	0	0	26	9	1580
071684	2 48.0	8	1543	1	13	0	6	0	1	0	0	0	0	26	9	1589
071784	2 48.0	5	1548	0	13	0	6	3	4	0	0	0	0	26	8	1597
071884	2 48.0	10	1558	0	13	0	6	2	6	1	1	0	0	26	13	1610
071984	2 48.0	5	1563	2	15	1	7	10	16	0	1	0	1	27	19	1629
072084	2 48.0	2	1565	1	16	0	7	4	20	0	1	0	0	27	7	1636
072184	2 48.0	8	1573	1	17	3	10	5	25	0	1	0	0	27	17	1653
072284	2 48.0	3	1576	4	21	3	13	5	30	0	1	0	0	27	15	1668
072384	2 48.0	7	1583	12	33	5	18	6	36	1	2	0	0	27	31	1699
072484	2 48.0	1	1584	14	47	20	38	14	50	1	3	0	0	27	50	1749
072584	2 48.0	1	1585	15	62	118	156	54	104	0	3	0	1	28	189	1938
072684	2 48.0	0	1585	28	90	250	406	38	142	0	3	0	0	28	316	2254
072784	2 33.0	1	1586	11	101	54	460	5	147	0	3	0	0	28	71	2325
072884	1 24.0	1	1587	7	108	173	633	62	209	0	3	0	1	29	244	2569
072984	2 39.0	2	1589	24	132	423	1056	154	363	1	4	0	1	30	605	3174
073084	2 48.0	0	1589	34	166	827	1883	184	547	7	11	0	0	30	1052	4226
073184	2 48.0	0	1589	14	180	1071	2954	173	720	3	14	0	1	31	1262	5488
080184	2 48.0	0	1589	20	200	1158	4112	175	895	17	31	0	1	32	1371	6859
080284	2 47.5	0	1589	18	218	1709	5821	297	1192	9	40	0	1	33	2034	8893
080384	2 26.0	0	1589	12	230	1538	7359	187	1379	16	56	0	2	35	1755	10648
080484	2 35.5	0	1589	14	244	1969	9328	315	1694	21	77	0	2	37	2321	12969
080584	2 48.0	0	1589	12	256	2052	11380	366	2060	17	94	0	0	37	2447	15416
080684	2 48.0	0	1589	11	267	1441	12821	196	2256	19	113	0	0	37	1667	17083

Appendix Table 2-17(cont.). Curry Station fishwheels daily and cumulative catch by species, 1984.

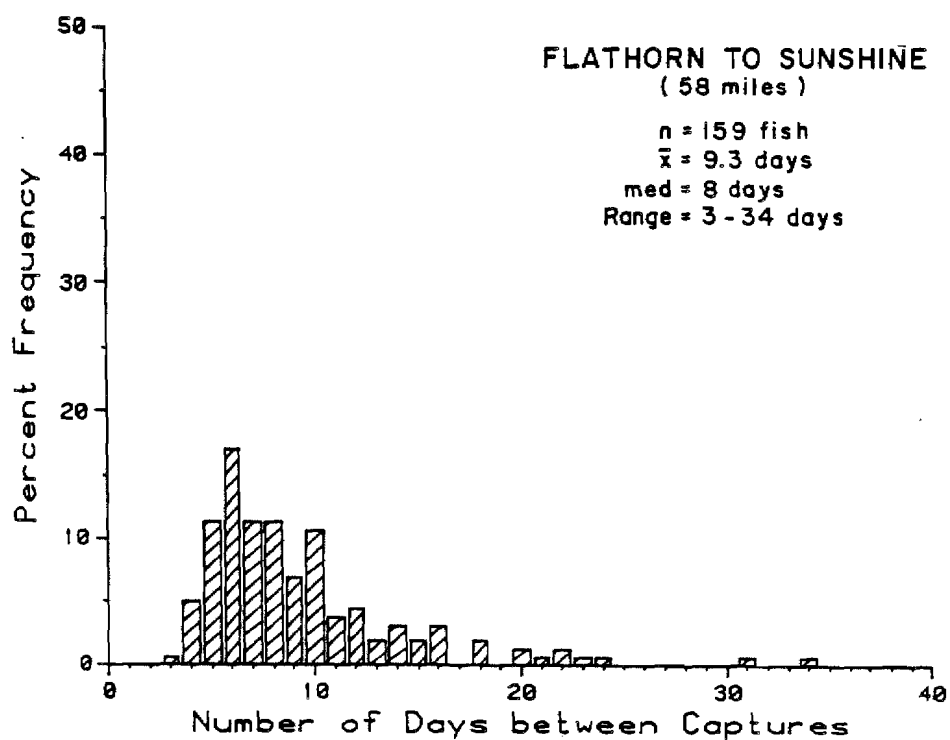
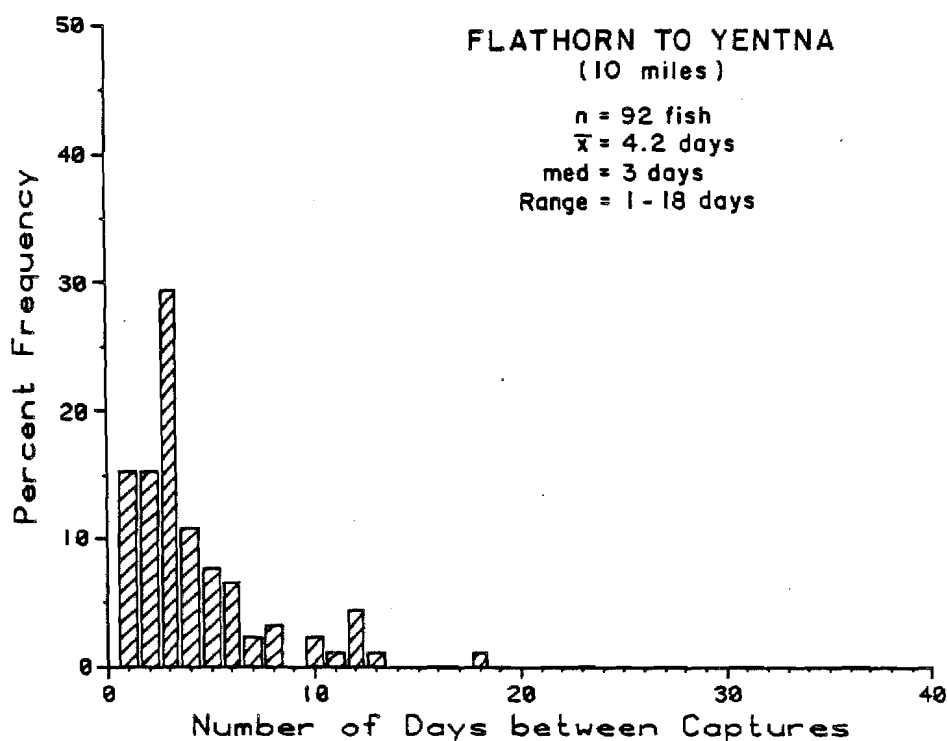
Date	No. of Wheel wheels	hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
080784	2	48.0	0	1589	9	276	820	13641	119	2375	15	128	0	0	37	963	18046
080884	2	48.0	0	1589	14	290	728	14369	168	2543	7	135	0	0	37	917	18963
080984	2	48.0	0	1589	11	301	626	14995	104	2647	9	144	0	0	37	750	19713
081084	2	48.0	0	1589	7	308	585	15580	166	2813	17	161	0	0	37	775	20488
081184	2	46.0	0	1589	4	312	432	16012	153	2966	13	174	0	0	37	602	21090
081284	2	48.0	0	1589	9	321	352	16364	249	3215	17	191	0	1	38	628	21718
081384	2	42.0	0	1589	5	326	318	16682	162	3377	20	211	0	0	38	505	22223
081484	2	48.0	0	1589	3	329	274	16956	160	3537	12	223	0	0	38	449	22672
081584	2	37.0	0	1589	2	331	133	17089	119	3656	7	230	0	1	39	262	22934
081684	2	47.0	0	1589	3	334	127	17216	114	3770	14	244	0	0	39	258	23192
081784	2	48.0	0	1589	7	341	47	17263	75	3845	4	248	0	1	40	134	23326
081884	2	48.0	0	1589	3	344	60	17323	60	3905	15	263	0	0	40	138	23464
081984	2	48.0	0	1589	5	349	26	17349	55	3960	9	272	0	1	41	96	23560
082084	2	48.0	0	1589	5	354	28	17377	46	4006	19	291	0	2	43	100	23660
082184	2	48.0	0	1589	3	357	7	17384	46	4052	12	303	0	0	43	68	23728
082284	2	48.0	0	1589	4	361	3	17387	37	4089	18	321	0	0	43	62	23790
082384	2	44.0	0	1589	1	362	3	17390	26	4115	6	327	0	1	44	37	23827
082484	2	39.5	0	1589	1	363	2	17392	25	4140	2	329	0	0	44	30	23857
082584	1	24.0	0	1589	1	364	0	17392	10	4150	0	329	0	0	44	11	23868
082684	1	24.0	0	1589	1	365	0	17392	4	4154	0	329	0	0	44	5	23873
082784	1	24.0	0	1589	2	367	1	17393	19	4173	0	329	0	0	44	22	23895
082884	2	37.0	0	1589	4	371	0	17393	12	4185	6	335	0	0	44	22	23917
082984	2	48.0	0	1589	2	373	1	17394	16	4201	5	340	0	0	44	24	23941
083084	2	48.0	0	1589	2	375	0	17394	15	4216	7	347	0	0	44	24	23965
083184	2	42.0	0	1589	2	377	0	17394	5	4221	3	350	0	0	44	10	23975
090184	2	48.0	0	1589	0	377	0	17394	3	4224	0	350	0	0	44	3	23978
090284	2	48.0	0	1589	1	378	0	17394	3	4227	0	350	0	0	44	4	23982
090384	2	48.0	0	1589	0	378	0	17394	0	4227	0	350	0	0	44	0	23982
090484	2	44.0	0	1589	0	378	0	17394	0	4227	0	350	0	0	44	0	23982

Appendix Table 3-17 (cont.). Curry Station fishwheels daily and cumulative catch by species, 1984.

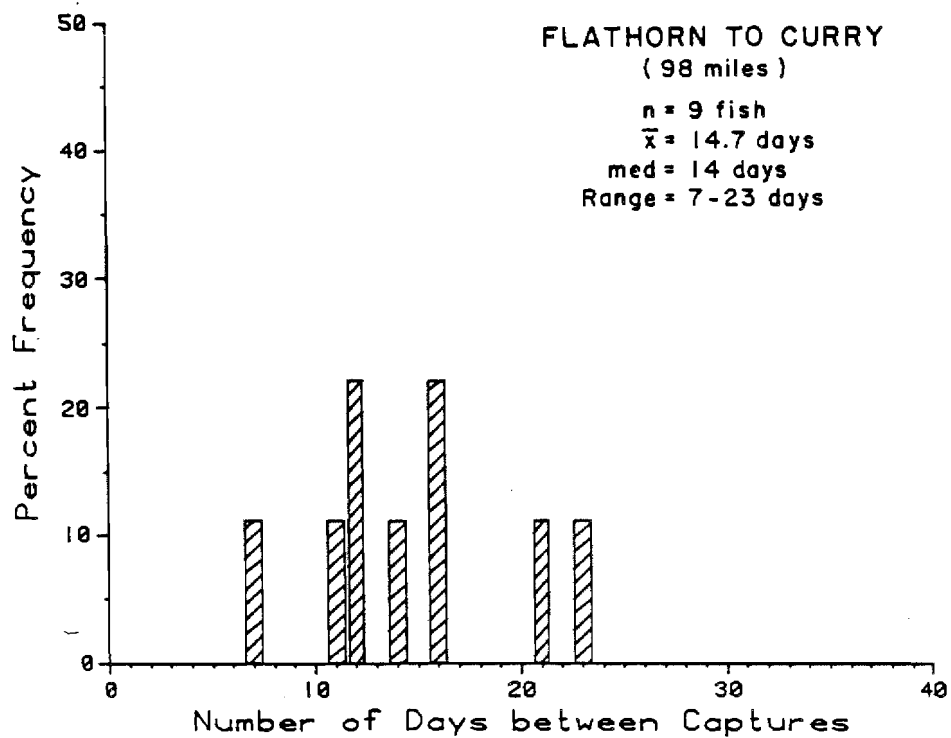
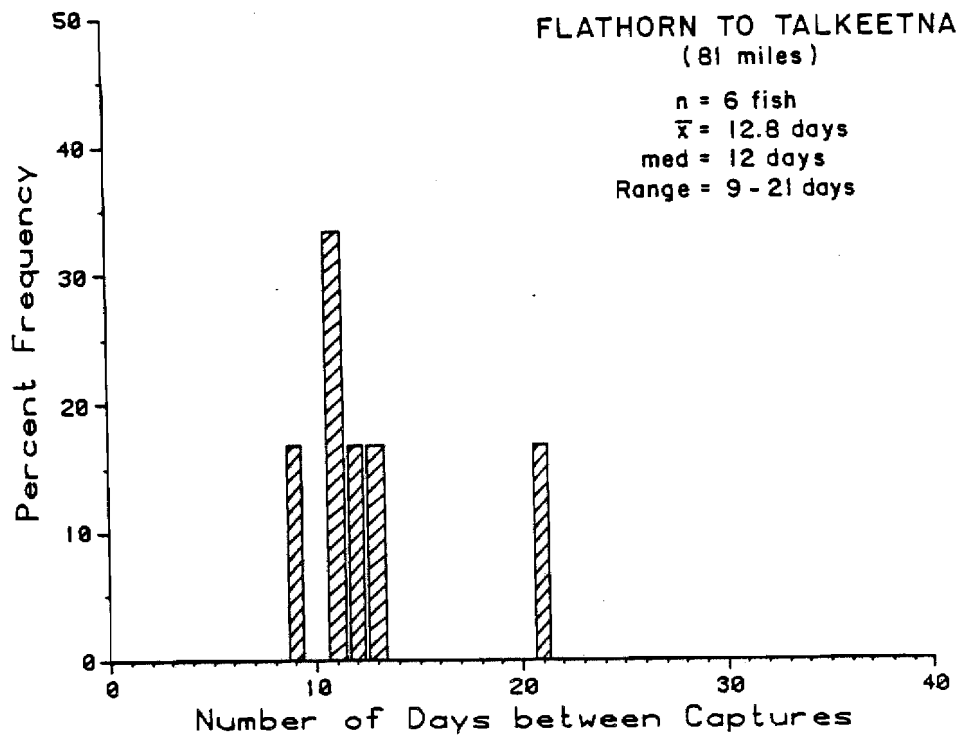
Date	No. of Wheel wheels hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total catch all species	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Bering Cisco	Other	Cum	Daily	Cum
090584	2 42.0	0	1589	0	378	0	17394	0	4227	0	350	0	0	44	0	23982
090684	2 36.0	0	1589	0	378	0	17394	0	4227	0	350	0	0	44	0	23982
090784	2 48.0	0	1589	0	378	0	17394	1	4228	0	350	0	0	44	1	23983
090884	2 48.0	0	1589	1	379	0	17394	0	4228	0	350	0	0	44	1	23984
090984	2 42.0	0	1589	0	379	0	17394	0	4228	0	350	0	0	44	0	23984
091084	2 32.0	0	1589	0	379	0	17394	0	4228	0	350	0	0	44	0	23984
091184	2 34.0	0	1589	0	379	0	17394	0	4228	0	350	0	1	45	1	23985
091284	2 46.0	0	1589	0	379	0	17394	0	4228	0	350	0	0	45	0	23985
091384	2 48.0	0	1589	0	379	0	17394	0	4228	0	350	0	0	45	0	23985
091484	1 8.0	0	1589	0	379	0	17394	0	4228	0	350	0	0	45	0	23985



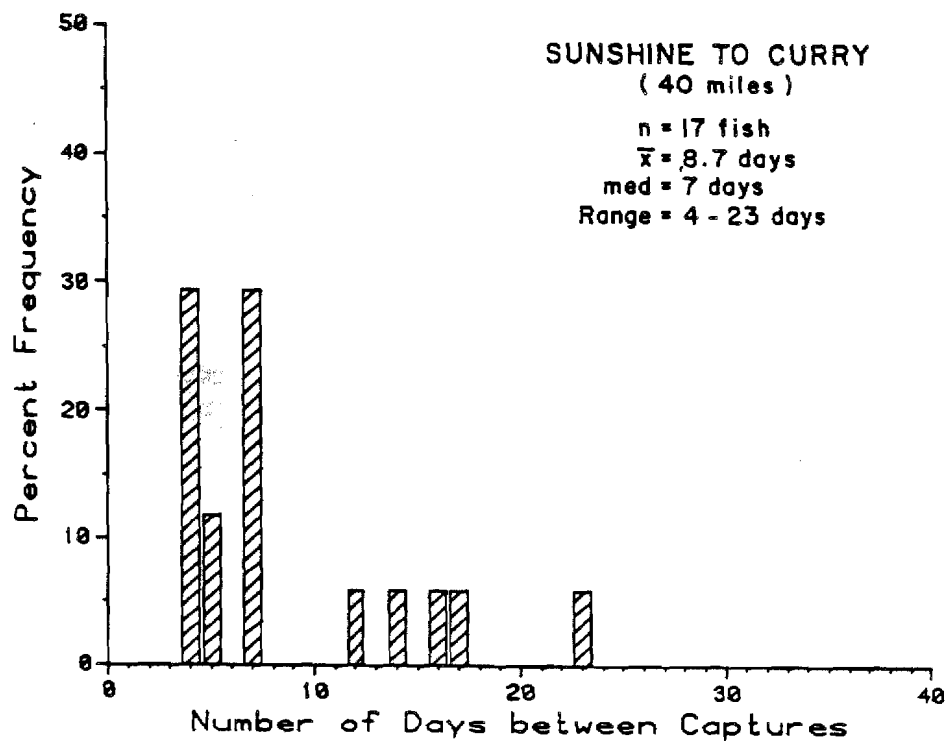
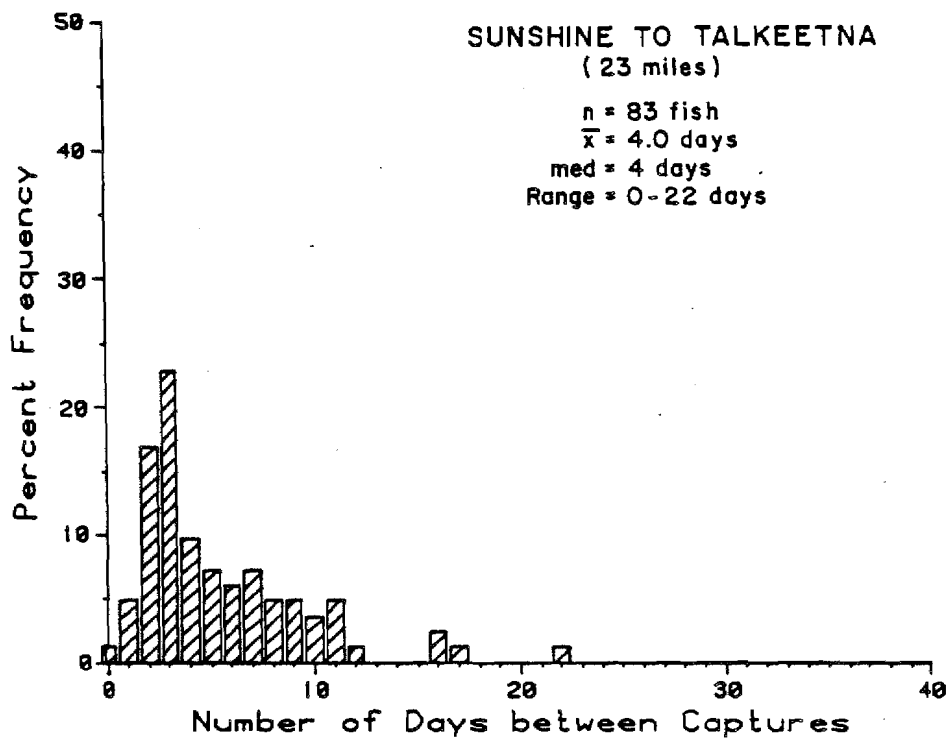
Appendix Figure 3-1. Migrational rates of tagged chinook salmon between mainstem Susitna River sampling stations, 1984.



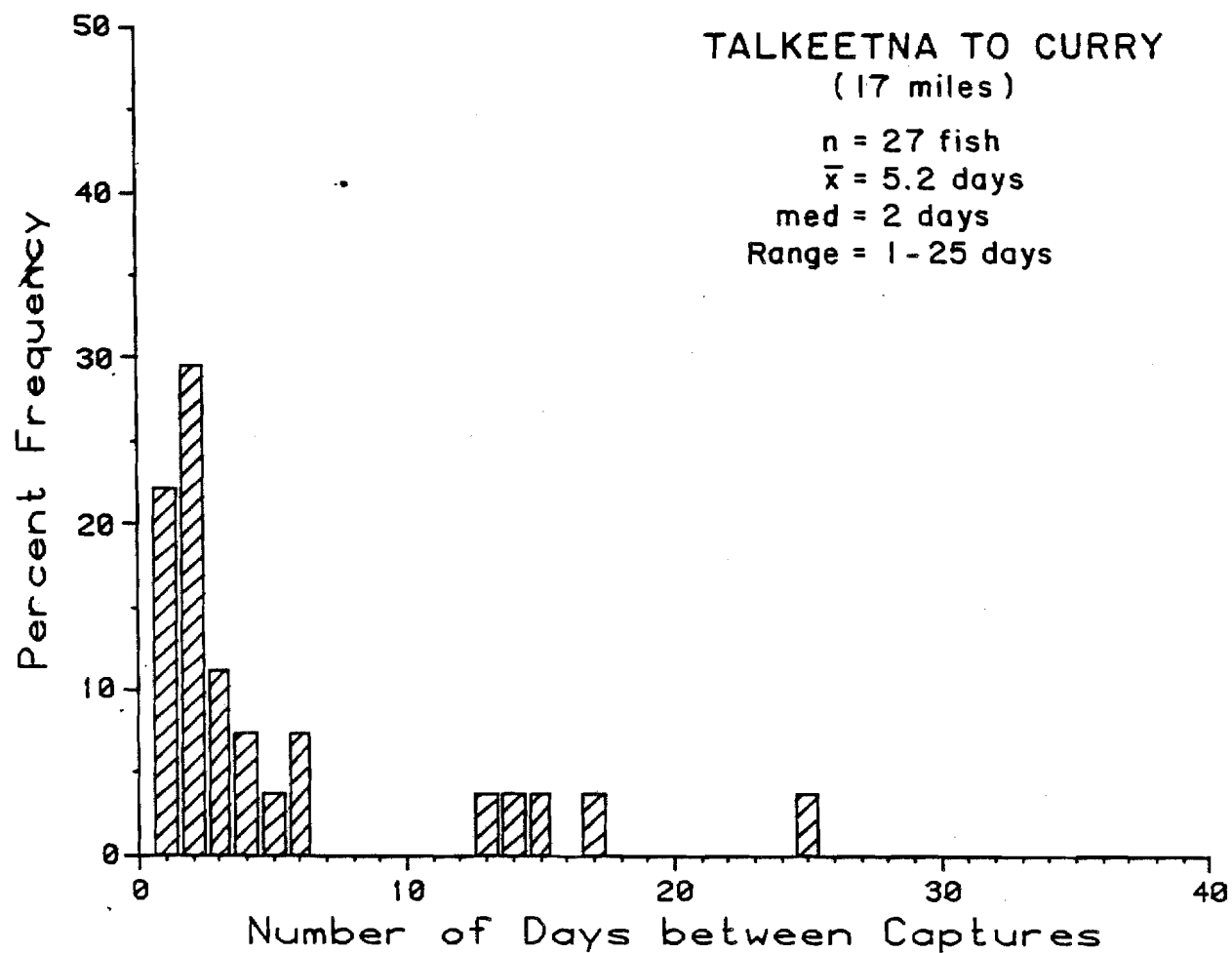
Appendix Figure 3-2. Migrational rates of tagged sockeye salmon between Flathorn and Yentna stations, and Flathorn and Sunshine stations, 1984.



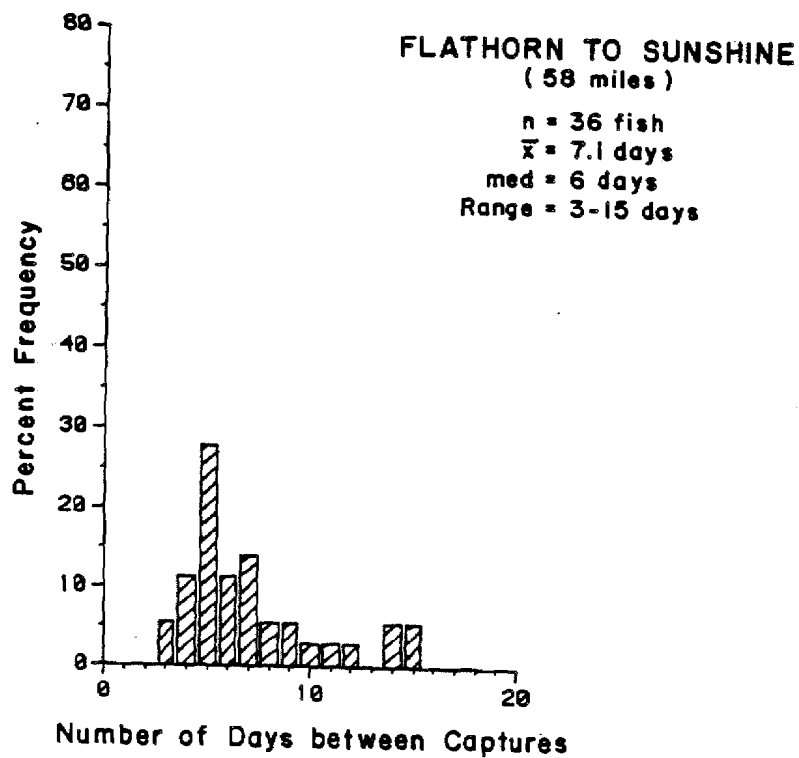
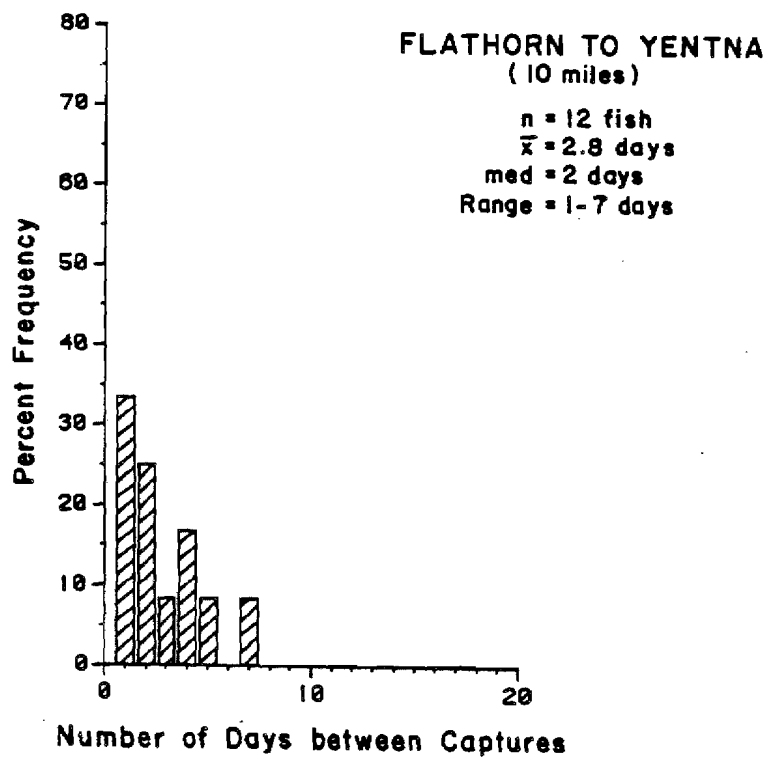
Appendix Figure 3-3. Migrational rates of tagged sockeye salmon between Flathorn and Talkeetna stations, and Flathorn and Curry stations, 1984.



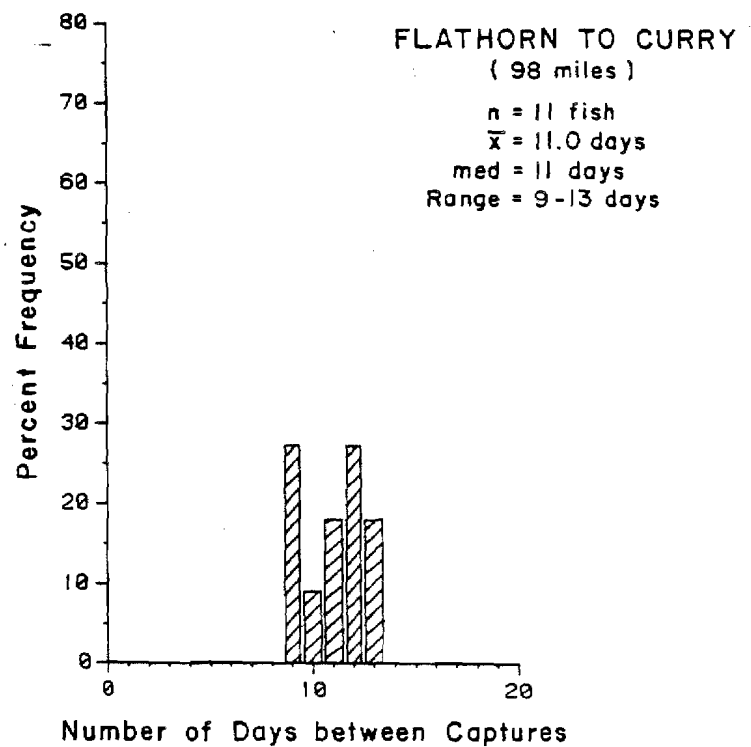
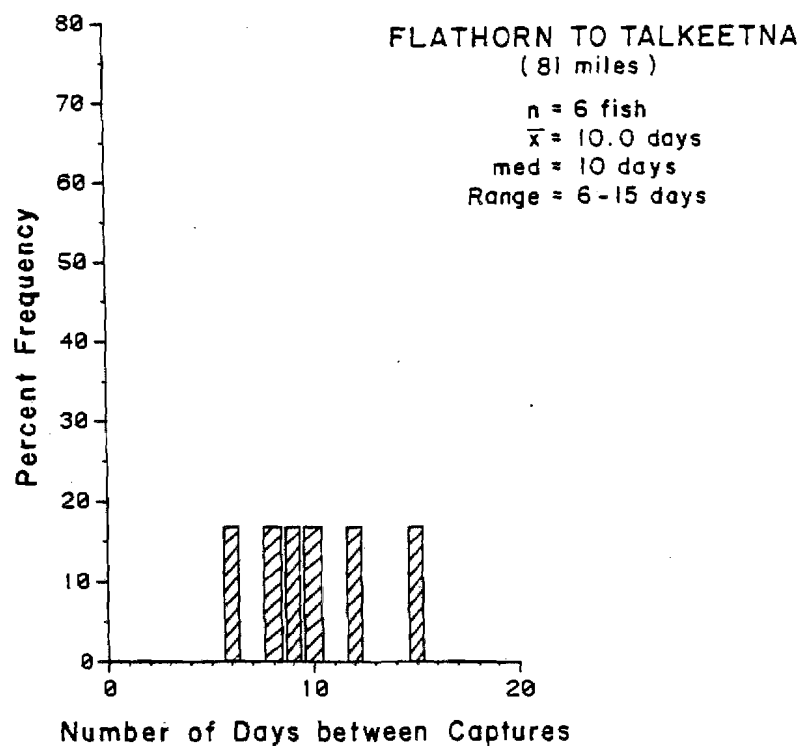
Appendix Figure 3-4. Migrational rates of tagged sockeye salmon between Sunshine and Talkeetna stations, and Sunshine and Curry stations, 1984.



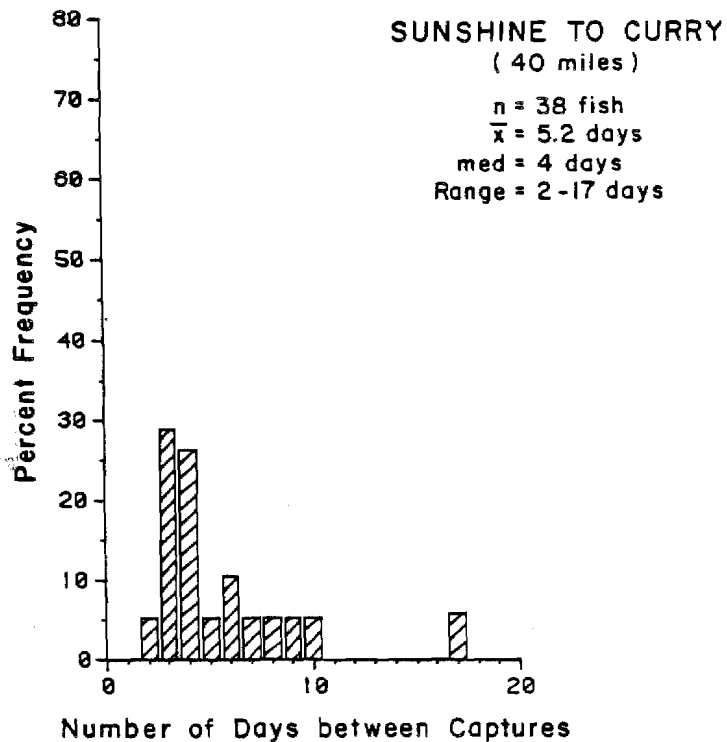
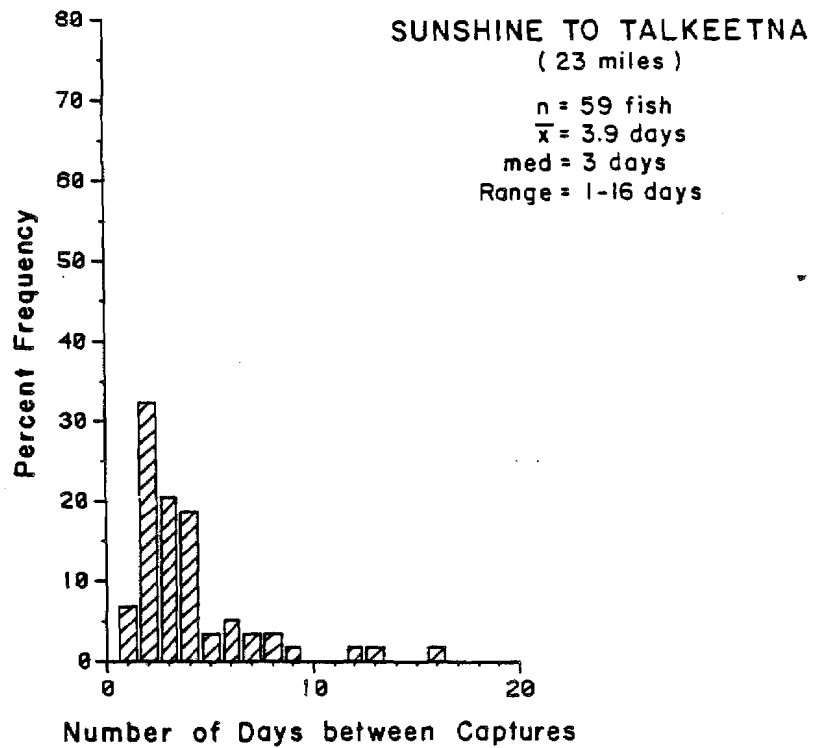
Appendix Figure 3-5. Migrational rates of tagged sockeye salmon between Talkeetna and Curry stations, 1984.



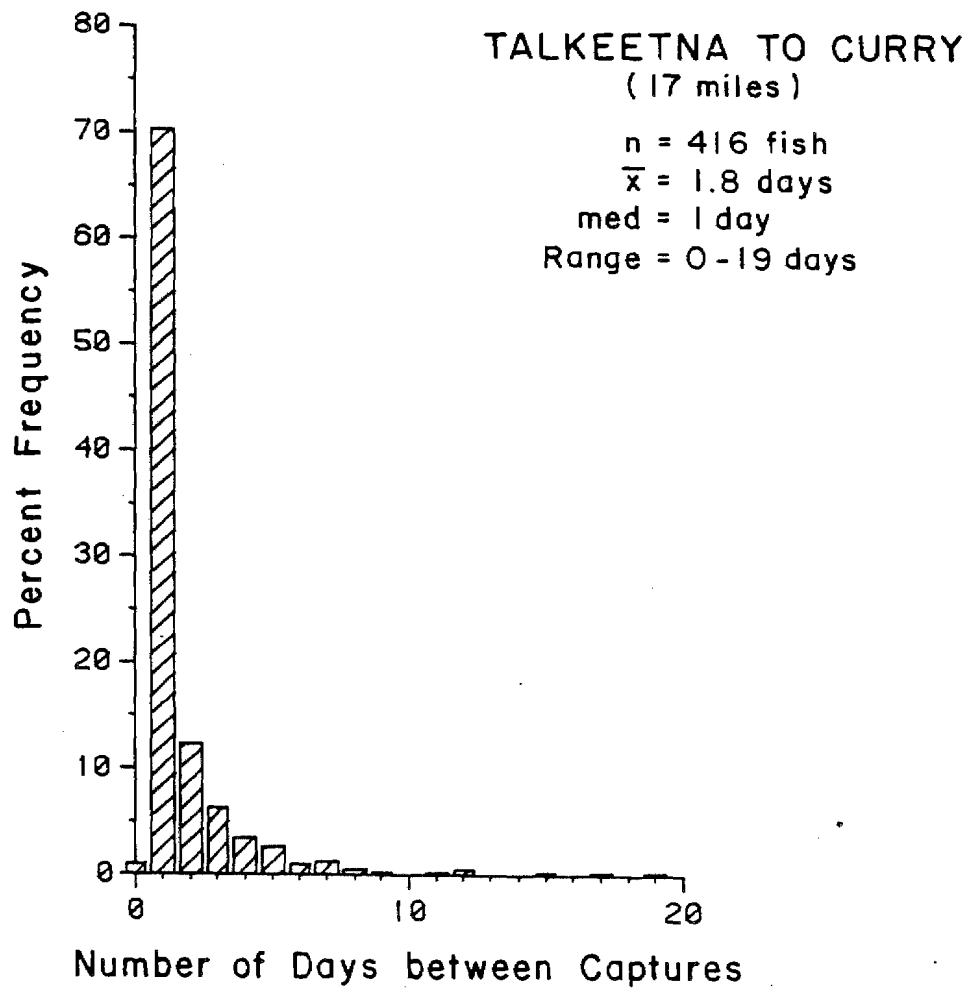
Appendix Figure 3-6. Migrational rates of tagged pink salmon between Flathorn and Yentna stations, and Flathorn and Sunshine stations, 1984.



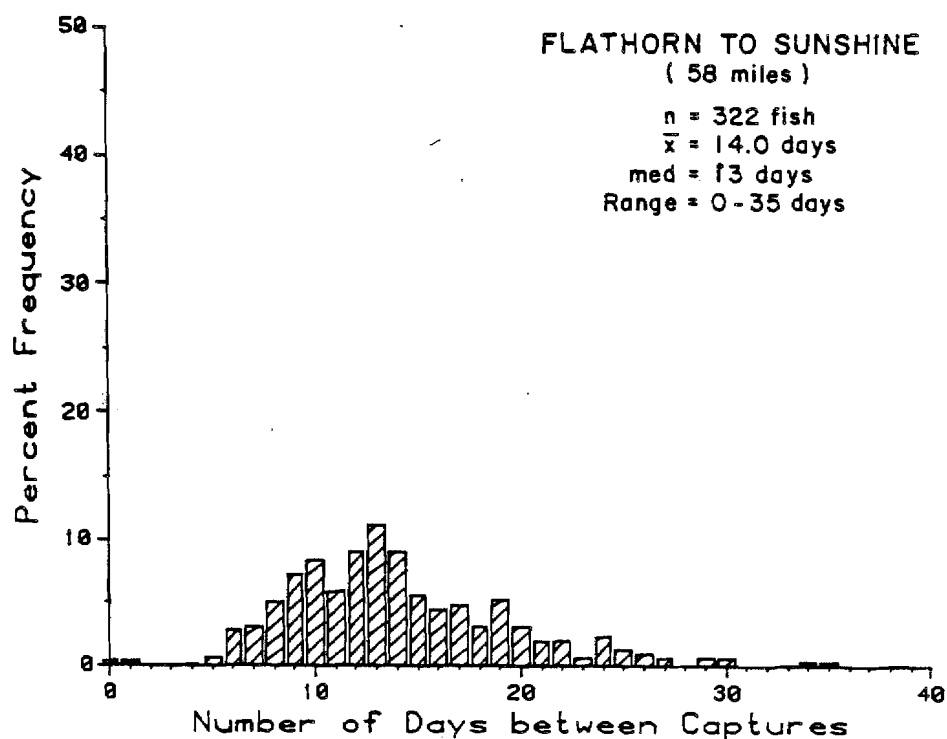
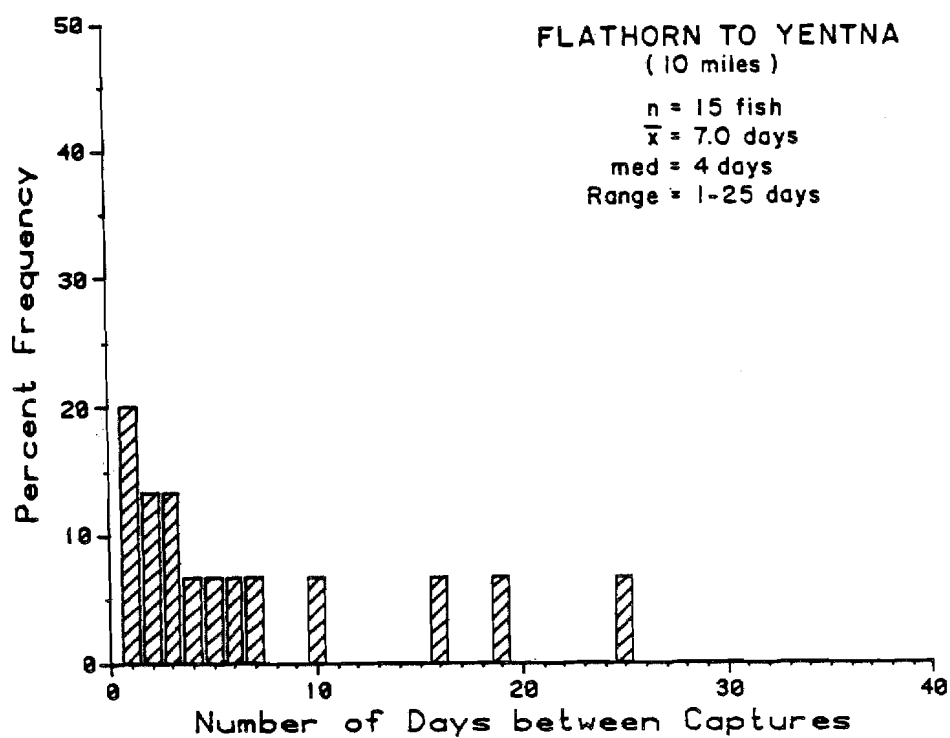
Appendix Figure 3-7. Migrational rates of tagged pink salmon between Flathorn and Talkeetna stations, and Flathorn and Curry stations, 1984.



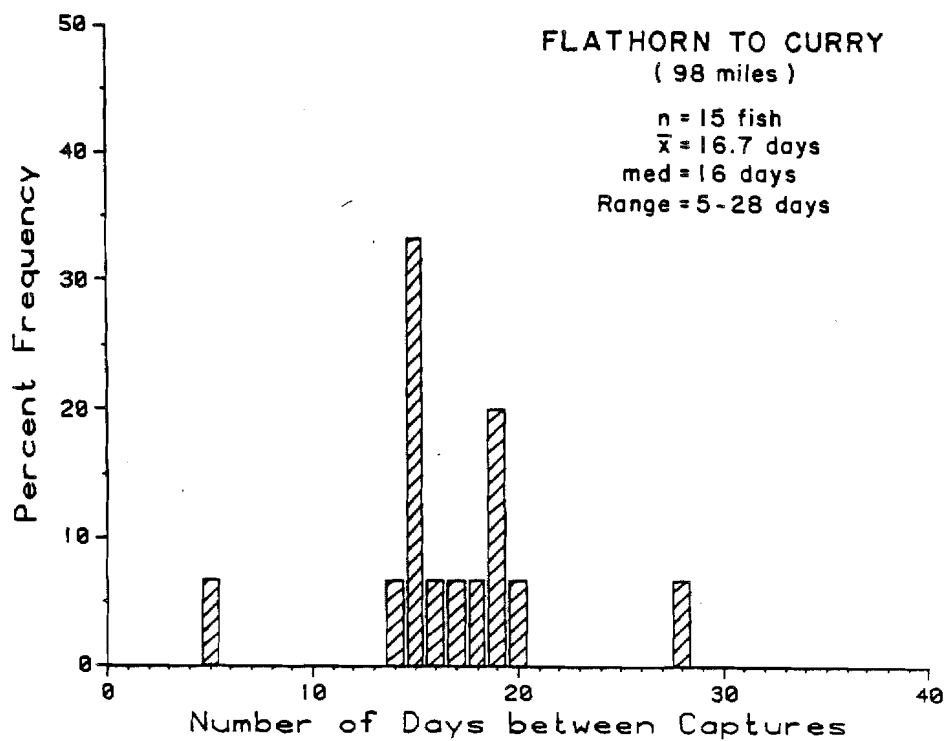
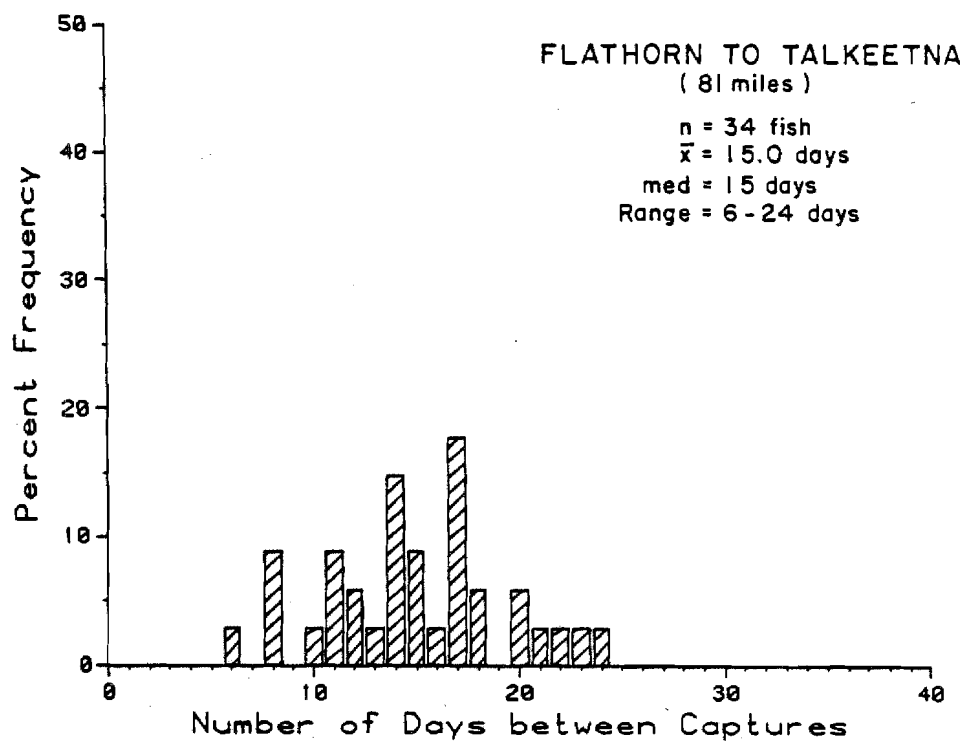
Appendix Figure 3-8. Migrational rates of tagged pink salmon between Sunshine and Talkeetna stations, and Sunshine and Curry stations, 1984.



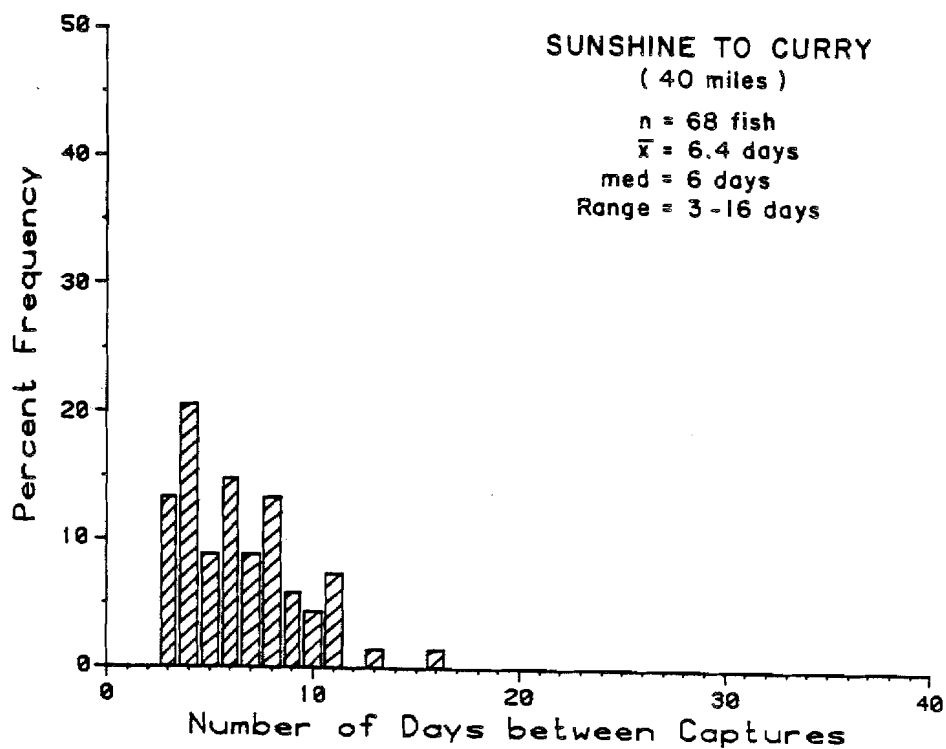
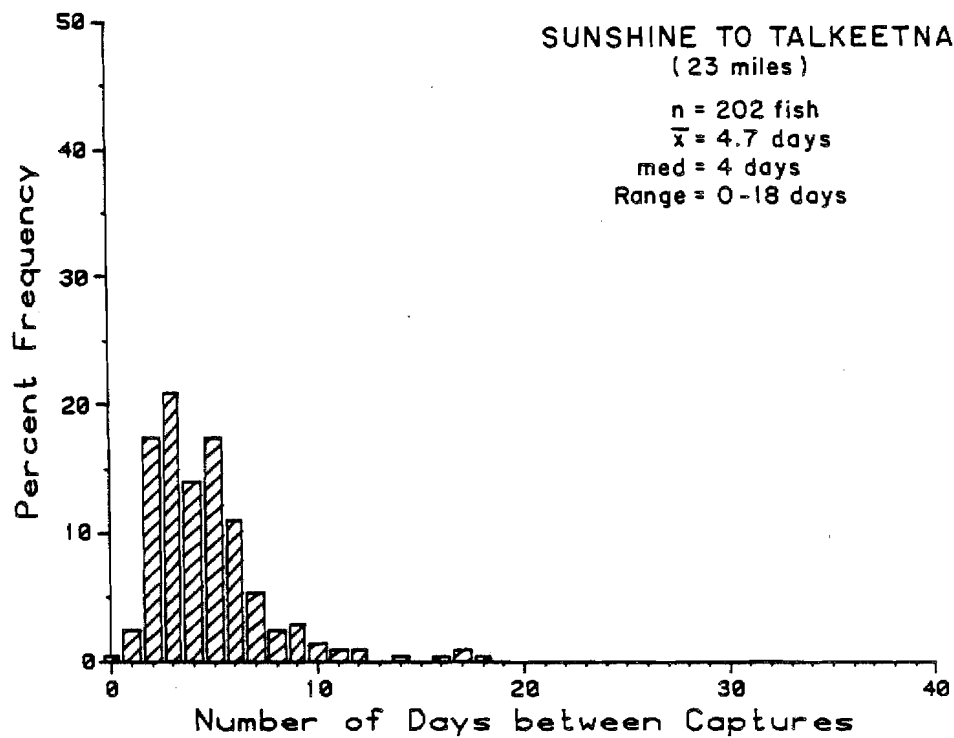
Appendix Figure 3-9. Migrational rates of tagged pink salmon between Talkeetna and Curry stations, 1984.



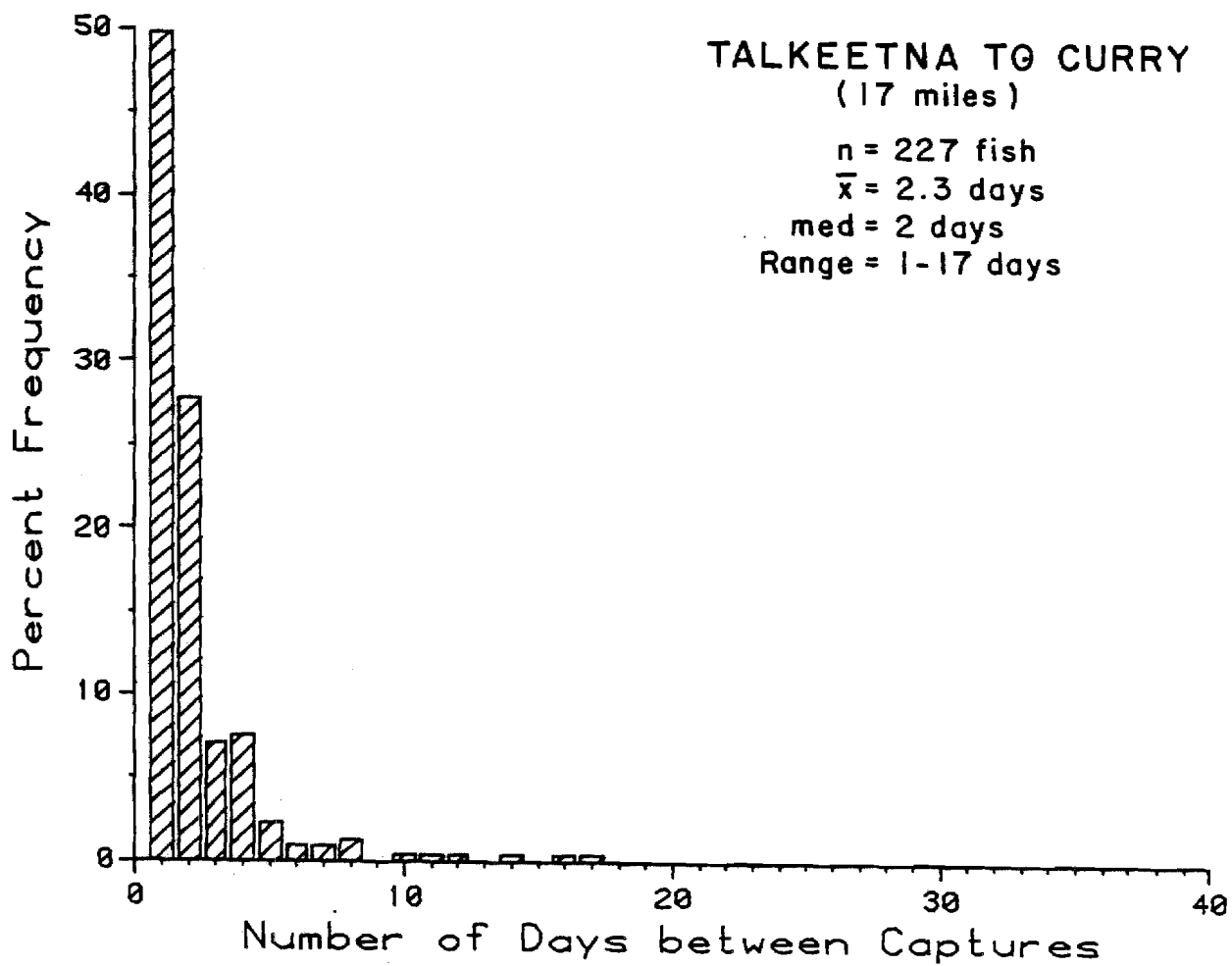
Appendix Figure 3-10. Migrational rates of tagged chum salmon between Flathorn and Yentna stations, and Flathorn and Sunshine stations, 1984.



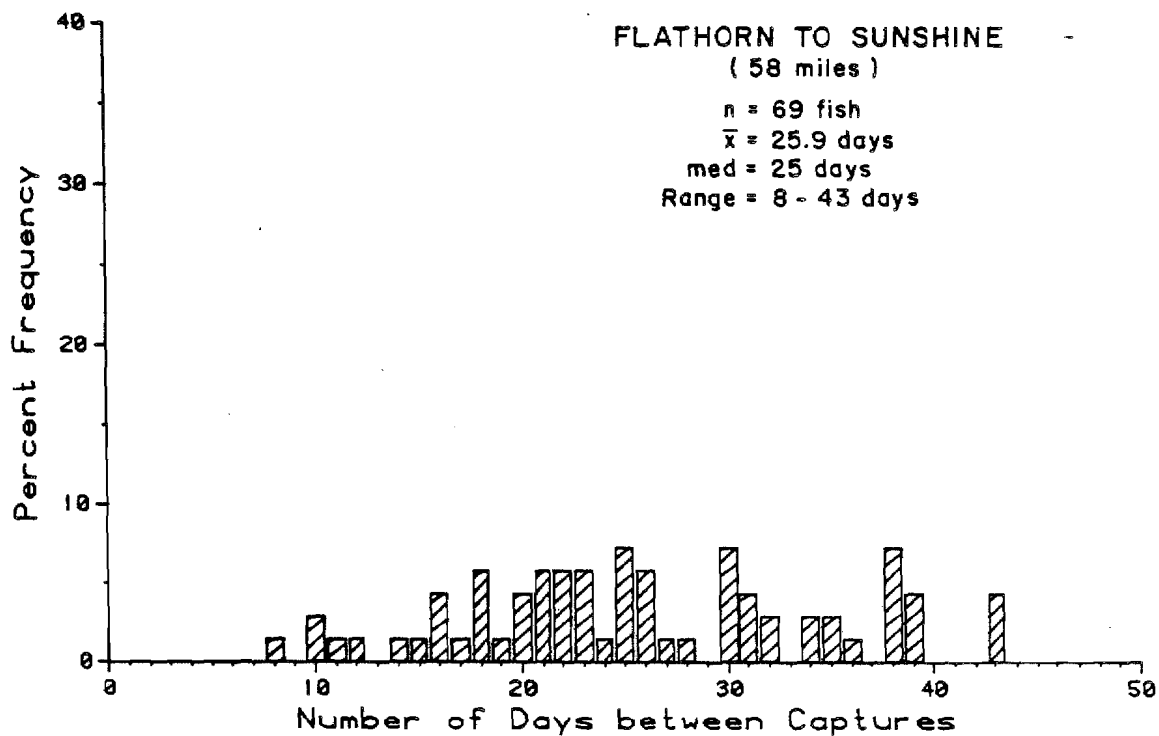
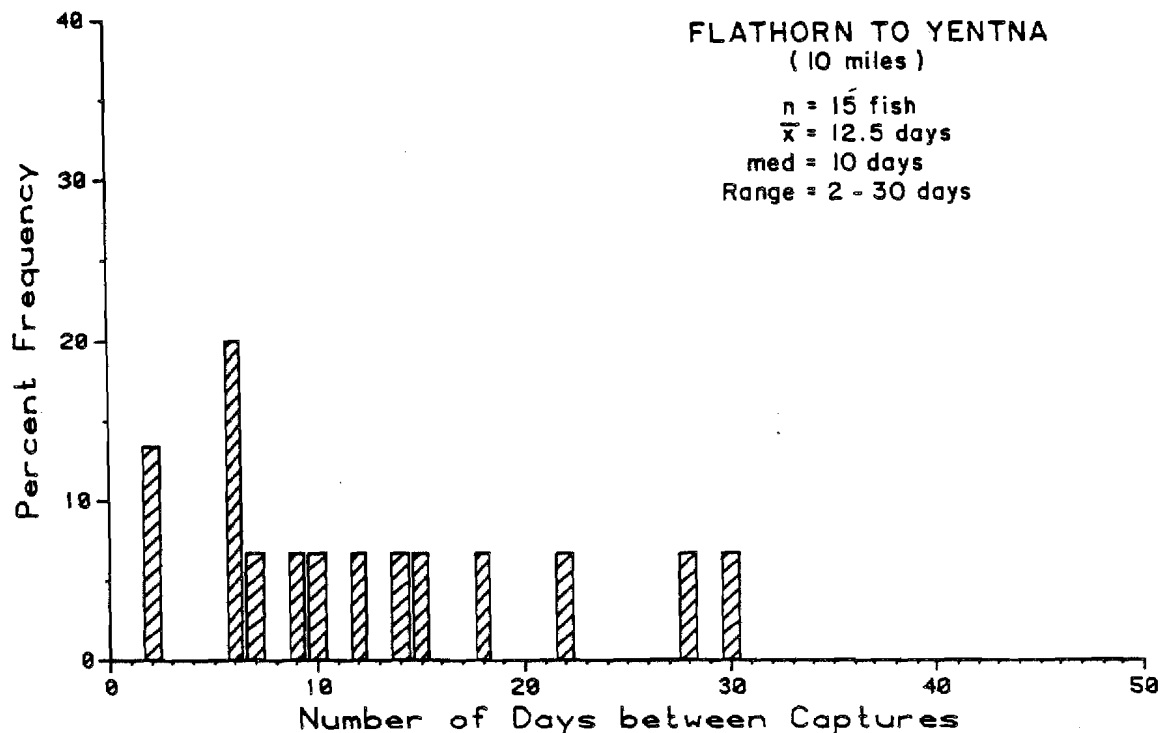
Appendix Figure 3-11. Migrational rates of tagged chum salmon between Flathorn and Talkeetna stations, and Flathorn and Curry stations, 1984.



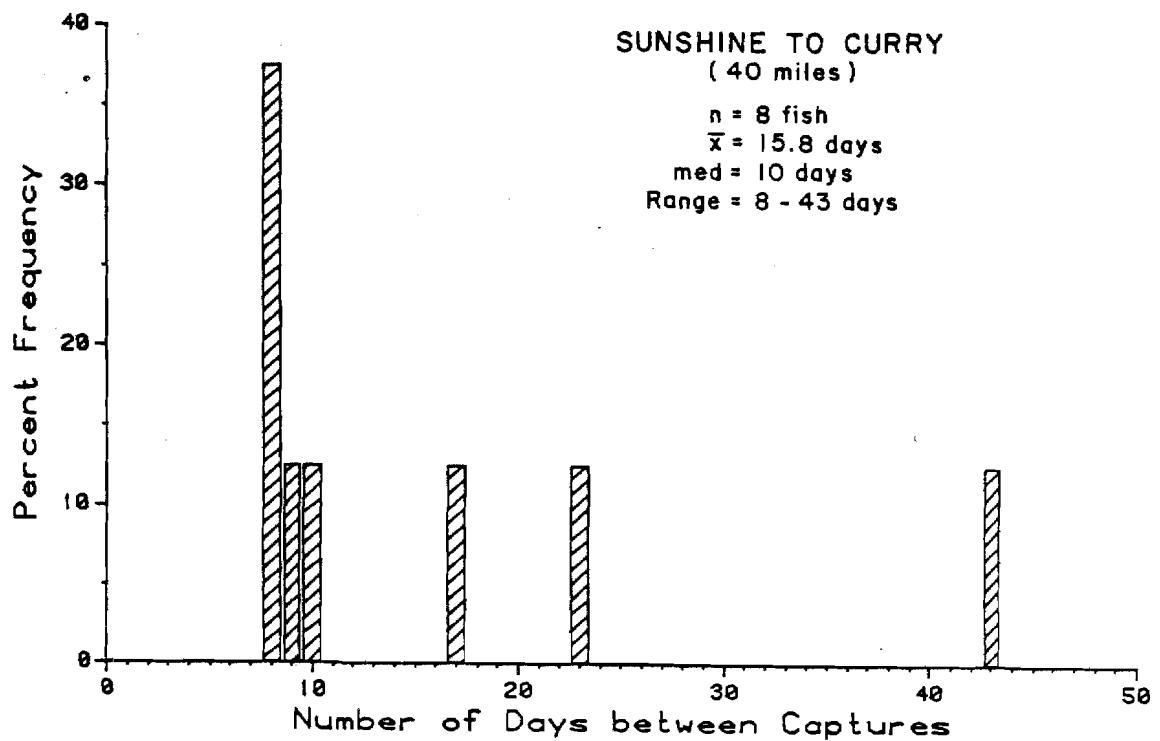
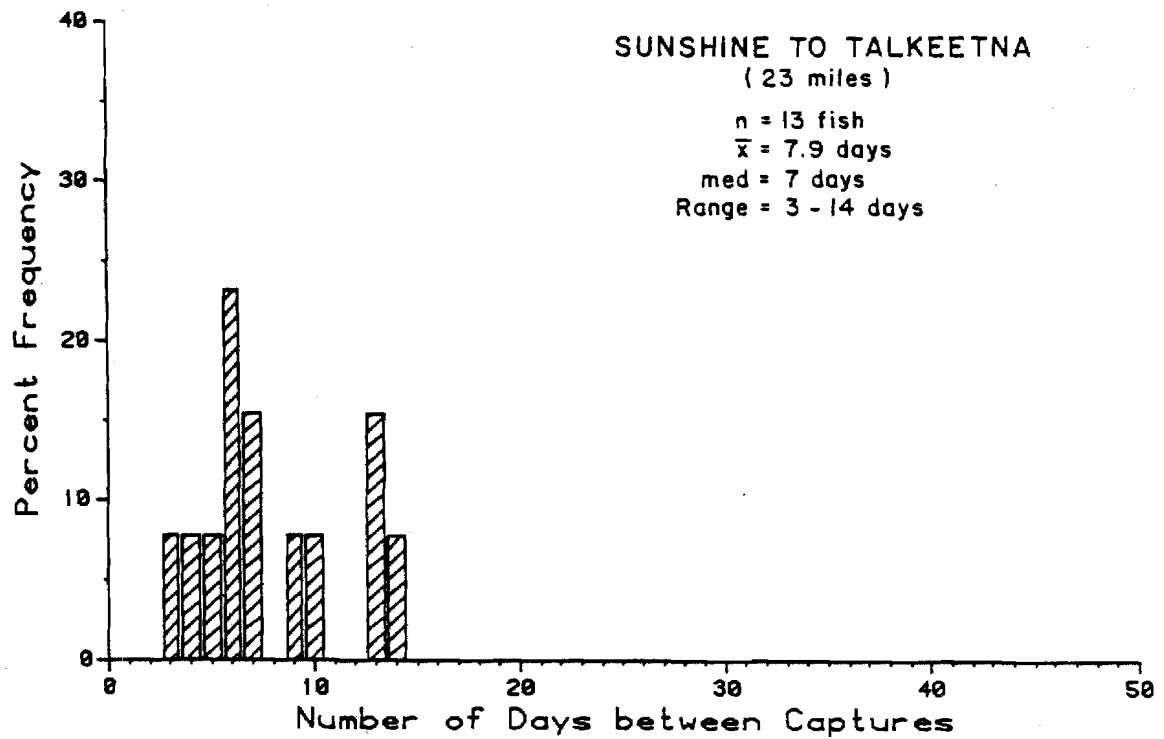
Appendix Figure 3-12. Migrational rates of tagged chum salmon between Sunshine and Talkeetna stations, and Sunshine and Curry stations, 1984.



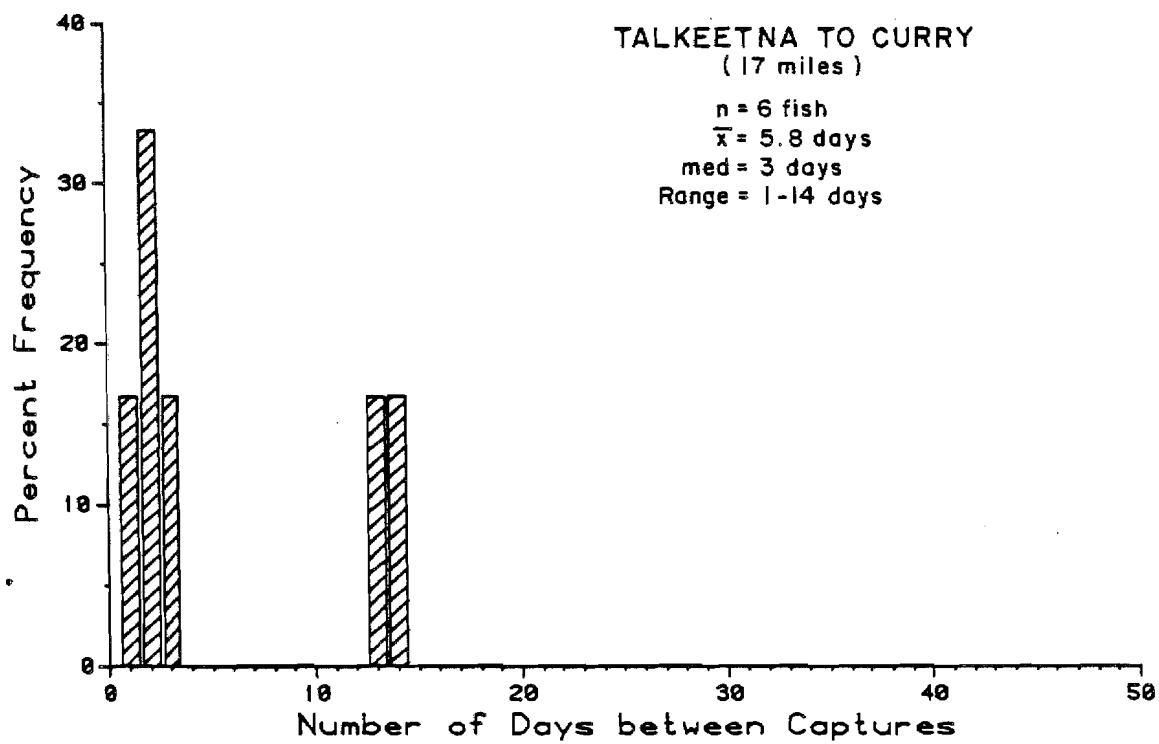
Appendix Figure 3-13. Migrational rates of tagged chum salmon between Talkeetna and Curry stations, 1984.



Appendix Figure 3-14. Migrational rates of tagged coho salmon between Flathorn and Yentna stations, and Flathorn and Sunshine stations, 1984.



Appendix Figure 3-15. Migrational rates of tagged coho salmon between Sunshine and Talkeetna stations, and Sunshine and Curry stations, 1984.



Appendix Figure 3-16. Migrational rates of tagged coho salmon between Talkeetna and Curry stations, 1984.

APPENDIX 4

Daily Yentna Station Sonar Counts

and

Figures of Daily and Cumulative Percent Sonar Counts by Species

Appendix Table 4-1. Yentna Station north bank daily and cumulative sonar counts by species, 1984.

Date	Total Daily Count	Chinook		Sockeye		Pink		Chum		Coho		Misc.	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
840701	139	3	3	66	66	20	20	25	25	5	5	20	20
840702	191	4	7	91	157	28	48	34	59	7	12	27	47
840703	102	2	9	49	206	15	63	18	77	4	16	14	61
840704	81	2	11	39	245	12	75	14	91	3	19	11	72
840705	62	1	12	30	275	9	84	11	102	2	21	9	81
840706	42	1	13	20	295	6	90	7	109	2	23	6	87
840707	23	1	14	11	306	3	93	4	113	1	24	3	90
840708	23	1	15	11	317	3	96	4	117	1	25	3	93
840709	131	3	18	62	379	19	115	23	140	5	30	19	112
840710	197	4	22	94	473	29	144	35	175	7	37	28	140
840711	185	4	26	88	561	27	171	33	208	7	44	26	166
840712	220	5	31	105	666	32	203	39	247	8	52	31	197
840713	195	4	35	93	759	28	231	35	282	7	59	28	225
840714	246	5	40	117	876	36	267	44	326	9	68	35	260
840715	270	6	46	129	1005	39	306	48	374	10	78	38	298
840716	690	15	61	329	1334	100	406	123	497	25	103	98	396
840717	2262	49	110	1078	2412	329	735	403	900	82	185	321	717
840718	3472	10	120	1010	3422	1916	2651	464	1364	62	247	10	727
840719	4494	13	133	1307	4729	2481	5132	600	1964	80	327	13	740
840720	7276	0	133	752	5481	5987	11119	537	2501	0	327	0	740
840721	5735	0	133	254	5735	5244	16363	203	2704	34	361	0	740
840722	5296	31	164	249	5984	4954	21317	0	2704	62	423	0	740
840723	10941	0	164	159	6143	10729	32046	53	2757	0	423	0	740
840724	15060	39	203	582	6725	14323	46369	116	2873	0	423	0	740
840725	7492	0	203	399	7124	6741	53110	257	3130	95	518	0	740

A210

Appendix Table 4-1 (cont.). Yentna Station north bank daily and cumulative sonar counts by species, 1984.

Date	Total Daily Count	Chinook		Sockeye		Pink		Chum		Coho		Misc.	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
840726	5517	0	203	142	7266	5233	58343	122	3252	20	538	0	740
840727	4476	0	203	138	7404	4114	62457	138	3390	17	555	69	809
840728	6142	0	203	129	7533	5853	68310	75	3465	64	619	21	830
840729	6553	0	203	130	7663	6293	74603	130	3595	0	619	0	830
840730	7237	0	203	43	7706	7024	81627	149	3744	21	640	0	830
840731	7139	0	203	153	7859	6549	88176	415	4159	22	662	0	830
840801	7988	0	203	117	7976	7147	95323	646	4805	78	740	0	830
840802	5513	0	203	126	8102	4997	100320	390	5195	0	740	0	830
840803	3872	0	203	63	8165	3415	103735	355	5550	39	779	0	830
840804	2837	0	203	132	8297	2469	106204	187	5737	42	821	7	837
840805	2815	0	203	123	8420	2385	108589	221	5958	74	895	12	849
840806	1384	0	203	85	8505	1095	109684	136	6094	68	963	0	849
840807	1346	0	203	110	8615	961	110645	209	6303	66	1029	0	849
840808	1822	0	203	149	8764	1301	111946	283	6586	89	1118	0	849
840809	1663	0	203	140	8904	1065	113011	357	6943	101	1219	0	849
840810	1781	0	203	150	9054	1140	114151	383	7326	108	1327	0	849
840811	1332	0	203	121	9175	739	114890	272	7598	188	1515	12	861
840812	708	0	203	64	9239	393	115283	145	7743	100	1615	6	867
840813	1137	0	203	103	9342	631	115914	233	7976	160	1775	10	877
840814	840	0	203	178	9520	367	116281	95	8071	172	1947	28	905
840815	643	0	203	136	9656	281	116562	73	8144	132	2079	21	926
840816	584	0	203	124	9780	255	116817	66	8210	120	2199	19	945
840817	729	0	203	154	9934	319	117136	82	8292	150	2349	24	969
840818	499	0	203	106	10040	218	117354	56	8348	102	2451	17	986
840819	343	0	203	73	10113	150	117504	39	8387	70	2521	11	997

A21

Appendix Table 4-1 (cont.). Yentna Station north bank daily and cumulative sonar counts by species, 1984.

Date	Total Daily Count	Chinook		Sockeye		Pink		Chum		Coho		Misc.	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
840820	19	0	203	4	10117	8	117512	2	8389	4	2525	1	998
840821	0	0	203	0	10117	0	117512	0	8389	0	2525	0	998
840822	442	0	203	93	10210	193	117705	50	8439	91	2616	15	1013
840823	688	0	203	21	10231	72	117777	308	8747	77	2693	210	1223
840824	476	0	203	14	10245	50	117827	213	8960	53	2746	146	1369
840825	516	0	203	15	10260	54	117881	231	9191	58	2804	158	1527
840826	645	0	203	19	10279	67	117948	289	9480	72	2876	198	1725
840827	624	0	203	19	10298	65	118013	279	9759	70	2946	191	1916
840828	203	0	203	6	10304	21	118034	91	9850	23	2969	62	1978
840829	365	0	203	11	10315	38	118072	163	10013	41	3010	112	2090
840830	591	0	203	18	10333	62	118134	264	10277	66	3076	181	2271
840831	271	0	203	8	10341	28	118162	122	10399	30	3106	83	2354
840901	226	0	203	7	10348	24	118186	101	10500	25	3131	69	2423
840902	72	0	203	2	10350	8	118194	32	10532	8	3139	22	2445
840903	102	0	203	3	10353	11	118205	46	10578	11	3150	31	2476
840904	111	0	203	3	10356	12	118217	50	10628	12	3162	34	2510
840905	30	0	203	1	10357	3	118220	14	10642	3	3165	9	2519

A212

Appendix Table 4-2. Yentna Station south bank daily and cumulative sonar counts by species, 1984.

Date	Total Daily Count	Chinook		Sockeye		Pink		Chum		Coho		Misc.	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
840701	17	1	1	16	16	0	0	0	0	0	0	0	0
840702	52	2	3	48	64	1	1	1	1	0	0	0	0
840703	86	3	6	78	142	2	3	2	3	1	1	0	0
840704	129	4	10	118	260	3	6	3	6	1	2	0	0
840705	67	2	12	62	322	1	7	2	8	0	2	0	0
840706	44	1	13	41	363	1	8	1	9	0	2	0	0
840707	54	2	15	50	413	1	9	1	10	0	2	0	0
840708	30	1	16	27	440	1	10	1	11	0	2	0	0
840709	67	2	18	62	502	1	11	2	13	0	2	0	0
840710	156	5	23	143	645	3	14	4	17	1	3	0	0
840711	131	0	23	126	771	1	15	2	19	1	4	1	1
840712	139	1	24	133	904	1	16	2	21	1	5	1	2
840713	161	1	25	153	1057	2	18	3	24	1	6	1	3
840714	275	1	26	262	1319	3	21	5	29	2	8	2	5
840715	217	1	27	208	1527	2	23	4	33	1	9	1	6
840716	582	2	29	556	2083	6	29	10	43	4	13	4	10
840717	17485	64	93	16741	18824	170	199	298	341	106	119	106	116
840718	13399	17	110	12341	31165	252	451	705	1046	84	203	0	116
840719	19552	0	110	15567	46732	3094	3545	767	1813	124	327	0	116
840720	27192	0	110	16169	62901	10140	13685	670	2483	213	540	0	116
840721	31734	0	110	14126	77027	16382	30067	780	3263	446	986	0	116
840722	30507	56	166	10523	87550	18728	48795	670	3933	530	1516	0	116
840723	31006	0	166	8059	95609	21318	70113	743	4676	829	2345	57	173
840724	30334	0	166	10495	106104	18180	88293	643	5319	948	3293	68	241
840725	18549	0	166	4001	110105	13582	101875	354	5673	585	3878	27	268

Appendix Table 4-2 (cont.). Yentna Station south bank daily and cumulative sonar counts by species, 1984.

Date	Total Daily Count	Chinook		Sockeye		Pink		Chum		Coho		Misc.	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
840726	16078	0	166	3311	113416	12041	113916	335	6008	391	4269	0	268
840727	16563	21	187	4009	117425	11984	125900	190	6198	338	4607	21	289
840728	22648	0	187	2741	120166	19108	145008	247	6445	533	5140	19	308
840729	29615	0	187	1495	121661	27480	172488	231	6676	409	5549	0	308
840730	16309	0	187	1137	122798	14671	187159	349	7025	152	5701	0	308
840731	16309	0	187	1562	124360	14237	201396	296	7321	214	5915	0	308
840801	14649	0	187	1086	125446	12530	213926	615	7936	379	6294	39	347
840802	10223	0	187	1007	126453	8270	222196	560	8496	361	6655	25	372
840803	10158	0	187	1206	127659	7373	229569	819	9315	760	7415	0	372
840804	8807	0	187	1479	129138	5959	235528	650	9965	719	8134	0	372
840805	6215	0	187	827	129965	4071	239599	522	10487	795	8929	0	372
840806	5342	0	187	1068	131033	3596	243195	431	10918	247	9176	0	372
840807	2568	0	187	561	131594	1550	244745	295	11213	162	9338	0	372
840808	2714	0	187	722	132316	1192	245937	251	11464	549	9887	0	372
840809	2301	0	187	488	132804	1103	247040	282	11746	428	10315	0	372
840810	2756	0	187	584	133388	1322	248362	338	12084	512	10827	0	372
840811	2298	0	187	600	133988	753	249115	281	12365	664	11491	0	372
840812	1596	0	187	417	134405	523	249638	195	12560	461	11952	0	372
840813	1336	0	187	370	134775	317	249955	128	12688	468	12420	53	425
840814	998	0	187	276	135051	237	250192	96	12784	350	12770	39	464
840815	737	0	187	204	135255	175	250367	71	12855	258	13028	29	493
840816	573	0	187	277	135532	58	250425	76	12931	137	13165	25	518
840817	490	0	187	237	135769	49	250474	65	12996	117	13282	22	540
840818	409	0	187	198	135967	41	250515	54	13050	98	13380	18	558
840819	349	0	187	169	136136	35	250550	46	13096	84	13464	15	573

Appendix Table 4-2 (cont.). Yentna Station south bank daily and cumulative sonar counts by species, 1984.

Date	Total	Chinook		Sockeye		Pink		Chum		Coho		Misc.	
	Daily Count	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
840820	212	0	187	103	136239	21	250571	28	13124	51	13515	9	582
840821	339	0	187	164	136403	34	250605	45	13169	81	13596	15	597
840822	725	0	187	351	136754	73	250678	96	13265	173	13769	32	629
840823	841	0	187	407	137161	85	250763	111	13376	201	13970	37	666
840824	794	0	187	384	137545	80	250843	105	13481	190	14160	35	701
840825	766	0	187	371	137916	77	250920	101	13582	183	14343	34	735
840826	619	0	187	300	138216	62	250982	82	13664	148	14491	27	762
840827	938	0	187	189	138405	23	251005	480	14144	109	14600	137	899
840828	635	0	187	128	138533	15	251020	325	14469	74	14674	93	992
840829	814	0	187	164	138697	20	251040	417	14886	94	14768	119	1111
840830	611	0	187	123	138820	15	251055	313	15199	71	14839	89	1200
840831	650	0	187	131	138951	16	251071	333	15532	75	14914	95	1295
840901	334	0	187	67	139018	8	251079	171	15703	39	14953	49	1344
840902	136	0	187	0	139018	0	251079	51	15754	17	14970	68	1412
840903	123	0	187	0	139018	0	251079	46	15800	15	14985	62	1474
840904	142	0	187	0	139018	0	251079	53	15853	18	15003	71	1545
840905	34	0	187	0	139018	0	251079	13	15866	4	15007	17	1562

Appendix Table 4-3. Yentna Station daily and cumulative sonar counts by species, 1984.

	Date	Total Daily Count	Chinook		Sockeye		Pink		Chum		Coho		Misc.	
			Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
A216	840701	156	4	4	82	82	20	20	25	25	5	5	20	20
	840702	243	6	10	139	221	29	49	35	60	7	12	27	47
	840703	188	5	15	127	348	17	66	20	80	5	17	14	61
	840704	210	6	21	157	505	15	81	17	97	4	21	11	72
	840705	129	3	24	92	597	10	91	13	110	2	23	9	81
	840706	86	2	26	61	658	7	98	8	118	2	25	6	87
	840707	77	3	29	61	719	4	102	5	123	1	26	3	90
	840708	53	2	31	38	757	4	106	5	128	1	27	3	93
	840709	198	5	36	124	881	20	126	25	153	5	32	19	112
	840710	353	9	45	237	1118	32	158	39	192	8	40	28	140
	840711	316	4	49	214	1332	28	186	35	227	8	48	27	167
	840712	359	6	55	238	1570	33	219	41	268	9	57	32	199
	840713	356	5	60	246	1816	30	249	38	306	8	65	29	228
	840714	521	6	66	379	2195	39	288	49	355	11	76	37	265
	840715	487	7	73	337	2532	41	329	52	407	11	87	39	304
	840716	1272	17	90	885	3417	106	435	133	540	29	116	102	406
	840717	19747	113	203	17819	21236	499	934	701	1241	188	304	427	833
	840718	16871	27	230	13351	34587	2168	3102	1169	2410	146	450	10	843
	840719	24046	13	243	16874	51461	5575	8677	1367	3777	204	654	13	856
	840720	34468	0	243	16921	68382	16127	24804	1207	4984	213	867	0	856
	840721	37469	0	243	14380	82762	21626	46430	983	5967	480	1347	0	856
	840722	35803	87	330	10772	93534	23682	70112	670	6637	592	1939	0	856
	840723	41947	0	330	8218	101752	32047	102159	796	7433	829	2768	57	913
	840724	45394	39	369	11077	112829	32503	134662	759	8192	948	3716	68	981
	840725	26041	0	369	4400	117229	20323	154985	611	8803	680	4396	27	1008

Appendix Table 4-3 (cont.). Yentna Station daily and cumulative sonar counts by species, 1984.

Date	Total Daily Count	Chinook		Sockeye		Pink		Chum		Coho		Misc.	
		Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
840726	21595	0	369	3453	120682	17274	172259	457	9260	411	4807	0	1008
840727	21039	21	390	4147	124829	16098	188357	328	9588	355	5162	90	1098
840728	28790	0	390	2870	127699	24961	213318	322	9910	597	5759	40	1138
840729	36168	0	390	1625	129324	33773	247091	361	10271	409	6168	0	1138
840730	23546	0	390	1180	130504	21695	268786	498	10769	173	6341	0	1138
840731	23448	0	390	1715	132219	20786	289572	711	11480	236	6577	0	1138
840801	22637	0	390	1203	133422	19677	309249	1261	12741	457	7034	39	1177
840802	15736	0	390	1133	134555	13267	322516	950	13691	361	7395	25	1202
840803	14030	0	390	1269	135824	10788	333304	1174	14865	799	8194	0	1202
840804	11644	0	390	1611	137435	8428	341732	837	15702	761	8955	7	1209
840805	9030	0	390	950	138385	6456	348188	743	16445	869	9824	12	1221
840806	6726	0	390	1153	139538	4691	352879	567	17012	315	10139	0	1221
840807	3914	0	390	671	140209	2511	355390	504	17516	228	10367	0	1221
840808	4536	0	390	871	141080	2493	357883	534	18050	638	11005	0	1221
840809	3964	0	390	628	141708	2168	360051	639	18689	529	11534	0	1221
840810	4537	0	390	734	142442	2462	362513	721	19410	620	12154	0	1221
840811	3630	0	390	721	143163	1492	364005	553	19963	852	13006	12	1233
840812	2304	0	390	481	143644	916	364921	340	20303	561	13567	6	1239
840813	2473	0	390	473	144117	948	365869	361	20664	628	14195	63	1302
840814	1838	0	390	454	144571	604	366473	191	20855	522	14717	67	1369
840815	1380	0	390	340	144911	456	366929	144	20999	390	15107	50	1419
840816	1157	0	390	401	145312	313	367242	142	21141	257	15364	44	1463
840817	1219	0	390	391	145703	368	367610	147	21288	267	15631	46	1509
840818	908	0	390	304	146007	259	367869	110	21398	200	15831	35	1544
840819	692	0	390	242	146249	185	368054	85	21483	154	15985	26	1570

Appendix Table 4-3 (cont.). Yentna Station daily and cumulative sonar counts by species, 1984.

Date	Total	Chinook		Sockeye		Pink		Chum		Coho		Misc.	
	Daily Count	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
840820	231	0	390	107	146356	29	368083	30	21513	55	16040	10	1580
840821	339	0	390	164	146520	34	368117	45	21558	81	16121	15	1595
840822	1167	0	390	444	146964	266	368383	146	21704	264	16385	47	1642
840823	1529	0	390	428	147392	157	368540	419	22123	278	16663	247	1889
840824	1270	0	390	398	147790	130	368670	318	22441	243	16906	181	2070
840825	1282	0	390	386	148176	131	368801	332	22773	241	17147	192	2262
840826	1264	0	390	319	148495	129	368930	371	23144	220	17367	225	2487
840827	1562	0	390	208	148703	88	369018	759	23903	179	17546	328	2815
840828	838	0	390	134	148837	36	369054	416	24319	97	17643	155	2970
840829	1179	0	390	175	149012	58	369112	580	24899	135	17778	231	3201
840830	1202	0	390	141	149153	77	369189	577	25476	137	17915	270	3471
840831	921	0	390	139	149292	44	369233	455	25931	105	18020	178	3649
840901	560	0	390	74	149366	32	369265	272	26203	64	18084	118	3767
840902	208	0	390	2	149368	8	369273	83	26286	25	18109	90	3857
840903	225	0	390	3	149371	11	369284	92	26378	26	18135	93	3950
840904	253	0	390	3	149374	12	369296	103	26481	30	18165	105	4055
840905	64	0	390	1	149375	3	369299	27	26508	7	18172	26	4081

A218

Appendix Table 4-4. Sector distribution of north bank sonar counts, adjusted for debris, at Yentna Station, 1984.

DATE	SECTOR												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
JULY													
1	180	4	4	0	0	0	0	0	0	16	26	69	299
2	125	7	0	1	0	0	0	2	0	7	17	45	204
3	60	13	0	0	0	0	1	0	1	6	18	<u>1</u> /	---
4	36	0	2	0	0	0	0	0	9	8	24	<u>1</u> /	---
5	42	0	0	0	0	0	0	0	1	2	13	<u>1</u> /	---
6	26	2	0	0	0	0	0	0	0	0	3	19	50
7	18	1	0	0	0	0	0	0	0	1	0	6	26
8	19	2	0	0	0	0	0	0	0	0	0	0	21
9	130	10	1	0	0	0	0	1	0	2	16	<u>1</u> /	---
10	145	23	3	2	0	0	0	1	3	4	11	12	204
11	152	9	12	2	0	0	0	1	1	13	7	11	208
12	143	20	3	0	0	0	0	2	1	6	21	26	222
13	99	34	5	0	0	0	1	1	1	4	20	37	202
14	158	28	4	1	0	0	1	1	0	9	45	21	268
15	134	66	13	1	0	0	2	8	4	14	32	49	323
16	50	83	23	6	2	0	11	9	17	29	31	66	327
17	78	181	146	85	27	7	101	113	156	240	217	233	1,584
18	1,194	209	182	85	4	98	192	192	278	466	440	497	3,837
19	<u>1</u> /	216	245	84	39	15	243	240	317	801	1,113	<u>1</u> /	---

Appendix Table 4-4 (cont.). Sector distribution of north bank sonar counts, adjusted for debris, at Yentna Station, 1984.

DATE	SECTOR												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
JULY													
20	851	285	367	170	54	25	302	433	741	1,359	1,519	1,622	7,728
21	960	459	369	172	47	9	202	337	588	838	1,157	1/	---
22	281	414	278	97	27	8	149	181	343	993	1,349	1,281	5,401
23	321	692	368	99	32	13	342	448	589	1,790	3,017	3,668	11,379
24	290	697	693	338	126	46	831	805	835	1,938	3,375	5,380	15,354
25	242	650	774	345	80	19	342	336	423	1,059	1,398	1,992	7,660
26	813	387	404	179	34	13	274	304	337	867	974	1/	---
27	1,326	333	367	262	35	28	213	149	113	255	488	932	4,501
28	684	172	251	215	73	24	325	302	240	712	1,400	1,936	6,334
29	1,364	448	621	300	99	24	342	308	241	278	967	1,510	6,502
30	1,023	528	651	291	101	27	348	346	313	644	1,398	1,787	7,457
31	1,703	639	771	377	169	33	326	350	308	561	826	1,704	7,767
AUGUST													
1	731	467	529	376	236	89	347	362	357	909	1,527	2,336	8,266
2	698	187	358	157	69	21	230	295	273	562	962	1,760	5,572
3	495	326	267	108	52	16	189	192	177	504	713	941	3,980
4	350	227	173	89	21	7	126	152	124	302	490	782	2,843
5	823	135	139	80	23	3	95	84	66	231	539	597	2,815
6	775	287	157	43	14	1	12	9	3	25	28	35	1,389
7	1,200	200	125	49	7	0	16	15	1	9	19	99	1,740

A220

Appendix Table 4-4 (cont.). Sector distribution of north bank sonar counts, adjusted for debris, at Yentna Station, 1984.

DATE	SECTOR												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
AUGUST													
8	1,308	319	221	86	10	0	34	15	3	16	29	44	2,085
9	987	245	227	82	9	3	41	22	8	15	39	50	1,728
10	1,010	223	141	71	23	3	69	38	23	37	63	125	1,826
11	773	229	216	64	16	4	39	32	37	40	21	58	1,529
12	<u>1</u> /	127	118	36	10	1	32	24	24	26	48	62	---
13	437	249	112	16	3	0	19	20	23	21	33	285	1,218
14	339	169	56	19	7	1	8	13	21	26	43	168	870
15	336	117	49	11	4	0	11	4	5	6	15	113	671
16	283	147	44	13	2	0	18	7	1	4	5	56	580
17	554	156	32	7	1	1	10	6	6	4	3	25	805
18	583	66	22	9	3	2	8	9	4	4	8	13	731
19	<u>1</u> /	86	33	0	1	0	2	0	0	0	0	1	---
20	19	0	0	0	0	0	0	0	0	0	0	0	19
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	207	135	43	4	8	0	3	5	3	0	34	<u>1</u> /	---
23	260	329	136	21	4	0	5	6	1	0	10	81	853
24	300	162	34	2	2	0	4	0	5	0	13	56	578
25	245	113	57	3	1	0	1	6	10	21	29	<u>1</u> /	---
26	309	169	93	21	4	1	9	5	3	16	21	<u>1</u> /	---

Appendix Table 4-4 (cont.). Sector distribution of north bank sonar counts, adjusted for debris, at Yentna Station, 1984.

DATE	SECTOR												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
AUGUST													
27	<u>1/</u>	173	71	47	20	8	3	8	0	20	35	<u>1/</u>	---
28	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	---
29	108	21	5	8	4	0	0	2	2	21	99	168	438
30	148	35	10	4	2	0	0	2	7	38	94	264	604
31	189	22	17	2	0	0	1	0	1	3	20	23	278
SEPTEMBER													
1	68	18	9	1	0	0	1	3	3	43	13	87	246
2	36	10	2	0	0	0	1	4	0	5	8	<u>1/</u>	---
3	83	7	2	1	0	0	3	3	3	18	6	2	128
4	88	8	2	3	0	1	1	2	3	3	0	6	117
5	50	0	0	4	0	0	0	0	6	0	0	2	62
TOTAL	23,601	9,878	8,619	4,003	1,341	504	5,115	5,281	5,770	13,239	21,399	31,079	129,829
PERCENT	18.2	7.6	6.6	3.1	1.0	0.4	3.9	4.1	4.4	10.2	16.5	24.0	

1/ No data due to debris.

Appendix Table 4-5. Sector distribution of south bank sonar counts, adjusted for debris, at Yentna Station, 1984.

DATE	SECTOR												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
JULY													
1	32	4	0	0	0	0	0	0	0	0	0	0	36
2	51	1	0	0	0	0	0	0	0	0	0	0	52
3	44	8	1	0	0	0	0	0	9	0	20	<u>1</u> /	---
4	62	20	1	0	0	0	0	0	6	0	39	22	150
5	51	13	3	1	0	0	0	0	0	0	0	0	68
6	37	8	2	0	0	0	0	0	0	0	0	0	47
7	22	12	2	0	0	0	0	0	0	4	2	<u>1</u> /	---
8	20	7	1	0	0	0	0	0	0	1	0	0	29
9	33	23	5	2	0	0	0	1	2	0	0	4	70
10	89	45	8	0	0	0	0	0	2	1	7	<u>1</u> /	---
11	72	38	14	1	1	0	0	2	0	3	2	<u>1</u> /	---
12	68	26	1	1	0	0	4	1	2	11	14	11	139
13	114	21	8	1	0	0	0	2	4	7	1	2	160
14	155	58	14	1	1	0	0	3	4	11	13	14	274
15	121	56	9	1	0	0	1	4	6	7	3	9	217
16	287	203	25	3	0	0	4	1	10	26	15	8	582
17	9,669	5,971	1,243	94	2	0	37	32	82	133	120	103	17,486
18	128	6,018	6,898	1,438	180	12	190	146	144	198	128	178	15,658
19	99	7,063	8,664	2,048	224	12	215	211	198	342	221	255	19,552
20	2,213	12,172	8,424	1,894	265	24	306	254	300	413	311	588	27,164

A223

Appendix Table 4-5 (cont.). Sector distribution of south bank sonar counts, adjusted for debris, at Yentna Station, 1984.

DATE	SECTOR												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
JULY													
21	5,633	16,793	6,113	1,083	165	15	245	183	185	313	233	773	31,734
22	6,322	14,258	4,769	877	178	17	388	336	369	637	548	1,910	30,609
23	4,152	14,140	6,533	1,496	266	35	727	563	752	848	614	797	30,923
24	448	15,223	7,632	1,544	271	36	776	627	994	1,120	893	770	30,334
25	227	10,394	5,721	729	57	1	187	142	261	297	275	259	18,550
26	187	6,401	7,983	761	13	2	30	21	48	146	167	125	15,884
27	1,579	10,199	3,837	359	10	0	18	15	10	100	88	1,469	17,684
28	2,268	14,605	4,680	546	35	3	71	41	26	130	122	121	22,648
29	3,114	19,659	6,013	505	18	0	35	12	11	66	73	110	29,616
30	2,009	9,558	3,867	402	25	1	36	11	22	144	74	187	16,336
31	3,398	8,798	3,085	294	32	2	32	24	29	101	100	1/	---
AUGUST													
1	2,712	6,509	3,439	655	72	11	192	130	93	357	230	468	14,868
2	1,148	3,509	2,101	645	170	25	432	340	443	541	463	406	10,223
3	1,278	3,642	1,911	578	138	32	412	309	386	621	391	460	10,158
4	2,119	4,418	1,363	245	31	2	85	91	104	158	86	105	8,807
5	1,662	3,605	680	51	0	0	3	1	1	11	7	194	6,215
6	3,835	1,293	163	3	0	0	0	0	0	33	5	10	5,342
7	1,354	1,067	126	2	0	0	0	0	0	0	11	8	2,568
8	953	1,514	231	3	0	0	0	0	1	0	0	14	2,716

A224

Appendix Table 4-5 (cont.). Sector distribution of south bank sonar counts, adjusted for debris, at Yentna Station, 1984.

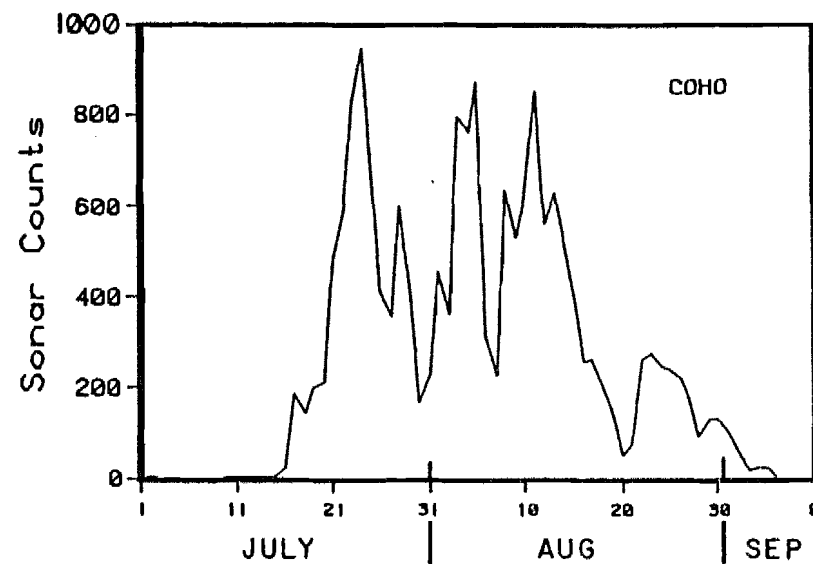
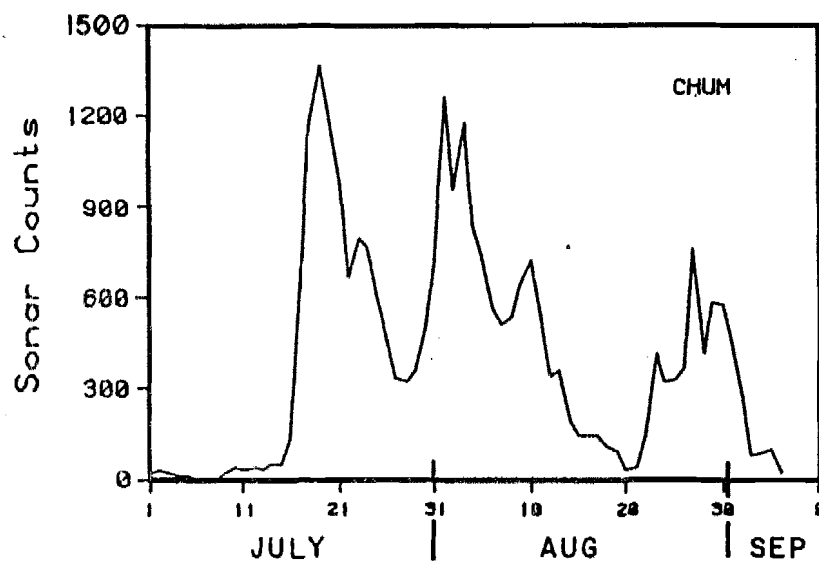
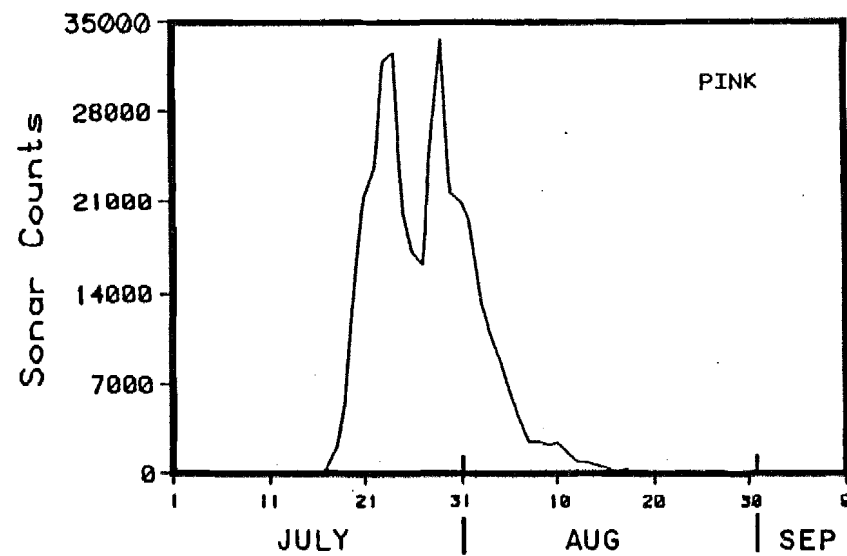
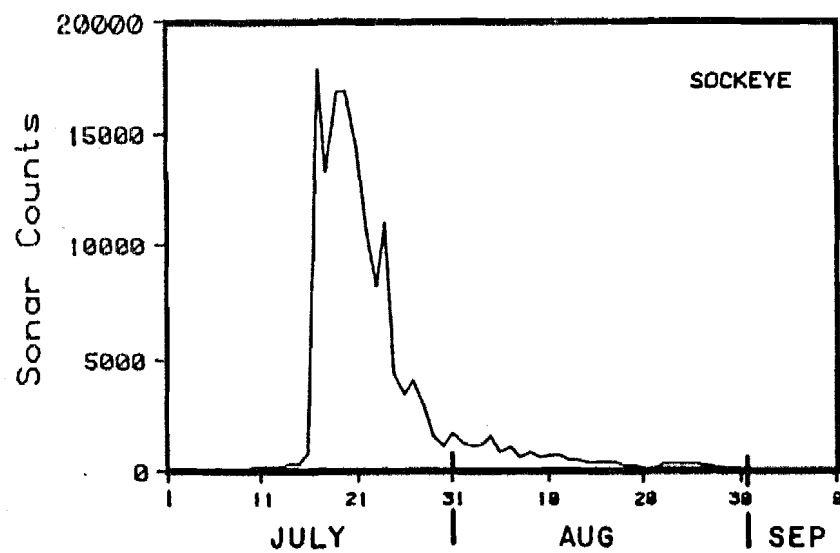
DATE	SECTOR												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
AUGUST													
9	459	1,471	348	18	0	0	1	0	1	1	2	0	2,301
10	798	1,406	438	41	0	0	8	2	5	15	21	22	2,756
11	1,005	941	268	39	2	0	7	4	3	12	9	7	2,297
12	568	700	162	34	1	0	5	11	10	41	36	29	1,597
13	486	525	92	18	5	0	8	14	2	18	33	178	1,379
14	418	351	113	20	1	0	9	10	6	26	10	13	977
15	330	291	57	11	2	0	5	1	3	6	14	16	736
16	317	207	23	2	1	0	3	0	0	14	4	10	581
17	267	183	30	7	0	0	0	0	0	0	0	2	489
18	186	199	23	3	0	0	0	0	0	0	0	2	413
19	320	102	4	0	0	0	0	0	0	0	0	0	426
20	187	42	9	0	0	0	0	0	0	0	0	0	238
21	176	108	44	9	0	0	0	0	0	0	0	1	338
22	202	278	98	11	1	0	7	4	0	3	70	55	729
23	376	264	111	21	7	0	3	3	0	1	24	50	860
24	380	208	151	15	3	0	10	3	1	1	6	15	793
25	260	302	168	23	2	0	0	0	0	0	1	1	757
26	227	218	133	30	8	0	0	4	1	2	2	0	625
27	408	357	119	49	5	2	6	0	4	1	3	6	960
28	408	151	48	5	2	0	3	0	0	4	6	21	648

A225

Appendix Table 4-5 (cont.). Sector distribution of south bank sonar counts, adjusted for debris, at Yentna Station, 1984.

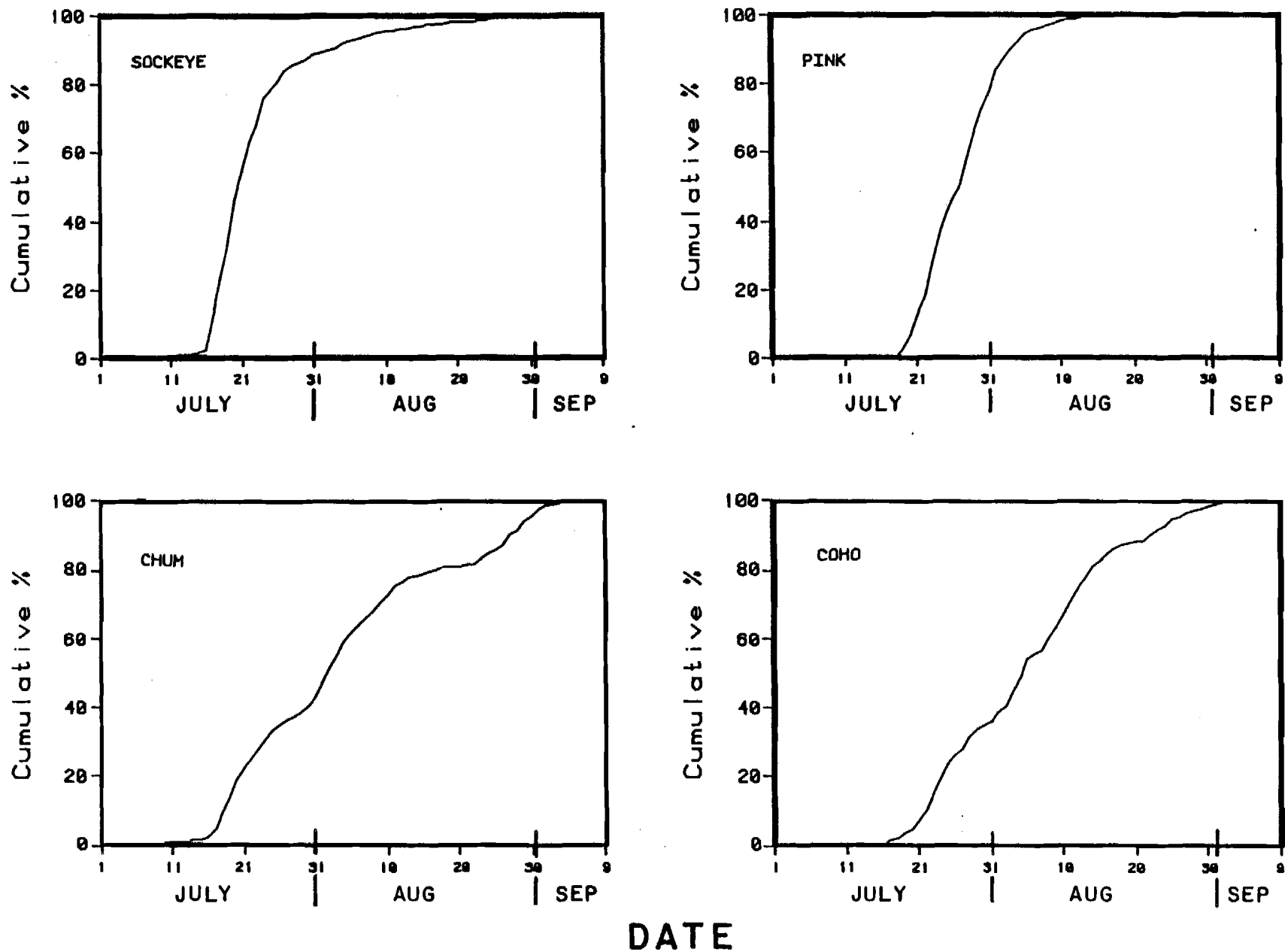
DATE	SECTOR												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
AUGUST													
29	389	214	102	16	9	0	2	1	6	16	31	43	829
30	185	118	67	16	1	0	13	6	18	37	63	97	621
31	175	162	44	10	2	3	11	14	15	38	96	135	705
SEPTEMBER													
1	147	58	17	4	0	0	2	8	11	16	11	63	337
2	82	16	0	0	0	0	2	3	1	6	15	13	138
3	53	9	0	0	0	0	1	2	1	22	42	<u>1/</u>	---
4	49	21	7	0	0	0	1	3	2	30	<u>1/</u>	29	---
5	36	26	4	2	0	0	0	0	0	0	0	0	68
TOTAL	62,932	197,349	95,133	16,372	2,173	233	4,499	3,565	4,551	6,929	5,602	10,159	409,497
PERCENT	15.4	48.2	23.2	4.0	0.5	0.0	1.1	0.9	1.1	1.7	1.4	2.5	

1/ No data due to debris.



DATE

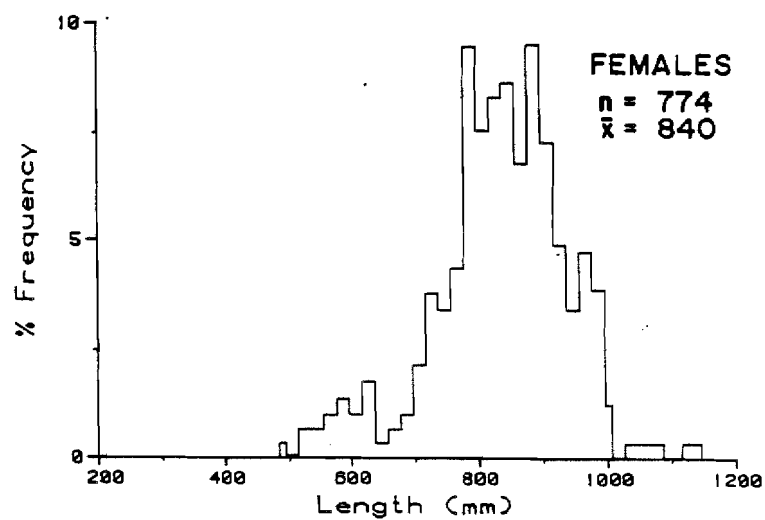
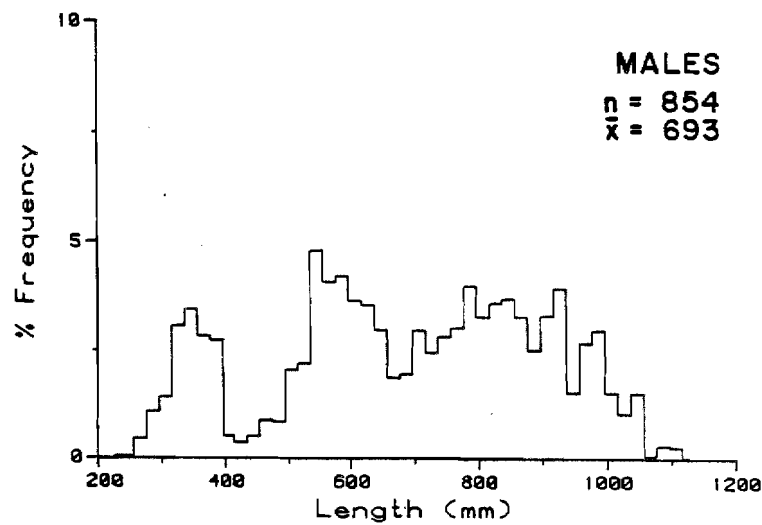
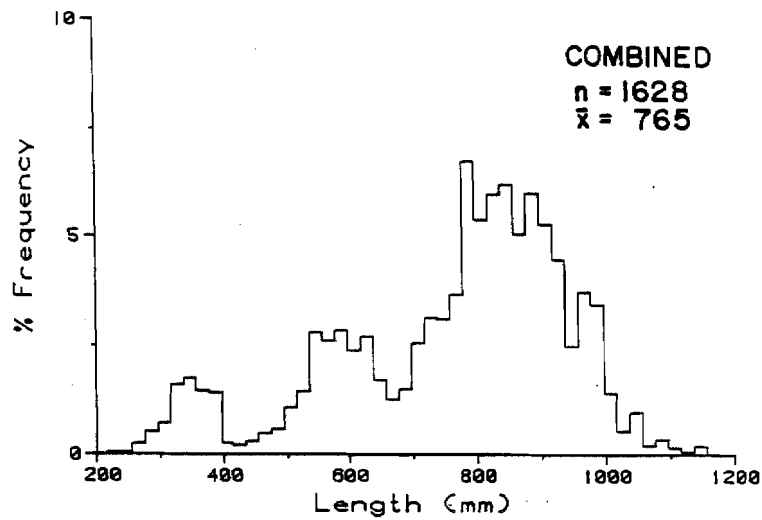
Appendix Figure 4-1. Daily sonar counts of sockeye, pink, chum and coho salmon at Yentna Station, 1984.



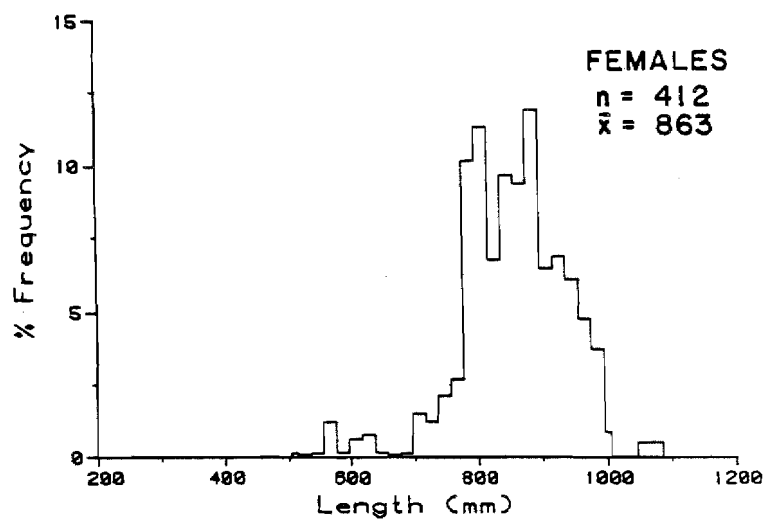
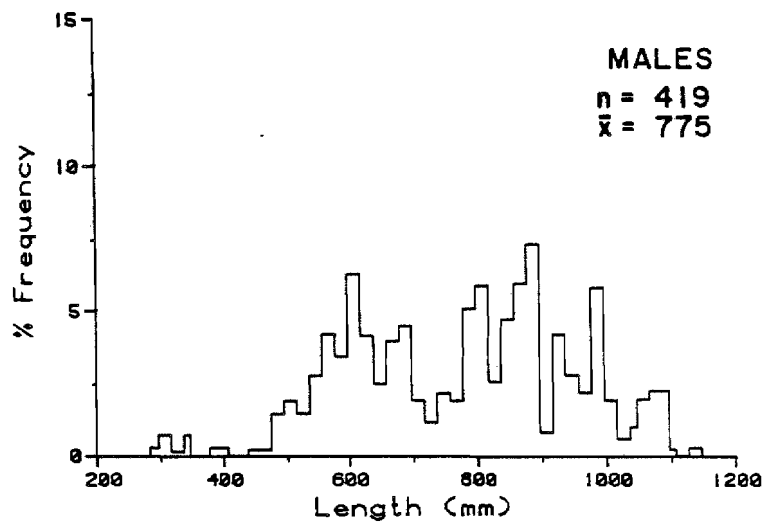
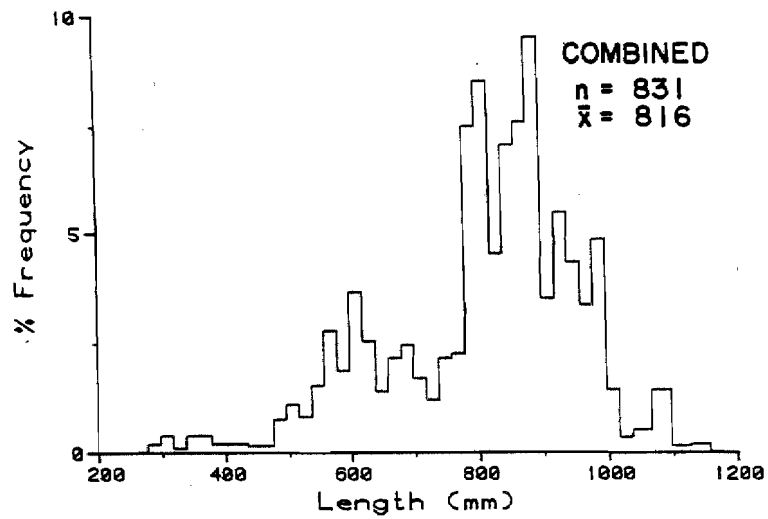
Appendix Figure 4-2. Cumulative percent of sonar counts by species at Yentna Station, 1984.

APPENDIX 5

Length Frequencies
of Chinook, Sockeye, Pink, Chum
and Coho Salmon

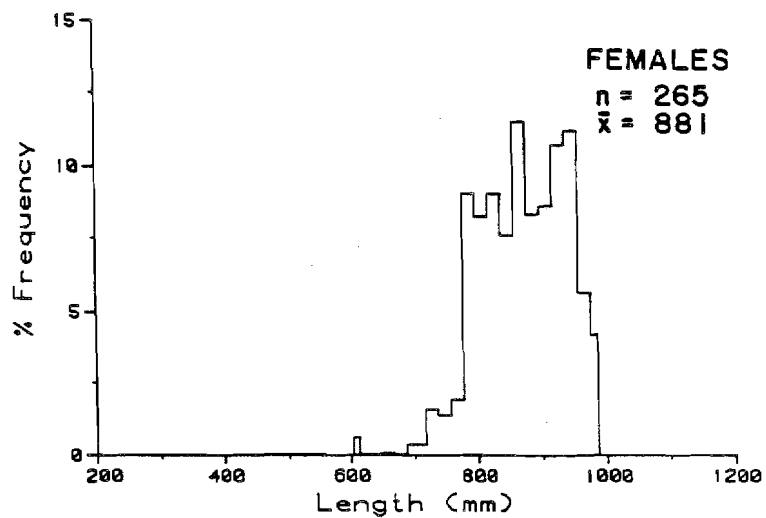
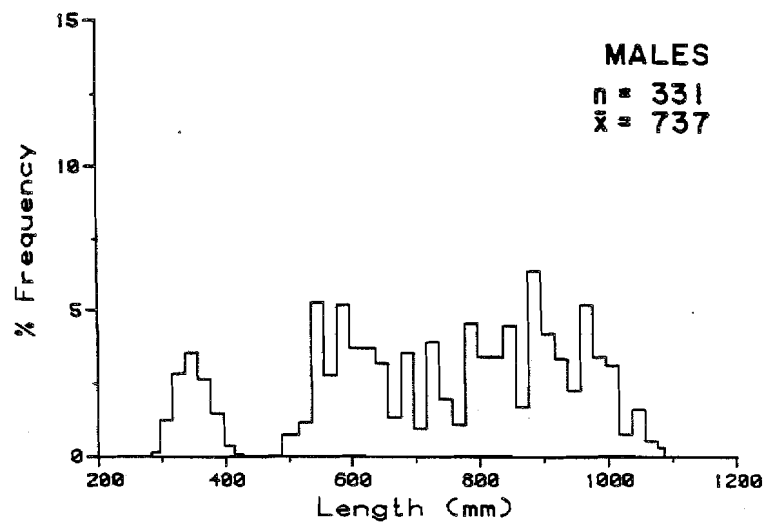
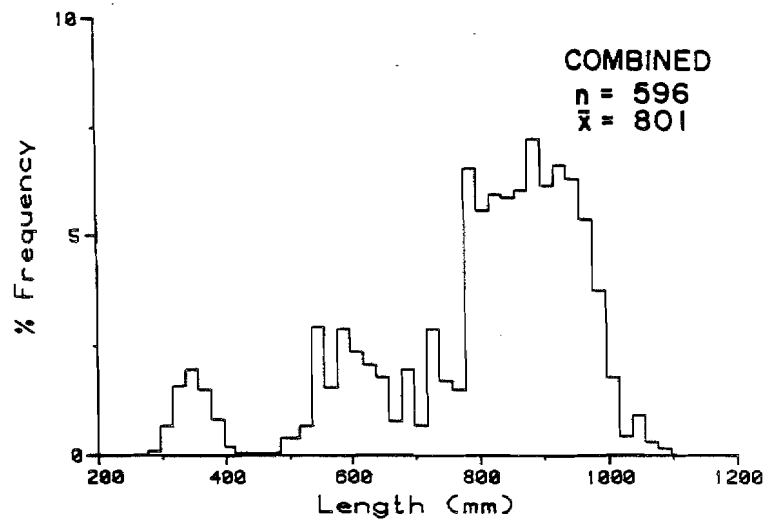


Appendix Figure 5-1. Chinook salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.

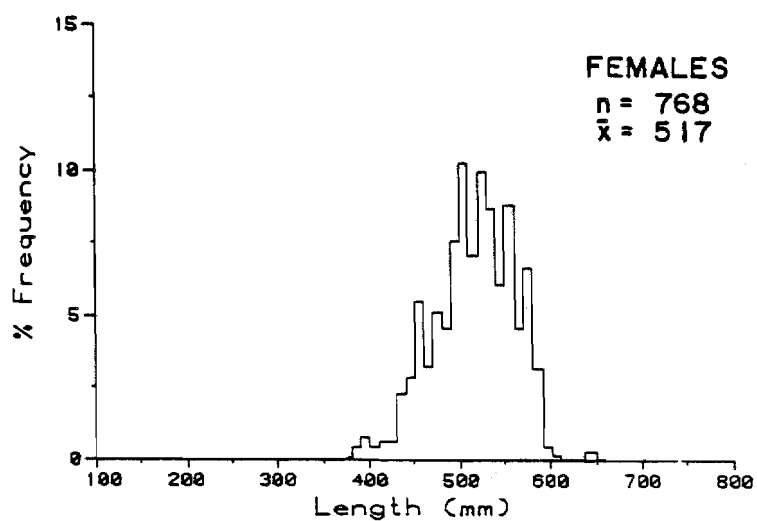
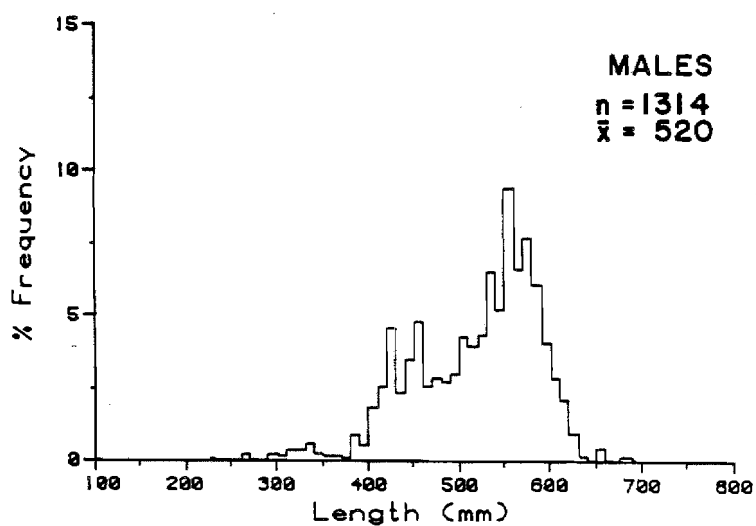
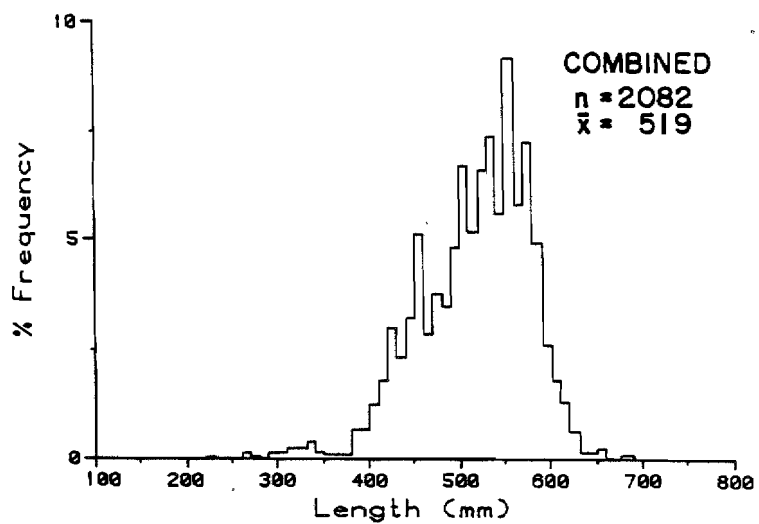


Appendix Figure 5-2.

Chinook salmon length frequencies at
 Talkeetna Station weighted by
 fishwheel catch per unit of effort,
 1984.

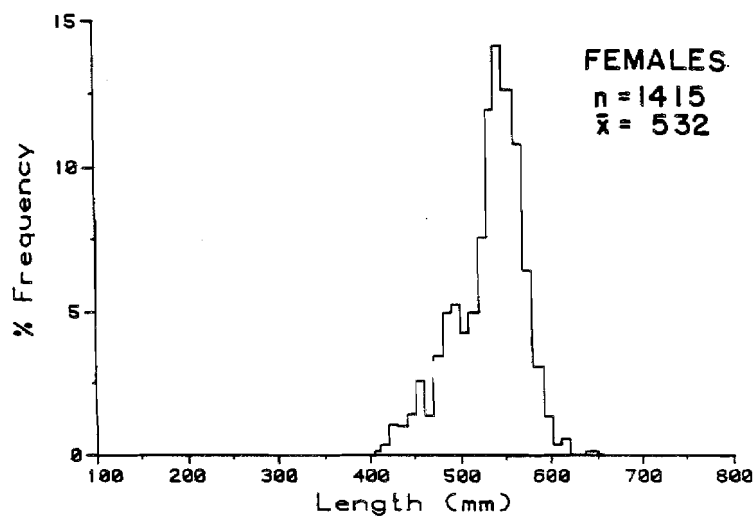
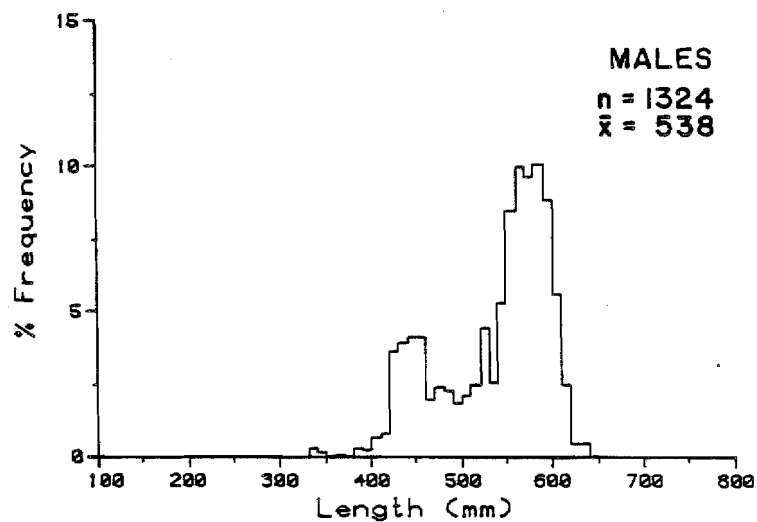
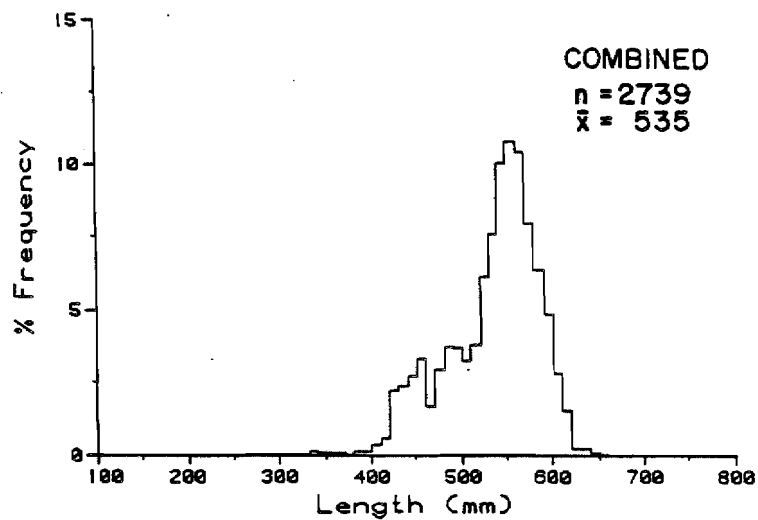


Appendix Figure 5-3. Chinook salmon length frequencies at Curry Station weighted by fishwheel catch per unit of effort, 1984.

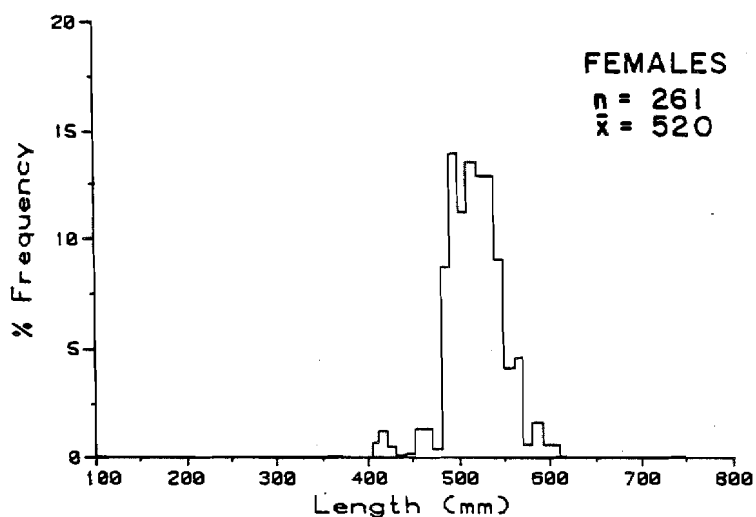
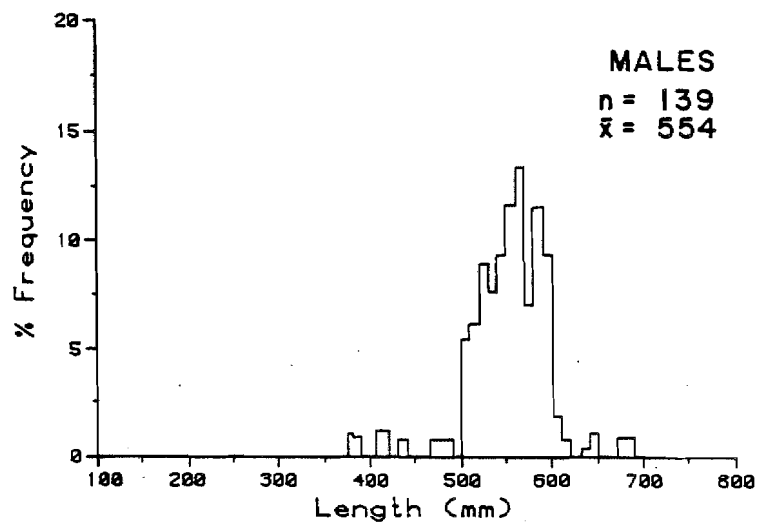
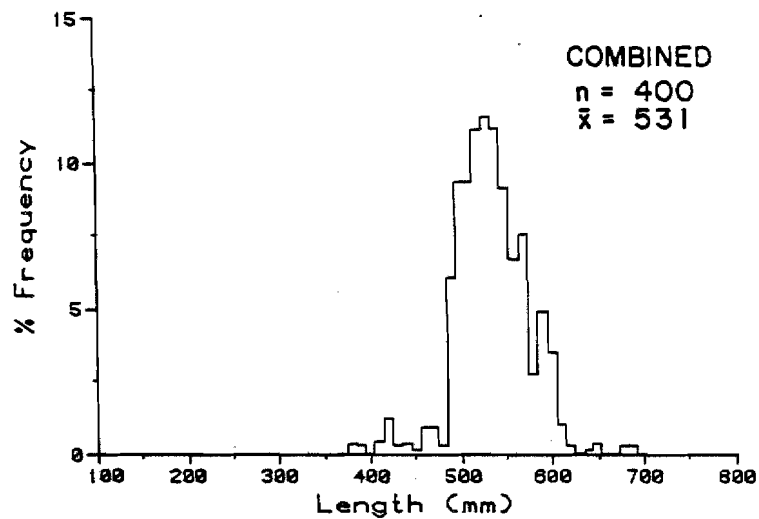


Appendix Figure 5-4.

Sockeye salmon length frequencies at Flathorn Station weighted by fishwheel catch per unit of effort, 1984.

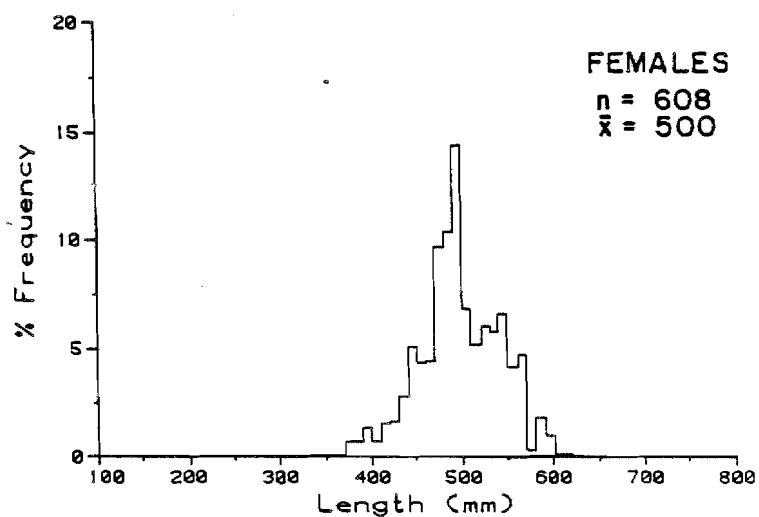
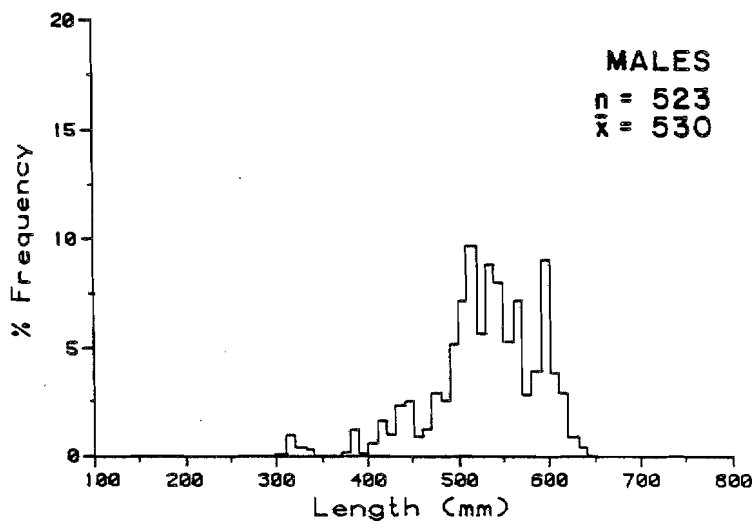
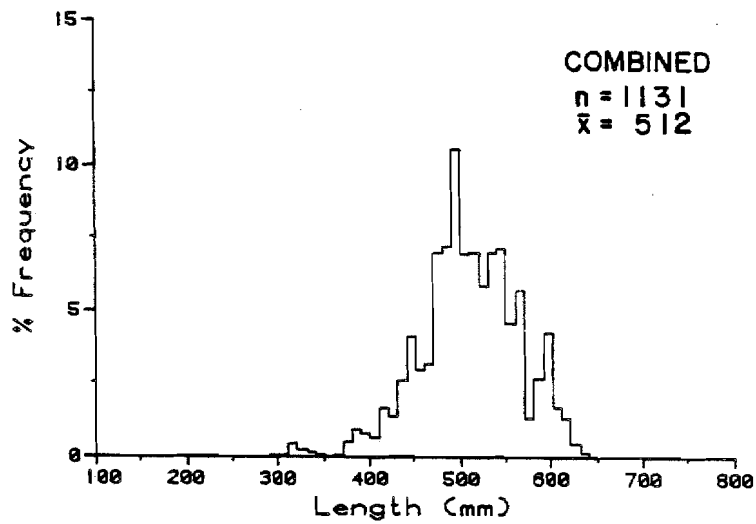


Appendix Figure 5-5. Sockeye salmon length frequencies at Yentna Station weighted by fishwheel catch per unit of effort, 1984.

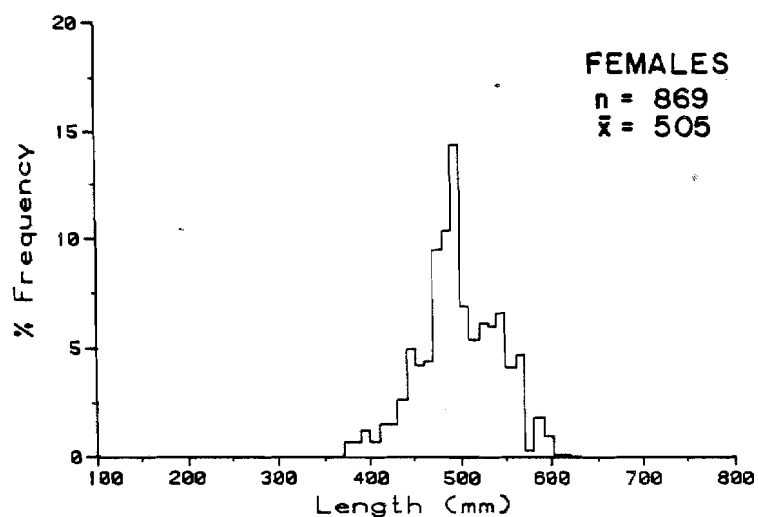
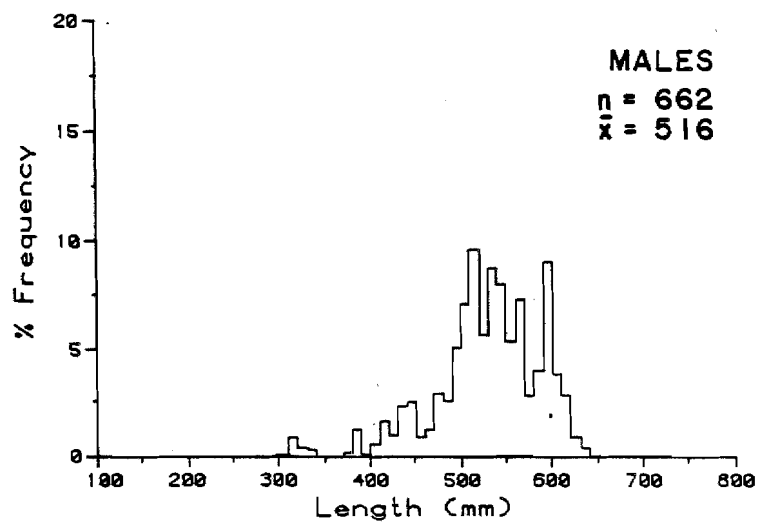
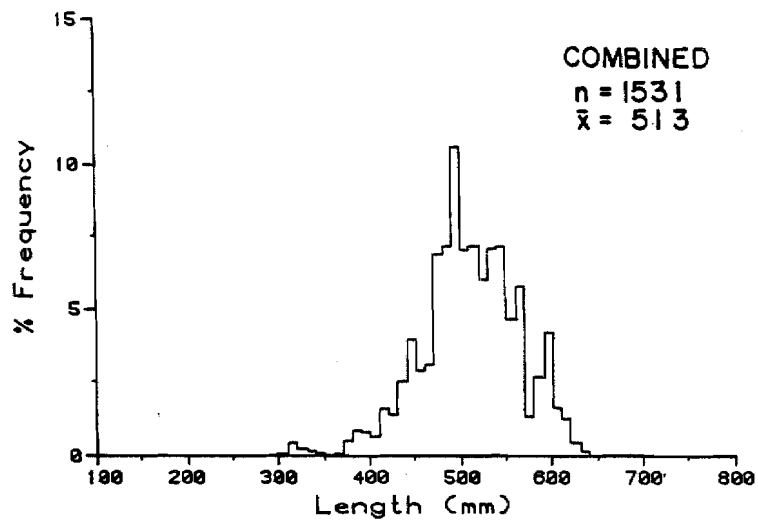


Appendix Figure 5-6.

First-run sockeye salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.

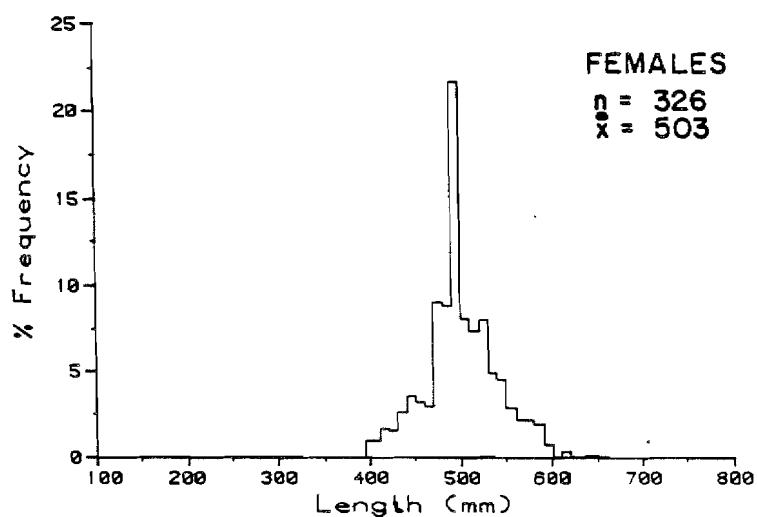
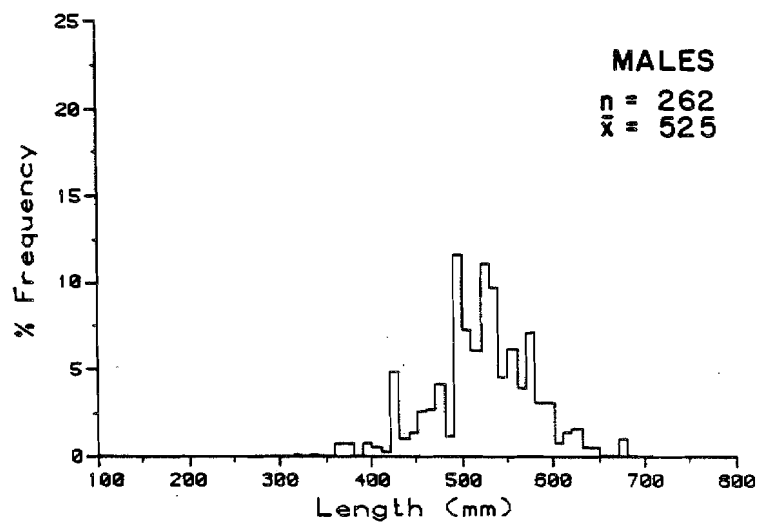
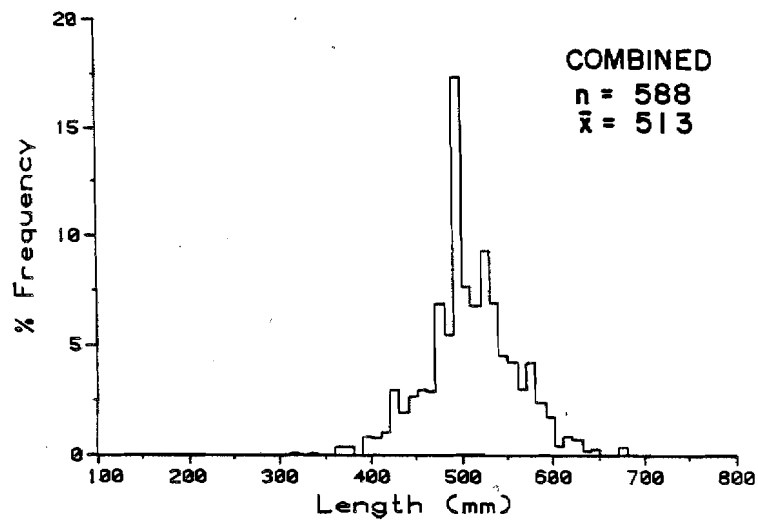


Appendix Figure 5-7. Second-run sockeye salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.



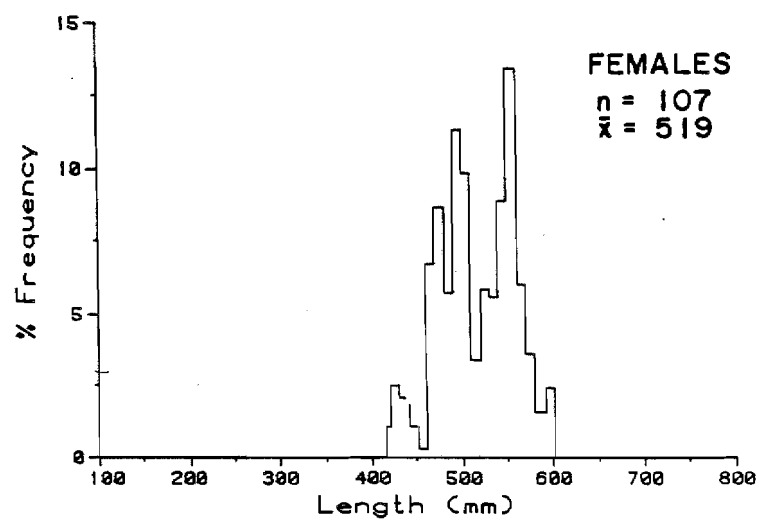
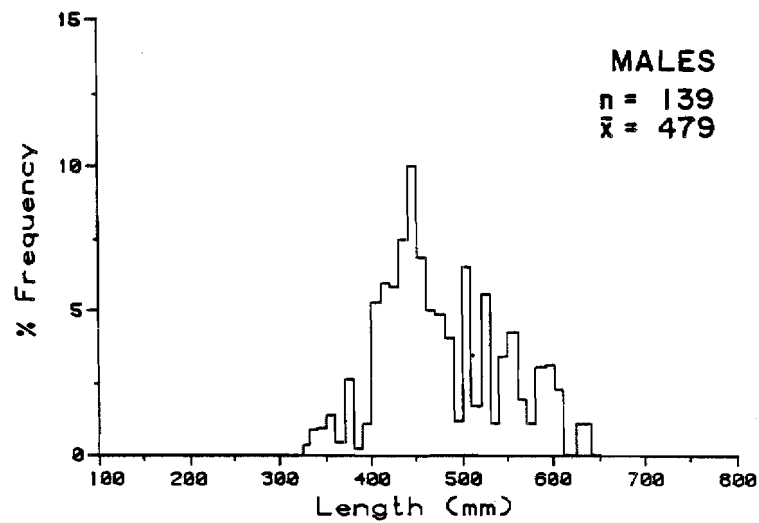
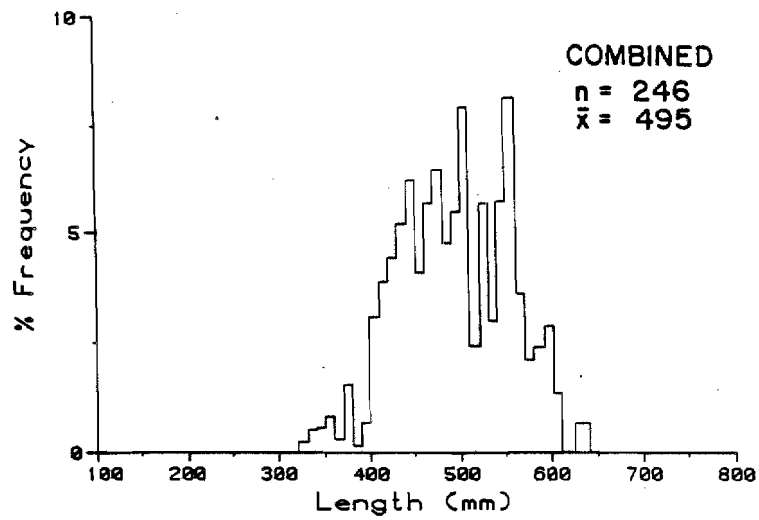
Appendix Figure 5-8.

Combined first and second run sockeye salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.

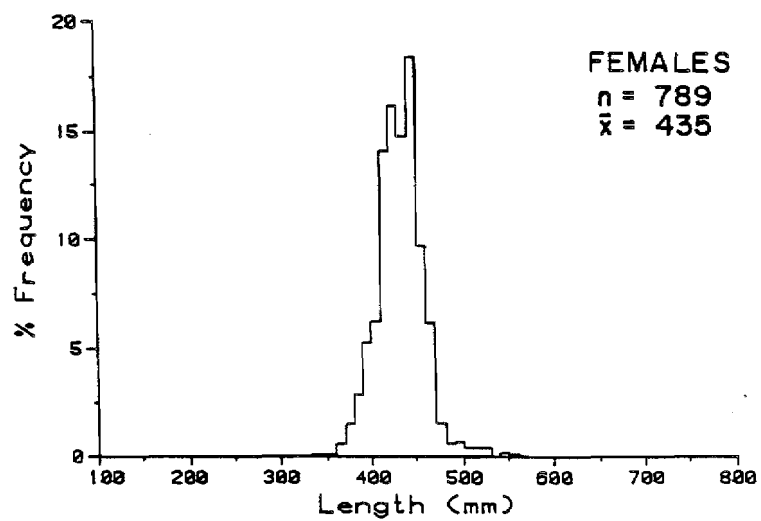
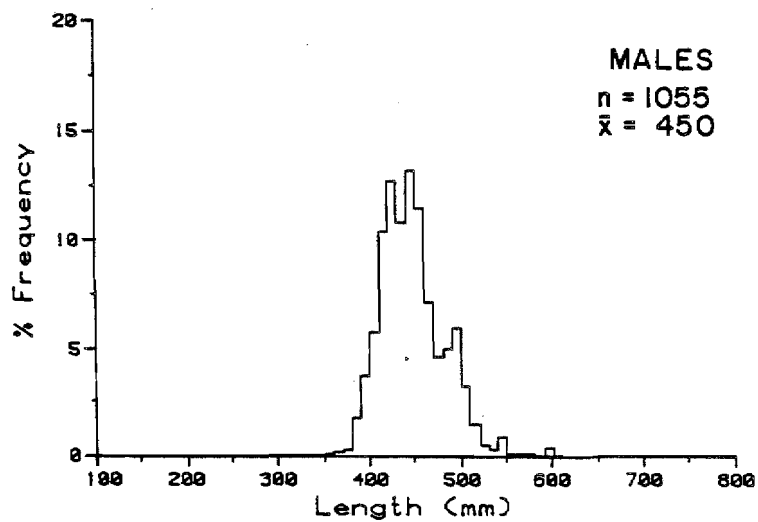
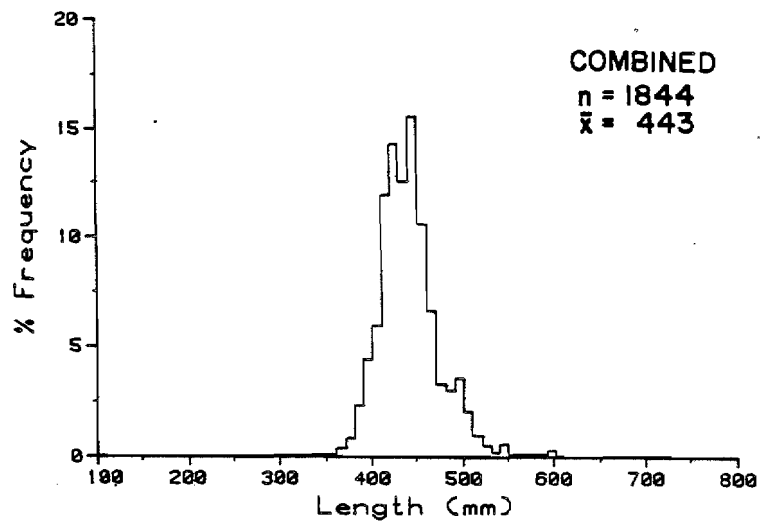


Appendix Figure 5-9.

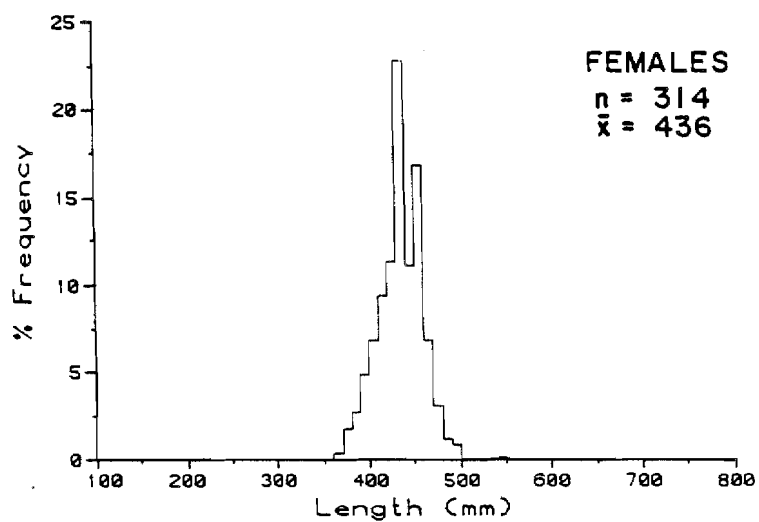
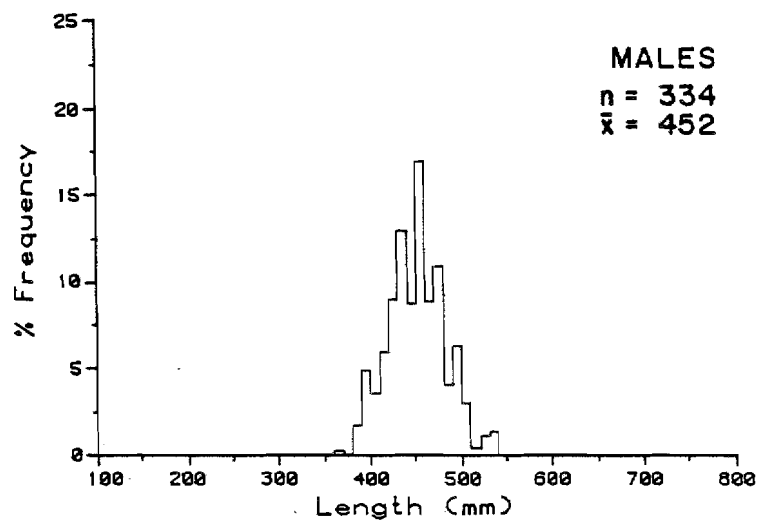
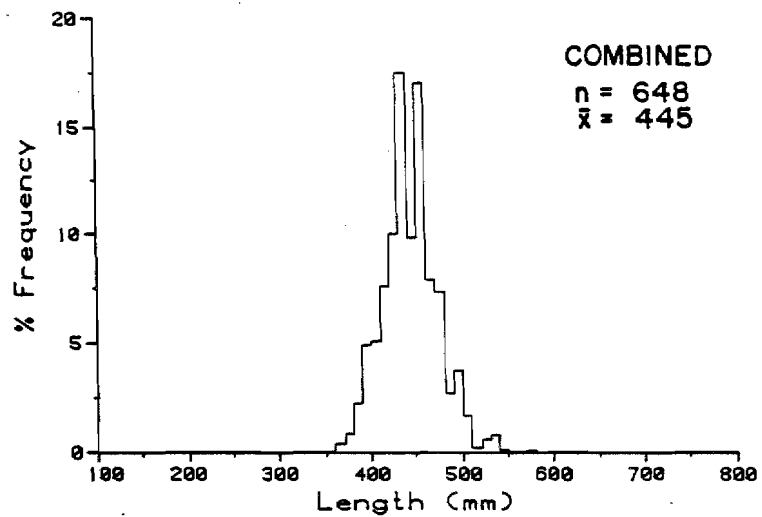
Sockeye salmon length frequencies at
 Talkeetna Station weighted by
 fishwheel catch per unit of effort,
 1984.



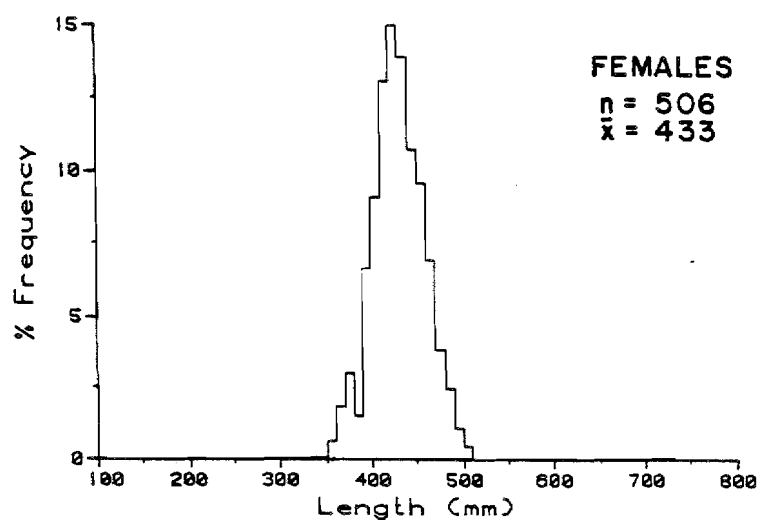
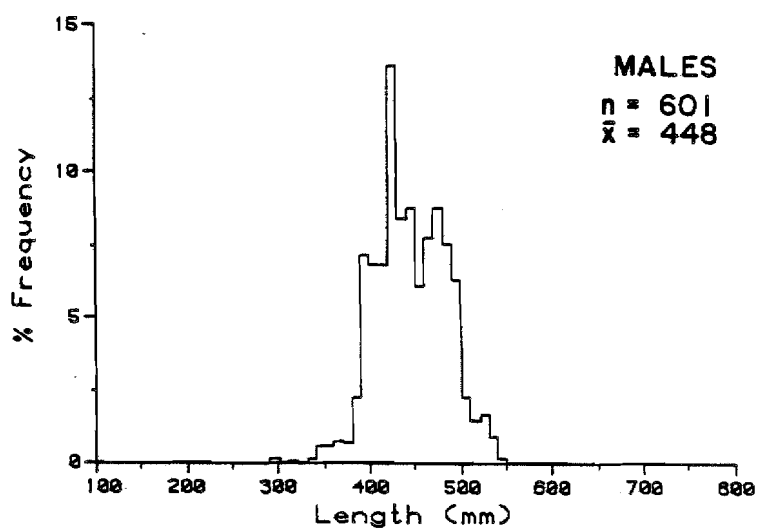
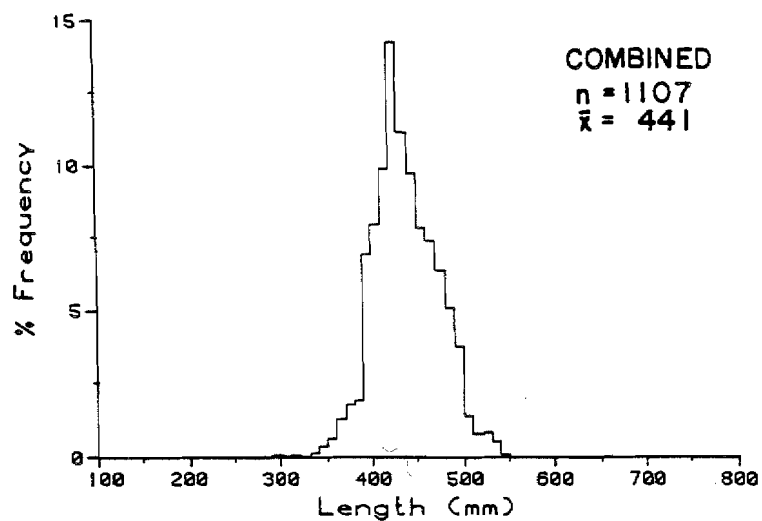
Appendix Figure 5-10. Sockeye salmon length frequencies at Curry Station weighted by fishwheel catch per unit of effort, 1984.



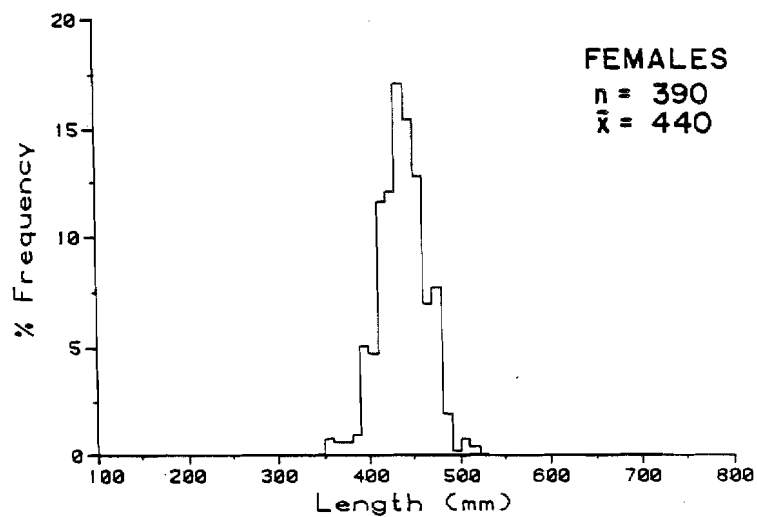
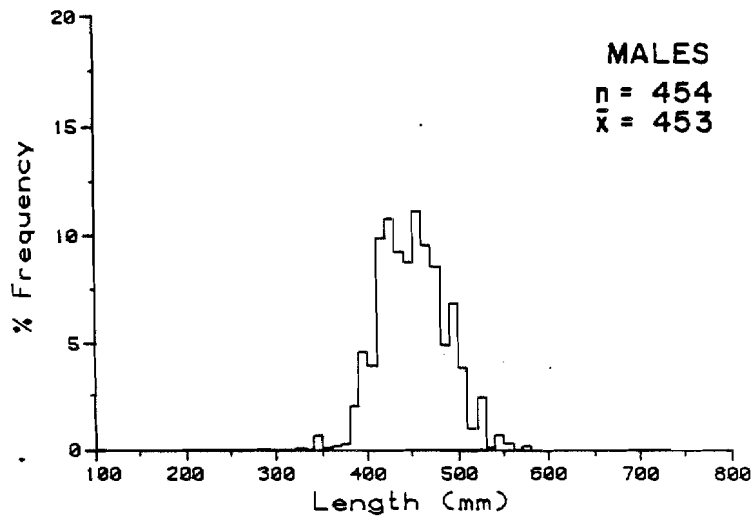
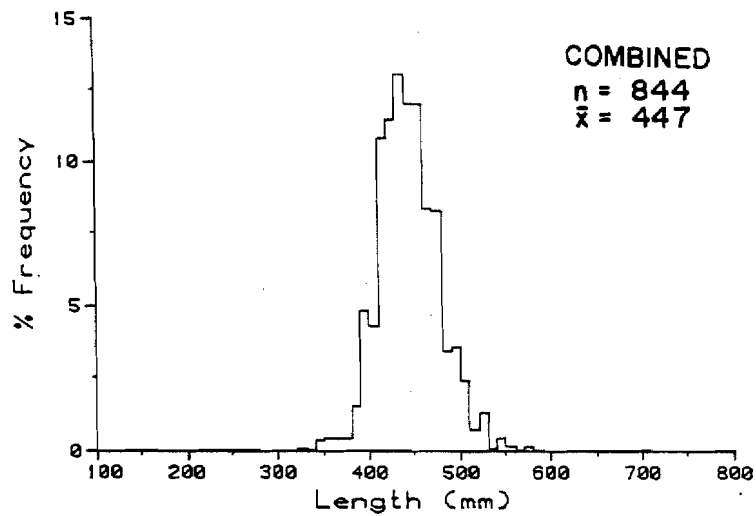
Appendix Figure 5-11. Pink salmon length frequencies at Flathorn Station weighted by fishwheel catch per unit of effort, 1984.



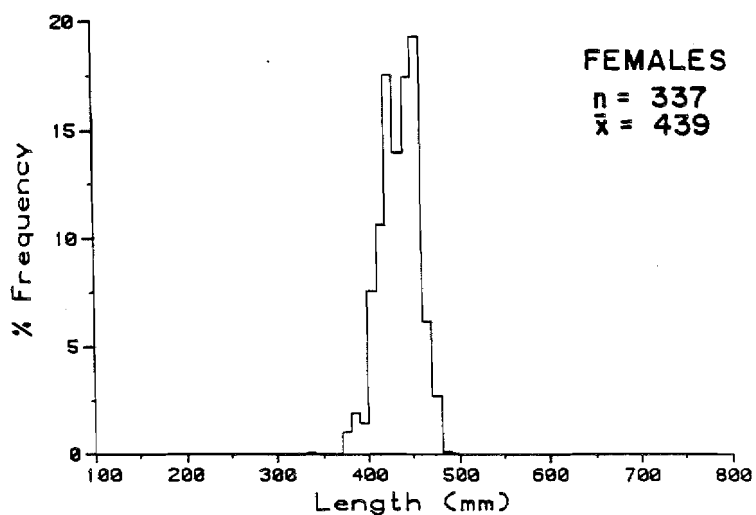
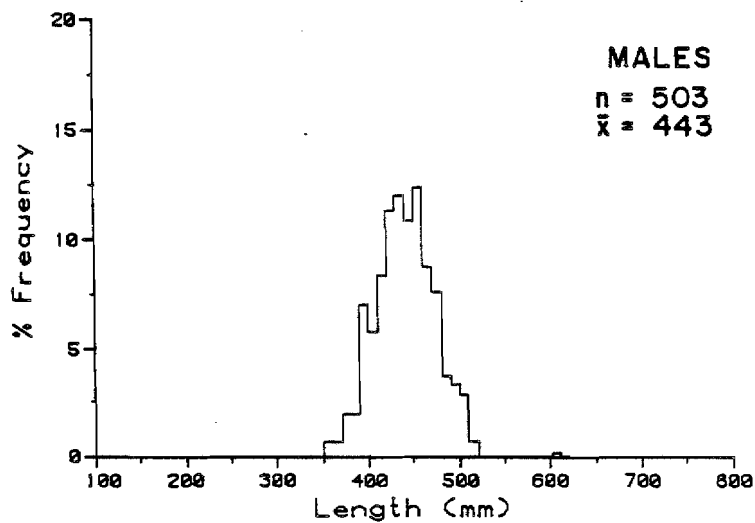
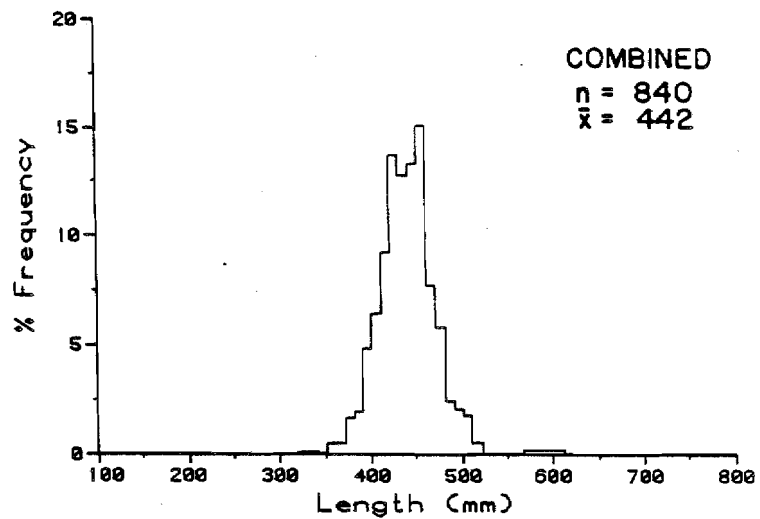
Appendix Figure 5-12. Pink salmon length frequencies at Yentna Station weighted by fishwheel catch per unit of effort, 1984.



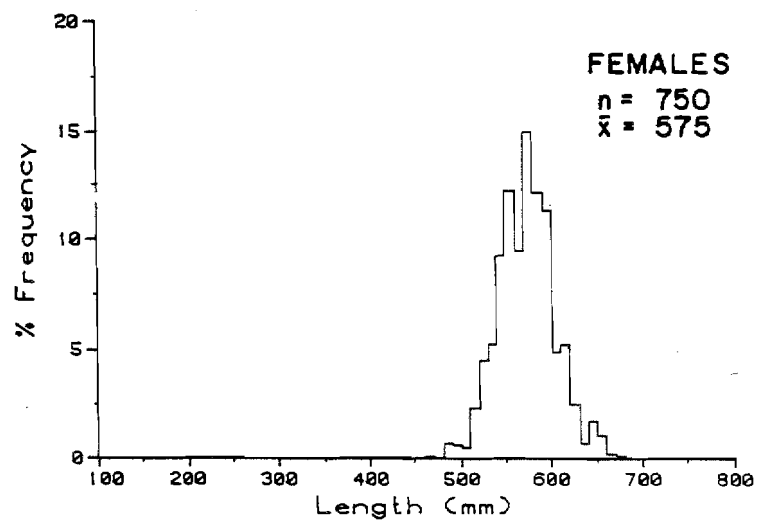
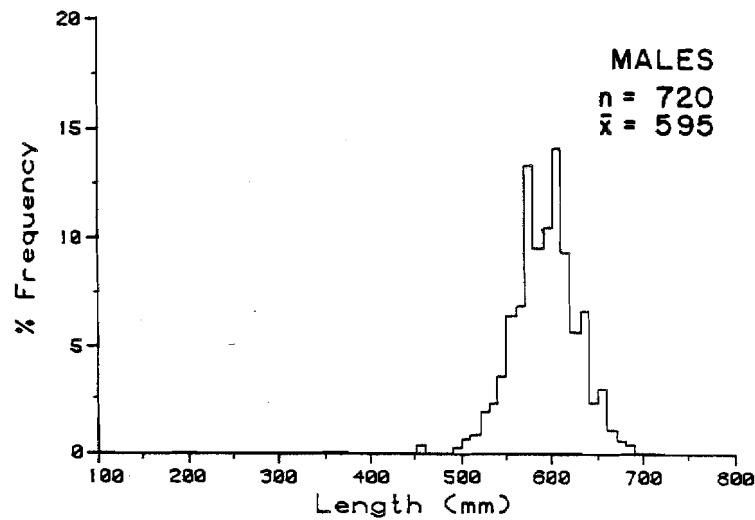
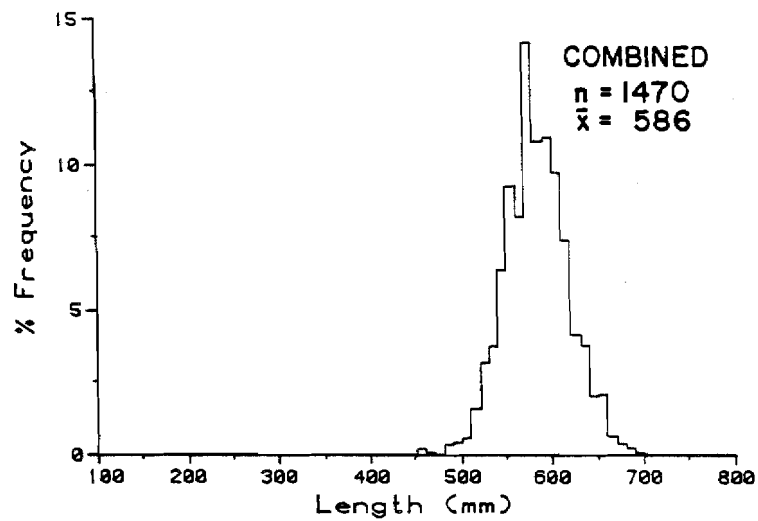
Appendix Figure 5-13. Pink salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.



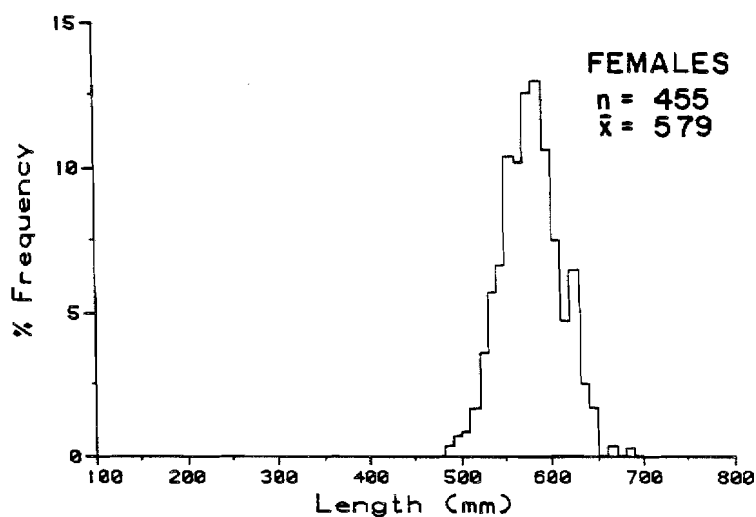
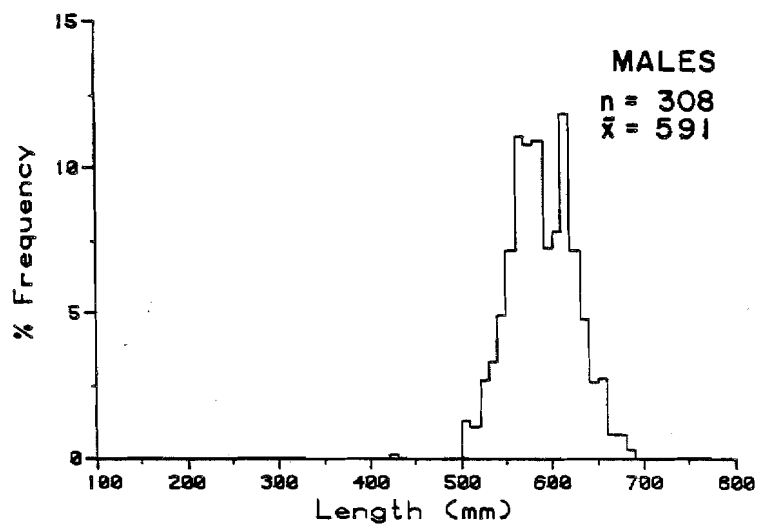
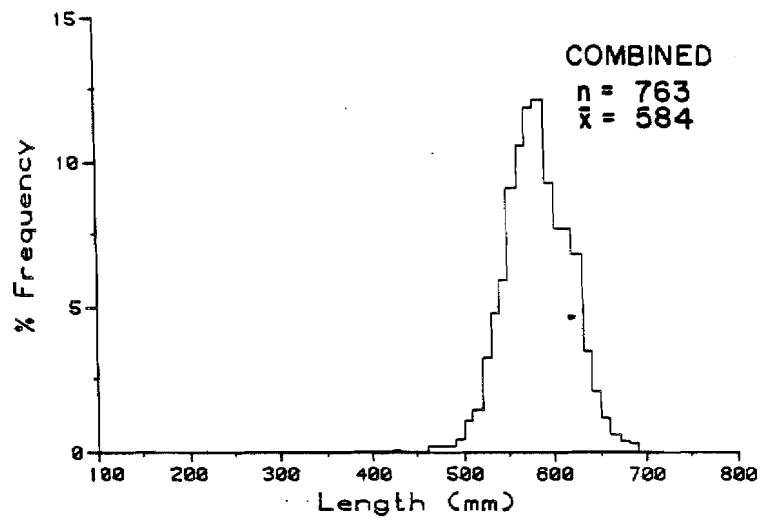
Appendix Figure 5-14. Pink salmon length frequencies at Talkeetna Station weighted by fishwheel catch per unit of effort, 1984.



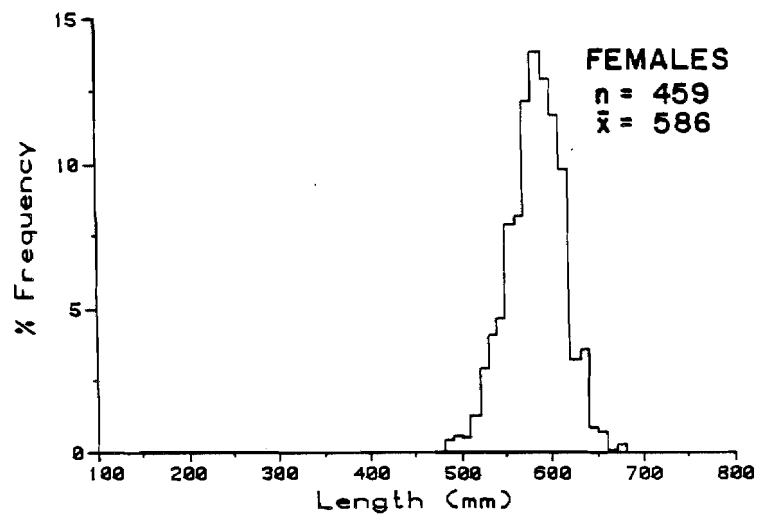
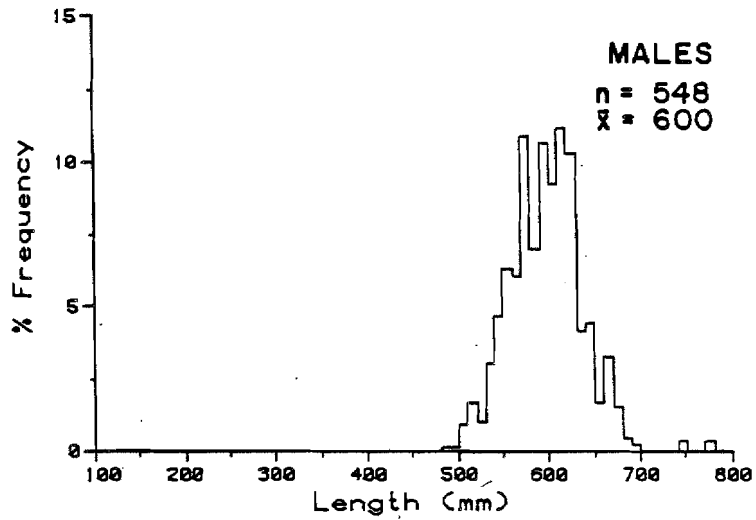
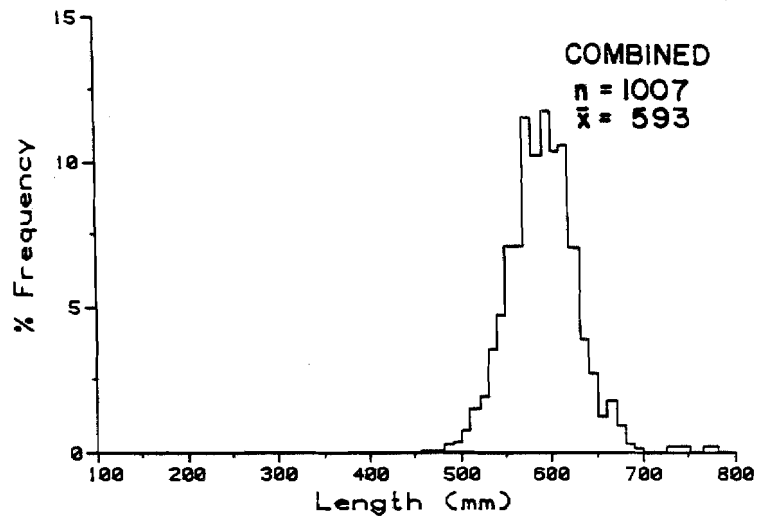
Appendix Figure 5-15. Pink salmon length frequencies at Curry Station weighted by fishwheel catch per unit of effort, 1984.



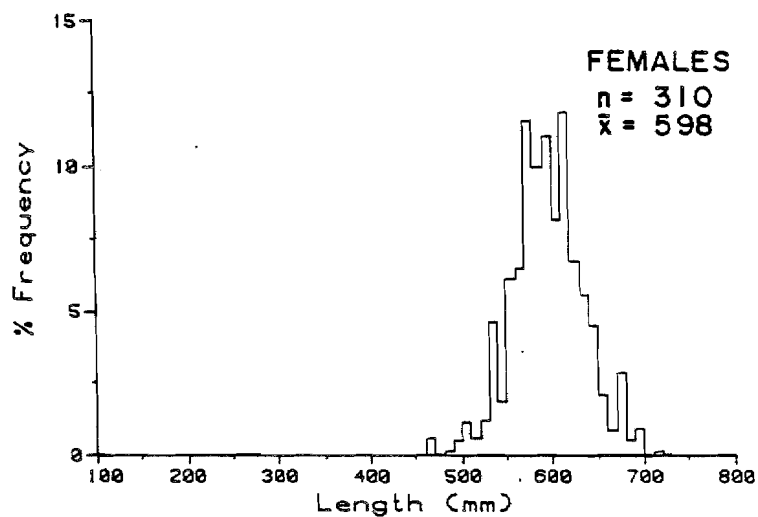
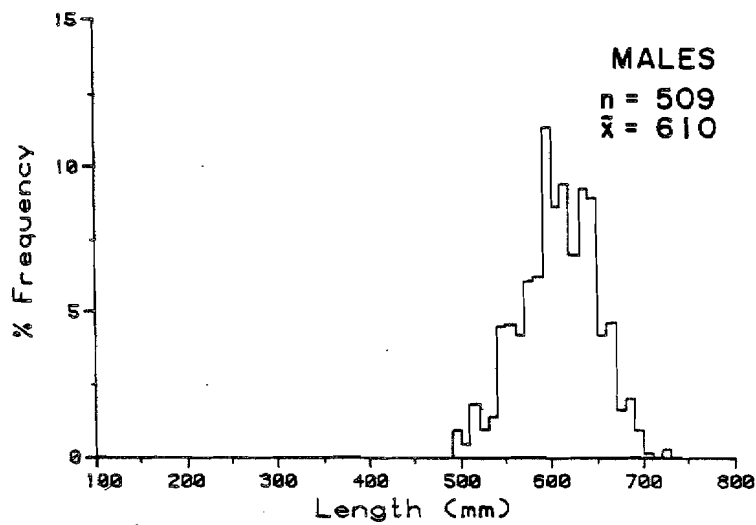
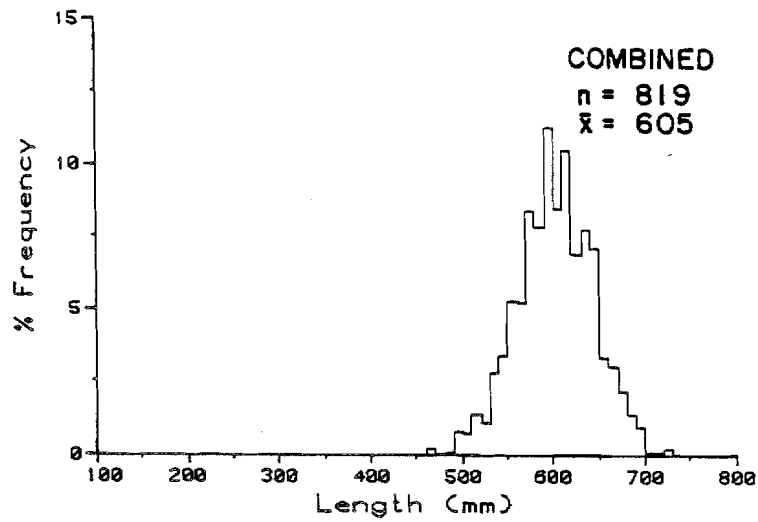
Appendix Figure 5-16. Chum salmon length frequencies at Flathorn Station weighted by fishwheel catch per unit of effort, 1984.



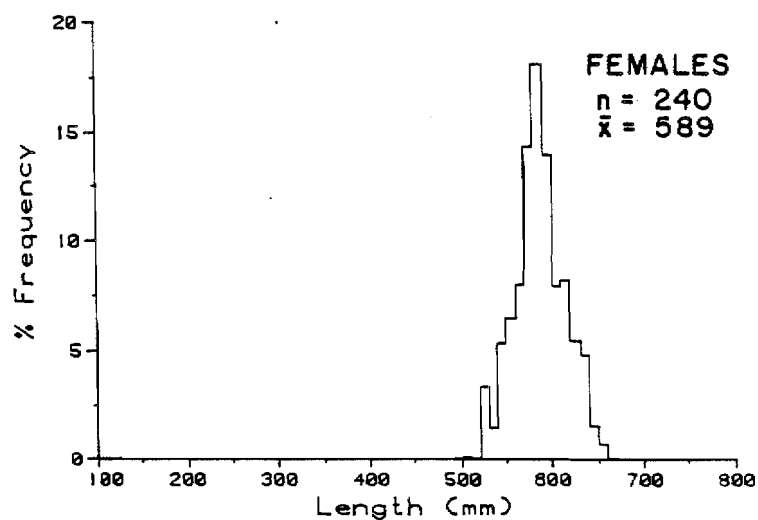
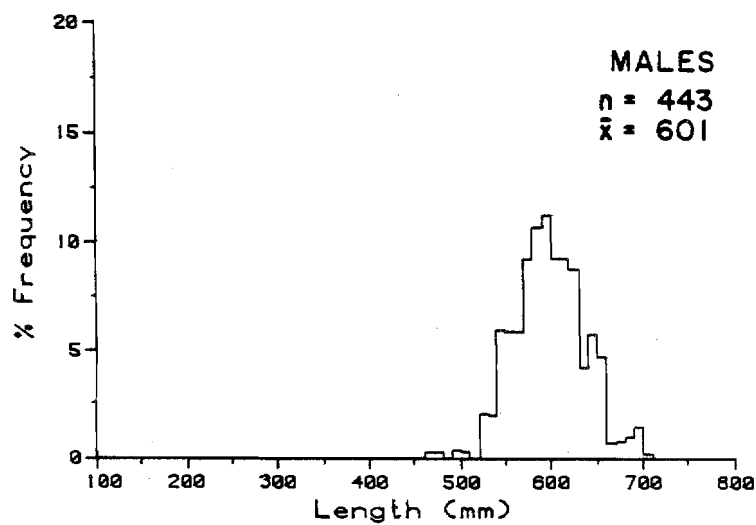
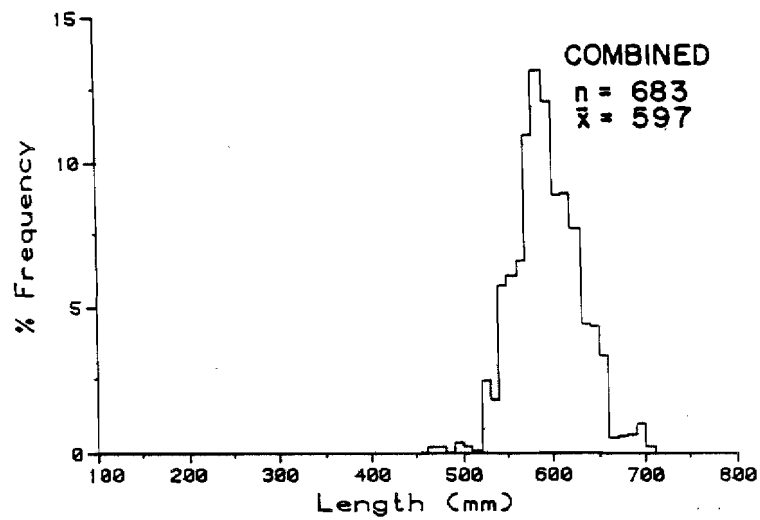
Appendix Figure 5-17. Chum salmon length frequencies at Yentna Station weighted by fishwheel catch per unit of effort, 1984.



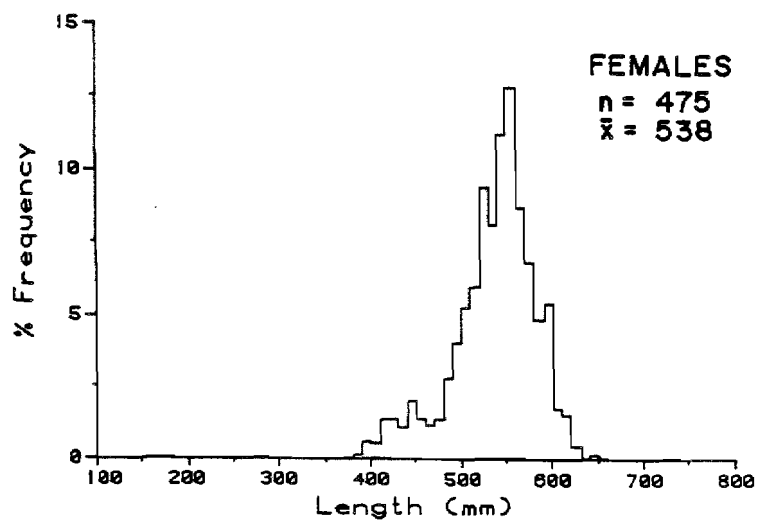
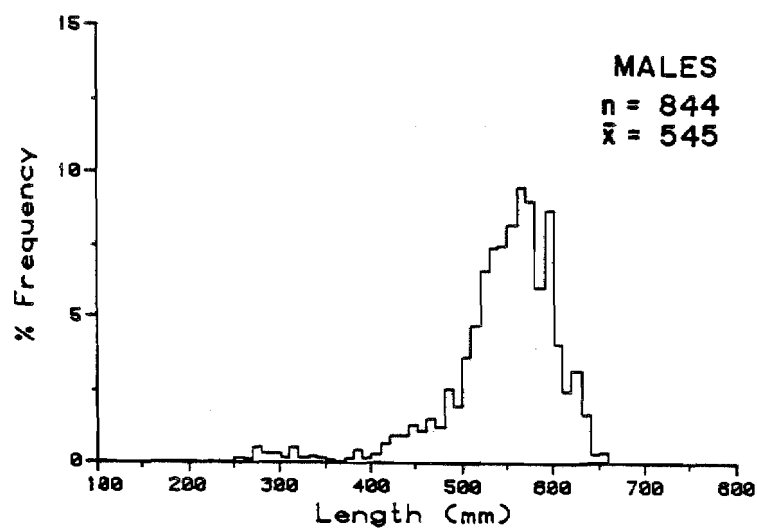
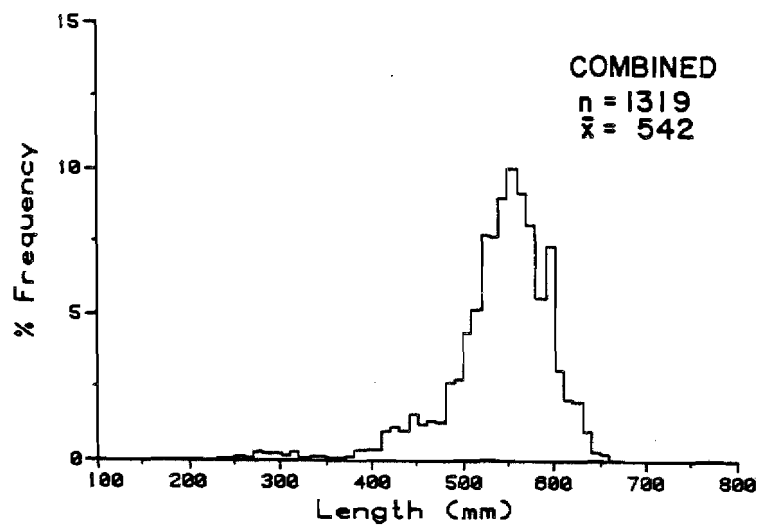
Appendix Figure 5-18. Chum salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.



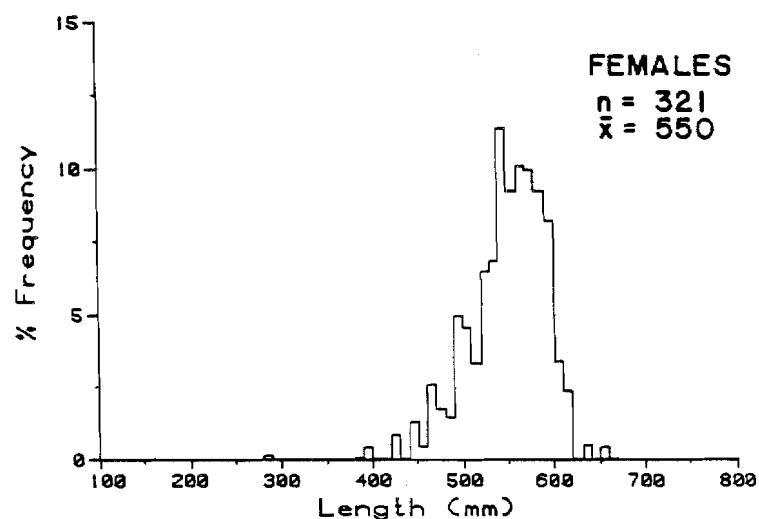
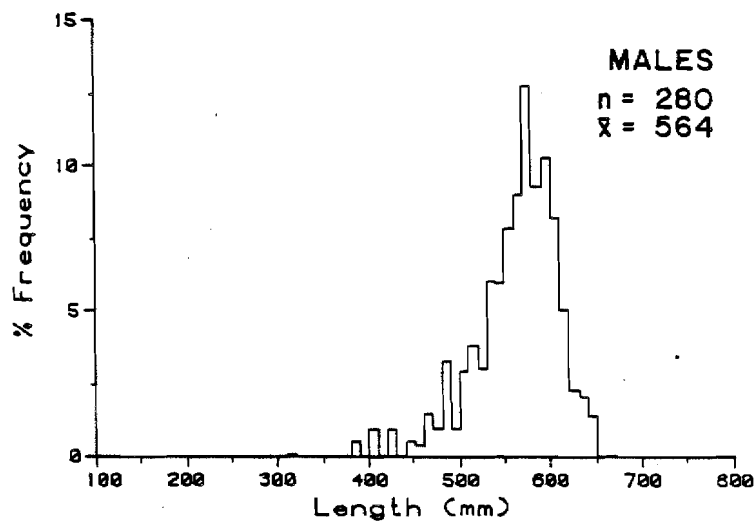
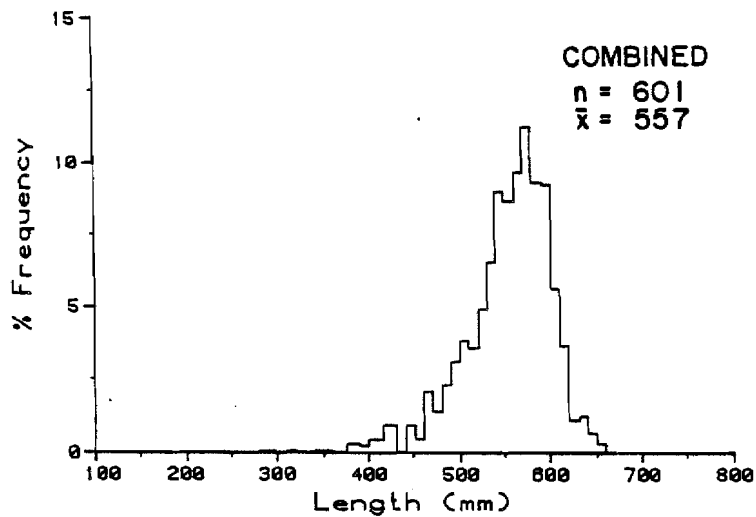
Appendix Figure 5-19. Chum salmon length frequencies at Talkeetna Station weighted by fishwheel catch per unit of effort, 1984.



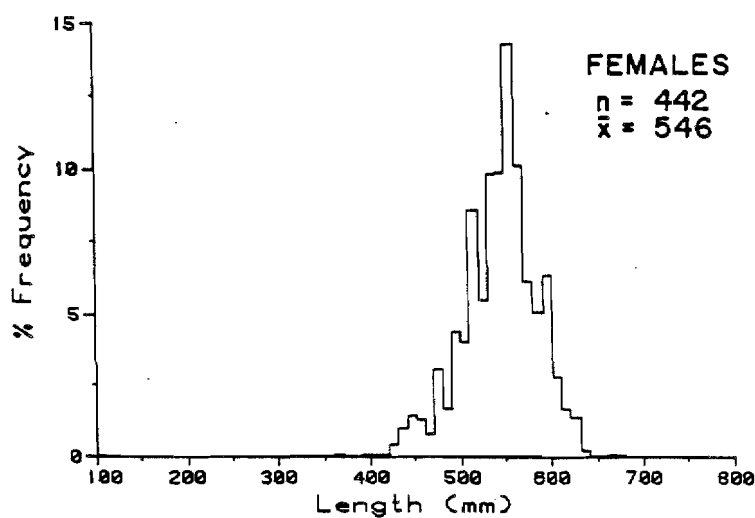
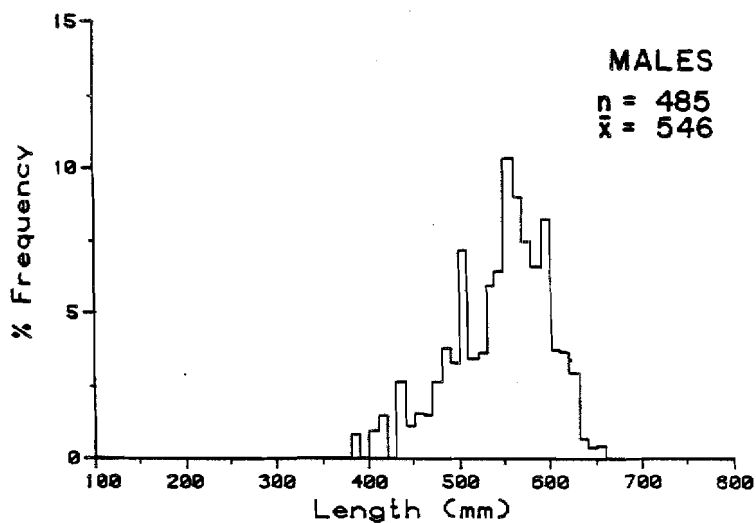
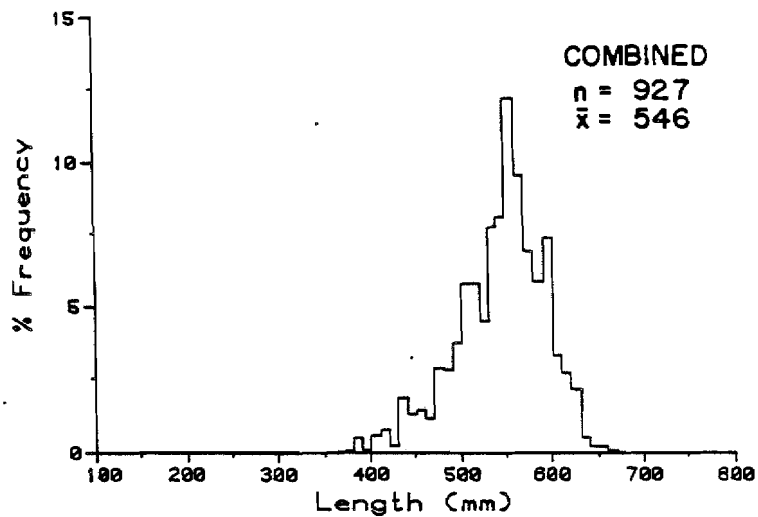
Appendix Figure 5-20. Chum salmon length frequencies at Curry Station weighted by fishwheel catch per unit of effort, 1984.



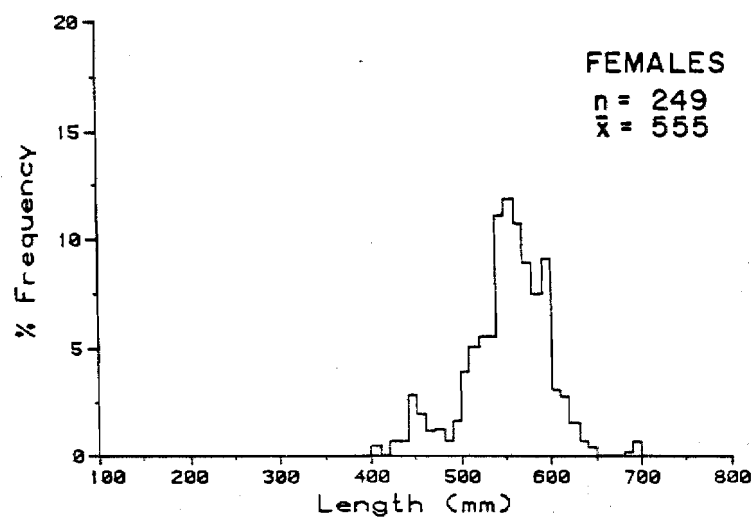
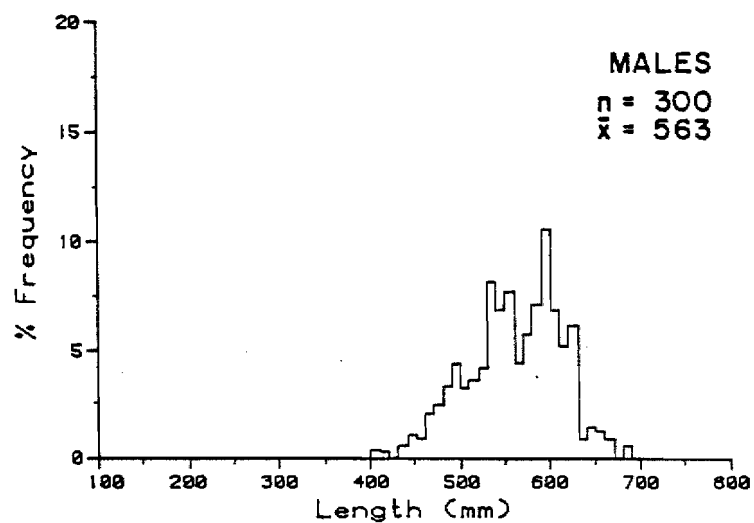
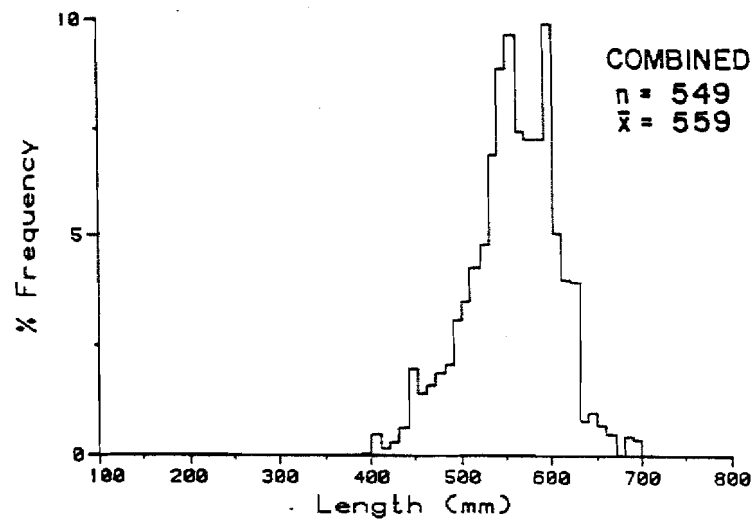
Appendix Figure 5-21. Coho salmon length frequencies at Flathorn Station weighted by fishwheel catch per unit of effort, 1984.



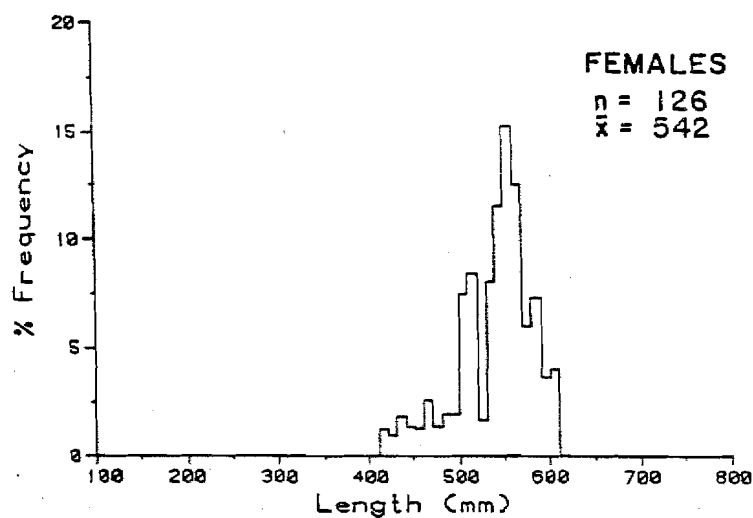
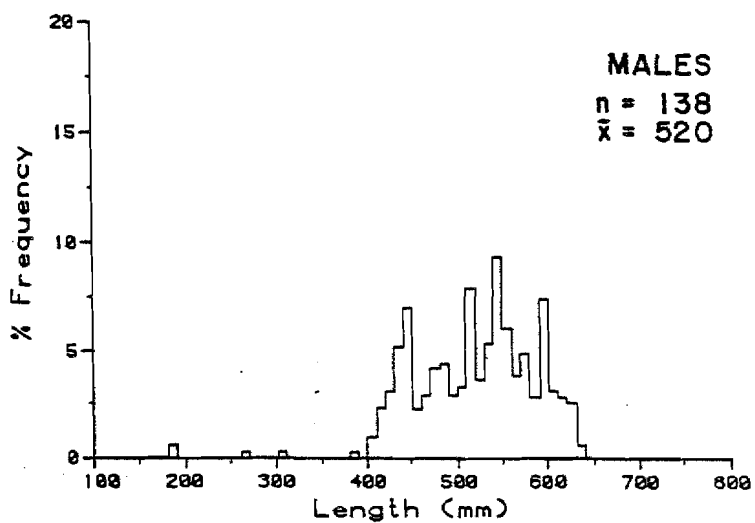
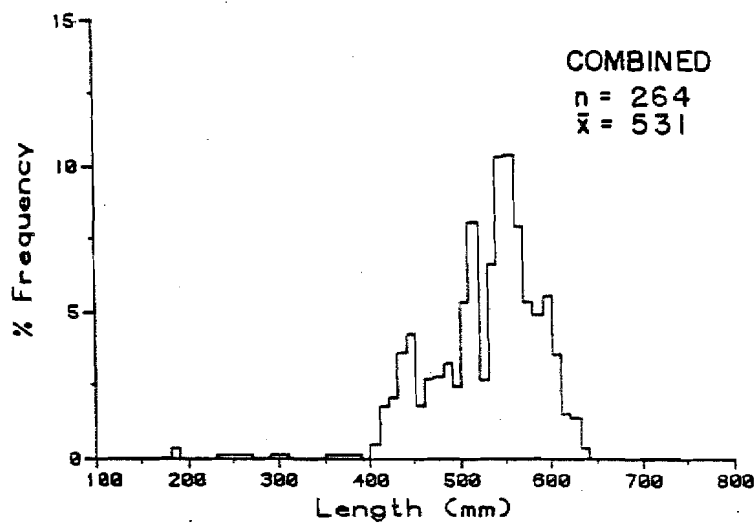
Appendix Figure 5-22. Coho salmon length frequencies at Yentna Station weighted by fishwheel catch per unit of effort, 1984.



Appendix Figure 5-23. Coho salmon length frequencies at Sunshine Station weighted by fishwheel catch per unit of effort, 1984.



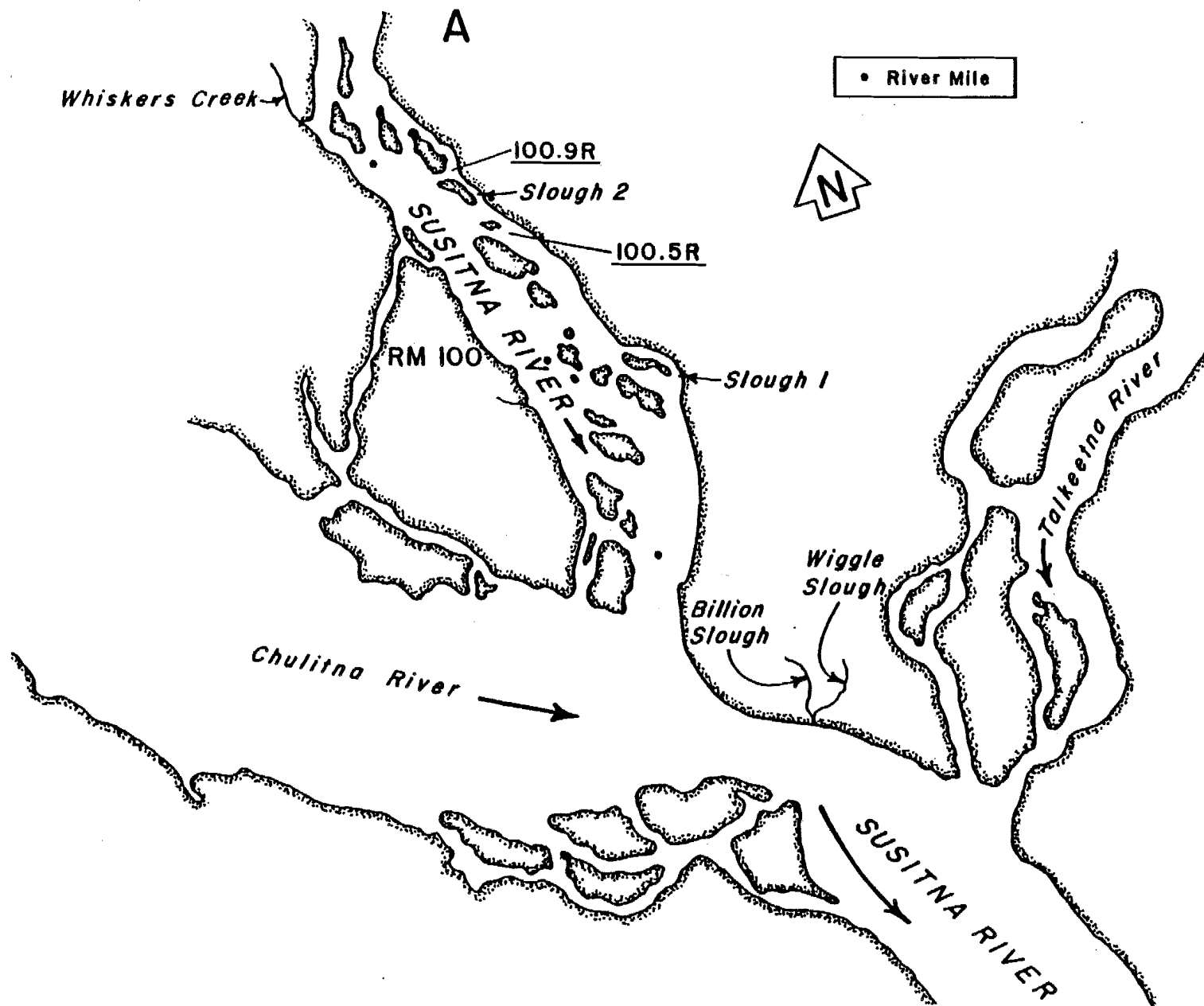
Appendix Figure 5-24. Coho salmon length frequencies at Talkeetna Station weighted by fishwheel catch per unit of effort, 1984.



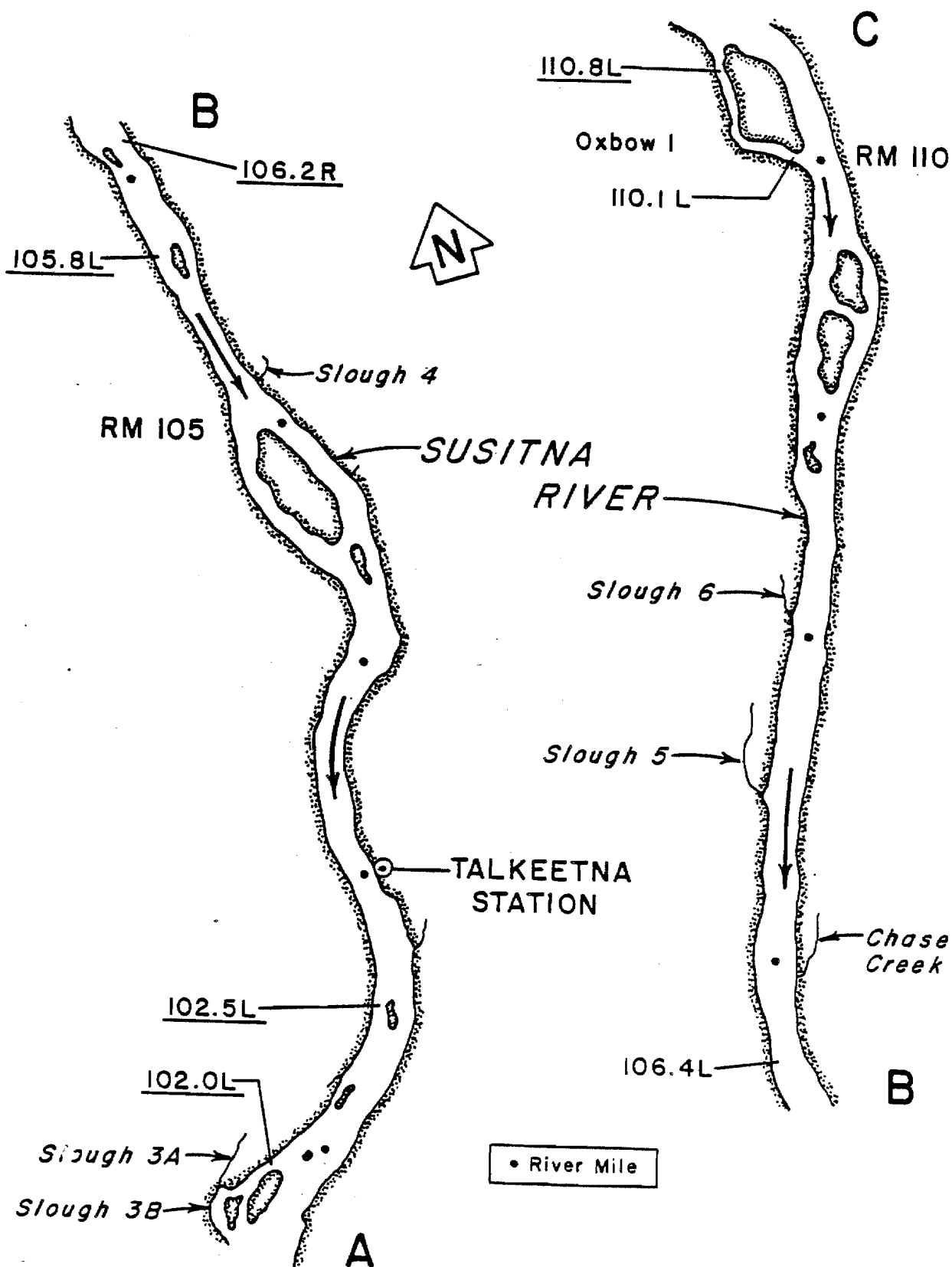
Appendix Figure 5-25. Coho salmon length frequencies at Curry Station weighted by fishwheel catch per unit of effort, 1984.

APPENDIX 6

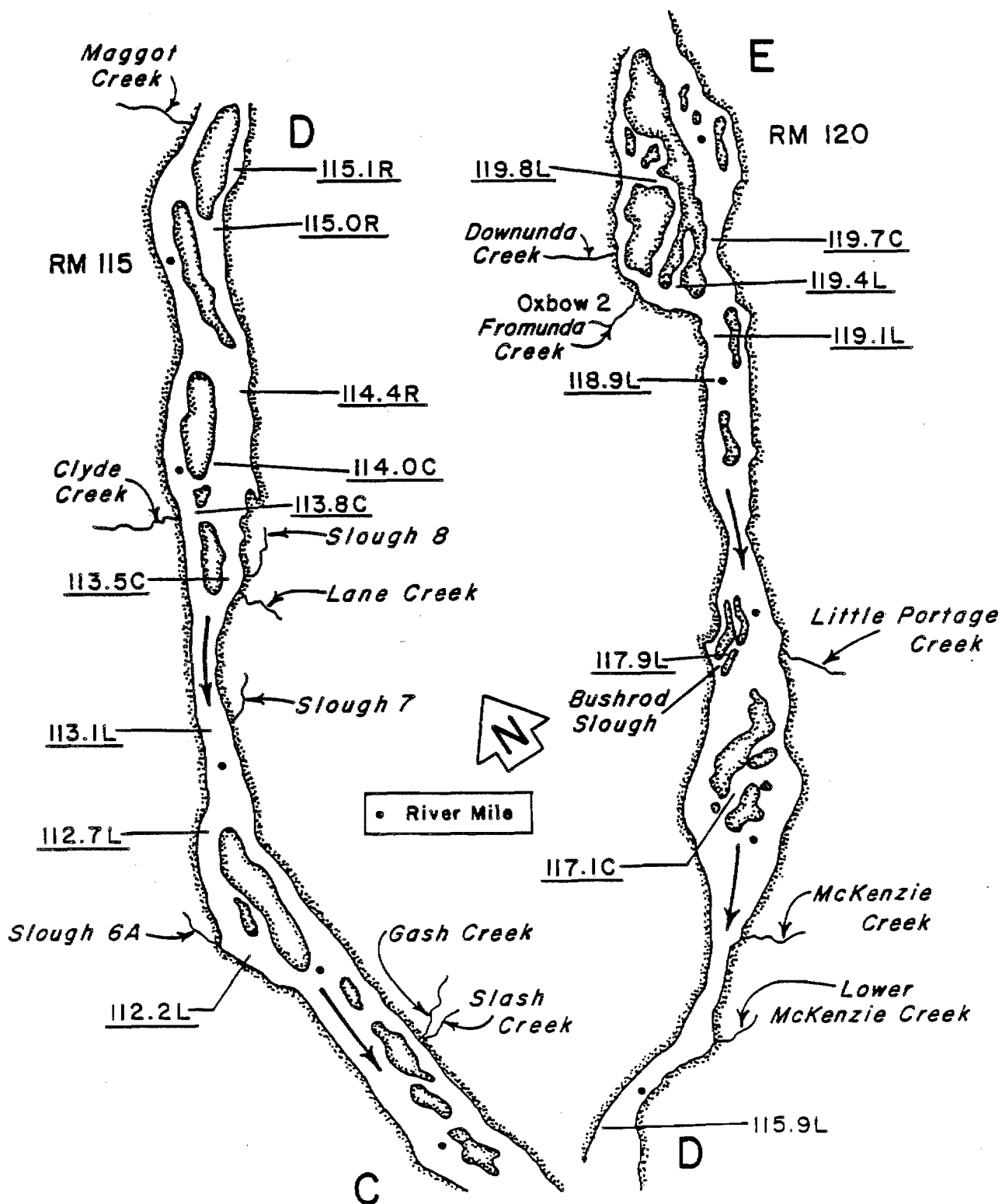
1. SLOUGH, STREAM AND MAINSTEM SPAWNING LOCATION MAP
2. NEW SLOUGH MAPS
3. ZONES OF SLOUGH 8A AND 11
4. MAINSTEM SUSITNA RIVER SPAWNING SITE TABLE AND FIGURES
5. TRIBUTARY SPAWNING FIGURES
6. SLOUGH AND STREAM SURVEY COUNT TABLES
7. TAGGED/UNTAGGED RATIOS FROM SPAWNING GROUND SURVEYS



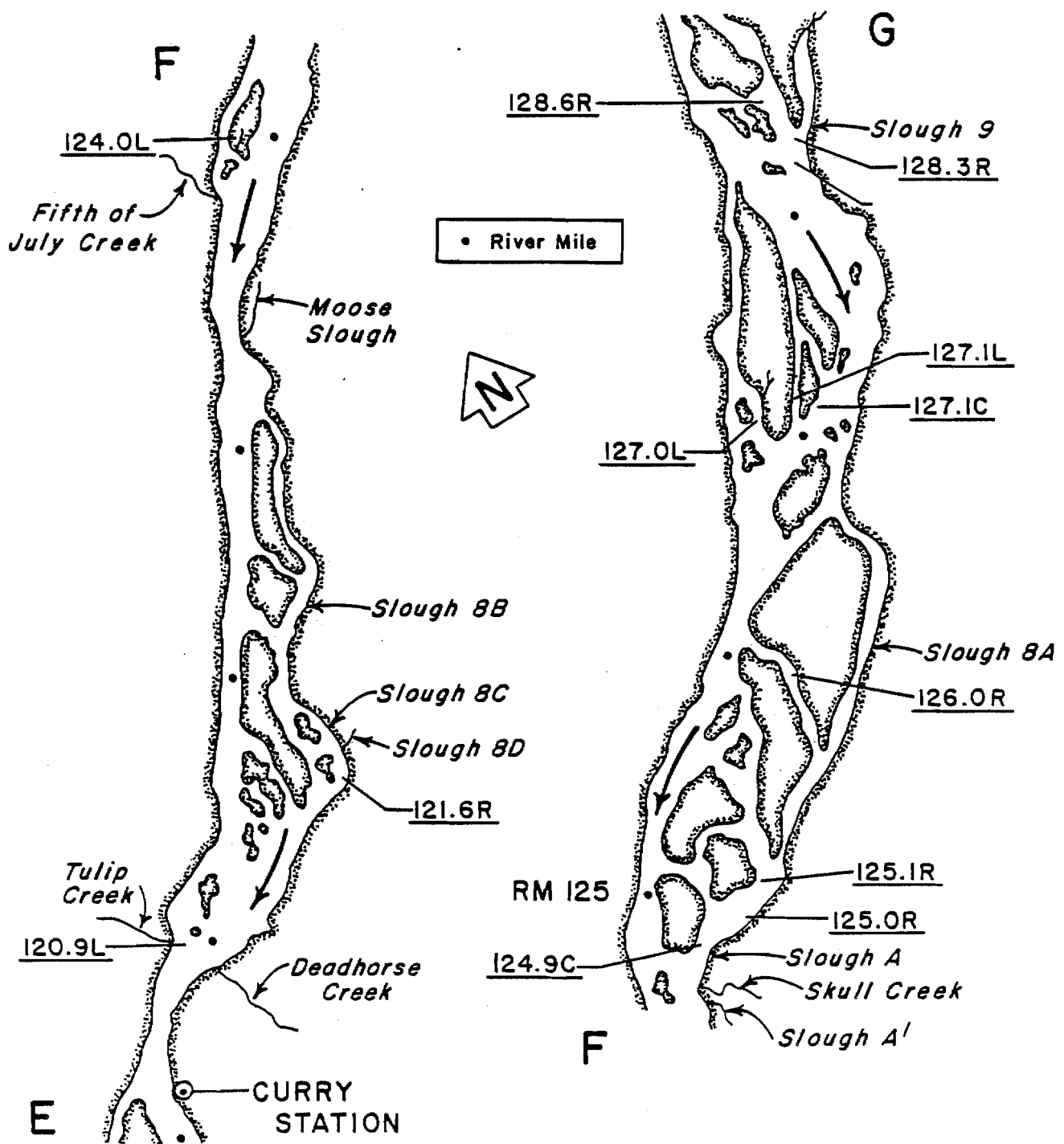
Appendix Figure 6-1. Susitna River slough, stream and mainstem spawning locations from the confluence of the Talkeetna and Chulitna rivers to RM 150.0, 1984.



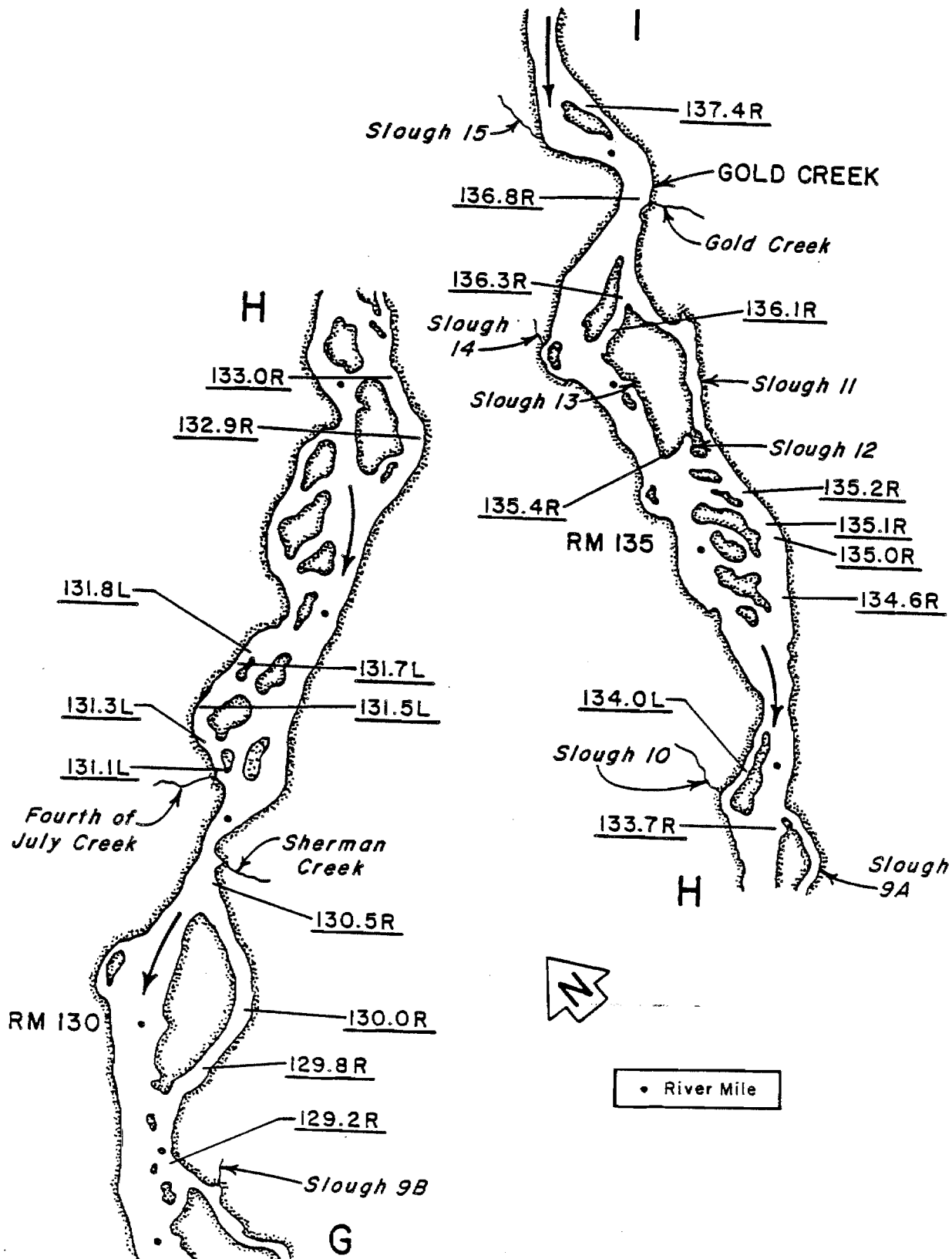
Appendix Figure 6-1 (cont). Susitna River slough, stream and mainstem spawning locations from the confluence of the Talkeetna and Chulitna rivers to RM 150.0, 1984.



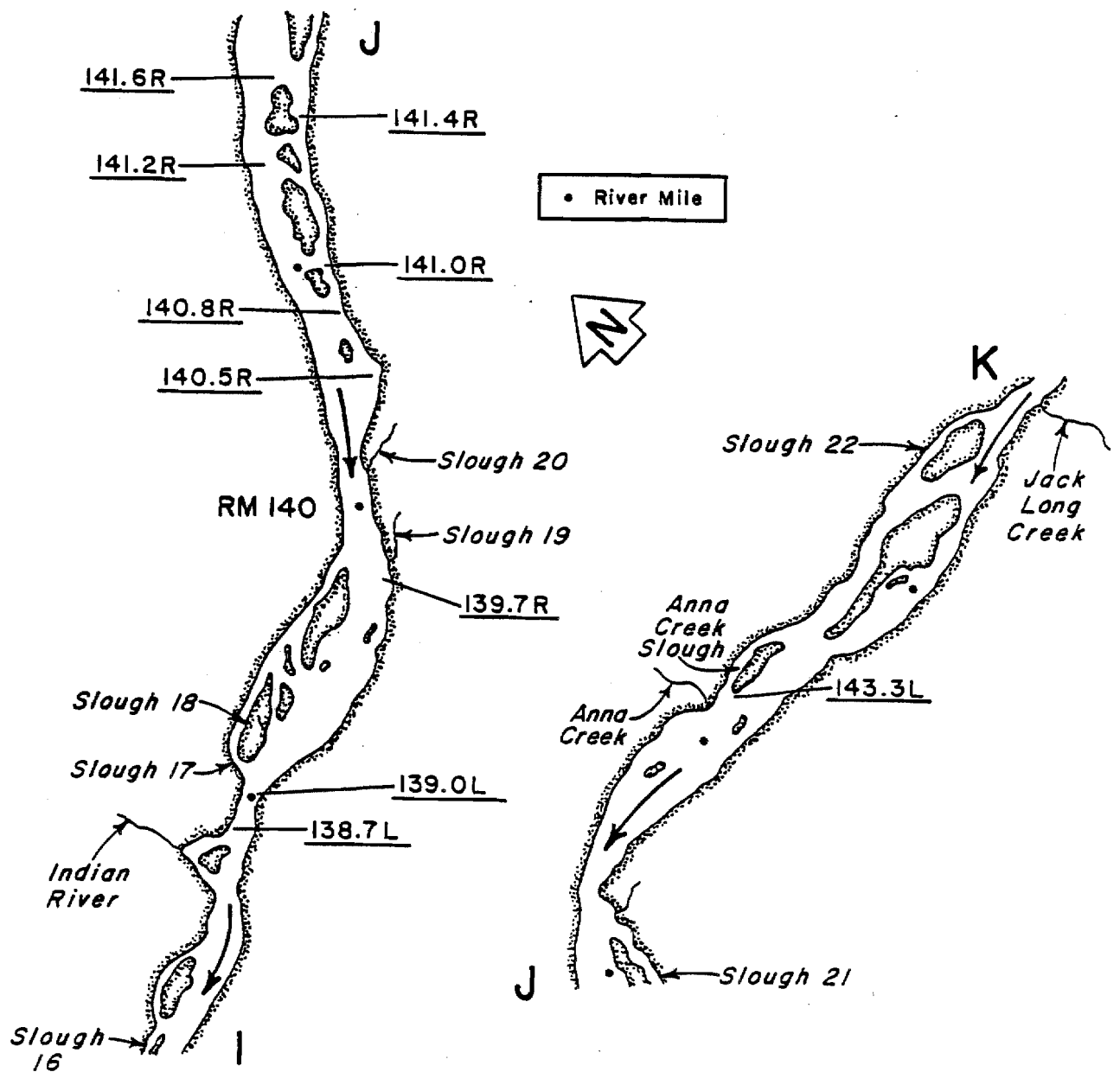
Appendix Figure 6-1 (cont). Susitna River slough, stream and mainstem spawning locations from the confluence of the Talkeetna and Chulitna rivers to RM 150.0, 1984.



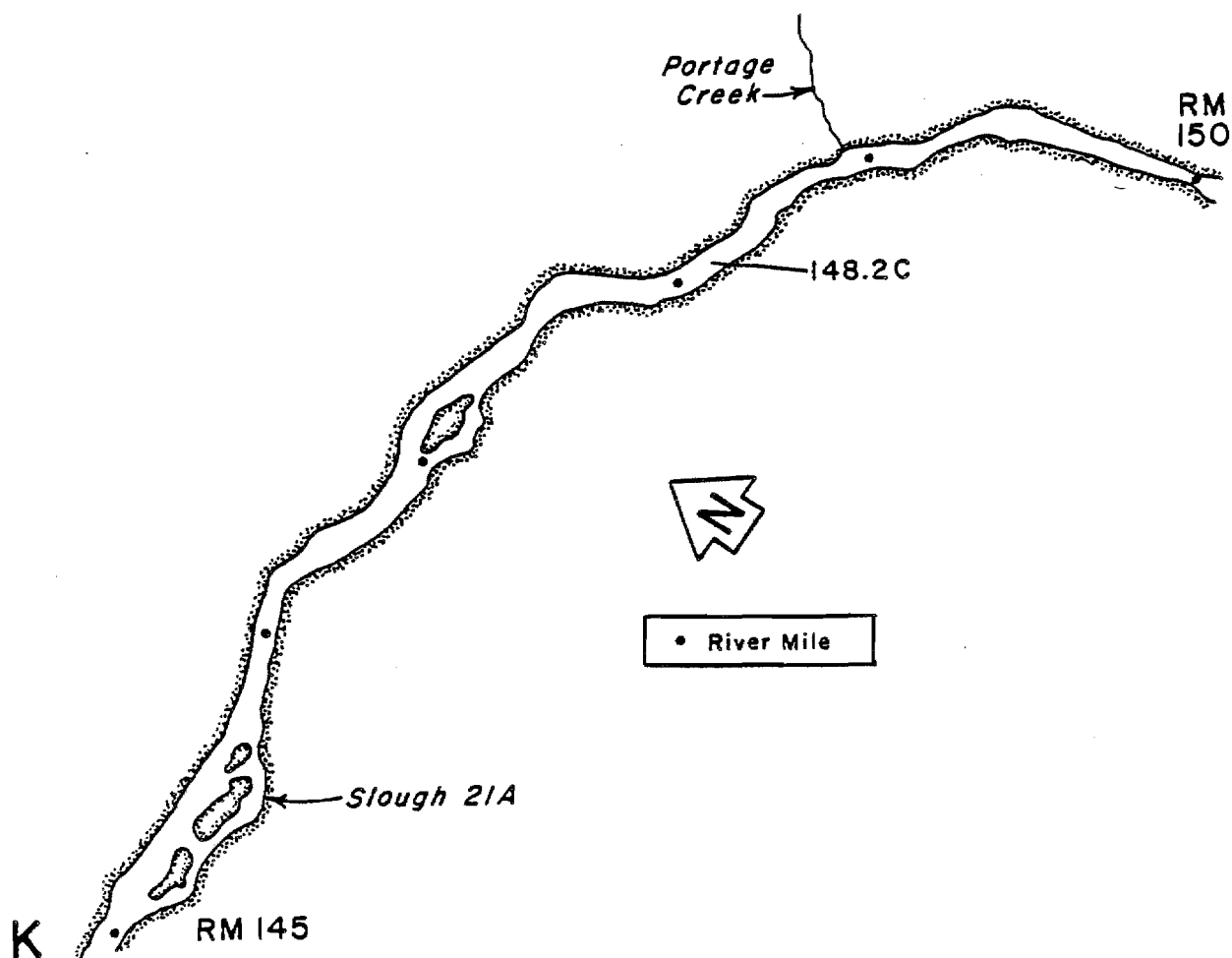
Appendix Figure 6-1 (cont). Susitna River slough, stream and mainstem spawning locations from the confluence of the Talkeetna and Chulitna rivers to RM 150.0, 1984.



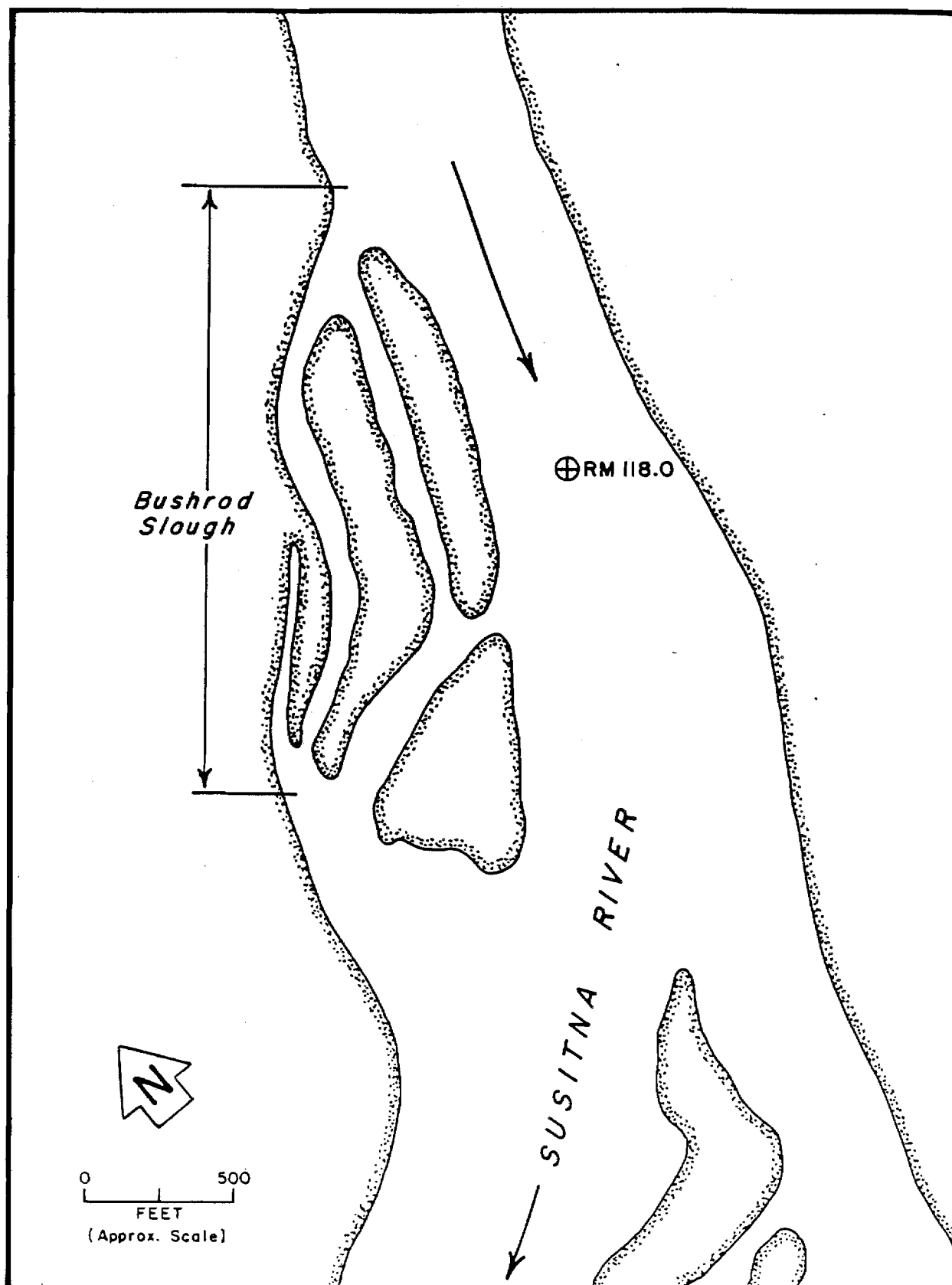
Appendix Figure 6-1 (cont). Susitna River slough, stream and mainstem spawning locations from the confluence of the Talkeetna and Chulitna rivers to RM 150.0, 1984.



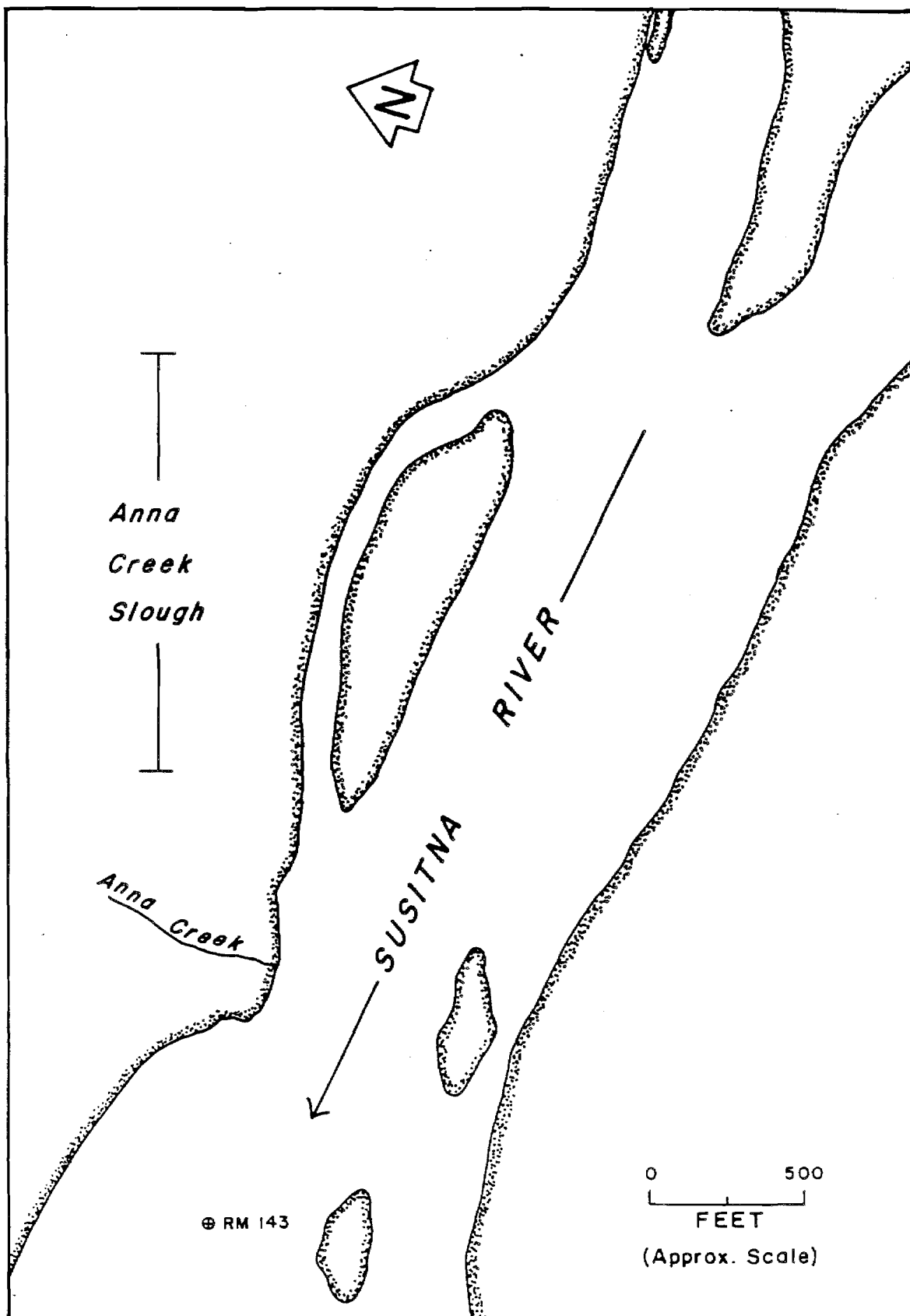
Appendix Figure 6-1 (cont). Susitna River slough, stream and mainstem spawning locations from the confluence of the Talkeetna and Chulitna rivers to RM 150.0, 1984.



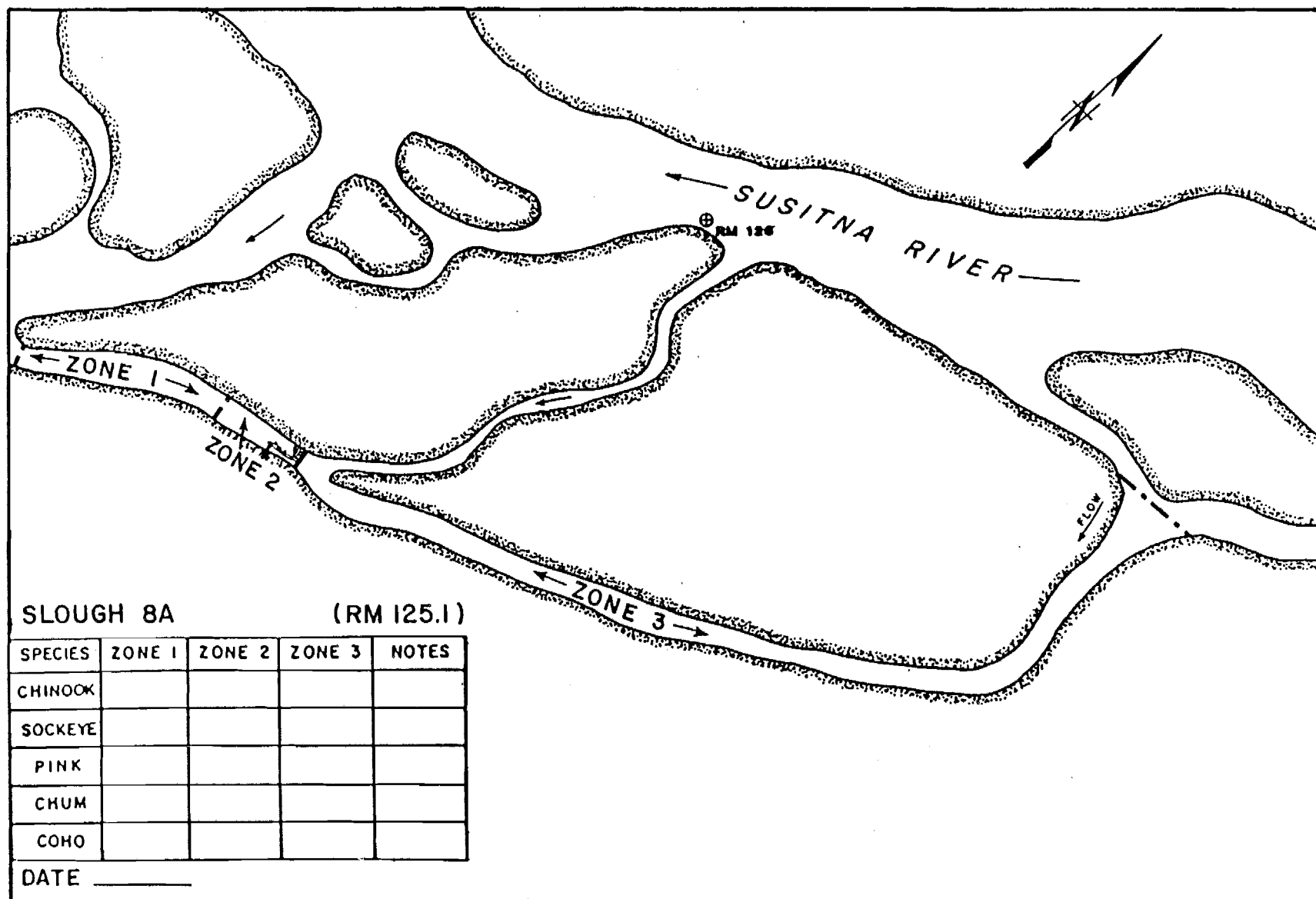
Appendix Figure 6-1 (cont). Susitna River slough, stream and mainstem spawning locations from the confluence of the Talkeetna and Chulitna rivers to RM 150.0, 1984.



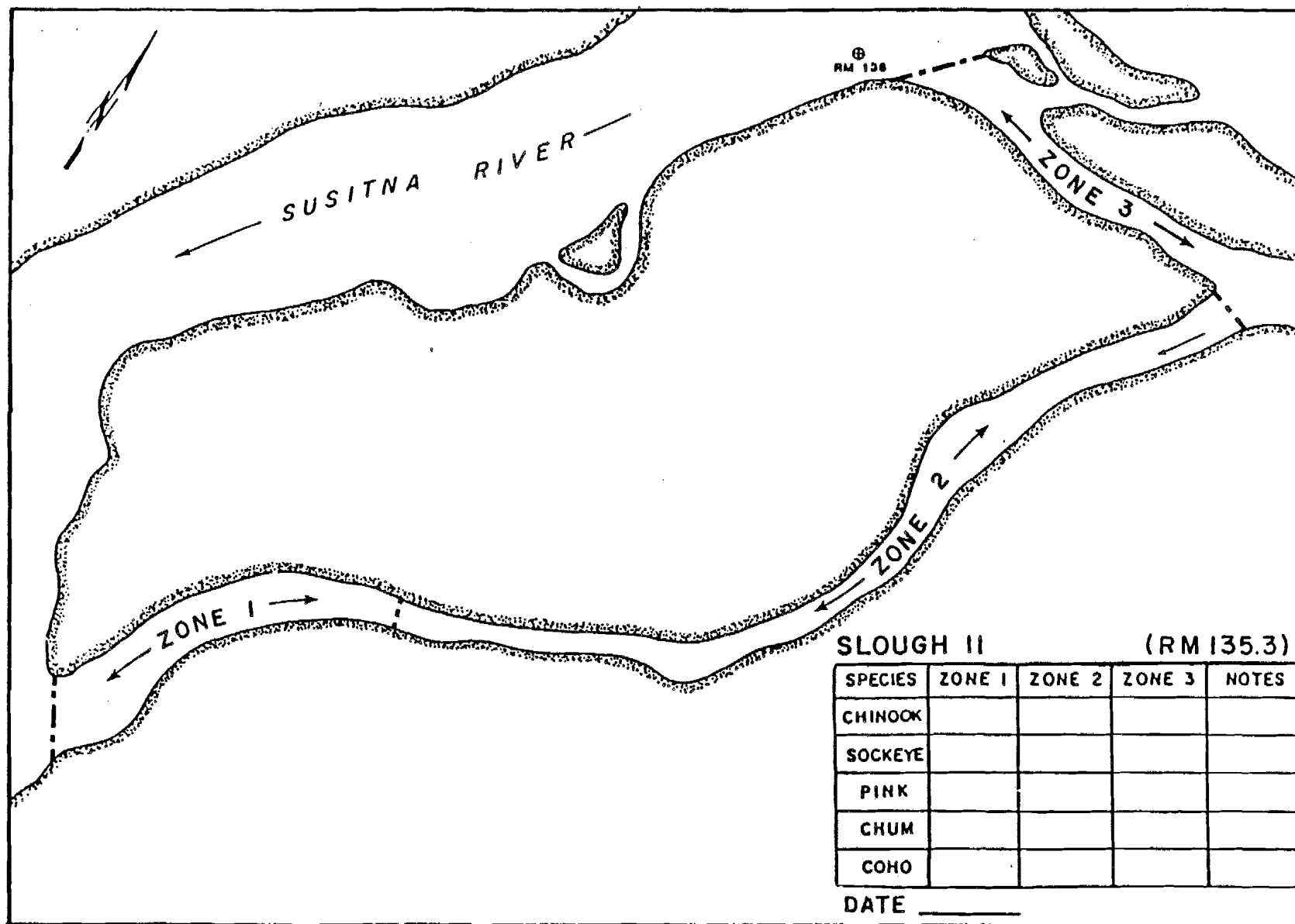
Appendix Figure 6-2. Bushrod Slough located at RM 117.8, 1984.



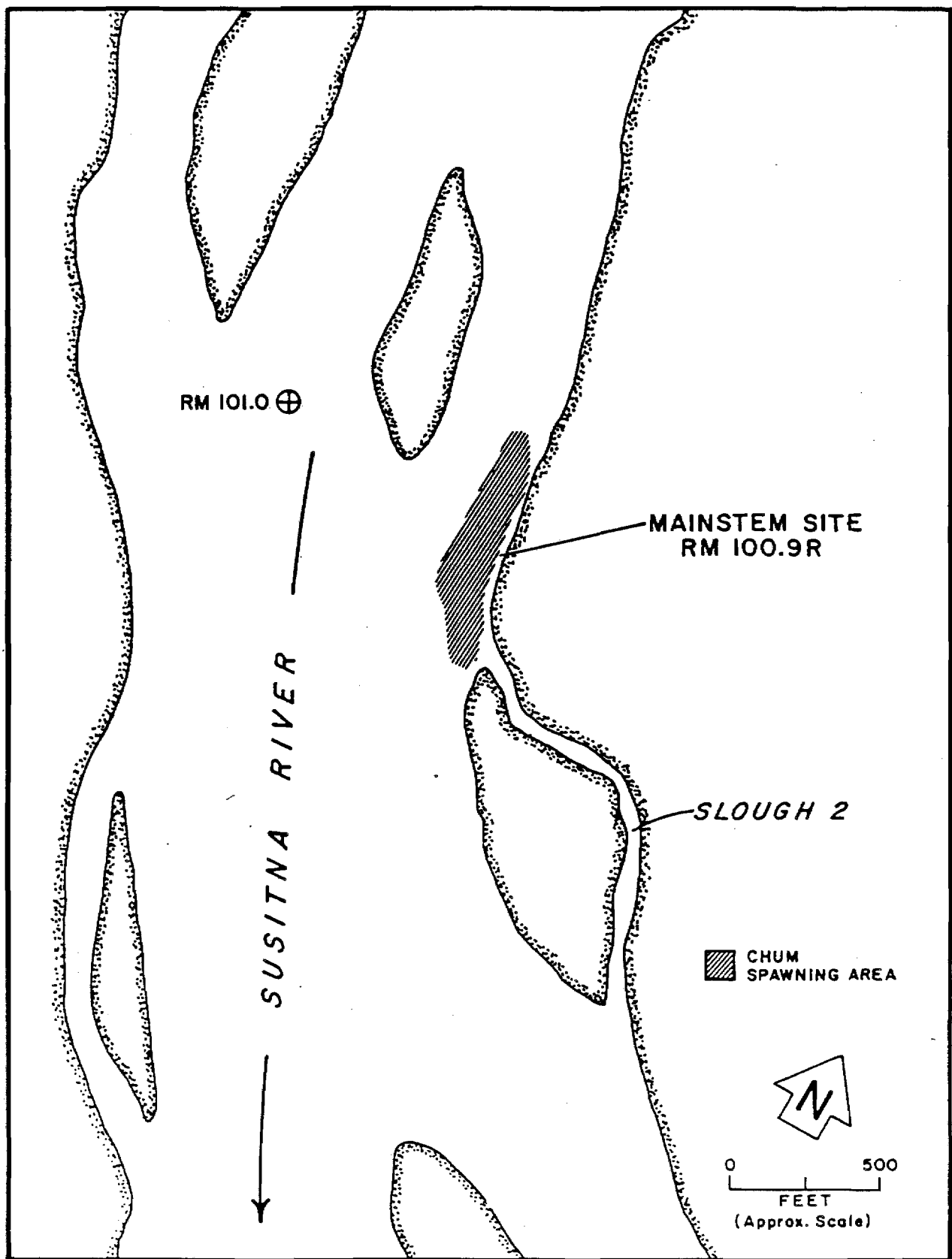
Appendix Figure 6-3. Anna Creek Slough located at RM 143.2, 1984.



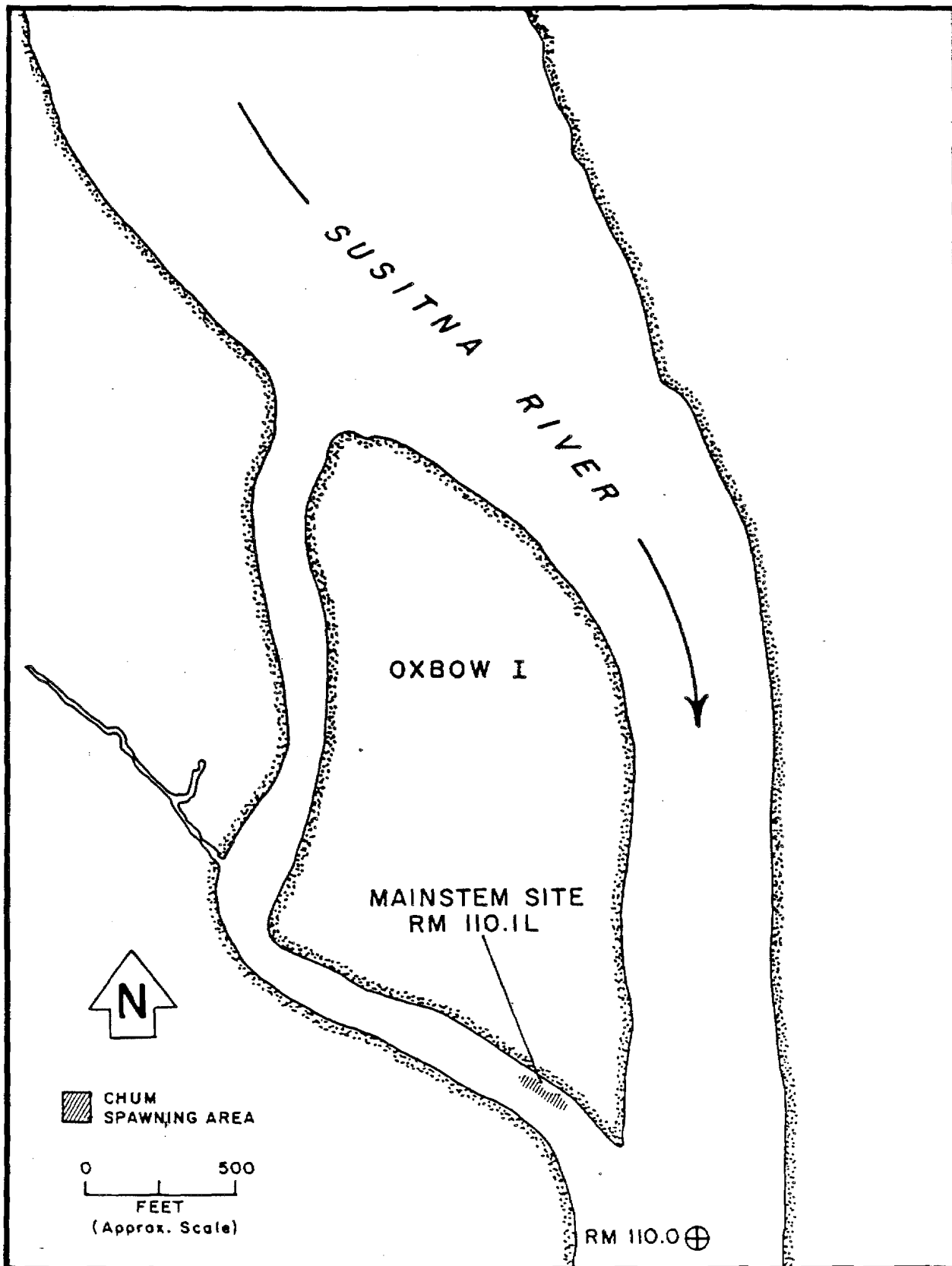
Appendix Figure 6-4. Slough 8A map with habitat locations (zones) defined, 1984.



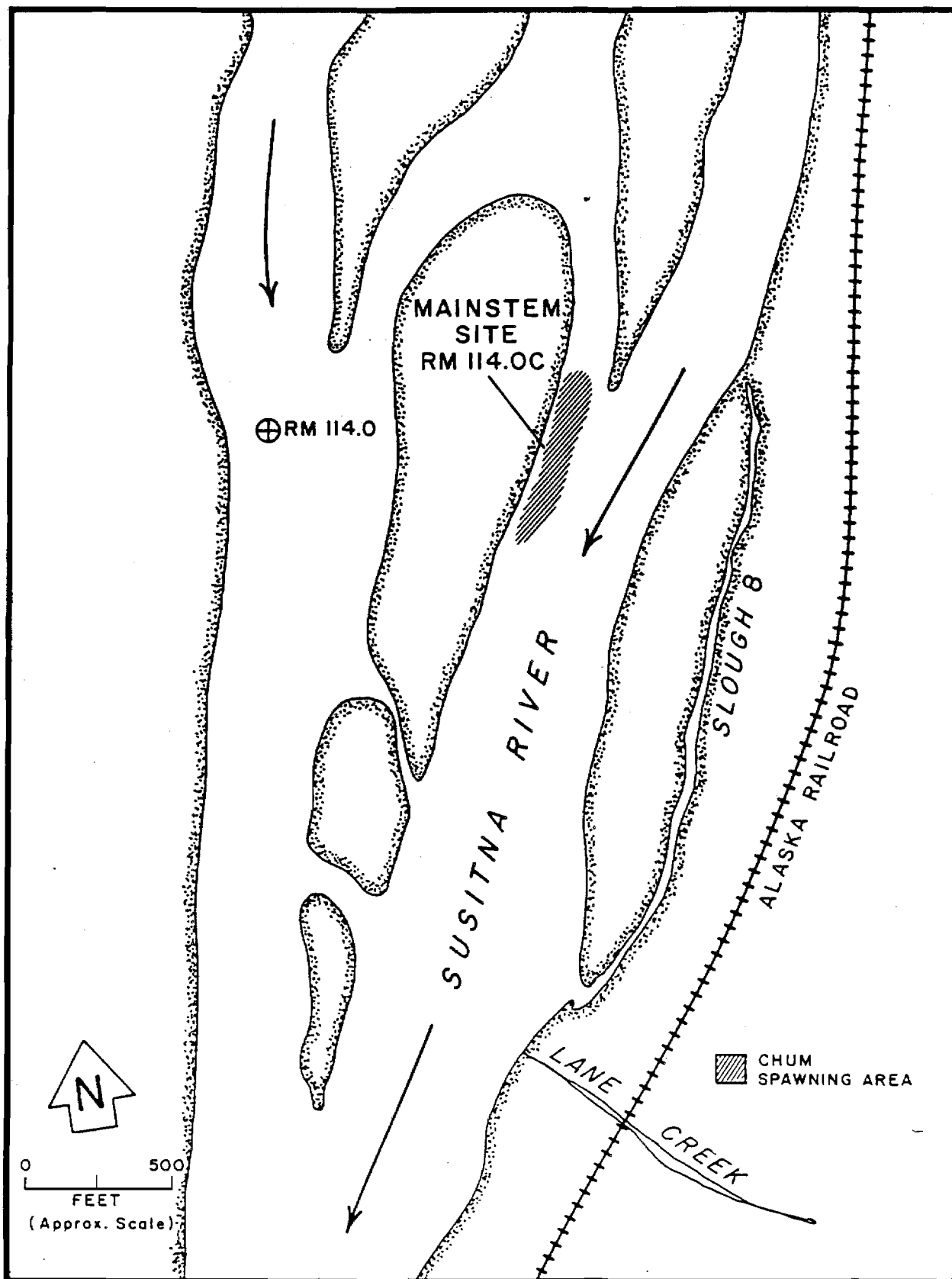
Appendix Figure 6-5. Slough 11 map with habitat locations (zones) defined, 1984.



Appendix Figure 6-6. Mainstem Susitna River chum salmon spawning area at RM 100.9R, 1984.

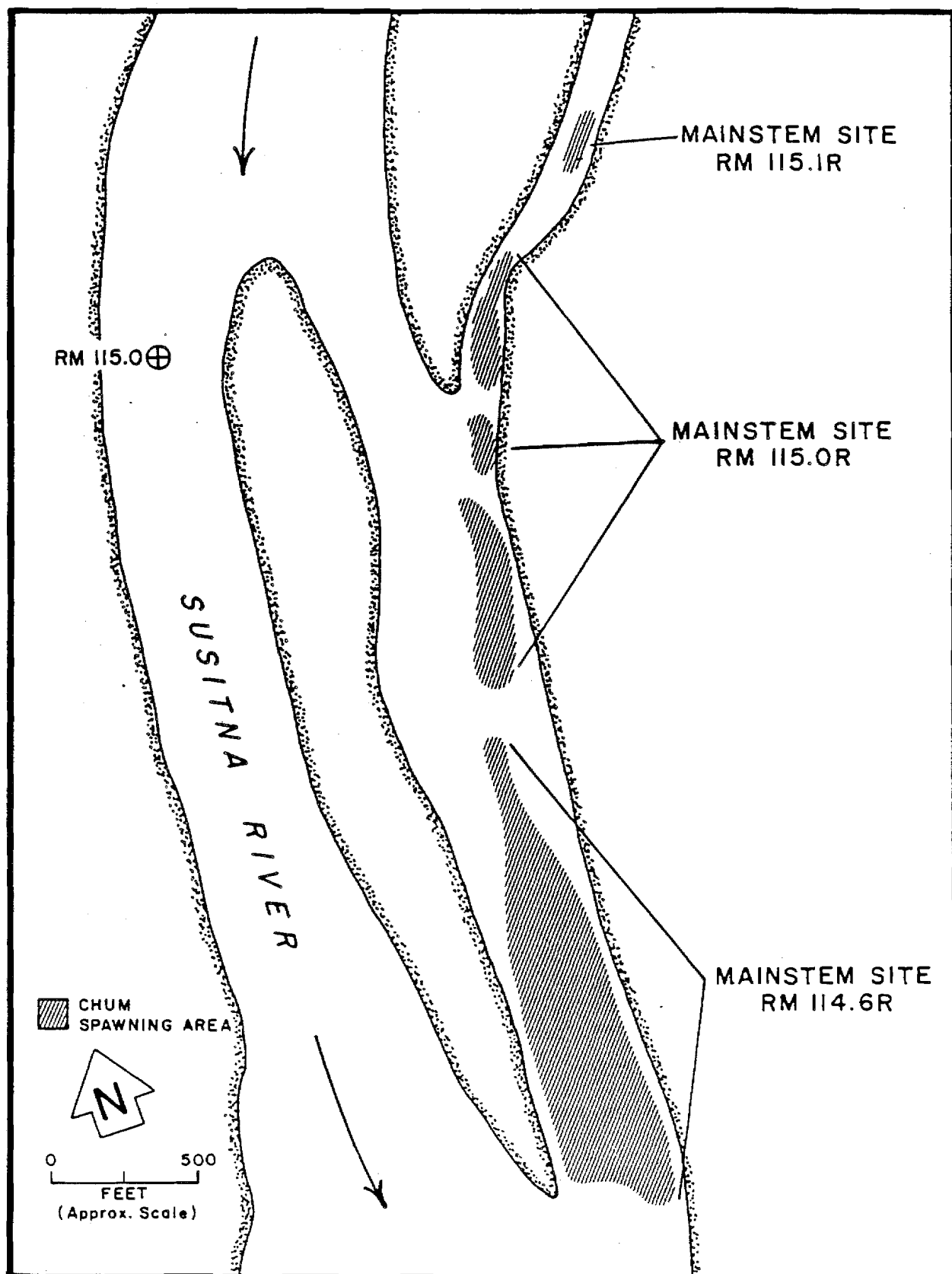


Appendix Figure 6-7. Mainstem Susitna River chum salmon spawning area at RM 110.1L, 1984.



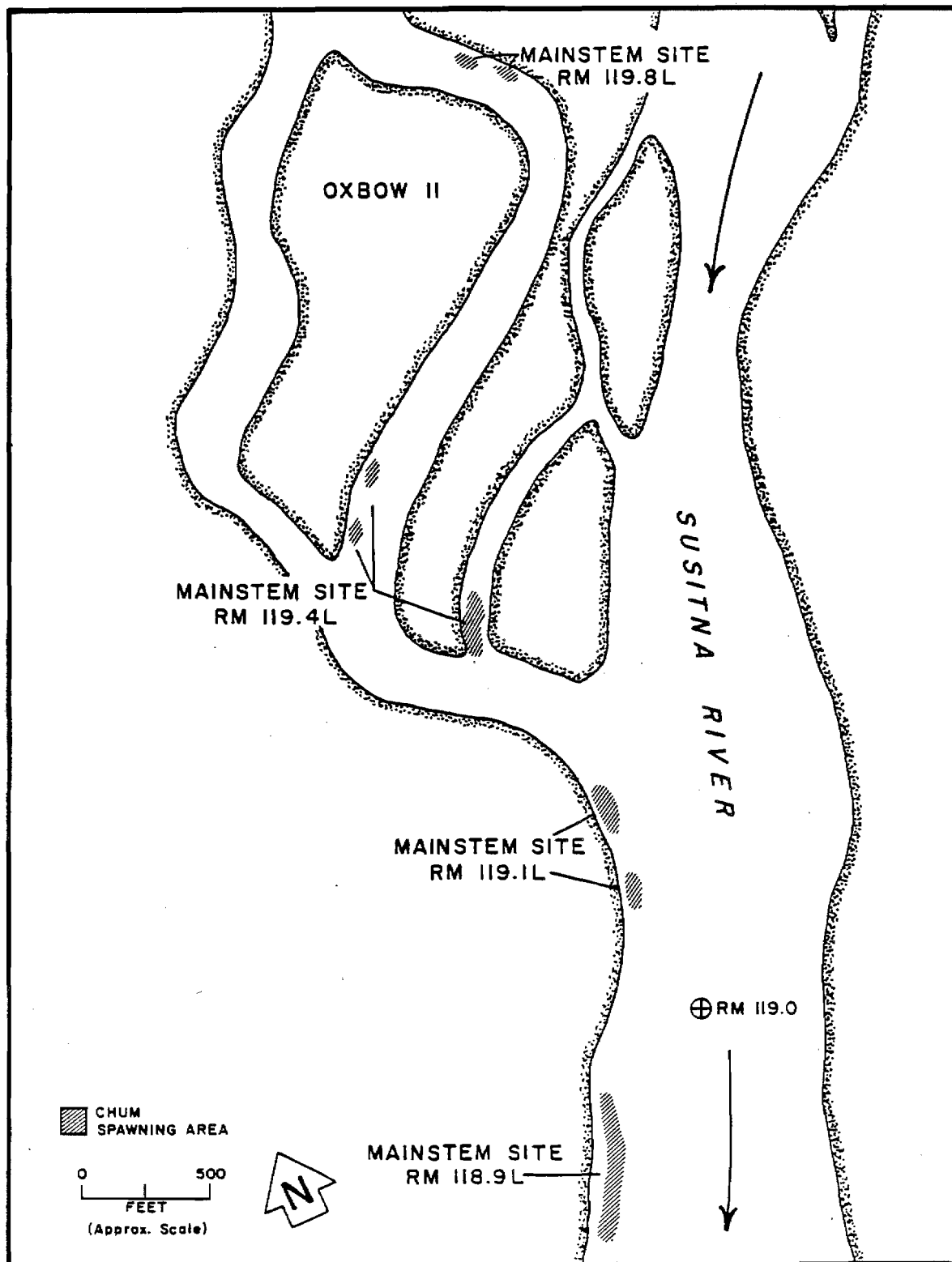
Appendix Figure 6-8.

Mainstem Susitna River chum salmon spawning area
at RM 114.0C, 1984.

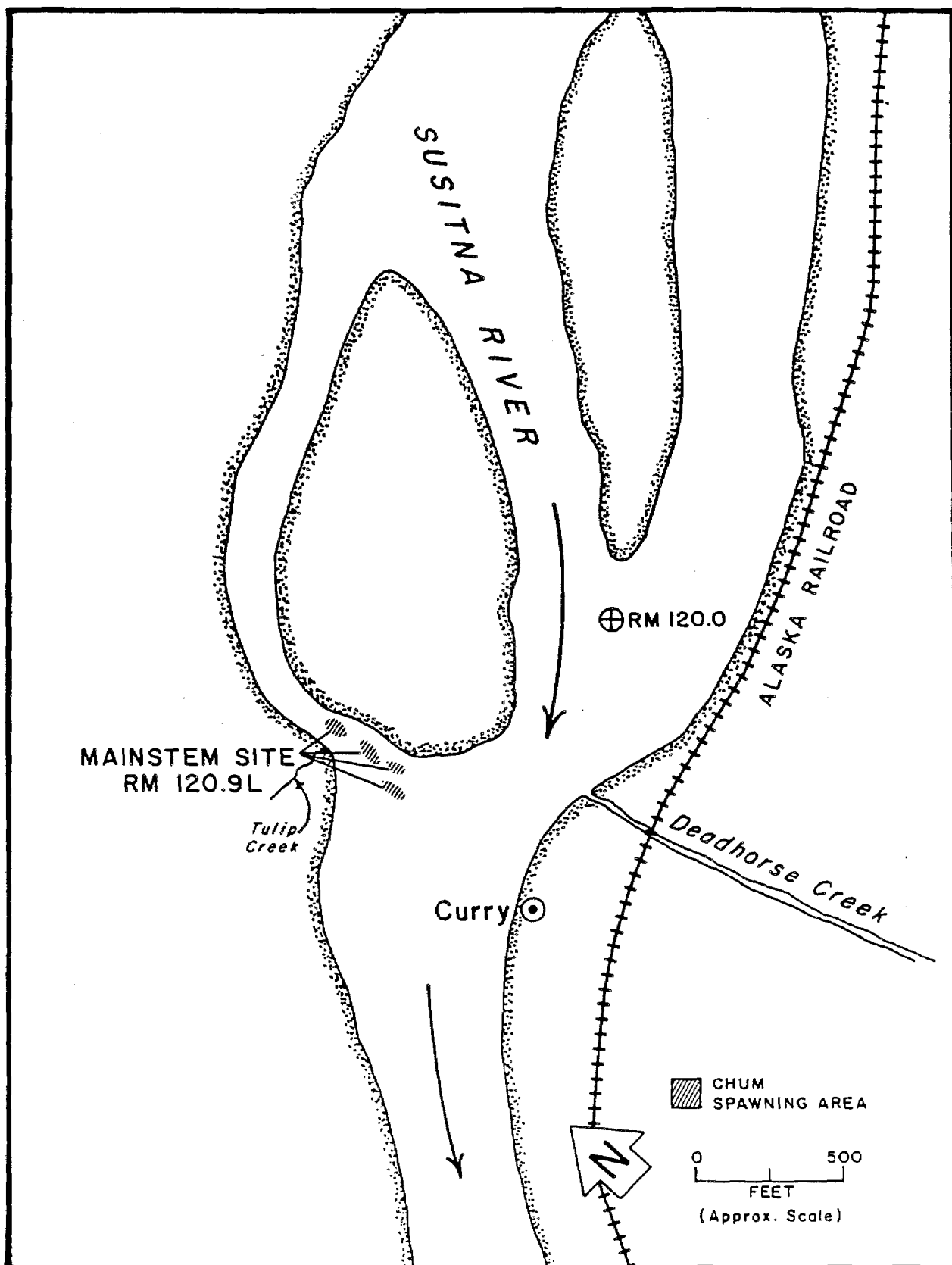


Appendix Figure 6-9.

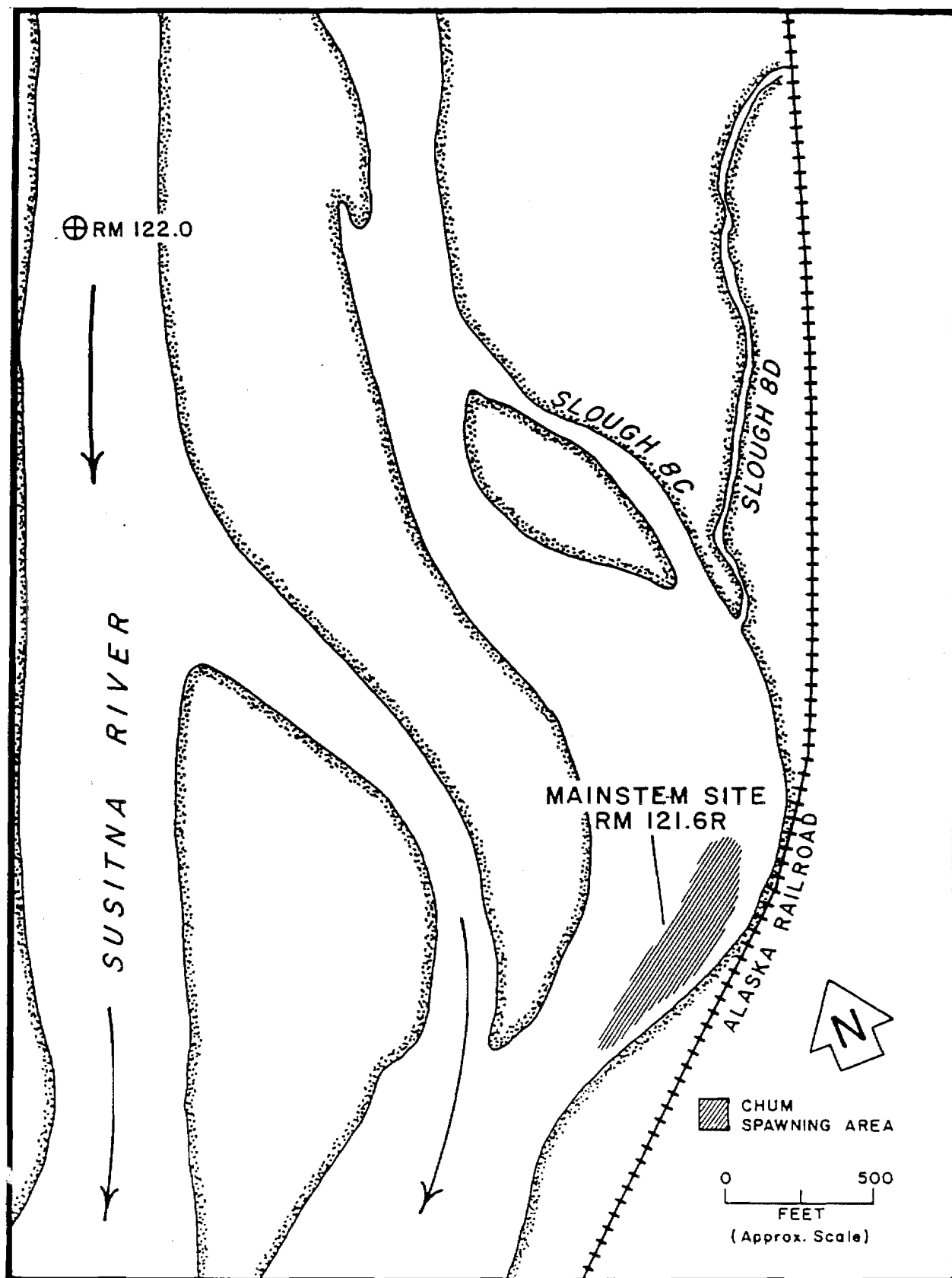
Mainstem Susitna River chum salmon spawning areas at RM 114.6R, 115.0R and 115.1R, 1984.



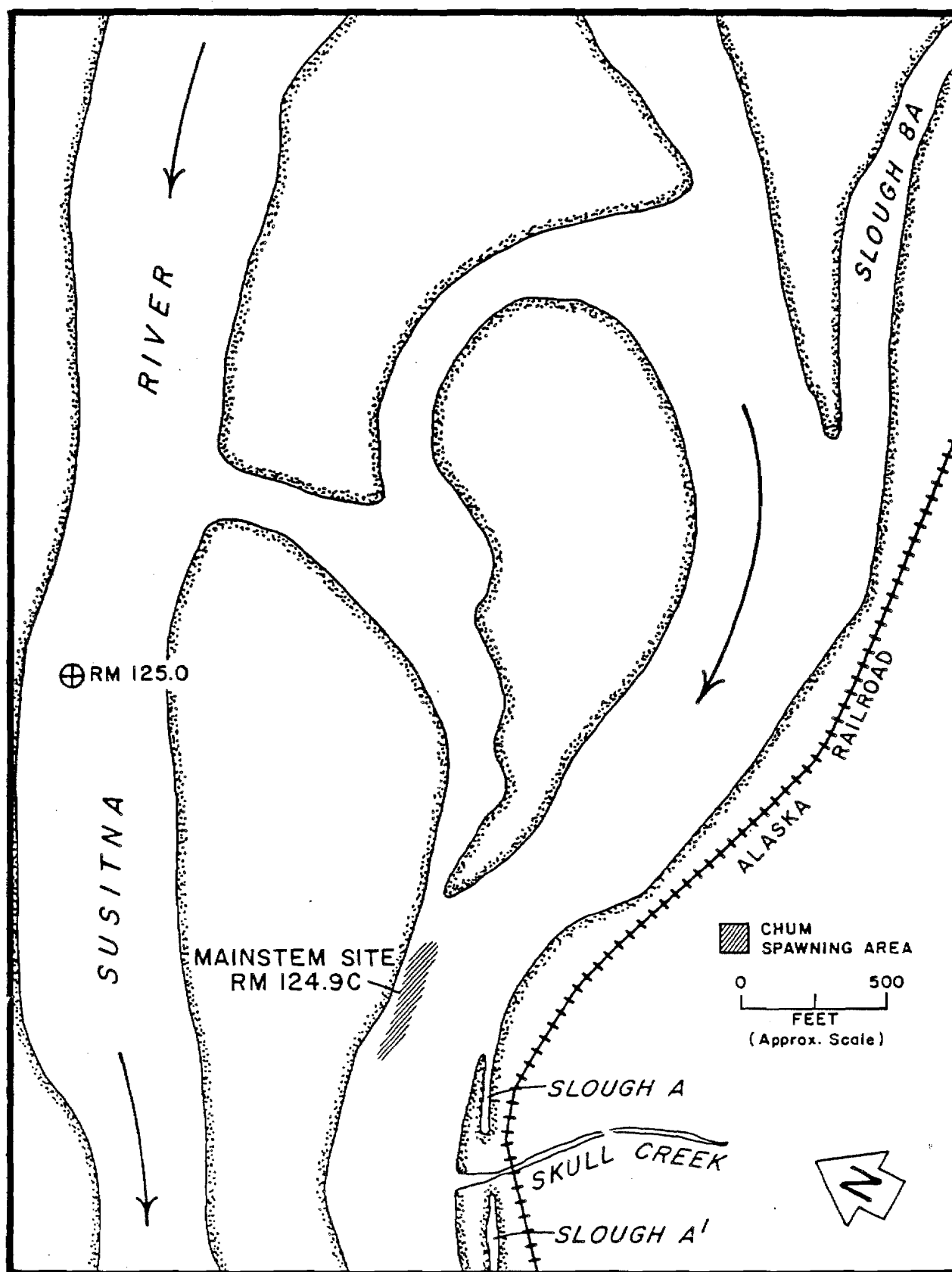
Appendix Figure 6-10. Mainstem Susitna River chum salmon spawning areas at RM 118.9L, 119.1L, 119.4L and 119.8L, 1984.



Appendix Figure 6-11. Mainstem Susitna River chum salmon spawning area at RM 120.9L, 1984.

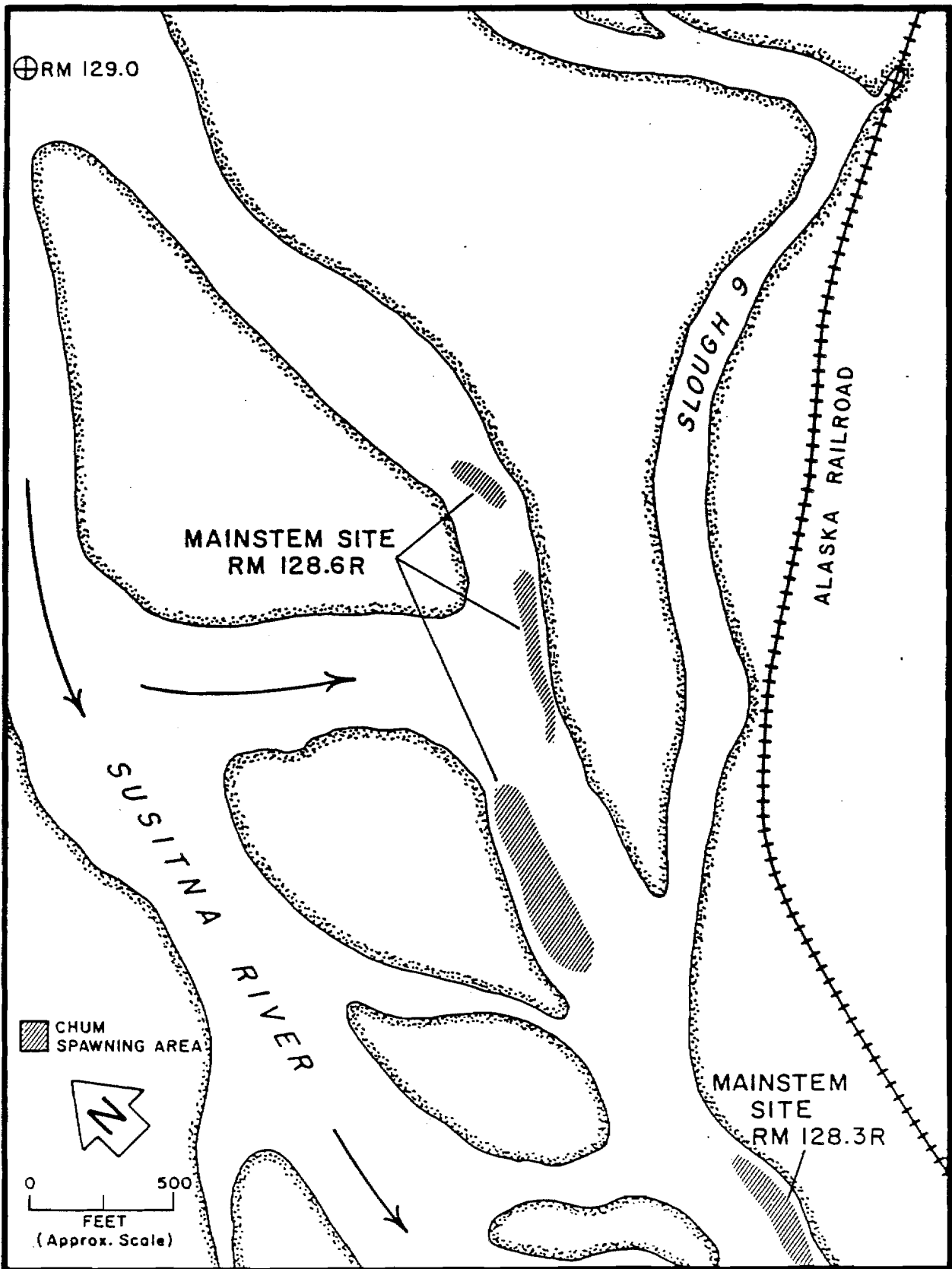


Appendix Figure 6-12. Mainstem Susitna River chum salmon spawning area at RM 121.6R, 1984.

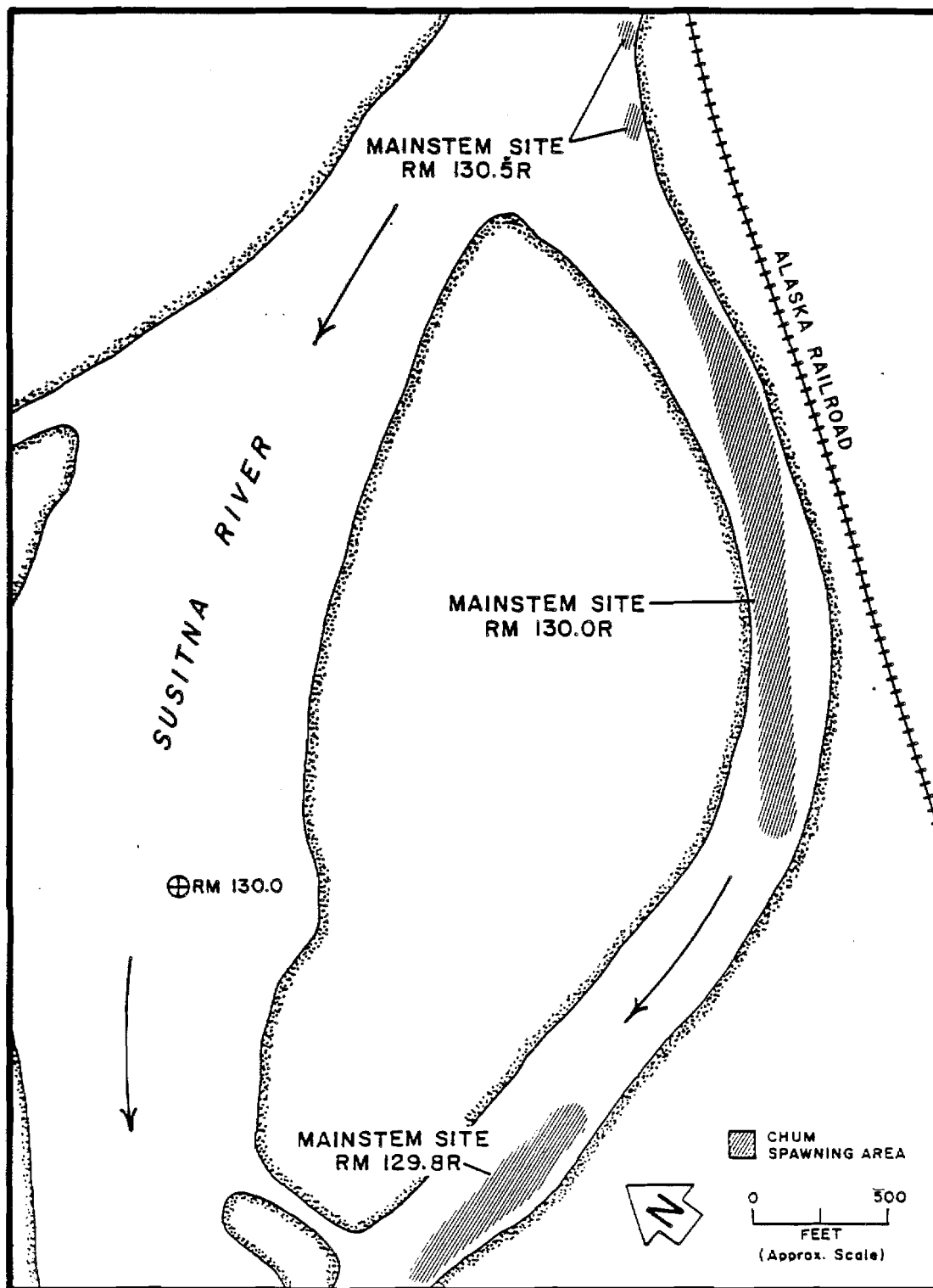


Appendix Figure 6-13.

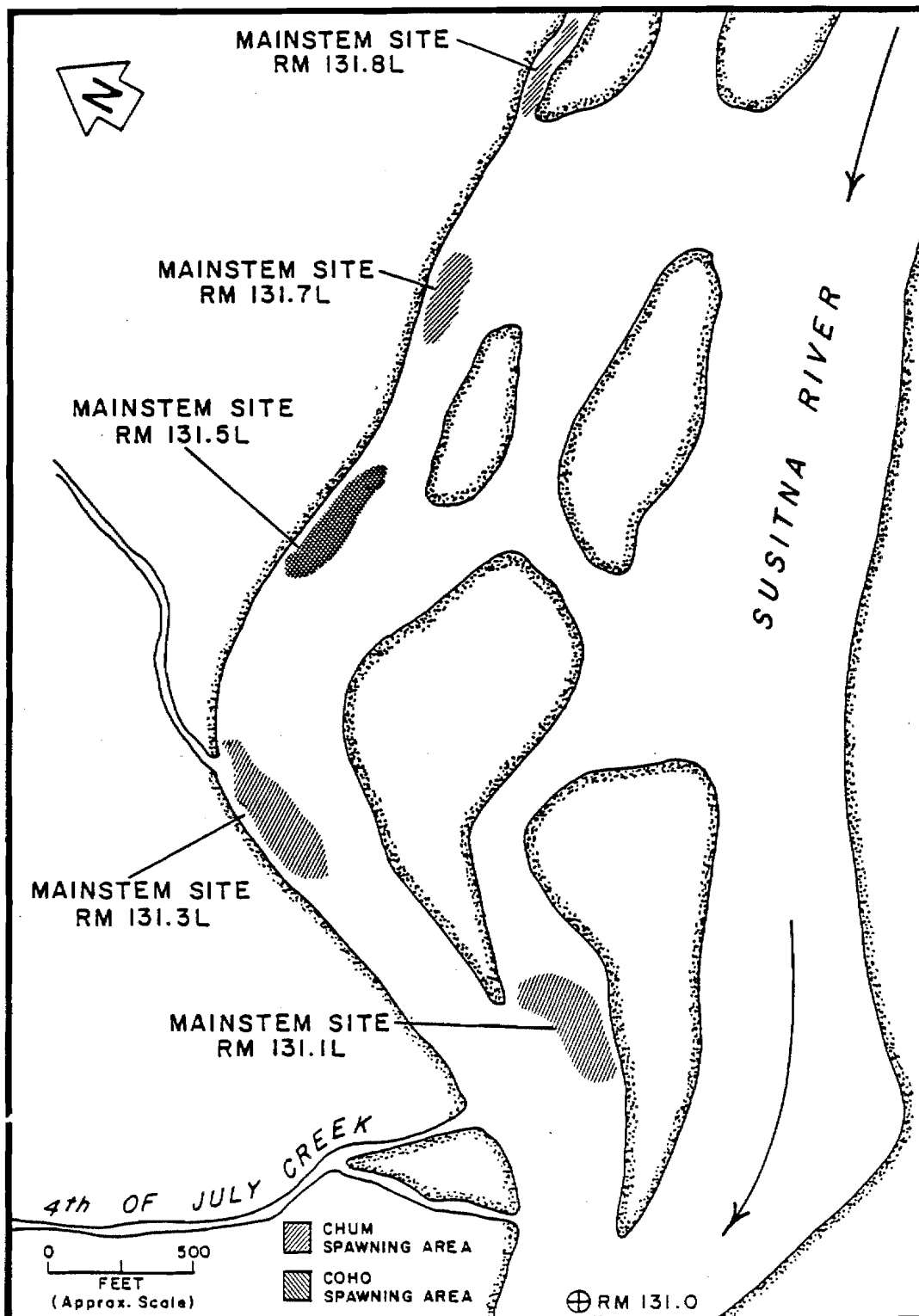
Mainstem Susitna River chum salmon spawning area
at RM 124.9C, 1984.



Appendix Figure 6-14. Mainstem Susitna River chum salmon spawning areas at RM 128.3R and 128.6R, 1984.

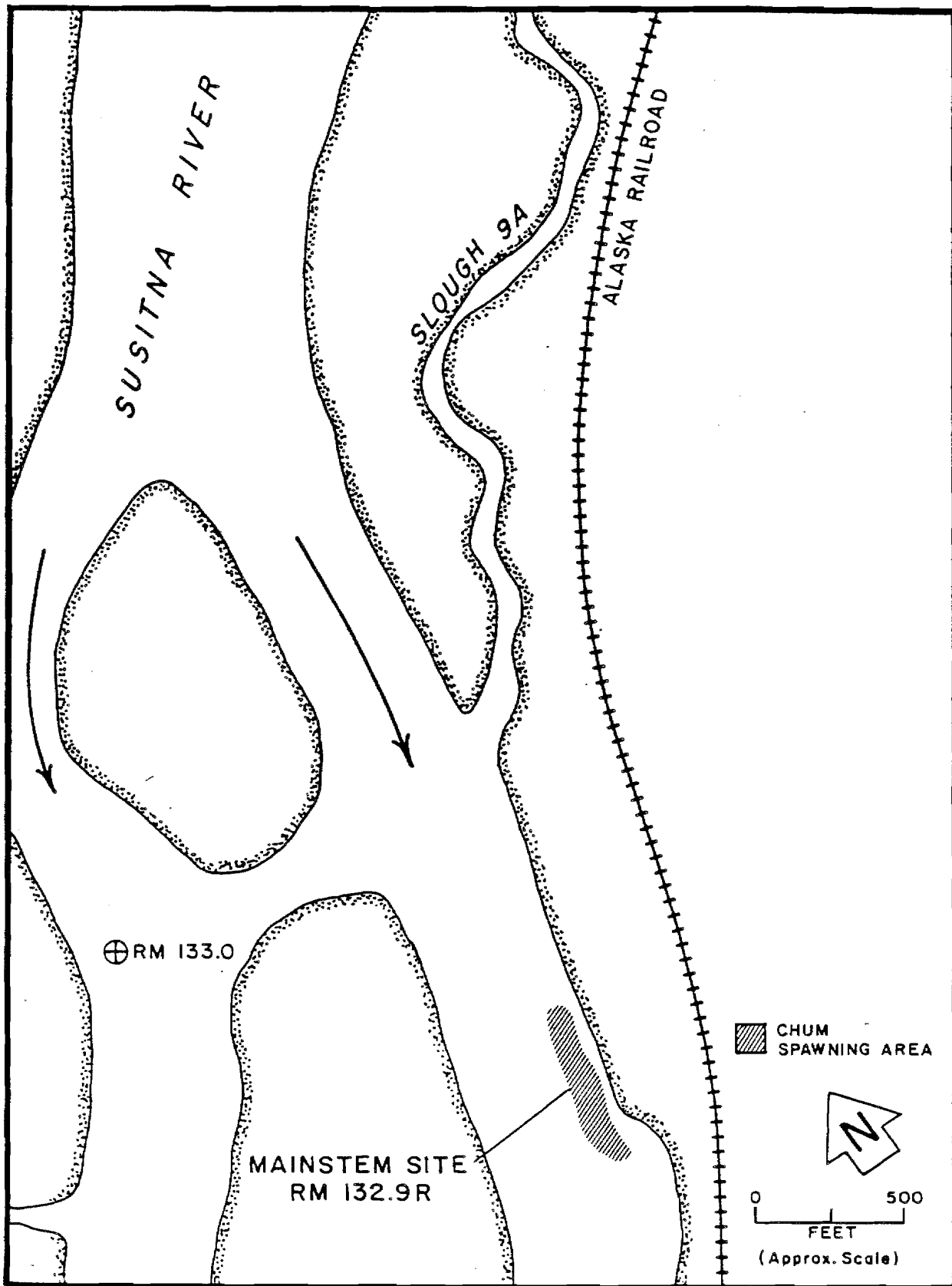


Appendix Figure 6-15. Mainstem Susitna River chum salmon spawning areas at RM 129.8R, 130.0R and 130.5R, 1984.

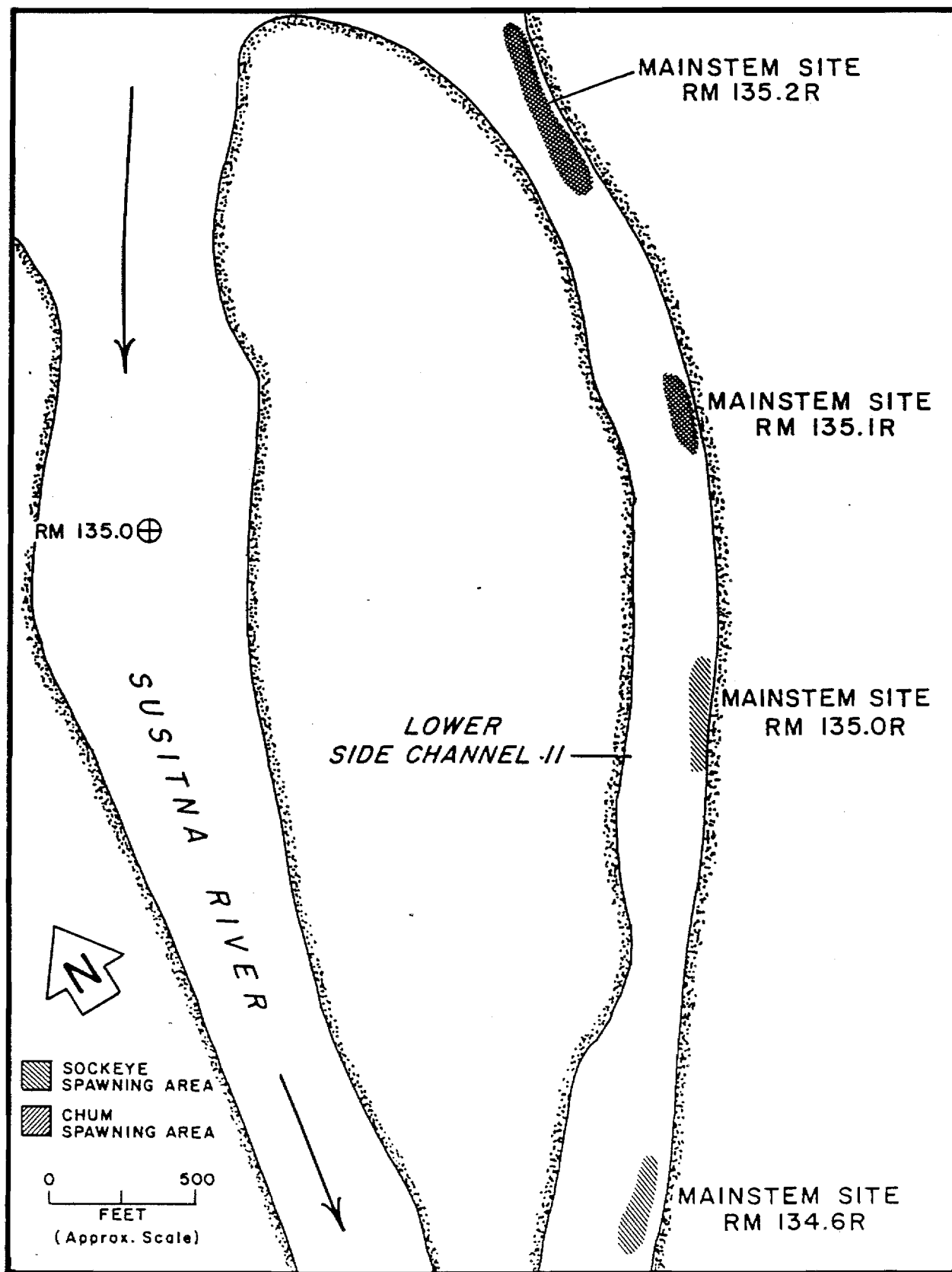


Appendix Figure 6-16.

Mainstem Susitna River chum salmon spawning areas at RM 131.1L, 131.3L, 131.5L, 131.7L and 131.8L and coho salmon spawning at RM 131.5L, 1984.

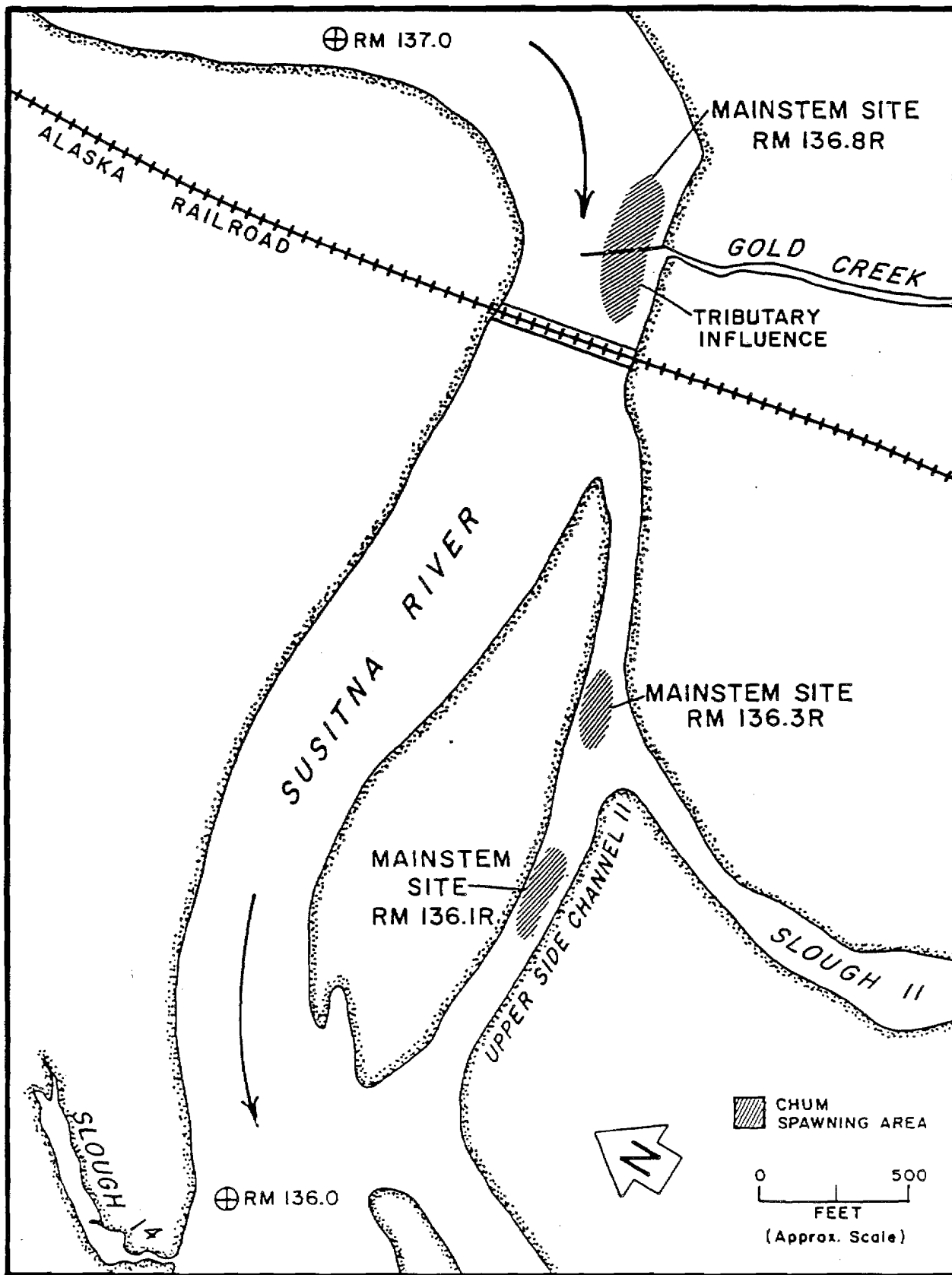


Appendix Figure 6-17. Mainstem Susitna River chum salmon spawning area at RM 132.9R, 1984.

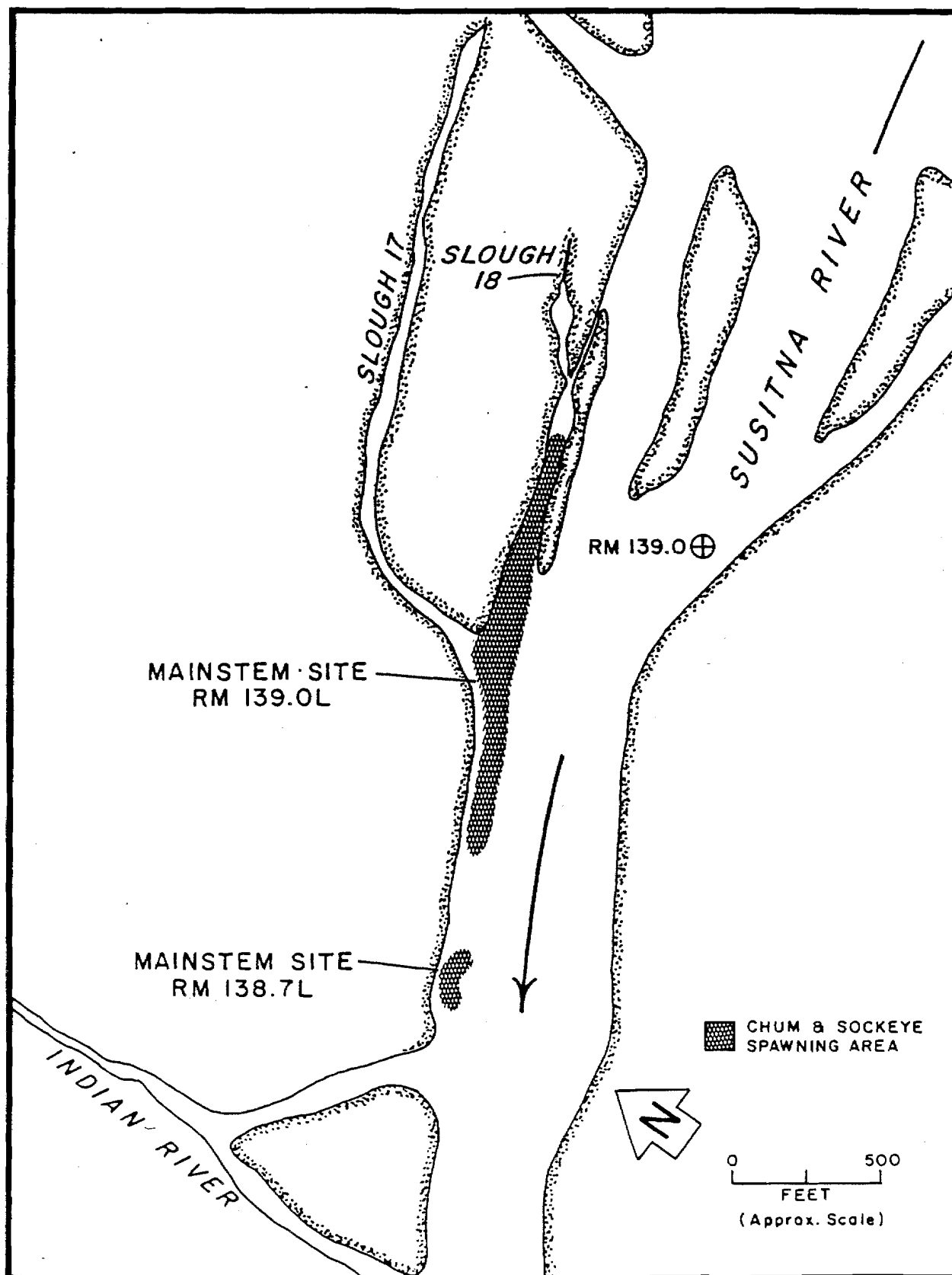


Appendix Figure 6-18.

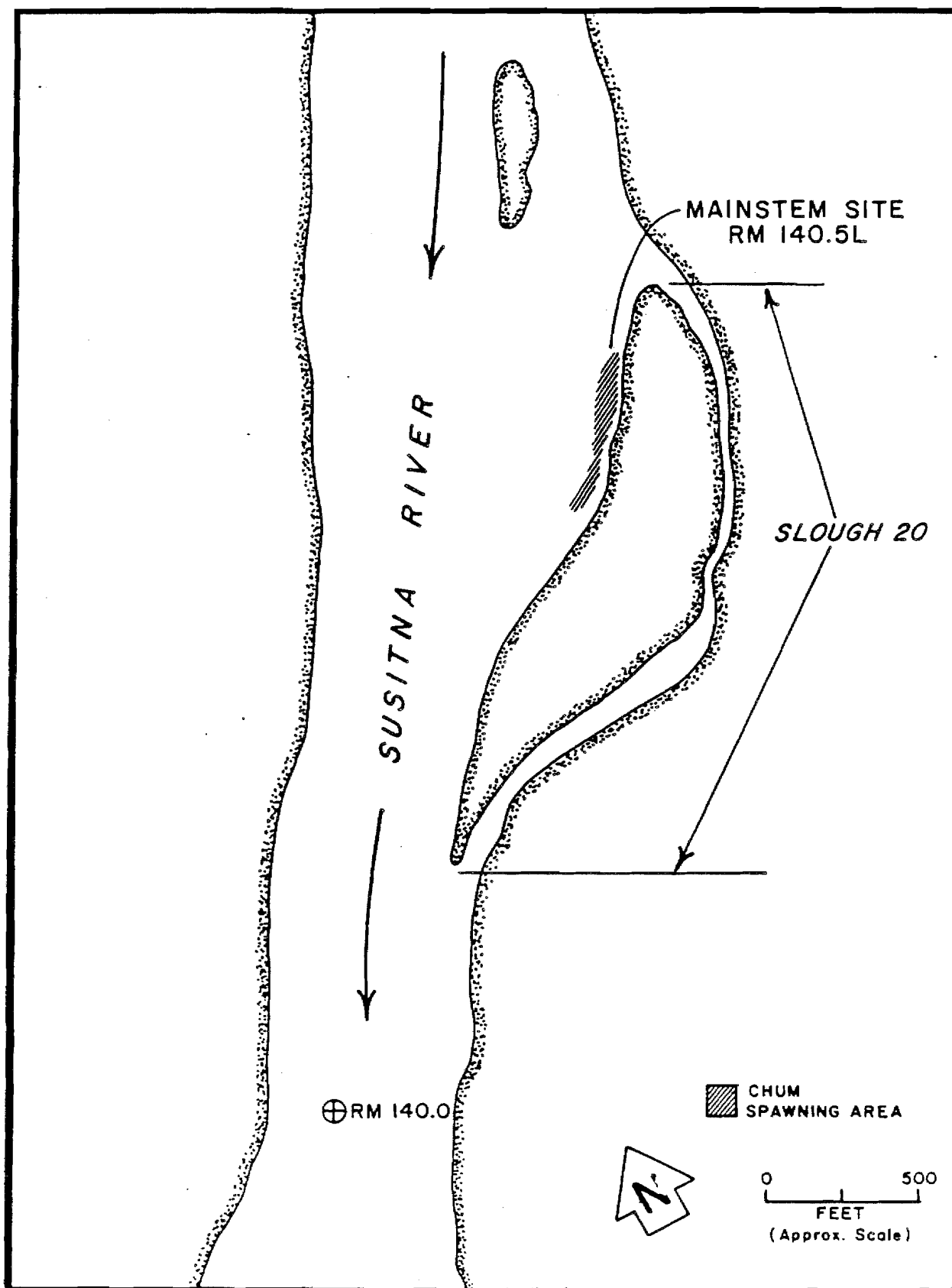
Mainstem Susitna River sockeye salmon spawning areas at RM 134.6R, 135.0R, 135.1R and 135.2R, and chum salmon spawning areas at RM 135.1R and 135.2R, 1984.



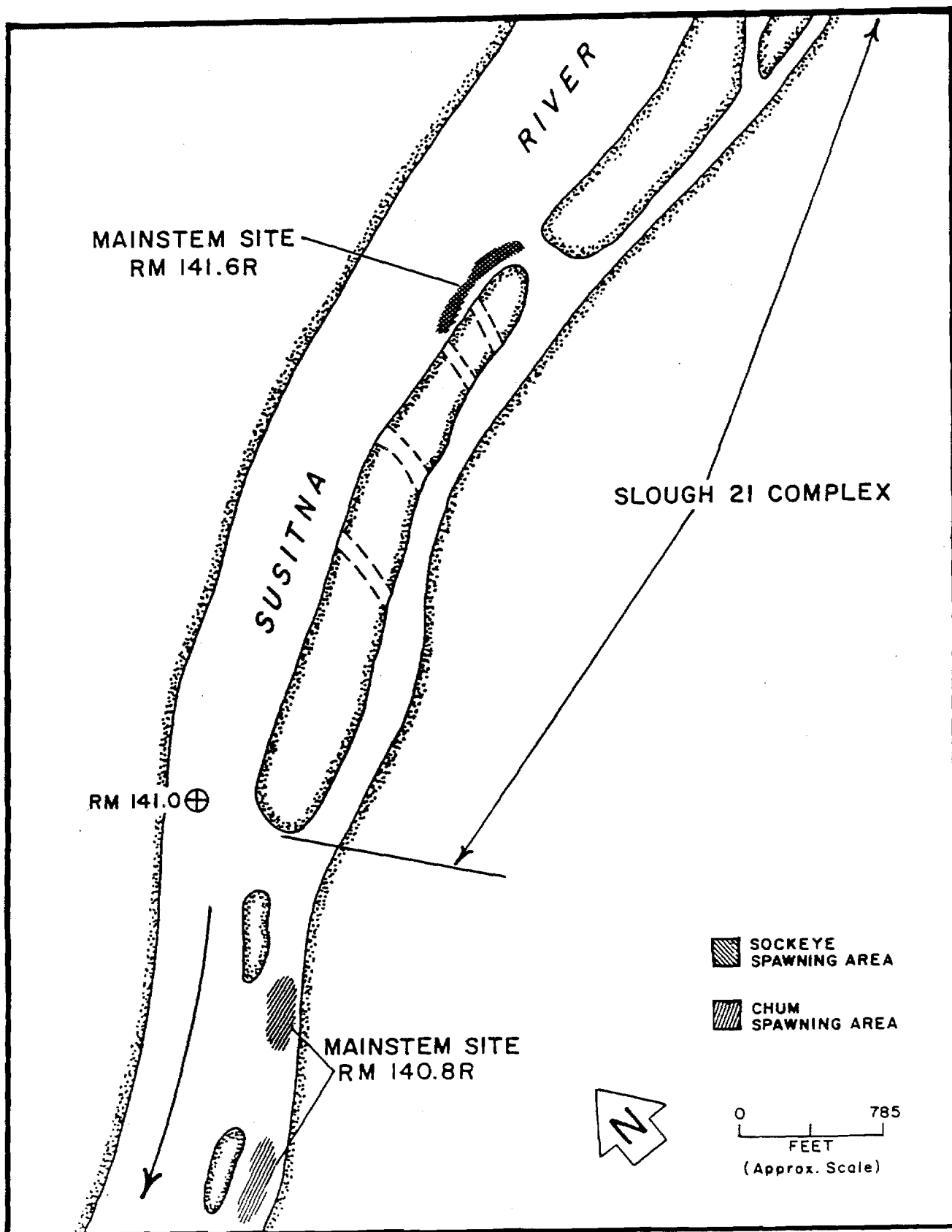
Appendix Figure 6-19. Mainstem Susitna River chum salmon spawning areas at RM 136.1R, 136.3R, and 136.8R, 1984.



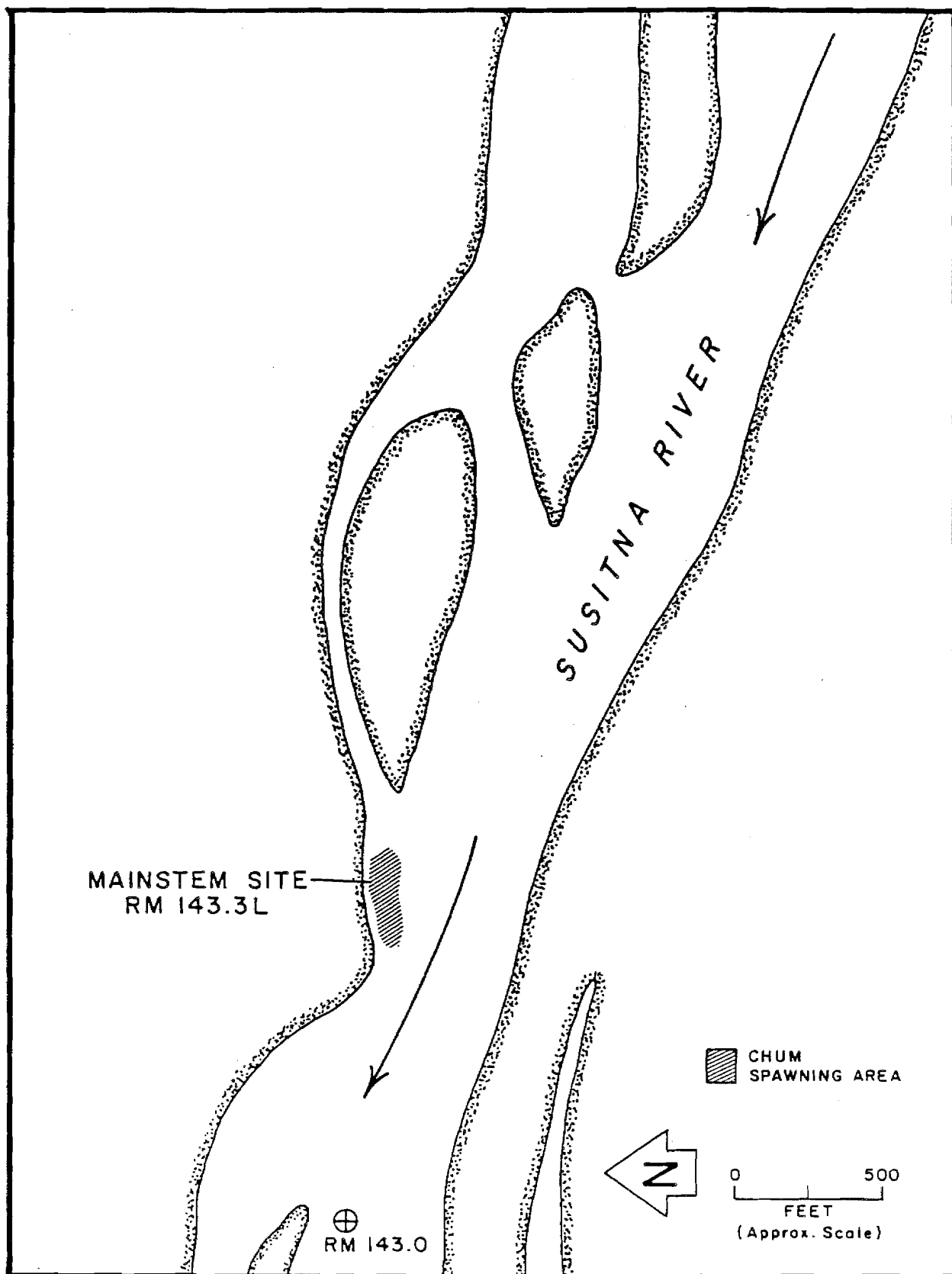
Appendix Figure 6-20. Mainstem Susitna River sockeye and chum salmon spawning areas at RM 138.7L and 139.0L, 1984.



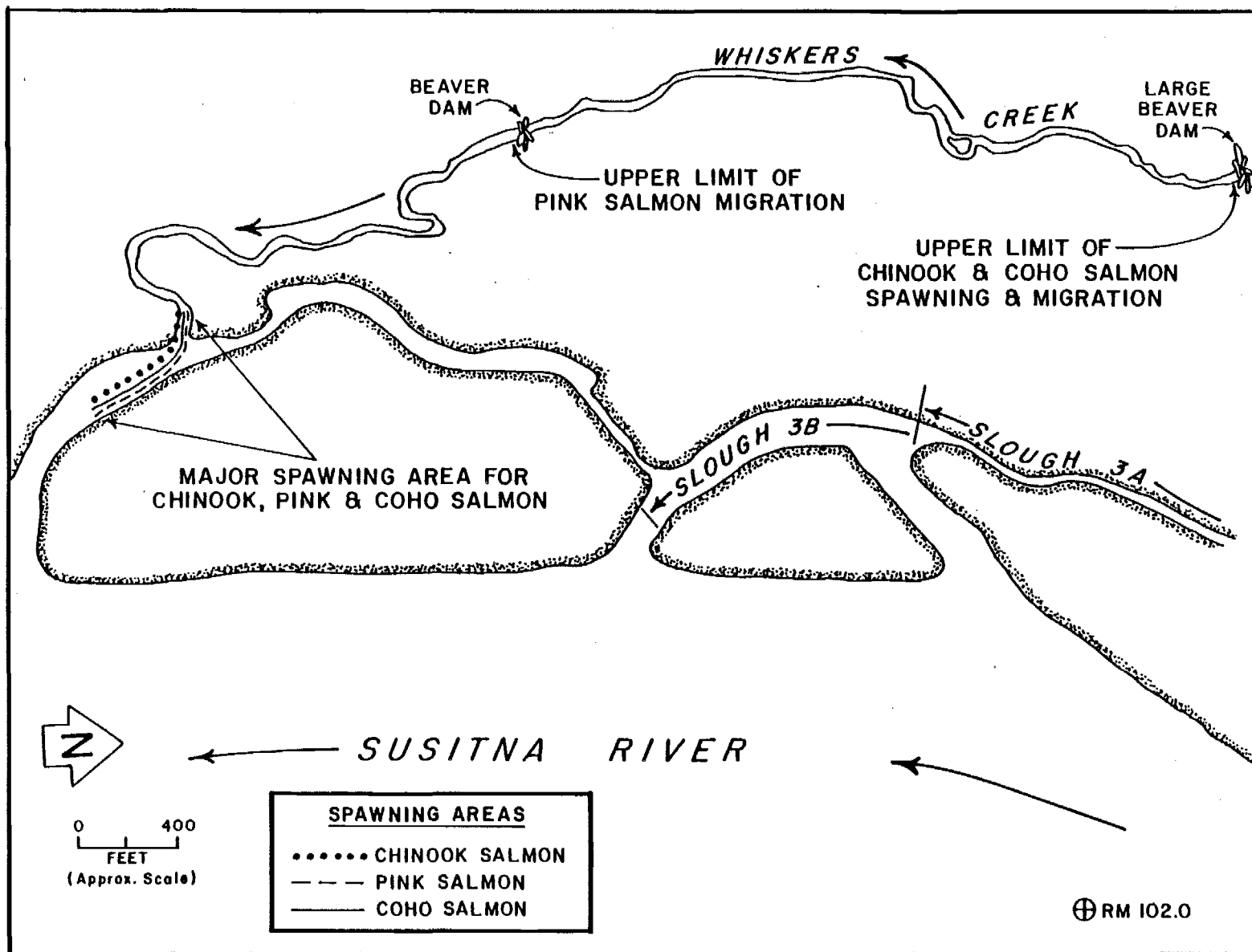
Appendix Figure 6-21. Mainstem Susitna River chum salmon spawning area at RM 140.5L, 1984.



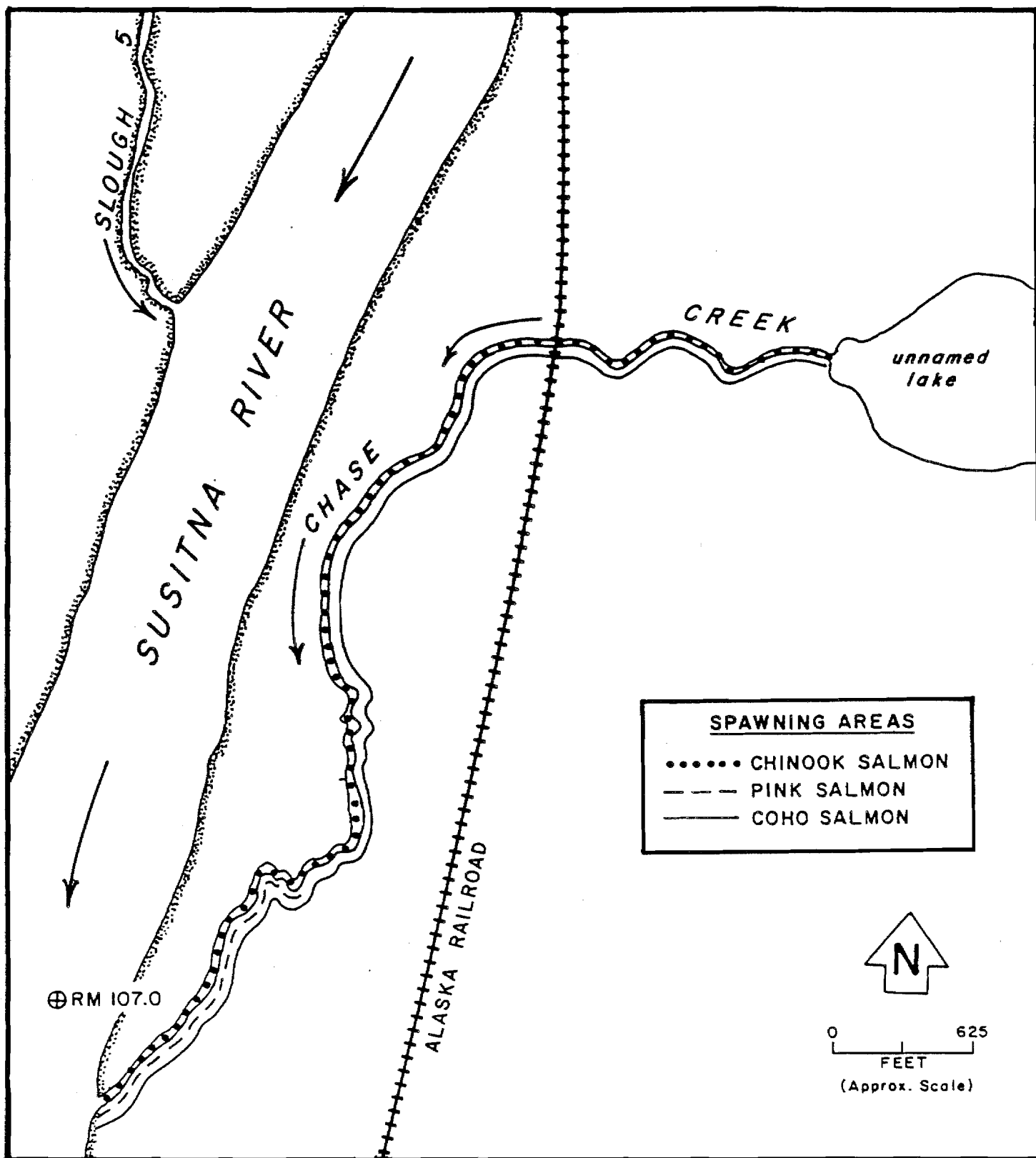
Appendix Figure 6-22. Mainstem Susitna River sockeye and chum salmon spawning areas at RM 141.6R and chum salmon spawning area at RM 140.8R, 1984.



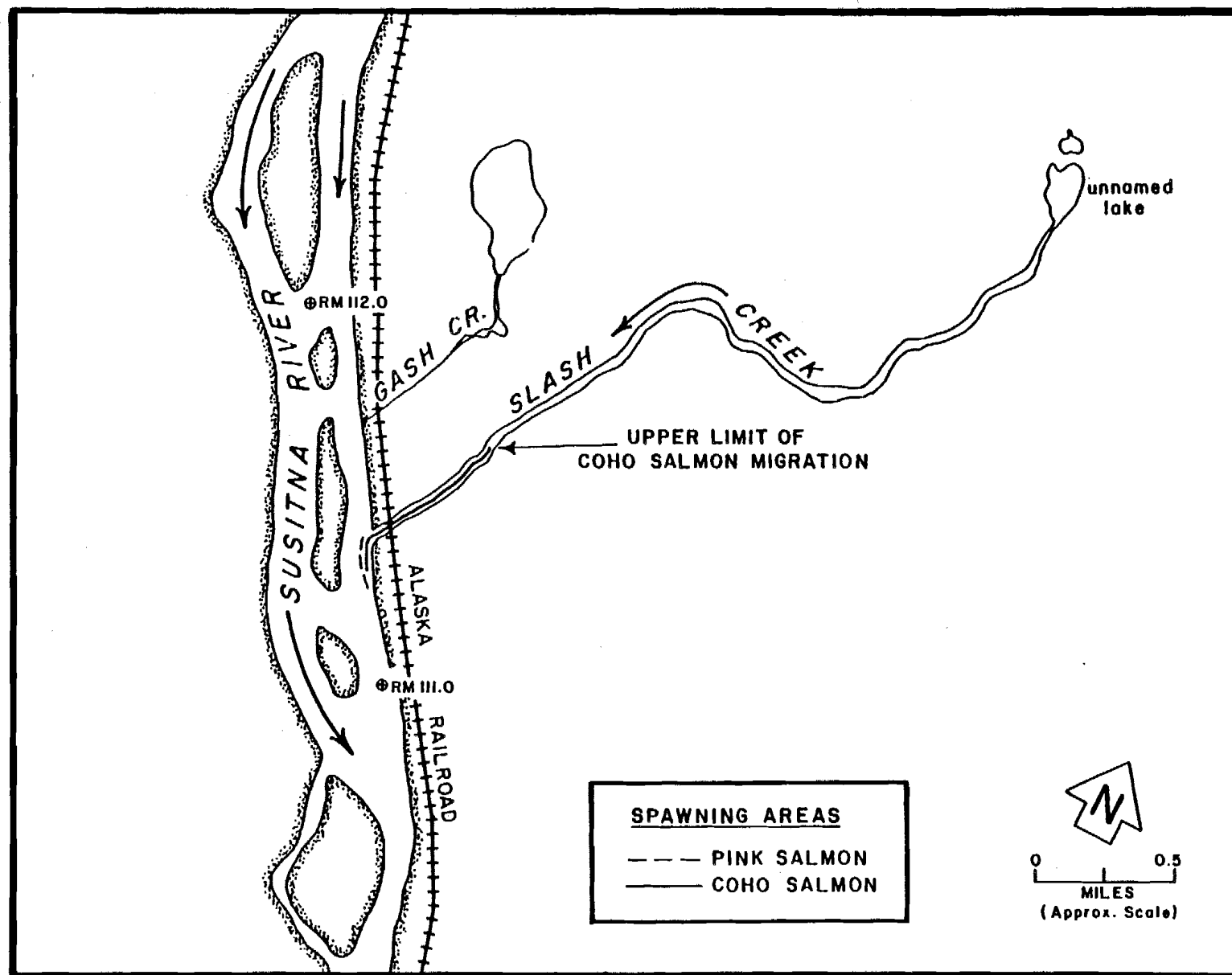
Appendix Figure 6-23. Mainstem Susitna River chum salmon spawning area at RM 143.3L, 1984.



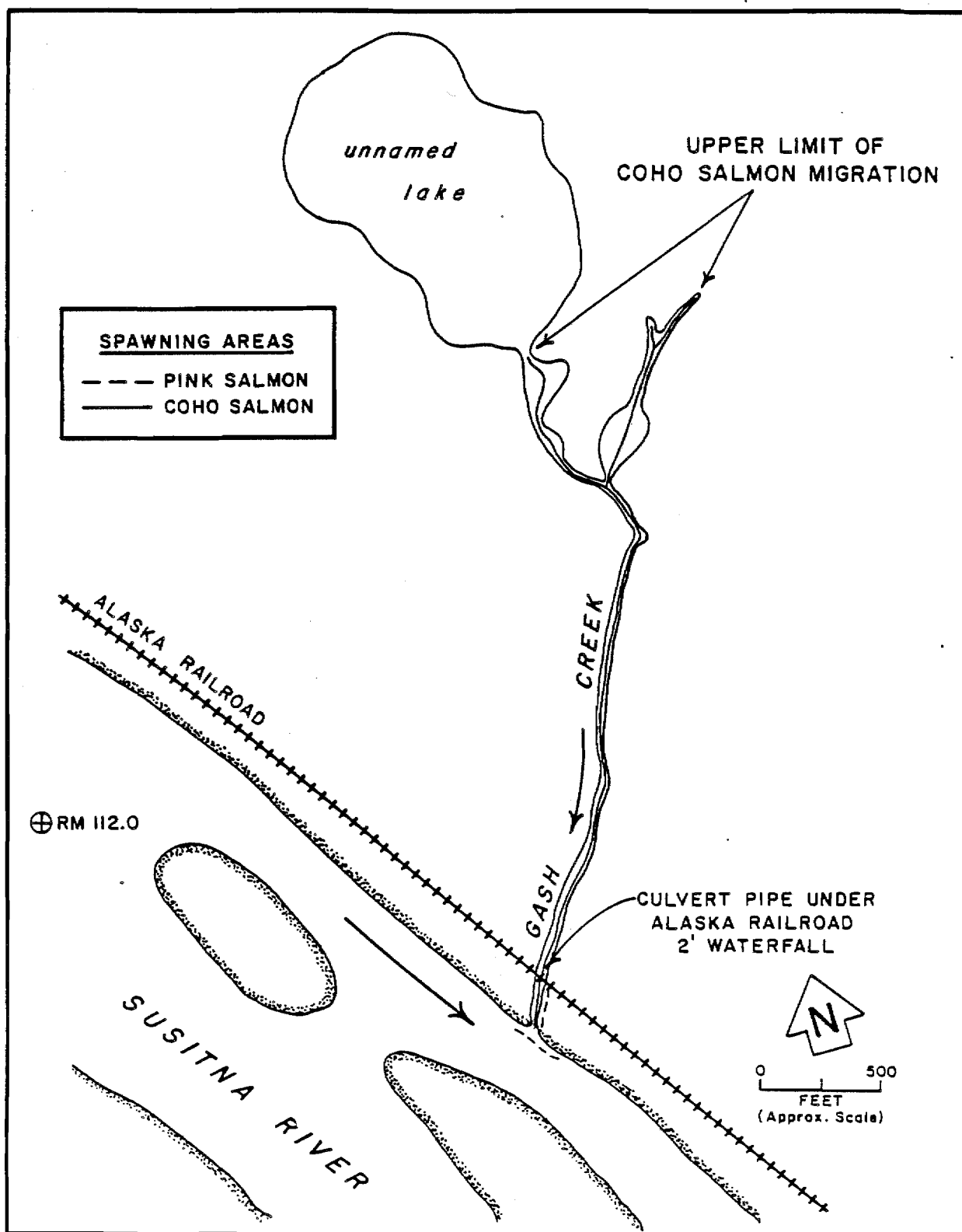
Appendix Figure 6-24. Spawning areas and distribution of chinook, pink and coho salmon in Whiskers Creek (RM 101.4), 1984.



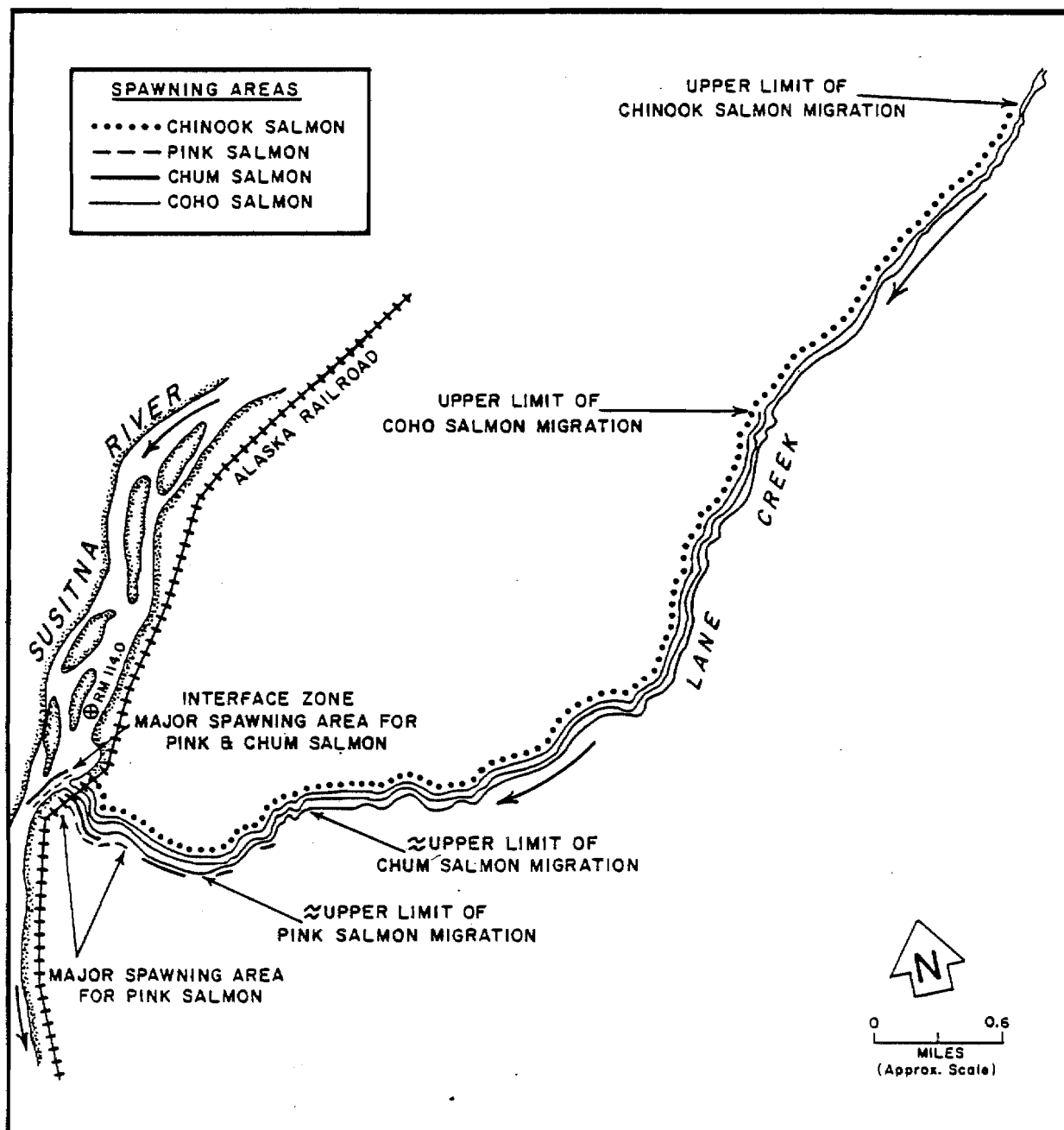
Appendix Figure 6-25. Spawning areas and distribution of chinook, pink and coho salmon in Chase Creek (RM 106.9), 1984.



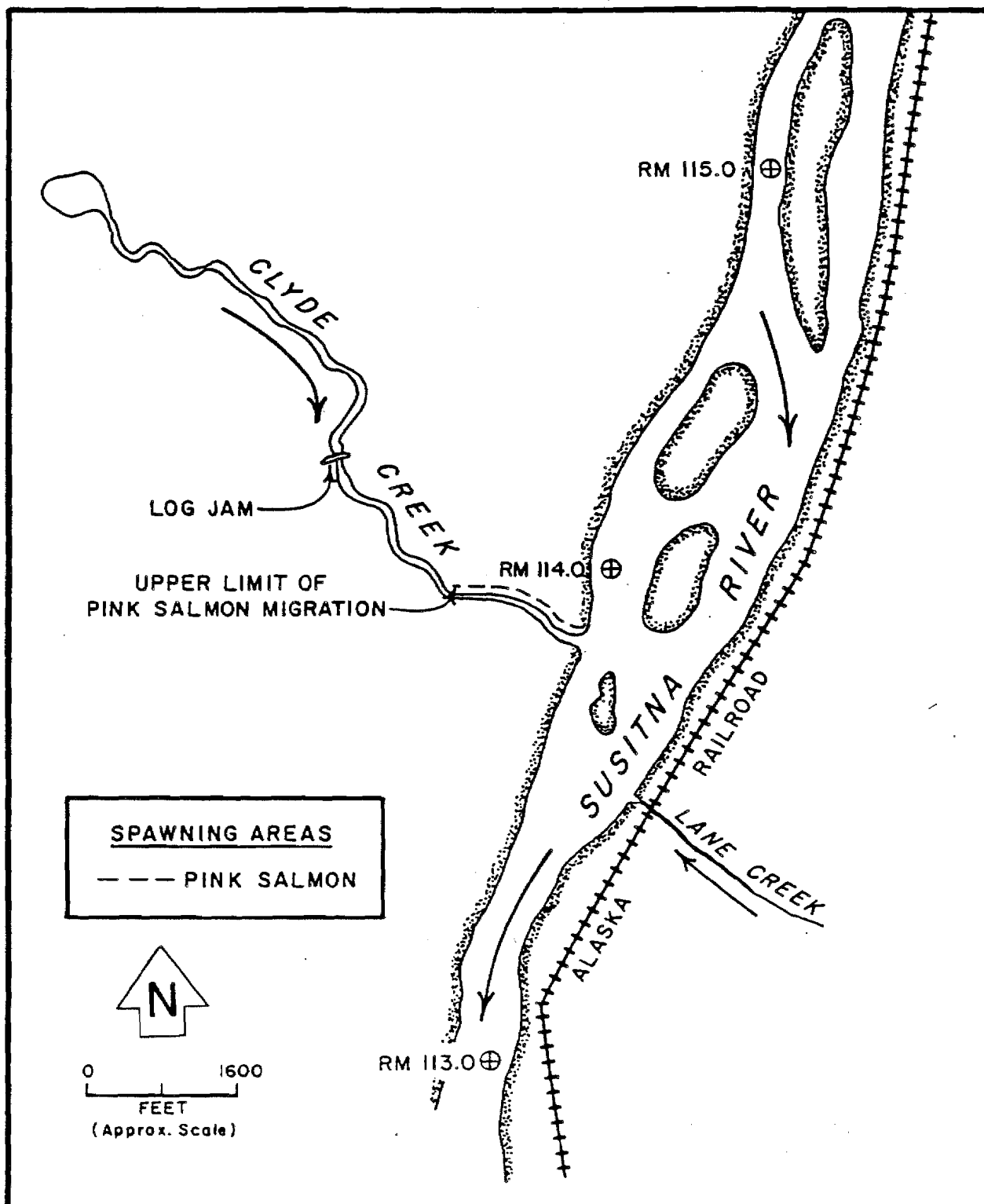
Appendix Figure 6-26. Spawning areas and distribution of pink and coho salmon in Slash Creek (RM 111.2), 1984.



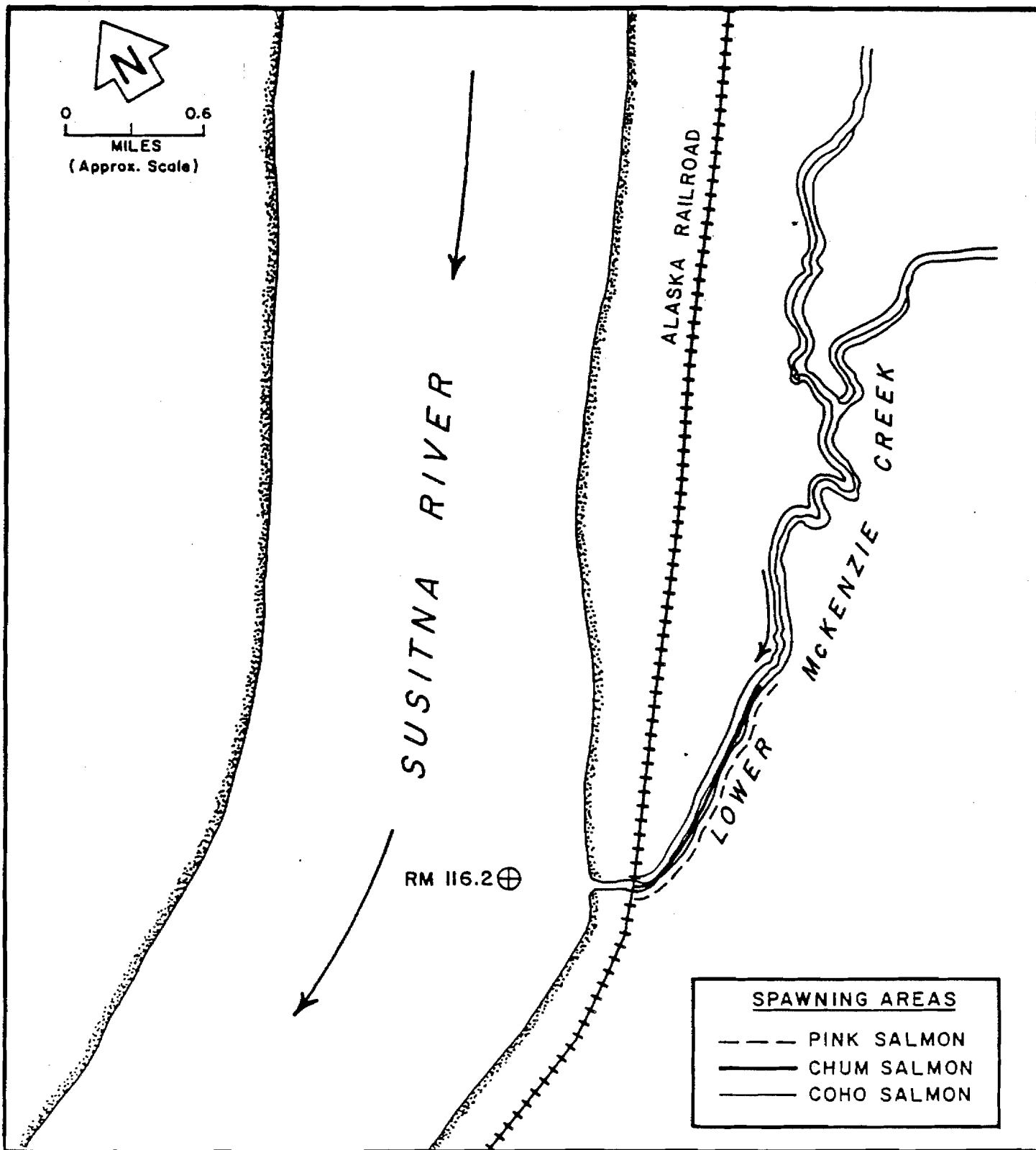
Appendix Figure 6-27. Spawning areas and distribution of pink and coho salmon in Gash Creek (RM 111.6), 1984.



Appendix Figure 6-28. Spawning areas and distribution of chinook, pink, chum and coho salmon in Lane Creek (RM 113.6), 1984.

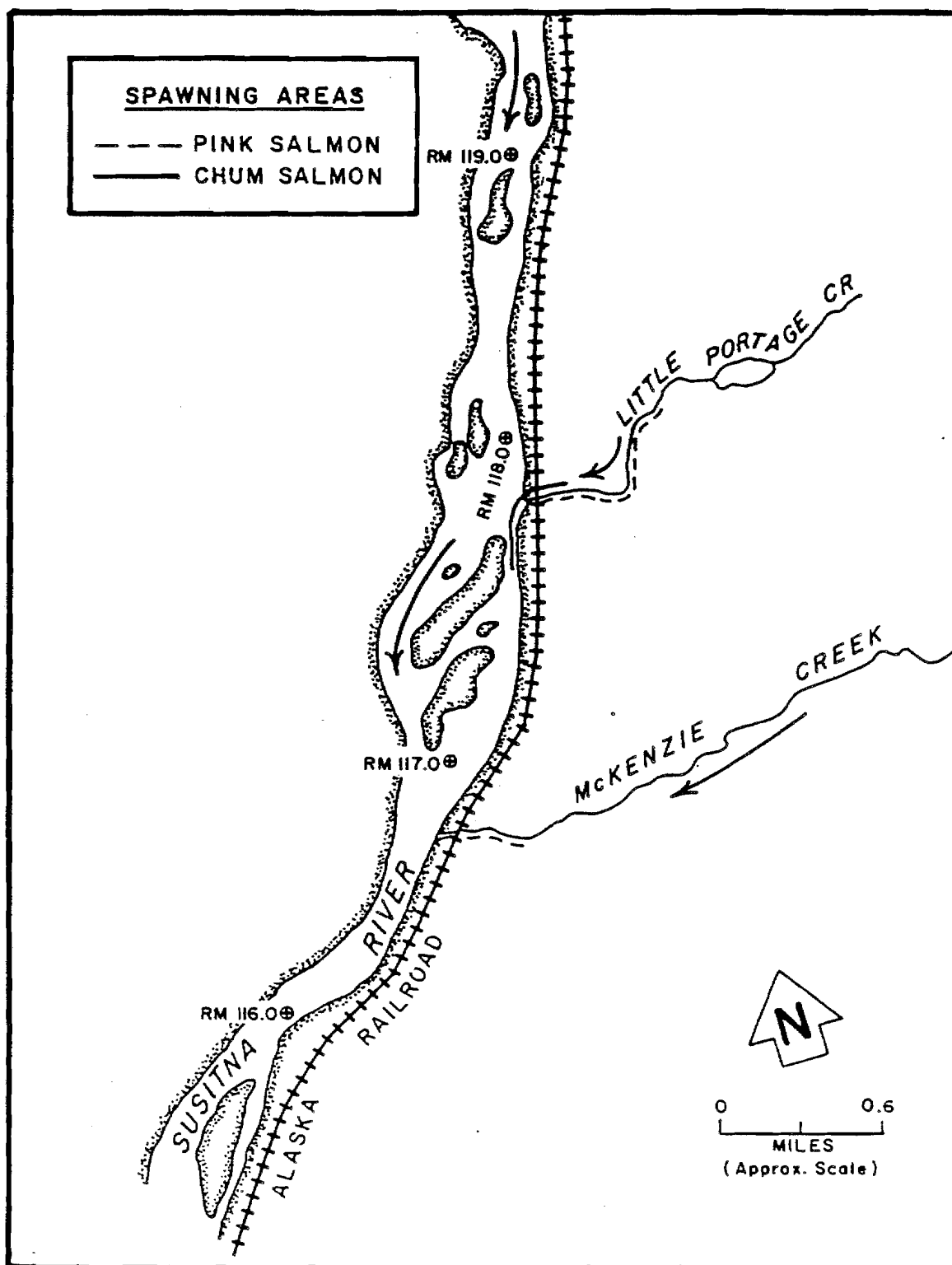


Appendix Figure 6-29. Spawning area and distribution of pink salmon in Clyde Creek (RM 113.8), 1984.

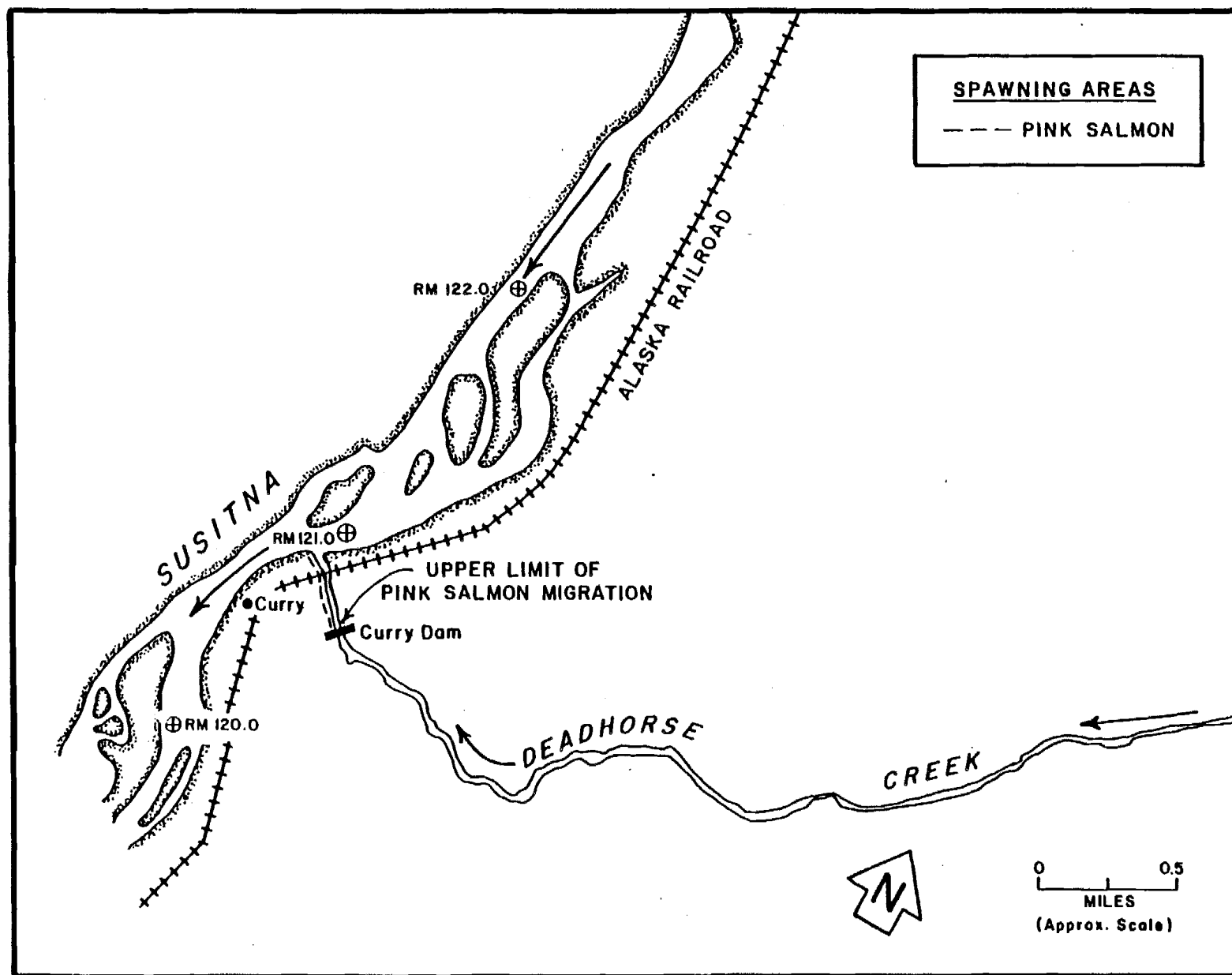


Appendix Figure 6-30.

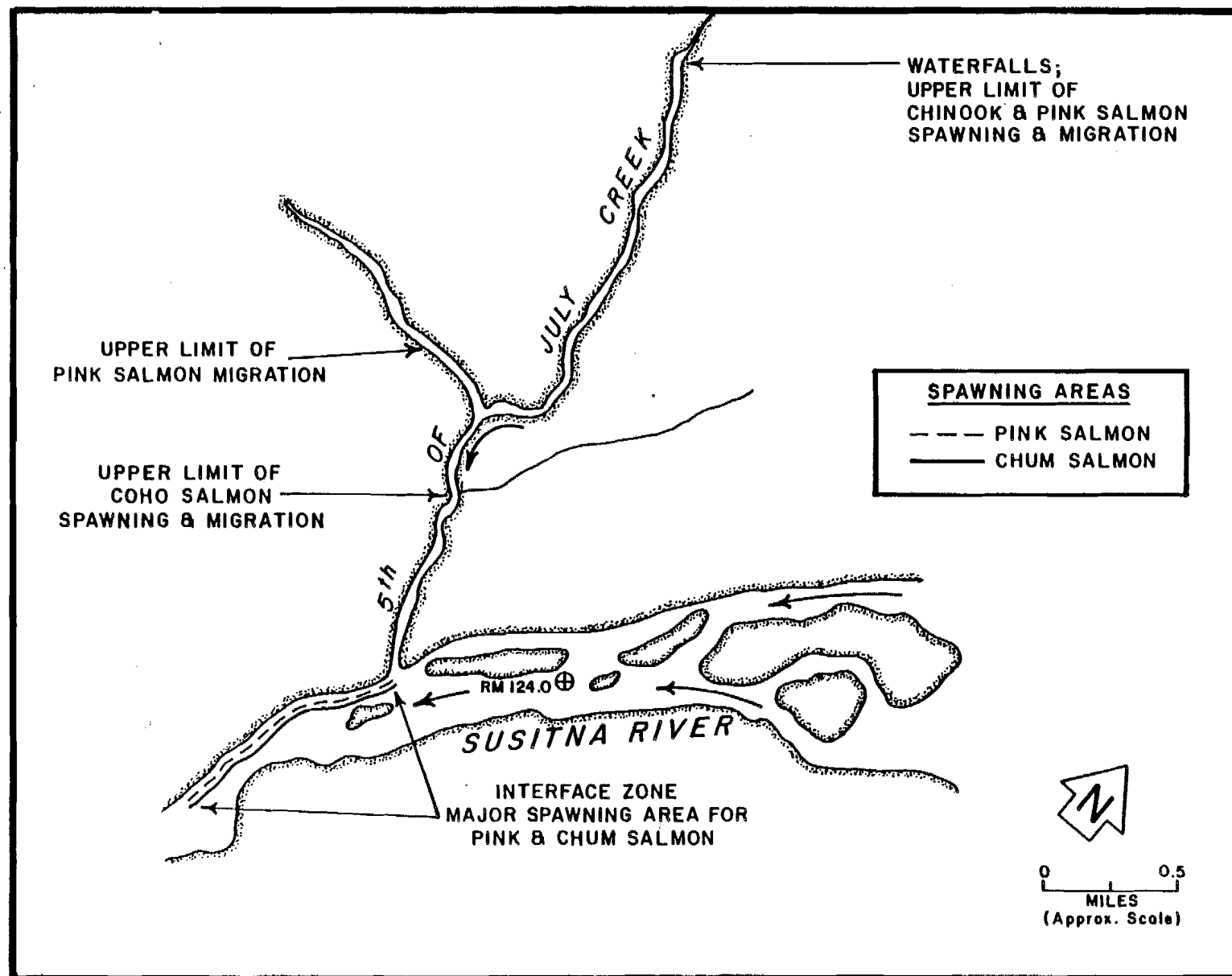
Spawning areas and distribution of pink, chum and coho salmon in Lower McKenzie Creek (RM 116.2), 1984.



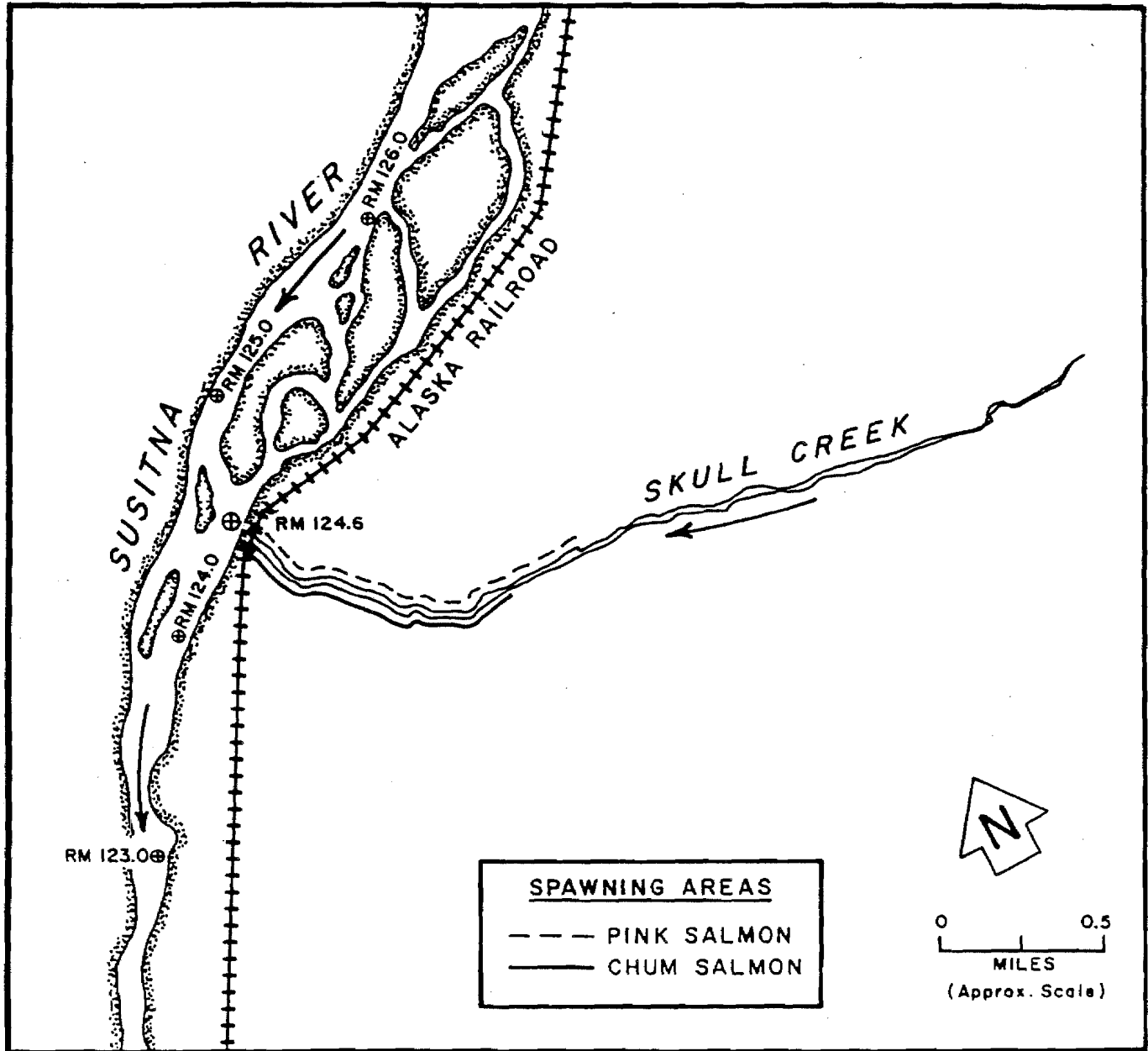
Appendix Figure 6-31. Spawning areas and distribution of pink and chum salmon in McKenzie (RM 116.7) and Little Portage (RM 117.7) creeks, 1984.



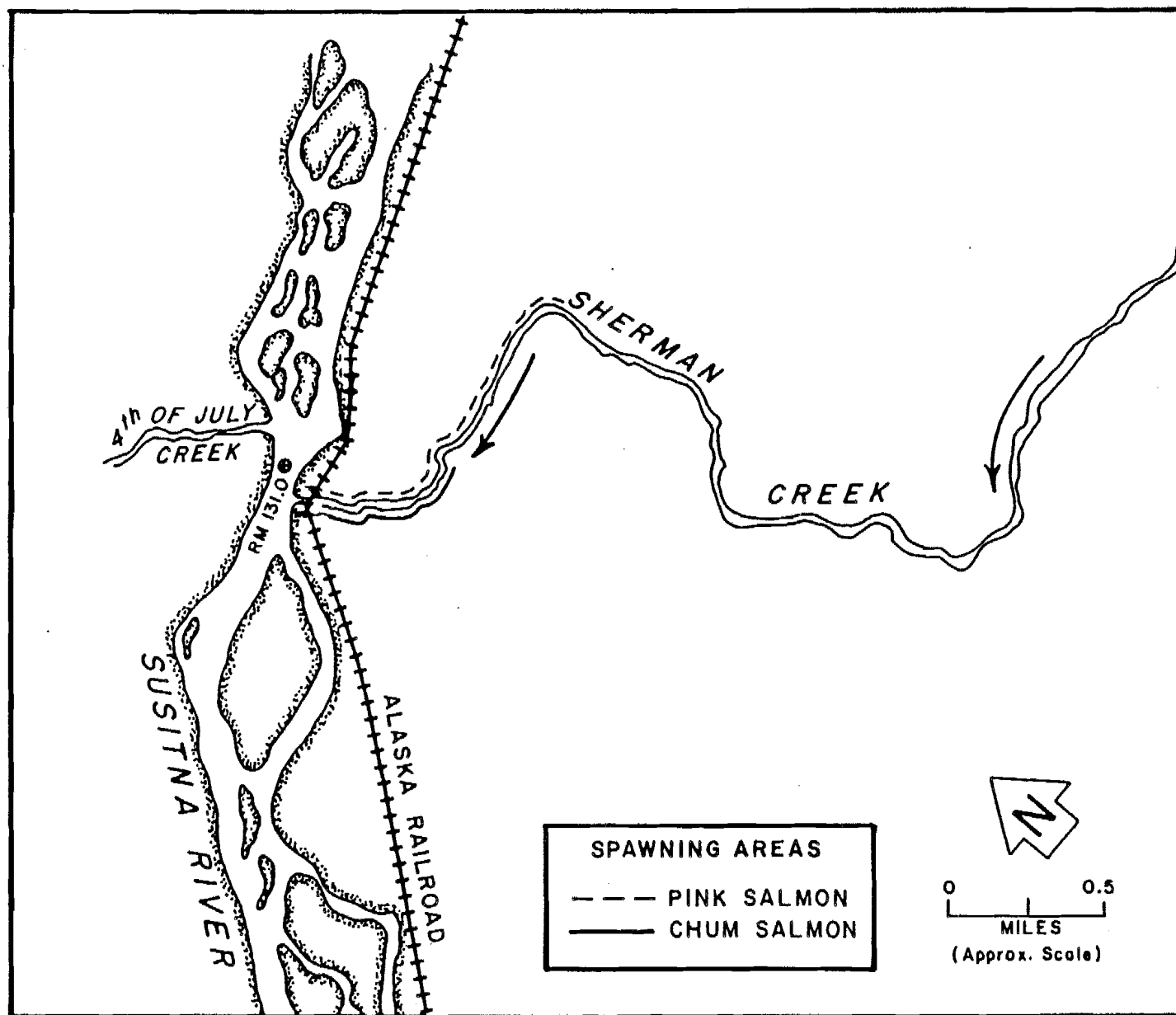
Appendix Figure 6-32. Spawning area and distribution of pink salmon in Deadhorse Creek (RM 120.8) in 1984.



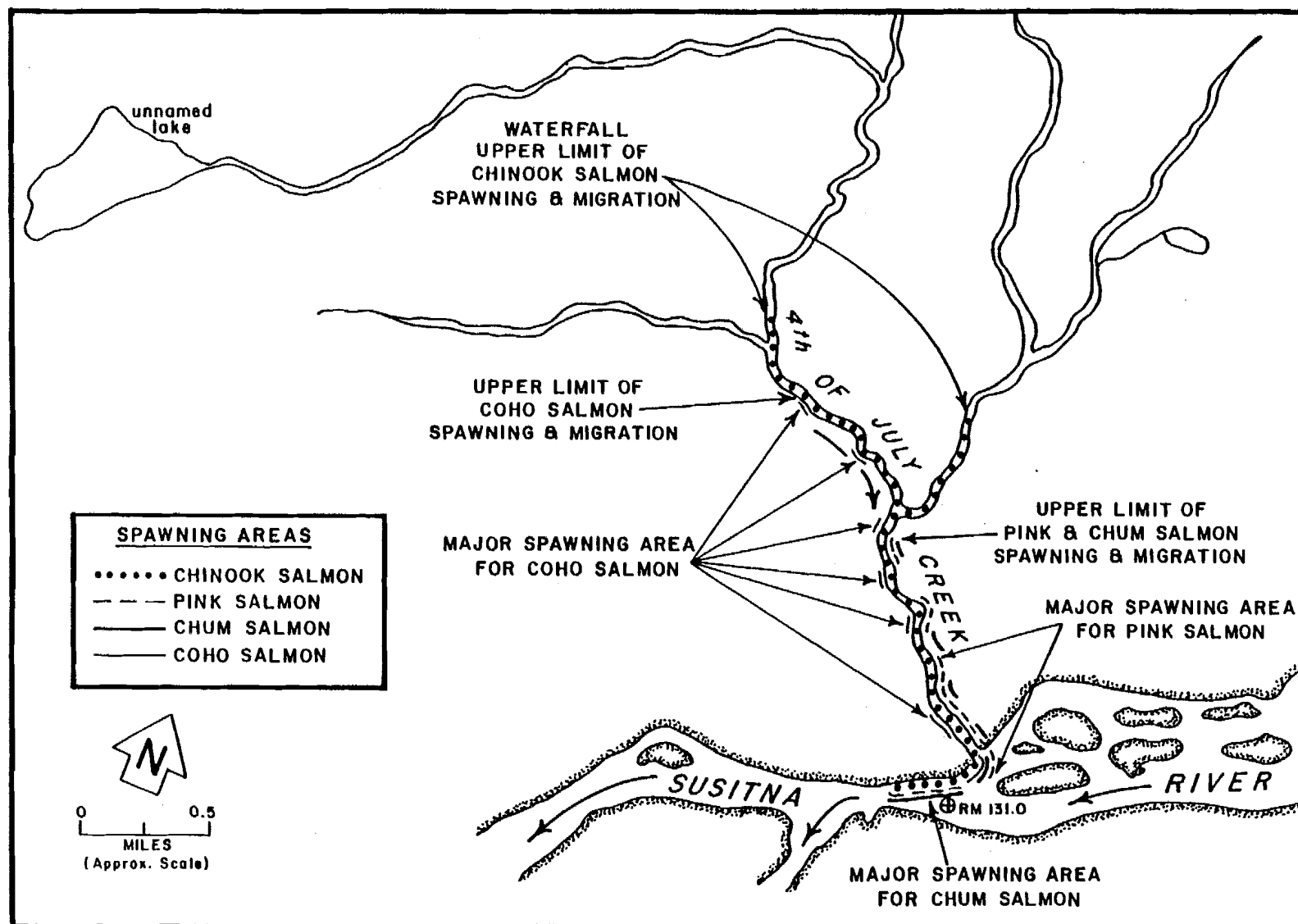
Appendix Figure 6-33. Spawning areas and distribution of pink and chum salmon in Fifth of July Creek (RM 123.7), 1984.



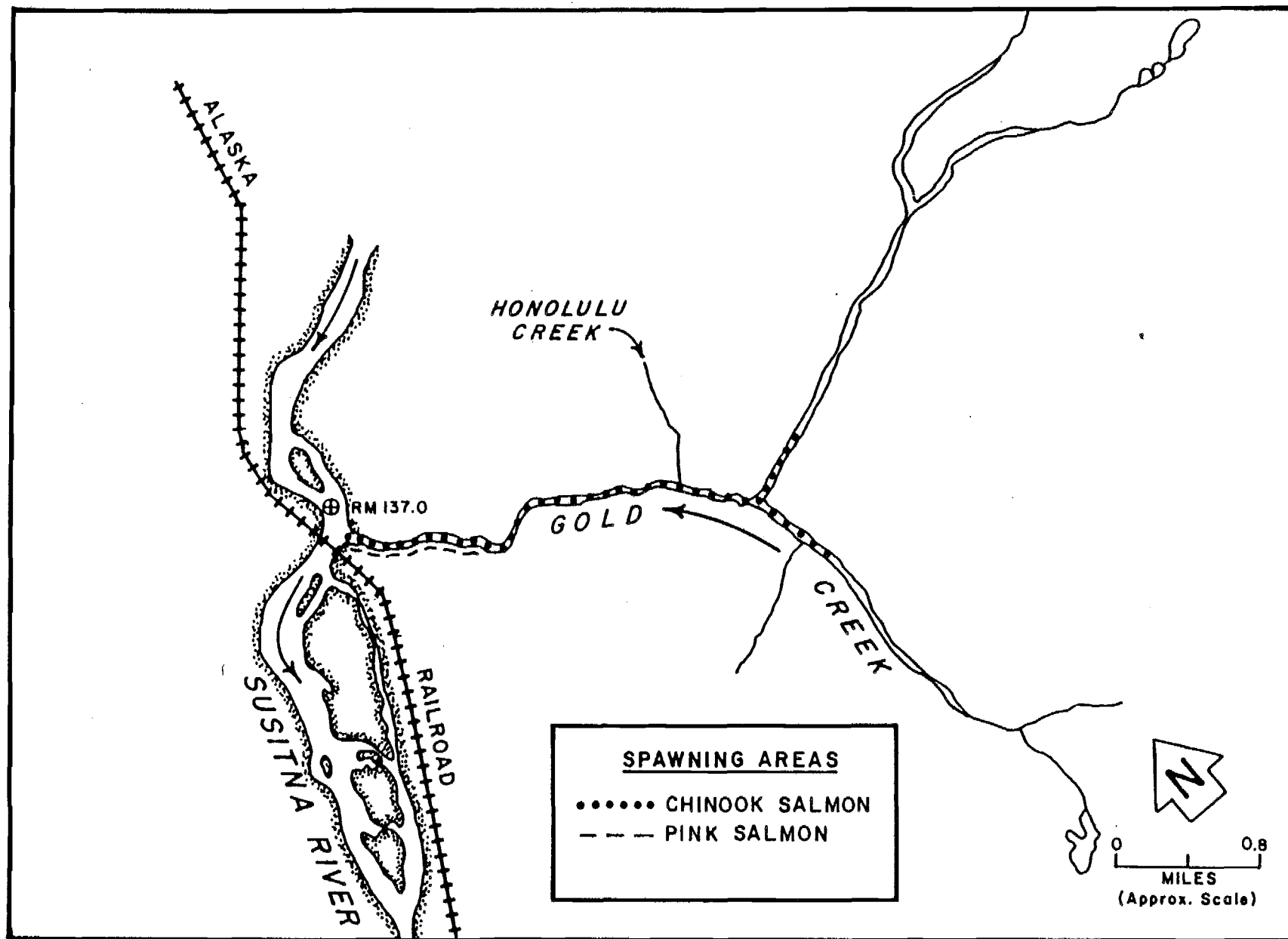
Appendix Figure 6-34. Spawning areas and distribution of pink and chum salmon in Skull Creek (RM 124.7), 1984.



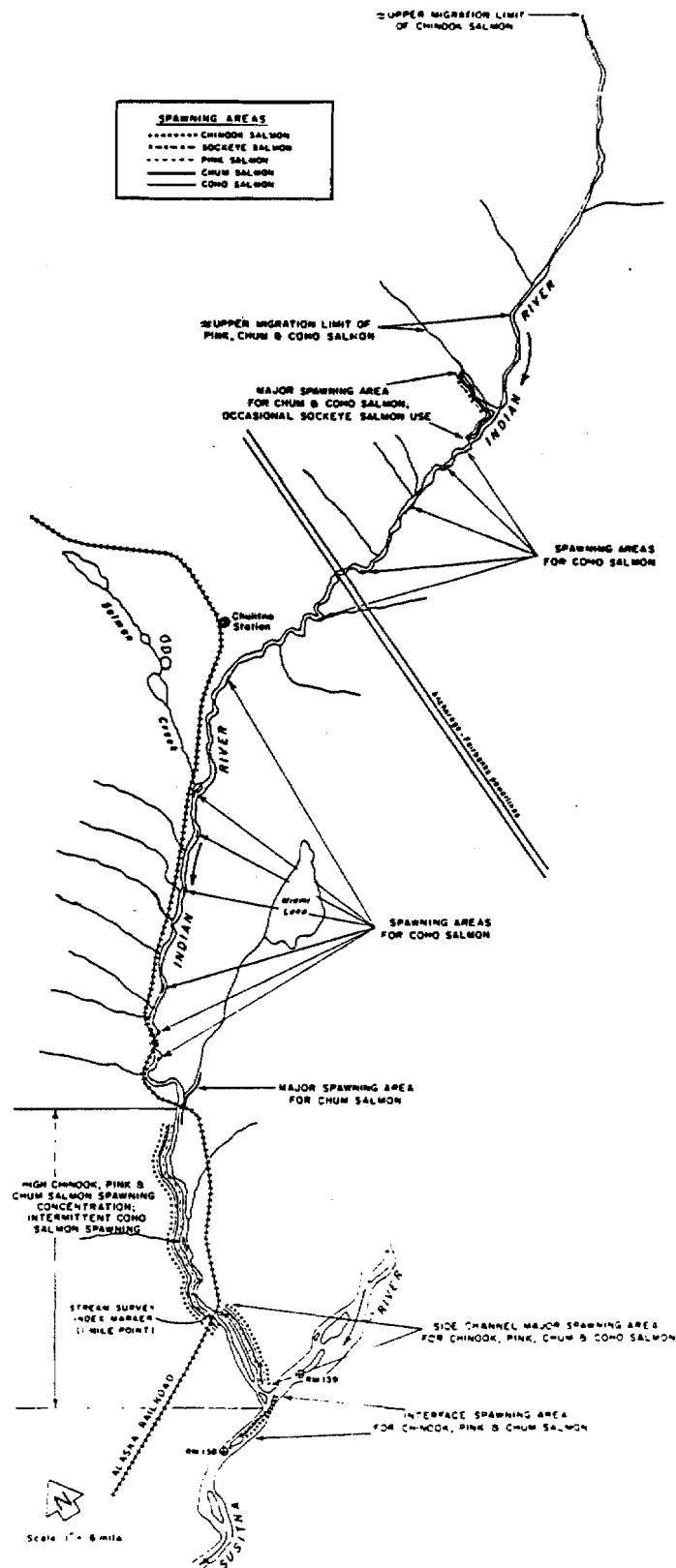
Appendix Figure 6-35. Spawning areas and distribution of pink and chum salmon in Sherman Creek (RM 130.8), 1984.



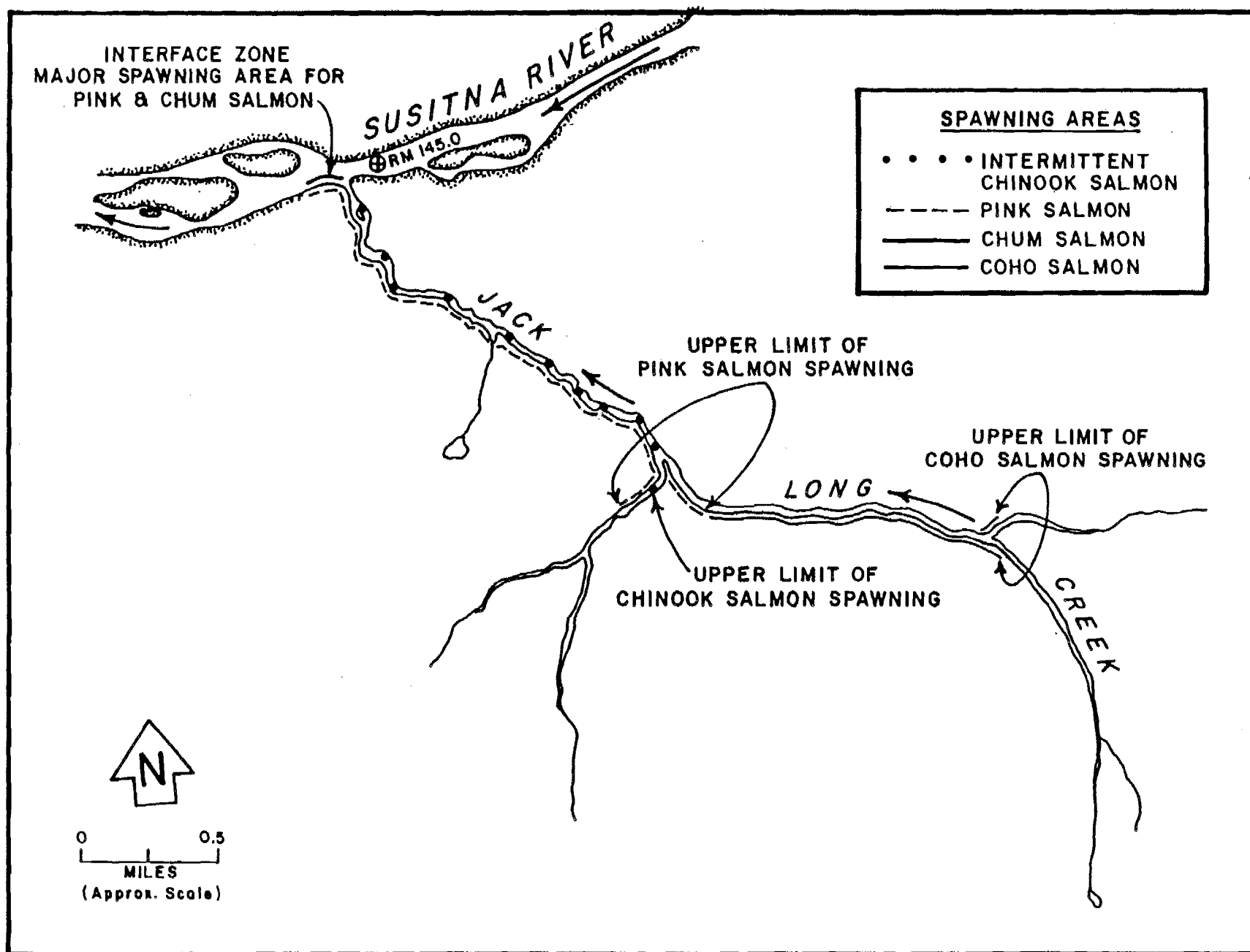
Appendix Figure 6-36. Spawning areas and distribution of chinook, pink, chum and coho salmon in Fourth of July Creek (RM 131.1), 1984.



Appendix Figure 6-37. Spawning areas and distribution of chinook, pink and chum salmon in Gold Creek (RM 136.7), 1984.



Appendix Figure 6-38. Spawning areas and distribution of chinook, pink, chum and coho salmon in Indian River (RM 138.6), 1984.



Appendix Figure 6-39. Spawning areas and distribution of chinook, pink, chum and coho salmon in Jack Long Creek (RM 144.5), 1984.

Appendix Table 6-1

Mainstem Susitna River salmon spawning locations and survey results above RM 98.6, 1984.

River Mile	Date	Survey Conditions	Fish Present	Adult Salmon Enumerated							
				Sockeye		Chum		Coho		Other	
				Number	Spawning	Number	Spawning	Number	Spawning	Number	Spawning
Bushrook	9/8	Good	yes	0	no	0	yes	0	no	0	no
SI 21	9/8	Good	yes	0	no	35	yes	0	no	0	no
SI 21A	9/1	Good	yes	0	no	6	yes	0	no	0	no
100.5 R	8/24	Good	no	0	no	0	no	0	no	0	no
100.5 R	9/1	Good	no	0	no	0	no	0	no	0	no
100.5 R	9/8	Good	no	0	no	0	no	0	no	0	no
100.5 R	9/15	Good	no	0	no	0	no	0	no	0	no
100.5 R	9/22	Good	no	0	no	0	no	0	no	0	no
100.5 R	9/29	Good	no	0	no	0	no	0	no	0	no
101.2 R	8/24	Good	no	0	no	0	no	0	no	0	no
101.2 R	9/1	Good	no	0	no	0	no	0	no	0	no
101.2 R	9/8	Good	no	0	no	0	no	0	no	0	no
101.2 R	9/15	Good	yes	0	no	99	yes	0	no	0	no
101.2 R	9/22	Good	no	0	no	0	no	0	no	0	no
101.2 R	9/29	Good	yes	0	no	16	yes	0	no	0	no
102.0 L	8/24	Good	no	0	no	0	no	0	no	0	no
102.0 L	9/1	Good	no	0	no	0	no	0	no	0	no
102.0 L	9/8	Good	no	0	no	0	no	0	no	0	no
102.0 L	9/15	Good	no	0	no	0	no	0	no	0	no
102.0 L	9/22	Good	no	0	no	0	no	0	no	0	no
102.0 L	9/29	Good	no	0	no	0	no	0	no	0	no
103.0 L	8/24	Good	no	0	no	0	no	0	no	0	no
103.0 L	9/1	Good	no	0	no	0	no	0	no	0	no
103.0 L	9/8	Good	no	0	no	0	no	0	no	0	no
103.0 L	9/15	Good	no	0	no	0	no	0	no	0	no
103.0 L	9/22	Good	no	0	no	0	no	0	no	0	no
103.0 L	9/29	Good	no	0	no	0	no	0	no	0	no
104.2 R	8/24	Good	no	0	no	0	no	0	no	0	no
104.2 R	9/1	Good	no	0	no	0	no	0	no	0	no
104.2 R	9/8	Good	no	0	no	0	no	0	no	0	no
104.2 R	9/15	Good	no	0	no	0	no	0	no	0	no
104.2 R	9/22	Good	no	0	no	0	no	0	no	0	no
104.2 R	9/29	Good	no	0	no	0	no	0	no	0	no
110.0 L	9/1	Good	yes	0	no	1	yes	0	no	0	no
110.1 L	8/24	Good	no	0	no	0	no	0	no	0	no
110.1 L	9/1	Good	no	0	no	0	no	0	no	0	no
110.1 L	9/8	Good	yes	0	no	2	yes	0	no	0	no
110.1 L	9/15	Good	no	0	no	0	no	0	no	0	no
110.1 L	9/22	Good	no	0	no	0	no	0	no	0	no
110.1 L	9/29	Good	no	0	no	0	no	0	no	0	no

Appendix Table 6-1 (cont).

Mainstem Susitna River salmon spawning locations and survey results above RM 98.6, 1984.

River Mile	Date	Survey Conditions	Fish Present	Adult Salmon Engrailed							
				Sockeye		Chum		Coho		Other	
				Number	Spawning	Number	Spawning	Number	Spawning	Number	Spawning
110.8 L	9/1	Good	no	0	no	0	no	0	no	0	no
110.8 L	9/8	Good	no	0	no	0	no	0	no	0	no
110.8 L	9/15	Good	no	0	no	0	no	0	no	0	no
110.8 L	9/22	Good	no	0	no	0	no	0	no	0	no
110.8 L	9/29	Good	no	0	no	0	no	0	no	0	no
112.0 L	9/15	Good	no	0	no	0	no	0	no	0	no
112.2 L	8/24	Good	no	0	no	0	no	0	no	0	no
112.2 L	9/1	Good	no	0	no	0	no	0	no	0	no
112.2 L	9/8	Good	no	0	no	0	no	0	no	0	no
112.2 L	9/15	Good	no	0	no	0	no	0	no	0	no
112.2 L	9/22	Good	no	0	no	0	no	0	no	0	no
112.2 L	9/29	Good	no	0	no	0	no	0	no	0	no
112.7 L	8/24	Good	no	0	no	0	no	0	no	0	no
112.7 L	9/1	Good	no	0	no	0	no	0	no	0	no
112.7 L	9/8	Good	no	0	no	0	no	0	no	0	no
112.7 L	9/22	Good	no	0	no	0	no	0	no	0	no
112.7 L	9/29	Good	no	0	no	0	no	0	no	0	no
113.5 C	8/24	Good	no	0	no	0	no	0	no	0	no
113.5 C	9/1	Good	no	0	no	0	no	0	no	0	no
113.5 C	9/8	Good	no	0	no	0	no	0	no	0	no
113.5 C	9/15	Good	no	0	no	0	no	0	no	0	no
113.5 C	9/22	Good	no	0	no	0	no	0	no	0	no
113.5 C	9/29	Good	no	0	no	0	no	0	no	0	no
114.0 C	8/24	Good	no	0	no	0	no	0	no	0	no
114.0 C	9/1	Good	no	0	no	0	no	0	no	0	no
114.0 C	9/8	Good	no	0	no	0	no	0	no	0	no
114.0 C	9/15	Good	yes	0	no	16	yes	0	no	0	no
114.0 C	9/22	Good	no	0	no	0	no	0	no	0	no
114.0 C	9/29	Good	no	0	no	0	no	0	no	0	no
114.4 R	9/1	Good	yes	0	no	8	yes	0	no	0	no
114.4 R	9/8	Good	yes	0	no	19	yes	0	no	0	no
114.4 R	9/22	Good	yes	0	no	5	yes	0	no	0	no
114.5 R	9/8	Good	yes	0	no	8	yes	0	no	0	no
114.6 R	8/24	Good	no	0	no	0	no	0	no	0	no
114.6 R	9/1	Good	no	0	no	0	no	0	no	0	no
114.6 R	9/8	Good	no	0	no	0	no	0	no	0	no
114.6 R	9/15	Good	no	0	no	0	no	0	no	0	no
114.6 R	9/22	Good	no	0	no	0	no	0	no	0	no
114.6 R	9/29	Good	no	0	no	0	no	0	no	0	no
115.0 R	8/24	Good	no	0	no	0	no	0	no	0	no
115.0 R	9/1	Good	yes	0	no	15	yes	0	no	0	no
115.0 R	9/8	Good	yes	0	no	7	yes	0	no	0	no
115.0 R	9/15	Good	no	0	no	0	no	0	no	0	no
115.0 R	9/22	Good	no	0	no	0	no	0	no	0	no
115.0 R	9/29	Good	yes	0	no	5	yes	0	no	0	no

A303

Appendix Table 6-1 (cont).

Mainstem Susitna River salmon spawning locations and survey results above RM 98.6, 1984.

River Mile	Date	Survey Conditions	Fish Present	Adult Salmon Enumerated							
				Sockeye		Chum		Coho		Other	
				Number	Spawning	Number	Spawning	Number	Spawning	Number	Spawning
115.9 L	8/24	Good	no	0	no	0	no	0	no	0	no
115.9 L	9/1	Good	no	0	no	0	no	0	no	0	no
115.9 L	9/8	Good	no	0	no	0	no	0	no	0	no
115.9 L	9/15	Good	no	0	no	0	no	0	no	0	no
115.9 L	9/22	Good	no	0	no	0	no	0	no	0	no
115.9 L	9/29	Good	no	0	no	0	no	0	no	0	no
117.9 L	8/24	Good	no	0	no	0	no	0	no	0	no
117.9 L	9/1	Good	no	0	no	0	no	0	no	0	no
117.9 L	9/8	Good	no	0	no	0	no	0	no	0	no
117.9 L	9/15	Good	no	0	no	0	no	0	no	0	no
117.9 L	9/22	Good	no	0	no	0	no	0	no	0	no
117.9 L	9/29	Good	no	0	no	0	no	0	no	0	no
118.9 L	8/24	Good	no	0	no	0	no	0	no	0	no
118.9 L	9/1	Good	yes	0	no	5	yes	0	no	0	no
118.9 L	9/8	Good	yes	0	no	21	yes	0	no	0	no
118.9 L	9/15	Good	yes	0	no	10	yes	0	no	0	no
118.9 L	9/22	Good	no	0	no	0	no	0	no	0	no
118.9 L	9/29	Good	no	0	no	0	no	0	no	0	no
119.1 L	8/24	Good	no	0	no	0	no	0	no	0	no
119.1 L	9/1	Good	yes	0	no	6	yes	0	no	0	no
119.1 L	9/8	Good	yes	0	no	15	yes	0	no	0	no
119.1 L	9/15	Good	yes	0	no	2	yes	0	no	0	no
119.1 L	9/22	Good	no	0	no	0	no	0	no	0	no
119.1 L	9/29	Good	no	0	no	0	no	0	no	0	no
119.4 L	8/24	Good	no	0	no	0	no	0	no	0	no
119.4 L	9/1	Good	no	0	no	0	no	0	no	0	no
119.4 L	9/8	Good	yes	0	no	2	yes	0	no	0	no
119.4 L	9/15	Good	no	0	no	0	no	0	no	0	no
119.4 L	9/22	Good	no	0	no	0	no	0	no	0	no
119.4 L	9/29	Good	no	0	no	0	no	0	no	0	no
119.7 E	8/24	Good	no	0	no	0	no	0	no	0	no
119.7 E	9/1	Good	no	0	no	0	no	0	no	0	no
119.7 E	9/8	Good	no	0	no	0	no	0	no	0	no
119.7 E	9/15	Good	no	0	no	0	no	0	no	0	no
119.7 E	9/22	Good	no	0	no	0	no	0	no	0	no
119.7 E	9/29	Good	no	0	no	0	no	0	no	0	no
121.4 R	9/15	Good	yes	0	no	2	yes	0	no	0	no
124.0 L	8/24	Good	no	0	no	0	no	0	no	0	no
124.0 L	9/1	Good	no	0	no	0	no	0	no	0	no
124.0 L	9/8	Good	no	0	no	0	no	0	no	0	no
124.0 L	9/15	Good	no	0	no	0	no	0	no	0	no
124.0 L	9/22	Good	yes	0	no	10	yes	0	no	0	no
124.0 L	9/29	Good	no	0	no	0	no	0	no	0	no
124.9 L	9/1	Good	no	0	no	0	no	0	no	0	no

A304

Appendix Table 6-1 (cont). Mainstem Susitna River salmon spawning locations and survey results above RM 98.6, 1984.

River Mile	Date	Survey Conditions	Fish Present	Adult Salmon Enumerated				River	
				Sockeye	Chum	Coho	Spawning	Number	Spawning
124.9 C	9/15	Good	yes	0	0	0	yes	0	no
124.9 L	9/24	Good	no	0	0	0	no	0	no
124.9 L	9/15	Good	no	0	0	0	no	0	no
124.9 L	9/22	Good	no	0	0	0	no	0	no
124.9 L	9/29	Good	yes	0	4	0	yes	0	no
125.0 L	8/24	Good	no	0	0	0	no	0	no
125.0 L	9/1	Good	no	0	0	0	no	0	no
125.0 L	9/8	Good	no	0	0	0	no	0	no
125.0 L	9/15	Good	no	0	0	0	no	0	no
125.0 L	9/22	Good	no	0	0	0	no	0	no
125.0 L	9/29	Good	no	0	0	0	no	0	no
125.1 R	8/24	Good	no	0	0	0	no	0	no
125.1 R	9/1	Good	no	0	0	0	no	0	no
125.1 R	9/8	Good	no	0	0	0	no	0	no
125.1 R	9/15	Good	no	0	0	0	no	0	no
125.1 R	9/22	Good	no	0	0	0	no	0	no
125.1 R	9/29	Good	no	0	0	0	no	0	no
127.1 L	8/24	Good	no	0	0	0	no	0	no
127.1 L	9/1	Good	no	0	0	0	no	0	no
127.1 L	9/8	Good	no	0	0	0	no	0	no
127.1 L	9/15	Good	no	0	0	0	no	0	no
127.1 L	9/22	Good	no	0	0	0	no	0	no
127.1 L	9/29	Good	no	0	0	0	no	0	no
127.8 R	9/15	Good	yes	0	4	0	yes	0	no
128.3 C	9/8	Good	yes	0	23	0	yes	0	no
128.4 R	8/24	Good	no	0	0	0	no	0	no
128.4 R	9/1	Good	yes	0	27	0	yes	0	no
128.4 R	9/8	Good	yes	0	15	0	yes	0	no
128.4 R	9/15	Good	yes	0	27	0	yes	0	no
128.4 R	9/22	Good	no	0	0	0	no	0	no
128.4 R	9/29	Good	yes	0	6	0	yes	0	no
128.7 R	9/15	Good	yes	0	10	0	yes	0	no
129.2 R	8/24	Good	no	0	0	0	no	0	no
129.2 R	9/1	Good	no	0	0	0	no	0	no
129.2 R	9/8	Good	no	0	0	0	no	0	no
129.2 R	9/15	Good	no	0	0	0	no	0	no
129.2 R	9/22	Good	no	0	0	0	no	0	no
129.2 R	9/29	Good	no	0	0	0	no	0	no
129.8 R	8/24	Good	no	0	0	0	no	0	no
129.8 R	9/1	Good	yes	0	18	0	yes	0	no
129.8 R	9/8	Good	no	0	0	0	no	0	no
129.8 R	9/15	Good	yes	0	1	0	yes	0	no
129.8 R	9/22	Good	no	0	0	0	no	0	no
129.8 R	9/29	Good	no	0	0	0	no	0	no

Appendix Table 6-1 (cont). Mainstem Susitna River salmon spawning locations and survey results above RM 98.6, 1984.

River Mile	Date	Survey Conditions	Fish Present	Adult Salmon Encountered					
				Society Spawning		Chase Spawning		Coho Spawning	
				Number	Spawning	Number	Spawning	Number	Spawning
130.5 R	8/24	Good	no	0	no	0	no	0	no
130.5 R	9/1	Good	yes	0	no	14	yes	0	no
130.5 R	9/8	Good	yes	0	no	34	yes	0	no
130.5 R	9/15	Good	yes	0	no	1	yes	0	no
130.5 R	9/22	Good	no	0	no	0	no	0	no
130.5 R	9/29	Good	no	0	no	0	no	0	no
131.0 L	9/1	Good	yes	0	no	32	yes	0	no
131.0 L	9/8	Good	no	0	no	0	no	0	no
131.0 L	9/15	Good	yes	0	no	10	yes	0	no
131.0 R	9/15	Good	yes	1	yes	0	no	0	no
131.0 L	8/24	Good	no	0	no	0	no	0	no
131.0 L	9/22	Good	no	0	no	0	no	0	no
131.0 L	9/29	Good	no	0	no	0	no	0	no
131.1 L	8/24	Good	no	0	no	0	no	0	no
131.1 L	9/1	Good	yes	0	no	11	yes	0	no
131.1 L	9/8	Good	yes	0	no	0	no	0	no
131.1 L	9/22	Good	no	0	no	0	no	0	no
131.1 L	9/29	Good	no	0	no	0	no	0	no
131.2 L	9/8	Good	yes	0	no	18	yes	0	no
131.2 L	9/15	Good	yes	0	no	15	yes	0	no
131.2 L	9/29	Good	yes	0	no	2	yes	0	no
131.3 L	8/24	Good	no	0	no	0	no	0	no
131.3 L	9/1	Good	no	0	no	0	no	0	no
131.3 L	9/8	Good	yes	0	no	5	yes	0	no
131.3 L	9/15	Good	yes	0	no	13	yes	0	no
131.3 L	9/22	Good	no	0	no	0	no	0	no
131.3 L	9/29	Good	no	0	no	0	no	0	no
131.5 L	8/24	Good	yes	0	no	5	yes	2	yes
131.5 L	9/15	Good	yes	0	no	102	yes	0	no
131.6 L	9/8	Good	yes	0	no	40	yes	0	no
131.7 L	9/8	Good	yes	0	no	18	yes	0	no
131.7 L	9/15	Good	yes	0	no	20	yes	0	no
131.7 L	9/22	Good	yes	0	no	7	yes	0	no
132.9 R	9/15	Good	yes	0	no	20	yes	0	no
133.7 R	8/24	Good	no	0	no	0	no	0	no
133.7 R	9/1	Good	no	0	no	0	no	0	no
133.7 R	9/8	Good	no	0	no	0	no	0	no
133.7 R	9/15	Good	no	0	no	0	no	0	no
133.7 R	9/22	Good	no	0	no	0	no	0	no
133.7 R	9/29	Good	no	0	no	0	no	0	no

Appendix Table 6-1 (cont). Mainstem Susitna River salmon spawning locations and survey results above RM 98.6, 1984.

River Mile	Date	Survey Conditions	Fish Present	Adult Salmon Encountered					
				Sockeye		Chin		Coho	
				Number	Spawning	Number	Spawning	Number	Spawning
134.0 L	9/1	Good	no	0	no	0	no	0	no
134.0 L	9/8	Good	no	0	no	0	no	0	no
134.0 L	9/15	Good	no	0	no	0	no	0	no
134.0 L	9/22	Good	no	0	no	0	no	0	no
134.0 L	9/29	Good	no	0	no	0	no	0	no
134.4 R	9/1	Good	no	0	no	0	no	0	no
134.4 R	9/8	Good	no	0	no	0	no	0	no
134.4 R	9/15	Good	no	0	no	0	no	0	no
134.4 R	9/22	Good	no	0	no	0	no	0	no
134.4 R	9/29	Good	no	0	no	0	no	0	no
134.7 R	8/24	Good	no	0	no	0	no	0	no
134.7 R	9/29	Good	yes	0	yes	2	yes	0	no
135.0 R	8/24	Good	no	0	no	0	no	0	no
135.0 R	9/1	Good	no	0	no	0	no	0	no
135.0 R	9/8	Good	no	0	no	0	no	0	no
135.0 R	9/15	Good	yes	0	yes	0	no	0	no
135.0 R	9/22	Good	no	0	no	0	no	0	no
135.0 R	9/29	Good	no	0	no	0	no	0	no
135.1 L	9/15	Good	yes	2	yes	0	yes	0	no
135.1 R	8/24	Good	no	0	no	0	no	0	no
135.1 R	9/1	Good	yes	0	no	0	no	0	no
135.1 R	9/8	Good	yes	0	no	0	no	0	no
135.1 R	9/15	Good	no	0	no	0	no	0	no
135.1 R	9/22	Good	no	0	no	0	no	0	no
135.1 R	9/29	Good	no	0	no	0	no	0	no
136.1 R	8/24	Good	no	0	no	0	no	0	no
136.1 R	9/1	Good	yes	0	no	131	yes	0	no
136.1 R	9/8	Good	yes	0	no	48	yes	0	no
136.1 R	9/15	Good	no	0	no	0	no	0	no
136.1 R	9/22	Good	no	0	no	0	no	0	no
136.1 R	9/29	Good	no	0	no	0	no	0	no
136.3 R	9/8	Good	yes	0	no	31	yes	0	no
136.3 R	9/15	Good	yes	0	no	6	yes	0	no
136.8 R	8/24	Good	no	0	no	0	no	0	no
136.8 R	9/1	Good	no	0	no	0	no	0	no
136.8 R	9/8	Good	no	0	no	0	no	0	no
136.8 R	9/15	Good	no	0	no	0	no	0	no
136.8 R	9/22	Good	no	0	no	0	no	0	no
136.8 R	9/29	Good	no	0	no	0	no	0	no
137.4 R	8/24	Good	no	0	no	0	no	0	no
137.4 R	9/1	Good	no	0	no	0	no	0	no
137.4 R	9/8	Good	no	0	no	0	no	0	no
137.4 R	9/15	Good	no	0	no	0	no	0	no
137.4 R	9/22	Good	no	0	no	0	no	0	no
137.4 R	9/29	Good	no	0	no	0	no	0	no

River Mile	Date	Survey Conditions	Fish Present	Adult Salmon Enumerated							
				Sockeye		Chum		Echo		Other	
				Number	Spawning	Number	Spawning	Number	Spawning	Number	Spawning
138.3 L	9/1	Good	yes	0	no	3	yes	0	no	0	no
138.3 L	9/8	Good	no	0	no	0	no	0	no	0	no
138.3 L	9/15	Good	no	0	no	0	no	0	no	0	no
138.3 L	9/22	Good	no	0	no	0	no	0	no	0	no
138.3 L	9/29	Good	no	0	no	0	no	0	no	0	no
138.7 L	8/24	Good	no	0	no	0	no	0	no	0	no
138.7 L	9/1	Good	no	0	no	0	no	0	no	0	no
138.7 L	9/8	Good	yes	0	no	21	yes	0	no	0	no
138.7 L	9/15	Good	yes	0	no	3	yes	0	no	0	no
138.7 L	9/22	Good	no	0	no	0	no	0	no	0	no
138.7 L	9/29	Good	no	0	no	0	no	0	no	0	no
138.8 L	9/15	Good	yes	4	yes	36	yes	0	no	0	no
139.0 L	8/24	Good	no	0	no	0	no	0	no	0	no
139.0 L	9/1	Good	yes	0	no	46	yes	0	no	0	no
139.0 L	9/8	Good	yes	2	yes	87	yes	0	no	0	no
139.0 L	9/15	Good	yes	0	no	15	yes	0	no	0	no
139.0 L	9/22	Good	yes	1	yes	8	no	0	no	0	no
139.0 L	9/29	Good	no	0	no	0	no	0	no	0	no
139.4 L	8/24	Good	no	0	no	0	no	0	no	0	no
139.4 L	9/1	Good	yes	0	no	4	yes	0	no	0	no
139.4 L	9/8	Good	yes	0	no	37	yes	0	no	0	no
139.4 L	9/15	Good	no	0	no	0	no	0	no	0	no
139.4 L	9/22	Good	no	0	no	0	no	0	no	0	no
139.4 L	9/29	Good	no	0	no	0	no	0	no	0	no
139.7 R	8/24	Good	no	0	no	0	no	0	no	0	no
139.7 R	9/1	Good	no	0	no	0	no	0	no	0	no
139.7 R	9/8	Good	no	0	no	0	no	0	no	0	no
139.7 R	9/15	Good	no	0	no	0	no	0	no	0	no
139.7 R	9/22	Good	no	0	no	0	no	0	no	0	no
139.7 R	9/29	Good	no	0	no	0	no	0	no	0	no
140.5 R	8/24	Good	no	0	no	0	no	0	no	0	no
140.5 R	9/1	Good	yes	0	no	4	yes	0	no	0	no
140.5 R	9/8	Good	no	0	no	0	no	0	no	0	no
140.5 R	9/15	Good	no	0	no	0	no	0	no	0	no
140.5 R	9/22	Good	no	0	no	0	no	0	no	0	no
140.5 R	9/29	Good	no	0	no	0	no	0	no	0	no
140.8 R	9/15	Good	yes	0	no	2	yes	0	no	0	no
141.2 R	8/24	Good	no	0	no	0	no	0	no	0	no
141.2 R	9/1	Good	no	0	no	0	no	0	no	0	no
141.2 R	9/8	Good	no	0	no	0	no	0	no	0	no
141.2 R	9/15	Good	no	0	no	0	no	0	no	0	no
141.2 R	9/22	Good	no	0	no	0	no	0	no	0	no
141.2 R	9/29	Good	no	0	no	0	no	0	no	0	no

Appendix Table 6-1 (cont). Mainstem Susitna River salmon spawning locations and survey results above RM 98.6, 1984.

River Mile	Date	Survey Conditions	Fish Present	Adult Salmon Enumerated							
				Sockeye		Chum		Coho		Other	
				Number	Spawning	Number	Spawning	Number	Spawning	Number	Spawning
141.4 R	9/1	Good	yes	0	no	45	yes	0	no	0	no
141.4 R	9/8	Good	no	0	no	0	no	0	no	0	no
141.4 R	9/15	Good	no	0	no	0	no	0	no	0	no
141.4 R	9/22	Good	no	0	no	0	no	0	no	0	no
141.4 R	9/29	Good	no	0	no	0	no	0	no	0	no
141.4 R	8/24	Good	no	0	no	0	no	0	no	0	no
141.4 R	9/1	Good	no	0	no	0	no	0	no	0	no
141.4 R	9/8	Good	no	0	no	0	no	0	no	0	no
141.4 R	9/15	Good	yes	1	yes	1	yes	0	no	0	no
141.4 R	9/22	Good	no	0	no	0	no	0	no	0	no
141.4 R	9/29	Good	no	0	no	0	no	0	no	0	no
143.1 L	9/1	Good	yes	0	no	45	yes	0	no	0	no
148.2 C	8/24	Good	no	0	no	0	no	0	no	0	no
148.2 C	9/1	Good	no	0	no	0	no	0	no	0	no
148.2 C	9/8	Good	no	0	no	0	no	0	no	0	no
148.2 C	9/15	Good	no	0	no	0	no	0	no	0	no
148.2 C	9/22	Good	no	0	no	0	no	0	no	0	no
148.2 C	9/29	Good	no	0	no	0	no	0	no	0	no

Appendix Table 6-2. Escapement survey counts of Susitna River streams between RM 98.6 and 195.0, 1984.

Spawning Area	River Mile	Survey Method	Date	Survey Distance	Survey Condition	Adult Salmon Enumerated											
						Chinook			Sockeye			Pink			Live		
						Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
WHISKERS CREEK	101.4	N	07/23	0.00	F	67	0	67	0	0	0	0	0	0	0	0	0
WHISKERS CREEK	101.4	N	07/01	0.00	S	0	0	0	0	0	0	0	0	0	90	0	90
WHISKERS CREEK	101.4	N	07/06	0.00	S	0	0	0	0	0	0	0	0	0	361	0	361
WHISKERS CREEK	101.4	N	07/15	0.00	F	0	0	0	0	0	0	0	0	0	33	0	33
WHISKERS CREEK	101.4	N	07/22	0.00	E	0	0	0	0	0	0	0	0	0	217	0	217
WHISKERS CREEK	101.4	N	07/29	0.00	S	0	0	0	0	0	0	0	0	0	221	52	273
WHISKERS CREEK	101.4	N	10/13	0.00	E	0	0	0	0	0	0	0	0	0	0	46	46
WHISKERS CREEK	101.4	N	10/16	0.00	E	0	0	0	0	0	0	0	0	0	90	12	102
WHISKERS CREEK	101.4	F	07/11	0.50	E	0	0	0	0	0	0	0	0	0	0	0	0
WHISKERS CREEK	101.4	F	07/22	0.50	E	10	0	10	0	0	0	0	0	0	0	0	0
WHISKERS CREEK	101.4	F	07/27	0.50	F	1	0	1	0	0	0	41	0	41	0	0	0
WHISKERS CREEK	101.4	F	08/02	0.50	F	1	0	1	0	0	0	67	0	67	0	0	0
WHISKERS CREEK	101.4	F	08/09	0.50	E	0	0	0	0	0	0	170	4	174	0	0	4
WHISKERS CREEK	101.4	F	08/15	0.50	E	0	0	0	0	0	0	266	27	293	0	0	10
WHISKERS CREEK	101.4	F	08/26	0.50	P	0	0	0	0	0	0	7	0	10	0	0	0
WHISKERS CREEK	101.4	F	09/06	0.50	E	0	0	0	0	0	0	16	16	0	0	0	45
WHISKERS CREEK	101.4	F	07/17	0.50	S	0	0	0	0	0	0	0	0	0	114	3	117
WHISKERS CREEK	101.4	F	07/24	0.50	S	0	0	0	0	0	0	0	0	0	83	5	88
WHISKERS CREEK	101.4	F	07/30	0.50	E	0	0	0	0	0	0	0	0	0	17	5	22
WHISKERS CREEK	101.4	F	10/07	0.50	E	0	0	0	0	0	0	0	0	0	1	37	38
CHASE CREEK	106.9	N	07/01	2.00	S	0	0	0	0	0	0	0	0	0	120	0	120
CHASE CREEK	106.9	N	07/06	2.00	S	0	0	0	0	0	0	0	0	0	95	0	95
CHASE CREEK	106.9	N	07/15	2.00	P	0	0	0	0	0	0	0	0	0	70	0	70
CHASE CREEK	106.9	N	07/22	2.00	S	0	0	0	0	0	0	0	0	0	43	0	43
CHASE CREEK	106.9	N	07/29	2.00	S	0	0	0	0	0	0	0	0	0	42	12	54
CHASE CREEK	106.9	N	10/06	2.00	S	0	0	0	0	0	0	0	0	0	25	9	34
CHASE CREEK	106.9	N	10/13	2.00	E	0	0	0	0	0	0	0	0	0	25	1	26
CHASE CREEK	106.9	F	07/11	0.75	E	0	0	0	0	0	0	0	0	0	0	0	0
CHASE CREEK	106.9	F	07/22	0.75	E	0	0	0	0	0	0	41	0	41	0	0	0
CHASE CREEK	106.9	F	08/02	0.75	F	0	1	1	0	0	0	41	0	41	0	0	0
CHASE CREEK	106.9	F	08/09	0.75	S	0	2	2	0	0	0	35	13	48	0	0	7
CHASE CREEK	106.9	F	08/16	0.75	S	0	3	3	0	0	0	246	192	438	0	1	0
CHASE CREEK	106.9	F	08/20	0.75	E	0	0	0	0	0	0	5	135	140	0	0	234
CHASE CREEK	106.9	F	07/04	0.75	E	0	0	0	0	0	0	116	116	0	0	0	202
CHASE CREEK	106.9	F	07/17	0.75	E	0	0	0	0	0	0	0	0	0	85	0	85
CHASE CREEK	106.9	F	07/24	0.75	S	0	0	0	0	0	0	0	0	0	44	0	44
CHASE CREEK	106.9	F	07/30	0.75	E	0	0	0	0	0	0	0	0	0	24	13	42
CHASE CREEK	106.9	F	10/07	0.75	E	0	0	0	0	0	0	0	0	0	20	12	32
CHASE CREEK	106.9	F	10/11	0.75	E	0	0	0	0	0	0	0	0	0	10	0	10
SLASH CREEK	111.2	F	07/23	0.25	E	0	0	0	0	0	0	0	0	0	0	0	0
SLASH CREEK	111.2	F	07/30	0.25	F	0	0	0	0	0	0	0	0	0	0	0	0
SLASH CREEK	111.2	F	08/07	0.25	E	0	0	0	0	0	0	0	0	0	0	0	0
SLASH CREEK	111.2	F	08/14	0.25	E	0	0	0	0	0	0	0	0	0	0	0	0
SLASH CREEK	111.2	F	08/21	0.25	E	0	0	0	0	0	0	0	0	0	0	0	0
SLASH CREEK	111.2	F	08/27	0.25	F	0	0	0	0	0	0	2	1	3	0	0	0
SLASH CREEK	111.2	F	09/05	0.25	S	0	0	0	0	0	0	0	0	0	0	0	0
SLASH CREEK	111.2	F	09/16	0.25	S	0	0	0	0	0	0	0	0	0	0	0	0
SLASH CREEK	111.2	F	09/24	0.25	S	0	0	0	0	0	0	0	0	0	0	0	0
SLASH CREEK	111.2	F	07/30	0.25	E	0	0	0	0	0	0	0	0	0	5	0	5
SLASH CREEK	111.2	F	10/07	0.25	E	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 6-2 (cont). Escapement survey counts of Susitna River streams between RM 98.6 and 195.0, 1984.

Sampling Area	River Mile	Survey Method	Survey Date	Survey Interval	Survey Condition	Adult Salmon Escapement												Escapement												Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
						Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon				Total				Chinook				Salmon			

Appendix Table 6-2 (cont). Escapement survey counts of Susitna River streams between RM 98.6 and 195.0, 1984.

Stream Area	River Mile	Survey Method	Date	Survey Distance	Survey Condition	Adult Salmon (Escapement)											
						Chinook			Sockeye			Pink			Chum		
						Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
LOWER MCKENZIE CREEK	116.2	N	07/29	2.00	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER MCKENZIE CREEK	116.2	F	07/30	0.25	0	0	0	0	0	0	0	505	0	505	0	0	0
LOWER MCKENZIE CREEK	116.2	F	08/07	0.25	1	0	0	0	0	0	0	226	0	226	0	0	0
LOWER MCKENZIE CREEK	116.2	F	08/14	0.25	1	0	0	0	0	0	0	306	0	306	0	0	0
LOWER MCKENZIE CREEK	116.2	F	08/21	0.25	1	0	0	0	0	0	0	59	12	71	0	0	0
LOWER MCKENZIE CREEK	116.2	F	08/27	0.25	7	0	0	0	0	0	0	4	0	4	23	0	23
LOWER MCKENZIE CREEK	116.2	F	09/05	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER MCKENZIE CREEK	116.2	F	09/16	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER MCKENZIE CREEK	116.2	F	09/24	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER MCKENZIE CREEK	116.2	F	09/30	0.25	0	0	0	0	0	0	0	0	0	0	0	2	10
LOWER MCKENZIE CREEK	116.2	F	10/05	0.25	1	0	0	0	0	0	0	0	0	0	0	0	0
MCKENZIE CREEK	116.7	F	07/30	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
MCKENZIE CREEK	116.7	F	08/07	0.25	1	0	0	0	0	0	0	11	0	11	0	0	0
MCKENZIE CREEK	116.7	F	08/14	0.25	0	0	0	0	0	0	0	3	0	3	0	0	0
MCKENZIE CREEK	116.7	F	08/21	0.25	1	0	0	0	0	0	0	5	0	5	0	0	0
MCKENZIE CREEK	116.7	F	08/27	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
MCKENZIE CREEK	116.7	F	09/05	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
MCKENZIE CREEK	116.7	F	09/16	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
MCKENZIE CREEK	116.7	F	09/24	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
LITTLE PORTAGE CREEK	117.7	F	07/23	0.25	1	0	0	0	0	0	0	0	0	0	0	0	0
LITTLE PORTAGE CREEK	117.7	F	07/30	0.25	0	0	0	0	0	0	0	1	0	1	0	0	0
LITTLE PORTAGE CREEK	117.7	F	08/07	0.25	1	0	0	0	0	0	0	0	0	0	0	0	0
LITTLE PORTAGE CREEK	117.7	F	08/14	0.25	0	0	0	0	0	0	0	157	0	157	2	0	2
LITTLE PORTAGE CREEK	117.7	F	08/20	0.25	0	0	0	0	0	0	0	140	14	154	17	1	18
LITTLE PORTAGE CREEK	117.7	F	08/27	0.25	0	0	0	0	0	0	0	25	1	26	0	0	0
LITTLE PORTAGE CREEK	117.7	F	09/05	0.25	0	0	0	0	0	0	0	0	0	0	1	5	6
LITTLE PORTAGE CREEK	117.7	F	09/16	0.25	1	0	0	0	0	0	0	0	0	0	2	0	2
LITTLE PORTAGE CREEK	117.7	F	09/24	0.25	1	0	0	0	0	0	0	0	0	0	0	0	0
FROMUDA CREEK	119.3	F	08/07	0.25	0	0	0	0	0	0	0	24	0	24	0	0	0
FROMUDA CREEK	119.3	F	08/14	0.25	0	0	0	0	0	0	0	30	2	32	0	0	0
FROMUDA CREEK	119.3	F	08/21	0.25	1	0	0	0	0	0	0	4	2	6	0	0	0
FROMUDA CREEK	119.3	F	08/27	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
FROMUDA CREEK	119.3	F	09/05	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
FROMUDA CREEK	119.3	F	09/16	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
FROMUDA CREEK	119.3	F	09/24	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
ROMULDA CREEK	119.4	F	08/07	0.25	0	0	0	0	0	0	0	6	0	6	0	0	0
ROMULDA CREEK	119.4	F	08/14	0.25	0	0	0	0	0	0	0	1	0	1	0	0	0
ROMULDA CREEK	119.4	F	08/21	0.25	1	0	0	0	0	0	0	0	0	0	0	0	0
ROMULDA CREEK	119.4	F	08/27	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
ROMULDA CREEK	119.4	F	09/05	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
ROMULDA CREEK	119.4	F	09/16	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
ROMULDA CREEK	119.4	F	09/24	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
BEAVER CREEK	120.8	F	08/04	0.25	0	0	0	0	0	0	0	41	0	41	0	0	0
BEAVER CREEK	120.8	F	08/13	1.50	1	0	0	0	0	0	0	327	10	337	0	0	0
BEAVER CREEK	120.8	F	08/20	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 6-2 (cont). Escapement survey counts of Susitna River streams between RM 98.6 and 195.0, 1984.

Sampling Area	River Mile	Survey Method	Survey Date	Survey Distance	Survey Condition	Chinook			Salmon			Steelhead Escapement			Coho		
						Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
60.0 CHEE	134.7	R	07/22	7.00	F	2	0	2	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/01	7.00	F	20	2	22	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/10	7.00	F	0	0	0	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/01	7.00	F	0	0	0	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/04	7.00	F	0	0	0	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/15	7.00	F	0	0	0	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/22	7.00	F	0	0	0	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/29	7.00	F	0	0	0	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/04	6.25	F	0	1	1	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/21	6.25	F	0	0	0	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/26	6.25	F	0	0	0	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/26	6.25	F	0	0	0	0	0	0	0	0	0	0	0	0
60.0 CHEE	134.7	R	06/28	6.25	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	07/25	15.00	F	110	16	126	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/01	15.00	F	312	13	325	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/11	15.00	F	41	1	42	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/10	15.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/01	15.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/06	15.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/13	15.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/22	15.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/29	15.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	07/04	15.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	07/13	15.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	07/21	1.00	F	100	7	107	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	07/31	1.00	F	33	43	76	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/06	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/11	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/12	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/21	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/27	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/27	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/10	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/20	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/26	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/26	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
190.0M SIWAS	135.5	R	06/31	1.00	F	0	0	0	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	07/21	8.00	F	7	0	7	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/06	8.00	F	0	0	0	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/13	8.00	F	0	0	0	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/22	8.00	F	0	0	0	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/29	8.00	F	0	0	0	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	07/31	8.25	F	1	1	2	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/04	6.25	F	2	0	2	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/13	6.25	F	0	0	0	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/21	6.25	F	0	0	0	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/26	6.25	F	0	0	0	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/26	6.25	F	0	0	0	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/31	6.25	F	0	0	0	0	0	0	0	0	0	0	0	0
JACK LOW CHEE	141.3	R	06/03	6.25	F	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 6-2 (cont). Escapement survey counts of Susitna River streams between RM 98.6 and 195.0, 1984.

Spawning Area	River Mile	Survey Method	Date	Survey Distance	Survey Condition	Adult Salmon Escapement											
						Chinook			Sockeye			Pink			Chum		
						Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
TSUSENA CREEK	181.3	N	07/21	1.00	E	0	0	0	0	0	0	0	0	0	0	0	0
TSUSENA CREEK	181.3	N	08/01	1.00	E	0	0	0	0	0	0	0	0	0	0	0	0
TSUSENA CREEK	181.3	N	08/04	1.00	E	0	0	0	0	0	0	0	0	0	0	0	0
TSUSENA CREEK	181.3	N	08/18	1.00	N	0	0	0	0	0	0	0	0	0	0	0	0
DEADMAN CREEK	186.7	N	07/21	1.00	E	0	0	0	0	0	0	0	0	0	0	0	0
DEADMAN CREEK	186.7	N	08/01	1.00	E	0	0	0	0	0	0	0	0	0	0	0	0
DEADMAN CREEK	186.7	N	08/04	1.00	E	0	0	0	0	0	0	0	0	0	0	0	0
NATANA CREEK	194.1	N	08/01	1.00	E	0	0	0	0	0	0	0	0	0	0	0	0
NATANA CREEK	194.1	N	08/04	1.00	E	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 6-3.

Escapement survey counts of Susitna River sloughs between RM 98.6 and 161.0, 1984.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated											
					Chinook			Sockeye			Pink			Chum		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
SLOUGH 1	99.6	8 / 9	P	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 1	99.6	8 / 26	P	25	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 1	99.6	9 / 6	E	100	0	0	0	8	2	10	0	0	0	11	1	12
SLOUGH 1	99.6	9 / 24	E	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 2	100.2	8 / 9	P	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 2	100.2	8 / 15	E	20	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 2	100.2	8 / 17	E	50	0	0	0	0	0	0	2	0	2	12	1	13
SLOUGH 2	100.2	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 2	100.2	9 / 6	E	100	0	0	0	7	0	7	0	0	0	118	11	129
SLOUGH 2	100.2	9 / 15	P	100	0	0	0	4	0	4	0	0	0	1	25	26
SLOUGH 2	100.2	9 / 17	E	100	0	0	0	5	0	5	0	0	0	5	50	55
SLOUGH 2	100.2	9 / 24	E	100	0	0	0	4	0	4	0	0	0	0	32	32
SLOUGH 2	100.2	9 / 28	E	100	0	0	0	2	0	2	0	0	0	0	0	0
SLOUGH 2	100.2	9 / 30	E	100	0	0	0	2	0	2	0	0	0	0	0	0
SLOUGH 2	100.2	10 / 7	E	100	0	0	0	4	0	4	0	0	0	0	0	0
SLOUGH 3B	101.4	8 / 9	P	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 3B	101.4	8 / 17	E	10	0	0	0	0	0	0	0	0	0	1	0	1
SLOUGH 3B	101.4	8 / 26	E	70	0	0	0	10	0	10	1	0	1	21	0	21
SLOUGH 3B	101.4	9 / 6	E	70	0	0	0	18	2	20	0	0	0	46	10	56
SLOUGH 3B	101.4	9 / 17	E	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 3B	101.4	9 / 24	E	100	0	0	0	0	0	0	11	17	28	0	0	0
SLOUGH 3B	101.4	9 / 30	E	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 3A	101.9	8 / 17	E	10	0	0	0	11	0	11	0	0	0	0	0	0
SLOUGH 3A	101.9	8 / 26	E	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 3A	101.9	9 / 6	E	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 3A	101.9	9 / 15	E	100	0	0	0	0	0	0	46	10	56	0	0	0
SLOUGH 3A	101.9	9 / 17	E	100	0	0	0	11	0	11	0	0	0	1	0	1
SLOUGH 3A	101.9	9 / 24	E	100	0	0	0	8	0	8	0	0	0	1	16	17
SLOUGH 3A	101.9	9 / 30	E	100	0	0	0	2	1	3	0	0	0	0	7	7
SLOUGH 3A	101.9	9 / 30	E	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 4	105.2	8 / 7	E	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 4	105.2	8 / 9	P	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 4	105.2	8 / 16	E	50	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 4	105.2	8 / 28	E	50	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 4	105.2	9 / 4	E	50	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 4	105.2	9 / 17	E	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 4	105.2	9 / 24	E	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 5	107.6	8 / 7	P	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 5	107.6	8 / 9	P	100	0	0	0	0	0	0	4	0	4	0	0	0
SLOUGH 5	107.6	8 / 28	P	40	0	0	0	0	1	1	0	2	2	0	0	0
SLOUGH 5	107.6	9 / 4	F	80	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 5	107.6	9 / 17	E	100	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 5	107.6	9 / 24	E	100	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 6-3 (cont).

Escapement survey counts of Susitna River sloughs between
RM 98.6 and 161.0, 1984.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
SLOUGH 6	108.2	8 / 7	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 6	108.2	8 / 20	P	20	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
SLOUGH 6	108.2	9 / 4	G	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 6	108.2	9 / 17	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 6	108.2	9 / 24	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 6A	112.3	8 / 7	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 6A	112.3	8 / 14	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 6A	112.3	8 / 21	B	100	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
SLOUGH 6A	112.3	9 / 5	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 6A	112.3	9 / 16	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 6A	112.3	9 / 24	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 6A	112.3	9 / 29	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 7	113.2	8 / 7	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 7	113.2	8 / 14	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 7	113.2	8 / 21	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 7	113.2	9 / 24	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 8	113.7	8 / 7	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 8	113.7	8 / 14	E	100	0	0	0	0	0	0	0	1	1	14	1	15	0	0	0
SLOUGH 8	113.7	8 / 21	E	100	0	0	0	0	0	0	0	0	0	46	6	52	0	0	0
SLOUGH 8	113.7	9 / 5	E	100	0	0	0	2	0	2	0	0	0	51	14	65	0	0	0
SLOUGH 8	113.7	9 / 16	E	100	0	0	0	0	0	0	0	0	0	20	26	46	0	0	0
SLOUGH 8	113.7	9 / 21	E	100	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
SLOUGH 8	113.7	9 / 24	G	100	0	0	0	0	0	0	0	0	0	1	10	11	0	0	0
BUSHROD SLOUGH	117.8	8 / 13	E	100	0	0	0	0	0	0	8	2	10	27	0	27	0	0	0
BUSHROD SLOUGH	117.8	8 / 20	E	100	0	0	0	0	0	0	4	2	6	86	4	90	0	0	0
BUSHROD SLOUGH	117.8	8 / 27	G	10	0	0	0	0	0	0	0	0	0	22	0	22	0	0	0
BUSHROD SLOUGH	117.8	9 / 5	E	100	0	0	0	0	0	0	0	0	0	22	2	24	0	0	0
BUSHROD SLOUGH	117.8	9 / 16	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BUSHROD SLOUGH	117.8	9 / 22	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BUSHROD SLOUGH	117.8	9 / 24	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CURRY SLOUGH	119.7	8 / 3	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CURRY SLOUGH	119.7	8 / 12	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CURRY SLOUGH	119.7	8 / 26	F	100	0	0	0	0	0	0	0	0	0	8	0	8	0	0	0
CURRY SLOUGH	119.7	8 / 27	E	100	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0
CURRY SLOUGH	119.7	8 / 31	E	100	0	0	0	0	0	0	0	0	0	2	3	5	0	0	0
CURRY SLOUGH	119.7	9 / 26	E	100	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0
SLOUGH 8D	121.8	8 / 6	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 8D	121.8	8 / 13	E	100	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
SLOUGH 8D	121.8	8 / 17	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 8D	121.8	8 / 20	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 8D	121.8	8 / 21	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 8D	121.8	8 / 31	B	100	0	0	0	0	0	0	0	0	0	8	3	11	0	0	0
SLOUGH 8D	121.8	9 / 6	E	100	0	0	0	0	0	0	0	0	0	8	41	49	0	0	0
SLOUGH 8D	121.8	9 / 13	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 8D	121.8	9 / 22	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 8D	121.8	9 / 28	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 6-3 (cont). Escapement survey counts of Susitna River sloughs between RM 98.6 and 161.0, 1984.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Chinook				Sockeye				Pink Salmon Escapement				Live	Chinook Dead	Total	Live	Chinook Dead	Total	Live	Chinook Dead	Total
					Live	Dead	Total	Total	Live	Dead	Total	Total	Live	Dead	Total	Total									
SLOUGH 0C	121.9	8 / 6	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	121.9	8 / 13	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	121.9	8 / 17	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	121.9	8 / 20	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	121.9	8 / 21	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	121.9	8 / 31	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	121.9	9 / 6	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	121.9	9 / 13	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	121.9	9 / 22	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	121.9	9 / 28	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	8 / 6	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	8 / 13	F	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	8 / 17	F	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	8 / 20	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	8 / 21	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	8 / 31	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	9 / 6	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	9 / 13	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	9 / 15	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	9 / 22	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 0C	122.2	9 / 28	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOOSE SLOUGH	123.5	8 / 6	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOOSE SLOUGH	123.5	8 / 13	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOOSE SLOUGH	123.5	8 / 17	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOOSE SLOUGH	123.5	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOOSE SLOUGH	123.5	9 / 3	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOOSE SLOUGH	123.5	9 / 9	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOOSE SLOUGH	123.5	9 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOOSE SLOUGH	123.5	9 / 27	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A1	124.6	8 / 6	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A1	124.6	8 / 13	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A1	124.6	8 / 17	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A1	124.6	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A1	124.6	9 / 3	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A1	124.6	9 / 9	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A1	124.6	9 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A1	124.6	9 / 27	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 6-3 (cont). Escapement survey counts of Susitna River sloughs between RM 98.6 and 161.0, 1984.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
SLOUGH A	124.7	8 / 6	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A	124.7	8 / 12	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A	124.7	8 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH A	124.7	8 / 26	E	100	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0
SLOUGH A	124.7	9 / 4	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH BA	125.4	8 / 6	E	100	0	0	0	3	0	3	5	0	5	45	1	46	0	0	0
SLOUGH BA	125.4	8 / 13	E	75	0	0	0	16	1	17	40	6	46	277	3	280	0	0	0
SLOUGH BA	125.4	8 / 19	E	100	0	0	0	59	0	59	118	16	134	535	58	593	0	0	0
SLOUGH BA	125.4	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH BA	125.4	9 / 3	E	100	0	0	0	123	5	128	2	1	3	646	271	917	0	0	0
SLOUGH BA	125.4	9 / 9	E	100	0	0	0	112	13	125	0	0	0	223	339	562	0	0	0
SLOUGH BA	125.4	9 / 20	E	100	0	0	0	39	1	40	0	0	0	8	12	20	0	0	0
SLOUGH BA	125.4	9 / 26	E	100	0	0	0	10	35	45	0	0	0	7	20	27	0	0	0
SLOUGH BA	125.4	10 / 4	E	100	0	0	0	3	0	3	0	0	0	1	0	1	0	0	0
SLOUGH BA	125.4	10 / 11	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH B	126.3	8 / 6	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH B	126.3	8 / 13	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH B	126.3	8 / 20	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH B	126.3	8 / 21	G	30	0	0	0	0	0	0	0	0	0	11	1	12	0	0	0
SLOUGH B	126.3	8 / 21	G	20	0	0	0	0	0	0	0	0	0	32	0	32	0	0	0
SLOUGH B	126.3	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH B	126.3	9 / 4	E	100	0	0	0	8	1	9	0	0	0	76	32	108	0	0	0
SLOUGH B	126.3	9 / 11	E	100	0	0	0	4	0	4	0	0	0	11	19	30	0	0	0
SLOUGH B	126.3	9 / 21	E	100	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
SLOUGH B	126.3	9 / 27	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH C	128.3	8 / 6	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH C	128.3	8 / 13	P	100	0	0	0	0	0	0	0	1	1	4	0	4	0	0	0
SLOUGH C	128.3	8 / 20	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH C	128.3	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH C	128.3	9 / 4	E	100	0	0	0	6	0	6	0	0	0	221	129	350	0	0	0
SLOUGH C	128.3	9 / 11	E	100	0	0	0	0	0	0	0	0	0	27	111	138	0	0	0
SLOUGH C	128.3	9 / 21	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH DB	129.2	8 / 6	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH DB	129.2	8 / 10	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH DB	129.2	8 / 14	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH DB	129.2	8 / 20	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH DB	129.2	8 / 21	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH DB	129.2	8 / 24	G	100	0	0	0	7	0	7	0	0	0	71	2	73	0	0	0
SLOUGH DB	129.2	9 / 1	G	100	0	0	0	6	0	6	0	0	0	56	7	63	0	0	0
SLOUGH DB	129.2	9 / 8	G	100	0	0	0	6	1	7	0	0	0	13	12	25	0	0	0
SLOUGH DB	129.2	9 / 21	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

A320

Appendix Table 6-3 (cont). Escapement survey counts of Susitna River sloughs between RM 98.6 and 161.0, 1984.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
SLOUGH 10	133.9	8 / 6	G	100	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
SLOUGH 10	133.9	8 / 13	E	100	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0
SLOUGH 10	133.9	8 / 18	P	100	0	0	0	0	0	0	0	0	0	10	0	10	0	0	0
SLOUGH 10	133.9	8 / 21	E	100	0	0	0	0	0	0	0	0	0	26	0	26	0	0	0
SLOUGH 10	133.9	8 / 26	F	100	0	0	0	0	0	0	0	0	0	36	0	36	0	0	0
SLOUGH 10	133.9	9 / 1	G	100	0	0	0	0	0	0	0	0	0	26	3	29	0	0	0
SLOUGH 10	133.9	9 / 3	E	100	0	0	0	0	0	0	0	0	0	23	9	32	0	0	0
SLOUGH 10	133.9	9 / 4	E	100	0	0	0	0	0	0	0	0	0	23	9	32	0	0	0
SLOUGH 10	133.9	9 / 11	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 10	133.9	9 / 21	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 10	133.9	9 / 27	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 9A	133.8	8 / 6	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 9A	133.8	8 / 10	E	30	0	0	0	0	0	0	0	0	0	46	0	46	0	0	0
SLOUGH 9A	133.8	8 / 13	E	30	0	0	0	0	0	0	0	0	0	40	1	41	0	0	0
SLOUGH 9A	133.8	8 / 20	E	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 9A	133.8	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 9A	133.8	9 / 4	E	100	0	0	0	0	0	0	0	0	0	261	42	303	0	0	0
SLOUGH 9A	133.8	9 / 11	E	100	0	0	0	0	0	0	0	0	0	125	45	170	0	0	0
SLOUGH 9A	133.8	9 / 21	E	100	0	0	0	0	0	0	0	0	0	1	13	14	0	0	0
SLOUGH 9A	133.8	9 / 27	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 11	135.3	8 / 6	G	100	0	0	0	0	0	0	6	0	6	54	0	54	0	0	0
SLOUGH 11	135.3	8 / 13	E	80	0	0	0	3	0	3	97	5	102	410	12	422	0	0	0
SLOUGH 11	135.3	8 / 19	G	100	0	0	0	18	0	18	83	38	121	1102	133	1235	0	0	0
SLOUGH 11	135.3	8 / 26	G	70	0	0	0	93	0	93	21	6	27	469	1114	1583	0	0	0
SLOUGH 11	135.3	9 / 3	E	100	0	0	0	347	4	351	0	0	0	763	797	1560	0	0	0
SLOUGH 11	135.3	9 / 9	E	100	0	0	0	546	18	564	0	0	0	175	891	1066	0	0	0
SLOUGH 11	135.3	9 / 17	G	100	0	0	0	476	31	507	0	0	0	44	1542	1586	1	0	1
SLOUGH 11	135.3	9 / 21	E	100	0	0	0	244	0	244	0	0	0	22	0	22	0	0	0
SLOUGH 11	135.3	9 / 26	E	100	0	0	0	156	0	156	0	0	0	5	0	5	0	0	0
SLOUGH 11	135.3	10 / 4	E	100	0	0	0	18	0	18	0	0	0	1	0	1	0	0	0
SLOUGH 11	135.3	10 / 10	E	100	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0
SLOUGH 12	135.4	8 / 6	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 12	135.4	8 / 18	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 12	135.4	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 12	135.4	9 / 4	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 12	135.4	9 / 21	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 13	135.6	8 / 6	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 13	135.8	8 / 18	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 13	135.8	8 / 21	G	100	0	0	0	0	0	0	0	0	0	11	1	12	0	0	0
SLOUGH 13	135.8	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 13	135.8	8 / 27	B	100	0	0	0	0	0	0	0	0	0	19	3	22	0	0	0
SLOUGH 13	135.8	9 / 4	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 13	135.8	9 / 21	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 6-3 (cont).

Escapement survey counts of Susitna River sloughs between
RM 98.6 and 161.0, 1984.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
SLOUGH 14	135.9	8 / 6	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 14	135.9	8 / 18	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 14	135.9	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 14	135.9	8 / 27	B	100	0	0	0	0	0	0	0	0	0	1	0	1	2	0	2
SLOUGH 14	135.9	9 / 4	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 14	135.9	9 / 21	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 15	137.2	8 / 8	P	100	0	0	0	1	0	1	500	0	500	100	0	100	10	0	10
SLOUGH 15	137.2	8 / 17	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 15	137.2	8 / 24	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 15	137.2	9 / 2	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 15	137.2	9 / 10	B	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 15	137.2	9 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 15	137.2	9 / 26	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 16	137.3	8 / 8	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 16	137.3	8 / 17	E	100	0	0	0	0	0	0	0	0	0	12	2	14	0	0	0
SLOUGH 16	137.3	8 / 24	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 16	137.3	9 / 1	B	100	0	0	0	0	0	0	0	0	0	15	0	15	0	0	0
SLOUGH 16	137.3	9 / 2	E	100	0	0	0	0	0	0	0	0	0	6	1	7	0	0	0
SLOUGH 16	137.3	9 / 10	G	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 16	137.3	9 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 16	137.3	9 / 26	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 17	138.9	8 / 8	E	100	0	0	0	16	0	16	1	0	1	39	0	39	0	0	0
SLOUGH 17	138.9	8 / 17	E	100	0	0	0	1	0	1	0	0	0	29	0	29	0	0	0
SLOUGH 17	138.9	8 / 24	P	100	0	0	0	15	0	15	0	0	0	70	0	70	0	0	0
SLOUGH 17	138.9	9 / 2	B	100	0	0	0	3	0	3	0	0	0	47	19	66	0	0	0
SLOUGH 17	138.9	9 / 10	B	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 17	138.9	9 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 17	138.9	9 / 26	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 17	138.9	10 / 3	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 18	139.1	8 / 24	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 18	139.1	8 / 26	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 18	139.1	9 / 2	E	20	0	0	0	0	0	0	0	0	0	10	1	11	0	0	0
SLOUGH 18	139.1	9 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 18	139.1	9 / 26	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 19	139.7	8 / 8	B	50	0	0	0	0	0	0	0	0	0	19	0	19	0	0	0
SLOUGH 19	139.7	8 / 17	E	100	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0
SLOUGH 19	139.7	8 / 24	B	40	0	0	0	4	0	4	0	0	0	39	1	40	0	0	0
SLOUGH 19	139.7	9 / 2	E	100	0	0	0	7	2	9	0	0	0	30	15	45	0	0	0
SLOUGH 19	139.7	9 / 10	B	100	0	0	0	11	0	11	0	0	0	1	4	5	0	0	0
SLOUGH 19	139.7	9 / 20	E	100	0	0	0	6	0	6	0	0	0	0	0	0	0	0	0
SLOUGH 19	139.7	9 / 26	E	100	0	0	0	4	0	4	0	0	0	1	0	1	0	0	0
SLOUGH 19	139.7	10 / 3	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 6-3 (cont). Escapement survey counts of Susitna River sloughs between RM 98.6 and 161.0, 1984.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
SLOUGH 20	140.0	8 / 8	G	50	0	0	0	0	0	0	36	1	37	39	0	39	0	0	0
SLOUGH 20	140.0	8 / 17	E	100	0	0	0	0	0	0	74	11	85	126	12	138	0	0	0
SLOUGH 20	140.0	8 / 24	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 20	140.0	9 / 2	G	100	0	0	0	0	0	0	0	0	0	117	163	280	0	0	0
SLOUGH 20	140.0	9 / 10	G	100	0	0	0	0	0	0	0	0	0	0	116	116	0	0	0
SLOUGH 20	140.0	9 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 20	140.0	9 / 26	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 21	141.1	8 / 8	E	35	0	0	0	0	0	0	0	0	0	12	0	12	0	0	0
SLOUGH 21	141.1	8 / 17	E	100	0	0	0	58	0	58	1	7	8	936	45	981	0	0	0
SLOUGH 21	141.1	8 / 24	G	35	0	0	0	11	1	12	0	0	0	307	151	458	0	0	0
SLOUGH 21	141.1	9 / 2	G	100	0	0	0	115	0	115	0	0	0	1643	711	2354	0	0	0
SLOUGH 21	141.1	9 / 10	G	100	0	0	0	116	6	122	0	0	0	424	1096	1520	0	0	0
SLOUGH 21	141.1	9 / 20	E	100	0	0	0	44	18	62	0	0	0	24	799	823	0	0	0
SLOUGH 21	141.1	9 / 26	E	100	0	0	0	28	12	40	0	0	0	5	600	605	0	0	0
SLOUGH 21	141.1	10 / 3	E	100	0	0	0	14	6	20	0	0	0	1	0	1	0	0	0
SLOUGH 21	141.1	10 / 10	E	100	0	0	0	5	1	6	0	0	0	0	0	0	0	0	0
ANNA CREEK SLOUGH	143.2	9 / 2	G	100	0	0	0	0	0	0	0	0	0	32	3	35	0	0	0
ANNA CREEK SLOUGH	143.2	9 / 10	G	100	0	0	0	0	0	0	0	0	0	3	17	20	0	0	0
ANNA CREEK SLOUGH	143.2	9 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 22	144.5	8 / 8	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 22	144.5	8 / 17	E	100	0	0	0	0	0	0	0	0	0	35	3	38	0	0	0
SLOUGH 22	144.5	8 / 24	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 22	144.5	9 / 2	G	100	0	0	0	2	0	2	0	0	0	109	42	151	0	0	0
SLOUGH 22	144.5	9 / 10	G	100	0	0	0	1	0	1	0	0	0	7	0	7	0	0	0
SLOUGH 22	144.5	9 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 22	144.5	9 / 26	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 21A	145.3	8 / 8	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 21A	145.3	8 / 17	E	100	0	0	0	0	0	0	0	0	0	0	10	10	0	0	0
SLOUGH 21A	145.3	8 / 24	P	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 21A	145.3	9 / 1	G	100	0	0	0	0	0	0	0	0	0	5	1	6	0	0	0
SLOUGH 21A	145.3	9 / 2	E	100	0	0	0	0	0	0	0	0	0	5	1	6	0	0	0
SLOUGH 21A	145.3	9 / 8	G	100	0	0	0	0	0	0	0	0	0	3	4	7	0	0	0
SLOUGH 21A	145.3	9 / 10	G	100	0	0	0	0	0	0	0	0	0	3	4	7	0	0	0
SLOUGH 21A	145.3	9 / 20	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOUGH 21A	145.3	9 / 26	E	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 6-4.

Chinook salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATHORN TAGS				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
				Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
RABIDEAU CREEK	83.1	8 / 3	E	6	618	620	103.3	24	596	620	25.8	7	613	620	88.4	1	619	620	620.0
RABIDEAU CREEK	83.1	7 / 23	E	0	0	0	0.0	0	0	0	0.0	1	7	8	8.0	0	0	0	0.0
RABIDEAU CREEK	83.1	8 / 2	F	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
RABIDEAU CREEK	83.1	7 / 25	E	3	594	597	199.0	15	552	567	13.3	9	588	597	64.3	1	594	597	597.0
SUNSHINE CREEK	85.1	7 / 29	F	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
SUNSHINE CREEK	85.1	7 / 23	E	0	14	14	0.0	2	12	14	7.0	3	11	14	1.3	0	14	14	0.0
BIRCH CREEK SLOUGH	89.0	8 / 9	E	0	13	13	0.0	0	13	13	0.0	0	13	13	0.0	0	13	13	0.0
BIRCH CREEK SLOUGH	89.0	7 / 23	E	21	105	126	6.0	0	126	126	0.0	0	126	126	0.0	0	126	126	0.0
BIRCH CREEK SLOUGH	89.0	8 / 23	E	0	17	17	0.0	0	17	17	0.0	0	17	17	0.0	0	17	17	0.0
BIRCH CREEK SLOUGH	89.0	8 / 2	E	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
BIRCH CREEK	89.2	8 / 16	E	0	9	9	0.0	0	9	9	0.0	0	9	9	0.0	0	9	9	0.0
BIRCH CREEK	89.2	8 / 9	F	1	26	27	27.0	0	27	27	0.0	0	27	27	0.0	0	27	27	0.0
BIRCH CREEK	89.2	7 / 29	E	0	9	9	0.0	0	9	9	0.0	0	9	9	0.0	0	9	9	0.0
TRAPPER CREEK	91.5	7 / 23	E	1	14	15	15.0	2	13	15	7.5	1	14	15	15.0	1	14	15	15.0
TRAPPER CREEK	91.5	7 / 20	F	0	4	4	0.0	0	4	4	0.0	1	3	4	4.0	0	4	4	0.0
FRATKE CREEK	97.1	7 / 24	E	74	1585	1659	22.4	3	1654	1659	331.0	11	1648	1659	150.8	3	1654	1659	331.0
PRARIE CREEK	97.1	8 / 3	E	15	1537	1632	17.2	0	1632	1632	0.0	3	1629	1632	544	1	1631	1632	1632.0
CLEAR CRK / TALKEETNA RIVER	97.1	8 / 4	E	32	171	203	6.3	2	201	203	101.5	2	201	203	101.5	0	203	203	0.0
PAPA BEAR CREEK INLET STREAM	97.1	7 / 24	E	0	9	9	0.0	0	9	9	0.0	2	7	9	4.5	0	9	9	0.0
BYERS CREEK	97.8	7 / 24	F	1	38	39	39.0	1	38	39	39.0	0	39	39	0.0	0	39	39	0.0
MIDDLE FORK CHULITNA	97.8	7 / 24	E	12	3884	3896	324.7	78	3818	3896	49.9	3	3893	3896	1298.7	0	3896	3896	0.0
MIDDLE FORK CHULITNA	97.8	7 / 24	E	1	294	295	295.0	0	297	295	34.9	1	294	295	295.0	0	295	295	0.0
MIDDLE FORK CHULITNA	97.8	8 / 4	F	3	1033	1036	345.3	9	1027	1036	115.1	2	1034	1036	510	1	1035	1036	1036.0
WHISKERS CREEK	101.5	7 / 15	E	1	39	40	40.0	2	38	40	20.0	2	38	40	8	1	39	40	40.0
WHISKERS CREEK	101.4	7 / 27	F	0	1	1	0.0	0	1	1	0.0	1	0	1	1.0	0	1	1	0.0
WHISKERS CREEK	101.4	8 / 2	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
LAME CREEK	113.6	7 / 30	E	1	5	6	6.0	2	4	6	3.0	0	6	6	0.0	0	6	6	0.0
FIFTH OF JULY CREEK	123.7	7 / 23	E	4	30	34	8.5	0	34	34	0.0	5	29	34	6.8	1	33	34	34.0
FIFTH OF JULY CREEK	123.7	7 / 30	E	0	5	5	0.0	0	5	5	0.0	0	5	5	0.0	1	4	5	5.0
FOURTH OF JULY CREEK	131.0	8 / 6	E	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
INDIAN RIVER	138.6	7 / 24	E	22	177	199	9.0	1	194	199	46.3	26	173	199	7.7	16	183	199	12.4
INDIAN RIVER	138.6	7 / 31	E	18	179	189	18.9	1	188	189	189.0	14	173	189	11.0	7	182	189	27.0
INDIAN RIVER	138.6	8 / 0	E	2	98	100	50.0	0	100	100	0.0	4	96	100	25.0	4	96	100	25.0
JACK LONG CREEK	144.5	7 / 31	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
JACK LONG CREEK	144.5	8 / 0	E	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
FORTAGE CREEK	148.9	7 / 31	E	2	35	37	18.5	0	37	37	0.0	4	33	37	9.3	3	34	37	12.3
FORTAGE CREEK	148.9	8 / 4	E	0	50	50	0.0	0	50	50	0.0	3	47	50	16.7	1	49	50	50.0
FORTAGE CREEK	148.9	8 / 0	E	0	11	11	0.0	0	11	11	0.0	6	10	11	11.0	1	10	11	11.0

Appendix Table 6-5. Sockeye salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATHORN TAGS				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
				Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
W FORK YENTNA (SIDE CHANNEL)	28.0	9 / 11	B	11	1477	1488	135.3	11	1477	1488	135.3	0	1488	1488	0.0	0	1488	1488	0.0
W FORK YENTNA (SIDE CHANNEL)	28.0	9 / 12	E	6	1120	1134	189.0	6	1120	1134	189.0	0	1134	1134	0.0	0	1134	1134	0.0
WHITSON CREEK	29.2	8 / 9	G	0	20	20	0.0	0	20	20	0.0	0	20	20	0.0	0	20	20	0.0
FISH CREEK	31.7	8 / 17	F	2	74	76	38.0	0	74	74	0.0	0	74	74	0.0	0	74	74	0.0
WILLOW CREEK	49.1	8 / 6	G	0	174	174	0.0	0	174	174	0.0	0	174	174	0.0	0	174	174	0.0
WILLOW CREEK	49.1	8 / 12	B	0	220	220	0.0	1	219	220	220.0	0	220	220	0.0	0	220	220	0.0
LITTLE WILLOW CREEK	50.5	8 / 3	B	2	8	10	5.0	0	10	10	0.0	0	10	10	0.0	0	10	10	0.0
LITTLE WILLOW CREEK	50.5	8 / 21	E	1	12	13	13.0	0	13	13	0.0	0	13	13	0.0	0	13	13	0.0
CASHELL CREEK	64.0	7 / 30	F	0	6	6	0.0	0	6	6	0.0	0	6	6	0.0	0	6	6	0.0
SHEEP CREEK	66.1	7 / 30	F	0	11	11	0.0	0	11	11	0.0	0	11	11	0.0	0	11	11	0.0
GOOSE CREEK	72.0	8 / 14	G	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0
SUNSHINE CREEK	85.1	7 / 23	E	0	39	39	0.0	6	33	39	6.5	0	39	39	0.0	0	39	39	0.0
SUNSHINE CREEK	85.1	7 / 24	F	0	26	26	0.0	0	26	26	0.0	0	26	26	0.0	0	26	26	0.0
SUNSHINE CREEK	85.1	8 / 3	B	2	69	71	35.5	25	46	71	2.8	2	69	71	35.5	0	71	71	0.0
SUNSHINE CREEK	85.1	8 / 10	F	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
BIRCH CREEK SLOUGH	89.0	7 / 23	E	0	375	375	0.0	54	319	375	6.7	0	375	375	0.0	0	375	375	0.0
BIRCH CREEK SLOUGH	89.0	8 / 2	G	0	230	230	0.0	12	218	230	19.2	0	230	230	0.0	0	230	230	0.0
BIRCH CREEK SLOUGH	89.0	8 / 9	B	2	91	93	46.5	37	56	93	2.5	3	90	93	31.0	0	93	93	0.0
BIRCH CREEK SLOUGH	89.0	8 / 16	G	0	6	6	0.0	1	5	6	6.0	0	6	6	0.0	0	6	6	0.0
BIRCH CREEK SLOUGH	89.0	8 / 23	B	0	10	10	0.0	1	17	18	18.0	0	10	10	0.0	0	10	10	0.0
BIRCH CREEK	89.0	7 / 29	G	0	174	174	0.0	12	162	174	14.5	0	174	174	0.0	0	174	174	0.0
BIRCH CREEK	89.0	8 / 9	G	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
BIRCH CREEK	89.0	8 / 23	E	0	11	11	0.0	1	10	11	11.0	0	11	11	0.0	0	11	11	0.0
TRAPPER CREEK	91.5	7 / 28	F	0	45	45	0.0	3	42	45	15.0	0	45	45	0.0	0	45	45	0.0
TRAPPER CREEK	91.5	8 / 15	F	0	200	200	0.0	14	186	200	14.3	0	200	200	0.0	0	200	200	0.0
CACHE CREEK	93.5	8 / 19	G	0	12	12	0.0	1	11	12	12.0	0	12	12	0.0	0	12	12	0.0
PHARIE CREEK	97.1	7 / 24	E	0	38	38	0.0	8	30	38	4.8	0	38	38	0.0	0	38	38	0.0
PHARIE CREEK	97.1	8 / 3	B	3	237	235	77.3	48	195	235	5.1	0	235	235	0.0	0	235	235	0.0
FISH CREEK	97.1	8 / 9	G	0	10	10	0.0	2	8	10	5.0	0	10	10	0.0	0	10	10	0.0
BYERS LAKE & OUTLET	97.0	8 / 14	E	0	19	19	0.0	2	17	19	9.5	0	0	19	0.0	0	19	19	0.0
BYERS CREEK	97.0	8 / 14	G	0	90	90	0.0	12	78	90	7.5	1	89	90	90.0	0	90	90	0.0
UNNAMED TRIB TO TOKOSITNA	97.0	8 / 2	B	0	77	77	0.0	2	75	77	38.5	0	75	77	0.0	0	77	77	0.0
UNNAMED TRIB TO TOKOSITNA	97.0	8 / 10	E	2	202	204	102.0	17	187	204	12.0	0	187	204	0.0	0	204	204	0.0
TROWLESOME CREEK	97.0	8 / 14	G	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
PERDIDA SLOUGH	98.4	9 / 14	G	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
SLOUGH 1	99.6	9 / 4	E	0	10	10	0.0	2	8	10	5.0	2	8	10	5.0	0	10	10	0.0

Appendix Table 6-5 (cont). Sockeye salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATHORN TAGS				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
				Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
SL OUGH 2	100.2	9 / 6	E	0	7	7	0.0	1	4	7	7.0								
SL OUGH 2	100.2	9 / 17	E	0	5	5	0.0	0	5	5	0.0								
SL OUGH 2	100.2	9 / 24	E	0	4	4	0.0	0	4	4	0.0								
SL OUGH 2	100.2	9 / 28	E	0	2	2	0.0	0	2	2	0.0								
SL OUGH 2	100.2	9 / 30	E	0	2	2	0.0	0	2	2	0.0								
SL OUGH 2	100.2	10 / 7	E	0	4	4	0.0	0	4	4	0.0								
SL OUGH 39	101.4	8 / 26	E	0	10	10	0.0	0	10	10	0.0								
SL OUGH 38	101.4	9 / 6	E	0	20	20	0.0	4	16	20	5.0								
SL OUGH 3A	101.9	8 / 17	E	0	11	11	0.0	1	10	11	11.0								
SL OUGH 3A	101.9	9 / 17	E	0	0	0	0.0	0	0	0	0.0								
SL OUGH 3A	101.9	9 / 24	E	0	3	3	0.0	0	3	3	0.0								
SL OUGH 8	113.7	9 / 5	E	0	2	2	0.0	1	1	2	2.0	1	1	2	2.0				
SL OUGH 8	113.7	9 / 21	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0				
SL OUGH 8B	122.2	8 / 17	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
SL OUGH 8A	125.4	8 / 6	E	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0
SL OUGH 8A	125.4	8 / 13	E	0	17	17	0.0	2	15	17	8.5	3	14	17	5.7	2	15	17	8.5
SL OUGH 8A	125.4	8 / 19	E	1	50	51	51.0	4	53	57	9.8	6	53	59	9.8	9	50	59	6.6
SL OUGH 8A	125.4	9 / 3	E	1	127	128	128.0	14	112	126	9.0	23	105	128	5.6	14	114	128	9.1
SL OUGH 8A	125.4	9 / 9	E	1	124	125	125.0	6	119	125	20.8	22	103	125	5.7	13	112	125	9.4
SL OUGH 8A	125.4	9 / 20	E	0	40	40	0.0	2	38	40	20.0	3	37	40	13.3	1	39	40	40.0
SL OUGH 8A	125.4	9 / 26	E	0	45	45	0.0	1	44	45	45.0	0	45	45	0.0	1	44	45	45.0
SL OUGH 8A	125.4	10 / 4	E	0	3	3	0.0	0	3	3	0.0	1	2	3	3.0	0	3	3	0.0
SL OUGH 8	126.3	9 / 4	E	0	9	9	0.0	0	9	9	0.0	2	7	9	4.5	2	7	9	4.5
SL OUGH 8	126.3	9 / 11	E	0	4	4	0.0	0	4	4	0.0	1	3	4	4.0	1	3	4	4.0
SL OUGH 9	128.3	9 / 4	E	0	6	6	0.0	1	5	6	6.0	0	6	6	0.0	0	6	6	0.0
SL OUGH 9B	129.2	8 / 26	E	0	7	7	0.0	0	7	7	0.0	1	6	7	7.0	0	7	7	0.0
SL OUGH 9B	129.2	9 / 1	E	0	6	6	0.0	1	5	6	6.0	1	5	6	6.0	1	5	6	6.0
SL OUGH 9B	129.2	9 / 8	E	0	7	7	0.0	0	7	7	0.0	1	6	7	7.0	0	7	7	0.0
SL OUGH 11	135.3	8 / 13	E	0	3	3	0.0	1	2	3	3.0	1	2	3	3.0	0	3	3	0.0
SL OUGH 11	135.3	8 / 19	E	0	18	18	0.0	2	16	18	9.0	3	15	18	6.0	0	18	18	0.0
SL OUGH 11	135.3	8 / 26	E	2	91	93	46.5	10	83	93	9.3	10	83	93	9.3	10	79	93	6.6
SL OUGH 11	135.3	9 / 3	E	1	350	351	351.0	49	302	351	7.2	44	305	351	7.6	34	317	351	10.3
SL OUGH 11	135.3	9 / 9	E	1	563	564	564.0	75	489	564	7.5	60	504	564	9.4	43	521	564	13.1
SL OUGH 11	135.3	9 / 17	E	0	507	507	0.0	53	454	507	9.4	31	474	507	16.4	23	484	507	22.0
SL OUGH 11	135.3	9 / 21	E	0	244	244	0.0	34	210	244	7.2	41	203	244	6.0	18	226	244	13.6
SL OUGH 11	135.3	9 / 26	E	0	156	156	0.0	20	120	156	7.8	23	133	156	6.8	6	150	156	26.0
SL OUGH 11	135.3	10 / 4	E	0	10	10	0.0	1	17	18	18.0	7	11	18	2.6	0	18	18	0.0
SL OUGH 11	135.3	10 / 10	E	0	4	4	0.0	1	3	4	4.0	1	3	4	4.0	0	4	4	0.0
SL OUGH 17	138.9	8 / 6	E	0	16	16	0.0	1	15	16	16.0	2	14	16	8.0	1	15	16	16.0
SL OUGH 17	138.9	8 / 17	E	0	1	1	0.0	0	1	1	0.0	1	0	1	1.0	0	1	1	0.0
SL OUGH 17	138.9	9 / 2	E	0	3	3	0.0	0	3	3	0.0	1	2	3	3.0	0	3	3	0.0
SL OUGH 19	139.7	8 / 24	E	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
SL OUGH 19	139.7	9 / 2	E	0	9	9	0.0	0	9	9	0.0	1	8	9	9.0	0	9	9	0.0
SL OUGH 19	139.7	9 / 10	E	0	11	11	0.0	0	11	11	0.0	2	9	11	5.5	0	11	11	0.0
SL OUGH 19	139.7	9 / 20	E	0	6	6	0.0	1	5	6	6.0	0	6	6	0.0	0	6	6	0.0
SL OUGH 19	139.7	9 / 26	E	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
SL OUGH 21	141.1	8 / 17	E	1	57	58	58.0	4	54	58	14.5	6	52	58	9.7	3	55	58	19.3
SL OUGH 21	141.1	8 / 24	E	0	12	12	0.0	2	10	12	6.0	3	9	12	4.0	3	9	12	4.0
SL OUGH 21	141.1	9 / 2	E	0	115	115	0.0	12	103	115	9.6	11	104	115	10.5	17	98	115	6.8
SL OUGH 21	141.1	9 / 10	E	0	122	122	0.0	0	114	122	15.3	9	113	122	13.6	13	109	122	9.4
SL OUGH 21	141.1	9 / 20	E	0	62	62	0.0	3	59	62	20.7	1	61	62	62.0	1	61	62	62.0
SL OUGH 21	141.1	9 / 26	E	0	40	40	0.0	0	40	40	0.0	3	37	40	13.3	0	40	40	0.0
SL OUGH 21	141.1	10 / 3	E	0	20	20	0.0	0	20	20	0.0	0	20	20	0.0	0	20	20	0.0
SL OUGH 21	141.1	10 / 10	E	0	6	6	0.0	0	6	6	0.0	0	6	6	0.0	0	6	6	0.0
SL OUGH 22	144.5	9 / 2	E	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0	1	1	2	2.0
SL OUGH 22	144.5	9 / 10	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	1	0	1	1.0
PORTAGE CREEK	148.9	9 / 10	E	0	1	1	0.0	0	1	1	0.0	1	1	1	0.0	0	1	1	0.0

Appendix Table 6-6. Pink salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATHORN TAGS				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
				Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
LAKE CREEK/VENTNA RIVER	28.0	8 / 17	S	3	2597	2600	866.7	0	2600	2600	0.0	1	2599	2600	2600.0	1	2599	2600	2600.0
TALACHULITNA R./VENTNA R.	28.0	8 / 17	S	1	484	485	485.0	0	485	485	0.0	0	485	485	0.0	0	485	485	0.0
WILLOW CREEK	49.1	7 / 27	F	0	121	121	0.0	0	121	121	0.0	0	121	121	0.0	0	121	121	0.0
WILLOW CREEK	49.1	8 / 6	E	0	8516	8516	0.0	0	8516	8516	0.0	0	8516	8516	0.0	0	8516	8516	0.0
WILLOW CREEK	49.1	8 / 12	G	0	918	918	0.0	0	918	918	0.0	0	918	918	0.0	0	918	918	0.0
WILLOW CREEK	49.1	8 / 12	G	0	216	216	0.0	0	216	216	0.0	0	216	216	0.0	0	216	216	0.0
WILLOW CREEK	49.1	8 / 22	E	0	1288	1288	0.0	0	1288	1288	0.0	0	1288	1288	0.0	0	1288	1288	0.0
WILLOW CREEK	49.1	8 / 30	F	0	135	135	0.0	2	135	135	67.5	0	135	135	0.0	0	135	135	0.0
LITTLE WILLOW CREEK	50.5	8 / 3	S	0	740	740	0.0	0	740	740	0.0	0	740	740	0.0	0	740	740	0.0
LITTLE WILLOW CREEK	50.5	8 / 11	F	0	146	146	0.0	0	740	146	0.0	0	146	146	0.0	0	146	146	0.0
LITTLE WILLOW CREEK	50.5	8 / 21	E	1	403	404	404.0	1	403	404	404.0	0	404	404	0.0	0	404	404	0.0
CASWELL CREEK	64.0	7 / 30	F	0	61	61	0.0	1	60	61	61.0	0	61	61	0.0	0	61	61	0.0
CASWELL CREEK	64.0	8 / 6	F	0	62	62	0.0	0	62	62	0.0	0	62	62	0.0	0	62	62	0.0
CASWELL CREEK	64.0	8 / 13	F	0	121	121	0.0	0	121	121	121.0	0	121	121	0.0	0	121	121	0.0
CASWELL CREEK	64.0	8 / 28	G	0	31	31	0.0	3	28	31	10.3	0	31	31	0.0	0	31	31	0.0
CASWELL CREEK	64.0	9 / 6	G	1	59	60	60.0	5	35	60	12.0	0	60	60	0.0	0	60	60	0.0
SHEEP CREEK	66.1	8 / 6	F	0	45	45	0.0	0	45	45	0.0	0	45	45	0.0	0	45	45	0.0
SHEEP CREEK	66.1	8 / 13	F	0	66	66	0.0	1	66	66	66.0	0	66	66	0.0	0	66	66	0.0
SHEEP CREEK	66.1	8 / 28	F	0	4	4	0.0	1	3	4	4.0	0	4	4	0.0	0	4	4	0.0
SHEEP CREEK	66.1	9 / 6	F	0	11	11	0.0	0	11	11	0.0	0	11	11	0.0	0	11	11	0.0
GOOSE CREEK	72.0	7 / 31	S	0	34	34	0.0	0	34	34	0.0	0	34	34	0.0	0	34	34	0.0
GOOSE CREEK	72.0	7 / 31	F	0	279	279	0.0	1	278	279	279.0	0	279	279	0.0	0	279	279	0.0
GOOSE CREEK	72.0	8 / 7	G	1	247	248	248.0	0	248	248	248.0	0	248	248	248.0	0	248	248	0.0
GOOSE CREEK	72.0	8 / 14	G	1	311	312	312.0	12	300	312	26.0	0	312	312	0.0	0	312	312	0.0
GOOSE CREEK	72.0	8 / 21	G	0	16	16	0.0	3	13	16	5.3	0	16	16	0.0	0	16	16	0.0
GOOSE CREEK	72.0	8 / 29	G	0	12	12	0.0	3	9	12	4.0	0	12	12	0.0	0	12	12	0.0
GOOSE CREEK	72.0	9 / 7	E	1	5	6	6.0	0	6	6	0.0	0	6	6	0.0	0	6	6	0.0
MONTANA CREEK	77.0	7 / 31	F	0	15	15	0.0	1	14	15	15.0	0	15	15	0.0	0	15	15	0.0
MONTANA CREEK	77.0	8 / 7	G	0	331	331	0.0	0	323	331	41.4	0	331	331	0.0	0	331	331	0.0
MONTANA CREEK	77.0	8 / 14	G	2	416	418	209.0	26	390	416	16.0	5	411	416	83.2	0	416	416	0.0
MONTANA CREEK	77.0	8 / 21	F	0	28	28	0.0	2	26	28	14.0	0	28	28	0.0	0	28	28	0.0
MONTANA CREEK	77.0	9 / 7	S	0	12	12	0.0	1	11	12	12.0	0	12	12	0.0	0	12	12	0.0
RABIDEAU CREEK	83.1	8 / 2	F	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0
RABIDEAU CREEK	83.1	8 / 3	E	0	16	16	0.0	2	14	16	8.0	0	16	16	0.0	0	16	16	0.0
RABIDEAU CREEK	83.1	8 / 10	F	0	39	39	0.0	2	37	39	19.5	0	39	39	0.0	0	39	39	0.0
RABIDEAU CREEK	83.1	8 / 17	F	0	54	54	0.0	3	51	54	18.0	0	54	54	0.0	0	54	54	0.0
SUNSHINE CREEK	85.1	7 / 29	F	0	1608	1608	0.0	48	1560	1608	33.5	0	1608	1608	0.0	0	1608	1608	0.0
SUNSHINE CREEK	85.1	8 / 3	F	0	461	461	0.0	30	431	461	15.4	1	460	461	0.0	1	460	461	461.0
SUNSHINE CREEK	85.1	8 / 10	F	0	937	937	0.0	41	896	937	22.9	0	0	937	0.0	0	0	937	0.0
SUNSHINE CREEK	85.1	8 / 17	G	0	540	540	0.0	27	513	540	20.0	0	0	540	0.0	0	0	540	0.0
SUNSHINE CREEK	85.1	8 / 24	G	0	14	14	0.0	2	12	14	7.0	0	0	14	0.0	0	0	14	0.0
SUNSHINE CREEK	85.1	9 / 1	S	0	2	2	0.0	1	1	2	2.0	0	0	2	0.0	0	0	2	0.0
SUNSET SLOUGH	85.5	9 / 21	G	0	4	4	0.0	0	4	4	0.0	0	0	4	0.0	0	0	4	0.0
BIRCH CREEK SLOUGH	89.0	8 / 2	S	0	3298	3298	0.0	251	3047	3298	13.1	10	3288	3298	329.8	0	0	3298	0.0
BIRCH CREEK SLOUGH	89.0	8 / 9	G	4	19654	19660	3276.7	352	19308	19660	55.9	25	19635	19660	786.4	0	0	19660	0.0
BIRCH CREEK SLOUGH	89.0	8 / 16	G	0	6480	6480	0.0	82	6398	6480	79.0	2	6478	6480	3240.0	0	0	6480	0.0
BIRCH CREEK SLOUGH	89.0	8 / 23	G	2	1126	1128	564.0	92	1036	1128	12.3	2	1124	1128	0.0	0	0	1128	0.0
BIRCH CREEK SLOUGH	89.0	9 / 16	G	0	8	8	0.0	2	6	8	4.0	0	0	8	0.0	0	0	8	0.0
BIRCH CREEK SLOUGH	89.0	9 / 25	E	0	4	4	0.0	0	4	4	0.0	0	0	4	0.0	0	0	4	0.0

A327

Appendix Table 6-6 (cont). Pink salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Condition	FLATHORN TAOS			BUNSHINE TAOS			TALKEETHA TAOS			CURRY TAOS		
				Tagged (f)	Untagged (c)	Ratio (c/f)	Tagged (f)	Untagged (c)	Ratio (c/f)	Tagged (f)	Untagged (c)	Ratio (c/f)	Tagged (f)	Untagged (c)	Ratio (c/f)
BIRCH CREEK	89.2	7/29	B	0	132	0.0	4	126	132	22.0					
BIRCH CREEK	89.2	8/9	B	0	155	0.0	24	1571	1595	44.3					
BIRCH CREEK	89.2	8/16	B	3	977	326.7	32	940	980	30.4					
BIRCH CREEK	89.2	8/23	F	0	72	0.0	18	55	73	4.1					
BIRCH CREEK	89.2	9/2	F	0	64	0.0	9	84	84	0.0					
BIRCH CREEK	89.2	9/2	F	0	37	0.0	3	36	37	12.3					
BIRCH CREEK	89.2	9/9	B	1	130	131.0	3	122	131	14.8					
BIRCH CREEK	89.2	9/16	B	0	22	0.0	2	10	12	6.0					
TRAMPER CREEK	91.3	7/28	F	0	214	0.0	2	232	234	117.0					
TRAMPER CREEK	91.3	7/28	F	0	332	0.0	30	302	332	0.0					
TRAMPER CREEK	91.3	8/8	F	0	306	0.0	33	313	306	15.1					
TRAMPER CREEK	91.3	8/15	F	0	10	0.0	1	10	11	11.6					
TRAMPER CREEK	91.3	9/8	B	0	10	0.0	2	16	18	9.0					
CACHE CREEK	95.3	8/19	B	0	17	0.0	0	17	17	0.0					
CACHE CREEK	95.3	8/22	B	1	16	17.0	2	15	17	0.5					
CACHE CREEK	95.3	9/8	B	0	4	0.0	2	4	4	3.0					
FISH CREEK	97.1	8/9	B	3	7509	2504.0	91	7018	7512	79.0					
CLEAR CREEK / TALKEETHA RIVER	97.1	8/21	E	1	1621	1622.0	13	1609	1622	124.0					
BYRON LAKE & OUTLET	97.8	8/14	E	0	86	0.0	1	87	88	88.0					
BYRON CREEK	97.8	8/14	E	3	3531	1181.3	34	3500	3534	102.9					
INDOUBTSOME CREEK	97.8	8/14	B	0	4466	4476	82	4392	4474	54.6					
SLOUGH 2	100.2	8/17	E	0	2	0.0	0	2	2	0.0					
SLOUGH 2	100.2	8/17	E	0	2	0.0	0	2	2	0.0					
WHISKERS CREEK	101.4	7/27	F	0	41	0.0	1	40	41	41.0					
WHISKERS CREEK	101.4	8/9	B	0	160	0.0	2	150	160	80.0					
WHISKERS CREEK	101.4	8/15	E	0	244	0.0	3	239	244	38.0					
SLOUGH 30	101.4	8/26	E	0	1	0.0	0	1	1	0.0					
CHASE CREEK	104.9	7/27	E	0	41	0.0	1	40	41	41.0					
CHASE CREEK	104.9	8/9	E	0	35	0.0	1	34	35	35.0					
CHASE CREEK	104.9	8/16	B	0	244	0.0	3	245	248	248.0					
CHASE CREEK	104.9	8/28	E	0	5	0.0	0	5	5	0.0					
LAME CREEK	113.4	7/29	B	0	35	0.0	0	35	35	0.0					
LAME CREEK	113.4	8/19	E	0	1125	1125	7	1120	1127	127.1					
LAME CREEK	113.4	8/21	B	0	21	0.0	0	21	21	21.0					
LAME CREEK	113.4	8/21	E	1	407	408.0	4	404	408	132.0					
CLYDE CREEK	113.8	8/7	B	0	4	0.0	0	4	4	0.0					
CLYDE CREEK	113.8	8/14	E	0	8	0.0	0	8	8	0.0					
CLYDE CREEK	113.8	8/21	E	1	33	34.0	0	34	34	34.0					
CLYDE CREEK	113.8	8/27	B	0	5	0.0	0	5	5	0.0					
WAGGOT CREEK	115.4	8/7	E	0	107	107	2	105	107	51.5					
WAGGOT CREEK	115.4	8/14	E	0	23	0.0	0	23	23	0.0					
WAGGOT CREEK	115.4	8/21	E	0	30	0.0	3	27	30	10.0					
LOWER MCKENzie CREEK	116.2	7/30	E	0	385	0.0	10	375	385	38.5					
LOWER MCKENzie CREEK	116.2	8/7	E	0	226	0.0	1	225	226	226.0					
LOWER MCKENzie CREEK	116.2	8/14	E	0	106	0.0	0	107	106	106.0					
LOWER MCKENzie CREEK	116.2	8/21	E	0	39	0.0	0	39	39	39.0					
UPPER MCKENzie CREEK	116.7	8/7	E	0	11	0.0	0	11	11	0.0					
UPPER MCKENzie CREEK	116.7	8/14	E	0	3	0.0	0	3	3	0.0					
UPPER MCKENzie CREEK	116.7	8/21	E	0	5	0.0	0	5	5	0.0					
LITTLE PORTAGE CREEK	117.7	7/30	B	0	1	0.0	0	1	1	0.0					
LITTLE PORTAGE CREEK	117.7	8/7	E	0	8	0.0	0	8	8	0.0					
LITTLE PORTAGE CREEK	117.7	8/15	E	0	132	0.0	2	130	132	66.0					
LITTLE PORTAGE CREEK	117.7	8/20	B	0	148	0.0	3	145	148	29.6					

Appendix Table 6-6 (cont). Pink salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River	Date	Survey Conditions	FLATHORN TAGS				SUNSHINE TAGS				TALKEETHA TAGS				CURRY TAGS			
				Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
BUSHROB SLOUGH	117.0	8 / 13	E	0	0	0	0.0	1	7	8	0.0	3	2	5	0.0				
BUSHROB SLOUGH	117.0	8 / 20	E	0	4	4	0.0	0	4	4	0.0	1	3	4	0.0				
FROMUNDA CREEK	119.3	8 / 7	E	0	24	24	0.0	0	24	24	0.0	2	22	24	12.0				
FROMUNDA CREEK	119.3	8 / 13	E	1	10	11	11.0	0	11	11	0.0	0	11	11	0.0				
FROMUNDA CREEK	119.3	8 / 13	0	0	27	27	0.0	0	27	27	0.0	2	25	27	13.5				
FROMUNDA CREEK	119.3	8 / 21	E	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0				
DOWNUNDA CREEK	119.4	8 / 7	0	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0				
DOWNUNDA CREEK	119.4	8 / 13	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0				
DEAD HORSE CREEK	120.0	8 / 4	0	0	41	41	0.0	0	41	41	0.0	3	38	41	13.7	3	30	41	13.7
DEAD HORSE CREEK	120.0	8 / 13	E	0	327	327	0.0	2	325	327	163.5	24	303	327	13.6	30	297	327	10.9
TULIP CREEK	120.9	8 / 7	E	0	0	0	0.0	0	0	0	0.0	3	5	8	2.7	0	0	0	0.0
SLOUGH 00	122.2	8 / 17	0	0	37	37	0.0	0	37	37	0.0	3	34	37	19.0	4	31	37	9.3
FIFTH OF JULY CREEK	123.7	7 / 30	F	0	4	4	0.0	0	4	4	0.0	2	2	4	2.0	0	4	4	0.0
FIFTH OF JULY CREEK	123.7	8 / 4	E	0	139	139	0.0	5	134	139	27.8	23	116	139	6.0	16	123	139	8.7
FIFTH OF JULY CREEK	123.7	8 / 4	E	0	32	32	0.0	0	32	32	0.0	2	30	32	16.0	3	29	32	10.7
FIFTH OF JULY CREEK	123.7	8 / 13	E	1	398	399	399.0	5	384	391	78.2	31	360	391	7.7	43	348	391	9.1
FIFTH OF JULY CREEK	123.7	8 / 20	0	0	168	168	0.0	2	166	168	84.0	11	157	168	15.3	23	145	168	7.3
SLOUGH A1	124.4	8 / 4	E	0	24	24	0.0	3	21	24	0.0	1	23	24	24.0	1	23	24	24.0
SLOUGH A1	124.4	8 / 13	E	0	23	23	0.0	0	23	23	0.0	0	23	23	0.0	5	18	23	4.6
SLOUGH A1	124.4	8 / 19	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
SKULL CREEK	124.7	8 / 4	E	0	10	10	0.0	0	10	10	0.0	0	10	10	0.0	4	6	10	2.5
SKULL CREEK	124.7	8 / 13	0	0	117	117	0.0	9	100	117	13.0	9	100	117	13.0	16	101	117	7.3
SKULL CREEK	124.7	8 / 20	0	0	46	46	0.0	0	46	46	0.0	1	45	46	46.0	3	43	46	15.3
SLOUGH BA	125.4	8 / 4	E	0	5	5	0.0	0	5	5	0.0	0	5	5	0.0	3	2	5	1.7
SLOUGH BA	125.4	8 / 13	E	0	40	40	0.0	1	39	40	40.0	0	40	40	0.0	2	38	40	20.0
SLOUGH BA	125.4	8 / 19	E	0	118	118	0.0	0	118	118	0.0	4	112	118	19.7	1	117	118	118.0
SLOUGH BA	125.4	8 / 24	E	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
SHERMAN CREEK	130.0	8 / 4	E	0	43	43	0.0	0	43	43	0.0	1	42	43	43.0	9	34	43	4.8
SHERMAN CREEK	130.0	8 / 13	E	0	43	43	0.0	1	42	43	43.0	5	38	43	8.6	7	36	43	6.1
SHERMAN CREEK	130.0	8 / 20	0	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0
FOURTH OF JULY CREEK	131.0	8 / 4	0	0	450	450	0.0	9	441	450	72.2	71	379	450	9.2	24	426	450	27.1
FOURTH OF JULY CREEK	131.0	8 / 13	E	0	1459	1459	0.0	20	1439	1459	73.0	172	1287	1459	8.5	96	1361	1459	14.9
FOURTH OF JULY CREEK	131.0	8 / 20	0	0	305	305	0.0	0	297	305	38.1	27	278	305	11.3	21	284	305	14.5
SLOUGH 11	135.3	8 / 4	0	0	6	6	0.0	0	6	6	0.0	1	5	6	6.0	0	6	6	0.0
SLOUGH 11	135.3	8 / 13	E	0	97	97	0.0	3	94	97	32.3	7	90	97	13.9	3	94	97	32.3
SLOUGH 11	135.3	8 / 19	0	0	83	83	0.0	2	81	83	41.5	11	72	83	7.5	5	78	83	16.6
SLOUGH 11	135.3	8 / 24	0	0	21	21	0.0	0	21	21	0.0	2	19	21	10.5	1	20	21	21.0
BOLD CREEK	136.7	8 / 8	0	0	82	82	0.0	1	81	82	82.0	10	72	82	8.2	0	74	82	10.3
INDIAN RIVER	138.6	7 / 31	0	0	525	525	0.0	12	513	525	43.8	36	489	525	9.4	34	491	525	15.4
INDIAN RIVER	138.6	8 / 8	E	2	3244	3246	1623.0	36	3210	3246	90.2	315	2931	3246	10.3	172	3074	3246	18.9
INDIAN RIVER	138.6	8 / 17	E	3	4381	4384	1461.3	45	4339	4384	97.4	329	4055	4384	13.3	153	4231	4384	28.7
INDIAN RIVER	138.6	8 / 22	0	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0	1	2	3	3.0
SLOUGH 17	138.9	8 / 8	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
SLOUGH 20	140.0	8 / 8	0	0	36	36	0.0	3	33	36	12.0	4	30	36	6.0	2	34	36	18.0
SLOUGH 20	140.0	8 / 17	E	0	74	74	0.0	1	73	74	74.0	0	66	74	9.3	0	66	74	9.3
SLOUGH 21	141.1	8 / 17	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
JACK LONG CREEK	144.5	8 / 8	E	0	14	14	0.0	0	14	14	0.0	2	12	14	7.0	1	13	14	14.0
JACK LONG CREEK	144.5	8 / 17	E	0	5	5	0.0	0	5	5	0.0	0	5	5	0.0	0	5	5	0.0
SIDE CHANNEL UP PORTAGE	148.0	8 / 18	E	0	287	287	0.0	10	277	287	28.7	27	260	287	10.6	10	277	287	28.7
PORTAGE CREEK	148.9	8 / 8	E	0	58	58	0.0	3	55	58	19.3	12	46	58	4.8	3	55	58	19.3
PORTAGE CREEK	148.9	8 / 17	E	0	53	53	0.0	0	53	53	0.0	2	51	53	26.5	9	44	53	5.9

Appendix Table 6-7. Chum salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATHORN TAGS				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
				Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
W FORK YENTNA ISIDE CHANNEL	28.0	9 / 11	0	0	591	591	0.0	0	591	591	0.0	0	591	591	0.0	0	591	591	0.0
W FORK YENTNA ISIDE CHANNEL	28.0	9 / 12	E	0	220	220	0.0	0	220	220	0.0	0	220	220	0.0	0	220	220	0.0
LAKE CREEK/YENTNA RIVER	28.0	8 / 17	G	4	556	560	140.0	0	560	560	0.0	0	560	560	0.0	0	560	560	0.0
TALACHULITNA R./YENTNA R.	28.0	8 / 17	G	0	111	111	0.0	0	111	111	0.0	0	111	111	0.0	0	111	111	0.0
WILLOW CREEK	49.1	7 / 27	F	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
WILLOW CREEK	49.1	8 / 6	G	0	332	332	0.0	0	332	332	0.0	0	332	332	0.0	0	332	332	0.0
WILLOW CREEK	49.1	8 / 12	G	0	32	32	0.0	0	32	32	0.0	0	32	32	0.0	0	32	32	0.0
LITTLE WILLOW CREEK	50.5	8 / 3	G	0	34	34	0.0	0	34	34	0.0	0	34	34	0.0	0	34	34	0.0
LITTLE WILLOW CREEK	50.5	8 / 11	F	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
LITTLE WILLOW CREEK	50.5	8 / 21	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
CASWELL CREEK SLOUGH	62.2	10 / 9	G	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
SCILL-7 COMPLEX	63.0	10 / 11	0	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
CASWELL CREEK	64.0	8 / 6	F	0	41	41	0.0	0	41	41	0.0	0	41	41	0.0	0	41	41	0.0
CASWELL CREEK	64.0	8 / 13	F	0	73	73	0.0	5	68	73	0.0	0	73	73	0.0	0	73	73	0.0
CASWELL CREEK	64.0	8 / 20	G	0	39	39	0.0	1	38	39	0.0	1	38	39	39.0	0	39	39	0.0
CASWELL CREEK	64.0	9 / 6	G	0	45	45	0.0	2	43	45	0.0	0	43	45	0.0	0	43	45	0.0
SHEEP CREEK	66.1	7 / 30	F	0	10	10	0.0	0	10	10	0.0	0	10	10	0.0	0	10	10	0.0
SHEEP CREEK	66.1	8 / 6	F	0	66	66	0.0	2	64	66	0.0	0	66	66	0.0	0	66	66	0.0
SHEEP CREEK	66.1	8 / 13	F	1	69	70	70.0	4	65	70	70.0	0	70	70	0.0	0	70	70	0.0
SHEEP CREEK	66.1	8 / 20	F	0	13	13	0.0	4	9	13	0.0	0	13	13	0.0	0	13	13	0.0
SHEEP CREEK	66.1	9 / 6	G	0	17	17	0.0	1	16	17	0.0	0	17	17	0.0	0	17	17	0.0
GOOSE CREEK	72.0	7 / 31	G	0	84	84	0.0	4	80	84	0.0	0	84	84	0.0	0	84	84	0.0
GOOSE CREEK	72.0	8 / 7	G	0	339	339	0.0	17	322	339	0.0	0	339	339	0.0	0	339	339	0.0
GOOSE CREEK	72.0	8 / 14	G	1	382	383	383.0	24	358	383	383.0	0	383	383	0.0	0	383	383	0.0
GOOSE CREEK	72.0	8 / 21	G	0	20	20	0.0	2	18	20	0.0	0	20	20	0.0	0	20	20	0.0
GOOSE CREEK	72.0	8 / 29	G	0	33	33	0.0	1	32	33	0.0	0	33	33	0.0	0	33	33	0.0
CIRCUINAR SLOUGH	75.3	9 / 25	G	2	87	89	44.5	3	84	89	44.5	0	89	89	0.0	0	89	89	0.0
MONTANA CREEK	77.0	8 / 7	F	0	61	61	0.0	2	59	61	0.0	0	61	61	0.0	0	61	61	0.0
MONTANA CREEK	77.0	8 / 14	F	0	61	61	0.0	0	61	61	0.0	0	61	61	0.0	0	61	61	0.0
MONTANA CREEK	77.0	8 / 21	G	0	28	28	0.0	3	25	28	0.0	0	28	28	0.0	0	28	28	0.0
MONTANA CREEK	77.0	9 / 7	G	0	6	6	0.0	1	5	6	0.0	0	6	6	0.0	0	6	6	0.0
RABIDEAU CREEK	83.1	8 / 2	F	1	1	2	2.0	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
SUNSHINE CREEK	85.1	8 / 3	F	0	49	49	0.0	0	49	49	0.0	0	49	49	0.0	0	49	49	0.0
SUNSHINE CREEK	85.1	8 / 24	G	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0
SUNSET SLOUGH	85.5	9 / 21	G	0	177	177	0.0	2	175	177	88.5	0	177	177	0.0	0	177	177	0.0
SUNSET SLOUGH	85.5	9 / 28	E	0	165	165	0.0	2	163	165	82.5	0	165	165	0.0	0	165	165	0.0
BIRCH CAMP AREA	88.5	10 / 31	G	0	23	23	0.0	0	23	23	0.0	0	23	23	0.0	0	23	23	0.0

Appendix Table 6-7 (cont). Chum salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATHORN TAGS				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
				Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
BIRCH CREEK SLOUGH	89.0	7 / 23	E	0	3	3	0.0	0	3	3	0.0								
BIRCH CREEK SLOUGH	89.0	8 / 9	0	4	1040	1044	266.0	122	942	1064	8.7								
BIRCH CREEK SLOUGH	89.0	8 / 16	0	0	120	120	0.0	19	109	128	6.7								
BIRCH CREEK SLOUGH	89.0	8 / 16	0	0	340	340	0.0	27	321	348	12.9								
BIRCH CREEK SLOUGH	89.0	8 / 23	0	0	326	326	0.0	13	313	326	25.1								
BIRCH CREEK SLOUGH	89.0	9 / 16	0	0	117	117	0.0	2	115	117	58.5								
BIRCH CREEK SLOUGH	89.0	9 / 25	E	0	60	60	0.0	4	56	60	15.0								
BIRCH CREEK	89.2	8 / 23	E	0	39	39	0.0	3	36	39	13.0								
BIRCH CREEK	89.2	9 / 2	F	0	63	63	0.0	1	62	63	63.0								
BIRCH CREEK	89.2	9 / 9	0	0	14	14	0.0	2	12	14	7.0								
BIRCH CREEK	89.2	9 / 25	0	0	52	52	0.0	3	49	52	17.3								
TRAPPER CREEK	91.5	7 / 20	F	0	5	5	0.0	1	4	5	5.0								
TRAPPER CREEK	91.5	8 / 0	F	0	59	59	0.0	4	55	59	14.8								
TRAPPER CREEK	91.5	8 / 15	F	0	41	41	0.0	4	37	41	10.3								
TRAPPER CREEK	91.5	9 / 0	0	0	15	15	0.0	1	14	15	15.0								
TRAPPER CREEK SLOUGH	92.0	9 / 26	E	0	141	141	0.0	1	140	141	141.0								
TRAPPER CREEK SLOUGH	92.0	10 / 1	F	0	149	149	0.0	0	149	149	0.0								
TRAPPER CREEK SLOUGH	92.0	10 / 2	0	0	120	120	0.0	0	120	120	0.0								
TRAPPER CREEK SLOUGH	92.0	10 / 2	F	0	1	1	0.0	0	1	1	0.0								
TRAPPER CREEK SLOUGH	92.0	10 / 9	0	0	50	50	0.0	0	50	50	0.0								
MUSHER SLOUGH	95.2	9 / 20	E	0	84	84	0.0	1	83	84	84.0								
MUSHER SLOUGH	95.2	9 / 29	0	0	12	12	0.0	0	12	12	0.0								
CACHE CREEK	95.5	8 / 15	0	0	20	20	0.0	0	20	20	0.0								
CACHE CREEK	95.5	8 / 22	0	0	3	3	0.0	1	2	3	3.0								
CLEAR CRK / TALKEETNA RIVER	97.1	8 / 4	F	4	2014	2018	504.5	196	1822	2018	10.3								
CLEAR CRK / TALKEETNA RIVER	97.1	8 / 21	E	1	19	20	20.0	1	19	20	20.0								
FISH CREEK	97.1	8 / 9	0	0	50	50	0.0	2	56	58	29.0								
BYERS LAKE & OUTLET	97.8	8 / 14	E	0	1	1	0.0	0	1	1	0.0								
BYERS CREEK	97.8	8 / 14	0	0	140	140	0.0	9	131	140	15.6								
TRoublesome CREEK	97.8	8 / 14	0	0	100	100	0.0	17	163	180	10.6								
CACHE SLOUGH	98.5	9 / 27	E	0	160	160	0.0	2	158	160	80.0								
PERBINKA SLOUGH	98.6	9 / 14	0	0	439	439	0.0	26	413	439	16.9								
CHULITNA MOUTH AREA	98.9	10 / 9	0	0	81	81	0.0	0	81	81	0.0								
CHULITNA MOUTH AREA	98.9	10 / 9	0	0	27	27	0.0	0	27	27	0.0								
SLOUGH 1	99.6	9 / 6	E	0	12	12	0.0	9	7	12	2.4								
SLOUGH 2	100.2	8 / 15	0	0	2	2	0.0	0	2	2	0.0								
SLOUGH 2	100.2	8 / 17	E	0	13	13	0.0	1	12	13	13.0								
SLOUGH 2	100.2	8 / 17	E	0	13	13	0.0	1	12	13	13.0								
SLOUGH 2	100.2	9 / 6	E	0	129	129	0.0	9	120	129	14.3								
SLOUGH 2	100.2	9 / 17	0	0	55	55	0.0	1	54	55	55.0								
SLOUGH 30	101.4	8 / 17	0	0	1	1	0.0	0	1	1	0.0								
SLOUGH 30	101.4	8 / 17	0	0	1	1	0.0	0	1	1	0.0								
SLOUGH 30	101.4	8 / 26	E	0	21	21	0.0	3	18	21	7.0								
SLOUGH 30	101.4	8 / 26	E	0	21	21	0.0	3	18	21	7.0								
SLOUGH 30	101.4	9 / 6	E	0	56	56	0.0	5	51	56	11.2								
SLOUGH 30	101.4	9 / 6	E	0	56	56	0.0	5	51	56	11.2								
SLOUGH 3A	101.9	9 / 17	0	0	17	17	0.0	0	17	17	0.0								
SLOUGH 30	101.4	9 / 20	0	0	20	20	0.0	0	20	20	0.0								

Appendix Table 6-7 (cont). Chum salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATHORN TAGS				BUNSHINE TAGS				TALKEETA TAGS				CURRY TAGS			
				Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
LAME CREEK	113.6	7 / 30	B	0	4	4	0.0	1	3	4	6.0	1	3	4	6.0				
LAME CREEK	113.6	8 / 7	E	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0				
LAME CREEK	113.6	8 / 14	E	0	16	16	0.0	1	15	16	15.0	3	11	14	3.2				
LAME CREEK	113.6	8 / 21	B	0	7	7	0.0	0	7	7	0.0	1	6	7	7.0				
LAME CREEK	113.6	8 / 21	E	0	24	24	0.0	0	24	24	0.0	2	22	24	12.0				
LAME CREEK	113.6	9 / 5	E	0	2	2	0.0	1	1	2	2.0	0	2	2	0.0				
SLOUGH B	113.7	8 / 14	E	0	15	15	0.0	0	15	15	0.0	2	13	15	7.5				
SLOUGH B	113.7	9 / 5	E	0	65	65	0.0	1	64	65	65.0	0	64	64	0.0				
SLOUGH B	113.7	9 / 14	E	0	46	46	0.0	1	45	46	46.0	0	46	46	0.0				
SLOUGH B	113.7	9 / 24	B	0	11	11	0.0	0	11	11	0.0	0	11	11	0.0				
LOWER MCKENZIE CREEK	116.2	8 / 27	B	0	23	23	0.0	4	19	23	5.8	1	22	23	23.0				
LITTLE PORTAGE CREEK	117.7	8 / 20	B	0	10	10	0.0	0	10	10	0.0	0	10	10	0.0				
BUSHROD SLOUGH	117.0	8 / 13	E	0	27	27	0.0	1	26	27	27.0	1	26	27	27.0				
BUSHROD SLOUGH	117.0	8 / 20	E	0	90	90	0.0	1	81	90	10.0	4	84	90	15.0				
BUSHROD SLOUGH	117.0	8 / 27	B	0	22	22	0.0	0	22	22	0.0	1	21	22	22.0				
BUSHROD SLOUGH	117.0	9 / 5	E	0	24	24	0.0	1	23	24	24.0	0	24	24	0.0				
SLOUGH BB	121.0	8 / 13	E	0	2	2	0.0	1	1	2	2.0	0	2	2	0.0	0	2	2	0.0
SLOUGH BB	121.0	8 / 31	B	0	11	11	0.0	2	8	11	5.5	0	11	11	0.0	1	10	11	11.0
SLOUGH BB	121.0	9 / 6	E	0	49	49	0.0	0	49	49	0.0	1	48	49	49.0	2	47	49	24.5
SLOUGH BC	121.9	8 / 31	B	0	60	60	0.0	0	60	60	0.0	4	64	68	17.0	5	63	68	13.6
SLOUGH BC	121.9	9 / 6	E	0	110	110	0.0	0	102	110	15.6	1	100	110	110.0	4	104	110	18.3
SLOUGH BC	121.9	9 / 13	B	0	121	121	0.0	2	119	121	60.5	2	119	121	60.5	3	118	121	40.3
SLOUGH BC	121.9	9 / 22	B	0	116	116	0.0	0	116	116	0.0	0	116	116	0.0	0	116	116	0.0
SLOUGH BB	122.2	8 / 17	B	0	176	176	0.0	13	161	176	11.7	20	148	176	6.3	17	159	176	10.4
SLOUGH BB	122.2	8 / 31	B	1	349	400	400.0	20	376	400	16.7	25	375	400	16.0	21	371	400	19.0
SLOUGH BB	122.2	9 / 6	E	0	349	349	0.0	10	331	349	19.4	7	342	349	49.9	12	337	349	29.1
SLOUGH BB	122.2	9 / 8	B	0	107	107	0.0	0	107	107	0.0	0	107	107	0.0	0	107	107	0.0
SLOUGH BB	122.2	9 / 13	B	0	335	335	0.0	1	334	335	335.0	1	334	335	335.0	3	332	335	111.7
SLOUGH BB	122.2	9 / 15	B	0	76	76	0.0	0	76	76	0.0	0	76	76	0.0	0	76	76	0.0
SLOUGH BB	122.2	9 / 22	B	0	149	149	0.0	0	149	149	0.0	0	149	149	0.0	0	149	149	0.0
MOOSE SLOUGH	123.5	9 / 3	E	0	76	76	0.0	5	71	76	15.2	3	73	76	25.3	4	72	76	19.0
MOOSE SLOUGH	123.5	9 / 9	E	0	49	49	0.0	4	45	49	12.3	1	48	49	49.0	0	49	49	0.0
FIFTH OF JULY CREEK	123.7	8 / 6	E	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0	1	1	2	2.0
FIFTH OF JULY CREEK	123.7	8 / 13	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
SLOUGH A1	124.6	8 / 6	E	0	13	13	0.0	4	9	13	3.3	2	11	13	6.5	1	12	13	13.0
SLOUGH A1	124.6	8 / 13	E	0	111	111	0.0	11	100	111	10.1	0	103	111	15.9	14	97	111	7.9
SLOUGH A1	124.6	8 / 19	E	0	109	109	0.0	6	103	109	18.2	5	104	109	21.8	6	103	109	18.2
SLOUGH A1	124.6	9 / 3	E	0	53	53	0.0	1	52	53	53.0	1	52	53	53.0	0	53	53	0.0

Appendix Table 6-7 (cont). Chum salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATHORN TAGS				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
				Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
SKULL CREEK	124.7	8 / 13	0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
SKULL CREEK	124.7	8 / 20	0	0	4	4	0.0	0	4	4	0.0	1	3	4	4.0	0	4	4	0.0
BLOOM A	124.7	8 / 26	E	0	2	2	0.0	0	2	2	0.0	1	1	2	2.0	0	2	2	0.0
BLOOM BA	125.4	8 / 6	E	0	46	46	0.0	3	43	46	15.3	2	44	46	23.0	1	45	46	46.0
BLOOM BA	125.4	8 / 13	E	0	280	280	0.0	10	262	280	15.6	39	241	280	7.2	25	255	280	11.2
BLOOM BA	125.4	8 / 19	E	0	593	593	0.0	35	558	593	16.9	54	537	593	10.4	40	545	593	12.4
BLOOM BA	125.4	9 / 3	E	1	914	917	917.0	27	890	917	34.0	20	897	917	32.0	21	896	917	43.7
BLOOM BA	125.4	9 / 9	E	0	542	542	0.0	6	536	542	91.7	4	550	542	140.5	5	557	542	112.4
BLOOM BA	125.4	9 / 20	E	0	20	20	0.0	0	20	20	0.0	2	18	20	10.0	1	19	20	20.0
BLOOM BA	125.4	9 / 26	E	0	27	27	0.0	0	27	27	0.0	0	27	27	0.0	0	27	27	0.0
BLOOM BA	125.4	10 / 4	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
BLOOM B	126.3	8 / 21	0	0	32	32	0.0	0	24	32	6.0	1	31	32	32.0	0	32	32	0.0
BLOOM B	126.3	8 / 21	0	0	12	12	0.0	1	11	12	12.0	1	11	12	12.0	0	12	12	0.0
BLOOM B	126.3	9 / 4	E	0	104	104	0.0	2	104	106	54.0	2	104	106	54.0	10	98	108	10.8
BLOOM B	126.3	9 / 11	E	0	30	30	0.0	0	30	30	0.0	0	30	30	0.0	1	29	30	30.0
BLOOM B	126.3	9 / 4	E	0	350	350	0.0	3	343	350	70.0	9	341	350	38.9	9	341	350	38.9
BLOOM 90	129.2	8 / 26	0	0	73	73	0.0	0	65	73	9.1	9	64	73	0.1	1	72	73	73.0
BLOOM 90	129.2	9 / 1	0	0	63	63	0.0	3	50	63	12.6	5	58	63	12.6	1	62	63	63.0
BLOOM 90	129.2	9 / 8	0	0	25	25	0.0	0	25	25	0.0	0	25	25	0.0	0	25	25	0.0
SHERMAN CREEK	130.0	8 / 6	E	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0	0	2	2	9.0
SHERMAN CREEK	130.0	8 / 13	0	0	6	6	0.0	0	6	6	0.0	2	4	6	3.0	1	5	6	6.0
SHERMAN CREEK	130.0	8 / 20	0	0	6	6	0.0	0	6	6	0.0	0	6	6	0.0	0	6	6	0.0
FOURTH OF JULY CREEK	131.0	8 / 6	0	0	13	13	0.0	2	11	13	6.5	1	12	13	13.0	2	11	13	6.5
FOURTH OF JULY CREEK	131.0	8 / 13	E	0	193	193	0.0	17	176	193	11.4	23	170	193	8.4	10	183	193	19.3
FOURTH OF JULY CREEK	131.0	8 / 20	0	1	174	175	175.0	4	169	175	29.2	18	157	175	9.7	2	173	175	87.5
FOURTH OF JULY CREEK	131.0	9 / 4	E	0	70	70	0.0	3	65	70	14.0	0	70	70	0.0	1	69	70	70.0
BLOOM 9A	133.0	8 / 10	E	0	46	46	0.0	0	30	46	5.0	7	39	46	6.6	7	39	46	6.6
BLOOM 9A	133.0	8 / 13	E	0	41	41	0.0	7	34	41	5.9	0	33	41	5.1	2	39	41	20.5
BLOOM 9A	133.0	9 / 4	E	0	303	303	0.0	11	292	303	27.5	10	293	303	30.3	13	290	303	23.3
BLOOM 9A	133.0	9 / 11	E	0	170	170	0.0	3	167	170	56.7	3	167	170	56.7	9	161	170	18.9
BLOOM 9A	133.0	9 / 21	E	0	14	14	0.0	0	14	14	0.0	0	14	14	0.0	0	14	14	0.0
BLOOM 10	133.9	8 / 6	0	0	2	2	0.0	0	2	2	0.0	1	1	2	2.0	0	2	2	0.0
BLOOM 10	133.9	8 / 13	E	0	5	5	0.0	1	4	5	5.0	2	3	5	2.5	0	5	5	0.0
BLOOM 10	133.9	8 / 21	E	0	26	26	0.0	5	21	26	3.2	2	24	26	13.0	0	26	26	0.0
BLOOM 10	133.9	8 / 21	E	0	52	52	0.0	4	48	52	13.0	1	51	52	52.0	4	48	52	13.0
BLOOM 10	133.9	8 / 26	E	0	34	34	0.0	1	35	36	36.0	0	32	36	9.0	3	33	36	12.0
BLOOM 10	133.9	9 / 1	0	0	29	29	0.0	0	29	29	0.0	0	29	29	0.0	0	29	29	0.0
BLOOM 10	133.9	9 / 3	E	0	32	32	0.0	0	32	32	0.0	3	29	32	10.7	4	28	32	8.0
BLOOM 10	133.9	9 / 4	E	0	32	32	0.0	0	32	32	0.0	3	29	32	10.7	4	28	32	8.0
BLOOM 11	135.3	8 / 6	0	0	54	54	0.0	7	47	54	7.7	11	43	54	4.9	1	53	54	54.0
BLOOM 11	135.3	8 / 13	E	0	422	422	0.0	29	393	422	14.6	61	361	422	6.9	14	408	422	30.1
BLOOM 11	135.3	8 / 19	0	3	1232	1235	411.7	74	1159	1235	16.3	162	1073	1235	7.6	07	1140	1235	14.2
BLOOM 11	135.3	8 / 26	0	1	1582	1583	1583.0	71	1512	1583	22.3	105	1478	1583	15.1	84	1497	1583	18.4
BLOOM 11	135.3	9 / 3	E	0	1540	1540	0.0	33	1527	1540	47.3	59	1501	1540	26.4	24	1534	1540	60.0
BLOOM 11	135.3	9 / 9	E	0	1046	1046	0.0	4	1040	1046	177.7	5	1041	1046	213.2	0	1050	1046	133.3
BLOOM 11	135.3	9 / 17	0	0	1584	1584	0.0	4	1582	1586	396.5	0	1586	1586	0.0	0	1584	1586	0.0
BLOOM 11	135.3	9 / 21	E	0	22	22	0.0	0	22	22	0.0	0	22	22	0.0	0	22	22	0.0
BLOOM 11	135.3	9 / 26	E	0	5	5	0.0	0	5	5	0.0	0	5	5	0.0	0	5	5	0.0
BLOOM 11	135.3	10 / 4	E	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0

Appendix Table 6-7 (cont). Chum salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATTHORN TAGS			SUNSHINE TAGS			TALKEETNA TAGS			CURRY TAGS		
				Tagged (U)	Untagged (C)	Ratio (C/U)	Tagged (U)	Untagged (C)	Ratio (C/U)	Tagged (U)	Untagged (C)	Ratio (C/U)	Tagged (U)	Untagged (C)	Ratio (C/U)
SLOUGH 13	135.0	8/25	E	0	12	0.0	0	12	0.0	2	12	0.0	1	12	0.0
SLOUGH 13	135.0	8/27	E	0	22	0.0	0	16	0.0	0	20	0.0	0	21	0.0
SLOUGH 14	135.9	8/27	E	0	1	0.0	0	1	0.0	0	1	0.0	0	1	0.0
SLOUGH 15	137.3	8/17	E	0	14	0.0	0	14	0.0	2	14	0.0	0	14	0.0
SLOUGH 16	137.3	9/21	E	0	15	0.0	0	15	0.0	0	15	0.0	0	15	0.0
SLOUGH 16	137.3	9/22	E	0	7	0.0	0	7	0.0	1	7	0.0	0	7	0.0
INDIAN RIVER	138.4	7/31	E	1	199	140.8	15	145	10.7	33	127	140.8	18	142	140.8
INDIAN RIVER	138.4	8/8	E	1	433	434.0	34	400	32.4	49	345	32.4	29	403	434.0
INDIAN RIVER	138.4	8/12	E	2	1272	636.0	43	1204	28.2	148	1184	27.2	47	1205	1272.0
INDIAN RIVER	138.4	9/12	E	0	19	0.0	0	19	0.0	0	19	0.0	0	19	0.0
INDIAN RIVER	138.4	9/10	E	0	217	0.0	0	217	0.0	1	216	217.0	0	217	0.0
SLOUGH 17	139.9	8/8	E	0	39	0.0	4	33	0.8	9	39	0.0	2	32	0.0
SLOUGH 17	139.9	8/13	E	0	29	0.0	0	29	0.0	2	27	0.0	2	29	0.0
SLOUGH 17	139.9	9/22	E	0	44	0.0	2	44	0.0	2	44	0.0	2	44	0.0
SLOUGH 18	139.1	9/22	E	0	11	0.0	1	10	0.0	0	11	0.0	1	10	0.0
SLOUGH 19	139.7	8/8	E	0	19	0.0	1	18	0.0	1	18	0.0	1	18	0.0
SLOUGH 19	139.7	8/17	E	0	3	0.0	0	3	0.0	1	3	0.0	0	3	0.0
SLOUGH 19	139.7	8/24	E	0	40	0.0	1	39	0.0	0	40	0.0	0	39	0.0
SLOUGH 19	139.7	9/10	E	0	45	0.0	1	44	0.0	0	44	0.0	0	44	0.0
SLOUGH 19	139.7	9/10	E	0	5	0.0	0	5	0.0	0	5	0.0	0	5	0.0
SLOUGH 19	139.7	9/28	E	0	1	0.0	0	1	0.0	0	1	0.0	0	1	0.0
SLOUGH 20	140.0	8/8	E	0	39	0.0	1	38	0.0	3	38	0.0	3	38	0.0
SLOUGH 20	140.0	8/17	E	2	134	67.0	18	126	13.9	24	112	13.9	18	126	13.9
SLOUGH 20	140.0	9/22	E	0	260	0.0	3	257	0.0	2	255	0.0	1	254	0.0
SLOUGH 21	141.1	8/8	E	0	32	0.0	1	31	0.0	2	30	0.0	1	29	0.0
SLOUGH 21	141.1	8/17	E	0	980	981.0	55	925	17.8	116	867	17.8	64	867	981.0
SLOUGH 21	141.1	8/24	E	0	458	458.0	1	457	458.0	48	410	458.0	24	434	458.0
SLOUGH 21	141.1	9/22	E	0	2354	2354.0	39	2315	39.1	104	2250	2354.0	88	2244	2354.0
SLOUGH 21	141.1	9/10	E	1	1519	1520.0	9	1511	1520.0	3	1513	1520.0	11	1509	1520.0
SLOUGH 21	141.1	9/20	E	0	823	823.0	1	822	823.0	0	823	823.0	0	823	823.0
SLOUGH 21	141.1	9/24	E	0	805	805.0	0	805	805.0	0	805	805.0	0	805	805.0
SLOUGH 21	141.1	10/23	E	0	1	0.0	0	1	0.0	0	1	0.0	0	1	0.0
ANNA CREEK MS SLOUGH	143.2	9/22	E	0	35	0.0	3	32	0.0	0	35	0.0	2	33	0.0
ANNA CREEK MS SLOUGH	143.2	9/10	E	0	20	0.0	0	20	0.0	0	20	0.0	0	20	0.0
SLOUGH 22	144.3	8/17	E	0	39	0.0	0	39	0.0	0	39	0.0	0	39	0.0
SLOUGH 22	144.3	9/22	E	0	151	0.0	0	150	0.0	0	151	0.0	0	151	0.0
SLOUGH 22	144.3	9/10	E	0	7	0.0	0	7	0.0	0	7	0.0	0	7	0.0
JACK LONG CREEK	144.3	8/8	E	0	1	0.0	0	1	0.0	0	1	0.0	0	1	0.0
JACK LONG CREEK	144.3	8/17	E	0	1	0.0	0	1	0.0	0	1	0.0	0	1	0.0
SLOUGH 21A	145.3	9/11	E	0	4	0.0	0	4	0.0	0	4	0.0	0	4	0.0
SLOUGH 21A	145.3	9/22	E	0	7	0.0	0	7	0.0	0	7	0.0	0	7	0.0
SLOUGH 21A	145.3	9/10	E	0	7	0.0	0	7	0.0	0	7	0.0	0	7	0.0
STIR CHANNEL UP PORTAGE	148.8	8/18	E	0	154	154.0	7	149	154.0	20	134	154.0	12	144	154.0
PORTAGE CREEK	148.9	7/31	E	0	2	0.0	0	2	0.0	0	2	0.0	0	2	0.0
PORTAGE CREEK	148.9	8/8	E	0	42	42.0	1	41	42.0	0	42	42.0	0	42	42.0
PORTAGE CREEK	148.9	8/17	E	0	12	12.0	2	10	12.0	3	10	12.0	2	10	12.0

Appendix Table 6-8. Coho salmon spawning ground surveys of selected spawning area and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATHORN TAGS			SUNSHINE TAGS			TALKEETNA TAGS			CURRY TAGS		
				Tagged (r)	Untagged (u)	Ratio (r/u)	Tagged (r)	Untagged (u)	Ratio (r/u)	Tagged (r)	Untagged (u)	Ratio (r/u)	Tagged (r)	Untagged (u)	Ratio (r/u)
R FURA FENTINA (SIDE CHANNEL)	28.0	9/12	E	0	2	0.0	0	2	0.0	0	2	0.0	0	2	0.0
LAGE CREEK/FENTINA RIVER	28.0	8/17	B	1	51	52.0	0	51	0.0	0	52	0.0	0	52	0.0
TALACHUITHA R./FENTINA R.	28.0	8/17	G	4	280	71.0	0	280	0.0	0	284	0.0	0	284	0.0
WHITSON CREEK	29.2	8/25	F	0	49	0.0	0	49	0.0	0	49	0.0	0	49	0.0
WILLOW CREEK	44.1	8/14	B	0	189	0.0	0	189	0.0	0	189	0.0	0	189	0.0
WILLOW CREEK	44.1	8/14	B	0	189	0.0	0	189	0.0	0	189	0.0	0	189	0.0
WILLOW CREEK	44.1	8/22	E	11	1275	111.5	2	1275	174.5	0	1276	0.0	0	1276	0.0
LITTLE WILLOW CREEK	50.5	8/13	F	0	5	0.0	0	5	0.0	0	5	0.0	0	5	0.0
LITTLE WILLOW CREEK	50.5	8/11	F	0	2	0.0	0	2	0.0	0	2	0.0	0	2	0.0
LITTLE WILLOW CREEK	50.5	8/21	E	0	3	0.0	0	3	0.0	0	3	0.0	0	3	0.0
LITTLE WILLOW CREEK	50.5	8/29	B	0	10	0.0	0	9	0.0	0	10	0.0	0	10	0.0
CASHWELL CREEK	44.0	8/14	F	0	89	0.0	0	89	0.0	0	89	0.0	0	89	0.0
CASHWELL CREEK	44.0	8/13	F	0	102	0.0	0	102	0.0	0	102	0.0	0	102	0.0
CASHWELL CREEK	44.0	8/28	B	0	42	0.0	0	42	0.0	0	42	0.0	0	42	0.0
CASHWELL CREEK	44.0	8/13	B	0	23	0.0	0	23	0.0	0	23	0.0	0	23	0.0
CASHWELL CREEK	44.0	8/13	B	0	23	0.0	0	23	0.0	0	23	0.0	0	23	0.0
SHEEP CREEK	44.1	8/28	F	0	3	0.0	0	3	0.0	0	3	0.0	0	3	0.0
SHEEP CREEK	44.1	8/14	F	0	6	0.0	0	6	0.0	0	6	0.0	0	6	0.0
SHEEP CREEK	44.1	8/13	B	0	21	0.0	0	21	0.0	0	21	0.0	0	21	0.0
SHEEP CREEK	44.1	8/21	B	0	14	0.0	0	14	0.0	0	14	0.0	0	14	0.0
BOUSE CREEK	72.0	8/7	F	0	13	0.0	0	13	0.0	0	13	0.0	0	13	0.0
BOUSE CREEK	72.0	8/14	B	0	24	0.0	0	24	0.0	0	24	0.0	0	24	0.0
BOUSE CREEK	72.0	8/21	B	1	17	18.0	0	17	0.0	0	18	0.0	0	18	0.0
BOUSE CREEK	72.0	8/29	B	0	26	0.0	0	26	0.0	0	26	0.0	0	26	0.0
BOUSE CREEK	72.0	8/7	E	0	31	0.0	0	31	0.0	0	31	0.0	0	31	0.0
BOUSE CREEK	72.0	8/22	B	0	10	0.0	0	9	0.0	0	10	0.0	0	10	0.0
GOOSE SLOUGH	74.0	10/1	B	0	4	0.0	0	4	0.0	0	4	0.0	0	4	0.0
MONTANA CREEK	77.0	8/7	F	0	15	0.0	0	15	0.0	0	15	0.0	0	15	0.0
MONTANA CREEK	77.0	8/14	F	0	24	0.0	0	24	0.0	0	24	0.0	0	24	0.0
MONTANA CREEK	77.0	8/21	F	0	10	0.0	0	10	0.0	0	10	0.0	0	10	0.0
MONTANA CREEK	77.0	8/7	F	0	11	0.0	0	11	0.0	0	11	0.0	0	11	0.0
MONTANA CREEK	77.0	8/7	B	0	10	0.0	0	9	0.0	0	10	0.0	0	10	0.0
MONTANA CREEK	77.0	8/14	B	0	61	0.0	0	61	0.0	0	61	0.0	0	61	0.0
SAUNA SLOUGH	79.3	9/10	B	0	4	0.0	0	4	0.0	0	4	0.0	0	4	0.0
HARTIS MIT CREEK	83.1	8/20	F	0	3	0.0	0	3	0.0	0	3	0.0	0	3	0.0
HARTIS MIT CREEK	83.1	10/1	B	0	409	0.0	1	408	409.0	20	409	20.3	0	409	0.0
ANSWER CREEK	84.1	9/20	F	0	4	0.0	0	4	0.0	0	4	0.0	0	4	0.0
ANSWER CREEK	84.1	9/20	E	1	19	20.0	1	19	20.0	0	20	0.0	0	20	0.0

Appendix Table 6-8 (cont). Coho salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River	Date	Survey Conditions	FLATHORN TAGS				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
				Tagged (T)	Untagged (U)	Total (T+U)	Ratio (T/U)	Tagged (T)	Untagged (U)	Total (T+U)	Ratio (T/U)	Tagged (T)	Untagged (U)	Total (T+U)	Ratio (T/U)	Tagged (T)	Untagged (U)	Total (T+U)	Ratio (T/U)
QUESTIUM CREEK	04.1	9/20	F	2	47	49	24.3	0	41	41	4.1								
QUESTIUM CREEK	04.1	9/20	F	1	5	6	4.0	1	5	6	4.0								
QUESTIUM CREEK	04.1	9/20	F	0	320	320	0.0	40	200	240	0.0								
QUESTIUM CREEK	04.1	9/20	F	0	48	48	0.0	10	54	64	6.0								
SUNSHINE CREEK	05.1	8/3	F	0	3	3	0.0	0	3	3	0.0								
SUNSHINE CREEK	05.1	8/10	F	0	30	30	0.0	0	29	29	30.0								
SUNSHINE CREEK	05.1	8/17	F	0	35	35	0.0	4	31	35	9.0								
SUNSHINE CREEK	05.1	8/21	F	1	51	52	52.0	7	45	52	7.4								
SUNSHINE CREEK	05.1	9/1	F	1	83	84	84.0	2	62	64	42.0								
SUNSHINE CREEK	05.1	9/11	F	0	3	3	0.0	1	2	3	3.0								
SUNSHINE CREEK	05.1	9/13	F	0	54	54	0.0	10	44	54	3.4								
SUNSET SLOUGH	05.5	9/20	F	0	5	5	0.0	0	5	5	0.0								
NORTH SUNSET SLOUGH	07.5	9/21	F	0	5	5	0.0	1	1	2	1.3								
BIRCH CREEK SLOUGH	09.0	8/9	F	0	235	235	0.0	38	195	233	4.2								
BIRCH CREEK SLOUGH	09.0	8/16	F	0	75	75	0.0	23	52	75	3.3								
BIRCH CREEK SLOUGH	09.0	8/23	F	0	64	64	0.0	14	70	84	4.0								
BIRCH CREEK SLOUGH	09.0	9/16	F	0	13	13	0.0	1	12	13	13.0								
BIRCH CREEK SLOUGH	09.0	9/16	F	0	27	27	0.0	0	27	27	0.0								
BIRCH CREEK SLOUGH	09.0	10/1	F	0	16	16	0.0	0	16	16	0.0								
BIRCH CREEK	09.2	8/23	F	0	12	12	0.0	1	11	12	12.0								
BIRCH CREEK	09.2	9/2	F	0	53	53	0.0	2	51	53	26.5								
BIRCH CREEK	09.2	9/4	F	0	18	18	0.0	1	17	18	18.0								
BIRCH CREEK	09.2	9/16	F	0	217	217	0.0	7	210	217	31.0								
BIRCH CREEK	09.2	9/20	F	0	235	235	0.0	4	231	235	59.0								
TRAPPER CREEK	01.5	8/10	F	0	2	2	0.0	0	2	2	0.0								
TRAPPER CREEK	01.5	8/15	F	0	4	4	0.0	0	4	4	0.0								
TRAPPER CREEK	01.5	9/15	F	0	21	21	0.0	1	20	21	21.0								
TRAPPER CREEK SLOUGH	01.5	9/26	F	0	2	2	0.0	0	2	2	0.0								
TRAPPER CREEK SLOUGH	01.5	10/1	F	0	24	24	0.0	0	22	22	12.0								
TRAPPER CREEK SLOUGH	01.5	10/2	F	0	20	20	0.0	1	19	20	7.0								
TRAPPER CREEK SLOUGH	01.5	10/2	F	0	17	17	0.0	2	15	17	8.5								
TRAPPER CREEK SLOUGH	01.5	10/4	F	0	23	23	0.0	0	23	23	0.0								
CACHE CREEK	05.3	8/22	F	0	1	1	0.0	0	1	1	0.0								
CACHE CREEK	05.3	9/15	F	1	22	23	23.0	3	20	23	7.7								
CLEAR CRK / TALKEETNA RIVER	07.1	8/21	F	1	227	228	228.0	17	211	228	13.4								
FISH CREEK / TALKEETNA RIVER	07.1	8/9	F	0	25	25	0.0	1	24	25	25.0								
BYERS LAKE & OUTLET	01.8	8/14	F	0	2	2	0.0	0	2	2	0.0								
BYERS CREEK	07.8	8/14	F	0	9	9	0.0	0	9	9	0.0								
THOULESOME CREEK	07.8	8/16	F	0	14	14	0.0	0	14	14	0.0								
PELEGUANA SLOUGH	08.4	9/14	F	0	2	2	0.0	0	2	2	0.0								
WHISKERS CREEK	101.4	8/9	F	0	6	6	0.0	1	5	6	4.0								
WHISKERS CREEK	101.4	8/15	F	0	10	10	0.0	0	10	10	0.0								
WHISKERS CREEK	101.4	9/6	F	0	45	45	0.0	10	35	45	4.5								
WHISKERS CREEK	101.4	9/17	F	0	117	117	0.0	17	100	117	4.9								
WHISKERS CREEK	101.4	9/24	F	0	10	10	0.0	2	8	10	9.0								
WHISKERS CREEK	101.4	9/30	F	0	22	22	0.0	1	21	22	22.0								
WHISKERS CREEK	101.4	10/7	F	0	38	38	0.0	1	37	38	38.0								

Appendix Table 6-8 (cont). Coho salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, 1984.

Spawning Area	River Mile	Date	Survey Conditions	FLATHORN TAOS				SUNSHINE TAOS				TALKEETNA TAOS				CURRY TAOS			
				Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
CHASE CREEK	106.0	8 / 9	E	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0				
CHASE CREEK	106.9	8 / 16	E	0	8	8	0.0	0	8	8	0.0	0	8	8	0.0				
CHASE CREEK	106.9	8 / 28	E	0	211	211	0.0	15	196	211	14.1	27	184	211	7.8				
CHASE CREEK	106.9	9 / 4	E	0	20	20	0.0	1	27	28	28.0	6	22	28	4.7				
CHASE CREEK	106.9	9 / 17	E	1	84	85	85.0	29	173	202	7.0	37	165	202	5.5				
CHASE CREEK	106.9	9 / 24	E	1	43	44	44.0	17	40	57	5.0	14	71	85	6.1				
CHASE CREEK	106.9	9 / 30	E	0	42	42	0.0	3	39	42	14.0	1	41	42	42.0				
CHASE CREEK	106.9	10 / 7	E	0	32	32	0.0	1	31	32	32.0	2	30	32	16.0				
CHASE CREEK	106.9	10 / 14	E	0	10	10	0.0	2	8	10	5.0	2	8	10	5.0				
SLASH CREEK	111.2	9 / 16	E	0	61	61	0.0	8	53	61	7.6	7	54	61	8.7				
SLASH CREEK	111.2	9 / 30	E	1	4	5	5.0	0	5	5	0.0	1	4	5	5.0				
GASH CREEK	111.6	9 / 3	E	0	20	20	0.0	4	16	20	5.0	4	16	20	5.0				
GASH CREEK	111.6	9 / 24	E	1	233	234	234.0	32	202	234	7.3	17	217	234	13.8				
GASH CREEK	111.6	9 / 30	E	1	191	192	192.0	21	171	192	9.1	14	178	192	13.7				
GASH CREEK	111.6	10 / 7	E	0	127	127	0.0	14	113	127	9.1	6	121	127	21.2				
GASH CREEK	111.6	10 / 14	E	0	71	71	0.0	5	66	71	14.2	1	70	71	71.0				
SLOUGH 6A	112.3	8 / 21	E	0	3	3	0.0	0	3	3	0.0	1	2	3	3.0				
LAME CREEK	113.6	8 / 21	E	0	3	3	0.0	0	3	3	0.0	1	2	3	3.0				
LAME CREEK	113.6	9 / 24	E	0	2	2	0.0	0	2	2	0.0	1	1	2	2.0				
LAME CREEK	113.6	10 / 3	E	0	8	8	0.0	1	7	8	8.0	0	8	8	0.0				
LOWER MCKENZIE CREEK	114.2	8 / 27	E	0	28	28	0.0	4	18	24	6.0	0	24	24	0.0				
LOWER MCKENZIE CREEK	114.2	9 / 24	E	0	9	9	0.0	2	7	9	4.5	0	9	9	0.0				
SLOUGH 11	135.3	9 / 17	E	0	1	1	0.0	1	0	1	1.0	0	1	1	0.0	0	1	1	0.0
SLOUGH 14	135.9	8 / 27	E	0	2	2	0.0	1	1	2	2.0	0	2	2	0.0	1	1	2	2.0
INDIAN RIVER	138.6	8 / 8	E	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
INDIAN RIVER	138.6	8 / 17	E	0	45	45	0.0	3	42	45	15.0	5	40	45	9.0	8	37	45	5.4
INDIAN RIVER	138.6	9 / 2	E	0	28	28	0.0	3	25	28	9.3	3	25	28	9.3	2	26	28	14.0
INDIAN RIVER	138.6	9 / 10	E	0	70	70	0.0	9	61	70	7.8	5	65	70	14.0	8	62	70	8.8
INDIAN RIVER	138.6	9 / 20	E	0	8	8	0.0	1	7	8	8.0	0	8	8	0.0	1	7	8	8.0
INDIAN RIVER	138.6	10 / 3	E	0	10	10	0.0	2	8	10	5.0	1	9	10	10.0	0	10	10	0.0
PORTAGE CREEK	148.9	8 / 17	E	0	1	1	0.0	0	1	1	0.0	1	0	1	1.0	0	1	1	0.0
PORTAGE CREEK	148.9	9 / 10	E	0	1	1	0.0	1	0	1	1.0	0	1	1	0.0	0	1	1	0.0