

ANNUAL MANAGEMENT REPORT YUKON AREA, 1991

By:
Daniel J. Bergstrom
Chuck Blaney
Keith C. Schultz
Russ R. Holder
Gene J. Sandone
Dan J. Schneiderhan
Louis H. Barton
Dave Mesiar

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AUTHORS

Daniel J. Bergstrom is the Lower Yukon Area Management Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 333 Raspberry Rd., Anchorage, Ak. 99518

Chuck Blaney is the Lower Yukon Assistant Area Management Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 333 Raspberry Rd., Anchorage, Ak. 99518.

Keith C. Schultz is the Upper Yukon Area Management Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 1300 College Road, Fairbanks, Ak. 99701.

Russ R. Holder is the Upper Yukon Assistant Area Management Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 1300 College Road, Fairbanks, Ak. 99701.

Gene J. Sandone is a Research Project Leader for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 333 Raspberry Rd., Anchorage, Ak. 99518.

Dan J. Schneiderhan is the Salmon Stock Biology Project Leader for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 333 Raspberry Rd., Anchorage, Ak. 99518.

Louis H. Barton is a Research Project Leader for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 1300 College Road, Fairbanks, Ak. 99701.

Dave Mesiar is the Regional Sonar Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 333 Raspberry Rd., Anchorage, Alaska 99518.

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TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES	v
LIST OF FIGURES	vi
SUMMARY OF APPENDICES	vii
LIST OF APPENDICES	viii
PREFACE	1
YUKON AREA INTRODUCTION	2
SALMON FISHERY	2
<i>Description of Area and District Boundaries</i>	2
<i>Fishery Resources</i>	3
<i>Water Quality</i>	4
<i>Salmon Fishery History and Description</i>	4
Alaskan Subsistence Fishery	4
Alaskan Personal Use Fishery	6
Alaskan Commercial Fishery	7
<i>Lower Yukon Area</i>	9
<i>Upper Yukon Area</i>	11
<i>Canadian Harvests of Yukon River Salmon</i>	14
U.S./Canada Treaty Negotiations	14
<i>Marine Harvests of Yukon River Origin Salmon</i>	15
High Seas Salmon Gillnet Fisheries	15
Foreign, Joint-Venture, and U.S. Domestic Groundfish Fisheries	16
Alaska Peninsula	16
Norton Sound	17
<i>Escapement Enumeration</i>	17
<i>Management</i>	19
AREA SALMON REPORT 1991	22
<i>Subsistence Fishery 1991</i>	22
Lower Yukon Area	22
Upper Yukon Area	22
Canadian	23
<i>Commercial Fishery 1991</i>	23

TABLE OF CONTENTS (Continued)

	<u>Page</u>
Lower Yukon Area	24
<i>Chinook Salmon</i>	25
<i>Summer Chum Salmon</i>	26
<i>Fall Chum and Coho Salmon</i>	27
Upper Yukon Area	28
<i>Chinook Salmon</i>	29
<i>Summer Chum Salmon</i>	30
<i>Fall Chum and Coho Salmon</i>	31
Canadian	32
<i>Chinook Salmon</i>	32
<i>Fall Chum Salmon</i>	32
<i>Escapement 1991</i>	33
Chinook Salmon	34
Summer Chum Salmon	36
Fall Chum Salmon	37
Coho Salmon	39
<i>Enforcement 1991</i>	39
Lower Yukon Area	40
Upper Yukon Area	40
<i>Outlook For 1992</i>	40
Chinook Salmon	40
Summer Chum Salmon	41
Fall Chum Salmon	41
Coho Salmon	41
 CAPE ROMANZOF DISTRICT HERRING FISHERY	 42
<i>Introduction</i>	42
<i>Commercial Fishery 1991</i>	42
<i>Subsistence Fishery 1991</i>	44
<i>Stock Status</i>	44
<i>Outlook for 1992</i>	45
 OTHER MARINE AND FRESHWATER FINFISH FISHERIES	 46
<i>Subsistence Fishery</i>	46
<i>Commercial Fishery</i>	46
LITERATURE CITED	48

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Yukon area salmon processors and associated data, 1991	50
2. Yukon Area commercial salmon and salmon roe sales by statistical area, 1991 . .	54
3. Yukon Area Commercial Fisheries Entry Commission salmon gear permits issued by residence, 1991	56
4. Commercial salmon catch and effort data by fishing period, set and drift gillnets combined, District 1, Yukon Area, 1991	58
5. Commercial salmon catch and effort data by fishing period, set and drift gillnets combined, District 2, Yukon Area, 1991	59
6. Commercial salmon catch and effort data by fishing period, set and drift gillnets combined, District 3, Yukon Area, 1991	60
7. Estimated commercial salmon harvest and department test fishery sales, Upper Yukon Area, 1991	61
8. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets and fish wheels combined, District 4, Upper Yukon Area, 1991	62
9. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets and fish wheels combined, District 5, Upper Yukon Area, 1991	65
10. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets and fish wheels combined, District 6, Upper Yukon Area, 1991	68
11. Commercial salmon and salmon roe sales by gear type and by statistical area, Upper Yukon Area, 1991	69
12. Salmon sold from Department test fishing catches, Yukon Area, 1991	71
13. Yukon River drainage total estimated commercial related salmon catch by district and country, 1991	72
14. Yukon River drainage subsistence salmon harvest, 1991	73

LIST OF TABLES (Continued)

<u>Table</u>	<u>Page</u>
15. Subsistence salmon catches taken under authority of a permit, Yukon River area, 1991	75
16. Yukon River drainage total commercial and subsistence utilization of salmon by district and and country, 1991	76

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. The Yukon River drainage, 330,000 square miles	77
2. Districts 1-6 of Yukon management area	78
3. District 1 of Yukon management area with statistical areas	79
4. District 2 of Yukon management area with statistical areas	80
5. District 3 of Yukon management area with statistical areas	81
6. District 4 of Yukon management area with statistical areas	82
7. District 5 of Yukon management area with statistical areas	83
8. District 6 of Yukon management area with statistical areas	84
9. Closed waters Acharon Channel, south mouth Yukon River	85
10. Closed waters of Black River mouth	86
11. Closed waters of Apoon mouth, Yukon River	87
12. Closed waters of Andrafsky River mouth	88
13. Closed waters of Anvik River mouth	89
14. The lower Yukon River drainage	90
15. The Koyukuk River drainage	91
16. The Tanana River drainage	92
17. The middle Yukon River and Porcupine River drainage	93
18. The upper Yukon River drainage	94
19. Setnet only area, District 1 of Yukon Management Area	95

SUMMARY OF APPENDICES

Appendix A: YUKON RIVER DRAINAGE WIDE SALMON	96
Appendix B: LOWER YUKON AREA SALMON	130
Appendix C: UPPER YUKON AREA SALMON	158
Appendix D: YUKON RIVER SALMON SUBSISTENCE AND PERSONAL USE . .	175
Appendix E: YUKON RIVER SALMON ESCAPEMENT	185
Appendix F: CAPE ROMANZOF HERRING DISTRICT	199
Appendix G: YUKON AREA FRESHWATER FISHERIES	211

LIST OF APPENDICES

	<u>Page</u>
APPENDIX A: YUKON RIVER DRAINAGE WIDE SALMON	
A.1 List of indigenous fishes found in the Yukon Area	97
A.2 Yukon River drainage mileages	98
A.3 Alaskan and Canadian total utilization of Yukon River salmon, 1903-1991	101
A.4 Commercial chinook salmon sales by district and country, Yukon River drainage, 1961-1991	103
A.5 Commercial summer chum salmon sales by district, Yukon River drainage, 1961-1991	104
A.6 Commercial fall chum salmon sales by district and country, Yukon River drainage, 1961-1991	105
A.7 Commercial coho salmon sales by district, Yukon River drainage in Alaska, 1961-1991	106
A.8 Yukon River drainage total estimated commercial related summer chum salmon catch by area and district, 1968-1991	107
A.9 Commercial chinook salmon catches taken under quotas or guideline harvest ranges, Yukon Area, 1974-1991	108
A.10 Commercial summer chum salmon catches taken under guideline harvest ranges, Yukon Area, 1990-1991	110
A.11 Commercial fall chum and coho salmon catches taken under quotas or guideline harvest ranges, Yukon Area, 1974-1991	111
A.12 Commercial Fisheries Entry Commission (CFEC) salmon permits issued by gear type, Yukon Area, 1976-1991	112
A.13 Number of commercial salmon fishing gear operators (permit holders) by district, Yukon Area, 1971-1991	113
A.14 Commercial salmon pack by species and type of processing, Yukon Area, 1960-1991	114

LIST OF APPENDICES (Continued)

	<u>Page</u>
A.15 Dollar value estimates of Yukon Area commercial salmon fishery, 1961-1991 . . .	115
A.16 Estimated average prices paid to fishermen, Yukon Area, 1964-1991	116
A.17 Average weight of commercial salmon catch in pounds, Yukon Area, 1964-1991	117
A.18 Subsistence and commercial chinook salmon catches by district and country, Yukon River drainage, 1978-1991	118
A.19 Subsistence and commercial summer chum salmon catches by district, Yukon Area, 1978-1991	120
A.20 Subsistence and commercial fall chum salmon catches by district and country, Yukon River drainage, 1978-1991	122
A.21 Subsistence and commercial coho salmon catches by district, Yukon Area, 1978-1991	124
A.22 Percent age composition of combined commercial and subsistence salmon harvest, Yukon River drainage, 1982-1991	126
A.23 Percent of total Yukon River chinook salmon harvest attributed to region of origin, 1982-1991	127
A.24 Associated environmental and salmon catch data, Yukon River, 1961-1991 . . .	128
A.25 Total catch and estimated catch of Western Alaska (including Canadian Yukon) chinook salmon (in thousands of fish) taken in Japanese high seas salmon gillnet fisheries and total catch of chinook salmon taken in foreign and joint-venture trawl fisheries, 1964-1991	129

APPENDIX B: LOWER YUKON AREA SALMON

B.1 List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1991	131
B.2 Commercial chinook and summer chum salmon sales by district, Lower Yukon River Area, 1961-1991	138

LIST OF APPENDICES (Continued)

	<u>Page</u>
B.3 Commercial fall chum and coho salmon sales by district, Lower Yukon River Area, 1961-1991	139
B.4 Value of commercial salmon fishery to Lower Yukon Area salmon fishermen, 1977-1991	140
B.5 Commercial catches of chinook and summer chum salmon by mesh size, Districts 1 and 2, Lower Yukon Area, 1961-1991	141
B.6 Commercial chinook salmon catch and effort data, Districts 1 and 2, Lower Yukon Area, 1961-1991	142
B.7 Chinook salmon commercial catch data by period, chinook salmon season (unrestricted mesh size), District 1, Lower Yukon Area, 1974-1991	143
B.8 Chinook salmon commercial catch data by period, chinook salmon season (unrestricted mesh size), District 2, Lower Yukon area, 1978-1991	145
B.9 Commercial chinook salmon catches by statistical area, Lower Yukon Area, 1974-1991	146
B.10 Commercial summer chum salmon catch and effort data, Districts 1 and 2, Lower Yukon Area, 1967-1991	147
B.11 Commercial coho and fall chum salmon catch and effort data, District 1, Lower Yukon Area, 1961-1991	148
B.12 Fall chum and coho salmon catch and effort in the Setnet Only and Gillnet areas, District 1, Lower Yukon Area, 1983-1991	149
B.13 Fall chum salmon commercial catch data by period, District 1, Lower Yukon Area, 1978-1991	150
B.14 Commercial chum salmon catches by statistical area, Lower Yukon Area, 1971-1991	151
B.15 Lower Yukon River chinook and summer chum salmon combined setnet test fishing catches and CPUE, 1991	152

LIST OF APPENDICES (Continued)

	<u>Page</u>
B.16 Lower Yukon River, Big Eddy and Middle Mouth combined chinook salmon setnet (8.5 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1991 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing	153
B.17 Lower Yukon River, Big Eddy and Middle Mouth combined summer chum salmon setnet (5.5 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1991 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing	154
B.18 Lower Yukon River fall chum and coho salmon combined setnet test fishing catches and CPUE, 1991	155
B.19 Lower Yukon River Big Eddy and Middle Mouth combined fall chum salmon setnet (6.0 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1991 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing	156
B.20 Lower Yukon River, Big Eddy and Middle Mouth combined coho salmon setnet (6.0 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1991 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing	157

APPENDIX C: UPPER YUKON AREA SALMON

C.1 List of Upper Yukon Emergency Orders, 1991	159
C.2 Commercial chinook salmon sales by statistical area, Upper Yukon Area, 1974-1991	165
C.3 Commercial summer chum salmon sales by statistical area, Upper Yukon Area, 1974-1991	168
C.4 Commercial fall chum salmon sales by statistical area, Upper Yukon Area, 1974-1991	171

LIST OF APPENDICES (Continued)

	<u>Page</u>
C.5 Summary of test fishing projects conducted in the Upper Yukon Area, 1991 . . .	174

APPENDIX D: YUKON RIVER SALMON SUBSISTENCE AND PERSONAL USE

D.1 Yukon River chinook salmon subsistence catches in numbers of fish by village, 1979-1991	176
D.2 Reported Yukon River fall chum salmon subsistence catches (may include commercial related harvest to produce roe sold) in numbers of fish by village, 1978-1991	178
D.3 Yukon River coho salmon subsistence catches in numbers of fish by village, 1979-1991	180
D.4 Subsistence and personal use salmon catches taken under authority of a permit, Tanana River drainage, 1973-1991	182
D.5 Subsistence and personal use salmon catches taken under authority of a permit in District 5, Upper Yukon Area, 1973-1991	184

APPENDIX E: YUKON RIVER SALMON ESCAPEMENT

E.1 Yukon River salmon interim spawning escapement objectives for selected species and streams, 1991	186
E.2 Salmon spawning escapement estimates for the Yukon River drainage, 1991 . . .	187
E.3 Sonar estimates of salmon passage on the mainstem Yukon River at Pilot Station, 1986-1991	190
E.4 Chinook salmon escapement counts for selected Alaskan spawning stocks in the Yukon River drainage, 1961-1991	191
E.5 Chinook salmon escapement counts for selected Canadian spawning stocks in the Yukon River drainage, 1961-1991	192
E.6 Summer chum salmon escapement counts for selected spawning areas in the Yukon River drainage, 1973-1991	193

LIST OF APPENDICES (Continued)

	<u>Page</u>
E.7 Fall chum salmon escapement counts for selected spawning areas in the Yukon River drainage, 1974-1991	194
E.8 Coho salmon escapement counts for selected spawning areas in the Yukon River drainage, 1972-1991	195
E.9 Summary of selected escapement projects conducted in the Yukon Area, 1991 .	196

APPENDIX F: CAPE ROMANZOF HERRING DISTRICT

F.1 Map of Cape Romanzof Herring District	200
F.2 Commercial herring catch and effort data by fishing period, Cape Romanzof herring District, 1991	201
F.3 List of Lower Yukon Area emergency orders pertaining to the Cape Romanzof District, 1991	202
F.4 Commercial herring fishery data, Cape Romanzof District, 1980-1991	203
F.5 Pacific herring processors and associated data, Cape Romanzof District, 1991 . .	204
F.6 Subsistence herring harvest (st) and effort data, Cape Romanzof, 1975-1991 . . .	205
F.7 Aerial survey biomass estimates of Pacific herring, Cape Romanzof District, 1991	206
F.8 Age composition of herring sampled from commercial harvest, Cape Romanzof District, 1986-1991	207
F.9 Age composition of herring sampled from variable mesh gillnet catches, Cape Romanzof District, 1986-1991	209

APPENDIX G: YUKON AREA FRESHWATER FISHERIES

G.1 Commercial freshwater fishery catches, Lower Yukon Area, 1978-1991	212
G.2 Colville River commercial whitefish catches, 1964-1991	213

LIST OF APPENDICES (Continued)

	<u>Page</u>
G.3 Commercial freshwater fishery catches, Upper Yukon Area, 1971-1991	214
G.4 Subsistence freshwater fishery catches taken under authority of a permit, 1991	215

PREFACE

This report presents current and historical information concerning the management of commercial and subsistence fisheries in the Yukon Area. Data from a number of research projects are included in this report; complete documentation of these projects and results are or will be presented in separate reports. Data presented in this report supersedes information found in previous management reports. An attempt has been made to correct errors in previous reports and previously unrecorded data have been incorporated into this report. The report is organized into the following major sections:

1. Salmon Fishery. This section presents a description of the area, fishery resources, fisheries and management practices.
2. Area Salmon Report 1991. This section presents a comprehensive report of the current year and makes comparisons with previous years.
3. Cape Romanzof District Herring Fishery. This section presents a description of the area, fishery resources, fisheries and management practices, and summary of the 1991 herring fishery.
4. Other Marine and Freshwater Finfish Fisheries. This section presents a description of the fishery resources and finfish fisheries other than salmon and herring.

In order to facilitate use of this report, tabular data has been separated into current year tables for the salmon fishery and appendices where annual comparisons are made.

The following is an explanation of how commercial fishing effort and catch per unit effort data, presented throughout this report, have been derived:

Fisherman hours have been computed, assuming that if a permit holder delivers in any fishing period, the fisherman fished the entire period for as many hours as were open to commercial fishing.

Catch per fisherman hour is obtained by dividing the total fishermen hours into the catch for the corresponding period of time.

Total fishermen is the total number of fishermen making deliveries, regardless of how many deliveries were made or days fished during a particular "season". There are a number of fishermen who deliver only once or twice during the entire season. "Total days fished" is the total number of hours open for commercial fishing during the season divided by 24.

Historic trends of combined commercial and subsistence catches are documented in Appendix A.3. Annual Management reports prior to 1987 identify the catch as being taken for commercial or subsistence use, as well as the combined harvest.

YUKON AREA INTRODUCTION

The Yukon management area includes all waters of the Yukon River and its tributaries in Alaska and all coastal waters from Canal Point Light near Cape Stephens southward to Naskonat Peninsula (Figure 1). Important commercial and subsistence fisheries include salmon and herring. Other marine and freshwater finfish are harvested primarily for subsistence use. A list of indigenous fishes found in the Yukon Area is provided in Appendix A.1.

SALMON FISHERY

Description of Area and District Boundaries

The Yukon River is the largest river in Alaska, draining approximately 35 percent of the state, and is the fifth largest drainage in North America. The river originates in British Columbia, Canada, within 30 miles of the Gulf of Alaska and flows over 2,300 miles to its mouth on the Bering Sea, draining an area of approximately 330,000 square miles. With the possible exception of a few fish taken near the mouth or adjacent coastal villages, only salmon of Yukon River origin are harvested in this area.

Excluding the greater Fairbanks area (approximately 77,000 residents), there are approximately 10,000-15,000 rural residents in the Alaskan portion of the drainage, the majority of whom reside in 43 small villages scattered along the coast and major river systems. Nearly all of these people are dependent to varying degrees on fish and game resources for their livelihood.

The Alaskan commercial salmon fishery occurs along 1,200 miles of the mainstem Yukon River and the lower 220 miles of the Tanana River. The present district boundaries were originally established in 1961 and redefined in 1962, 1974, and 1978. The commercial fishing area is divided into six districts for management and regulatory purposes (Figure 2). The Lower Yukon Area includes the coastal waters of the area and that portion of the drainage from the mouth to Old Paradise Village, river mile 301 (lower three districts). The Upper Yukon Area is that portion of the drainage upstream of Old Paradise Village to the U.S./Canada Border including the Tanana River (upper three districts). The districts are further subdivided into 10 subdistricts and 28 statistical areas for management purposes. Figures 3, 4, and 5 show the statistical areas for the lower three districts, Figures 6, 7, and 8 show the statistical areas for the upper three districts, and Figures 9-13 show closed waters areas. Yukon River mileages are listed in Appendix A.2.

Fishery Resources

Five species of Pacific salmon are found in the Yukon River drainage: chum salmon (*Oncorhynchus keta*), chinook salmon (*O. tshawytscha*), coho salmon (*O. kisutch*), pink salmon (*O. gorbuscha*), and sockeye salmon (*O. nerka*).

Chum salmon are found throughout the Yukon River drainage and occur in two distinct runs; a summer (early) run and a fall (late) run. Summer chum salmon are chiefly characterized by: earlier run timing (early June to mid-July), rapid maturation in freshwater, smaller size (average 6-7 pounds), and larger population size. Summer chum salmon spawn primarily in run-off streams in the lower 500 miles of the drainage and in the Tanana River system (Figures 14-16). Fall chum salmon are mainly distinguished by: later run timing (mid-July to early September), robust body shape and bright silvery appearance, larger size (average 7-8 pounds) and smaller population size. Fall chum salmon primarily spawn in the upper portion of the drainage in streams which are spring fed, usually remaining ice-free during the winter. Major fall chum salmon spawning areas include the Tanana, Chandalar, and Porcupine River systems, as well as various streams in Yukon Territory, Canada, including the mainstem Yukon River (Figures 16-18).

Chinook are the largest species found in the Yukon River ranging from 2-90 pounds and averaging 20-25 pounds. Spawning populations of chinook salmon have been documented in the Archuelinguk River located approximately 80 miles from the mouth of the Yukon River and as far upstream as the headwaters of the drainage in Yukon Territory and British Columbia, Canada, nearly 2,000 miles from the mouth (Figures 14-18). Chinook salmon enter the mouth of the Yukon River soon after ice breakup during late May to early June and continue through mid-July.

Coho salmon enter the Yukon River during late July through mid-September, average about seven pounds in weight, and spawn discontinuously throughout the drainage. Major spawning populations of coho salmon have been documented in tributaries of the upper Tanana River drainage, and the Andreafsky and Anvik Rivers (Figures 14 and 16).

Pink salmon enter the lower river during late June to late July, average approximately 3 pounds in weight, and essentially spawn in the lower portion of the drainage, downstream of the village of Grayling, river mile 336 (Figure 14). Pink salmon have been caught in the mainstem Yukon River upstream as far as Ruby (river mile 601). During the past decade, large runs of pink salmon have occurred during even-numbered years.

Sockeye salmon are uncommon in the Yukon River Area and only a few individuals are caught each year. Sockeye salmon have been reported in the main Yukon River upstream to Rampart (river mile 763). There have been reports of sockeye salmon spawning areas being located in the Innoko and Anvik River drainages.

Water Quality

Water quality and spawning habitats in the Yukon have been largely preserved in their original condition. Pollution, logging, dam construction and mining activities, except in a few locations, have been to date minimal or nonexistent. It remains to be seen what impact oil development activity will have on water quality and fishery resources in the area.

Salmon Fishery History and Description

Alaskan Subsistence Fishery

Historically, subsistence salmon harvests were very large. About 1930, the airplane began replacing the sled dog as mail and supply carrier, starting a gradual reduction in subsistence harvests. During the early to mid-1960's, there was an increasing use of snow machines which replaced sled dogs faster than did the airplane. Subsistence salmon catches declined through the 1970's as increased welfare payments and employment opportunities, including commercial fishing activities, became available to rural residents (ADF&G 1985). Beginning in the early 1980's, due, in part, to a renewed interest in sled dog racing, the number of dogs per family has increased in some portions of the drainage. Coincidentally, there has been an increase in the subsistence salmon harvest. In addition, the human population along the river is increasing, which may also relate to increased subsistence harvests.

Subsistence fishermen operate gillnets in the main rivers and coastal marine waters. Fish wheels are also utilized by subsistence fishermen primarily in the upper Yukon and Tanana Rivers. Beach seines are occasionally used near spawning grounds to catch schooling or spawning salmon. Many people who fish for subsistence purposes also operate as commercial fishermen. In general, since the early 1960's, subsistence fishing has been managed and regulated to coincide with commercial fishing periods when the commercial fishing season is open. In all districts, additional subsistence only fishing time is allowed during the commercial fishing season. Prior to and following the commercial fishing season, subsistence fishing is allowed seven days per week in Districts 1-5, and for two 42-hour periods per week in District 6.

There is usually little intentional wastage of the fish taken for subsistence purposes. A major portion is sun dried or smoked for later consumption, while the head and viscera may be fed to dogs. Wet weather may cause wastage during the process of attempting to dry fish. Chinook salmon are used mainly for human consumption. However, while chum and coho salmon are also used for human consumption, large numbers are also taken to feed sled dogs.

Comprehensive annual surveys of the subsistence salmon fishery were initiated by the department in 1961. Survey methodology and technique have varied from year to year, however, it is felt that the estimates reflect harvest trends. Normally, subsistence catch data have been expanded for unknown fishing families or households on a community basis and expanded community harvests summed for district and total drainage estimates on an annual basis.

Subsistence salmon catch data have been collected through the use of personal interviews, catch calendars, and mail out questionnaires. Beginning in the early 1970's, subsistence fishing permit catch information has been available for three sections of the Upper Yukon Area as follows: the Yukon River near the haul road bridge between Hess Creek and Dall River, the upper portion of District 5 between the upstream mouth of Twenty-Two Mile Slough and the U.S./Canada border, and the Tanana River near Fairbanks. Beginning in 1988, subsistence permits have been required for the entire Tanana River drainage.

Since 1961, Commercial Fisheries Division staff have conducted subsistence surveys, except for 1988, when Subsistence Division staff conducted the 1988 survey with the objective of improving survey data collection and analysis. The basic methodology developed by Subsistence Division in 1988, was to identify all households in each community and to stratify the updated community household lists by "usually fish" and "usually not fish" households (Walker et al. 1989). Substantially more fishing households were identified than on fishing family lists used prior to 1988. However, historically, survey lists evaluated households in a broader sense (family units working together to harvest and process salmon), therefore, there is no direct correlation between fishing family and fishing household.

The stratification system developed by the Subsistence Division was further refined in 1990 and 1991 in order to improve the accuracy and precision of the drainage-wide subsistence harvest estimate (Holder and Hamner 1991). Households were classified into one of five categories based upon their level of subsistence harvest in 1988 and 1989. A stratified random sample was drawn from the strata formed by combinations of village and use. Assuming that households tend to harvest the same number of fish in the current year as they have historically, this stratification system allows the households with the heaviest use of the resource to be sampled more intensively. Prior to 1990, attempts were made to census all fishing families or households.

The majority of the subsistence salmon catches are taken in the Upper Yukon River Area which is illustrated by the catch data presented in Appendices A.18 to A.21. It should be noted that the practice of keeping sled dogs is much more common in the Upper Yukon Area than in the delta area, and it is considered a major factor affecting subsistence use. It is also likely that the sale of subsistence-caught salmon roe (legal from 1974 through 1977) increased subsistence chum salmon catches in the Upper Yukon Area above normal use levels during that period. Additionally, estimates of illegal sales of fall chum and coho salmon, and salmon roe in Districts 5 and 6 in 1987 were included with subsistence harvests, because there was no fall commercial fishing season allowed that year.

Since development of the salmon roe fishery in the Upper Yukon Area, the differentiation between subsistence and commercial catches has been difficult. The reason for this is that fish harvested to produce commercial roe sales are also utilized for subsistence purposes. In 1990, the decision was made to separate harvests that produce roe sales from subsistence harvests in total utilization tables because of the difficulty in assigning a single use to the harvest. The commercial harvest is reported as fish sold in the round only. The reported subsistence harvest was reduced in some districts and years based upon assumptions of when and where fish harvested to produce commercial roe sales were included in reported subsistence harvests. Estimated harvests of female salmon to produce roe sales, and the incidental harvest of summer chum males in Subdistrict 4-A are reported as commercial-related harvest.

The commercial-related salmon harvest can be viewed as utilization for both commercial and subsistence purposes. To avoid double counting, a separate commercial related harvest estimate can be summed with subsistence harvest for total subsistence utilization, or it can be summed with the commercial harvest for total commercial utilization when evaluating guideline harvest ranges.

The harvest of males in salmon roe fisheries other than the summer chum salmon fishery in Subdistrict 4-A, are believed to be either sold or retained for subsistence use. In Subdistrict 4-A, there is a much greater magnitude of summer chum roe sales. It is probable that the unmarketable carcasses have simply replaced a large portion of the subsistence harvest in this area. However, reported subsistence harvests in the past have not equaled the estimated commercial-related harvest. Therefore, the estimated number of male summer chum salmon taken during the commercial fishing are included in commercial-related harvests for Subdistrict 4-A. Subsistence surveys and personal interviews from 1986 through 1991 were conducted so as to estimate the number of summer chum salmon taken by standard subsistence fishing means (not related to commercial fishing). The proportion of the summer chum subsistence harvest taken unrelated to commercial fishing in 1986 was used to estimate District 4 subsistence harvests from 1980 through 1985.

Alaskan Personal Use Fishery

Due to changes in the state subsistence law in 1986, which limited subsistence hunting and fishing to rural Alaskan residents, the Board of Fisheries created personal use salmon fisheries in the Yukon Area for non-rural state residents. These regulations primarily affected the greater Fairbanks area. Initially, only a fall chum salmon personal use fishery was implemented in 1987. In 1988, personal use fisheries were created for all salmon. However, the Alaska Supreme Court ruled that, effective July 1, 1990, every resident of the State of Alaska was eligible as a subsistence user. In effect, this decision made the personal use category obsolete in the Yukon Area. Permits continue to be required to take salmon for personal use in Subdistricts 6-A, 6-B, and 6-C. However, since the 1990 season, all fishermen have fished under subsistence fishing regulations, and no personal use permits have been issued.

Personal use fisheries are regulated much the same as subsistence fisheries, except that salmon taken for personal use can be used only for human consumption and bait. In addition, personal use fishermen are required to possess a resident sport fishing license.

Typically, personal use catches are included with subsistence harvests in this report. For the most part, personal use fishermen participated as subsistence fishermen prior to establishment of personal use regulations.

Alaskan Commercial Fishery

The first recorded commercial salmon harvest in the Alaskan portion of the Yukon River drainage occurred in 1918. Relatively large catches of chinook, chum, and coho salmon were taken during 1919-1921 (ADF&G 1985). The majority of the catch was taken outside of the river mouth since catch restrictions were imposed within the river. The early commercial fishery met opposition and was closed during 1925-1931 because of concerns for the existing large subsistence fishery. Commercial fishing for chinook salmon was resumed at a much lower level in 1932, and a fishery has occurred annually since then. Commercial catches of chum and/or coho occurred during 1918-1921, 1952-1954, 1956, and since 1961.

During the 1954-1960 period, a 65,000 chinook salmon quota was in effect for the Alaskan portion of the river. Of this total, not more than 50,000 could be taken below the mouth of the Anuk River (river mile 63), 10,000 in the area between the mouths of the Anuk and Anvik Rivers and 5,000 upstream from the Anvik River.

Chinook salmon commercial catches began increasing during the late 1970's. Due to increased efficiency of commercial fishermen and, in some years, due to above average run strength, Alaskan chinook salmon commercial catches averaged 140,692 fish during 1980-1984 (Appendix A.4). Concern for possible over-exploitation during this period resulted in reduced harvests, averaging 106,670 fish during the recent five-year period (1986-1990).

Summer chum salmon commercial sales have averaged 716,547 fish and 209,624 pounds of roe annually during the period 1986-1990 (Appendix A.5). Summer chum salmon commercial harvests increased greatly during the 1980's as a result of regulation changes (e.g. mesh size specifications and earlier openings of the fishing season), greater availability of processing facilities and tendering, generally higher prices paid to fishermen, development of Japanese markets, and the occurrence of several very large runs. The majority of the harvest takes place in Districts 1, 2, (fish in-the-round only); and 4 (primarily roe).

In February 1990, the Board of Fisheries established a river-wide guideline harvest range of 400,000 to 1,200,000 summer chum salmon. Increasing commercial harvests during the 1980's provided the impetus for establishing guideline harvest ranges. The Board established guideline harvest ranges for districts and subdistricts using the 1975-1989 average harvest shares.

The commercial fishery for fall chum salmon began in the early 1960's. Fall chum salmon commercial harvests increased greatly beginning in 1979. The average harvest for the period 1980-1984 was 298,980 fish for the Yukon Area (Appendix A.6). Observations of low spawning escapements from 1982 through 1984 resulted in reduced harvests to an average of 133,734 fall chum for the recent five-year period (1986-1990). Fall chum salmon roe sales in the Upper Yukon Area have averaged 5,899 pounds annually (1986-1990).

Coho salmon returns to the Yukon River are of lesser magnitude than fall chum salmon and are taken incidentally to the commercial fishery for fall chums. There has been a trend of increasing coho salmon harvests since 1984 (Appendix A.7).

Pink salmon commercial catches have been very small due to a very limited market for Yukon River pink salmon to date.

The relatively recent development of the commercial salmon fishery has enabled many area residents to obtain a cash income. In many cases the cash income provides a means for the area residents to maintain a subsistence life-style. Income earned from commercial fishing is often used to obtain hunting and fishing gear (e.g. nets, boats, and motors) utilized for subsistence activities. The majority of commercial fishermen are residents of the Yukon River drainage.

Most fishermen operate outboard powered skiffs of 18 to 24 feet in length and do not use gillnet rollers or power reels of any type. In recent years, there has been a large increase in the use of larger outboard motors, VHF and CB radios, as well as fish finders, which has increased the efficiency of the fleet.

The majority of the salmon catch is presently processed as a fresh/frozen product in contrast to earlier years when canning and salting were of greater importance (Appendix A.14). Salmon are processed at shore-based or floating operations, or transported via aircraft outside the area for processing. Production of salmon roe (purchased directly from fishermen) has increased in recent years in the Upper Yukon Area. Fish ticket reports containing a breakdown of salmon roe by species other than chum salmon have been available only since 1990. It is certain that relatively small amounts of chinook and coho salmon roe were sold prior to this time, but were included as summer chum and fall chum salmon roe, respectively.

The major difference between the Lower and Upper Yukon Area commercial fisheries is their relative size geographically as well as in numbers of fishermen and catch. In general, the abundance of fish available for harvest decreases, the further a fishermen is located from the mouth of the Yukon River. This results both from harvests and fish migration into tributary streams, downriver. The Upper Yukon Area commercial salmon harvest has averaged approximately 12% of the total area harvest of fish sold in the round and 100% of the roe sales (1982-1990). During the same time period, the Upper Yukon districts have had an average of 152 participating fishermen, or approximately 19% of the Yukon Area total (Appendix A.12).

Lower Yukon Area

Since the onset of the commercial salmon fishery in 1918, the majority of the Yukon River harvest has occurred in Districts 1 and 2 where fishing and processing effort is concentrated and flesh quality is optimal. With the advent of the Commercial Fisheries Limited Entry (CFEC) program in 1976, fishing effort in terms of the number of participants stabilized, but efficiency has increased. From 1976 through 1990, an average of 705 CFEC gillnet permits have been issued annually (Appendix A.12). Lower Yukon permit holders may operate either set or drift gillnets, and may transfer between Districts 1, 2, and 3. Set gillnets are commonly used near the river mouth, but drift gillnets are the predominant gear type elsewhere.

Historically, the Lower Yukon Area was primarily managed for the harvest of chinook salmon. Beginning in 1961, when chinook salmon catch quotas were eliminated for Districts 1 and 2, and continuing through 1981, the fishery was regulated by scheduled weekly fishing periods with the season opened by a published regulatory date. Fishing time during the chinook salmon season was allowed for four days a week during 1961-1967, but was reduced to: 3-1/2 days a week beginning in 1968, 3 days a week in 1974, and 2-1/2 days a week in 1977. From 1982-1986, fishing periods of 24 hours duration generally occurred twice weekly. During 1987, 12-hour periods were introduced, and during 1988, all unrestricted mesh size periods were 12 hours in duration. Since 1989, unrestricted mesh size periods have been 6, 9, or 12 hours in duration.

Since 1981, a 60,000 to 120,000 chinook salmon guideline harvest range has been in effect for Districts 1 and 2 combined. In District 3, a guideline harvest range of 1,800-2,200 chinook salmon was established in 1979. Beginning in 1982, the opening of the commercial fishing season and fishing periods have been established by emergency order in the Lower Yukon Area.

Sale of other species of salmon captured during the chinook salmon season, excluding the 1920's, has been allowed only since 1967. The incidental catch of summer chum salmon was limited during the chinook salmon season as fishermen could use only gillnets of eight inch minimum stretched mesh. However, beginning in 1970, each fisherman could substitute up to 50 fathoms of gillnet of any mesh size in Districts 1 and 2. In 1973, all mesh size restrictions were lifted during the chinook salmon season (from June 1 through early July).

A regulation was promulgated in 1973 which specified that gillnets of six inch mesh size or less could be fished after a specified date in early July in Districts 1 and 2. Beginning with the 1976 fishing season, a regulation was promulgated which established a flexible range of dates from June 27 to July 5 in Districts 1 and 2, and July 5-15 in District 3, after which only gillnets of six inch maximum mesh size may be used. Effective for the 1985 fishing season, a regulation was adopted which eliminated specific dates and implemented emergency order authority for establishing restricted mesh size periods (six inch maximum mesh size) in Districts 1, 2, and 3. Additionally, the Board of Fisheries issued a directive to the department to provide for summer chum salmon directed fishing periods prior to the end of the chinook salmon season if the summer chum salmon run was average or better in strength.

A combined guideline harvest range of 251,000 to 755,000 summer chum salmon was established for Districts 1 and 2 in 1990. The District 3 guideline harvest range is 6,000 to 19,000 fish.

Since 1961, the commercial fishing season in the lower Yukon districts has been reopened following the closure of the chinook and summer chum salmon season to allow harvest of fall chum and coho salmon. A 200,000 fall chum salmon quota was implemented for the combined lower three districts in 1974. Also, fishing time was reduced from four to three days per week in Districts 1 and 2. These actions were necessary to stabilize the catch and to provide for an expanded harvest in the Upper Yukon Area. In 1979, fishing time was reduced further to two days per week and the 200,000 quota was replaced by a flexible guideline harvest range of 120,000-220,000 fall chum salmon for the Lower Yukon Area.

Beginning in 1983, fishing time has been regulated by emergency order in Districts 1, 2, and 3. From 1983 through 1985, two 12-hour fishing periods per week were established by emergency order in Districts 1 and 2, except that fishing time remained at two days per week for setnet fishermen in the coastal Setnet Only Area of District 1 (Figure 19). The coastal Setnet Only Area is allowed more fishing time because of the influence tides have on fishing efficiency. Fishing time in District 3 was reduced from 3 to 2 days a week. Also, a 7-10 day season closure in Districts 1, 2, and 3 during late July was established in 1983.

Fishing time was further restricted in 1986 through implementation of the Yukon River Fall Chum Salmon Management Plan after observations of low spawning escapements from 1982-1984 and the anticipation of poor returns of fall chum salmon during 1986-1988. A season closure of July 15 was established to protect the early portion of the fall chum salmon run and to provide more time to evaluate run strength. Additionally, the guideline harvest range was reduced to 0-110,000 fall chum salmon for Districts 1, 2, and 3. Under this management plan there was a possibility of no commercial fall chum fishery as occurred during 1987. During 1986, 1988, and 1989, fishing period duration was restricted to as short as 12 hours in the Setnet Only Area and six hours in the remainder of the Lower Yukon Area. The current guideline harvest range of 60,000 to 220,000 fall chum salmon was established in 1990.

The harvest of coho salmon in the Lower Yukon Area is incidental to the harvest of fall chum salmon, with the commercial season closing after an appropriate harvest of fall chum salmon occurs.

Nearly all of the lower Yukon River salmon catch is destined for markets as a fresh-frozen product. Freezer ships and barges are located in the vicinity of Emmonak. Fresh salmon is transported by aircraft from St. Marys and Marshall annually, and from Marshall, Russian Mission, and the Paimuit-Holy Cross area during some seasons for further processing. Beginning in 1988, with the opening of a new, longer runway in Emmonak, fresh salmon have been flown out from this village also. Hard salting operations are located at Black River and near Fish Village during some years.

Upper Yukon Area

Prior to 1974, the Upper Yukon Area above the confluence of the Koyukuk River was designated as a single district (District 4). By regulation, commercial fishing was allowed 7 days per week until the quotas of 2,000 chinook salmon and 2,000 chum and coho salmon (combined) were taken. These quotas were established for the purpose of allowing a very limited commercial utilization which had occurred for many years. Fish wheels and set gillnets are the legal gear types for commercial fishing in the Upper Yukon Area. Fishermen may not transfer between districts in the Upper Yukon Area.

In recognition of the developing upriver commercial fishery and the desire of fishermen in the upper portion of the drainage to achieve increased participation, the Alaska Board of Fish and Game adopted several major regulation changes prior to the 1974 fishing season. District 4 was reduced in size and two new districts, 5 and 6, were defined; and the weekly commercial fishing period was reduced from 7 to 5 days per week. In addition, regulations provided for substantial increases in the upriver commercial catches: District 4: 1,000 chinook salmon and after August 15, 10,000 chum and coho salmon combined; District 5: 3,000 chinook salmon and after August 15, 25,000 chum and coho salmon combined; and District 6: 1,000 chinook salmon and after August 15, 15,000 chum and coho salmon combined.

Since 1974, the Alaska Board of Fisheries has enacted a number of major regulation changes in the Upper Yukon Area. Weekly fishing periods were reduced in all districts (except the upper portion of District 5) from 5 to 4 days per week, and split-period (two 48-hour periods) fishing schedules were established in 1980. Chinook salmon, and fall chum and coho salmon combined quotas were replaced by flexible guideline harvest ranges beginning in 1979. The current chinook salmon guideline harvest ranges of 2,250-2,850 fish for District 4, 2,700-3,300 fish for District 5, and 600-800 fish for District 6 were established in 1981.

District 4 boundaries were redefined and new subdistricts created to allow for the possibility of stock-specific management of fall chum and coho salmon in 1979. New subdistricts within District 5 were created in 1981 to achieve more balanced harvests. The combined fall chum and coho salmon guideline harvest ranges were reduced in 1986 to: District 4: 0-20,000 fish; District 5: 0-20,000 fish; and District 6: 0-10,250 fish. In 1990, combined fall chum and coho salmon guideline harvest ranges were increased to: 5,000-40,000 fish (District 4); 5,000-40,000 fish (District 5); and 2,750-20,500 fish (District 6).

In the spring of 1988, the Alaska Board of Fisheries met in special session to take public and staff testimony on proposed salmon management practices on the Tanana River. This special session was a result of large scale illegal salmon and salmon roe sales documented in 1987 in portions of Districts 5 and 6. During this special session, the Board adopted regulations which:

1. Reduced allowable commercial and subsistence fishing time from two 48-hour periods per week to two 42-hour periods per week.
2. Specified that there be no more than one 42-hour commercial fishing period per week during the fall season.
3. Minimized abuse in the subsistence fishery by requiring subsistence fishing permits for the entire Tanana River drainage, and establishing inseason reporting requirements.
4. Expanded rights of inspection of processing plants by enforcement personnel.

The Board further instructed the staff to manage the fishery on the basis of existing guideline harvest ranges, indicating that these guidelines are to be exceeded only if it can be determined that doing so would not jeopardize meeting subsistence and spawning escapement requirements.

In February 1990, the Board of Fisheries adopted the Yukon River Summer Chum Salmon Management Plan and established guideline harvest ranges for summer chum salmon in the upper Yukon River as follows: Subdistrict 4-A - 113,000 to 338,000 summer chum, or the equivalent roe poundage of 61,000 to 183,000 pounds or some combination of fish and pounds of roe; Subdistricts 4-B and C - 16,000 to 47,000 summer chum; District 5 - 1,000 to 3,000 summer chum; and District 6 - 13,000 to 38,000 summer chum salmon.

In addition, regulations were adopted which stipulated that no more than 183,000 pounds of summer chum salmon roe from Subdistrict 4-A catches may be sold annually. However, if the cap is reached, fishing effort may continue, but only the sale of chum salmon in the round will be allowed. In recognition of the difficulty in estimating summer chum salmon harvests in Subdistrict 4-A, the Board also required that all salmon caught by CFEC permit holders during commercial fishing periods in this subdistrict be reported in numbers on fish tickets.

Due to concerns for low fall chum salmon spawning escapements in the Toklat River, the Board (in February 1990) closed subsistence fishing for chum salmon in the Toklat River, and the Kantishna River from the mouth of the Toklat River to its confluence with the Tanana River. Further, the Subdistrict 6-A commercial fishing schedule was reduced to no more than one 24-hour period per week during the fall fishing season.

In the Upper Yukon Area, summer chum salmon flesh is difficult to market because of the high cost of transportation and generally advanced state of sexual maturity, however, summer chum salmon roe quality is judged by the industry to be excellent. This has resulted in increased sales of summer chum salmon roe since 1980.

Carcasses resulting from roe extraction appear to be fully utilized for subsistence purposes except for Subdistrict 4-A summer chum harvests since 1980. District 4 commercial related summer chum salmon harvests have been estimated since 1980 based on fish ticket sales (either in the round or as roe), estimated sex ratio as documented by the Department operated test fish wheel located near Kaltag from 1981 to 1985, and estimates of average roe weight per female chum salmon.

In 1989, a comprehensive study was conducted in District 4 to collect more accurate average roe weight per female and sex ratio data to estimate the total commercial related summer chum harvest (Sandone 1991). The average roe weight per female for the 1989 season was calculated to be 0.9 pounds. A similar average roe weight per female was estimated in samples collected in 1988. Prior to 1988, an average roe weight of 1.0 pounds per female was used to calculate commercial related harvest, and was estimated based on the subjective judgement of processors and fishermen. Sampling of catches from various fish wheels and gillnets resulted in an estimated mean proportion of 0.62 females for the 1989 season. The mean proportion of females in the commercial harvest estimated by this study was larger than the mean proportion of females captured at the Stink Creek test fish wheel which ranged from 0.566 to 0.600 (1981-1985).

During the period 1986-1990, an estimated 377,343 summer chum salmon have been harvested annually in association with the District 4 commercial fishery (Appendix A.8). A portion of the carcasses resulting from this catch is utilized for subsistence purposes (primarily for dog food), however, some wastage is suggested by the large difference between the estimated commercial harvest and the reported subsistence harvest during some years.

Fish wheels are the primary type of gear for harvesting summer chum salmon because of local fishing conditions, efficiency, and relative ease of operation. Fish wheels account for roughly 95 % of the commercial harvest of this species in the Upper Yukon Area.

Chinook salmon are of lesser importance to the commercial fisheries in the three upper districts. Most fishermen choose to retain chinook salmon for subsistence use because of the possibility that the summer chum fishery would close once the chinook salmon guideline range has been met. However, a relatively intense fishery for chinook salmon occurs in the lower portion of District 5.

The majority of commercially caught salmon in the Upper Yukon Area are transported to Fairbanks, Galena, Manley Hot Springs, or Nenana for primary processing as a fresh/frozen product. A few chinook salmon are sold to local markets. Small quantities of chinook and fall chum salmon are smoke-cured and sold as "strips", a local specialty product. In addition, undocumented quantities of chum and coho salmon taken commercially are dried and sold as dog food.

Canadian Harvests of Yukon River Salmon

Annual catch data from the Canadian portion of the drainage has been provided by the Government of Canada, Department of Fisheries and Oceans, (DFO) since 1962.

The first recorded commercial salmon harvest in the Yukon River drainage occurred in 1903 when 70,000 pounds of chinook and fall chum salmon were taken in Yukon Territory, Canada (ADF&G 1985). Records of Canadian commercial utilization of Yukon River origin salmon indicate a fishery occurred sporadically from 1903 to 1917 and continuously from 1918 to 1947. No harvest records are available from 1948 to 1957 (Appendix A.3). Since 1958 harvest records document the annual catch by species, and since 1961, by user group.

In the Canadian portion of the Yukon River drainage there are commercial, Indian Food Fish, Domestic, and Sport fisheries for salmon. The Indian Food Fish and Domestic fisheries are comparable to subsistence and personal use fisheries in Alaska. Most of the commercial harvest on the mainstem Yukon River near Dawson is taken by set gillnets, however, an increase in usage of fish wheels was observed in 1991. Canadian harvests in the Porcupine River drainage are currently limited to an Indian Food Fish fishery.

U.S./Canada Treaty Negotiations

In the spring of 1985, the governments of the United States and Canada ratified the Pacific Salmon Treaty; although Yukon River fishery issues were not specifically addressed in this document, one provision of the treaty required the two countries to begin negotiations regarding Yukon River salmon stocks which spawn in Canada. Negotiations were initiated in 1985 regarding a Yukon River salmon treaty.

The U.S. delegation is composed of a Department of State attorney acting as Chief Negotiator, representatives of the Department of Fish and Game, United States Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS), and 14 members of the public who represent subsistence and commercial fishing interests along the Yukon River. Substantial progress has been made to date on several issues, but some important issues remain to be settled. Tentative agreements will not become legally binding until a treaty between the two nations is ratified.

A six year stabilization program, ending after the 1995 season, has been agreed to for chinook salmon in the Yukon River mainstem in Canada. The objective of the program is to stabilize the stock by achieving a spawning escapement of 18,000 or more chinook salmon for each year through 1995. During the stabilization period, the U.S. will endeavor to deliver to the Canadian border on the mainstem Yukon River 34,800 to 37,800 chinook salmon annually, and Canada will manage its chinook salmon fisheries on the mainstem Yukon River within a guideline harvest range of 16,800 in years of weak returns to 19,800 in years of strong returns. This is a total harvest range, including both commercial and non-commercial harvests.

The management agencies are to develop a chinook salmon rebuilding program to begin in 1996 for the purpose of achieving a more optimal spawning escapement level in the future. The Joint Technical Committee (JTC), made up of Canadian and Alaskan fisheries biologists, has recommended a spawning escapement objective of 33,000 to 43,000 chinook salmon as the long term goal of a rebuilding program.

A twelve-year rebuilding program, ending after the 2001 season, has been agreed to for fall chum salmon in the Yukon mainstem in Canada. The objective of the program is to rebuild the stock by achieving a spawning escapement of 80,000 or more fall chum salmon for all brood years by the year 2001. The program will endeavor to rebuild the stronger brood years in one cycle and the weaker brood years in three cycles in equal increments.

During the rebuilding program, Canada will manage its fall chum salmon fisheries on the mainstem Yukon River within a guideline harvest range of 23,600 in years of weak returns to 32,600 in years of strong returns. Once again, this is a total harvest range, including both commercial and non-commercial harvests. The U.S. will endeavor to deliver to the Canadian border on the mainstem Yukon River, the number of chum salmon necessary to meet the spawning escapement objective for that year in the rebuilding program, and provide for a harvest in Canada within the Canadian guideline harvest range. Specific border escapement ranges are laid out for the next four years:

1992	74,600-112,600
1993	74,600-112,600
1994	84,600-112,600
1995	103,600-112,600

For the remaining years in the plan thereafter, the U.S. will endeavor to deliver annually between 88,600 and 112,600 chum salmon to the Canadian border.

The two countries have been discussing the establishment of a restoration and enhancement fund. Such a fund would be used to help restore and enhance Yukon River salmon stocks through cooperative programs. Major items for future negotiations include harvest shares after rebuilding, the Porcupine River, and deeming. Deeming refers to the determination of ownership each country has to salmon spawned in Canadian portions of the Yukon River drainage.

Marine Harvests of Yukon River Origin Salmon

High Seas Salmon Gillnet Fisheries

Chinook salmon of western Alaska origin have been intercepted yearly by the Japanese mothership and landbased gillnet fisheries (Appendix A.25). Revised estimates indicate an

average of 141,000 chinook salmon were taken during 1975-1983. Yukon River chinook salmon comprised the majority of western Alaska stocks taken in the Bering Sea mothership catches. In 1980, a total of 438,000 western Alaska chinook salmon was estimated to have been taken in these fisheries which exceeded the domestic commercial catch in western Alaska for that year.

Until 1988, the Japanese mothership salmon fishery operated in parts of the U.S. Exclusive Economic Zone (EEZ, waters from 3 to 200 miles of the U.S. coast). Beginning in 1988, the mothership fishery has occurred outside of the EEZ. Although reported foreign catches have decreased in recent years, it is believed that high seas fishing mortality including gillnet dropouts (estimated to be 30% of the reported catch in one study) and possible under-reporting of catches result in continued losses of western Alaska fish.

In 1990, the Japanese mothership fishery was converted to a "nontraditional land based salmon fishery". The catch of chinook salmon by the nontraditional land based salmon fishery was 44,600 fish in 1991. Estimates of the numbers of western Alaska chinook salmon in this harvest are not available.

Foreign, Joint-Venture, and U.S. Domestic Groundfish Fisheries

Information on incidental salmon catches in offshore fisheries is not complete for recent years (Appendix A.25). Foreign groundfish fisheries in the EEZ ended in the Gulf of Alaska in 1985 and in the Bering Sea in 1987. The joint-venture groundfish fishery ended in the Gulf of Alaska in 1988 and ended in the Bering Sea in 1990.

Continued concern exists over large foreign trawl fisheries operating in international waters ("doughnut" area) of the Central Bering Sea. It is speculated that the total groundfish catch of all nations in this area may exceed 1,000,000 m.t. Since there are no international agreements that require observer coverage on this fleet, the incidental catch of chinook salmon, which are known to be in this area, is unknown.

Due to the lack of an observer program, the numbers of salmon taken by the U.S./domestic groundfish fleet is not known through 1989. The National Marine Fisheries Service initiated an observer program beginning in 1990. In 1991, United States groundfish fisheries captured 37,600 chinook salmon in the Bering Sea and Aleutian Islands area and 37,500 chinook salmon in the Gulf of Alaska.

Alaska Peninsula

The majority of salmon captured during June in the Unimak and Shumagin Islands area, located on the south side of the Alaska Peninsula, are bound for terminal fisheries in the northern gulf of Alaska and the Bering Sea, including the Yukon River. The stocks contributing to this fishery

have been described by several tagging studies, including a tagging study in 1987 and a 1983 scale pattern analysis study. Sockeye salmon is the target species in the June fishery, but relatively large incidental catches of chum salmon are made. The sockeye salmon harvest is regulated by a quota that is annually adjusted according to the Bristol Bay sockeye salmon forecast. A 400,000 chum salmon quota was also in effect during 1986, but was not extended by the Alaska Board of Fisheries to the 1987 fishery. The Board adopted a 500,000 chum salmon quota for the 1988 and 1989 fisheries.

New regulations for the 1990 and 1991 seasons included delaying the season opening until June 13 and increasing the chum salmon quota to 600,000 fish. A total of 1,549,000 sockeye and 771,000 chum salmon was taken in the June fishery in 1991. The chum salmon harvest was 29% greater than the harvest cap. The previous 5-year average chum salmon harvest by this fishery was 452,000 fish.

Norton Sound

A commercial harvest of 6,068 chinook salmon was taken in coastal Norton Sound waters in 1991. Some Yukon River chinook salmon are known to be intercepted by this fishery. The previous 5-year average harvest was 6,416 fish.

Escapement Enumeration

An essential requirement for management of the Yukon River salmon fisheries is the documentation of annual salmon spawning escapements. Such documentation provides for:

1. Determination of appropriate escapement levels or goals for selected spawning areas or management units.
2. Evaluation of escapement trends.
3. Evaluation of the effectiveness of the management program, which in turn forms the basis for proposing regulatory changes and management strategies.
4. Evaluation of stock status for use in projecting subsequent returns.

The Yukon River drainage is too extensive (330,000 mi²) for complete comprehensive escapement coverage to all salmon spawning streams during any given season. Consequently, low-level aerial surveys from single-engine, fixed-wing aircraft form an integral component of the escapement enumeration program. Nevertheless, comprehensive enumeration studies such as intensified ground surveys, mark-and-recovery experiments, counting towers, weirs, and hydroacoustic projects are also conducted. Regardless of the method utilized, the overall objective of escapement enumeration in the Yukon Management Area is to determine abundance

(or often indices of relative abundance), timing, and distribution of spawning salmon populations throughout the drainage. Specific objectives may vary by individual project, while individual projects may vary by year depending upon fiscal and manpower constraints.

There are both advantages and disadvantages related to each type of enumeration method. The more comprehensive studies tend to provide estimates of total salmon abundance and are often less dependent upon weather and water conditions. However, due to costs associated with manning and operating the more sophisticated enumeration projects, relatively few have been initiated over the years and have been restricted primarily to major spawning streams, e.g., the Anvik, Andreafsky, Sheenjek, Chandalar, Chena, Salcha, and Delta Rivers in Alaska and the Fishing Branch River and Whitehorse fishway in Canada. Only since 1986 has an attempt been made to estimate total salmon passage by species through the lower mainstem Yukon River. This project, located at rivermile 123 near Pilot Station, involves using hydroacoustic techniques to estimate the total number of fish passing upstream as well as a comprehensive test drift gillnet fishery to apportion sonar counts to species. A second study designed to estimate salmon abundance by species in the mainstem Yukon River has operated annually since 1982 (excluding 1984) near Dawson in Canada. That project involves a comprehensive mark-and-recovery study designed to estimate the abundance of chinook and chum salmon entering the Canadian portion of the mainstem Yukon River.

Perhaps the greatest advantage of aerial surveys is the cost-effectiveness of obtaining escapement information throughout an extremely vast area, most of which is remote. Another advantage to aerial surveillance is that real or potential habitat-related problems arising from natural or man-induced causes can be readily identified. Among the disadvantages are that results may be highly variable if non-standardized procedures are used.

Variability in aerial survey accuracy is dependent upon a number of factors such as weather and water conditions (turbidity), timing of surveys with respect to peak spawning, aircraft type, survey altitude, experience of both pilot and observer, and species of salmon being enumerated. It is generally recognized that aerial estimates are lower than actual stream abundance due to these factors. Further, peak spawning abundance measured by aerial survey methods is significantly lower than total season abundance due to the die-off of early spawners and arrival of late fish. Also, aerial estimates in a given stream may demonstrate a wide range in the proportion of fish being enumerated from year to year. Peak aerial counts, however, can serve either as indices of relative abundance for examination of annual trends in escapement or as a basis from which to estimate total escapement using base year data and established expansion factors. Aerial survey results may also be useful in apportioning tributary spawning distribution to a mainstem total escapement estimate obtained from sonar, weir or tower counts.

Aerial escapement estimates are obtained from as many spawning streams as possible within the confines of fiscal, manpower, and weather constraints. However, selected (representative) spawning streams or "index areas" have been identified and receive highest priority. Index areas have been designated due to their importance as spawning areas and/or by their geographic location with respect to other unsurveyable salmon spawning streams in the general area.

Interim escapement objectives have been established for several Yukon River salmon spawning systems. These objectives represent the approximate minimum number of desired spawners considered necessary to maintain the reproductive potential of each stock and are based upon historical performance, i.e., they are predicated upon some measure of historic averages. Establishment of "optimum" escapement goals which are based upon analyses of maximum sustained yield (MSY) is not possible at this time due to the nature of the Yukon River mixed stock fisheries, lack of stock identification data, and consequential inability to reconstruct total in-river stock specific returns. Consequently, most interim escapement objectives are based upon aerial survey index estimates which do not represent total escapement but do reflect annual spawner abundance when using standard survey methods under acceptable survey conditions. This is particularly true for those objectives established for chinook and summer chum salmon. However, the interim objectives which have been established for selected fall chum salmon spawning stocks represent the desired minimum target for total spawning abundance; being based upon a somewhat more comprehensive escapement data base.

In order to gain greater understanding of escapement requirements and fluctuations in run size by spawning stocks, several specific projects are underway. Stock composition modeling is being utilized for chinook salmon based on scale pattern analysis. In addition, electrophoretic techniques are being used by USFWS in an effort to identify discrete stocks of chinook and chum salmon in mixed stock Yukon River fisheries.

Management

The overall goal of the Yukon Area research and management programs is to manage the salmon runs on an optimum sustained yield basis. Subsistence fishing has been designated by the Alaska State Legislature and the Alaska Board of Fisheries as the highest priority use. The management of the Yukon River salmon fisheries must take a conservative approach to maintain the subsistence priority, and to provide for spawning area escapements to sustain production of the resource.

There is a lack of adequate comparative catch and return data on which to evaluate the long term effects of increased commercial harvests since most of the fisheries have only developed or expanded in recent years. Effective management of the fisheries is difficult due to the variety of user groups, the complexity of multi-stock, multi-species salmon runs and the immense size of the Yukon River drainage. Fisheries distributed over 1,400 river miles harvest stocks of fish that are up to several weeks and hundreds of miles from their spawning grounds. The Yukon River commercial fishery is a mixed stock fishery and as a result some tributary populations may be under or over harvested in relation to their actual abundance. It is impossible to manage stocks separately, based on current knowledge, and there is concern that small spawning populations may be reduced to very low levels.

Accurate inseason assessments of escapements immediately past the intensive downriver fishery are very difficult with the present available technology and funding. It is hopeful that the main

river sonar project operated at Pilot Station will provide estimates of fish passage in the near future.

The two basic regulations used to manage the commercial salmon harvest are emergency order authority, which is used to implement fishing season openings and closures, fishing periods, and mesh size restrictions; and guideline harvest ranges established by the Alaska Board of Fisheries. Guideline harvest ranges have been established for chinook, summer chum, and fall chum salmon fisheries throughout the Alaskan portion of the drainage.

During the fishing season, the salmon return is monitored on a daily basis through management and research programs. Inseason data is compared to data from other seasons in relationship to escapements and total harvests during those years. If it becomes apparent that the run is substantially smaller or larger than needed for escapement and subsistence requirements, then the commercial harvest rates can be adjusted through the use of emergency orders. No regulation changes were adopted by the Board of Fisheries in 1991. The Board did hold hearings in March 1991 regarding the feeding of subsistence caught salmon to sled dogs used for racing. The discussion centered on whether this was a commercial utilization of the resource or not. No changes to current definitions or regulations were made.

Research and management projects have been established, and other programs are planned, contingent on additional funding, for obtaining the biological information necessary for better management of salmon runs. During 1991, the following projects were conducted:

1. Test Fishing. Projects located at South, Middle and North Mouths (set and drift gillnets for all salmon) in the delta area and a fish wheel site near Ruby (fall chum and coho salmon) to determine run timing and to provide an index of abundance for comparisons between years. Contract fishermen operated fish wheels as part of test fishing projects at Manley and Nenana on the Tanana River.
2. Side Scan Sonar. Projects designed to enumerate escapements in Anvik River (summer chum salmon) and Sheenjek River (fall chum salmon).
3. Main River Sonar. BioSonics hydroacoustic equipment was operated in the mainstem Yukon River near Pilot Station to obtain inseason estimates of fish passage by species. There are difficulties with possible fish passage beyond the sonar range and species apportionment.
4. Stock Separation Biology. Catch and escapement scale and tissue samples of chinook and chum salmon were collected throughout the drainage for the purpose of identifying major stocks by scale pattern analysis and electrophoretic technique. These projects may provide the capability for allocating the catch to areas of origin.
5. Data Processing of Commercial Fishery Statistics. Lower Yukon River commercial catch and effort data were obtained from fish tickets at the Emmonak field office. Similarly, Upper Yukon commercial catch and effort data were collected at the Fairbanks office.

6. Aerial Surveys of Salmon Spawning Streams. Aerial surveys were flown to monitor spawning escapements in major index streams and to develop additional escapement index areas. Additionally, fall chum salmon foot surveys were conducted in the Tanana River drainage.
7. Tagging Project. To estimate harvest rates and total escapement to the upper Yukon River (Yukon Territories, Canada) a salmon tagging project was conducted (chinook and fall chum salmon) by DFO. Additionally, Department mark-and-recapture projects were conducted on the Chena and Salcha Rivers to estimate total chinook salmon escapement to these two important streams (Sport Fish Division).
8. Subsistence Surveys. Subsistence surveys were conducted to estimate subsistence salmon harvest and effort in the Yukon Area.

The Division of Commercial Fisheries of the Alaska Department of Fish and Game is responsible for the management of commercial and subsistence fisheries in the state. The permanent staff assigned (full time) to the Yukon area includes seven positions: two area management biologists, two assistant area management biologists and three research biologists. In addition approximately 30 seasonal employees are hired each season to assist the permanent staff in conducting various management and research studies. Also, the staff aids in the enforcement of regulations in cooperation with the Division of Fish and Wildlife Protection (Department of Public Safety).

Operating funds allocated by the State of Alaska for the Yukon Area salmon management and research program from July 1, 1990 through June 30, 1991 were approximately \$939,000; an additional \$234,300 was allocated from the Federal Government to address research issues associated with U.S./Canada salmon negotiations.

Emergency order announcements are broadcast during the fishing season over radio stations KNOM and KICY in Nome and various radio stations in the Fairbanks area.

AREA SALMON REPORT 1991

Subsistence Fishery 1991

Subsistence harvests in the Yukon Area in 1991 (excluding Yukon Territory) were estimated at 46,773 chinook, 118,540 summer chum, 145,524 fall chum, and 37,388 coho salmon (Table 14). The reported subsistence harvest is assumed to include the harvest of female salmon to produce roe sold in Districts 4 and 5, except for summer chums in Subdistrict 4-A. The chinook salmon harvest was near the 1986-1990 average catch of 49,666 fish. The summer chum harvest (excluding commercial related harvest) was 30% below the recent 5-year average harvest of 169,370 fish (Appendix A.19). The fall chum salmon subsistence harvest was 32% below the 1986-1990 average of 213,712 fish (Appendix A.20). The coho salmon harvest was 32% below the 1986-1990 average catch of 55,565 fish (Appendix A.21). It should be noted that the recent five-year average for fall chum and coho salmon include estimates of illegal sales which occurred in Districts 5 and 6 in 1987. Historical chinook, fall chum, and coho salmon harvests by village are summarized in Appendices D.1-D.3. Subsistence harvests taken through the use of permits in 1991 are summarized in Table 15 and historical permit catches in Appendices D.4 and D.5.

Lower Yukon Area

During 1991, an estimated 16,540 chinook, 50,358 summer chum, 10,178 fall chum, and 6,445 coho salmon were harvested by fishermen representing 404 households for subsistence purposes in the Lower Yukon Area (Table 14). The catch of chinook salmon was 6% below the recent 5-year average. Catches of summer chum, fall chum, and coho salmon were 34%, 51%, and 36% below the recent 5-year averages, respectively.

Fall chum and coho salmon subsistence catches were probably slightly higher than reported because some fishing effort occurred after subsistence survey interviews were conducted.

Upper Yukon Area

The 1991 Upper Yukon Area subsistence salmon catch was estimated to be 30,233 chinook, 68,182 summer chum, 135,346 fall chum, and 30,943 coho salmon (Appendices A.18-A.21). An estimated 663 households participated in the fishery. Catches of chinook and fall chum salmon were 6% and 30% below the recent 5-year average, respectively. Coho salmon catches were 29% below the recent 5-year average. It is difficult to compare summer chum salmon subsistence harvests between years because of the interrelationship between use of fish for commercial roe production and for subsistence purposes.

Within District 4, an estimated 38,949 summer chum salmon were taken for subsistence use which were unrelated to commercial fishing activities during 1991. An additional 300,032 summer chum salmon were estimated to have been potentially available for subsistence use as a result of the 1991 commercial fishing activity in District 4.

Canadian

In Canada, non-commercial harvests include Indian Food Fish (IFF) and Domestic fisheries. These harvests occur in the Yukon River, and in the Porcupine River near the village of Old Crow. The Canadian non-commercial harvest (Table 14) was estimated to be 9,401 chinook (9,011 mainstem Yukon IFF, 163 IFF Old Crow, and 227 Domestic) and 4,014 fall chum salmon (2,438 mainstem Yukon IFF and 1,576 IFF Old Crow). Additionally, an estimated 300 chinook salmon were taken by sport fishermen. Sport fishing harvests of chinook salmon are included with Canadian non-commercial harvests in Appendix A.18.

Commercial Fishery 1991

In 1991, a total of 782,080 salmon in the round and 169,499 pounds of unprocessed salmon roe were sold in the Alaskan portion of the Yukon River drainage. The catch was composed of 101,246 chinook, 346,802 summer chum, 230,852 fall chum, and 103,180 coho salmon (Table 2). In addition, 3,829 pounds of chinook roe, 141,976 pounds of summer chum roe, 19,395 pounds of fall chum roe, and 4,299 pounds of coho roe were sold by commercial fishermen.

The chinook salmon catch was 5% below the recent 5-year average (1986-1990). The summer chum salmon catch and roe production were 52% and 32% below the recent 5-year average, respectively. The fall chum salmon harvest in Alaska was 72% above the 1986-1990 average. The coho harvest was 99% above the recent 5-year average.

In the Canadian portion of the drainage, a commercial harvest of 10,906 chinook and 31,404 fall chum salmon was taken.

The department sold a total of 485 chinook, 1,373 summer chum, 2,455 fall chum, and 2,094 coho salmon in District 1 test fisheries (Table 12). In District 2, 113 chinook, 703 summer chum, 96 fall chum, and 86 coho salmon were sold by the department's sonar project located near Pilot station. A total of 91 chinook, 1,858 summer chum, 1,385 fall chum and 791 coho salmon were sold by contracted fish wheel operators as part of a department test fish project in District 6.

Yukon River fishermen in Alaska received an estimated \$9.5 million for their catch, approximately 9% above the recent 5-year average value. The first wholesale value of the 1991 pack was estimated at \$23,860,000 (Appendix A.15). Salmon buyers and processors operating in the Yukon Area during 1991 are listed in Table 1. The majority of the salmon catch was

processed as a fresh/frozen product. Commercial salmon and salmon roe production data is presented in Appendix A.14. Average prices paid to fishermen, and average salmon weights are presented in Appendices A.16 and A.17, respectively.

In 1991, a total of 794 CFEC gillnet permits and 157 fish wheel permits (not including transfers) were issued (Table 3). An estimated 826 gillnet and fish wheel permits were fished in 1991 (Appendix A.12). The number of commercial fishing permits (fishermen) that made at least one salmon delivery by district during the season are shown in Appendix A.13.

There was a lower than normal proportion of 6-year old chinook salmon (47.6%) in commercial and subsistence harvests (Schneiderhan *In press*) (Appendix A.22). There was a higher than normal proportion of 5-year old chinook salmon (40.6%) in the combined commercial and subsistence harvest. It appears that there was a strong return from the 1986 brood year.

Samples collected from summer chum harvests resulted in an age composition of 53.1% 4-year-olds and 43.2% 5-year-olds. Fall chum salmon samples indicated that age 3, age 4, age 5 and age 6 fish comprised 2.7%, 76.9%, 20.2% and 0.1% of the harvest, respectively. Age-4 coho salmon dominated samples taken from Yukon River fisheries as observed in all other years (Appendix A.22).

The estimated percentage of Canadian-spawned chinook salmon in the total Yukon River drainage harvest was 44.9%, about 10% lower than average (Appendix A.23). The estimates presented in Appendix A.23 are based on analysis of chinook salmon scale patterns, age composition, and geographic distribution of catches and escapements (Schneiderhan and Wilcock 1992).

Lower Yukon Area

The 1991 Lower Yukon Area (Districts 1, 2 and 3) commercial salmon catch totaled 684,987 fish which was comprised of 94,304 chinook, 322,220 summer chum, 171,565 fall chum, and a record 96,898 coho salmon (Table 2). The chinook salmon harvest was 5% below the recent five-year average (1986-1990), while the summer chum harvest was the second lowest since 1972 (52% below the recent five-year average). The fall chum harvest was 90% above the recent five-year average (including 1987 when no harvest took place). The 1991 coho salmon harvest was a record harvest (123% above the recent five-year average).

In 1991 a total of 717 CFEC gillnet permits were issued for the Lower Yukon Area (Table 3). A total of 680 permit holders fished at least once during 1991. Lower Yukon fishermen were paid an average (per pound) of \$3.70 for chinook, \$0.36 for summer chum, \$0.34 for fall chum and \$0.44 for coho salmon. The estimated (ex-vessel) value of the harvest was \$8.7 million which was 13% above the 1986-1990 average value (Appendix B.4). The average earnings per fisherman was approximately \$12,700.

A total of 10 processors operated in the Lower Yukon Area in 1991. Nearly all of the commercial salmon catch was shipped to fresh or fresh/frozen markets. Two processors in District 1 hard-salted a total of 2,547 pounds of chum and coho salmon. Canning of salmon in the Yukon Area has not occurred since 1984.

Chinook Salmon

The mean April air temperature in Nome was 25 degrees fahrenheit which typically is indicative of early run timing (Appendix A.24), however, chinook salmon migratory timing into the lower river appeared to be about average compared to other years. The Lower Yukon Area was generally free of ice by May 24. The first chinook salmon catches were reported on May 29 by a subsistence fisherman and the department's drift test fish project near Emmonak. Based on commercial and department test net catches, the chinook salmon migration occurred primarily through south and middle mouths. Approximately 50% of the chinook salmon return had entered the lower river by June 19 according to lower river test fishing data (Appendix B.15).

The 1991 commercial salmon season was opened by emergency order after approximately eight to ten days of increasing subsistence and test net catches in the lower Yukon River. The chinook salmon directed fishery with unrestricted mesh size gillnets was opened on a staggered basis: June 13 in District 1, June 16 in District 2, and June 23 in District 3 (Tables 4-6). Initially, a twice weekly, 12-hour fishing schedule was established by emergency order in Districts 1 and 2. Drift and set net test fishing catches of chinook salmon indicated a relatively stable entry pattern of moderate abundance through June 23.

The commercial fishing schedule with unrestricted mesh size gillnets in District 1 and 2 was maintained through June 25. By this time the combined chinook salmon commercial harvest in Districts 1 and 2 exceeded 60,000 chinook salmon. Normally when the chinook salmon harvest approaches 60,000 fish the management plan calls for switching to restricted mesh size gillnets. However, Pilot Station sonar counts and lower river test fishing data indicated below average summer chum salmon abundance. Since the chinook salmon harvest was greater than 60,000 and the summer chum salmon return was below average in abundance, the fourth commercial fishing period in District 2 with unrestricted mesh size gillnets was reduced to six hours duration on June 26. In addition, the period scheduled for June 27-28 in District 1 was not allowed in order to reduce commercial exploitation on summer chum salmon and because test fishing catches of chinook salmon had decreased.

In response to significantly larger test fishing catches of both summer chum and chinook salmon on June 28, a fishing period restricted to six inch maximum mesh size gillnets was established on 30 June in District 2. This commercial fishing period was extended to 12 hours in order to harvest the available surplus of summer chum salmon. However, historical run timing information suggested that the summer chum return was either very late or of below average abundance. Therefore, additional fishing was allowed with unrestricted mesh size gillnets in

Districts 1 and 2 during early July to allow the chinook salmon harvest to reach the mid-point of the harvest guideline harvest range and lessen the exploitation rate on summer chums.

The total summer season chinook salmon harvest was 91,872 fish, for Districts 1 and 2, 2% above the mid-point of the guideline harvest range and 6% below the 1986-1990 average harvest. An additional 88 chinook salmon were harvested during the fall chum salmon season. A total of 87,740 chinook were harvested during unrestricted mesh size fishing periods and 4,132 chinook salmon were harvested during restricted mesh size fishing periods in Districts 1 and 2 (Appendix B.5). Primary areas of catch included middle mouth and Head of Passes.

In District 3, two unrestricted mesh size fishing periods (one 18-hour and one 6-hour) were allowed (Table 6). The initial delay in opening District 3 allowed the first segment of the chinook salmon return to pass through the district prior to the commercial fishery. A total of 2,344 chinook salmon were harvested in District 3, which was 7% above the upper end of the guideline harvest range, and 35% above the recent five-year average.

The average weight of chinook salmon was 20.4 pounds. The average weight of chinook salmon harvested during unrestricted mesh size fishing periods and restricted mesh size periods was 20.7 pounds and 15.7 pounds, respectively.

Comparative 8.5 inch mesh size test net CPUE data indicated the 1991 chinook salmon return was of average timing and abundance (Appendix B.16). According to test fishing data, the return was most similar to the 1988 and 1989 returns. The catch of chinook salmon in 5.5 inch mesh size test nets was about average compared with other years.

Summer Chum Salmon

The first summer chum salmon was caught in department test fishing nets on June 2 (Appendices B.15 and B.17). Similar to chinook salmon, the majority of summer chum salmon entered through the south and middle mouths.

Test fish indices and sonar counts at Pilot station indicated that the summer chum run was below average in run strength during June. Restricted mesh size periods were not initiated until June 30 in order to conserve summer chum salmon. The first fishing period restricted to six inch maximum mesh size was established in District 2 on June 30 for six hours. This commercial fishing period was extended to 12 hours in order to harvest the available surplus of summer chum. The summer commercial fishing season was closed after only one restricted mesh size fishing period in District 1 and after only two in District 2, based upon a low escapement observed during an aerial survey of the Andreafsky River on July 7. A total of 108,265 summer chum were harvested during unrestricted mesh size fishing periods, and 205,043 summer chum were harvested during three restricted mesh size fishing periods in Districts 1 and 2, combined (Tables 4-5). The total District 1 and 2 commercial summer chum salmon harvest was 313,308 fish, which was 52% below the recent 5-year average, and below the midpoint of the guideline

harvest range of 503,000 fish. The average weight of summer chum salmon in the commercial catch was 6.7 pounds.

A total of 2,383 summer chum were harvested in two unrestricted fishing periods and 6,529 summer chum were harvested during one restricted fishing period in District 3 (Table 6). The summer commercial fishing season in District 3 closed on 30 June. The total summer chum salmon harvest was 8,912 fish, which was well above the recent 5-year average of 5,226 summer chums.

Comparative test net cumulative CPUE data indicated the 1991 summer chum salmon return was somewhat below average in abundance, but slightly larger in magnitude than returns in 1987 and 1990. Approximately 50% of the summer chum salmon return had entered the lower river by 24 June according to test fishing CPUE data. Test fishing and sonar data indicated a larger abundance of summer chum salmon during the first two weeks of July compared to most years.

Fall Chum and Coho Salmon

Initially, fall chum salmon migratory timing into the Lower Yukon Area appeared to be earlier than average, with significant numbers of fish passing prior to July 22 (Appendices B.18 and B.19). Preliminary run timing data from the Sheenjek River escapement project, Canadian border tagging project, and test fish wheels in the Tanana River indicated the return was of later run timing. It is possible that chum salmon observed in the lower river test fishery during the middle of July were either summer chum salmon which entered the river late or fall chum which migrated to spawning areas that are not surveyed. After July 21, four pulses of fall chum entered the river during July 29, August 7, August 18-19, and August 22. Test fishing data indicated average coho salmon run timing.

On July 20 a fishermen's meeting was held in Emmonak to discuss fall chum salmon management strategies. Some fishermen wanted to fish as soon as possible and others wanted to wait until the first week of August, so that the coho harvest could be larger. Considering the lead time needed by the processors to return to the fishery, the opening date was set for the end of July or the first of August. The fall season commercial salmon fishery was opened by emergency order on July 29 in District 1 and July 31 in Districts 2 and District 3. A twice weekly fishing schedule with periods of 16 hours duration in the coastal "Setnet Only Area" where tides affect fishing opportunity, and of 9 hours duration in the remainder of District 1, and in Districts 2 and 3 was established.

Test fishing catches in the lower river indicated the 1991 fall chum return was above average in abundance and similar to the 1985 and 1989 returns. A total harvest of approximately 117,584 fall chums had been taken as of 16 August after six periods in District 1 and five periods in Districts 2 and 3 (Tables 4-6).

On August 17, the Alaska Superior Court granted an injunction which allowed subsistence fishing for fall chum salmon in the Kantishna River in 1991. The Alaska Board of Fisheries had closed the Kantishna River to subsistence fishing for chum salmon, prior to the 1990 fishing season, as a means of increasing fall chum escapements to the Toklat River. In response to the court action, commercial fishing time was reduced to 12 hours in the "set net only area", and to 6 hours in the remainder of Districts 1, 2, and 3 for the remainder of the fall season. This reduction in fishing time was an attempt to provide for subsistence harvests on the Kantishna River and spawning escapement to the Toklat River. A total of 53,981 fall chum salmon were harvested after August 17 in three reduced fishing periods allowed in each district of the Lower Yukon Area.

The commercial fishing season closed by emergency order on August 27. District 1 commercial fishing periods missed most pulses of fish entering the river until August 22. It is probable that this resulted in a lower exploitation rate than normal during most of the season. Although the harvests have been nearly equal in some earlier years, this was the third consecutive year in which District 2 had a larger fall chum salmon catch than District 1. There was a catch of 59,724, 102,628, and 9,213 fall chum salmon in Districts 1, 2, and 3, respectively. The Lower Yukon Area coho salmon catch was 54,095 in District 1, 40,898 in District 2, and 1,905 in District 3. There was a record single period harvest of 26,620 coho salmon in District 1 on August 22-23. The lower river test fishing cumulative CPUE for coho salmon was the largest on record (Appendix B.20).

The Yukon River sonar project at Pilot Station estimated the passage of 546,802 fall chum and 78,566 coho salmon from July 19 through September 1. This was the second largest passage of fall chum and the lowest passage of coho salmon since initiation of the project in 1986. However, for the second year in a row, fish passage beyond the sonar range was observed. Fish migration offshore in 1991 appeared to be associated with relatively low water velocity and gradual sloping bottom profile on the left bank, rather than due to a submerged sandbar which was observed in 1990. The 1991 sonar passage estimates which include fish passage beyond the shore-based sonar may not be comparable to prior years.

Sonar passage estimates suggested lower salmon abundance than observed in the District 2 commercial fishery performance and lower river test fishing CPUE data indicated, particularly for coho salmon. This may be due to sonar beam attenuation and fish migration offshore beyond the sonar range, or increased efficiency of lower river test fishing sites compared to other years. In addition, there appeared to be some difficulty with the test fishing location on the left bank of the sonar project.

Upper Yukon Area

The Upper Yukon Area commercial salmon sales in the round totaled 6,942 chinook, 24,582 summer chum, 59,287 fall chum, and 6,282 coho salmon in 1991 (Table 2). In addition, roe sales by species totaled 3,829 pounds for chinook, 141,976 pounds for summer chum, 19,395

pounds for fall chum, and 4,299 pounds for coho salmon. With regards to fish sold in the round, the chinook salmon catch was 5% below the 1986-90 average; summer chum, 49% below average; fall chum, 37% above average; and coho salmon, 26% below average. Roe sales were 32% below the 1986-90 average for summer chum salmon, and 2.3 times greater than average for fall chum salmon. Note that the five year averages for fall chum salmon and roe production includes 1987, when the commercial fishery was closed. Roe sales data are not available by species for chinook and coho salmon prior to 1990; therefore, harvest levels for 1991 cannot be compared to historical information. Historical commercial harvest by statistical area is presented in Appendices C.2-C.4.

Total estimated commercial-related salmon harvests by district during 1991 are presented in Tables 7 and 13. These catch figures reflect the estimated number of female salmon harvested to produce roe sold in Districts 4-6. In Subdistrict 4-A, the estimated incidental catch of male summer chum salmon to produce roe sold is also included. Table 11 presents commercial salmon sales (fish in the round and roe) by gear type (set gillnet and fish wheel).

A total of 11 buyer/processors and 15 catcher-sellers operated during 1991. Upper Yukon commercial fishermen received an estimated (per-pound average price) of \$0.70 for chinook, \$0.18 for summer chum, \$0.23 for fall chum, \$0.30 for coho, \$2.92 for chinook roe, \$4.21 for summer chum roe, \$3.56 for fall chum roe, and \$2.50 for coho roe (Appendix A.16).

The approximate (ex-vessel) value of the 1991 harvest was \$0.9 million. A total of 146 fishermen participated in the commercial fishery. The average earnings per fisherman was approximately \$6,130.

Chinook Salmon

In Subdistrict 4-A, the chinook salmon harvest is largely incidental to the directed summer chum salmon fishery. Virtually all of the District 4 chinook salmon commercial harvest is taken in Subdistricts 4-B and 4-C. The District 4 chinook salmon cumulative harvest was approximately 2,000 fish after the second fishing period which ended on July 2 (Table 8). Since the guideline harvest range for District 4 is 2,250-2,850 chinook salmon, the next commercial opening was delayed until July 7, when summer chum salmon would be more numerous and chinook salmon less abundant. This strategy slowed down the chinook salmon harvest and allowed fishermen the opportunity to harvest the targeted commercial harvest of the low end of the summer chum salmon guideline harvest range. The 1991 District 4 sale was 2,440 chinook salmon and 2,222 pounds of chinook salmon roe, for an estimated 3,582 chinook salmon commercial harvest (Tables 7 and 8). This harvest is 732 fish above the upper end of the District 4 guideline harvest range, and 56% above the recent five-year average.

In District 5, chinook salmon is the primary species of commercial value during the early season. Summer chum salmon do not contribute substantially to the commercial harvest because of the timing of fishery, lower availability and relatively poor flesh quality, and high transportation costs. Commercial fishing periods were scheduled when the bulk of the chinook salmon run was in the district in order to reduce the impact on individual stocks. Two fishing periods (one 48-hour and one 18-hour) occurred in Subdistricts 5-A, 5-B, and 5-C for a total harvest of 3,256 chinook salmon and 62 pounds of roe, for an estimated commercial harvest of 3,272 chinook salmon (Tables 7 and 9). This harvest was 472 fish above the upper end of the guideline harvest range of 2,800 fish. One 48-hour fishing period was allowed in Subdistrict 5-D for a harvest of 554 chinook salmon which exceeded the upper end of the guideline by 54 fish.

In District 6, the chinook salmon harvest is largely incidental to the directed summer chum salmon fishery due to the low harvest guideline for chinook salmon (600-800 fish). The Alaska Board of Fisheries verbally directed the department in May 1988, that the Tanana River commercial salmon fishery could be managed as a terminal fishery. The first 42-hour fishing period occurred on July 15, and fishermen fished a total of six 42-hour periods. Commercial sales totaled 686 chinook salmon and 1,545 pounds of chinook salmon roe, for an estimated harvest of 1,072 fish (Tables 7 and 10). This harvest exceeded the upper end of the guideline harvest range by 272 fish.

Summer Chum Salmon

By regulation, only in Subdistrict 4-A are the department's estimate of the number of males and females harvested to produce the roe sold included in the commercial catch. In Subdistrict 4-A, fish sold in the round are assumed to be males and are accounted for in the roe expansion. In Subdistricts 4-B and 4-C, and Districts 5 and 6, only the number of females estimated to produce the roe sold are estimated and added to the fish sold in the round in determining the commercial catch. However, the guideline harvest range for Subdistricts 4-B and 4-C was calculated using estimates of historical incidental harvests of male summer chum salmon to produce roe sold.

In District 4, the season opened on June 26. Due to the high catch rate anticipated in Subdistrict 4-A and the low targeted commercial summer chum salmon harvest, four of the five fishing periods were limited by emergency order from 48 hours to 24 hours in duration. With lower catch rates, Subdistricts 4-B and 4-C remained on the regulatory 48-hour fishing periods. Subdistrict 4-A fishermen sold 5,289 summer chum salmon and 128,231 pounds of roe (Table 8). The department estimated that 290,255 male and female summer chum salmon were harvested to produce this roe sold (Table 7). This harvest was within the guideline harvest range of 113,000-338,000 summer chum salmon. Subdistricts 4-B and 4-C also fished five periods and sold 1,092 summer chum salmon and 9,001 pounds of roe, with an estimated harvest of 10,869 summer chum salmon. This harvest was below the lower end of the guideline harvest range of 16,000-47,000 summer chum salmon. The Subdistrict 4-B and 4-C commercial fishing summer season was closed due to exceeding the upper end of the chinook salmon guideline harvest range.

In District 5, a total of 4 summer chum salmon and 28 pounds of summer chum salmon roe were sold (Table 9). The District 5 summer chum salmon harvest in 1991 was estimated to be 35 fish (Table 7). This harvest was well below the District 5 guideline harvest range of 1,000 to 3,000 summer chum salmon. The summer season commercial fishery in District 5 was closed due to exceeding the upper end of the chinook salmon guideline harvest range.

In District 6, there were six 42-hour commercial fishing periods during the summer season. The first commercial fishing period started on July 15, and the last period ended on August 7. A total of 18,197 summer chum salmon and 4,716 pounds of roe were sold, for an estimated total commercial harvest of 23,893 summer chum salmon (Tables 7 and 10). This harvest fell within the District 6 guideline harvest range of 13,000 to 38,000 summer chum salmon.

Fall Chum and Coho Salmon

Subdistrict 4-A, by regulation, does not have a fall chum salmon commercial season. In Subdistricts 4-B and 4-C, the fall season opened on August 11. However, few fish were sold due to depressed market conditions. The regulatory, commercial fishing schedule was maintained until the regulatory closing date of September 30. The commercial harvest by two catcher-processors and a few fishermen who were able to secure a buyer totaled 3,737 fall chum salmon and 14 coho salmon sold in the round, and 1,616 pounds of fall chum salmon roe (Table 8). The District 4 estimated total commercial harvest was 6,091 fall chum salmon (Table 7). The guideline harvest range is 5,000-40,000 fall chum and coho salmon combined for Subdistricts 4-B and 4-C combined. The targeted commercial harvest was for near 30,000 fall chum and coho salmon combined. The estimated 1991 harvest of 6,091 fish was slightly above the lower end of the guideline harvest range, and 30 percent below the recent five-year average.

The Subdistrict 5-A, 5-B, and 5-C fall season fishing schedule was two 12-hour periods per week in 5-A, and two 24-hour periods per week in Subdistrict 5-B and 5-C beginning on August 20. Four fishing periods were allowed in each subdistrict. Harvest totaled 24,141 fall chum salmon and 3,625 pounds of fall chum salmon roe, for an estimated total commercial harvest of 28,900 fall chum salmon (Tables 7 and 9). No coho salmon were reported sold. The guideline harvest range for Subdistricts 5-A, 5-B, and 5-C combined is 4,000-36,000 fall chum and coho salmon combined. Subdistrict 5-D was open for three fishing periods. Sales totaled 3,214 fall chum salmon in the round. No coho salmon were reported sold. The guideline harvest range for Subdistrict 5-D is 1,000-4,000 fall chum and coho salmon combined.

District 6, Tanana River, was managed under a terminal fishery management plan as directed by the Alaska Board of Fisheries for the fourth consecutive year. Based on sustained high catches in test fish wheels and in the commercial and subsistence fishery, the overall fall chum salmon run in the Tanana River was assessed to be above average in strength. Three fishing periods were allowed in each subdistrict in District 6. Due to Board of Fisheries concerns for the Toklat River fall chum salmon stock, fishing periods in Subdistrict 6-A were reduced to 24 hours in duration by regulation. Regulations still allowed up to one 42-hour period per week

CAPE ROMANZOF DISTRICT HERRING FISHERY

Introduction

Pacific herring (*Clupea harengus pallasii*) are present in coastal waters of the Yukon Area during May and June. Spawning populations occur primarily in the Cape Romanzof area in Kokechik Bay and Scammon Bay where suitable spawning habitat consisting of rocky beaches and rockweed (*Fucus*) is available (Appendix F.1). The arrival of herring on the spawning grounds is greatly influenced by ocean water temperature and ice conditions. Typically herring appear immediately after ice breakup. Spawning usually occurs between mid-May and mid-June.

Herring are utilized by local residents for subsistence purposes. In addition, a commercial herring sac-roe fishery has occurred in the Cape Romanzof District since 1980. The Cape Romanzof District consists of all state waters from Dall Point to 62 degrees north latitude (Appendix F.1). In 1982, the Board of Fisheries reduced the area open to commercial fishing by closing the waters outside of Kokechik Bay. Gillnets are the only legal gear type. The use of mechanical shakers has been prohibited since 1988. Limited entry to the fishery began with a moratorium of new entrants in 1989. Eventually, the fishery will be limited to 101 permits.

A total of \$33,500 in State funds were allocated to the Division of Commercial Fisheries to manage the commercial fishery and conduct herring research studies at Cape Romanzof in 1991.

Commercial Fishery 1991

A total of 526 short tons (st) of Pacific herring were harvested in 1991 by 80 fishermen utilizing 79 fishing vessels (Appendix F.2). Approximately 451.2 st were purchased as sac roe and 74.9 st were purchased as bait herring. The average sac roe recovery was 8.79%. The commercial fishing season consisted of three periods established by emergency order (Appendix F.3) during May 21-23 for a total fishing time of 5 hours. The first and last periods were of 1.5 hours duration, which were the shortest periods on record. No wastage was documented.

The harvest of 526 st in 1991 was approximately 53% below the recent five year average catch of 1,116 st (Appendix F.4). Commercial harvests increased steadily since inception of the fishery in 1980, reaching a peak harvest of 1,865 st in 1986. Since 1986, there has been a trend of decreasing harvests.

Estimated value of the 1991 harvest to fishermen was \$210,000. Average price for Pacific herring sac roe was \$500 per st at 10% roe recovery, plus or minus \$50.00 a percentage point. The average price for bait herring (<6% or <7% roe) was \$125 per st. Two companies, represented by two processing vessels and four tenders, purchased herring during the fishery (Appendix F.5).

Fishing effort in 1991 (80 fishermen) was the lowest recorded since 1985, and was 16% below the 1990 effort level. Effort has decreased due to implementation of limited entry as well as lower preseason harvest projections. Fishing effort by residency status was as follows: 77 (96%) were local Alaskan residents (defined as residents of Chevak, Hooper Bay, and Scammon Bay); and 3 (4%) were non-local Alaskan residents. Local Alaskan residents harvested 512.6 st (97% of catch) and non-local Alaskan residents harvested 13.5 st (3% of catch). There were no non-resident permits fished in 1991.

The commercial harvest was managed to achieve the preseason harvest projection of 450 st, since no inseason biomass estimate was obtained. Fishing gear was restricted to one 50-fathom gillnet per vessel throughout the commercial season. A countdown was provided to fishermen prior to the opening and closing of periods on VHF radio. Commercial fishing periods were opened approximately 1 to 1.5 hours prior to high tide. During fishing period announcements fishermen were notified that there was a small tendering capacity, and in order to get their nets out before closures, they should plan on making only one delivery.

In coordination with the Department, commercial fishermen provided test catch samples for evaluation by industry representatives prior to commercial periods. Samples were collected early in the incoming tide to provide time for scheduling beach parties and announcing periods. Roe recovery information from the first beach meeting on May 20 indicated the presence of ripe fish. However, it was the consensus of buyers and fishermen to delay opening the fishery because only two tenders were present and some fishermen had not yet arrived on the grounds. The fishery was put on one hour notice at 9:00 a.m. May 21. Samples obtained in advance of the first two openings on May 21 and 22 indicated the presence of ripe herring, particularly in 3 inch mesh size catches. Samples collected prior to the third opening showed an increase in percentage of males and a lower roe recovery.

The overall exploitation rate of Pacific herring was estimated postseason to be approximately 11.3% of the available biomass (Appendix F.4). A total of 641 Pacific herring were sampled from the commercial harvest. Samples were collected from 2 1/2 in, 2 3/4 in, 2 7/8 in and 3 in mesh size gillnets. The estimated age composition of the commercial samples based on scale analysis was: Age 5: 0.2%; Age 6: 1.0%; Age 7: 29.1%; Age 8: 17.4%; and Age 9+: 52.3%. Sample data suggested that larger mesh sizes usually resulted in higher percentages of females and better roe recovery, while smaller mesh size catches generally had higher percentages of males. Information from buyers indicated that roe recovery appeared to be higher from catches inshore than offshore.

Nine Fish and Wildlife Protection (FWP) officers were present at Cape Romanzof during the 1991 commercial herring fishing season. These officers were supported by the Protection vessel (P/V) WOLSTAD, three skiffs, one fixed wing aircraft and one helicopter. A total of two commercial fishing citations were issued. Both commercial fishing citations were issued for fishing during a closed period. One delivery totaling 2 st of Pacific herring was confiscated.

Subsistence Fishery 1991

A subsistence harvest estimate of 3.2 st of Pacific herring was reported to have been taken by 18 fishing families from Hooper Bay, Chevak, and Scammon Bay (Appendix F.6). The subsistence harvest survey was conducted through the mail by a catch questionnaire. About 14% of the questionnaires were returned. A majority of the fishermen that responded to questionnaires reported more herring were present during 1991, than in 1990. The subsistence catch figures represent only the harvest which was reported. Therefore, the reported catch is a minimum estimate since not all families were mailed questionnaires and not all families which received questionnaires returned them. Additionally, herring spawn-on-kelp was harvested for subsistence purposes, however, the quantity taken was not documented.

Stock Status

Eight aerial surveys were flown during the 1991 season from May 14 through May 24 (Appendix F.7). A total of 3.5 hours were spent surveying the district. One survey was conducted utilizing a helicopter provided by Fish and Wildlife Protection. All surveys were unacceptable due to poor weather and/or turbid water conditions. A survey flown on May 20 under poor conditions documented a herring biomass of 705 st. A total of 2.25 miles of spawn were observed along the north shore of Kokechik Bay during aerial surveys. Surveys were flown along the coast to Hooper Bay, in Scammon and Kokechik Bays, and several miles offshore of Cape Romanzof in an attempt to observe schools of herring, however, turbid water conditions were prevalent during all surveys. It appears that in most years it will be very difficult to estimate herring biomass utilizing aerial surveys in the Cape Romanzof District.

Test fishing with variable mesh gillnets has been conducted since 1978 to determine distribution, timing and relative abundance of spawning herring, and to collect samples for age, sex, size and relative maturity information. In 1991, test fishing occurred from May 15 to June 5. A total of 2,137 Pacific herring were caught, of which 1,248 were sampled for biological data. Pacific herring comprised approximately 97% of the total catch of schooling species. Other fish captured during test fishing, primarily during the later portion of the project, were yellowfin sole, flounder, saffron cod, sculpin, and whitefish.

Age 9 and older herring comprised 46.8% of the variable mesh test gillnet samples. Age 5, 6, 7, and 8 Pacific herring accounted for 3.9%, 3.0%, 29.3% and 13.9% of test fishing samples, respectively. Newly recruited age 3 and 4 herring represented 0.1% and 3.0% of test fishing samples.

It was not possible to obtain a herring spawning biomass estimate based on aerial surveys. Postseason analysis of age composition data, spawn deposition surveys, and test fishing CPUE indicated the 1991 biomass was similar to the 1990 season. The 1991 biomass was therefore estimated to be approximately 4,500 st. The overall exploitation rate was estimated to be about 12%. There is concern that age 7 and older herring dominated test fishing and commercial catch

samples in 1991, and a general trend of older age fish in the population during recent years (Appendix F.8 and F.9). Only a few age 4 herring were captured in Scammon Bay test net sets late in the project.

Qualitative spawn deposition surveys have been conducted annually to document spawn distribution and average number of egg layers deposited. In 1991, daily spawn deposition surveys began on May 14. On May 16, the first observations were recorded in Kokechik Bay. This initial spawn deposition was considered to be quite extensive and thick for a first spawn, and averaged 1 to 2 egg layers over the area where spawning occurred on *Fucus* substrate. A gradual increase in spawn deposition followed, both in layers of eggs and distribution. Spawn deposition on *Fucus* substrate peaked approximately May 22 and 23, with an average of 2 to 4 egg layers depending on location. Spawn deposition on rock substrate peaked May 28 and 29, with an average of 1 to 2.8 egg layers. The last survey was conducted on June 4.

Given the difficulty of observing herring during aerial surveys, the Department conducted further studies in 1991 to develop a spawn deposition index. The major difficulty observed in attempting to estimate biomass utilizing spawn deposition data in the past was the loss of spawn due to storms and desiccation. Various artificial substrates were located in spawning areas in 1991 in an attempt to determine which substrate could be utilized for developing a spawn deposition index. This index would be based on taking daily measurements of spawn deposition from an artificial substrate and comparing the results between years.

The artificial substrates tested in 1991 included thin red bricks, cement blocks, artificial turf, stainless steel plates, and plexiglass. Artificial turf appeared to work quite well on calm days. However, it was suggested that rough weather may wash spawn from the turf or result in the turf being lost completely. Also, it was difficult to cut the turf into a consistent size. Spawn held onto cement blocks well, but egg breakage occurred during scraping. Stainless steel appeared to be good for scraping, resistance to weather and for ease of placement. However, spawn deposition on the stainless steel plates was relatively low.

Outlook for 1992

Projected return for 1992, based upon limited information is 2,700 st. The Bering Sea Herring management strategy is to harvest 0-20% of the estimated herring biomass. Since the stock appears to be exhibiting a trend of decreasing abundance with the majority of fish being older age, a 15% exploitation rate will be used to manage the fishery in 1992. The harvest projection is 405 st. Age 8 herring are expected to comprise the largest age group of the returning biomass.

Emergency order authority will be used to adjust the occurrence and length of fishing periods. It is very likely that gear will be restricted to one 50 fathom gillnet per vessel. A minimum level of biomass cannot be used to determine the opening of commercial fishing periods since turbid water conditions usually preclude aerial biomass assessments. Therefore, test and

commercial catch rates and spawn deposition observations will be used to determine timing and duration of commercial fishing periods. The initial commercial fishing period will be established when it is determined that commercial quantities of marketable sac roe herring are present on the grounds. Beach meetings will be utilized to judge roe quality. Additional fishing periods may be established depending on total harvest to date and assessment of herring abundance through aerial surveys (if possible), cumulative spawn deposition, test and commercial catch rates, and age composition data.

OTHER MARINE AND FRESHWATER FINFISH FISHERIES

Subsistence Fishery

Many subsistence fishermen operate gillnets in the main rivers and coastal marine waters to harvest marine and freshwater finfish other than salmon and herring. A limited number of sheefish are harvested during late May and early June in the Lower Yukon River as sheefish migrate upriver. The sheefish migration occurs just prior to and during the beginning of the upstream migration of chinook salmon. Fish wheels take relatively small numbers of whitefish and sheefish in the upper Yukon and Tanana Rivers during the commercial salmon fishery. Beach seines are occasionally used near spawning grounds primarily capturing salmon or other schooling species of fish. Traps and fish weirs of various designs are also used, mainly in the fall and winter months, to capture whitefish, blackfish and burbot. Sheefish, pike, char and "tomcod" (saffron cod) are frequently taken through the ice by hand lines. Dip nets are used in late May to early June to take smelt in the delta area and in late October to early November to take lamprey in the main Yukon River downstream of Grayling.

Subsistence fisheries which target on non-salmon species such as pike, sheefish and whitefish are inadequately documented and their overall significance is not well known. It is thought that residents of the Upper Yukon Area are much less dependent on these non-salmon species than are their downriver counterparts. The most recent comprehensive subsistence use survey was conducted in the lower Yukon River in 1978-1979 (Crawford 1979). Several studies have been conducted to investigate sheefish migrations and to locate spawning areas in the Koyukuk River drainage (Alt 1968, 1969, 1970, 1974) and in the main Yukon River between Stevens Village and Fort Yukon (Alt 1986). Subsistence catches of freshwater finfish taken under authority of a permit in the Upper Yukon Area in 1991 are presented in Appendix G.4.

Commercial Fishery

Regulations adopted by the Alaska Board of Fisheries allow the Department of Fish and Game to issue permits for the commercial harvest of freshwater species of fish such as whitefish (*Coregonus sp. and Prosopium sp.*), sheefish (*Stenodous leucichthys*), char (*Salvelinus sp.*), northern pike (*Esox lucius*), blackfish (*Dallia pectoralis*) and Artic lamprey (*Lamperta*

japonica). Permit authorization is not required for the sale of these species when taken incidentally during commercial salmon fishing.

Commercial fisheries for species other than salmon have been allowed in widely scattered locations throughout the Yukon and Tanana River drainages and in the Colville River on the North Slope; most of these fisheries are limited, experimental operations, and occur only sporadically.

Permits for the taking of non-salmon species have been issued for various locations in the Lower Yukon Area. Reported harvests for those fisheries are presented in Appendix G.1. No permits were issued in 1991. Set gillnets are primarily used for taking whitefish and sheefish in the Lower Yukon Area. Typically, the catch is marketed in local village stores or Bethel.

A commercial fishery for whitefish has existed in the Colville River delta (located approximately 60 miles west of Prudhoe Bay) since 1964. Fishing generally takes place during late June and July for broad and humpback whitefish; and October through early December for arctic and least cisco. Set gillnets (of 3 and 5 inch mesh) are used as capture gear, and fishing during fall months occurs under the ice (Appendix G.2). Not all fish reported on permits for this area are sold.

In the Upper Yukon Area, set net fisheries targeting on whitefish have been permitted in recent years in Lake Minchumina and Healy Lake. Catch data are presented in Appendix G.3. No permits were issued for the Tanana River drainage in 1991.

Numerous other permits allowing limited harvests of whitefish, primarily for the Upper Yukon Area, have been issued. In most cases, commercial harvests have not occurred.

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Table 1. Yukon area salmon processors and associated data, 1991.

Commercial operation (Processing location/ buying station)	Product	District
Yukon Salmon Co. P.O. Box 343 Talkeetna, AK 99676	Hard Salt Chum Coho	1
Yukon Delta Fish Marketing Co-op, Inc. P.O. Box 169 Emmonak, AK 99581 (Emmonak)	Frozen Salmon Chinook Chum Coho Salmon Roe	1 and 2
Lower Yukon Fisheries P.O. Box 196 Talkeetna, AK 99676	Hard Salt Chum	1
Bering Sea Fisheries, Inc. 4413 83rd Ave. SE Everett, WA 98205 (Lamont Slough)	Frozen Salmon Chinook Chum Coho Salmon Roe	1 and 2
Anpac, Inc. P.O. Box 92520 Anchorage, AK 99509 (Emmonak and Mt. Village)	Fresh Salmon Chinook Chum Coho Salmon Roe	1 and 2
Schenk Seafood Sales, Inc. P.O. Box 984 Bellingham, WA 98227 (Lamont Slough)	Frozen Salmon Chinook Chum Coho Salmon Roe	1 and 2

-Continued-

Table 1. (p. 2 of 4)

Commercial operation (Processing location/ buying station)	Product	District
Boreal Fisheries P.O. Box 561 Graham, WA 98338 (Old Andreafsky)	Fresh Salmon Chinook Chum Coho Salmon Roe	1 and 2
Y-K Fisheries P.O. Box 213 McGrath, AK 99627 (St. Marys)	Fresh Salmon Chinook Chum Coho Salmon Roe	2
Maro Fisheries 15201 Masa Place Anchorage, AK (Emmonak)	Fresh Salmon Chinook Chum Coho Salmon Roe	1 and 2
Alaska Pacific Caviar 117 Telegraph Rd. Suite 316 Bellingham, WA 98226 (Aniak, Anvik, Grayling)	Frozen Salmon Chinook Chum Salmon Roe	3 and 4
Dainty Island Box 49 Galena, AK 99741 (Galena)	Smoked Salmon Chinook Chum Salmon Roe	4
Great Northern Seafoods 2604 Fairbanks St. Suite B Anchorage, AK 99503 (Galena)	Salmon Roe	4

-Continued-

Table 1. (p. 3 of 4)

Commercial operation (Processing location/ buying station)	Product	District
Kallands Fisheries 405 Slater St. #8 Fairbanks, AK 99701	Fresh/Frozen Salmon Chinook Chum Coho	4
Whitney Foods P.O. Box 190429 Anchorage, AK 99503 (Kaitag)	Frozen Salmon Chinook Chum Coho Salmon Roe	4
Towa Americana, Inc. 424 East Manor Ave. Anchorage, AK 99501 (Galena, Anvik)	Frozen Salmon Chinook Chum Coho Salmon Roe	4 and 5
Interior Alaska Fish Processing 878 Lynnwood Way North Pole, AK 99705 (North Pole)	Frozen Salmon Smoked Salmon Chinook Chum Coho Salmon Roe	4, 5, and 6
Yutana Fisheries P.O. Box 82556 College, AK 99708 (Manley)	Frozen Salmon Chinook Chum Coho Salmon Roe	5 and 6

-Continued-

Table 1. (p. 4 of 4)

Commercial operation (Processing location/ buying station)	Product	District
Circle Fish Co. P.O. Box 14 Circle, AK 99733 (Circle)	Frozen Salmon Chinook Chum Salmon Roe	5
Denny Mac Enterprizes, Inc. P.O. Box 289 Nenana, AK 99760 (Nenana)	Frozen Salmon Chum Coho Salmon Roe	6
Stevens Fisheries P.O. Box 38 Nenana, AK 99760 (Nenana)	Frozen Salmon Chum Coho	6

Table 2. Yukon Area commercial salmon and salmon roe sales by statistical area, 1991.*

Statistical Area	Summer Season				Fall Season					Total						
	Chinook	Chinook Roe	Chum	Chum Roe	Chinook	Chum	Chum Roe	Coho	Coho Roe	Chinook	Chinook Roe	Chum	Chum Roe	Coho	Coho Roe	Pink
334-11	1,677	0	13,703	0	0	75	0	30	0	1,677	0	13,778	0	30	0	0
12	4,171	0	32,376	0	30	11,978	0	4,302	0	4,201	0	44,352	0	4,302	0	0
13	1,620	0	5,186	0	3	3,036	0	1,072	0	1,623	0	8,232	0	1,072	0	0
14	3,445	0	11,133	0	6	5,566	0	4,432	0	3,451	0	16,719	0	4,432	0	0
15	12,356	0	11,283	0	3	9,968	0	8,130	0	12,359	0	21,251	0	8,130	0	0
16	6,063	0	22,681	0	13	8,040	0	19,630	0	6,106	0	30,721	0	19,630	0	0
17	18,137	0	34,632	0	5	11,880	0	7,980	0	18,142	0	46,512	0	7,980	0	0
18	5,454	0	7,155	0	1	9,163	0	8,519	0	5,455	0	16,318	0	8,519	0	0
Subtotal District 1	52,953		136,159	0	61	59,724	0	54,095	0	53,014		197,883	0	54,095	0	0
334-21	9,295	0	46,378	0	5	10,584	0	8,746	0	9,300	0	56,962	0	8,746	0	0
22	10,417	0	70,188	0	6	23,195	0	17,939	0	10,423	0	93,383	0	17,939	0	0
23	5,321	0	32,584	0	11	14,291	0	3,587	0	5,332	0	46,875	0	3,587	0	0
24	6,549	0	14,915	0	3	28,306	0	6,094	0	6,552	0	43,221	0	6,094	0	0
25	7,337	0	11,084	0	2	26,252	0	4,532	0	7,339	0	37,336	0	4,532	0	0
Subtotal District 2	38,919		175,149	0	27	102,628	0	40,898	0	38,946		277,777	0	40,898	0	0
334-31	1,214	0	3,347	0	0	7,209	0	1,427	0	1,214	0	10,556	0	1,427	0	0
32	1,130	0	5,565	0	0	2,004	0	478	0	1,130	0	7,569	0	478	0	0
Subtotal District 3	2,344	0	8,912	0	0	9,213	0	1,905	0	2,344	0	18,125	0	1,905	0	0
TOTAL LOWER YUKON	94,216	0	322,220	0	88	171,565	0	96,898	0	94,304	0	493,785	0	96,898	0	0

-Continued-

Table 2. (p. 2 of 2)

Statistical Area	Summer Season				Fall Season					Total						
	Chinook	Chinook Roe	Chum	Chum Roe	Chinook	Chum	Chum Roe	Coho	Coho Roe	Chinook	Chinook Roe	Chum	Chum Roe	Coho	Coho Roe	Pink
334-42	910	386	1,092	8,282	6	2,998	490	11	0	916	386	4,090	8,772	11	0	0
43	1,481	1,674	0	719	0	739	1,126	3	0	1,481	1,674	739	1,845	3	0	0
44	0	67	88	39,281	0	0	0	0	0	0	67	88	39,281	0	0	0
45	0	7	79	43,087	0	0	0	0	0	0	7	79	43,087	0	0	0
46	69	88	5,122	45,863	0	0	0	0	0	69	88	5,122	45,863	0	0	0
Subtotal District 4	2,440	2,222	6,381	137,232	6	3,737	1,616	14	0	2,446	2,222	10,118	136,848	14	0	0
334-51	58	0	0	0	0	0	0	0	0	58	0	0	0	0	0	0
52	1,724	62	0	28	0	14,968	3,625	0	0	1,724	62	14,968	3,653	0	0	0
53	1,476	0	4	0	0	9,173	0	0	0	1,476	0	9,177	0	0	0	0
54	192	0	0	0	0	1,846	0	0	0	192	0	1,846	0	0	0	0
55	362	0	0	0	0	1,368	0	0	0	362	0	1,368	0	0	0	0
Subtotal District 5	3,810	62	4	28	0	27,355	3,625	0	0	3,810	62	27,359	3,653	0	0	0
334-61	117	0	4,742	0	0	3,278	0	0	0	117	0	8,020	0	0	0	0
62	450	1,365	10,100	2,653	0	21,834	12,253	4,572	3,737	450	1,365	31,934	14,906	4,572	3,737	0
63	119	180	3,355	2,063	0	3,083	1,901	1,696	562	119	180	6,438	3,964	1,696	562	0
Subtotal District 6	686	1,545	18,197	4,716	0	28,195	14,154	6,268	4,299	686	1,545	46,392	18,870	6,268	4,299	0
TOTAL UPPER YUKON	6,936	3,829	24,582	141,976	6	59,287	19,395	6,282	4,299	6,942	3,829	83,869	161,371	6,282	4,299	0
GRAND TOTAL YUKON AREA	101,152	3,829	346,802	141,976	94	230,852	19,395	103,180	4,299	101,246	3,829	577,654	161,371	103,180	4,299	0

* Sales reported in numbers of fish sold in the round and pounds of unprocessed roe. Does not include ADF&G test fishery sales.

Table 3. Yukon Area Commercial Fisheries Entry Commission
salmon gear permits issued by residence, 1991. ^{a,b}

District	Residence	Gill Net Permits	Fish Wheel Permits
1, 2, and 3	Emmonak	95	
	Mountain Village	96	
	Alakanuk	79	
	Kotik	76	
	St. Marys	72	
	Pilot Station	52	
	Marshall	34	
	Scammon Bay	38	
	Anchorage	22	
	Sheldon Point	20	
	Russian Mission	15	
	Fortuna Ledge	15	
	Bethel	14	
	Holy Cross	11	
	Stebbins	10	
	Fairbanks	9	
	Unalakleet	8	
	Wasilla	8	
	Shaktoolik	3	
	Chevak	1	
	Pitkas Point	1	
	Aniak	1	
	Big Lake	1	
	Central	1	
	Cooper Landing	1	
	Dutch Harbor	1	
	Eek	1	
	Elim	1	
	Hoonah	1	
	Hooper Bay	1	
	Iliamna	1	
	Kalskag	1	
	Kenai	1	
	Koliganek	1	
	Manley Hot Springs	1	
	Napaskiak	1	
	Nome	3	
	Nunapitchuk	1	
	Palmer	1	
	Port Alexander	1	
	Salcha	1	
	Sand Point	2	
	St. Michael	1	
	Sutton	1	
	Talkeetna	1	
	Trapper Creek	1	
	Bend, OR	1	
Cameron Mills, NY	1		
Chargin, OH	1		
Edmunds, WA	1		
Everett, WA	1		
Rock Hill, SC	1		
Seattle, WA	1		
Stanwood, WA	1		
Troy, MT	1		
Total Lower Yukon		716	

-Continued-

Table 3. (p. 2 of 2).

	Residence	Gill Net Permits	Fish Wheel Permits
4, 5, and 6	Anchor Pt.	0	1
	Anchorage	5	0
	Aniak	1	0
	Anvik	2	7
	Barrow	0	1
	Cantwell	1	1
	Circle City	1	1
	College	0	1
	Fairbanks	24	23
	Ft. Yukon	0	1
	Galena	5	24
	Grayling	3	6
	Holy Cross	1	0
	Huslia	0	1
	Kaltag	4	12
	Kodiak	1	0
	Koyukuk	0	3
	Manley Hot Springs	2	5
	Nenana	8	20
	North Pole	1	1
	Nulato	1	19
	Palmer	1	0
	Rampart	3	2
	Ruby	3	9
	Salcha	0	1
	Soldotna	1	0
	Stevens Village	1	3
	Tanana	3	15
	Wasilla	0	2
	Willow	1	0
Bemidji, MN	1	0	
Los Angeles, CA	1	0	
Total Upper Yukon		75	159
Grand Total Yukon Area		791	159

^a Counts are for initial issues only and do not include transfers.

^b Counts include interim use permits.

Table 4. Commercial salmon catch and effort data by fishing period, set and drift gill nets combined, District 1, Yukon Area, 1991. ^a

Period No.	Period Dates	Hours Fished	No. of Fisher-men	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort					
				Chinook	CPUE	Coho	CPUE	Chum	CPUE	Chinook	CPUE	Coho	CPUE	Chum	CPUE
1	6/13-6/14	12	438	16,882	3.21	0	0.00	8,549	1.63	16,882	3.21	0	0.00	8,549	1.63
2	6/17-6/18	12	411	14,884	3.02	0	0.00	12,999	2.64	31,766	3.12	0	0.00	21,548	2.12
3	6/20-6/21	12	385	4,714	1.02	0	0.00	4,870	1.05	36,480	2.46	0	0.00	26,418	1.78
4	6/24-6/25	12	391	9,221	1.97	0	0.00	14,370	3.06	45,701	2.34	0	0.00	40,788	2.09
5	7/01-7/02	12	378	5,779	1.27	0	0.00	21,270	4.69	51,480	2.14	0	0.00	62,058	2.58
Unrestricted Mesh Size Subtotal		60	487	51,480	2.14	0	0.00	62,058	2.58						
6	7/04-7/05	12	349	1,473	0.35	0	0.00	76,101	18.17	1,473	0.35	0	0.00	76,101	18.17
Restricted Mesh Size Subtotal ^b		12	349	1,473	0.35	0	0.00	76,101	18.17						
Summer Season Total		72	489	52,953	1.88	0	0.00	138,159	4.90						
7	7/29-7/30	16/9	230	15	0.01	190	0.08	15,273	6.20	1,488	0.60	190	0.08	15,273	6.20
8	8/01-8/02	16/9	153	15	0.01	219	0.13	3,027	1.75	1,503	0.36	409	0.10	18,300	4.36
9	8/05-8/06	16/9	198	9	0.00	908	0.42	7,388	3.41	1,512	0.24	1,317	0.21	25,688	4.04
10	8/08-8/09	16/9	219	5	0.00	4,571	1.96	9,199	3.94	1,517	0.17	5,888	0.68	34,887	4.01
11	8/12-8/13	16/9	134	5	0.00	1,540	1.00	1,446	0.94	1,522	0.15	7,428	0.73	36,333	3.55
12	8/15-8/16	16/9	184	3	0.00	5,991	3.01	4,121	2.07	1,525	0.12	13,419	1.10	40,454	3.31
13	8/19-8/20	12/6	175	3	0.00	8,577	6.53	2,808	2.14	1,528	0.11	21,996	1.62	43,262	3.20
14	8/22-8/23	12/6	208	2	0.00	26,620	17.26	14,661	9.51	1,530	0.10	48,616	3.22	57,923	3.84
15	8/26-8/27	12/6	154	4	0.00	5,479	4.54	1,801	1.49	1,534	0.09	54,095	3.32	59,724	3.67
Fall Season Total ^c		132/72	319	61	0.09	54,095	3.32	59,724	3.67						
Grand Total		204/144	497	53,014		54,095		197,883							

^a Catches reported in numbers of fish sold in the round. Does not include ADF&G test fishery sales.

^b Six inch maximum mesh size restriction in effect.

^c During the fall chum salmon season (7/29-8/27), the district was divided into a Setnet Only Area (12 or 16 hour periods) and a Gillnet Area (6 or 9 hour periods).

Table 5. Commercial salmon catch and effort data by fishing period, set and drift gill nets combined, District 2, Yukon Area, 1991. ^a

Period No.	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort					
				Chinook	CPUE	Coho	CPUE	Chum	CPUE	Chinook	CPUE	Coho	CPUE	Chum	CPUE
1	6/16-6/17	12	225	11,452	4.24	0	0.00	5,244	1.94	11,452	4.24	0	0.00	5,244	1.94
2	6/19-6/20	12	221	9,598	3.62	0	0.00	10,070	3.80	21,050	3.93	0	0.00	15,314	2.86
3	6/23-6/24	12	219	6,745	2.57	0	0.00	7,331	2.79	27,795	3.48	0	0.00	22,645	2.84
4	6/26	6	210	4,054	3.22	0	0.00	3,713	2.95	31,849	3.45	0	0.00	26,358	2.85
6	7/03-7/04	12	197	4,411	1.87	0	0.00	19,849	8.40	36,260	3.12	0	0.00	46,207	3.98
Unrestricted Mesh Size Subtotal		54	240	36,260	3.12	0	0.00	46,207	3.98						
5	6/30-7/01	12	200	2,129	0.89	0	0.00	104,299	43.46	2,129	0.89	0	0.00	104,299	43.46
7	7/07	6	187	530	0.47	0	0.00	24,643	21.96	2,659	0.75	0	0.00	128,942	36.61
Restricted Mesh Size Subtotal ^b		18	221	2,659	0.75	0	0.00	128,942	36.61						
Summer Season Total		72	253	38,919	2.57	0	0.00	175,149	11.58						
8	7/31	9	166	13	0.01	134	0.09	14,229	9.52	2,672	1.79	134	0.09	14,229	9.52
9	8/04	9	131	5	0.00	525	0.45	9,792	8.31	2,677	1.00	659	0.25	24,021	8.99
10	8/07	9	123	3	0.00	482	0.44	4,168	3.77	2,680	0.71	1,141	0.30	28,189	7.46
11	8/11	9	198	4	0.00	4,680	2.63	26,105	14.65	2,684	0.48	5,821	1.05	54,294	9.76
12	8/14	9	180	0	0.00	6,106	3.77	16,794	10.37	2,684	0.37	11,927	1.66	71,088	9.90
13	8/18	6	167	0	0.00	5,377	5.37	5,395	5.38	2,684	0.33	17,304	2.11	76,483	9.35
14	8/21	6	187	1	0.00	10,822	9.65	14,390	12.83	2,685	0.29	28,126	3.02	90,873	9.76
15	8/25	6	178	1	0.00	12,772	11.96	11,755	11.01	2,686	0.26	40,898	3.94	102,628	9.89
Fall Season Total ^c		63	238	27	0.26	40,898	3.94	102,628	9.89						
Grand Total		135	272	38,946		40,898		277,777							

^a Catches reported in numbers of fish sold in the round. Does not include ADF&G test fishery sales.

^b Six inch maximum mesh size restriction in effect during periods 5 and 7.

^c Fall chum salmon season (7/31 to 8/25).

Table 6. Commercial salmon catch and effort data by fishing period, set and drift gill nets combined, District 3, Yukon Area, 1991. ^a

Period No.	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort					
				Chinook	CPUE	Coho	CPUE	Chum	CPUE	Chinook	CPUE	Coho	CPUE	Chum	CPUE
1	6/23-6/24	18	26	1,407	3.01	0	0.00	1,644	3.51	1,407	3.01	0	0.00	1,644	3.51
2	6/26	6	24	465	3.23	0	0.00	739	5.13	1,872	3.06	0	0.00	2,383	3.89
Unrestricted Mesh Size Subtotal		24	27	1,872	3.06	0	0.00	2,383	3.89						
3	6/30	12	22	472	1.79	0	0.00	6,529	24.73	472	1.79	0	0.00	6,529	24.73
Restricted Mesh Size Subtotal ^b		12	22	472	1.79	0	0.00	6,529	24.73						
Summer Season Total		36	27	2,344	2.68	0	0.00	8,912	10.17						
4	7/31	9	2	0	0.00	0	0.00	485	26.94	0	0.00	0	0.00	485	26.94
5	8/04	9	10	0	0.00	23	0.26	2,169	24.10	0	0.00	23	0.21	2,654	24.57
6	8/07	9	6	0	0.00	39	0.72	763	14.13	0	0.00	62	0.38	3,417	21.09
7	8/11	9	9	0	0.00	26	0.32	1,230	15.19	0	0.00	88	0.36	4,647	19.12
8	8/14	9	9	0	0.00	195	2.41	1,395	17.22	0	0.00	283	0.87	6,042	18.65
9	8/18	6	11	0	0.00	210	3.18	869	13.17	0	0.00	493	1.26	6,911	17.72
10	8/21	6	9	0	0.00	421	7.80	564	10.44	0	0.00	914	2.06	7,475	16.84
11	8/25	6	12	0	0.00	991	13.76	1,738	24.14	0	0.00	1,905	3.69	9,213	17.85
Fall Season Total ^c		63	19	0	0.00	1,905	3.69	9,213	17.85						
Grand Total		99	29	2,344		1,905		18,125							

^a Catches reported in numbers of fish sold in the round.

^b Six inch maximum mesh size restriction in effect during period 3.

^c Fall chum salmon season (7/31 to 8/25).

Table 7. Estimated commercial salmon harvest and department test fishery sales, Upper Yukon Area, 1991. a

District or Subdistrict	Fishermen b			Chinook	Summer Chum	Fall Chum	Coho
	Set Gillnet	Fishwheel	Total				
4-A	12	51	63	153	290,255 c	0	0
4-B, 4-C	2	21	23	3,429	10,869	6,091	14
District 4 Subtotal	14	71	85	3,582	301,124	6,091	14
5-A, 5-B, 5-C	16	12	28	3,272	35	28,900	0
5-D	2	5	7	554	0	3,214	0
District 5 Subtotal	18	15	33	3,826	35	32,114	0
6-A, 6-B, 6-C	4	24	28	1,072	23,893	44,448	9,773
Commercial Subtotal	36	110	146	8,480	325,052	82,653	9,787
Test Fish Projects				Chinook	Summer Chum	Fall Chum	Coho
Manley Test Fish	0	1	1	91	116	0	0
Nenana Test Fish	0	1	1	0	1,742	1,385	791
Test Fish Subtotal	0	2	2	91	1,858	1,385	791
Upper Yukon Area Total	36	112	148	8,571	326,910	84,038	10,578

a Harvest based on number of salmon sold in the round and estimated female salmon harvested to produce roe sold, unless otherwise noted.

b Fishermen are allowed to transfer within a district.

c Subdistrict 4-A summer chum salmon harvest was estimated to include the number of males and females harvested to produce roe sold.

Table 8. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets, and fish wheels combined, District 4, Upper Yukon Area, 1991.

Subdistrict 4-A												
Period	Date	Hours Opened	Number of Fishermen	Chinook Salmon		Chinook Expansion		Summer Chum Salmon		Chum Salmon Expansion		
				Number ^a	Pounds of Roe	Roe Weight ^b	Estimated Harvest ^c	Number ^a	Pounds of Roe	Percent Females ^d	Roe Weight ^b	Estimated Harvest ^e
1	6/26-6/27	24	48	6	14	1.96	13	1,439	13,690	0.46	0.77	38,414
2	6/30-7/01	24	55	4	7	1.96	8	1,355	15,902	0.47	0.79	42,628
3	7/03-7/04	24	58	9	41	1.96	30	1,128	15,311	0.53	0.82	35,361
4	7/07-7/09	48	59	22	87	1.96	67	1,070	48,576	0.57	0.82	103,677
5	7/14-7/15	24	55	28	13	1.96	35	297	34,752	0.60	0.83	70,175
Subtotal		144	63	69	162	1.96	153	5,289	128,231	0.54	0.81	290,255
Harvest Guideline Range:										113,000 to 338,000 Summer Chum Salmon		

- Continued -

Table 8. (page 2 of 3).

Subdistricts 4-B and 4-C EARLY SEASON

Period	Date	Hours Opened	Number of Fishermen	Chinook Salmon		Chinook Expansion		Summer Chum Salmon		Chum Salmon Expansion	
				Number ^a	Pounds of Roe	Roe Weight ^b	Estimated Harvest ^c	Number ^a	Pounds of Roe	Roe Weight ^b	Estimated Harvest ^c
1	6/26-6/28	48	16	896	202	1.96	999	0	561	0.83	676
2	6/30-7/02	48	18	1,032	202	1.96	1,135	25	1,678	0.90	1,888
3	7/07-7/09	48	16	240	758	1.96	627	77	1,458	0.93	1,646
4	7/10-7/12	48	19	173	648	1.96	504	290	1,102	0.96	1,434
5	7/14-7/16	48	14	30	250	1.96	158	700	4,202	0.93	5,225
Subtotal		240	22	2,377 ^a	2,060	1.96	3,429 ^c	1,092	9,001	0.92	10,869
Harvest Guideline Range:				2,250 to 2,850 Chinook Salmon				16,000 to 47,000 Summer Chum Salmon			

-Continued-

Table 8. (page 3 of 3).

Subdistricts 4-B and 4-C LATE SEASON											
Period	Date	Hours Opened	Number of Fishermen	Coho Salmon		Coho Expansion		Fall Chum Salmon		Chum Salmon Expansion	
				Number ^{1a}	Pounds of Roe	Roe Weight ^{1b}	Estimated Harvest ^{1c}	Number ^{1a}	Pounds of Roe	Roe Weight ^{1b}	Estimated Harvest ^{1c}
6	8/11-8/13	48	5	0	0	-	0	270	551	0.68	1,080
7	8/14-8/16	48	3	0	0	-	0	320	567	0.69	1,142
8	8/18-8/20	36	2	0	0	-	0	613	42	0.69	674
9	8/21-8/23	36	4	0	0	-	0	910	73	0.69	1,016
10	8/25-8/27	36	5	8	0	-	8	1090	213	0.69	1,399
11	8/28-8/30	36	4	3	0	-	3	380	170	0.69	626
12	9/01-9/03	36	1	0	0	-	0	115	0	-	115
13	9/04-9/06	36	1	3	0	-	3	39	0	-	39
14	9/08-9/10	36	0	0	0	-	0	0	0	-	0
15	9/11-9/13	36	0	0	0	-	0	0	0	-	0
16	9/15-9/17	36	0	0	0	-	0	0	0	-	0
17	9/18-9/20	36	0	0	0	-	0	0	0	-	0
18	9/22-9/24	36	0	0	0	-	0	0	0	-	0
19	9/25-9/27	36	0	0	0	-	0	0	0	-	0
20	9/29-9/30	36	0	0	0	-	0	0	0	-	0
Subtotal		528	8	14	0		14	3,737	1,616	0.69	6,091
Harvest Guideline Range:									5,000 to 40,000 Fall Chum and Coho Salmon		

^{1a} Number of salmon sold in the round.

^{1b} Estimated average roe weight in pounds per female used in expansion.

^{1c} Estimated harvest = fish sold in the round + estimated females harvested to produce roe sold.

^{1d} Estimated percent female in harvest used in expansion.

^{1e} Estimated harvest = estimated males and females harvested to produce roe sold. Numbers sold in the round are assumed to be primarily males and are not added to estimated harvest to avoid double counting.

^{1f} Includes 6 chinook salmon harvested during the late season.

Table 9. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets and fish wheels combined, District 5, Upper Yukon Area, 1991.

Subdistricts 5-A, 5-B and 5-C EARLY SEASON											
Period	Date	Hours Opened	Number of Fishermen	Chinook Salmon		Chinook Expansion		Summer Chum Salmon		Chum Expansion	
				Number	Pounds of Roe	Roe Weight \a	Estimated Harvest \b	Number	Pounds of Roe	Roe Weight \a	Estimated Harvest \b
1	7/02-7/04	48	26	2,384	26	4.00	2,391	2	9	0.9	12
2	7/05-7/06	18	24	872	36	4.00	881	2	19	0.9	23
Subtotal		66	27	3,256	62	4.00	3,272	4	28	0.9	35
Harvest Guideline Range:						2,400 to 2,800 Chinook			1,000 to 3,000 Summer Chum Salmon		

-Continued-

Table 9. (page 2 of 3).

Subdistricts 5-A, 5-B and 5-C LATE SEASON

Period	Date	Hours Opened \c	Number of Fishermen	Coho	Fall Chum Salmon		Chum Expansion	
					Number	Pounds of Roe	Roe Weight \a	Estimated Harvest \b
3	8/20-8/21	12/24	16	0	7,218	0	-	7,218
4	8/23-8/24	12/24	13	0	5,088	360	0.79	5,544
5	8/27-8/28	12/24	12	0	6,898	1,434	0.77	8,760
6	8/30-8/31	12/24	14	0	4,937	1,831	0.75	7,378
Subtotal		48/96	17	0	24,141	3,625	0.76	28,900
Harvest Guideline Range: 5A, 5B, & 5C Combined					4,000 to 36,000 Fall Chum and Coho Salmon			

-Continued-

Table 9. (page 3 of 3).

Subdistrict 5-D EARLY SEASON								
Period	Date	Hours Opened	Number of Fishermen	Chinook	Summer Chum Salmon		Chum Expansion	
					Number	Pounds of Roe	Roe Weight ^{\a}	Estimated Harvest ^{\b}
1	7/09-7/11	48	5	554	0	0	-	0
Subtotal		48	5	554	0	0	-	0
Harvest Guideline Range:		300 to 500 Chinook Salmon						
Subdistrict 5-D LATE SEASON								
Period	Date	Hours Opened	Number of Fishermen	Coho	Fall Chum Salmon		Chum Expansion	
					Number	Pounds of Roe	Roe Weight ^{\a}	Estimated Harvest ^{\b}
2 ^{\d}	8/27-8/29	48	1	0	911	0	-	911
3 ^{\e}	8/30-9/01	48	3	0	947	0	-	947
4	9/03-9/04	24	3	0	1,356	0	-	1,356
Subtotal		120	4	0	3,214	0	-	3,214
Harvest Guideline Range:		1,000 to 4,000 Fall Chum and Coho Salmon						

^{\a} Estimated average roe weight in pounds per female used in expansion.

^{\b} Estimated harvest = fish sold in the round + estimated females harvested to produce roe sold.

^{\c} Subdistrict Y-5A open for 12 hours, Subdistricts Y-5B and Y-5C open for 24 hours each.

^{\d} That portion of Subdistrict 5-D downstream of the mouth of the Chandalar River only.

^{\e} That portion of Subdistrict 5-D upstream of the mouth of the Chandalar River only.

Table 10. Commercial salmon and salmon roe sales by fishing period, set gillnets and fish wheels combined, District 6, Upper Yukon Area, 1991. ^{1a}

District 6 EARLY SEASON											
Period	Date	Hours Opened	Number of Fishermen	Chinook Salmon		Chinook Expansion		Summer Chum Salmon		Chum Expansion	
				Number	Pounds of Roe	Roe Weight ^b	Estimated Harvest ^c	Number	Pounds of Roe	Roe Weight ^b	Estimated Harvest ^c
1	7/15-7/17	42	15	318	277	4.00	387	1,056	92	0.74	1,180
2	7/19-7/21	42	17	197	515	4.00	326	1,758	340	0.75	2,211
3	7/22-7/24	42	17	103	372	4.00	196	2,581	394	0.81	3,067
4	7/26-7/28	42	19	37	234	4.00	96	4,244	1,053	0.80	5,560
5	7/29-7/31	42	18	27	106	4.00	54	4,617	1,247	0.85	6,084
6	8/05-8/07	42	17	4	41	4.00	14	3,941	1,590	0.86	5,790
Subtotal		168	22	686	1,545		1,072	18,197	4,716	0.79	23,893
Harvest Guideline Range:						600 to 800 Chinook		13,000 to 38,000 Summer Chum Salmon			

District 6 LATE SEASON											
Period	Date	Hours Opened ^d	Number of Fishermen	Coho Salmon		Coho Expansion		Fall Chum Salmon		Chum Expansion	
				Number	Pounds of Roe	Roe Weight ^b	Estimated Harvest ^c	Number	Pounds of Roe	Roe Weight ^b	Estimated Harvest ^c
7	9/06-9/08	12/42	20	181	322	0.92	531	6,042	2,203	0.87	8,574
8	9/13-9/15	12/42	21	1,665	1,255	1.22	2,694	12,955	5,293	0.86	19,110
9	9/20-9/22	12/42	22	4,422	2,722	1.28	6,549	9,198	6,658	0.88	16,764
Subtotal			25	6,268	4,299		9,773	28,195	14,154	0.87	44,448
Harvest Guideline Range:						2,750 to 20,500 Fall Chum and Coho Salmon Combined					

^{1a} Does not include the department test fish sales.

^b Estimated average roe weight in pounds per female used in expansion.

^c Estimated harvest = fish sold in the round + estimated females harvested to produce roe sold.

^d Subdistrict 6A open for 12 hours, Subdistricts 6B and 6C open for 42 hours each.

Table 11. Commercial salmon and salmon roe sales by gear type and by statistical area, Upper Yukon Area, 1991. ^{a,b}

Statistical Area	Summer Season											
	Chinook c			Chinook Roe			Summer Chum			Summer Chum Roe		
	GN	FW	Subtotal	GN	FW	Subtotal	GN	FW	Subtotal	GN	FW	Subtotal
334-42	0	916	916	0	386	386	0	1,092	1,092	0	8,282	8,282
334-43	351	1,110	1,461	203	1,471	1,674	0	0	0	0	719	719
334-44	0	0	0	67	0	67	48	40	88	20,537	18,744	39,281
334-45	0	0	0	0	7	7	0	79	79	8,413	34,674	43,087
334-46	0	69	69	4	84	88	0	5,122	5,122	145	45,718	45,863
Subtotal Dist. 4	351	2,095	2,446	274	1,948	2,222	48	6,333	6,381	29,095	108,137	137,232
334-51	56	0	56	0	0	0	0	0	0	0	0	0
334-52	598	1,126	1,724	0	62	62	0	0	0	0	28	28
334-53	865	611	1,476	0	0	0	2	2	4	0	0	0
334-54	0	192	192	0	0	0	0	0	0	0	0	0
334-55	268	94	362	0	0	0	0	0	0	0	0	0
Subtotal Dist. 5	1,787	2,023	3,810	0	62	62	2	2	4	0	28	28
334-61	0	117	117	0	0	0	1,665	3,077	4,742	0	0	0
334-62	0	450	450	0	1,365	1,365	0	10,100	10,100	0	2,653	2,653
334-63	0	119	119	0	180	180	0	0	3,355	0	2,063	2,063
Subtotal Dist. 6	0	686	686	0	1,545	1,545	1,665	13,177	18,197	0	4,716	4,716
Total Upper Yukon	2,138	4,804	6,942	274	3,555	3,829	1,715	19,512	24,582	29,095	112,881	141,976

-Continued-

Table 11. (p. 2 of 2)

Statistical Area	Fall Season											
	Fall Churn			Fall Churn Roe			Coho			Coho Roe		
	GN	FW	Subtotal	GN	FW	Subtotal	GN	FW	Subtotal	GN	FW	Subtotal
334-42	0	2,998	2,998	0	490	490	0	11	11	0	0	0
334-43	0	739	739	0	1,126	1,126	0	3	3	0	0	0
334-44	0	0	0	0	0	0	0	0	0	0	0	0
334-45	0	0	0	0	0	0	0	0	0	0	0	0
334-46	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Dist. 4	0	3,737	3,737	0	1,616	1,616	0	14	14	0	0	0
334-51	0	0	0	0	0	0	0	0	0	0	0	0
334-52	1,239	13,729	14,968	483	3,142	3,625	0	0	0	0	0	0
334-53	3,098	6,075	9,173	0	0	0	0	0	0	0	0	0
334-54	0	1,846	1,846	0	0	0	0	0	0	0	0	0
334-55	874	494	1,368	0	0	0	0	0	0	0	0	0
Subtotal Dist. 5	5,211	22,144	27,355	483	3,142	3,625	0	0	0	0	0	0
334-61	920	2,358	3,278	0	0	0	0	0	0	0	0	0
334-62	301	21,533	21,834	0	12,253	12,253	395	4,177	4,572	0	3,737	3,737
334-63	63	3,020	3,083	3	1,898	1,901	24	1,672	1,696	4	558	562
Subtotal Dist. 6	1,284	26,911	28,195	3	14,151	14,154	419	5,849	6,268	4	4,295	4,299
Total Upper Yukon	6,495	52,792	59,287	486	18,909	19,395	419	5,863	6,282	4	4,295	4,299

a Roe sales expressed in pounds of unprocessed product. Does not include sales of ADF&G test fish sales.

b Gear codes: GN – set gill net; FW – fish wheel.

c Includes 6 chinook salmon caught in statistical area 334-42 during the fall season.

Table 12. Salmon sold from department test fishing catches, Yukon Area, 1991. ^a

District/ Subdistrict	Chinook	Summer Chum	Fall Chum	Coho
1	485	1,373	2,455	2,094
2	113	703	96	86
Total Lower Yukon ^b	598	2,076	2,551	2,180
6 A	91	116	0	0
6 B	0	1,742	1,385	791
Upper Yukon Total ^c	91	1,858	1,385	791
Grand Total	689	3,934	3,936	2,971

^a Sales reported in numbers of fish sold in the round.

^b Gill net catches.

^c Fish Wheel catches.

Table 13. Yukon River drainage total estimated commercial related salmon catch by district and country, 1991. a

Districts	Chinook			Summer Chum			Fall Chum			Coho		
	Sold in Round	Pounds of Roe	Estimated Harvest b	Sold in Round	Pounds of Roe	Estimated Harvest b	Sold in Round	Pounds of Roe	Estimated Harvest b	Sold in Round	Pounds of Roe	Estimated Harvest b
1	53,014	0	53,014	138,159	0	138,159	59,724	0	59,724	54,095	0	54,095
2	38,946	0	38,946	175,149	0	175,149	102,628	0	102,628	40,898	0	40,898
3	2,344	0	2,344	8,912	0	8,912	9,213	0	9,213	1,905	0	1,905
Total Lower Yukon	94,304	0	94,304	322,220	0	322,220	171,565	0	171,565	96,898	0	96,898
4-A	69	162	153	5,289	128,231	290,255 c	0	0	0	0	0	0
4-BC	2,377	2,060	3,429	1,092	9,001	10,869	3,737	1,616	6,091	14	0	14
Subtotal District 4	2,446	2,222	3,582	6,381	137,232	301,124	3,737	1,616	6,091	14	0	14
5-ABC	3,256	62	3,272	4	28	35	24,141	3,625	28,900	0	0	0
5-D	554	0	554	0	0	0	3,214	0	3,214	0	0	0
Subtotal District 5	3,810	62	3,826	4	28	35	27,355	3,625	32,114	0	0	0
Subtotal District 6	686	1,545	1,072	18,197	4,716	23,893	28,195	14,154	44,448	6,268	4,299	9,773
Total Upper Yukon	6,942	3,829	8,480	24,582	141,976	325,052	59,287	19,395	82,653	6,282	4,299	9,787
Total Alaskan	101,246	3,829	102,784	346,802	141,976	647,272	230,852	19,395	254,218	103,180	4,299	106,685
Total Canada	10,906	0	10,906	0	0	0	31,404	0	31,404	0	0	0
Grand Total	112,152	3,829	113,690	346,802	141,976	647,272	262,256	19,395	285,622	103,180	4,299	106,685

a Does not include ADF&G test fishery sales.

b Unless otherwise noted, estimated harvest is the number of fish sold in the round plus the estimated number of females harvested to produce roe sold (pounds of roe sold divided by weighted average roe weight per female).

c Estimated harvest includes both males and females harvested to produce roe sold (pounds of roe sold divided by weighted average roe weight per female divided by average percent females in the harvest). Summer chum salmon sold in the round in Subdistrict 4-A are assumed to be males and are included in the estimated harvest calculation.

Table 14 Yukon River drainage subsistence salmon harvest, 1991. a

Village	Survey Date	Fishing Households ^b	Dogs	Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels	
Sheldon Pt.	8/31		15	35	445	2,226	84	35	14	1	0
Alakanuk	8/29-30, 9/6		62	113	1,044	8,058	193	391	57	5	0
Emmonak	8/29, 9/3,5,6	c	47	60	1,311	8,401	2,027	801	43	4	0
Kotik	9/4	d	50	141	3,125	9,105	1,631	581	45	5	0
Y-1 Subtotal			174	349	5,925	27,790	3,935	1,808	159	15	0
Mt. Village	9/7-8		53	89	1,171	4,743	1,473	868	10	43	0
Pitkas Pt.	9/9		11	89	652	1,452	610	347	2	9	0
St. Marys	9/9		49	109	1,836	7,832	1,592	1,270	2	47	0
Pilot Station	9/10	e	40	107	2,681	4,634	1,062	553	5	35	0
Marshall	9/10		36	149	1,277	2,042	891	259	13	23	0
Y-2 Subtotal			189	543	7,617	20,703	5,628	3,297	32	157	0
Russian Mission	9/11		22	55	1,349	837	425	396	7	15	0
Holy Cross	9/11		19	49	1,649	1,028	190	944	6	13	0
Y-3 Subtotal			41	104	2,998	1,865	615	1,340	13	28	0
Lower Yukon Total			404	996	16,540	50,358	10,178	6,445	204	200	0
Anvik	10/15-16		20	180	619	876	452	347	14	1	5
Shageluk	10/17	f	9	41	189	3,680	0	0	8	1	0
Grayling	10/16-17		27	200	874	8,094	3,616	1,363	23	0	4
Kaitag	10/8		26	170	1,866	2,287	2,834	1,260	5	13	8
Nulato	10/9		39	111	2,500	159	1,637	75	8	28	3
Koyukuk	10/10		17	56	885	2,326	2,761	307	11	5	1
Galena	10/3, 10/7-11		47	272	2,574	3,493	5,525	422	34	2	11
Ruby	10/10-11		20	143	971	1,352	2,856	410	13	1	6
Y-4 Subtotal		g	205	1,173	10,478	22,267	19,681	4,184	116	51	38
Tanana	11/4-5		34	550	2,483	2,779	40,868	4,448	17	1	16
Rampart	10/30-31		11	106	988	20	5,801	58	7	0	4
Fairbanks NSB	permits	h	26	93	982	1,068	2,022	8	22	0	4
Stevens Village	10/30	i	9	65	2,035	1,385	2,481	0	7	0	2
Birch Creek	10/25		2	16	196	0	0	1	2	0	0
Beaver	10/29		10	50	713	2,355	7	0	9	0	1
Ft. Yukon	10/23-25		46	473	5,585	11,974	7,467	380	33	0	13
Circle	permits	j	15	113	1,720	51	6,340	5	12	0	3
Central	permits	k	2	20	151	0	73	0	2	0	0
Eagle	permits	l	27	130	1,193	607	7,985	0	24	0	3
Other	permits	m	4	28	202	19	100	12	3	0	1
Y-5 Subtotal			186	1,644	16,248	20,258	73,144	4,912	138	1	47
Main River Totals			795	3,813	43,266	92,883	103,003	15,541	458	252	85
Manley	permits	n	23	497	518	1,729	13,243	6,361	10	0	13
Minto	permits	o	13	272	134	748	5,276	526	11	0	2
Nenana	permits	p	35	583	1,654	1,499	17,932	10,171	14	0	21
Healy	permits	q	4	120	0	0	2,059	1,987	2	0	2
Fairbanks NSB	permits	r	108	407	378	1,096	1,671	2,501	81	0	27
Delta Junction	permits	s	15	16	0	0	46	3	13	0	2
Other	permits	t	11	87	3	10	242	12	9	0	2
Tanana R. Subtotal			209	1,982	2,687	5,082	40,469	21,561	140	0	69

-Continued-

Table 14. (page 2 of 2).

Village	Survey Date	Fishing Households ^b	Dogs	Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Huslia	10/1-2	16	255	198	7,857	411	150	16	0	0
Hughes	10/1	8	22	146	1,257	270	9	8	0	0
Allakaket	10/14	19	120	446	6,451	475	25	19	0	0
Alatna	10/14	7	17	5	962	38	83	7	0	0
Bettles	10/15	3	114	16	155	0	0	3	0	0
Koyukuk R. Subtotal		53	528	811	16,682	1,194	267	53	0	0
Venetie	10/21	7	195	9	3,393	758	12	6	0	1
Chalkyitsik	10/23	3	65	0	500	100	7	3	0	0
Subtotal Chandaia/Black Rivers		10	260	9	3,893	858	19	9	0	1
Subtotal Upper Yukon (Alaska)		663	5,587	30,233	68,182	135,346	30,943	456	52	155
Yukon River Drainage (Alaska) Total		1,067	6,583	46,773	118,540	145,524	37,388	660	252	155
Old Crow	u	-	-	163	0	1,576	0	-	-	-
Yukon River Mainstem Canada	u	-	-	9,238	0	2,438	0	-	-	-
Yukon Territory Totals	u	-	-	9,401	0	4,014	0	-	-	-
Grand Total Yukon River Drainage		1,067	6,583	56,174	118,540	149,538	37,388	660	252	155

a Data collected by Commercial Fisheries Division. Survey data is expanded for number of fishing households, number of dogs, and catch data. Permit data is unexpanded, the number of dogs is based on permits issued while the number of fishing households and their catch is based on returned permits. Gear data represents the principal gear types used by fishing households.

b Estimated number of households that fished in non-permit communities or number of permittees who reported fishing in permit required areas.

c Includes 661 chinook, 2,519 summer chum, 1,820 fall chum, and 761 coho salmon from ADF&G test fish catches.

d Includes 869 chinook, 3103 summer chum, 854 fall chum, and 334 coho salmon from ADF&G test fish catches.

e Includes 262 chinook, 984 summer chum, 605 fall chum, and 234 coho salmon from ADF&G test fish catches.

f Shageluk harvest data from households fishing mainstem Yukon River and Innoko River.

g Does not include summer chum salmon taken during commercial roe fishery used for subsistence.

h Data from Fairbanks North Star Borough fishermen who fished the Yukon River in a permit required area.

Of the 37 permits issued, 35 returned their permits and 26 fished.

i Permit harvest information from Stevens Village residents was included in the survey data.

j Circle. Of the 22 permits issued, 21 returned their permits and 15 fished.

k Cental. Of the 7 permits issued, 7 returned their permits and 2 fished.

l Eagle. Of the 35 permits issued, 35 returned their permits and 27 fished.

m Tok, Coldfoot, Koyukuk, Chicken, and Rampart residents who fished the Yukon River in a permit required area.

8 permits were issued, 7 returned their permits and 4 fished.

n Manley. Of the 30 permits issued, 27 returned their permits and 23 fished.

o Minto. Of the 34 permits issued, 26 returned their permits and 13 fished.

p Nenana. Of the 49 permits issued, 47 returned their permits and 35 fished.

Includes 112 chinook, 98 summer chum, and 777 fall chum salmon from ADF&G test fishwheel.

q Healy. Of the 7 permits issued, 7 returned their permits and 4 fished.

r Data from Fairbanks North Star Borough fishermen who fished the Tanana River. 163 permits were issued,

155 returned their permits and 108 fished.

s Deita. Does not include a harvest of 741 post-spawned fall chum salmon. 15 permits were issued, 9 returned their permits, 7 fished.

t Residents of Tok, Dot Lake, Tanacross, and Valdez who fished the Tanana River.

13 permits were issued, 12 permits were returned, and 10 fished.

Permit harvest information from 3 Tanana Village residents was included in the Tanana Village survey data.

u Indian Food Fish and Domestic catch data from Department of Fisheries & Oceans, Whitehorse, Yukon Territory.

Table 15. Subsistence salmon catches taken under authority of a permit, Yukon River Area, 1991.

Subsistence Permits								
Location	Number Issued	Number Returned	Percent Returned	Number Not Fished ^a	Reported Harvest			
					Chinook	SChum	FChum	Coho
District 5								
Near Haul Road Bridge	52	46	88%	12	2,529	1,295	3,953	20
Circle/Eagle	70	69	99%	21	3,219	658	14,898	5
District 6 Tanana River								
Subdistrict 6-A	45	41	91%	10	420	1,716	17,472	8,486
Subdistrict 6-B	87	78	90%	27	1,796	2,373	21,629	11,971
Subdistrict 6-C ^b	149	142	95%	44	299	980	1,080	1,089
Upstream of Subdistrict 6-C	8	7	88%	1	0	0	288	14
Tanana River Whitefish	15	12	80%	2	0	0	0	1
Subsistence Use Total	426	395	93%	117	8,263	7,022	59,320	21,586
Delta River Carcasses	8	4	50%	1	0	0	741	0
Grand Total	434	399	92%	118	8,263	7,022	60,061	21,586

^a The number of fishermen that did not fish based on returned permits.

^b Includes 112 chinook, 98 summer chum, and 777 fall chum given away from ADF&G Nenana test fish wheel project.

Table 16. Yukon River drainage total commercial and subsistence utilization of salmon by district and country, 1991. a

District	Fishery	Chinook	Summer Chum	Fall Chum	Coho
1	Commercial	53,014	138,159	59,724	54,095
	Subsistence	5,925	27,790	3,935	1,808
	Test Fish Sales	485	1,373	2,455	2,094
	Total	59,424	167,322	66,114	57,997
2	Commercial	38,946	175,149	102,628	40,898
	Subsistence	7,617	20,703	5,628	3,297
	Test Fish Sales	113	703	96	86
	Total	46,676	196,555	108,352	44,281
3	Commercial	2,344	8,912	9,213	1,905
	Subsistence	2,998	1,865	615	1,340
	Total	5,342	10,777	9,828	3,245
Total Lower Yukon	Commercial	94,304	322,220	171,565	96,898
	Subsistence	16,540	50,358	10,178	6,445
	Test Fish Sales	598	2,076	2,551	2,180
	Total	111,442	374,654	184,294	105,523
4	Commercial	2,446	6,381	3,737	14
	Commercial Related b	1,136	294,743	2,354	0
	Subsistence c, d	10,153	38,949	18,521	4,451
	Total	13,735	340,073	24,612	4,465
5	Commercial	3,810	4	27,355	0
	Commercial Related b	16	31	4,759	0
	Subsistence d, e	16,241	24,120	69,243	4,931
	Total	20,067	24,155	101,357	4,931
6	Commercial	686	18,197	28,195	6,268
	Commercial Related b	386	5,696	16,253	3,505
	Subsistence	2,687	5,082	40,469	21,561
	Test Fish Sales	91	1,858	1,385	791
	Total	3,850	30,833	86,302	32,125
Total Upper Yukon	Commercial	6,942	24,582	59,287	6,282
	Commercial Related b	1,538	300,470	23,366	3,505
	Subsistence d	29,081	68,151	128,233	30,943
	Test Fish Sales	91	1,858	1,385	791
	Total	37,652	395,061	212,271	41,521
Total Yukon Area (Alaska)	Commercial	101,246	346,802	230,852	103,180
	Commercial Related b	1,538	300,470	23,366	3,505
	Subsistence d	45,621	118,509	138,411	37,388
	Test Fish Sales	689	3,934	3,936	2,971
	Total	149,094	769,715	396,565	147,044
Total Canada f	Commercial	10,906	0	31,404	0
	Subsistence g	9,701	0	4,014	0
	Total	20,607	0	35,418	0
Grand Total	Commercial	112,152	346,802	262,256	103,180
	Commercial Related b	1,538	300,470	23,366	3,505
	Subsistence d	55,322	118,509	142,425	37,388
	Test Fish Sales	689	3,934	3,936	2,971
	Total	169,701	769,715	431,983	147,044

a Commercial harvest includes only fish sold in the round.

b Commercial related refers to harvest of females to produce roe sales; the harvest of male summer chum salmon not sold is also included in Subdistrict 4-A.

c Includes Innoko and Koyukuk River drainages.

d Commercial related harvest in Districts 4 and 5 was subtracted from subsistence harvest (except for summer chum salmon in District 4); because it was assumed the commercial related harvest was included in the reported subsistence harvest.

e Includes Chandalar and Black River drainages.

f Data from Department of Fisheries and Oceans, Whitehorse, YT.

g Combined Indian Food, and Domestic Fisheries, and includes 300 sport caught chinook salmon.

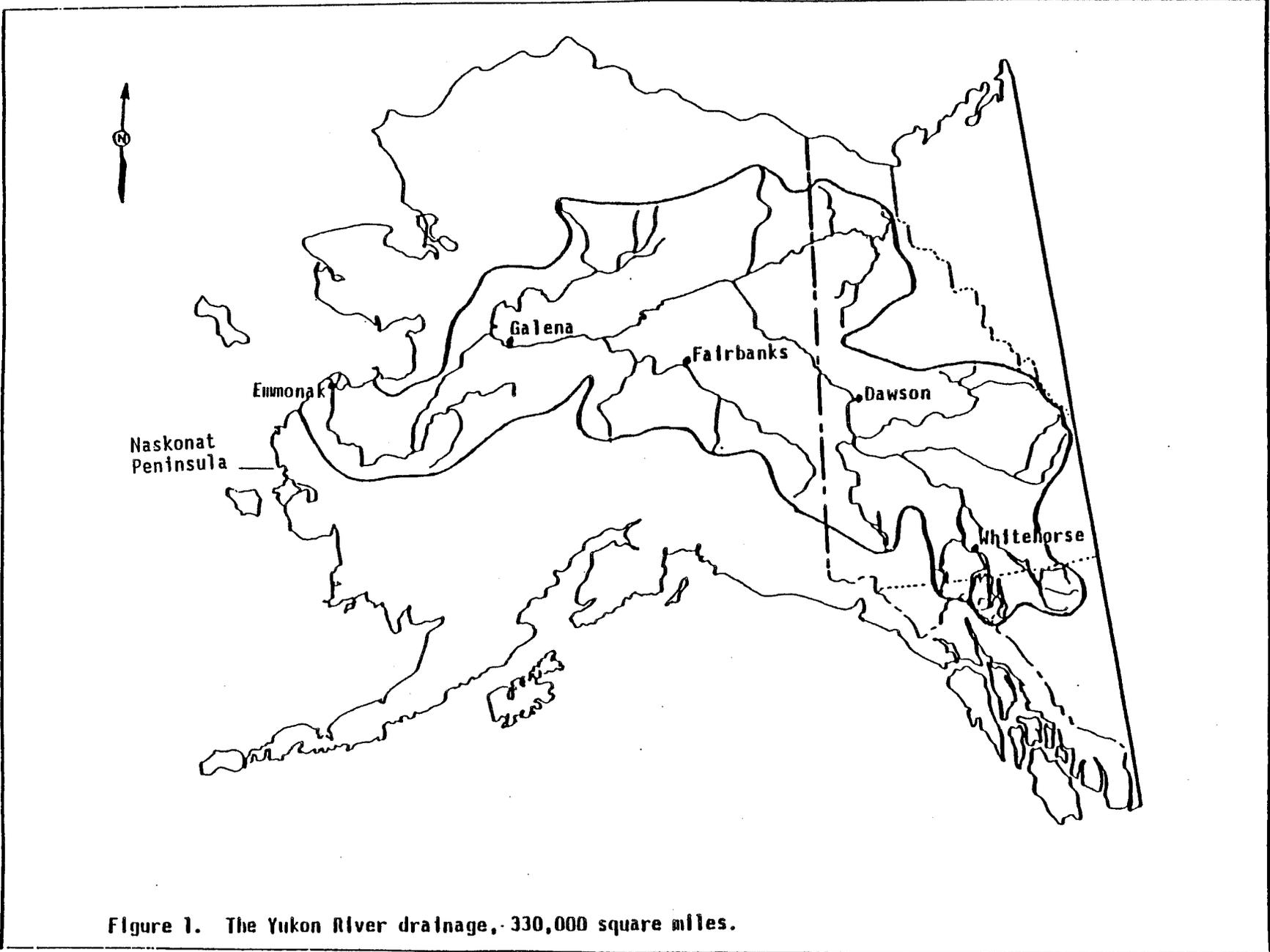


Figure 1. The Yukon River drainage, - 330,000 square miles.

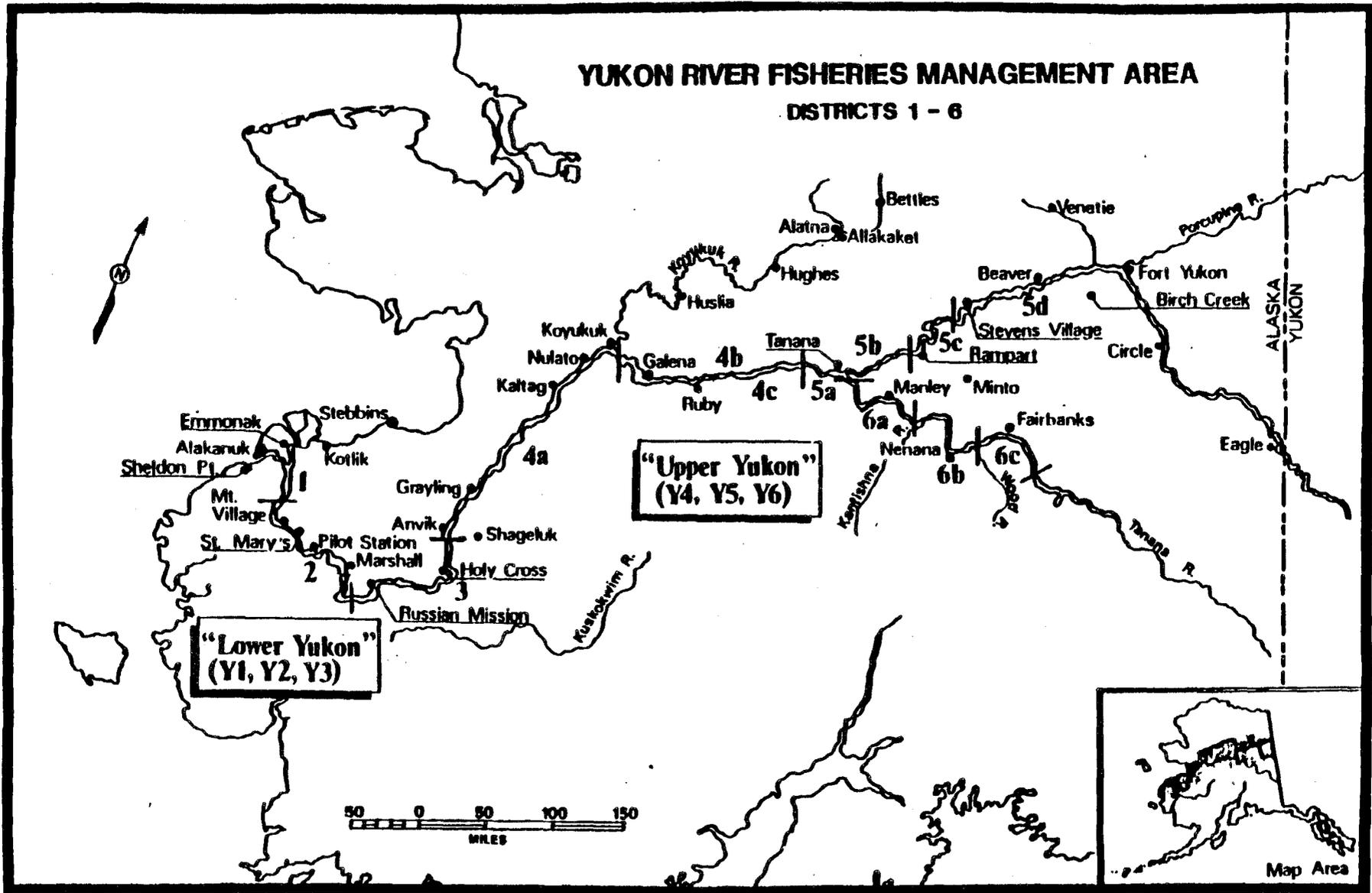


Figure 2. Districts 1-6 of Yukon management area.

**YUKON RIVER
DELTA**

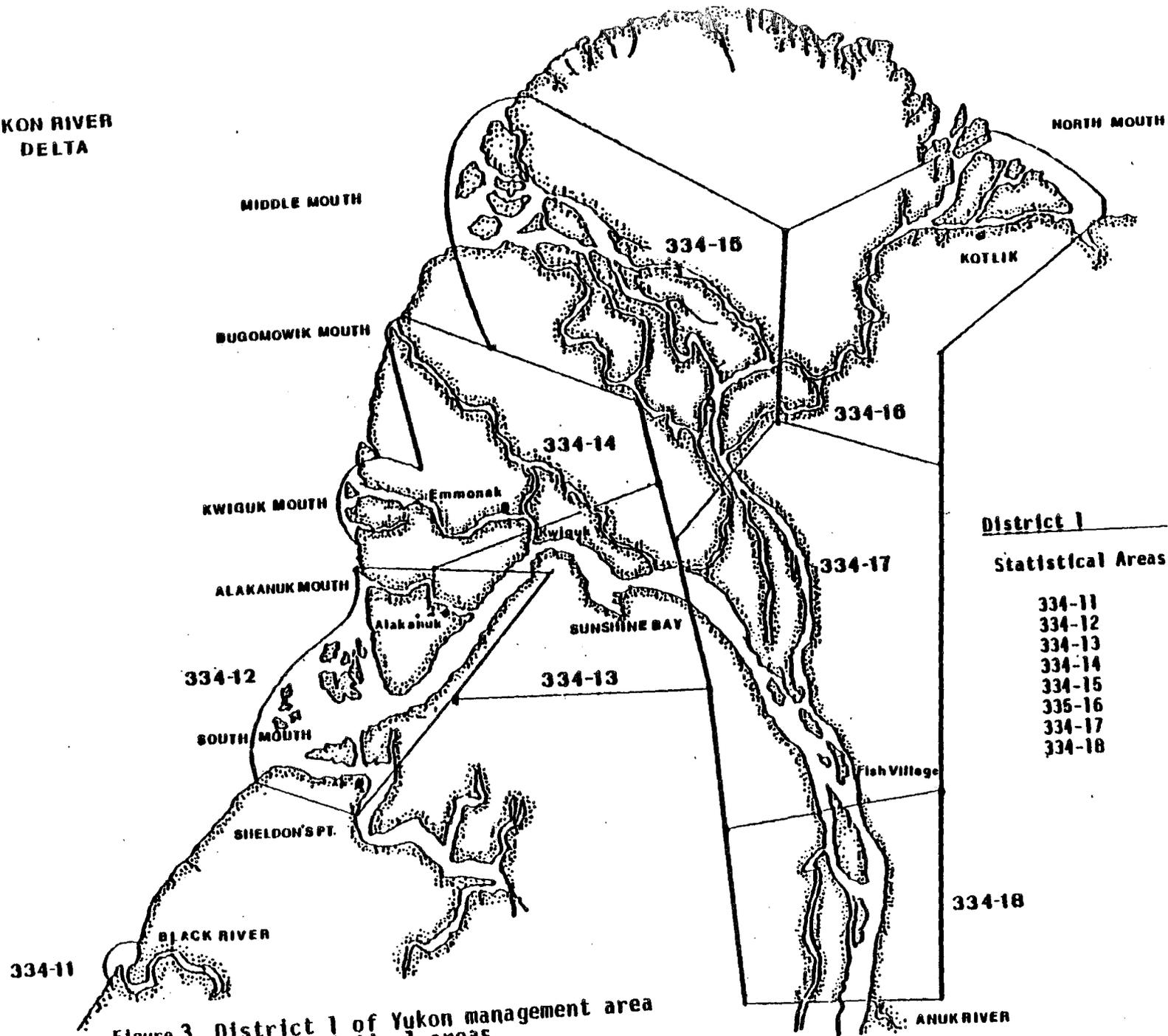


Figure 3. District 1 of Yukon management area with statistical areas.

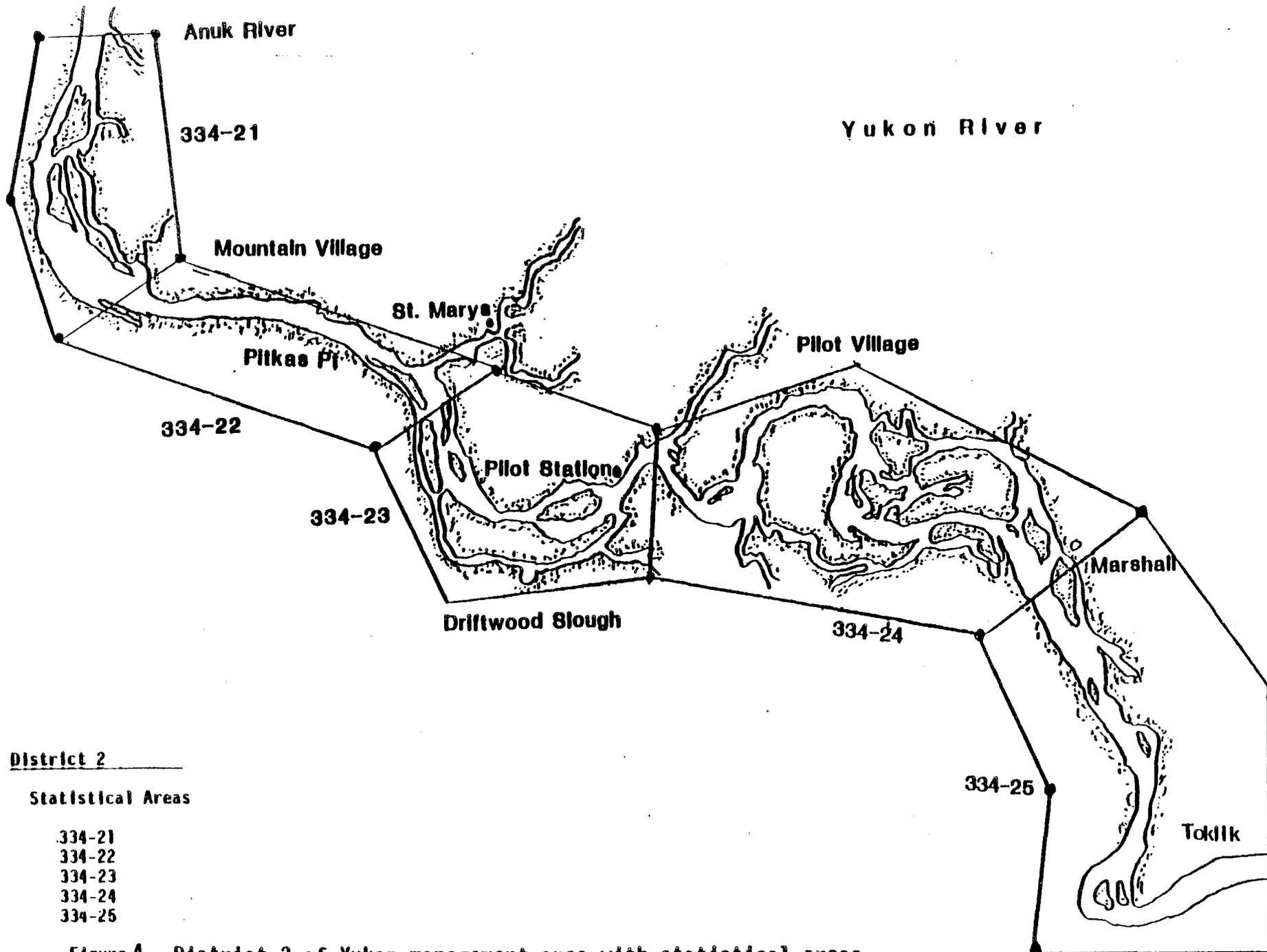
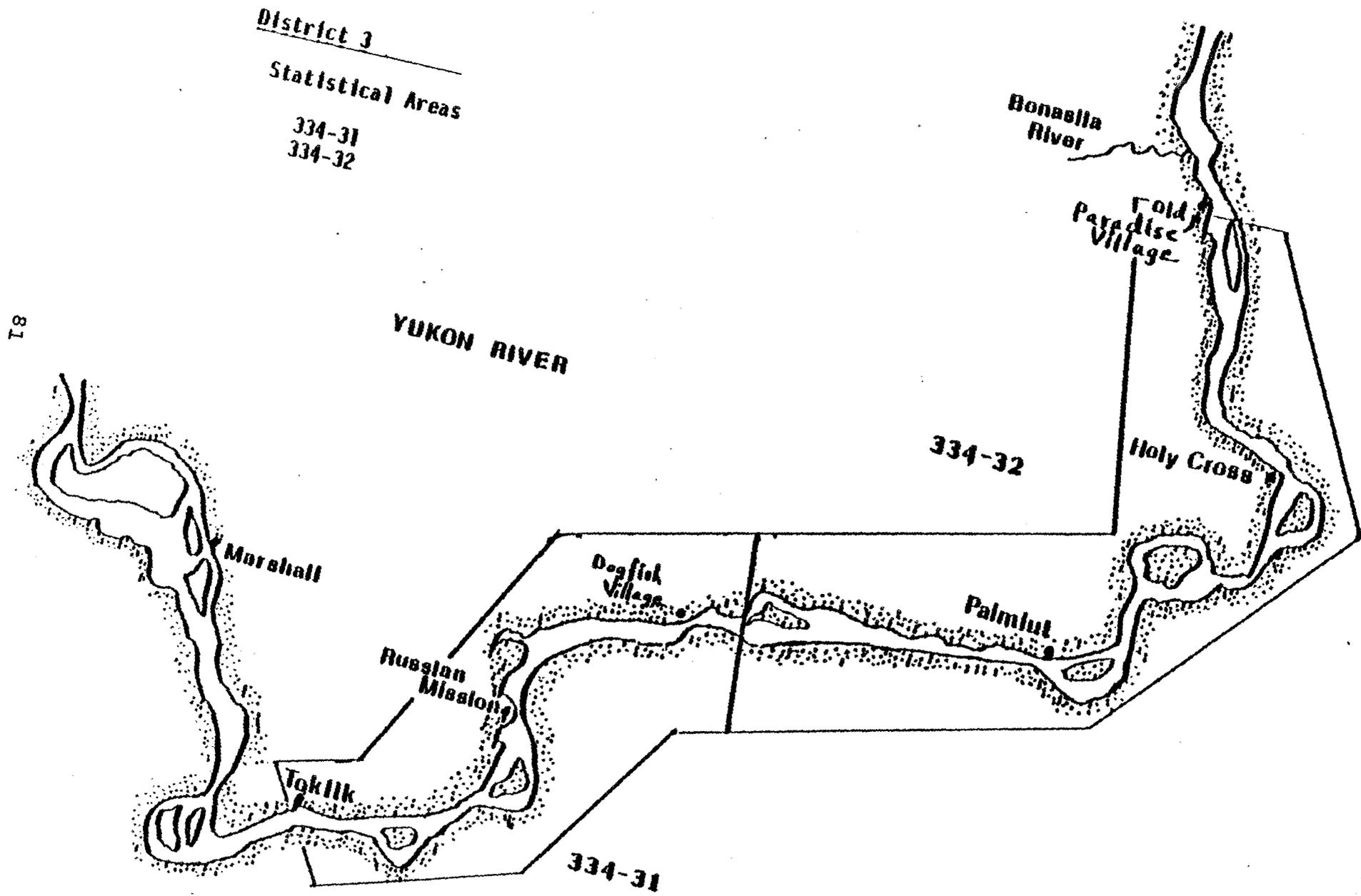


Figure 4. District 2 of Yukon management area with statistical areas.



District 3
 Statistical Areas
 334-31
 334-32

18

Figure 5. District 3 of Yukon management area with statistical areas.

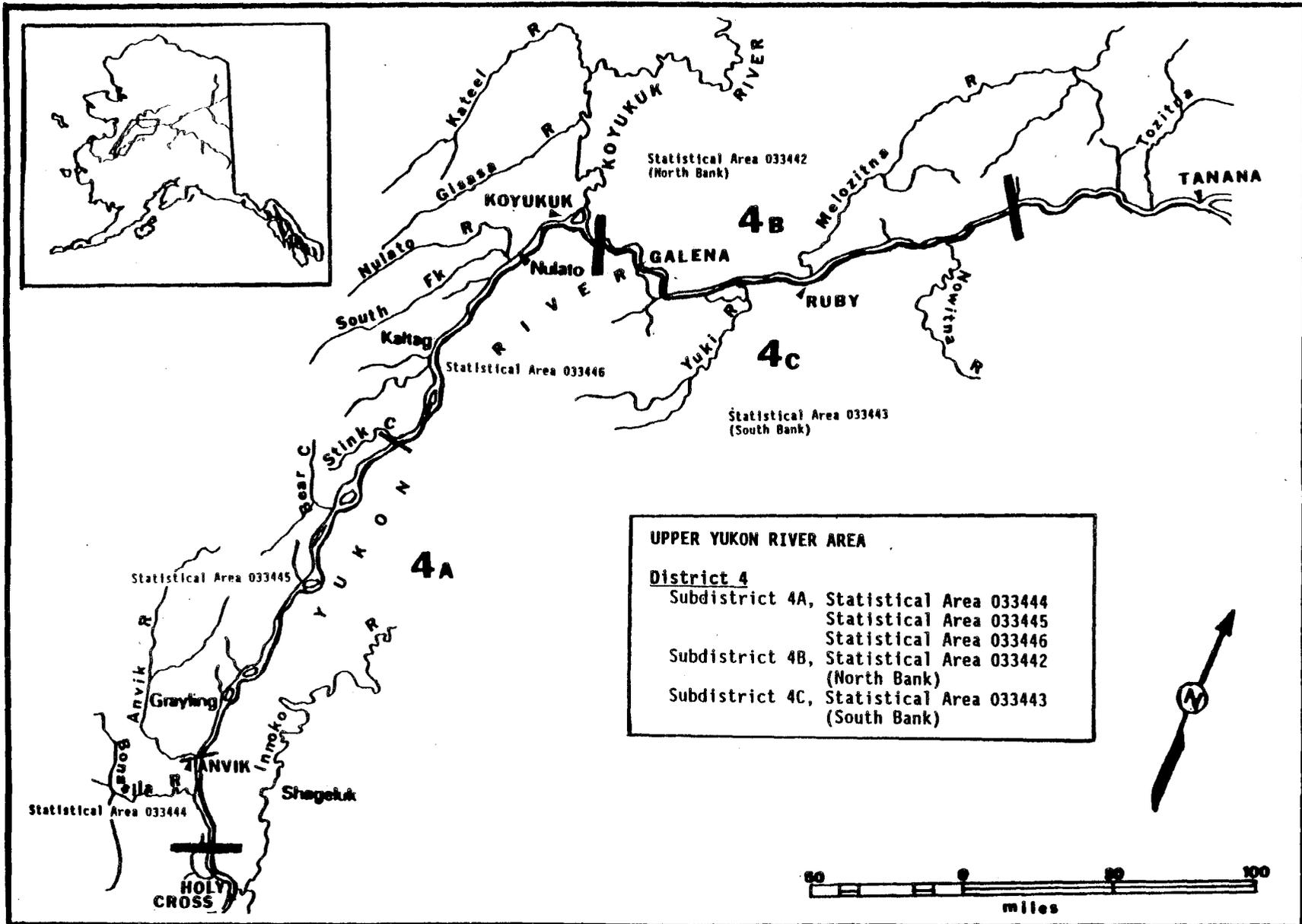


Figure 6. District 4 of Yukon management area with statistical areas.

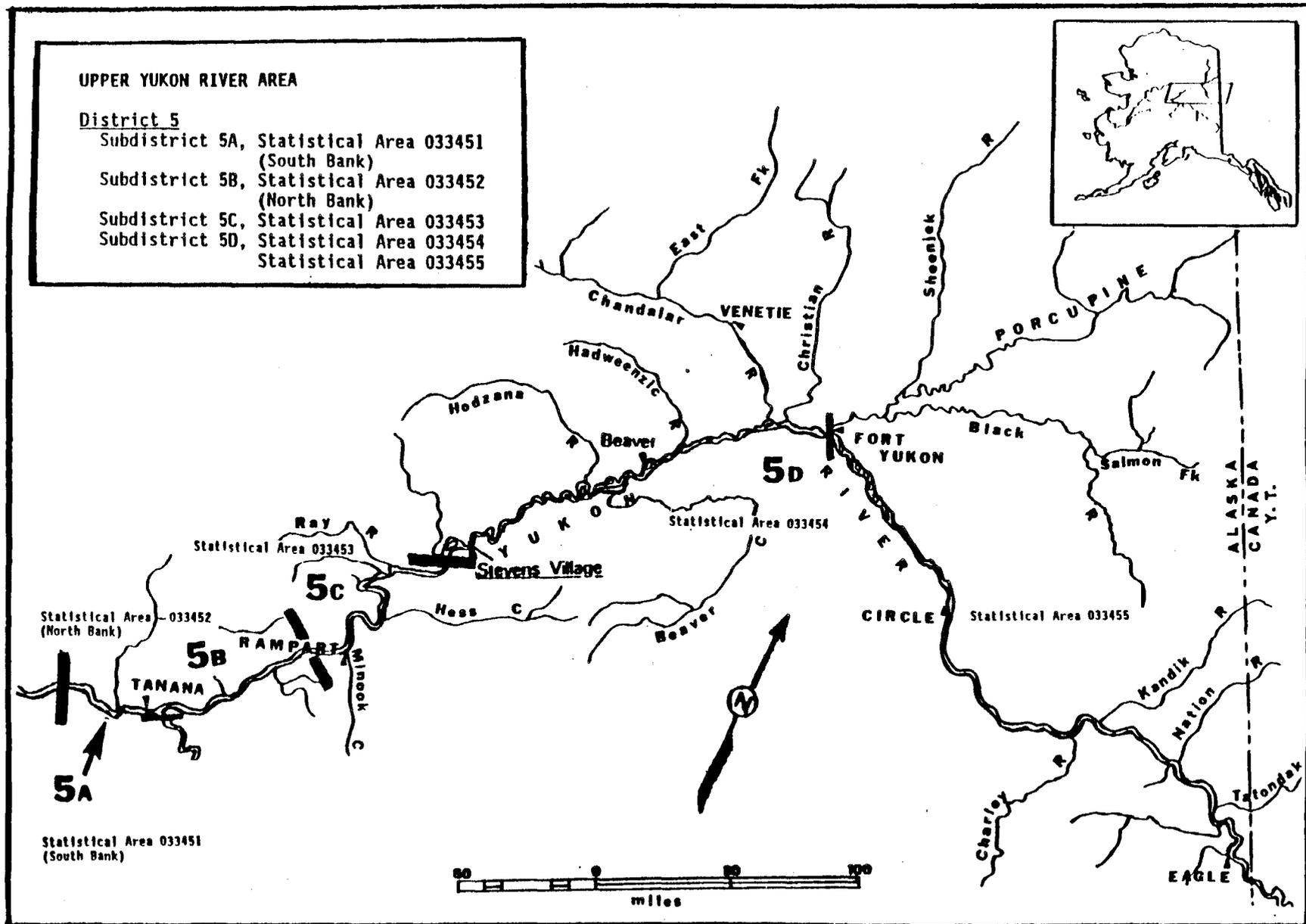


Figure 7. District 5 of Yukon management area with statistical areas.

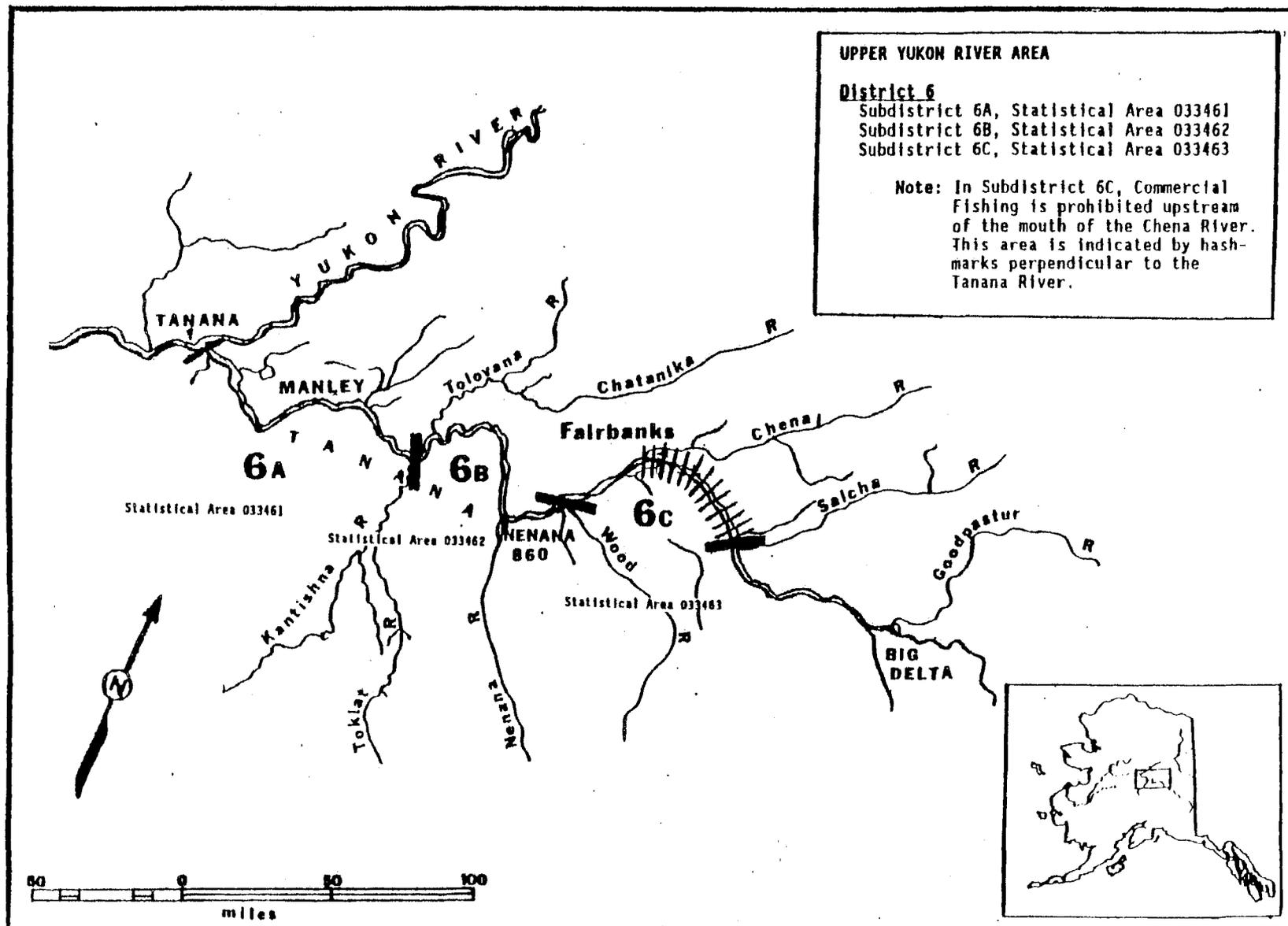


Figure 8. District 6 of Yukon management area with statistical areas.

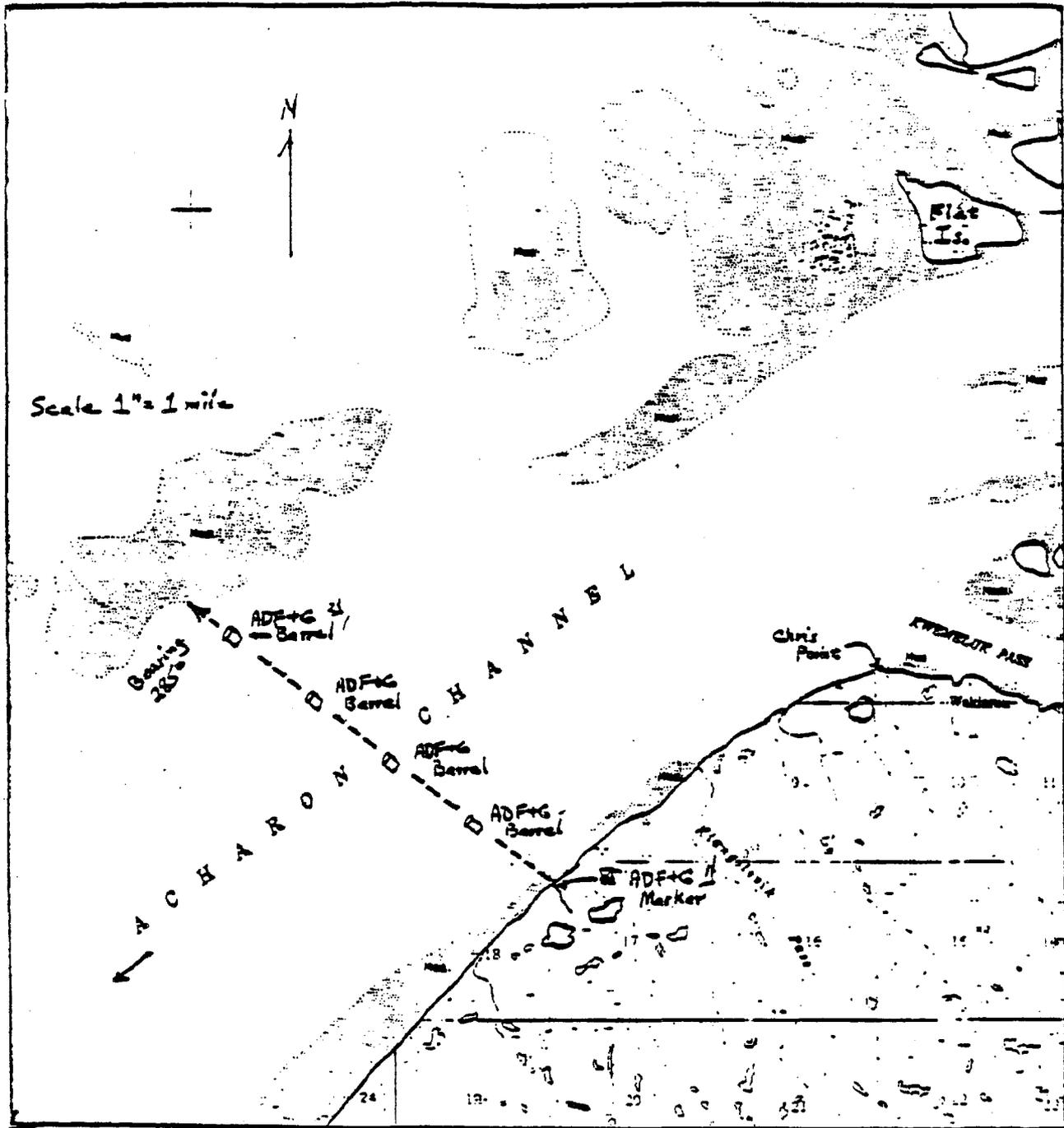


Figure 9. Closed waters Acharon Channel, south mouth Yukon River. (5AAC 05.350. CLOSED WATERS. (1) Acharon Channel of the south mouth area of the Yukon River west of a 2-1/2 nautical mile long line bearing 285° from an ADF&G regulatory marker located below Chris Point to the opposite side of the channel; the line may be marked by a series of yellow and green barrels placed by the Department between shore markers).

1/ ADF&G Regulatory Marker Sign, erected 5' height with driftwood logs, located on river bank at terminus of rivulet between two lakes approximately 2-1/2 miles below Chris Point.

2/ ADF&G yellow and green 55 gal. barrels anchored offshore.

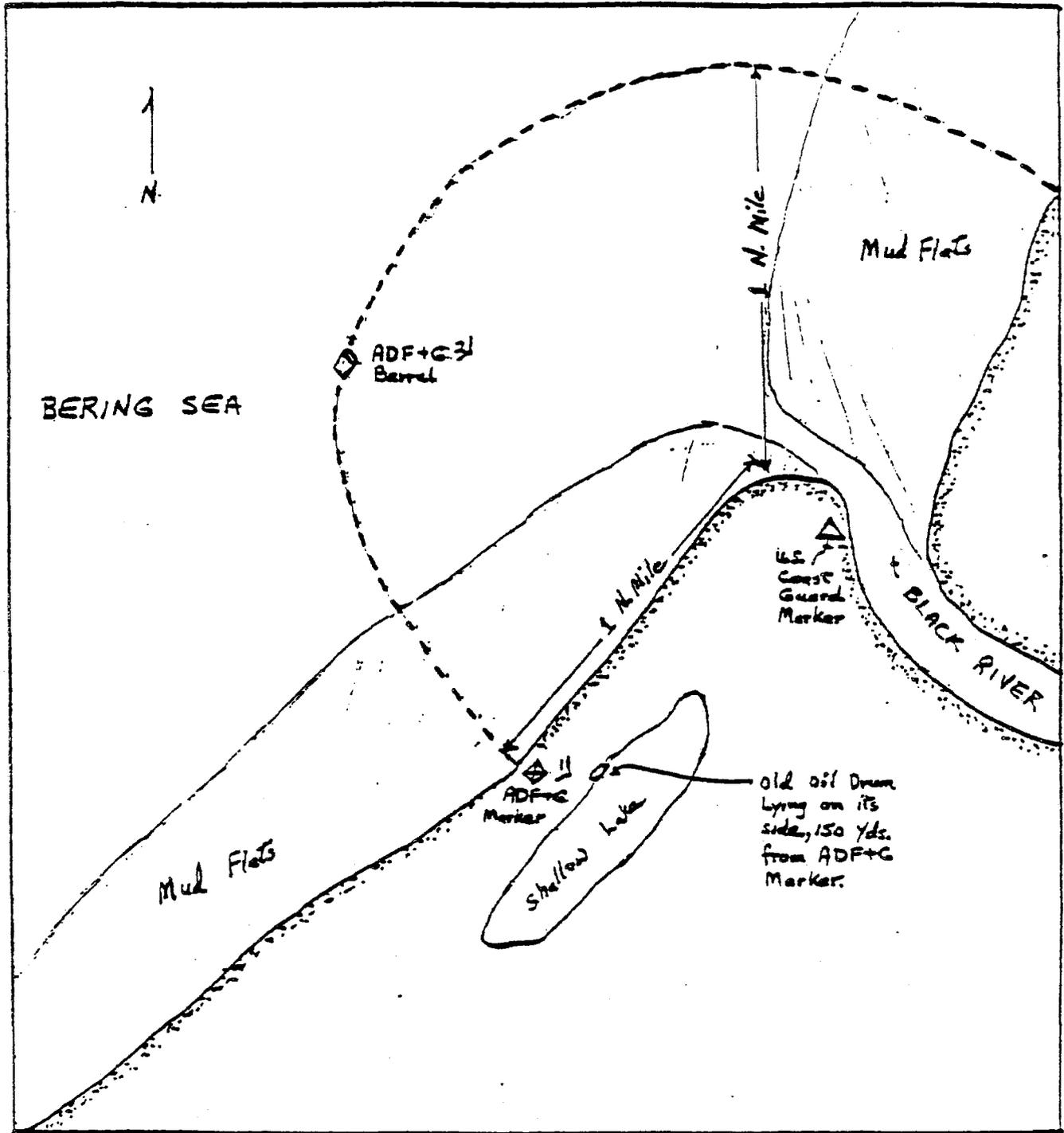


Figure 10. Closed waters of Black River mouth. (5AAC 05.350. CLOSED WATERS. (3) waters west of a one nautical mile radius from the mouth of Black River).

- 1/ ADF&G Regulatory Marker Sign erected 6' height with driftwood logs.
- 2/ ADF&G yellow and green 55 gal. barrel anchored 1 nautical mile offshore.

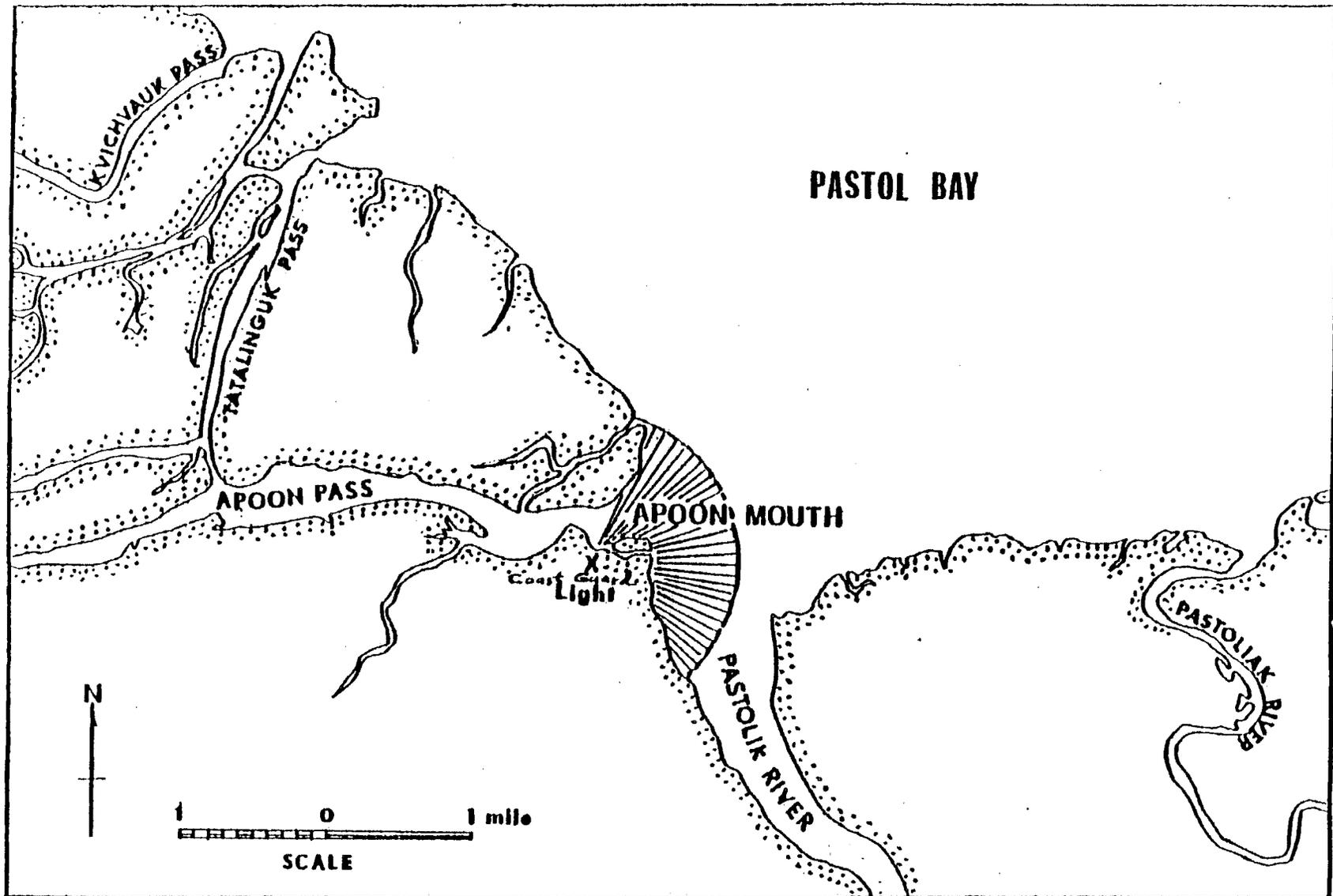


Figure 11. Closed waters of Apoon Mouth, Yukon River (5 AAC 05.350. CLOSED WATERS. (9) Waters east of a one nautical mile radius from a U.S. Coast Guard light at the mouth of Apoon Pass).

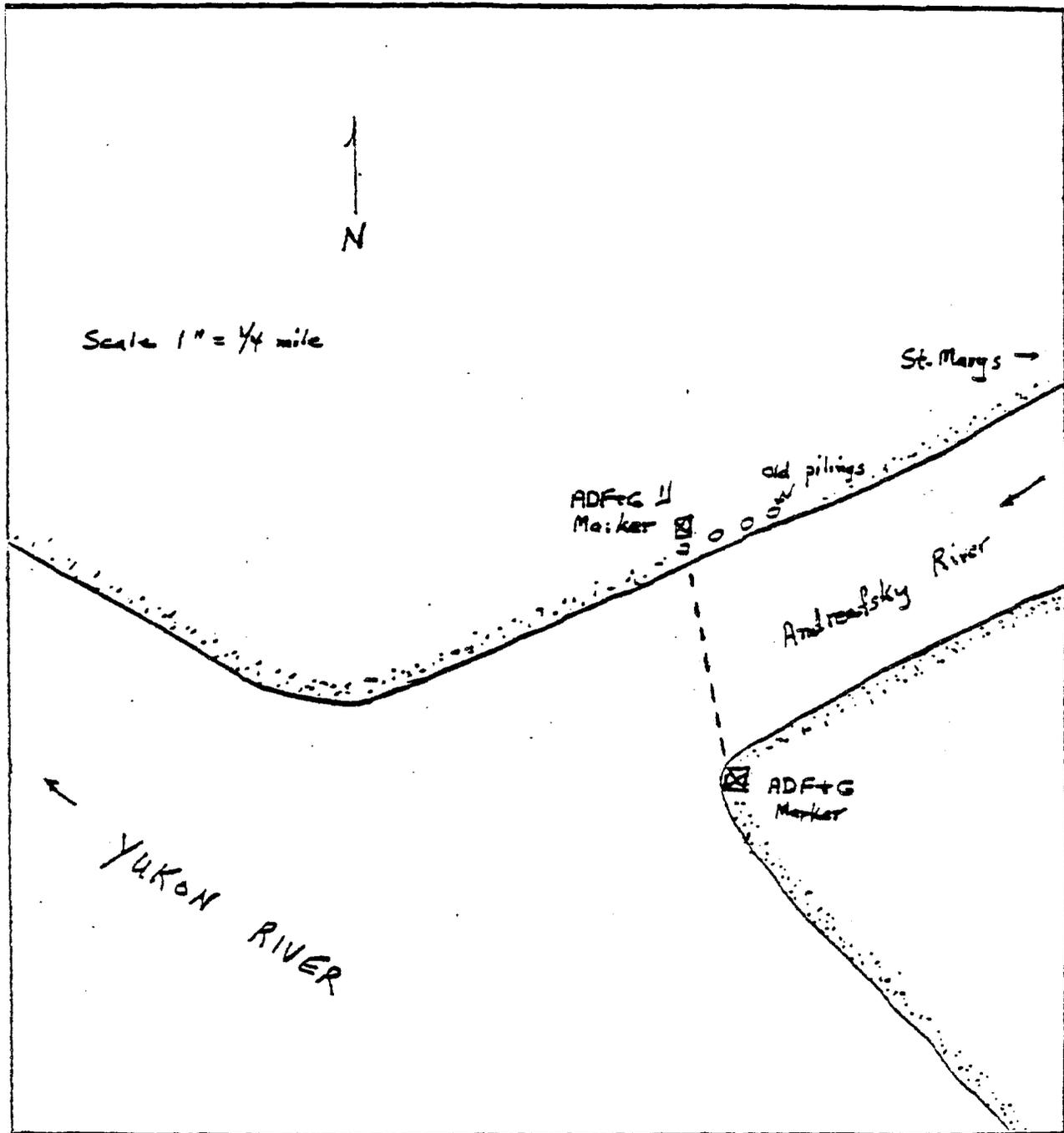


Figure 12. Closed waters of Andreafsky River mouth. (5AAC 05.350. CLOSED WATERS. (4) waters of the Andreafsky River upstream of a line from Department regulatory markers placed on each side of the river at its mouth).

1/ North bank ADF&G regulatory marker sign attached to 4th wooden piling stump downstream.

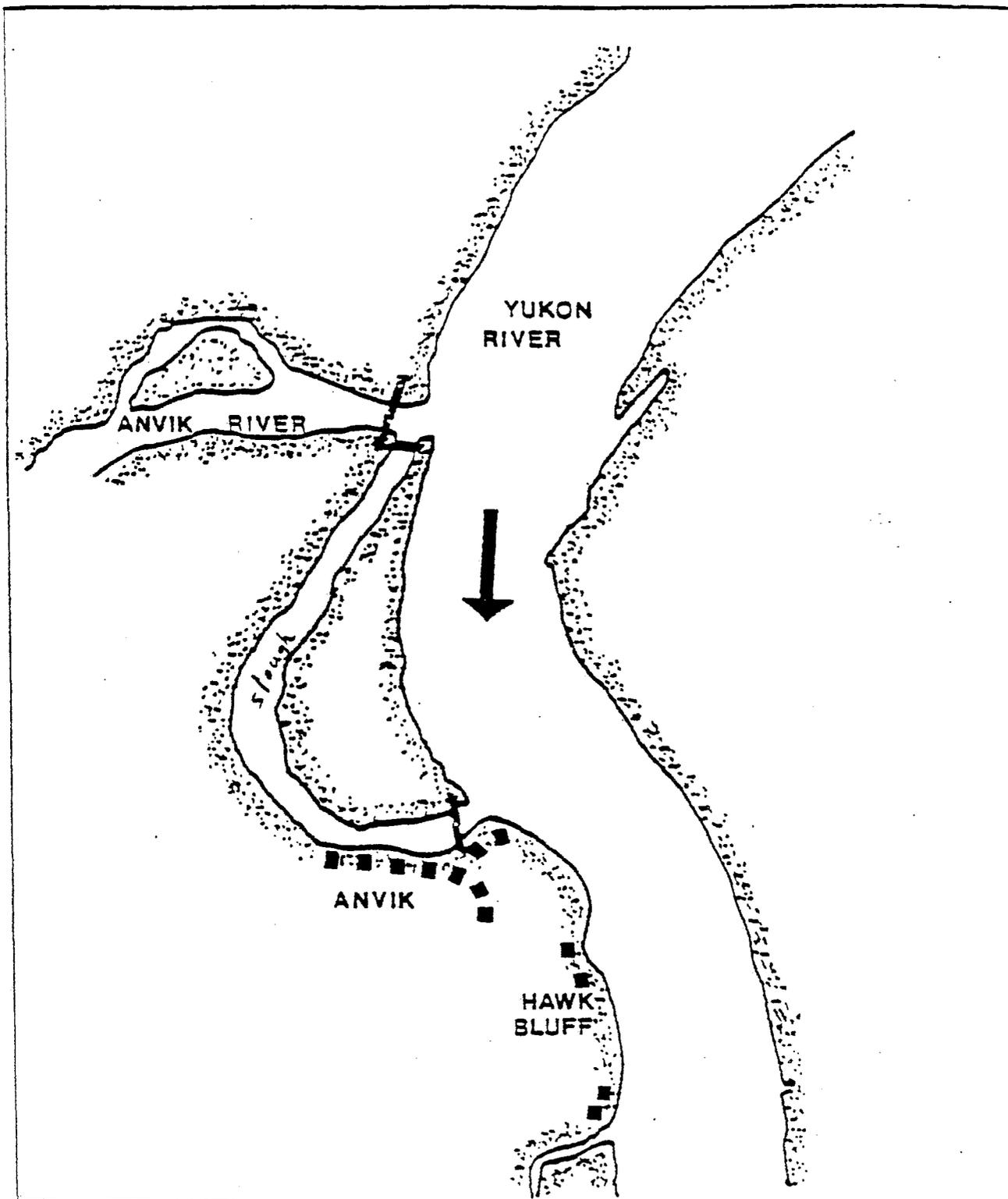


Figure 13. Closed waters of Anvik River mouth. (5AAC 05.350. (CLOSED WATERS (8) waters of the Anvik River upstream of a line between department regulatory markers placed on each side of the river at its mouth). Markers (6) placed north and south banks of the Anvik River mouth and at upstream and downstream mouths of slough (Old Anvik River Channel).

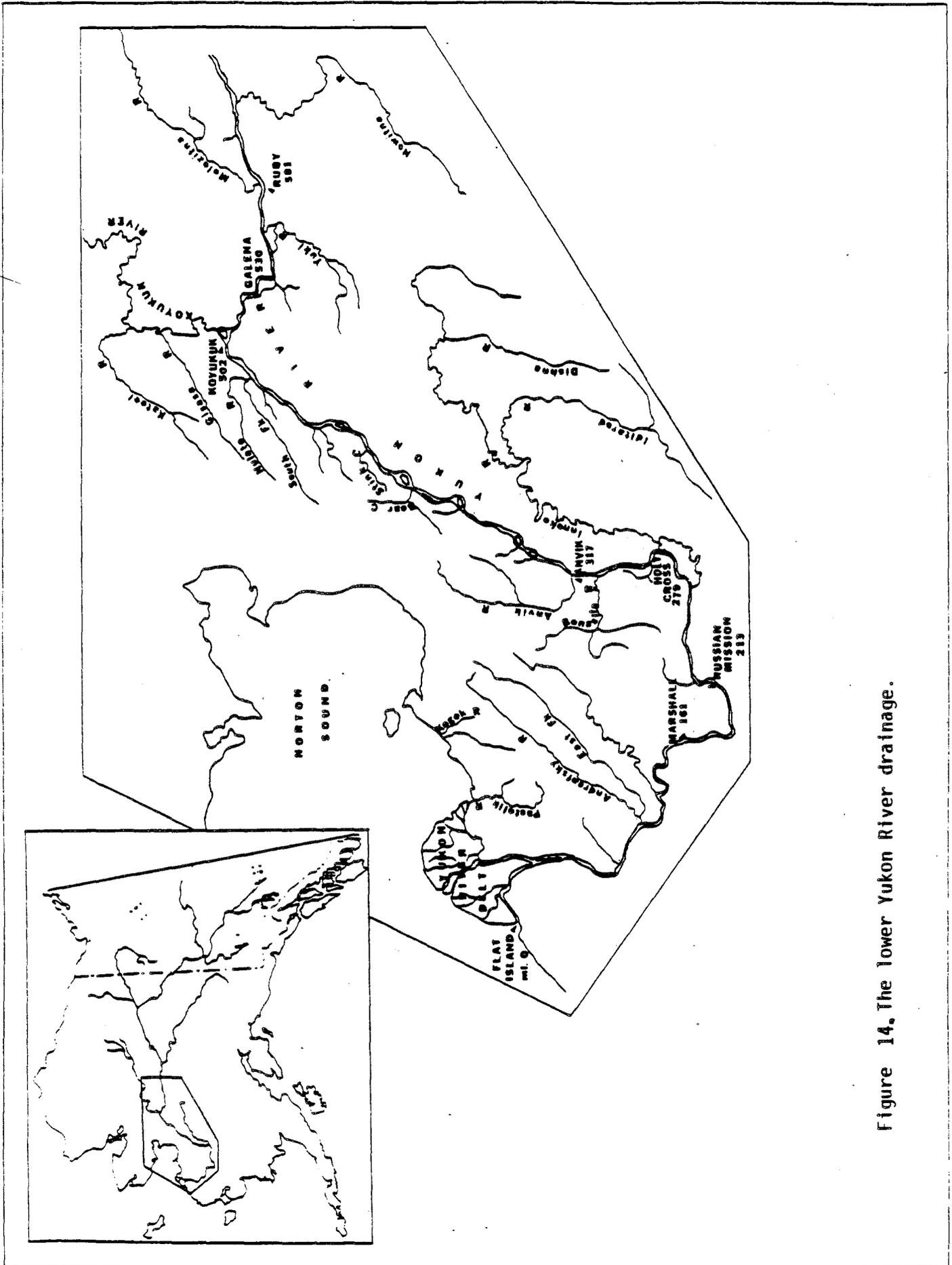


Figure 14. The lower Yukon River drainage.

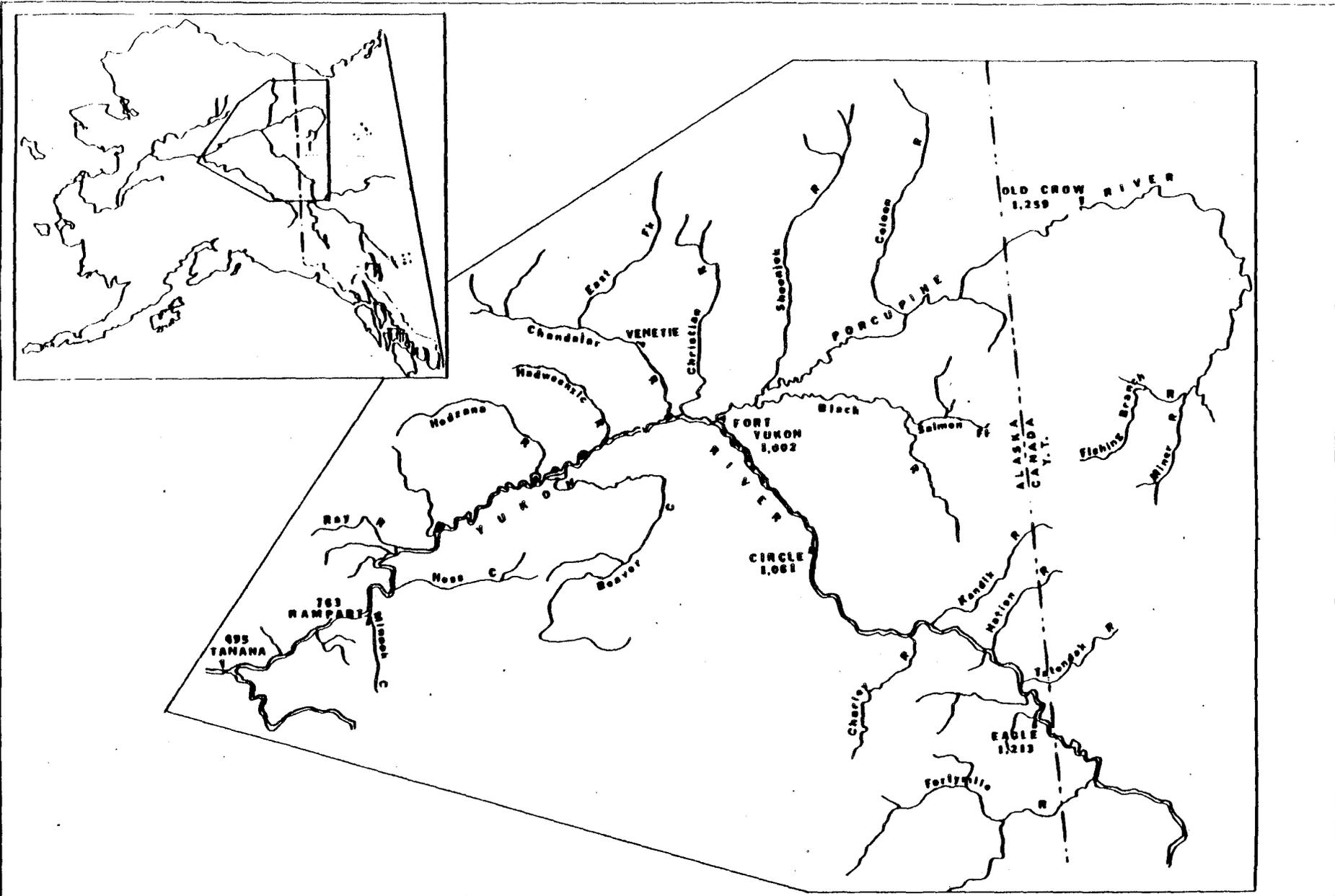


Figure 17. The middle Yukon River and Porcupine River drainage.

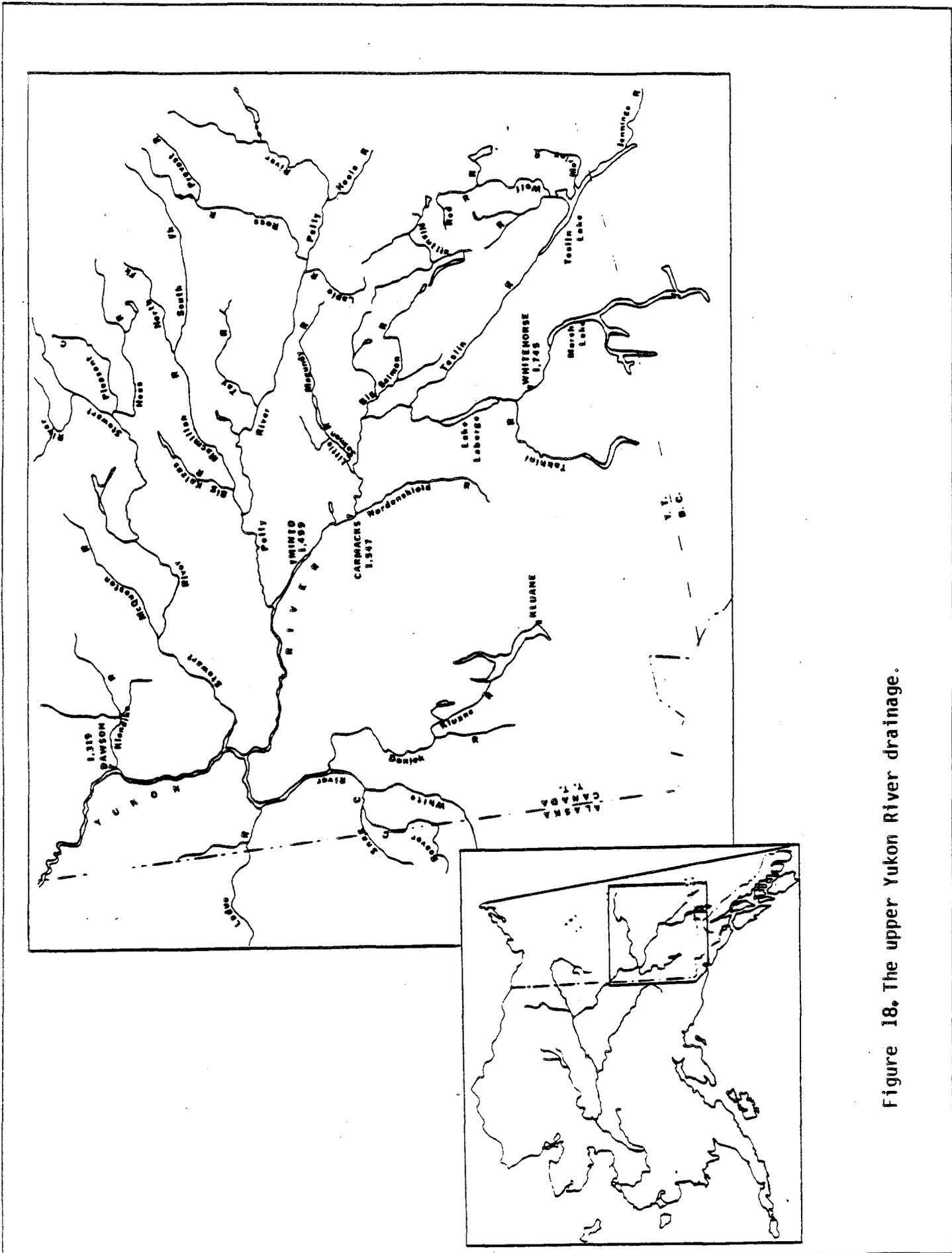


Figure 18. The upper Yukon River drainage.

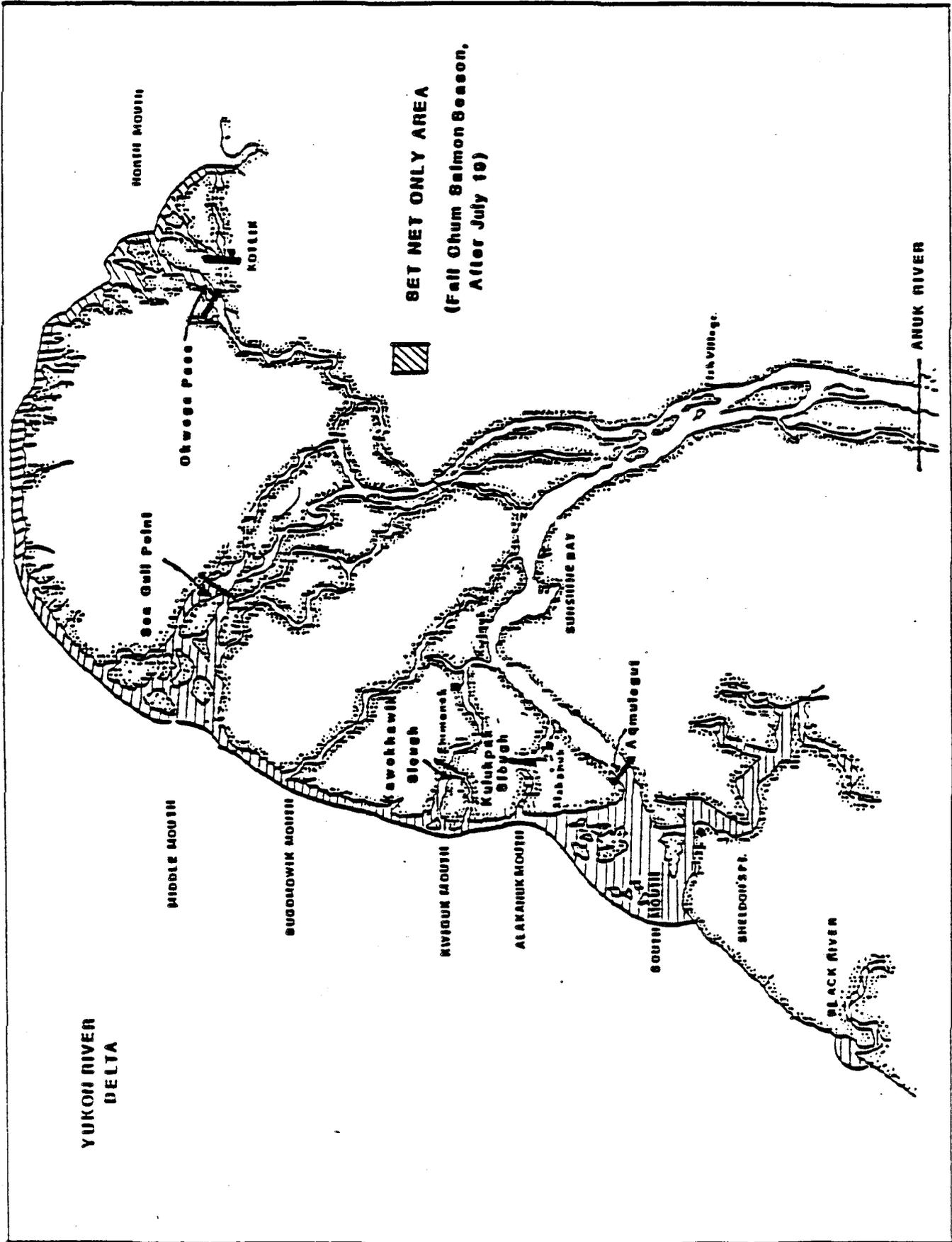


Figure 19. Setnet only area, District I of the Yukon Management Area.

APPENDIX A

YUKON RIVER DRAINAGE WIDE SALMON

Appendix A.1. List of indigenous fishes found in the Yukon Area.^a

Species Code	Scientific Name	Common Name
601	<i>Lampetra japonica</i>	Arctic lamprey
570	<i>Stenodus leucichthys</i>	sheefish
588	<i>Coregonus nasus</i>	broad whitefish
589	<i>Coregonus pidschian</i>	humpback whitefish
583	<i>Coregonus sardinella</i>	least cisco
585	<i>Coregonus laurettae</i>	Bering cisco
586	<i>Prosopium cylindraceum</i>	round whitefish
587	<i>Prosopium coulteri</i>	pygmy whitefish
610	<i>Thymallus arcticus</i>	Arctic grayling
550	<i>Salvelinus namaycush</i>	lake trout
520	<i>Salvelinus alpinus</i>	Arctic char
530	<i>Salvelinus malma</i>	Dolly Varden
410	<i>Oncorhynchus tshawytscha</i>	chinook salmon
420	<i>Oncorhynchus nerka</i>	sockeye salmon
430	<i>Oncorhynchus kisutch</i>	coho salmon
440	<i>Oncorhynchus gorbuscha</i>	pink salmon
450	<i>Oncorhynchus keta</i>	chum salmon
513	<i>Osmerus mordax dentex</i>	rainbow smelt
514	<i>Hypomesus olidus</i>	pond smelt
500	<i>Esox lucius</i>	Northern pike
630	<i>Dallia pectoralis</i>	blackfish
650	<i>Couesius plumbeus</i>	lake chub
640	<i>Catostomus catostomus</i>	longnose sucker
670	<i>Percopsis omiscomaycus</i>	trout-perch
590	<i>Lota lota</i>	burbot, lush
661	<i>Pungitius pungitius</i>	nine-spine stickleback
162	<i>Cottus cognatus</i>	slimy sculpin
ESTUARINE		
113	<i>Eleginus gracilis</i>	saffron cod
122	<i>Liopsetta glacialis</i>	Arctic flounder
127	<i>Limanda aspera</i>	yellowfin sole
129	<i>Platichthys stellatus</i>	starry flounder
192	<i>Hexagrammos stelleri</i>	whitespotted greenling
230	<i>Clupea harengus pallasi</i>	Pacific herring
516	<i>Mallotus villosus</i>	capelin
NA	<i>Megalocottus platycephalus</i>	sculpin

a Includes fishes found in the Yukon River drainage in Canada.

Appendix A.2. Yukon River drainage mileages.

<u>Location</u>	<u>Mileage from Mouth</u>	<u>Location</u>	<u>Mileage from Mouth</u>
NORTH MOUTH (APOON PASS)		Ohogamuit	185
Kotlik	6	Toklik	191
Hamilton	26		
MIDDLE MOUTH (KWIKPAK, KAWANAK PASS)		<u>(District 2/3 Boundary)</u>	
Choolunawick	16	Kakamut	193
Akers Camp	26	Russian Mission	213
New Hamilton	34	Dogfish Village	227
SOUTH MOUTH (KWIKLUAK PASS)		Paimuit	251
Mouth, Black River	-18	Mouth, Innoko River	274
Flat Island	0	(South Slough)	
Sheldon Point	5	Shageluk	328
Tin Can Point	8	Holikachuk	383
Alakanuk	17	Holy Cross	279
Emmonak-Kwiguk (Kwiguk Pass)	24	Mouth, Koserefski River	286
Sunshine Bay	24	Old Paradise Village	301
Aproka Pass (upstream mouth)	35		
Kwikipak Pass (upstream mouth)	44	<u>(District 3/4 Boundary)</u>	
Head of Passes	48	Mouth, Bonasila River	306
Fish Village	52	Anvik	317
Mouth, Anuk River	63	Mouth, Anvik River	318
<u>(District 1/2 Boundary)</u>		Grayling	36
Patsys Cabin	71	Mouth, Thompson Creek	349
Mountain Village	87	Blackburn	370
Old Andraefsky	97	Eagle Slide	402
Pitkas Point	103	Mouth, Rodo River	447
Mouth, Andraefsky River	104	Kaltag	450
St. Marys	107	Mouth, Nulato River	483
Pilot Station	122	Nulato	484
Mouth, Atcheulinguk		Koyukuk	502
(Chulinak) River	126	Mouth, Koyukuk River	508
Pilot Village	138	Mouth, Gisasa River	564
Marshall (Fortuna Ledge)	161	Huslia	711
Upstream Mouth Owl Slough	163	Mouth, Dakli River	755
Ingrihak	170	Mouth, Hogatza River	780
		Hughes	881
		Mouth, Kanuti River	935
		Alatna (Mouth, Alatna R.)	956
		Allakaket	956
		Mouth, South Fork	986
		Mouth, John River	1,117

Appendix A.2. (continuation page 2 of 3)

<u>Location</u>	<u>Mileage from Mouth</u>	<u>Location</u>	<u>Mileage from Mouth</u>
Bettles	1,121	(Richardson-Clearwater)	
Middle Fork	1,141	Mouth, Shaw Creek	1,021
Cold Foot	1,174	Mouth, Delta River	1,031
Wiseman	1,186	(Big Delta)	
Bishop Rock	514	Delta Junction	1,041
Prospect Point	519	Mouth, Goodpaster River	1,049
Galena	530	Bluff Cabin Slough	1,050
Whiskey Creek	555	Outlet, Clearwater Lake	1,052
Mouth, Yuki River	562	Outlet, Clearwater Crk	1,053
Ruby	581	(Delta Clearwater)	
Mouth, Melozitna River	583	Mouth, Gerstle River	1,059
Horner Hot Springs	605	Outlet, Healy Lake	1,071
Kokrines	608	Outlet, Lake George	1,086
Mouth, Nowitna River	612	Tanacross	1,128
Birches	647	Outlet, Tetlin Lake	1,188
Kallands-Mouth of Illinois Creek	664	Mouth, Nabesna River	1,210
		Northway Junction	1,214
<u>(District 4/5 Boundary)</u>		Mouth, Chisana River	1,215
Mouth, Tozitna River	681	Mouth, Sheep Creek	1,297
Tanana Village	695	Rampart Rapids	731
Mouth, Tanana River	695	Rampart	763
		Mouth, Hess Creek	789
<u>(District 5/6 Boundary)</u>		Mouth, Ray River	817
Manley Hot Springs	765	Highway Bridge -	820
Mouth, Kantishna River	793	Pipeline Crossing	
Mouth, Toklat River	838	Mouth, Dall River	841
Mouth, Sushana R.	850	Stevens Village	847
Mouth, Bearpaw River	887	Mouth, Hodzana River	897
Outlet, L. Minchumina	959	Beaver	932
Minto	835	Mouth Hadweenzic River	952
Nenana	860	Mouth, Chandalar River	
Mouth, Nenana River	860	(Venetie Landing)	982
Mouth, Wood River	894	Venetie	1,025
Rosie Creek Bluffs	912	Fort Yukon	1,002
Mouth, Chena R. (Fairbanks)	920	Mouth, Porcupine River	1,002
Mouth, Salcha River	965	Mouth, Black River	1,026
Benchmark #735 Slough	991	Chalkyitsik	1,084
Mouth, Little Delta R.	1,000	Mouth, Salmon Fork R.	1,142
Mouth, Delta Creek	1,014	Mouth, Sheenjok River	1,054
Mouth, Clear Creek	1,015	Mouth, Coleen River	1,157

Appendix A.2. (continuation page 3 of 3)

<u>Location</u>	<u>Mileage from Mouth</u>	<u>Location</u>	<u>Mileage from Mouth</u>
Mouth, Salmon Trout R.	1,193	Mouth, N. Big Salmon R.	1,641
U.S. - Canadian Border	1,219	Mouth, S. Big Salmon R.	1,657
Old Crow	1,259	Outlet, Big Salmon Lake	1,714
Fishing Branch R.	1,600	Mouth, Teslin River	1,654
spawning area		Roaring Bull Rapids	1,707
Circle	1,061	Johnson's Crossing	
Woodchopper	1,110	(Outlet, Teslin L.)	1,756
Mouth, Charley River	1,124	Teslin	1,780
Mouth, Kandik River	1,135	Mouth Nisutlin River	1,788
Mouth, Nation River	1,166	Mouth, Sidney Creek	1,837
Mouth, Tatonduk River	1,186	Mouth, Hundred Mi. Creek	1,851
Mouth, Seventymile River	1,194	Mouth, McNeil River	1,887
Eagle	1,213	Outlet, Nisutlin Lake	1,892
<u>U.S.-Canadian border</u>	<u>1,224</u>	Outlet, Lake Laberge	1,679
Mouth, Fortymile River	1,269	Inlet, Lake Laberge	1,712
Dawson	1,319	Mouth, Takhini River	1,718
Mouth, Klondike River	1,320	Whitehorse	1,745
Mouth, Sixty Mile River	1,369	Outlet, Marsh Lake, 764	
Mouth, Stewart River	1,375	Mouth, M'Clintock River	1,769
McQuesten	1,455	Outlet, Little Atlin L.	1,788
Stewart Crossing	1,491	Outlet, Atlin Lake	1,812
Mayo	1,520	Atlin	1,844
Mouth, Hess River	1,594	Tagish	1,786
Mouth, White River	1,386	Outlet, Tagish Lake	1,788
Mouth, Donjek River	1,455	Carcross	1,810
Mouth Kluane River	1,541	(Outlet L. Bennett)	
Outlet Kluane L.	1,587	Bennett	1,835
Burwash Landing	1,595		
Kluane	1,625		
Fort Selkirk	1,477		
Mouth, Pelly River	1,478		
Pelly Crossing	1,410		
Mouth, MacMillan River	1,442		
Ross River	1,602		
Minto	1,499		
Mouth Tatchun Creek	1,530		
Carmacks	1,547		
Mouth, Little Salmon River	1,583		
Mouth, Big Salmon River	1,621		

Appendix A.3. Alaskan and Canadian total utilization of Yukon River salmon, 1903-1991.

Year	Alaska ^a			Canada ^a			Total		
	Chinook	Other Salmon	Total	Chinook	Other Salmon	Total	Chinook	Other Salmon	Total
1903						4,666			4,666
1904									
1905									
1906									
1907									
1908						7,000			7,000
1909						9,238			9,238
1910									
1911									
1912									
1913						12,133			12,133
1914						12,573			12,573
1915						10,466			10,466
1916						9,566			9,566
1917									
1918	12,239	1,500,065	1,512,304			7,066	12,239	1,500,065	1,519,370
1919	104,822	738,790	843,612			1,800	104,822	738,790	845,412
1920	78,467	1,015,655	1,094,122			12,000	78,467	1,015,655	1,106,122
1921	69,646	112,098	181,744			10,840	69,646	112,098	192,584
1922	31,825	330,000	361,825			2,420	31,825	330,000	364,245
1923	30,893	435,000	465,893			1,833	30,893	435,000	467,726
1924	27,375	1,130,000	1,157,375			4,560	27,375	1,130,000	1,161,935
1925	15,000	259,000	274,000			3,900	15,000	259,000	277,900
1926	20,500	555,000	575,500			4,373	20,500	555,000	579,873
1927		520,000	520,000			5,366		520,000	525,366
1928		670,000	670,000			5,733		670,000	675,733
1929		537,000	537,000			5,226		537,000	542,226
1930		633,000	633,000			3,660		633,000	636,660
1931	26,693	565,000	591,693			3,473	26,693	565,000	595,166
1932	27,899	1,092,000	1,119,899			4,200	27,899	1,092,000	1,124,099
1933	28,779	603,000	631,779			3,333	28,779	603,000	635,112
1934	23,365	474,000	497,365			2,000	23,365	474,000	499,365
1935	27,665	537,000	564,665			3,466	27,665	537,000	568,131
1936	43,713	560,000	603,713			3,400	43,713	560,000	607,113
1937	12,154	346,000	358,154			3,746	12,154	346,000	361,900
1938	32,971	340,450	373,421			860	32,971	340,450	374,281
1939	28,037	327,650	355,687			720	28,037	327,650	356,407
1940	32,453	1,029,000	1,061,453			1,153	32,453	1,029,000	1,062,606
1941	47,608	438,000	485,608			2,806	47,608	438,000	488,414
1942	22,487	197,000	219,487			713	22,487	197,000	220,200
1943	27,650	200,000	227,650			609	27,650	200,000	228,259
1944	14,232		14,232			986	14,232		15,218
1945	19,727		19,727			1,333	19,727		21,060
1946	22,782		22,782			353	22,782		23,135
1947	54,026		54,026			120	54,026		54,146
1948	33,842		33,842				33,842		33,842
1949	36,379		36,379				36,379		36,379
1950	41,808		41,808				41,808		41,808
1951	56,278		56,278				56,278		56,278
1952	38,637	10,868	49,505				38,637	10,868	49,505
1953	58,859	385,977	444,836				58,859	385,977	444,836
1954	64,545	14,375	78,920				64,545	14,375	78,920
1955	55,925		55,925				55,925		55,925
1956	62,208	10,743	72,951				62,208	10,743	72,951
1957	63,623		63,623				63,623		63,623
1958	75,625	337,500	413,125	11,000	1,500	12,500	86,625	339,000	425,625
1959	78,370		78,370	8,434	3,098	11,532	86,804	3,098	89,902
1960	67,597		67,597	9,653	15,608	25,261	77,250	15,608	92,858

-Continued-

Year	Alaska ^a			Canada ^c			Total		
	Chinook	Other Salmon	Total	Chinook	Other Salmon	Total	Chinook	Other Salmon	Total
1961	141,152	452,521	593,673	13,246	9,076	22,322	154,398	461,597	615,995
1962	105,844	425,277	531,121	13,937	9,436	23,373	119,781	434,713	554,494
1963	141,910	401,700	543,610	10,077	27,696	37,773	151,887	429,396	581,383
1964	109,818	492,233	602,051	7,408	12,187	19,595	117,226	504,420	621,646
1965	134,706	472,798	607,504	5,380	11,789	17,169	140,086	484,587	624,673
1966	104,887	296,310	401,197	4,452	13,192	17,644	109,339	309,502	418,841
1967	146,104	335,436	481,540	5,150	16,961	22,111	151,254	352,397	503,651
1968	118,632	259,185	377,817	5,042	11,633	16,675	123,674	270,818	394,492
1969	105,027	416,623	521,650	2,624	7,776	10,400	107,851	424,399	532,050
1970	93,019	582,049	675,068	4,663	3,711	8,374	97,682	585,760	683,442
1971	136,191	530,537	666,728	6,447	16,911	23,358	142,638	547,448	690,086
1972	113,098	454,085	567,183	5,729	7,532	13,261	118,827	461,617	580,444
1973	99,670	769,023	868,693	4,522	10,135	14,657	104,192	779,158	883,350
1974	118,053	1,218,032	1,336,085	5,631	11,646	17,277	123,684	1,229,678	1,353,362
1975	76,883	1,286,437	1,363,320	6,000	20,600	26,600	82,883	1,307,037	1,389,920
1976	105,582	1,021,708	1,127,290	5,025	5,200	10,225	110,607	1,026,908	1,137,515
1977	114,338	1,090,330	1,204,668	7,527	12,479	20,006	121,865	1,102,809	1,224,674
1978	129,465	1,631,479	1,760,944	5,881	9,566	15,447	135,346	1,641,045	1,776,391
1979	158,678	1,631,072	1,789,750	10,375	22,084	32,459	169,053	1,653,156	1,822,209
1980	196,709	1,730,410	1,927,119	22,846	22,218	45,064	219,555	1,752,628	1,972,183
1981	187,708	2,097,214	2,284,922	18,109	22,281	40,390	205,817	2,119,495	2,325,312
1982	151,802	1,264,580	1,416,382	17,208	16,091	33,299	169,010	1,280,671	1,449,681
1983	197,388	1,677,390	1,874,778	18,952	29,490	48,442	216,340	1,706,880	1,923,220
1984	162,332	1,546,685	1,709,017	16,795	29,267	46,062	179,127	1,575,952	1,755,079
1985	185,959	1,655,909	1,841,868	19,301	41,265	60,566	205,260	1,697,174	1,902,434
1986	145,208	1,756,395	1,901,603	20,364	14,493	34,857	165,572	1,770,888	1,936,460
1987 ^b	187,884	1,244,038	1,431,922	17,614	44,480	62,094	205,498	1,288,518	1,494,016
1988	148,011	2,312,894	2,460,905	21,427	33,565	54,992	169,438	2,346,459	2,515,897
1989	153,560	2,270,272	2,423,832	17,944	23,020	40,964	171,504	2,293,292	2,464,796
1990	148,706	1,047,507	1,196,213	19,230	33,622	52,852	167,114	1,059,943	1,249,065
1991	149,094	1,313,324	1,462,418	20,607	35,418	56,025	169,701	1,348,742	1,518,443

^a Commercial and subsistence harvest, and ADF&G test fishery sales combined in numbers of fish, including "equivalent fish" (typically 1 lb of roe per female) converted from roe sales. See ADF&G 1985 Yukon Area Annual Management Report for data sources and methods of catch estimation used for some years.

^b Includes estimates of catches involved in illegal salmon and salmon roe sales.

^c Commercial, Indian food, Domestic, and sport catches combined.

Appendix A.4. Commercial chinook salmon sales by district and country, Yukon River drainage, 1961-1991. a

Year	Lower Yukon Area				Upper Yukon Area							Subtotal Numb	Total Roe	Alaska Total	Canada Total	Grand Total
	Dist. 1	Dist. 2	Dist. 3	Subtotal	Dist. 4	Roe	Dist. 5	Roe	Dist. 6	Roe						
1961	84,466	29,026	4,368	117,860	-	-	-	-	-	-	1,804	-	119,664	3,446	123,110	
1962	67,099	22,224	4,687	94,010	-	-	-	-	-	-	724	-	94,734	4,037	98,771	
1963	85,004	24,221	7,020	116,245	-	-	-	-	-	-	803	-	117,048	2,283	119,331	
1964	67,555	20,246	4,705	92,506	-	-	-	-	-	-	1,081	-	93,587	3,208	96,795	
1965	89,268	23,763	3,204	116,235	-	-	-	-	-	-	1,863	-	118,098	2,265	120,363	
1966	70,788	16,927	3,612	91,327	-	-	-	-	-	-	1,988	-	93,315	1,942	95,257	
1967	104,350	20,239	3,618	128,207	-	-	-	-	-	-	1,449	-	129,656	2,187	131,843	
1968	79,465	21,392	4,543	105,400	-	-	-	-	-	-	1,126	-	106,526	2,212	108,738	
1969	71,688	14,756	3,595	90,039	-	-	-	-	-	-	988	-	91,027	1,640	92,667	
1970	56,648	17,141	3,705	77,494	-	-	-	-	-	-	1,651	-	79,145	2,611	81,756	
1971	86,042	19,226	3,490	108,758	-	-	-	-	-	-	1,749	-	110,507	3,178	113,685	
1972	70,052	17,855	3,841	91,748	-	-	-	-	-	-	1,092	-	92,840	1,769	94,609	
1973	56,981	13,859	3,204	74,044	-	-	-	-	-	-	1,309	-	75,353	2,199	77,552	
1974	71,840	17,948	3,480	93,268	685	-	2,663	-	1,473	-	4,821	-	98,089	1,808	99,897	
1975	44,585	11,315	4,177	60,077	389	-	2,872	-	500	-	3,761	-	63,838	3,000	66,838	
1976	62,410	16,556	4,148	83,114	409	-	3,151	-	1,102	-	4,662	-	87,776	3,500	91,276	
1977	69,915	16,722	3,965	90,602	985	-	4,162	-	1,008	-	6,155	-	96,757	4,720	101,477	
1978	59,006	32,924	2,916	94,846	608	-	3,079	-	635	-	4,322	-	99,168	2,975	102,143	
1979	75,007	41,498	5,018	121,523	1,989	-	3,389	-	772	-	6,150	-	127,673	6,175	133,848	
1980	90,382	50,004	5,240	145,626	1,521	-	4,891	-	1,947	-	8,359	-	153,985	9,500	163,485	
1981	99,506	45,781	4,023	149,310	1,347	-	6,374	-	987	-	8,708	-	158,018	8,593	166,611	
1982	74,450	39,132	2,609	116,191	1,087	-	5,385	-	981	-	7,453	-	123,644	8,640	132,284	
1983	95,457	43,229	4,106	142,792	601	-	3,606	-	911	-	5,118	-	147,910	13,027	160,937	
1984	74,671	36,697	3,039	114,407	961	-	3,669	-	867	-	5,497	-	119,904	9,885	129,789	
1985	90,011	48,365	2,588	140,964	664	-	3,418	-	1,142	-	5,224	-	146,188	12,573	158,761	
1986	53,035	41,849	901	95,785	502	-	2,733	-	950	-	4,185	-	99,970	10,797	110,767	
1987	76,643	47,458	2,039	126,140	1,524	-	3,758 b	-	3,338 c	-	8,620	-	134,760	10,864	145,624	
1988	57,109	35,188	1,767	94,064	3,159	-	3,436	-	762	-	7,357	-	101,421	13,217	114,638	
1989	59,153	33,225	1,645	94,023	2,790	-	3,286	-	1,741 d	-	7,817	-	101,840	9,789	111,629	
1990	51,161	33,213	2,341	86,715	3,536	8	3,353	47	1,757 d	1,676	8,646	1,731	95,361	11,324	106,685	
1991 e	53,014	38,946	2,344	94,304	2,446	2,222	3,810	62	686	1,545	6,942	3,829	101,246	10,906	112,152	
5 Yr Ave																
1981-86	86,819	42,641	3,273	132,733	932	-	4,490	-	978	-	6,400	-	139,133	10,544	149,676	
5 Yr Ave																
1986-90	59,420	38,187	1,739	99,345	2,302	-	3,313	-	1,710	-	7,325	-	106,670	11,198	117,869	

a Sales reported in numbers of fish sold in the round.

b Includes illegal sales of 653 chinook salmon.

c Includes illegal sales of 2,136 chinook salmon.

d Does not include: 440 chinook salmon sold as part of a test fishing project in 1989, 833 chinook salmon sold as part of a test fishing project in 1990.

e Does not include any ADF&G test fishery sales.

Appendix A.5. Commercial summer chum salmon sales by district, Yukon River drainage, 1961–1991. a

Year	Lower Yukon Area				Upper Yukon Area						Alaska Total		
	Dist. 1	Dist. 2	Dist. 3	Subtotal	Dist. 4		Dist. 5		Dist. 6		Subtotal Numbers	Roe b	Numbers
					Numbers	Roe b	Numbers	Roe b	Numbers	Roe b			
1961	--	--	--	0	--	--	--	--	--	--	0	0	0
1962	--	--	--	0	--	--	--	--	--	--	0	0	0
1963	--	--	--	0	--	--	--	--	--	--	0	0	0
1964	--	--	--	0	--	--	--	--	--	--	0	0	0
1965	--	--	--	0	--	--	--	--	--	--	0	0	0
1966	--	--	--	0	--	--	--	--	--	--	0	0	0
1967	9,453	1,425	57	10,935	--	--	--	--	--	--	0	0	10,935
1968	12,995	1,407	68	14,470	--	--	--	--	--	--	0	0	14,470
1969	56,886	5,080	--	61,966	--	--	--	--	--	--	0	0	61,966
1970	117,357	19,649	--	137,006	--	--	--	--	--	--	0	0	137,006
1971	93,928	6,112	50	100,090	--	--	--	--	--	--	0	0	100,090
1972	114,234	20,907	527	135,668	--	--	--	--	--	--	0	0	135,668
1973	221,644	63,402	463	285,509	--	--	--	--	--	--	0	0	285,509
1974	466,004	74,152	1,721	541,877	27,866	--	6,831	--	13,318	--	48,015	0	589,892
1975	418,323	99,139	--	517,462	165,054	--	12,997	--	14,782	--	192,833	0	710,295
1976	273,204	99,190	9,802	382,196	211,307	--	774	--	6,617	--	218,698	0	600,894
1977	250,652	105,679	3,412	359,743	169,541	--	1,274	--	4,317	--	175,132	0	534,875
1978	393,785	227,548	27,003	648,336	364,184	16,920	4,892	605	34,814	8,236	403,890	25,761	1,052,226
1979	369,934	172,838	40,015	582,787	169,430	35,317	8,608	1,009	18,491	3,891	196,529	40,217	779,316
1980	391,252	306,704	44,782	744,738	147,560	135,824	456	--	35,855	3,262	183,871	139,106	928,609
1981	507,158	351,878	54,471	913,507	59,718	187,032	1,236	49	32,477	1,987	93,431	189,068	1,006,938
1982	249,516	182,344	4,086	435,946	3,647	151,281	213	21	21,597	1,517	25,457	152,819	461,403
1983	451,164	248,092	14,600	713,856	6,672	148,125	42	1,856	24,309	18	31,023	149,999	744,879
1984	292,676	236,931	1,087	530,694	1,009	166,842	645	47	56,249	335	57,903	167,224	588,597
1985	247,486	188,099	1,792	437,377	12,007	247,085	700	--	66,913	1,540	79,620	248,625	516,997
1986	381,127	288,427	442	669,996	300	269,545	690	--	50,483	2,146	51,473	271,691	721,469
1987	222,898	174,876	3,501	401,275	29,991	121,474	362	44	10,610	450	40,963	121,968	442,238
1988	648,198	425,172	13,965	1,087,335	24,051	254,526	722	363	40,129	1,646	64,902	256,535	1,152,237
1989	547,631	343,962	7,578	899,171	18,554	283,305	154	373	42,115 c	4,871	60,823	288,549	959,994
1990	148,911	132,507	643	282,061	12,364	105,723	11	594	12,360 c	3,059	24,735	109,376	306,796
1991 d	138,159	175,149	8,912	322,220	6,381	137,232	4	28	18,197	4,716	24,582	141,976	346,802
5 Yr Ave 1981–85	349,600	241,469	15,207	606,276	16,611	180,073	567	395	40,309	1,079	57,487	181,547	663,763
5 Yr Ave 1986–90	389,753	272,989	5,226	667,968	17,052	206,915	388	275	31,139	2,434	48,579	209,624	716,547

a Sales reported in numbers of fish sold in the round and pounds of unprocessed roe.

b May include small amounts of chinook salmon roe.

c Does not include the following: 6,267 summer chum salmon sold as part of a test fishing project in 1989, 5,325 summer chum salmon sold as part of a test fishing project in 1990, 1,858 summer chum salmon sold as part of a test fishing project in 1991.

d Does not include any ADF&G test fishery sales.

Appendix A.6. Commercial fall chum salmon sales by district and country, Yukon River drainage, 1961–1991. a

Year	Upper Yukon Area														Canada Total	Grand Total
	Lower Yukon Area				Dist. 4		Dist. 5		Dist. 6		Subtotal Numbers	Total Roe b	Total Numbers			
	Dist. 1	Dist. 2	Dist. 3	Subtotal	Numbers	Roe b	Numbers	Roe b	Numbers	Roe b						
1961	42,461	—	—	42,461	—	—	—	—	—	—	0	0	42,461	3,276	45,737	
1962	53,116	—	—	53,116	—	—	—	—	—	—	0	0	53,116	936	54,052	
1963	—	—	—	0	—	—	—	—	—	—	0	0	0	2,196	2,196	
1964	8,347	—	—	8,347	—	—	—	—	—	—	0	0	8,347	1,929	10,276	
1965	22,936	—	—	22,936	—	—	—	—	—	—	381	0	23,317	2,071	25,388	
1966	69,836	—	1,209	71,045	—	—	—	—	—	—	0	0	71,045	3,157	74,202	
1967	36,451	—	1,823	38,274	—	—	—	—	—	—	0	0	38,274	3,343	41,617	
1968	49,857	—	3,068	52,925	—	—	—	—	—	—	0	0	52,925	453	53,378	
1969	128,866	—	1,722	130,588	—	—	—	—	—	—	722	0	131,310	2,279	133,589	
1970	200,306	4,858	3,285	208,449	—	—	—	—	—	—	1,146	0	209,595	2,479	212,074	
1971	188,533	—	—	188,533	—	—	—	—	—	—	1,061	0	189,594	1,761	191,355	
1972	136,711	12,898	1,313	150,922	—	—	—	—	—	—	1,254	0	152,176	2,532	154,708	
1973	173,783	45,304	—	219,087	—	—	—	—	—	—	13,003	0	232,090	2,806	234,896	
1974	176,036	53,540	552	230,128	9,213	—	23,551	—	26,894	—	59,648	0	289,776	2,544	292,320	
1975	158,183	51,666	5,590	215,439	13,666	—	27,212	—	18,692	—	59,570	0	275,009	2,500	277,509	
1976	105,851	21,212	4,250	131,313	1,742	—	5,387	—	17,948	—	25,077	0	156,390	1,000	157,390	
1977	131,758	51,994	15,851	199,603	13,980	—	25,730	—	18,673	—	58,383	0	257,986	3,990	261,976	
1978	127,947	51,646	11,527	191,120	10,988	1,721	21,016	5,220	13,259	3,687	45,263	10,628	236,383	3,356	239,739	
1979	109,406	94,042	25,955	229,403	48,899	3,199	47,459	8,097	34,185	7,170	130,543	18,466	359,946	9,084	369,030	
1980	106,829	83,881	13,519	204,229	27,978	4,347	41,771	605	19,452	68	89,201	5,020	293,430	9,000	302,430	
1981	167,834	154,883	19,043	341,760	12,082	1,311	86,620	6,955	25,989	3,019	124,691	11,285	466,451	15,260	481,711	
1982	97,484	96,581	5,815	199,880	3,894	167	13,593	42	6,820	596	24,307	805	224,187	11,312	235,499	
1983	124,371	85,645	10,018	220,034	4,482	1,963	43,993	0	34,089	3,101	82,564	5,064	302,598	25,990	328,588	
1984	78,751	70,803	6,429	155,983	7,625	2,215	24,060	57	20,564	56	52,249	2,328	208,232	22,932	231,164	
1985	129,948	40,490	5,164	175,602	24,452	2,525	25,338	0	42,352	0	92,142	2,525	267,744	35,746	303,490	
1986	59,352	51,307	2,793	113,452	2,045	0	22,053	395	1,892	182	25,990	577	139,442	11,464	150,906	
1987	0	0	0	0	0	0	0	0	0	0	0	0	0	40,591	40,591	
1988	45,529	31,861	2,090	79,480	15,662	1,421	16,989	0	21,844 c	1,806	54,495	3,227	133,975	30,263	164,238	
1989	77,876	97,906	15,332	191,114	11,776	3,407	18,215	3,989	49,090 c	7,353	79,081	14,749	270,195	17,549	287,744	
1990	27,337	37,173	3,715	68,225	4,989	2,351	7,778	1,058	44,066 c	7,535	56,833	10,944	125,058	27,537	152,595	
1991 d	59,724	102,628	9,213	171,565	3,737	1,616	27,355	3,625	28,195 c	14,154	59,287	19,395	230,852	31,404	262,256	
5 Yr Ave 1981–85	119,678	89,680	9,294	218,652	10,507	1,636	38,721	1,411	25,963	1,354	75,191	4,401	293,842	22,248	316,090	
5 Yr Ave 1986–90	42,019	43,649	4,786	90,454	6,894	1,436	13,007	1,088	23,378	3,375	43,280	5,899	133,734	25,481	159,215	

a Sales reported in numbers of fish sold in the round and pounds of unprocessed roe.

b May include small amounts of coho salmon roe.

c Does not include: 27,008 fall chum salmon sold as part of a test fishing project in 1988, 16,984 fall chum salmon sold as part of a test fishing project in 1989, 7,060 fall chum salmon sold as part of a test fishing project in 1990, 1,385 fall chum salmon sold as part of a test fishing project in 1991.

d Does not include any ADF&G test fishery sales.

Appendix A.7. Commercial coho salmon sales by district, Yukon River drainage in Alaska, 1961–1991. a

Year.	Lower Yukon Area				Upper Yukon Area				Total Roe	Total Numb
	Dist 1	Dist 2	Dist 3	Subtotal Numb	Dist 4	Dist 5	Dist 6 Numb	Dist 6 Roe		
1961	2,855	-	-	2,855	-	-	-	-	0	2,855
1962	22,926	-	-	22,926	-	-	-	-	0	22,926
1963	5,572	-	-	5,572	-	-	-	-	0	5,572
1964	2,446	-	-	2,446	-	-	-	-	0	2,446
1965	350	-	-	350	-	-	-	-	0	350
1966	19,254	-	-	19,254	-	-	-	-	0	19,254
1967	9,925	-	1,122	11,047	-	-	-	-	0	11,047
1968	13,153	-	150	13,303	-	-	-	-	0	13,303
1969	13,989	-	1,009	14,998	-	-	-	-	95	15,093
1970	12,632	-	-	12,632	-	-	-	-	556	13,188
1971	12,185	-	-	12,185	-	-	-	-	38	12,203
1972	21,705	506	-	22,211	-	-	-	-	22	22,233
1973	34,860	1,781	-	36,641	-	-	-	-	0	36,641
1974	13,713	176	-	13,889	-	1,409	1,479	-	2,888	16,777
1975	2,288	200	-	2,488	-	5	53	-	58	2,546
1976	4,064	17	-	4,081	-	-	1,103	-	1,103	5,184
1977	31,720	5,319	538	37,577	-	2	1,284	-	1,286	38,863
1978	16,460	5,835	758	23,053	32	1	3,066	-	3,099	26,152
1979	11,369	2,850	-	14,219	155	-	2,791	-	2,946	17,165
1980	4,829	2,660	-	7,489	30	-	1,226	-	1,256	8,745
1981	13,129	7,848	419	21,396	-	-	2,284	-	2,284	23,680
1982	15,115	14,179	87	29,381	15	-	7,780	-	7,795	37,176
1983	4,595	2,557	-	7,152	-	-	6,168	-	6,168	13,320
1984	29,472	43,064	621	73,157	1,095	-	7,688	-	8,783	81,940
1985	27,676	17,125	171	44,972	938	-	11,762	-	12,700	57,672
1986	24,824	21,197	793	46,814	-	-	441	-	441	47,255
1987	0	0	0	0	0	0	0	-	0	0
1988	36,435	34,776	1,419	72,630	2	8	13,972 b	-	13,982	86,612
1989	24,672	38,522	3,988	67,182	3	84	16,084 b	-	16,171	83,353
1990	13,354	16,435	918	30,707	0	0	11,987 b,c	4,042	11,987	42,694
1991 d	54,095	40,898	1,905	96,898	14	0	6,268	4,299	6,282	103,180
5 Yr Ave										
1981–85	17,997	16,955	260	35,212	410	0	7,136	-	7,546	42,758
5 Yr Ave										
1986–90	19,857	22,186	1,424	43,467	1	18	8,497	-	8,516	51,983

a Sales reported in numbers of fish sold in the round and pounds of roe.

b Does not include test fishing project sales of: 13,295 coho in 1988, 2,140 coho in 1989, 1,426 coho in 1990 and 791 coho in 1991.

c Includes 438 female coho salmon sold with roe extracted and sold separately.

d Does not include any ADF&G test fishery sales.

Appendix A.8. Yukon River drainage total estimated commercial related summer chum salmon catch by area and district, 1968 - 1991. a

Upper Yukon Area													
Year	Lower Yukon Area Total	District 4				District 5			District 6			Upper Yukon Total c	Alaska Total c
		Sold in Round	Females b	Unsold Males	Subtotal c	Numbers	Females b	Subtotal c	Numbers	Females b	Subtotal c		
1968	14,470	-	-	-	0	-	-	0	-	-	0	0	14,470
1969	61,966	-	-	-	0	-	-	0	-	-	0	0	61,966
1970	137,006	-	-	-	0	-	-	0	-	-	0	0	137,006
1971	100,090	-	-	-	0	-	-	0	-	-	0	0	100,090
1972	135,668	-	-	-	0	-	-	0	-	-	0	0	135,668
1973	285,509	-	-	-	0	-	-	0	-	-	0	0	285,509
1974	541,877	27,866	-	-	27,866	6,831	-	6,831	13,318	-	13,318	48,015	589,892
1975	517,462	165,054	-	-	165,054	12,997	-	12,997	14,782	-	14,782	192,833	710,295
1976	382,196	211,307	-	-	211,307	774	-	774	6,617	-	6,617	218,698	600,894
1977	359,743	169,541	-	-	169,541	1,274	-	1,274	4,317	-	4,317	175,132	534,875
1978	648,336	364,184	16,920	0	381,104	4,892	605	5,497	34,814	8,236	43,050	429,651	1,077,987
1979	582,787	169,430	35,317	0	204,747	8,608	1,009	9,617	18,491	3,891	22,382	236,746	819,533
1980	744,738	147,560	135,824	0	283,384	456	-	456	35,855	3,282	39,137	322,977	1,067,715
1981	913,507	59,718 d	187,032	83,695 e	330,445	1,236	49	1,285	32,477	1,987	34,464	366,194	1,279,701
1982	435,946	3,647 d	151,281	102,791 e	257,719	213	21	234	21,597	1,517	23,114	281,067	717,013
1983	713,856	6,672 d	148,125	100,591 e	255,388	42	1,856	1,898	24,309	18	24,327	281,613	995,469
1984	530,694	1,009 d	166,842	110,219 e	278,070	645	47	692	56,249	335	56,584	335,346	866,040
1985	437,377	12,007 d	247,085	168,391 e	427,483	700	-	700	66,913	1,540	68,453	496,636	934,013
1986	669,996	300 d	269,545	195,690 f	465,535	690	-	690	50,483	2,146	52,629	518,854	1,188,850
1987	401,275	29,991 d	121,474	58,335 f	209,800	362	44	406	10,610	450	11,060	221,266	622,541
1988	1,087,335	24,051 d	283,753	182,270 f	490,074	722	405	1,127	40,129	1,835	41,964	533,165	1,620,500
1989	899,171	18,554 d	316,222	175,468 g	510,244	154	416	570	42,115	5,436	47,551	558,365	1,457,536
1990	282,061	12,364 d	-	-	211,061 h	11	660	671	12,360 i	2,428	14,788	226,520	508,581
1991	322,220	6,381 d	-	-	301,124 h	4	31	35	18,197	5,696	23,893	325,052	647,272
5 Yr Ave													
1986-90	667,968	17,052	198,199	122,353	377,343	388	305	693	31,139	2,459	33,598	411,634	1,079,602

a Does not include Department test fishing sales; except for Lower Yukon Area 1968 - 1990.

b Estimated by dividing pounds of unprocessed roe by 1 lb of roe per female (1978-1987), 0.897 lbs (1988), and 0.896 lbs (1989), which was calculated from data collected in District 4.

c Note: many females with roe extracted and incidental males are reported as subsistence catches during subsistence surveys.

d Assume all fish sold in the round were males.

e Calculated by dividing estimated number of females by proportion of females captured at Stink Creek test fishwheel (1981 - .566; 1982 - .587; 1983 - .580; 1984 - .600; and 1985 - .578), subtracted by pounds of roe and fish sold in the round.

f Calculated by dividing estimated number of females by proportion of females captured at Stink Creek test fishery (1981 - 1985 average - .579), subtracted by pounds of roe and fish sold in the round.

g Estimate of number of males taken which were not sold based on mean proportion of females (0.62) sampled in District 4 in 1989.

h Estimated number of males and females harvested to produce roe sold. It is assumed that summer chum sold in the round were primarily males that are estimated in the expansion (pounds roe sold divided by weighted average roe weight divided by average percent female).

i Includes 1,278 female summer chums sold with roe extracted and sold separately. The estimated harvest of females to produce roe sold is decreased by similar amount.

Appendix A.9. Commercial chinook salmon catches taken under quotas or guideline harvest ranges, Yukon Area, 1974–1991.

Chinook Salmon Catch and Quota or Guideline Harvest Range (GHR)				
Lower Yukon Area				
Year	Districts 1 and 2		District 3	
	Catch	GHR	Catch	Quota/GHR
1974	–	–	3,480	3,000
1975	–	–	4,177	3,000
1976	–	–	4,148	3,000
1977	–	–	3,965	3,000
1978	–	–	2,916	2,000
1979 b	–	–	5,018	1,800–2,200
1980	–	–	5,240	1,800–2,200
1981	145,287	60,000–120,000	4,023	1,800–2,200
1982	113,582	60,000–120,000	2,609	1,800–2,200
1983	138,686	60,000–120,000	4,106	1,800–2,200
1984	111,368	60,000–120,000	3,039	1,800–2,200
1985	138,376	60,000–120,000	2,588	1,800–2,200
1986	94,884	60,000–120,000	901	1,800–2,200
1987	124,101	60,000–120,000	2,039	1,800–2,200
1988	92,297	60,000–120,000	1,767	1,800–2,200
1989	92,378	60,000–120,000	1,645	1,800–2,200
1990	84,374	60,000–120,000	2,341	1,800–2,200
1991	91,960	60,000–120,000	2,344	1,800–2,200

–Continued–

Chinook Salmon Catch and Quota or Guideline Harvest Range (GHR)								
Upper Yukon Area								
Year	District 4		Subdistricts 5-ABC		Subdistrict 5-D		District 6	
	Catch	Quota/GHR	Catch	Quota/GHR	Catch	Quota/GHR	Catch	Quota/GHR
1974	685	1,000	2,663	3,000 a			1,473	1,000
1975	389	1,000	2,872	3,000 a			500	1,000
1976	409	1,000	3,151	3,000 a			1,102	1,000
1977	985	1,000	4,162	3,000 a			1,008	1,000
1978	608	1,000	3,079	3,000 a			635	1,000
1979 b	1,989	900-1,100	3,389	2,700-3,300 a			772	900-1,100
1980	1,521	900-1,100	4,891	2,700-3,300 a			1,947	900-1,100
1981	1,347	2,250-2,850	5,625	2,400-2,800	749	300-500	987	600-800
1982	1,087	2,250-2,850	4,690	2,400-2,800	695	300-500	981	600-800
1983	601	2,250-2,850	3,370	2,400-2,800	236	300-500	911	600-800
1984	961	2,250-2,850	3,285	2,400-2,800	384	300-500	867	600-800
1985	664	2,250-2,850	2,984	2,400-2,800	434	300-500	1,142	600-800
1986	502	2,250-2,850	2,427	2,400-2,800	306	300-500	950	600-800
1987	1,524	2,250-2,850	2,539	2,400-2,800	566	300-500	1,202	600-800
1988	3,159	2,250-2,850	2,975	2,400-2,800	461	300-500	762	600-800
1989	2,790	2,250-2,850	2,901	2,400-2,800	385	300-500	1,741	600-800
1990 c	3,538	2,250-2,850	2,822	2,400-2,800	543	300-500	2,156	600-800
1991 c	3,582	2,250-2,850	3,272	2,400-2,800	554	300-500	1,072	600-800

a Quota or guideline harvest range for entire District 5.

b Beginning in 1979, quotas were replaced by guideline harvest ranges.

c Catch includes estimated harvest of females to produce roe sold.

Appendix A.10. Commercial summer chum salmon catches taken under guideline harvest ranges, Yukon Area, 1990–1991.

Summer Chum Salmon Catch and Guideline Harvest Range (GHR)												
Lower Yukon Area						Upper Yukon Area ^a						
Year	Districts 1 and 2		District 3		Subdist. 4–A ^b		Subdist. 4–BC		District 5		District 6	
	Catch	GHR	Catch	GHR	Catch	GHR	Catch	GHR	Catch	GHR	Catch	GHR
1990	281,418	251,000–755,000	643	6,000–19,000	197,641	113,000–338,000	13,420	16,000–47,000	671	1,000–3,000	14,788	13,000–38,000
1991	313,308	251,000–755,000	8,912	6,000–19,000	290,255	113,000–338,000	10,869	16,000–47,000	35	1,000–3,000	23,893	13,000–38,000

^a Includes estimated harvest of females to produce roe sold.

^b Subdistrict 4–A harvest includes estimated harvest of females and incidental males to produce roe sold.

Appendix A.11. Commercial fall chum and coho salmon catches taken under quotas or guideline harvest ranges, Yukon Area, 1974-1991.

Fall Chum and Coho Salmon Catch and Quota or Guideline Harvest Range (GHR)

Year	Lower Yukon Area a		Upper Yukon Area b							
	Districts 1, 2, and 3		Subdist. 4-BC		Subdist. 5-ABC		Subdist. 5-D		District 6	
	Catch	Quota/GHR	Catch	Quota/GHR	Catch	Quota/GHR	Catch	Quota/GHR	Catch	Quota/GHR
1974	230,128	200,000	9,213	10,000 c	24,960	25,000 d			28,363	15,000
1975	215,439	200,000	13,666	10,000 c	27,217	25,000 d			18,745	15,000
1976	131,313	200,000	1,742	10,000 c	5,387	25,000 d			19,051	15,000
1977	199,603	200,000	13,980	10,000 c	25,732	25,000 d			19,957	15,000
1978	191,120	200,000	11,020	10,000 c	21,017	25,000 d			16,325	15,000
1979 e	229,403	120,000-220,000	49,054	10,000-40,000	47,459	10,000-40,000			36,976	7,500-22,500
1980	204,229	120,000-220,000	28,008	10,000-40,000	41,771	10,000-40,000			20,678	7,500-22,500
1981	341,760	120,000-220,000	12,082	10,000-40,000	82,520	8,000-36,000	4,100	2,000-4,000	28,273	5,500-20,500
1982	199,880	120,000-220,000	3,909	10,000-40,000	13,593	8,000-36,000	0	2,000-4,000	14,600	5,500-20,500
1983	220,034	120,000-220,000	4,482	10,000-40,000	40,893	8,000-36,000	3,100	2,000-4,000	40,257	5,500-20,500
1984	155,983	120,000-220,000	8,720	10,000-40,000	21,160	8,000-36,000	2,900	2,000-4,000	28,252	5,500-20,500
1985	175,602	120,000-220,000	25,390	10,000-40,000	23,138	8,000-36,000	2,200	2,000-4,000	54,114	5,500-20,500
1986	113,452	0-110,000	2,045	0-20,000	20,710	0-18,000	1,343	0-2,000	2,333	0-10,250
1987	0	0-110,000	0	0-20,000	0	0-18,000	0	0-2,000	0	0-10,250
1988	79,480	0-110,000	15,664	0-20,000	14,225	0-18,000	2,772	0-2,000	35,816	0-10,250
1989	191,114	0-110,000	11,779	0-20,000	15,380	0-18,000	2,919	0-2,000	65,174	0-10,250
1990 f	68,225	60,000-220,000	8,166	5,000-40,000	6,243	4,000-36,000	2,733	1,000-4,000	65,756	2,750-20,500
1991 f	171,565	60,000-220,000	6,105	5,000-40,000	28,900	4,000-36,000	3,214	1,000-4,000	54,221	2,750-20,500

a Chum salmon only; coho salmon catch not applied towards quotas or G.H.R.

b Chum and coho salmon combined (does not include estimated harvest to produce roe sold, except as noted); mostly fall chum salmon.

c Guideline harvest range for entire District 4.

d Guideline harvest range for entire District 5.

e Beginning in 1979 quotas were replaced by guideline harvest ranges.

f Upper Yukon Area catch includes estimated harvest of female salmon to produce sold.

Appendix A.12 Commercial Fisheries Entry Commission (CFEC) salmon permits issued by gear type, Yukon Area, 1976–1991. a

Year	Lower Yukon Gill Net b		Upper Yukon Set Gill Net		Upper Yukon Fishwheel		Total	
	Permits Issued c	Permits Fished	Permits Issued c	Permits Fished	Permits Issued c	Permits Fished	Permits Issued	Permits Fished
1976	678	d	118	d	169	d	d	d
1977	700	609	69	44	160	130	929	783
1978	699	650	71	47	158	137	928	834
1979	708	661	70	50	165	129	943	840
1980	709	654	71	52	163	128	943	834
1981	711	666	70	45	162	125	943	836
1982	710	664	76	45	166	111	952	820
1983	708	655	73	40	164	115	945	810
1984	708	674	73	39	159	99	940	812
1985	708	664	71	40	159	113	938	817
1986	707	670	71	30	161	101	939	801
1987	706	656	71	33	161	108	938	797
1988	707	677	71	43	160	124	938	844
1989	707	682	70	42	160	127	937	851
1990	708	675	71	35	157	116	936	826
1991	717	680 e	77	36 e	157	110 e	951 e	826 e

a Information for 1976–1990 obtained from CFEC unless otherwise indicated.

b Set or drift gill net.

c Includes permanent and interim –use permits.

d Information unavailable.

e Data source: ADF&G.

Appendix A.13. Number of commercial salmon fishing gear operators (permit holders) by district, Yukon area, 1971-1991. a

EARLY SEASON									
Year	Lower Yukon Area b				Upper Yukon Area				Total
	Dist. 1	Dist. 2	Dist. 3	Subtotal	Dist. 4	Dist. 5	Dist. 6	Subtotal	
1971	405	154	33	592	-	-	-	-	592
1972	428	153	35	614	-	-	-	-	614
1973	438	167	38	643	-	-	-	-	643
1974	396	154	42	592	27	31	20	78	670
1975	441	149	37	627	93	52	36	181	808
1976	453	189	42	684	80	46	29	155	839
1977	392	188	46	626	87	41	18	146	772
1978	429	204	22	655	80	45	35	160	815
1979	425	210	22	657	87	34	30	151	808
1980	407	229	21	657	79	35	33	147	804
1981	448	225	23	696	80	43	26	149	845
1982	450	225	21	696	74	44	20	138	834
1983	444	212	19	675	77	34	25	136	811
1984	439	213	20	672	54	31	27	112	784
1985	421	219	18	658	74	32	27	133	791
1986	431	235	7	673	75	21	27	123	796
1987	432	233	10	675	87	30	24	141	816
1988	437	234	13	684	95	28	33	156	840
1989	434	236	16	686	98	32	29	159	845
1990	452	240	15	707	92	27	23	142	849
1991	489	253	27	769	85	32	22	139	908

LATE SEASON									
Year	Lower Yukon Area c				Upper Yukon Area d				Total
	Dist. 1	Dist. 2	Dist. 3	Subtotal	Dist. 4	Dist. 5	Dist. 6	Subtotal	
1971	352	-	-	352	-	-	-	-	352
1972	353	75	3	431	-	-	-	-	431
1973	445	183	-	628	-	-	-	-	628
1974	322	121	6	449	17	23	22	62	511
1975	428	185	12	625	44	33	33	110	735
1976	422	194	28	644	18	36	44	98	742
1977	337	172	37	546	28	34	32	94	640
1978	429	204	28	661	24	43	30	97	758
1979	458	220	32	710	31	44	37	112	822
1980	395	232	23	650	33	43	26	102	752
1981	462	240	21	723	30	50	30	110	833
1982	445	218	15	678	15	24	25	64	742
1983	455	225	20	700	13	29	23	65	765
1984	427	216	12	655	18	39	26	83	738
1985	416	236	13	665	22	39	25	86	751
1986	377	236	14	627	1	21	16	38	665
1987	403	230	9	642	0	0	0	0	642
1988	453	258	24	735	20	20	32	72	807
1989	445	243	23	711	20	24	28	72	783
1990	301	227	19	547	11	11	27	49	596
1991	319	238	19	576	8	21	25	54	630

COMBINED SEASON									
Year	Lower Yukon Area				Upper Yukon Area				Total
	Dist. 1	Dist. 2	Dist. 3	Subtotal	Dist. 4	Dist. 5	Dist. 6	Subtotal	
1971	473	154	33	660	-	-	-	27	687
1972	476	153	35	664	-	-	-	-	664
1973	529	205	38	772	-	-	-	47	819
1974	485	190	42	717	28	43	27	98	815
1975	491	197	39	727	95	57	46	198	925
1976	482	220	44	746	96	62	56	214	960
1977	402	208	54	664	96	53	39	188	852
1978	472	221	29	722	82	53	38	173	895
1979	461	230	33	724	90	49	40	179	903
1980	432	247	27	706	88	51	38	177	883
1981	507	257	26	790	94	56	31	181	971
1982	486	244	22	752	76	53	27	156	908
1983	458	235	26	719	79	47	31	157	876
1984	453	238	26	717	58	45	33	136	853
1985	434	247	24	705	76	48	33	157	862
1986	444	259	18	721	75	30	27	132	853
1987	440	239	13	692	87	30	24	141	833
1988	460	260	24	744	97	35	38	170	914
1989	452	257	23	732	99	38	32	169	901
1990	459	258	22	739	92	31	30	153	892
1991	497	272	29	798	85	33	28	146	944

a Actual number of gear operators which delivered. Some individual fishermen in the Lower Yukon Area may have operated in more than one district during the year.
b Unrestricted mesh size fishing periods.
c Refers to 6" or smaller mesh size fishing periods generally after chinook salmon season.
d Refers to time when fall chum salmon fishery occurs.

Appendix A.14. Commercial salmon pack by species and type of processing, Yukon Area, 1960-1991. a

Year	Cases (48#)			Fresh-Frozen (round wt. in lbs.)			Cured Chinook		Cured Chum		Salmon Roe (lbs.)
	Chinook	Coho	Chum	Chinook	Coho	Chum	Tierces	Half Tierces	Tierces	Half Tierces	
1960	13,000			b	b	b	250	180			
1961	19,474			b	b	b	504	146			
1962	15,959	512	1,760	b	b	b	464	280			
1963	16,400	1,190		b	b	b	b	b			
1964	12,041			b	17,000	66,770	537	499			
1965	18,149			275,000	2,500	160,500	670	67			
1966	14,026	836	2,812	414,000	61,355	301,240	398	60			
1967	21,503		126	475,900	66,400	366,496	627	96			1,755
1968	19,499		816	561,690	93,154	454,409	351	170			21,000
1969	9,560	1,104	4,499	423,597	26,973 c	829,586 c	647	95	15		29,000
1970	6,431	1,002	6,413	716,600	12,900	1,725,000	447	191	51		26,300
1971	6,500	502	3,213	1,058,034	45,836	1,432,455	659	229	139		55,177
1972	7,418	1,005	6,249	1,002,395	83,960	1,495,922	497	147			85,278
1973	5,227	1,008	9,902	1,339,317	181,928	2,929,532	61	133		72	137,594
1974	6,660	603	21,074	1,062,666	58,816	3,879,300	381	56	57		208,842
1975	5,297	40	14,226	781,902	13,299	4,751,941	80	53	45	119	201,404
1976	3,921	80	11,375	1,398,779	29,778	4,256,679	93	92	72	10	226,893
1977	4,642	415	9,428	1,513,484	270,241	4,877,918	180	237	26		210,568
1978	5,711	74	9,340	1,473,354	168,241	8,639,156	222	117	7	75	261,422
1979	6,277	22	7,854	2,014,156	108,011	8,098,075	112	91		2	410,540
1980	8,764	130	15,783	3,341,262	56,295	8,781,062	29	18		37	579,927
1981	1,107	378	11,573	3,686,238	130,097	11,398,680	25	13	9	28	507,550
1982		7	751	2,790,456	246,500	4,992,877		19		1	584,053
1983		198	1,181	3,000,843	72,447	10,637,613	5	39		7	426,220
1984		5	1,768	2,426,205	590,526	5,516,532		36		16	468,244
1985				2,953,199	409,725	5,462,462		9		20 d	476,024
1986				2,012,324	299,054	5,960,857		15		28 e	502,952
1987				2,830,312	0	3,013,889		36			286,099
1988 f				1,970,879	624,734	9,111,943		10		22 g	577,748
1989 f				2,005,949	585,216	8,864,714		6		16	303,298
1990 f				1,846,081	283,504	3,166,199		3		1,368 h	261,016
1991				2,047,188	708,902	3,978,482				2,547 h	350,174

a. Pack represents type of processing when fish were shipped out of districts.

b. Information not available.

c. Includes approximately 11,600 and 110,500 (round weight) of coho and chum salmon respectively, as salted fish for Japanese market.

d. Additionally 13 half tierces of coho salmon were packed.

e. Additionally 2 half tierces of coho salmon were packed.

f. Does not include District 6 test fish sales.

g. Additionally 1 half tierce of coho salmon was packed.

h. Chum salmon are represented in pounds of salted fillets.

Appendix A.15. Dollar value estimates of Yukon Area commercial salmon fishery, 1961–1991.

Year	Gross Value of Catch to Fishermen a					Wholesale Value of Pack b	State Tax Revenues c
	Chinook	Coho	Chum	Roe	Total		
1961	420,900	1,400	14,700	—	437,000	1,292,300	37,500
1962	330,300	11,500	20,100	—	361,900	1,275,250	50,400
1963	409,500	2,800	—	—	412,300	1,500,400	42,000
1964	351,000	1,200	2,200	—	354,400	1,203,800	35,000
1965	531,400	200	10,700	—	542,300	1,412,700	42,000
1966	419,900	9,600	25,000	—	454,500	1,308,100	37,000
1967	583,700	5,500	17,200	—	606,400	1,864,800	41,700
1968	494,300	6,700	34,000	—	535,000	1,655,200	47,000
1969	415,000	8,200	96,000	—	519,200	1,976,200	40,000
1970	401,300	10,300	211,500	—	623,100	2,113,100	45,000
1971	590,100	10,000	182,900	—	783,000	2,106,600	42,000
1972	547,800	20,400	215,800	—	784,000	2,405,200	45,300
1973	561,400	46,500	609,100	—	1,217,000	4,453,900	62,800
1974	881,300	28,400	1,011,300	—	1,921,000	6,035,900	84,100
1975	589,000	3,500	1,201,400	—	1,793,900	4,939,700	87,100
1976	983,500	8,600	1,158,900	—	2,151,000	6,815,500	96,900
1977	1,928,400	143,000	1,997,300	—	4,068,700	10,499,400	151,000
1978	2,133,700	79,200	3,101,800	—	5,314,700	14,194,800	179,400
1979	3,008,000	84,400	4,527,100	—	7,619,500	19,048,800	248,600
1980	3,639,300	21,800	2,311,600	365,200	5,871,300	14,678,250	205,400
1981	4,635,500	91,900	5,323,300	601,100	10,651,800	26,629,500	322,500
1982	3,871,300	153,700	2,693,800	422,500	7,141,300	17,853,250	222,000
1983	4,198,600	29,000	2,499,800	257,400	6,984,800	17,462,000	230,000
1984	3,620,400	268,800	1,498,000	301,800	5,689,000	14,222,500	194,000
1985	4,389,100	202,600	1,952,700	487,200	7,031,600	17,579,000	227,100
1986	3,238,500	212,500	2,232,400	565,400	6,248,800	15,622,000	205,200
1987	5,521,100	0	1,372,400	270,800	7,164,300	17,910,750	232,700
1988	5,605,800	769,400	5,880,200	1,123,300	13,378,700	33,446,750	420,800
1989	5,289,900	357,300	3,194,700	1,338,200	10,180,100	25,450,250	332,000
1990	4,920,600	162,700	887,700	546,900	6,517,900	16,294,750	222,900
1991 d	7,214,390	310,993	1,335,258	683,448	9,544,089	23,860,223	753,807
5 Year Avg. 1986–90	4,915,180	300,380	2,713,480	768,920	8,697,960	21,744,900	282,720

a Includes Lower Yukon test fish sales, unless otherwise noted.

b Based on type of processing when fish were shipped out of the area.

c Estimated processors tax and vessel and crewmember license fees. Does not include CFEC permit fee.

d Does not include any test fish sales.

Appendix A.16. Estimated average prices paid to fishermen, Yukon Area, 1964–1991.

Year	PRICE PER POUND												
	Lower Yukon Area				Upper Yukon Area								
	Chinook	Summer Chum	Fall Chum	Coho	Chinook	Chinook Roe	Summer Chum	Summer Chum Roe	Fall Chum	Fall Chum Roe	Coho	Coho Roe	Salmon Roe
1964	0.17		0.03										
1965	0.20												
1966	0.20												
1967	0.19	0.05	0.05	0.07									
1968	0.18	0.06	0.06										
1969	0.19	0.08	0.08	0.08									
1970	0.22	0.09	0.09	0.12									
1971	0.24	0.10	0.10	0.12									
1972	0.24	0.11	0.11	0.13									
1973	0.30	0.16	0.16	0.18									
1974	0.38	0.21	0.21	0.25	0.50		0.15		0.13		0.15		0.75
1975	0.42	0.20	0.20	0.21	0.92		0.17		0.14		0.17		1.16
1976	0.51	0.24	0.24	0.27	0.74		0.19		0.16		0.19		1.33
1977	0.85	0.40	0.45	0.50	1.37		0.27		0.22		0.27		2.66
1978	0.90	0.45	0.47	0.60	0.87		0.24		0.25		0.24		a
1979	1.09	0.52	0.68	0.80	1.00		0.25		0.29		0.25		3.00
1980	1.04	0.20	0.28	0.36	0.85		0.23		0.27		0.29		2.50
1981	1.20	0.40	0.55	0.60	1.00		0.20		0.35		0.35		3.00
1982	1.41	0.40	0.55	0.69	1.02		0.18		0.28		0.37		2.75
1983	1.40	0.34	0.34	0.35	1.08		0.16		0.19		0.31		1.66
1984	1.50	0.26	0.32	0.50	0.95		0.23		0.26		0.24		1.78
1985	1.50	0.35	0.47	0.53	0.86		0.23		0.25		0.33		1.94
1986	1.63	0.38	0.49	0.71	0.89		0.22		0.14		0.21		2.08
1987	1.98	0.49			0.79		0.19						2.22
1988	2.97	0.66	1.01	1.38	1.04		0.23		0.32		0.37		4.33
1989	2.77	0.34	0.50	0.66	0.84		0.24		0.28		0.35		4.41
1990	2.84	0.24	0.45	0.66	0.72		0.11		0.29		0.34		4.38
1991	3.70	0.36	0.34	0.44	0.70	2.92	0.18	4.21	0.23	3.56	0.30	2.50	4.03

a Data unavailable.

Appendix A.17. Average weight of commercial salmon catch in pounds, Yukon Area, 1964–1991. a

Year	Lower Yukon Area				Upper Yukon Area			
	Chinook	Summer Chum	Fall Chum	Coho	Chinook	Summer Chum	Fall Chum	Coho
1964	22.6							
1965	23.0							
1966	23.0							
1967	24.0			7.3				
1968	26.5							
1969	23.9			6.7				
1970	22.3			7.1				
1971	22.6			6.9				
1972	24.6	6.6	7.6	7.1				
1973	24.5	6.8	7.9	7.1				
1974	23.7	6.5	7.5	7.0	17.3	6.7	7.7	6.7
1975	22.0	6.5	7.5	7.2	17.7	6.6	8.0	6.6
1976	21.9	6.5	7.5	6.6	18.4	6.4	8.0	7.5
1977	23.9	7.0	8.0	7.5	17.6	6.5	8.0	6.5
1978	24.0	7.1	7.7	7.0	20.2	6.8	7.4	6.4
1979	20.9	7.4	7.4	7.3	20.2	6.6	7.7	6.5
1980	22.5	6.9	6.9	6.4	16.0	6.6	7.7	6.5
1981	24.8	7.5	8.0	6.8	23.7	7.1	7.4	5.7
1982	23.0	7.1	7.7	6.7	21.4	7.1	7.5	6.5
1983	20.5	7.2	7.9	7.0	19.1	6.6	7.7	6.0
1984	20.5	6.8	7.5	7.0	19.6	6.4	7.3	6.1
1985	20.3	6.7	7.7	7.4	18.4	6.1	7.5	6.4
1986	20.2	6.9	7.2	6.3	19.7	6.1	8.0	6.0
1987	21.7	6.8			20.0	6.8		
1988	19.6	7.0	7.9	7.3	18.6	6.9	7.9	6.6
1989	19.9	7.2	7.5	7.3	17.9	6.8	7.4	6.0
1990	19.6	7.3	7.7	6.8	16.8	6.9	7.0	6.2
1991	20.4	6.7	7.4	7.0	17.6	6.5	6.8	5.7

a Information not available for some years. Data obtained from age–length–weight samples or fish ticket entries.

Appendix A.18. Subsistence and commercial chinook salmon catches by district and country, Yukon River drainage, 1976-1991. a

	1978	1979	1980	1981	1982	1983	1984	1985
District 1								
Subsistence	5,246	2,879	3,669	2,282	2,311	6,263	4,624	3,071
Commercial	59,006	75,007	90,382	99,508	74,450	95,457	74,871	90,011
ADF&G TF Sales	-	-	-	-	-	-	-	-
Subtotal	64,252	77,886	94,051	101,788	76,761	101,720	79,295	93,082
District 2								
Subsistence	3,964	4,268	3,674	3,580	2,109	9,065	7,172	3,468
Commercial	32,924	41,498	50,004	45,781	39,132	43,229	36,697	48,365
ADF&G TF Sales	-	-	-	-	-	-	-	-
Subtotal	36,888	45,766	53,678	49,361	41,241	52,294	43,869	51,833
District 3								
Subsistence	3,902	3,263	4,783	4,001	3,359	4,910	4,394	3,342
Commercial	2,916	5,018	5,240	4,023	2,609	4,106	3,039	2,588
Subtotal	6,818	8,281	10,023	8,024	5,968	9,016	7,433	5,930
Lower Yukon Total								
Subsistence	13,112	10,410	12,126	9,863	7,779	20,238	16,190	9,881
Commercial	94,846	121,523	145,626	149,310	116,191	142,792	114,407	140,964
ADF&G TF Sales h	-	-	-	-	-	-	-	-
Total	107,958	131,933	157,752	159,173	123,970	163,030	130,597	150,845
District 4								
Subsistence b, c	5,549	7,265	11,088	4,442	5,077	9,754	7,650	7,425
Commercial	808	1,989	1,521	1,347	1,087	801	961	664
Commercial Related	-	-	-	-	-	-	-	-
Subtotal	6,157	9,254	12,609	5,789	6,164	10,355	8,611	8,089
District 5								
Subsistence c, d	10,405	11,997	17,884	13,300	12,859	16,780	14,989	15,090
Commercial	3,079	3,389	4,891	6,374	5,385	3,606	3,669	3,418
Commercial Related	-	-	-	-	-	-	-	-
Subtotal	13,484	15,386	22,575	19,674	18,244	20,386	18,658	18,508
District 6								
Subsistence	1,231	1,333	1,826	2,085	2,443	2,706	3,599	7,375
Commercial	635	772	1,947	987	981	811	867	1,142
Commercial Related	-	-	-	-	-	-	-	-
ADF&G TF Sales	0	0	0	0	0	0	0	0
Subtotal	1,866	2,105	3,773	3,072	3,424	3,617	4,466	8,517
Upper Yukon Total								
Subsistence c	17,185	20,595	30,598	19,827	20,379	29,240	26,236	29,890
Commercial	4,322	6,150	8,359	8,708	7,453	5,118	5,497	5,224
Commercial Related	-	-	-	-	-	-	-	-
ADF&G TF Sales	0	0	0	0	0	0	0	0
Total	21,507	26,745	38,957	28,535	27,832	34,358	31,735	35,114
Alaska Totals								
Subsistence c	30,297	31,005	42,724	29,690	28,158	49,478	42,428	39,771
Commercial	99,168	127,673	153,985	158,018	123,644	147,910	119,904	146,188
Commercial Related	-	-	-	-	-	-	-	-
ADF&G TF Sales	-	-	-	-	-	-	-	-
Total	129,465	158,678	196,709	187,708	151,802	197,388	162,332	185,959
Canada								
Subsistence g	2,906	4,200	13,346	9,516	8,568	5,925	6,910	6,728
Commercial	2,975	6,175	9,500	8,593	8,640	13,027	9,885	12,573
Total	5,881	10,375	22,846	18,109	17,208	18,952	16,795	19,301
U.S./Canada Totals								
Subsistence c	33,203	35,205	56,070	39,206	36,726	55,403	49,338	46,499
Commercial	102,143	133,848	163,485	166,611	132,284	160,937	129,789	158,761
Commercial Related	-	-	-	-	-	-	-	-
ADF&G TF Sales	-	-	-	-	-	-	-	-
Totals	135,346	169,053	219,555	205,817	169,010	216,340	179,127	205,260

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	1986	1987	1988	1989	1990	1991	5 Yr Avg 1986-90
District 1							
Subsistence	5,275	7,278	4,020	4,888	7,153	5,925	5,723
Commercial	53,035	78,643	57,109	59,153	51,161	53,014	59,420
ADF&G TF Sales	-	-	-	-	-	485	-
Subtotal	58,310	83,921	61,129	64,041	58,314	59,424	65,143
District 2							
Subsistence	6,483	9,866	3,823	7,147	9,546	7,617	7,373
Commercial	41,849	47,458	35,188	33,225	33,213	38,946	38,187
ADF&G TF Sales	-	-	-	-	-	113	-
Subtotal	48,332	57,324	38,011	40,372	42,759	46,676	45,560
District 3							
Subsistence	4,252	4,661	4,443	4,746	4,031	2,998	4,427
Commercial	901	2,039	1,787	1,845	2,341	2,344	1,739
Subtotal	5,153	6,700	6,210	6,391	6,372	5,342	6,165
Lower Yukon Total							
Subsistence	16,010	21,805	12,288	16,781	20,730	16,540	17,522
Commercial	95,765	126,140	94,064	94,023	86,715	94,304	99,345
ADF&G TF Sales h	-	-	-	-	-	598	-
Total	111,795	147,945	106,350	110,804	107,445	111,442	116,868
District 4							
Subsistence b, c	9,583	7,961	9,619	9,106	11,182	10,153	9,490
Commercial	502	1,524	3,159	2,790	3,536	2,446	2,302
Commercial Related	-	-	-	-	2	1,136	-
Subtotal	10,085	9,485	12,778	11,896	14,720	13,735	11,793
District 5							
Subsistence c, d	15,944	18,262	18,244	22,347	16,428	16,241	18,645
Commercial	2,733	3,758 e	3,436	3,286	3,353	3,810	3,313
Commercial Related	-	-	-	-	12	16	-
Subtotal	18,677	23,020	22,680	25,633	19,793	20,067	21,961
District 6							
Subsistence	3,701	4,096	5,441	3,046	3,759	2,687	4,009
Commercial	950	3,338 f	762	1,741	1,757	686	1,710
Commercial Related	-	-	-	-	399	386	-
ADF&G TF Sales	0	0	0	440	833	91	212
Subtotal	4,651	7,434	6,203	5,227	6,748	3,850	6,053
Upper Yukon Total							
Subsistence c	29,228	31,319	34,304	34,499	31,369	29,081	32,144
Commercial	4,185	6,620	7,357	7,817	6,646	6,942	7,325
Commercial Related	-	-	-	-	413	1,538	-
ADF&G TF Sales	0	0	0	440	833	91	212
Total	33,413	39,939	41,661	42,756	41,261	37,652	39,906
Alaska Totals							
Subsistence c	45,238	53,124	48,590	51,280	52,099	45,621	49,666
Commercial	99,970	134,760	101,421	101,840	95,361	101,246	106,670
Commercial Related	-	-	-	-	413	1,538	-
ADF&G TF Sales	0	0	0	440	833	689	212
Total	145,208	187,884	148,011	153,560	148,706	149,094	156,674
Canada							
Subsistence g	9,587	6,800	8,210	8,155	7,906	9,701	8,128
Commercial	10,797	10,864	13,217	9,789	11,324	10,906	11,198
Total	20,384	17,664	21,427	17,944	19,230	20,607	19,326
U.S./Canada Totals							
Subsistence c	54,805	59,924	54,800	59,435	60,005	55,322	57,794
Commercial	110,767	145,624	114,638	111,629	106,685	112,152	117,869
Commercial Related	-	-	-	-	413	1,538	-
ADF&G TF Sales	-	-	-	440	833	689	-
Totals	165,572	205,548	169,438	171,504	167,936	169,701	176,000

a. Alaskan personal use catches combined with subsistence. Commercial harvest includes only fish sold in the round. Commercial related refers to estimated harvest of females to produce roe sold.

b. Includes Innoko and Koyukuk River drainages.

c. Commercial related harvest in Districts 4 and 5 was subtracted from the subsistence harvest, because it was assumed the commercial related harvest was included in the reported subsistence harvest.

d. Includes Chandellar and Black River drainages.

e. Includes illegal sales of 653 chinook salmon in District 5.

f. Includes illegal sales of 2,136 chinook salmon in District 6.

g. Combined Indian Food Fish, Domestic and Sport Fisheries harvest.

h. Lower Yukon Area ADF&G test fishery sales included in commercial harvest through 1990.

Appendix A.19. Subsistence and commercial summer chum salmon catches by district, Yukon Area, 1978-1991. a

	1978	1979	1980	1981	1982	1983	1984	1985
District 1								
Subsistence	30,897	16,144	15,972	11,310	18,452	24,679	26,459	24,349
Commercial	393,785	369,934	391,252	507,158	249,516	451,164	292,676	247,486
ADF&G TF Sales	-	-	-	-	-	-	-	-
Subtotal	424,682	386,078	407,224	518,468	267,968	475,843	321,135	271,835
District 2								
Subsistence	21,684	23,276	13,681	14,218	18,442	27,398	26,996	19,795
Commercial	227,548	172,838	308,704	351,878	182,344	248,092	236,931	188,099
ADF&G TF Sales	-	-	-	-	-	-	-	-
Subtotal	249,232	196,114	322,385	366,096	200,786	275,488	263,927	207,894
District 3								
Subsistence	1,706	2,946	3,242	4,929	5,840	4,609	7,351	3,687
Commercial	27,003	40,015	44,782	54,471	4,086	14,600	1,087	1,792
Subtotal	28,709	42,961	48,024	59,400	9,926	19,209	8,438	5,479
Lower Yukon Total								
Subsistence	54,287	42,366	32,895	30,457	42,734	56,684	62,806	47,831
Commercial	648,336	582,787	744,738	913,507	435,948	713,856	530,694	437,377
ADF&G TF Sales	-	-	-	-	-	-	-	-
Total	702,623	625,153	777,633	943,964	478,680	770,540	593,500	485,208
District 4								
Subsistence b, c	110,059	123,740	119,790	50,953	57,967	46,713	49,230	59,839
Commercial	364,184	169,430	147,560	59,718	3,847	6,672	1,009	12,007
Commercial Related d	18,920	35,317	135,824	270,727	254,072	248,716	277,061	415,476
Subtotal	491,163	328,467	403,174	381,398	315,686	302,101	327,300	487,322
District 5								
Subsistence e, f	20,423	22,869	8,594	27,259	9,770	22,087	31,488	26,996
Commercial	4,892	8,608	456	1,238	213	42	645	700
Commercial Related g	805	1,009	0	49	21	1,856	47	0
Subtotal	25,920	32,486	9,050	28,544	10,004	23,985	32,180	27,696
District 6								
Subsistence h	3,534	2,312	6,428	8,980	6,942	23,696	23,106	23,078
Commercial	34,814	18,491	35,855	32,477	21,597	24,309	56,248	66,913
Commercial Related g	8,236	3,891	3,282	1,987	1,517	18	335	1,540
ADF&G TF Sales	0	0	0	0	0	0	0	0
Subtotal	46,584	24,694	45,563	43,424	30,056	48,023	79,690	91,531
Total Upper Yukon								
Subsistence f, h	134,016	148,921	134,810	87,172	74,679	92,496	103,824	109,913
Commercial	403,890	196,529	183,871	93,431	25,457	31,023	57,903	79,820
Commercial Related d, g	25,761	40,217	139,106	272,763	255,610	250,590	277,443	417,016
ADF&G TF Sales	0	0	0	0	0	0	0	0
Total	563,667	385,667	457,787	453,366	355,746	374,109	439,170	606,549
Alaska Total								
Subsistence f, h	188,303	191,287	167,705	117,629	117,413	149,180	166,630	157,744
Commercial	1,052,226	779,316	928,609	1,006,938	481,403	744,879	588,597	516,997
Commercial Related d, g	25,761	40,217	139,106	272,763	255,610	250,590	277,443	417,016
ADF&G TF Sales	-	-	-	-	-	-	-	-
Total	1,266,290	1,010,820	1,235,420	1,397,330	834,426	1,144,649	1,032,670	1,091,757

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	1986	1987	1988	1989	1990	1991	5 Yr Avg 1986-90
District 1							
Subsistence	38,854	30,760	29,439	53,275	37,294	27,790	37,924
Commercial	381,127	222,898	648,198	547,631	148,911	138,159	389,753
ADF&G TF Sales	-	-	-	-	-	1,373	-
Subtotal	419,981	253,658	677,637	600,906	186,205	167,322	427,677
District 2							
Subsistence	41,498	33,134	28,787	39,703	28,453	20,703	34,315
Commercial	286,427	174,876	425,172	343,962	132,507	175,149	272,989
ADF&G TF Sales	-	-	-	-	-	703	-
Subtotal	329,923	208,010	453,959	383,665	160,960	196,552	307,303
District 3							
Subsistence	5,528	4,181	5,830	3,982	3,003	1,865	4,501
Commercial	442	3,501	13,965	7,578	643	8,912	5,226
Subtotal	5,970	7,682	19,795	11,560	3,646	10,777	9,727
Lower Yukon Total							
Subsistence	85,878	68,055	64,056	96,960	68,750	50,358	76,740
Commercial	669,996	401,275	1,087,335	899,171	282,061	322,220	667,968
ADF&G TF Sales	-	-	-	-	-	2,076	-
Total	755,874	469,330	1,151,391	996,131	350,811	374,654	744,707
District 4							
Subsistence b, c	59,730	56,926	95,384	49,777	33,052	38,949	58,974
Commercial	300	29,991	24,051	18,554	12,364	6,381	17,052
Commercial Related d	465,235	179,809	466,023	491,690	198,697	294,743	380,291
Subtotal	525,265	266,726	585,458	560,021	244,113	340,073	436,317
District 5							
Subsistence e, f	21,833	24,806	33,073	12,924	9,938	24,120	20,515
Commercial	690	362	722	154	11	4	388
Commercial Related g	0	44	363	373	660	31	288
Subtotal	22,523	25,212	34,158	13,451	10,609	24,155	21,191
District 6							
Subsistence h	14,896	25,153	10,401	9,188	6,071	5,082	13,142
Commercial	50,483	10,610	40,129	42,115	12,360 i	18,197	31,139
Commercial Related g	2,148	450	1,646	4,871	2,428	5,696	2,308
ADF&G TF Sales	0	0	0	6,267	5,325	1,858	2,318
Subtotal	67,525	36,213	52,176	62,441	26,184	30,833	48,908
Total Upper Yukon							
Subsistence f, h	96,459	106,885	138,858	71,889	49,061	68,151	92,630
Commercial	51,473	40,963	64,902	60,823	24,735	24,582	48,579
Commercial Related d, g	467,381	180,303	468,032	496,934	201,785	300,470	362,887
ADF&G TF Sales	0	0	0	6,267	5,325	1,858	2,318
Total	615,313	328,151	671,792	635,913	280,906	395,061	506,415
Alaska Total							
Subsistence f, h	182,337	174,940	202,914	168,849	117,811	118,509	169,370
Commercial	721,469	442,238	1,152,237	959,994	306,796	346,802	716,547
Commercial Related d, g	467,381	180,303	468,032	496,934	201,785	300,470	362,887
ADF&G TF Sales	-	-	-	6,267	5,325	3,934	-
Total	1,371,187	797,481	1,823,183	1,632,044	631,717	769,715	1,251,122

a Personal use catches combined with subsistence. Commercial harvest includes only fish sold in the round. Lower Yukon Area ADF&G test fishery sales included in commercial harvest through 1990.

b Includes Koyukuk and Innoko River drainages.

c District 4 reported subsistence harvest does not include commercial related harvest. In 1986, 80.2% of the reported subsistence harvest in District 4 (excluding Innoko and Koyukuk River catches) was estimated to have been taken during commercial fishing activities. This relationship was used to adjust reported subsistence harvests (1980-1987). Since 1988, subsistence surveys documented catches based on subsistence only and commercial related separately.

d District 4 commercial related harvest includes estimated harvest of males and females to produce roe sold.

e Includes Chandalar and Black River drainages.

f Commercial related harvest in District 5 was subtracted from subsistence harvest, because it was assumed the commercial related harvest was included in the reported subsistence harvest.

g Commercial related harvest in Districts 5 and 6 refers to the estimated harvest of female salmon to produce roe sold.

h Commercial related harvest in District 6 was subtracted from subsistence harvest through 1988, because it was assumed the commercial related harvest was included in the reported subsistence harvest. Since 1989, the commercial related harvest was assumed to not be reported on subsistence permits.

i Includes 1,278 female summer chum salmon sold with roe extracted and sold separately.

Appendix A.20. Subsistence and commercial fall chum salmon catches by district and country, Yukon River drainage, 1978-1991. a

	1978	1979	1980	1981	1982	1983	1984	1985
District 1								
Subsistence	390	15,788	7,433	15,540	10,016	8,238	8,885	13,275
Commercial	127,947	109,406	106,829	167,834	97,484	124,371	78,751	129,948
ADF&G TF Sales	-	-	-	-	-	-	-	-
Subtotal	128,337	125,194	114,262	183,374	107,500	132,609	87,636	143,223
District 2								
Subsistence	1,297	14,662	12,435	11,770	9,511	10,341	11,394	11,544
Commercial	51,646	94,042	83,881	154,883	96,581	85,645	70,803	40,490
ADF&G TF Sales	-	-	-	-	-	-	-	-
Subtotal	52,943	108,704	96,316	166,653	106,092	95,986	82,197	52,034
District 3								
Subsistence	268	2,443	2,320	2,893	1,859	2,863	2,233	2,290
Commercial	11,527	25,955	13,519	19,043	5,815	10,018	6,429	5,164
ADF&G TF Sales	-	-	-	-	-	-	-	-
Subtotal	11,793	28,398	15,839	21,936	7,474	12,881	8,662	7,454
Lower Yukon Total								
Subsistence	1,953	32,893	22,188	30,203	21,186	21,442	22,512	27,109
Commercial	191,120	229,403	204,229	341,760	199,880	220,034	155,983	175,602
ADF&G TF Sales	-	-	-	-	-	-	-	-
Total	193,073	262,296	226,417	371,963	221,066	241,476	178,495	202,711
District 4								
Subsistence b, c	8,931	34,697	19,328	18,812	20,152	32,248	28,937	22,750
Commercial	10,988	48,899	27,978	12,082	3,894	4,482	7,625	24,452
Commercial Related	1,721	3,199	4,347	1,311	167	1,983	2,215	2,525
Subtotal	21,640	86,795	51,653	32,205	24,213	38,691	38,777	49,727
District 5								
Subsistence c, d	48,485	102,895	75,861	104,612	71,786	105,103	98,376	117,125
Commercial	21,016	47,459	41,771	86,620	13,593	43,993	24,060	25,338
Commercial Related	5,220	8,097	605	6,955	42	0	57	0
Subtotal	72,721	158,251	118,237	198,187	85,421	149,096	122,493	142,463
District 6								
Subsistence g	26,870	44,596	50,260	23,613	18,968	29,073	22,670	36,963
Commercial	13,259	34,185	19,452	25,989	6,820	34,089	20,584	42,352
Commercial Related	3,687	7,170	68	3,019	596	3,101	56	0
ADF&G TF Sales	0	0	0	0	0	0	0	0
Subtotal	43,816	85,951	69,780	52,621	26,384	66,263	43,290	79,315
Upper Yukon Total								
Subsistence	82,268	181,988	145,449	147,037	110,906	166,422	149,983	176,838
Commercial	45,263	130,543	89,201	124,691	24,307	82,564	52,249	92,142
Commercial Related	10,628	18,466	5,020	11,285	805	5,064	2,328	2,525
ADF&G TF Sales	0	0	0	0	0	0	0	0
Total	138,177	330,997	239,670	283,013	136,018	254,050	204,560	271,505
Alaska Totals								
Subsistence c, g	84,239	214,881	167,637	177,240	132,092	187,864	172,495	203,947
Commercial	236,383	359,946	293,430	466,451	224,187	302,598	208,232	267,744
Commercial Related	10,628	18,466	5,020	11,285	805	5,064	2,328	2,525
ADF&G TF Sales	0	0	0	0	0	0	0	0
Total	331,250	593,293	466,087	654,976	357,084	495,526	383,055	474,216
Canada Totals								
Subsistence h	6,210	13,000	13,218	7,021	4,779	3,500	6,335	5,519
Commercial	3,356	9,084	9,000	15,260	11,312	25,990	22,932	35,746
Total	9,566	22,084	22,218	22,281	16,091	29,490	29,267	41,265
Yukon River drainage Totals								
Subsistence c, g	90,449	227,881	180,855	184,261	136,871	191,364	178,830	209,466
Commercial	239,739	369,030	302,430	481,711	235,499	328,588	231,164	303,490
Commercial Related	10,628	18,466	5,020	11,285	805	5,064	2,328	2,525
ADF&G TF Sales	0	0	0	0	0	0	0	0
Total	340,816	615,377	488,305	677,257	373,175	525,016	412,322	515,481

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	1986	1987	1988	1989	1990	1991	5 Yr Avg 1986-90
District 1							
Subsistence	9,000	18,467	5,482	4,934	5,395	3,935	8,656
Commercial	59,352	0	45,529	77,878	27,337	59,724	42,019
ADF&G TF Sales	-	-	-	-	-	2,455	-
Subtotal	68,352	18,467	51,011	82,810	32,732	66,114	50,674
District 2							
Subsistence	13,483	13,454	8,600	10,015	8,187	5,628	10,348
Commercial	51,307	0	31,961	97,906	37,173	102,628	43,849
ADF&G TF Sales	-	-	-	-	-	96	-
Subtotal	64,790	13,454	40,461	107,921	43,360	108,352	53,997
District 3							
Subsistence	1,785	2,853	1,747	1,019	2,056	615	1,862
Commercial	2,793	0	2,090	15,332	3,715	9,213	4,786
Subtotal	4,578	2,853	3,837	16,351	5,771	9,828	6,678
Lower Yukon Total							
Subsistence	24,288	34,774	15,629	15,968	13,638	10,178	20,895
Commercial	113,452	0	79,480	191,114	68,225	171,565	90,454
ADF&G TF Sales	-	-	-	-	-	2,551	-
Total	137,720	34,774	95,309	207,082	81,863	184,294	111,350
District 4							
Subsistence b, c	28,498	41,901	18,958	21,137	18,084	18,521	24,511
Commercial	2,045	0	15,662	11,778	4,899	3,737	6,694
Commercial Related	0	0	1,421	3,407	3,177	2,354	1,801
Subtotal	28,541	41,901	34,041	36,320	24,230	24,612	33,007
District 5							
Subsistence c, d	87,729	157,085 e	86,862	111,541	94,243	89,243	107,482
Commercial	22,053	0	18,989	18,215	7,778	27,355	13,007
Commercial Related	395	0	0	3,999	1,198	4,759	1,116
Subtotal	110,177	157,085	103,851	133,745	103,219	101,357	121,615
District 6							
Subsistence g	24,973	127,903 f	36,827	60,851	53,713	40,469	60,813
Commercial	1,992	0	21,844	49,090	44,088	28,195	23,378
Commercial Related	182	0	1,808	7,353	8,908	16,253	3,250
ADF&G TF Sales	0	0	28,988	16,984	7,080	1,385	10,206
Subtotal	27,047	127,903	67,465	134,078	111,747	86,302	97,648
Upper Yukon Total							
Subsistence	139,186	328,889	140,647	193,329	164,020	128,233	192,817
Commercial	25,990	0	54,495	79,081	58,833	59,287	43,290
Commercial Related	577	0	3,227	14,749	11,283	23,366	5,967
ADF&G TF Sales	0	0	28,988	16,984	7,080	1,385	10,206
Total	165,755	328,889	225,357	304,143	239,196	212,271	252,270
Alaska Totals							
Subsistence c, g	163,468	361,663	159,478	209,297	177,658	138,411	213,712
Commercial	138,442	0	133,975	270,195	125,058	230,852	133,734
Commercial Related	577	0	3,227	14,749	11,283	23,366	5,967
ADF&G TF Sales	0	0	28,988	16,984	7,080	3,936	10,206
Total	303,485	361,663	320,668	511,225	321,079	396,565	363,620
Canada Totals							
Subsistence h	3,029	3,889	3,302	5,471	6,085	4,014	4,355
Commercial	11,484	40,561	30,263	17,549	27,537	31,404	25,481
Total	14,493	44,450	33,565	23,020	33,622	35,418	29,836
Yukon River Drainage Totals							
Subsistence c, g	166,495	365,552	159,778	214,768	183,743	142,425	218,067
Commercial	150,908	40,561	184,238	287,744	152,565	282,256	159,215
Commercial Related	577	0	3,227	14,749	11,283	23,366	5,967
ADF&G TF Sales	0	0	28,988	16,984	7,080	3,936	10,206
Total	317,978	406,113	354,231	534,245	354,681	431,983	393,456

a Alaskan personal use catches combined with subsistence. Commercial harvest includes only fish sold in the round. Commercial related refers to estimated harvest of females to produce roe sold.

Lower Yukon Area ADF&G test fishery sales included in commercial harvest through 1990.

b Includes Innoko and Koyukuk River drainages.

c Commercial related harvest in Districts 4 and 5 was subtracted from subsistence harvest, because it was assumed the commercial related harvest was included in the reported subsistence harvest.

d Includes Chandalar and Black River drainages.

e Includes illegal sales involving an estimated 95,768 fall chum salmon.

f Includes illegal sales involving an estimated 119,168 fall chum salmon.

g Commercial related harvest in District 6 was subtracted from subsistence harvest through 1988, because it was assumed the commercial related harvest was included in the reported subsistence harvest. Since 1989, the commercial related harvest was assumed to not be reported on subsistence permits.

h Combined Indian Food Fish and Domestic Fisheries harvests.

i Includes 884 female fall chum salmon sold with roe extracted and sold separately.

Appendix A.21. Subsistence and commercial coho salmon catches by district, Yukon Area, 1978-1991. a

	1978	1979	1980	1981	1982	1983	1984	1985
District 1								
Subsistence	1,142	3,184	1,808	3,769	11,192	3,590	6,095	3,246
Commercial	16,460	11,369	4,829	13,129	15,115	4,595	29,472	27,676
ADF&G TF Sales	-	-	-	-	-	-	-	-
Subtotal	17,602	14,553	6,637	16,898	26,307	8,185	35,567	30,922
District 2								
Subsistence	598	1,132	4,801	3,736	10,229	6,072	7,066	4,834
Commercial	5,835	2,850	2,660	7,848	14,179	2,557	43,064	17,125
ADF&G TF Sales	-	-	-	-	-	-	-	-
Subtotal	6,433	3,982	7,461	11,584	24,408	8,629	50,130	21,959
District 3								
Subsistence	223	12	91	490	675	917	740	376
Commercial	758	0	0	419	87	0	621	171
Subtotal	981	12	91	909	762	917	1,361	547
Lower Yukon Total								
Subsistence	1,963	4,328	6,700	7,995	22,096	10,579	13,901	8,456
Commercial	23,053	14,219	7,489	21,396	29,381	7,152	73,157	44,972
ADF&G TF Sales	-	-	-	-	-	-	-	-
Total	25,016	18,547	14,189	29,391	51,477	17,731	87,058	53,428
District 4								
Subsistence b	145	259	7,734	2,259	2,952	3,946	2,867	3,949
Commercial	32	155	30	0	15	0	1,095	938
Subtotal	177	414	7,764	2,259	2,967	3,946	3,962	4,887
District 5								
Subsistence c	970	595	561	1,713	3,428	2,448	17,467	8,098
Commercial	1	0	0	0	0	0	0	0
Subtotal	971	595	561	1,713	3,428	2,448	17,467	8,098
District 6								
Subsistence	4,709	4,612	5,163	9,261	7,418	6,922	14,785	11,761
Commercial	3,066	2,791	1,226	2,284	7,780	6,168	7,688	11,762
Commercial Related	-	-	-	-	-	-	-	-
ADF&G TF Sales	0	0	0	0	0	0	0	0
Subtotal	7,775	7,403	6,389	11,545	15,198	13,090	22,473	23,523
Upper Yukon Total								
Subsistence	5,824	5,466	13,458	13,233	13,798	13,316	35,119	23,808
Commercial	3,099	2,946	1,256	2,284	7,795	6,168	8,783	12,700
Commercial Related	-	-	-	-	-	-	-	-
ADF&G TF Sales	0	0	0	0	0	0	0	0
Total	8,923	8,412	14,714	15,517	21,593	19,484	43,902	36,508
Area Total								
Subsistence	7,787	9,794	20,158	21,228	35,894	23,895	49,020	32,264
Commercial	26,152	17,165	8,745	23,680	37,176	13,320	81,940	57,672
Commercial Related	-	-	-	-	-	-	-	-
ADF&G TF Sales	-	-	-	-	-	-	-	-
Total	33,939	26,959	28,903	44,908	73,070	37,215	130,960	89,936

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Appendix A.21. (p.2 of 2)

	1986	1987	1988	1989	1990	1991	5 Yr Avg 1986-90
District 1							
Subsistence	2,725	6,396	4,389	5,144	3,309	1,808	4,393
Commercial	24,824	0	36,435	24,672	13,354	54,095	19,857
ADF&G TF Sales	-	-	-	-	-	2,094	-
Subtotal	27,549	6,396	40,824	29,816	16,663	57,997	24,250
District 2							
Subsistence	9,140	6,894	7,104	5,039	6,344	3,297	6,904
Commercial	21,197	0	34,776	38,522	16,435	40,898	22,186
ADF&G TF Sales	-	-	-	-	-	86	-
Subtotal	30,337	6,894	41,880	43,561	22,779	44,281	29,090
District 3							
Subsistence	781	682	1,539	537	1,026	1,340	913
Commercial	793	0	1,419	3,988	918	1,905	1,424
Subtotal	1,574	682	2,958	4,525	1,944	3,245	2,337
Lower Yukon Total							
Subsistence	12,646	13,972	13,032	10,720	10,679	6,445	12,210
Commercial	46,814	0	72,630	67,182	30,707	96,898	43,467
ADF&G TF Sales	-	-	-	-	-	2,180	-
Total	59,460	13,972	85,662	77,902	41,386	105,523	55,676
District 4							
Subsistence b	2,631	3,551	4,842	4,030	3,614	4,451	3,734
Commercial	0	0	2	3	0	14	1
Subtotal	2,631	3,551	4,844	4,033	3,614	4,465	3,735
District 5							
Subsistence c	5,870	11,900 d	19,755	7,110	11,166	4,931	11,160
Commercial	0	0	8	84	0	0	18
Subtotal	5,870	11,900	19,763	7,194	11,166	4,931	11,179
District 6							
Subsistence	13,321	55,471 e	31,509	19,650	22,357	21,561	28,462
Commercial	441	0	13,972	16,084	11,987 f	6,268	8,497
Commercial Related	-	-	-	-	2,795	3,505	-
ADF&G TF Sales	0	0	13,295	2,140	1,426	791	3,372
Subtotal	13,762	55,471	58,776	37,874	38,565	32,125	40,890
Upper Yukon Total							
Subsistence	21,822	70,922	56,106	30,790	37,137	30,943	43,355
Commercial	441	0	13,982	16,171	11,987	6,282	8,516
Commercial Related	-	-	-	-	2,795	3,505	-
ADF&G TF Sales	0	0	13,295	2,140	1,426	791	3,372
Total	22,263	70,922	83,383	49,101	53,345	41,521	55,803
Area Total							
Subsistence	34,468	84,894	69,138	41,510	47,816	37,388	55,565
Commercial	47,255	0	86,612	83,353	42,694	103,180	51,983
Commercial Related	-	-	-	-	2,795	3,505	-
ADF&G TF Sales	-	0	13,295	2,140	1,426	2,971	-
Total	81,723	84,894	169,045	127,003	94,731	147,044	111,479

a Personal use catches combined with subsistence. Commercial related refers to estimated harvest of female salmon to produce roe sold, carcasses may be used for subsistence purposes.

Lower Yukon Area ADF&G test fishery sales included in commercial harvest through 1990.

b Includes Innoko and Koyukuk River drainages.

c Includes Chandalar and Black River drainages.

d Includes illegal sales involving an estimated 5,015 coho salmon.

e Includes illegal sales involving an estimated 31,276 coho salmon.

f Includes 438 female coho salmon sold with roe extracted and sold separately.

Appendix A.22. Percent age composition of combined commercial and subsistence salmon harvest, Yukon River drainage, 1982–1991. a

Species	Year	Sample Size	Age					Total	
			3	4	5	6	7		8
Chinook Salmon	1982	3,795	0.2	6.8	18.5	58.3	15.9	0.3	100.0
	1983	3,801	0.0	6.6	21.0	62.9	9.4	0.0	100.0
	1984	3,700	0.0	3.7	27.0	56.0	13.1	0.1	100.0
	1985	4,567	0.1	5.7	13.2	69.4	11.3	0.3	100.0
	1986	5,785	0.3	3.9	27.2	42.8	25.1	0.6	100.0
	1987	5,300	0.0	4.2	8.4	72.5	14.5	0.3	100.0
	1988	5,108	0.1	14.8	22.8	31.5	29.4	1.4	100.0
	1989	4,310	0.3	5.8	32.2	51.9	9.0	0.8	100.0
	1990 b	3,553	0.0	21.8	26.1	46.3	5.7	0.1	100.0
	1991 b	3,849	0.0	4.3	40.6	47.6	7.4	0.1	100.0
Summer Chum Salmon	1982	3,419	2.0	61.2	34.4	2.4			100.0
	1983	4,110	1.0	53.8	44.4	0.8			100.0
	1984	2,722	2.0	73.7	23.9	0.5			100.0
	1985	2,472	1.4	68.6	29.2	0.8			100.0
	1986	3,473	0.1	29.1	69.8	1.0			100.0
	1987	2,184	0.4	60.8	31.8	6.9			100.0
	1988	5,112	0.0	70.1	29.1	0.8			100.0
	1989	4,482	0.5	41.2	57.6	0.7			100.0
	1990 b	3,155	0.4	37.4	59.8	2.4			100.0
	1991 b	5,115	3.2	53.1	43.2	0.4			99.9
Fall Chum Salmon	1982	2,918	6.5	58.6	34.5	0.3			100.0
	1983	1,735	0.7	91.4	8.0	0.0			100.0
	1984	1,902	6.6	55.6	37.5	0.4			100.0
	1985	2,801	5.2	83.4	11.0	0.4			100.0
	1986	1,715	7.4	89.6	2.5	0.5			100.0
	1987	1,513	5.0	77.1	17.5	0.4			100.0
	1988	4,030	4.1	45.7	46.6	3.5			99.9
	1989	2,792	1.1	85.8	12.8	0.3			100.0
	1990 b	2,351	2.9	74.9	21.8	0.4			100.0
	1991 b	2,410	2.7	76.9	20.2	0.1			99.9
Coho Salmon	1982	320	4.1	87.3	8.6				100.0
	1983	121	4.1	91.7	4.1				100.0
	1984	619	12.9	73.7	13.4				100.0
	1985	462	14.1	76.3	9.6				100.0
	1986	491	2.2	88.6	9.2				100.0
	1987	0							0.0
	1988	1,091	12.2	85.5	2.3				100.0
	1989	749	19.2	76.3	4.5				100.0
	1990 b	428	29.3	66.8	3.9				100.0
	1991 b	626	13.4	86.4	0.2				100.0

a Age composition estimated from samples collected from each gear type, by district and fishery, or from samples from adjacent fisheries of the same gear type. Fisheries for which no appropriate samples were available were not apportioned to age.

b Preliminary.

Appendix A.23. Percent of total Yukon River chinook salmon harvest attributed to region of origin, 1982–1991. a

Year	Lower River Stocks b (U.S)	Middle River Stocks c (U.S)	Canadian–Spawned Stocks	Total
1982	14	24	62	100
1983	12	37	51	100
1984	29	36	35	100
1985	31	20	50	100
1986	27	6	68	100
1987	17	19	65	100
1988	27	11	61	100
1989	26	16	58	100
1990	19	22	59	100
1991 d	26	29	45	100
5 Year Avg. 1987–1991	23	19	58	
10 Year Avg. 1982–1991	23	22	55	

a Based on analysis of chinook salmon scale patterns, age composition, and geographic distribution of catches and escapements.

b Lower River stocks include tributary streams that drain the Andreafsky Hills and Kaltag Mountains between rivermiles 100 and 500.

c Middle River stocks include the Upper Koyukuk River and Tanana River tributaries.

d Preliminary.

Appendix A.24. Associated environmental and salmon catch data, Yukon River, 1961-1991.

Year	Average Nome April Air Temp. (F)	Tanana River Nenana Ice Breakup	Iceout Yukon Delta Area	First Chinook Caught Delta Area b	First Chinook Caught Kuskokwim River b	First Chinook Caught Dist. 1 Comm. Fishery	First Summer Chum Caught Delta Area b	First Summer Chum Caught Dist. 1 Comm. Fishery
1961	18	5/05	a	6/05	a	6/05	a	-
1962	18	5/12	6/10	6/07 c	a	6/11	a	-
1963	18	5/05	5/29	a	a	6/03	a	-
1964	13	5/20	>6/12	a	a	6/15	a	-
1965	20	5/07	6/01	6/06	5/31	6/07	a	-
1966	15	5/08	6/06	6/09	5/27 g	6/10	a	-
1967	23	5/04	a	5/20	5/20	6/02	5/30	6/09
1968	14	5/08	a	a	5/26	6/03	6/05	6/07
1969	22	4/28	5/25	5/26	5/23	6/02	6/02	6/02
1970	15	5/04	late May	6/06	5/21	6/06	6/05	6/11
1971	13	5/08	6/05	6/11	6/06	6/11	6/15	6/15
1972	12	5/10	6/03	6/09	6/05	6/09	6/11	6/10
1973	18	5/04	6/01	5/30 d	5/27	6/05	6/05	6/07
1974	21	5/06	late May	5/27	5/23	6/03	6/01	6/03
1975	13	5/10	6/01	6/01	5/26	6/09	6/13	6/13
1976	10	5/02	6/01	6/12	6/01	6/14	6/13	6/14
1977	9	5/06	6/01	6/09	5/31	6/11	6/11	6/13
1978	25	4/30	5/20	5/26	5/18	6/08	5/26	6/08
1979	26	4/30	5/20	5/24	5/16	6/04	5/28	6/04
1980	24	4/29	5/19	5/27 e	5/17	6/09	5/31	6/09
1981	24	4/30	5/18	5/25	5/22	6/05	5/28	6/05
1982	12	5/10	6/02	6/06	6/01	6/14	6/06	6/14
1983	25	4/29	5/21	5/25	5/23	6/09	5/30	6/09
1984	12	5/09	6/01	6/02 f	5/25	6/18	6/08	6/08
1985	1	5/11	6/05	6/14	6/03	6/24	6/16	6/24
1986	12	5/08	6/01	6/06	5/29	6/14 h	6/07	6/14
1987	19	5/05	5/31	5/31	5/24	6/15	6/04	6/15
1988	23	4/27	5/20	5/27	5/16	6/09 h	5/27	6/09
1989	25	5/01	5/31	5/29 i	5/25	6/13 h	6/03	6/13
1990	26	4/23	5/28	5/29	5/22	6/14	5/31	6/14
1991	25	5/01	5/24	5/29	5/20	6/13	5/29	6/13

a Information not available.

b Subsistence or test net fishery.

c Caught 6/09 Mt. Village, back calculated arrival date to mouth.

d Caught 6/03 Pilot Station, back calculated arrival date to mouth.

e Caught 5/23 Marshall, back calculated arrival date to mouth.

f Caught 6/05 Pitkas Point, back calculated arrival date to mouth.

g Caught 6/01 Kalskag, back calculated arrival date to mouth.

h Special six inch maximum mesh size fishing period.

i Caught 6/01 St. Marys, back calculated arrival date to mouth.

Appendix A.25. Total catch and estimated catch of Western Alaska (including Canadian Yukon) chinook salmon (in thousands of fish) taken in Japanese high seas salmon gill net fisheries and total catch of chinook salmon taken in foreign and joint-venture trawl fisheries, 1964-1991.

Year	Japanese Mothership Gillnet		Japanese Landbased Drifnet		Japanese Total Gillnet		Bering Sea - Aleutian Area Trawl			Gulf of Alaska Trawl		
	Western Alaska Origin	Total	Western Alaska Origin	Total	Western Alaska Origin	Total	Foreign	Joint Venture/U.S. Groundfish d	Total	Foreign	Joint Venture/U.S. Groundfish e	Total
1964	179	410	40	208	219	618						
1965	106	185	20	102	126	287						
1966	108	208	22	118	130	326						
1967	71	128	22	115	93	243						
1968	244	362	18	97	262	459						
1969	367	554	17	88	384	642						
1970	312	437	28	148	340	585						
1971	132	206	27	139	159	345						
1972	189	261	20	107	209	368						
1973	56	119	31	165	87	284						
1974	208	361	36	188	244	549						
1975	108	162	20	137	128	299						
1976	117	285	42	201	159	486						
1977	55	93	31	146	86	239				4.8		4.8
1978	36	105	63	210	99	315	39.1		39.1	a		
1979	69	126	45	162	114	286	100.4		100.4	16.9	1.0	17.9
1980	416	704	22	160	438	864	113.2	1.9	115.1	31.6	0.2	31.8
1981	30	88	55	190	85	278	36.7	0.3	37.0	28.6	0.0	28.6
1982	45	107	41	165	86	272	13.9	1.7	15.6	a	3.5	5.9
1983	31	87	44	178	75	265	9.8	0.5	10.3	5.9	9.4	9.4
1984	36	82	21	92	57	174	a	a	b	11.1	63.2	74.3
1985	25	66	22	100	47	167	b	b	b	0.3	13.6	13.6
1986	24	60	20	76	44	137	0.3	4.0 c	4.3		18.0	18.0
1987	20	39	b	74	b	116	b	b	b		b	b
1988	23	26	b	47	b	73		b	b		b	b
1989	b	16	b	51	b	67		8.6	8.6			
1990	b,f	23	b	b	b	b		14.0	14.0		14.8	14.8
1991	b	45	b	b	b	b		37.6	37.6		37.5	37.5

a Species composition unknown.

b Information not available.

c Longline harvest only, no trawling conducted in 1986.

d Joint-venture harvest reported through 1989 (fishery ended in 1990). U.S. ground fish fishery harvest reported beginning in 1990.

e Joint-venture harvest reported through 1988 when fishery ended. U.S. ground fish fishery harvest reported beginning in 1990.

f Japanese mothership fishery converted to "nontraditional landbased salmon fishery".

APPENDIX B

LOWER YUKON AREA SALMON

Appendix B.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1991.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-04-91	June 13	Opened the commercial salmon season effective 6:00 p.m. June 13 in District 1, and established a single 12-hour fishing period in District 1 from 6:00 p.m. June 13 until 6:00 a.m. June 14.	Approximately 7-10 days of increasing chinook salmon subsistence and test fishing catches warrant opening the season and allowing an unrestricted mesh size fishing period.
3-LY-05-91	June 16	Opened the commercial salmon season effective 6:00 p.m. June 16 in District 2, and established a single 12-hour fishing period in District 2 from 6:00 p.m. June 16 until 6:00 a.m. June 17.	Chinook salmon abundance continued to indicate a harvestable surplus according to commercial and test fishing catches through June 15.
3-LY-06-91	June 16	Established a 12-hour subsistence and personal use only fishing period in District 1 from 6:00 a.m. June 16 until 6:00 p.m. June 16.	Fishermen in District 1 requested more subsistence fishing time due to flood damaged fish camps and low abundance of chum salmon through June 12.
3-LY-07-91	June 17	Established a 12-hour commercial fishing period in District 1 from 6:00 p.m. June 17 until 6:00 a.m. June 18 with unrestricted mesh size gill nets.	Test fishing and sonar data indicated an average return of chinook salmon.
3-LY-08-91	June 19	Established a 12-hour commercial fishing period (unrestricted mesh size) from 6:00 p.m. June 19 until 6:00 a.m. June 20 in District 2.	Test Fishing and sonar passage data indicated a harvestable surplus of chinook salmon was present.

Appendix B.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1991.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-09-91	June 20	Established a single 12-hour commercial fishing period (unrestricted mesh size) in District 1 from 6:00 p.m. June 20 until 6:00 a.m. June 21.	Test fish and subsistence catch data indicated that the chinook salmon return was of average abundance and timing through this date.
3-LY-10-91	June 23	Opened the commercial salmon fishing season effective 12:00 noon June 23 in District 3 of the Yukon area. Also established an 18-hour fishing period (unrestricted mesh size) in District 3 from 12:00 noon June 23 until 6:00 a.m. June 24.	Test fish and subsistence catch data indicated that chinook salmon were present in harvestable numbers in the lower 300 miles of the river.
3-LY-11-91	June 21	Established special 24-hour subsistence only fishing periods during the commercial salmon fishing season in Districts 1 and 2 through June 23. Specifically this emergency order opened subsistence only fishing from 12:00 noon June 22 until 12:00 noon June 23 in District 1. In District 2, subsistence fishing opened from 6:00 p.m. June 21 until 6:00 p.m. June 22.	Special subsistence fishing periods established by emergency order as stipulated by regulation to provide for increased subsistence fishing opportunity.
3-LY-12-91	June 23	Established a 12-hour commercial fishing period (unrestricted mesh size) from 6:00 p.m. June 23 until 6:00 a.m. June 24 in District 2.	The chinook salmon return appeared to be average in magnitude. Therefore a harvest near the midpoint of the guideline harvest range was warranted.

Appendix B.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1991.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-13-91	June 24	Established a 12-hour commercial fishing period (unrestricted mesh size) from 6:00 p.m. June 24 until 6:00 a.m. June 25 in District 1.	Chinook salmon return appeared to be average in magnitude. Therefore, a harvest near the midpoint of the guideline harvest range was warranted.
3-LY-14-91	June 26	Established a 6-hour commercial fishing period (unrestricted mesh size) from 6:00 p.m. June 26 until 12:00 midnight June 26 in District 2 and District 3.	Chinook return appeared near average in abundance which would allow a harvest near the mid-point of the guideline harvest ranges. Summer chum run appears to be below average.
3-LY-15-91	June 29	Established an additional 24-hour subsistence and personal use only fishing period from 12:00 noon June 29 until 12:00 noon June 30.	To provide increased subsistence fishing opportunity due to flood damaged fish camps during breakup.
3-LY-16-91	June 30	Established a 6-hour commercial fishing period with gillnets restricted to six inch maximum mesh size from 6:00 p.m. June 30 until 12:00 midnight June 30 in District 2.	According to test fishing, the chinook return appeared to be of average magnitude, while the summer chum return appeared to be increasing since June 27.
3-LY-17-91	June 30	Established a 12-hour commercial fishing period with gillnets restricted to six inch maximum mesh size from 12:00 noon June 30 until 12:00 midnight June 30 in District 3. In addition, closed the commercial fishing season effective 12:00 midnight June 30 in District 3.	The chinook return appeared to be of average magnitude, therefore a harvest near the mid-point of the guideline harvest range (2,000 fish) was warranted.

Appendix B.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1991.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-18-91	June 30	Prohibited commercial fishermen from taking subsistence and personal use salmon by gillnets with a mesh size larger than six inch maximum mesh size during commercial fishing periods restricted to six inch or smaller mesh beginning 12:00 noon Sunday June 30 in District 3, 6:00 p.m. June 30 in District 2, and 6:00 p.m. July 1 in District 1.	Action taken to prevent chinook salmon taken under guise of subsistence and personal use from entering the commercial market.
3-LY-19-91	June 30	Rescinded emergency order 3-LY-16-91 and established a 12-hour fishing period with gillnets restricted to six inch maximum mesh size from 6:00 p.m. June 30 until 6:00 a.m. July 1 in District 2.	Test fishery indicated an increase in summer chum salmon abundance warranting a 12-hour fishing period rather than a 6-hour period.
3-LY-20-91	July 1	Established a 12-hour commercial fishing period (unrestricted mesh size) from 6:00 p.m. July 1 until 6:00 a.m. July 2 in District 1.	Test fishing indicated increased abundance of both chinook and summer chum salmon.
3-LY-21-91	July 3	Established a 12-hour fishing period (unrestricted mesh size) from 6:00 p.m. July 3 until 6:00 a.m. July 4 in District 2.	Test fishing indicated increased abundance of both chinook and summer chum salmon.
3-LY-22-91	July 4	Established a 12-hour fishing period with gillnets restricted to six inch maximum mesh size from 6:00 p.m. July 4 until 6:00 a.m. July 5 in District 1.	Summer chum abundance appears to be great enough to allow additional harvest.

Appendix B.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1991.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-23-91	July 5	Established weekend 24-hour subsistence only fishing periods from 12:00 noon July 6 until 12:00 noon July 7 in District 1, and from 6:00 p.m. July 5 until 6:00 p.m. July 6 in District 2.	Provided increased subsistence fishing opportunity as requested by fishermen.
3-LY-24-91	July 7	Established a 6-hour fishing period with gillnets restricted to six inch maximum mesh size from 6:00 p.m. July 7 until 12:00 midnight July 7 in District 2.	Reduced fishing time warranted as sonar counts and test fishery indicate below average summer chum abundance.
3-LY-25-91	July 9	Closed commercial fishing season in Districts 1 and 2 effective 9:00 a.m. July 9.	Overall summer chum salmon abundance is below average. Aerial survey on July 7 documented very low numbers of chums in the Andreafsky River. Closure warranted to allow for escapement needs.
3-LY-26-91	July 29	Opened commercial salmon fishing season effective 8:00 p.m. July 29 in District 1 and 9:00 a.m. July 31 in District 2 and District 3.	Evaluation of sonar counts and test fishing and subsistence catches indicated a harvestable surplus of fall chum salmon was available.

Appendix B.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1991.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-27-91	July 29	Established twice weekly fishing periods of 16 hours duration in the set net only area of District 1 from 8:00 p.m. Monday until 12:00 noon Tuesday and from 8:00 p.m. Thursday until 12:00 noon Friday; and of 9 hours duration in the remainder of District 1 from 9:00 a.m. until 6:00 p.m. Tuesday and from 9:00 a.m. until 6:00 p.m. Friday. Twice weekly fishing periods in District 2 and 3 from 9:00 a.m. until 6:00 p.m. Sunday and from 9:00 a.m. until 6:00 p.m. Wednesday.	Evaluation of sonar counts and test fishing and subsistence catches indicated a harvestable surplus of fall chum salmon was available.
3-LY-28-91	August 2	Established 24 hour subsistence only fishing periods each weekend during the commercial salmon fishing season in Districts 1, 2 and 3 as follows: from 12:00 noon Saturday until 12:00 noon Sunday in District 1, and from 6:00 p.m. Friday until 6:00 p.m. Saturday in Districts 2 and 3.	Regulations require this action for the gillnet area of District 1 and for District 2. The District 1 set net only area and District 3 were included in response to significant reduction in commercial fishing period duration from prior years.
3-LY-29-91	August 16	Amended emergency order 3-LY-28-91 by changing the weekend subsistence only fishing periods in Districts 2 and 3 to 12:00 noon Friday until 12:00 noon Saturday effective August 16.	Timing of periods changed to increase separation of subsistence only periods and commercial periods to aid enforcement.

Appendix B.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1991.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-30-91	August 18	Amended duration of twice weekly fishing periods established by emergency order 3-LY-27-91 as follows: from 16 to 12 hours in the set net only area of District 1, and from 9 hours to 6 hours in the remainder of District 1, District 2 and District 3. Starting times of periods unchanged.	Action necessary in order to achieve spawning escapement to Toklat River and to allow the subsistence harvests in the Kantishna River. Recent court cases resulted in subsistence fishing being allowed in the Kantishna River again this year.
3-LY-31-91	August 25	Closed commercial salmon fishing season effective 3:00 p.m. Sunday August 25 in Districts 2 and 3.	Fishery closed to ensure that the majority of fall chum salmon spawning area escapement objectives would be achieved, that subsistence requirements would be met, and that upper Yukon area commercial fisheries would have the opportunity to achieve commercial harvests of similar proportion toward their respective guidelines.
3-LY-32-91	August 27	Closed commercial salmon fishing season effective 3:00 p.m. August 27 in District 1.	Fishery closed to ensure that the majority of fall chum salmon spawning area escapement objectives would be achieved, that subsistence requirements would be met, and that upper Yukon area commercial fisheries would have the opportunity to achieve commercial harvests of similar proportion toward their respective guidelines.

Appendix B.2. Commercial chinook and summer chum salmon sales by district, Lower Yukon River Area, 1961–1991. *

Year	Chinook Salmon				Summer Chum Salmon			
	Dist. 1	Dist. 2	Dist. 3	Subtotal	Dist. 1	Dist. 2	Dist. 3	Subtotal
1961	84,466	29,026	4,368	117,860	—	—	—	0
1962	67,099	22,224	4,687	94,010	—	—	—	0
1963	85,004	24,221	7,020	116,245	—	—	—	0
1964	67,555	20,246	4,705	92,506	—	—	—	0
1965	89,268	23,763	3,204	116,235	—	—	—	0
1966	70,788	16,927	3,612	91,327	—	—	—	0
1967	104,350	20,239	3,618	128,207	9,453	1,425	57	10,935
1968	79,465	21,392	4,543	105,400	12,995	1,407	68	14,470
1969	71,688	14,756	3,595	90,039	56,886	5,080	—	61,966
1970	56,648	17,141	3,705	77,494	117,357	19,649	—	137,006
1971	86,042	19,226	3,490	108,758	93,928	6,112	50	100,090
1972	70,052	17,855	3,841	91,748	114,234	20,907	527	135,668
1973	56,981	13,859	3,204	74,044	221,644	63,402	463	285,509
1974	71,840	17,948	3,480	93,268	466,004	74,152	1,721	541,877
1975	44,585	11,315	4,177	60,077	418,323	99,139	—	517,462
1976	62,410	16,556	4,148	83,114	273,204	99,190	9,802	382,196
1977	69,915	16,722	3,965	90,602	250,652	105,679	3,412	359,743
1978	59,006	32,924	2,916	94,846	393,785	227,548	27,003	648,336
1979	75,007	41,498	5,018	121,523	369,934	172,838	40,015	582,787
1980	90,382	50,004	5,240	145,626	391,252	308,704	44,782	744,738
1981	99,506	45,781	4,023	149,310	507,158	351,878	54,471	913,507
1982	74,450	39,132	2,609	116,191	249,516	182,344	4,086	435,946
1983	95,457	43,229	4,106	142,792	451,164	248,092	14,600	713,856
1984	74,671	36,697	3,039	114,407	292,676	236,931	1,087	530,694
1985	90,011	48,365	2,588	140,964	247,486	188,099	1,792	437,377
1986	53,035	41,849	901	95,785	381,127	288,427	442	669,996
1987	76,643	47,458	2,039	126,140	222,898	174,876	3,501	401,275
1988	57,109	35,188	1,767	94,064	648,198	425,172	13,965	1,087,335
1989	59,153	33,225	1,645	94,023	547,631	343,962	7,578	899,171
1990	51,161	33,213	2,341	86,715	148,911	132,507	643	282,061
1991	53,014	38,946	2,344	94,304	138,159	175,149	8,912	322,220
5 Yr Ave 1981–85	86,819	42,641	3,273	132,733	349,600	241,469	15,207	606,276
5 Yr Ave 1986–90	59,420	38,187	1,739	99,345	389,753	272,989	5,226	667,968

* Sales reported in numbers of fish sold in the round.

Appendix B.3. Commercial fall chum and coho salmon sales by district, Lower Yukon River Area, 1961–1991. ^a

Year	Fall Chum Salmon				Coho Salmon			
	Dist. 1	Dist. 2	Dist. 3	Subtotal	Dist. 1	Dist. 2	Dist. 3	Subtotal
1961	42,461	—	—	42,461	2,855	—	—	2,855
1962	53,116	—	—	53,116	22,926	—	—	22,926
1963	—	—	—	0	5,572	—	—	5,572
1964	8,347	—	—	8,347	2,446	—	—	2,446
1965	22,936	—	—	22,936	350	—	—	350
1966	69,836	—	1,209	71,045	19,254	—	—	19,254
1967	36,451	—	1,823	38,274	9,925	—	1,122	11,047
1968	49,857	—	3,068	52,925	13,153	—	150	13,303
1969	128,866	—	1,722	130,588	13,989	—	1,009	14,998
1970	200,306	4,858	3,285	208,449	12,632	—	—	12,632
1971	188,533	—	—	188,533	12,165	—	—	12,165
1972	136,711	12,898	1,313	150,922	21,705	506	—	22,211
1973	173,783	45,304	—	219,087	34,860	1,781	—	36,641
1974	176,036	53,540	552	230,128	13,713	176	—	13,889
1975	158,183	51,666	5,590	215,439	2,288	200	—	2,488
1976	105,851	21,212	4,250	131,313	4,064	17	—	4,081
1977	131,758	51,994	15,851	199,603	31,720	5,319	538	37,577
1978	127,947	51,646	11,527	191,120	16,460	5,835	758	23,053
1979	109,406	94,042	25,955	229,403	11,369	2,850	—	14,219
1980	106,829	83,881	13,519	204,229	4,829	2,660	—	7,489
1981	167,834	154,883	19,043	341,760	13,129	7,848	419	21,396
1982	97,484	96,581	5,815	199,880	15,115	14,179	87	29,381
1983	124,371	85,645	10,018	220,034	4,595	2,557	—	7,152
1984	78,751	70,803	6,429	155,983	29,472	43,064	621	73,157
1985	129,948	40,490	5,164	175,602	27,676	17,125	171	44,972
1986	59,352	51,307	2,793	113,452	24,824	21,197	793	46,814
1987	0	0	0	0	0	0	0	0
1988	45,529	31,861	2,090	79,480	36,435	34,776	1,419	72,630
1989	77,876	97,906	15,332	191,114	24,672	38,522	3,988	67,182
1990	27,337	37,173	3,715	68,225	13,354	16,435	918	30,707
1991	59,724	102,628	9,213	171,565	54,095	40,898	1,905	96,898
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5 Yr Ave 1981–85	119,678	89,680	9,294	218,652	17,997	16,955	260	35,212
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5 Yr Ave 1986–90	42,019	43,649	4,786	90,454	19,857	22,186	1,424	43,467

^a Sales reported in numbers of fish sold in the round.

Appendix B.4. Value of commercial salmon fishery to Lower Yukon Area fishermen, 1977-1991.

Year	Chinook		Summer Chum		Subtotal Value	Fall Chum		Coho		Subtotal Value	Total Value
	\$/lb.	Dollars	\$/lb.	Dollars		\$/lb.	Dollars	\$/lb.	Dollars		
1977	0.85	1,841,033	0.40	1,007,280	2,848,313	0.45	718,571	0.50	140,914	859,485	3,707,798
1978	0.90	2,048,674	0.45	2,071,434	4,120,108	0.47	691,854	0.60	96,823	788,677	4,908,785
1979	1.09	2,763,433	0.52	2,242,564	5,005,997	0.68	1,158,485	0.80	83,466	1,241,951	6,247,948
1980	1.04	3,409,105	0.20	1,027,738	4,436,843	0.28	394,162	0.36	17,374	411,536	4,848,379
1981	1.20	4,420,669	0.40	2,741,178	7,161,847	0.55	1,503,744	0.60	87,385	1,591,129	8,752,976
1982	1.41	3,768,107	0.40	1,237,735	5,005,842	0.55	846,492	0.69	135,828	982,320	5,988,162
1983	1.40	4,093,562	0.34	1,734,270	5,827,832	0.34	591,011	0.35	17,497	608,508	6,436,340
1984	1.50	3,510,923	0.26	926,922	4,437,845	0.32	374,359	0.50	256,050	630,409	5,068,254
1985	1.50	4,294,432	0.35	1,032,700	5,327,132	0.47	634,616	0.53	176,254	810,870	6,138,002
1986	1.63	3,165,078	0.38	1,746,455	4,911,533	0.49	399,321	0.71	211,942	611,263	5,522,796
1987	1.98	5,428,933	0.48	1,313,618	6,742,551		0		0	0	6,742,551
1988	2.97	5,463,800	0.66	5,001,100	10,464,900	1.01	638,700	1.38	734,400	1,373,100	11,838,000
1989	2.77	5,181,700	0.34	2,217,700	7,399,400	0.50	713,400	0.66	323,300	1,036,700	8,436,100
1990	2.84	4,820,859	0.24	497,571	5,318,430	0.45	238,165	0.66	137,302	375,467	5,693,897
1991	3.70	7,128,300	0.36	782,300	7,910,600	0.34	438,310	0.44	300,182	738,492	8,649,092
5 Yr Ave 1986-1990		4,812,074		2,155,289	6,967,363		397,917		281,389	679,306	7,646,669

Appendix B.5. Commercial catches of chinook and summer chum salmon by mesh size, Districts 1 and 2, Lower Yukon Area, 1961-1991.

Year	Unrestricted Mesh Size a		6 Inch Max. Mesh Size b	
	Chinook	Summer Chum	Chinook	Summer Chum
1961	113,434	-	-	-
1962	89,296	-	-	-
1963	109,215	-	-	-
1964	87,801	-	-	-
1965	113,031	-	-	-
1966	87,710	-	-	-
1967	124,574	10,919	-	-
1968	100,857	14,402	-	-
1969	85,387	41,418	97	15,437
1970	73,610	104,705	57	16,623
1971	103,623	42,189	1,176	57,851
1972	85,376	78,698	1,991	37,881
(Avg. 1961-72)	97,826	48,722	830	31,948
1973 c	65,269	89,841	5,168	196,540
1974	86,921	349,758	1,631	227,507
1975	50,614	148,919	4,162	345,472
1976	71,688	267,075	7,631	128,431
1977	81,073	157,909	4,720	205,634
1978	82,070	275,512	7,737	354,603
1979	95,137	136,973	22,136	434,188
1980	120,912	95,876	19,474	605,679
1981	125,698	163,979	18,648	758,767
1982	106,399	225,106	6,887	217,563
1983	107,078	121,927	31,002	590,329
1984	94,456	242,076	16,394	287,531
1985 d	114,300	170,345	22,445	265,240
1986	79,525	231,372	15,307	438,182
1987	102,274	128,017	21,827	269,757
1988	52,801	225,049	39,469	848,321
1989	53,674	126,360	38,548	765,233
1990	66,092	99,588	18,147	281,418
1991	87,740	108,265	4,132	205,043
(Avg. 1981-91)	90,003	167,462	21,164	447,944

a Primarily 8 to 8-1/2 inch mesh size used during early June to early July.

b Catch through July 15-20, relatively few chinook and summer chum salmon taken after these dates.

c Six inch maximum mesh size regulation beginning late June to early July became effective in 1973.

d Six inch maximum mesh size regulation by emergency order during commercial fishing season became effective in 1985.

Appendix B.6. Commercial chinook salmon catch and effort data, Districts 1 and 2, Lower Yukon Area, 1961-1991. a

Commercial Catch						
Year	Dist. 1		Dist. 2		Total	
1961	84,406		29,028		113,434	
1962	67,072		22,224		89,296	
1963	85,004		24,211		109,215	
1964	67,555		20,246		87,801	
1965	89,268		23,763		113,031	
1966	70,783		16,927		87,710	
1967	104,335		20,239		124,574	
1968	79,465		21,392		100,857	
1969	70,588		14,799		85,387	
1970	56,469		17,141		73,610	
1971	84,397		19,226		103,623	
1972	68,059		17,317		85,376	
1973	52,790		12,479		65,269	
1974	69,457		17,464		86,921	
1975	41,550		9,064		50,614	
1976	56,392		15,296		71,688	
1977	65,745		15,328		81,073	
1978	53,198		28,872		82,070	
1979	61,790		33,347		95,137	
1980	78,157		42,755		120,912	
1981	88,038		37,660		125,698	
1982	70,743		35,656		106,399	
1983	76,280		30,798		107,078	
1984	65,101		29,355		94,456	
1985	76,106		38,194		114,300	
1986	42,922		36,603		79,525	
1987	62,147		40,127		102,274	
1988	32,792		20,009		52,801	
1989	32,180		21,494		53,674	
1990	42,092		24,000		66,092	
1991	51,480		36,260		87,740	

Year	District 1		District 2		Total	
	Boat Hrs	CPUE	Boat Hrs	CPUE	Boat Hrs	CPUE
1961	79,224	1.07	29,118	1.00	108,342	1.05
1962	84,792	0.79	38,118	0.58	122,910	0.73
1963	72,288	1.18	27,672	0.87	99,960	1.09
1964	56,736	1.19	22,398	0.90	79,134	1.11
1965	78,096	1.14	31,008	0.77	109,104	1.04
1966	69,894	1.01	22,380	0.76	92,274	0.95
1967	102,456	1.02	37,488	0.54	139,944	0.89
1968	92,450	0.86	32,280	0.66	124,730	0.81
1969	84,864	0.83	27,828	0.53	112,692	0.76
1970	61,260	0.92	20,460	0.84	81,720	0.90
1971	73,272	1.15	19,956	0.96	93,228	1.11
1972	79,236	0.86	19,872	0.87	99,108	0.86
1973	75,036	0.70	23,496	0.53	98,532	0.66
1974	86,256	0.81	29,808	0.59	116,064	0.75
1975	49,944	0.83	8,376	1.08	58,320	0.87
1976	64,572	0.87	23,484	0.65	88,056	0.81
1977	42,618	1.54	15,180	1.01	57,798	1.40
1978	57,528	0.92	25,524	1.13	83,052	0.99
1979	53,040	1.16	23,904	1.40	76,944	1.24
1980	45,348	1.72	20,196	2.12	65,544	1.84
1981	43,632	2.02	19,536	1.93	63,168	1.99
1982	55,416	1.28	22,008	1.62	77,424	1.37
1983	38,448	1.98	18,696	1.65	57,144	1.87
1984	38,880	1.67	14,568	2.02	53,448	1.77
1985	28,176	2.70	14,832	2.58	43,008	2.66
1986	36,936	1.16	20,352	1.80	57,288	1.39
1987	32,796	1.89	18,696	2.15	51,492	1.99
1988	14,280	2.30	7,884	2.54	22,164	2.38
1989	11,994	2.68	6,888	3.12	18,882	2.84
1990	16,347	2.57	8,319	2.88	24,666	2.68
1991	24,036	2.14	11,604	3.12	35,640	2.46

a. Chinook salmon season during June and early July with unrestricted mesh size gill nets.

Appendix B.7. Chinook salmon commercial catch data by period, chinook salmon season (unrestricted mesh size), District 1, Lower Yukon Area, 1974-1991.

Date	Period Catch a (Cumulative Catch) b									
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
06/01										
06/02										
06/03										
06/04										
06/05	3.5 (3.5)					6.1 (6.1)				
06/06										
06/07								11.1 (11.1)		
06/08	7.5 (11.0)					4.9 (11.0)				
06/09					2.5 (2.5)			15.6 (26.7)		
06/10							6.8 (6.8)			22.3 (22.3)
06/11		0.2 (0.2)								
06/12	14.7 (25.7)					19.5 (30.5)		14.5 (41.2)		
06/13					5.8 (8.3)					
06/14		0.4 (0.6)		0.04 (0.04)			26.1 (32.9)			12.7 (35.0)
06/15	11.1 (36.8)								5.6 (5.6)	
06/16			0.1 (0.1)			9.3 (39.8)		18.3 (59.5)		
06/17					17.6 (25.9)		14.6 (47.5)			28.6 (63.6)
06/18		1.1 (1.7)		2.6 (2.6)					12.4 (18.0)	
06/19	18.8 (55.6)		3.2 (3.3)			16.7 (56.5)		28.5 (88.0)		
06/20					7.5 (33.4)					
06/21		5.7 (7.4)		10.4 (13.0)			26.2 (73.7)			12.7 (76.3)
06/22	2.9 (58.5)					5.3 (61.8)			20.0 (38.0)	
06/23			9.6 (12.9)				4.5 (78.2)			
06/24					14.4 (47.8)					
06/25		17.1 (24.5)		26.3 (39.3)					7.1 (45.1)	
06/26	7.2 (65.7)		15.4 (28.3)							
06/27		9.8 (34.3)			5.4 (53.2)					
06/28				17.7 (57.0)						
06/29	3.8 (69.5)								18.1 (63.2)	
06/30			13.8 (42.1)							
07/01		7.3 (41.6)		8.7 (65.7)						
07/02			14.3 (56.4)						7.5 (70.7)	
07/03										
07/04										
07/05										
07/06										
07/07										
07/08										

- Continued -

Period Catch a (Cumulative Catch) b

Date	1984	1985	1986	1987	1988	1989	1990	1991
06/01								
06/02								
06/03								
06/04								
06/05								
06/06								
06/07								
06/08								
06/09								
06/10								
06/11								
06/12								
06/13								
06/14					5.9 (5.9)			16.9 (16.9)
06/15							19.0 (19.0)	
06/16				13.0 (13.0)		18.9 (18.9)		
06/17					16.0 (21.9)			
06/18								14.9 (31.8)
06/19	13.7 (13.7)			22.5 (35.5)				
06/20			21.7 (21.7)			10.8 (29.7)		
06/21					10.9 (32.8)			4.7 (36.5)
06/22	18.8 (32.5)					2.5 (32.2)	15.0 (34.0)	
06/23					15.0 (50.5)			
06/24			10.2 (31.9)					
06/25		23.6 (23.6)						9.2 (45.7)
06/26	16.1 (48.6)			11.6 (62.1)				
06/27								
06/28		33.7 (57.3)						
06/29	16.5 (65.1)						6.5 (40.4)	
06/30			5.6 (37.5)					
07/01								
07/02		18.8 (76.1)						5.8 (51.5)
07/03							1.7 (42.1)	
07/04			5.4 (42.9)					
07/05								
07/06								
07/07								
07/08								

a Catch by period in thousands of fish.

b Cumulative catch during unrestricted mesh size fishing periods in thousands of fish.

Appendix B.8. Chinook salmon commercial catch data by period, chinook salmon season (unrestricted mesh size), District 2, Lower Yukon Area, 1978 - 1991.

Date	Period Catch a (Cumulative Catch) b													
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
06/01														
06/02														
06/03														
06/04		1.6 (1.6)												
06/05														
06/06														
06/07		1.4 (3.0)												
06/08				7.8 (7.8)										
06/09	4.8 (4.8)		3.9 (3.9)											
06/10														
06/11		5.1 (8.1)		11.4 (19.0)										
06/12	3.2 (8.0)		7.8 (11.7)											
06/13						6.0 (6.0)								
06/14														
06/15		14.2 (22.3)		10.5 (29.5)										
06/16	4.3 (12.3)		10.9 (22.8)			7.3 (13.3)					2.7 (2.7)			
06/17					4.0 (4.0)									11.5 (11.5)
06/18		3.9 (26.2)		8.2 (37.7)						9.5 (9.5)			10.3 (10.3)	
06/19	7.8 (20.1)											11.0 (11.0)		
06/20			8.1 (30.7)			10.8 (23.9)					9.0 (11.7)			9.8 (21.1)
06/21		7.2 (33.4)			7.8 (11.8)		5.8 (5.8)							
06/22										12.2 (21.7)		7.5 (18.5)		
06/23	4.1 (24.2)		12.0 (42.7)			6.9 (30.6)			14.5 (14.5)		8.3 (20.0)			
06/24					11.9 (23.7)								7.7 (18.0)	6.7 (27.8)
06/25							14.4 (20.0)					3.0 (21.5)		
06/26	4.7 (28.9)													4.1 (31.9)
06/27								7.0 (7.0)	12.3 (26.8)					
06/28					3.4 (27.1)		9.4 (29.4)							
06/29										7.8 (40.1)				
06/30														
07/01					8.6 (35.7)			18.3 (25.3)						
07/02									7.4 (34.2)				4.5 (22.4)	
07/03														
07/04								12.9 (38.2)						4.4 (36.3)
07/05													1.8 (24.0)	
07/06														
07/07									2.4 (36.6)					
07/08														

a Catch by period in thousands of fish.

b Cumulative catch during unrestricted mesh size fishing periods in thousands of fish.

Appendix B.9. Commercial chinook salmon catches by statistical area, Lower Yukon Area, 1974-1991.

District 1

Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	Total
1974	2,935	30,174	6,984	3,987	12,721	2,048	6,826	6,165	71,840
1975	6,396	15,844	8,763	314	1,720	606	6,879	4,063	44,585
1976	8,333	27,937	7,507	851	5,101	1,415	6,164	5,102	62,410
1977	11,278	16,787	8,866	1,216	15,214	1,550	7,109	7,895	69,915
1978	886	12,237	4,135	4,388	22,019	3,738	7,533	4,070	59,006
1979	1,017	13,152	4,149	5,782	12,839	10,960	18,976	8,202	75,077
1980	464	12,832	3,235	9,224	30,737	12,333	13,654	7,903	90,382
1981	6,639	12,875	2,975	8,976	19,730	15,158	22,251	10,902	99,506
1982	3,439	11,268	2,842	9,038	9,331	7,295	18,185	13,052	74,450
1983	7,919	23,523	8,161	14,961	9,416	5,297	19,172	7,008	95,457
1984	14,385	15,320	2,598	6,297	11,123	1,434	19,089	4,425	74,671
1985	4,233	22,696	12,160	2,492	12,806	3,955	25,144	6,525	90,011
1986	4,187	7,954	3,494	5,430	10,258	1,422	15,948	4,342	53,035
1987	14,656	12,056	8,703	3,533	6,780	3,250	18,573	9,092	76,643
1988	6,780	11,154	6,023	4,274	14,123	618	8,703	5,434	57,109
1989	2,213	5,703	4,794	3,999	12,682	7,303	18,037	4,422	59,153
1990	1,473	7,315	4,478	4,257	12,486	2,794	14,619	3,739	51,161
1991	1,677	4,201	1,623	3,451	12,359	6,106	18,142	5,455	53,014

District 2

Year	334-21	334-22	334-23	334-24	334-25	Total
1974	6,344	5,611	2,624	3,369	-	17,948
1975	3,282	3,045	2,785	2,203	-	11,315
1976	5,083	4,490	3,031	3,952	-	16,556
1977	6,577	4,584	2,110	3,451	-	16,722
1978	9,004	7,953	5,248	8,499	2,220	32,924
1979	10,698	11,214	6,733	7,573	5,280	41,498
1980	11,544	12,903	8,259	9,591	7,707	50,004
1981	12,341	13,275	7,024	5,950	7,191	45,781
1982	10,567	9,236	5,262	8,932	5,135	39,132
1983	12,433	10,424	7,779	6,260	6,333	43,229
1984	9,179	11,573	4,668	5,752	5,525	36,697
1985	11,843	18,584	4,877	4,613	8,448	48,365
1986	11,138	15,326	3,450	4,336	7,599	41,849
1987	14,195	9,672	5,663	6,376	11,552	47,458
1988	6,191	11,605	4,721	6,784	5,887	35,188
1989	5,257	12,380	4,647	4,411	6,530	33,225
1990	5,592	10,675	3,741	8,514	4,691	33,213
1991	9,300	10,423	5,332	6,552	7,339	38,946

District 3

Year	334-31	334-32	Total
1974	1,423	2,057	3,480
1975	2,791	1,386	4,177
1976	1,827	2,321	4,148
1977	1,617	2,348	3,965
1978	746	2,170	2,916
1979	2,195	2,823	5,018
1980	2,039	3,201	5,240
1981	1,241	2,782	4,023
1982	896	1,713	2,609
1983	1,335	2,771	4,106
1984	900	2,139	3,039
1985	854	1,734	2,588
1986	606	295	901
1987	1,698	341	2,039
1988	1,387	380	1,767
1989	1,623	22	1,645
1990	2,128	213	2,341
1991	1,214	1,130	2,344

Appendix B.10. Commercial summer chum salmon catch and effort data, Districts 1 and 2, Lower Yukon Area, 1967-1991.

Year	District 1					District 2				
	Duration	Days Fished	Boat Hours	Catch	(Catch/Boat Hour)	Duration	Days Fished	Boat Hours	Catch	(Catch/Boat Hour)
1967	6/08-6/27	11.0	77,208	9,494	0.12	-	-	-	-	-
1968	6/06-7/03	14.0	91,380	12,995	0.14	6/13-7/02	10.5	27,600	1,407	0.05
1969	6/02-6/28	12.5	84,864	8,840	0.10	6/15-7/01	8.0	16,620	5,024	0.30
1970	6/11-7/03	10.5	58,056	87,169	1.50	6/14-7/03	9.0	15,756	17,536	1.11
1971	6/14-7/03	10.5	73,032	36,077	0.49	6/20-7/05	8.5	17,832	6,112	0.34
1972	6/08-7/01	12.5	79,236	69,658	0.88	6/15-7/01	8.5	19,296	9,040	0.47
1973 a	6/07-7/11	14.5	100,284	191,840	1.91	6/10-7/14	14.5	36,000	56,481	1.57
1974	6/03-7/13	16.5	114,624	461,025	4.02	6/05-7/16	15.5	35,316	72,281	2.05
1975	6/09-7/16	15.0	86,304	394,447	4.57	6/11-7/18	10.5	21,024	99,139	4.72
1976	6/14-7/14	12.0	90,658	272,493	3.01	6/20-7/16	11.0	32,624	99,190	3.04
1977	6/13-7/12	12.0	63,036	232,427	3.69	6/19-7/15	10.0	27,048	102,759	3.80
1978	6/08-7/15	13.5	100,008	393,785	3.94	6/08-7/14	13.5	44,376	218,196	4.92
1979	6/04-7/14	13.5	106,680	369,934	3.47	6/03-7/13	13.5	44,748	172,838	3.86
1980	6/09-7/15	12.8	89,412	391,252	4.38	6/08-7/17	12.5	48,060	308,704	6.42
1981	6/06-7/14	12.0	94,656	507,158	5.36	6/07-7/16	12.0	46,560	351,458	7.55
1982	6/14-7/13	9.5	81,240	248,950	3.06	6/16-7/16	10.0	37,920	180,321	4.76
1983	6/09-7/15	11.0	94,920	451,164	4.75	6/12-7/18	11.0	44,712	248,092	5.55
1984	6/18-7/13	8.0	67,776	291,966	4.31	6/20-7/16	8.0	32,208	234,677	7.29
1985 b	6/24-7/15	6.3	52,116	247,486	4.75	6/26-7/18	7.3	27,834	188,099	6.76
1986	6/14-7/15	8.5	66,768	381,127	5.71	6/15-7/14	7.5	33,954	288,427	8.49
1987	6/15-7/10	6.0	53,736	222,898	4.15	6/17-7/09	5.0	26,124	174,876	6.69
1988	6/09-7/15	6.8	55,692	648,198	11.64	6/12-7/14	6.8	33,456	425,172	12.71
1989	6/13-7/14	5.3	65,280	547,631	8.39	6/15-7/13	4.5	22,314	343,962	15.41
1990	6/14-7/03	2.3	21,267	148,911	7.00	6/18-7/05	2.4	12,333	132,507	10.74
1991	6/13-7/05	3.0	28,224	138,159	4.90	6/16-7/07	3.0	15,126	175,149	11.58

a Six inch maximum mesh size regulation during late June to early July became effective in 1973.
 b Six inch maximum mesh size regulation by emergency order during commercial fishing season became effective in 1985.

Appendix B.11. Commercial coho and fall chum salmon catch and effort data, District 1,
Lower Yukon Area, 1961–1991.

Year	Duration	Days Fished a	Boat Hours	Coho		Fall Chum	
				Catch	(Catch/Boat Hour)	Catch	(Catch/Boat Hour)
1961	8/01–8/31	16	14,772	2,855	0.19	42,461	2.87
1962	8/01–9/03	21	46,950	22,926	0.49	53,116	1.13
1963	8/09–9/06	18	2,100	5,572	2.65	no purchases	
1964	8/03–8/27	17	8,346	2,446	0.29	8,347	1.00
1965	8/02–8/04	b	b	350	b	22,936	b
1966	7/25–9/10	28	41,994	19,254	0.46	69,836	1.66
1967	7/24–8/27	21	19,272	9,925	0.51	36,451	1.89
1968	7/22–8/28	22	47,232	13,153	0.28	49,857	1.06
1969	7/21–8/23	20	39,408	14,041	0.36	128,866	3.27
1970	7/20–8/26	22	56,160	12,245	0.22	200,306	3.57
1971	7/22–8/28	22	85,344	11,582	0.14	178,744	2.09
1972	7/20–8/26	22	81,726	19,655	0.24	134,752	1.65
1973	7/19–8/25	22	107,136	34,860	0.33	173,783	1.62
1974	7/18–8/14	12	41,868	13,758	0.33	137,235	3.28
1975	7/21–8/16	12	52,128	2,240	0.04	158,183	3.03
1976	7/19–8/13	11	55,026	4,084	0.07	91,091	1.66
1977	7/18–8/23	11	50,568	30,588	0.60	129,486	2.56
1978	7/17–8/29	13	56,184	16,262	0.29	127,947	2.28
1979	7/19–8/14	8	47,352	11,231	0.24	101,400	2.14
1980	7/17–8/19	7	24,216	4,819	0.20	106,829	4.41
1981	7/16–8/17	7	35,520	11,174	0.31	167,834	4.73
1982	7/19–8/13	8	40,944	15,114	0.37	91,271	2.23
1983 c	7/18–8/12	6	25,848	4,560	0.18	124,371	4.81
1984 c	7/16–8/17	6	21,240	29,472	1.39	78,751	3.71
1985 c	7/18–8/13	5	20,592	27,674	1.34	124,801	6.06
1986 d	8/04–8/22	4	13,662	24,824	1.82	59,352	4.34
1987	No Openings						
1988 e	8/08–8/30	3	9,408	36,435	3.87	45,529	4.84
1989 f	7/27–8/25	5	20,161	24,672	1.22	77,876	3.86
1990 e	7/23–8/20	3	7,392	13,354	1.81	27,337	3.70
1991 f	7/29–8/27	3	19,500	54,095	3.32	59,724	3.67

a One day is equivalent to 24 hours during open fishing period.

b Information unavailable.

c District was divided into a Set Net Only (24 hour) area and a Gill Net (12 hour) area.

d District was divided into a Set Net Only (24 or 12 hour) area and a Gill Net (12 or 6 hour) area.

e District was divided into a Set Net Only (12 hour) area and a Gill Net (6 hour) area.

f District was divided into a Set Net Only (16 or 12 hour) area and a Gill Net (9 or 6 hour) area.

Appendix B.12. Fall chum and coho salmon commercial catch and effort in the Setnet Only and Gillnet areas, District 1, Lower Yukon Area, 1983-1991.

Year	Setnet Area			Gillnet Area			Total		
	No. of Fishermen	Catch	Average Catch per Fisherman	No. of Fishermen	Catch	Average Catch per Fisherman	No. of Fishermen	Catch	Average Catch per Fisherman
Fall Chum Salmon									
1983	137	46,583	340	175	61,649	352	312	108,232	347
1984	137	34,817	254	164	24,307	148	301	59,124	196
1985	159	64,838	408	153	53,694	351	312	118,532	380
1986	122	28,449	233	160	30,903	193	282	59,352	210
1987 a									
1988	120	21,971	183	208	23,558	113	328	45,529	139
1989	103	26,865	261	219	51,011	233	322	77,876	242
1990	83	7,553	91	218	19,784	91	301	27,337	91
1991	67	19,769	295	252	39,955	159	319	59,724	187
Coho Salmon									
1983	137	1,021	7	175	3,536	20	312	4,557	15
1984	137	15,077	110	164	14,390	88	301	29,467	98
1985	159	12,841	81	153	14,832	97	312	27,673	89
1986	122	9,334	77	160	15,490	97	282	24,824	88
1987 a									
1988	120	13,408	112	208	23,027	111	328	36,435	111
1989	103	6,443	63	219	18,227	83	322	24,670	77
1990	83	2,033	24	218	11,321	52	301	13,354	44
1991	67	19,497	291	252	34,598	137	319	54,095	170
Combined									
1983	137	47,604	347	175	65,185	372	312	112,789	362
1984	137	49,894	364	164	38,697	236	301	88,591	294
1985	159	77,679	489	153	68,526	448	312	146,205	469
1986	122	37,783	310	160	46,393	290	282	84,176	298
1987 a									
1988	120	35,379	295	208	46,585	224	328	81,964	250
1989	103	33,308	323	219	69,238	316	322	102,546	318
1990	83	9,586	115	218	31,105	143	301	40,691	135
1991	67	39,266	586	252	74,553	296	319	113,819	357

a Season closed.

Appendix B.13. Fall chum salmon commercial catch data by period, District 1, Lower Yukon Area, 1978-1991.

Date	Period Catch (Cumulative Catch) a													
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
07/18	6.3 (6.3)		4.2 (4.2)					6.3 (6.3)						
07/19						16.1 (16.1)								
07/20		6.0 (6.0)			4.3 (4.3)									
07/21	5.1 (11.4)			6.0 (6.0)										
07/22			6.6 (10.6)											
07/23					27.8 (32.1)									
07/24		7.2 (13.2)		1.3 (7.3)									1.0 (1.0)	
07/25	52.8 (64.2)		10.4 (21.2)											
07/26														
07/27		14.8 (28.0)			4.0 (36.1)								1.8 (2.8)	
07/28	2.6 (67.0)			57.3 (64.6)								4.4 (4.4)		
07/29			15.3 (36.5)			3.0 (19.1)								
07/30					11.7 (47.6)									
07/31		9.7 (37.7)	1.4 (37.9)	23.2 (67.6)			18.3 (18.3)						1.7 (4.5)	15.3 (15.3)
08/01	14.4 (81.4)													
08/02						16.5 (37.6)		2.2 (8.5)				0.2 (4.5)		3.0 (18.3)
08/03		17.5 (55.2)					17.1 (35.4)						11.2 (15.7)	
08/04	0.4 (81.6)				7.9 (55.7)							46.8 (53.3)		
08/05			6.2 (44.1)			23.7 (61.3)			11.4 (11.4)					
08/06					1.2 (56.9)			15.2 (23.7)						7.4 (25.7)
08/07		37.8 (93.0)	13.5 (57.6)				1.8 (37.2)						7.5 (23.2)	
08/08	1.4 (83.2)								7.5 (18.6)			3.8 (57.2)		
08/09						44.0 (105.3)		35.6 (59.5)			32.5 (32.5)			9.2 (34.9)
08/10		1.3 (94.3)			13.7 (70.6)									
08/11	1.6 (84.6)		5.2 (62.6)										2.5 (59.7)	
08/12					20.7 (91.3)	19.1 (124.4)			10.5 (29.4)					
08/13				43.8 (131.6)				65.3 (124.8)						1.4 (36.3)
08/14		7.1 (101.4)	1.8 (64.6)				11.8 (49.0)							
08/15	1.4 (86.2)								16.2 (45.6)			14.9 (74.7)		
08/16														4.1 (40.4)
08/17							10.1 (59.1)							
08/18	10.2 (96.4)			3.9 (135.5)										
08/19			42.2 (106.6)						5.6 (51.4)		0.5 (33.0)			
08/20													4.1 (27.3)	2.8 (43.2)
08/21														
08/22	21.9 (118.3)								8.0 (59.4)			2.9 (77.6)		
08/23											6.9 (39.9)			14.7 (57.9)
08/24														
08/25	4.4 (122.7)													
08/26											4.1 (44.0)	0.3 (77.9)		
08/27														1.8 (59.7)
08/28														
08/29	5.2 (127.9)													
08/30											1.5 (45.5)			

a. Period and cumulative catches in thousands of fish. Fall chum salmon run usually well underway in the lower Yukon River by July 18. Season closures occurred in the following years:

- 1981: Season closed 8/01-8/12.
- 1983: Season closed 7/20-7/27.
- 1984: Season closed 7/18-8/01 and 8/08-8/12.
- 1985: Season closed 7/20-7/31.
- 1986: Season closed 7/16-8/03.
- 1987: Season closed.
- 1988: Season closed 7/16-8/07.
- 1989: Season closed 7/15-7/26.
- 1990: Season closed 7/04-7/22 and 8/08-8/19.
- 1991: Season closed 7/15-7/26.

Appendix B.14. Commercial chum salmon catches by statistical area, Lower Yukon Area, 1971-1991.

District 1									
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	Total
1971	834	87,740	24,766	34,891	40,617	8,063	67,835	17,915	282,481
1972	5,186	98,909	12,146	25,943	56,039	4,073	38,274	10,375	250,945
1973	17,259	176,119	39,583	18,608	61,969	6,413	52,770	22,706	395,427
1974	38,322	338,412	118,940	22,011	50,593	5,357	37,724	32,681	642,040
1975	28,970	257,485	103,423	12,078	41,295	5,779	99,232	28,244	576,506
1976	28,277	203,024	52,480	9,338	28,848	2,872	32,093	24,123	379,055
1977	34,312	181,459	54,082	9,872	41,799	1,083	41,026	18,777	382,410
1978	5,072	195,080	67,068	56,995	79,352	4,602	75,090	38,443	521,732
1979	1,791	115,528	36,161	43,263	92,706	48,401	93,777	47,713	479,340
1980	3,840	82,898	16,940	46,164	87,270	98,326	109,005	53,638	498,081
1981	25,569	206,200	26,220	76,591	91,722	51,660	143,747	53,283	674,962
1982	9,808	83,130	17,910	54,795	56,632	20,602	60,263	43,760	347,000
1983	42,300	122,374	40,200	75,016	65,865	42,903	121,328	65,749	575,535
1984	42,579	108,209	17,376	54,519	36,021	12,711	73,710	28,302	371,427
1985	14,290	87,872	32,162	48,932	78,155	11,866	79,846	28,311	377,434
1986	39,844	112,778	38,347	55,883	47,790	10,898	97,802	37,357	440,479
1987	34,852	51,350	22,794	15,109	21,846	7,786	45,911	23,450	222,898
1988	82,625	155,531	81,873	61,171	68,444	17,144	139,484	87,475	693,727
1989	29,129	92,723	41,456	77,153	145,519	37,945	152,195	49,387	625,507
1990	23,453	35,542	15,326	12,389	10,931	1,513	39,575	10,202	148,911
1991	13,778	44,352	8,232	16,719	21,251	30,721	46,512	16,318	197,883

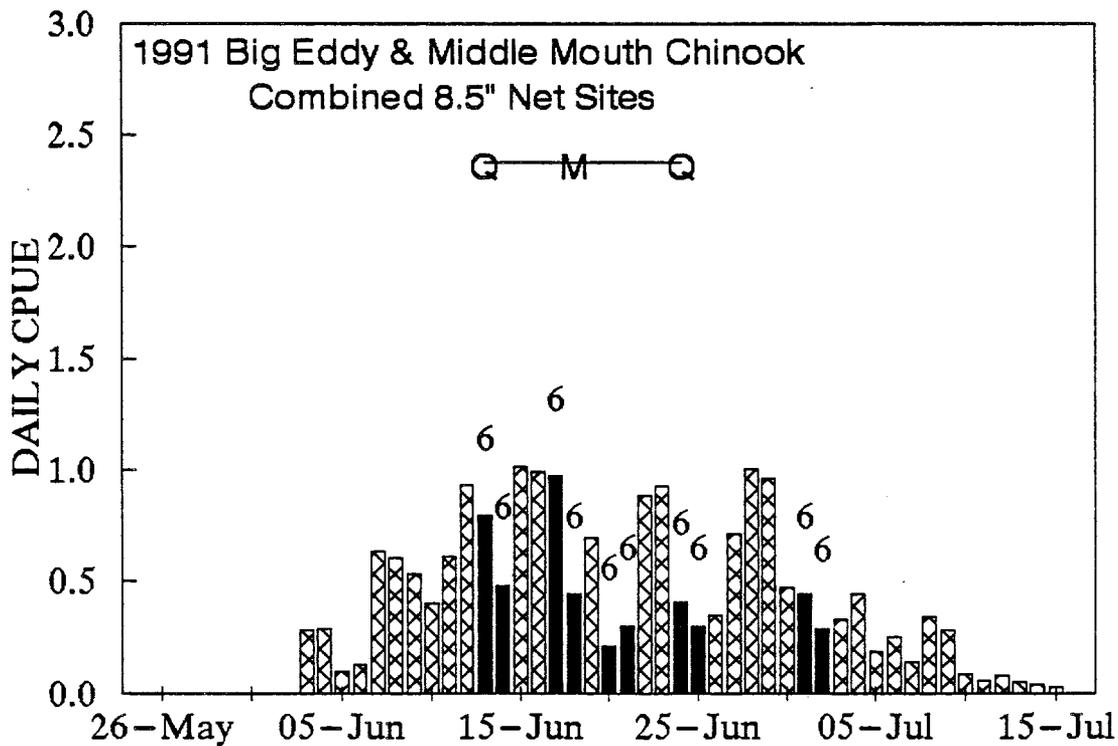
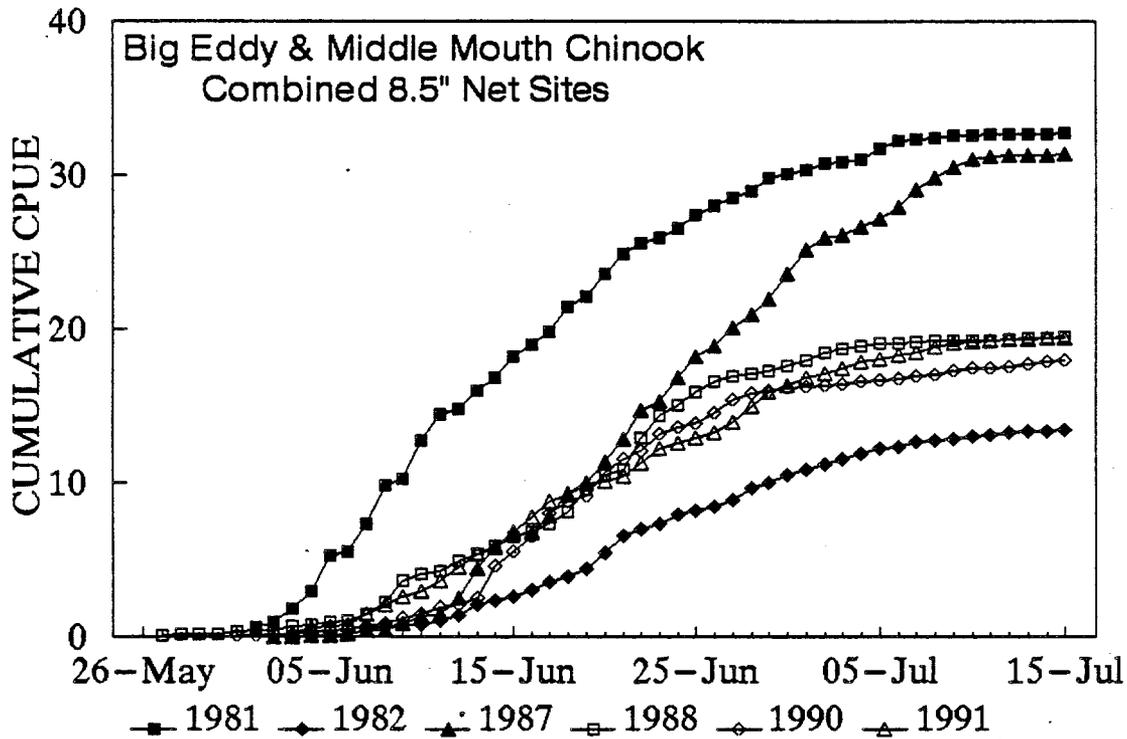
District 2						
Year	334-21	334-22	334-23	334-24	334-25	Total
1971	2,255	3,144	286	427	-	6,112
1972	3,091	22,746	250	7,718	-	33,805
1973	22,207	56,193	6,181	24,125	-	108,706
1974	39,116	52,514	11,191	24,871	-	127,692
1975	20,947	98,986	11,028	19,844	-	150,805
1976	22,282	58,016	18,173	21,931	-	120,402
1977	26,158	75,281	23,789	32,445	-	157,673
1978	48,868	132,002	31,990	60,770	5,564	279,194
1979	73,509	86,020	29,988	33,069	44,294	266,880
1980	80,931	156,962	75,513	47,772	31,407	392,585
1981	76,143	215,346	88,040	78,218	49,014	506,761
1982	60,811	103,889	27,800	61,685	25,340	278,625
1983	74,985	78,494	80,631	53,099	48,528	333,737
1984	57,212	114,732	50,738	55,259	29,793	307,734
1985	42,042	98,294	28,513	24,770	34,970	228,589
1986	50,865	145,946	41,516	58,531	42,876	339,734
1987	46,734	54,459	19,157	22,988	29,538	174,876
1988	79,329	153,506	61,687	92,676	69,835	457,033
1989	58,229	174,839	63,987	73,571	71,242	441,868
1990	15,414	37,585	25,132	34,980	19,396	132,507
1991	56,962	93,383	46,875	43,221	37,336	277,777

District 3			
Year	334-31	334-32	Total
1971	26	24	50
1972	0	1,840	1,840
1973	0	463	463
1974	1,697	576	2,273
1975	0	5,590	5,590
1976	4,450	9,602	14,052
1977	12,839	6,424	19,263
1978	20,028	18,502	38,530
1979	28,272	37,898	66,170
1980	23,646	34,655	58,301
1981	35,597	37,917	73,514
1982	3,896	6,005	9,901
1983	7,713	16,905	24,618
1984	6,876	640	7,516
1985	5,045	1,911	6,956
1986	3,235	0	3,235
1987	3,418	83	3,501
1988	13,211	2,844	16,055
1989	22,701	209	22,910
1990	562	81	643
1991	10,556	7,589	18,145

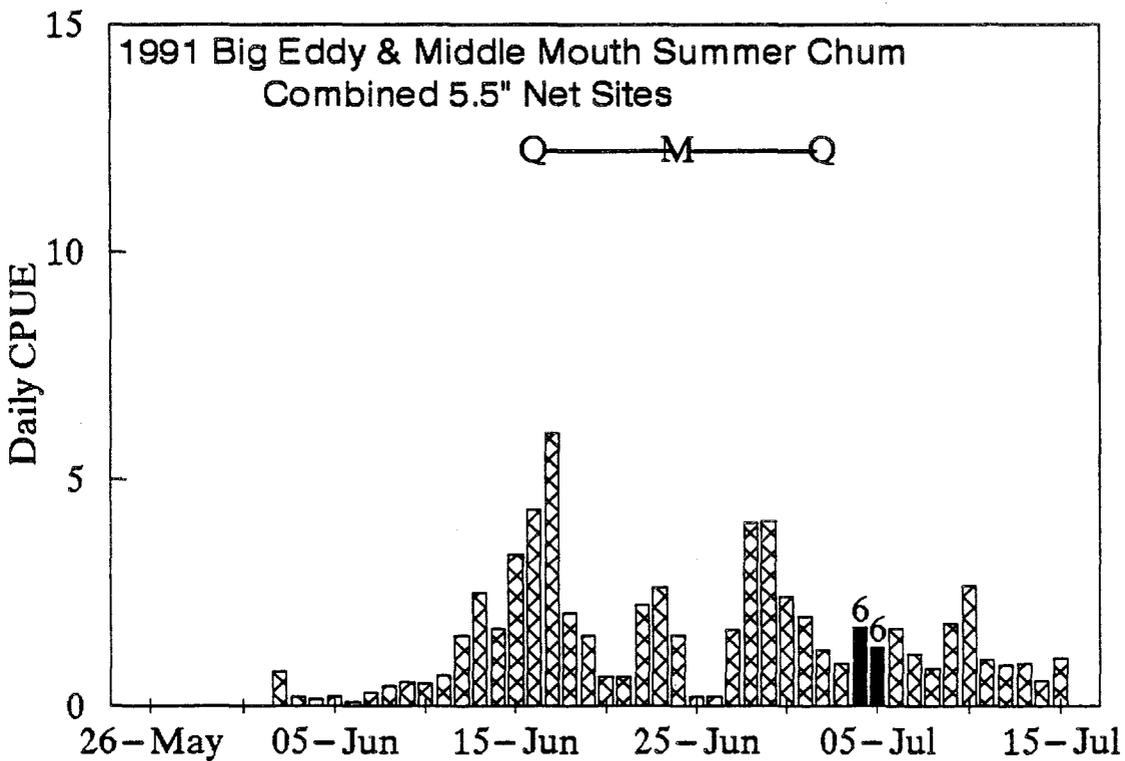
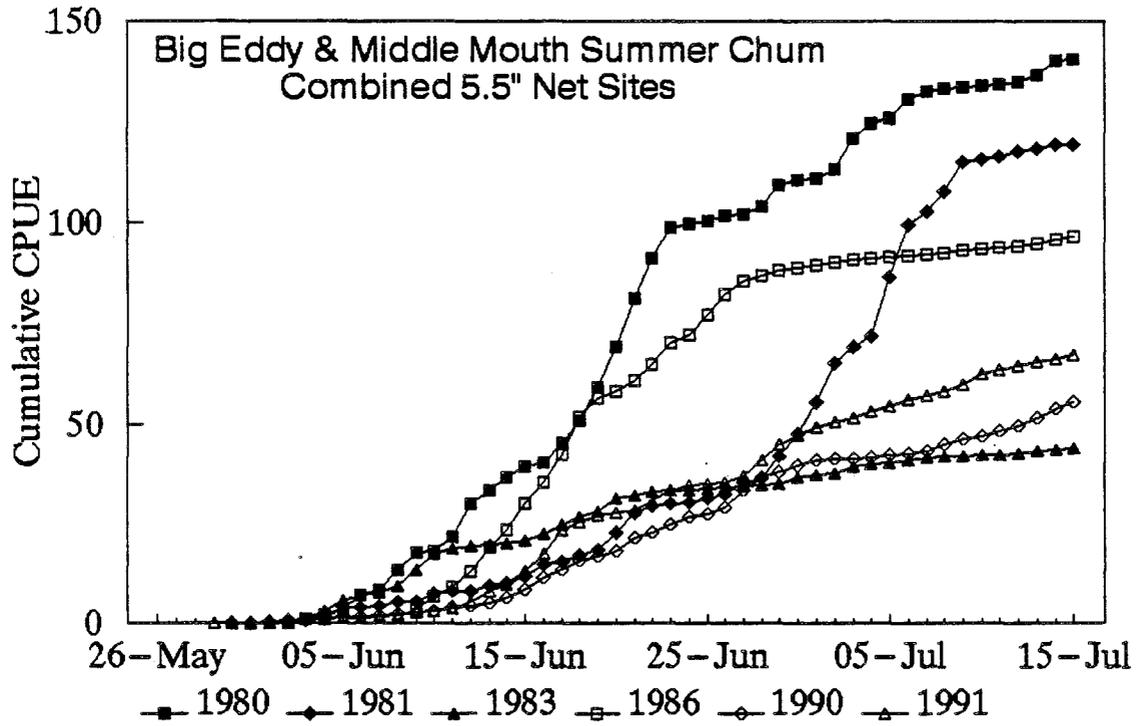
Appendix B.15. Lower Yukon River chinook and summer chum salmon combined setnet test fishing catches and CPUE, 1991.

Date	Chinook 8.5'				Summer Chum 5.5'				Chinook 5.5'			
	Daily Catch	Daily CPUE	Cum CPUE	Median Day	Daily Catch	Daily CPUE	Cum CPUE	Median Day	Daily Catch	Daily CPUE	Cum CPUE	Median Day
26-May												
27-May												
28-May												
29-May												
30-May												
31-May												
01-Jun	0	0.00	0.00		0	0.00	0.00		0	0.00	0.00	
02-Jun	0	0.00	0.00		7	0.78	0.78		6	0.67	0.67	
03-Jun	10	0.28	0.28		5	0.21	0.99		5	0.21	0.88	
04-Jun	7	0.29	0.57		7	0.15	1.14		6	0.13	1.01	
05-Jun	5	0.10	0.67		17	0.20	1.34		7	0.08	1.09	
06-Jun	11	0.13	0.80		9	0.09	1.43		8	0.08	1.17	
07-Jun	60	0.63	1.43		29	0.30	1.73		17	0.18	1.35	
08-Jun	49	0.60	2.03		42	0.44	2.17		26	0.27	1.62	
09-Jun	51	0.53	2.56		50	0.52	2.69		29	0.30	1.92	
10-Jun	38	0.40	2.96		48	0.50	3.19		25	0.26	2.18	
11-Jun	59	0.61	3.57		64	0.67	3.86		34	0.35	2.53	
12-Jun	89	0.93	4.50		150	1.56	5.42		29	0.30	2.83	
13-Jun	76	0.79	5.29		241	2.51	7.93		55	0.57	3.40	
14-Jun	46	0.48	5.77		162	1.69	9.62		42	0.44	3.84	
15-Jun	75	1.01	6.78		242	3.36	12.98		53	0.74	4.58	
16-Jun	95	0.99	7.77		418	4.35	17.33		43	0.45	5.03	
17-Jun	93	0.97	8.74		581	6.05	23.38		70	0.73	5.76	
18-Jun	42	0.44	9.18		197	2.05	25.43		22	0.23	5.99	Median
19-Jun	66	0.69	9.87	Median	150	1.56	26.99		27	0.28	6.27	
20-Jun	20	0.21	10.08		61	0.64	27.63		16	0.17	6.44	
21-Jun	29	0.30	10.38		63	0.66	28.29		29	0.30	6.74	
22-Jun	84	0.88	11.26		215	2.24	30.53		65	0.68	7.42	
23-Jun	88	0.92	12.18		251	2.61	33.14		73	0.76	8.18	
24-Jun	39	0.41	12.59		150	1.56	34.70	Median	40	0.42	8.60	
25-Jun	29	0.30	12.89		20	0.21	34.91		22	0.23	8.83	
26-Jun	34	0.35	13.24		21	0.22	35.13		23	0.24	9.07	
27-Jun	68	0.71	13.95		159	1.66	36.79		41	0.43	9.50	
28-Jun	96	1.00	14.95		388	4.04	40.83		40	0.42	9.92	
29-Jun	92	0.96	15.91		391	4.07	44.90		47	0.49	10.41	
30-Jun	45	0.47	16.38		230	2.40	47.30		34	0.35	10.76	
01-Jul	42	0.44	16.82		190	1.98	49.28		27	0.28	11.04	
02-Jul	28	0.29	17.11		119	1.24	50.52		17	0.18	11.22	
03-Jul	32	0.33	17.44		89	0.93	51.45		8	0.08	11.30	
04-Jul	42	0.44	17.88		166	1.73	53.18		10	0.10	11.40	
05-Jul	18	0.19	18.07		126	1.31	54.49		6	0.06	11.46	
06-Jul	24	0.25	18.32		162	1.69	56.18		9	0.09	11.55	
07-Jul	13	0.14	18.46		109	1.14	57.32		9	0.09	11.64	
08-Jul	33	0.34	18.80		79	0.82	58.14		4	0.04	11.68	
09-Jul	27	0.28	19.08		175	1.82	59.96		4	0.04	11.72	
10-Jul	9	0.09	19.17		252	2.63	62.59		7	0.07	11.79	
11-Jul	6	0.06	19.23		98	1.02	63.61		4	0.04	11.83	
12-Jul	8	0.08	19.31		88	0.92	64.53		2	0.02	11.85	
13-Jul	5	0.05	19.36		91	0.95	65.48		2	0.02	11.87	
14-Jul	4	0.04	19.40		54	0.56	66.04		3	0.03	11.90	
15-Jul	3	0.03	19.43		101	1.05	67.09		0	0.00	11.90	
Total	1,790				6,267				1,046			

Appendix B.16. Lower Yukon River Big Eddy and Middle Mouth combined chinook salmon setnet (8.5 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1991 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing.



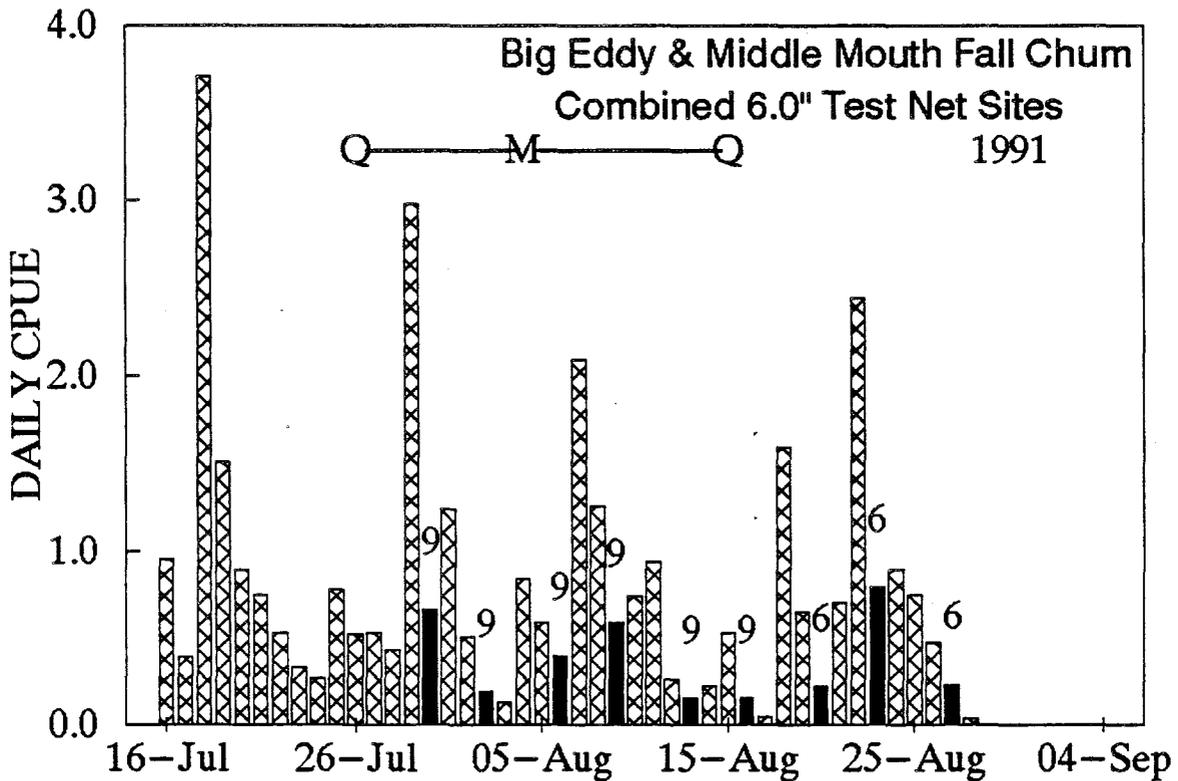
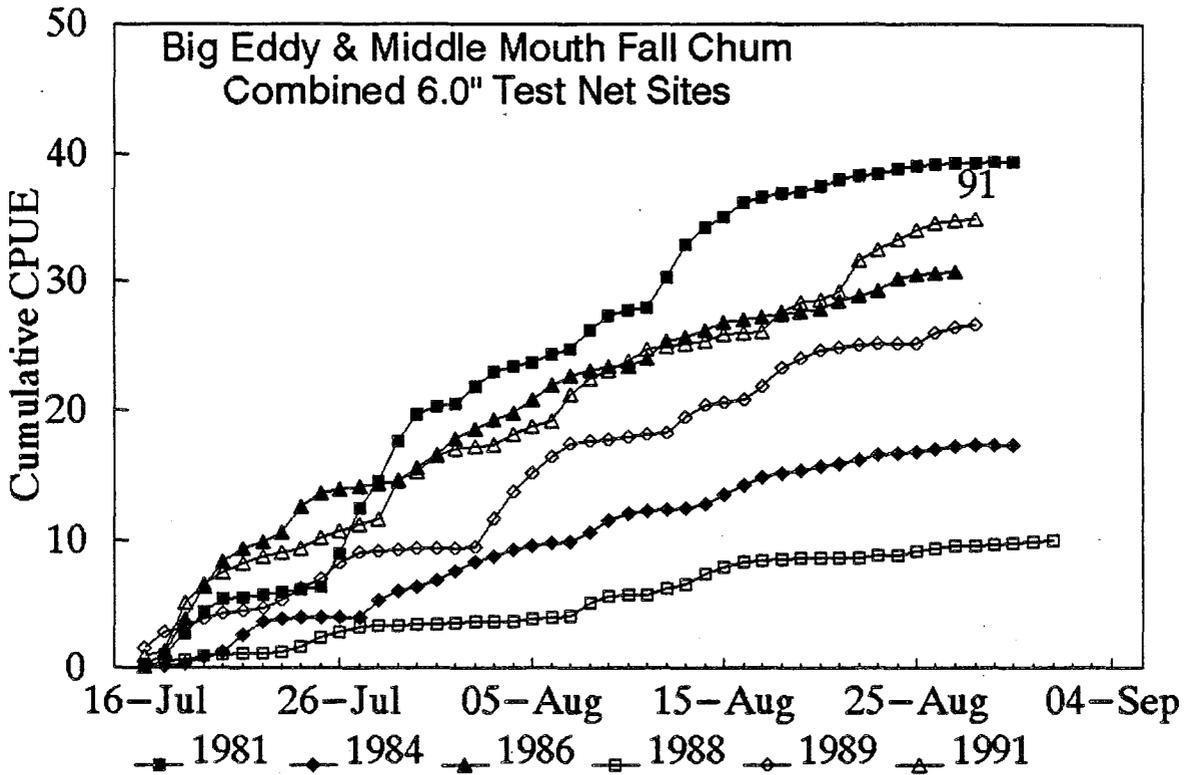
Appendix B.17. Lower Yukon River Big Eddy and Middle Mouth combined summer chum salmon setnet (5.5 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1991 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing.



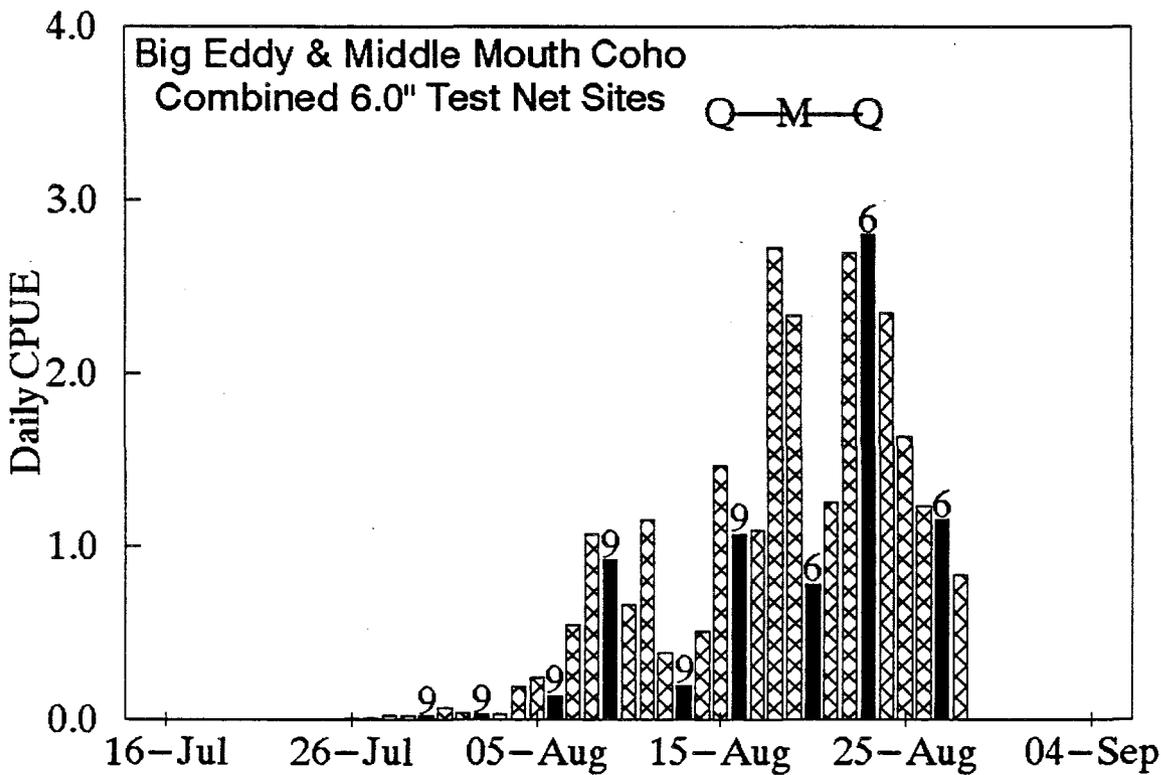
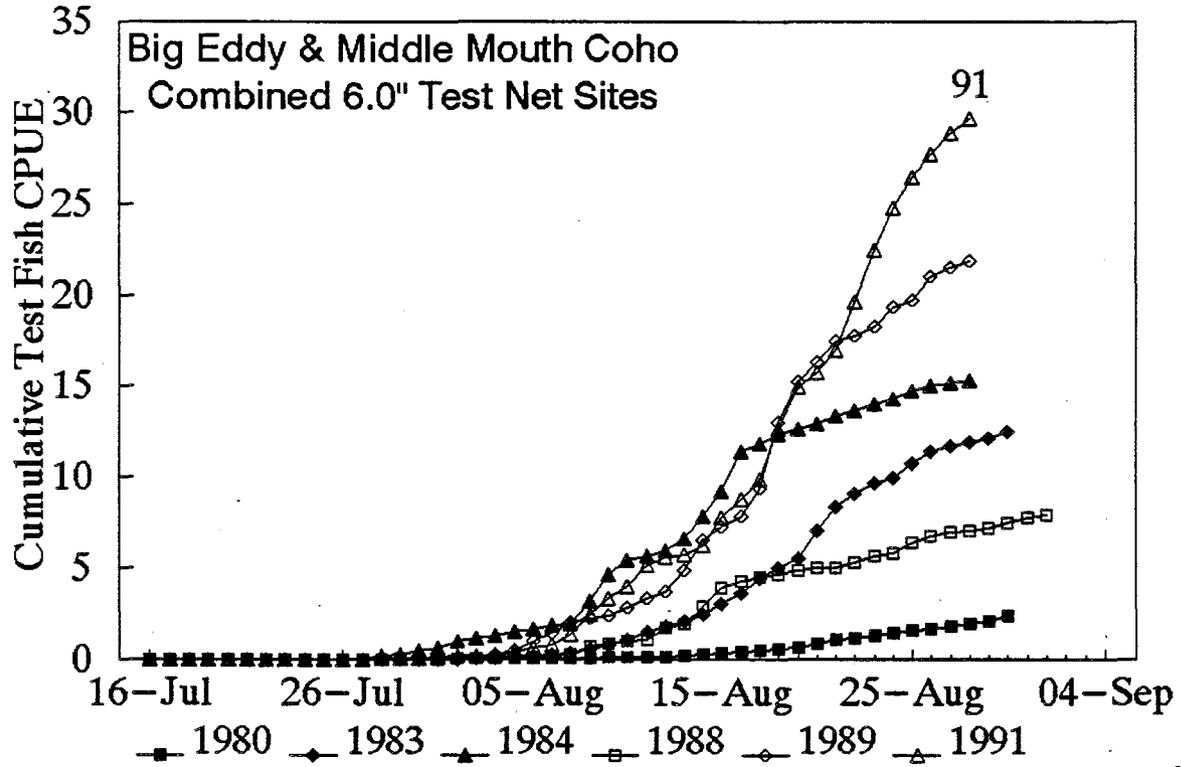
Appendix B.18. Lower Yukon River fall chum and coho salmon combined setnet test fishing catches and CPUE, 1991.

Date	Big Eddy and Middle Mouth Sites 1 & 2							Middle Mouth Site 3						
	Fall Chum Salmon 6.0'			Coho Salmon 6.0'				Fall Chum Salmon 6.0'			Coho Salmon 6.0'			
	Daily Catch	Daily CPUE	Cum CPUE	Daily Catch	Daily CPUE	Cum CPUE	% Coho	Daily Catch	Daily CPUE	Cum CPUE	Daily Catch	Daily CPUE	Cum CPUE	% Coho
16-Jul	91	0.95	0.95	0	0.00	0.00	0.0%	45	1.88	1.88	0	0.00	0.00	0.0%
17-Jul	37	0.39	1.34	0	0.00	0.00	0.0%	16	0.67	2.55	0	0.00	0.00	0.0%
18-Jul	356	3.71	5.05	0	0.00	0.00	0.0%	108	4.50	7.05	0	0.00	0.00	0.0%
19-Jul	145	1.51	6.56	0	0.00	0.00	0.0%	28	1.17	8.22	0	0.00	0.00	0.0%
20-Jul	85	0.89	7.45	0	0.00	0.00	0.0%	25	1.04	9.26	0	0.00	0.00	0.0%
21-Jul	72	0.75	8.20	0	0.00	0.00	0.0%	16	0.67	9.93	0	0.00	0.00	0.0%
22-Jul	51	0.53	8.73	0	0.00	0.00	0.0%	35	1.46	11.39	0	0.00	0.00	0.0%
23-Jul	32	0.33	9.06	0	0.00	0.00	0.0%	19	0.79	12.18	0	0.00	0.00	0.0%
24-Jul	26	0.27	9.33	0	0.00	0.00	0.0%	23	0.96	13.14	0	0.00	0.00	0.0%
25-Jul	75	0.78	10.11	0	0.00	0.00	0.0%	69	2.88	16.02	0	0.00	0.00	0.0%
26-Jul	50	0.52	10.63	1	0.01	0.01	2.0%	37	1.54	17.56	0	0.00	0.00	0.0%
27-Jul	51	0.53	11.16	1	0.01	0.02	1.9%	28	1.17	18.73	0	0.00	0.00	0.0%
28-Jul	41	0.43	11.59	2	0.02	0.04	4.7%	6	0.25	18.98	0	0.00	0.00	0.0%
29-Jul	286	2.98	14.57	2	0.02	0.06	0.7%	50	2.08	21.06	0	0.00	0.00	0.0%
30-Jul	63	0.66	15.23	2	0.02	0.08	3.1%	39	1.63	22.69	1	0.04	0.04	2.5%
31-Jul	119	1.24	16.47	7	0.07	0.15	5.6%	61	2.54	25.23	0	0.00	0.04	0.0%
01-Aug	48	0.50	16.97	4	0.04	0.19	7.7%	27	1.13	26.36	0	0.00	0.04	0.0%
02-Aug	18	0.19	17.16	3	0.03	0.22	14.3%	9	0.38	26.74	1	0.04	0.08	10.0%
03-Aug	12	0.13	17.29	3	0.03	0.25	20.0%	5	0.21	26.95	0	0.00	0.08	0.0%
04-Aug	81	0.84	18.13	18	0.19	0.44	18.2%	24	1.00	27.95	4	0.17	0.25	14.3%
05-Aug	57	0.59	18.72	23	0.24	0.68	28.8%	34	1.42	29.37	5	0.21	0.46	12.8%
06-Aug	38	0.40	19.12	13	0.14	0.82	25.5%	22	0.92	30.29	10	0.42	0.88	31.3%
07-Aug	201	2.09	21.21	53	0.55	1.37	20.9%	43	1.79	32.08	4	0.17	1.05	8.5%
08-Aug	121	1.26	22.47	103	1.07	2.44	46.0%	35	1.46	33.54	0	0.00	1.05	0.0%
09-Aug	57	0.59	23.06	88	0.92	3.36	60.7%	16	0.67	34.21	5	0.21	1.26	23.8%
10-Aug	71	0.74	23.80	63	0.66	4.02	47.0%	20	0.83	35.04	3	0.13	1.39	13.0%
11-Aug	90	0.94	24.74	110	1.15	5.17	55.0%	4	0.17	35.21	5	0.21	1.60	55.6%
12-Aug	25	0.26	25.00	37	0.39	5.56	59.7%	5	0.21	35.42	1	0.04	1.64	16.7%
13-Aug	14	0.15	25.15	19	0.20	5.76	57.6%	1	0.04	35.46	1	0.04	1.68	50.0%
14-Aug	21	0.22	25.37	49	0.51	6.27	70.0%	3	0.13	35.59	6	0.25	1.93	66.7%
15-Aug	51	0.53	25.90	140	1.46	7.73	73.3%	7	0.29	35.88	23	0.96	2.89	76.7%
16-Aug	14	0.15	26.05	103	1.07	8.80	88.0%	2	0.08	35.96	10	0.42	3.31	83.3%
17-Aug	5	0.05	26.10	105	1.09	9.89	95.5%	2	0.08	36.04	1	0.04	3.35	33.3%
18-Aug	153	1.59	27.69	262	2.73	12.62	63.1%	62	2.58	38.62	60	2.50	5.85	49.2%
19-Aug	62	0.65	28.34	224	2.33	14.95	78.3%	10	0.42	39.04	11	0.46	6.31	52.4%
20-Aug	21	0.22	28.56	75	0.78	15.73	78.1%	4	0.17	39.21	1	0.04	6.35	20.0%
21-Aug	67	0.70	29.26	120	1.25	16.98	64.2%	18	0.75	39.96	17	0.71	7.06	48.6%
22-Aug	234	2.44	31.70	259	2.70	19.68	52.5%	145	6.04	46.00	85	3.54	10.60	37.0%
23-Aug	76	0.79	32.49	269	2.80	22.48	78.0%	35	1.46	47.46	107	4.46	15.06	75.4%
24-Aug	85	0.89	33.38	226	2.35	24.83	72.7%	17	0.71	48.17	21	0.88	15.94	55.3%
25-Aug	72	0.75	34.13	156	1.63	26.46	68.4%	8	0.33	48.50	52	2.17	18.11	86.7%
26-Aug	45	0.47	34.60	118	1.23	27.69	72.4%	7	0.29	48.79	14	0.58	18.69	66.7%
27-Aug	22	0.23	34.83	110	1.15	28.84	83.3%	6	0.25	49.04	17	0.71	19.40	73.9%
28-Aug	2	0.04	34.87	40	0.83	29.67	95.2%	4	0.33	49.37	6	0.50	19.90	60.0%
29-Aug														
30-Aug														
31-Aug														
01-Sep														
02-Sep														
03-Sep														
04-Sep														
	3,343			2,808				1,180			471			

Appendix B.19. Lower Yukon River Big Eddy and Middle Mouth combined fall chum salmon setnet (6.0 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1991 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing.



Appendix B.20. Lower Yukon River Big Eddy and Middle Mouth combined coho salmon setnet (6.0 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1991 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing.



APPENDIX C

UPPER YUKON AREA SALMON

Appendix C.1. List of Upper Yukon Emergency Orders, 1991.

<u>E.O. Number</u>	<u>Effective Date</u>	<u>Action Taken</u>	<u>Comments</u>
3-F-UY-01-91	June 1	Allowed personal use and subsistence fishing for whitefish and suckers in the main Tanana River and its adjoining sloughs between the mouth of the Salcha River and the mouth of the Gerstle River.	After consulting with Sport Fish Division and Subsistence Division, it was agreed that whitefish and sucker populations in the main Tanana River between the Salcha River and the Gerstle River are healthy and can support a regulated harvest.
3-F-UY-02-91	June 15	Allowed uninterrupted subsistence salmon fishing in District 4 until 24 hours prior to the opening of the commercial salmon season.	Prior to June 15, subsistence fishermen are allowed uninterrupted subsistence fishing time. On June 15, the District 4 subsistence fishing schedule was altered by regulation to two 48-hour periods per week. This change normally coincides with the opening of the District 4 commercial salmon fishing season; however, with the projected poor return of summer chum salmon to the Yukon River, the opening of the District 4 commercial salmon season will be considerably later than June 15.
3-F-UY-03-91	June 26	Opened the Yukon area District 4 commercial salmon fishing season and established a 24-hour fishing period in Subdistrict 4-A and a 48-hour fishing period in Subdistricts 4-B and 4-C.	Based on Department test net catches, pilot station sonar enumeration, and preliminary commercial catches in Districts 1, 2, and 3, the Yukon River chinook and summer chum salmon runs appeared to be as forecasted. With subsistence needs being fulfilled and an expected harvestable surplus of chinook and summer chum salmon available, a commercial fishery in District 4 was warranted.
3-F-UY-04-91	June 26	Reduced the scheduled June 26, Subdistrict 4-A set gillnet and fish wheel subsistence fishing period to 24 hours to coincide with the announced commercial salmon period. Also allowed subsistence drift-gillnet salmon fishing for a portion of Subdistrict 4-A of the Yukon River to continue as scheduled.	The subsistence fishing schedule for Subdistrict 4-A coincides with the commercial salmon fishing schedule. The normal fishing schedule is for two 48-hour periods per week during the commercial season. However, with the reduced commercial salmon fishing period starting June 26 in Subdistrict 4-A to a 24-hour commercial period, the subsistence fishing schedule for set gillnets and fish wheels in Subdistrict 4-A was also reduced to coincide with the commercial schedule.
3-F-UY-05-91	July 2	Opened the commercial salmon fishing season in Yukon area Subdistricts 5-A, 5-B and 5-C effective 6:00 PM Tuesday, July 2, 1991. Once opened, regulation established a commercial fishing schedule of two 48-hour periods per week.	Based on department test net catches, Pilot Station sonar enumeration and preliminary lower Yukon River commercial catch statistics, the 1991 chinook salmon return appeared to be below average. With subsistence needs fulfilled and a harvestable surplus of chinook salmon available, a commercial fishery was warranted.
3-F-UY-06-91	June 30	Established the second commercial fishing period in District 4 of the Yukon Area, with a 24-hour fishing period in Subdistrict 4-A and a 48-hour period in Subdistricts 4-B and 4-C.	Based on department test net catches, Pilot station sonar and Anvik River sonar, and commercial catches in Districts 1, 2, 3 and 4, the Yukon River chinook and summer chum salmon runs appeared to be as forecasted. With the available surplus of harvestable commercial chinook and summer chum salmon, it is appropriate to announce the second commercial period for District 4.

Appendix C.1. (Continued)

<u>E.O. Number</u>	<u>Effective Date</u>	<u>Action Taken</u>	<u>Comments</u>
3-F-UY-07-91	June 30	Reduced the scheduled 48-hour set gillnet and fish wheel subsistence salmon period for a portion of Subdistrict 4-A.	To provide for an orderly fishery, the subsistence schedule was reduced to coincide with the 24-hour commercial salmon fishing schedule.
3-F-UY-08-91	July 3	Established the third commercial fishing period in District 4 as a 24-hour period in Subdistrict 4-A and a 48-hour period in Subdistricts 4-B and 4-C.	With department assessment of a commercially harvestable surplus of chinook and summer chum salmon, a third commercial period was announced for District 4.
3-F-UY-09-91	July 3	Reduced the scheduled 48-hour set gillnet and fish wheel subsistence salmon fishing period in Subdistrict 4-A to a 24-hour period and a 48-hour drift gillnet subsistence salmon fishing period for a portion of Subdistrict 4-A.	Reduced the subsistence fishing schedule for set gillnets and fish wheels in Subdistrict 4-A to 24 hours to coincide with the commercial salmon fishing schedule. Established a 48-hour drift gillnet subsistence salmon fishing schedule to provide for subsistence chinook salmon needs.
3-F-UY-10-91	July 7	Established a 48-hour commercial fishing period in Subdistrict 4-A.	With department assessment of a commercially harvestable surplus of summer chum salmon available in Subdistrict 4-A, a fourth commercial period was announced for Subdistrict 4-A.
3-F-UY-11-91	July 9	Opened the Yukon Subdistrict 5-D commercial salmon fishing season at 6:00 p.m., July 9, 1991. Also established a commercial fishing period of 48 hours.	The chinook salmon run appeared to be as forecasted based on department test net catches, Pilot Station sonar enumeration, and preliminary commercial catch statistics in the lower portions of the Yukon River. With subsistence needs fulfilled and a harvestable surplus of chinook salmon available, a Subdistrict 5-D commercial fishery was warranted. The seven-day-a-week commercial fishing schedule was reduced to allow more reliable monitoring of the commercial fishing harvest.
3-F-UY-12-91	July 5	Established an 18-hour commercial fishing period for Yukon River Subdistricts 5-A, 5-B and 5-C at 6:00 p.m. Friday, July 5 until 12:00 noon Saturday, July 6, 1991.	The salmon harvest from Subdistricts 5-A, 5-B and 5-C approached the Guideline Harvest Range of 2,400 to 2,800 chinook salmon. Establishing the second commercial fishing period of 18 hours allowed the remaining harvestable surplus of chinook salmon to be taken.
3-F-UY-13-91	July 10	Established a 24-hour commercial fishing period for Subdistrict 4-A and a weekly commercial schedule for Subdistricts 4-B and 4-C.	With department assessment of a commercially harvestable surplus of summer chum salmon available in Subdistrict 4-A, it was appropriate to announce another commercial period for Subdistrict 4-A. Also, with the majority of the chinook salmon migration past Subdistricts 4-B and 4-C, it was therefore appropriate to place these subdistricts on a commercial fishing schedule of two 48-hour fishing periods per week.

Appendix C.1. (Continued)

<u>E.O. Number</u>	<u>Effective Date</u>	<u>Action Taken</u>	<u>Comments</u>
3-F-UY-14-91	July 14	Reduced the scheduled 48-hour set gillnet and fish wheel subsistence salmon period in Subdistrict 4-A to a 24-hour period.	The subsistence fishing schedule was reduced to coincide with the 24-hour commercial salmon fishing schedule that began on July 14, 1991.
3-F-UY-15-91	July 15	Opened the commercial salmon season in District 6 of the Tanana River effective 6:00 p.m. Monday, July 15 and established a commercial fishing schedule of two 42-hour periods per week.	With initial subsistence needs being fulfilled, the early portion of the chinook salmon migration allotted for escapement, and a harvestable surplus of chinook and summer chum salmon available, a commercial fishery was warranted for District 6.
3-F-UY-16-91	July 16	Closed the commercial salmon fishing season in Subdistrict 4-A, and left Subdistricts 4-B and 4-C on a two 48-hour fishing period per week schedule.	Having met or exceeded the targeted harvest for summer chum salmon, it was therefore appropriate to close the Subdistrict 4-A season to provide for summer chum salmon escapement.
3-F-UY-17-91	July 17	Closed commercial salmon fishing in Yukon area Subdistricts 4-B and 4-C for the remainder of the early season.	Having met the targeted harvest for summer chum salmon it was therefore appropriate to close the early season for Subdistricts 4-B and 4-C.
3-F-UY-18-91	August 1	Closed the commercial salmon fishery in District 6 of the Tanana River effective 6:00 p.m. August 1, and remain closed unless summer chum salmon escapement objective is achieved.	Indications are that the Tanana River, like the Yukon River, is experiencing a below average return of summer chum salmon. To provide for proper Tanana River escapement of summer chum salmon, the District 6 summer season was closed.
3-F-UY-19-91	August 5	Reopened the commercial salmon summer season in District 6 of the Tanana River effective 6:00 p.m. Monday, August 5, 1991 for a 42-hour period.	The department adjusted the targeted commercial summer chum salmon harvest for District 6 to near the mid-point of the GHR of 13,000 to 38,000 summer chum salmon. A total of 17,599 summer chum salmon were sold during the five summer chum salmon commercial openings and is approximately 7,900 fish below the midpoint of the District 6 GHR of 25,500 summer chum salmon. To provide for additional commercial harvest of surplus summer chum salmon, the summer season is reopened for one 42-hour period.
3-F-UY-20-91	August 11	Established the Yukon area Subdistrict 4-B and 4-C fall commercial salmon fishing periods.	Fall chum salmon return into the Yukon River appeared to be as forecasted based on department test net catches, Pilot Station sonar, and the lower Yukon commercial harvest. Indications were that the Yukon River was experiencing an above average return of fall chum salmon and were estimated to be well distributed throughout Subdistricts 4-B and 4-C at that time. The fall season commercial fishing schedule was announced to allow commercial fishermen to harvest the surplus of available fish.

Appendix C.1. (Continued)

<u>E.O. Number</u>	<u>Effective Date</u>	<u>Action Taken</u>	<u>Comments</u>
3-F-UY-21-91	August 20	Opened the Yukon River Subdistrict 5-A, 5-B and 5-C commercial salmon fall fishing season effective 6:00 p.m. August 20, 1991. Also established a commercial fishing period of 24 hours in length beginning 6:00 p.m. Tuesdays until 6:00 p.m. Wednesdays, and from 6:00 p.m. Fridays until 6:00 p.m. Saturdays.	With initial subsistence needs fulfilled and a harvestable surplus of fall chum salmon available, a Subdistrict 5-A, 5-B and 5-C commercial fishery was warranted. Also, to allow more reliable monitoring of the commercial fishing harvest, it was necessary to reduce the two 48-hour per week commercial fishing schedule as established by regulation, and install a two 24-hour per week commercial fishing period.
3-F-UY-22-91	August 18	Reduced the fishing time in the previously announced Yukon River Subdistrict 4-B, 4-C and 5-A commercial salmon fishing schedule effective 6:00 p.m. August 18, 1991. This reduction in fishing time was intended to provide protection for Toklat River fall chum salmon stocks which may migrate through these fisheries during this reduced portion of the period.	In response to decisions made by the Alaska Superior Court of the Fourth Judicial District in Fairbanks, the department reduced commercial fishing time in all Yukon and Tanana River fishing districts below the Kantishna River downstream to the Yukon River mouth for the remainder of the fall chum salmon fishing season.
3-F-UY-23-91	August 18	Altered the fishing time in the previously announced Yukon River Subdistrict 4-B, 4-C and 5-A subsistence salmon fishing schedule effective 6:00 p.m. August 18, 1991.	The subsistence fishing schedule was reduced to coincide with the commercial fishing schedule which was reduced from 48 hours to 36 hours for Subdistricts 4-B and 4-C, and Subdistrict 5-A was reduced from 24 hours to 12 hours.
3-F-UY-24-91	August 26	Altered the fishing time in the Yukon River Subdistrict 4-B and 4-C subsistence salmon fishing schedule. Subsistence salmon could be taken from 6:00 p.m. Sundays until 6:00 p.m. Tuesdays, and from 6:00 p.m. Wednesdays until 6:00 p.m. Fridays.	Only two registered catcher/processors had taken commercial salmon during the last two scheduled commercial fishing periods. There had not been a buyer for the majority of the commercial fishermen in this fishery, and it appeared unlikely that any additional buyers would enter into the fishery. With a limited commercial fishery, the basis to coincide the subsistence and commercial fishing periods was no longer valid. To allow minimum disruption to the subsistence fishermen, the "normal" two 48-hour subsistence fishing periods per week resumed in Subdistricts 4-B and 4-C.

Appendix C.1. (Continued)

<u>E.O. Number</u>	<u>Effective Date</u>	<u>Action Taken</u>	<u>Comments</u>
3-F-UY-25-91	August 27	Opened the Yukon River Subdistrict 5-D commercial salmon fall fishing season effective 6:00 p.m. Tuesday, August 27, 1991. Also, established a staggered commercial fishing period 48 hours in length. For Subdistrict 5-D downstream of the mouth of the Chandalar river, commercial fishing began at 6:00 p.m. Tuesday, 8/27/91, until 6:00 p.m. Thursday, 8/29/91, and for the Subdistrict 5-D portion upstream of the mouth of the Chandalar River, commercial fishing began at 6:00 p.m. Friday, 8/30/91 until 6:00 p.m. Sunday, 9/1/91.	With the fall chum salmon run well distributed and a harvestable surplus of fall chum salmon available, a Subdistrict 5-D commercial fishery was warranted. To allow more reliable monitoring of the commercial fishing harvest, it was necessary to reduce the seven-day-a-week Subdistrict 5-D commercial fishing schedule as established by regulation, and install the 48-hour commercial fishing period. In recognition of the length of Subdistrict 5-D (377 river miles) and the travel time of salmon, the lower portion of Subdistrict 5-D opened earlier than the upper portions of the subdistrict.
3-F-UY-26-91	September 1	Established a special 24-hour subsistence only fishing period in addition to the previously announced subsistence fishing schedule for Yukon River Subdistricts 5-A, 5-B and 5-C. Fishing period began 6:00 p.m. Sunday, September 1, 1991, until 6:00 p.m. Monday, September 2, 1991.	Because the subsistence fishing schedule in Subdistricts 5-A, 5-B and 5-C coincided with the commercial periods, and because subsistence fishermen had notified the department that the present commercial fishing schedule of two 24-hour periods per week were insufficient to meet their needs, a special subsistence fishing only period was announced.
3-F-UY-27-91	September 3	Closed the commercial fishing season in Subdistricts 5-A, 5-B and 5-C effective 6:00 p.m. Tuesday, September 3, 1991. Also established a 24-hour commercial period for Subdistrict 5-D beginning 6:00 p.m. Tuesday, September 3, 1991.	Based on verbal processor reports, the commercial harvest in Subdistricts 5-A, 5-B and 5-C, to date, was 28,898 fish and exceeded the targeted commercial harvest of 28,000 fish for these subdistricts. To provide for escapement, subsistence needs, and additional upriver commercial harvests, the commercial fishing season was closed in Subdistricts 5-A, 5-B and 5-C. The 1991 targeted commercial harvest for Subdistrict 5-D was 3,200 salmon. Based on verbal processor reports, the commercial harvest for Subdistrict 5-D was 1,828 fall chum salmon. It was therefore appropriate to allow an additional 24-hour commercial fishing period for the remaining harvestable surplus.
3-F-UY-28-91	September 6	Opened the District 6 fall commercial fishing season effective 6:00 p.m. Friday, September 6, 1991. One 12-hour fishing period per week was established for Subdistrict 6-A, and one 42-hour fishing period per week was established for Subdistricts 6-B and 6-C.	Based on test fish wheel operator and subsistence fishermen reports, the department determined that the fall chum salmon return was distributed throughout District 6. With initial subsistence needs fulfilled and a harvestable surplus of fall chum salmon available, a commercial fishery was warranted.

Appendix C.1. (Continued)

<u>E.O. Number</u>	<u>Effective Date</u>	<u>Action Taken</u>	<u>Comments</u>
3-F-UY-29-91	September 18	Closed the Chatanika River and its tributaries, from the confluence of Goldstream creek upstream, to the taking of whitefish by subsistence fishermen.	Necessary to close the Chatanika River to subsistence whitefish fishing to provide for conservation of the spawning stock and to prevent further depletion of whitefish stocks in the Chatanika River.
3-F-UY-30-91	September 22	Altered the fishing time for the Yukon River Subdistrict 4-B and 4-C subsistence salmon fishing schedule. In Subdistricts 4-B and 4-C, subsistence salmon could be taken five days per week, from 6:00 p.m. Sunday until 6:00 p.m. Friday.	To allow subsistence fishermen their normal opportunity to catch fall fish, it was appropriate to extend the subsistence fishing schedule to five days per week in Subdistricts 4-B and 4-C.
3-F-UY-31-91	September 20	Changed the established commercial and corresponding subsistence fishing time in Subdistrict 6-A of the Tanana River. Commercial and subsistence fishermen could take salmon in Subdistrict 6-A from 8:00 p.m. Friday until 8:00 a.m. Saturday; 12-hour periods.	With the loss of daylight and decreasing temperatures, subsistence and commercial fishermen in Subdistrict 6-A asked the department to shift the 12-hour fishing period so that it ended later in the morning--thus increasing their personal safety.
3-F-UY-32-91	September 27	Closed the District 6 fall commercial fishing season effective 6:00 p.m. Friday, September 27, 1991. Also reestablished the subsistence fishing schedule of two 42-hour periods per week for the entire District 6.	To provide for escapement needs and additional subsistence harvests, it was appropriate to close the District 6 commercial season. Subsistence fishermen were placed on the normal two 42-hours per week fishing schedule.

Appendix C.2. Commercial chinook salmon sales by statistical area, Upper Yukon Area, 1974-1991. a

District 4 Chinook Salmon Sales by Statistical Area

Year	334-41		334-44		334-45		334-46		334-41,44,45 and 46 Subtotal c		334-42		334-43		Total	
	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe
1974	0	-							0	-	685	-	-	-	685	-
1975	15	-							15	-	374	-	-	-	389	-
1976	44	b							44	-	365	-	-	-	409	-
1977	317	-							317	-	668	-	-	-	985	-
1978	183	-							183	-	425	-	-	-	608	-
1979	785	-							785	-	370	-	834	-	1,989	-
1980	352	-							352	-	549	-	620	-	1,521	-
1981	106	-							106	-	867	-	374	-	1,347	-
1982	78	-							78	-	497	-	512	-	1,087	-
1983	0	-							0	-	382	-	219	-	601	-
1984	2	-							2	-	272	-	687	-	961	-
1985	0	-							0	-	318	-	346	-	664	-
1986	11	-							11	-	100	-	391	-	502	-
1987	91	-							91	-	999	-	434	-	1,524	-
1988	19	-							19	-	1,599	-	1,541	-	3,159	-
1989	59	-							59	-	696	-	2,035	-	2,790	-
1990	-	-	0	8	0	0	52	0	52	8	784	0	2,700	0	3,536	8
1991	-	-	0	67	0	7	69	88	69	162	916	386	1,461	1,674	2,446	2,222

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District 5 Chinook Salmon Sales by Statistical Area

Year	334-51		334-52		334-53		334-54		334-55		334-54 & 55 Subtotal d		Total	
	Numbers	Roe	Numbers	Roe	Numbers	Roe								
1974	2,284	-	379	-	-	-	-	-	-	-	-	-	2,663	-
1975	2,602	-	270	-	-	-	-	-	-	-	-	-	2,872	-
1976	2,843	-	308	-	-	-	-	-	-	-	-	-	3,151	-
1977	4,013	-	149	-	-	-	-	-	-	-	-	-	4,162	-
1978	2,838	-	241	-	-	-	-	-	-	-	-	-	3,079	-
1979	3,389	-	0	-	-	-	-	-	-	-	-	-	3,389	-
1980	4,554	-	337	-	-	-	-	-	-	-	-	-	4,891	-
1981	97	-	3,051	-	2,477	-	749	-	-	-	749	-	6,374	-
1982	61	-	2,352	-	2,277	-	695	-	-	-	695	-	5,385	-
1983	0	-	632	-	2,738	-	236	-	-	-	236	-	3,606	-
1984	128	-	1,589	-	1,568	-	384	-	-	-	384	-	3,669	-
1985	0	-	1,142	-	1,842	-	434	-	-	-	434	-	3,418	-
1986	0	-	1,552	-	875	-	306	-	-	-	306	-	2,733	-
1987	0	-	1,183	-	1,356	-	566	-	-	-	566	-	3,105	-
1988	0	-	1,498	-	1,477	-	461	-	-	-	461	-	3,436	-
1989	31	-	1,411	-	1,459	-	385	-	-	-	385	-	3,286	-
1990	0	0	1,630	47	1,180	0	194	0	349	0	543	0	3,353	47
1991	56	0	1,724	62	1,476	0	192	0	362	0	554	0	3,810	62

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District 6 Chinook Salmon Sales by Statistical Area

Year	334-61		334-62		334-63		Total	
	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe
1974	111	-	1,102	-	260	-	1,473	-
1975	77	-	153	-	270	-	500	-
1976	490	-	320	-	292	-	1,102	-
1977	405	-	365	-	238	-	1,008	-
1978	34	-	58	-	543	-	635	-
1979	102	-	336	-	334	-	772	-
1980	92	-	1,588	-	267	-	1,947	-
1981	438	-	366	-	183	-	987	-
1982	414	-	309	-	258	-	981	-
1983	249	-	364	-	298	-	911	-
1984	0	-	375	-	492	-	867	-
1985	15	-	560	-	567	-	1,142	-
1986	0	-	597	-	353	-	950	-
1987	0	-	600	-	602	-	1,202	-
1988	305	-	253	-	204	-	762	-
1989	809	-	614	-	318	-	1,741	-
1990	326	0	1,243	1,354	188	322	1,757	1,676
1991	117	0	450	1,365	119	180	686	1,545

- a Catches are in number of fish and pounds of roe. Roe sales not identified by species prior to 1990.
- b Does not include 493 fish (summer chum salmon) erroneously keypunched as chinook salmon in final computer summary.
- c In 1990, Statistical Area 334-41 was subdivided into Statistical Areas 334-44, 334-45 and 334-46.
- d In 1990, Statistical Area 334-54 was subdivided into Statistical Areas 334-54 and 334-55.

Appendix C.3. Commercial summer chum salmon sales by statistical area, Upper Yukon Area, 1974-1991. a,b

District 4 Summer Chum Salmon Sales by Statistical Area																
Year	334-41		334-44		334-45		334-46		334-41,44,45 and 46 Subtotal e		334-42		334-43		Total	
	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe
1974	1,200	-							1,200	-	28,500	-	c	c	27,066	0
1975	105,600	-							105,600	-	59,500	-	c	c	165,054	0
1976	178,300	-							178,300	-	33,000	-	c	c	211,307	0
1977	148,700	-							148,700	-	20,800	-	c	c	169,541	0
1978	309,500	16,920							309,500	16,920	54,900	0	c	c	364,184	16,920
1979	136,300	35,117							136,300	35,117	29,200	200	3,900	0	169,430	35,317
1980	119,400	119,957							119,400	119,957	26,200	14,385	1,800	1,482	147,560	135,824
1981	46,000	160,757							46,000	160,757	11,800	23,677	1,900	2,598	59,718	187,032
1982	1,000	137,611							1,000	137,611	1,000	12,550	1,600	1,120	3,647	151,281
1983	3,400	130,013							3,400	130,013	3,300	17,549	0	563	6,672	148,125
1984	100	148,519							100	148,519	700	15,184	300	3,139	1,009	166,842
1985	5,100	222,149							5,100	222,149	1,800	19,306	5,100	5,630	12,007	247,085
1986	0	236,856							0	236,856	241	29,169	59	3,520	300	269,545
1987	29,314	110,977							29,314	110,977	593	9,956	84	541	29,991	121,474
1988	19,070	230,276							19,070	230,276	4,592	21,766	389	2,484	24,051	254,526
1989	14,397	270,039							14,397	270,039	2,940	9,915	1,217	3,351	18,554	283,305
1990			0	27,628	427	28,181	10,750	39,732	11,177	95,541	1,091	6,600	96	3,582	12,364	105,723
1991			88	39,281	79	43,087	5,122	45,863	5,289	128,231	1,092	8,282	0	719	6,381	137,232

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District 5 Summer Chum Salmon Sales by Statistical Area

Year	334-51		334-52		334-53		334-54		334-55		334-54 & 55 Subtotal f		Total	
	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe
1974	4,500	-	d	-	-	-	-	-	-	-	-	-	6,831	-
1975	13,000	-	0	-	-	-	-	-	-	-	-	-	12,997	-
1976	700	-	0	-	-	-	-	-	-	-	-	-	774	-
1977	1,200	-	0	-	-	-	-	-	-	-	-	-	1,274	-
1978	4,900	605	0	0	-	-	-	-	-	-	-	-	4,892	605
1979	8,600	1,009	0	0	-	-	-	-	-	-	-	-	8,608	1,009
1980	500	0	0	0	0	0	0	0	0	0	0	0	456	0
1981	1,100	0	100	49	0	0	0	0	0	0	0	0	1,236	49
1982	0	21	200	0	0	0	0	0	0	0	0	0	213	21
1983	0	242	0	269	0	1,345	0	0	0	0	0	0	42	1,856
1984	100	0	600	47	0	0	0	0	0	0	0	0	645	47
1985	0	0	700	0	0	0	0	0	0	0	0	0	700	0
1986	0	0	682	0	8	0	0	0	0	0	0	0	690	0
1987	0	0	362	44	0	0	0	0	0	0	0	0	362	44
1988	0	0	717	337	5	26	0	0	0	0	0	0	722	363
1989	0	0	112	204	1	169	41	0	0	0	41	0	154	373
1990	0	0	0	225	5	350	6	19	0	0	6	19	11	594
1991	0	0	0	28	4	0	0	0	0	0	0	0	4	28

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169

District 6 Summer Chum Salmon Sales by Statistical Area

Year	334-61		334-62		334-63		Total	
	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe
1974	1,500	-	10,500	-	1,300	-	13,318	-
1975	5,500	-	2,300	-	6,900	-	14,782	-
1976	2,900	-	1,200	-	2,500	-	6,617	-
1977	2,300	-	1,300	-	700	-	4,317	-
1978	2,200	1,468	27,900	6,116	4,800	652	34,814	8,236
1979	300	d	14,800	d	3,500	d	18,491	3,891
1980	5,200	0	29,400	2,272	4,300	1,010	35,855	3,282
1981	4,600	0	23,500	925	4,200	1,062	32,477	1,987
1982	5,000	0	12,500	1,027	4,200	490	21,597	1,517
1983	1,900	0	21,600	18	700	0	24,309	18
1984	3,800	0	42,200	152	10,200	183	56,249	335
1985	800	0	51,100	142	15,000	1,398	66,913	1,540
1986	4,697	0	31,647	1,711	14,139	435	50,483	2,146
1987	2,167	0	6,882	349	1,561	101	10,610	450
1988	7,978	71	24,911	1,165	7,240	410	40,129	1,646
1989	16,483	61	18,960	4,277	6,672	533	42,115	4,871
1990	2,862	12	6,028	1,637	3,470	1,410	12,360	3,059
1991	4,742	0	10,100	2,653	3,355	2,063	18,197	4,716

a Roe in pounds and may include small amounts of chinook salmon roe.

b Prior to 1986, the majority of summer chum salmon catches rounded to nearest 100.

c Combined with statistical area 334-42.

d Information not available.

e In 1990, Statistical Area 334-41 was subdivided into Statistical Area 334-44, 334-45 and 334-46.

f In 1990, Statistical Area 334-54 was subdivided into Statistical Area 334-54 and 334-55.

Appendix C.4. Commercial fall chum salmon sales by statistical area, Upper Yukon Area, 1974-1991. a,b

District 4 Fall Chum Salmon Sales by Statistical Area

Year	334-41		334-44		334-45		334-46		334-42		334-43		Total	
	Numbers	Roe	Numbers	Roe	Numbers	Roe								
1974	-	-							9,213	-	d	d	9,213	-
1975	2,200	-							11,400	-	d	d	13,666	-
1976	400	-							1,300	-	d	d	1,742	-
1977	1,700	-							12,300	-	d	d	13,980	-
1978 h									11,000	1,721	d	d	10,988	1,721
1979									33,000	3,199	15,900	0	48,899	3,199
1980									15,300	1,789	12,900	2,558	27,978	4,347
1981									5,800	1,311	6,300	0	12,082	1,311
1982									1,000	20	2,900	147	3,894	167
1983									3,700	1,591	800	372	4,482	1,963
1984									3,000	1,222	4,700	993	7,625	2,215
1985									14,500	891	10,000	1,634	24,452	2,525
1986									2,045	0	0	0	2,045	0
1987									0	0	0	0	0	0
1988									10,157	703	5,505	718	15,662	1,421
1989									9,819	2,023	1,957	1,384	11,776	3,407
1990 c									3,406	1,680	1,583	671	4,989	2,351
1991									2,998	490	739	1,126	3,737	1,616

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District 5 Fall Chum Salmon Sales by Statistical Area

Year	334-51		334-52		334-53		334-54		334-55		334-54 & 55 Subtotal e		Total	
	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe
1974	23,600	-	-	-	-	-	-	-	-	-	-	-	23,551	0
1975	27,212	-	-	-	-	-	-	-	-	-	-	-	27,212	0
1976	5,300	-	100	-	-	-	-	-	-	-	-	-	5,387	0
1977	25,600	-	0	-	-	-	-	-	-	-	-	-	25,730	0
1978	20,700	3,946	300	1,274	-	-	-	-	-	-	-	-	21,016	5,220
1979	47,400	8,097	100	0	-	-	-	-	-	-	-	-	47,459	8,097
1980	40,300	605	2,000	0	0	0	0	0	0	0	0	0	41,771	605
1981	0	178	34,000	6,760	48,600	17	4,100	0	4,100	0	4,100	0	86,620	6,955
1982	8,300	0	1,100	23	4,300	19	0	0	0	0	0	0	13,593	42
1983	3,100	0	19,800	0	18,000	0	3,100	0	3,100	0	3,100	0	43,993	0
1984	1,400	0	10,300	0	9,400	0	2,900	57	2,900	57	2,900	57	24,060	57
1985	600	0	9,300	0	13,300	0	2,200	0	2,200	0	2,200	0	25,338	0
1986	1,332	0	11,907	395	7,471	0	1,343	0	1,343	0	1,343	0	22,053	395
1987 f	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	9,684	0	4,533	0	2,772	0	2,772	0	2,772	0	16,989	0
1989	372	60	9,937	3,327	4,987	209	2,919	393	2,919	393	2,919	393	18,215	3,989
1990	0	0	5,169	945	0	0	1,758	113	851	0	2,609	113	7,778	1,058
1991	0	0	14,968	3,625	9,173	0	1,846	0	1,368	0	3,214	0	27,355	3,625

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District 6 Fall Chum Salmon Sales by Statistical Area

Year	334-61		334-62		334-63		Total	
	Numbers	Roe	Numbers	Roe	Numbers	Roe	Numbers	Roe
1974	9,600	-	15,400	-	1,900	-	26,884	-
1975	13,300	-	2,800	-	2,600	-	18,692	-
1976	6,400	-	7,900	-	3,600	-	17,948	-
1977	3,600	-	11,100	-	3,900	-	18,673	-
1978	4,700	1,826	8,000	1,680	500	181	13,259	3,687
1979	7,100	g	21,600	g	5,500	g	34,185	7,170
1980	6,300	0	11,200	53	2,200	15	19,452	68
1981	4,900	0	18,900	2,784	2,300	235	25,989	3,019
1982	700	0	4,600	596	1,500	0	6,820	596
1983	3,500	0	23,100	3,009	7,500	92	34,089	3,101
1984	5,600	0	11,800	0	3,200	56	20,564	56
1985	1,500	0	34,700	0	6,200	0	42,352	0
1986	176	0	1,345	182	371	0	1,892	182
1987 f	0	0	0	0	0	0	0	0
1988	4,500	0	13,617	1,035	3,727	771	21,844	1,806
1989	14,870	173	25,650	7,050	8,570	130	49,090	7,353
1990	9,254	0	28,932	6,617	5,880	918	44,066	7,535
1991	3,278	0	21,834	12,253	3,083	1,901	28,195	14,154

- a Catches are in number of fish (including females sold with roe extracted and sold separately in Statistical Area 334-63 in 1990) and pounds of roe (may include small amounts of coho salmon roe).
- b Prior to 1986, the majority of fall chum salmon catches rounded to nearest 100 fish.
- c In 1990, Statistical Area 334-41 was subdivided into Statistical Areas 334-44, 334-45 and 334-46.
- d Combined with Statistical Area 334-42.
- e In 1990, Statistical Area 334-54 was subdivided into Statistical Areas 334-54 and 334-55.
- f Does not include estimates of catches involving illegal salmon and salmon roe sales.
- g Information not available.
- h Since 1978, no commercial fall season has been allowed by regulation in Subdistrict 4-A.

Appendix C.5. Summary of test fishing projects conducted in the Upper Yukon Area, 1991.

UPPER YUKON RIVER TEST FISHING PROJECTS

a. Location:

- 1) Ruby Test Fish Wheel: North bank of Yukon River approximately 21 miles upstream from Ruby.
- 2) Manley Test Fish Wheel: North bank of Tanana River near Manley Hot Springs.
- 3) Nenana Test Fish Wheel: North bank of Tanana River near Nenana.

b. Objectives: To determine run timing and relative abundance of fall chum and coho salmon.

c. Results:

- 1) Ruby Test Fish Wheel: The Ruby north bank test fish wheel was run from August 10 through September 19. During that time, a cumulative total of 5,884 fall chum salmon were caught. The timing was about average with the median date occurring on August 30.
- 2) Manley Test Fish Wheel: The Manley test fish wheel was operated from August 16 through September 27. A total of 8,759 fall chum and 1,916 coho salmon were captured. The fall chum run peaked during September 12-19 and the coho return peaked September 12-16.
- 3) Nenana Test Fish Wheel: The Nenana test fish wheel was operated from August 16 through September 25. A total of 6,082 fall chum and 3,396 coho salmon were caught. The fall chum run peaked during September 15-19 and the coho run peaked September 15-21.

APPENDIX D

YUKON RIVER SALMON SUBSISTENCE AND PERSONAL USE

Appendix D.1. Yukon River chinook salmon subsistence catches in numbers of fish by village, 1975-1991. a

Village	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Mouth to Anuk River													
Sheldon Pt.	91	427	163	79	1,021	602	143	592	1,173	302	165	756	445
Alakanuk	893	1,595	423	336	1,582	1,028	517	1,027	1,180	738	820	871	1,044
Emmonak	1,362	1,175	1,021	1,328	2,436	2,099	1,382	1,754	2,518	1,786	1,598	1,873	1,311
Kotik	533	472	675	568	1,224	695	1,029	1,902	2,407	1,112	1,982	3,119	3,125
Subtotal	2,879	3,669	2,282	2,311	6,263	4,624	3,071	5,275	7,278	4,020 g	4,888 h	7,153 i	5,925
Anuk River to Owl Slough													
Mt. Village	1,025	843	811	218	1,875	1,217	672	1,367	2,252	740	2,001	1,792	1,171
Pitkas Pt. - St. Marys	1,718	1,297	1,380	985	2,432	2,663	778	1,717	2,457	1,378	2,184	2,476	2,488
Pilot Station	604	433	399	428	2,703	1,116	898	1,452	2,593	674	1,468	3,786	2,681
Marshall	721	1,101	990	478	2,055	2,178	1,122	1,947	2,564	1,031	1,464	1,492	1,277
Subtotal	4,268	3,674	3,580	2,109	9,065	7,172	3,468	6,483	9,866	3,823	7,147	9,546	7,617
Owl Slough to Bonasila R.													
Russian Mission	1,476	1,660	1,689	1,628	2,634	1,938	974	1,747	2,036	1,850	2,367	1,694	1,349
Holy Cross	1,787	3,123	2,312	1,731	2,276	2,456	2,368	2,505	2,625	2,593	2,379	2,337	1,649
Subtotal	3,263	4,783	4,001	3,359	4,910	4,394	3,342	4,252	4,661	4,443	4,746	4,031	2,998
Lower Yukon Total													
	10,410	12,126	9,863	7,779	20,238	16,190	9,881	16,010	21,805	12,288	16,781	20,730	16,540
Bonasila R. to Illinois Cr.													
Anvik	261	181	191	354	744	576	405	959	428	211	418	481	619
Graying	391	3,664	222	294	951	879	903	1,837	1,322	1,571	1,082	144	874
Kaltag	435	694	179	344	652	487	669	1,080	1,117	1,168	1,306	2,244	1,886
Nulato	1,245	2,297	1,117	811	1,135	966	1,063	1,835	1,573	1,986	2,079	2,788	2,500
Koyukuk	495	699	541	493	966	1,009	194	569	609	711	1,003	876	885
Galena	1,591	1,205	570	735	1,477	1,226	1,329	1,046	1,270	1,982	1,374	3,134	2,574
Ruby-Kokrinee	2,221	1,736	964	1,168	2,346	1,107	1,657	1,263	927	1,402	1,016	811	971
Subtotal	6,639	10,456	3,784	4,199	8,271	6,250	6,220	8,589	7,246	9,031	8,278	10,478	10,289
Illinois Cr. to U.S. Can. Border													
Tanana	1,604	5,711	2,517	2,230	5,547	2,682	1,248	1,672	4,021	3,537	3,008	2,284	2,483
Rampart	1,820	1,169	488	887	1,070	876	1,302	1,700	2,815	3,145	3,177	1,481	988
Stevens Village	2,194 c	3,962 c	2,387 c	3,745 c	5,203 c	4,676 c	4,628 c	4,601 c	4,363 c	4,889 c	5,312 c	3,828 c	3,017 c
Birchcreek	-	-	-	-	-	-	-	-	-	-	-	-	196
Beaver	394	506	552	250	220	553	506	708	466	940	1,694	721	713
Ft. Yukon	1,922	2,527	2,794	1,894	1,887	3,608	2,900	3,083	3,950	2,245	4,898	4,051	5,585
Circle	1,175	769	728	969	648	545	2,256	2,233	1,614	2,034	1,785	2,201	1,871
Eagle	2,886	2,680	3,782	2,664	2,183	1,996	2,247	1,915	2,020	2,333	2,385	1,845	1,193
Other	-	-	-	-	-	-	-	-	-	-	-	-	202 j
Subtotals	11,997	17,524	13,248	12,839	16,758	14,938	15,090	15,912	19,249	19,123	22,259	16,411	16,248

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Village	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Shageluk													
Innoko River Subtotal	62	35	10	-	-	-	-	53	47	104	32	62	189
Koyukuk River													
Huslia	146	154	61	125	459	169	144	82	182	89	177	198	198
Hughes	180	226	402	479	318	856	778	296	177	29	181	90	146
Alatna	2	20	0	6	6	2	-	-	-	27	9	72	5
Alakaket	236	197	185	268	700	373	283 d	563 d	309 d	339	429	284	446
Bettie	-	-	-	-	-	-	-	-	-	-	-	-	16
Subtotal	564	597	648	878	1,483	1,400	1,205	941	668	484	796	644	811
Tanana River													
Minto-Manley	269	764	711	797	1,265	722	2,130	971	414	1,038	1,358	1,758	652
Nenana	800	771	974	1,195	966	2,556	4,919	2,093	3,151	3,846	1,188	1,441	1,654
Fairbanks	264	291	400	451	475	321	326	637	531	557 g	500 h	560 i	378
Other	-	-	-	-	-	-	-	-	-	-	-	-	3 k
Subtotal	1,333	1,826	2,085	2,443	2,706	3,599	7,375	3,701	4,096	5,441	3,046	3,759	2,687
Venetie													
Chandalar R. Subtotal	-	160	52	20	22	51	-	32	13	121	88	29	9
Upper Yukon Total	20,595	30,596	19,827	20,379	29,240	26,238	29,890	29,228	31,319	34,304	34,499	31,383	30,233
Alaska Total	31,005	42,724	29,690	26,158	49,476	42,428	39,771	45,236	53,124	46,590	51,280	52,113	46,773
Yukon Territory Villages													
Old Crow Porcupine R.	100	-	100	400	200	500	150	300	51	100	525	247	163
Dawson	1,200	-	1,016	20	-	-	-	-	-	-	-	-	-
Stewart River	-	-	1,000	62	-	-	-	-	-	-	-	-	-
Mayo-Stewart Crossing	-	-	-	720	-	-	-	-	-	-	-	-	-
Durwash-Kluane River	-	-	-	0	-	-	-	-	-	-	-	-	-
Fort Sekirk	-	-	-	164	-	-	-	-	-	-	-	-	-
Pelly	-	-	-	3,142	-	-	-	-	-	-	-	-	-
Faro	-	-	3,286	-	-	-	-	-	-	-	-	-	-
Ross River	-	-	-	440	-	-	-	-	-	-	-	-	-
Minto	-	-	400	-	-	-	-	-	-	-	-	-	-
Carmacks	3,000	-	-	3,172	-	-	-	-	-	-	-	-	-
Lake Labarge-Whitehorse	-	-	3,042	7	-	-	-	-	-	-	-	-	-
Teelin-Johnson's Crossing	-	-	-	500	-	-	-	-	-	-	-	-	-
Subtotal e	4,200	13,046 f	9,216	8,268	5,625 f	6,610 f	6,428 f	9,267 f	6,500 f	7,560 f	8,155 f	7,903 f	9,701 f
Total	35,205	55,770	38,906	36,426	55,103	49,038	46,199	54,505	59,624	54,150	59,435	60,016	56,474

a 1961-1978 data available from 1981 Yukon Area Annual Management Report.

c includes catches by Fairbanks subsistence and personal use permit holders that fished in Yukon River near bridge crossing.

d Alatna combined with Alakaket.

e Combined Indian Food Fish, Domestic and sport fish catch data by village obtained from annual management reports.

f Subtotals include revised catch data and summation of village catches may not equal subtotal.

g Catch by village not available.

h Personal use catches included (Mouth to Anuk River - 62; Fairbanks - 557).

i Personal use catches included (Mouth to Anuk River - 323; Fairbanks - 495).

j Personal use catches included (Mouth to Anuk River - 534; Fairbanks - 560).

k Tok, Coldfoot, Koyukuk, Chicken and Rampart residents who fished the Yukon River in a permit required area.

l Residents of Tok, Dot Lake, Tanacross, and Valdez who fished the Tanana River.

Appendix D.2. Reported Yukon River fall chum salmon subsistence catches (may include commercial related harvest to produce roe sold) in numbers of fish by village, 1978-1991. ^a

Village	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Mouth to Anuk River														
Sheldon Pt.	0	1,072	1,249	490	886	233	555	713	259	882	289	588	102	84
Atkanuk	148	5,841	1,227	4,913	1,336	903	1,219	2,603	2,030	3,748	1,194	430	267	193
Emmonak	83	5,182	2,018	4,375	4,458	2,715	3,329	4,539	2,748	8,160	1,782	840	2,353	2,027
Kotlik	159	3,893	2,941	5,762	3,338	4,387	3,782	5,420	3,985	5,877	2,200	3,058	2,813	1,631
Personal Use										-	7	20	60	-
Subtotal	390	15,788	7,433	15,540	10,016	8,238	8,885	13,275	9,000	18,467	5,482	4,834	5,395	3,935
Anuk River to Owl Slough														
Mt. Village	556	5,144	5,719	3,794	2,810	4,065	3,497	3,591	2,947	4,897	1,880	4,641	1,566	1,473
Pikas Pt.- St. Marys	311	3,529	3,268	3,322	2,388	3,138	3,927	3,315	5,401	3,988	2,533	1,970	958	2,202
Pilot Station	189	2,949	1,187	1,764	1,568	1,302	832	1,957	1,663	583	1,372	1,872	1,941	1,062
Marshall	241	3,040	2,281	2,890	2,747	1,838	3,138	2,881	3,472	4,008	2,815	1,532	1,724	891
Subtotal	1,297	14,662	12,435	11,770	9,511	10,341	11,394	11,544	13,483	13,454	8,600	10,015	6,187	5,628
Owl Slough to Bonasila R.														
Russian Mission	177	1,002	228	497	630	773	860	1,268	637	1,255	1,151	308	878	425
Holy Cross	89	1,441	2,094	2,398	1,029	2,090	1,373	1,024	1,148	1,598	598	711	1,178	190
Subtotal	266	2,443	2,320	2,893	1,659	2,863	2,233	2,290	1,785	2,853	1,747	1,019	2,056	615
Lower Yukon Total	1,953	32,893	22,188	30,203	21,186	21,442	22,512	27,109	24,266	34,774	15,829	15,968	13,638	10,178
Bonasila R. to Illinois Cr.														
Arvik	118	2,203	2,750	2,167	4,088	902	720	2,125	913	394	136	168	583	452
Grayling	459	2,189	1,904	890	2,972	3,847	1,950	3,108	4,204	4,750	1,760	830	1,405	3,818
Katlag	1,149	8,454	2,111	2,329	812	2,833	1,330	1,570	2,024	7,474	2,293	1,654	2,327	2,834
Nulato	477	5,280	1,134	821	217	3,159	1,675	4,240	1,782	2,200	1,873	2,438	3,548	1,837
Koyukuk	411	4,515	2,319	700	1,355	1,120	1,560	798	2,185	2,492	587	2,480	860	2,781
Galena	3,013	2,597	2,852	3,142	2,164	4,259	7,270	4,478	4,819	10,509	4,308	6,438	3,202	5,525
Ruby-Kokrines	3,033	8,387	4,557	7,984	6,662	12,319	8,505	6,717	7,101	11,000	5,171	8,599	3,352	2,858
Subtotal	8,660	33,815	17,427	17,833	18,270	28,439	23,010	23,032	23,018	38,819	15,928	20,583	15,275	18,681
Illinois Cr. to U.S. Can. Border														
Tanana	12,682	32,842	32,834	30,820	31,470	41,830	42,690	28,113	32,049	41,825	55,998	40,845	41,145	40,868
Rampart	1,584	9,710	5,977	5,370	5,495	5,627	4,395	18,619	3,950	5,092	3,600	2,472	10,818	5,801
Fbks. Sub/Pers	3,680	7,031	8,488	7,527	9,272	12,865	12,920	13,874	11,708	21,014	2,653	3,538	4,187	2,022
Stevens Village	4,947	4,125	3,233	8,356	7,392	3,502	4,932	11,679	4,150	7,538	1,451	8,633	3,857	2,481
Beaver	1,591	1,792	190	735	1,878	6,004	0	1,761	3,321	5,750	96	7,242	757	7
Ft. Yukon	18,932	21,487	6,537	18,143	1,826	3,987	7,525	12,719	8,543	15,200	2,768	27,790	11,827	7,487
Circle	820	3,108	1,737	5,219	290	3,687	3,107	4,098	3,650	7,691	4,398	4,478	7,814	6,340
Eagle	4,863	28,754	18,740	30,997	13,255	20,021	18,519	25,264	18,027	18,678	14,800	11,557	8,389	8,158
Subtotal	49,099	108,849	73,736	105,167	70,978	97,303	94,088	117,125	83,398	123,788	85,760	104,553	88,574	73,144

-Continued-

Village	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Shagekuk Innoko River Subtotal				150		-	-	0	370	434	0	4	0	0
Koyukuk River														
Huslia	100	1,950	1,104	119	102	3,528	6,306	276	808	585	1,697	1,728	846 ^a	411
Hughes	175	1,201	2,265	611	1,231	327	1,280	1,260	1,422	586	311	260	70	270
Allakaket ^e	1717	1130	2879	1410	716	1915	556	707	878	1477	443	1969	3050	513
Subtotal	1,992	4,281	6,248	2,140	2,049	5,770	8,142	2,243	3,108	2,648	2,451	3,957	3,966	1,194
Tanana River														
Minto-Manley	10,620	18,855	17,153	12,601	8,012	17,889	6,221	11,202	6,450	9,686	9,514	23,092	35,685	18,519
Nenana ^f	19,255	29,430	29,742	10,176	9,034	11,685	13,520	22,901	15,902	26,909	26,889	25,340	13,956	17,932
Fairbanks ^e	682	3,481	3,433	3,855	2,518	2,600	2,985	2,860	2,803	3,316	2,230	12,219	4,072	4,018
Subtotal	30,557	51,766	50,328	26,632	19,564	32,174	22,726	36,963	25,155	39,911	38,633	60,651	53,713	40,469
Chandalar R. Subtotal	2,606	3,943	2,730	6,400	850	7,800	4,345	-	4,726	5,460	1,102	10,977	6,867	858
Upper Yukon Total	92,914	196,511	150,469	158,322	111,711	171,486	152,311	179,363	139,775	211,060	143,874	200,725	168,395	135,346
Alaska Total	94,867	229,404	172,657	188,525	132,897	192,928	174,823	206,472	164,043	245,834	159,703	216,693	182,033	145,524
Old Crow Porcupine R.	5,000	11,000	6,000	3,000	3,459	3,100	6,230	3,500	700	4,024	3,302	5,471	6,085	4,014
Canada Total^d	6,210	13,000	13,000	6,829	3,459	3,100	6,230	5,519	3,072	3,889	3,302	5,471	6,085	4,014
Total	101,077	242,404	185,657	195,354	136,356	196,028	181,053	211,991	167,115	249,723	163,005	222,164	188,118	149,538

^a Catches reported in numbers of fish.^b Includes catches by Fairbanks subsistence and personal use permit holders that fished in Yukon River near the Haul Road bridge crossing.^c Alutna combined with Allakaket.^d Combined Indian Food Fish, Domestic and sport fish catch data by village obtained from annual management reports.^e Personal use catches included.^f Nenana includes Healy area subsistence catches.

Appendix D.3. Yukon River coho salmon subsistence catches in numbers of fish by village, 1979-1991. *

Village	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Mouth to Anuk River													
Sheldon Pt.	495	389	215	1,770	170	245	49	237	308	169	487	78	35
Alakanuk	798	521	508	1,313	438	776	894	1,518	1,116	634	334	156	391
Emmonak	1,368	789	1,295	4,795	1,290	3,659	1,552	732	3,497	1,578	1,259	1,283	801
Kotlik	525	109	1,751	3,314	1,692	1,415	751	238	1,475	2,008	2,997	1,784	581
Personal Use										0	67	8	
Subtotal	3,184	1,808	3,769	11,192	3,590	6,095	3,246	2,725	6,396	4,389	5,144	3,309	1,808
Anuk River to Owl Slough													
Mt. Village	117	1,739	1,055	3,025	2,500	982	1,527	828	2,481	1,314	2,385	1,754	868
Pitkas Pt. - St. Marys	448	1,014	1,183	2,783	1,529	2,024	1,113	4,832	1,740	3,147	971	515	1,817
Pilot Station	347	1,510	431	2,644	638	1,114	710	1,514	300	876	379	1,968	553
Marshall	220	538	1,067	1,777	1,405	2,948	1,484	1,966	2,373	1,767	1,304	2,107	259
Subtotal	1,132	4,801	3,738	10,229	6,072	7,068	4,834	9,140	6,894	7,104	5,039	6,344	3,297
Owl Slough to Bonasila R.													
Russian Mission	12	26	434	156	540	740	276	679	423	604	20	688	396
Holy Cross	0	65	56	518	377	0	100	102	259	935	517	338	944
Subtotal	12	91	490	675	917	740	376	781	682	1,539	537	1,026	1,340
Lower Yukon Total	4,328	6,700	7,995	22,066	10,579	13,901	8,456	12,646	13,972	13,032	10,720	10,679	6,445
Bonasila R. to Illinois Cr.													
Anvik	33	625	385	58	250	40	272	296	405	97	40	236	347
Grayling	13	510	172	1,014	1,275	97	0	860	599	692	969	10	1,363
Kaitag	42	1,758	102	62	0	0	0	229	0	0	792	501	1,280
Nulato	2	271	140	76	0	0	510	69	85	234	276	845	75
Koyukuk	48	710	142	187	40	200	120	154	894	10	110	162	307
Galena	0	945	333	347	759	452	1,072	465	1,349	1,029	415	572	422
Ruby - Kokrines	59	1,376	746	867	1,122	1,631	1,719	339	0	2,169	1,069	974	410
Subtotal	197	6,195	2,020	2,611	3,448	2,420	3,693	2,412	3,332	4,231	3,671	3,300	4,184
Illinois Cr. to U.S. Can. Border													
Tanana	412	318	1,373	3,260	2,312	16,898	7,384	4,691	6,680	16,922	5,518	8,560	4,448
Rampart	0	15	169	0	47	120	513	110	81	842	87	591	58
Fbks. Sub/Pers	39	36	6	20	78	254	13	709	64	0	88	41	20
Stevens Village	0	161	95	23	0	145	182	67	0	604	206	479	0
Beaver	0	5	0	0	0	0	1	124	0	164	774	172	1
Ft. Yukon	30	0	70	125	11	33	3	118	41	370	406	727	380
Circle	0	0	0	0	0	0	0	37	0	41	1	221	5
Eagle	114	6	0	0	0	17	2	6	0	11	0	3	0
Subtotals	595	561	1,713	3,428	2,448	17,467	8,098	5,862	6,866	18,954	7,082	10,814	4,912

-Continued-

Appendix D.3. (p. 2 of 2).

Village	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Shageluk													
Innoko River Subtotal	62	0	20	-	-	-	-	173	72	128	0	0	0
Koyukuk River													
Huslia	0	633	148	17	475	12	0	31	124	201	150	235	150
Hughes	0	645	42	0	0	400	138	0	0	104	91	43	9
Allakaket ^a	0	261	31	324	25	35	118	15	23	178	118	36	108
Subtotal	0	1,539	219	341	500	447	256	46	147	483	359	314	267
Tanana River													
Minto - Manley	1,419	1,634	3,990	2,337	1,350	2,366	3,070	1,596	2,138	4,832	6,489	11,244	6,887
Nenana ^f	2,215	2,662	3,356	3,078	4,352	10,270	7,614	10,090	19,592	25,369	7,593	9,825	10,171
Fairbanks ^b	978	667	1,915	2,003	1,230	2,149	1,077	1,635	2,485	1,308	5,568	1,288	4,503
Subtotal	4,612	5,163	9,261	7,418	6,932	14,785	11,781	13,321	24,195	31,509	19,650	22,357	21,561
Chandalar R. Subtotal	-	0	0	0	0	0	256	8	19	801	28	352	19
Upper Yukon Total	5,466	13,458	13,233	13,798	13,326	35,118	23,808	21,822	34,631	56,106	30,790	37,137	30,943
Alaska Total	9,794	20,158	21,228	35,894	23,905	49,020	32,264	34,468	48,603	69,138	41,510	47,816	37,388
Old Crow Porcupine R.	0	1,500	500	-	0	0	250	300	-	-	-	-	0
Canada Total ^d	0	1,500	500	0	0	0	250	300	0	0	0	0	0
Total	9,794	21,658	21,728	35,894	23,905	49,020	32,514	34,768	48,603	69,138	41,510	47,816	37,388

^a Catches reported in numbers of fish.

^b Includes catches by Fairbanks subsistence and personal use permit holders that fished in Yukon River near the Haul Road bridge crossing.

^c Alatna combined with Allakaket.

^d Combined Indian Food Fish, Domestic and sport fish catch data by village obtained from annual management reports.

^e Personal use catches included.

^f Nenana includes Healy area subsistence catches.

Appendix D.4. Subsistence and personal use salmon catches taken under authority of a permit, Tanana River drainage, 1973-1991. a

Lower Tanana River (Subdistrict 6-A) Subsistence Salmon Fishery b						
Year	No. of Permits Issued	No. Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1989 c	28	d	311	1,968	20,299	5,732
1990	42	26	1,507	2,556	31,941	9,584
1991	45	31	420	1,716	17,472	8,486

Lower Tanana River (Subdistrict 6-A) Personal Use Salmon Fishery b						
Year	No. of Permits Issued	No. Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1989 c	2	2	56	224	0	0
1990	1	0	0	0	0	0
1991	0	0	0	0	0	0

Lower Tanana River (Subdistrict 6-B) Subsistence Salmon Fishery						
Year	No. of Permits Issued	No. Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1989 c	61	d	404	248	16,628	8,028
1990	70	38	1,402	2,279	19,644	11,051
1991	87	51	1,796	2,373	21,629	11,971

Lower Tanana River (Subdistrict 6-B) Personal Use Salmon Fishery						
Year	No. of Issued Permits	No. Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1989 c	-	-	-	-	-	-
1990	4	3	9	12	40	35
1991	0	0	0	0	0	0

-Continued-

Upper Tanana River (Upstream of Wood River) Subsistence Salmon Fishery					
Year	No. of Permits Issued	No. Reporting Catches	Chinook	Summer Chum	Fall Chum and coho
1973	22	4	26	771	886
1974	70	e	38	1,373	1,580
1975	36	e	32	751	864
1976	110	e	31	1,314	1,512
1977	89	33	81	118	607
1978	160	126	126	2,729	1,188
1979	246	199	264	2,384	4,459
1980	315	254	282	3,729	4,059
1981	346	228	440	3,239	5,770
1982	330	209	451	2,708	4,521
1983	259	147	475	2,276	3,830
1984	308	212	321	3,177	5,134
1985	291	155	326	2,646	3,937
1986	323	211	637	4,031	4,437
1987 f	289	183	531	2,739	5,781
1988	0	0	0	0	0
1989	2	2	56	224	0
1990 g	20	6	16	73	347
1991	157	104	299	980	2,471

Upper Tanana River (Upstream of Wood River) Personal Use Salmon Fishery					
Year	No. of Permits Issued	No. Reporting Catches	Chinook	Summer Chum	Fall Chum and coho
1988	210	114	557	1,715	3,538
1989	177	125	439	1,096	2,767
1990 g	152	102	466	966	2,609

Upper Tanana River (Big Delta area) Subsistence and Personal Use Chum Salmon Carcass Fishery					
Year	No. of Permits Issued	No. Reporting Catches		Fall Chum Carcasses	
1973	16	8		1,561	
1974	21	e		1,974	
1975	26	e		2,573	
1976	36	e		3,441	
1977	46	29		5,816	
1978	70	43		2,517	
1979	32	25		4,582	
1980	57	36		4,915	
1981	43	27		5,030	
1982	37	13		1,690	
1983	45	29		5,357	
1984	31	14		2,353	
1985	30	14		2,111	
1986	27	19		2,276	
1987 h	20	11		1,651	
1988 h	22	19		2,150	
1989 h	12	12		1,785	
1990 h	7	3		750	
1991	8	3		741	

- a Salmon catches expanded for permits not returned (1974-1990). Beginning in 1991, reported harvest from returned permits only.
- b Includes Kantishna River catches.
- c Permit requirement went into effect in 1988; however, very few permits were issued in 1988, and not all fishermen had permits in 1989.
- d Some fishermen reporting catches did not have permits.
- e Information not available.
- f Personal use fishery established only for fall chum salmon in 1987.
- g Some fishermen had both personal use and subsistence permits due to changes in the subsistence law. No personal use permits have been issued since 1990.
- h Personal use permits 1987-1990, all other years subsistence permits.

Appendix D.5. Subsistence and personal use salmon catches taken under authority of a permit in District 5, Upper Yukon Area, 1974–1991. a

Upper Yukon River (Hess Creek to Dall River) Subsistence Salmon Fishery						
Year	No. of Permits Issued	No. Reporting Catches b	Chinook	Chum	Coho	
1974	29	c	591	1,857	1,271	
1975	19	c	727	778	70	
1976	28	18	531	974	—	
1977	38	c	467	2,567	—	
1978	57	c	1,333	9,735	—	
1979	55	41	2,194	12,374	—	
1980	70	67	1,350	6,488	36	
1981	57	24	1,095	12,034	—	
1982	64	44	1,935	11,328	20	
1983	68	46	2,672	15,059	—	
1984	67	54	4,676	27,869	399	
1985	55	42	2,618	21,832	33	
1986	76	58	3,827	18,690	759	
1987 d	58	47	3,492	29,734	64	
1988	c	c	c	c	c	
1989	26	20	1,483	2,731	309	
1990 e	26	16	2,114	4,786	473	
1991	52	34	2,529	5,248	20	

Upper Yukon River (Hess Creek to Dall River) Personal Use Salmon Fishery						
Year	No. of Permits Issued	No. Reporting Catches	Chinook	Chum	Coho	
1988	58	39	2,044	3,980	0	
1989	45	32	2,011	3,845	88	
1990 e	38	25	1,659	4,736	18	

Upper Yukon R. (22 Mi Slough to U.S./Canada border) subsistence salmon fishery						
Year	No. of Permits Issued	No. Reporting Catches b	Chinook	Chum	Coho	
1979	75	60	4,063	30,475	114	
1980	48	39	3,649	18,477	6	
1981	71	51	4,510	38,333	—	
1982	60	61	3,833	15,432	—	
1983	53	52	2,831	23,708	—	
1984	58	54	2,543	21,675	17	
1985	59	36	2,419	19,059	2	
1986	40	52	4,148	20,701	43	
1987	53	60	3,634	29,864	0	
1988	50	33	2,333	16,073	11	
1989	59	56	1,180	7,490	1	
1990 f	85	63	4,210	17,965	224	
1991	70	48	3,219	15,556	5	

a Salmon catches expanded for permits not returned (1974–1990). Beginning in 1991, reported harvest from returned permits only.

b Some fishermen reporting catches did not have permits.

c Information not available.

d Personal use fishery established only for fall chum salmon in 1987.

e Some fishermen may have had Personal use catches due to changes in the subsistence law.

No personal use permits have been issued since 1990.

f Includes personal use catches of 240 chinook, 13 fall chum and 5 coho salmon taken by 4 permittees.

APPENDIX E

YUKON RIVER SALMON ESCAPEMENT

Appendix E.1. Yukon River salmon interim spawning escapement objectives for selected species and streams, 1991. a

Stream	Interim Escapement Objectives a		
	Chinook	Summer Chum	Fall Chum b
Andreafsky River			
East Fork	1,600 c	109,000 c	
West Fork	1,000 c	116,000 c	
Anvik River			
Mainstem			
Yellow River to McDonald Cr	500 c		
Goblet Cr to McDonald Cr		356,000 c	
Sonar b		487,000 b,d	
Nulato River			
North Fork	500 c	53,000 c	
South Fork	500 c		
Hogatza River			
Clear Creek		8,000 c	
Caribou Creek		9,000 c	
Gisasa River	650 c		
Chena River			
Mainstem from Flood Control Dam to Middle Fork	1,700 c		
Saicha River	2,500 c,h	3,500 c	
Sheenjok River			> 64,000 e
Fishing Branch River (YT)			50,000–120,000 f
Toklat River			> 33,000 e
Delta River			> 11,000 e
Mainstem Yukon River (Canadian Border)	33,000–43,000 b,g		> 80,000 i

a Interim escapement objectives represent the minimum number of desired spawners and are based upon historical performances. Interim objectives are preliminary and are subject to change as additional data becomes available. Unless otherwise indicated, escapement objectives are based on aerial survey index estimates which do not represent total escapement, but do reflect annual spawner abundance trends when using standard survey methods under acceptable survey conditions.

b Interim escapement of total spawning abundance based upon sonar, weir, and mark and recapture, or expansions from inseason point estimates.

c Interim escapement objectives developed by ADF&G in 1983 as a range and were established as a single objective using the upper end of the range in 1987 and 1988.

d Optimum number calculated from escapement–return relationships.

e Interim escapement objectives developed by ADF&G in November 1990.

f Interim escapement objective developed by US/Canada JTC in October 1987.

g Interim escapement objective developed by US/Canada JTC in March 1987.

h Interim escapement objective established by ADF&G in March 1990; original objective was developed in 1983 in the form of a range (1,500–3,500).

i Interim escapement objective developed by JTC in November 1990.

Appendix E.2. Salmon spawning escapement estimates for the Yukon River drainage, 1991. a

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chums	Fall Chums	Coho
Andreafsky River						
East Fork	7/22	Fair	1,938	31,888	--	--
West Fork	7/22	Fair	2,544	46,657	--	--
	Subtotal		4,482	78,543	--	--
Yukon River (Pilot Station)						
Main River Sonar b,c	6/6-9/1		(75,681)	(1,232,874)	(596,922)	(70,725)
Arvik River						
Aerial Counts						
Mainstem River	7/23	Poor	808	--	--	--
Yellow RI--McDonald Cr	7/23	Poor	(626)	--	--	--
Beaver Creek	7/23	Poor	38	--	--	--
Otter Creek	7/23	Poor	22	--	--	--
Swift River	7/23	Poor	1	--	--	--
McDonald Creek	7/23	Poor	6	--	--	--
Sonar Count c,d	6/19-7/26		--	847,772	--	--
	Subtotal		875	847,772	--	--
Grayling Creek f	7/17	Poor	0	1,037	--	--
Blackburn Creek f	7/18	Good	0	2,165	--	--
Podo River	7/19	Poor	179	3,977	--	--
Kaltag River	7/19	Incomplete	(14)	(1,232)	--	--
Weir (4-H & Youth Development)	7/11-8/6	Partial Cts	21 c	5,130 c	--	--
	Subtotal		21	5,130	--	--
Nulato River						
South Fork	7/22	Good	1,253	13,150	--	--
North Fork (from conflu w/ Yukon)	7/22,23	Good	767	12,491	--	--
	Subtotal		2,020	25,641	--	--
Koyukuk River Drainage						
Gisasa River	7/23	Good	1,690	7,003	--	--
Kateel River	7/23	Incomplete	65	800	--	--
Dakli River	7/24	Good	0	6,802	--	--
Wheeler Creek	7/24	Good	0	7,801	--	--
	Subtotal		0	14,403	--	--
Hogatza River						
Clear Creek	7/24	Fair	--	4,293	--	--
Caribou Creek (aerial)	7/24	Fair	--	5,654	--	--
Ground Survey upper portion	7/23	Good	--	(796)	--	--
	Subtotal		--	9,947	--	--
Alatna River	10/20	Recon Survey	--	--	0	0
Henshaw Creek	7/24	Good	455	2,148	--	--
South Fork Koyukuk River	7/25	Good	486	121	--	--
Jim River	7/25	Poor	164	187	--	--
	Subtotal		630	308	--	--
John River	10/20	Recon Survey	--	--	0	0
Middle Fork Koyukuk River	7/25	Good	60	0	--	--
Total Koyukuk River			2,900	34,609	0	0

(continued)

Melozl Hot Springs Creek	7/26,10/20	Fair, Recon	9	1,720	0	0
Illinois Creek	10/20	Recon Survey	--	--	0	0
Grant Creek	10/20	Recon Survey	--	--	0	0
Tozitna River	7/18	Fair	119	93	--	--
Total Lower Yukon River			10,605	1,000,687	0	0

Lower Tanana River Drainage

Kantishna River Drainage

Toldat River						
Barton Creek	10/21	Incomplete	--	--	0	467
Floodplain vic Roches	10/17-20	Fair-Good	--	--	8,863	78
Geiger Creek	10/18	Fair-Good	--	--	2,165	427
Sushana River	10/19,21	Fair	--	--	1,228	30
Population Estimate			--	--	(13,197)	--
Subtotal			--	--	10,254	1,002

Clear Creek	7/26	Incomplete	75	--	--	--
Bearpaw River	7/26,10/15	Fair,Fair	130	--	0	0
Moose Creek	7/26,10/15	Incomp,Fair	9	--	0	33
Subtotal			139	--	0	33

Birch Creek	10/15	Fair	--	--	0	0
Hult Creek	10/15	Poor	--	--	2	7
Subtotal			--	--	2	7

Foraker River						
White Creek	10/15	Poor	--	--	0	4

Nenana River Drainage

Mainstem Nenana (upstr Teklanika)	10/15	Fair	--	--	0	447
Teklanika River eastern spring adjacent to Comma Lake	10/15	Fair	--	--	--	108
Seventeen Mile Slough	7/26,10/15	Fair,Fair	173	84	400	52
Lost Slough	10/15	Fair	--	--	0	584
Subtotal			173	84	400	1,189

Chatanika River	7/21,8/11	Poor,Fair	104	99	--	--
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Chena River						
Mainstem River (aerial)	7/22,8/3	Poor,Incomp	1,277	115	--	--
MCD to Middle Fk (index area) w	7/27	Poor	(1,277) w	--	--	--
Population Estimate h,i			(3,025) c	--	--	--
Subtotal			1,277	115	--	--

Saicha River						
Mainstem River (aerial)	7/20-21,7/3	Poor,Incomp	2,212	154	--	--
TAPS to Caribou Cr (index area)	7/20	Poor	(1,925)	--	--	--
Population Estimate h,i			(5,608) c	--	--	--
Subtotal			2,212	154	--	--

Total Lower Tanana River			3,990	452	10,656	2,215
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Upper Tanana River Drainage

Open water area across Chisholm Lk	11/1	Poor	--	--	--	10
Open water vic of Little Delta R rno	11/1	Fair	--	--	21	--
Mainstem Tanana sloughs between Shaw Creek and Timber Slough at Whitestone (below Delta R)	11/1	Fair	--	--	5,333	--
Delta River	11/1	Fair	--	--	280	--
Foot Survey (peak count)	10/30,11/7	Good	--	--	26,559	38
Whitestone Cr	11/7	Good	--	--	--	0
Population Estimate g			--	--	(32,905)	--

(continued)

Appendix E.2. (p 3 of 3)

Goodpastor River	7/21	Poor	868	---	---	---
Bluff Cabin Slough f	10/22	Good	---	---	7,198	---
Clearwater Lake Outlet Slough f	10/29	Good	---	---	4,291	29
Clearwater Lake and Outlet i,j	10/23	Good	---	---	300	3,150
Delta Clearwater River i,j	10/23	Good	---	---	800	23,900
Pearse Slough	11/1	Fair	---	---	378	---
Total Upper Tanana River			868	---	45,160	27,127
Total Tanana River			4,848	452	55,816	29,342
Mirnock Creek	7/18	Good	0	18	---	---
Beaver Creek (boat) x	7/18-28		80	---	---	---
Beaver Creek (boat) x	7/22-31		(47)	---	---	---
Porcupine River Drainage						
Sheenjek Rlver (Aerial)	8/4	Good (early)	---	---	(13,151)	---
Sonar Estimate d	8/9-9/24		---	---	90,000 c	---
Fishing Branch River (Aerial) k	10/8	Good	---	---	(10,284) k	---
Weir Passage k	9/1-10/15		---	---	37,733 k	---
Total Porcupine River			---	---	127,733	---
Total Alaskan Portion of Drainage			15,533	1,001,157	145,816 m	29,342
Yukon Territory Streams						
White River						
Dorjek River						
Kuane River k	10/15	Good	---	---	11,875	---
Koidern River k	10/15	Fair	---	---	53	---
Subtotal			---	---	11,728	---
Pelly River Drainage						
Ross River k	8/21	Fair	250	---	---	---
Little Salmon River k	8/19	Fair	328	---	---	---
Big Salmon River k						
Big Salmon Lake to Souch Cr	8/19	Good	1,040	---	---	---
Teslin River Drainage						
Mainstem Teslin River, k	10/28	Fair	---	---	468	---
Nisutlin River k	8/19	Aborted	---	---	---	---
Wolf River k	8/19	Fair	201	---	---	---
Subtotal			201	---	468	---
Whitehorse Fishway Counts k	7/25-8/????		1,286 n	---	---	---
Mainstem Yukon River						
Tatchun Creek to Ft Salkirk k	10/17	Fair	---	---	2,426	---
Border Passage Estimate h,x			(40,993) c,p	---	(112,850) c,p	---
Subtotal			---	---	2,426	---
Total Yukon Territory (observed)			3,083	---	52,355 m	---
Total Yukon Territory (estimated) q,C			(22,582) c,q	---	(76,447) q,C	---
Yukon River Drainage Totals			18,816	1,001,157	198,171	29,342

- a Estimates are from aerial surveys (peak count) unless otherwise indicated; carcass counts included. Data in parentheses not included in totals or subtotals.
- b Biosonics sonar estimate.
- c Preliminary.
- d Bendix side scan sonar estimate.
- e U.S. Fish and Wildlife Service estimate.
- f Foot survey.
- g Population estimate based upon replicate foot surveys and streamlife data.
- h Population estimate based upon mark and recapture study.
- i Sport Fish Division estimate.
- j Boat survey.
- k Canadian Department of Fisheries and Oceans (DFO) estimate.
- m Total for Alaskan portion of drainage does not include Fishing Branch River. Total for Yukon Territory includes Fishing Branch River.
- n Only 1,071 of the chinook salmon which returned to the fishway were passed; 82 females (average fecundity 5,240) and 86 males were taken for hatchery brood stock; an additional 27 chinook salmon died at the fishway. The number of clipped chinook salmon which returned to the fishway totaled 606.
- p Canadian estimates for Yukon Territory streams excluding the Fishing Branch River. Commercial and subsistence catches have not been removed from these estimates. These are "border" escapement estimates.
- q Estimated spawning escapement from DFO tagging study (border passage estimate minus harvest).
- u Combination foot and aerial survey.
- w May include a few chinook in the Middle Fork River, downstream of Munson Creek.
- x U.S. Bureau of Land Management (BLM) estimates.

Appendix E.3. Sonar estimates of salmon passage on the mainstem Yukon River at Pilot Station, 1986–1991.

Year	Dates of Operation	Chinook	Summer Chum	Fall Chum	Coho	Pink
1986 ^{a,b}	6/09–9/12	169,068	1,932,868	583,439	210,066	1,082,000
1987 ^b	6/09–9/06	116,126	826,384	596,410	227,982	13,000
1988 ^b	6/02–9/14	120,652	1,772,839	424,356	263,053	612,000
1989 ^b	6/04–9/11	91,548	1,603,647	605,843	169,358	3,000
1990 ^c	6/05–9/04	156,028	931,498	249,577 ^d	77,316 ^d	206,000
1991 ^c	6/05–9/01	75,681	1,232,874	240,740	59,822	N/A

^a Passage estimates for all species in 1986 were expanded based on river bank profile and water depth. This expansion was not necessary for subsequent years.

^b Passage estimates for all species in 1986 through 1989 include only fish passage within the insonified zone.

^c Passage estimates for fall chum and coho salmon in 1990 and 1991 include an estimate of passage beyond the insonified zone. Passage estimates for other species in 1990 and 1991 include only fish passage within the insonified zone.

^d Does not include salmon which passed beyond the sonar range.

Appendix E.4. Chinook salmon escapement counts for selected Alaskan spawning stocks in the Yukon River drainage, 1961–1991^a

Year	Andreafsky River		Anvik River ^b		Nulato River	Gisasa River	Chena River			Saicha River		
	East Fork	West Fork	Aerial	Tower			Population	River	Index	Population	River	Index
1961	1,003	—	1,226	—	543 ^c	266 ^c	—	—	—	—	2,878	—
1962	675 ^c	762 ^c	—	—	—	—	—	61 ^{c,d}	—	—	937	—
1963	—	—	—	—	—	—	—	137 ^c	—	—	—	—
1964	867	705	—	—	—	—	—	—	—	—	450	—
1965	—	344 ^c	650 ^c	—	—	—	—	—	—	—	408	—
1966	361	303	638	—	—	—	—	—	—	—	800	—
1967	—	276 ^c	336 ^c	—	—	—	—	—	—	—	—	—
1968	380	383	310 ^c	—	—	—	—	—	—	—	739	—
1969	274 ^c	231 ^c	296 ^c	—	—	—	—	—	—	—	461 ^c	—
1970	665	574 ^c	368	—	—	—	—	6 ^c	—	—	1,882	—
1971	1,904	1,682	—	—	—	—	—	193 ^{c,d}	—	—	158 ^c	—
1972	798	582 ^c	—	1,198	—	—	—	138 ^{c,d}	—	—	1,193	1,034
1973	825	788	—	613	—	—	—	21 ^c	—	—	391	—
1974	—	285	—	471 ^c	78 ^c	161	—	1,016 ^d	959	—	1,857	1,620
1975	993	301	—	730	204	385	—	316 ^d	262	—	1,055	—
1976	818	643	—	1,153	648	332	—	531	496	—	1,641	1,473
1977	2,008	1,499	—	1,371	487 ^c	255	—	563	—	—	1,202	1,052
1978	2,487	1,062	—	1,324	920	45 ^c	—	1,726	—	—	3,499	3,258
1979	1,180	1,134	—	1,484	1,507	484	—	1,159 ^c	—	—	4,789	—
1980	958 ^c	1,500	1,192	—	1,323 ^c	951	—	2,541	—	—	6,757	6,126
1981	2,146 ^c	231 ^c	577 ^c	—	791 ^c	—	—	600 ^c	—	—	1,237 ^c	1,121 ^c
1982	1,274	851	—	—	—	421	—	2,073	—	—	2,534	2,346
1983	—	—	376 ^c	—	1,006	572	—	2,553	2,336	—	1,961	1,803
1984	1,573 ^c	1,993	574 ^c	—	—	—	—	501	494	—	1,031	906
1985	1,617	2,248	720	—	2,780	735	—	2,553	2,262	—	2,035	1,860
1986	1,954	3,158	918	—	2,974	1,346	9,065	2,031	1,935	—	3,368	—
1987	1,608	3,281	879	—	1,638	731	6,404	1,312	1,209	4,771	1,898	1,671
1988	1,020	1,448	1,449	—	1,775	797	3,346	1,966	1,760	4,562	2,761	2,553
1989	1,399	1,089	212 ^c	—	—	—	2,666	1,280	1,185	3,294	2,333	2,136
1990	2,503	1,545	1,595	—	998	884 ^c	5,603	1,436	1,402	10,728	3,744	3,429
1991	1,938	2,544	625	—	2,020	1,690	3,025	1,276 ^c	1,276 ^c	5,608	2,212 ^c	1,922 ^c
E.O. ^b	1,600	1,000	500 ^f	—	1,000	650	—	—	1,700 ^g	—	—	2,500 ^h

^a Data obtained by aerial survey unless otherwise noted. Only peak counts are listed.

^b From 1961–1970, aerial survey count data are from various segments of the mainstem Anvik River. From 1971–1979, mainstem aerial survey counts below the tower were added to tower counts. From 1980–present, aerial survey counts are from the mainstem Anvik River between the Yellow River and McDonald Creek.

^c Incomplete and/or poor survey conditions resulting in minimal or inaccurate counts.

^d Boat survey.

^e Interim escapement objective.

^f Interim escapement objective for the mainstem Anvik River between the Yellow River and McDonald Creek.

^g Interim escapement objective for the mainstem Chena River between Moose Creek Dam and the Middle Fork River.

^h Interim escapement objective for the mainstem Saicha River between TAPS and Caribou Creek.

Appendix E.5. Chinook salmon escapement counts for selected Canadian spawning stocks in the Yukon River drainage, 1961–1991.^a

Year	Tincup Creek	Tatchun River ^b	Little Salmon River	Big Salmon River ^d	Nisutlin River ^e	Wolf River ^f	Whitehorse Fishway ^g	Canada Mainstem Tagging Estimate ^h
1961	–	–	–	–	–	–	1,068	–
1962	–	–	–	–	–	–	1,500	–
1963	–	–	–	–	–	–	483	–
1964	–	–	–	–	–	–	595	–
1965	–	–	–	–	–	–	903	–
1966	–	7 ^c	–	–	–	–	563	–
1967	–	–	–	–	–	–	533	–
1968	–	–	173 ^c	857 ^c	407 ^c	–	414	–
1969	–	–	120	286	105	–	334	–
1970	–	100	–	670	615	71 ^c	625	–
1971	–	130	275	275	650	750	856	–
1972	–	80	126	415	237	13	391	–
1973	100	99	27 ^c	75 ^c	36 ^c	–	224	–
1974	–	192	–	70 ^c	48 ^c	–	273	–
1975	–	175	–	153 ^c	249	40 ^c	313	–
1976	–	52	–	86 ^c	102	–	121	–
1977	–	150	408	316 ^c	77	–	277	–
1978	–	200	330	524	375	–	725	–
1979	–	150	489 ^c	632	713	183 ^c	1,184	–
1980	–	222	286 ^c	1,436	975	377	1,383	–
1981	–	133	670	2,411	1,626	395	1,555	–
1982	–	73	403	758	578	104	473	19,790
1983	100	264	101 ^c	540	701	95	905	28,989
1984	150	161	434	1,044	832	124	1,042	27,616 ⁱ
1985	210	190	255	801	409	110	508	10,730
1986	228	155	54 ^c	745	459 ^c	109	557	16,415
1987	100	159	468	891	183	35	327	13,210
1988	204	130	368	765	267	66	405	23,118
1989	88	100	862	1,662	695	146	549	25,201
1990	83	643	665	1,806	652	188	1,407	37,699
1991	–	–	326	1,040	–	201	1,266	20,743
E.O. ^m								33,000–43,000

^a Data obtained by aerial survey unless otherwise noted. Only peak counts are listed.

^b All foot surveys except 1978 (boat survey) and 1986 (aerial survey).

^c Incomplete and/or poor survey conditions resulting in minimal or inaccurate counts.

^d For 1968, 1970, and 1971 counts are from mainstem Big Salmon River. For all other years counts are from the mainstem Big Salmon River between Big Salmon Lake and the vicinity of Souch Creek.

^e One Hundred Mile Creek to Sidney Creek.

^f Wolf Lake to Red River.

^g Includes 50, 90, 292, and 506 fin-clipped hatchery-origin salmon in 1988, 1989, 1990, and 1991 respectively.

^h Estimated total spawning escapement excluding Porcupine River (estimated border escapement minus the Canadian catch).

ⁱ Estimate derived by dividing the 1984 5-area (Whitehorse Fishway, Big Salmon, Nisutlin, Wolf, Tatchun) count by the average proportion of the 5-area index count to the estimated spawning escapements from the DFO tagging study for years 1982, 1983, and 1985–1990.

^m Interim escapement objective.

Appendix E.6. Summer chum salmon escapement counts for selected spawning areas in the Yukon River drainage, 1973–1991. ^a

Andreafsky River								
Year	East Fork			Anvik River		Nulato River	Hogatza River ^e	Salcha River
	Aerial	Sonar or Tower	West Fork	Tower & Aerial	Sonar			
1973	10,149 ^b	—	51,835	86,665 ^b	—	—	—	—
1974	3,215 ^b	—	33,578	201,277	—	51,160	—	3,510
1975	223,485	—	235,954	845,485	—	138,495	22,355	7,573
1976	105,347	—	118,420	406,166	—	48,920	20,744	6,474
1977	112,722	—	63,120	262,854	—	69,660	10,734	677 ^b
1978	127,050	—	57,321	251,339	—	54,480	5,102	5,405
1979	66,471	—	43,391	—	280,537	37,104	14,221	3,060
1980	36,823 ^b	—	114,759	—	492,676	14,946 ^b	19,786	4,140
1981	81,555	147,312 ^c	—	—	1,486,182	14,348 ^b	—	8,500
1982	7,501 ^b	181,352 ^c	7,267 ^b	—	444,581	—	4,984 ^b	3,756
1983	—	110,608 ^c	—	—	362,912	20,830	28,141	716 ^b
1984	95,200 ^b	70,125 ^c	238,565	—	891,028	—	—	9,810
1985	66,146	—	52,750	—	1,080,243	29,838	22,566	3,178
1986	83,931	167,614 ^d	99,373	—	1,189,602	64,265	—	8,028
1987	6,687 ^b	45,221 ^d	35,535	—	455,876	11,257	5,669 ^b	3,657
1988	43,056	68,937 ^d	45,432	—	1,125,449	42,083	6,890	2,889 ^b
1989	21,460 ^b	—	—	—	636,906	—	—	1,574 ^b
1990	11,519 ^b	—	20,426 ^b	—	403,627	4,615 ^b	2,177 ^b	450 ^b
1991 [§]	31,886 ^b	—	46,657 ^b	—	847,772	25,641	9,947	154 ^b
E.O. ^f	>109,000		>116,000		>487,000	>53,000 ^h	>17,000	>3,500

^a Data obtained by aerial survey unless otherwise noted. Only peak counts are listed.

^b Incomplete survey and/or poor survey timing or conditions resulted in minimal or inaccurate count.

^c Sonar count.

^d Tower count.

^e Includes Caribou and Clear Creeks with escapement objectives of 8,000 and 9,000, respectively.

^f Interim escapement objective.

[§] Preliminary.

^h Interim escapement objective for North Fork Nulato River only.

Appendix E.7. Fall chum salmon escapement counts for selected spawning areas in the Yukon River drainage, 1974–1991.

Year	Upper Toklat River ^a	Delta River ^b	Chandalar River ^c	Sheenjek River ^c	Fishing Branch River ^e	Canada Mainstem Tagging Estimate ^f
1974	43,484	5,915	—	89,966 ^d	32,525 ^g	—
1975	90,984	3,734 ^h	—	173,371 ^d	353,282 ^g	—
1976	53,882	6,312 ^h	—	26,354 ^d	36,584	—
1977	36,462	16,876 ^h	—	45,544 ^d	88,400	—
1978	37,057	11,136	—	32,449 ^d	40,800	—
1979	179,627	8,355	—	91,372 ^d	119,898	—
1980	26,373	5,137	—	28,933 ^d	55,268	—
1981	15,775	23,508	—	74,560 ^d	57,386 ⁱ	—
1982	3,601	4,235	—	31,421	15,901	31,958
1983	20,807	7,705	—	49,392	27,200	90,875
1984	16,511	12,411	—	27,130	15,150	56,633 ⁱ
1985	22,805	17,276 ^h	—	152,768	56,100 ^g	62,010
1986	18,903	6,703 ^h	59,313	83,197	31,173 ^g	87,990
1987	22,141	21,180	52,416	140,086	48,956 ^g	80,776
1988	13,324	18,024	33,619	41,073	23,597 ^g	36,786
1989	30,447	21,342 ^h	69,161	101,748 ^m	43,834 ^g	35,750
1990	33,672	8,992 ^h	78,631	65,721	27,000 ⁿ	51,735
1991 ^k	13,197	32,905 ^h	—	90,000 ^k	37,733 ^g	76,447
E.O. ^p	> 33,000	> 11,000	—	> 64,000	50,000 – 120,000	> 80,000

^a Total escapement estimates using Delta River migratory time density curve and percentage of live salmon present by survey date in upper Toklat River area.

^b Total escapement estimates made from migratory time density curve (see Barton 1986), unless otherwise indicated.

^c Sonar estimate.

^d Total escapement estimates using sonar to aerial survey expansion factor of 2.221, unless otherwise indicated.

^e Total escapement estimates using weir to aerial survey expansion factor of 2.72, unless otherwise indicated.

^f Excludes Fishing Branch River escapement (estimated border passage minus Canadian removal).

^g Weir estimate.

^h Population estimate from replicate foot surveys and stream life data.

ⁱ Initial aerial survey count was doubled before applying the weir/aerial expansion factor of 2.72 since only half of the spawning area was surveyed.

^j Escapement estimate based on mark–recapture program unavailable. Estimate based on assumed average exploitation rate.

^k Preliminary.

^m Includes a passage estimate of 20,000 salmon prior to initiation of sonar monitoring operations.

ⁿ Weir was not operated. Total escapement estimate using weir to aerial survey expansion factor of 3.57. Survey was conducted approximately 2 weeks late. Therefore, a more reasonable escapement would be between 30,000 and 40,000 salmon

^p Interim escapement objective.

Appendix E.8. Coho salmon escapement counts for selected spawning areas in the Yukon River drainage, 1972–1991.^a

Year	Andreafsky River			Kantishna River		Nenana River Drainage				Delta Clearwater River ^{d,f}	Clearwater Lake and Outlet	Richardson Clearwater River
	East Fork	West Fork	Anvik River	Geiger Creek	Barton Creek	Lost Slough	Nenana Mainstem ^b	Wood Creek ^c	17–Mile Slough			
1972	–	–	–	–	–	–	–	–	–	630	417	454 ^g
1973	–	–	–	–	–	–	–	–	–	3,322	551 ^d	375 ^d
1974	–	–	–	–	–	1,388	–	–	27	3,954	560	652 ^d
1975	–	–	–	–	–	943	–	–	956	5,100	1,575 ^{d,f}	4 ^g
1976	–	–	467 ^g	25 ^h	–	118	–	–	281	1,920	1,500 ^{d,f}	80 ^g
1977	–	–	81 ^g	60	–	524	–	310 ^h	1,167	4,793	730 ^{d,f}	327
1978	–	–	–	–	–	350	–	300 ^h	466	4,798	570 ^{d,f}	–
1979	–	–	–	–	–	227	–	–	1,987	8,970	1,015 ^{d,f}	372
1980	–	–	–	3 ^h	–	499	–	1,603 ^h	592	3,946	1,545 ^{d,f}	611
1981	1,657 ^g	–	–	–	–	274	–	849 ^j	1,005	8,563 ^k	459 ^g	550
1982	–	–	–	81 ^h	–	–	–	1,436 ^j	–	8,365 ^k	–	–
1983	–	–	–	42 ^h	–	766	–	1,044 ^j	103	8,019 ^k	253	88
1984	–	–	–	20	–	2,677	–	8,805 ^j	–	11,061	1,368	428
1985	–	–	–	42	–	1,584	–	3,775 ^j	2,081	5,358	750	–
1986	–	–	–	5 ^h	496	794	–	1,664 ^j	218 ^{c,f}	10,857	3,577	146 ^g
1987	–	–	–	1,175 ^h	–	2,511	–	2,450 ^j	3,802	22,300	4,225 ^{d,f}	–
1988	1,913	830	830	159 ^h	437	348	–	2,046 ^j	–	21,600	825 ^{d,f}	–
1989	–	–	–	155 ^h	12 ^g	–	–	412 ^j	824 ^g	11,000	1,600 ^{d,f}	483
1990	–	–	–	211 ^h	–	688	1,308	–	15 ^g	8,325	2,375 ^{d,f}	–
1991 ^m	–	–	–	427 ^h	467 ^g	564	447	–	52	23,900	3,150 ^{d,f}	–

^a Only peak counts presented. Survey rating is fair to good, unless otherwise noted.

^b Mainstem Nenana River between confluences of Lost Slough and Teklanika River.

^c Surveyed by F.R.E.D.

^d Surveyed by Sport Fish Division.

^f Boat survey.

^g Poor survey.

^h Foot survey.

^j Weir count.

^k Population estimate.

^m Preliminary

Appendix E.9. Summary of selected escapement projects conducted in the Yukon Area, 1991.

1. ANVIK RIVER SALMON ESCAPEMENT STUDY

- a. Location: River mile 48 of the Anvik River.
- b. Objectives: Enumerate summer chum salmon escapement to the Anvik River on a daily basis using side-scanning sonar. Collect chum and chinook salmon samples by beach seine for age, sex, and size composition estimates. Additionally, chinook salmon carcasses were sampled for stock biology studies, and chinook and chum salmon tissues were collected for genetic stock identification (GSI) studies.
- c. Results: Salmon escapement counting was conducted from June 21 through July 26. The season total escapement estimate was 847,772 summer chum salmon (74% above the escapement objective of 487,000 fish). Additionally, the estimate was 86% above the parent year escapement in 1987 of 455,876 and 15% above the long-term (1979-1990) average of 737,468 fish. The 1991 commercial harvest of 322,220 summer chum salmon in the Lower Yukon Area was 20% below the 1987 harvest of 401,275 fish. The decreased harvest in 1991 was the major cause of the increase in escapement of summer chum salmon in the Anvik River over the parent year escapement.

Chum salmon age composition for 552 samples was 55.6% age 5, 44.2% age 4, 0.0% age 3, and 0.2% age 6. Females accounted for 57.9% of the sample. As initiated in 1990, sample percentages for summer chum salmon were weighted by time period and escapement counts. Chinook salmon age composition for 378 samples was 52.9% age 5, 31.7% age 6, 9.8% age 4, and 2.9% age 7. Females accounted for 41% of the total sample.

2. SHEENJEK RIVER ESCAPEMENT STUDY

- a. Location: Rivermile 6 of the Sheenjek River (Porcupine River drainage).
- b. Objectives: Determine timing and magnitude of salmon escapement to the Sheenjek River and collect salmon age, sex, and size information from a sampled portion of the run.
- c. Results: The preliminary sonar-estimated escapement to the Sheenjek River in 1991 was 90,000 fall chum salmon for the period August 9 to September 24. Overall age composition of the escapement based upon ageing vertebrae was estimated to be 0% age 3 fish, 59% age 4 fish, 40% age 5 fish, and 1% age 6 fish.

3. DELTA RIVER ESCAPEMENT STUDY

- a. Location: Lower one mile of Delta River floodplain (Tanana River drainage).
- b. Objectives: Estimate total fall chum salmon spawning abundance to the Delta River using replicate ground surveys and stream life data and collect salmon age, sex, and size information from a sampled portion of the run.
- c. Results: A population estimate of 32,905 fall chum salmon spawners was generated for the Delta River in 1991 based upon 8 ground surveys conducted between October 4 and December 3. The "area under the curve" method and a stream life of 18.2 days was used to generate this estimate. This was the highest estimated escapement on record for the Delta River.

Preliminary results from aging vertebrae reveal overall age composition of the 1991 Delta River fall chum salmon run to be approximately 3% age 3 fish, 85% age 4 fish, 12% age 5 fish, and <1% age 6 fish.

4. CHENA RIVER ESCAPEMENT STUDY
(Conducted by the Sport Fish Division)

- d. Location: Chena River (Tanana River drainage).
- e. Objectives: Determine magnitude of chinook salmon escapement to this river and estimate the proportion of the spawning population observed by a peak aerial census. Estimate the age, sex, and size composition of the chinook salmon escapement as well as potential egg deposition.
- f. Results: An electrofishing boat was used to mark 612 chinook salmon in late July. A total of 389 chinook salmon carcasses were examined in early August, of which 78 were marked. The estimated spawning population was 3,025 fish; 954 females and 2,071 males. The dominant age classes were 1.4 for females (20%) and 1.3 for males (33%). The peak aerial count of chinook salmon was 1,277, representing 42% of the mark-and-recovery point estimate. Potential egg deposition for the 1991 escapement was estimated at 8.5 million eggs (standard error = 0.6 million).

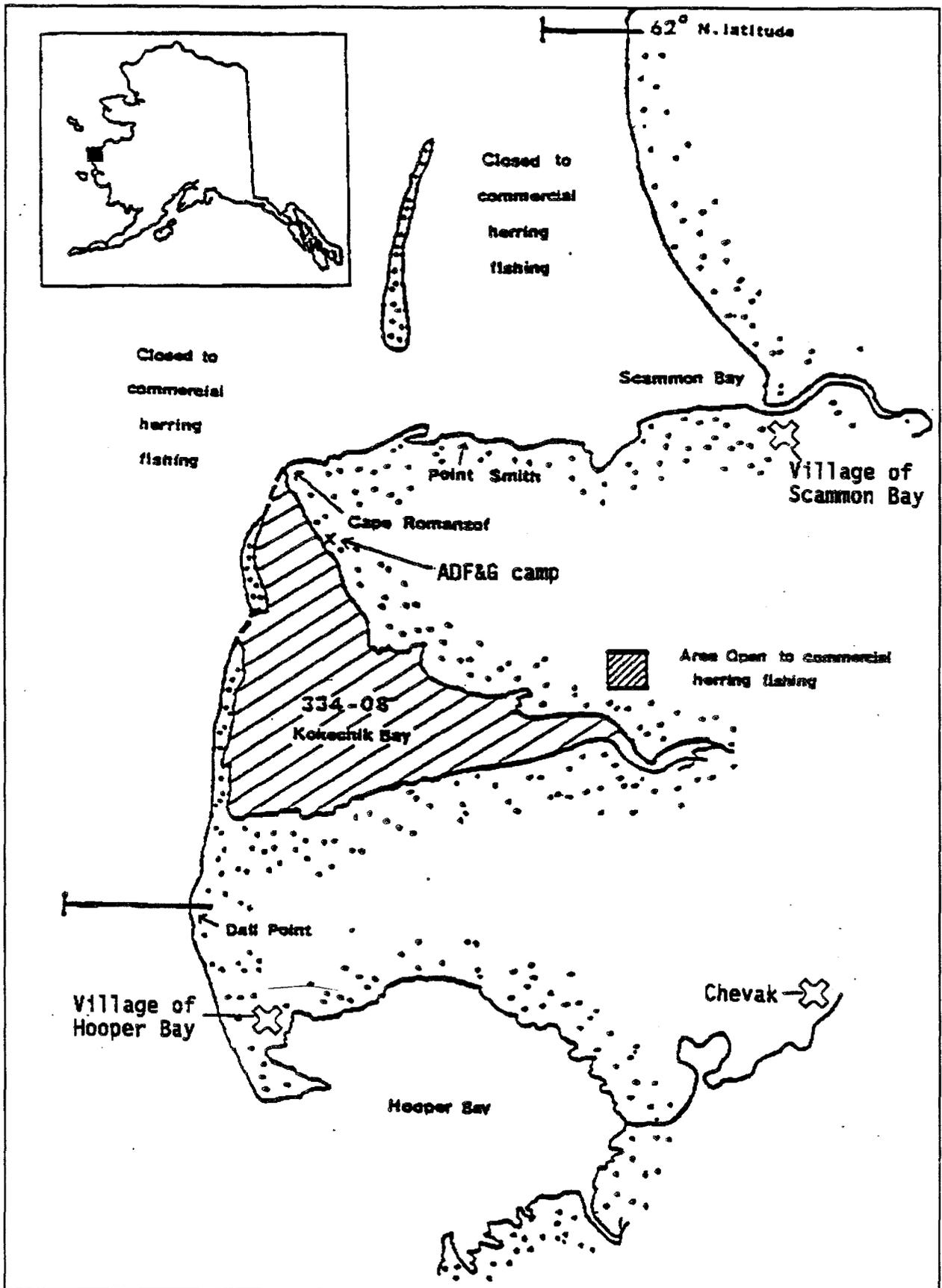
5. SALCHA RIVER ESCAPEMENT STUDY

(Conducted by the Sport Fish Division)

- a. Location: Salcha River (Tanana River drainage).
- b. Objectives: Determine magnitude of chinook salmon escapement to this river and estimate the proportion of the spawning population observed by a peak aerial census. Estimate the age, sex, and size composition of the chinook salmon escapement as well as potential egg deposition.
- c. Results: An electrofishing boat was used to mark 475 chinook salmon in late July. A total of 706 chinook salmon carcasses were examined in early August of which 59 were marked. The estimated spawning population was 5,608 fish (standard error = 664) with a male to female ratio of approximately 1 to 0.82. The dominant age classes were 1.4 for females (32%) and 1.3 for males (26%). The peak aerial count of chinook salmon was 2,212, representing 39% of the mark-and-recovery point estimate. Potential egg deposition for the 1991 escapement was estimated at 23 million eggs (standard error = 1.7 million).

APPENDIX F

CAPE ROMANZOF HERRING DISTRICT FISHERY



Appendix F.1. Map of Cape Romanzof Herring District.

Appendix F.2. Commercial herring catch and effort data by fishing period, Cape Romanzof District, 1991.

Date	Time of Fishery	Hours Fished	Number			Period Catch (st)			Roe %
			Fishermen	Vessels	Landings	Bait	Sac Roe	Total	
May 21	2100–2230	1.5	77	77	89	15.1	97.7	112.8	8.49
May 22	2130–2330	2.0	78	78	113	20.8	205.1	225.9	9.11
May 23	2230–2400	1.5	77	77	103	39.0	148.3	187.3	8.54
Total		5.0	80	79	305	74.9	451.2	526.1	8.79

Appendix F.3. List of Lower Yukon Area emergency orders pertaining to the Cape Romanzof Herring District, 1991.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-01-91	May 21	Established a commercial herring fishing period beginning 9:00 p.m. May 21 until 10:30 p.m. May 21 in the Cape Romanzof District. Additionally, restricted gear to 50 fathoms per vessel.	Beach meeting samples and spawning ground surveys indicated an abundance of herring with good roe quality. Due to 80 fishing vessels on grounds and increased efficiency of fleet in recent years, gear restriction was warranted.
3-LY-02-91	May 22	Established a commercial herring fishing period beginning 9:30 p.m. May 22 until 11:30 p.m. May 22 in the Cape Romanzof District. Additionally, restricted gear to 50 fathoms per vessel.	Beach meeting samples and spawning ground surveys indicated an abundance of herring with good roe quality. Due to 80 fishing vessels on grounds and increased efficiency of fleet in recent years, gear restriction was warranted.
3-LY-03-91	May 23	Established a commercial herring fishing period beginning 10:30 p.m. May 23 until 12:00 midnight May 23 in the Cape Romanzof District. Additionally, restricted gear to 50 fathoms per vessel.	Beach meeting samples and spawning ground surveys indicated an abundance of herring with fair roe quality. Due to 80 fishing vessels on grounds and increased efficiency of fleet in recent years, gear restriction was warranted.

Appendix F.4. Commercial herring fishery data, Cape Romanzof District, 1980–1991.

	1980	1981	1982	1983 a	1984	1985	1986	1987	1988	1989	1990	1991
Catch (st)	611	720	657	816	1,185	1,299	1,865	1,342	1,119	926	329	526
Hours Fished	326	120	180	144	90	60	42	8	11	13	3	5
Percent Roe Recovery	9.8	8.0	9.3	9.0	8.6	8.3	9.2	8.9	9.1	9.3	8.4	8.8
Estimated Value (\$ millions)	0.13	0.21	0.22	0.37	0.31	0.55	1.14	1.00	1.02	0.49	0.15	0.21
Number of Buyers	2	4	2	3	3	2	5	9	6	6	4	2
Number of Fishermen	69	111	75	63	66	73	97	157	113	115	95	80
Number of Vessels	54	82	50	57	59	69	90	152	108	110	90	79
% Effort by Local Fishermen b	70	81	85	92	98.5	91	84	53	63	87	76	96
% Harvest by Local Fishermen b	40	60	84	88	99.8	94	70	33	60	82	77	97
Biomass Estimate c	3,000	4,900	4,900	5,500	6,100	7,000	7,500	7,200	6,600	4,400	4,500	4,500
Exploitation Rate	20.4	14.7	13.4	14.8	19.4	18.6	24.9	18.6	17.0	21.0	7.3	11.7

a Exclusive Use Regulation into effect.

b Local fishermen defined as residents of Chevak, Hooper Bay, and Scammon Bay.

c Biomass estimates based on qualitative estimates of herring abundance to describe abundance trends, except for 1987, which was by aerial survey.

Appendix F.5. Pacific herring processors and associated data, Cape Romanzof District, 1991.

Commercial operation (Processing location/ buying station)	Product	District
Icicle Seafoods, Inc. 4019 21st Ave. W. Seattle, WA 98199 (M/V Chichagof)	Sac Roe Herring (frozen)	Cape Romanzof
Lafayette Fisheries, Inc. 4259 22nd Ave. W. Seattle, WA 98199 (M/V Chatham, P/V Lafayette)	Sac Roe Herring (frozen)	Cape Romanzof

Appendix F.6. Subsistence herring harvest (st) and effort data, Cape Romanzof, 1975–1991. a

Year	Scammon Bay	Chevak	Hooper Bay	Total	Number of Fishing Families
1975	—	—	3	3	34
1976	1	1	3	5	41
1977	—	<1	2	<3	30
1978	1	—	4	5	29
1979	6	2	3	11	84
1980	3	4	4	11	61
1981	8	2	4	14	46
1982	4	2	5	11	43
1983	3	1	5	9	37
1984	4	3	4	11	47
1985	2	2	4	8	44
1986	2	1	4	7	41
1987	1	1	1	3	39
1988	2	2	4	7	32
1989	1	<1	2	3	24
1990	2	1	6	8	32
1991	1	<1	2	3	18

a Subsistence survey results are believed to reflect harvest trends, however, reported catches reflect minimum figures since all fishermen cannot be contacted.

Appendix F.7. Aerial survey biomass estimates of Pacific herring, Cape Romanzof District, 1991.

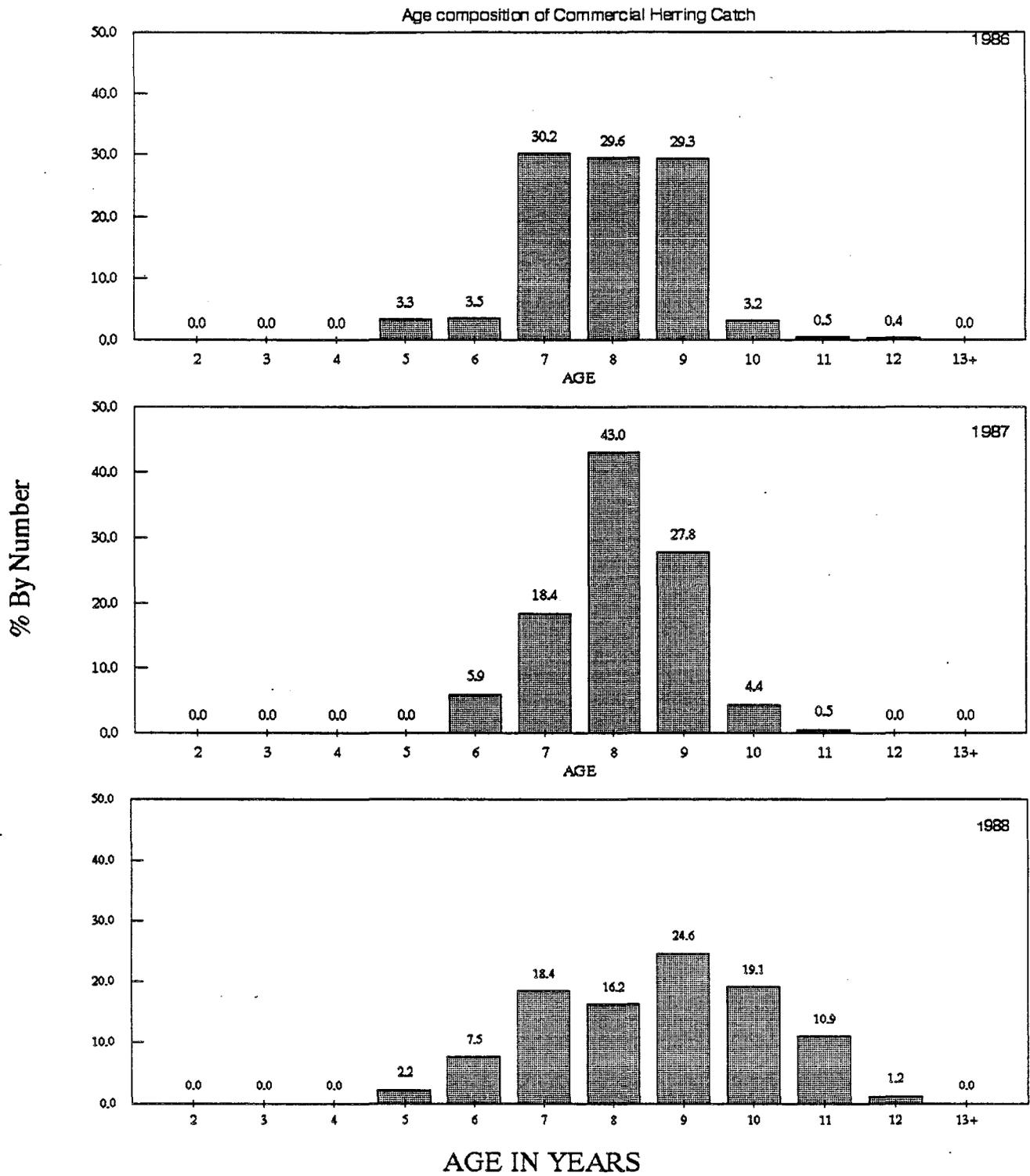
Date	Flight		Survey Rating b	Spawn		Biomass (st) Estimates by Index Area a		
	No.	Hrs.		No.	Length (miles)	KOK	SCB	Total
May 14	1	0.25	4	0	0.00	0	0	0
May 14	2	0.53	3	0	0.00	0	0	0
May 18	3	0.42	4	0	0.00	0	0	0
May 20	4	0.83	4	0	0.00	263	442	705
May 21	5	0.33	5	0	0.00	0	0	0
May 22	6	0.33	5	4	2.00	0	23	23
May 23	7	0.58	5	4	0.25	0	0	0
May 24	8	0.25	5	0	0.00	0	27	27
Total		3.52		8	2.25			

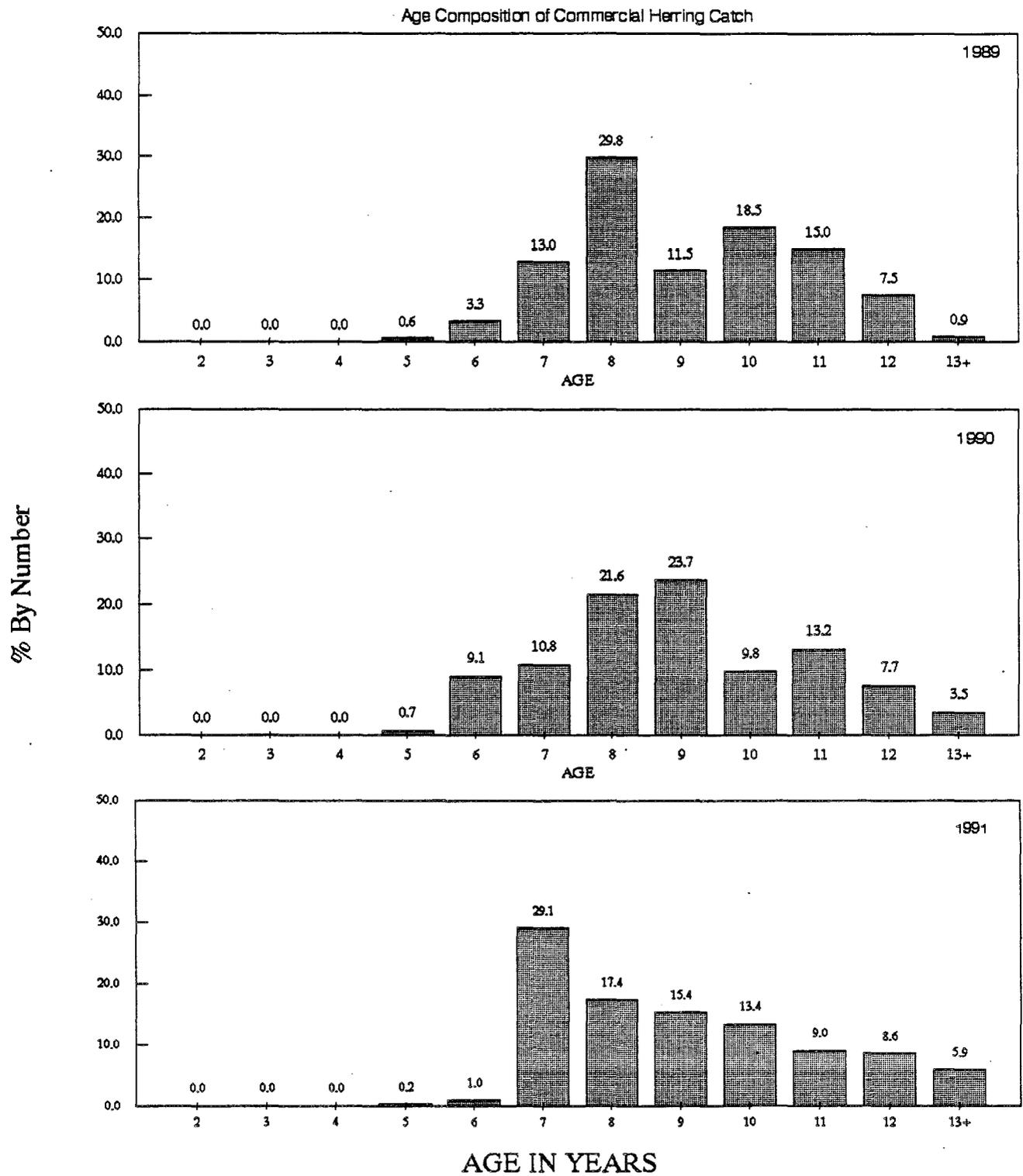
a Index Areas: KOK—Kokechik Bay and offshore waters from Cape Romanzof to Hooper Bay.
 SCB—Scammon Bay (Cape Romanzof to Kun River)

b Survey Rating

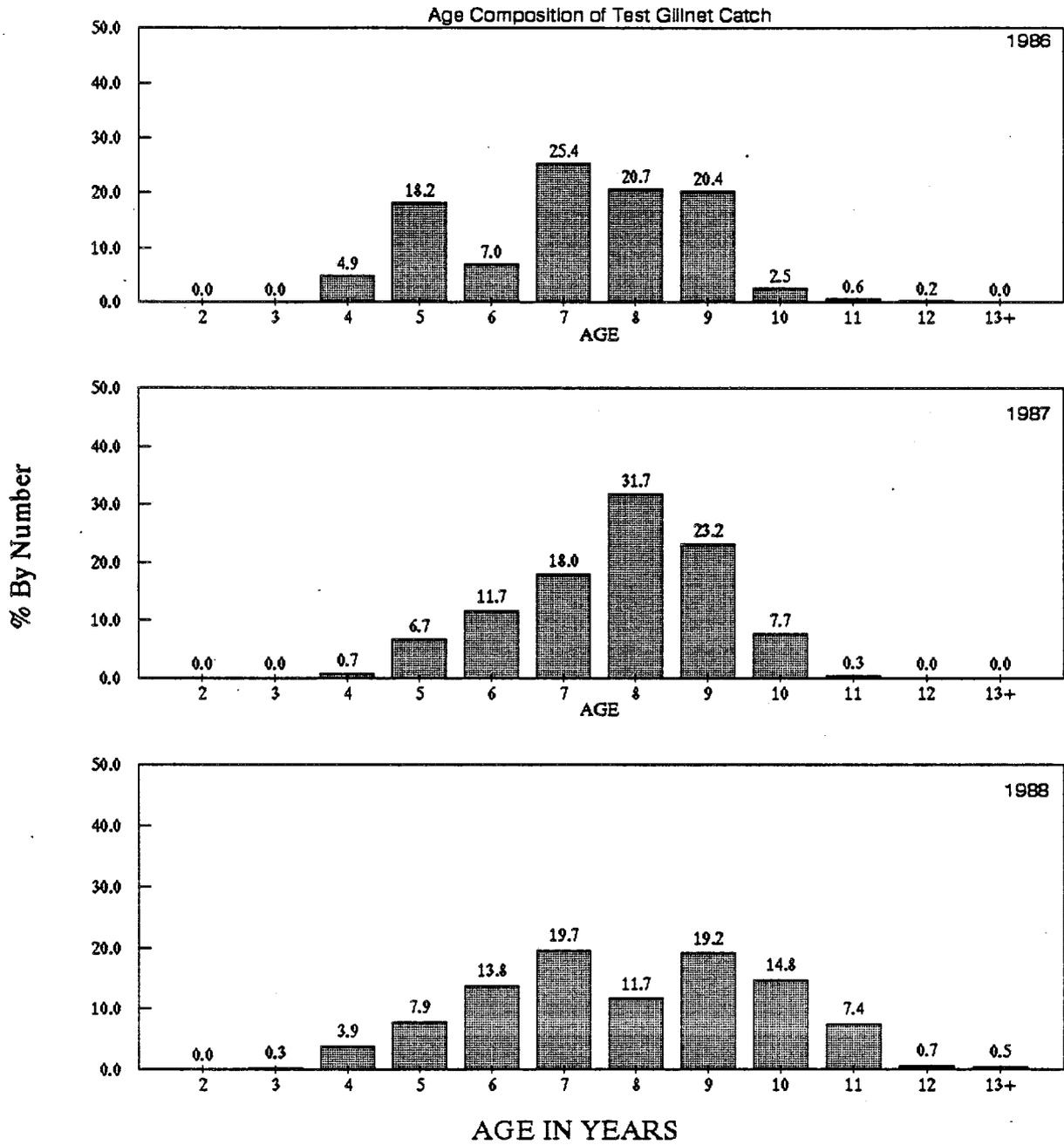
- 1=Excellent (calm, no glare)
- 2=Good (light ripple, uneven lighting, easy to see schools)
- 3=Fair (light chop, some glare or shadows, relatively easy to see schools)
- 4=Poor (rough seas, strong glare, difficult to see schools)
- 5=Unsatisfactory

Appendix F.8. Age composition of herring sampled from commercial harvest, Cape Romanzof District, 1986–1991.

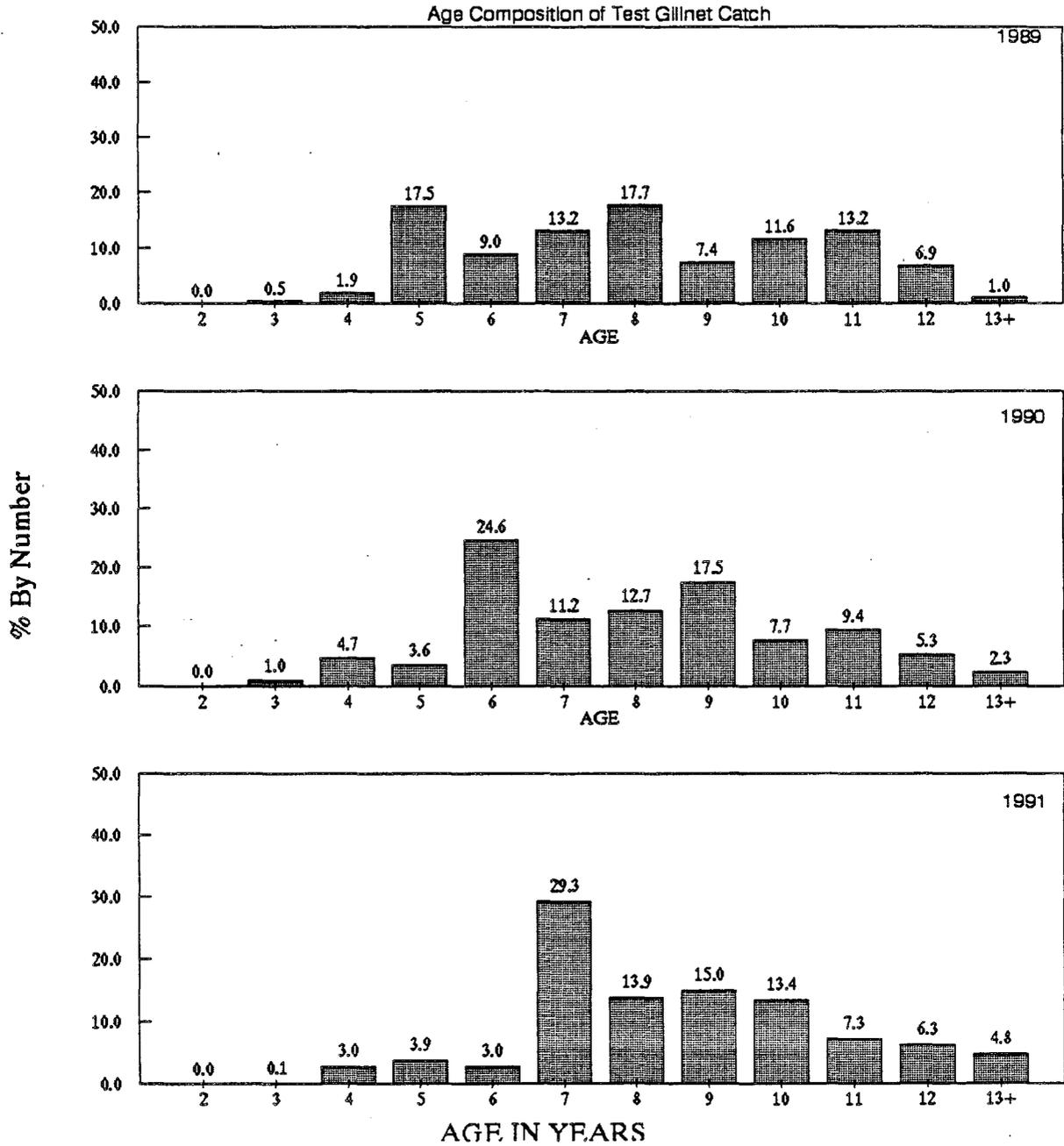




Appendix F.9. Age composition of herring sampled from variable mesh gillnet catches, Cape Romanzof District, 1986–1991.



Appendix F.9. (p. 2 of 2)



APPENDIX G

YUKON AREA FRESHWATER FISHERIES

Appendix G.1. Commercial freshwater fishery catches, Lower Yukon Area, 1978–1991.

Year	Sheefish		Whitefish		Blackfish	Burbot		Pike	Lamprey
	Number	Pounds	Number	Pounds	Pounds	Number	Pounds	Pounds	Pounds
1978	—	—	19	87	—	—	—	—	—
1979	5	39	23	55	—	—	—	—	—
1980	283	2,265	78	250	293	—	—	—	—
1981	299	2,812	779	2,875	—	—	—	9	—
1982	754	6,161	1,633	6,214	—	102	482	—	—
1983	395	2,692	163	648	—	—	—	—	—
1984	94	762	794	2,362	—	—	—	—	—
1985	358	3,081	1,514	4,586	—	—	—	—	—
1986	—	—	1,533	5,845	—	—	—	—	80
1987	—	—	2,144	7,564	—	—	—	—	—
1988	—	—	696	2,171	—	—	—	—	—
1989	—	—	—	—	—	—	—	—	—
1990	—	—	180	260	—	—	—	—	—
1991	—	—	—	—	—	—	—	—	—

Appendix G.2. Colville River commercial whitefish catches, 1964–1991. a

Year	Broad Whitefish	Humpback Whitefish	Arctic Cisco ("kaktok")	Least Cisco ("herring")
1964	2,951 b		16,000	9,000
1965	3,000 b		50,000	
1966	2,500 b		40,000	
1967	data not available			
1968	3,130		42,055	18,180
1969	data not available			
1970	2,080 b		19,602	25,930
1971	3,815	132	38,016	22,713
1972	3,850	1,497	37,333	13,283
1973	2,161		71,569	25,188
1974	3,117	2,316	35,601	13,813
1975	2,201	1,946	28,291	20,778
1976	2,172	1,815	31,659	34,620
1977	443	1,431	31,796	14,961
1978 c	20 d	1,102	17,292	21,589
1979	d	1,831	8,684	24,984
1980	d	4,231	14,657	31,459
1981	1,035	469	38,206	16,584
1982	1,662	201	15,067 e	25,746 e
1983	d	408 d	18,162	35,322
1984	789	179	27,686	13,076
1985	401	191	23,679	17,595
1986 f	0	18	29,895	9,444
1987 f	5	1,989	24,769	10,922
1988	429	6,733	10,287	23,910
1989	71	6,575	17,877	23,303
1990	0	5,694	19,374	21,003
1991	0	1,240	13,805	5,697

a Numbers reflect fish harvested with the intent of commercial sale.

b Includes small numbers of humpback whitefish.

c Also reported taken were 1 chinook, 2 sockeye, 9 chum, and 118 pink salmon.

d No fishing effort during June or July.

e No fishing effort during November or December.

f No fishing effort during July or December.

Average weights: Broad whitefish 5.1 lbs.

Least cisco 0.9 lbs.

Arctic cisco 1.0 lbs.

Appendix G.3. Commercial freshwater fishery catches, Upper Yukon Area, 1971–1991. a

Year	Healy Lake		Lake Minichumina		Tanana River				Yukon River			
	Whitefish		Whitefish		Burbot		Whitefish		Burbot		Whitefish	
	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1971			3,277	9,831								
1972	2,605	3,950	718	2,154								
1973	2,187	3,915	1,697	5,037								
1974	1,885	3,390	854	2,562								
1975	1,357	2,375										
1976	1,440	2,625										
1977	–	–										
1978	–	–										
1979	1,336	2,306										
1980	data unavailable											
1981	no effort											
1982	no effort											
1983	no effort											
1984	no effort				–	76						
1985	no effort											
1986	no effort						72	–				
1987	no effort											
1988	no effort						837	–				
1989	no effort								1	–	–	2,070
1990	no effort				1	–	809	–	0	0	985	2,078
1991	no effort											

a Numbers reflect fish harvested with the intent of commercial sale.

Appendix G.4. Subsistence freshwater fishery catches taken under authority of a permit, 1991.

Subsistence Permits								
Location	Number Issued	Number Returned	Percent Returned	Number Not Fished ^a	Reported Harvest			
					Whitefish	Sheefish	Burbot	Pike
District 5								
Near Haul Road Bridge	52	46	88%	12	81	24	0	3
Circle/Eagle	70	69	99%	21	138	14	4	0
District 6 Tanana River								
Subdistrict 6-A	45	41	91%	10	357	2	54	56
Subdistrict 6-B	87	78	90%	27	343	3	10	199
Subdistrict 6-C	149	142	95%	44	119	8	11	3
Upstream of Subdistrict 6C	8	7	88%	1	579	0	3	0
Tanana River								
Whitefish ^b	15	12	80%	2	1,309	2	34	0
Subsistence Use Total	426	395	93%	117	2,926	53	116	261

a The number of fishermen that did not fish based on returned permits.

b Permits issued for whitefish and suckers.

