

ANNUAL MANAGEMENT REPORT YUKON AREA, 1993

By:

Daniel J. Bergstrom
Alden C. Blaney
Keith C. Schultz
Russell R. Holder
Gene J. Sandone
Daniel J. Schneiderhan
Louis H. Barton

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AUTHORS

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

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

Russell R. Holder is the 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.

Daniel J. Schneiderhan is the Yukon 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.

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TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES	vi
LIST OF FIGURES	vii
SUMMARY OF APPENDICES	viii
LIST OF APPENDICES	ix
LIST OF ATTACHMENTS	xvii
PREFACE	1
YUKON AREA INTRODUCTION	2
SALMON FISHERY	2
Description of Area and District Boundaries	2
Fishery Resources	3
Water Quality	4
Management	4
Alaskan Salmon Fishery History and Description	6
Commercial Fishery	6
Lower Yukon Area	7
Upper Yukon Area	9
Subsistence Fishery	11
Personal Use Fishery	13
Canadian Harvests of Yukon River Salmon	14
U.S./Canada Treaty Negotiations	14
Marine Harvests of Yukon River Origin Salmon	15
High Seas Salmon Gillnet Fisheries	15
Foreign, Joint-Venture, and U.S. Domestic Groundfish Fisheries	16
Alaska Peninsula	16
Norton Sound	16
Salmon Spawning Escapement	16
Escapement Assessment Methods	17
Escapement Goals	18
AREA SALMON REPORT 1993	18
Alaskan Commercial Fishery 1993	19
Lower Yukon Area Harvest	20
Upper Yukon Area Harvest	20
Chinook and Summer Chum Salmon Season	21
Fall Chum and Coho Salmon	23
Alaskan Subsistence and Personal Use Fishery 1993	25
Subsistence Survey Program	25
Subsistence and Personal Use Fishing Permit Program	26
Subsistence Salmon Obtained from the Commercial Fishery	26
Department Test Fish Program	27
1993 Subsistence Restrictions and Closure	27

Canadian Fisheries 1993	29
Commercial Fishery	29
Chinook Salmon	29
Fall Chum Salmon	30
Canadian Aboriginal and Domestic Fisheries	31
Escapement 1993	31
Chinook Salmon	32
Summer Chum Salmon	34
Fall Chum Salmon	35
Coho Salmon	36
Enforcement 1993	37
Lower Yukon Area	37
Upper Yukon Area	37
Outlook For 1994	38
Chinook Salmon	38
Summer Chum Salmon	38
Fall Chum Salmon	38
Coho Salmon	39
CAPE ROMANZOF DISTRICT HERRING FISHERY	39
Introduction	39
Commercial Fishery 1993	40
Subsistence Fishery 1993	41
Stock Status	41
Outlook for 1994	42
OTHER MARINE AND FRESHWATER FINFISH FISHERIES	43
Subsistence Fishery	43
Commercial Fishery	43
LITERATURE CITED	44

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Guideline harvest ranges and mid-points for commercial harvest of Yukon River chinook, summer chum and fall chum salmon in Alaska.....	48
2. Salmon processors, buyers, catcher-sellers, and associated data, Yukon Area, 1993.....	49
3. Commercial Fisheries Entry Commission salmon gear permits issued by residence, Yukon Area, 1993	54
4. Commercial salmon and salmon roe sales by statistical area, Yukon Area, 1993	56
5. Commercial salmon catch and CPUE by fishing period, set and drift gillnets combined, District 1, Lower Yukon Area, 1993	58
6. Commercial salmon catch and CPUE by fishing period, set and drift gillnets combined, District 2, Lower Yukon Area, 1993	59
7. Commercial salmon catch and CPUE by fishing period, set and drift gillnets combined, District 3, Lower Yukon Area, 1993	60
8. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets and fish wheels combined, District 4, Upper Yukon Area, 1993	61
9. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets and fish wheels combined, District 5, Upper Yukon Area, 1993	62
10. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets and fish wheels combined, District 6, Upper Yukon Area, 1993	63
11. Yukon River drainage total estimated commercial related salmon catch by district and country, 1993	64
12. Salmon sold from Department test fishing catches, Yukon Area, 1993.....	65
13. Subsistence and personal use salmon harvest estimates and related information for the Alaskan portion of the Yukon River drainage, 1993	66
14. Subsistence and personal use salmon catches taken under authority of a permit, Yukon River Area, 1993	68
15. Yukon River drainage total utilization of salmon by district and country, 1993.....	69

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. The Yukon River drainage, 330,000 square miles	70
2. Districts 1-6 of Yukon management area	71
3. District 1 of Yukon management area with statistical areas	72
4. District 2 of Yukon management area with statistical areas	73
5. District 3 of Yukon management area with statistical areas	74
6. District 4 of Yukon management area with statistical areas	75
7. District 5 of Yukon management area with statistical areas	76
8. District 6 of Yukon management area with statistical areas	77
9. Closed waters Acharon Channel, south mouth Yukon River	78
10. Closed waters of Black River mouth	79
11. Closed waters of Apoon mouth, Yukon River	80
12. Closed waters of Andrafsky River mouth	81
13. Closed waters of Anvik River mouth	82
14. The Lower Yukon River drainage	83
15. The Koyukuk River drainage	84
16. The Tanana River drainage	85
17. The middle Yukon River and Porcupine River drainage	86
18. The upper Yukon River drainage	87
19. Semet only area, District 1, Lower Yukon Area	88

SUMMARY OF APPENDICES

- Appendix A: YUKON RIVER DRAINAGE WIDE SALMON**
- Appendix B: LOWER YUKON AREA SALMON**
- Appendix C: UPPER YUKON AREA SALMON**
- Appendix D: YUKON RIVER SALMON SUBSISTENCE AND PERSONAL USE**
- Appendix E: YUKON RIVER SALMON ESCAPEMENT**
- Appendix F: CAPE ROMANZOF HERRING DISTRICT FISHERY**
- Appendix G: YUKON AREA FRESHWATER FISHERIES**

LIST OF APPENDICES

	<u>Page</u>
APPENDIX A: YUKON RIVER DRAINAGE WIDE SALMON	
A.1	List of indigenous fishes found in the Yukon Area..... 90
A.2	Yukon River drainage mileages 91
A.3	Alaskan and Canadian total utilization of Yukon River salmon, 1903-1993..... 93
A.4	Commercial chinook salmon sales and estimated harvest by district and country, Yukon River drainage, 1961-1993..... 95
A.5	Commercial summer chum salmon sales and estimated harvest by area and district, 1967-1993..... 96
A.6	Commercial fall chum salmon sales and estimated harvest by district and country, Yukon River drainage, 1961-1993..... 97
A.7	Commercial coho salmon sales by district, Yukon River drainage in Alaska, 1961-1993..... 98
A.8	Commercial Fisheries Entry Commission (CFEC) salmon permits issued by gear type, Yukon Area, 1976-1993..... 99
A.9	Number of commercial salmon fishing gear operators (permit holders) by district, Yukon Area, 1971-1993 100
A.10	Commercial salmon pack by species and type of processing, Yukon Area, 1960-1993 102
A.11	Dollar value estimates of Yukon Area commercial salmon fishery, 1961-1993 103
A.12	Estimated average prices paid to fishermen, Yukon Area, 1964-1993 104
A.13	Average weight of commercial salmon catch in pounds, Yukon Area, 1964-1993..... 105
A.14	Commercial chinook salmon harvest taken under quotas or guideline harvest ranges (GHR). Lower Yukon Area, 1974-1993..... 106
A.15	Estimated commercial chinook salmon harvest taken under quotas or guideline harvest ranges (GHR), Upper Yukon Area, 1974-1993 107
A.16	Commercial summer chum salmon harvest taken under guideline harvest ranges (GHR). Lower Yukon Area, 1990-1993 108

LIST OF APPENDICES (Continued)

	<u>Page</u>
A.17 Estimated commercial summer chum salmon harvest taken under guideline harvest ranges (GHR), Upper Yukon Area, 1990-1993.....	109
A.18 Commercial fall chum salmon harvest taken under quotas or guideline harvest ranges (GHR), Lower Yukon Area, 1974-1993.....	110
A.19 Estimated commercial fall chum and coho salmon combined harvest taken under quotas or guideline harvest ranges (GHR), Upper Yukon Area, 1974-1993.....	111
A.20 Yukon River chinook salmon total utilization in numbers of fish by district, area and country, 1961-1993.....	112
A.21 Yukon River summer chum salmon total utilization in numbers of fish by district, and area, 1961-1993.....	115
A.22 Yukon River fall chum salmon total utilization in numbers of fish, by district, area and country, 1961-1993.....	118
A.23 Coho salmon total utilization in numbers of fish, Yukon River drainage, Alaska and Yukon Territories, 1978-1993.....	121
A.24 Percent age composition of combined commercial and subsistence salmon harvest, Yukon River drainage, 1982-1993.....	124
A.25 Percent of total Yukon River chinook salmon harvest attributed to region of origin, 1982-1993.....	125
A.26 Associated environmental and salmon catch data, Yukon River, 1961-1993.....	126
A.27 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, 1964-1993.....	127

APPENDIX B: LOWER YUKON AREA SALMON

B.1 List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1993.....	129
B.2 Commercial catches of chinook and summer chum salmon by mesh size, Districts 1 and 2, Lower Yukon Area, 1961-1993.....	134

LIST OF APPENDICES (Continued)

		<u>Page</u>
B.3	Chinook salmon commercial catch data by period, chinook salmon season (unrestricted mesh size), District 1, Lower Yukon Area, 1974-1993.....	135
B.4	Chinook salmon commercial catch data by period, chinook salmon season (unrestricted mesh size), District 2, Lower Yukon Area, 1978-1993.....	137
B.5	Commercial chinook salmon catches by statistical area, Lower Yukon Area, 1974-1993.....	138
B.6	Commercial summer chum salmon catch and effort data, Districts 1 and 2, Lower Yukon Area, 1967-1993.....	140
B.7	Commercial summer chum salmon catches by statistical area, Lower Yukon Area, 1983-1993.....	141
B.8	Commercial coho and fall chum salmon catch and effort data, District 1, Lower Yukon Area, 1961-1993.....	142
B.9	Fall chum and coho salmon commercial catch and effort in the Setnet Only and Gillnet areas, Districts 1, Lower Yukon Area, 1983-1993.....	143
B.10	Fall chum salmon commercial catch data by period, District 1, Lower Yukon Area, 1978-1993.....	144
B.11	Commercial fall chum salmon catches by statistical area, Lower Yukon Area, 1983-1993.....	145
B.12	Value of commercial salmon fishery to Lower Yukon Area salmon fishermen, 1977-1993.....	146
B.13	Lower Yukon River test fish data by day, Big Eddy and Middle Mouth set gillnet test fishing project, summer fishing season, 1993.....	147
B.14	Lower Yukon River combined chinook salmon setnet (8.5 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1993 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing.....	148
B.15	Lower Yukon River combined summer chum salmon (5.5 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1993 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing.....	149
B.16	Lower Yukon River fall chum and coho salmon combined setnet test fishing catches and CPUE, 1993.....	150

LIST OF APPENDICES (Continued)

	<u>Page</u>
B.17 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 1993 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing.....	151
B.18 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 1993 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing.....	152

APPENDIX C: UPPER YUKON AREA SALMON

C.1 List of Upper Yukon Emergency Orders, 1993	154
C.2 Commercial salmon sales and estimated harvest by statistical area, all gears combined, Upper Yukon Area, 1993	166
C.3 Commercial set gillnet salmon sales and estimated harvest by statistical area, Upper Yukon Area, 1993.....	167
C.4 Commercial fish wheel salmon sales and estimated harvest by statistical area, Upper Yukon Area, 1993.....	168
C.5 Commercial chinook salmon sales and estimated harvest by statistical area, Subdistrict 4-A, Upper Yukon Area, 1974-1993	169
C.6 Commercial chinook salmon sales and estimated harvest by statistical area, Subdistrict 4-B and 4-C, Upper Yukon Area, 1974-1993	170
C.7 Commercial chinook salmon sales and estimated harvest by statistical area, Subdistrict 5-A, 5-B and 5-C, Upper Yukon Area, 1974-1993.....	171
C.8 Commercial chinook salmon sales and estimated harvest by statistical area, Subdistrict 5-D, Upper Yukon Area, 1974-1993	172
C.9 Commercial chinook salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974-1993	173
C.10 Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistrict 4-A, Upper Yukon Area, 1974-1993	174

LIST OF APPENDICES (Continued)

	<u>Page</u>
C.11 Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistrict 4-B and 4-C, Upper Yukon Area, 1974-1993.....	177
C.12 Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistrict 5-A, 5-B and 5-C, Upper Yukon Area, 1974-1993.....	178
C.13 Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistrict 5-D, Upper Yukon Area, 1974-1993.....	179
C.14 Commercial summer chum salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974-1993.....	180
C.15 Commercial fall chum salmon sales by statistical area, District 4, Upper Yukon Area, 1974-1993.....	181
C.16 Commercial fall chum salmon sales and estimated harvest by statistical area, Subdistrict 5-A, 5-B and 5-C, Upper Yukon Area, 1974-1993.....	182
C.17 Commercial fall chum salmon sales by statistical area, Subdistrict 5-D, Upper Yukon Area, 1974-1993.....	183
C.18 Commercial fall chum salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974-1993.....	184
C.19 Commercial coho salmon sales and estimated harvest by statistical area, District 4, Upper Yukon Area, 1974-1993.....	185
C.20 Commercial coho salmon sales and estimated harvest by statistical area, Subdistrict 5-A, 5-B and 5-C, Upper Yukon Area, 1974-1993.....	186
C.21 Commercial coho salmon sales and estimated harvest by statistical area, Subdistrict 5-D, Upper Yukon Area, 1974-1993.....	187
C.22 Commercial coho salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974-1993.....	188
C.23 Value of commercial salmon fishery to Upper Yukon Area fishermen, 1977-1993.....	189
C.24 Summary of test fishing projects conducted in the Upper Yukon Area, 1993.....	190

LIST OF APPENDICES (Continued)

Page

APPENDIX D: YUKON RIVER SALMON SUBSISTENCE AND PERSONAL USE

D.1	Estimated Yukon River chinook salmon subsistence harvest in numbers of fish by village, 1982-1993	192
D.2	Estimated Yukon River summer chum salmon subsistence harvest in numbers of fish by village, 1982-1993	194
D.3	Estimated Yukon River fall chum salmon subsistence harvest in numbers of fish by village, 1982-1993	196
D.4	Estimated Yukon River coho salmon subsistence harvest in numbers of fish by village, 1982-1993	198
D.5	Estimated subsistence salmon harvest for Scammon and Hooper Bay, 1987-1993	200
D.6	Subsistence salmon catches taken under authority of a permit in District 5, Upper Yukon Area, 1974-1993	201
D.7	Subsistence salmon catches taken under authority of a permit, in the Tanana River drainage, 1973-1993	202
D.8	Personal use salmon catches taken under authority of a permit in the Lower Yukon Area, and in District 5, Upper Yukon Area, 1987-1993	203
D.9	Personal use salmon catches taken under authority of a permit in Tanana River drainage, 1987-1993	204
D.10	Subsistence and personal use chum salmon carcasses taken under authority of a permit, Tanana River drainage, 1973-1993	205

APPENDIX E: YUKON RIVER SALMON ESCAPEMENT

E.1	Yukon River salmon interim spawning escapement objectives for selected species and streams, 1993	207
E.2	Salmon spawning escapement estimates for the Yukon River drainage, 1993	208
E.3	Sonar estimates of salmon passage on the mainstem Yukon River at Pilot Station, 1986-1993	212

LIST OF APPENDICES (Continued)

	<u>Page</u>
E.4 Chinook salmon escapement counts for selected Alaskan spawning stocks in the Yukon River drainage, 1961-1993.....	213
E.5 Chinook salmon escapement counts for selected spawning areas in the Canadian portion of the Yukon River drainage, 1961-1993.....	214
E.6 Summer chum salmon escapement counts for selected spawning areas in the Yukon River drainage, 1973-1993.....	215
E.7 Fall chum salmon escapement counts for selected spawning areas in Alaskan and Canadian portions of the Yukon River drainage, 1971-1993.....	216
E.8 Coho salmon escapement counts for selected spawning areas in the Yukon River drainage, 1972-1993.....	218

APPENDIX F: CAPE ROMANZOF HERRING DISTRICT FISHERY

F.1 Map of Cape Romanzof Herring District.....	220
F.2 Commercial herring catch and effort data by fishing period, Cape Romanzof District, 1993.....	221
F.3 List of Lower Yukon Area emergency orders pertaining to the Cape Romanzof Herring District, 1993.....	222
F.4 Commercial Pacific herring fishery data, Cape Romanzof District, 1980-1993.....	224
F.5 Pacific herring processors and associated data, Cape Romanzof District, 1993.....	225
F.6 Test sample data collected by commercial fishermen, Cape Romanzof District, 1993.....	226
F.7 Subsistence herring harvest (st) and effort data, Cape Romanzof, 1975-1993.....	227
F.8 Aerial survey biomass estimates of Pacific herring, Cape Romanzof District, 1993.....	228
F.9 Percent age composition of herring sampled from commercial harvest, Cape Romanzof District, 1980-1993.....	229
F.10 Age composition of Pacific herring sampled from the commercial harvest, Cape Romanzof District, 1986-1993.....	230

LIST OF APPENDICES (Continued)

	<u>Page</u>
F.11 Percent age composition of herring sampled from variable mesh gillnet catches, Cape Romanzof District, 1980-1993	233
F.12 Age composition of Pacific herring sampled from variable mesh gillnet catches, Cape Romanzof District, 1986-1993	234

APPENDIX G: YUKON AREA FRESHWATER FISHERIES

G.1 Commercial freshwater fishery catches, Lower Yukon Area, 1978-1993	238
G.2 Colville River commercial whitefish catches, 1964-1993.....	239
G.3 Commercial freshwater fishery catches, Upper Yukon Area, 1971-1993	240
G.4 Subsistence freshwater fishery catches taken under authority of a permit, Yukon Area, 1993.....	241

LIST OF ATTACHMENTS

ATTACHMENTS

Page

Attachment 1. Summary of Yukon Area salmon fishery regulations adopted by the Alaska Board of Fisheries during hearing in February and March 1993.....	242
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PREFACE

This report is one of a series of annual management reports detailing the management activities of the Division of Commercial Fisheries Management and Development in the Yukon Area. Data presented in this report supersedes information found in previous management reports. The 1960-1974 management reports for the Yukon Area appear in the Arctic-Yukon-Kuskokwim Area report series. The 1975-1986 management reports appear in the Yukon Area Annual Report series. The annual management report became a part of the Regional Information Report (RIR) Series in 1987. Data from a number of research projects are summarized in this report. Complete documentation of these projects and results are or will be presented in separate reports. 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 1993. 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 1993 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 historical data are presented.

Commercial fishing effort has 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.

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

This annual management report details the activities of the Division of Commercial Fisheries Management and Development Division in the Yukon Area. The Division of Commercial Fisheries Management and Development of the Alaska Department of Fish and Game is responsible for the management of commercial, personal use, and subsistence fisheries in the Yukon Area.

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.

Commercial salmon fishing occurs along the entire 1,200 mile length of the mainstem Yukon River in Alaska and the lower 220 miles of the Tanana River. The commercial fishing area is divided into six districts and ten subdistricts for management and regulatory purposes (Figure 2). The present district boundaries were originally established in 1961 and redefined in 1962, 1974, and 1978. The Lower Yukon Area (Districts 1, 2, and 3) includes the coastal waters of the area and that portion of the drainage from the mouth to Old Paradise Village, river mile 301. The Upper Yukon Area (Districts 4, 5, and 6) is that portion of the drainage upstream of Old Paradise Village to the U.S.-Canada border including the Tanana River. The districts and subdistricts are further divided into 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.

Commercial, Aboriginal, sport, and domestic salmon fisheries also occur in Canada, with fishery management activities conducted by the Canadian Department of Fisheries and Oceans (DFO).

Fishery Resource

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 drainage (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 salmon 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 throughout the Yukon River drainage from the Archuelinguk River located approximately 80 miles from the mouth to 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 and early June and continue through mid-July.

Coho salmon enter the Yukon River from late July through September, average about seven pounds in weight, and spawn discontinuously throughout the Alaskan portion of 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 from late June to late July, average approximately 3 pounds in weight, and primarily 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 drainage and only a few individuals are caught each year. Sockeye salmon have been reported in the mainstem 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.

Management

Management of the Yukon River salmon fishery is complex because of the difficulty in determining run size, harvesting of mixed stocks, multispecies salmon runs, allocation issues, and the immense size of the Yukon River drainage. The overall goal of the Yukon Area research and management programs is to manage the salmon runs for maximum sustained yield under the policies set forth by the Alaska Board of Fisheries. However, escapement levels required to produce maximum sustained yields cannot be determined at this time due to the lack of an adequate database. Subsistence fishing has been designated by the Alaska State Legislature and the Alaska Board of Fisheries as the highest priority among beneficial uses of the resource. 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.

Accurate, inseason run size assessment is very difficult with the present technology and funding. It is hopeful that the main river sonar project operated near Pilot Station will provide inseason estimates of salmon passage for fisheries management in the near future. Fisheries within the Yukon River drainage may harvest stocks of fish that are up to several weeks and hundreds of miles from their spawning grounds. Since the Yukon River commercial fishery is a mixed stock fishery, 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.

Primary management tools used to manage the commercial salmon harvest are guideline harvest ranges established by the Alaska Board of Fisheries (Table 1), and emergency order authority, which is used to implement fishing season openings and closures, fishing periods, and mesh size restrictions. Guideline harvest ranges have been established for chinook, summer chum, and fall chum salmon commercial fisheries throughout the Alaskan portion of the drainage. In general, the department attempts to manage the commercial fisheries such that the harvest in each district or subdistrict is proportionately similar within their respective guideline harvest ranges.

Based on the enforcement action taken against Schenk Seafood Sales in 1992, new regulations for Districts 1, 2 and 3 specifically designed to eliminate the sale of subsistence caught fish, were adopted by the Alaska Board of Fisheries in March 1993. One of the new regulations requires identification of a vessel used by a commercial salmon permit holder to take salmon during the open commercial fishing season. Another regulation separates the subsistence and commercial fishing periods in Districts 1, 2 and 3. Additionally, in Districts 1, 2 and 3, no person may possess chinook salmon taken for subsistence purposes, unless the dorsal fin has been immediately removed. A person may not sell or purchase salmon from which the dorsal fin has been removed. These and other new regulations and changes to existing regulations adopted by the Alaska Board of Fisheries in March 1993 are included in Attachment 1.

During the fishing season, management is based on inseason run assessment. The salmon runs are monitored on a daily basis. Abundance indices, escapement, and harvest data are compared to historic data. 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. Emergency order announcements are broadcast during the fishing season over radio stations KYUK in Bethel, KNOM and KICY in Nome and various radio stations in the Fairbanks area.

Research and management projects have been established to obtain the biological information necessary for better management of salmon runs. Additional programs are planned, contingent upon funding. During 1993, the following projects were implemented:

1. Test Fishing. Department test fishing projects located at South, Middle and North Mouths (set and drift gillnets for chinook, chum, and coho salmon) in the delta area to determine run timing and to provide an index of abundance for annual comparisons between years. Additionally, contract fishermen operated fish wheels as part of test fishing projects at Manley and Nenana on the Tanana River.
2. Side Scan Sonar. Bendix hydroacoustic equipment was operated in the Anvik River (summer season) and Sheenjek River (fall season) to enumerate chum salmon escapements.
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. Additionally, a main river sonar project still in the developmental stage was operated on the Yukon River near Eagle.
4. Stock Separation and Age Composition. Scale and vertebra samples were collected from salmon catch and escapement to determine age composition of the 1993 runs. Scale samples of chinook were also utilized for the purpose of allocating the catch to region of origin using scale pattern analysis techniques.
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. Additionally, intense fall chum salmon foot surveys were conducted at selected areas in the Tanana River drainage.
7. Tagging Project. A salmon tagging project was conducted (chinook and fall chum salmon) by DFO to estimate harvest rates and total escapement to the upper Yukon River (Yukon Territories, Canada).
8. Tower Projects. Department operated tower counting projects were conducted on the Chena and Salcha Rivers to estimate total chinook salmon escapement to those important streams (Sport Fish Division).
9. Subsistence Surveys. Subsistence surveys were conducted to estimate subsistence salmon fishery harvest and effort throughout the Yukon Area.

Commercial Fisheries Management and Development Division permanent staff assigned (full time) to the Yukon Area include eight positions: two area management biologists, two assistant area management biologists,

three research project biologists, and one field office assistant. In addition, approximately 30 seasonal employees are hired annually to assist the permanent staff in conducting various management and research projects. The staff aids in the enforcement of regulations in cooperation with the Division of Fish and Wildlife Protection, Department of Public Safety.

State of Alaska funding for the Yukon Area salmon management and research program from July 1, 1992 through June 30, 1993 approximated \$945,400. An additional \$565,000 was allocated by the Federal Government to address research issues and travel associated with U.S./Canada Yukon River salmon treaty negotiations.

Alaskan Salmon Fishery History and Description

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 129,746 fish during 1983-1987 (Appendix A.4). Concern for possible over-exploitation during this period resulted in reduced harvests, averaging 105,562 fish during the recent five-year period (1988-1992).

Summer chum salmon commercial sales have averaged 617,702 fish and 181,886 pounds of roe annually during the period 1988-1992 (Appendix A.5). Summer chum salmon commercial harvests increased greatly during the 1980s 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. In February 1990, the Board of Fisheries established a river-wide guideline harvest range of 400,000 to 1,200,000 summer chum salmon. 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 1960s. Fall chum salmon commercial harvests increased greatly beginning in 1979. The average harvest for the period 1983-1987 was 185,702 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 164,984 fall chum for the recent five-year period (1988-1992).

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. However, 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 majority of commercial fishermen are residents of the Yukon River drainage. 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.

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.10). 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 farther a fishermen is located from the mouth of the Yukon River, because of both harvest and fish migration into tributary streams, downriver. The Upper Yukon Area commercial salmon harvest has averaged approximately 11% of the total area harvest of fish sold in the round and 100% of the roe sales (1988-1992). During the same time period, the Upper Yukon districts have had an average of 155 participating fishermen, or approximately 19% of the Yukon Area total (Appendix A.8.).

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 1983 through 1992, an average of 680 CFEC gillnet permits have been issued annually (Appendix A.8.). 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 (Table 1). In District 3, a guideline harvest range of 1,800-2,200 chinook salmon was established in 1979.

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 adopted 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. Prior to the 1976 fishing season, a regulation was adopted 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.

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 allowed 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). More fishing time has been allowed in the coastal Setnet Only Area 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 for Districts 1, 2, and 3 combined was established in 1990. No commercial fishing has been allowed in the lower river during the fall chum season since 1991.

Nearly all of the lower Yukon River salmon catch is destined for markets as a fresh-frozen product. Freezer barges are located in the vicinity of Emmonak. Fresh salmon is transported by aircraft from St. Marys and Emmonak annually, and from Marshall, Russian Mission, and the Paimuit-Holy Cross area during some seasons for further processing.

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 for Districts 4, 5, and 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 for District 6 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. Required subsistence fishing permits for the entire Tanana River drainage and established inseason reporting requirements.
4. Expanded rights of inspection of processing plants by enforcement personnel.

The board further instructed the staff to manage District 6 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. Due to concerns for low fall chum salmon spawning escapements in the Toklat River, the board (in February 1990) reduced the Subdistrict 6-A commercial fishing schedule to no more than one 24-hour period per week during the fall fishing season.

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. Because of the large summer chum salmon roe fishery and difficulty in estimating the associated harvest in Subdistrict 4-A, the guideline harvest range for that subdistrict was established as follows: 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. 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. 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.

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. 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 use during some years. District 4 commercial related summer chum salmon harvests were estimated from 1980-1988 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 an estimated average roe weight of one pound per female chum salmon. This average roe weight per female was estimated based on the subjective judgement of processors and fishermen.

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. Since 1989, the department has sampled commercial catches from fish wheels and gillnets in upper river districts to estimate the mean proportion of females and to estimate average roe weights per female.

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 the summer chum fishery might 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.

Subsistence Fishery

Subsistence fishing occurs throughout most of the Yukon River drainage. Subsistence use has the highest priority among beneficial uses of the resource. Historically, subsistence salmon harvests were very large. Subsistence salmon catches declined through the 1970s for a variety of reasons (ADF&G 1985). However, beginning in the early 1980s, 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 order to enforce commercial fishing regulations, it is necessary to place restrictions on the subsistence fishery. However, throughout the fishing season, substantially more fishing time is allowed for subsistence than for commercial purposes.

In general, prior to 1993, 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.

In February 1990, the Alaska Board of Fisheries closed the lower Kantishna River and Toklat River to subsistence fishing for fall chum salmon in order to rebuild the Toklat River spawning stock. However, as a result of a request from fishermen for injunctive relief, the Alaska Superior Court provided for subsistence fishing to resume in the Kantishna River in 1991. In February 1992, the board allowed subsistence fishing, but only with fish wheels equipped with liveboxes, and with the stipulation that all chum salmon must be returned alive to the water.

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 collected through the use of postseason household interviews, catch calendars, mail out questionnaires, and telephone interviews 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.

Commercial Fisheries Division staff have conducted subsistence surveys, except for 1988, when Subsistence Division staff conducted the 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.

Beginning in the early 1970s, subsistence fishing permits have been required in three sections of the Upper Yukon Area as follows: 1) the Yukon River near the Haul Road bridge between Hess Creek and Dall River, 2) the upper portion of District 5 between the upstream mouth of Twenty-Two Mile Slough and the U.S.-Canada border, and 3) the Tanana River near Fairbanks. Beginning in 1988, subsistence permits have been required for the entire Tanana River drainage. Households which fish in areas requiring a permit are required to obtain a permit, document their catch, and return the permit upon expiration. Historical subsistence permit catch information are summarized in Appendices D.6 to D.10.

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.14 to A.17. 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. It is probable that the unmarketable carcasses have simply replaced a large portion of the subsistence harvest. In 1990, the decision was made to separate harvests that produce commercial 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. Estimated harvests of female salmon to produce roe sales, and the incidental harvest of summer chum males in District 4 are reported as commercial-related harvest. The harvest of males in salmon roe fisheries other than the summer chum salmon fishery in District 4 are believed to be either sold or retained for subsistence use. Subsistence surveys and personal interviews from 1986 through 1993 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. 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.

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.

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. For the most part, personal use catches would have been reported as subsistence catches prior to establishment of personal use regulations. In December 1989, the Alaska Supreme Court overturned the 1986 subsistence law as unconstitutional in McDowell versus the State of Alaska. Since July 1, 1990, all residents of the State of Alaska qualify as subsistence users. Because all fishermen were eligible for subsistence fishing permits, fishermen were issued subsistence salmon fishing permits for the 1991 and 1992 fishing seasons.

In 1992 the legislature passed a subsistence law during a special session which split the state into subsistence or non-subsistence zones. The Joint Boards of Fisheries and Game created the Fairbanks Non-Subsistence Use Zone in November 1992, which basically matched the border of the Fairbanks North Star Borough. This was the only non-subsistence zone established in the Yukon Area. The Board of Fisheries repealed the subsistence fishing regulations pertaining to the Fairbanks Non-Subsistence Zone and established personal use fishing regulations for this same area in spring of 1993.

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.

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 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, Aboriginal, domestic, and sport fisheries for salmon. The Aboriginal and domestic fisheries are in some ways comparable to subsistence and personal use fisheries in Alaska, although the Aboriginal fishery is only open to native people. Most of the commercial harvest on the mainstem Yukon River near Dawson is taken by set gillnets. However, beginning in 1991, an increase in usage of fish wheels, primarily during the chum salmon season, has been observed. Canadian harvests in the Porcupine River drainage are currently limited to an Aboriginal fishery.

U.S./Canada Treaty Negotiations

In the spring of 1985, the governments of the United States and Canada ratified the Pacific Salmon Treaty. One provision of the treaty required the two countries to begin negotiations on Yukon River salmon stocks which spawn in Canada. Negotiations were initiated in 1985.

The U.S. delegation is led by the Chief Negotiator from the U.S. Department of State, representatives of the Department of Fish and Game, United States Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS), and 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.

A six year stabilization program, ending after the 1995 season, has been agreed to for chinook salmon in the mainstem Yukon River 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. This stabilization spawning objective was established to prevent further decline in chinook salmon escapements. During the stabilization period, Canada will manage all 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, for all user groups combined.

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 U.S. and Canadian 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 mainstem Yukon River 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 all fall chum salmon fisheries on the mainstem Yukon River in Canada within a guideline harvest range of 23,600 in years of weak returns to 32,600 in years of strong returns. 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 were laid out for the period 1992 to 1995 as follows:

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 agreed not to initiate new fisheries on the Porcupine River for an eight-year period and to consider rebuilding and improving management of Canadian Porcupine River fall chum salmon stocks.

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 and deeming.

Marine Harvests of Yukon River Origin Salmon

High Seas Salmon Gillnet Fisheries

Chinook salmon of western Alaska origin were intercepted yearly by the Japanese mothership and landbased gillnet fisheries through 1991 (Appendix A.21). Revised estimates indicate an average of 141,000 chinook salmon were taken during 1975-1983. It is likely 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 occurred outside of the EEZ. In 1990, the Japanese mothership fishery was converted to a "nontraditional land based salmon fishery". The nontraditional land based salmon fishery ended 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.21).

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. These fisheries were replaced by U.S. groundfish fisheries.

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 1993, U.S. groundfish fisheries captured 39,500 chinook salmon in the Bering Sea and Aleutian Islands area and 24,700 chinook salmon in the Gulf of Alaska. Additionally, 242,504 other salmon species were taken, of which a majority were chum salmon.

Alaska Peninsula

The majority of chum salmon captured during June in the Unimak and Shumagin Islands area, located on the south side of the Alaska Peninsula, are bound for Bristol Bay, Asia, and the AYK Region, 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.

For the 1993 season, the Board of Fisheries set a catch cap of 700,000 chum salmon in the June fishery and delayed the season opening date to June 13 in an effort to reduce incidental chum catches. A total of 2,924,000 sockeye and 529,000 chum salmon was taken in the June fishery in 1993. The chum salmon harvest was 24% lower than the harvest cap.

Norton Sound

A commercial harvest of 8,972 chinook salmon was taken in coastal Norton Sound waters in 1993. The previous 5-year average harvest was 5,861 fish. Some Yukon River chinook salmon are known to be intercepted by this fishery.

Salmon Spawning Escapement

An essential requirement for management of the Yukon River salmon fisheries is 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; and
4. Evaluation of stock status for use in projecting subsequent returns.

Escapement Assessment Methods

The Yukon River drainage is too extensive 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 assessment program. Nevertheless, comprehensive assessment studies employing such techniques as intensified ground surveys, mark-and-recovery programs, counting towers, weirs, and hydroacoustics 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 personnel constraints.

There are both advantages and disadvantages related to each type of assessment 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 staffing and operating the more sophisticated enumeration projects, relatively few have been initiated over the years and have been restricted primarily to major spawning streams; for example, the Anvik, Andreafsky, Sheenjok, Chandalar, Chena, Salcha, and Delta Rivers in Alaska and the Fishing Branch River and Whitehorse fishway in Canada.

In addition, a department sonar project has been operational since 1986 to estimate total salmon passage by species through the lower mainstem Yukon River at river mile 123 near Pilot Station. Hydroacoustic techniques are used to estimate the total number of fish passing upstream and a comprehensive test drift gillnet fishery is conducted to apportion sonar counts to species. Since 1992, a sonar project located near Eagle (river mile 1,200) has been in the developmental phase. Another study designed to estimate salmon abundance by species in the Yukon River has been operated annually by DFO 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.

In contrast to the more comprehensive assessment projects, 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, personnel, 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.

Escapement Goals

Biological escapement goals (BEG's) have been established for several Yukon River salmon spawning streams or areas (Appendix E.1). These goals represent the approximate minimum number of desired spawners considered necessary to maintain the historical yield from the stocks and are based upon historical performance, i.e., they are predicated upon some measure of historic averages. Establishment of escapement goals based upon a rigorous analysis 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 inriver stock-specific returns. Consequently, most escapement goals 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. However, the goals 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, genetic stock identification (GSI) using electrophoretic techniques is being examined by the Department as a tool for identifying discrete stocks of chinook and chum salmon in the mixed stock Yukon River fisheries.

AREA SALMON REPORT 1993

A major failure of western Alaska chum salmon runs occurred in 1993. The Yukon River summer chum salmon commercial harvest was the lowest since 1972, and for the first time in history, the entire Yukon River drainage in Alaska was closed to subsistence salmon fishing because of the very weak fall chum run. Nearly all spawning escapement goals were not met for summer and fall chum salmon stocks which were monitored. The reason for the drastically weak chum runs is unknown. In December, 1993 the Board of Fisheries set a meeting for March 1994 to discuss conservation and rebuilding options for western Alaska chum salmon.

Alaskan Commercial Fishery 1993

In 1993, a total of 190,072 salmon in the round and 24,976 pounds of unprocessed salmon roe were sold in the Alaskan portion of the Yukon River drainage. The catch was composed of 93,550 chinook and 96,522 summer chum salmon (Table 4). In addition, 2,014 pounds of chinook roe and 22,962 pounds of summer chum roe were sold by commercial fishermen. No fall chum or coho salmon were harvested in 1993.

The chinook salmon catch was 11% below the recent 5-year average (1988-1992). The summer chum salmon catch and roe production were 84% and 87% below the recent 5-year average, respectively.

The department sold 1,408 chinook and 1,379 summer chum salmon from the District 1 test fisheries (Table 12). In District 2, 164 chinook and 490 summer chum salmon were sold by the department's sonar project located near Pilot station.

Yukon River fishermen in Alaska received an estimated \$5.5 million for their 1993 salmon catch, approximately 47% below the recent 5-year average value. The wholesale value of the 1993 commercial catch was estimated at \$13,613,000 (Appendix A.11). Salmon buyers and processors operating in the Yukon Area during 1993 are listed in Table 2. The majority of the salmon catch was processed as a fresh/frozen product. Commercial salmon harvest and salmon roe production is presented in Appendix A.10. Average prices paid to fishermen and average salmon weight are presented in Appendices A.12 and A.13, respectively.

In 1993, a total of 793 CFEC gillnet permits and 166 fish wheel permits (not including transfers) were issued (Table 3). An estimated 717 gillnet and 88 fish wheel permits were fished in 1993 (Appendix A.8). The number of commercial fishing permits (fishermen) that made at least one salmon delivery by district during the season are shown in Appendix A.9.

There was a near normal proportion of 6-year old chinook salmon (66.6%) in the commercial harvest (Menard 1995). Age-6 fish accounted for between 49% and 71% of the commercial catch during unrestricted mesh size periods. Age-6 chinook salmon also accounted for the largest percentage of the commercial harvest during the only fishing period restricted to 6 inch maximum mesh size.

The estimated percentage of Canadian-spawned chinook salmon harvested in 1993 throughout the Yukon River drainage was 65%; approximately 10% above average (Appendix A.25). The estimates presented in Appendix

A.25 are based on analyses of chinook salmon scale patterns, age composition ratios, and geographic distribution of catches and escapements (Schneiderhan 1994).

Summer chum salmon commercial harvests were dominated by age-5 fish. Age-5 summer chum salmon comprised between 47% and 69% of the commercial catch in unrestricted mesh size periods and 52% of the commercial catch in the one restricted mesh size period. Age-4 fish accounted for a smaller percentage of the harvest than normal, and was much lower than expected.

Fall chum salmon test fish catch samples indicated that approximately 60% of the run was comprised of age-4 fish, which was lower than expected. Age composition data suggested that the return from the 1989 parent year was lower than expected. Age-4 coho salmon dominated samples taken from Yukon River fisheries as observed in all other years (Appendix A.24).

Lower Yukon Area Harvest

The 1993 Lower Yukon Area (Districts 1, 2 and 3) commercial salmon catch totaled 181,534 fish; 88,080 chinook and 93,454 summer chum salmon (Table 4). The chinook salmon harvest was 10% below the recent five-year average (1988-1992), while the summer chum harvest was the lowest since 1972 (84% below the recent five-year average).

In 1993 a total of 718 CFEC gillnet permits were issued for the Lower Yukon Area (Table 3), of which, 682 permit holders fished at least once during 1993. Lower Yukon fishermen were paid an average (per pound) of \$2.70 for chinook and \$0.37 for summer chum salmon. The estimated (ex-vessel) value of the harvest was \$5.1 million which was 43% below the 1988-1992 average value (Appendix B.12). The average earnings per fisherman was approximately \$7,500.

A total of 5 processors operated in the Lower Yukon Area in 1993. All of the commercial salmon catch was shipped to fresh or fresh/frozen markets. Canning of salmon in the Lower Yukon Area has not occurred since 1984.

Upper Yukon Area Harvest

Upper Yukon Area commercial salmon sales in the round totaled 5,470 chinook and 3,068 summer chum salmon in 1993 (Table 4). In addition, roe sales by species totaled 2,014 pounds for chinook and 22,962 pounds for summer chum salmon. Roe sales were 87% below the 1988-92 average for summer chum salmon. Roe sales data are not available for chinook and coho salmon prior to 1990; therefore, harvest levels for 1993 cannot be compared to historical information. Historical commercial harvest by statistical area is presented in Appendices C.5-C.9.

Total estimated commercial-related salmon harvests by district during 1993 are presented in Table 4. These catch figures reflect the estimated number of female salmon harvested to produce roe sold in Districts 4-6. In District 4, the estimated incidental catch of male summer chum salmon to produce roe sold is also included. Appendices C.2 to C.4 presents commercial salmon sales and estimated harvest by gear type (set gillnet and fish wheel).

A total of 11 buyer/processors and 13 catcher-sellers operated during 1993. Upper Yukon commercial fishermen received an estimated (per-pound average price) of \$1.06 for chinook, \$0.35 for summer chum, \$5.52 for chinook roe, \$8.53 for summer chum roe (Appendix A.12).

The approximate (ex-vessel) value of the 1993 harvest was \$317,000. A total of 123 fishermen participated in the commercial fishery. The average earnings per fisherman was approximately \$2,578.

Chinook and Summer Chum Salmon Season

Based on parent year escapements, the 1993 pre-season outlook was for a slightly below average chinook salmon run and a below average to average summer chum salmon run. The projected harvest for the Alaskan portion of the drainage was 86,000 to 98,000 chinook and 400,000 to 800,000 summer chum salmon.

The mean April air temperature in Nome was 28 degrees Fahrenheit, which typically is indicative of early run timing (Appendix A.26). The Lower Yukon Area was generally free of ice by May 19 and chinook salmon migratory timing appeared to be earlier than normal and similar to the early run timing observed in 1988. The first chinook salmon catches were reported on May 26 by a subsistence fisherman near Sheldons Point. The department's test fishing projects recorded the first summer chum salmon catches on May 28 (Appendices B.15 and B.17). Based on commercial and department test net catches, chinook and summer chum salmon entry occurred primarily through South and Middle Mouths.

Comparative lower river test fishing cumulative CPUE from 8.5 inch mesh size test gillnets indicated the 1993 chinook salmon run was average in abundance most similar to the runs observed from 1988 through 1991 (Appendices B.13 and B.14). According to test fishing data, approximately 50% of the chinook salmon return had entered the lower river by June 18. The combined catches of chinook salmon in 8.5 inch and 5.5 inch mesh size test nets indicated abundance was slightly greater than average.

Comparative test net cumulative CPUE data indicated the 1993 summer chum salmon return was below average in abundance and similar to the poor 1982 return (Appendices B.13 and B.15). Summer chum salmon migratory timing appeared to be late with approximately 50% of the summer chum salmon run entering the lower river by June 27 according to test fishing CPUE data. The early portion of the run was weak, which was not entirely unexpected as the return of 5-year-old fish was anticipated to be below average. However, the contribution of age-4 fish to the run was very low, and very unexpected. Postseason it was estimated that the summer chum salmon run was only half as large as projected.

The Yukon River sonar project at Pilot Station utilized new transducers in 1993 which allowed the sonar range to be greatly increased compared to previous years. Total season passage estimates of 137,200 chinook and 950,000 summer chum salmon were obtained. However, passage estimates for 1993 may not be comparable to other years because of the utilization of the new transducers.

Based on the in-season assessment of an average chinook salmon run, the midpoint of the guideline harvest ranges for chinook salmon were targeted in the Alaskan portion of the drainage. The 1993 lower river commercial salmon season was opened by emergency order after approximately eleven days of increasing subsistence and test net catches. The chinook salmon directed fishery with unrestricted mesh size gillnets was opened on a staggered basis: June 14 in District 1, June 16 in District 2, and June 20 in District 3 (Tables 5-7).

The first two periods in Districts 1 and 2 were 12 hours in duration. The harvest of 23,020 chinook salmon taken during the second period in District 1 on June 17 and 18 was the largest on record for a 12-hour opening. Because the combined commercial harvest in District 1 and 2 was projected to exceed 55,000 chinook salmon after the second commercial fishing period in District 2 on June 21, unrestricted mesh size fishing periods were reduced to six hours duration beginning with the third commercial period in District 1. In addition, the third fishing period in District 2 was delayed from June 23 until June 25. These management actions were designed to spread out the harvest to achieve adequate spawning escapements throughout the drainage.

Another management strategy in the Lower Yukon Area was to discontinue the use of unrestricted mesh size gillnets when the combined District 1 and 2 harvest approached 60,000 to 70,000 chinook salmon. Normally, it is anticipated that additional chinook salmon will then be taken during periods restricted to six inch maximum mesh size gillnets.

A single 6-hour period with gillnets restricted to six inch maximum mesh size was established in the lower river on June 24 in District 1. This period was based upon an increase in summer chum salmon abundance according to lower river test fishing CPUE data from June 17 through June 21, cumulative harvest of chinook salmon to date, and anticipated increase in summer chum salmon abundance historically observed during late June. However, the abundance of summer chum salmon did not increase substantially and the run was judged to be poor through the remainder of the season. Additional commercial harvest of summer chum salmon with restricted mesh gear was not allowed.

Because of the poor summer chum salmon return, the remainder of commercial fishing season in the Lower Yukon Area consisted of 6-hour unrestricted mesh size fishing periods. This strategy was utilized to allow additional harvest of chinook salmon while conserving chum salmon. The last commercial fishing period occurred on July 1.

The total harvest of 86,579 chinook salmon for Districts 1 and 2 was 4% below the midpoint of the guideline harvest range of 90,000 fish and 9% below the 1988-1992 average harvest of 95,398 fish. The average weight of chinook salmon was 20.5 pounds. A total of 84,377 chinook salmon were harvested during unrestricted mesh size fishing periods in Districts 1 and 2, and 2,202 chinook salmon were harvested during the single restricted mesh size fishing period. The average weight of chinook salmon harvested during unrestricted mesh size fishing periods and restricted mesh size periods was 20.7 pounds and 15.8 pounds, respectively.

A total of 47,488 summer chum were harvested during unrestricted mesh size fishing periods, and 45,503 summer chum were harvested during one restricted mesh size fishing periods in Districts 1 and 2, combined (Tables 5 and 6). The total District 1 and 2 commercial summer chum salmon harvest was 92,991 fish, which was 84% below the recent 5-year average, and below the lower end of the guideline harvest range of 251,000 fish. The average weight of summer chum salmon in the commercial catch was 6.6 pounds.

In District 3, five unrestricted mesh size fishing periods (two 12-hour and three 6-hour) were allowed (Table 7). The initial delay in opening District 3 allowed the first segment of the chinook salmon run to pass through the district and allowed a majority of the subsistence harvest to be taken prior to the commercial fishery. A total of 1,501 chinook salmon were harvested in District 3, which was 17% below the lower end of the guideline harvest range and 24% below the recent five-year average. A total of 463 summer chum were harvested, which was well below the recent 5-year average of 6,233 summer chums. The summer commercial fishing season in District 3 closed on 30 June. Fishing effort in District 3 was approximately 66% less than average.

Because of the poor summer chum salmon run, the department opened the commercial fishing season in Subdistricts 4-B and 4-C on June 27 with the first three fishing periods primarily directed at chinook salmon. Historically, nearly all of the District 4 chinook salmon commercial sales occur in Subdistricts 4-B and 4-C. In contrast, very few chinook salmon are sold in Subdistrict 4-A, where primarily the fishery targets summer chum salmon. The opening of the Subdistrict 4-A fishery was delayed until it appeared that the Anvik River escapement objective of 500,000 fish would be met and that the number of summer chum salmon past the Pilot Station sonar justified a limited commercial fishery. It was estimated that 900,000 summer chum salmon had entered the Yukon River by July 9. In Subdistrict 4-A, fishermen had one 12-hour fishing period on July 11 and one 9-hour fishing period on July 14. Subdistrict 4-A fishermen sold 20,485 pounds of roe for an estimated summer chum harvest of 38,196 salmon (Table 8). No salmon were sold in the round.

The last period in Subdistricts 4-B and 4-C was a 24-hour period directed at summer chum salmon on July 14. The inseason targeted harvest was one-third of the low end of the summer chum salmon guideline harvest range. Subdistricts 4-B and 4-C fishermen sold 1,962 pounds of roe for an estimated harvest of 4,761 summer chum salmon. A total of 1,349 chinook salmon and 701 pounds of chinook salmon roe were sold, for an total estimated commercial harvest of 1,577 chinook salmon (Table 8). This harvest was below the guideline harvest range for District 4 of 2,250-2,850 chinook salmon and well below the recent five-year average.

In District 5, chinook salmon are the primary species of commercial value during the early season. 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 36-hour and one 24-hour) occurred in Subdistricts 5-A, 5-B, and 5-C for a total harvest of 2,608 chinook salmon (Table 9). This harvest was 8 fish above the mid-point of the guideline harvest range of 2,600 fish. One 48-hour and one 36-hour fishing period were allowed in Subdistrict 5-D for a harvest of 400 chinook salmon; the midpoint of the 300 to 500 fish established as the guideline harvest range for Subdistrict 5-D. No summer chum salmon were sold. The summer season commercial fishery in District 5 was closed when the harvest of chinook salmon reached the mid-point of the guideline harvest range.

In District 6, the chinook salmon harvest is usually incidental to the directed summer chum salmon fishery due to the low chinook salmon (600-800 fish) harvest guideline. However, the commercial fishing season was limited to two 42-hour periods primarily directed at the harvest of chinook salmon because of concerns for achieving adequate summer chum salmon escapements. The first 42-hour fishing period occurred on July 12, and fishermen harvested a total of 896 chinook salmon. The next commercial period was delayed until July 19 when preliminary escapement information indicated that chinook salmon spawning escapement goals in the Chena and Salcha Rivers would be met. Commercial sales totalled 1,113 chinook salmon and 1,313 pounds of chinook roe, for a total estimated commercial harvest of 1,445 chinook salmon in District 6 in 1993 (Table 10). A total of 3,041 summer chum salmon and 515 pounds of summer chum roe were sold. The estimated total commercial summer chum salmon harvest was estimated to be 3,705 fish. This harvest was well below the District 6 guideline harvest range of 13,000 to 38,000 summer chum salmon.

Fall Chum and Coho Salmon

A below average run of fall chum salmon stocks was anticipated in 1993. The overall fall chum salmon run was projected to be 734,000 fish. Due to the rebuilding efforts underway with the Canadians for the Yukon River mainstem stocks and conservation concerns for the Toklat River stocks, the Board of Fisheries adopted the Toklat River Fall Chum Rebuilding Management Plan in March 1993. This management plan, developed

cooperatively with the Yukon River Drainage Fishermen's Association and the department, identified the need for 400,000 fall chum salmon for spawning escapement, approximately 220,000 fall chum salmon to provide for Alaskan subsistence and Canadian harvests, and established a reduced commercial fall chum salmon harvest range. The intent was to commercially harvest to a lower level than the overall strength of the run would indicate. The 1993 commercial harvest in the Alaskan portion of the Yukon River drainage was expected to range from 77,900 to 113,000 fall chum salmon.

The 1993 fall chum salmon run strength was considerably less than projected. Near the estimated midpoint of the run on August 8, the Pilot Station sonar passage estimate was 148,198 fall chum salmon compared to the average sonar passage of 257,858 fall chum salmon by this date. Preliminary age composition information from fall chum salmon test fish catch samples indicated that approximately 60% of the run was composed of age-4 fish, which was lower than expected. With a projected poor return of age-5 fall chum salmon, it was anticipated that age-4 fish would represent approximately 85% of the run. Additionally, the percentage of age-6 fish in test fishery samples was higher than normal. Age composition information suggested a poor return from the 1989 parent year. Therefore, the run was judged to be extremely weak. The weak run was later confirmed by escapement monitoring projects.

The department announced on August 9 that the 1993 fall season would not open to commercial fishing. On August 13, the department assessed the return to be between 350,000 and 500,000 fish. Such a level would not support commercial, sport, or personal use fishing. Consequently, on August 16 sport fishing for chum salmon was closed, while the Tanana River personal use salmon fishery was closed on August 22.

The combined cumulative season fall chum CPUE of 26.74 through August 25 (Appendices B.16 and B.17) for the four standard lower river test net sites was the fourth largest on record. Comparative test fishing indices suggested the 1993 run was average in magnitude and similar in magnitude to the 1983 and 1989 runs. However, the early portion of the 1993 fall chum run did not appear to be as strong as in 1983 and 1989.

The Yukon River sonar project at Pilot Station estimated a total passage of 295,303 fall chum (Appendix E.3.). This was the lowest sonar passage estimate on record and only 40% of the preseason projected run size of 734,000 fish.

A three day travel time for fall chum salmon between the lower river test fishery and Pilot Station sonar site remained fairly consistent throughout the season. However, there was a large difference in relative magnitude between daily lower river test fishing CPUE and corresponding sonar counts. It appears that the Pilot Station sonar passage estimate was much more accurate than the lower river test fishery in portraying run abundance of fall chum salmon. Fall chum salmon escapement information collected from the Sheenjek River, Fishing Branch River, and the Canadian Yukon River mainstem tagging project indicated a very poor fall chum salmon run.

Lower river test fishing CPUE data appeared to greatly overestimate run size. Wind direction, bank orientation of migrating salmon, low water level, and fish size may have effected test net catches. The cumulative lower river test fishery CPUE in 1986 was also very large compared to postseason run assessment and water levels were very low during that year. Historical lower river test fishery indices are also affected by commercial removal below the test net sites which makes comparisons between years more difficult.

The 1993 coho salmon outlook was for an average return. Because of overlapping run timing and fall chum salmon conservation concerns, commercial harvest of coho salmon was not permitted. Historic commercial harvests of coho salmon are presented in Appendix A.7.

Coho salmon test fishing data indicated the run was near average in magnitude. Run timing also appeared about average, although very low test fish catches occurred until the first major pulse was observed on August 14-16 (Appendices B.16 and B.18). The combined cumulative CPUE of 14.80 for the four standard test net sites was the fourth highest on record through August 25. The average season cumulative CPUE from 1980 through 1992 is 14.07. After August 16, coho salmon consistently comprised the majority of daily test fish catches. It should be noted that the entire coho salmon return is not monitored by the lower river test fishing project or the sonar project at Pilot Station, since the migration continues into September, well after the test fishery and sonar operation is terminated.

The Yukon River sonar project at Pilot Station estimated a total passage of 40,474 coho salmon in 1993 (Appendix E.3.). This was the lowest sonar passage estimate on record. There did not appear to be a correlation between daily CPUE in the lower river test fishery and subsequent sonar passage estimates or test fishery CPUE for coho salmon at Pilot Station.

Alaskan Subsistence and Personal Use Fishery 1993

The total number of salmon harvested in the subsistence fishery in the Alaskan portion of the Yukon River drainage in 1993 was estimated from the survey program, subsistence and personal use fishing permit information, department test fish given to the public, and information on fish retained from commercial catches for subsistence use. Fish retained from commercial catches for subsistence use (excluding commercial related salmon) were included in the subsistence salmon harvest estimates. Commercial related salmon were female salmon harvested to produce roe sold in Districts 4, 5, and 6. The commercial related harvest of summer chum salmon in District 4 also included male salmon. The estimated harvests and number of households obtained from the individual programs are not additive because of overlapping harvest reporting from Stevens Village.

The 1993 subsistence and personal use salmon harvests from all sources for the Alaskan portion of the Yukon River drainage (excluding Hooper Bay and Scammon Bay) by 1,246 fishing households were estimated to be 65,701 chinook, 106,054 summer chum, 76,925 fall chum, and 15,772 coho salmon (Table 13). The chinook salmon harvest was 36% above the 1988-1992 average catch of 48,134 fish; the summer chum harvest (excluding commercial related harvest) was 27% below the recent 5-year average harvest of 145,865 fish; the fall chum salmon harvest was 52% below the 1988-1992 average catch of 158,960 fish; and the coho salmon harvest was 68% below the 1988-1992 average catch of 48,923 fish. The coastal harvests near the villages of Hooper Bay and Scammon Bay were estimated to be 1,429 chinook, 20,798 summer chum, 120 fall chum, and 40 coho salmon. A portion of these harvests were probably from local non-Yukon River drainage streams as well as from salmon stocks migrating beyond the Yukon River. Further information regarding the 1993 Yukon River subsistence salmon harvest can be found in Holder and Hamner (*In press*).

Subsistence Survey Program

The majority of households in the Yukon River drainage reside in villages in which there are no regulatory requirements concerning reporting of their subsistence salmon harvest. The department has implemented a survey program to estimate the salmon harvest from areas not requiring a permit. The 1993 survey database contained 2,581 households in 34 villages and included the villages of Hooper Bay and Scammon Bay. The survey program utilized subsistence catch calendars, postseason household interviews, and postseason telephone interviews to improve the sampling frame used to estimate the harvest. Stratified random sampling techniques were used to identify 1,177 households which were to be interviewed during the 1993 survey. The stratification of the households was based on prior year harvest information. Based on the 979 households surveyed (83% of the sampling goal), an estimated (95 percent confidence intervals are in parenthesis), 1,151 (± 84) fishing households harvested a total of 56,529 ($\pm 8,822$) chinook; 111,966 ($\pm 12,922$) summer chum; 57,586 ($\pm 10,609$) fall chum; and 9,981 ($\pm 2,162$) coho salmon. Estimates of the 1993 subsistence and personal use salmon harvest by village are summarized in Table 13.

Subsistence and Personal Use Fishing Permit Program

Subsistence fishing permits were required by regulation for households which desired to fish in the Tanana River, the Yukon River between Hess Creek and the Dall River, or the Yukon River between Twenty-Two Mile Slough and the U.S./Canada border. Households which fished in areas requiring a permit were required to obtain a permit, document their catch, and return the permit upon expiration. A total of 310 subsistence permits were issued which included six households that were issued permits to fish in two different permit areas (separate times) and 30 Minto households that were issued Tolovana River subsistence pike permits and salmon permits. The reported subsistence permit catches by 288 permittees who had returned their permits as of February 14, 1994, was 7,349 chinook salmon, 7,370 summer chum salmon, 15,122 fall chum salmon, and 4,415 coho salmon. Subsistence harvests taken by permit fishermen in 1993 are summarized in Table 14 and historical permit catch information in Appendices D.1 to D.7.

Households which fished within the Fairbanks Non-Subsistence Zone were required to obtain a personal use fishing permit, document their catch, and return the permit upon expiration. A total of 137 personal use permits were issued, and the salmon harvest for the 135 permittees who had returned their permits as of February 14, 1994, was 426 chinook salmon, 674 summer chum salmon, 163 fall chum salmon, and 0 coho salmon. Personal use harvests taken by permit fishermen in 1993 are summarized in Table 14. To reduce spawning habitat disturbances, the department did not issue any personal use Delta River fall chum salmon carcass permits. Historical personal use harvest information is included in Appendices D.8 through D.10.

Subsistence Salmon Obtained from the Commercial Fishery

Commercial fishermen were required to document the number of fish retained for subsistence use from their commercial catch on fish tickets but compliance was poor. Since fish ticket reporting was poor, the estimate of salmon retained from commercial catches was a combination of survey responses and fish ticket records and is considered a minimal estimate. An estimated 2,789 chinook and 604 summer chum salmon were retained from commercial catches for subsistence use.

The salmon carcasses which became available for subsistence use as a result of the commercial sale of salmon roe are considered part of the commercial harvest in the commercial related harvest category of the total utilization tables in Appendix A. The estimated commercial related harvest to produce the roe sold was 560 female chinook salmon from Districts 4 and 6, and 664 female summer chum salmon harvested in Districts 5 and 6. The estimated District 4 commercial related harvest of female and male summer chum salmon potentially available for subsistence use was 42,930 fish. The number of fish actually used for subsistence purposes was less than those fish potentially available because of nonretention of males, transport of fish out of the surveyed villages, and loss of fish to spoilage or animals. The survey estimated 32,149 summer chum salmon were retained from commercial catches by District 4 households and used for subsistence purposes.

Department Test Fish Program

ADF&G test fisheries gave away a total of 2,055 chinook, 6,242 summer chum, 4,409 fall chum, and 1,432 coho salmon to households in the villages of Emmonak, Kotlik, Pilot Station, and Manley for subsistence use. These salmon were assumed to replace fish which would have been obtained through normal fishing activities; therefore salmon given away by the department were added to the village subsistence harvest of the recipient households.

1993 Subsistence Restrictions and Closure

It is common and usually necessary for subsistence fishing to be restricted during the commercial fishing season to enforce commercial fishing regulations. Chinook and summer chum salmon subsistence fishing progressed normally in 1993. Substantially more subsistence fishing time was allowed during the chinook and summer chum salmon fishing season due to the short commercial fishing season. After the early commercial fishing season, Districts 1, 2, and 3 were placed on a seven-day-per-week subsistence fishing schedule; Subdistricts 4-B, 4-C, 5-A, 5-B, and 5-C were placed on a five-day-per-week subsistence fishing schedule; Subdistrict 4-A was placed on a seven-day-per-week fishing schedule beginning Friday, July 16, at the close of the early commercial fishing season; District 6 remained on the regulatory schedule of two 42-hour subsistence/personal use fishing periods per week; and Subdistrict 5-D remained on a seven-day-per-week fishing schedule which is not affected by the commercial season.

The department had identified the need for approximately 620,000 fall chum salmon to provide for subsistence and escapement needs throughout the drainage in 1993. Based on preliminary inseason information, the department projected the run size to fall in the range of 350,000 to 500,000 fall chum salmon. This run size would not support normal subsistence harvest levels and meet escapement needs. On August 12, department biologists had a teleconference with representatives of the Yukon River Drainage Fisheries Association (YRDFFA) to discuss the status of the fall chum salmon run. Fishermen were informed that the run appeared much smaller than expected and the department recommended that commercial fishing not be re-opened and that subsistence fishing should be reduced to 48 hours per week in order to reduce the fall chum salmon subsistence harvest. At the suggestion of YRDFFA board members, subsistence fishing times were tailored to each area to help subsistence fishermen better cope with the restrictions and to reduce spoilage.

On August 16, subsistence fishing time was reduced to a total of 48 hours per week throughout the Yukon River drainage. Districts 1, 2, 3 and 4 were placed on a two 24-hour periods per week schedule beginning Tuesday, August 17; Subdistricts 5-A and 5-B were placed on a four 12-hour periods per week schedule

beginning Tuesday, August 17; Subdistricts 5-C and 5-D were placed on a two 24-hour periods per week schedule beginning Wednesday, August 18; and Subdistricts 6-A and 6-B were placed on a two 24-hour periods per week schedule beginning Sunday, August 22. The personal use fishery in Subdistrict 6-C was closed until further notice at 12 noon Sunday, August 22. Sport fishing for fall chum salmon was closed on August 16. Even though subsistence fishing for salmon was restricted, an emergency regulation was adopted which allowed subsistence fishing for other important species such as whitefish and pike to remain open seven days per week with 5 inch or smaller mesh size gillnets which would help reduce the incidental salmon catch.

By August 29, the estimated fall chum salmon passage at the Pilot Station sonar site was only 293,000 fish, and the proportion of four-year-old fish remained well below the expected level. Normally about 96% of the fall chum salmon run has passed Pilot Station by August 29. In addition, sonar counts through August 30 for the Sheenjek River, a major fall chum spawning tributary, were only 5,700 fish compared to about 19,000 in both 1991 and 1992; 13,000 in 1990; and 33,000 in 1989. As a result of this information, the department lowered its total run assessment to a range of 300,000 to 350,000 fall chum salmon. On August 30, the department issued a news release which announced that subsistence fishing restrictions were being extended until a subsistence salmon fishery closure became effective 6:00 p.m. Friday, September 3, 1993. This was the first time in history that the entire Alaskan portion of the Yukon River drainage was closed to subsistence salmon fishing. This action was necessary to attempt to achieve fall chum salmon spawning escapement goals. During the subsistence salmon fishing closure, subsistence fishing for other freshwater species was allowed seven days a week throughout the drainage with gillnets of 5 inches or less mesh size and other legal gear.

On September 17, subsistence salmon fishing was reopened with limited fishing time based on the decreased presence of fall chum salmon and to allow the subsistence harvest of coho salmon. Beginning September 17, subsistence fishing in Districts 1, 2, 3 and Subdistrict 4-A was allowed during two 24-hour openings per week until October 1, at which time all restrictions were removed. Beginning September 19, subsistence fishing in Subdistricts 4-B and 4-C and its tributaries was allowed during two 24-hour openings per week until October 1, when all restrictions were removed. On Monday, September 27, Subdistricts 5-B, 5-C, and 5-D and its tributaries were reopened to continuous subsistence fishing and the 5 inch mesh restriction was removed.

A single 24-hour subsistence opening was allowed beginning at 6:00 p.m. Wednesday, September 22, in Subdistricts 5-A, 6-A, and 6-B, excluding the Kantishna River drainage, to assist in evaluating the strength of Tanana River coho salmon stocks. The department estimated that approximately 6,100 chum salmon and 2,860 coho salmon were caught in 20 fish wheels and 8 set gillnets. Because of the high percentage of chum salmon caught in the test opening and the low percentage of coho salmon, the department did not allow any additional subsistence salmon fishing openings. The department reopened subsistence fishing opportunities to seven days per week in Subdistricts 5-A, 6-A, and 6-B beginning Saturday, October 16.

In an attempt to provide for households which did not get enough salmon because of the fall season subsistence salmon fishing closure, the department participated in airlifting chum and pink salmon from two state hatcheries to four Yukon River villages. Based on the pounds of fish delivered, an estimated 1,789 chum and 326 pink salmon were delivered to Ruby; 4,164 chum and 236 pink salmon were delivered to Tanana; 1,180 chum and 502 pink salmon were delivered to Beaver; and 945 chum and 401 pink salmon were delivered to Chalkyitsik. Even though these fish were primarily identified for dog food, many households who received these salmon mentioned that the airlifted fish were of inferior quality compared to the Yukon River salmon they would normally have harvested.

Canadian Fisheries 1993

The management plan for Canadian fisheries on the Yukon River in 1993 was formulated to generally reflect the understandings reached during the Yukon River salmon treaty negotiations. Accordingly, the guideline harvest ranges, border passage, and spawning escapement goals for Canadian spawned chinook and fall chum salmon, tentatively agreed to in the negotiations, provided the foundation for the 1993 management plan.

A total of 16,469 chinook and 12,422 fall chum salmon were estimated to have been harvested by Aboriginal, domestic, sport, and commercial fishermen in the Canadian portion of the mainstem Yukon River drainage in 1993 (Appendix A.20 and A.22). An additional 142 chinook and 1,668 fall chum salmon were harvested in the Aboriginal fishery at Old Crow in the Canadian portion of the Porcupine River drainage in 1993.

Commercial Fishery

A total of 18,112 salmon including 10,350 chinook salmon and 7,762 fall chum salmon was harvested in the 1993 Canadian Yukon River commercial fishery (Table 15). A total of 30 commercial licenses was issued in 1993. This was the same number of licenses as in 1992, as was the maximum number of 17 commercial fishermen active during any one week of the chinook season. During the fall chum season the highest number of fishermen in any one period was 13. Most of the commercial chinook harvest was taken by set gillnets; only two fish wheels were in use during the chinook season. However, during the fall chum season, more than 30% of the catch was estimated to have been taken in fish wheels. There has been a recent increase in the use of fish wheels during the fall chum season from 3 in 1990, to 9 in 1991, and 10 fish wheels in 1992 and 1993.

Chinook Salmon

The major elements of the chinook salmon management plan implemented in Canada by DFO for 1993 included:

- 1) a commercial guideline harvest range of 9,100 to 12,100 chinook with a preseason target of 9,900 chinook. Based on the preseason outlook for a below average return, it was expected the catch would fall within the lower half of the range; and
- 2) a one day per week fishery for the initial two weeks of the season, followed by a three day opening subject to run assessments. The duration of subsequent fishing periods was to be determined inseason based on run strength and harvest guidelines.

The 1993 chinook salmon fishing plan was similar to the plan in the previous year with the exception of a 500 fish increase in the commercial guideline harvest range, which was based on the lower average catch in non-commercial fisheries during the last four years.

The commercial fishery opened on June 28 for 24 hours after the presence of chinook salmon had been determined by the DFO tagging fish wheels located just upstream of the international border. The first chinook was caught in the fish wheels on June 23, the earliest date on record and in stark contrast to 1992 when the first fish did not appear until July 14, one of the latest dates on record. Consistent with the management plan, fishing

time was extended to three days exactly two weeks after the run had begun. The first inseason projections of border escapement ranged from 42,700 to 46,900 chinook salmon. As a result, the season commercial catch target was increased to 11,350 chinook, i.e. the three-quarter point in the overall Canadian commercial guideline harvest range. The resulting increased guideline harvest combined with the above average CPUE observed in the fishery prompted an increase in fishing time to four days from July 18-22. The peak commercial catch and CPUE of the season occurred during this opening, approximately ten days later than the peak catches observed at the DFO fish wheels.

The total commercial catch of 10,350 chinook (Table 15) was well within the guideline harvest range of 9,100 to 12,100 chinook. Approximately 97% of the catch was harvested in the lower fishing area, i.e. downstream from the Sixty Mile River. The preliminary postseason estimate of the border escapement indicated a Canadian commercial harvest rate of 24% on chinook salmon in 1993. Comparisons of the average commercial chinook CPUE with previous years indicated the run was about average in both magnitude and timing. However, the combined DFO fish wheel catches were 12% below the 1985-1992 average. Run timing at the wheels appeared to be earlier and more protracted than normal, with a strong early run component. The combined catch peaked towards the end of the first week in July, two weeks after the first fish was caught.

Fall Chum Salmon

As a result of the poor run outlook, the 1993 fall chum salmon management plan was developed to address both the conservation concern for the 1993 run and the objectives of the three cycle rebuilding plan that had been tentatively agreed to in the treaty negotiations. Accordingly, the management plan included the following components:

- 1) a commercial guideline harvest range of 21,300 to 30,300 fall chum salmon with a preseason target of 21,800, near the lower end of the range in view of a below average expected return; and
- 2) reduced fishing time (one to two days per week) for the first two weeks of the fall chum season, followed by potentially longer openings commencing the first week of September depending on assessments of run strength and the guideline harvest ranges.

Fishing time was reduced to one day per week during the third week of August as chinook abundance declined and the fall chum run slowly began to build. The catch of fall chum salmon was below average and effort was relatively light. Fishing time was increased to two days commencing August 30. DFO fish wheel catches in the preceding week had been variable and fluctuated from above to below average. The commercial CPUE for this week was 21% below average. As a result of the below average catch and indications from the Alaskan portion of the drainage that the fall chum run was poor, fishing time was not increased as would normally have occurred. Instead, a cautious approach was adopted. The fishery opened September 6 for only two days despite a marked increase in daily catches in the DFO fish wheels.

Preliminary results from tag recovery efforts in the fall chum commercial fishery indicated that approximately 50% of the tags applied were being recaptured. This was higher than expected given the restrictions in fishing time that had been imposed thus far in the season. In light of the higher than normal tag recovery rate and below average CPUE in the fishery, fishing time was reduced to one day per week on September 13-14; this marked a 75% reduction from the fishing time normally allowed for this week. In addition, consultations with Alaskan fishery biologists indicated there had been no improvement in the stock status indicators elsewhere in the

drainage in Alaska. A decline in the DFO fish wheel catches in mid-September was consistent with general run timing information provided by the Pilot Station sonar project conducted by ADF&G in the lower Yukon River. The first projection of border escapement, made on September 16, was 26,000 to 73,400 fall chum. This range constituted the 95% confidence interval around a point estimate of 40,300 fall chum. The prediction had a wide range due to the variability in historical run timing at this early point in the run.

As a result of the initial projection of border escapement, fishing time remained restricted to one day per week on September 20-21 to allow a minimal tag recovery effort to continue for run assessment purposes. The projection was updated to include the catch and tag recovery data collected during this opening, and it increased only marginally over the previous week's projection, to 44,400 fall chum salmon with a 95% confidence interval of 32,600 to 64,200 fish. As a result of the poor run strength that was confirmed by the most current border escapement projection, a decision was made to close the commercial fishery for the season effective September 21. This was the earliest closing date of the fishery on record.

The total commercial chum harvest of 7,762 fish (Table 15) was 64% below the lower end of the commercial guideline harvest range of 21,300 to 30,300 chum. Based on preliminary tag recovery data, the harvest rate in the commercial fishery was approximately 18%. Total fishing effort during the fall chum season was 72% below the 1987-1992 average. The total number of days fished was the lowest on record, 7 days compared to the 1987-1992 average of 23.5 days. Run strength based on cumulative commercial fishery CPUE was approximately 8% below average whereas the cumulative DFO fish wheel catch was 28% below average. The mark-recapture estimate was approximately 48% below average. Run timing in the commercial fishery was unimodal and appeared to be one week later than normal. By contrast, the timing at the DFO fish wheels was bi-modal and appeared to be about average.

Canadian Aboriginal and Domestic Fisheries

A comprehensive survey of the Aboriginal fishery was conducted in 1993. Catch statistics were collected from participants through inseason and/or postseason interviews. The estimated catch was 5,576 chinook salmon in the mainstem Yukon River drainage and 142 chinook salmon at Old Crow in the Porcupine River drainage. The estimated fall chum salmon catch was 4,660 fish for the mainstem Yukon River drainage and 1,668 at Old Crow for the Porcupine River drainage. The above average chum catch in the mainstem Yukon River in 1993 was likely a result of reduced opportunity to harvest fish for subsistence use during the commercial fishery. As a result, some Aboriginal fishermen, who also fish commercially, expended greater effort in the Aboriginal fishery than in previous years. Also, weather conditions in the fall of 1993 were mild and conducive fishing.

A total of 243 chinook salmon was taken in the domestic fishery in 1993, similar to other recent years. No fall chum salmon catches were reported in the domestic fishery.

As in previous years, no Canadian sport fishery harvest data was collected in 1993. DFO has estimated that approximately 300 chinook salmon are harvested annually by sport fishermen in the Canadian portion of the Yukon River drainage.

Escapement 1993

Among the more comprehensive escapement enumeration studies conducted in 1993 to estimate total abundance of spawners, hydroacoustic techniques were employed to monitor chum salmon escapements to the Anvik and Sheenjek Rivers. While replicate ground surveys and stream life data were used to estimate abundance of chum salmon spawners in the Delta River, counting platforms were used by the Sport Fish Division to monitor timing and abundance of chinook and chum spawners in both the Chena and Salcha Rivers.

The Yukon River sonar project at Pilot Station has been estimating daily salmon passage by species annually since 1986, except for 1992, when the project was operated in an experimental mode with upgraded sonar equipment. However, full operations were resumed at Pilot Station in 1993 with the new equipment which provides greater insonification range and eliminates attenuation problems, thereby reducing biases that may have affected prior year estimates (Appendix E.3). Additionally, the 1993 season was the second year of joint field research and development by ADF&G and USFWS personnel for a Yukon River border sonar project near Eagle, Alaska. Objectives included detecting standard targets, refining inseason calibration procedures, and collecting acoustic data on fish targets.

Projects conducted by the Canadian DFO in 1993 consisted of a mark-and-recovery project near Dawson to estimate the total number of mainstem Yukon River chinook and chum salmon passing the US/Canadian border into Yukon Territory. Site specific studies included manning an enumeration window and passage gate at Whitehorse to monitor chinook salmon escapement upstream of Whitehorse as well as installing a weir in Michie Creek to determine the portion of chinook salmon passing the fishway which spawn in that stream. Additionally, another weir was operated on the Fishing Branch River (Porcupine River drainage) to enumerate chum salmon escapement.

Remaining escapement information throughout the Yukon River drainage in 1993 was obtained primarily by aerial and occasionally ground surveillance. Survey conditions were good throughout most of the Alaskan portion of the drainage during the chinook and summer chum salmon survey season, allowing all major index streams to be successfully surveyed as well as several of secondary importance. It was anomalous that neither wildfires nor rainy weather had a substantial negative impact on making visual observations in most major salmon spawning streams throughout Interior Alaska in 1993. Little rainfall resulted in most streams remaining clear and low well into August. For example, water conditions in the Chena and Salcha Rivers permitted the entire run of chinook salmon to be enumerated from viewing platforms on each stream. Similarly, major fall chum salmon spawning areas were also successfully surveyed in 1993.

The 1993 season marked the third consecutive year since statehood that the department did not conduct aerial escapement surveys for chinook salmon in the Canadian portion of the Yukon River drainage. Escapement estimates to selected tributaries in that portion of the drainage were made by DFO.

Escapement estimates obtained in 1993 are shown in Appendix E.2, while Figures 14 through 18 show major Yukon River tributary systems.

Chinook Salmon

Appendices E.4 and E.5 present historic chinook salmon escapement data for selected streams during the period 1961-1993. Chinook salmon escapement goals established by the Department for eight Alaskan streams, or index areas, are: East (>1,500) and West Fork (>1,400) Andreafsky, Anvik (>1,300 entire drainage or >500

Yellow River to McDonald Creek), North (>500) and South Fork (>800) Nulato, Gisasa (>600), Chena (>1,700), and Salcha (>2,500) Rivers.² These escapement goals are based upon aerial survey index counts which do not represent total escapement.

The overall Yukon River chinook salmon run was considered average to slightly above average in 1993. The sonar passage estimate of 137,200 chinook salmon at Pilot Station (Appendix E.3) was in the upper half of the range of historical estimates since 1986. Although this passage estimate may not be directly comparable to prior years due to the use of improved equipment in 1993, chinook salmon escapement goals were achieved in all eight Alaskan streams for which goals have been established.

Chinook salmon escapements in the lower Yukon River drainage were characterized by counts obtained for the Andreafsky and Anvik rivers. A total of 5,855 and 2,765 chinook salmon were counted by aerial survey in the East and West Fork Andreafsky River, respectively (Appendix E.4). While the West Fork count was the third highest on record, the East Fork count was the highest on record. In the Anvik River a total of 1,526 chinook salmon were observed under fair to poor survey conditions in the mainstem index area from Yellow River to McDonald Creek; the second highest aerial count on record.

In the middle Yukon River drainage, aerial survey counts of 1,844 and 1,181 chinook salmon were obtained under good survey conditions for the North and South Fork Nulato Rivers, respectively. Similar to the Andreafsky River, the North Fork count was the highest on record while the South Fork count was the third highest on record. A total of 1,573 chinook salmon were counted on a good survey of the Gisasa River, the second highest on record.

Aerial surveys of the Chena and Salcha Rivers indicated that excellent chinook salmon escapements were also achieved in the Tanana River drainage. A fair survey of the Chena River flown on July 25 resulted in a count of 2,660 chinook salmon in the index area from Moose Creek Dam to the Middle Fork; the highest on record. A fair survey of the Salcha River index area from the Trans-Alaska Pipeline to Caribou Creek resulted in a count of 3,562 chinook salmon; third highest on record. Further, counting tower escapement estimates of 12,241 chinook salmon for the Chena River and 10,007 chinook salmon for the Salcha River were higher than any of the prior year escapement population estimates for these rivers, although prior population estimates were obtained by mark-and-recovery experiments.

Although no chinook salmon escapement goals have been established for other Alaskan streams, observations made on selected spawning tributaries in the upper Koyukuk River as well as in the Tozitna River, indicated escapements to have been at least average in magnitude. Chinook salmon aerial survey counts were 330 in Henshaw Creek, 421 in the South Fork Koyukuk and Jim Rivers, and 389 in the Tozitna River (Appendix E.2).

The preliminary DFO mark-and-recovery population estimate of chinook salmon entering the Canadian portion of the mainstem Yukon in 1993 was 45,027 (95% C.I. = 39,739 to 50,990), the third highest estimate since inception of the tagging program in 1982. Subtracting the estimated Canadian commercial and non-commercial harvest (16,469 excluding Old Crow) from this population estimate results in a total spawning escapement

² These chinook salmon escapement goals resulted from a staff reevaluation of goals in March 1992. Although no escapement goals have been established for individual Canadian streams, an interim escapement goal of 33,000-43,000 chinook spawners for the mainstem upper Yukon River drainage (Yukon Territory) was established by the JTC in March 1987. Additionally, a six year stabilization plan, ending after the 1995 season, has been agreed upon by U.S. and Canada. The objective of the plan is to stabilize the stock by achieving a spawning escapement of 18,000 or more chinook salmon for each year through 1995.

estimate to Yukon Territory (excluding the Porcupine River drainage) of approximately 28,558 chinook salmon (Appendix E.5). Although falling below the spawning escapement goal range of 33,000-43,000 fish, but well above the stabilization objective of 18,000, this also was the third highest spawning escapement estimate on record since inception of the tagging program.

Yukon Territory chinook salmon spawning streams surveyed by DFO in 1993 included a ground survey of Tatchun Creek, and aerial surveys of the Little Salmon, Ross (Pelly River drainage), Big Salmon, Nisutlin and Wolf Rivers (Teslin River drainage). Although somewhat inconsistent with the mark-and-recovery results, with exception of surveys flown of the Ross and Wolf Rivers, aerial index counts were below average. Albeit all surveys were given a rating of "good", timing of surveys relative to peak spawning varied. Surveys of the Little Salmon River, Big Salmon River, and Tatchun Creek index areas appeared to be slightly early. Surveys of other index areas were judged to be near peak spawning.

The number of chinook salmon which returned to the Whitehorse fishway in 1993 totaled 668, of which 43% possessed an adipose-clip from previous hatchery releases. From the total chinook salmon returning to the fishway, 505 were passed upstream (including 22 males which were spawned once). The total number spawned for hatchery brood stock in 1993 was 89 females and 67 males. A total of 284 chinook salmon were passed through Michie Creek weir between August 8 and September 1; 122 possessed an adipose-clip. The Michie Creek weir passage represented 56% of the Whitehorse fishway count. The percentage of fish with adipose fin clips was the same as that observed at the Whitehorse fishway (43%).

Summer Chum Salmon

Appendix E.6 presents historic summer chum salmon escapement data for selected streams during the period 1973-1993. Escapement goals for six major summer chum spawning streams in the lower Yukon River drainage are: East (>109,000) and West Fork (>116,000) Andreafsky, Anvik (>500,000), North Fork Nulato (>53,000), and in the Hogatza (Clear Creek at >8,000 and Caribou Creek at >9,000) Rivers. An additional escapement goal of >3,500 summer chum salmon exists for the Salcha River in the Tanana River drainage. With the exception of the Anvik River objective which is a minimal goal of total spawning abundance, all other objectives are based upon aerial survey observations during periods of peak spawning. The corresponding aerial escapement goal for the Anvik is >356,000 chum salmon between Goblet Creek and McDonald Creek.

Although a below average summer chum salmon run for the Yukon River was expected in 1993, the return materialized even weaker than projected; apparently due to a weak return of age 4- fish. With exception of the Anvik River, spawning escapements were extremely poor throughout the Yukon River drainage. Only in the Anvik River was the escapement goal achieved. A sonar-estimated escapement of 517,409 summer chums was made for the period June 19 to July 25, and represented approximately 55% of the total passage estimate of summer chum salmon at Pilot Station (949,776).

An aerial survey of the Andreafsky River flown on July 11 under excellent survey conditions, resulted in estimates of 10,935 summer chums on the East Fork and 9,111 on the West Fork. Although this survey was flown prior to peak of spawning, the escapement estimates were well below the minimum goals for each of these streams. Similar observations were made for summer chum salmon stocks spawning upstream of the Anvik River. Less than 13,200 summer chums were estimated spawning in the North and South Fork Nulato River combined, 1,581 in the Gisasa River, 1,773 in Henshaw Creek (Appendix E.2), and only 124 in the South

Fork Koyukuk and Jim Rivers. Less than 1,000 chum salmon were counted by aerial surveillance in either Melozi Hot Springs Creek or the Tozitna River in 1993.

Index areas of Blackburn Creek and upper Caribou Creek (Hogatza River drainage), were again surveyed by foot in 1993. The number of summer chum salmon counted in these areas was 1,362 and 525, respectively (Appendix E.2).

A 4-H educational program provided funding and supervision of students for a counting tower in the Kaltag River for the third consecutive year in 1993. A partial tower count of 10,005 summer chum salmon (and 145 chinook) was obtained during the period July 7-29. Tower observations did not encompass the entire summer chum and chinook salmon runs.

Summer chum salmon escapements were also poor to the Tanana River drainage as evidenced by observations made in the Chena and Salcha Rivers. Although no aerial surveys were flown during periods of peak spawning of this species, passage estimates from counting towers in each river during the period July 1 through August 7, were only 5,400 in the Chena River and 5,809 in the Salcha River (Appendix E.2).

Fall Chum Salmon

Appendix E.7 presents historic fall chum salmon escapement data for selected streams since the early 1970's. The most complete database on Yukon River fall chum salmon escapements dates back to the early 1970's and exists for four streams: Toklat, Delta, Sheenjek, and Fishing Branch Rivers. Escapement goals for these streams are greater than 11,000, greater than 33,000, greater than 64,000, and 50,000-120,000 fall chum salmon, respectively. These goals are of total abundance. In addition to estimates of total escapement to the above four streams, annual estimates of border passage and subsequent spawning escapement also exist for Canadian fall chum stocks in the upper mainstem Yukon River. The escapement goal for those stocks is greater than 80,000 fall chum salmon spawners (border passage less harvest).

The 1993 return of Yukon River fall chum salmon was disastrous; the lowest on record. The sonar project at Pilot Station estimated a total passage of 295,303 fall chum salmon through the end of August (95% C.I. = 275,000 to 341,000), the lowest sonar passage estimate on record (Appendix E.3). This passage estimate was only 40% of the pre-season projected run size of 734,000 fish.

Evaluation of escapements in the Porcupine River drainage was measured by observations made in the Sheenjek and Fishing Branch Rivers. The sonar estimated escapement in the Sheenjek River in 1993 was approximately 43,000 fish for the period August 8 through September 28, 33% below the escapement goal minimum. The project operated for 52 days in 1993, whereas the next longest running operations were in 1991 and 1992 in which 47 and 43 days of operation occurred respectively. The major parent-year (1989) spawning escapement was approximately 99,000 fall chums.

Similarly, the interim Fishing Branch River escapement goal was not reached in 1993. A weir passage of only 28,707 fall chums for the period August 31 through October 25 was 42% below the minimum goal of 50,000 fish. The major parent-year (1989) Spawning escapement was approximately 43,800 fall chums.

Tanana River fall chum salmon escapements are evaluated primarily by spawning ground surveys of the Toklat and Delta Rivers. Escapement to the Toklat River in 1993 was estimated at approximately 27,800 fall chum

salmon based upon ground surveys conducted in late October. This is approximately 15% below the escapement goal minimum of 33,000 fish. By comparison, the Delta River minimum escapement goal was reached as evidenced by an estimated escapement of approximately 19,900 fall chum salmon. Although no escapement goals exist for fall chum salmon spawning areas besides the Delta River index area in the Upper Tanana River drainage, escapement counts during peak spawning were 5,550 and 2,490 fish, respectively, to Bluff Cabin and Clearwater Lake Outlet Sloughs (Big Delta region). While the Bluff Cabin Slough count approximated the recent 10-year average (1983-1992), the Clearwater Lake Outlet Slough count was 57% above its recent ten-year average.

A total of 208,200 fall chum salmon eggs were collected from Toklat River chum salmon in 1993 as part of a second year study. The fertilized eggs were transported to Clear Hatchery for incubation. Resulting fry will be marked for release back into the Toklat River in the spring of 1994. In addition, a technical evaluation of the Toklat River spawning ground habitat is in the planning stage.

The preliminary population estimate of fall chum salmon entering the Canadian portion of the mainstem Yukon River made by DFO in 1993 was 42,165 fish. Subtracting the preliminary estimated Canadian commercial and non-commercial harvest (12,352, excluding Old Crow) from this population estimate results in a total escapement estimate to Yukon Territory (excluding the Porcupine River drainage) of approximately 29,743 spawners. This upper Yukon River spawning escapement estimate, as part of the twelve year rebuilding plan for the weak 1989 brood year, was well below the minimum 1993 targeted level of 51,000 fall chum spawners, and was the lowest escapement estimate on record since inception of the tagging program in 1982.

Among the aerial estimates of fall chum salmon to selected spawning areas in the upper Yukon River made by DFO were 4,610 fish in the Kluane River, 2,620 fish in the mainstem Yukon River, and 555 chum salmon in the mainstem Teslin River near the confluence of Boswell Creek.

Preliminary fall chum salmon inriver estimated commercial and subsistence harvest added to an estimated total spawning escapement (based upon a doubling of a standardized escapement index) results in a total run estimate for 1993 of 353,400 fish, the smallest on record. This measure of total return was 381,000 fish (52%) below the preseason projected return of 734,000 fall chum salmon. The weak run is primarily attributed to a failure of the 1989 year class (age-4 fish).

Coho Salmon

The sonar project at Pilot Station estimated a total passage of 40,474 coho salmon through the end of August in 1993, the lowest sonar passage estimate on record through that date (Appendix E.3). However, coho salmon passage estimates at Pilot Station are not complete run assessments due to termination of the project each year prior to conclusion of the coho migration.

Coho salmon spawning escapement assessment is very limited in the Yukon River drainage due to funding limitations and survey conditions at that time of year. Most of the information that has been collected is from the Tanana River drainage (Appendix E.8). The only escapement goal established for coho salmon within the Yukon River drainage is for the Delta Clearwater River, which is a minimum of 9,000 fish. That goal was reached in 1993 based upon a boat survey count of 10,875 coho salmon on October 21. Additionally, an estimated 3,525 coho salmon were observed in the outlet to Clearwater Lake by boat survey on October 29.

That is the second highest estimate on record for that area and is more than double the most recent five-year average of 1,590.

However, it appears that coho spawning escapements in other portions of the Tanana River drainage were below average. Coho salmon aerial survey counts in the Nenana River drainage were 484 fish in Lost Slough, 581 fish in Seventeen Mile Slough, and 419 fish in the mainstem Nenana River upstream of the Teklanika River. Only 138 coho salmon were counted by ground survey in Geiger Creek in the Toklat River drainage, 33% below the recent 5-year average.

Enforcement 1993

The primary enforcement authority for violation of Fish and Game regulations is the Division of Fish and Wildlife Protection (FWP) within the Department of Public Safety. For purposes of enforcing commercial and subsistence fishing regulations within the Yukon River drainage, FWP has employees permanently stationed in Bethel, McGrath, Aniak, Galena, Coldfoot, and Fairbanks. During the fishing season, officers are stationed in a temporary camp near the Dalton Highway bridge and at other locations along the Yukon and Tanana Rivers.

Lower Yukon Area

Fish and Wildlife Protection officers conducted intensive patrols in the Lower Yukon Area during June 1993 utilizing three float planes, three full time Fish and Wildlife officers and one part time officer. Approximately 1,600 contacts were made in 1993, 54 warnings were issued and 97 citations were issued. Over half of the citations were issued for fishing during closed periods which entailed fishing just prior to commercial openings and shortly after period closures. The remaining citations were for gear violations and fishing without license in possession, over the limit of gear onboard vessel, improperly marked buoys, subsistence fishing during a closed period, and fishing without photo I.D.

There were several regulation adopted by the Board of Fisheries in March 1993 because of the major enforcement action taken against the processor Schenk Seafood Sales in 1992 for purchasing subsistence caught salmon. One of the new regulations required identification of a vessel used by a commercial salmon permit holder to take salmon during the open commercial fishing season in Districts 1, 2, and 3. Compliance with this regulation was excellent. Another new regulation required subsistence fishermen to remove the dorsal fin of chinook salmon immediately upon landing. This requirement was not well received by the public and appeared to be largely ignored by a majority of fishermen.

Upper Yukon Area

There are nine FWP officers based out of the Fairbanks and Galena offices. During the 1993 season, FWP concentrated enforcement efforts on permit holders who were fishing early, fishing over limits of gear, or not physically participating in the operation of their commercial gear. Overall, FWP officers noticed good compliance with season openings and closures during routine patrols. The exception was this fall during the

closure of subsistence salmon fishing. During the subsistence salmon fishing closure both FWP and department staff observed gear operating in civil disobedience while conducting aerial gear surveys.

Fish and Wildlife Protection officers continue to be concerned and active in the investigation of roe from subsistence caught fish illegally entering into the commercial market. However, the amount of roe entering the commercial market this way is believed to have been significantly reduced from prior years.

Outlook For 1994

Chinook Salmon

The majority of chinook salmon returning to the Yukon River are 6-year-old fish; however, 5- and 7-year-old fish make a significant contribution to the run. In general, spawning ground escapements in 1987, 1988, and 1989, the primary brood years producing this years return, were judged to be average in magnitude. Overall, the 1994 chinook salmon run is anticipated to be near average in strength. The commercial harvest in Alaska is expected to total 88,000-99,000 chinook salmon (82,000-92,000 fish in the Lower Yukon Area and 6,000-7,000 fish in the Upper Yukon Area). If a very poor summer chum salmon run occurs, the chinook salmon harvest could be substantially lower due to management actions taken to conserve summer chum salmon.

Summer Chum Salmon

Summer chum salmon return primarily as 4-year-old fish. The summer chum salmon spawning escapement to the Anvik River in 1990 of 403,600 summer chums was below the minimum escapement goal of 500,000. Aerial survey conditions were poor for assessing escapements to other spawning areas in 1990, but the available information suggests that escapements were likely below the goals. The return of 5-year-old fish in 1994 is expected to be very poor based upon the poor return of 4-year-old fish in 1993. In summary, based on evaluation of parent year escapements in 1990 and assuming a poor return of age-5 fish, the run outlook for Yukon River summer chum would normally be for a below average run for 1994. However, if the production failure apparent for Yukon River summer chum salmon from the 1989 brood year occurs for the 1990 brood year, the outlook for 1994 would change from below average to critically low. In such a case, conservative management actions may be necessary to assure adequate escapements, including no directed summer chum commercial fishery and additional restrictions or possible closures of commercial, sport, personal use, and subsistence fisheries.

Fall Chum Salmon

The average annual age composition of returning Yukon River fall chum salmon is approximately 70% age-4 fish, 20% age-5 and 10% age-3 and age-6 fish. Escapements in 1990, the brood year for returning age-4 fish in 1994, varied throughout the drainage. In that year only escapement goals in the Toklat and Sheenjek Rivers were achieved. The contribution of age-3 fall chum salmon in the 1993 return was estimated to be the lowest on record which, when combined with escapement data for 1990, suggests a below average return of age-4 fish in 1994. Further, the return of age-5 fall chum salmon in 1994 is expected to be well below average based upon

the widespread failure of that year class as age-4 fish in 1993. Based upon estimated spawner-return relationships and age composition data, the 1994 projected return of Yukon River fall chum salmon is 605,000. This projection includes an estimated 112,000 age-5 shortfall from the 1989 brood year. Taking into account spawning escapement requirements, Alaskan subsistence and Canadian harvests, together with the need to rebuild Toklat and Canadian fall chum salmon stocks, no commercial fishing opportunities in Alaska are anticipated in 1994. Additionally, if the production failure apparent for the 1989 brood year occurs for the 1990 brood year, the outlook for 1994 would change to critically low. In such a case, conservative management actions may be necessary to assure adequate escapements, including additional restrictions or possible closures to sport, personal use, and subsistence fisheries.

Coho Salmon

Although comprehensive escapement information on Yukon River coho salmon is lacking, it is known that fish primarily return at age-4. Limited coho salmon escapement surveys in the Tanana River drainage for the brood year 1990 suggested average to below average escapements were realized. Assuming average survival, an average to below average return is anticipated for 1994. Harvest of coho salmon in 1994 will be largely dependent upon the abundance of fall chum salmon and accompanying management strategies to harvest that species. Commercial harvest of coho salmon in 1994 is not anticipated.

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 (Appendix F.1) where suitable spawning habitat consisting of rocky beaches and rockweed (*Fucus*) is available. 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 1988. Eventually, the fishery will be limited to 101 permits.

A total of \$36,100 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 1993.

Commercial Fishery 1993

A total of 371 short tons (st) of herring were harvested in 1993 by 41 fishermen utilizing 41 fishing vessels (Appendix F.2). All of the harvest was purchased as sac roe. The average sac roe recovery was 9.56%, which was the second highest on record. Approximately 2 st of wastage was documented in an abandoned gillnet. The gillnet was pulled by the department and destroyed. The commercial fishing season consisted of 6 fishing periods established by emergency order between May 17 and May 23 (Appendix F.3). Fishing period duration ranged from 1 hour to 4 hours for a total of 12.5 hours.

The harvest of 371 st in 1993 was approximately 46% below the recent five year average catch of 686 st (Appendix F.4). Commercial harvests increased steadily after 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 1993 harvest to fishermen was \$106,403. Average price for herring sac roe was \$300 per st at 10% roe recovery, plus or minus \$30.00 a percentage point. Two companies, represented by two processing vessels and four tenders, purchased herring during the fishery (Appendix F.5).

Fishing effort in 1993 (41 fishermen) was the lowest on record, and was 44% below the 1992 effort level. Effort has decreased due to implementation of limited entry as well as lower preseason harvest projections. Local Alaskan residents (defined as residents of Chevak, Hooper Bay, and Scammon Bay) accounted for 95% (39 permits) of the effort and 91% (338 st) of the harvest.

The commercial fishery was managed to achieve the preseason harvest projection of 367 st, since no inseason biomass 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. Generally, commercial fishing periods were scheduled to occur just prior to high tide. Low effort, stormy weather, and a relatively small tendering capacity resulted in low period catches.

As in other recent years, the fishery was put on a one hour advance notice prior to opening the commercial fishery. 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 meetings and announcing periods. Typically, commercial test samples indicated a high percentage of ripe females, except for the evening of May 18 when a large percentage of green fish was observed (Appendix F.6).

Evaluation of test samples 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. However, the differences between mesh sizes was much less evident than in recent years. In addition, roe recovery appeared to be higher from catches inshore than offshore.

The fourth and sixth commercial fishing periods were extended. Extensions were based upon industry supplied information regarding percent roe recovery and catch rates from deliveries made during the period. These extensions worked well, and appear to be a good method of obtaining a higher roe percentage in the fishery.

The overall exploitation rate of herring was estimated postseason to be approximately 9.3% of the available biomass (Appendix F.4). A total of 886 herring were sampled from the commercial harvest. Samples were

collected from 2 3/4 in, 3 in and 3 1/4 in mesh size gillnets. Age 9 and older herring made up 93% of the commercial catch by weight (Appendix F.9 and F.10). Herring recruits comprised less than 1% of the harvest.

No Fish and Wildlife Protection officers were present at Cape Romanzof during the 1993 commercial herring fishing season. There were only a couple of instances where fishermen were observed pulling gillnets late after a period closure.

Subsistence Fishery 1993

A subsistence harvest estimate of 5 st of herring was reported to have been taken by 42 fishing families from Hooper Bay, Chevak, and Scammon Bay (Appendix F.7). In addition, 513 pounds of spawn-on-kelp (*fucus*) were harvested for subsistence purposes by 19 families. A total of 190 herring survey questionnaires were mailed to subsistence fishing families. Additionally, personal interviews were conducted in Hooper Bay and Scammon Bay in September to contact fishermen that did not return questionnaires. Approximately 41% of the 190 identified households were contacted. The subsistence catch figures represent only the harvest which was reported. Therefore, the reported catch is a minimum estimate since not all families were contacted and not all families which received questionnaires returned them. A majority of the fishermen that responded to questionnaires reported herring abundance appeared to be the same in 1993, as in 1992.

Stock Status

Seven aerial surveys were flown during the 1993 season from May 10 through June 3 (Appendix F.8). A total of 1.86 hours were spent surveying the district. All of the surveys were unacceptable due to poor weather and turbid water conditions. No peak biomass estimate based upon aerial surveys was possible. Since it was not possible to estimate the biomass inseason, the projected biomass of 2,449 tons was used to manage the fishery.

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 1993, test fishing occurred from May 12 to June 4. A total of 4,077 herring were caught, of which 1,349 were sampled for biological data. Herring comprised approximately 98% 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, smelt, and whitefish.

Age 9 and older herring comprised 60% of the variable mesh gillnet samples (Appendices F.11 and F.12). Newly recruited age 3, 4, and 5 herring represented 18% of the variable mesh gillnet samples. Younger aged fish may have arrived after termination of the department's test fishing project.

The 1993 herring spawning biomass was estimated to be 4,000 st. Post-season analysis of age composition data, spawn deposition surveys, and test fishing CPUE indicated the 1993 biomass was similar to the 1992 season. However, older aged herring appeared to continue to dominate the spawning population. There is

concern that age 9 and older herring dominated test fishing and commercial catch samples in 1993, and a general trend of older age fish in the population during recent years.

Qualitative spawn deposition surveys have been conducted annually to document spawn distribution and average number of egg layers deposited. The first spawn was observed on May 14 in Kokechik Bay. A gradual increase in spawn deposition followed, both in layers of eggs and distribution. Spawn deposition peaked on May 27, with an average of 3.4 egg layers and an average of 2.2 egg layers on rock substrate. The last survey was conducted on June 2.

Given the difficulty of observing herring during aerial surveys, the department initiated a new quantitative spawn deposition study in 1992 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. To address this problem, artificial substrates were located in intertidal spawning areas in 1993 in the same general locations as in 1992. The artificial substrate consisted of small steel platforms with 6 inch by 12 inch rectangular pieces of astroturf attached to a steel plate on each platform. Spawn deposited on the astroturf was removed and weighed daily at low tide. Daily removal of spawn allowed measurements of new spawn deposition and decreased the problem of spawn loss due to wave action and desiccation observed in previous studies.

The results indicated that the largest spawn deposition within the study area occurred on May 18 and 25. Although more platforms were utilized during the 1993 season compared to the 1992 season, subjectively it appeared that the overall deposition of spawn within the study area was greater in 1993 than in 1992.

Outlook for 1994

The projected return for 1994, based upon limited information is 2,758 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 general trend of decreasing abundance with the majority of fish being older age, a 15% exploitation rate will be used to manage the fishery in 1994. The harvest projection is 414 st. Age 10 and 12 herring are expected to dominate the biomass. Age 9 and older herring are expected to comprise 63% 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, number of fishing vessels, 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. If sac roe quality is good, individual fishing periods may be extended. Allowing a harvest above or below the preseason projection will depend on 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 1993 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 Arctic 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. Only one permit was issued in 1993. Because of the late freeze-up, no sales were made in 1993. 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, commercial freshwater fisheries targeting primarily whitefish have been permitted in recent years. Harvest data are presented in Appendix G.3. One commercial freshwater whitefish permit was issued for the mainstem Yukon River near the Dalton Highway Bridge. However, the permit holder did not fish. No permits were issued for the Tanana River drainage in 1993.

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TABLES AND FIGURES

Table 1. Guideline harvest ranges and mid-points for commercial harvest of Yukon River chinook, summer chum and fall chum salmon in Alaska.

Chinook Salmon						
District or Subdistrict	Guideline Harvest Range					
	Lower		Mid-Point		Upper	
	Numbers	Percent	Numbers	Percent	Numbers	Percent
1 and 2	60,000	89.1	90,000	91.6	120,000	92.9
3	1,800	2.7	2,000	2.0	2,200	1.7
4	2,250	3.3	2,550	2.8	2,850	2.2
5A,B,C	2,400	3.6	2,600	2.6	2,800	2.2
5D	300	0.4	400	0.4	500	0.4
6	600	0.9	700	0.7	800	0.6
Total	67,350	100.0	98,250	100.0	129,150	100.0

Summer Chum Salmon						
District or Subdistrict	Guideline Harvest Range					
	Lower		Mid-Point		Upper	
	Numbers	Percent	Numbers	Percent	Numbers	Percent
1 and 2	251,000	62.8	503,000	62.9	755,000	62.9
3	6,000	1.5	12,500	1.6	19,000	1.6
4A	113,000	28.3	225,500	28.2	338,000	28.2
4B,C	16,000	4.0	31,500	3.9	47,000	3.9
5	1,000	0.3	2,000	0.3	3,000	0.3
6	13,000	3.3	25,500	3.2	38,000	3.2
Total	400,000	100.0	800,000	100.0	1,200,000	100.0

Fall Chum Salmon						
District or Subdistrict	Guideline Harvest Range					
	Lower		Mid-Point		Upper	
	Numbers	Percent	Numbers	Percent	Numbers	Percent
1, 2, and 3	60,000	82.5	140,000	71.2	220,000	68.6
4B,C	5,000	6.9	22,500	11.4	40,000	12.5
5A,B,C	4,000	5.5	20,000	10.2	36,000	11.2
5D	1,000	1.4	2,500	1.3	4,000	1.2
6	2,750	3.8	11,625	5.9	20,500	6.4
Total	72,750	100.0	196,625	100.0	320,500	100.0

• Or the equivalent roe poundage of 61,000 to 183,000 pounds or some combination of fish and pounds of roe.

Table 2. Salmon processors, buyers, catcher-sellers, and associated data, Yukon Area, 1993.

Commercial operation (Processing location/ buying station)	Product	District
Yukon Delta Fish Marketing Co-op, Inc. P.O. Box 169 Emmonak, AK 99581 (Emmonak)	Frozen Salmon Chinook Chum Salmon Roe	1 and 2
Bering Sea Fisheries, Inc. 4413 83rd Ave. SE Everett, WA 98205 (Lamont Slough)	Frozen Salmon Chinook Chum Salmon Roe	1 and 2
Boreal Fisheries P.O. Box 561 Graham, WA 98338 (Old Andraefsky)	Fresh Salmon Chinook Chum Salmon Roe	1 and 2
L.Y.K.A. Dagnet Fisheries P.O. Box 154 St. Marys, Alaska 99658	Fresh Salmon Chinook Chum Salmon Roe	1 and 2
Maserculiq Fish Processors P.O. Box 118535 Marshall, Alaska 99585	Fresh Salmon Chinook Chum Salmon Roe	2 and 3
Kevin Prestegard (catcher/seller) 909 W. 20th. Ave Anchorage, Alaska 99501	Fresh Salmon Chinook	1 and 3

- Continued -

Table 2. (p. 2 of 5)

Commercial operation (Processing location/ buying station)	Product	District
Alaska Pacific Caviar 3200 N.E. 125 St. Suite 1 Seattle, Washington 98125 (Aniak, Anvik, Grayling)	Frozen Salmon Chinook Chum Salmon Roe	4
Dainty Island Fisheries P.O. Box 49 Galena, AK 99741 (Galena)	Smoked Salmon Chinook Chum Salmon Roe	4
Great Northern Seafoods, Inc. Box 240365 Anchorage, AK 99524 (Galena)	Salmon Roe	4
Whitney Foods P. O. Box 190429 Anchorage, Alaska 99519 (Kaltag)	Frozen Salmon Chinook Chum Salmon Roe	4
Capilano Pacific, Inc. 424 East Manor Ave. Anchorage, Alaska 99501 (Anvik, Galena, Ruby)	Frozen Salmon Chinook Chum Salmon Roe	4 and 5
Interior Alaska Fish Processors, Inc. 878 Lynwood Way North Pole, Alaska 99705 (North Pole, Kaltag, Fairbanks, Nenana)	Frozen Salmon Chinook Chum Salmon Roe Smoked Salmon	4, 5, and 6

-Continued-

Table 2. (p. 3 of 5)

Commercial operation (Processing location/ buying station)	Product	District
Yutana Fisheries 1477 Shypoke Fairbanks, Alaska 99709 (Manley)	Fresh/Frozen Salmon Chinook Chum Salmon Roe	5 and 6
Artic Circle Seafoods P.O. Box 18 Circle, Alaska 99733 (Circle)	Frozen Salmon Chinook Chum Salmon Roe	5
Laona Processors & Sales Co. P.O. Box 220448 Anchorage, AK 99520	Frozen Salmon Chinook Chum	5
Denny Mac Enterprises, Inc. P.O. Box 943 Sumner, Washington 98390 (Nenana)	Frozen Salmon Chinook Chum Salmon Roe	6
Steven's Fisheries P.O. Box 38 Nenana, Alaska 99760 (Nenana)	Frozen Salmon Chinook Chum Salmon Roe	6
Charlie Campbell (catcher/seller) MHF Enterprise P.O. Box 111 Tanana, Alaska 99777 (Tanana)	Fresh Salmon Chinook Chum	5
Tommy Carroll (catcher/seller) P.O. Box 58 Ft. Yukon, Alaska 99740 (Ft. Yukon)	Fresh Salmon Chinook Chum	5

-Continued-

Table 2. (p. 4 of 5)

Commercial operation (Processing location/ buying station)	Product	District
Hugh B. Fate Jr. (catcher/seller) 750 Farmers Loop Rd. Fairbanks, Alaska 99712 (Fairbanks)	Fresh Salmon Chinook Chum	5
Merill J. Hakala (catcher/seller) 140 Front St. Fairbanks, Alaska 99701 (Fairbanks)	Fresh Salmon Chinook Chum	5
Al Wright (catcher/seller) P.O. Box 60531 Fairbanks, Alaska 99706 (Fairbanks)	Fresh Salmon Chinook Chum	5
Linda Johnson (catcher/seller) Box 57 Manley, Alaska 99756	Fresh Salmon Chinook Chum	5
Renee Merry (catcher/seller) 1293 Skypoke Dr. Fairbanks, Alaska 99709	Fresh Salmon Chinook Chum	5
Stan Zuray (catcher/seller) Box 172 Tanana, Alaska 99777	Fresh Salmon Chinook Chum	5
Frank Carruthers (catcher/seller) Box 77023 Tanana, Alaska 99777	Fresh Salmon Chinook Chum	5

-Continued-

Table 2. (p. 5 of 5)

Commercial operation (Processing location/ buying station)	Product	District
John Childs (catcher/seller) 2091 Yellow Snow Rd. Fairbanks, Alaska 99709 (Fairbanks)	Fresh Salmon Chinook Chum	6
Gary Hinzman (catcher/seller) 1366 Opportunity Way Fairbanks, Alaska 99709 (Fairbanks)	Fresh Salmon Chinook Chum	6
Andy Ludecker-Jones (catcher/seller) Ludecker Fish Co. 2875 Ludecker Rd. Fairbanks, Alaska 99709 (Fairbanks)	Fresh Salmon Chinook Chum	6

Table 3. Commercial Fisheries Entry Commission salmon gear permits issued by residence, Yukon Area, 1993. ^{a,b}

District	Residence	GillNet Permits (S04Y)
1, 2, and 3	Emmonak	97
	Mountain Village	96
	Atakanuk	79
	Kotlik	76
	St. Marys	65
	Pilot Station	52
	Marshall	36
	Scammon Bay	40
	Anchorage	19
	Sheldon Point	23
	Russian Mission	15
	Fortuna Ledge	11
	Bethel	12
	Holy Cross	9
	Stebbins	12
	Fairbanks	13
	Unalakleet	8
	Wasilla	9
	Shaktotfik	3
	Chevak	2
	Pitkas Point	1
	Aniak	1
	Big Lake	1
	Cooper Landing	1
	Deering	1
	Dutch Harbor	1
	Eek	1
	Elim	1
	Hoonah	1
	Hooper Bay	1
	Iliamna	1
	Kalskag	1
	Ketchikan	1
	Kotiganek	1
	Kotzebue	1
	Manley Hot Springs	2
	Naknek	1
	Nome	1
	North Pole	1
	Palmer	2
	Salcha	1
	Sand Point	2
	Sitka	1
	Sutton	1
	Talkeetna	2
	Toksook Bay	1
	Willow	1
Bend, OR	1	
Cameron Mills, NY	1	
Chargin, OH	1	
Conner, MT	1	
Corvallis, OR	1	
Everett, WA	1	
Las Vegas, NV	1	
Rock Hill, SC	1	
Seattle, WA	2	
Total Lower Yukon		718

-Continued-

Table 3. (p. 2 of 2).

District	Residence	GillNet Permits (S04P)	Fish Wheel Permits (S08P)	Total
4, 5, and 6	Anchor Pt.	0	3	3
	Anchorage	3	1	4
	Aniak	1	0	1
	Anvik	3	7	10
	Barrow	0	1	1
	Cantwall	1	0	1
	Circle City	1	1	2
	Fairbanks	24	27	51
	Ft. Yukon	0	1	1
	Gakona	1	0	1
	Galena	5	27	32
	Grayling	7	4	11
	Holy Cross	1	0	1
	Huslia	0	1	1
	Kaltag	3	15	18
	Kodiak	1	0	1
	Koyukuk	0	2	2
	Manley Hot Springs	1	4	5
	Nenana	6	20	26
	Nome	1	0	1
	North Pole	1	1	2
	Nulato	1	18	19
	Palmer	1	0	1
	Rampart	4	2	6
	Ruby	3	10	13
	Saicha	0	1	1
	Seldotna	1	0	1
	Stevens Village	1	3	4
	Tanana	3	16	19
	Wasilla	0	1	1
Bemidji, MN	1	0	1	
Palm Desert, CA	1	0	1	
Total Upper Yukon		75	166	241
Grand Total Yukon Area		793	166	959

- a. Counts are for initial issues only and do not include transfers
- b. Counts include interim use permits.

Table 4. Commercial salmon and salmon roe sales by statistical area, Yukon Area, 1993.

Statistical Area	Chinook			Summer Chum			Fall Chum			Coho			Total Salmon		
	Numbers	Roe	Estimated	Numbers	Roe	Estimated	Numbers	Roe	Estimated	Numbers	Roe	Estimated	Numbers	Roe	Estimated
334-11	3,642	0	3,642	13,123	0	13,123	0	0	0	0	0	0			
12	7,368	0	7,368	17,869	0	17,869	0	0	0	0	0	0			
13	4,342	0	4,342	8,745	0	8,745	0	0	0	0	0	0			
14	3,324	0	3,324	8,672	0	8,672	0	0	0	0	0	0			
15	11,407	0	11,407	2,920	0	2,920	0	0	0	0	0	0			
16	2,346	0	2,346	661	0	661	0	0	0	0	0	0			
17	9,380	0	9,380	9,196	0	9,196	0	0	0	0	0	0			
18	7,477	0	7,477	11,473	0	11,473	0	0	0	0	0	0			
Subtotal District 1	49,286	0	49,286	73,658	0	73,659	0	0	0	0	0	0	122,945	0	122,945
334-21	8,641	0	8,641	5,444	0	5,444	0	0	0	0	0	0			
22	9,223	0	9,223	3,711	0	3,711	0	0	0	0	0	0			
23	6,118	0	6,118	4,445	0	4,445	0	0	0	0	0	0			
24	6,085	0	6,085	2,920	0	2,920	0	0	0	0	0	0			
25	7,226	0	7,226	2,812	0	2,812	0	0	0	0	0	0			
Subtotal District 2	37,293	0	37,293	19,332	0	19,332	0	0	0	0	0	0	56,625	0	56,625
334-31	1,478	0	1,478	460	0	460	0	0	0	0	0	0			
32	23	0	23	3	0	3	0	0	0	0	0	0			
Subtotal District 3	1,501	0	1,501	463	0	463	0	0	0	0	0	0	1,964	0	1,964
Total Lower Yukon	88,080	0	88,080	93,454	0	93,454	0	0	0	0	0	0	181,534	0	181,534

-Continued-

Table 4. (p. 2 of 2)

Statistical Area	Chinook			Summer Chum			Fall Chum			Coho			Total Salmon		
	Numbers	Roe	Estimated	Numbers	Roe	Estimated	Numbers	Roe	Estimated	Numbers	Roe	Estimated	Numbers	Roe	Estimated
334-42	190	279	269	0	1,851	4,445	0	0	0	0	0	0	0	0	0
43	1,159	422	1,308	27	111	316	0	0	0	0	0	0	0	0	0
44	0	0	0	0	6,234	11,642	0	0	0	0	0	0	0	0	0
45	0	0	0	0	6,081	11,476	0	0	0	0	0	0	0	0	0
46	0	0	0	0	8,170	15,078	0	0	0	0	0	0	0	0	0
Subtotal District 4	1,349	701	1,577	27	22,447	42,957	0	0	0	0	0	0	1,376	23,146	44,534
334-51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	1,124	0	1,124	0	0	0	0	0	0	0	0	0	0	0	0
53	1,484	0	1,484	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	400	0	400	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal District 5	3,008	0	3,008	0	0	0	0	0	0	0	0	0	3,008	0	3,008
334-61	57	0	57	1,156	0	1,156	0	0	0	0	0	0	0	0	0
62	810	1,213	1,116	1,603	315	2,009	0	0	0	0	0	0	0	0	0
63	246	100	272	282	200	540	0	0	0	0	0	0	0	0	0
Subtotal District 6	1,113	1,313	1,445	3,041	515	3,705	0	0	0	0	0	0	4,154	1,828	5,150
Total Upper Yukon	5,470	2,014	6,030	3,068	22,962	46,662	0	0	0	0	0	0	8,538	24,976	52,692
Grand Total Yukon Area	93,550	2,014	94,110	96,522	22,962	140,116	0	0	0	0	0	0	190,072	24,976	234,226

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

Table 5. Commercial salmon catch and CPUE by fishing period, set and drift gillnets combined, District 1, Lower Yukon Area, 1993. ^a

Period	Period Dates	Hours Fished	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	6/14-6/15	12	404	9,126	1.88	0	0.00	2,235	0.46	9,126	1.88	0	0.00	2,235	0.46
2	6/17-6/18	12	431	23,020	4.45	0	0.00	9,568	1.85	32,146	3.21	0	0.00	11,803	1.16
3	6/21-6/21	6	429	10,426	4.05	0	0.00	5,224	2.03	42,572	3.38	0	0.00	17,027	1.35
5	6/28-6/28	6	383	2,923	1.27	0	0.00	3,151	1.37	45,495	3.05	0	0.00	20,178	1.35
6	7/01-7/01	6	318	1,589	0.83	0	0.00	7,978	4.18	47,084	2.80	0	0.00	28,156	1.68
Unrestricted Mesh Size Subtotal		42	448	47,084	2.80	0	0.00	28,156	1.68						
4	6/24-6/24	6	396	2,202	0.93	0	0.00	45,503	19.15	2,202	0.93	0	0.00	45,503	19.15
Restricted Mesh Size Subtotal ^b		6	396	2,202	0.93	0	0.00	45,503	19.15						
Summer Season Total		48	448	49,286	2.57	0	0.00	73,659	3.84						
Fall Season Total ^c		0	0	0	0.00	0	0.00	0	0.00						
Grand Total		48	448	49,286		0		73,659							

^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 No commercial openings.

Table 6. Commercial salmon catch and CPUE by fishing period, set and drift gillnets combined, District 2, Lower Yukon Area, 1993.

Period	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	10,570	3.91	0	0.00	1,938	0.72	10,570	3.91	0	0.00	1,938	0.72
2	6/20-6/21	12	226	14,105	5.20	0	0.00	5,243	1.93	24,675	4.56	0	0.00	7,181	1.33
3	6/25-6/25	6	223	6,838	5.11	0	0.00	3,951	2.95	31,513	4.67	0	0.00	11,132	1.65
4	6/27-6/27	6	213	3,181	2.47	0	0.00	3,652	2.86	34,674	4.32	0	0.00	14,784	1.84
5	6/30-6/30	6	206	2,619	2.12	0	0.00	4,548	3.68	37,293	4.03	0	0.00	19,332	2.09
Unrestricted Mesh Size Subtotal		42	238	37,293	4.03	0	0.00	19,332	2.09						
Restricted Mesh Size Subtotal ^b		0	0	0	0.00	0	0.00	0	0.00						
Summer Season Total		42	238	37,293	4.03	0	0.00	19,332	2.09						
Fall Season Total ^c		0	0	0	0.00	0	0.00	0	0.00						
Grand Total		42	238	37,293		0		19,332							

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

^b No six inch maximum mesh size restriction in effect during the 1993 summer season.

^c No commercial openings.

Table 7. Commercial salmon catch and CPUE by fishing period, set and drift gillnets combined, District 3, Lower Yukon Area, 1993. ^a

Period	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	6/20-6/21	12	5	191	3.18	0	0.00	29	0.48	191	3.18	0	0.00	29	0.48
2	6/23-6/24	12	6	512	7.11	0	0.00	86	1.19	703	5.33	0	0.00	115	0.87
3	6/25-6/25	6	5	392	13.07	0	0.00	65	2.17	1,095	6.76	0	0.00	180	1.11
4	6/27-6/27	6	5	296	9.87	0	0.00	191	6.37	1,391	7.24	0	0.00	371	1.93
5	6/30-6/30	6	5	110	3.67	0	0.00	92	3.07	1,501	6.76	0	0.00	463	2.09
Unrestricted Mesh Size Subtotal		42	6	1,501	6.76	0	0.00	463	2.09						
Summer Season Total		42	6	1,501	6.76	0	0.00	463	2.09						
Fall Season Total ^b		0	0	0	0.00	0	0.00	0	0.00						
Grand Total		42	6	1,501		0		463							

^a Catches reported in numbers of fish sold in the round.
^b No commercial season.

Table 8. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets and fish wheels combined, District 4, Upper Yukon Area, 1993.

Subdistrict 4-A												
Period	Period Dates	Hours Opened	No. of Fishermen	Chinook Salmon		Chinook Expansion		Summer Chum Salmon		Salmon Expansion		
				Number ^a	Pounds of Roe	Roe Weight ^b	Estimated Harvest ^c	Number ^a	Pounds of Roe	Percent Females ^d	Roe Weight ^d	Estimated Harvest ^e
1	7/11-7/12	12	51	0	0	2.00	0	0	8,942	0.63	0.85	16,698
2	7/14-7/15	9	52	0	0	2.00	0	0	11,543	0.63	0.85	21,498
Subtotal		21	53	0	0	2.00	0	0	20,485			38,196
Harvest Guideline Range:										113,000 to 338,000 Summer Chum Salmon		
Subdistricts 4-B and 4-C												
Period	Period Dates	Hours Opened	No. of Fishermen	Chinook Salmon		Chinook Expansion		Summer Chum Salmon		Chum Salmon Expansion		
				Number ^a	Pounds of Roe	Roe Weight ^d	Estimated Harvest ^c	Number ^a	Pounds of Roe	Percent Females ^d	Roe Weight ^d	Estimated Harvest ^e
1	6/27-6/28	24	14	272	62	2.25	300	0	80	0.53	0.91	166
2	6/30-7/02	48	20	590	196	2.94	669	0	349	0.48	0.87	918
3	7/04-7/06	48	20	487	337	3.15	575	27	1,126	0.45	0.94	2,634
4	7/14-7/15	24	15	0	106	3.18	33	0	407	0.55	0.71	1,043
Subtotal		144	23	1,349	701		1,577	27	1,962			4,761
Harvest Guideline Range:						2,250 to 2,850 Chinook Salmon			16,000 to 47,000 Summer Chum Salmon			

^a Number of salmon sold in the round.

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

^c Estimated harvest is the number of fish sold in the round plus estimated females harvested to produce roe sold.

^d Weighted averages of percent female plus roe weights per period not used in determining estimated harvest subtotals.

^e Estimated harvest is the estimated number of 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.

Table 9. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets and fish wheels combined, District 5, Upper Yukon Area, 1993.

Subdistricts 5-A, 5-B and 5-C											
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	36	26	1,298	0	2.01	1,298	0	0	-	0
2	7/06-7/07	24	24	1,310	0	2.21	1,310	0	0	-	0
Subtotal		60	27	2,608	0	2,608		0	0	-	0
Harvest Guideline Range:						2,400 to 2,800 Chinook			1,000 to 3,000 Summer Chum Salmon		
Subdistrict 5-D											
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	3	147	0	0	-	0			
2	7/13-7/15	36	3	253	0	0	-	0			
Subtotal		84	3	400	0	0	-	0			
Harvest Guideline Range:				300 to 500 Chinook Salmon							

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

^b Estimated harvest is the number of fish sold in the round plus estimated number of females harvested to produce roe sold.

Table 10. Commercial salmon and salmon roe sales and effort by fishing period, set gillnets and fish wheels combined, District 6, Upper Yukon Area, 1993. ^a

District 6												
Period	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	7/12-7/14	42	14	666	880	3.82	896	928	218	0.77	1,212	
2	7/18-7/21	42	16	447	433	4.26	549	2,113	298	0.78	2,492	
Subtotal		84	18	1,113	1,313	-	1,445	3,041	515	-	3,705	
Harvest Guideline Range:						600 to 800 Chinook		13,000 to 38,000 Summer Chum Salmon				

^a Does not include the department test fish sales.

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

^c Estimated harvest is the number of fish sold in the round plus estimated number of females harvested to produce roe sold.

Table 11. Yukon River drainage total estimated commercial related salmon catch by district and country, 1993. a

Districts	Number of Fishermen c	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	448	49,286	0	49,286	73,659	0	73,669	0	0	0	0	0	0
2	238	37,293	0	37,293	19,332	0	19,332	0	0	0	0	0	0
Subtotal	680	86,579	0	86,579	92,991	0	92,991	0	0	0	0	0	0
Subtotal District 3	6	1,501	0	1,501	463	0	463	0	0	0	0	0	0
Total Lower Yukon	682	88,080	0	88,080	93,454	0	93,454	0	0	0	0	0	0
4-A	53	0	0	0	0	20,485	38,196 d	0	0	0	0	0	0
4-BC	23	1,349	701	1,577	27	1,962	4,761 d	0	0	0	0	0	0
Subtotal District 4	76	1,349	701	1,577	27	22,447	42,957 d	0	0	0	0	0	0
5-ABC	27	2,608	0	2,608	0	0	0	0	0	0	0	0	0
5-D	3	400	0	400	0	0	0	0	0	0	0	0	0
Subtotal District 5	30	3,008	0	3,008	0	0	0	0	0	0	0	0	0
Subtotal District 6	18	1,113	1,313	1,445	3,041	515	3,706	0	0	0	0	0	0
Total Upper Yukon	123	5,470	2,014	6,030	3,068	22,962	46,662	0	0	0	0	0	0
Total Alaskan	805	93,550	2,014	94,110	96,522	22,962	140,116	0	0	0	0	0	0
Total Canada	30	10,350	0	10,350	0	0	0	7,762	0	7,762	0	0	0
Grand Total	835	103,900	2,014	104,460	96,522	22,962	140,116	7,762	0	7,762	0	0	0

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 Number of unique permits fished by district, subdistrict or area. Totals by area may not add up due to transfers between districts or subdistricts.

d 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 District 4 are assumed to be males and are included in the estimated harvest calculation.

Table 12. Salmon sold from Department test fishing catches, Yukon Area, 1993. ^a

District/ Subdistrict	Chinook	Summer Chum	Fall Chum	Coho
1	1,408	1,379	0	0
2	164	490	0	0
Lower Yukon Total ^b	1,572	1,869	0	0
6-A	0	0	0	0
6-B	0	0	0	0
Upper Yukon Total ^c	0	0	0	0
Grand Total	1,572	1,869	0	0

- ^a Sales reported in numbers of fish sold in the round.
- ^b Gillnet catches.
- ^c Fish Wheel catches.

Table 13. Subsistence and personal use salmon harvest estimates and related information for the Alaskan portion of the Yukon River drainage, 1993. a

Village		Survey Date	Fishing Households ^b	Dogs	Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Hooper Bay	c	9/14-9/15	75	253	230	16,106	113	0	75	0	0
Scammon Bay		9/13-9/14	55	138	1,198	4,692	7	40	55	0	0
<i>Yukon Area Coastal Communities</i>			130	391	1,429	20,798	120	40	130	0	0
Sheldon Pt.		9/10	23	38	581	2,382	158	78	21	2	0
Alakanuk		9/8-9/9, 9/11	74	148	2,562	8,985	182	138	41	33	0
Emmonak	d	9/7-9/10	73	248	4,372	15,568	1,507	195	35	38	0
Kotik	e	9/24-9/25	76	256	2,918	7,121	5,923	1,931	53	23	0
Retained from Commercial	f				15	299	0	0			
<i>District 1 Subtotal</i>			248	690	10,423	34,285	7,770	2,343	150	96	0
Mt. Village		9/17- 9/18	124	262	3,217	10,505	1,113	447	4	120	0
Pitka Pt.		9/18	14	79	1,001	1,481	268	349	1	13	0
St. Marys		9/18, 9/18, 9/24	47	128	2,042	5,925	440	102	8	39	0
Pilot Station	g	9/21-9/22	46	106	2,661	5,641	1,017	477	5	41	0
Marshall		9/23	55	305	2,592	1,745	256	320	10	45	0
Retained from Commercial					3	120	0	0			
<i>District 2 Subtotal</i>			286	880	11,516	25,417	3,094	1,695	28	258	0
Russian Mission		9/24	27	162	3,273	1,838	172	152	11	16	0
Holy Cross		9/21	37	190	3,191	1,517	1,066	88	11	26	0
Retained from Commercial					10	21	0	0			
<i>District 3 Subtotal</i>			64	342	6,474	3,378	1,238	240	22	42	0
Lower Yukon River Drainage Total			596	1,912	28,413	63,078	12,102	4,278	200	396	0
Anvik		9/22	17	221	683	1,735	420	115	11	4	2
Grayling		9/22-9/23	25	145	1,045	1,137	2,082	164	20	4	2
Kaktag		10/5-10/6	31	137	1,260	1,116	704	334	7	14	10
Nulato		10/5-10/6	28	172	1,660	15	571	37	6	17	5
Koyukuk		10/7	19	80	853	230	2,052	70	8	4	7
Gatena		10/7-10/8, 10/22	62	289	1,732	2,477	3,255	124	28	13	21
Ruby		11/1	18	193	3,263	1,459	1,085	308	7	0	12
Retained from Commercial	h				978		0	0			
<i>District 4 Yukon R. Subtotal</i>			202	1,237	11,454	8,169	10,170	1,152	87	58	59
Shageluk											
Innoko R. Subtotal	j	9/20	12	105	128	4,183	211	39	11	0	1
Huslia		10/21-9/22	15	191	232	8,343	258	9	15	0	0
Hughes		10/20	8	46	88	827	169	3	8	0	0
Allakaket		10/27	12	106	135	2,651	233	3	12	0	0
Aletna		10/28	3	16	4	52	2	0	3	0	0
Bettles		10/28	3	50	1	34	0	0	3	0	0
<i>Koyukuk R. Subtotal</i>			41	408	480	11,907	662	15	41	0	0
<i>District 4 Subtotal</i>			255	1,750	12,042	24,259	11,043	1,206	139	56	60
Tenene		10/14-10/15	34	664	3,362	4,246	23,103	5,576	16	0	18
Rampart		10/20-10/21	16	128	1,956	1,489	3,272	38	11	0	5
Fairbanks NSB	x	permits	30	733	1,514	465	930	0	27	0	3
Stevens Village	l	10/27	16	61	1,754	653	862	0	16	0	0
Birch Creek		10/29	0	6	0	0	0	0	0	0	0
Beaver		10/27	12	66	1,557	134	692	135	12	0	0
Ft. Yukon		10/19-10/25	60	476	6,361	3,830	2,380	5	25	0	35
Circle	m	permits	6	80	745	83	349	10	4	0	4
Central	n	permits	8	27	210	2	0	0	7	0	1
Eagle	o	permits	25	176	753	32	2,070	85	22	0	3
Other	p	permits	5	15	437	24	1,750	0	3	0	2
Retained from Commercial					746	159	0	0			
<i>District 5 Yukon R. Subtotal</i>			214	2,432	19,395	11,116	35,408	5,849	143	0	71

-Continued-

Table 13. (p. 2 of 2). a

Village	Survey Dates	Fishing Households ^b	Dogs	Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Venetie	10/30-10/31, 12/10-11	28	346	2,716	129	7,881	135	28	0	0
Chalkyitsik	10/27-10/28, 12/13-14	4	93	0	0	476	0	4	0	0
<i>Chandalar/Black Rivers Subtotal</i>		32	439	2,716	129	8,356	135	32	0	0
<i>District 5 Subtotal</i>		246	2,871	22,111	11,245	43,764	5,984	175	0	71
Manley	q permits	16	507	238	1,310	3,215	1,535	12	0	4
Minto	r permits	11	247	468	387	301	300	7	0	4
Nenana	s permits	23	698	693	5,019	5,829	1,314	11	0	12
Healy	t permits	2	65	0	0	351	1,155	1	0	1
Fairbanks NSB	u permits	87	340	699	771	219	0	77	0	10
Delta Junction	v permits	3	0	0	0	1	0	3	0	0
Other	w permits	7	0	0	0	0	0	6	0	1
Retained from Commercial				1,037	5	0	0			
<i>District 6 Tanana R. Subtotal</i>		149	1,857	3,135	7,472	10,016	4,304	117	0	32
Upper Yukon River Drainage Total		650	6,478	37,289	42,976	64,823	11,494	431	58	163
Survey Subtotals		1,021	5,592	55,100	91,168	57,466	9,941	451	452	118
Permit Subtotals (w/o Stevens Village)		225	2,888	5,757	8,040	15,050	4,399	180	0	45
ADF&G Test Fish Subtotals				2,055	6,242	4,409	1,432			
Retained from Commercial Subtotals				2,789	604	0	0			
Alaska, Yukon River Drainage Total		1,246	8,390	65,701	106,054	76,925	15,772	631	452	163
Yukon Area Total (Including Coastal Communities)		1,376	8,781	67,130	126,852	77,045	15,812	761	452	163

- a. Data collected by Commercial Fisheries Management and Development 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 with exceptions of other gear types not listed.
- b. Estimated number of households that fished in surveyed communities or number of permittees who reported fishing in permit required areas.
- c. A tagging study conducted at Hooper Bay in 1986 by the Bering Sea Fishermen's Association concluded that harvests in the Nook Spit area of Hooper Bay intercepted Yukon River and Norton Sound chum salmon stocks.
- d. Includes 1,284 chinook, 2,848 summer chum, 1,364 fall chum, and 180 coho salmon from ADF&G test fish catches.
- e. Includes 300 chinook, 1,265 summer chum, 2,328 fall chum, and 1,050 coho salmon from ADF&G test fish catches.
- f. Salmon retained from commercial catches and used for subsistence purposes as recorded from fish tickets or reported during subsistence surveys, whichever District total was higher.
- g. Includes 471 chinook, 2,068 summer chum, 852 fall chum, and 222 coho salmon from ADF&G test fish catches.
- h. Summer chum salmon available for subsistence use as a product of the commercial roe fishery were recorded as commercial related harvest.
- i. Does not include summer chum salmon taken during commercial roe fishery used for subsistence.
- j. Shageluk harvest data from households fishing mainstem Yukon River and Innoko River.
- k. Data from Fairbanks North Star Borough fishermen who fished the Yukon River in a permit required area. Of the 39 permits issued, 39 returned their permits and 30 fished.
- l. Permit harvest information from Stevens Village residents was included in the survey data.
- m. Circle. Of the 19 permits issued, 19 returned their permits and 8 fished.
- n. Central. Of the 14 permits issued, 14 returned their permits and 8 fished.
- o. Eagle. Of the 35 permits issued, 35 returned their permits and 25 fished.
- p. Other includes residents of Manley, Minto, Nenana, Rampart and Tok who fished the Yukon River in a permit area. Of the 9 permits issued, 8 returned their permits and 5 fished.
- q. Manley. Of the 26 permits issued, 25 returned their permits and 18 fished. Includes 33 summer chum and 65 fall chum salmon from ADF&G's test fish wheel (died in the live box).
- r. Minto. Of the 40 permits issued, 33 returned their permits and 11 fished.
- s. Nenana. Of the 51 permits issued, 48 returned their permits and 23 fished.
- t. Healy. Of the 5 permits issued, 5 returned their permits and 2 fished.
- u. Data from Fairbanks North Star Borough fishermen who fished the Tanana River. Of the 153 permits issued, 151 returned their permits and 87 fished.
- v. Delta. Of the 4 permits issued, 4 returned their permits and 3 fished.
- w. Other includes residents of Anchorage, Dot Lake, Northway, Praxson, and Tok who fished the Tanana River. Of the 9 permits issued, 9 returned their permits and 7 fished.

Table 14. Subsistence and personal use salmon catches taken under authority of a permit, Yukon Area, 1993. a

Permit Fishing Area	Permit Type	Issued	Returned	Percent Returned	Fished b	Reported Harvest			
						Chinook	Summer Chum	Fall Chum	Coho
Subsistence Use									
Yukon River near Haul Road Bridge	SY-#-93	49	47	96%	36	3,767	492	2,915	16
Yukon River near Circle and Eagle	SE-#-93	79	79	100%	49	1,910	118	2,419	95
Tanana River Fishing Subdistrict 6A c	SA-#-93	38	37	97%	21	331	764	2,613	1,315
Tanana River Fishing Subdistrict 6B	SB-#-93	99	89	90%	38	1,341	5,976	7,166	2,987
Tanana River Upstream of Subdistrict 6C	SU-#-93	10	10	100%	8	0	0	5	0
Kanlshna River Fishing Subdistrict 6A	SK-#-93	4	4	100%	1	0	0	4	2
<i>Subsistence Permit Subtotals</i>		279	266	95%	153	7,340	7,370	15,122	4,415
Personal Use									
Tanana River Fishing Subdistrict 6C	PC-#-93	133	131	98%	79	426	674	163	0
Tanana River Whitefish	PU-#-93	4	4	100%	2	0	0	0	0
<i>Personal Use Permit Subtotals</i>		137	135	99%	81	426	674	163	0
Delta River Carcasses d	PD-#-93	0	0	100%	0	0	0	0	0
Total		416 e	401	96%	234	7,775	8,044	15,285	4,415

a Does not include permit information returned after February 14, 1994.

b The number of fishermen who fished based on returned permits.

c Includes 33 summer chum and 65 fall chum (that died in the live box) given away as part of the Department's Manley test fish wheel program.

d The department did not issue Delta River carcass permits to reduce spawning habitat disturbances.

e Includes 6 households that fished in two different permit areas.

Table 15. Yukon River drainage total utilization of salmon by district and country, 1993. a, b

District	Fishery	Chinook	Summer Chum	Fall Chum	Coho
1	Commercial	49,286	73,659	0	0
	Subsistence	10,423	34,285	7,770	2,343
	Test Fish Sales	1,408	1,379	0	0
	Total	61,117	109,323	7,770	2,343
2	Commercial	37,283	19,332	0	0
	Subsistence	11,516	25,417	3,094	1,695
	Test Fish Sales	164	490	0	0
	Total	48,973	45,239	3,094	1,695
3	Commercial	1,501	463	0	0
	Subsistence	6,474	3,376	1,238	240
	Total	7,975	3,839	1,238	240
Total Lower Yukon	Commercial	88,080	93,454	0	0
	Subsistence	28,413	63,078	12,102	4,278
	Test Fish Sales	1,572	1,869	0	0
	Total	118,065	158,401	12,102	4,278
4	Commercial	1,349	27	0	0
	Commercial Related c	228	42,930	0	0
	Subsistence	12,042	24,259	11,043	1,206
	Total	13,619	67,216	11,043	1,206
5	Commercial	3,008	0	0	0
	Commercial Related c	0	0	0	0
	Subsistence	22,111	11,245	43,764	5,984
	Total	25,119	11,245	43,764	5,984
6	Commercial	1,113	3,041	0	0
	Commercial Related c	332	664	0	0
	Subsistence	2,709	6,798	9,853	4,304
	Personal use	426	674	163	0
	Test Fish Sales	0	0	0	0
	Total	4,580	11,177	10,016	4,304
Total Upper Yukon	Commercial	5,470	3,068	0	0
	Commercial Related c	560	43,594	0	0
	Subsistence	36,862	42,302	64,660	11,494
	Personal use	426	674	163	0
	Test Fish Sales	0	0	0	0
	Total	43,318	89,638	64,823	11,494
Total Yukon Area (Alaska)	Commercial	93,550	96,522	0	0
	Commercial Related c	560	43,594	0	0
	Subsistence	65,275	105,380	76,762	15,772
	Personal use	426	674	163	0
	Sport Fish	1,695	564	0	897
	Test Fish Sales	1,572	1,869	0	0
	Total	163,078	248,603	76,925	16,689
Total Canada	Commercial	10,350	0	7,762	0
	Subsistence d	5,961	0	6,328	60
	Sport Fish	300	0	0	0
	Total	16,611	0	14,090	60
Grand Total	Commercial	103,900	96,522	7,762	0
	Commercial Related c	560	43,594	0	0
	Subsistence d	71,236	105,380	83,090	15,832
	Personal use	426	674	163	0
	Sport Fish	1,995	564	0	897
	Test Fish Sales	1,572	1,869	0	0
	Total	179,689	248,603	91,015	16,729

a Commercial harvest includes only fish sold in the round.

b Does not include 1,429 chinook, 20,798 summer chum, 120 fall chum, and 40 coho salmon harvested in Hooper and Scammon Bay for subsistence use.

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

d Combined Aboriginal and domestic fisheries.

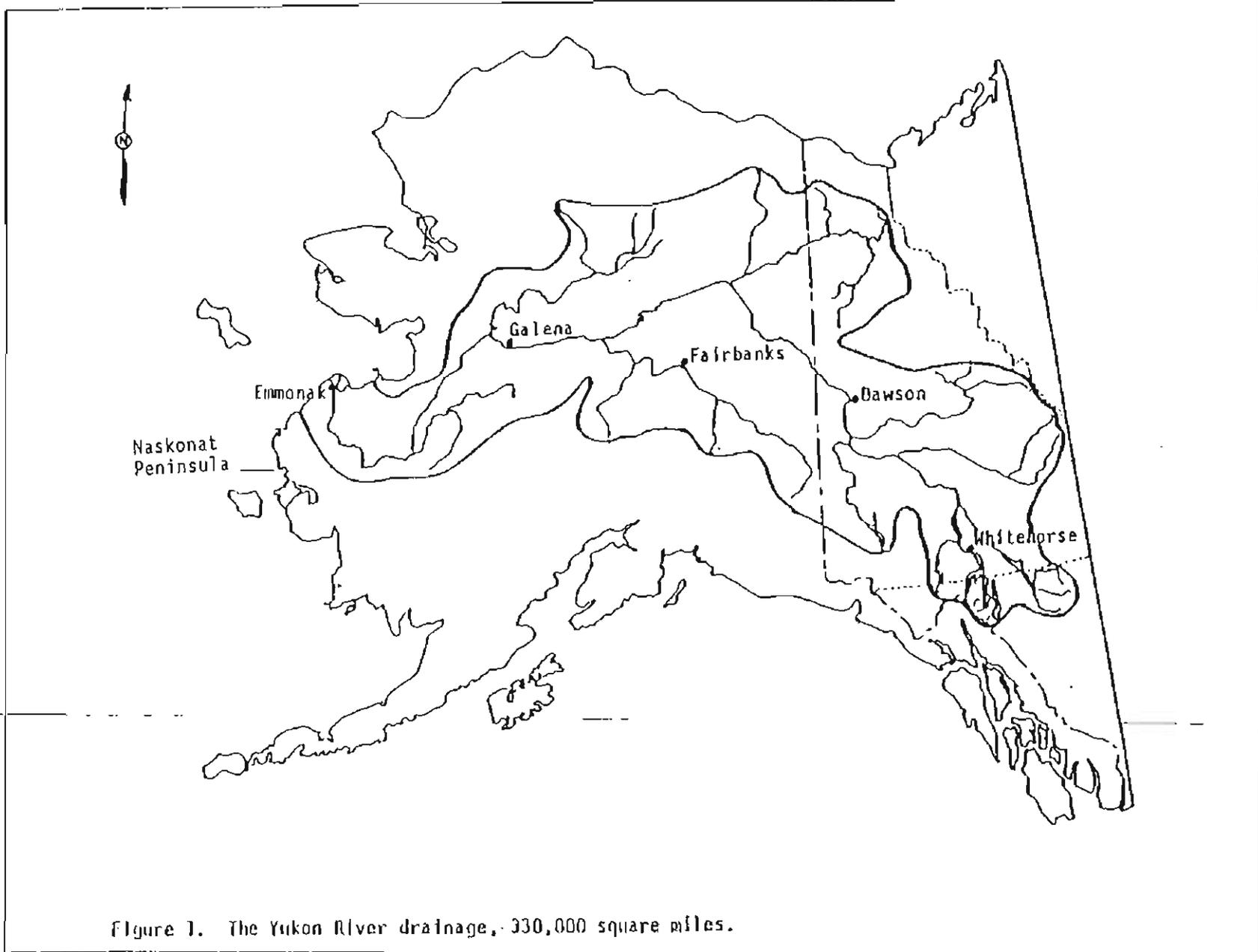


Figure 1. The Yukon River drainage, 330,000 square miles.

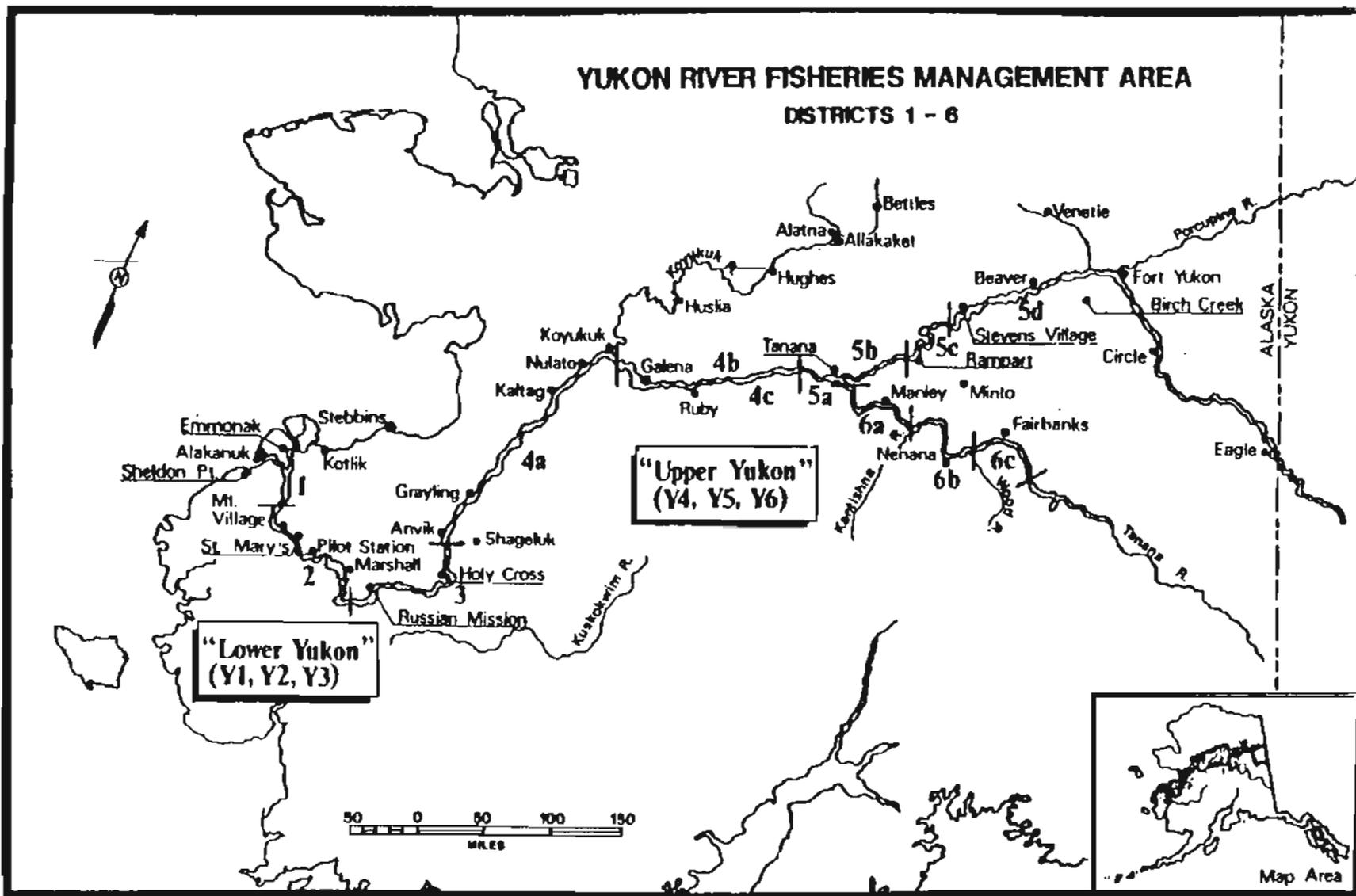


Figure 2. Districts 1-6 of Yukon management area.

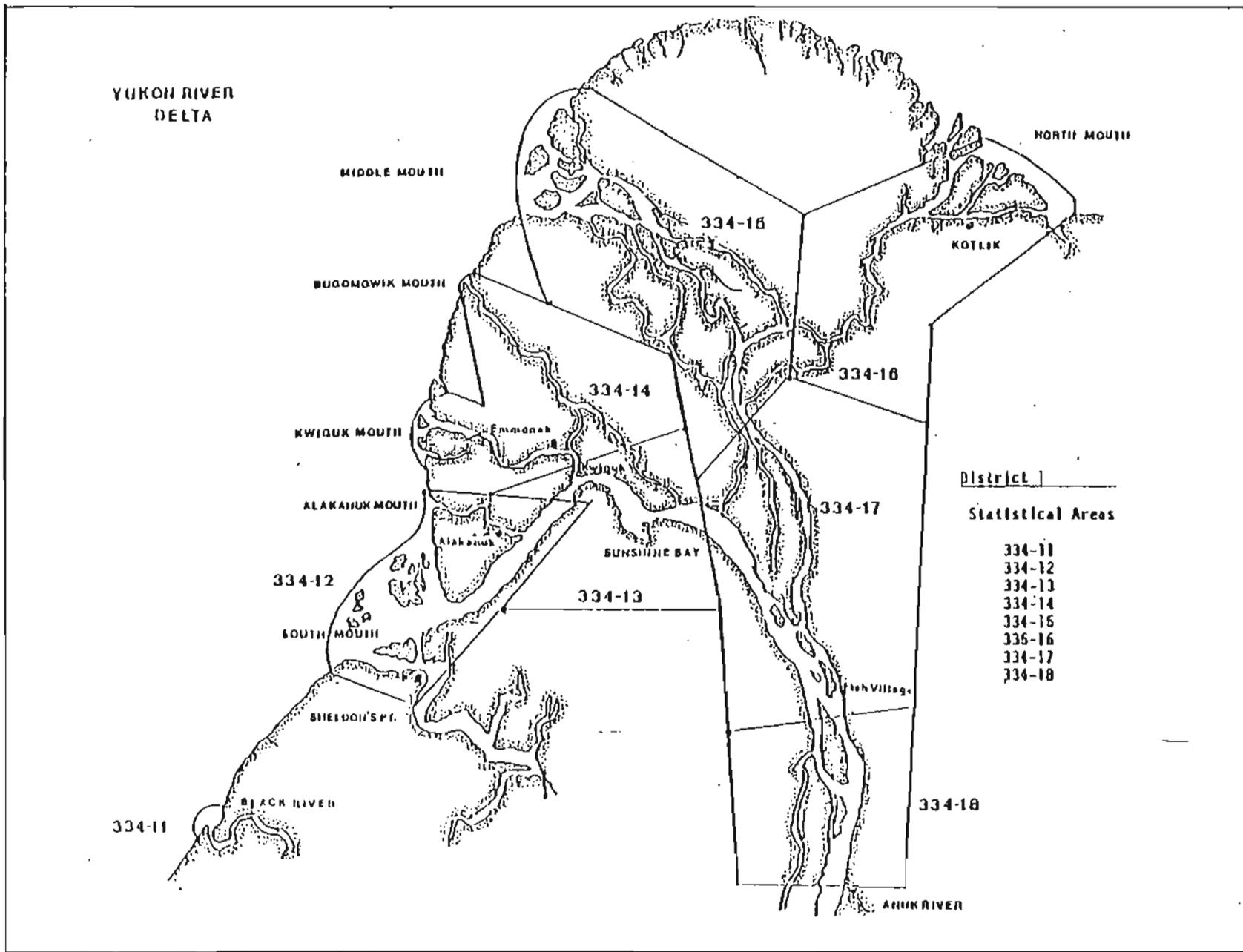


Figure 3. District 1 of Yukon management area with statistical areas.

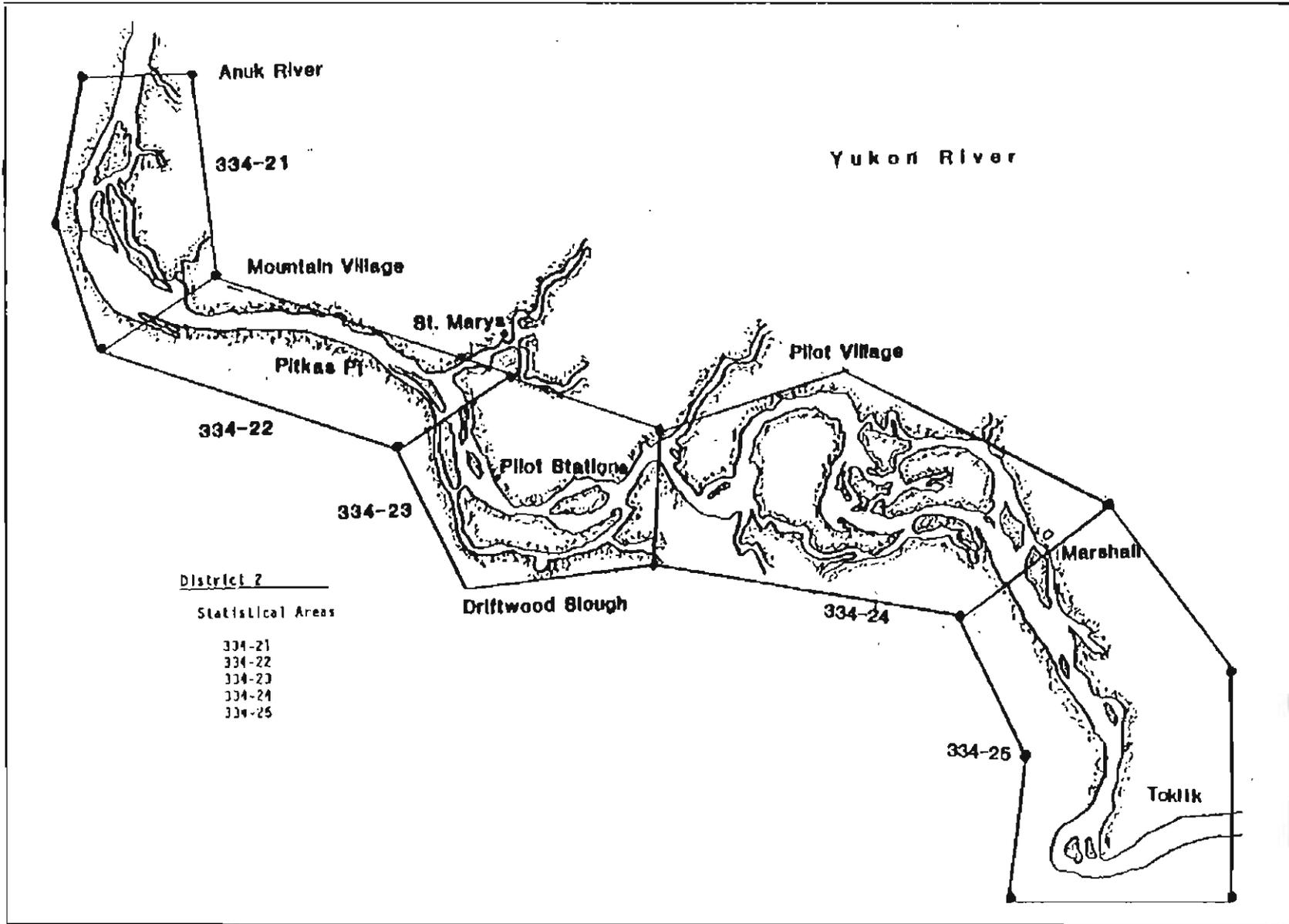


Figure 4. District 2 of Yukon management area with statistical areas.

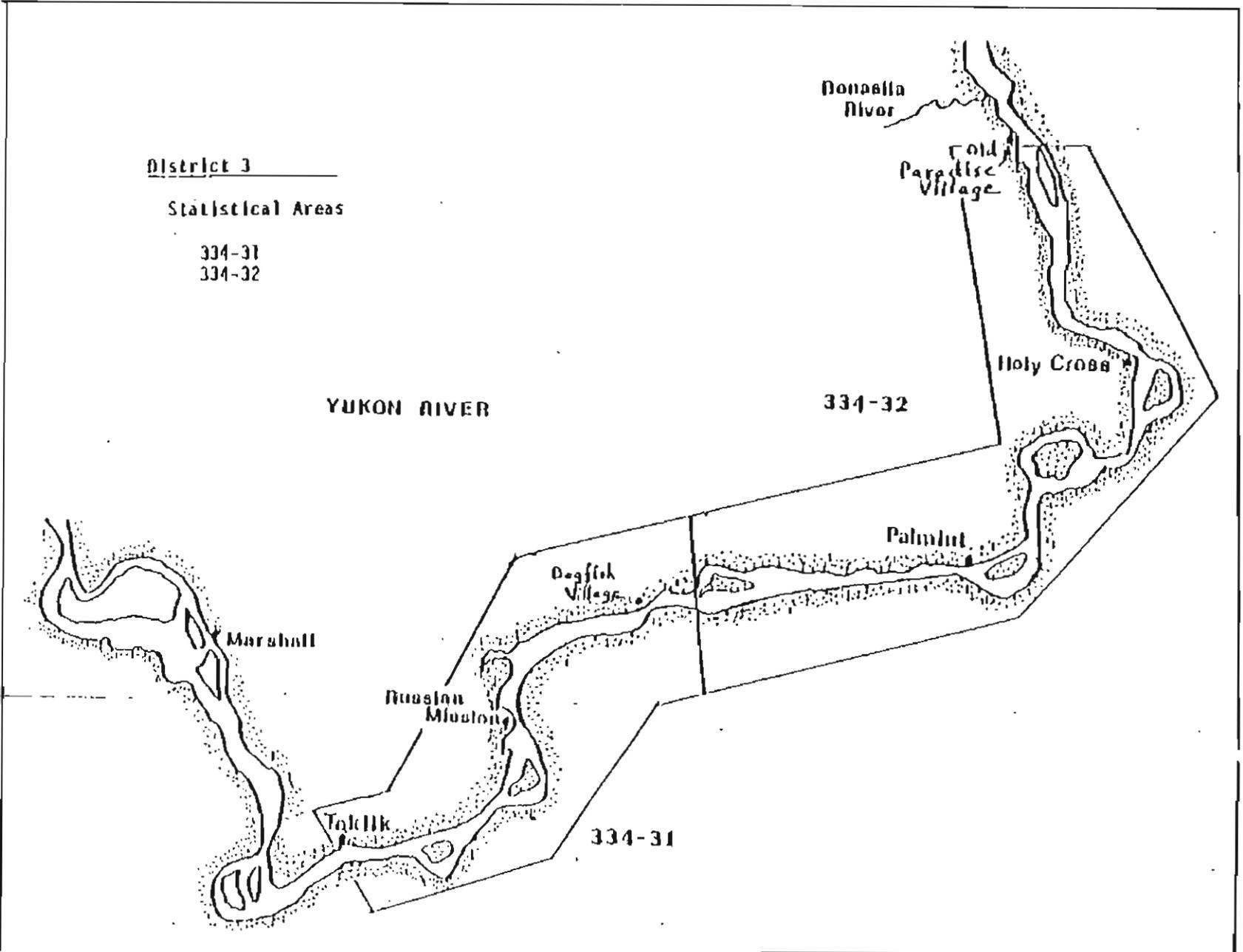


Figure 5. District 3 of Yukon management area statistical areas.

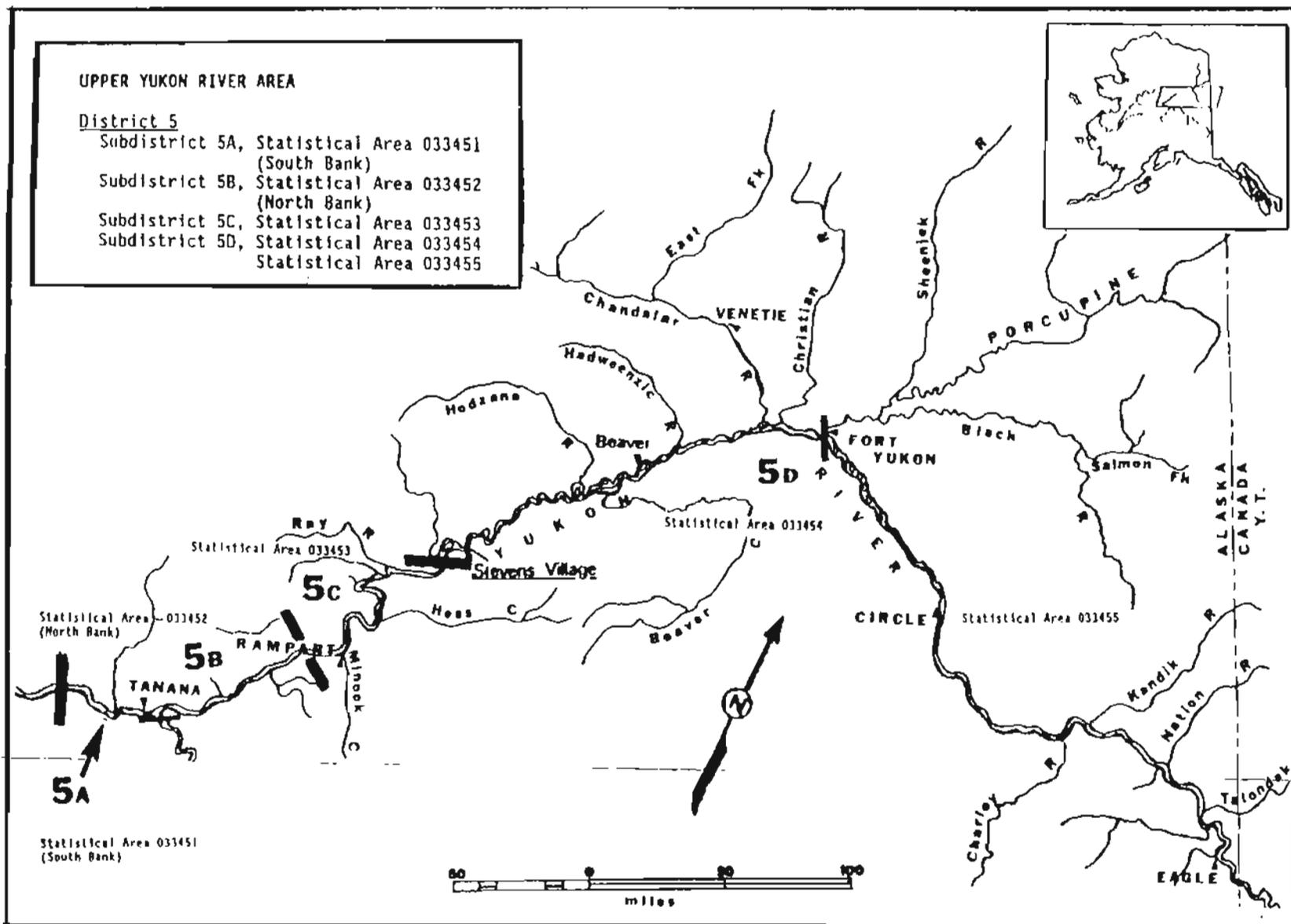


Figure 7. District 5 of Yukon management area with statistical areas.

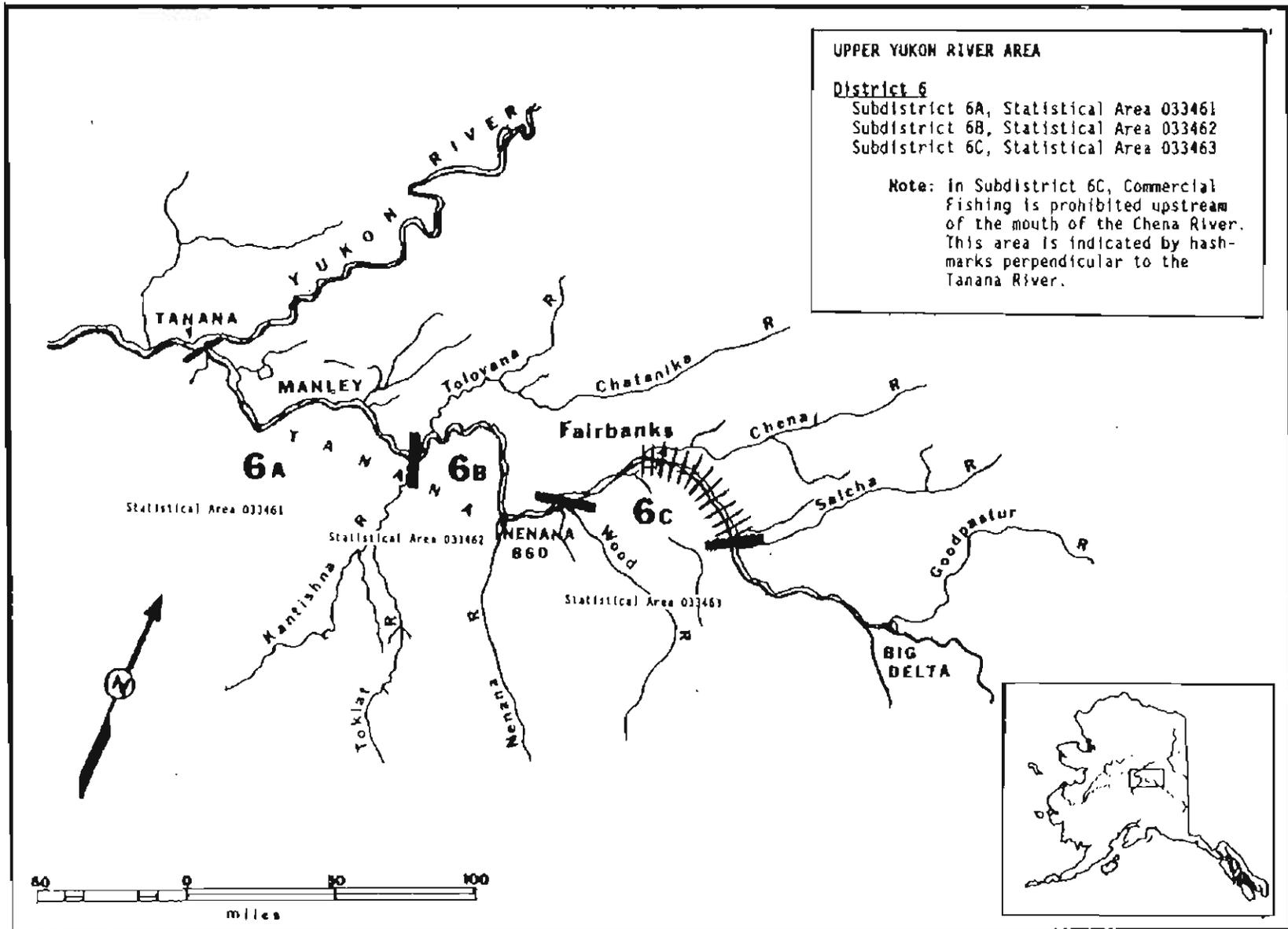


Figure 8. District 6 of Yukon management area with statistical areas.

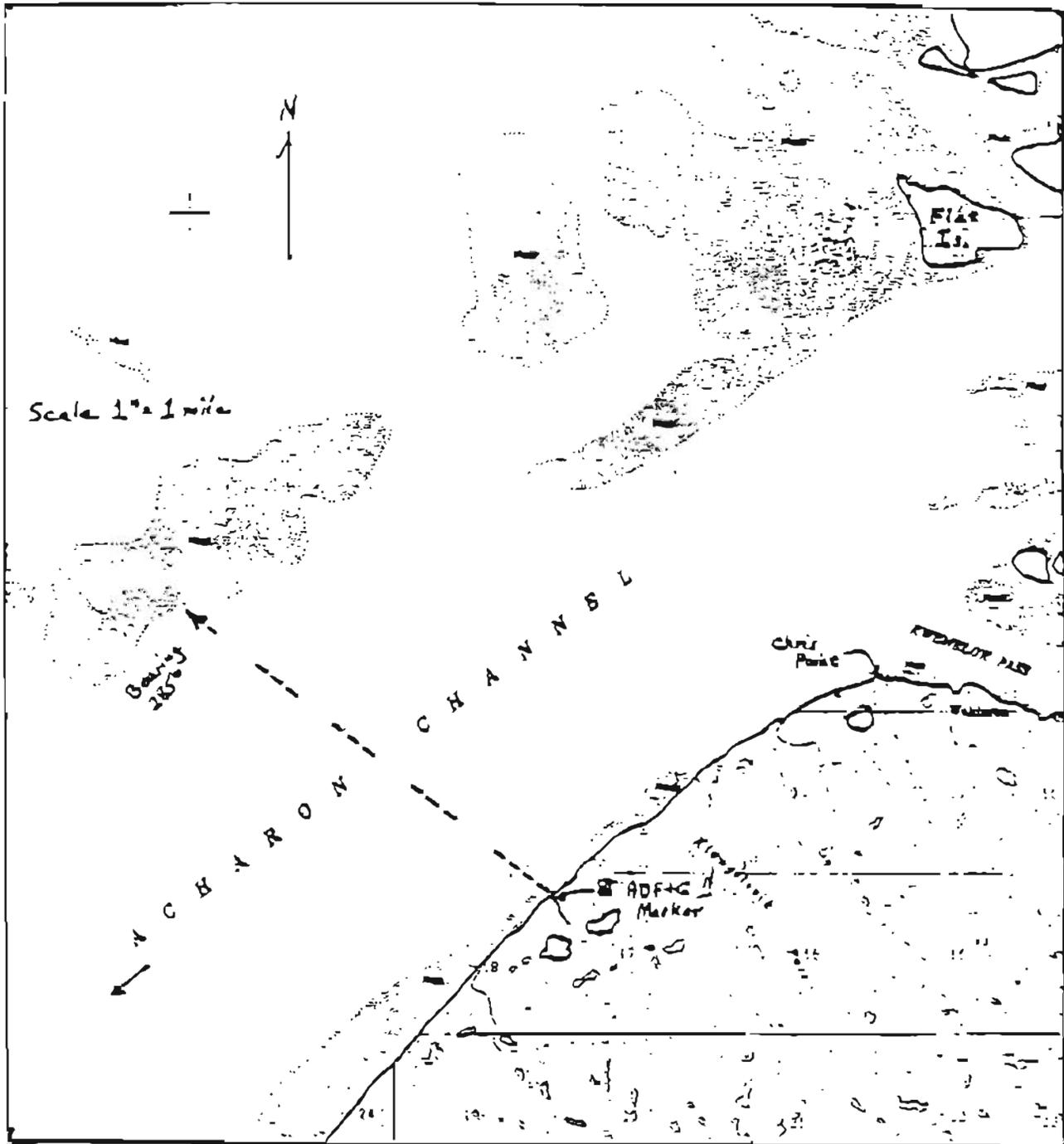


Figure 9. Closed waters Acharon Channel, south mouth Yukon River. (5AAC 05.350. CLOSED WATERS. (1) Acharon Channel of the south mouth area of the Yukon River west of a 2-1/2 nautical mile long line bearing 285° from an ADF&G regulatory marker located below Chris Point to the opposite side of the channel; 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.

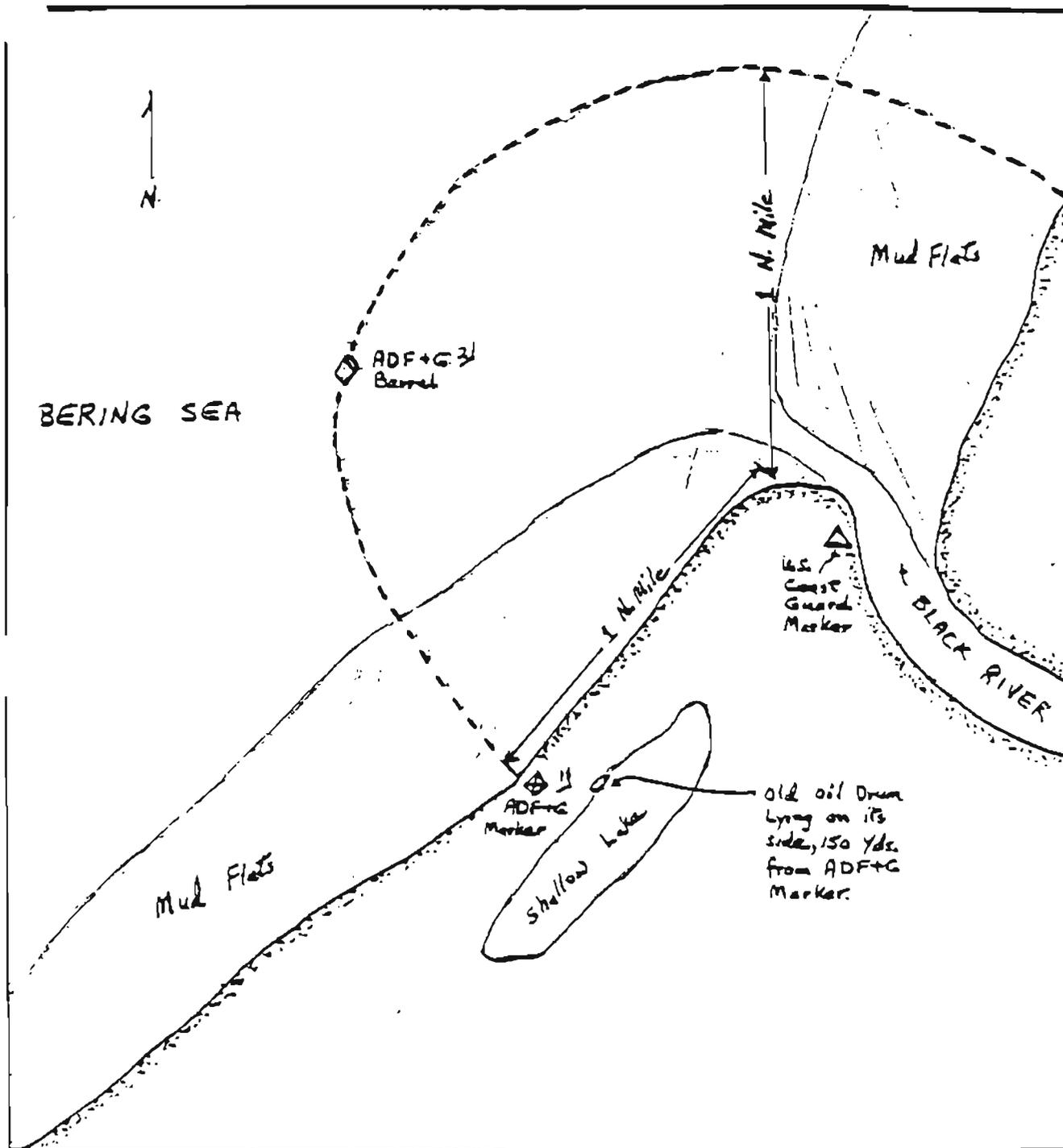


Figure 10. Closed waters of Black River mouth. (5AAC 05.350. CLOSED WATERS. (3) waters west of a one nautical mile radius from the mouth of Black River).

- 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.

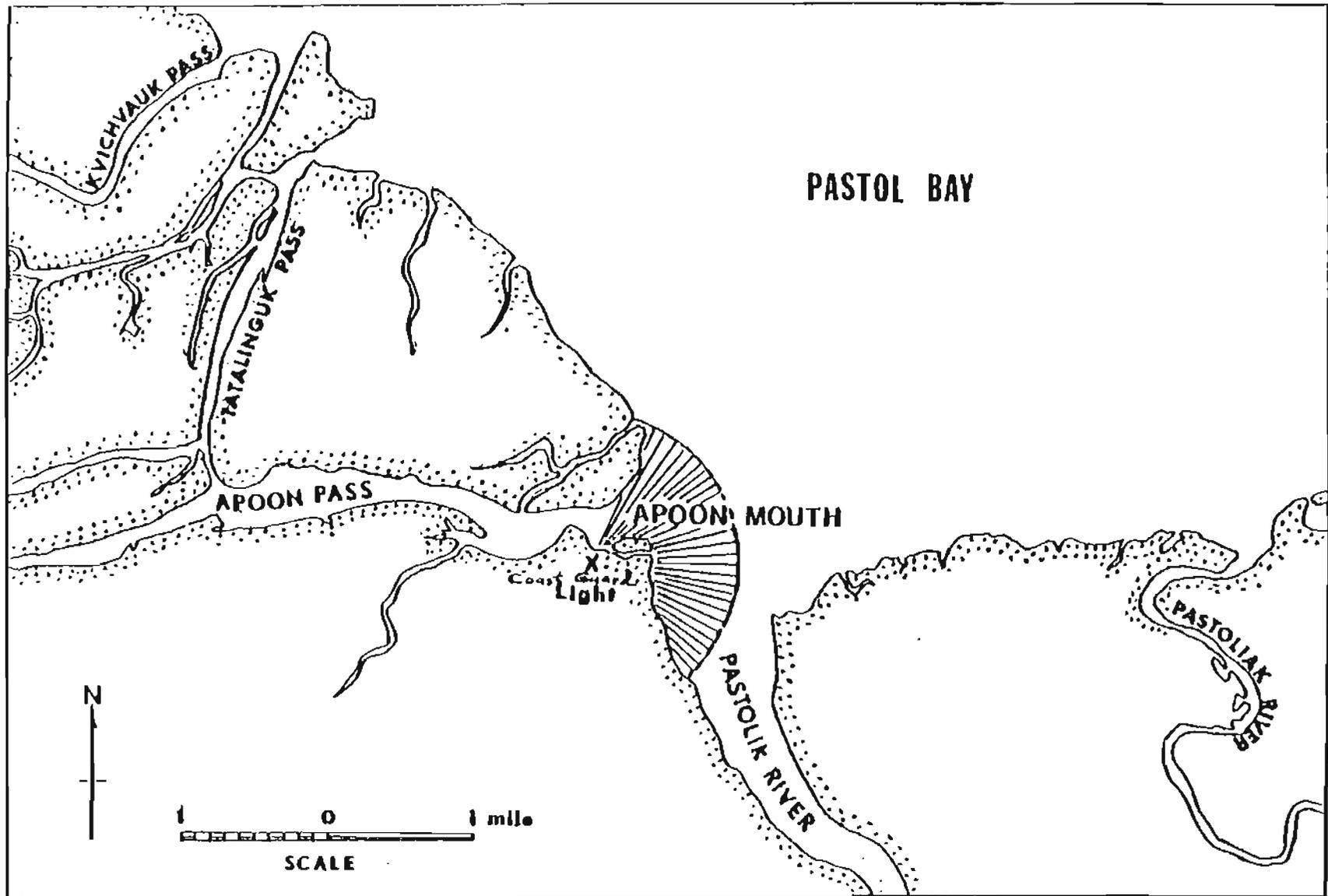


Figure 11. Closed waters of Apoon Mouth, Yukon River (5 AAC 05.350. CLOSED WATERS. (9) Waters east of a one nautical mile radius from a U.S. Coast Guard light at the mouth of Apoon Pass).

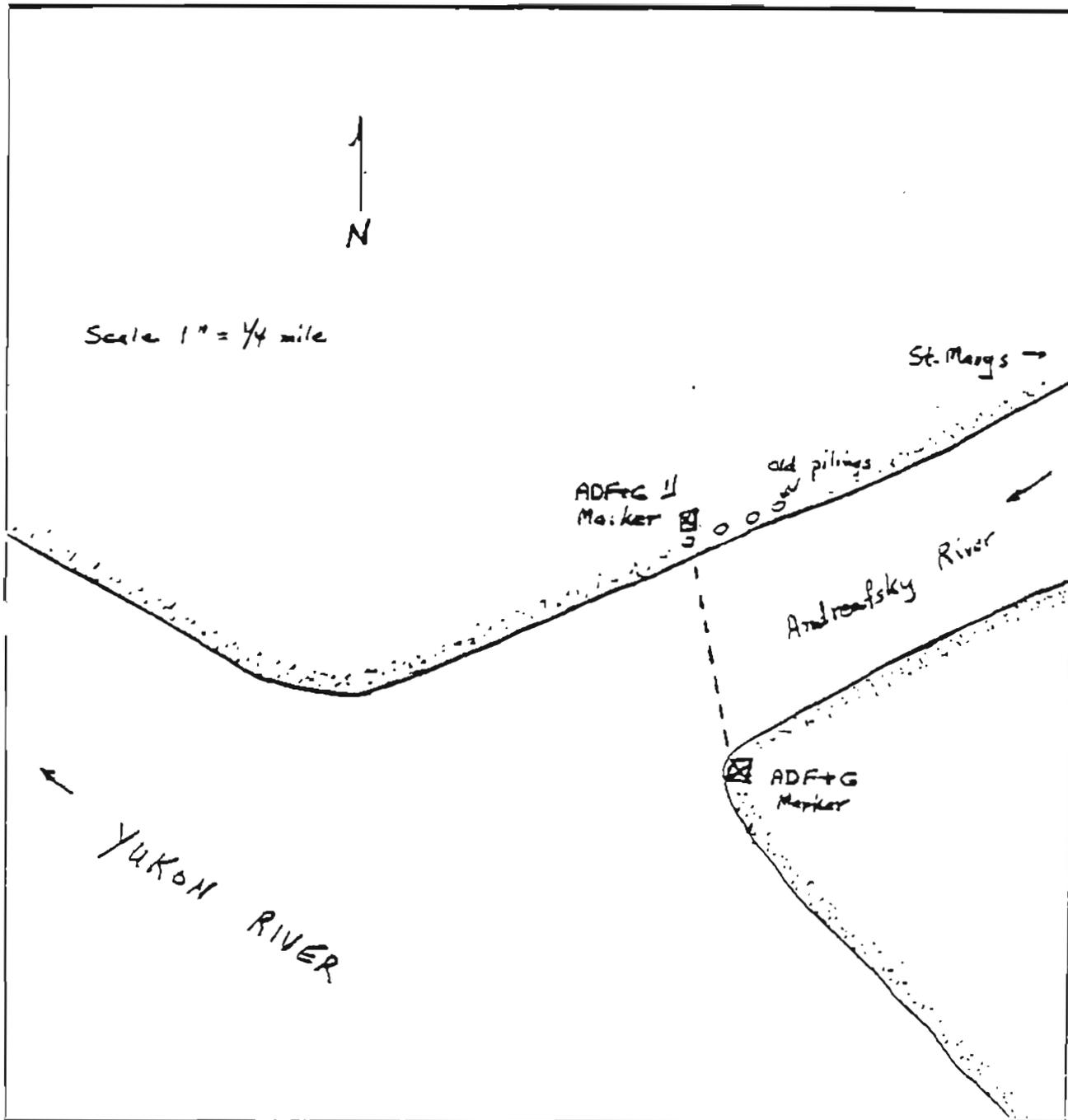


Figure 12. Closed waters of Andreefsky River mouth. (SAAC 05.350. CLOSED WATERS. (4) waters of the Andreefsky River upstream of a line from Department regulatory markers placed on each side of the river at its mouth).

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

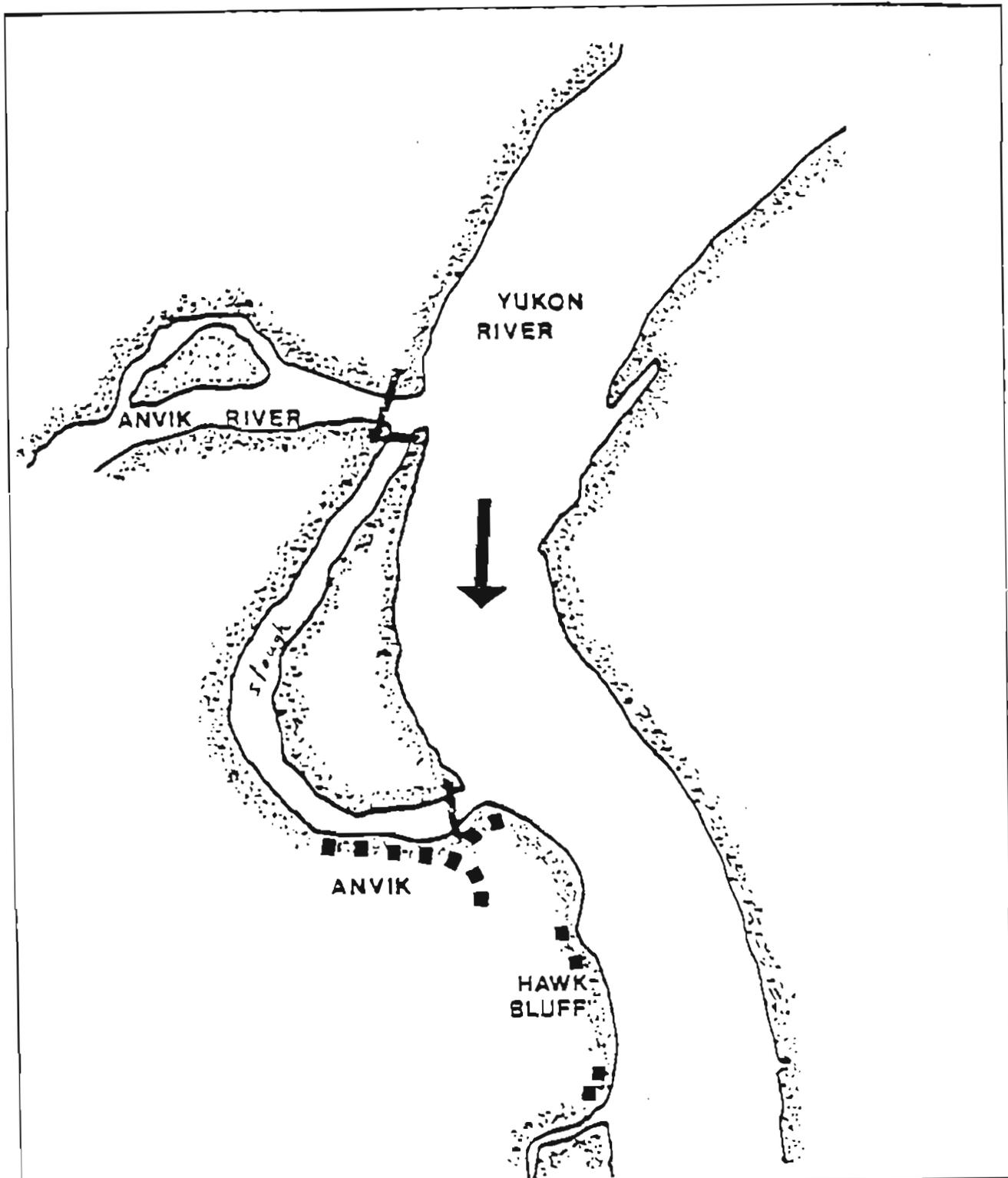


Figure 13. Closed waters of Anvik River mouth. (5AAC 05.350. (CLOSED WATERS (8) waters of the Anvik River upstream of a line between department regulatory markers placed on each side of the river at its mouth). Markers (6) placed north and south banks of the Anvik River mouth and at upstream and downstream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

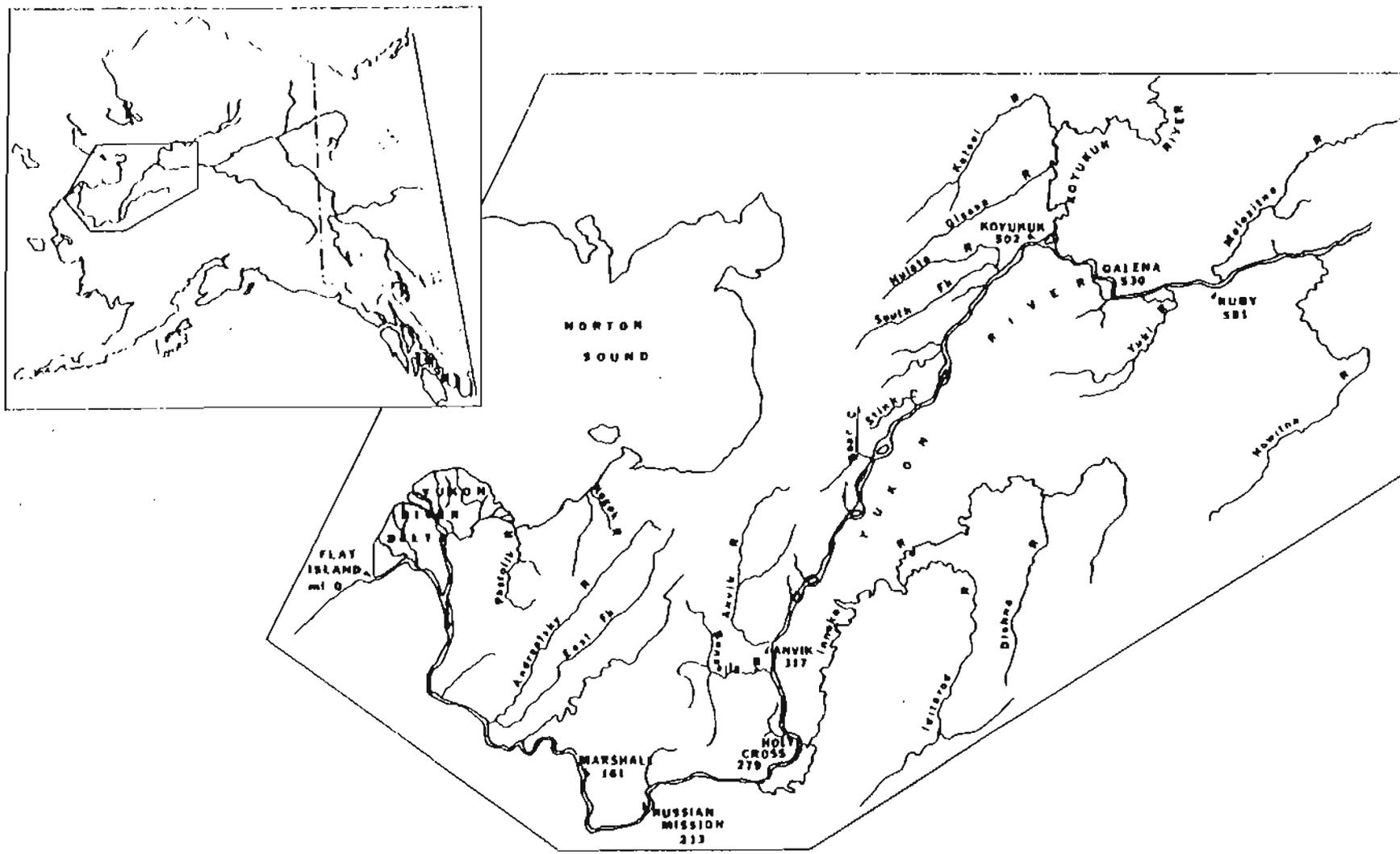


Figure 14, The lower Yukon River drainage.

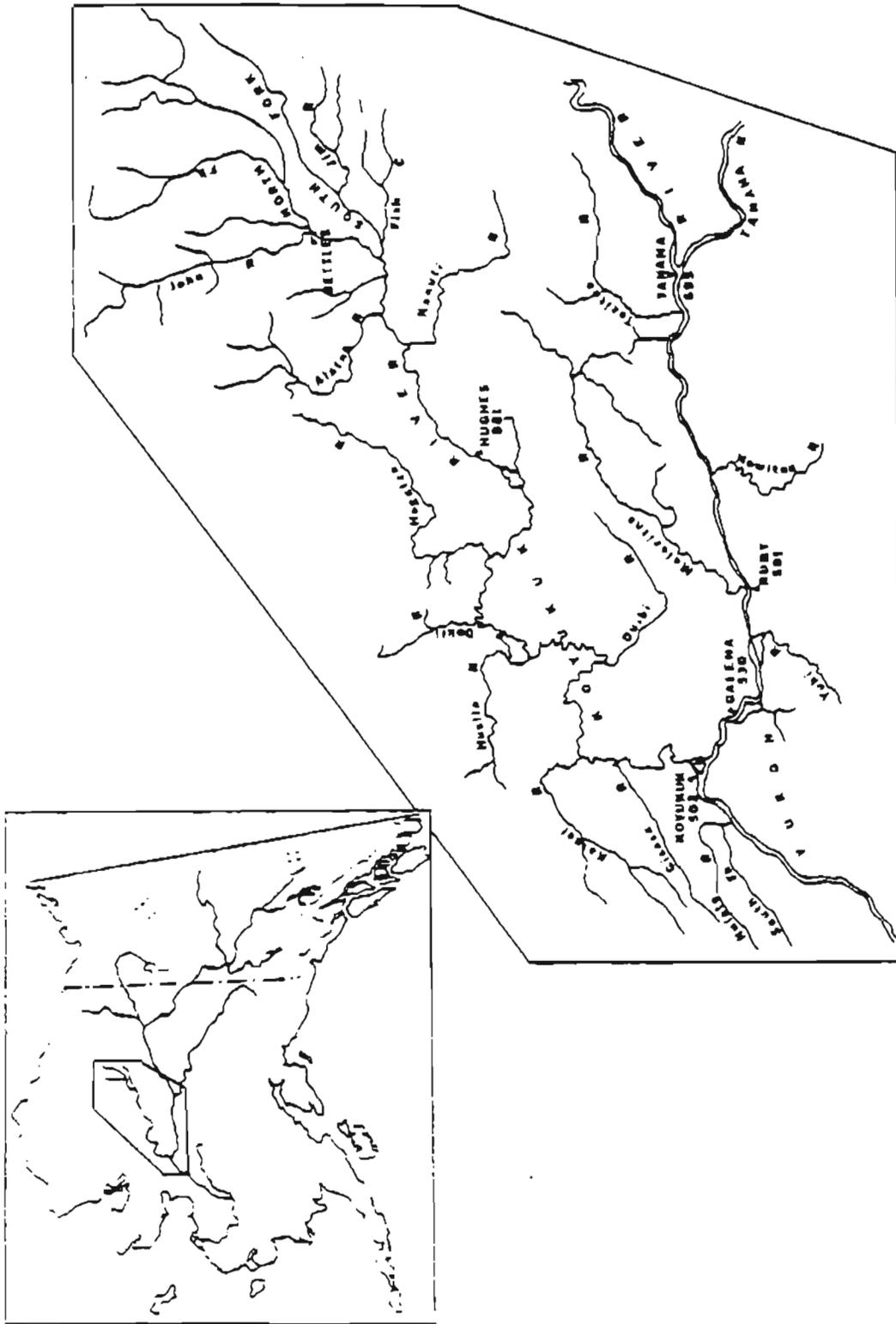


Figure 15. The Koyukuk River drainage.

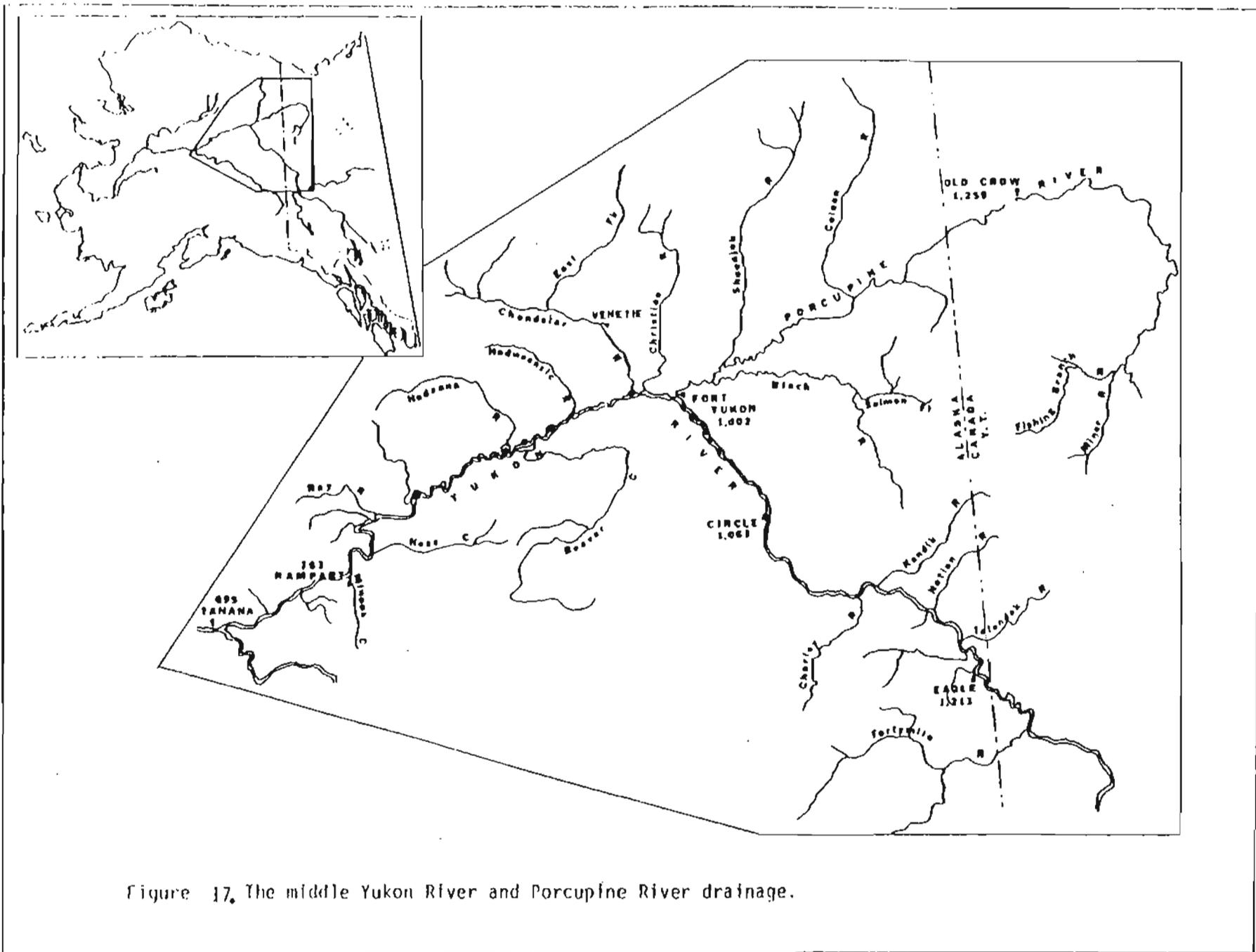


Figure 17. The middle Yukon River and Porcupine River drainage.

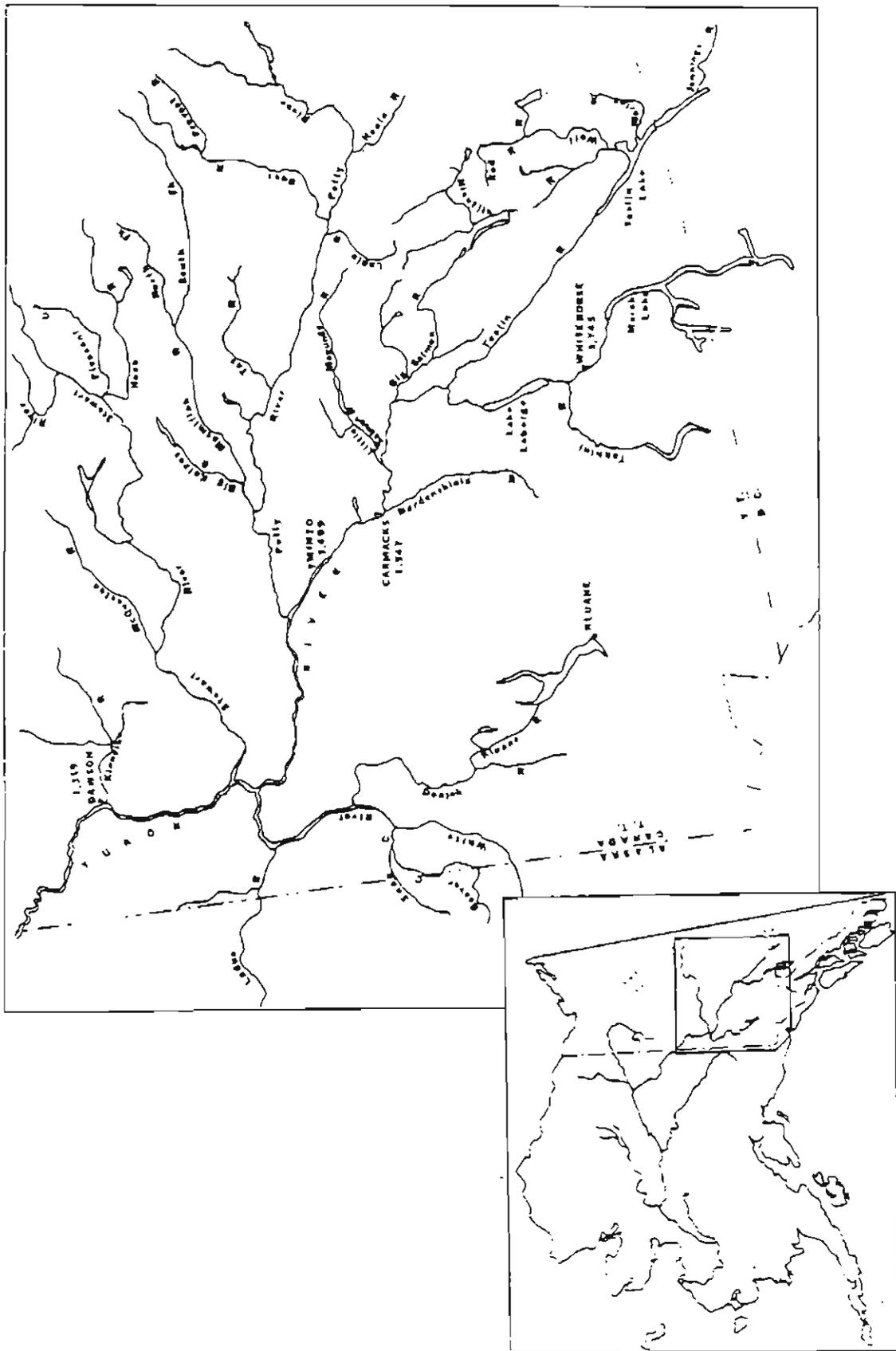


Figure 18. The upper Yukon River drainage.

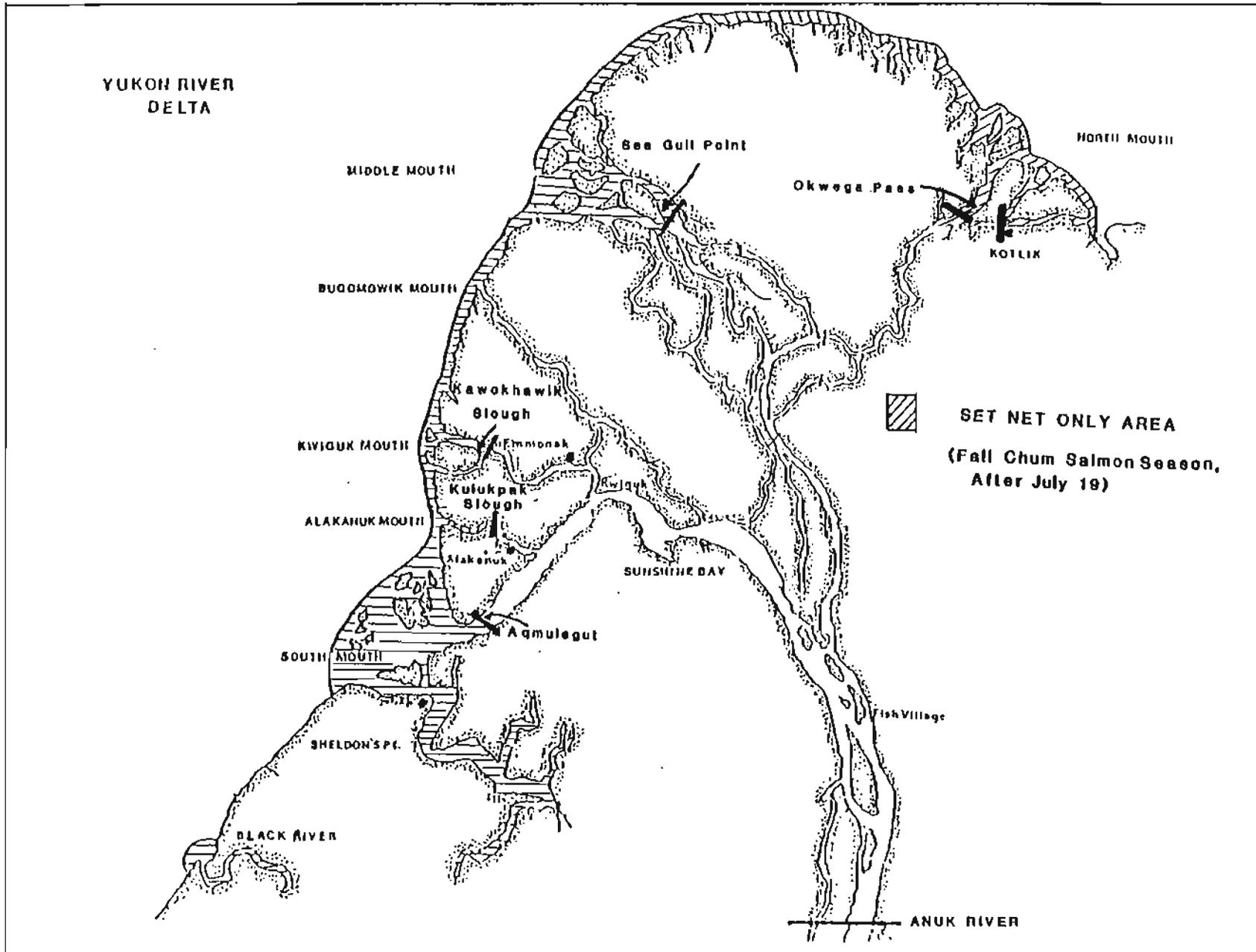


Figure 19. Set Net Only area of District 1, lower Yukon area.

APPENDIX A

YUKON RIVER DRAINAGE WIDE SALMON

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

Species Code ^b	Scientific Name	Common Name
601	<i>Lampetra japonica</i>	Arctic Lamprey
570	<i>Stenodus leucichthys</i>	Inconnu (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</i>	Rainbow Smelt
514	<i>Hypomesus olidus</i>	Pond Smelt
500	<i>Esox lucius</i>	Northern Pike
630	<i>Dallia pectoralis</i>	Alaska 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>	Ninespine 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 pallasii</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.

^b The species code is a three-digit number that identifies the type of fish caught on harvest fish tickets.

Table 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)		<u>(District 3/4 Boundary)</u>	
Kotlik	6	Mouth, Bonasila River	306
Hamilton	26	Anvik	317
		Mouth, Anvik River	318
		Grayling	336
MIDDLE MOUTH (KWIKPAK, KAWANAK PASS)		Mouth, Thompson Creek	349
Choolunawick	16	Blackburn	370
Akers Camp	26	Eagle Slide	402
New Hamilton	34	Mouth, Rodo River	447
		Kaltag	450
		Mouth, Nulato River	483
SOUTH MOUTH (KWIKLUAK PASS)		Nulato	484
Mouth, Black River	-18	Koyukuk	502
Flat Island	0	Mouth, Koyukuk River	508
Sheldon Point	5	Mouth, Gisasa River	564
Tin Can Point	8	Huslia	711
Alakanuk	17	Mouth, Dakli River	755
Emmonak-Kwiguk (Kwiguk Pass)	24	Mouth, Hogatza River	780
Sunshine Bay	24	Hughes	881
Aproka Pass (upstream mouth)	35	Mouth, Kanuti River	935
Kwikpak Pass (upstream mouth)	44	Alatna (Mouth, Alatna R.)	956
Head of Passes	48	Allakaket	956
Fish Village	52	Mouth, South Fork	986
Mouth, Anuk River	63	Mouth, John River	1,117
		Bettles	1,121
		Middle Fork	1,141
		Cold Foot	1,174
<u>(District 1/2 Boundary)</u>		Wiseman	1,183
Patsys Cabin	71	Bishop Rock	514
Mountain Village	87	Prospect Point	519
Old Andraefsky	97	Galena	530
Pitkas Point	103	Whiskey Creek	533
Mouth, Andraefsky River	104	Mouth, Yuki River	542
St. Marys	107	Ruby	551
Pilot Station	122	Mouth, Meloziatna River	553
Mouth, Atcheulinguk (Chulinak) River	126	Horner Hot Springs	555
Pilot Village	138	Kokrines	559
Marshall (Fortuna Ledge)	161	Mouth, Nowitna River	560
Upstream Mouth Owl Slough	163	Birches	567
Ingrihak	170	Kallands-Mouth of Illinois Creek	568
Ohogamuit	185		
Toklik	191	<u>(District 4.5 Boundary)</u>	
		Mouth, Toziatna River	561
<u>(District 2/3 Boundary)</u>		Tanana Village	566
Kakamut	193	Mouth, Tanana River	568
Russian Mission	213		
Dogfish Village	227	<u>(District 5.5 Boundary)</u>	
Palmuit	251	Manley Hot Springs	568
Mouth, Innoko River (South Slough)	274	Mouth, Kantishna River	569
Shageluk	328	Mouth, Toklat River	570
Holikachuk	383	Mouth, Sushana R.	571
Holy Cross	279	Mouth, Bearpaw River	576
Mouth, Koserefski River	286	Outlet, L. Minchumana	580
Old Paradise Village	301	Minto	583
		Nenana	587
		Mouth, Nenana River	591
		Mouth, Wood River	594
		Rosie Creek Bluffs	597

Table A.2. (continuation page 2 of 2)

Location	Mileage from Mouth	Location	Mileage from Mouth
Mouth, Chena R. (Fairbanks)	920	Eagle	1,213
Mouth, Salcha River	965	<u>U.S.-Canadian border</u>	<u>1,224</u>
Benchmark #735 Slough	991	Mouth, Fortymile River	1,265
Mouth, Little Delta R.	1,000	Dawson	1,319
Mouth, Delta Creek	1,014	Mouth, Klondike River	1,320
Mouth, Clear Creek (Richardson-Clearwater)	1,015	Mouth, Sixty Mile River	1,369
Mouth, Shaw Creek	1,021	Mouth, Stewart River	1,375
Mouth, Delta River (Big Delta)	1,031	McQuesten	1,455
Delta Junction	1,041	Stewart Crossing	1,491
Mouth, Goodpaster River	1,049	Mayo	1,520
Bluff Cabin Slough	1,050	Mouth, Hess River	1,534
Outlet, Clearwater Lake	1,052	Mouth, White River	1,325
Outlet, Clearwater Crk (Delta Clearwater)	1,053	Mouth, Donjek River	1,455
Mouth, Gerstle River	1,059	Mouth Kluane River	1,541
Outlet, Healy Lake	1,071	Outlet Kluane L.	1,537
Outlet, Lake George	1,086	Burwash Landing	1,595
Tanacross	1,128	Kluane	1,625
Outlet, Tetlin Lake	1,188	Fort Selkirk	1,477
Mouth, Nabesna River	1,210	Mouth, Pelly River	1,478
Northway Junction	1,214	Pelly Crossing	1,410
Mouth, Chisana River	1,215	Mouth, MacMillan River	1,442
Mouth, Sheep Creek	1,297	Ross River	1,502
Rampart Rapids	731	Minto	1,459
Rampart	753	Mouth Tatchun Creek	1,510
Mouth, Hess Creek	789	Carmacks	1,547
Mouth, Ray River	817	Mouth, Little Salmon River	1,533
Highway Bridge - Pipeline Crossing	820	Mouth, Big Salmon River	1,601
Mouth, Dall River	841	Mouth, N. Big Salmon R.	1,541
Stevens Village	847	Mouth, S. Big Salmon R.	1,457
Mouth, Hodzana River	897	Outlet, Big Salmon Lake	1,714
Beaver	932	Mouth, Teslin River	1,654
Mouth Hadweenzic River	952	Roaring Bull Rapids	1,707
Mouth, Chandalar River (Venetie Landing)	982	Johnson's Crossing	
Venetie	1,025	(Outlet, Teslin L.)	1,752
Fort Yukon	1,002	Teslin	1,741
Mouth, Porcupine River	1,002	Mouth Nisutlin River	1,744
Mouth, Black River	1,026	Mouth, Sidney Creek	1,817
Chalkyitsik	1,084	Mouth, Hundred Mi. Creek	1,851
Mouth, Salmon Fork R.	1,142	Mouth, McNeil River	1,847
Mouth, Sheenjok River	1,054	Outlet, Nisutlin Lake	1,841
Mouth, Coleen River	1,157	Outlet, Lake Laberge	1,670
Mouth, Salmon Trout R.	1,193	Inlet, Lake Laberge	1,711
U.S. - Canadian Border	1,219	Mouth, Takhini River	1,719
Old Crow	1,259	Whitehorse	1,748
Fishing Branch R. spawning area	1,600	Outlet, Marsh Lake	1,754
Circle	1,061	Mouth, McClinton River	1,771
Woodchopper	1,110	Outlet, Little Atlin L.	1,771
Mouth, Charley River	1,124	Outlet, Atlin Lake	1,741
Mouth, Kandik River	1,135	Atlin	1,741
Mouth, Nation River	1,166	Tagish	1,741
Mouth, Tatonduk River	1,186	Outlet, Tagish Lake	1,741
Mouth, Seventymile River	1,194	Carcross	1,741
		(Outlet L. Bennett)	1,741
		Bennett	1,818

Appendix A.3. Alaskan and Canadian total utilization of Yukon River salmon, 1903-1993.

Year	Alaska			Canada			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			5,228		537,000	542,228
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	361,300
1938	32,971	340,450	373,421			860	32,971	340,450	374,251
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	229,259
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	95,902
1960	67,597		67,597	9,653	15,608	25,261	77,250	15,608	92,858

-Continued-

Year	Alaska ^{a,b}			Canada ^c			Total		
	Chinook	Other Salmon	Total	Chinook	Other Salmon	Total	Chinook	Other Salmon	Total
1981	141,152	461,597	602,749	13,246	9,076	22,322	154,398	470,673	625,071
1982	105,844	434,663	540,507	13,937	9,436	23,373	119,781	444,099	563,880
1983	141,910	429,396	571,306	10,077	27,696	37,773	151,987	457,092	609,079
1984	109,818	504,420	614,238	7,408	12,187	19,595	117,226	516,607	633,833
1985	134,706	484,587	619,293	5,380	11,789	17,169	140,086	496,376	636,462
1986	104,887	309,502	414,389	4,452	13,192	17,644	109,339	322,694	432,033
1987	146,104	352,397	498,501	5,150	16,961	22,111	151,254	369,358	520,612
1988	118,632	270,818	389,450	5,042	11,633	16,675	123,674	282,451	406,125
1989	105,027	424,399	529,426	2,624	7,776	10,400	107,651	432,175	539,826
1990	93,019	585,760	678,779	4,663	3,711	8,374	97,682	589,471	687,153
1991	136,191	547,448	683,639	6,447	16,911	23,358	142,638	564,359	706,997
1992	113,098	461,617	574,715	5,729	7,532	13,261	118,827	469,149	587,976
1993	99,670	779,158	878,828	4,522	10,135	14,657	104,192	789,293	893,485
1974	118,053	1,229,678	1,347,731	5,631	11,646	17,277	123,684	1,241,324	1,365,008
1975	76,883	1,307,037	1,383,920	6,000	20,600	26,600	82,883	1,327,637	1,410,520
1976	105,582	1,026,906	1,132,490	5,025	5,200	10,225	110,607	1,032,108	1,142,715
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	159,232	1,631,072	1,790,304	10,375	22,084	32,459	169,607	1,653,156	1,822,763
1980	197,665	1,730,893	1,928,558	22,846	23,718	46,564	220,511	1,754,611	1,975,122
1981	188,477	2,097,826	2,286,303	18,109	22,781	40,890	206,586	2,120,607	2,327,193
1982	152,808	1,265,360	1,418,168	17,208	16,091	33,299	170,016	1,281,451	1,451,467
1983	198,436	1,678,380	1,876,816	18,952	29,490	48,442	217,388	1,707,870	1,925,258
1984	162,683	1,547,270	1,709,953	16,795	29,767	46,562	179,478	1,577,037	1,756,515
1985	187,327	1,657,176	1,844,503	19,301	41,515	60,816	206,628	1,698,691	1,905,319
1986	146,004	1,757,290	1,903,294	20,364	14,793	35,157	166,368	1,772,083	1,938,451
1987	188,386	1,244,884	1,433,270	17,614	44,786	62,400	206,000	1,289,670	1,495,570
1988	148,979	2,313,931	2,462,910	21,427	33,915	55,342	170,406	2,347,846	2,518,252
1989	157,824	2,272,375	2,430,199	17,944	23,490	41,434	175,768	2,295,865	2,471,633
1990	150,351	1,047,979	1,198,330	19,238	34,302	53,540	167,114	1,059,943	1,227,070
1991	153,499	1,321,534	1,475,033	20,607	35,653	56,260	174,106	1,357,187	1,531,293
1992	169,641	878,869	1,048,510	17,893	21,175	39,068	187,534	900,044	1,087,578
1993	163,078	342,197	505,275	16,611	14,090	30,701	179,689	356,287	535,976

^a Catch in number of salmon. Includes estimated number of salmon harvested for the commercial production of roe.

^b 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

^c Commercial, Aboriginal Fishery, Domestic, and sport catches combined.

^d Includes the Old Crow Aboriginal fishery harvest of coho salmon.

Appendix A.4. Commercial chinook salmon sales and estimated harvest by district and country, Yukon River drainage, 1961-1993.

Year	Lower Yukon Areas				Upper Yukon Areas						Alaska Total	Canada Total	Grand Total					
	District 1	District 2	District 3	Subtotal	District 4		District 5		District 6					Subtotal				
					Number	Est. Harvest	Number	Est. Harvest	Number	Est. Harvest				Number	Est. Harvest			
1961	84,406	29,026	4,368	117,800							1,804		1,804	119,604	3,440	123,110		
1962	67,090	22,224	4,687	94,010							724		724	94,734	4,037	98,771		
1963	85,004	24,221	7,020	116,245							603		603	117,048	2,283	119,331		
1964	67,556	20,248	4,705	92,509							1,081		1,081	93,590	3,208	96,798		
1965	89,268	23,763	3,204	116,235							1,963		1,963	118,098	2,285	120,383		
1966	70,788	18,927	3,612	93,327							1,988		1,988	95,315	1,942	97,257		
1967	104,390	20,209	3,618	128,207							1,449		1,449	129,656	2,187	131,843		
1968	79,465	21,382	6,543	107,400							1,126		1,126	108,526	2,212	110,738		
1969	71,888	14,756	3,596	90,239							988		988	91,227	1,040	92,267		
1970	58,648	17,141	3,705	79,494							1,651		1,651	81,145	2,611	83,756		
1971	86,042	19,225	3,490	108,759							1,749		1,749	110,507	3,178	113,685		
1972	70,052	17,856	3,841	91,749							1,092		1,092	92,841	1,709	94,550		
1973	56,981	13,859	3,204	74,044							1,309		1,309	75,353	2,190	77,543		
1974	71,840	17,948	3,480	93,268	685	685	2,663		2,663	1,473		1,473	4,821	4,821	98,089	1,600	99,689	
1975	44,585	11,315	4,177	60,077	389	389	2,672		2,672	500		500	3,761	3,761	63,838	3,000	66,838	
1976	62,410	16,556	4,148	83,114	409	409	3,151		3,151	1,102		1,102	4,662	4,662	87,776	3,600	91,376	
1977	69,915	16,722	3,965	90,602	985	985	4,182		4,182	1,006		1,006	6,155	6,155	96,757	4,720	101,477	
1978	58,008	32,924	2,916	94,848	608	608	3,079		3,079	615		615	4,322	4,322	99,170	2,975	102,145	
1979	75,007	41,498	5,018	121,523	1,989	1,989	3,368		3,368	772		772	6,150	6,150	127,673	6,175	133,848	
1980	80,382	50,004	5,240	135,626	1,521	1,521	4,891		4,891	1,047		1,047	8,359	8,359	153,985	9,500	163,485	
1981	99,506	46,781	4,023	149,310	1,347	1,347	6,374		6,374	987		987	8,708	8,708	158,018	8,593	166,611	
1982	74,450	39,132	2,609	116,191	1,087	1,087	5,285		5,285	981		981	7,453	7,453	123,644	8,040	131,684	
1983	95,457	43,229	4,106	142,792	601	601	3,608		3,608	911		911	5,118	5,118	147,910	13,027	160,937	
1984	74,671	36,667	3,039	114,407	961	961	3,669		3,669	867		867	5,497	5,497	119,904	9,885	129,789	
1985	90,911	48,365	2,588	141,864	664	664	3,418		3,418	1,142		1,142	5,224	5,224	147,088	12,573	159,661	
1986	53,035	41,848	901	95,785	502	502	2,733		2,733	950		950	4,185	4,185	99,970	10,797	110,767	
1987	76,643	47,648	2,039	126,330	1,524	1,524	3,758		3,758	3,338		3,338	8,620	8,620	134,950	10,084	145,034	
1988	56,120	35,129	1,767	93,017	3,199	3,199	3,436		3,436	792		792	7,357	7,357	100,374	13,217	113,591	
1989	61,570	13,168	1,645	76,383	2,781	2,781	3,286		3,286	1,741		1,741	7,817	7,817	104,199	9,780	113,979	
1990	51,190	20,001	2,341	73,532	3,526	3,526	3,253	47	3,305	1,787	1,676	2,156	8,940	1,731	10,671	35,860	11,324	128,084
1991	66,302	38,200	2,344	106,846	2,446	2,446	3,582	82	3,668	686	1,545	1,072	6,942	3,829	8,480	106,416	10,906	117,322
1992	74,212	38,119	1,819	114,150	1,651	1,651	3,862	7	3,869	572	894	753	6,075	3,164	7,002	121,172	10,877	132,049
1993	49,286	27,265	1,241	77,792	1,341	1,341	3,008	0	3,008	1,113	1,313	1,645	5,470	2,014	6,030	84,110	10,350	94,460
5 yr Ave 1961-67	77,364	24,291	2,545	104,200	661	661	3,437		3,437	1,442		1,442	5,729		5,729	129,746	11,429	141,175
5 yr Ave 1988-92	69,627	36,748	1,965	108,340	2,736	2,736	3,593		3,593	1,104	821	1,287	7,367	1,745	7,943	105,562	11,223	116,785

1. Upper Yukon Areas (Districts 4, 5, and 6) were previously reported as "Upper Yukon" in the 1961-1987 reports. Efforts were made to separate chinook for both summer and winter. Does not include department test fish sales.

2. Alaska Department of Fish and Game, Division of Commercial Fisheries, 1961-1993.

3. The estimated harvest for the 1980s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

4. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

5. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

6. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

7. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

8. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

9. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

10. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

11. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

12. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

13. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

14. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

15. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

16. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

17. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

18. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

19. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

20. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

21. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

22. The estimated harvest for the 1990s is based on the estimated number of chinook reported to the Alaska Department of Fish and Game.

Appendix A.5 Commercial summer chin salmon sales and estimated harvest by area and district, 1967-1993

Upper Yukon Area																	
Year	Lower Yukon Area				District 4			District 5			District 6			Subtotal		Total Harvest	
	District 1	District 2	District 3	Subtotal	Number	Size	Estimated Harvest	Number	Size	Estimated Harvest	Number	Size	Estimated Harvest	Number	Size		Estimated Harvest
1967	8,453	1,425	57	10,935	-	-	-	-	-	-	-	-	-	0	0	0	10,935
1968	12,985	1,407	68	14,470	-	-	-	-	-	-	-	-	-	0	0	0	14,470
1969	56,886	5,080	-	61,966	-	-	-	-	-	-	-	-	-	0	0	0	61,966
1970	117,357	19,649	-	137,006	-	-	-	-	-	-	-	-	-	0	0	0	137,006
1971	93,928	6,112	50	100,090	-	-	-	-	-	-	-	-	-	0	0	0	100,090
1972	114,234	20,807	527	135,668	-	-	-	-	-	-	-	-	-	0	0	0	135,668
1973	221,644	63,402	463	285,509	-	-	-	-	-	-	-	-	-	0	0	0	285,509
1974	488,004	74,152	1,721	563,877	27,888	-	27,888	6,924	-	6,924	13,318	-	13,318	48,015	0	48,015	611,892
1975	419,323	99,139	-	518,462	185,054	-	185,054	12,967	-	12,967	14,367	-	14,367	192,833	0	192,833	711,295
1976	273,204	90,190	9,802	363,196	211,307	-	211,307	774	-	774	9,817	-	9,817	218,898	0	218,898	582,094
1977	290,652	106,679	3,412	399,743	168,541	-	168,541	1,274	-	1,274	4,317	-	4,317	175,132	0	175,132	534,875
1978	393,785	227,548	27,002	648,336	264,184	16,920	281,104	4,892	-	4,892	24,814	8,256	43,070	403,999	25,781	429,780	1,077,987
1979	369,634	172,838	40,015	582,487	168,430	25,317	193,747	6,606	1,009	7,615	18,491	3,499	22,382	198,529	40,217	238,746	819,533
1980	391,252	208,704	44,782	644,738	147,566	130,824	278,390	456	-	456	25,855	3,282	29,137	183,871	138,166	322,037	1,067,715
1981	507,159	251,878	54,473	813,507	59,716	187,032	246,748	1,216	49	1,265	32,477	1,987	34,464	93,431	189,888	283,919	1,379,701
1982	249,516	182,344	4,086	435,946	3,647	151,281	154,928	213	21	234	21,567	1,517	23,114	25,457	152,819	178,271	614,217
1983	451,164	248,092	14,880	713,856	6,672	148,125	154,797	42	1,856	1,900	24,369	18	24,327	31,025	148,999	180,024	633,880
1984	292,676	230,931	1,067	524,674	1,008	189,842	190,850	645	47	692	56,249	335	56,584	57,903	187,224	234,147	758,821
1985	247,488	188,099	1,792	437,379	12,007	247,085	269,092	700	-	700	66,513	1,540	68,053	78,620	248,625	316,673	654,013
1986	381,127	289,427	442	670,996	300	289,545	290,845	650	-	650	50,483	2,148	52,631	51,473	271,001	323,474	644,447
1987	222,898	174,576	3,621	397,095	29,591	121,474	152,065	362	44	406	10,810	459	11,269	43,983	121,988	154,251	351,346
1988	645,322	424,481	13,955	1,083,758	21,051	254,526	275,577	722	362	1,085	40,129	1,546	41,775	84,902	258,535	340,317	1,424,075
1989	544,373	343,092	7,578	894,983	10,554	283,325	311,879	154	373	527	42,115	4,871	46,986	60,823	289,549	350,527	1,445,510
1990	146,725	131,255	843	278,823	12,364	105,723	118,087	11	564	671	11,127	3,058	14,185	23,502	109,376	123,563	298,646
1991	140,470	175,449	8,912	324,831	6,383	117,712	124,095	4	26	30	18,187	4,718	22,905	24,582	141,978	164,883	389,778
1992	177,129	147,129	85	324,343	2,674	116,609	119,283	102	295	400	5,029	1,892	7,228	7,790	112,898	120,028	239,311
1993	73,659	19,142	483	93,284	27	2,447	2,474	0	0	0	3,041	515	3,556	3,688	22,962	26,518	129,802
5 Yr Ave 1967-67	119,070	227,295	4,284	350,649	1,516	160,614	177,255	488	389	877	41,713	498	42,611	52,146	191,901	270,742	621,383
5 Yr Ave 1988-92	130,444	244,495	9,231	384,170	12,612	118,119	126,762	119	111	230	25,270	3,257	28,527	38,120	161,806	179,274	553,454

1. Harvest reported as numbers of fish sold as the record and pounds of net. Net sales may include salmon pink and slawfish within net. Does not include department test fish sales.
 All sales are in metric units. Includes department test fish sales plus 1.000.
 2. The estimated harvest in District 4 is the net plus the sales and number of females caught to produce the net sold. In addition, the estimated harvest for District 4 includes the estimated number of unsexed males harvested.
 3. In 1967, District 4 was subdivided into Districts 5 and 6.
 4. Sales for the legal sizes of 7.5+ inches from within and below the net and estimated and net sold separately. These fish are included in estimated harvest to produce net sold.
 5. Sales for the legal sizes of 7.5+ inches from within and below the net and estimated and net sold separately. These fish are included in estimated harvest to produce net sold.
 6. Sales for the legal sizes of 7.5+ inches from within and below the net and estimated and net sold separately. These fish are included in estimated harvest to produce net sold.

Appendix A.7 Commercial coho salmon sales by district, Yukon River drainage in Alaska, 1961-1993

Year	Lower Yukon Area				Upper Yukon Area													Total Harvest	
	District 1	District 2	District 3	Subtotal	District 4			District 5			District 6			Subtotal					
					Number	Roq	Estimated Harvest	Number	Roq	Estimated Harvest	Number	Roq	Estimated Harvest	Number	Roq	Estimated Harvest			
1961	2,855	-	-	2,855	-	-	-	-	-	-	-	-	-	-	-	-	-	2,855	
1962	22,926	-	-	22,926	-	-	-	-	-	-	-	-	-	-	-	-	-	22,926	
1963	5,572	-	-	5,572	-	-	-	-	-	-	-	-	-	-	-	-	-	5,572	
1964	2,446	-	-	2,446	-	-	-	-	-	-	-	-	-	-	-	-	-	2,446	
1965	350	-	-	350	-	-	-	-	-	-	-	-	-	-	-	-	-	350	
1966	19,254	-	-	19,254	-	-	-	-	-	-	-	-	-	-	-	-	-	19,254	
1967	9,925	-	1,122	11,047	-	-	-	-	-	-	-	-	-	-	-	-	-	11,047	
1968	13,163	-	150	13,303	-	-	-	-	-	-	-	-	-	-	-	-	-	13,303	
1969	13,989	-	1,000	14,989	-	-	-	-	-	-	-	-	-	-	-	-	95	15,084	
1970	12,632	-	-	12,632	-	-	-	-	-	-	-	-	-	-	-	-	556	13,188	
1971	12,165	-	-	12,165	-	-	-	-	-	-	-	-	-	-	-	-	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	0	-	0	1,400	-	1,400	1,479	-	1,479	2,888	0	2,888	0	16,777	
1975	2,268	200	-	2,468	0	-	0	5	-	5	50	-	50	58	0	58	0	2,646	
1976	4,064	37	-	4,081	0	-	0	0	-	0	1,100	-	1,100	1,100	0	1,100	0	5,184	
1977	31,720	5,319	538	37,577	0	-	0	2	-	2	1,284	-	1,284	1,286	0	1,286	0	38,863	
1978	16,489	5,835	758	23,082	32	-	32	1	-	1	3,066	-	3,066	3,099	0	3,099	0	26,181	
1979	11,369	2,850	-	14,219	155	-	155	0	-	0	2,791	-	2,791	2,946	0	2,946	0	17,165	
1980	4,829	2,660	-	7,489	30	-	30	0	-	0	1,226	-	1,226	1,256	0	1,256	0	8,745	
1981	13,129	7,648	419	21,196	0	-	0	0	-	0	2,284	-	2,284	2,284	0	2,284	0	23,680	
1982	15,115	14,179	87	29,381	15	-	15	0	-	0	7,780	-	7,780	7,795	0	7,795	0	37,176	
1983	4,595	2,557	-	7,152	0	-	0	0	-	0	6,168	-	6,168	6,168	0	6,168	0	13,320	
1984	29,472	43,064	621	73,157	1,095	-	1,095	0	-	0	7,688	-	7,688	8,783	0	8,783	0	81,940	
1985	27,675	17,125	171	44,971	938	-	938	0	-	0	11,762	-	11,762	12,700	0	12,700	0	57,672	
1986	24,824	21,197	703	46,724	0	-	0	0	-	0	441	-	441	441	0	441	0	47,255	
1987	0	0	0	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	
1988	36,028	34,758	1,419	72,205	2	-	2	8	-	8	13,972	-	13,972	13,982	0	13,982	0	86,187	
1989	22,087	38,402	5,088	65,577	3	-	3	84	-	84	16,084	-	16,084	16,171	0	16,171	0	81,548	
1990	12,160	16,405	916	29,481	0	-	0	0	-	0	13,549	-	13,549	14,804	4,042	14,804	44,287	44,287	
1991	54,395	40,296	1,705	96,396	14	-	14	0	-	0	6,268	-	6,268	4,299	9,774	5,262	4,299	106,688	
1992	0	0	0	0	0	-	0	0	-	0	6,556	-	6,556	1,680	7,979	6,556	1,680	7,979	
1993	0	0	0	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	
5-21 Ave- District 6	17,211	16,281	312	33,804	107	-	107	497	-	497	5,212	-	5,212	5,618	0	5,618	0	40,037	
5-21 Ave- District 7	2,000	16,000	1,000	19,000	3	-	3	18	-	18	1,880	-	1,880	2,004	12,520	10,908	2,004	12,545	65,337

86

Notes: 1. District 1 includes the following areas: (a) the Yukon River drainage in Alaska, (b) the Yukon River drainage in Canada, (c) the Yukon River drainage in the United States, and (d) the Yukon River drainage in the Yukon Territory. 2. District 2 includes the following areas: (a) the Yukon River drainage in Alaska, (b) the Yukon River drainage in Canada, (c) the Yukon River drainage in the United States, and (d) the Yukon River drainage in the Yukon Territory. 3. District 3 includes the following areas: (a) the Yukon River drainage in Alaska, (b) the Yukon River drainage in Canada, (c) the Yukon River drainage in the United States, and (d) the Yukon River drainage in the Yukon Territory. 4. District 4 includes the following areas: (a) the Yukon River drainage in Alaska, (b) the Yukon River drainage in Canada, (c) the Yukon River drainage in the United States, and (d) the Yukon River drainage in the Yukon Territory. 5. District 5 includes the following areas: (a) the Yukon River drainage in Alaska, (b) the Yukon River drainage in Canada, (c) the Yukon River drainage in the United States, and (d) the Yukon River drainage in the Yukon Territory. 6. District 6 includes the following areas: (a) the Yukon River drainage in Alaska, (b) the Yukon River drainage in Canada, (c) the Yukon River drainage in the United States, and (d) the Yukon River drainage in the Yukon Territory. 7. District 7 includes the following areas: (a) the Yukon River drainage in Alaska, (b) the Yukon River drainage in Canada, (c) the Yukon River drainage in the United States, and (d) the Yukon River drainage in the Yukon Territory. 8. The total harvest for each year is the sum of the harvest for each district. 9. The total harvest for each year is the sum of the harvest for each district. 10. The total harvest for each year is the sum of the harvest for each district.

Appendix A.8. Commercial Fisheries Entry Commission (CFEC) salmon permits issued by gear type,
Yukon Area, 1976-1993. ^a

Year	Lower Yukon Set or Drift Gillnet		Upper Yukon Set Gillnet		Upper Yukon Fishwheel		Total	
	Permits Issued	Permits Fished	Permits Issued	Permits Fished	Permits Issued	Permits Fished	Permits Issued	Permits Fished
1976	678	^b	118	^b	169	^b	^b	^b
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	708	680	72	36	155	110	935	826
1992	707	679	71	32	165	111	943	922
1993	718	682 ^c	75	35 ^c	166	88 ^c	959 ^c	805

^a Information obtained from CFEC unless otherwise indicated. Includes permanent and interim-use permits.

^b Information unavailable.

^c Data source: ADF&G.

Appendix A.9. Number of commercial salmon fishing gear operators (permit holders) by district, Yukon area, 1971-1993.

Chinook and Summer Chum Salmon Season									
Year	Lower Yukon Area			Subtotal	Upper Yukon Area			Subtotal	Total
	District 1	District 2	District 3		District 4	District 5	District 6		
1971	405	154	33	592	-	-	-	-	592
1972	426	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	455	225	20	700	77	34	25	136	836
1984	444	217	20	681	54	31	27	112	793
1985	425	223	18	666	74	32	27	133	799
1986	441	239	7	672	75	21	27	123	795
1987	440	239	13	692	87	30	24	141	833
1988	456	250	22	728	95	28	33	156	884
1989	445	243	16	687	98	32	29	159	846
1990	453	242	15	679	92	27	23	142	821
1991	489	253	27	729	85	32	22	139	868
1992	438	263	19	700	90	28	19	137	837
1993	448	238	6	682	75	30	18	123	805

Fall Chum and Coho Salmon Season									
Year	Lower Yukon Area			Subtotal	Upper Yukon Area			Subtotal	Total
	District 1	District 2	District 3		District 4	District 5	District 6		
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	312	224	18	554	13	29	23	65	619
1984	327	216	12	536	18	39	25	82	618
1985	345	222	13	559	22	39	25	86	645
1986	282	231	14	510	1	21	16	38	548
1987 c	-	-	-	-	-	-	-	-	-
1988	328	233	13	563	20	20	32	72	635
1989	332	229	22	550	20	24	28	72	622
1990	301	227	19	529	11	11	27	49	578
1991	319	238	19	540	8	21	25	54	594
1992 c	-	-	-	-	-	-	22	22	22
1993 c	-	-	-	-	-	-	-	-	-

-Continued-

COMBINED SEASON									
Year	Lower Yukon Area				Upper Yukon Area				Total
	District 1	District 2	District 3	Subtotal	District 4	District 5	District 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	609	96	53	39	188	797
1978	472	221	29	650	82	53	38	173	823
1979	461	230	33	661	90	49	40	179	840
1980	432	247	27	654	88	51	38	177	831
1981	507	257	26	666	84	56	31	181	847
1982	455	244	22	664	76	53	27	156	820
1983	458	235	26	655	79	47	31	157	812
1984	453	236	26	676	58	45	33	136	812
1985	434	247	24	666	76	48	33	157	823
1986	444	259	18	672	75	30	27	132	804
1987	440	239	13	659	87	30	24	141	800
1988	460	260	24	683	97	35	38	170	853
1989	452	257	23	687	99	38	32	169	856
1990	459	258	22	679	92	31	30	153	832
1991	497	272	29	680	85	33	28	146	826
1992	438	263	19	679	90	28	25	143	822
1993	448	238	6	682	75	30	18	123	805

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.

Total number of permits by season, and combined seasons are the unique number of permits fished from 1984-1993. Prior year totals are additive for Districts 1, 2, and 3.

No commercial salmon fishing season, except in District 6 in 1992.

Appendix A.10. Commercial salmon pack by species and type of processing, Yukon Area, 1960-1993.

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	68,400	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			266,099
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	503,258
1990 ^f				1,846,081	283,504	3,166,199		3		1,268	281,018
1991 ^h				2,047,188	708,902	3,978,482				2,547	361,174
1992				2,537,833	40,685	2,398,093					390,490
1993				1,905,414	0	634,931					31,471

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

^b Information not available.

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

^c Additionally 13 half tierces of coho salmon were packed.

^d Additionally 2 half tierces of coho salmon were packed.

^e Does not include District 6 test fish sales.

^f Additionally 1 half tierce of coho salmon was packed.

^g Beginning in 1991, no ADF&G test fish sales are included.

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

Appendix A.11. Dollar value estimates of Yukon Area commercial salmon fishery, 1961-1993.

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
1992 ^d	10,117,092	15,867	661,702	537,210	11,331,871	28,329,678	887,890
1993 ^d	4,986,151	0	240,641	207,131	5,433,923	13,584,808	445,544
5-Year-Avg. 1988-92	6,629,556	323,252	2,391,912	845,812	10,190,532	25,476,330	523,479

^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 test fish sales.

Appendix A.12. Estimated average prices paid to fishermen, Yukon Area, 1964-1993.

Year	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	2.66	0.22		0.27			2.66
1978	0.90	0.45	0.47	0.60	0.87		0.24		0.25		0.24			
1979	1.09	0.52	0.68	0.80	1.00		0.25	3.00	0.29		0.25			3.00
1980	1.04	0.20	0.28	0.36	0.85		0.23	2.50	0.27		0.29			2.50
1981	1.20	0.40	0.55	0.60	1.00		0.20	3.00	0.35		0.35			3.00
1982	1.41	0.40	0.55	0.69	1.02		0.18	2.75	0.28		0.37			2.75
1983	1.40	0.34	0.34	0.35	1.08		0.16	1.66	0.19		0.31			1.66
1984	1.50	0.26	0.32	0.50	0.95		0.23	1.78	0.26		0.24			1.78
1985	1.50	0.35	0.47	0.53	0.86		0.23	1.94	0.25		0.33			1.94
1986	1.63	0.38	0.49	0.71	0.89		0.22	2.08	0.14		0.21			2.08
1987	1.98	0.49	-	-	0.79		0.19	2.22	-		-			2.22
1988	2.97	0.66	1.01	1.38	1.04		0.23	4.33	0.32		0.37			4.33
1989	2.77	0.34	0.50	0.66	0.84		0.24	4.41	0.28		0.35			4.41
1990	2.84	0.24	0.45	0.66	0.72		0.11	4.41	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
1992	4.12	0.27	-	-	0.91	2.82	0.30	4.53	0.39	4.50	0.39	2.18		4.45
1993	2.70	0.30	-	-	1.06	5.52	0.35	8.53	-	-	-	-		8.29

- Data unavailable

Appendix A.13. Average weight of commercial salmon catch in pounds, Yukon Area, 1964-1993.

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
1992	21.5	6.9			19.9	5.6	6.9	6.2
1993	20.5	6.6			17.8	7.2		

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

Appendix A.14 Commercial chinook salmon harvest taken under quotas or guideline harvest ranges (GHR), Lower Yukon Area, 1974-1993.

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 a	-	-	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	91,240	60,000-120,000	1,767	1,800-2,200
1989	94,736	60,000-120,000	1,645	1,800-2,200
1990	84,260	60,000-120,000	2,341	1,800-2,200
1991	95,592	60,000-120,000	2,344	1,800-2,200
1992	112,351	60,000-120,000	1,819	1,800-2,200
1993	86,579	60,000-120,000	1,501	1,800-2,200

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

Appendix A.15. Estimated commercial chinook salmon harvest taken under quotas or guideline harvest ranges (GHR), Upper Yukon Area, 1974-1993.

Year	District 4		Subdistricts 5-ABC		Subdistricts 5-D		District 6	
	Estimated Harvest a	Quota/GHR	Estimated Harvest a	Quota/GHR	Estimated Harvest a	Quota/GHR	Estimated Harvest a	Quota/GHR
1974	685	1,000	2,663	3,000 b			1,473	1,000
1975	389	1,000	2,872	3,000 b			500	1,000
1976	409	1,000	3,151	3,000 b			1,102	1,000
1977	985	1,000	4,162	3,000 b			1,008	1,000
1978	608	1,000	3,079	3,000 b			635	1,000
1979 c	1,989	900-1,100	3,389	2,700-3,300b			772	900-1,100
1980	1,521	900-1,100	4,891	2,700-3,300b			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	3,538	2,250-2,850	2,822	2,400-2,800	543	300-500	2,156	600-800
1991	3,582	2,250-2,850	3,272	2,400-2,800	554	300-500	1,072	600-800
1992	2,394	2,250-2,850	3,398	2,400-2,800	457	300-500	753	600-800
1993	1,577	2,250-2,850	2,608	2,400-2,800	400	300-500	1,445	600-800

a The estimated harvest includes the number of fish sold in the round plus the estimated number of females harvested to produce the roe sold.

b Quota or guideline harvest range for District 5.

c In 1979, quotas were replaced by guideline harvest ranges.

Appendix A.16. Commercial summer chum salmon harvest taken under guideline harvest ranges (GHR), Lower Yukon Area, 1990-1993.

Year	Districts 1 and 2		District 3	
	Catch	GHR	Catch	GHR
1990	278,480	251,000-755,000	643	6,000-19,000
1991	315,619	251,000-755,000	8,912	6,000-19,000
1992	324,458	251,000-755,000	65	6,000-19,000
1993	92,991	251,000-755,000	463	6,000-19,000

Appendix A.17. Estimated commercial summer chum salmon harvest taken under guideline harvest ranges (GHR), Upper Yukon Area, 1990-1993.

Year	Subdistrict 4-A b		Subdistrict 4-BC		District 5		District 6	
	Estimated Harvest a	GHR	Estimated Harvest a	GHR	Estimated Harvest a	GHR	Estimated Harvest a	GHR
1990	197,621	113,000-338,000	24,929	16,000-47,000	671	1,000-3,000	14,833	13,000-38,000
1991	290,255	113,000-338,000	19,389	16,000-47,000	35	1,000-3,000	23,892	13,000-38,000
1992	184,171	113,000-338,000	27,225	16,000-47,000	430	1,000-3,000	7,228	13,000-38,000
1993	38,196	113,000-338,000	4,761	16,000-47,000	0	1,000-3,000	3,705	13,000-38,000

a Unless otherwise noted, estimated harvest includes the number of females to produce roe sold.

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

Appendix A.18. Commercial fall chum salmon harvest taken under quotas or guideline harvest ranges (GHR), Lower Yukon Area, 1974-1993.

Year	Districts 1, 2, and 3	
	Catch	Quota/GHR
1974	230,128	200,000
1975	215,439	200,000
1976	131,313	200,000
1977	199,603	200,000
1978	191,120	200,000
1979 a	229,403	120,000-220,000
1980	204,229	120,000-220,000
1981	341,760	120,000-220,000
1982	199,880	120,000-220,000
1983	220,034	120,000-220,000
1984	155,983	120,000-220,000
1985	175,602	120,000-220,000
1986	113,452	0-110,000
1987	0	0-110,000
1988	78,825	0-110,000
1989	187,125	0-110,000
1990	66,061	60,000-220,000
1991	171,565	60,000-220,000
1992	0	60,000-220,000
1993	0	60,000-220,000

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

Appendix A 19. Estimated commercial fall chum and coho salmon catches (Table 2) taken under quotas or guideline harvest ranges (GHR) Upper Yukon Area, 1974-1993.

Year	District 4		Subdist. 4 BC		District 5		Sub-districts 5 ABC		Subdistrict 5 D		District 6	
	Estimated Harvest	GHR	Estimated Harvest	GHR	Estimated Harvest	GHR	Estimated Harvest	GHR	Estimated Harvest	GHR	Estimated Harvest	GHR
1974	9,213	10,000	-	-	24,960	25,000	-	-	-	-	28,363	15,000
1975	13,666	10,000	-	-	27,217	25,000	-	-	-	-	18,745	15,000
1976	1,742	10,000	-	-	5,397	25,000	-	-	-	-	19,051	15,000
1977	13,980	10,000	-	-	24,732	25,000	-	-	-	-	10,957	15,000
1978	12,741	10,000	-	-	26,237	25,000	-	-	-	-	20,012	15,000
1979 ^b	-	-	52,253	10,000-40,000	55,556	10,000-40,000	-	-	-	-	44,146	7,500-22,500
1980	-	-	32,355	10,000-40,000	42,376	10,000-40,000	-	-	-	-	20,746	7,500-22,500
1981	-	-	13,383	10,000-40,000	93,575	-	c	8,000-36,000	c	2,000-4,000	31,292	5,500-20,500
1982	-	-	4,076	10,000-40,000	13,635	-	c	8,000-36,000	c	2,000-4,000	15,196	5,500-20,500
1983	-	-	6,445	10,000-40,000	-	-	40,901	8,000-36,000	3,092	2,000-4,000	43,358	5,500-20,500
1984	-	-	10,835	10,000-40,000	-	-	21,147	8,000-36,000	2,970	2,000-4,000	28,308	5,500-20,500
1985	-	-	27,815	10,000-40,000	-	-	23,160	8,000-36,000	2,178	2,000-4,000	54,114	5,500-20,500
1986	-	-	2,045	0-20,000	-	-	21,100	0-18,000	1,343	0-2,000	2,515	0-10,250
1987	-	-	0	0-20,000	-	-	0	0-18,000	0	0-2,000	0	0-10,250
1988	-	-	17,085	0-20,000	-	-	14,217	0-18,000	2,780	0-2,000	37,622	0-10,250
1989	-	-	15,186	0-20,000	-	-	18,970	0-18,000	3,312	0-2,000	72,527	0-10,250
1990	-	-	8,166	5,000-40,000	-	-	6,243	4,000-36,000	2,733	1,000-4,000	65,779	2,750-20,500
1991	-	-	6,105	5,000-40,000	-	-	28,000	4,000-36,000	3,214	1,000-4,000	54,222	2,750-20,500
1992	-	-	0	5,000-40,000	-	-	0	4,000-36,000	0	1,000-4,000	27,001	2,750-20,500
1993 ^d	-	-	0	5,000-40,000	-	-	0	4,000-36,000	0	1,000-4,000	0	2,750-20,500

- a. The estimated harvest is the number of fish sold in the roand plus the estimated number of females harvested to produce the roe sold
 b. In 1979, quotas were replaced by guideline harvest ranges
 c. Harvest by subdistrict not available.
 d. Regulations were changed to exclude coho salmon from GHR

Appendix A 20. Yukon River chinook salmon total utilization in numbers of fish by district, area and country, 1961-1993 a

Year	District 1					District 2				District 3			Lower Yukon Area Subtotals				
	Subsist	Comm b,c	Personal Use	ADF&G Test Fish	Total	Subsist	Comm b,c	ADF&G Test Fish	Total	Subsist	Comm	Total	Subsist	Comm	Personal Use	ADF&G Test Fish	Total
1961		84,466			84,466		29,026		29,026		4,368	4,368		117,860			117,860
1962		67,099			67,099		22,224		22,224		4,687	4,687		94,010			94,010
1963		85,004			85,004		24,221		24,221		7,020	7,020		116,245			116,245
1964		67,555			67,555		20,246		20,246		4,705	4,705		92,506			92,506
1965		89,268			89,268		23,763		23,763		3,204	3,204		116,235			116,235
1966		70,788			70,788		16,927		16,927		3,612	3,612		91,327			91,327
1967		104,350			104,350		20,239		20,239		3,618	3,618		128,207			128,207
1968		79,465			79,465		21,392		21,392		4,543	4,543		105,400			105,400
1969		71,688			71,688		14,756		14,756		3,595	3,595		90,039			90,039
1970		56,648			56,648		17,141		17,141		3,705	3,705		77,494			77,494
1971		86,042			86,042		19,226		19,226		3,490	3,490		108,758			108,758
1972		70,052			70,052		17,855		17,855		3,841	3,841		91,748			91,748
1973		56,981			56,981		13,859		13,859		3,204	3,204		74,044			74,044
1974		71,840			71,840		17,948		17,948		3,480	3,480		93,268			93,268
1975		44,585			44,585		11,315		11,315		4,177	4,177		60,077			60,077
1976		62,410			62,410		16,556		16,556		4,148	4,148		83,114			83,114
1977		69,915			69,915		16,722		16,722		3,965	3,965		90,602			90,602
1978	5,246	59,006			64,252	3,964	32,924		36,888	3,902	2,916	6,818	13,112	94,846			107,958
1979	2,879	75,007			77,886	4,268	41,498		45,766	3,263	5,018	8,281	10,410	121,523			131,833
1980	3,669	90,382			94,051	3,674	50,004		53,678	4,783	5,240	10,023	12,126	145,626			157,752
1981	2,282	99,506			101,788	3,580	45,781		49,361	4,001	4,023	8,024	9,863	149,310			159,173
1982	2,311	74,450			76,761	2,109	39,132		41,241	3,359	2,609	5,968	7,779	116,191			123,970
1983	6,263	95,457			101,720	9,065	43,229		52,294	4,910	4,106	9,016	20,238	142,792			163,030
1984	4,624	74,671			79,295	7,172	36,697		43,869	4,394	3,039	7,433	16,190	114,407			130,597
1985	3,071	90,011			93,082	3,468	48,365		51,833	3,342	2,588	5,930	9,881	140,964			150,845
1986	5,275	53,035			58,310	6,483	41,849		48,332	4,252	901	5,153	16,010	95,785			111,795
1987	7,278	76,643	0		83,921	9,866	47,458		57,324	4,661	2,039	6,700	21,805	128,140	0		147,945
1988	3,938	56,120	67	989	61,114	3,823	35,120	68	39,011	4,443	1,767	6,210	12,204	93,007	67	1,057	106,335
1989	4,565	61,570	286	794	67,215	7,147	33,166	59	40,372	4,746	1,645	6,391	16,458	96,381	286	853	113,978
1990	6,619	51,199	450	1,063	59,331	9,546	33,061	152	42,759	4,031	2,341	6,372	20,196	86,601	450	1,215	108,462
1991	5,925	56,332		485	62,742	7,617	39,260	113	46,990	2,998	2,344	5,342	16,540	97,936	0	598	115,074
1992	5,141	74,212		930	80,283	7,074	38,139	0	45,213	4,773	1,819	6,592	16,988	114,170	0	930	132,088
1993	10,423	49,286		1,408	61,117	11,516	37,293	164	48,973	6,474	1,501	7,975	28,413	88,080	0	1,572	118,065
Avg Harvest	5,238	59,887			65,127	7,041	35,749		42,869	4,198	1,983	6,181	16,477	97,619			115,187
Total 1961-1993	5,270	68,925	201	852	74,701	7,126	39,634	78	46,800	4,255	2,259	6,514	16,651	110,818	134	931	128,015

-Continued-

Year	District 4				District 5				District 6					Upper Yukon Area Subtotals															
	Subsist	Comm.	Related U	Total	Subsist	Comm.	Related U	Personal Use	Total	Subsist	Comm.	Related U	Personal Use	ADF&G Test Fish	Total	Subsist	Comm.	Related U	Personal Use	ADF&G Test Fish	Total								
1961																						1,004	0				1,004		
1962																							724	0				724	
1963																							803	0				803	
1964																							1,081	0				1,081	
1965																							1,863	0				1,863	
1966																							1,988	0				1,988	
1967																							1,449	0				1,449	
1968																							1,126	0				1,126	
1969																							988	0				988	
1970																							1,651	0				1,651	
1971																							1,749	0				1,749	
1972																							1,092	0				1,092	
1973																							1,309	0				1,309	
1974		685	0	685		2,663	0		2,663		1,473	0										4,821	0				4,821		
1975		389	0	389		2,872	0		2,872		500	0										3,761	0				3,761		
1976		409	0	409		3,151	0		3,151		1,102	0										4,662	0				4,662		
1977		985	0	985		4,162	0		4,162		1,008	0										6,155	0				6,155		
1978	5,549	608	0	6,157	10,405	3,079	0		13,484	1,231	635	0			1,866						17,185	4,322	0				21,507		
1979	7,265	1,989	0	9,254	11,997	3,386	0		15,386	1,333	772	0			2,105							20,595	6,150	0				26,745	
1980	11,088	1,521	0	12,609	17,684	4,891	0		22,575	1,826	1,947	0			3,773							30,598	8,359	0				38,957	
1981	4,442	1,347	0	5,789	13,300	6,374	0		19,674	2,065	887	0			3,072							19,827	8,708	0				28,535	
1982	5,077	1,087	0	6,164	12,859	5,385	0		18,244	2,443	881	0			3,424							20,379	7,453	0				27,832	
1983	9,754	801	0	10,355	18,780	3,806	0		20,386	2,706	911	0			3,617							29,240	5,118	0				34,358	
1984	7,650	961	0	8,611	14,989	3,869	0		18,658	3,599	867	0			4,466							28,238	5,497	0				31,735	
1985	7,425	664	0	8,089	15,090	3,418	0		18,508	7,375	1,142	0			8,517							29,890	5,224	0				35,114	
1986	9,583	502	0	10,085	15,944	2,733	0		18,677	1,701	950	0			4,651							29,228	4,185	0	0			33,413	
1987	7,961	1,524	0	9,485	17,556	3,758	0	1,706	23,020	4,096	3,338	0			7,434							29,613	8,620	0	1,706			39,939	
1988	9,619	3,159	0	12,778	17,200	3,438	0	1,435	22,073	4,884	762	0	620	24	6,293							31,703	7,357	0	2,058	24		41,142	
1989	9,106	2,790	0	11,896	20,336	3,288	0	1,877	25,499	2,546	1,741	0	450	440	5,180							31,988	7,817	0	2,330	440		42,575	
1990	11,184	3,536	2	14,722	14,589	3,353	12	1,693	19,647	2,618	1,757	399	451	833	6,058							28,391	8,646	413	2,144	833		40,427	
1991	11,289	2,446	1,136	14,871	16,429	3,810	16		20,255	2,515	886	386		91	3,678							30,233	6,942	1,538	0	91		38,804	
1992	8,509	1,851	743	10,903	17,691	3,852	3		21,546	2,438	572	181		32	3,273							28,638	6,075	927	0	32		35,672	
1993	12,042	1,349	228	13,619	22,111	3,008	0		25,119	2,709	1,113	332	426	0	4,580							36,862	5,470	560	426	0		43,318	
Avg Harvest																													
1966-1992	9,541	2,716	576	13,833	17,249	3,547	5		21,804	3,000	1,104	193		4,886								30,191	7,367	576				39,724	
1963-1992	9,708	1,763	185	11,656	16,860	3,492	1	1,676	20,827	3,648	1,273	37	509	284	5,312							29,516	6,548	288	1,177	284		37,318	

Continued

Year	Yukon Area Totals								Canada: Yukon Territories						Total Yukon River Drainage										
	Subsist	Comm	Comm-Related	Personal Use	ADF&G Test Fish	Sport Fish ¹	Total	Mainstem Yukon				Chitrow		Subsist	Comm	Comm-Related	Personal Use	ADF&G Test Fish	Sport Fish	Total					
								Non-Commercial				Domestic	Aboriginal								Sport	Comm	Total	Aboriginal	Total
								Domestic	Aboriginal	Sport	Comm															Total
1961	21 488	119 684	0	0	0	141 152	0	5 300	3 446	12 746	500	13 246	31 288	123 110	0	0	0	0	154 398						
1962	11 110	94 734	0	0	0	105 844	0	5 300	4 037	13 337	600	13 937	21 010	98 771	0	0	0	0	119 781						
1963	24 862	117 048	0	0	0	141 910	0	7 750	2 283	10 033	44	10 077	32 656	119 331	0	0	0	0	151 987						
1964	16 231	93 587	0	0	0	109 818	0	4 124	3 208	7 332	76	7 408	20 431	96 795	0	0	0	0	117 226						
1965	16 608	118 098	0	0	0	134 706	0	3 021	2 265	5 286	94	5 380	19 723	120 363	0	0	0	0	140 086						
1966	11 572	93 315	0	0	0	104 887	0	2 445	1 942	4 387	65	4 452	14 082	95 257	0	0	0	0	109 339						
1967	16 448	129 656	0	0	0	146 104	0	2 920	2 187	5 107	43	5 150	19 411	131 843	0	0	0	0	151 254						
1968	12 106	106 526	0	0	0	118 632	0	2 800	2 212	5 012	30	5 042	14 936	108 738	0	0	0	0	123 674						
1969	14 000	91 027	0	0	0	105 027	0	957	1 640	2 597	27	2 624	14 984	92 667	0	0	0	0	107 651						
1970	13 874	79 145	0	0	0	93 019	0	2 044	2 611	4 655	8	4 663	15 926	81 756	0	0	0	0	97 682						
1971	25 684	110 507	0	0	0	136 191	0	3 260	3 178	6 438	9	6 447	28 953	113 685	0	0	0	0	142 638						
1972	20 258	92 840	0	0	0	113 098	0	3 960	1 769	5 729	0	5 729	24 218	94 609	0	0	0	0	118 827						
1973	24 317	75 353	0	0	0	99 670	0	2 319	2 199	4 518	4	4 522	26 640	77 552	0	0	0	0	104 192						
1974	19 964	98 089	0	0	0	118 053	406	3 342	1 808	5 556	75	5 631	23 787	99 897	0	0	0	0	123 684						
1975	13 045	63 838	0	0	0	76 883	400	2 500	3 000	5 900	100	6 000	16 045	66 838	0	0	0	0	82 883						
1976	17 806	87 776	0	0	0	105 582	500	1 000	3 500	5 000	25	5 025	19 331	91 276	0	0	0	0	110 607						
1977	17 581	96 757	0	0	156	114 494	531	2 247	4 720	7 498	29	7 527	20 388	101 477	0	0	0	0	121 865						
1978	30 297	99 168	0	0	523	129 988	421	2 485	2 475	5 881	5 881	33 203	102 143	0	0	0	0	135 346							
1979	31 005	127 673	0	0	554	159 232	1 200	3 000	6 175	10 375	10 375	35 205	133 848	0	0	0	554	169 607							
1980	42 774	153 985	0	0	956	197 665	3 500	7 546	300	9 500	20 846	2 000	22 846	0	0	0	1 256	220 511							
1981	29 690	158 018	0	0	769	188 477	237	8 679	300	8 593	18 009	100	18 109	38 906	166 611	0	0	1 069	206 586						
1982	28 158	123 644	0	0	1 006	152 808	435	7 433	300	8 640	16 808	400	17 208	36 426	132 284	0	0	1 306	170 016						
1983	49 478	147 910	0	0	1 048	198 436	400	5 025	300	13 027	18 752	200	18 952	55 103	160 937	0	0	1 348	217 388						
1984	42 428	119 904	0	0	351	162 683	260	5 850	300	9 885	16 295	500	16 795	49 038	129 789	0	0	651	179 478						
1985	39 771	146 188	0	0	1 368	187 327	478	5 800	300	12 573	19 151	150	19 301	46 199	158 761	0	0	1 668	208 628						
1986	45 238	99 970	0	0	796	146 004	342	8 625	300	10 797	20 064	300	20 364	54 505	110 767	0	0	1 096	166 368						
1987	51 418	134 760	0	1 706	502	188 386	330	6 069	300	10 864	17 563	51	17 614	57 868	145 624	0	1 706	802	206 000						
1988	43 907	100 364	0	2 125	1 081	148 421	282	7 178	650	13 217	21 327	100	21 427	51 467	113 581	0	2 125	1 594	169 848						
1989	48 446	104 198	0	2 616	1 293	152 606	400	6 930	300	9 789	17 419	525	17 944	56 301	113 987	0	2 616	1 293	175 550						
1990	48 587	95 247	413	2 594	2 048	149 433	247	7 109	300	11 324	18 980	258	19 238	56 201	106 571	413	2 594	2 048	168 671						
1991	46 773	104 878	1 538	0	689	154 651	227	9 011	300	10 506	20 444	163	20 607	58 174	115 784	1 538	0	689	175 258						
1992	45 626	120 245	927	0	962	168 191	277	6 349	300	10 877	17 803	100	17 903	52 352	131 122	927	0	962	186 094						
1993	65 275	93 650	560	426	1 572	161 076	243	5 576	300	10 350	16 469	142	16 611	71 236	103 900	560	426	1 572	179 689						
Avg Harvest																									
1968-1992	46 668	104 086	1 706	0	1 293	147 661	287	7 315	370	11 223	19 195	229	19 424	54 499	116 209	0	0	1 119	175 084						
1983-1992	46 167	117 346	269	1 292	1 215	166 314	424	6 795	335	11 326	18 780	235	19 015	53 521	128 692	959	2 260	607	185 128						

a. Subsistence harvest not available by district until 1975
 b. Includes estimates of legal sales (refer to Appendix A.4)
 c. Includes departmental test fish sales prior to 1975
 d. Commercial related refers to the estimated harvest of female chum salmon to produce CO2 sock
 e. Estimated sport fish harvest for Alaskan portion of the mainstem Yukon drainage (a majority of the sport fish harvest occurs in the Tanana River drainage (District 6))
 g. Commercial sport fish harvest estimates prior to 1975
 h. Includes Alaskan estimates based on the 1975-1976 study and 1974 departmental

Appendix A 21. Yukon River summer chum salmon total utilization in numbers of fish by district and area, 1961-1993 a

Year	District 1					District 2				District 3			Lower Yukon Area Subtotals				
	Subsist	Comm b	Personal Use	ADF&G Test Fish	Total	Subsist	Comm b	ADF&G Test Fish	Total	Subsist	Comm	Total	Subsist	Comm	Personal Use	ADF&G Test Fish	Total
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			9,453		1,425		1,425		57	57			10,935		10,935
1968		12,995			12,995		1,407		1,407		68	68			14,470		14,470
1969		56,886			56,886		5,080		5,080		0	0			61,966		61,966
1970		117,357			117,357		19,649		19,649		0	0			137,006		137,006
1971		93,928			93,928		6,112		6,112		50	50			100,090		100,090
1972		114,234			114,234		20,907		20,907		527	527			135,668		135,668
1973		221,644			221,644		63,402		63,402		463	463			285,509		285,509
1974		466,004			466,004		74,152		74,152		1,721	1,721			541,877		541,877
1975		418,323			418,323		99,139		99,139		0	0			517,462		517,462
1976		273,204			273,204		99,190		99,190		9,802	9,802			382,196		382,196
1977		250,652			250,652		105,679		105,679			3,412	3,412		359,743		359,743
1978	30,897	393,785			424,682	21,684	227,548		249,232	1,706	27,003	28,709	54,287		648,336		702,623
1979	16,144	369,934			386,078	23,276	172,838		196,114	2,946	40,015	42,961	42,366		582,787		625,153
1980	15,972	391,252			407,224	13,681	308,704		322,385	3,242	44,782	48,024	32,895		744,738		777,633
1981	11,310	507,158			518,468	14,218	351,878		366,096	4,929	54,471	59,400	30,457		913,507		943,964
1982	18,452	249,516			267,968	18,442	182,344		200,786	5,840	4,086	9,926	42,734		435,946		478,680
1983	24,679	451,164			475,843	27,396	248,092		275,488	4,609	14,600	19,209	56,684		713,856		770,540
1984	28,459	292,676			321,135	26,996	236,931		263,927	7,351	1,087	8,438	62,806		530,694		593,500
1985	24,349	247,486			271,835	19,795	188,099		207,894	3,687	1,792	5,479	47,831		437,377		485,208
1986	38,854	381,127			419,981	41,496	288,427		329,923	5,528	442	5,970	85,878		669,996		755,874
1987	30,760	222,898	0		253,658	33,134	174,876		208,010	4,161	3,501	7,662	68,055	401,275	0		469,330
1988	28,934	645,322	416	2,876	677,548	28,787	424,461	711	453,959	5,830	13,965	19,795	63,551	1,083,748	416	3,587	1,151,302
1989	52,844	544,373	381	3,408	601,006	39,703	343,032	930	383,665	3,982	7,578	11,560	96,529	894,983	381	4,338	996,231
1990	36,999	146,725	256	2,186	186,166	28,453	131,755	752	160,960	3,003	643	3,646	68,455	279,123	256	2,938	350,772
1991	27,790	140,470		1,373	169,633	20,703	175,149	703	196,555	1,865	8,912	10,777	50,358	324,531		2,076	376,965
1992	33,239	177,329		1,918	212,486	24,731	147,129	0	171,860	4,332	65	4,397	62,302	324,523		1,918	388,743
1993	34,285	73,659		1,379	109,323	25,417	19,332	490	45,239	3,376	463	3,839	63,078	93,454		1,869	158,401
Avg Harvest																	
Per District	35,961	330,844			369,368	28,475	244,305		273,400	3,802	6,233	10,035	68,239	581,382		2,971	652,803
Per Sub Area	32,691	324,957	263	2,352	358,929	29,119	235,795	619	265,224	4,435	5,259	9,693	66,245	566,011	263	2,971	633,847

Year	District 4					District 5					District 6					Upper Yukon Area Subtotals					
	Subst	Comm-Related	Arctic River	Total		Subst	Comm-Related	Personal Use	Total		Subst	Comm-Related	Personal Use	ADF&G Test Fish	Total	Subst	Comm-Related	Personal Use	ADF&G Test Fish	Total	
1961		0	0				0	0				0	0				0	0			
1962		0	0				0	0				0	0				0	0			
1963		0	0				0	0				0	0				0	0			
1964		0	0				0	0				0	0				0	0			
1965		0	0				0	0				0	0				0	0			
1966		0	0				0	0				0	0				0	0			
1967		0	0				0	0				0	0				0	0			
1968		0	0				0	0				0	0				0	0			
1969		0	0				0	0				0	0				0	0			
1970		0	0				0	0				0	0				0	0			
1971		0	0				0	0				0	0				0	0			
1972		0	0				0	0				0	0				0	0			0
1973		0	0				0	0				0	0				0	0			0
1974		27,866	0	27,866		8,831	0	0	8,831	13,318	0	0	0	13,318	48,015	0	0	0	0	48,015	
1975		165,054	0	165,054		12,947	0	0	12,947	14,782	0	0	0	14,782	192,833	0	0	0	0	192,833	
1976		211,307	0	211,307		774	0	0	774	6,617	0	0	0	6,617	218,998	0	0	0	0	218,998	
1977		169,541	0	169,541		1,274	0	0	1,274	4,317	0	0	0	4,317	175,132	0	0	0	0	175,132	
1978	93,139	384,184	16,920	474,243	20,423	4,892	605	25,920	3,534	34,614	8,236	0	48,584	117,098	403,690	25,761	0	0	0	548,747	
1979	88,423	189,430	35,317	293,170	22,869	8,608	1,009	32,486	2,312	18,491	3,891	0	24,894	113,604	196,529	40,217	0	0	0	350,350	
1980	119,790	147,560	135,824	403,174	8,594	456	0	9,050	6,426	35,855	3,282	0	45,563	134,810	183,871	139,106	0	0	0	457,787	
1981	50,953	59,718	270,727	381,398	27,259	1,236	49	28,544	8,960	32,477	1,967	0	43,424	87,172	93,431	272,763	0	0	0	453,366	
1982	57,967	3,647	254,072	315,686	9,770	213	21	10,004	6,942	21,587	1,517	0	30,058	74,879	25,457	255,810	0	0	0	355,746	
1983	46,713	6,672	248,716	302,101	22,087	42	1,856	23,985	23,696	24,309	18	0	48,023	92,496	31,023	250,590	0	0	0	374,109	
1984	49,230	1,009	277,061	327,300	31,488	645	47	32,180	23,106	56,249	335	0	79,690	103,824	57,903	277,443	0	0	0	439,170	
1985	59,839	12,007	415,476	487,322	26,996	700	0	27,696	23,078	88,913	1,540	0	91,531	109,913	79,620	417,016	0	0	0	606,549	
1986	59,730	300	465,235	525,265	21,833	690	0	22,523	14,898	50,483	2,146	0	67,525	96,459	51,473	487,381	0	0	0	615,313	
1987	56,926	29,891	179,809	266,726	20,544	362	44	4,262	25,153	10,610	450	0	36,213	102,623	40,963	160,303	4,262	0	0	328,151	
1988	95,384	24,051	468,023	585,458	28,960	722	363	30,045	8,686	40,129	1,646	1,242	51,703	133,030	64,902	468,032	1,809	0	0	667,773	
1989	49,777	18,554	491,690	580,021	12,981	154	373	13,603	7,868	42,115	4,871	1,215	62,338	70,626	80,823	498,934	1,510	0	0	626,736	
1990	33,052	12,364	210,186	255,602	9,817	11	641	11,129	4,285	11,127	3,706	930	25,373	47,154	23,502	214,552	1,571	0	0	292,104	
1991	38,949	6,381	303,261	348,591	24,164	4	31	24,199	5,069	18,197	5,695	0	30,819	88,182	24,582	308,969	0	0	0	403,611	
1992	41,079	2,859	206,737	252,475	12,612	102	326	13,042	9,504	5,029	2,199	0	18,761	63,195	7,790	211,264	0	0	0	282,298	
1993	24,259	27	42,830	67,216	11,245	0	0	11,245	6,798	3,041	684	0	11,177	42,302	3,068	43,594	674	0	0	89,638	
Avg Harvest																					
1988-1992	51,648	12,802	335,980	400,430	17,707	199	351	18,557	7,082	23,319	3,623	0	37,402	76,437	36,320	339,854	0	0	0	456,389	
1983-1992	53,066	11,396	329,620	391,086	21,148	343	370	1,153	14,534	32,516	2,261	1,129	50,999	88,750	44,258	329,250	1,525	0	0	464,524	

Yukon Area Totals

Year	Subsist	Comm	Comm- Related	Personal Use	ADF&G Test Fish	Sport Fish	Total
1961	305,317	0	0				305,317
1962	261,856	0	0				261,856
1963	297,094	0	0				297,094
1964	361,080	0	0				361,080
1965	336,848	0	0				336,848
1966	154,508	0	0				154,508
1967	206,233	10,935	0				217,168
1968	133,880	14,470	0				148,350
1969	156,191	61,966	0				218,157
1970	166,504	137,006	0				303,510
1971	171,487	100,090	0				271,577
1972	108,008	135,668	0				243,674
1973	161,012	285,509	0				446,521
1974	227,811	589,892	0				817,703
1975	211,888	710,295	0				922,183
1976	186,872	600,894	0				787,766
1977	159,502	534,875	0			316	694,693
1978	171,383	1,052,226	25,761			451	1,249,821
1979	155,970	779,316	40,217			328	975,831
1980	167,705	928,609	139,106			483	1,235,903
1981	117,629	1,006,938	272,763			612	1,397,942
1982	117,413	461,403	255,610			780	835,206
1983	149,180	744,879	250,500			996	1,145,647
1984	166,630	588,597	277,443			585	1,033,255
1985	157,744	516,997	417,016			1,267	1,093,024
1986	182,337	721,469	467,381	0		895	1,372,082
1987	170,678	442,238	180,303	4,262		846	798,327
1988	196,581	1,146,650	468,032	2,225	3,587	1,037	1,829,112
1989	167,155	955,606	496,934	1,891	10,605	2,131	1,634,522
1990	145,609	302,625	214,552	1,827	8,263	472	643,348
1991	118,540	349,113	308,989	0	3,934	1,037	781,613
1992	125,497	332,313	211,254	0	1,967	1,308	672,149
1993	105,380	96,522	43,594	974	1,869	564	248,803
Avg Harvest							
1988-1992	144,676	611,701	349,394			1,159	1,110,389
1963-1992	154,935	610,269	329,290	1,458	5,671	1,038	1,099,428

a Subsistence harvest estimate not available by district until 1978. Harvests prior to 1977 were estimated because catches of salmon other than chinook salmon were not differentiated by species.

b Includes estimates of illegal sales (refer to Appendix B-4). Includes department test fish sales prior to 1988.

c In 1978 and 1979, the commercial related harvest was subtracted from the subsistence harvest because it was assumed this harvest was included in the reported subsistence harvest from 1980 through 1992. The total subsistence harvest was also included for commercial related harvests being reported in the subsistence harvest of Alaska (including the Bristol Bay, Kupuk, Bristol Bay, Chukchi, and Koyukuk River catches) was commercial related.

d The number of fish sold to the public is estimated from the number of fish sold to the public (including fish sold to the public for commercial related use) separately from the total number of fish sold to the public (including fish sold to the public for commercial related use) harvested to produce net sold.

e Harvests in the Yukon-Charley Rivers National Preserve were not included in the total subsistence harvest in Districts 5 and 6 because it was assumed that this harvest was included in the reported subsistence harvest from 1980 through 1992.

f The number of fish sold to the public is estimated from the number of fish sold to the public (including fish sold to the public for commercial related use) separately from the total number of fish sold to the public (including fish sold to the public for commercial related use) harvested to produce net sold.

g The number of fish sold to the public is estimated from the number of fish sold to the public (including fish sold to the public for commercial related use) separately from the total number of fish sold to the public (including fish sold to the public for commercial related use) harvested to produce net sold.

Appendix A.22 Yukon River fall chum salmon total utilization in numbers of fish, by district, area and country, 1961-1993. a

Year	District 1			District 2				District 3			Lower Yukon Area Subtotals						
	Subsist	Comm b	Personal Use	ADF&G Test Fish	Total	Subsist	Comm b	ADF&G Test Fish	Total	Subsist	Comm	Total	Subsist	Comm	Personal Use	ADF&G Test Fish	Total
1961		42,461			42,461				0			0			42,461		42,461
1962		53,116			53,116				0			0			53,116		53,116
1963					0				0			0			0		0
1964		8,347			8,347				0			0			8,347		8,347
1965		22,936			22,936				0			0			22,936		22,936
1966		69,836			69,836				0	1,209	1,209	0			71,045		71,045
1967		36,451			36,451				0	1,823	1,823	0			38,274		38,274
1968		49,857			49,857				0	3,068	3,068	0			52,925		52,925
1969		128,866			128,866				0	1,722	1,722	0			130,588		130,588
1970		200,306			200,306		4,858		4,858	3,285	3,285	0			208,449		208,449
1971		188,533			188,533				0			0			188,533		188,533
1972		136,711			136,711		12,898		12,898	1,313	1,313	0			150,922		150,922
1973		173,783			173,783		45,304		45,304			0			219,087		219,087
1974		176,036			176,036		53,540		53,540	552	552	0			230,128		230,128
1975		158,183			158,183		51,666		51,666	5,590	5,590	0			215,439		215,439
1976		105,851			105,851		21,212		21,212	4,250	4,250	0			131,313		131,313
1977		131,758			131,758		51,994		51,994	15,851	15,851	0			199,603		199,603
1978	390	127,947			128,337	1,297	51,646		52,943	266	11,527	11,793	1,953	191,120		193,073	
1979	15,788	109,406			125,194	14,662	94,042		108,704	2,443	25,955	28,398	32,893	229,403		262,296	
1980	7,433	106,829			114,262	12,435	83,881		96,316	2,320	13,519	15,839	22,188	204,229		226,417	
1981	15,540	167,834			183,374	11,770	154,883		166,653	2,893	19,043	21,936	30,203	341,760		371,963	
1982	10,016	97,484			107,500	9,511	96,581		106,092	1,659	5,815	7,474	21,186	199,880		221,066	
1983	8,238	124,371			132,609	10,341	85,645		95,986	2,863	10,018	12,881	21,442	220,034		241,476	
1984	8,885	78,751			87,636	11,394	70,803		82,197	2,233	6,429	8,662	22,512	155,983		178,495	
1985	13,275	129,948			143,223	11,544	40,490		52,034	2,290	5,164	7,454	27,109	175,602		202,711	
1986	9,000	59,352			68,352	13,483	51,307		64,790	1,785	2,793	4,578	24,268	113,452		137,720	
1987	18,467	0	0		18,467	13,454	0		13,454	2,853	0	2,853	34,774	0	0		34,774
1988	5,475	44,890	5	639	51,009	8,600	31,845	16	40,461	1,747	2,090	3,837	15,822	78,825	5	655	95,307
1989	4,914	74,235	18	3,641	82,808	10,015	97,558	348	107,921	1,019	15,332	16,351	15,948	187,125	18	3,989	207,080
1990	5,335	25,269	60	2,068	32,732	6,187	37,077	96	43,360	2,056	3,715	5,771	13,578	66,061	60	2,164	81,863
1991	3,935	59,724	0	2,455	66,114	5,628	102,628	96	108,352	615	9,213	9,828	10,178	171,565	0	2,551	184,294
1992	5,216	0	0	0	5,216	7,382	0	0	7,382	1,493	0	1,493	14,091	0	0	0	14,091
1993	7,770	0	0	0	7,770	3,094	0	0	3,094	1,238	0	1,238	12,102	0	0	0	12,102
Avg Harvest																	
1961-1992	8,234	100,024			68,817	9,803	51,735		61,594	1,895	5,475	7,371	19,972	116,865		1,872	137,781
1961-1993	4,975	80,821	17	1,761	47,576	7,562	53,822	111	61,495	1,386	6,070	7,456	13,923	100,715	17	1,872	116,527

Year	District 4				District 5				District 6					Upper Yukon Area Subtotals								
	Subsist c	Comm	Related d	Total	Subsist c	Comm	Related d	Personal Use	Total	Subsist c	Comm	Related d	Personal Use	ADF&G Test Fish	Total	Subsist	Comm	Comm-Related	Personal Use	ADF&G Test Fish	Total	
1961								0	0							0	0	0	0	0	0	
1962								0	0							0	0	0	0	0	0	
1963								0	0							0	0	0	0	0	0	
1964								0	0							0	0	0	0	0	0	
1965								0	0							0	381	0	0	0	381	
1966								0	0							0	0	0	0	0	0	
1967								0	0							0	0	0	0	0	0	
1968								0	0							0	0	0	0	0	0	
1969								0	0							0	722	0	0	0	722	
1970								0	0							0	1,146	0	0	0	1,146	
1971								0	0							0	1,061	0	0	0	1,061	
1972								0	0							0	1,254	0	0	0	1,254	
1973								0	0							0	13,003	0	0	0	13,003	
1974		9,213	0	9,213		23,551	0	0	23,551		26,884	0	0	0	26,884	0	59,648	0	0	0	59,648	
1975		13,666	0	13,666		27,212	0	0	27,212		18,692	0	0	0	18,692	0	59,570	0	0	0	59,570	
1976		1,742	0	1,742		5,387	0	0	5,387		17,948	0	0	0	17,948	0	25,077	0	0	0	25,077	
1977		13,980	0	13,980		25,730	0	0	25,730		18,673	0	0	0	18,673	0	58,383	0	0	0	58,383	
1978	8,931	10,988	1,721	21,640	46,485	21,016	5,220	0	72,721	26,870	13,259	3,687	0	0	43,816	82,286	45,263	10,628	0	0	138,177	
1979	34,697	48,899	3,199	86,795	102,695	47,459	8,097	0	158,251	44,596	34,185	7,170	0	0	85,951	181,988	130,543	18,466	0	0	330,997	
1980	19,328	27,978	4,347	51,653	75,861	41,771	605	0	118,237	50,260	19,452	68	0	0	69,780	145,449	89,201	5,020	0	0	239,670	
1981	18,812	12,082	1,311	32,205	104,612	86,620	6,955	0	198,187	23,613	25,989	3,019	0	0	52,621	147,037	124,691	11,285	0	0	283,013	
1982	20,152	3,894	167	24,213	71,786	13,593	42	0	85,421	18,968	6,820	596	0	0	26,384	110,906	24,307	805	0	0	136,018	
1983	32,246	4,482	1,963	38,691	105,103	43,993	0	0	149,096	29,073	34,089	3,101	0	0	66,263	166,422	82,564	5,064	0	0	254,050	
1984	28,937	7,625	2,215	38,777	98,376	24,060	57	0	122,493	22,670	20,564	56	0	0	43,290	149,983	52,249	2,328	0	0	204,560	
1985	22,750	24,452	2,525	49,727	117,125	25,338	0	0	142,463	36,963	42,352	0	0	0	78,315	176,838	92,142	2,525	0	0	271,505	
1986	26,496	2,045	0	28,541	87,729	22,053	395	0	110,177	24,973	1,892	182	0	0	27,047	139,198	25,990	577	0	0	165,765	
1987	41,901	0	0	41,901	141,335	0	0	0	15,750	157,085	124,587	0	0	3,316	0	127,903	307,823	0	0	19,066	326,889	
1988	16,958	15,662	1,421	34,041	84,209	16,989	0	0	1,762	102,960	34,597	21,844	1,806	2,114	27,008	87,369	135,764	54,495	3,227	3,876	27,008	224,370
1989	24,544	11,776	3,407	39,727	112,001	18,215	3,989	3,294	137,499	58,654	49,090	7,353	1,770	18,984	133,851	195,199	79,081	14,749	5,064	16,984	311,077	
1990	19,241	4,989	3,177	27,407	90,513	7,778	1,198	3,723	103,212	44,568	43,182	7,793	1,393	7,060	103,996	154,322	55,949	12,168	5,116	7,060	234,615	
1991	20,875	3,737	2,354	26,966	74,002	27,355	4,759	0	106,116	40,469	28,195	16,253	0	0	1,385	86,302	135,346	59,287	23,366	0	1,385	219,384
1992	22,097	0	0	22,097	45,701	0	0	0	45,701	25,713	15,721	3,301	0	1,407	46,142	93,511	15,721	3,301	0	1,407	113,940	
1993	11,043	0	0	11,043	43,764	0	0	0	43,764	9,853	0	0	163	0	10,016	64,660	0	0	163	0	64,823	
Avg Harvest																						
1981-1992	25,005	7,477	1,706	34,188	107,609	18,578	1,030	2,453	117,680	44,227	25,693	3,985	859	5,384	80,148	165,441	51,748	6,731	3,312	5,384	232,616	
1984-1992	20,743	7,233	2,077	30,048	81,285	14,067	1,969	1,756	99,098	40,800	31,606	7,301	1,055	10,769	91,532	142,828	52,907	11,362	2,811	10,769	220,677	

Year	Alaska Yukon Area Totals					Canadian Totals					Yukon Drainage (Alaska/Canada) Totals							
	Subsist	Comm	Comm-Related	Personal Use	ADF&G Test Fish	Total	Old Crow Aboriginal	Aboriginal	Mainstem Domestic	Yukon River Comm	Subtotal	Total	Subsist or Non-Comm	Comm	Comm-Related	Personal Use	ADF&G Test Fish	Total
1961	101,772	42,461	0			144,233	2,000	3,800		3,276	7,076	9,076	107,572	45,737	0			153,309
1962	87,285	53,116	0			140,401	2,000	6,500		936	7,436	9,436	95,785	54,052	0			149,837
1963	99,031	0	0			99,031	20,000	5,500		2,196	7,696	27,696	124,531	2,196	0			126,727
1964	120,360	8,347	0			128,707		6,058	4,200	1,929	6,129	12,187	130,618	10,276	0			140,894
1965	112,283	23,317	0			135,600	7,535	2,183		2,071	4,254	11,789	122,001	25,388	0			147,389
1966	51,503	71,045	0			122,548	8,605	1,430		3,157	4,587	13,192	61,538	74,202	0			135,740
1967	68,744	38,274	0			107,018	11,768	1,850		3,343	5,193	16,961	82,362	41,617	0			123,979
1968	44,627	52,925	0			97,552	10,000	1,180		453	1,633	11,633	55,807	53,378	0			109,185
1969	52,063	131,310	0			183,373	3,377	2,120		2,279	4,399	7,776	57,560	133,589	0			191,149
1970	55,501	209,595	0			265,096	620	612		2,479	3,091	3,711	56,733	212,074	0			268,807
1971	57,162	189,594	0			246,756	15,000	150		1,761	1,911	16,911	72,312	191,355	0			263,667
1972	36,002	152,176	0			188,178	5,000	0		2,532	2,532	7,532	41,002	154,708	0			195,710
1973	53,670	232,090	0			285,760	6,200	1,129		2,806	3,935	10,135	60,999	234,896	0			295,895
1974	93,776	289,776	0			383,552	7,000	1,636	466	2,544	4,646	11,646	102,878	292,320	0			395,198
1975	86,591	275,009	0			361,600	11,000	2,500	4,600	2,500	9,600	20,600	104,691	277,509	0			382,200
1976	72,327	156,390	0			228,717	3,100	100	1,000	1,000	2,100	5,200	76,527	157,390	0			233,917
1977	82,771	257,986	0			340,757	5,560	1,430	1,499	3,990	6,919	12,479	91,260	261,976	0			353,236
1978	84,239	236,383	10,628			331,250	5,000	482	728	3,356	4,566	9,566	90,449	239,739	10,628			340,816
1979	214,881	359,946	18,466			593,293		11,000	2,000	9,084	22,084	22,084	227,881	369,030	18,466			615,377
1980	167,637	293,430	5,020			466,087	6,000	3,218	4,000	8,000	16,218	22,218	180,655	302,430	5,020			488,305
1981	177,240	466,451	11,285			654,976	3,000	2,410	1,611	15,260	19,281	22,281	184,261	481,711	11,285			677,257
1982	132,092	224,187	805			357,084	1,000	3,096	683	11,312	15,091	16,091	136,871	235,499	805			373,175
1983	187,864	302,598	5,064			495,526	2,000	1,200	300	25,990	27,490	29,490	191,364	328,588	5,064			525,016
1984	172,495	208,232	2,328			383,055	4,000	1,800	535	22,932	25,267	29,267	178,630	231,164	2,328			412,322
1985	203,947	267,744	2,525			474,216	3,500	1,740	279	35,746	37,765	41,265	209,466	303,490	2,525			515,481
1986	163,466	139,442	577			303,485	657	2,200	222	11,464	13,886	14,543	166,545	150,906	577			318,028
1987	342,597	0	0	19,066		361,663	135	3,822	132	40,591	44,345	44,480	346,486	40,591	0	19,066		406,143
1988	151,586	133,320	3,227	3,881	27,663	319,677	1,071	1,882	349	30,263	32,494	33,565	154,888	163,583	3,227	3,881	27,663	353,242
1989	211,147	266,206	14,749	5,082	20,973	518,157	2,909	2,462	100	17,549	20,111	23,020	216,618	283,755	14,749	5,082	20,973	541,177
1990	167,900	122,010	12,168	5,176	9,224	316,478	2,410	3,675	0	27,537	31,212	33,622	173,985	149,547	12,168	5,176	9,224	350,100
1991	145,524	230,852	23,366	0	3,936	403,678	1,576	2,438	0	31,404	33,842	35,418	149,538	262,256	23,366	0	3,936	438,096
1992	107,602	15,721	3,301	0	1,407	128,031	1,935	304	0	18,576	18,880	20,815	109,841	34,297	3,301	0	1,407	148,846
1993	76,762	0	0	163	0	76,925	1,668	4,660	0	7,762	12,422	14,090	83,090	7,762	0	163	0	91,015
Avg Harvest																		
1963-1992	185,413	168,613	6,731	5,534	12,641	370,397	2,019	2,132	192	26,205	28,529	30,549	189,756	194,818	6,731	5,534	12,641	400,945
1968-1992	156,752	153,622	11,362	2,828	12,641	337,204	1,980	2,152	90	25,066	27,308	29,288	160,974	178,688	11,362	2,828	12,641	366,492

a Subsistence harvest estimates are available by district until 1978. Subsistence harvests prior to 1977 were estimated because catches of salmon other than chinook salmon were not differentiated

by species. Minimum estimates of fall chinook subsistence catches for 1961-1978 because surveys were conducted prior to the end of the fishing season

b Data for subsistence harvests are reported in US

c From 1983 through 1992, the amount of subsistence harvest is subtracted from the subsistence harvest in Districts 4, 5, and 6 because it was assumed that this harvest was included in the reported

subsistence harvest. The amount of subsistence harvest is subtracted from the reported subsistence harvest because subsistence and commercial related use separately

d The 1987-1992 amount of subsistence harvest is reported in US because the amount of subsistence harvest is reported in US

e The 1987-1992 amount of subsistence harvest is reported in US because the amount of subsistence harvest is reported in US

f The 1987-1992 amount of subsistence harvest is reported in US because the amount of subsistence harvest is reported in US

g The 1987-1992 amount of subsistence harvest is reported in US because the amount of subsistence harvest is reported in US

Appendix A.23. Coho salmon total utilization in numbers of fish, Yukon River drainage, Alaska and Yukon Territories, 1978-1993. a

Year	District 1					District 2				District 3			Lower Yukon Area Subtotals				
	Subsist	Comm b	Personal ADF&G		Total	Subsist	Comm b	ADF&G		Subsist	Comm	Total	Subsist	Comm	Personal ADF&G		Total
			Use	Test Fish				Test Fish	Total						Use	Test Fish	
1961			2,855		2,855			0	0			0	0		2,855		2,855
1962			22,926		22,926			0	0			0	0		22,926		22,926
1963			5,572		5,572			0	0			0	0		5,572		5,572
1964			2,446		2,446			0	0			0	0		2,446		2,446
1965			350		350			0	0			0	0		350		350
1966			19,254		19,254			0	0			0	0		19,254		19,254
1967			9,925		9,925			0	0		1,122	1,122			11,047		11,047
1968			13,153		13,153			0	0		150	150			13,303		13,303
1969			13,989		13,989			0	0		1,009	1,009			14,998		14,998
1970			12,632		12,632			0	0			0	0		12,632		12,632
1971			12,165		12,165			0	0			0	0		12,165		12,165
1972			21,705		21,705				506			0	0		22,211		22,211
1973			34,860		34,860			1,781	1,781			0	0		36,641		36,641
1974			13,713		13,713			176	176			0	0		13,889		13,889
1975			2,288		2,288			200	200			0	0		2,488		2,488
1976			4,064		4,064			17	17			0	0		4,081		4,081
1977			31,720		31,720			5,319	5,319		538	538			37,577		37,577
1978	1,142		16,460		17,602		598	5,835	6,433		223	758	981		1,963	23,053	25,016
1979	3,184		11,369		14,553		1,132	2,850	3,982		12	0	12		4,328	14,219	18,547
1980	1,808	4,829			6,637		4,801	2,660	7,461		91	0	91		6,700	7,489	14,189
1981	3,769	13,129			16,898		3,736	7,848	11,584		490	419	909		7,895	21,396	29,391
1982	11,192	15,115			26,307		10,229	14,179	24,408		675	87	762		22,096	29,381	51,477
1983	3,590	4,595			8,185		6,072	2,557	8,629		917	0	917		10,579	7,152	17,731
1984	6,095	29,472			35,567		7,066	43,064	50,130		740	621	1,361		13,901	73,157	87,058
1985	3,246	27,676			30,922		4,834	17,125	21,959		376	171	547		8,456	44,972	53,428
1986	2,725	24,824			27,549		9,140	21,197	30,337		781	793	1,574		12,646	46,814	59,460
1987	6,396	0	0	0	6,396		6,894	0	6,894		682	0	682		13,972	0	13,972
1988	4,389	36,028	0	407	40,824		7,104	34,758	41,862		1,539	1,419	2,958		13,032	72,205	85,237
1989	5,077	22,987	59	1,685	29,808		5,039	38,402	43,441		537	3,988	4,525		10,653	65,377	76,030
1990	3,301	12,160	8	1,194	16,663		6,344	16,405	22,749		1,026	918	1,944		10,571	29,483	40,054
1991	1,808	54,095		2,094	57,997		3,297	40,898	44,195		1,340	1,905	3,245		6,445	96,898	103,343
1992	5,426	0	0	0	5,426		5,587	0	5,587		1,253	0	1,253		13,266	0	13,266
1993	2,343	0	0	0	2,343		1,695	0	1,695		240	0	240		4,278	0	4,278
Avg Harvest																	
Total																	
Total																	

Year	District 4				District 5				District 6					Upper Yukon Area Subtotals									
	Subsist	Comm	Related c	Total	Subsist	Comm	Related c	Personal Use	Total	Subsist	Comm	Related c	Personal Use	ADF&G Test Fish	Total	Subsist	Comm	Related c	Personal Use	ADF&G Test Fish	Total		
1961																							
1962																							
1963																							
1964																							
1965																							
1966																							
1967																							
1968																							
1969																							
1970																					95	95	
1971																					556	556	
1972																					38	38	
1973																					22	22	
1974		0	0			1,409	0		1,409		1,479	0			1,479		2,888	0			2,888		
1975		0	0				5	0	5			53	0		53			58	0			58	
1976		0	0				0	0	0			1,103	0		1,103				0			1,103	
1977		0	0				2	0	2			1,284	0		1,284				0			1,284	
1978	145	32	0	177		970	1	0	971		4,709	3,066	0		7,775		5,824	3,099	0			8,923	
1979	259	155	0	414		595	0	0	595		4,612	2,791	0		7,403		5,466	2,946	0			8,412	
1980	7,734	30	0	7,764		561	0	0	561		5,163	1,226	0		6,389		13,458	1,256	0			14,714	
1981	2,259	0	0	2,259		1,713	0	0	1,713		9,281	2,284	0		11,565		13,233	2,284	0			15,517	
1982	2,952	15	0	2,967		3,428	0	0	3,428		7,418	7,780	0		15,198		13,798	7,795	0			21,593	
1983	3,946	0	0	3,946		2,448	0	0	2,448		6,932	6,168	0		13,100		13,326	6,168	0			19,494	
1984	2,867	1,095	0	3,962		17,467	0	0	17,467		14,785	7,698	0		22,473		35,119	8,783	0			43,902	
1985	3,949	938	0	4,887		8,098	0	0	8,098		11,761	11,762	0		23,523		23,808	12,700	0			36,508	
1986	2,631	0	0	2,631		5,870	0	0	5,870		13,321	441	0		13,762		21,822	441	0			22,263	
1987	3,551	0	0	3,551		11,842	0	58	11,900		53,006	0	2,485		55,471		68,399	0	2,523			70,922	
1988	4,842	2	0	4,844		19,755	8	103	19,856		30,201	13,972	0	1,147	44,173		54,798	13,982	0	1,250	13,295	68,045	
1989	4,030	3	0	4,033		7,187	84	62	7,353		18,841	16,084	0	731	35,656		30,058	16,171	0	813	2,140	37,011	
1990	3,614	0	0	3,614		11,562	0	18	11,580		17,813	11,549	3,255	1,156	32,773		32,789	11,549	3,255	1,173	1,426	48,607	
1991	4,451	14	0	4,465		4,911	0	0	4,911		21,561	6,268	3,506		31,335		30,943	6,282	3,506		791	41,522	
1992	8,725	0	0	8,725		12,376	0	0	12,376		17,554	6,558	1,423		25,535		38,655	8,558	1,423		1,629	48,263	
1993	1,206	0	0	1,206		5,984	0	0	5,984		4,304	0	0		4,304		11,494	0	0		0	11,494	
Avg Harvest																							
1987-1992	4,261	205	0	4,466		10,154	8	111	10,273		20,558	8,049	818	31,903		34,972	8,263	818				46,557	
1988-1993	3,172	4	0	3,176		11,162	116	11	11,289		21,154	10,866	1,637	607	33,264		37,449	10,908	1,637			50,001	

Year	Alaska Yukon Area Totals						Canadian Totals					Yukon Drainage (Alaska/Canada) Totals							
	Subsist	Comm	Comm Related c	Personal Use	ADF&G Test Fish	Sport Fish g	Total	Old Crow Aboriginal	Mainstem Yukon River Aboriginal Domestic	Comm	Total	Total	Subsist or Non-Comm h	Comm	Comm- Related c	Personal Use	ADF&G Test Fish	Sport Fish	Total
1961	9,192	2,855					12,047						9,192	2,855					12,047
1962	9,480	22,926					32,406						9,480	22,926					32,406
1963	27,699	5,572					33,271						27,699	5,572					33,271
1964	12,187	2,446					14,633						12,187	2,446					14,633
1965	11,789	350					12,139						11,789	350					12,139
1966	13,192	19,254					32,446						13,192	19,254					32,446
1967	17,164	11,047					28,211						17,164	11,047					28,211
1968	11,613	13,303					24,916						11,613	13,303					24,916
1969	7,776	15,093	0				22,869						7,776	15,093					22,869
1970	3,966	13,188	0				17,154						3,966	13,188	0				17,154
1971	16,912	12,203	0				29,115						16,912	12,203	0				29,115
1972	7,532	22,233	0				29,765						7,532	22,233	0				29,765
1973	10,236	36,641	0				46,877						10,236	36,641	0				46,877
1974	11,646	16,777	0				28,423						11,646	16,777	0				28,423
1975	20,708	2,546	0				23,254						20,708	2,546	0				23,254
1976	5,241	5,184	0				10,425						5,241	5,184	0				10,425
1977	16,333	38,863	0			112	55,308						16,333	38,863	0			112	55,308
1978	7,787	26,152	0			302	34,241						7,787	26,152	0			302	34,241
1979	9,794	17,165	0			50	27,009						9,794	17,165	0			50	27,009
1980	20,158	8,745	0			67	28,970	1,500			0	1,500	21,658	8,745	0			67	30,470
1981	21,228	23,680	0			45	44,953	500			0	500	21,728	23,680	0			45	45,453
1982	35,894	37,176	0			97	73,167				0	0	35,894	37,176	0			97	73,167
1983	23,905	13,320	0			199	37,424				0	0	23,905	13,320	0			199	37,424
1984	49,020	81,940	0			831	131,791	500			0	500	49,520	81,940	0			831	132,291
1985	32,264	57,672	0			808	90,744	250			0	250	32,514	57,672	0			808	90,994
1986	34,468	47,255	0			1,535	83,258	300			0	300	34,768	47,255	0			1,535	83,558
1987	82,371	0	0	2,523			1,292	86,186			0	306	85,200	0	0	2,523		1,292	89,015
1988	67,830	86,187	0	1,250	13,720	2,420	171,407	350			0	350	69,430	86,187	0	1,250	13,720	2,420	173,007
1989	40,711	81,548	0	872	3,945	1,811	128,887	470			0	470	42,053	81,548	0	872	3,945	1,811	130,229
1990	43,480	41,032	3,255	1,181	2,650	1,947	93,525	680			0	680	45,321	41,032	3,255	1,181	2,650	1,947	95,386
1991	37,388	103,180	3,506		2,971	2,775	149,820	235			0	235	37,623	103,180	3,506		2,971	2,775	150,055
1992	51,921	6,556	1,423		1,829	1,666	63,395	495			0	495	52,416	6,556	1,423		1,829	1,666	63,690
1993	15,772	0	0		0	897	16,669	60			0	60	15,832	0	0		0	897	16,729
Avg Harvest																			
1983-1992	46,314	51,869		971	4,983	1,528	103,624	398			0	398	47,275	51,869	818			1,528	104,565
1988-1992	48,262	63,701	1,637	661	4,983	2,124	121,367	446			0	446	49,369	63,701	1,637	661	4,983	2,124	122,473

a. Subsistence harvest estimates not available by district until 1978. Subsistence harvests prior to 1977 were estimated because catches of salmon other than chinook salmon were not differentiated by species. Minimum estimates of subsistence catches for 1991-1992 because surveys were conducted prior to the end of the fishing season.

b. Includes department test fish sales prior to 1988.

c. In Districts 4, 5 and 6, catches are related refers to the estimated number of females harvested to produce roe sold.

d. The test fish are for the 1987-1992 period, available only for District 4.

e. The test fish are for the 1987-1992 period, available only for District 4.

f. Districts 1, 2, 3, 4, 5 and 6. The catch data of the catch harvest is not reported for the sport fish harvest counts in the Tanana River drainage (District 6).

g. The test fish are for the 1987-1992 period, available only for District 4.

Appendix A.24. Percent age composition of combined commercial and subsistence salmon harvest, Yukon River drainage, 1982-1993. .

Species	Year	Sample Size	Age In Years						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	3,901	0.6	7.3	30.2	51.1	10.2	0.6	100.0
	1990	3,553	0.0	21.8	26.1	46.3	5.7	0.1	100.0
	1991	3,879	0.0	5.6	45.5	42.5	6.3	0.1	100.0
	1992	3,772	0.1	8.1	20.1	68.6	3.1	0.0	100.0
1993	4,034	0.2	15.8	25.4	50.5	8.0	0.0	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	3,778	0.5	40.9	58.1	0.6			100.1
	1990	3,155	0.4	37.6	59.6	2.4			100.0
	1991	5,015	1.3	48.0	49.8	0.9			100.0
	1992	4,303	0.2	31.3	64.7	3.7			99.9
1993	2,011	0.4	47.5	47.7	4.5			100.1	
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	4,939	1.0	87.0	11.8	0.2			100.0
	1990	2,351	2.8	74.2	22.5	0.5			100.0
	1991	5,314	2.7	75.4	21.7	0.2			100.0
	1992	3,069	1.2	46.0	51.7	1.1			100.0
1993	1,616	0.1	62.8	35.2	1.8			100.0	
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	20.4	73.8	5.8				100.0
	1990	428	29.3	66.8	3.9				100.0
	1991	615	8.3	91.6	0.1				100.0
	1992	920	24.1	74.4	1.6				100.1
1993	522	15.5	83.5	1.0				100.0	

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

Appendix A.25. Percent of total Yukon River chinook salmon harvest attributed to region of origin, 1982-1993. ^a

Year	Lower River Stocks ^b (U.S)	Middle River Stocks ^c (U.S)	Canadian-Spawmed Stocks	Total
1982	15	23	62	100
1983	12	39	49	100
1984	29	36	35	100
1985	31	20	49	99
1986	26	6	68	100
1987	17	19	64	100
1988	27	12	61	101
1989	26	16	58	100
1990	19	22	59	100
1991	26	28	46	100
1992	18	23	59	100
1993	22	13	65	100
5-Year Avg. 1988-1992	23	20	57	100
10-Year Avg. 1983-1992	23	22	55	100

^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 Andrafsky Hills and Kaitag Mountains between rivemiles 100 and 500.

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

Appendix A.26. Associated environmental and salmon catch data, Yukon River, 1961-1993.

Year	Average Nome April Air Temp (F)	Tanana River Nenana Ice Breakup	Iceout Yukon Delta Area	First Chinook Caught Delta Area ^a	First Chinook Caught Kuskokwim River ^b	First Chinook Caught District 1 Commercial Fishery	First Summer Chum Caught Delta Area ^c	First Summer Chum Caught District 1 Commercial Fishery
1961	18	5/05	.	6/05	.	6/05	.	.
1962	18	5/12	6/10	6/07 ^d	.	6/11	.	.
1963	18	5/05	5/29	.	.	6/03	.	.
1964	13	5/20	>6/12	.	.	6/15	.	.
1965	20	5/07	6/01	6/06	5/31	6/07	.	.
1966	15	5/08	6/06	6/09	5/27 ^e	6/10	.	.
1967	23	5/04	.	5/20	5/20	6/02	5/30	6/09
1968	14	5/08	.	.	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 ^d	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 ^g	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
1992	22	5/14	6/30 ^k	6/13	5/23	6/20	6/13	6/21
1993	28	5/23	5/19	5/26	5/19	6/14	5/28	6/14

^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.

^j Average May air temperature was 8.2 degrees Fahrenheit below normal.

^k The mainstem Yukon River was ice free on this date, but ice remained along the coast until June 10.

Appendix A.27 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, 1964-1993.

Year	Japanese Mothership Gillnet		Japanese Landbased Driftnet		Japanese Total Gillnet		Bering Sea-Aleutian Area Trawl			Gulf of Alaska Trawl		
	Western Alaska		Western Alaska		Western Alaska		Foreign	Joint Venture/U.S.		Foreign	Joint Venture/U.S.	
	Origin	Total	Origin	Total	Origin	Total		Groundfish ^d	Total		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	.		
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	.	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	.	.	.	11.1	63.2	74.3
1985	25	66	22	100	47	167	.	.	.	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	.	74	.	116	.	.	.		.	.
1988	23	26	.	47	.	73	.	.	.		.	.
1989	.	16	.	51	.	67		8.6	8.6		.	.
1990	.	.	.	.	.	23		14.1	14.1		16.9	16.9
1991	.	.	.	.	.	45		35.0	35.0		37.6	37.6
1992	.	.	.	.	.	.		37.7	37.7		16.0	16.0
1993	.	.	.	.	.	.		39.5	39.5		24.7	24.7

^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 "non-traditional landbased salmon fishery"

^g U.S. fishery entirely replaced direct foreign and joint venture groundfish harvests

APPENDIX B

LOWER YUKON AREA SALMON

Appendix B.1. List of Lower Yukon emergency orders pertaining to District 1, 2, and 3 salmon fishery, 1993.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-01-93	June 14	Opened the commercial salmon season effective 6:00 p.m. Monday June 14 in District 1, and established a single 12 hour fishing period (unrestricted mesh size) from 6:00 p.m. Monday June 14 until 6:00 a.m. Tuesday June 15	Approximately 7-10 days of increasing chinook salmon subsistence and test fishing catches warranted opening the season and allowing an unrestricted mesh size fishing period.
3-LY-S-02-93	June 16	Opened the commercial salmon season effective 6:00 p.m. Wednesday June 16 in District 2 and established a single 12-hour fishing period (unrestricted mesh size) from 6:00 p.m. Wednesday June 16 until 6:00 a.m. Thursday June 17.	The salmon run appeared to be most similar to the 1990 run, with fish abundance increasing rapidly after a protracted build up at the beginning of the run.
3-LY-S-03-93	June 17	Established a 12-hour commercial fishing period in District 1 (unrestricted mesh size) from 6:00 p.m. June 17 until 6:00 a.m. June 18.	Test fishing indicated average abundance of chinook salmon. Chum salmon abundance appeared to be below average.
3-LY-S-04-93	June 20	Established a 12-hour commercial fishing period in District 2 (unrestricted mesh size) from 6:00 p.m. June 20 until 6:00 a.m. June 21.	Test fishing and sonar data indicated an average return of chinook salmon. Chinook salmon passage through June 6 should provide adequate numbers of fish for subsistence and escapement needs from this portion of the run. Chum salmon abundance appeared to be below average.

-Continued-

Appendix B.1. (p.2 of 5).

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-05-93	June 20	Opened the commercial salmon season effective 6:00 p.m. Sunday June 20 in District 3, and established a single 12-hour commercial fishing period (unrestricted mesh size) from 6:00 p.m. Sunday June 20 until 6:00 a.m. Monday June 21.	Chinook salmon run timing and abundance appeared to be average. Subsistence catches of chinook salmon were good in Russian Mission from June 12 through June 16.
3-LY-S-06-93	June 21	Established a 6-hour commercial fishing period (unrestricted mesh size) in District 1 from 6:00 p.m. June 21 until 12:00 midnight June 21.	The combined District 1 and 2 commercial harvest to date was 56,440 chinook salmon. A 6-hour period is warranted in order to spread out the chinook harvest. Summer chum salmon appeared to be below average.
3-LY-S-07-93	June 23	Established a 12-hour commercial fishing period (unrestricted mesh size) in District 3 from 6:00 p.m. June 23 until 6:00 a.m. June 24.	District 3 cumulative commercial harvest was approximately 300 chinook salmon. Test fishing data indicated the chinook salmon run was about average in abundance.
3-LY-S-08-93	June 25	Established a 6-hour commercial fishing period (unrestricted mesh size) in District 2 from 6:00 a.m. June 25 until 12:00 noon June 25.	The normal 6:00 p.m. Wednesday opening for District 2 was delayed until 6:00 a.m. Friday to spread out the harvest of chinook salmon. There appeared to be a relatively large return of 5-year-old chinook salmon.

-Continued-

Appendix B.1. (p.3 of 5).

101

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-09-93	June 24	Established a 6-hour commercial fishing period with gillnets restricted to 6 inch or less mesh size from 6:00 p.m. June 24 until 12:00 midnight June 24 in District 1.	The combined District 1 and 2 commercial harvest to date was 67,500 chinook and 28,000 chum salmon. According to the management plan, at this level of chinook salmon harvest the fishery should begin targeting chum salmon. Additionally there were reports of increasing subsistence catches of chum salmon along the coast.
3-LY-S-10-93	June 25	Established a 6-hour commercial fishing period (unrestricted mesh size) in District 3 from 6:00 a.m. June 25 until 12:00 noon June 25.	The District 3 commercial harvest was approximately 700 to 900 chinook salmon. Based upon chinook abundance and the commercial catch to date a 6-hour commercial period was warranted.
3-LY-S-11-93	June 27	Established a 6-hour commercial fishing period (unrestricted mesh size) in District 2 and 3 from 6:00 p.m. June 27 until 12:00 midnight June 27.	In order to allow further harvest of chinook salmon and reduce the exploitation rate on summer chum salmon, a 6-hour commercial fishing period with unrestricted mesh size gillnets was warranted.
3-LY-S-12-93	June 28	Established a 6-hour commercial fishing period (unrestricted mesh size) in District 1 from 6:00 p.m. June 28 until 12:00 midnight June 28.	The preliminary harvest through June 25 was 76,500 chinook salmon and 74,000 summer chum salmon for Districts 1 and 2 combined. A harvest of approximately 90,000 chinook salmon is appropriate for a run of average abundance. Because of a poor summer chum run, in order to allow further harvest of chinook salmon, a 6-hour period with unrestricted mesh size gillnets was warranted.

Continued.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-13-93	June 30	Established a 6-hour commercial fishing period (unrestricted mesh size) in District 2 and 3 from 6:00 p.m. June 30 until 12:00 midnight June 30.	A 6-hour commercial period with unrestricted mesh size was necessary in order to allow further harvest of chinook salmon and reduce the exploitation rate on chum salmon.
3-LY-S-14-93	July 1	Established a 6-hour commercial fishing period (unrestricted mesh size) in District 1 from 6:00 p.m. July 1 until 12:00 midnight July 1.	Based upon chinook salmon abundance and a commercial harvest of 82,000 chinook salmon and in order to reduce the exploitation rate on chum salmon a 6-hour commercial period was warranted.
3-LY-S-15-93	July 7	Closed the early commercial salmon season in Districts 1, 2, and 3 effective 12:00 midnight July 7, 1993.	Conservative management action was necessary in order to ensure adequate summer chum salmon escapement. Based upon summer chum abundance, run timing and the combined chinook harvest of 86,500 fish in Districts 1, 2 and 3, the commercial season was closed.
3-LY-S-16-93	August 16	Reduced the amount of subsistence salmon fishing time allowed in Districts 1, 2, and 3 to two 24-hour subsistence fishing periods per week, 6:00 p.m. Tuesday until 6:00 p.m. Wednesday and from 6:00 p.m. Friday until 6:00 p.m. Saturday.	The department has identified a need of 620,000 fall chum salmon to meet spawning needs and normal subsistence harvests. Current assessment indicated a run size of 350,000 to 500,000 fish.

-Continued-

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-17-93	August 16	Allowed subsistence fishermen in Districts 1, 2, and 3 to fish with gillnets of 5 inches or less mesh size for non-salmon species during subsistence closures.	This restriction provided protection to chum salmon and still allowed fishermen the opportunity to fish for whitefish and other resident species.
3-LY-S-18-93	August 31	Allowed subsistence fishermen in Districts 1, 2, and 3 to fish with gillnets of 5 inches or less for non-salmon species during subsistence closures.	For the protection of chum salmon, other finfish may be taken only with gillnets of 5-inches or less mesh size.
3-LY-S-19-93	August 31	Extends the expiration date of emergency order number 3-LY-S-16-93 to 6:00 p.m. Friday, September 3.	In order to reduce the subsistence harvest of fall chum salmon it was necessary to extend subsistence fishing restrictions.
3-LY-S-20-93	September 3	Closed subsistence salmon fishing in District 1, 2, and 3 effective 6:00 p.m. September 3, 1993. Emergency order 3-LY-S-18-93 remained in effect.	Despite the sport fish and personal-use closure, the 1993 fall chum salmon run will not meet spawning escapement needs.
3-LY-S-21-93	September 17	Reestablished two 24-hour subsistence fishing periods per week in Districts 1, 2, and 3. Effective 6:00 p.m. Friday, September 17, salmon may be taken for subsistence purposes from 6:00 p.m. Tuesday until 6:00 p.m. Wednesday and from 6:00 p.m. Friday until 6:00 p.m. Saturday.	At this time, few fall chum salmon were present in the lower river. Reopening the subsistence fishery allowed the opportunity to harvest coho salmon.

Appendix B.2. Commercial catches of chinook and summer chum salmon by mesh size, Districts 1 and 2, Lower Yukon Area, 1961-1993. ^a

Year	Unrestricted Mesh Size ^b			6 inch Max. Mesh Size ^c Districts 1 and 2		
	Chinook		Total	Summer Chum Districts 1 and 2	Chinook	Summer Chum
	District 1	District 2				
1961	84,466	29,026	113,492	-	-	-
1962	67,099	22,224	89,323	-	-	-
1963	85,004	24,221	109,225	-	-	-
1964	67,555	20,246	87,801	-	-	-
1965	89,268	23,763	113,031	-	-	-
1966	70,788	16,927	87,715	-	-	-
1967	104,350	20,239	124,589	10,919	-	-
1968	79,465	21,392	100,857	14,402	-	-
1969	70,588	14,756	85,344	41,418	97	15,437
1970	56,469	17,141	73,610	104,705	57	16,623
1971	84,397	19,226	103,623	42,189	1,176	57,851
1972	68,059	17,317	85,376	78,698	1,991	37,881
1973 ^d	52,790	12,479	65,269	89,841	5,168	196,540
1974	69,457	17,464	86,921	349,758	1,631	227,507
1975	41,550	9,064	50,614	148,919	4,162	345,472
1976	56,392	15,296	71,688	267,075	7,631	128,431
1977	65,745	15,328	81,073	157,909	4,720	205,634
1978	53,198	28,872	82,070	275,512	7,737	354,603
1979	61,790	33,347	95,137	136,973	22,136	434,188
1980	78,157	42,755	120,912	95,876	19,474	605,679
1981	88,038	37,660	125,698	163,979	18,648	758,767
1982	70,743	35,656	106,399	225,106	6,887	217,563
1983	76,280	30,798	107,078	121,927	31,002	590,329
1984	65,101	29,355	94,456	242,076	16,394	287,531
1985 ^e	76,106	38,194	114,300	170,345	22,445	265,240
1986	42,922	36,603	79,525	231,372	15,307	438,182
1987	62,147	40,127	102,274	128,017	21,827	269,757
1988	32,792	20,009	52,801	225,049	39,469	848,321
1989 ^f	32,180	21,494	53,674	126,360	38,548	755,233
1990 ^f	42,092	24,000	66,092	99,588	18,147	281,418
1991 ^f	52,074	36,290	88,364	108,986	4,145	205,510
1992 ^f	54,569	28,679	83,248	81,458	27,678	242,370
1993	47,084	37,293	84,377	47,488	2,202	45,500
10 Yr. Ave. (1961-1972)			97,832	48,722	830	31,748
10 Yr. Ave. (1982-1992)			86,201	160,026	21,986	401,107

^a ADF&G test fishery sales included, 1961-1990. ADF&G test fishery sales not included, 1991-1993

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

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

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

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

^f Only includes information from fish ticket database, does not include salmon purchased illegally

Appendix B.3. Chinook salmon commercial catch data by period, chinook salmon season (unrestricted mesh size), District 1, Lower Yukon Area, 1974-1993.

Date	Period and Cumulative Catch (t)									
	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 (5.1)				
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 (30.3)					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 and Cumulative Catch

Date	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
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)			17.1 (17.1)		
06/15							19.0 (19.0)			9.1 (9.1)
06/16				13.0 (13.0)		18.9 (18.9)				
06/17					16.0 (21.9)					
06/18								15.1 (32.2)		23.0 (32.1)
06/19	13.7 (13.7)			22.5 (35.5)						
06/20			21.7 (21.7)			10.8 (29.7)			11.5 (11.5)	
06/21					10.9 (32.8)			4.7 (36.9)		10.4 (42.5)
06/22	18.8 (32.5)					2.5 (32.2)	15.0 (34.0)		22.1 (33.6)	
06/23				15.0 (50.5)						
06/24			10.2 (31.9)							
06/25		23.6 (23.6)						9.3 (46.2)		
06/26	16.1 (48.6)			11.6 (62.1)				10.0 (43.6)		
06/27										
06/28		33.7 (57.3)								2.9 (45.4)
06/29	16.5 (65.1)						6.5 (40.4)			
06/30			5.6 (37.5)							
07/01										1.6 (47.0)
07/02		18.8 (76.1)						5.9 (52.1)	11.0 (54.6)	
07/03							1.7 (42.1)			
07/04			5.4 (42.9)							
07/05										
07/06										
07/07										
07/08										

136

- a. Catch by period in thousands of fish
- b. Cumulative catch during unregulated mesh size fishing periods in thousands of fish
Does not include 3,715 tinnock salmon sold illegally
- c. Does not include 1,103 tinnock salmon sold illegally
Does not include 2,713 tinnock salmon sold illegally
- d. Does not include 1,126 tinnock salmon sold illegally

Appendix B 4 Chinook salmon commercial catch data by period, chinook salmon season (unrestricted mesh size), District 2 Lower Yukon Area, 1978-1993

Date	Period and Cumulative Catch															
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
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 (29.6)												
06/16	4.3 (12.3)		10.9 (22.8)				7.3 (13.3)				2.7 (2.7)					
06/17					4.0 (4.0)											
06/18		3.9 (26.2)		8.2 (37.7)						0.5 (0.5)			10.3 (10.3)	11.5 (11.5)		10.6 (10.6)
06/19	7.8 (20.1)															
06/20			8.1 (30.7)				10.6 (23.9)				9.0 (11.7)		11.0 (11.0)			
06/21						7.8 (11.8)		5.8 (5.8)								
06/22			7.2 (33.4)							12.2 (21.7)			7.5 (18.5)		5.5 (5.5)	14.1 (24.7)
06/23	4.1 (24.2)		12.0 (42.7)								8.3 (20.0)					
06/24					11.9 (23.7)				14.5 (14.5)					7.7 (18.0)	8.7 (27.8)	13.0 (18.6)
06/25							14.4 (20.0)									8.8 (31.5)
06/26	4.7 (28.9)									10.9 (32.5)		3.6 (21.5)			4.1 (31.9)	
06/27								7.0 (7.0)	12.3 (26.8)							3.2 (33.7)
06/28					3.4 (27.1)			9.4 (29.4)							7.4 (26.9)	
06/29										7.8 (40.1)						
06/30																2.8 (36.0)
07/01					8.8 (35.7)			16.3 (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																
07/06													1.6 (24.0)			
07/07									2.4 (38.6)							
07/08															2.8 (28.7)	

- 1. Catch by period in thousands of fish
- 2. Cumulative catch during unrestricted mesh size fishing periods in thousands of fish
- 3. Does not include 207 chinook salmon caught illegally
- 4. Does not include 284 chinook salmon caught illegally

Appendix B.5. Commercial chinook salmon catches by statistical area, Lower Yukon Area, 1974-1993.

Year	District 1								Total
	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	
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 ^a	2,213	5,703	4,794	3,999	12,682	7,303	18,037	4,422	59,153
1990 ^b	1,473	7,315	4,478	4,257	12,486	2,794	14,619	3,739	51,161
1991 ^c	1,689	4,244	1,624	3,451	12,664	6,251	18,243	5,455	53,621
1992 ^d	11,302	12,601	9,001	6,313	5,880	2,285	18,233	7,379	72,994
1993	3,642	7,368	4,342	3,324	11,407	2,346	9,380	7,477	49,286

-Continued-

Appendix B.5. (p. 2 of 2).

139

Year	District 2					Total	Year	District 3		
	334-21	334-22	334-23	334-24	334-25			334-31	334-32	Total
1974	6,344	5,611	2,624	3,369	-	17,948	1,423	2,057	3,480	
1975	3,282	3,045	2,785	2,203	-	11,315	2,791	1,386	4,177	
1976	5,083	4,490	3,031	3,952	-	16,556	1,827	2,321	4,148	
1977	6,577	4,584	2,110	3,451	-	16,722	1,817	2,348	3,965	
1978	9,004	7,953	5,248	8,499	2,220	32,924	746	2,170	2,916	
1979	10,698	11,214	6,733	7,573	5,280	41,498	2,195	2,823	5,018	
1980	11,544	12,903	8,259	9,591	7,707	50,004	2,039	3,201	5,240	
1981	12,341	13,275	7,024	5,950	7,191	45,781	1,241	2,782	4,023	
1982	10,567	9,236	5,262	8,932	5,135	39,132	896	1,713	2,609	
1983	12,433	10,424	7,779	6,260	6,333	43,229	1,335	2,771	4,106	
1984	9,179	11,573	4,668	5,752	5,525	36,697	900	2,139	3,039	
1985	11,843	18,584	4,877	4,613	8,448	48,365	854	1,734	2,588	
1986	11,138	15,326	3,450	4,336	7,599	41,849	606	295	901	
1987	14,195	9,672	5,663	6,376	11,552	47,458	1,698	341	2,039	
1988	6,191	11,605	4,721	6,784	5,867	35,186	1,387	380	1,767	
1989	5,257	12,380	4,647	4,411	6,530	33,225	1,623	22	1,645	
1990	5,592	10,675	3,741	8,514	4,691	33,213	2,128	213	2,341	
1991	9,330	10,423	5,332	6,552	7,339	38,976	1,214	1,130	2,344	
1992	9,014	11,647	4,135	11,311	1,825	37,932	1,160	659	1,819	
1993	8,641	9,223	6,118	6,085	7,226	37,293	1,478	23	1,501	

- Does not include 3,211 chinook and 150 summer chum salmon sold illegally.
- Does not include 1,101 chinook salmon sold illegally.
- Does not include 2,711 chinook and 1,023 summer chum salmon sold illegally.
- Does not include 1,218 chinook and 31 summer chum salmon sold illegally.
- Does not include 284 chinook salmon sold illegally.
- Does not include 207 chinook and 91 summer chum salmon sold illegally.

Appendix B.6. Commercial summer chum salmon catch and effort data, Districts 1 and 2, Lower Yukon Area, 1967-1993.

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	89,658	0.88	6/15-7/01	8.5	19,296	9,040	0.47
1973	6/07-7/11	14.5	100,284	191,840	1.91	6/10-7/14	14.5	38,000	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	100,006	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	389,934	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	292,676	4.32	6/20-7/16	8.0	32,208	234,677	7.29
1985	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	8.8	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	547,781	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	140,470	4.98	6/16-7/07	3.0	15,126	175,149	11.58
1992	6/20-7/09	2.9	30,222	177,329	5.87	6/22-7/08	2.3	14,202	147,129	10.36
1993	6/14-7/01	2.0	21,504	73,659	3.43	6/16-6/30	1.8	9,996	19,332	1.93

- j. Chinook and summer chum salmon caught after the specified dates are not included.
- k. Six inch maximum mesh size regulation by emergency order during commercial fishing season became effective in 1985.
- l. Includes 31 summer chum salmon sold illegally.
- m. Includes 91 summer chum salmon sold illegally.
- n. Six inch maximum mesh size regulation during late June to early July became effective in 1973.
- o. Includes 1,023 summer chum salmon sold illegally.
- p. Includes 150 summer chum salmon sold illegally.
- q. Includes ADF&G test fish sales through 1990.

Appendix B.7. Commercial summer chum salmon catches by statistical area,
Lower Yukon Area, 1983-1993.

District 1									
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	Total
1983	42,165	112,074	37,976	64,556	29,841	22,918	96,512	45,122	451,164
1984	42,264	81,295	14,888	38,285	22,485	5,838	64,320	23,301	292,676
1985	13,696	53,540	26,127	10,047	33,133	10,381	73,948	26,614	247,486
1986	39,468	102,887	35,315	52,980	26,732	6,807	85,798	31,140	381,127
1987	34,852	51,350	22,794	15,109	21,646	7,786	45,911	23,450	222,898
1988	72,408	148,578	79,248	60,956	61,752	13,239	129,938	82,070	648,189
1989 ^a	29,129	89,794	40,036	71,576	118,908	20,468	136,669	41,051	547,631
1990 ^r	23,453	35,542	15,326	12,369	10,931	1,513	39,575	10,202	148,911
1991 ^b	13,767	32,621	5,223	11,133	11,560	23,213	34,775	7,155	139,447
1992 ^c	24,094	39,225	22,293	16,717	12,000	2,500	40,353	20,116	177,298
1993	13,123	17,869	9,745	8,672	2,920	661	9,196	11,473	73,659

District 2							District 3			
Year	334-21	334-22	334-23	334-24	334-25	Total	Year	334-31	334-32	Total
1983	57,740	71,821	56,499	31,027	31,005	248,092	1983	3,106	11,494	14,600
1984	46,261	91,790	43,116	36,076	19,688	236,931	1984	447	640	1,087
1985	32,911	87,687	24,983	18,911	23,607	188,099	1985	872	920	1,792
1986	44,393	129,569	36,304	47,179	30,982	288,427	1986	442	0	442
1987	48,734	54,459	19,157	22,988	29,538	174,876	1987	3,418	83	3,501
1988	74,252	140,291	56,302	88,393	65,934	425,172	1988	11,463	2,502	13,965
1989	46,224	140,571	48,986	54,542	53,639	343,962	1989	7,548	30	7,578
1990 ^r	15,414	37,585	25,132	34,980	19,396	132,507	1990	562	81	643
1991	46,378	70,188	32,584	14,915	11,084	175,149	1991	3,347	5,565	8,912
1992 ^d	31,399	59,401	22,107	31,085	3,046	147,038	1992	63	2	65
1993	5444	3711	4445	2920	2812	19332	1993	460	3	463

- ^a Does not include 150 summer chum salmon sold illegally.
- ^b Does not include 1,023 summer chum salmon sold illegally.
- ^c Does not include 31 summer chum salmon sold illegally.
- ^d Does not include 91 summer chum salmon sold illegally.
- ^r Includes ADF&G test fish sales through 1990.

Appendix B.8. Commercial coho and fall chum salmon catch and effort data, District 1,
Lower Yukon Area, 1961-1993. ^a

Year	Duration	Days Fished ^b	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	^c	^c	350	^c	22,936	^c
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	13,989	0.35	128,866	3.27
1970	7/20-8/26	22	56,160	12,632	0.22	200,306	3.57
1971	7/22-8/28	22	85,344	12,165	0.14	178,744	2.09
1972	7/20-8/26	22	81,726	21,705	0.27	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	13,713	0.33	137,235	3.28
1975	7/21-8/16	12	52,128	2,288	0.04	158,183	3.03
1976	7/19-8/13	11	55,026	4,064	0.07	91,091	1.66
1977	7/18-8/23	11	50,568	31,720	0.63	129,486	2.56
1978	7/17-8/29	13	56,184	16,460	0.29	127,947	2.28
1979	7/19-8/14	8	47,352	11,369	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	13,129	0.37	167,834	4.73
1982	7/19-8/13	8	40,944	15,114	0.37	91,271	2.23
1983 ^d	7/18-8/12	6	25,848	4,560	0.18	124,371	4.81
1984 ^d	7/16-8/17	6	21,240	29,472	1.39	78,751	3.71
1985 ^d	7/18-8/13	5	20,592	27,674	1.34	124,801	6.06
1986 ^e	8/04-8/22	4	13,662	24,824	1.82	59,352	4.34
1987	No Openings						
1988 ^g	8/08-8/30	3	9,408	36,435	3.87	45,529	4.84
1989 ^h	7/27-8/25	5	20,161	24,672	1.22	77,876	3.86
1990 ^{g, i}	7/23-8/20	3	7,392	13,354	1.81	27,337	3.70
1991 ^h	7/29-8/27	3	19,500	54,095	3.32	59,724	3.67
1992	No Openings						
1993	No Openings						

^a Prior to 1986, some coho and fall chum salmon may have been caught prior to specified dates.

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

^c Information unavailable.

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

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

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

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

^h Includes ADF&G test fish sales through 1990.

Appendix B.9. Fall chum and coho salmon commercial catch and effort in the Setnet Only and Gillnet areas,
District 1, Lower Yukon Area, 1983-1993.

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	186
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 ^b									
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 ^c	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
1992 ^b									
1993 ^b									
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 ^b									
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 ^c	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
1992 ^b									
1993 ^b									
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 ^b									
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 ^c	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
1992 ^b									
1993 ^b									

^a Prior to 1986, some harvests of fall chum and coho salmon occurred before setnet only area designation went into effect.

^b Season closed.

^c Includes ADF&G test fish sales through 1990.

Appendix B.10. Fall chum salmon commercial catch data by period, District 1, Lower Yukon Area, 1978-1993.

Date	Period and Cumulative Catch ^a															
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
0718	6.3 (8.3)		4.2 (4.3)						6.3 (6.3)							
0719																
0720		6.0 (6.0)			4.3 (4.3)	16.1 (16.1)										
0721	5.1 (11.4)			0.0 (6.0)												
0722			6.9 (10.9)													
0723					27.6 (20.1)											
0724		7.2 (15.2)		1.3 (7.3)									1.0 (1.0)			
0725	52.8 (84.2)		15.4 (21.2)													
0726																
0727		14.8 (28.0)			4.0 (36.1)									1.8 (2.8)		
0728	2.8 (37.8)			37.3 (64.6)								4.4 (6.4)				
0729			15.3 (34.5)			3.0 (18.1)										
0730					11.7 (47.8)											
0731		0.7 (37.7)	1.4 (37.8)	23.2 (67.8)			16.3 (18.3)							1.7 (4.5)	15.3 (15.3)	
0801	14.4 (81.4)												0.2 (4.5)			
0802						16.5 (37.6)		2.1 (6.5)							0.0 (6.5)	
0803		17.5 (55.2)					17.1 (25.4)							13.2 (16.7)		
0804	0.4 (81.8)				7.9 (55.7)								48.8 (53.2)			
0805			6.2 (44.1)			23.7 (61.3)										
0806					1.2 (56.9)			15.2 (23.7)	11.4 (11.4)							
0807		37.8 (83.0)	13.5 (57.6)				1.8 (37.2)							7.8 (23.3)	7.6 (23.7)	
0808	1.4 (82.2)												3.0 (57.2)			
0809																
0810		1.3 (84.2)			13.7 (70.8)	44.0 (105.3)		35.6 (59.8)			30.5 (32.0)				6.2 (34.8)	
0811	1.8 (84.8)		6.2 (82.8)										2.5 (59.7)			
0812					20.7 (91.3)	19.1 (124.4)										
0813				21.6 (111.8)					46.3 (174.6)							1.4 (88.2)
0814		7.1 (181.4)	1.8 (84.6)				11.8 (48.0)									
0815	1.4 (86.2)												14.9 (74.7)			
0816																4.1 (40.4)
0817							10.1 (38.1)									
0818	10.2 (56.4)			3.0 (105.8)												
0819			42.2 (108.6)													
0820									5.8 (51.4)		0.5 (33.0)			4.1 (27.3)	2.8 (43.2)	
0821																
0822	21.9 (118.3)									6.0 (59.4)						
0823													2.0 (77.4)			
0824															14.7 (57.6)	
0825	4.4 (122.7)												0.3 (77.9)			
0826											4.1 (44.0)					
0827															1.8 (59.7)	
0828																
0829	5.2 (127.8)															
0830											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 16. Season closures occurred in the following years:

- Some harvests of fall chum salmon counted before 7/18
- 1981 Season closed 8/01-8/12
- 1983 Season closed 7/20-7/27
- 1984 Season closed 7/15-8/01 and 8/08-8/12
- 1985 Season closed 7/20-7/31
- 1988 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 7/04-7/23 and 8/05-8/19
- 1991 Season closed 7/12-7/28
- 1992 Season closed
- 1993 Season closed

Appendix B.11. Commercial fall chum salmon catches by statistical area,
Lower Yukon Area, 1983-1993.

District 1									
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	Total
1983	135	10,300	2,224	10,460	35,824	19,985	24,816	20,627	124,371
1984	315	24,914	2,488	18,234	13,536	6,873	9,390	5,001	78,751
1985	594	34,332	6,035	36,885	43,022	1,485	5,898	1,697	129,948
1986	376	9,891	3,032	2,683	21,058	4,091	12,004	6,217	59,352
1987	0	0	0	0	0	0	0	0	0
1988	10,217	6,953	2,625	206	6,692	3,905	9,526	5,405	45,529
1989	0	2,929	1,420	5,577	26,611	17,477	15,526	8,336	77,876
1990 a	255	3,690	501	1,167	7,927	5,618	4,695	3,484	27,337
1991	75	11,976	3,036	5,586	9,968	8,040	11,880	9,163	59,724
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0

District 2							District 3			
Year	334-21	334-22	334-23	334-24	334-25	Total	Year	334-31	334-32	Total
1983	17,245	4,673	24,132	22,072	17,523	85,645	1983	4,607	5,411	10,018
1984	10,951	22,942	7,622	19,183	10,105	70,803	1984	6,429	0	6,429
1985	9,131	10,607	3,530	5,859	11,363	40,490	1985	4,173	991	5,164
1986	6,472	16,377	5,212	11,352	11,894	51,307	1986	2,793	0	2,793
1987	0	0	0	0	0	0	1987	0	0	0
1988	5,077	13,215	5,385	4,283	3,901	31,861	1988	1,748	342	2,090
1989	12,005	34,268	15,001	19,029	17,603	97,906	1989	15,153	179	15,332
1990 a	6,311	8,298	5,403	10,147	7,014	37,173	1990	1,863	1,852	3,715
1991	10,584	23,195	14,291	28,306	26,252	102,628	1991	7,209	2,004	9,213
1992	0	0	0	0	0	0	1992	0	0	0
1993	0	0	0	0	0	0	1993	0	0	0

a Includes ADF&G test fish sales through 1990.

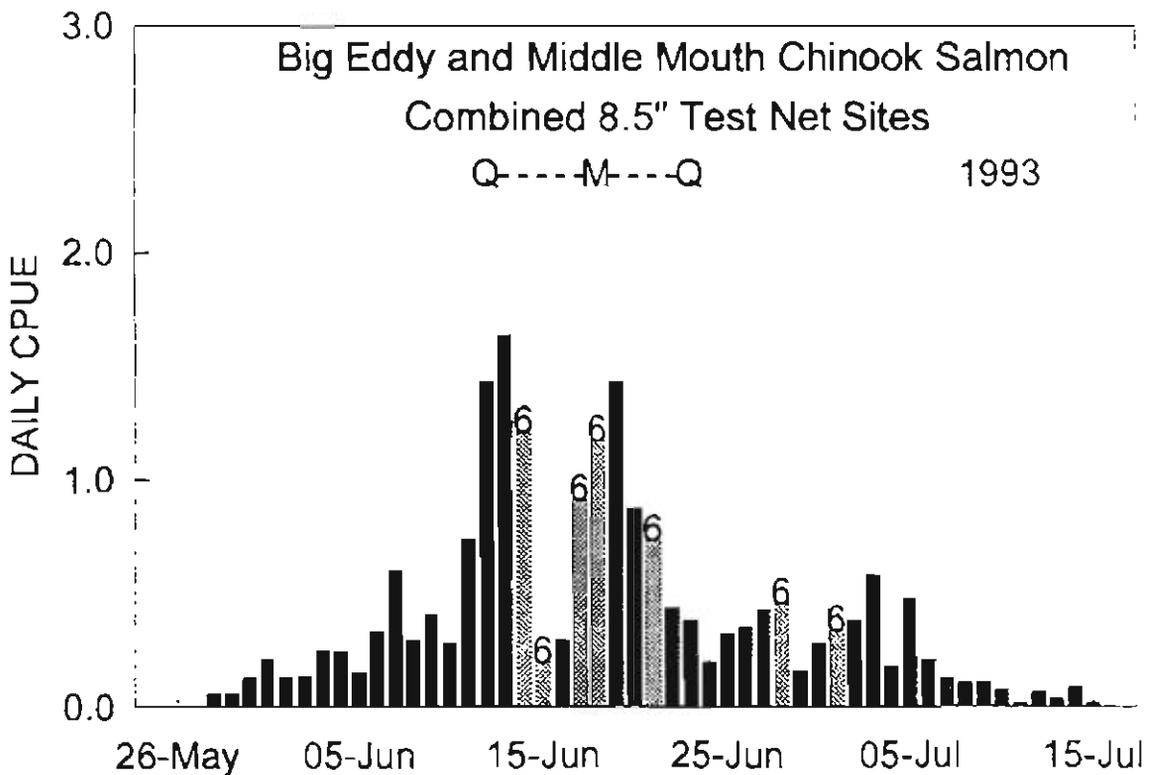
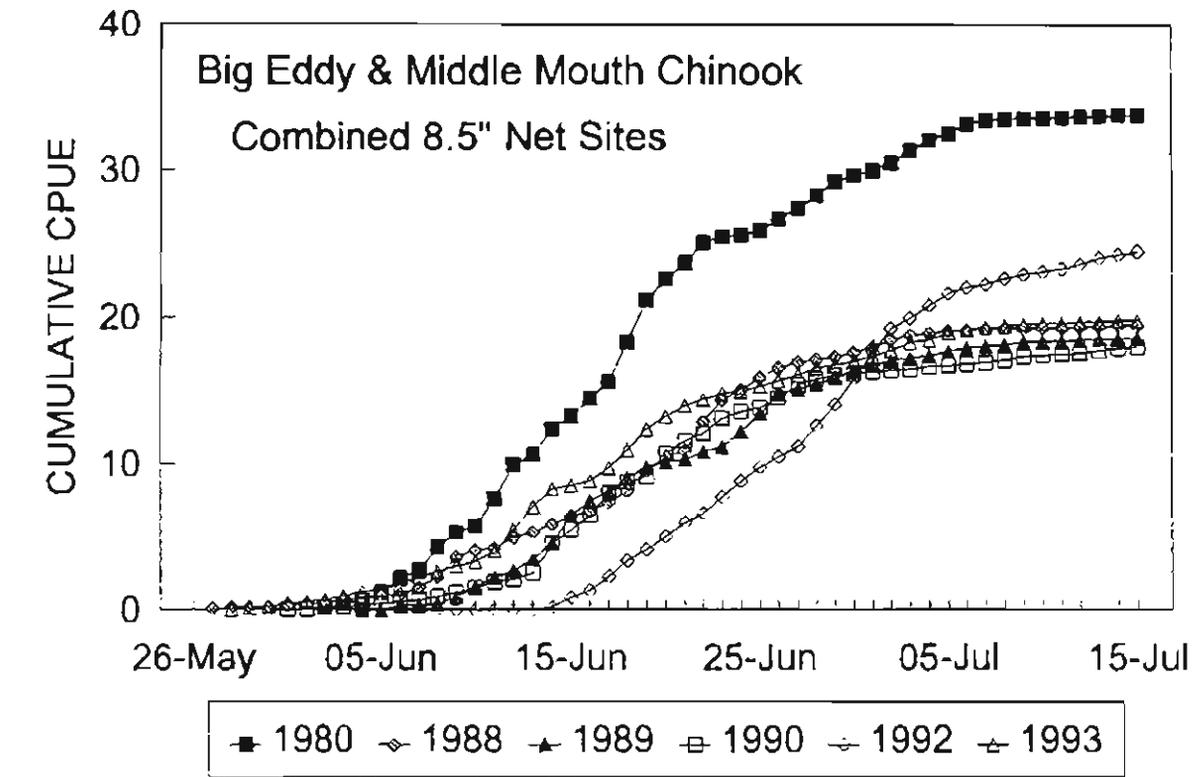
Appendix B.12. Value of commercial salmon fishery to Lower Yukon Area fishermen, 1977-1993.

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	3,707,796
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	0.68	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	5,463,600	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
1992	4.12	9,957,002	0.27	606,976	10,563,978	-	0	-	0	0	10,563,978
1993	2.70	4,884,044	0.37	226,772	5,110,815	-	0	-	0	0	5,110,815
5 Yr Ave 1988-1992	3.28	6,510,332	0.37	1,821,129	8,331,462	0.46	405,715	0.63	299,037	704,752	9,036,213

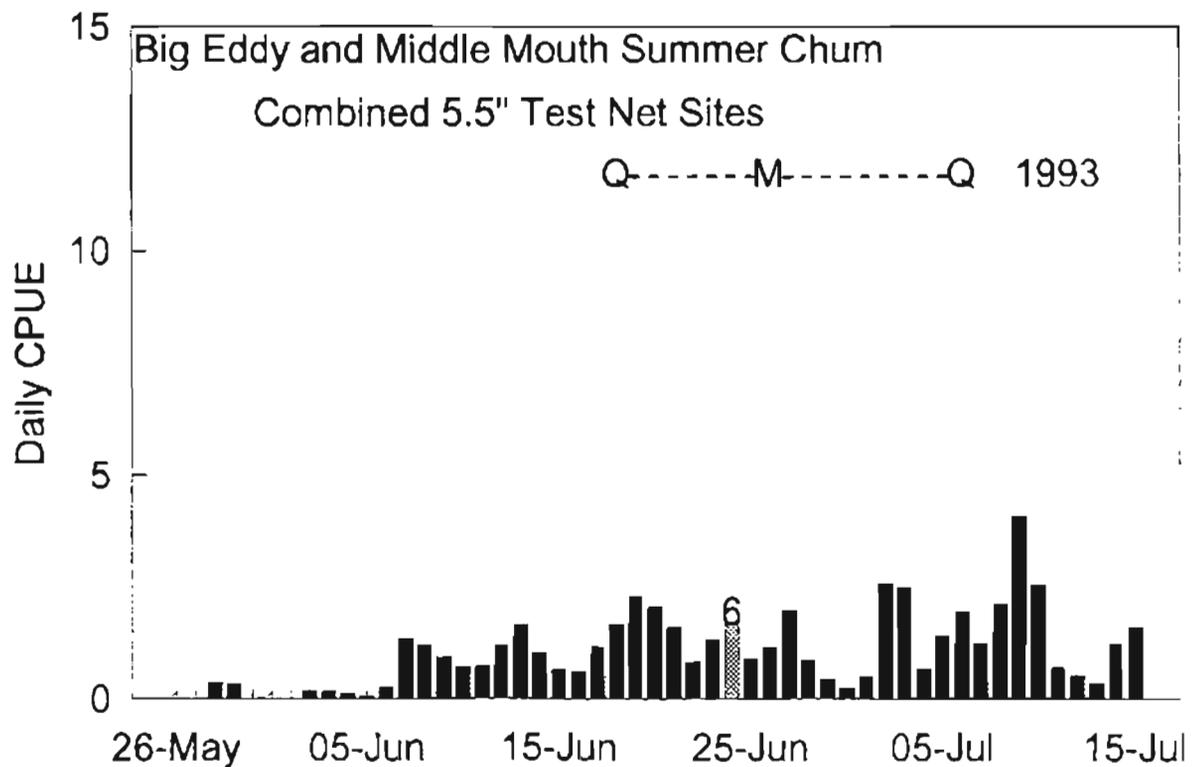
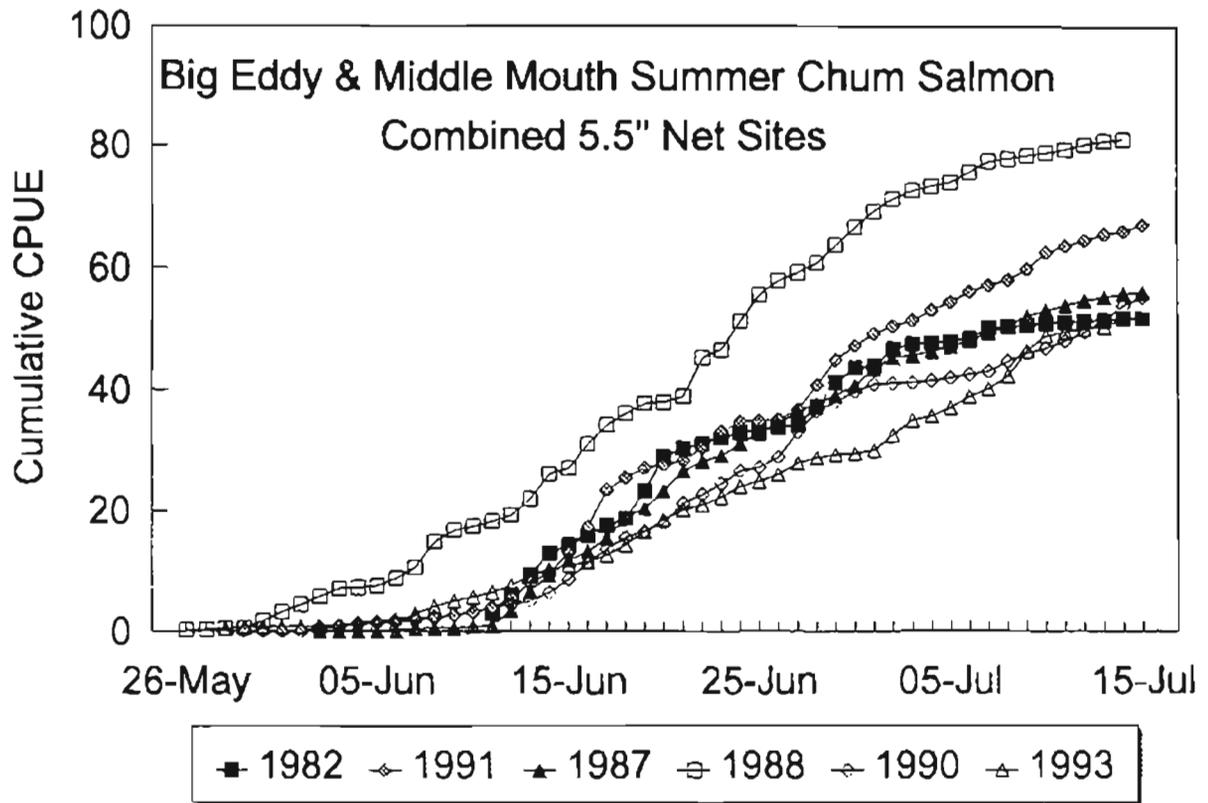
Appendix B.13. Lower Yukon River test fish data by day, Big Eddy and Middle Mouth set gillnet test fishing projects, summer fishing season, 1993.

Big Eddy & Middle Mouth Set Nets													
Date	Sites 1 & 2 6.5 in set gillnets					Sites 3 & 4 5.5 in set gillnets					Sites 3 & 4 5.5 in set gillnets		
	Chinook Salmon					Summer Chum Salmon					Chinook Salmon		
	Daily Catch	Daily CPUE	Cum CPUE	Day Number	Quartile Day	Daily Catch	Daily CPUE	Cum CPUE	Day Number	Quartile Day	Daily Catch	Daily CPUE	Cum CPUE
26-May													
27-May													
28-May	2	0.08	0.08			9	0.38	0.38			5	0.50	0.50
29-May	2	0.08	0.12			8	0.39	0.71			5	0.21	0.71
30-May	8	0.13	0.25			0	0.00	0.71			0	0.00	0.71
31-May	10	0.21	0.48			0	0.00	0.71			0	0.00	0.71
01-Jun	8	0.13	0.59			0	0.00	0.71			0	0.00	0.71
02-Jun	10	0.14	0.73			9	0.19	0.90			5	0.10	0.81
03-Jun	18	0.25	0.98	1		12	0.17	1.07	1		15	0.21	1.02
04-Jun	17	0.24	1.22	2		8	0.11	1.18	2		13	0.18	1.20
05-Jun	14	0.15	1.37	3		4	0.08	1.24	3		3	0.04	1.24
06-Jun	52	0.33	1.70	4		25	0.28	1.50	4		45	0.47	1.71
07-Jun	58	0.60	2.30	5		128	1.39	2.89	5		85	0.69	2.60
08-Jun	28	0.29	2.59	6		113	1.18	4.01	6		48	0.48	3.08
09-Jun	59	0.41	3.00	7		87	0.91	4.92	7		78	0.81	3.89
10-Jun	27	0.28	3.28	8		87	0.70	5.62	8		47	0.49	4.38
11-Jun	71	0.74	4.02	9		70	0.79	6.35	9		52	0.54	4.92
12-Jun	138	1.44	5.48	10		114	1.19	7.54	10		93	0.97	5.89
13-Jun	157	1.84	7.10	11		158	1.85	9.19	11		135	1.41	7.30
14-Jun	117	1.22	8.32	12		97	1.01	10.20	12		44	0.48	7.78
15-Jun	19	0.20	8.52	13		81	0.84	10.84	13		44	0.48	8.22
16-Jun	28	0.29	8.81	14		58	0.80	11.44	14		81	0.84	9.08
17-Jun	88	0.92	9.73	15		111	1.18	12.60	15		67	0.70	9.78
18-Jun	113	1.18	10.91	16	Median	159	1.68	14.28	16		98	1.00	10.78
19-Jun	138	1.44	12.35	17		218	2.27	16.53	17		101	1.05	11.81
20-Jun	84	0.88	13.23	18		198	2.04	18.57	18		91	0.95	12.78
21-Jun	71	0.74	13.97	19		152	1.58	20.15	19		81	0.84	13.40
22-Jun	42	0.44	14.41	20		78	0.81	20.96	20		41	0.43	13.83
23-Jun	38	0.38	14.79	21		128	1.31	22.27	21		35	0.36	14.19
24-Jun	19	0.20	14.99	22		165	1.72	23.99	22		21	0.22	14.41
25-Jun	31	0.32	15.31	23		84	0.88	24.87	23		18	0.19	14.60
26-Jun	34	0.35	15.66	24		110	1.15	26.02	24		18	0.17	14.77
27-Jun	41	0.43	16.09	25		188	1.98	27.98	25	Median	43	0.45	15.22
28-Jun	44	0.46	16.55	26		83	0.88	28.84	26		23	0.24	15.46
29-Jun	15	0.16	16.71	27		43	0.45	29.29	27		14	0.15	15.61
30-Jun	27	0.28	16.99	28		26	0.28	29.55	28		5	0.05	15.88
01-Jul	33	0.34	17.33	29		48	0.50	30.05	29		13	0.14	15.80
02-Jul	38	0.38	17.71	30		245	2.55	32.80	30		20	0.21	16.01
03-Jul	58	0.58	18.29	31		237	2.47	35.07	31		30	0.31	16.32
04-Jul	17	0.18	18.47	32		84	0.87	35.74	32		8	0.08	16.38
05-Jul	48	0.48	18.95	33		134	1.40	37.14	33		13	0.14	16.52
06-Jul	20	0.21	19.16	34		186	1.94	39.08	34		8	0.08	16.58
07-Jul	12	0.13	19.29	35		119	1.24	40.32	35		11	0.11	16.89
08-Jul	11	0.11	19.40	36		209	2.11	42.43	36		8	0.08	16.75
09-Jul	11	0.11	19.51	37		391	4.07	46.50	37		4	0.04	16.79
10-Jul	8	0.08	19.59	38		242	2.52	49.02	38		11	0.11	16.90
11-Jul	2	0.02	19.81	39		88	0.89	49.71	39		5	0.05	16.95
12-Jul	7	0.07	19.88	40		50	0.52	50.23	40		2	0.02	16.97
13-Jul	4	0.04	19.72	41		32	0.33	50.58	41		2	0.02	16.99
14-Jul	9	0.09	19.81	42		118	1.21	51.77	42		10	0.10	17.09
15-Jul	2	0.02	19.83	43		153	1.59	53.38	43		4	0.04	17.13
Total	1,858		19.83			5,052		53.38			1,571		17.13

Appendix B.14. Lower Yukon River combined chinook salmon set net (8.5 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1993 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing.



Appendix B.15. Lower Yukon River combined summer chum salmon (5.5 inch mesh) test fishing cumulative CPUE for selected years (above) and daily CPUE in 1993 (below). Solid bars indicate days which commercial fishing was allowed. The number above the bars indicates hours open to fishing.

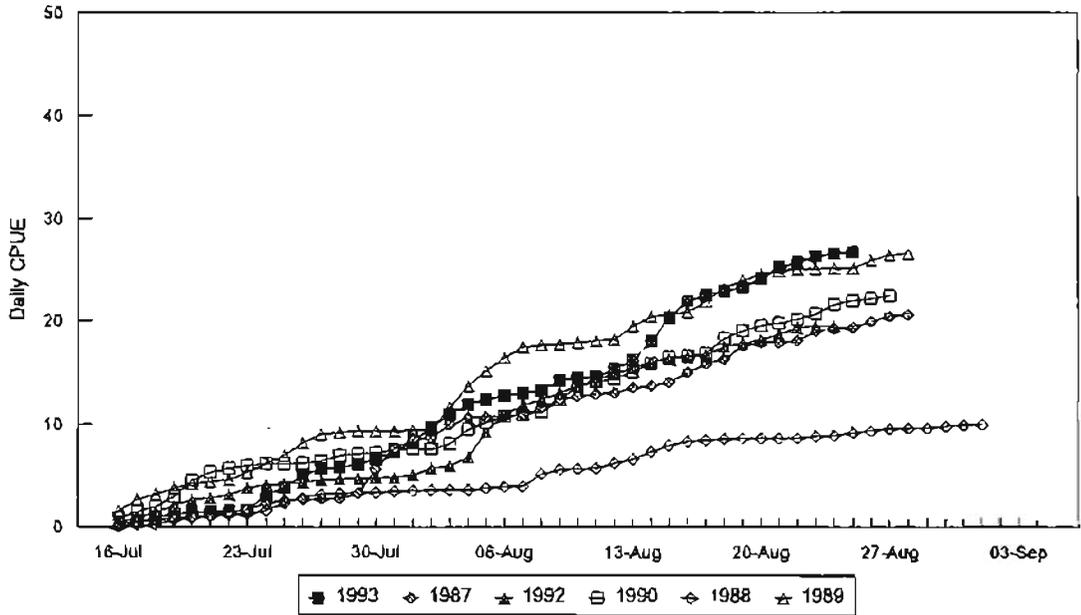


Appendix B.16. Lower Yukon River fall chum and coho salmon combined setnet test fishing catches and CPUE, 1993.

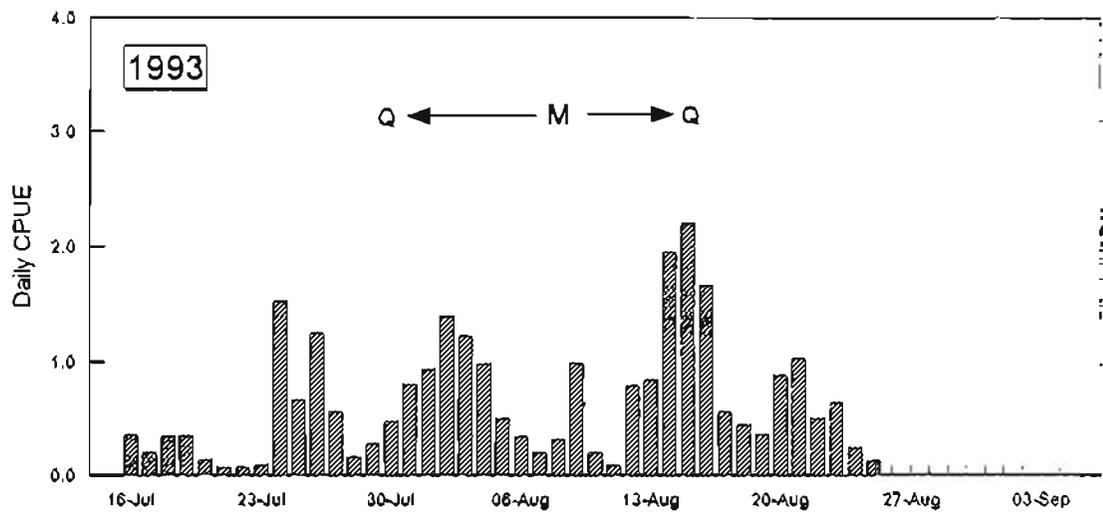
Date	Big Eddy and Middle Mouth Sites 1 & 2 – 6.0' Nets							Middle Mouth Site 3 – 6.0' Net						
	Fall Chum Salmon			Coho Salmon				Fall Chum Salmon			Coho Salmon			
	Daily Catch	Daily CPUE	Cum CPUE	Daily Catch	Daily CPUE	Cum CPUE	% Coho	Daily Catch	Daily CPUE	Cum CPUE	Daily Catch	Daily CPUE	Cum CPUE	% Coho
16-Jul	35	0.36	0.36	0	0.00	0.00	0.0	12	0.50	0.50	0	0.00	0.00	0.0
17-Jul	20	0.21	0.57	0	0.00	0.00	0.0	4	0.17	0.67	0	0.00	0.00	0.0
18-Jul	34	0.35	0.92	0	0.00	0.00	0.0	59	2.46	3.13	0	0.00	0.00	0.0
19-Jul	34	0.35	1.27	0	0.00	0.00	0.0	38	1.58	4.71	0	0.00	0.00	0.0
20-Jul	13	0.14	1.41	0	0.00	0.00	0.0	9	0.38	5.09	0	0.00	0.00	0.0
21-Jul	7	0.07	1.48	0	0.00	0.00	0.0	12	0.50	5.59	0	0.00	0.00	0.0
22-Jul	7	0.07	1.55	0	0.00	0.00	0.0	10	0.42	6.01	0	0.00	0.00	0.0
23-Jul	9	0.09	1.64	0	0.00	0.00	0.0	5	0.21	6.22	0	0.00	0.00	0.0
24-Jul	146	1.52	3.16	0	0.00	0.00	0.0	84	3.50	9.72	0	0.00	0.00	0.0
25-Jul	64	0.67	3.83	0	0.00	0.00	0.0	127	5.29	15.01	0	0.00	0.00	0.0
26-Jul	120	1.25	5.08	1	0.01	0.01	0.8	77	3.21	18.22	0	0.00	0.00	0.0
27-Jul	54	0.56	5.64	1	0.01	0.02	1.8	65	2.71	20.93	0	0.00	0.00	0.0
28-Jul	15	0.16	5.80	0	0.00	0.02	0.0	32	1.33	22.26	0	0.00	0.00	0.0
29-Jul	27	0.28	6.08	0	0.00	0.02	0.0	35	1.46	23.72	0	0.00	0.00	0.0
30-Jul	45	0.47	6.55	0	0.00	0.02	0.0	13	0.54	24.26	1	0.04	0.04	7.1
31-Jul	77	0.80	7.35	4	0.04	0.06	4.9	17	0.71	24.97	1	0.04	0.08	5.6
01-Aug	89	0.93	8.28	3	0.03	0.09	3.3	71	2.96	27.93	1	0.04	0.12	1.4
02-Aug	133	1.39	9.67	7	0.07	0.16	5.0	85	3.54	31.47	2	0.08	0.20	2.3
03-Aug	118	1.23	10.90	8	0.06	0.22	4.8	84	3.50	34.97	2	0.08	0.28	2.3
04-Aug	94	0.98	11.88	5	0.05	0.27	5.1	38	1.58	36.55	2	0.08	0.36	5.0
05-Aug	48	0.50	12.38	17	0.18	0.45	26.2	40	1.67	38.22	6	0.25	0.61	13.0
06-Aug	33	0.34	12.72	1	0.01	0.46	2.9							
07-Aug	19	0.20	12.92	3	0.03	0.49	13.6							
08-Aug	31	0.32	13.24	10	0.10	0.59	24.4							
09-Aug	95	0.99	14.23	29	0.30	0.89	23.4							
10-Aug	19	0.20	14.43	34	0.35	1.24	64.2							
11-Aug	9	0.09	14.52	23	0.24	1.48	71.9							
12-Aug	76	0.79	15.31	26	0.26	1.74	24.8							
13-Aug	81	0.84	16.15	51	0.53	2.27	38.6							
14-Aug	187	1.95	18.10	276	2.88	5.15	59.8							
15-Aug	211	2.20	20.30	185	1.93	7.08	46.7							
16-Aug	159	1.66	21.96	132	1.38	8.46	45.4							
17-Aug	54	0.56	22.52	72	0.75	9.21	57.1							
18-Aug	42	0.44	22.96	51	0.53	9.74	54.8							
19-Aug	35	0.36	23.32	64	0.67	10.41	64.6							
20-Aug	84	0.88	24.20	100	1.04	11.45	54.3							
21-Aug	99	1.03	25.23	135	1.41	12.86	57.7							
22-Aug	48	0.50	25.73	61	0.64	13.50	56.0							
23-Aug	61	0.64	26.37	63	0.66	14.16	50.8							
24-Aug	23	0.24	26.61	58	0.60	14.76	71.6							
25-Aug	6	0.13	26.74	2	0.04	14.80	25.0							
26-Aug														
27-Aug														
28-Aug														
29-Aug														
30-Aug														
31-Aug														
01-Sep														
02-Sep														
03-Sep														
04-Sep														
	2,561	26.74		1,419	14.80		36	917	38.22		15	0.61		

Appendix B.17. 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 1993 (below). Solid bars indicate days during which commercial fishing was allowed. The number above the bars indicates hours open to fishing.

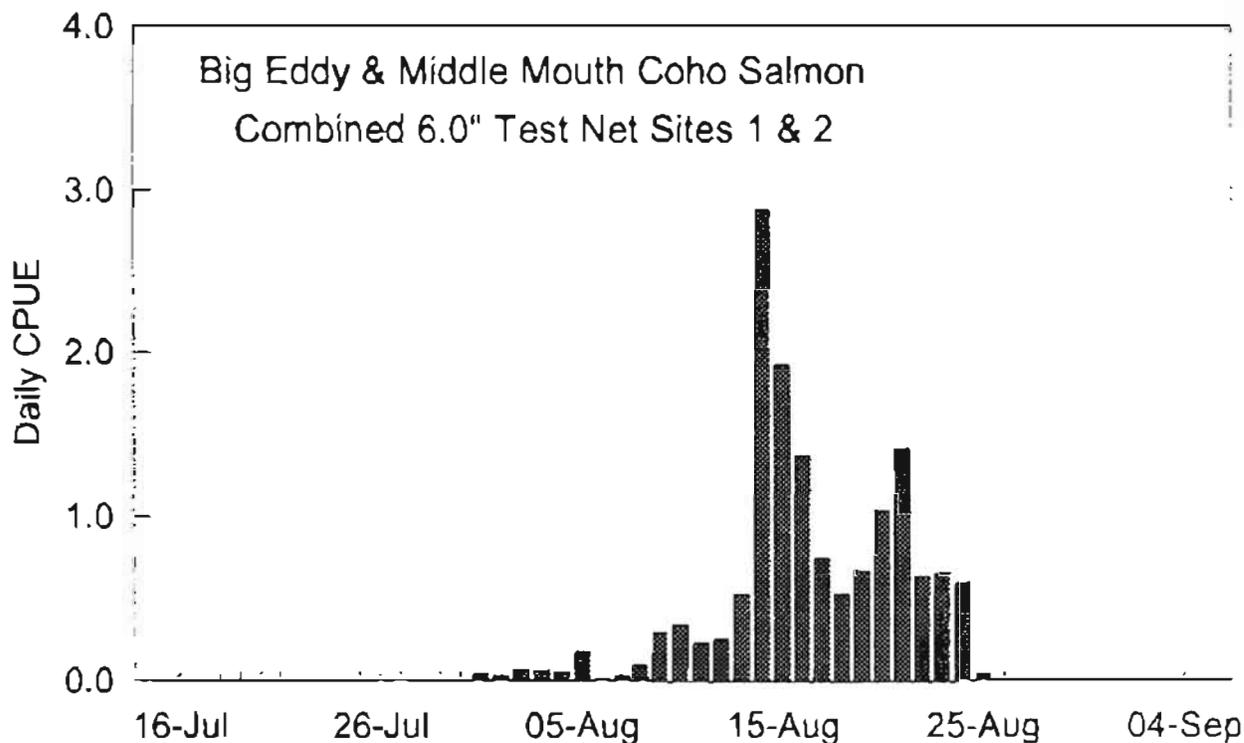
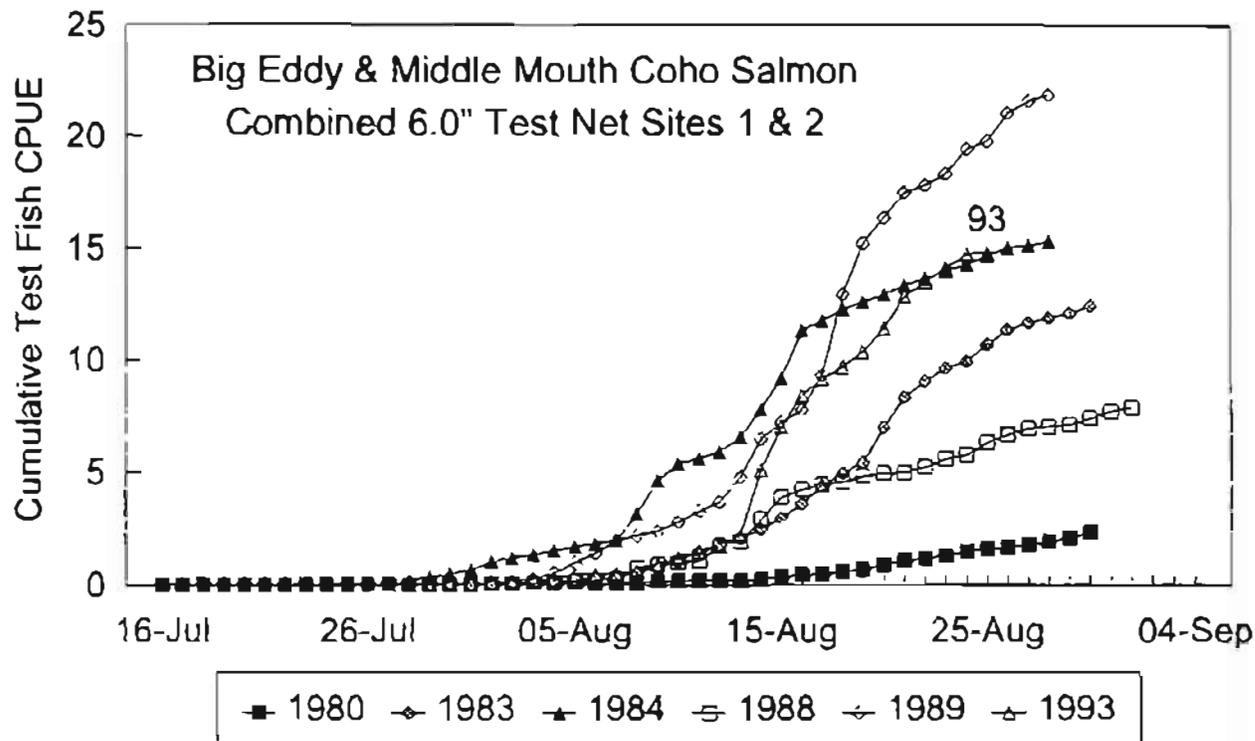
Big Eddy & Middle Mouth Fall Chum
 Combined 6.0" Test Net Sites



Big Eddy & Middle Mouth Fall Chum Salmon
 Combined 6.0" Test Net Sites



Appendix B.18. 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 1993 (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 Area Emergency Orders, 1993.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-01-93	June 22	Allowed uninterrupted subsistence salmon fishing in District 4 from Tuesday, June 22, until 24 hours prior to the opening of the commercial salmon season.	Prior to June 15, District 4 subsistence fishermen were 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 coincided with the opening of the District 4 commercial salmon fishing season; however, with the projected below average return of summer chum salmon to the Yukon River, the opening of the District 4 commercial salmon season would be considerably later than June 15.
3-UY-02-93	June 27	Opened the Yukon Area Subdistricts 4-B and 4-C commercial salmon fishing season and established a 24-hour fishing period from 6:00 p.m. Sunday, June 27, until 6:00 p.m. Monday, June 28, 1993.	Based on department test net catches, department sonar counts at river mile 123, subsistence harvest reports, and commercial catches in Districts 1 and 2, the Yukon River chinook run strength appeared to be near average as forecasted. The Yukon River summer chum salmon run strength appeared to be poor. With chinook salmon subsistence needs being fulfilled and a harvestable surplus of chinook salmon available, a commercial fishery in Subdistricts 4-B and 4-C was warranted.
3-UY-03-93	July 2	Opened the commercial salmon fishing season in Yukon Area Subdistricts 5-A, 5-B and 5-C effective 6:00 p.m. Friday, July 2, 1993. Also established the first commercial salmon fishing period from 6:00 p.m. Friday, July 2, until 6:00 a.m. Sunday, July 4, a 36-hour period.	The preseason projection for the 1993 Yukon River chinook salmon return was average to slightly below average. Based on department test net catches and preliminary lower Yukon River commercial catch statistics, the 1993 chinook salmon return appeared to be near average. With initial subsistence needs fulfilled and a harvestable surplus of chinook salmon available, a commercial fishery was warranted.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-04-93	June 30	Established a 48-hour commercial fishing period in Subdistricts 4-B and 4-C of the Yukon Area from 6:00 p.m. Wednesday, June 30, until 6:00 p.m. Friday, July 2.	Based on department test net catches, department sonar counts at river mile 123, subsistence harvest reports, and commercial catches in Districts 1 and 2, the Yukon River chinook run strength appeared to be near average as forecasted. The Yukon River summer chum salmon run strength appeared poor. Based on migration timing information, the major species available for harvest during this 48-hour opening was chinook salmon with some summer chum salmon caught incidentally. With chinook salmon subsistence needs being fulfilled, it was appropriate to adopt the normal 48-hour fishing period to allow adequate subsistence fishing time for subsistence fishermen.
3-UY-05-93	July 4	Established a 48-hour commercial fishing period in Subdistricts 4-B and 4-C of the Yukon Area from 6:00 p.m. Sunday, July 4, until 6:00 p.m. Tuesday, July 6, 1993.	Based on department test net catches, department sonar counts at river mile 123, subsistence harvest reports, and commercial catches in Districts 1 and 2, the Yukon River chinook run strength appeared to be near average as forecasted. The Yukon River summer chum salmon run strength appeared to be poor. Based on migration timing information, the major species available for harvest during this 48-hour opening was chinook salmon with some summer chum salmon caught incidentally. With chinook salmon subsistence needs being fulfilled, it was appropriate to continue the normal 48-hour fishing period to allow adequate subsistence fishing time for subsistence fishermen.
3-UY-06-93	July 10	Established a 24-hour commercial fishing period for Yukon River Subdistricts 5-A, 5-B, and 5-C from 6:00 p.m. Tuesday, July 6, until 6:00 p.m. Wednesday, July 7, 1993.	Based on verbal reports from the first 36-hour commercial fishing period, the cumulative commercial harvest to date in Subdistricts 5-A, 5-B, and 5-C, was 1,295 chinook salmon. The salmon harvest from these subdistricts approached the guideline harvest range of 2,400 to 2,800 chinook salmon. Establishing a second commercial fishing period of 24 hours allowed the additional harvestable surplus of chinook salmon to be taken.

Appendix C.1. (Page 3 of 12)

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-07-93	July 9	Opened the Yukon River Subdistrict 5-D commercial salmon fishing season effective 6:00 p.m. Friday, July 9, 1993. Also established a commercial fishing period of 48-hours beginning 6:00 p.m. Friday, July 9, until 6:00 p.m. Sunday, July 11.	Based on department test net catches and preliminary commercial catch statistics in the lower portions of the Yukon River, the Yukon River chinook salmon run appears to be near average in run strength. Subsistence catches have occurred in this subdistrict since June 21. With initial subsistence needs being fulfilled and a harvestable surplus of chinook salmon available, a Subdistrict 5-D commercial fishery was warranted.
3-UY-08-93	July 7	Established a 48-hour subsistence only fishing period in Subdistricts 4-B and 4-C.	The subsistence schedule in Subdistricts 4-B and 4-C coincided with the commercial fishing schedule during the commercial salmon fishing season. During the last commercial period, 75% of the harvest was summer chum salmon. Based on run timing information and the declining percentage of chinook salmon in the commercial harvest, the department switched the management strategy in Subdistricts 4-B and 4-C from chinook salmon to summer chum salmon. The Yukon River summer chum salmon run of 1993 appears to be one of the lowest on record. It was appropriate to provide the regular subsistence fishing opportunity during the commercial season, even though the commercial fishing schedule had been interrupted.
3-UY-09-93	July 12	Opened the commercial salmon season in District 6 of the Tanana River. Also established a commercial salmon fishing period of 42 hours beginning 6:00 p.m. Monday, July 12, until 12 noon Wednesday, July 14, 1993.	Based on department test net catches and preliminary commercial catch statistics in the lower portions of the Yukon River, the Yukon River chinook salmon run strength appears to be average to above average. The first chinook salmon was caught by a Tanana River subsistence fisherman on June 20, 1993. With initial subsistence chinook salmon needs being fulfilled and the early portion of the chinook salmon migration passed through the fishery into the escapement so a harvestable surplus of chinook salmon was available, a chinook salmon directed commercial fishery was warranted in District 6.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-10-93	July 11	Opened the Yukon Area Subdistrict 4-A commercial salmon fishing season and established a 12-hour fishing period from 6:00 p.m. Sunday, July 11, until 6:00 a.m. Monday, July 12, 1993.	Based on department test net catches, department sonar counts at river mile 123, subsistence harvest reports, and commercial catches in Districts 1 and 2, the Yukon River summer chum salmon run strength appeared to be substantially below average in strength. However, a significant number of summer chum salmon had entered the Yukon River beginning July 2. This makes the 1993 summer chum salmon return one of the latest in run timing in recent years. It was estimated that over 900,000 summer chum salmon had entered the Yukon River. This level of salmon abundance should allow for a limited summer chum salmon directed commercial fishery in Subdistrict 4-A. Staff evaluation was that the escapement objective for the Anvik River will be met. The department will be targeting for a commercial harvest of approximately one third of the low end of the summer chum salmon Subdistrict 4-A guideline harvest range or lower. It was therefore appropriate to allow a limited commercial opening in Subdistrict 4-A. The primary commercial product in Subdistrict 4-A is summer chum salmon roe. Since the flesh of the fish is usually retained by the fishermen for subsistence purposes, it was appropriate to allow a low level of commercial harvest from which fishermen could retain fish for their subsistence needs since very little summer chum subsistence harvest had occurred.
3-UY-11-93	July 11	Established a 48-hour subsistence only fishing period in Subdistrict 4-B and 4-C of the Yukon River.	This emergency order continued the normal two 48-hour per week subsistence fishing schedule in Subdistricts 4-B and 4-C of the Yukon River.
3-UY-12-93	July 13	Established a commercial fishing period of 36 hours for Yukon River Subdistrict 5-D. Salmon could be taken by commercial fishermen in Subdistrict 5-D from 6:00 p.m. Tuesday, July 13, until 6:00 a.m. Thursday, July 15, 1993.	Based on verbal processor reports from the first 48-hour commercial fishing period, the cumulative commercial harvest to date in Subdistrict 5-D was 145 chinook salmon. The guideline harvest range was 300 to 500 chinook salmon. Establishing the second commercial fishing period of 36 hours allowed the remaining harvestable surplus of chinook salmon to be taken.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-13-93	July 14	Established a 9-hour commercial fishing period in Subdistrict 4-A from 9:00 p.m. Wednesday, July 14, until 6:00 a.m. Thursday, July 15, 1993.	It was estimated that over 900,000 summer chum salmon had entered the Yukon River to date. Staff evaluation was that the escapement objective for the Anvik River would be met. The estimated run strength and low level of Lower Yukon Area commercial harvest allowed for a limited summer chum salmon directed commercial fishery the Upper Yukon Area fishing districts. The department targeted a commercial harvest of approximately one third or lower of the low end of the summer chum salmon Subdistrict 4-A Guideline Harvest Range. For Subdistrict 4-A this level of harvest would allow 22,000 pounds of salmon roe to be sold. The commercial salmon harvest, based on verbal processor reports for the first 12-hour commercial salmon period in Subdistrict 4-A was 8,996 pounds of summer chum salmon roe sold. It was therefore appropriate to allow a second commercial opening to harvest the remaining harvestable surplus.
3-UY-14-93	July 14	This emergency order established a 24-hour commercial fishing period in Subdistricts 4-B and 4-C of the Yukon Area from 6:00 p.m. Wednesday, July 14, until 6:00 p.m. Thursday, July 15, 1993.	The department switched to summer chum management after the third commercial period (July 4-6) and delayed additional commercial openings to assess the strength of the summer chum salmon run. The department estimated that 900,000 summer chum salmon had entered the Yukon River. Staff evaluation was that the escapement objective for Anvik River would be met. The commercial harvests and resultant escapement indices which occurred in 1987 and 1990 indicated that a commercial harvest of summer chum salmon from a similar run size should be below 150,000 fish. The estimated run strength and low level of Lower Yukon Area commercial harvest allowed a limited summer chum salmon directed fishery in the Upper Yukon Area. The department targeted for a commercial harvest of approximately on third or lower of the low end of the summer chum salmon guideline harvest range. It was appropriate to allow a fourth commercial opening of reduced time to harvest the remaining harvestable surplus.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-15-93	July 19	Established a 42-hour commercial salmon period in District 6 of the Tanana River. Salmon may be taken commercially in District 6 from 6:00 p.m. Monday, July 19, until 12 noon Wednesday, July 21, 1993.	As of July 15, the Chena River had 6,500 chinook salmon and the Salcha River had 4,957 chinook salmon pass the first-year tower project. Interim escapement objectives for these projects were 6,300 chinook salmon for the Chena River and 7,100 chinook salmon for the Salcha River. The chinook salmon escapement objective for the Chena River had already been achieved, while it appeared the Salcha River chinook salmon escapement objective would also be obtained. It was estimated that approximately 50 percent of the chinook salmon run had passed the tower. The return of summer chum salmon to the mouth of the Yukon River in 1993 was one of the poorest on record. Conservative management actions were taken throughout the Yukon River to allow adequate summer chum salmon escapement. Similar to other districts within the Yukon river drainage, District 6, the Tanana River, was only allowed to commercially harvest summer chum salmon to a level significantly below the summer chum salmon guideline harvest range. The targeted commercial summer chum salmon harvest for District 6 was approximately 5,000 fish. With a harvestable surplus of chinook and summer chum salmon available, a second commercial fishing period was warranted in District 6.
3-UY-16-93	July 16	Reduced the subsistence fishing time allowed in District 4 of the upper Yukon Area to 48-hours per week. Effective 6:00 p.m. Tuesday, August 17, District 4 subsistence fishermen were placed on a two 24-hour period per week schedule.	The targeted commercial harvest for Subdistrict 4-A was approximately 22,000 pounds of summer chum salmon roe. Based on processor verbal reports, the cumulative commercial harvest in Subdistrict 4-A was 20,232 pounds of summer chum salmon roe. This level of harvest was near the targeted harvest; therefore it was appropriate to close Subdistrict 4-A to commercial fishing.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-17-93	August 22	Effective 12 noon, Sunday, August 22, 1993, the personal use salmon fishing season in Subdistricts 6-A, 6-B, and 6-C of the Tanana River drainage closed.	The fall chum salmon run on the Yukon River appears to be substantially weaker than the preseason outlook of 734,000 fish. Current assessments indicate that the run will more likely be in the range of 350,000 to 500,000 fish. No commercial fishing for fall chum salmon had been allowed on the Yukon River this season. The projected 1993 fall chum salmon return would not support the normal subsistence harvest and meet escapement objectives. Restrictions to the subsistence fishery were being scheduled. To conserve chum salmon, the Division of Sport Fish issued Emergency Order 3-CS-07-93 which closed the taking of chum salmon by the recreational fishery throughout the Yukon River drainage. The only personal use fishery within the Yukon River drainage occurred in Subdistricts 6-A, 6-B, and 6-C of the Tanana River drainage. To conserve chum salmon, the personal use salmon fisheries were also closed by this emergency order.
3-UY-18-93	August 17	Reduced the subsistence fishing time allowed in District 4 of the Upper Yukon Area to 48 hours per week. Effective 6:00 p.m. Tuesday, August 17, District 4 subsistence fishermen will be placed on a two 24-hour period per week schedule. District 4 fishermen were only allowed to fish for salmon from 6:00 p.m. Wednesdays until 6:00 p.m. Thursdays and from 6:00 p.m. Sundays until 6:00 p.m. Mondays.	No commercial fishing for fall chum salmon had been allowed on the Yukon River this season. To conserve chum salmon, the Division of Sport Fish issued Emergency Order 3-CS-07-93 which closed the taking of chum salmon by the recreational fishery throughout the Yukon River drainage. To conserve additional chum salmon, Emergency Order 3-UY-17-93 closed the personal use fishery within the Yukon River drainage. Despite the sport and personal use fishing closures, it was estimated that the 1993 Yukon River would not support normal subsistence harvest levels and meet escapement needs. In order to reduce the fall chum salmon subsistence harvest, subsistence restrictions in the Yukon River drainage were necessary. All Upper Yukon Area districts were restricted to no more than 48 hours of subsistence fishing per week. This emergency order restricted District 4 of the Yukon Area to two 24-hour periods per week.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-19-93	August 17	<p>Reduced the subsistence fishing time allowed in Subdistricts 5-A and 5-B of the Upper Yukon Area to 48 hours per week. Effective 6:00 p.m. Tuesday, August 17, 1993, Subdistricts 5-A and 5-B of the Yukon River was placed on a four 12-hour period per week schedule. Subsistence fishermen in Subdistricts 5-A and 5-B were only allowed to fish for salmon from 8:00 p.m. Tuesdays until 8:00 a.m. Wednesdays; from 8:00 p.m. Wednesdays until 8:00 a.m. Thursdays; from 8:00 p.m. Thursdays until 8:00 a.m. Fridays; and from 8:00 p.m. Fridays until 8:00 a.m. Saturdays.</p>	<p>No commercial fishing for fall chum salmon had been allowed on the Yukon River this season. To conserve chum salmon, the Division of Sport Fish issued Emergency Order 3-CS-07-93 which closed the taking of chum salmon by the recreational fishery throughout the Yukon River drainage. To conserve additional chum salmon, Emergency Order 3-UY-17-93 closed the personal use fishery within the Yukon River drainage. Despite the sport and personal use fishing closures, it was estimated that the 1993 Yukon River would not support normal subsistence harvest levels and meet escapement needs. In order to reduce the fall chum salmon subsistence harvest, subsistence restrictions in the Yukon River drainage were necessary. All Upper Yukon Area districts were restricted to no more than 48 hours of subsistence fishing per week. This emergency order restricted Subdistricts 5-A and 5-B of the Yukon Area to four 12-hour periods per week. Subdistricts 5-A and 5-B includes the village of Tanana and the portion of the Yukon River known as the "Rapids."</p>
3-UY-20-93	August 18	<p>Reduced the subsistence fishing time allowed in Subdistricts 5-C and 5-D of the Upper Yukon Area to 48 hours per week. Effective 6:00 p.m. Wednesday, August 18, 1993, Subdistricts 5-C and 5-D of the Yukon River was placed on a two 24-hour period per week schedule. Subsistence fishermen in Subdistricts 5-C and 5-D were only allowed to fish for salmon from 6:00 p.m. Tuesdays until 6:00 p.m. Wednesdays and from 6:00 p.m. Fridays until 6:00 p.m. Saturdays. Subdistricts 5-C and 5-D includes the Haul Road Bridge area and the villages of Rampart, Stevens Village, Beaver, Venetie, Fort Yukon, Circle, Eagle, Central, Birch Creek, and Chalkyitsik.</p>	<p>No commercial fishing for fall chum salmon had been allowed on the Yukon River this season. To conserve chum salmon, the Division of Sport Fish issued Emergency Order 3-CS-07-93 which closed the taking of chum salmon by the recreational fishery throughout the Yukon River drainage. To conserve additional chum salmon, Emergency Order 3-UY-17-93 closed the personal use fishery within the Yukon River drainage. Despite the sport and personal use fishing closures, it was estimated that the 1993 Yukon River would not support normal subsistence harvest levels and meet escapement needs. In order to reduce the fall chum salmon subsistence harvest, subsistence restrictions in the Yukon River drainage were necessary. All Upper Yukon Area districts were restricted to no more than 48 hours of subsistence fishing per week. This emergency order restricted Subdistricts 5-C and 5-D of the Yukon Area to two 24-hour periods per week.</p>

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-21-93	August 22	<p>Reduced the subsistence fishing time allowed in Subdistricts 6-A and 6-B of the Upper Yukon Area to 48 hours per week. Effective 12 noon Sunday, August 22, 1993, Subdistricts 6-A and 6-B of the Tanana River were placed on a two 24-hour period per week schedule. Subsistence fishermen in Subdistricts 6-A and 6-B were only allowed to fish for salmon from 6:00 p.m. Mondays until 6:00 p.m. Tuesdays and from 6:00 p.m. Fridays until 6:00 p.m. Saturdays. This subsistence salmon fishing schedule was also in effect for fishermen within the Kantishna River drainage. Additionally, effective 12 noon Sunday, August 22, 1993, the subsistence salmon fishery in the upper Tanana River drainage, upstream of the Volkmar River drainage to the headwaters, was placed on a two 24-hour period per week schedule. Subsistence fishermen in the upper Tanana River drainage were allowed to fish for salmon from 6:00 p.m. Mondays until 6:00 p.m. Tuesdays and from 6:00 p.m. Fridays until 6:00 p.m. Saturdays.</p>	<p>No commercial fishing for fall chum salmon had been allowed on the Yukon River this season. To conserve chum salmon, the Division of Sport Fish issued Emergency Order 3-CS-07-93 which closed the taking of chum salmon by the recreational fishery throughout the Yukon River drainage. To conserve additional chum salmon, Emergency Order 3-UY-17-93 closed the personal use fishery within the Yukon River drainage. Despite the sport and personal use fishing closures, it was estimated that the 1993 Yukon River would not support normal subsistence harvest levels and meet escapement needs. In order to reduce the fall chum salmon subsistence harvest, subsistence restrictions in the Yukon River drainage were necessary. All Upper Yukon Area districts were restricted to no more than 48 hours of subsistence fishing per week. This emergency order restricted Subdistricts 6-A, 6-B and the upper Tanana River drainage upstream of the Volkmar River drainage of the Yukon Area to two 24-hour periods per week. Subdistricts 6-A and 6-B includes the villages of Manley Hot Springs, Minto, and Nenana. This subsistence salmon fishing schedule was also in effect for fishermen within the Kantishna River drainage. Additionally, effective 12 noon Sunday, August 22, 1993, the subsistence salmon fishery in the upper Tanana River drainage, upstream of the Volkmar River drainage to the headwaters, was placed on a two 24-hour period per week schedule.</p>

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-22-93	August 17	Effective 6:00 p.m. Tuesday, August 17, subsistence gillnet fishermen fishing for whitefish, suckers, and other non-salmon species during subsistence salmon fishing closures were only allowed to fish with gillnets of 5 inches or less in stretch mesh. Additionally, during closed subsistence salmon fishing periods, fish wheels may not be used to fish for whitefish and other non-salmon species.	Important subsistence harvests of whitefish and other resident species are taken with gillnet gear in the Yukon River drainage. An emergency regulation provided the department emergency order authority in establish a five-inch maximum mesh size management option for subsistence gillnets. This restriction provided protection to chum salmon and still allowed subsistence fishermen the opportunity to fish for whitefish and resident species which werre in normal abundance.
3-UY-23-93	September 3	Effective 6:00 p.m. Friday, September 3, 1993, subsistence salmon fishing closed within Districts 4, 5, and 6 in the Upper Yukon Area.	No commercial fishing for fall chum salmon had been allowed or was anticipated on the Yukon River in Alaska for this season. This emergency order closed the commercial salmon season in Subdistricts 4-B and 4-C, and Districts 5 and 6 by rescinding Emergency Orders 3-UY-02-93, 3-UY-03-93, 3-UY-07-93, and 3-UY-09-93. To conserve chum salmon, the Division of Sport Fish issued Emergency Order 3-CS-07-93 on August 16 which closed the taking of chum salmon by the recreational fishery throughout the Yukon River drainage. To conserve additional chum salmon, Emergency Order 3-UY-17-93 closed the personal use fishery within the Yukon River drainage. The current fall chum salmon run assessment of 300,000 to 350,000 fall chum salmon will not support subsistence harvests and meet escapement needs throughout the drainage. Subsistence fishing restrictions were implemented throughout the Yukon River drainage during the week of August 16. These restrictions were extended to a subsistence salmon fishing closure.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-24-93	September 3	<p>Opened District 4 to subsistence salmon fishing. In Subdistrict 4-A, effective 6:00 p.m. Friday, September 17, salmon could be taken from 6:00 p.m. Friday until 6:00 p.m. Saturday and from 6:00 p.m. Tuesday to 6:00 p.m. Wednesday. In Subdistricts 4-B and 4-C, effective 6:00 p.m. Sunday, September 19, salmon could be taken from 6:00 p.m. Sunday until 6:00 p.m. Monday and from 6:00 p.m. Wednesday to 6:00 p.m. Thursday.</p>	<p>Emergency Order 3-UY-23-93 closed subsistence salmon fishing within the entire upper Yukon River drainage. The subsistence fishery reopening schedule was to allow opportunities to harvest coho salmon, sheefish, pike, and other non-salmon species while continuing necessary measures for the conservation of fall chum salmon. Coho salmon have a later but overlapping run timing than that of fall chum salmon. Reopenings throughout the drainage would be staggered with periods beginning Friday, September 17, in the lower reaches of the Yukon River. Fishing periods in the upper reaches of the drainage would occur later to allow passage of most chum salmon through these areas. This emergency order reopened District 4 to subsistence salmon fishing. Subsistence fishermen in Subdistrict Y-4A and its tributaries, including the Koyukuk River, were placed on two 24-hour openings per week beginning September 17. Subsistence fishermen in Subdistricts Y-4B and Y-4C and tributaries of these subdistricts were placed on a two 24-hour subsistence openings per week schedule beginning September 19.</p>
3-UY-25-93	September 22	<p>Opened Subdistricts 5-A, 6-A, and 6-B, excluding the lower portion of the Kantishna River drainage, to subsistence salmon fishing. In Subdistricts 5-A, 6-A, and 6-B, excluding the Kantishna River drainage, salmon could be taken from 6:00 p.m. Wednesday, September 22, until 6:00 p.m. Thursday, September 23, 1993.</p>	<p>Emergency Order 3-UY-23-93 closed the subsistence salmon fishing within the entire upper Yukon River drainage. The subsistence fishery reopening schedule was to allow opportunities to harvest coho salmon, sheefish, pike, and other non-salmon species while continuing necessary measures for the conservation of fall chum salmon. Coho salmon have a later but overlapping run timing than that of fall chum salmon. Reopenings throughout the drainage would be staggered with periods beginning Friday, September 17, in the lower reaches of the Yukon River. Fishing periods in the upper reaches of the drainage would occur later to allow passage of most chum salmon through these areas. This emergency order opened Subdistricts 5-A, 6-A, and 6-B for an initial 24-hour subsistence salmon fishing period. This opening would be used in conjunction with test fish catches to help the department evaluate the strength of Tanana River coho salmon stocks.</p>

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-UY-26-93	September 27	Opened Subdistricts 5-B, 5-C, and 5-D to subsistence fishing with large mesh gillnets and fish wheels. Effective 6:00 p.m. Monday, September 27, in Subdistricts 5-B, 5-C, and 5-D salmon could be taken at any time.	Emergency Order 3-UY-23-93 closed the subsistence salmon fishing within the entire upper Yukon River drainage on September 3, 1993. By September 27, the majority of the fall chum salmon had passed through these subdistricts. This emergency order reopened subsistence fishing with large mesh gillnets and fish wheels within Subdistricts 5-B, 5-C, and 5-D. The fishery was scheduled to allow opportunities to harvest non-salmon species.
3-UY-27-93	October 1	Since September 19, 1993, District 4 had been on a two 24-hour a week subsistence salmon fishing schedule. This emergency order opened District 4 to seven days a week subsistence salmon fishing. Effective 12:01 a.m. Friday, October 1, in Subdistricts 4-A, 4-B, and 4-C salmon could be taken at any time.	Emergency Order 3-UY-23-93 closed the subsistence salmon fishing within the entire upper Yukon River drainage on September 3, 1993. Effective September 17, Emergency Order 3-UY-24-93 allowed a reopening of subsistence fishing with large mesh gillnets and fish wheels on a two 24-hour subsistence fishing schedule per week. The limited subsistence fishery was scheduled to allow opportunities to harvest non-salmon species while continuing the necessary measures for the conservation of fall chum salmon. By October 1, the majority of the non-local salmon stocks had passed through Subdistricts 4-A, 4-B, and 4-C. This emergency order reopened subsistence fishing with large mesh gillnets and fish wheels to a seven days per week schedule.
3-UY-28-93	October 16	Opened Subdistricts 5-A, 6-A, and 6-B to seven days a week subsistence fishing with large mesh gillnets and fish wheels effective 12:01 a.m. Saturday, October 16.	For the protection of salmon, Emergency Order 3-UY-22-93 restricted subsistence gillnet fishermen fishing for whitefish, suckers, and other non-salmon species during subsistence salmon fishing closures to use only gillnets of five inches or less in stretch mesh. Additionally, during closed subsistence salmon periods, fish wheels could not be used to fish for whitefish and other non-salmon species. By October 16, the majority of the salmon had passed through Subdistricts 5-A, 6-A, and 6-B. This emergency order reopened subsistence fishing for whitefish and other non-salmon species with large mesh gillnets and fish wheels to a seven-day-per-week schedule.

Appendix C.2. Commercial salmon sales and estimated harvest by statistical area, all gears combined, Upper Yukon Area, 1993. a, b

SET GILLNET AND FISH WHEEL COMBINED

Statistical Area	Number of Fishermen c	Chinook			Summer Chum			Fall Chum			Coho		
		Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated
334-42	14	190	279	269	0	1,851	4,445 d	0	0	0	0	0	0
334-43	9	1,159	422	1,308	27	111	316 d	0	0	0	0	0	0
334-44	9	0	0	0	0	6,234	11,642 d	0	0	0	0	0	0
334-45	14	0	0	0	0	6,081	11,476 d	0	0	0	0	0	0
334-46	30	0	0	0	0	8,170	15,078 d	0	0	0	0	0	0
Subtotal District 4	75	1,349	701	1,577	27	22,447	42,957	0	0	0	0	0	0
334-51	0	0	0	0	0	0	0	0	0	0	0	0	0
334-52	11	1,124	0	1,124	0	0	0	0	0	0	0	0	0
334-53	16	1,484	0	1,484	0	0	0	0	0	0	0	0	0
334-54	0	0	0	0	0	0	0	0	0	0	0	0	0
334-55	3	400	0	400	0	0	0	0	0	0	0	0	0
Subtotal District 5	30	3,008	0	3,008	0	0	0	0	0	0	0	0	0
334-61	3	57	0	57	1,156	0	1,156	0	0	0	0	0	0
334-62	10	810	1,213	1,116	1,603	315	2,009	0	0	0	0	0	0
334-63	5	248	100	272	282	200	540	0	0	0	0	0	0
Subtotal District 6	18	1,113	1,313	1,445	3,041	515	3,705	0	0	0	0	0	0
Total Upper Yukon Area	123	5,470	2,014	6,030	3,068	22,962	46,662	0	0	0	0	0	0

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a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Unless otherwise noted, the estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

b Does not include department test fish sales.

c Number of unique permits fished by statistical area, district or area. Totals may not add up due to transfers between statistical areas.

d The estimated harvest of summer chum salmon for District 4 is the estimated number of males and females harvested to produce roe sold.

Appendix C.3. Commercial set gillnet salmon sales and estimated harvest by statistical area, Upper Yukon Area, 1993. a, b

SET GILLNET

Statistical Area	Number of Fishermen c	Chinook			Summer Chum			Fall Chum			Coho		
		Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated
334-42	2	105	65	113	0	32	63 d	0	0	0	0	0	0
334-43	1	193	11	198	0	12	29 d	0	0	0	0	0	0
334-44	6	0	0	0	0	4,265	7,965 d	0	0	0	0	0	0
334-45	4	0	0	0	0	1,706	3,186 d	0	0	0	0	0	0
334-46	2	0	0	0	0	146	273 d	0	0	0	0	0	0
Subtotal District 4	15	298	76	311	0	6,161	11,516	0	0	0	0	0	0
334-51	0	0	0	0	0	0	0	0	0	0	0	0	0
334-52	6	596	0	596	0	0	0	0	0	0	0	0	0
334-53	10	755	0	755	0	0	0	0	0	0	0	0	0
334-54	0	0	0	0	0	0	0	0	0	0	0	0	0
334-55	1	37	0	37	0	0	0	0	0	0	0	0	0
Subtotal District 5	17	1,388	0	1,388	0	0	0	0	0	0	0	0	0
334-61	1	21	0	21	396	0	396	0	0	0	0	0	0
334-62	1	1	0	1	2	0	2	0	0	0	0	0	0
334-63	1	2	0	2	11	0	11	0	0	0	0	0	0
Subtotal District 6	3	24	0	24	409	0	409	0	0	0	0	0	0
Total Upper Yukon Area	35	1,710	76	1,723	409	6,161	11,925	0	0	0	0	0	0

a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Unless otherwise noted, the estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

b Does not include department test fish sales.

c Number of unique permits fished by statistical area, district or area. Totals may not add up due to transfers between statistical areas.

d The estimated harvest of summer chum salmon for District 4 is the estimated number of males and females harvested to produce roe sold.

Appendix C.4. Commercial fish wheel salmon sales and estimated harvest by statistical area, Upper Yukon Area, 1993. a, b

FISH WHEEL

Statistical Area	Number of Fishermen c	Chinook			Summer Chum			Fall Chum			Coho		
		Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated
334-42	12	85	214	156	0	1,819	4,382 d	0	0	0	0	0	0
334-43	8	966	411	1,110	27	99	287 d	0	0	0	0	0	0
334-44	3	0	0	0	0	1,969	3,677 d	0	0	0	0	0	0
334-45	10	0	0	0	0	4,375	8,290 d	0	0	0	0	0	0
334-46	28	0	0	0	0	8,024	14,805 d	0	0	0	0	0	0
Subtotal District 4	60	1,051	625	1,266	27	16,286	31,441	0	0	0	0	0	0
334-51	0	0	0	0	0	0	0	0	0	0	0	0	0
334-52	5	528	0	528	0	0	0	0	0	0	0	0	0
334-53	6	729	0	729	0	0	0	0	0	0	0	0	0
334-54	0	0	0	0	0	0	0	0	0	0	0	0	0
334-55	2	363	0	363	0	0	0	0	0	0	0	0	0
Subtotal District 5	13	1,620	0	1,620	0	0	0	0	0	0	0	0	0
334-61	2	36	0	36	760	0	760	0	0	0	0	0	0
334-62	9	809	1,213	1,115	1,601	315	2,007	0	0	0	0	0	0
334-63	4	244	100	270	271	200	529	0	0	0	0	0	0
Subtotal District 6	15	1,089	1,313	1,421	2,632	515	3,296	0	0	0	0	0	0
Total Upper Yukon Area	88	3,760	1,938	4,307	2,659	16,801	34,737	0	0	0	0	0	0

a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Unless otherwise noted, the estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

b Does not include department test fish sales.

c Number of unique permits fished by statistical area, district or area. Totals may not add up due to transfers between statistical areas.

d The estimated harvest of summer chum salmon for District 4 is the estimated number of males and females harvested to produce roe sold.

Appendix C.5. Commercial chinook salmon sales and estimated harvest by statistical area, Subdistrict 4-A, Upper Yukon Area, 1974 - 1993.

Year	334-41			334-44			334-45			334-46			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	0	-	0	-	-	-	-	-	-	-	-	-	0	-	0
1976	16	-	15	-	-	-	-	-	-	-	-	-	16	-	15
1978	44	-	44	-	-	-	-	-	-	-	-	-	44	-	44
1977	317	-	317	-	-	-	-	-	-	-	-	-	317	-	317
1978	183	-	183	-	-	-	-	-	-	-	-	-	183	-	183
1979	785	-	785	-	-	-	-	-	-	-	-	-	785	-	785
1980	352	-	352	-	-	-	-	-	-	-	-	-	352	-	352
1981	106	-	106	-	-	-	-	-	-	-	-	-	106	-	106
1982	78	-	78	-	-	-	-	-	-	-	-	-	78	-	78
1983	0	-	0	-	-	-	-	-	-	-	-	-	0	-	0
1984	2	-	2	-	-	-	-	-	-	-	-	-	2	-	2
1985	0	-	0	-	-	-	-	-	-	-	-	-	0	-	0
1986	11	-	11	-	-	-	-	-	-	-	-	-	11	-	11
1987	91	-	91	-	-	-	-	-	-	-	-	-	91	-	91
1988	19	-	19	-	-	-	-	-	-	-	-	-	19	-	19
1989	59	-	59	-	-	-	-	-	-	-	-	-	59	-	59
1990 d	-	-	-	0	8	2	0	0	0	52	0	52	62	8	54
1991	-	-	-	0	67	35	0	7	4	69	88	114	69	162	153
1992	-	-	-	0	0	0	0	15	9	0	71	41	0	86	50
1993	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	-	-	-	-	-	-	-	-	-	-	-	-	40	51	67

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

b Pounds of salmon roe sold. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by statistical area, by period and gear type.

d In 1990, Subdistrict 4-A (Statistical Area 334-41) was subdivided into Statistical Areas 334-44, 334-45 and 334-46.

Appendix C.6. Commercial chinook salmon sales and estimated harvest by statistical area, Subdistricts 4-B and 4-C, Upper Yukon Area, 1974-1993.

Year	334-42			334-43			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	685	-	685	-	-	-	685	-	685
1975	374	-	374	-	-	-	374	-	374
1976	365	-	365	-	-	-	365	-	365
1977	668	-	668	-	-	-	668	-	668
1978	425	-	425	-	-	-	425	-	425
1979 d	370	-	370	834	-	834	1,204	-	1,204
1980	549	-	549	620	-	620	1,169	-	1,169
1981	867	-	867	374	-	374	1,241	-	1,241
1982	497	-	497	512	-	512	1,009	-	1,009
1983	382	-	382	219	-	219	601	-	601
1984	272	-	272	687	-	687	959	-	959
1985	318	-	318	346	-	346	664	-	664
1986	100	-	100	391	-	391	491	-	491
1987	999	-	999	434	-	434	1,433	-	1,433
1988	1,599	-	1,599	1,541	-	1,541	3,140	-	3,140
1989	696	-	696	2,035	-	2,035	2,731	-	2,731
1990	784	0	784	2,700	0	2,700	3,484	0	3,484
1991	916	386	1,113	1,461	1,674	2,316	2,377	2,060	3,429
1992	623	482	818	1,028	1,705	1,526	1,651	2,187	2,344
1993	190	279	269	1,159	422	1,308	1,349	701	1,577
Previous Five Year Average 1988-1992	924	-	1,002	1,753	-	2,024	2,677	-	3,026

a Harvest reported in numbers of fish sold in the round

b Pounds of salmon roe sold. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by statistical area, by period and gear type.

d In 1979, Statistical Area 334-42 was subdivided into Statistical Areas 334-42 and 334-43.

Appendix C.7. Commercial chinook salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B and 5-C, Upper Yukon Area, 1974 - 1993.

Year	334-51			334-52			334-53			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	2,284	-	2,284	379	-	379	-	-	-	2,663	-	2,663
1975	2,602	-	2,602	270	-	270	-	-	-	2,872	-	2,872
1976	2,843	-	2,843	308	-	308	-	-	-	3,151	-	3,151
1977	4,013	-	4,013	149	-	149	-	-	-	4,162	-	4,162
1978	2,838	-	2,838	241	-	241	-	-	-	3,079	-	3,079
1979	3,389	-	3,389	0	-	0	-	-	-	3,389	-	3,389
1980	4,554	-	4,554	337	-	337	-	-	-	4,891	-	4,891
1981 d	97	-	97	3,051	-	3,051	2,477	-	2,477	5,625	-	5,625
1982	61	-	61	2,352	-	2,352	2,277	-	2,277	4,690	-	4,690
1983	0	-	0	632	-	632	2,738	-	2,738	3,370	-	3,370
1984	128	-	128	1,589	-	1,589	1,568	-	1,568	3,285	-	3,285
1985	0	-	0	1,142	-	1,142	1,842	-	1,842	2,984	-	2,984
1986	0	-	0	1,552	-	1,552	875	-	875	2,427	-	2,427
1987	0	-	0	1,183	-	1,183	1,356	-	1,356	2,539	-	2,539
1988	0	-	0	1,498	-	1,498	1,477	-	1,477	2,975	-	2,975
1989	31	-	31	1,411	-	1,411	1,459	-	1,459	2,901	-	2,901
1990	0	0	0	1,630	47	1,642	1,180	0	1,180	2,810	47	2,822
1991	56	0	56	1,724	62	1,740	1,476	0	1,476	3,256	62	3,272
1992	0	0	0	1,276	7	1,279	2,119	0	2,119	3,395	7	3,398
1993	0	0	0	1,124	0	1,124	1,484	0	1,484	2,608	0	2,608
Previous Five Year Average 1988-1992	17	-	17	1,508	-	1,514	1,542	-	1,542	3,067	-	3,074

a Harvest reported in numbers of fish sold in the round. Does not include estimates of illegal sales in 1987.

b Pounds of salmon roe sold. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (Statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54). In 1990, Subdistrict 5-D (Statistical Area 334-54) was further subdivided into Statistical Areas 334-54 and 334-55.

Appendix C.8. Commercial chinook salmon sales and estimated harvest by statistical area, Subdistricts 5-D, Upper Yukon Area, 1974-1993.

Year	334-54			334-55			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-
1977	-	-	-	-	-	-	-	-	-
1978	-	-	-	-	-	-	-	-	-
1979	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	-
1981 d	749	-	749	-	-	-	749	-	749
1982	695	-	695	-	-	-	695	-	695
1983	236	-	236	-	-	-	236	-	236
1984	384	-	384	-	-	-	384	-	384
1985	434	-	434	-	-	-	434	-	434
1986	306	-	306	-	-	-	306	-	306
1987	566	-	566	-	-	-	566	-	566
1988	461	-	461	-	-	-	461	-	461
1989	385	-	385	-	-	-	385	-	385
1990 e	194	0	194	349	0	349	543	0	543
1991	192	0	192	362	0	362	554	0	554
1992	0	0	0	457	0	457	457	0	457
1993	0	0	0	400	0	0	400	0	400
Previous Five Year Average 1988-1992	246	-	246	-	-	-	480	-	480

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

b Pounds of salmon roe sold. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (Statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54).

e In 1990, Subdistrict 5-D (Statistical Area 334-54) was subdivided into two statistical areas, (Statistical Areas 334-54 and 334-55).

Appendix C.9. Commercial chinook salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974 - 1993.

Year	334-61			334-62			334-63			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	111	-	111	1,102	-	1,102	260	-	260	1,473	-	1,473
1975	77	-	77	153	-	153	270	-	270	500	-	500
1976	490	-	490	320	-	320	292	-	292	1,102	-	1,102
1977	405	-	405	365	-	365	238	-	238	1,008	-	1,008
1978	34	-	34	58	-	58	543	-	543	635	-	635
1979	102	-	102	336	-	336	334	-	334	772	-	772
1980	92	-	92	1,588	-	1,588	267	-	267	1,947	-	1,947
1981	438	-	438	366	-	366	183	-	183	987	-	987
1982	414	-	414	309	-	309	258	-	258	981	-	981
1983	249	-	249	364	-	364	298	-	298	911	-	911
1984	0	-	0	375	-	375	492	-	492	867	-	867
1985	15	-	15	560	-	560	567	-	567	1,142	-	1,142
1986	0	-	0	597	-	597	353	-	353	950	-	950
1987	0	-	0	600	-	600	602	-	602	1,202	-	1,202
1988	305	-	305	253	-	253	204	-	204	762	-	762
1989	809	-	809	614	-	614	318	-	318	1,741	-	1,741
1990	326	0	326	1,243	1,354	1,565	188	322	265	1,757	1,676	2,156
1991	117	0	117	450	1,365	791	119	180	164	686	1,545	1,072
1992	39	0	39	371	679	510	162	205	204	572	884	753
1993	57	0	57	810	1,213	1,116	246	100	272	1,113	1,313	1,445
Previous Five Year Average 1988-1992	319	-	319	586	-	747	198	-	231	1,104	-	1,297

a Harvest reported in numbers of fish sold in the round. Does not include estimates of illegal sales in 1987 of 2,136 chinook salmon.

b Pounds of salmon roe sold. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 8 sampling program that estimated average roe weight per female by period.

Appendix C.10. Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistrict 4-A, Upper Yukon Area, 1974 - 1993.

Year	334-41					334-44					334-45				
	Number a	Roe Expansion			Estimated Harvest e	Number a	Roe Expansion			Estimated Harvest e	Number a	Roe Expansion			Estimated Harvest e
		Roe b	Males c	Females d			Roe b	Males c	Females d			Roe b	Males c	Females d	
1974	f	0	0	0	f	-	-	-	-	-	-	-	-	-	
1975	f	0	0	0	f	-	-	-	-	-	-	-	-	-	
1976	f	0	0	0	f	-	-	-	-	-	-	-	-	-	
1977	f	0	0	0	f	-	-	-	-	-	-	-	-	-	
1978	f	16,920	0	16,920	f	-	-	-	-	-	-	-	-	-	
1979	f	35,117	0	35,117	f	-	-	-	-	-	-	-	-	-	
1980	f	119,957	0	119,957	f	-	-	-	-	-	-	-	-	-	
1981	f	160,757	123,266 g	160,757	f	-	-	-	-	-	-	-	-	-	
1982	1,032	137,611	95,768	137,611	234,431	-	-	-	-	-	-	-	-	-	
1983	3,407	130,013	90,740	130,013	224,160	-	-	-	-	-	-	-	-	-	
1984	51	148,519	98,962	148,519	247,532	-	-	-	-	-	-	-	-	-	
1985	5,130	222,149	157,062	222,149	384,341	-	-	-	-	-	-	-	-	-	
1986	0	236,856	172,222	236,856	409,078	-	-	-	-	-	-	-	-	-	
1987	29,314	110,977	51,379	110,977	191,670	-	-	-	-	-	-	-	-	-	
1988	19,070	230,276	167,594	256,718 h	443,382	-	-	-	-	-	-	-	-	-	
1989	14,397	270,039	170,322	301,383 i	486,102	-	-	-	-	-	-	-	-	-	
1990 j	-	-	-	-	-	0	27,628	24,484	31,409	55,893	427	28,181	24,153	32,166	56,746
1991	-	-	-	-	-	88	39,281	37,164	47,574	84,826	79	43,087	42,445	53,401	95,925
1992	-	-	-	-	-	0	20,444	13,192	22,383	35,575	0	35,312	26,463	40,142	66,605
1993	-	-	-	-	-	0	6,234	4,308	7,334	11,642	0	6,081	4,246	7,230	11,476
Five Year Average 1988-1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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175

Year	334-46					Total				
	Number a	Roe Expansion			Estimated Harvest e	Number a	Roe Expansion			Estimated Harvest e
		Roe b	Males c	Females d			Roe b	Males c	Females d	
1974	-	-	-	-	-	f	0	0	0	f
1975	-	-	-	-	-	f	0	0	0	f
1976	-	-	-	-	-	f	0	0	0	f
1977	-	-	-	-	-	f	0	0	0	f
1978	-	-	-	-	-	f	16,920	0	16,920	f
1979	-	-	-	-	-	f	35,117	0	35,117	f
1980	-	-	-	-	-	f	119,957	0	119,957	f
1981	-	-	-	-	-	f	160,757	123,266 g	160,757	f
1982	-	-	-	-	-	1,032	137,611	95,788	137,611	234,431
1983	-	-	-	-	-	3,407	130,013	90,740	130,013	224,160
1984	-	-	-	-	-	51	148,519	98,962	148,519	247,532
1985	-	-	-	-	-	5,130	222,149	157,062	222,149	384,341
1986	-	-	-	-	-	0	236,856	172,222	236,856	409,078
1987	-	-	-	-	-	29,314	110,977	51,379	110,977	191,670
1988	-	-	-	-	-	19,070	230,276	167,594	256,718 h	443,382
1989	-	-	-	-	-	14,397	270,039	170,322	301,383 i	486,102
1990 j	10,750	39,732	29,490	44,742	84,982	11,177	95,541	78,127	108,317	197,621
1991	5,122	45,863	47,563	56,819	109,504	5,289	128,231	127,172	157,794	290,255
1992	0	43,945	32,502	49,489	81,991	0	99,701	72,157	112,014	184,171
1993	0	8,170	5,579	9,499	15,078	0	20,485	14,133	24,063	38,196
Previous Five Year Average 1988-1992	-	-	-	-	-	9,987	164,758	123,074	187,245	320,306

- Continued -

- a Harvest reported in numbers of fish sold in the round.
- b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of chinook salmon roe. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.
- c The estimated number of unsold males that were caught and not sold while harvesting the females that produced the roe sold. Prior to 1981, it was assumed that all males were sold in the round. Since 1981, all fish sold in the round are assumed to be males. For the years 1981 through 1985, the estimated percentage of males in the harvest was based on percentage of males observed in the department Stink Creek test fishwheel catches (1981 - .434; 1982 - .413; 1983 - .420; 1984 - .400; and 1985 - .422). For the years 1986 through 1988, the estimated number of males in the harvest was based on the average percentage of males observed in Stink Creek test fishery for the years 1981 through 1985 (average of .421). For the year 1989, the estimated percentage of males in the harvest was .38. Since 1990, the estimated number of unsold males that produce the roe sold is based on a District 4 sampling program that estimated average percent males in the harvest by statistical area, by period and gear type.
- d The estimated number of females to produce the roe sold. Unless otherwise noted, prior to 1991, the roe expansion assumes 1.0 pound of roe per female. Since 1991, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by statistical area, by period and gear type.
- e Estimated harvest is the number of fish sold in the round plus the estimated number of females and the estimated number of unsold males harvested to produce the roe sold.
- f Information not available by statistical area.
- g Assumes no males were sold in the round.
- h Roe expansion assumes .897 pound of roe per female.
- i Roe expansion assumes .896 pound of roe per female.
- j In 1990, Subdistrict 4-A (Statistical Area 334-41) was subdivided into Statistical Areas 334-45 and 334-46.

Appendix C.11. Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistricts 4-B and 4-C, Upper Yukon Area, 1974-1993.

Year	334-42					334-43					Total					
	Roe Expansion				Estimated Harvest e	Roe Expansion				Estimated Harvest e	Roe Expansion				Estimated Harvest e	
	Number a	Roe b	Females c	Males d		Number a	Roe b	Females c	Males d		Number a	Roe b	Females c	Males d		
1974	g	0	0	-	g	-	-	-	-	g	0	0	0	g		
1975	g	0	0	-	g	-	-	-	-	g	0	0	0	g		
1976	g	0	0	-	g	-	-	-	-	g	0	0	0	g		
1977	g	0	0	-	g	-	-	-	-	g	0	0	0	g		
1978	g	0	0	-	g	-	-	-	-	g	0	0	0	g		
1979	h	g	200	200	-	g	g	0	0	-	g	200	200	g	g	
1980	g	14,385	14,385	-	g	g	1,482	1,482	-	g	g	15,867	15,867	g	g	
1981	g	23,677	23,677	-	g	g	2,598	2,598	-	g	g	26,276	26,276	g	g	
1982	1,059	12,550	12,550	-	13,609	1,555	1,120	1,120	-	2,676	2,615	13,670	13,670	7,003	23,288	
1983	3,265	17,549	17,549	-	20,814	0	563	563	-	563	3,265	18,112	18,112	9,851	31,228	
1984	659	15,184	15,184	-	15,843	290	3,139	3,139	-	3,438	958	18,323	18,323	11,257	30,638	
1985	1,785	19,306	19,306	-	21,091	5,092	5,630	5,630	-	10,722	6,877	24,936	24,936	11,329	43,142	
1986	241	29,169	29,169	-	29,410	59	3,520	3,520	-	3,579	300	32,689	32,689	23,468	56,457	
1987	593	9,956	9,956	-	10,549	84	541	541	-	625	677	10,497	10,497	6,956	18,130	
1988	4,692	21,788	24,265	l	26,358	389	2,464	2,769	l	3,158	4,981	24,250	27,034	l	14,677	48,692
1989	2,940	9,915	11,066	k	12,855	1,217	3,351	3,740	k	4,957	4,157	13,266	14,808	k	5,179	24,142
1990	1,091	6,600	7,709	-	8,890	96	3,582	4,434	-	4,530	1,187	10,182	12,233	11,509	24,929	
1991	1,092	8,282	8,996	-	10,088	0	719	781	-	781	1,092	9,001	9,777	8,520	18,389	
1992	1,363	9,010	9,616	-	10,979	1,296	2,098	2,902	-	4,198	2,659	11,108	12,618	12,048	27,225	
1993	0	1,851	2,134	-	4,445	27	111	140	-	316	27	1,962	2,274	2,460	4,761	
Previous Five Year Average 1988-1992	2,216	11,115	12,348		13,834	600	2,447	2,925		3,525	2,815	13,561	15,274	10,387	28,475	

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

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of chinook salmon roe. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon sold.

c The estimated number of females to produce the roe sold. Unless otherwise noted, prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of female that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by statistical area, by period and gear type.

d Estimated number of males caught but not sold. Total males caught but not sold calculated the same as for District 4-A (using sex ratio and sales in the round assumed to be male chum salmon).

e The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

l The total estimated harvest is the fish sold in the round plus estimated number of females harvested to produce roe sold plus the estimated number of males caught but not sold.

g Information not available by statistical area.

h In 1979, Statistical Area 334-42 was subdivided into Statistical Areas 334-42 and 334-43.

i Roe expansion assumes .897 pound of roe per female.

k Roe expansion assumes .896 pound of roe per female.

Appendix C.12. Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B and 5-C, Upper Yukon Area, 1974-1993.

Year	334-51			334-52			334-53			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	d	0	d	d	0	d	-	-	-	6,831	0	6,831
1975	d	0	d	d	0	d	-	-	-	12,997	0	12,997
1976	d	0	d	d	0	d	-	-	-	774	0	774
1977	d	0	d	d	0	d	-	-	-	1,274	0	1,274
1978	d	605	d	d	0	d	-	-	-	4,892	605	5,497
1979	d	1,009	d	d	0	d	-	-	-	8,808	1,009	9,617
1980	d	0	d	d	0	d	-	-	-	456	0	456
1981 ^e	d	0	d	d	49	d	d	0	d	d	49	d
1982	d	21	d	d	0	d	d	0	d	d	21	d
1983	0	242	242	37	289	306	5	1,345	1,350	42	1,856	1,898
1984	50	0	50	578	47	625	12	0	12	640	47	687
1985	0	0	0	700	0	700	0	0	0	700	0	700
1986	0	0	0	682	0	682	8	0	8	690	0	690
1987	0	0	0	362	44	406	0	0	0	362	44	406
1988	0	0	0	717	337	1,054	5	26	31	722	363	1,085
1989	0	0	0	112	204	316	1	189	170	113	373	486
1990	0	0	0	0	225	250	5	350	394	5	575	644
1991	0	0	0	0	28	31	4	0	4	4	28	35
1992	0	0	0	30	295	358	72	0	72	102	295	430
1993	0	0	0	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	0	0	0	172	218	402	17	109	134	189	327	536

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

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of chinook salmon roe. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d Information not available by statistical area.

e In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54). In 1990, Subdistrict 5-D (Statistical Area 334-54) was further subdivided into Statistical Areas 334-54 and 334-55.

Appendix C.13. Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistricts 5-D, Upper Yukon Area, 1974-1993.

Year	334-54			334-55			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-
1977	-	-	-	-	-	-	-	-	-
1978	-	-	-	-	-	-	-	-	-
1979	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	-
1981 d	e	0	e	-	-	-	e	0	e
1982	e	0	e	-	-	-	e	0	e
1983	0	0	0	-	-	-	0	0	0
1984	5	0	5	-	-	-	5	0	5
1985	0	0	0	-	-	-	0	0	0
1986	0	0	0	-	-	-	0	0	0
1987	0	0	0	-	-	-	0	0	0
1988	0	0	0	-	-	-	0	0	0
1989	41	0	41	-	-	-	41	0	41
1990 f	6	19	27	0	0	0	6	19	27
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	9	4	14	-	-	-	9	4	14

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

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of chinook salmon roe. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (Statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54).

e Information not available by statistical area.

f In 1990, Subdistrict 5-D (Statistical Area 334-54) was subdivided into two statistical areas, (Statistical Areas 334-54 and 334-55).

Appendix C.14. Commercial summer chum salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974 - 1993.

Year	334-61			334-62			334-63			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number	Roe b	Estimated
1974	d	0	d	d	0	d	d	0	d	13,318	0	13,318
1975	d	0	d	d	0	d	d	0	d	14,782	0	14,782
1976	d	0	d	d	0	d	d	0	d	6,617	0	6,617
1977	d	0	d	d	0	d	d	0	d	4,317	0	4,317
1978	d	1,468	d	d	6,116	d	d	652	d	34,814	8,236	43,050
1979	d	d	d	d	d	d	d	d	d	18,491	3,891	22,382
1980	d	0	d	d	2,272	d	d	1,010	d	35,855	3,282	39,137
1981	d	0	d	d	925	d	d	1,062	d	32,477	1,987	34,464
1982	d	0	d	d	1,027	d	d	490	d	21,597	1,517	23,114
1983	1,923	0	1,923	21,646	18	21,664	740	0	740	24,309	18	24,327
1984	3,769	0	3,769	42,231	152	42,383	10,249	183	10,432	56,249	335	56,584
1985	809	0	809	51,132	142	51,274	14,972	1,398	16,370	66,913	1,540	68,453
1986	4,697	0	4,697	31,647	1,711	33,358	14,139	435	14,574	50,483	2,146	52,629
1987	2,167	0	2,167	6,882	349	7,231	1,561	101	1,662	10,610	450	11,060
1988	7,978	71	8,049	24,911	1,165	26,076	7,240	410	7,650	40,129	1,646	41,775
1989	16,483	61	16,544	18,960	4,277	23,237	6,672	533	7,205	42,115	4,871	46,986
1990	2,862	12	2,877	6,028	1,637	8,011	2,237 e	1,410	3,945	11,127 e	3,059	14,833
1991	4,742	0	4,742	10,100	2,653	13,304	3,355	2,063	5,846	18,197	4,716	23,892
1992	1,327	0	1,327	3,446	1,684	5,409	256	208	492	5,029	1,892	7,228
1993	1,156	0	1,156	1,603	315	2,009	282	200	540	3,041	515	3,705
Previous Five Year Average 1988-1992	6,678	29	6,708	12,689	2,283	15,207	3,952	925	5,028	23,319	3,237	26,943

180

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

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of chinook salmon roe. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on District 6 sampling program that estimated average roe weight per female by period.

d Information not available by statistical area.

e Does not include 1,233 female summer chum salmon sold with roe extracted and roe sold separately. Females are accounted for in roe expansion.

Appendix C.15. Commercial fall chum salmon sales by statistical area, District 4, Upper Yukon Area, 1974 - 1993

Year	334-41			334-42			334-43			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	0	0	0	9,213	0	9,213	-	-	-	9,213	0	9,213
1975	d	0	d	d	0	d	-	-	-	13,666	0	13,666
1976	462	0	462	1,280	0	1,280	-	-	-	1,742	0	1,742
1977 e	d	0	d	d	0	d	-	-	-	13,980	0	13,980
1978	-	-	-	d	1,721	d	-	-	-	10,988	1,721	12,709
1979 f	-	-	-	d	3,199	d	d	0	d	48,899	3,199	52,098
1980	-	-	-	d	1,789	d	d	2,558	d	27,978	4,347	32,325
1981	-	-	-	d	1,311	d	d	0	d	12,082	1,311	13,393
1982	-	-	-	958	20	978	2,936	147	3,083	3,894	167	4,061
1983	-	-	-	3,681	1,591	5,272	801	372	1,173	4,482	1,963	6,445
1984	-	-	-	2,961	1,222	4,183	4,864	993	5,657	7,625	2,215	9,840
1985	-	-	-	14,468	891	15,359	9,984	1,634	11,618	24,452	2,525	26,977
1986	-	-	-	2,045	0	2,045	0	0	0	2,045	0	2,045
1987	-	-	-	0	0	0	0	0	0	0	0	0
1988	-	-	-	10,157	703	10,860	5,505	718	6,223	15,662	1,421	17,083
1989	-	-	-	9,819	2,023	11,842	1,957	1,384	3,341	11,776	3,407	15,183
1990	-	-	-	3,406	1,680	5,676	1,583	671	2,490	4,989	2,351	8,166
1991	-	-	-	2,998	490	3,718	739	1,126	2,373	3,737	1,616	6,091
1992	-	-	-	0	0	0	0	0	0	0	0	0
1993	-	-	-	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	-	-	-	5,276	979	6,419	1,857	780	2,885	7,233	1,759	9,305

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

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by period, by statistical area and gear type.

d Information not available by statistical area.

e In 1977, was the last year Subdistrict 4-A (Statistical Area 334-41), by regulation, was allowed a late season.

f In 1979, Statistical Area 334-42 was subdivided into Statistical Areas 334-42 and 334-43.

Appendix C.16. Commercial fall chum salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B and 5-C, Upper Yukon Area, 1974-1993.

Year	334-51			334-52			334-53			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	23,551	0	23,551	0	0	0	-	-	-	23,551	0	23,551
1975	d	0	d	d	0	d	-	-	-	27,212	0	27,212
1976	5,319	0	5,319	68	0	68	-	-	-	5,387	0	5,387
1977	d	0	d	d	0	d	-	-	-	25,730	0	25,730
1978	d	3,946	d	d	1,274	d	-	-	-	21,016	5,220	26,236
1979	d	8,097	d	d	0	d	-	-	-	47,459	8,097	55,556
1980	d	605	d	d	0	d	-	-	-	41,771	605	42,376
1981 e	d	178	d	d	8,760	d	d	17	d	d	6,955	d
1982	d	0	d	d	23	d	d	19	d	d	42	d
1983	3,143	0	3,143	19,771	0	19,771	17,987	0	17,987	40,901	0	40,901
1984	1,415	0	1,415	10,329	0	10,329	9,403	0	9,403	21,147	0	21,147
1985	565	0	565	9,263	0	9,263	13,332	0	13,332	23,160	0	23,160
1986	1,332	0	1,332	11,907	395	12,302	7,471	0	7,471	20,710	395	21,105
1987	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	9,684	0	9,684	4,533	0	4,533	14,217	0	14,217
1989	372	60	432	9,937	3,327	13,264	4,987	209	5,196	15,296	3,596	18,892
1990	0	0	0	5,169	945	6,243	0	0	0	5,169	945	6,243
1991	0	0	0	14,968	3,625	19,727	9,173	0	9,173	24,141	3,625	28,900
1992	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	74	12	86	7,952	1,579	9,784	3,739	42	3,780	11,765	1,633	13,650

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

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on District 5 sampling program that estimated average roe weight per female by period.

d Information not available by statistical area.

e In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (Statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54). In 1990, Subdistrict 5-D (Statistical Area 334-54) was further subdivided into Statistical Areas 334-54 and 334-55.

Appendix C.17. Commercial fall chum salmon sales by statistical area, Subdistrict 5-D, Upper Yukon Area, 1974-1993.

Year	334-54			334-55			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-
1977	-	-	-	-	-	-	-	-	-
1978	-	-	-	-	-	-	-	-	-
1979	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	-
1981 d	e	0	e	-	-	-	e	0	e
1982	e	0	e	-	-	-	e	0	e
1983	3,092	0	3,092	-	-	-	3,092	0	3,092
1984	2,913	57	2,970	-	-	-	2,913	57	2,970
1985	2,178	0	2,178	-	-	-	2,178	0	2,178
1986	1,343	0	1,343	-	-	-	1,343	0	1,343
1987	0	0	0	-	-	-	0	0	0
1988	2,772	0	2,772	-	-	-	2,772	0	2,772
1989	2,919	393	3,312	-	-	-	2,919	393	3,312
1990 f	1,758	113	1,882	851	0	851	2,609	113	2,733
1991	1,846	0	1,846	1,368	0	1,368	3,214	0	3,214
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	1,859	101	1,962	-	-	-	2,303	101	2,406

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

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (Statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54).

e Information not available by statistical area.

f In 1990, Subdistrict 5-D (Statistical Area 334-54) was subdivided into two statistical areas, (Statistical Areas 334-54 and 334-55).

Appendix C.18. Commercial fall chum salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974 - 1993.

Year	334-61			334-62			334-63			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	d	d	d	d	d	d	d	d	d	26,884	0	26,884
1975	d	0	d	d	0	d	d	0	d	18,692	0	18,692
1976	d	0	d	d	0	d	d	0	d	17,948	0	17,948
1977	d	0	d	d	0	d	d	0	d	18,673	0	18,673
1978	4,704	1,826	6,530	8,036	1,680	9,716	519	181	700	13,259	3,687	16,946
1979	d	d	d	d	d	d	d	d	d	34,185	7,170	41,355
1980	d	0	d	d	53	d	d	15	d	19,452	68	19,520
1981	d	0	d	d	2,784	d	d	235	d	25,989	3,019	29,008
1982	706	0	706	4,586	596	5,182	1,528	0	1,528	6,820	596	7,416
1983	3,526	0	3,526	23,096	3,009	26,105	7,467	92	7,559	34,089	3,101	37,190
1984	5,617	0	5,617	11,809	0	11,809	3,138	56	3,194	20,564	56	20,620
1985	1,462	0	1,462	34,663	0	34,663	6,227	0	6,227	42,352	0	42,352
1986	176	0	176	1,345	182	1,527	371	0	371	1,892	182	2,074
1987	0	0	0	0	0	0	0	0	0	0	0	0
1988	4,500	0	4,500	13,617	1,035	14,652	3,727	771	4,498	21,844	1,806	23,650
1989	14,870	173	15,043	25,650	7,050	32,700	8,570	130	8,700	49,090	7,353	56,443
1990	9,254	0	9,254	28,932	6,617	35,776	4,996 e	918	5,945	43,182 e	7,535	50,975
1991	3,278	0	3,278	21,834	12,253	35,904	3,083	1,901	5,266	28,195	14,154	44,448
1992	0	0	0	13,713	1,816	15,852	2,008	990	3,170	15,721	2,806	19,022
1993	0	0	0	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	6,380	35	6,415	20,749	5,754	26,977	4,477	942	5,516	31,606	6,731	38,908

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

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of coho salmon roe. Since 1990, efforts were made to separate the coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 6 sampling program that estimated average roe weight per female by period.

d Information not available by statistical area.

e Does not include 884 female fall chum salmon sold with roe extracted and roe sold separately. Females are accounted for in the roe expansion.

Appendix C.19. Commercial coho salmon sales and estimated harvest by statistical area, District 4, Upper Yukon Area, 1974 - 1993.

Year	334-41			334-42			334-43			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	0	-	0	0	-	0	-	-	-	0	-	0
1975	0	-	0	0	-	0	-	-	-	0	-	0
1976	0	-	0	0	-	0	-	-	-	0	-	0
1977 d	0	-	0	0	-	0	-	-	-	0	-	0
1978	-	-	-	32	-	32	-	-	-	32	-	32
1979 e	-	-	-	155	-	155	0	-	0	155	-	155
1980	-	-	-	f	-	f	f	-	f	30	-	30
1981	-	-	-	0	-	0	0	-	0	0	-	0
1982	-	-	-	0	-	0	15	-	15	15	-	15
1983	-	-	-	0	-	0	0	-	0	0	-	0
1984	-	-	-	412	-	412	683	-	683	1,095	-	1,095
1985	-	-	-	153	-	153	785	-	785	938	-	938
1986	-	-	-	0	-	0	0	-	0	0	-	0
1987	-	-	-	0	-	0	0	-	0	0	-	0
1988	-	-	-	2	-	2	0	-	0	2	-	2
1989	-	-	-	0	-	0	3	-	3	3	-	3
1990	-	-	-	0	0	0	0	0	0	0	0	0
1991	-	-	-	11	0	11	3	0	3	14	0	14
1992	-	-	-	0	0	0	0	0	0	0	0	0
1993	-	-	-	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	-	-	-	3	-	3	1	-	1	4	-	4

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

b Pounds of salmon roe sold. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by period, by statistical area and gear type.

d In 1977, was the last year Subdistrict 4-A (Statistical Area 334-41), by regulation, was allowed a late season.

e In 1979, Statistical Area 334-42 was subdivided into Statistical Areas 334-42 and 334-43.

f Information not available by statistical area.

Appendix C.20. Commercial coho salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B and 5-C, Upper Yukon Area, 1974-1993.

Year	334-51			334-52			334-53			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	d	-	d	d	-	d	d	-	d	1,409	-	1,409
1975	5	-	5	0	-	0	-	-	-	5	-	5
1976	0	-	0	0	-	0	-	-	-	0	-	0
1977	2	-	2	0	-	0	-	-	-	2	-	2
1978	1	-	1	0	-	0	-	-	-	1	-	1
1979	0	-	0	0	-	0	-	-	-	0	-	0
1980	0	-	0	0	-	0	-	-	-	0	-	0
1981 e	0	-	0	0	-	0	0	-	0	0	-	0
1982	0	-	0	0	-	0	0	-	0	0	-	0
1983	0	-	0	0	-	0	0	-	0	0	-	0
1984	0	-	0	0	-	0	0	-	0	0	-	0
1985	0	-	0	0	-	0	0	-	0	0	-	0
1986	0	-	0	0	-	0	0	-	0	0	-	0
1987	0	-	0	0	-	0	0	-	0	0	-	0
1988	0	-	0	0	-	0	0	-	0	0	-	0
1989	0	-	0	0	-	0	84	-	84	84	-	84
1990	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	0	0	0	0	0	0	17	0	17	17	0	17

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

b Pounds of salmon roe sold. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d Information not available by statistical area.

e In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54). In 1990, Subdistrict 5-D (Statistical Area 334-54) was further subdivided into Statistical Areas 334-54 and 334-55.

Appendix C.21. Commercial coho salmon sales and estimated harvest by statistical area, Subdistrict 5-D, Upper Yukon Area, 1974-1993.

Year	334-54			334-55			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-
1977	-	-	-	-	-	-	-	-	-
1978	-	-	-	-	-	-	-	-	-
1979	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	-
1981 d	0	-	0	-	-	-	0	-	0
1982	0	-	0	-	-	-	0	-	0
1983	0	-	0	-	-	-	0	-	0
1984	0	-	0	-	-	-	0	-	0
1985	0	-	0	-	-	-	0	-	0
1986	0	-	0	-	-	-	0	-	0
1987	0	-	0	-	-	-	0	-	0
1988	8	-	8	-	-	-	8	-	8
1989	0	-	0	-	-	-	0	-	0
1990 e	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	2	-	2	-	-	-	2	-	2

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

b Pounds of salmon roe sold. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. prior to

1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (Statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54).

e In 1990, Subdistrict 5-D (Statistical Area 334-54) was subdivided into two statistical areas, (Statistical Areas 334-54 and 334-55).

Appendix C.22. Commercial coho salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974 - 1993.

Year	334-61			334-62			334-63			Total		
	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c	Number a	Roe b	Estimated c
1974	d	-	d	d	-	d	d	-	d	1,479	-	1,479
1975	0	-	0	0	-	0	53	-	53	53	-	53
1976	d	-	d	d	-	d	d	-	d	1,103	-	1,103
1977	252	-	252	766	-	766	266	-	266	1,284	-	1,284
1978	521	-	521	2,450	-	2,450	95	-	95	3,066	-	3,066
1979	465	-	465	2,059	-	2,059	267	-	267	2,791	-	2,791
1980	423	-	423	632	-	632	171	-	171	1,226	-	1,226
1981	535	-	535	1,335	-	1,335	414	-	414	2,284	-	2,284
1982	1,004	-	1,004	6,449	-	6,449	327	-	327	7,780	-	7,780
1983	745	-	745	5,048	-	5,048	375	-	375	6,168	-	6,168
1984	1,608	-	1,608	5,360	-	5,360	720	-	720	7,688	-	7,688
1985	432	-	432	9,628	-	9,628	1,702	-	1,702	11,762	-	11,762
1986	30	-	30	370	-	370	41	-	41	441	-	441
1987	0	-	0	0	-	0	0	-	0	0	-	0
1988	1,240	-	1,240	10,372	-	10,372	2,360	-	2,360	13,972	-	13,972
1989	2,818	-	2,818	10,181	-	10,181	3,085	-	3,085	16,084	-	16,084
1990	3,173	0	3,173	7,096	3,559	9,951	1,280 a	483	1,680	11,549	4,042	14,804
1991	0	0	0	4,572	3,737	7,620	1,696	562	2,154	6,268	4,299	9,774
1992	0	0	0	5,731	1,267	6,800	825	413	1,179	6,556	1,680	7,979
1993	0	0	0	0	0	0	0	0	0	0	0	0
Previous Five Year Average 1988-1992	1,446	-	1,446	7,590	-	8,985	1,849	-	2,092	10,886	-	12,523

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

b Pounds of salmon roe sold. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 6 sampling program that estimated average roe weight per female by period.

d Information not available by statistical area.

e Does not include 438 female coho salmon sold with roe extracted and roe sold separately. Females are accounted for in the roe expansion calculation.

Appendix C.23. Value of commercial salmon fishery to Upper Yukon Area fishermen, 1977-1993.

Year	Chinook		Chum			Fall Chum		Coho		Total Value
	\$/lb	Value	\$/lb	\$/Roe	Value	\$/lb	Value	\$/lb	Value	
1977	1.37	148,768	0.27	2.66	306,481	0.22	102,170	0.27	2,251	559,668
1978	0.87	66,472	0.24	N/A	655,738	0.25	103,091	0.24	6,105	831,406
1979	1.00	124,230	0.25	3.00	444,924	0.29	347,814	0.25	6,599	923,567
1980	0.85	113,662	0.23	2.50	627,249	0.27	198,088	0.29	2,374	941,373
1981	1.00	206,380	0.20	3.00	699,876	0.35	356,805	0.35	4,568	1,267,629
1982	1.02	162,699	0.18	2.75	452,837	0.28	53,258	0.37	18,786	687,580
1983	1.08	105,584	0.16	1.66	281,883	0.19	128,950	0.31	11,472	527,889
1984	0.95	102,354	0.23	1.78	382,776	0.26	103,417	0.24	12,823	601,370
1985	0.86	82,644	0.23	1.94	593,801	0.25	178,125	0.33	26,797	881,367
1986	0.89	73,363	0.22	2.08	634,091	0.14	30,309	0.21	556	738,319
1987	0.79	136,196	0.19	2.22	323,611	-	0	-	0	459,807
1988	1.04	142,284	0.23	4.33	1,213,991	0.32	151,300	0.37	34,116	1,541,691
1989	0.84	108,178	0.24	4.41	1,377,117	0.28	223,996	0.35	33,959	1,743,250
1990	0.72	105,295	0.11	4.41	506,611	0.34	174,965	0.34	37,026	823,897
1991	0.70	97,140	0.18	4.21	627,177	0.23	157,831	0.30	21,556	903,704
1992	0.91	168,999	0.30	4.53	525,204	0.39	54,161	0.39	19,529	767,893
1993	1.06	113,217	0.35	8.53	203,762	-	0	-	0	316,979
5 Yr Avg 1989-199	0.79	119,903	0.21	4.39	759,027	0.31	152,738	0.35	28,018	1,059,686

Appendix C.24. Summary of test fishing projects conducted in the Upper Yukon Area, 1993.

a: Location:

1. North Bank Tanana Test Fish Wheel is located on the north bank of the Yukon River approximately one mile upstream from the village of Tanana.
2. South Bank Tanana Test Fish Wheel is located on the south Bank of the Yukon River approximately 7 miles down stream of the mouth of the Tanana River across from the village of Tanana.
3. Manley Test Fish Wheel is located on the north bank of the Tanana River near the village of Manley Hot Springs.
4. Nenana Test Fish Wheel is located on the north bank of the Tanana River approximately 15 miles below the village of Nenana.

b: Objective:

1. To provide inseason information from which estimates of the run timing, species composition pass the test fish wheel site. Test fish wheel catches also provide limited information on the strength of the run.

c: Results:

1. The North Bank Tanana Test Fish Wheel operated from September 13 through October 8, 1993. During the operation of the test fish wheel , it was estimated that a total of 435 fall chum salmon and 110 coho salmon were caught.
2. The south Bank Tanana Test Fish Wheel operated from September 133 through October 5, 1993. During the operation of the test fish wheel, it was estimated that a total of 6,117 fall chum and 2,510 coho salmon were caught.
3. The Manley Test Fish Wheel operated from July 8 through August 13 and from August 21 through September 5, 1993. During the operation of the test fish wheel, it was estimated that a total of 1,022 chinook, 2,378 summer chum, 9,958 fall chum and 1,200 coho salmon were caught.
4. The Nenana Test Fish Wheel operated from August 18 through October 5, 1993. During the operation of the test fish wheel, it was estimated that a total of 4,228 fall chum and 2,553 coho salmon were caught.

APPENDIX D

YUKON RIVER SALMON SUBSISTENCE AND PERSONAL USE

Appendix D 1 Estimated Yukon River chinook salmon subsistence harvest in numbers of fish by village, 1982-1993. a

Village	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1984-1988 Average	1989-1993 Average
Sheldon Pt	79	1,021	802	143	592	1,173	302	165	758	445	388	561	602	463
Alakanuk	338	1,582	1,028	517	1,027	1,180	738	820	871	1,044	623	2,592	808	1,184
Emmonak	1,328	2,436	2,099	1,382	1,754	2,518	1,786	1,588	1,873	1,311	2,339	4,372	1,808	2,298
Kollik	568	1,224	895	1,029	1,902	2,407	1,112	1,982	3,119	3,125	1,794	2,813	1,420	2,587
Retained From Commercial												15		
Mouth to Anuk River Subtotal	2,311	6,263	4,624	3,071	5,275	7,278	3,938	4,565	8,619	5,926	5,141	10,423	4,837	6,535
Mt. Village	218	1,875	1,217	872	1,367	2,252	740	2,001	1,792	1,171	1,249	3,217	1,250	1,888
Pikas Pt/St. Marys	985	2,432	2,853	778	1,717	2,457	1,378	2,184	2,476	2,498	2,804	3,043	1,799	2,559
Pilot Station	428	2,703	1,116	886	1,452	2,593	674	1,498	3,786	2,681	1,818	2,661	1,345	2,489
Marshall	478	2,055	2,178	1,122	1,847	2,564	1,031	1,484	1,492	1,277	1,403	2,592	1,768	1,646
Retained From Commercial												3		
Anuk River to Owl Slough Subtotal	2,109	9,065	7,172	3,468	6,483	9,866	3,823	7,147	8,546	7,617	7,074	11,516	6,182	8,578
Russian Mission	1,828	2,634	1,938	974	1,747	2,036	1,850	2,367	1,894	1,345	1,282	3,273	1,709	1,693
Holy Cross	1,731	2,276	2,456	2,368	2,505	2,625	2,593	2,379	2,337	1,649	3,481	3,191	2,509	2,808
Retained From Commercial												10		
Owl Slough to Bonasila R. Subtotal	3,359	4,910	4,394	3,342	4,252	4,661	4,443	4,746	4,031	2,996	4,773	6,474	4,218	4,198
Lower Yukon Total	7,779	20,238	16,180	8,881	16,010	21,805	12,204	16,458	20,196	16,540	16,988	28,413	15,218	18,312
Aivik	354	744	576	406	959	428	211	418	451	619	388	663	516	514
Gwaying	294	951	879	903	1,837	1,322	1,571	1,082	144	874	1,074	1,045	1,302	844
Kaliag	344	652	487	688	1,080	1,117	1,168	1,306	2,244	1,885	1,084	1,260	904	1,552
Nulato	811	1,135	956	1,063	1,835	1,573	1,985	2,079	2,788	2,500	1,696	1,680	1,485	2,125
Koyukuk	403	956	1,009	194	569	609	711	1,003	876	885	510	853	618	825
Galena	735	1,477	1,226	1,329	1,045	1,270	1,982	1,374	3,134	2,574	1,870	1,732	1,371	2,137
Ruby/Koknes	1,168	2,348	1,107	1,857	1,263	927	1,402	1,016	811	971	498	3,263	1,271	1,312
Retained From Commercial												978		
Bonasila R. to Inhos Cr. Subtotal	4,199	8,271	6,290	6,220	8,589	7,246	9,031	8,278	10,478	10,289	7,021	11,454	7,467	8,019
Shageluk					53	47	104	32	62	189	218	128	41	126
Innos River Subtotal														
Huslia	125	459	160	144	82	182	89	177	198	198	751	232	133	311
Hughes	479	318	856	778	298	177	29	181	90	148	29	88	427	107
Aitakaket/Alatna o Beffles	274	708	375	283	563	309	368	438	356	451	437	139	379	354
Retained From Commercial								0	0	16	53	1		14
Koyukuk River Subtotal	678	1,483	1,400	1,205	941	668	484	796	844	811	1,270	460	940	756
District 4 Subtotal	5,077	9,754	7,650	7,425	9,583	7,961	9,618	9,106	11,184	11,289	8,508	12,042	8,448	9,941

Continued.

Village	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1984-1988 Average	1989-1993 Average
Tanana	2,230	5,547	2,682	1,248	1,672	4,021	3,537	3,008	2,284	2,483	2,477	3,362	2,632	2,723
Rampart	887	1,070	878	1,302	1,700	2,815	3,145	3,177	1,481	988	2,802	1,956	1,968	2,081
Fairbanks (permits) d e	1,935	2,872	2,499	1,865	1,762	613	0	200	420	982	1,394	1,514	1,348	902
Sievens Village	1,810	2,531	2,177	2,783	2,839	2,076	2,845	3,101	1,295	2,035	1,887	1,754	2,540	2,014
Birch Creek							0 b	0		196	44	0	0	48
Beaver	250	220	553	506	708	466	840	1,694	721	713	1,564	1,557	635	1,250
Fl. Yukon	1,884	1,887	3,808	2,900	3,083	3,950	2,245	4,898	4,051	5,585	4,122	6,361	3,157	5,003
Circle/Central (permits) e	969	648	545	2,258	2,233	1,614	2,034	1,785	1,951	1,871	1,752	955	1,737	1,663
Eagle (permits) e	2,664	2,183	1,898	2,247	1,915	1,988	2,333	2,385	1,742	1,193	1,040	753	2,096	1,423
Other (permits) e, f									815	374	571	437	0	483
Retained From Commercial												748		
<i>Illinois Cr. to U.S. Can. Border</i> Subtotal	12,839	16,758	14,938	15,090	15,912	17,543	17,079	20,248	14,580	16,420	17,653	19,395	16,112	17,569
Venetie	20	22	51		32	13	121	88	29	9	35	2,716	43	575
Chalkyitsik					0	0	0	0	0	0	3	0	0	1
<i>Chandalar/Black Rivers</i> Subtotal	20	22	51		32	13	121	88	29	9	38	2,716	43	576
<i>District 5</i> Subtotal	12,859	16,780	14,989	15,090	15,944	17,556	17,200	20,336	14,589	16,429	17,691	22,111	16,156	18,231
Manley g	386	990	282	744	621	40	572	992	1,169	401	551	238	452	737
Minto g	411	275	440	1,386	350	374	466	368	100	134	142	468	603	242
Nemana g	1,195	866	2,556	4,919	2,093	3,151	3,846	1,188	1,265	1,599	1,287	693	3,313	1,833
Fairbanks (permits) e, h	451	475	321	326	637	531	0	0	84	378	402	273	363	173
Other g, i							0	0	0	3	76	0	0	18
Retained From Commercial												1,037		
<i>Tanana River</i> Subtotal	2,443	2,706	3,599	7,375	3,701	4,096	4,884	2,546	2,618	2,515	2,438	2,709	4,731	3,000
Upper Yukon Total	20,379	29,240	26,238	29,890	29,228	29,613	31,703	31,988	28,391 k	30,233 k	28,638 k	36,862 k	29,334	31,173
Alaska Total	28,158	49,478	42,428	39,771	45,238	51,418	43,907	48,446	48,587	46,773	45,626	65,275	44,562	50,485

a 1981-1981 data available from 1981 Yukon Area Annual Management Report. Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households.

b The village was not surveyed, harvest estimates were calculated from calendar and post card replies.

c Alatna combined with Allakaket.

d Catches by Fairbanks subsistence permit holders that fished in District 5 near the Yukon River bridge crossing.

e Salmon catches expanded for permits not returned and household interviews (1981-1989). Beginning in 1990, reported harvest is from returned permits only.

f Other permit holders that fished in District 5 but did not reside in the villages listed.

g Permits required beginning in 1988 for Subdistricts 6-A and 6-B. In 1988 and 1989, permit and household interview data were expanded. Beginning in 1990, reported harvest is from returned permits only.

h Catches by Fairbanks subsistence permit holders that fished in the Tanana River. Permits required beginning in 1964 for the Tanana River upstream of Wood River.

i Other permit holders that fished in District 6 but did not reside in the villages listed.

k Estimated chinook salmon carcasses available for subsistence use as a by product of commercial roe sales are documented in total utilization tables.

Appendix D 2 Estimated Yukon River summer chin salmon subsistence harvest in numbers of fish by village, 1982-1993 a

Village	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1984-1988	1989-1993
													Average	Average
Sheldon Pt	885	1,090	2,701	1,717	4,755	2,460	2,589	4,314	1,458	2,226	1,415	2,362	2,844	2,356
Alakanuk	5,225	9,347	10,095	7,702	11,280	9,913	6,992	12,108	7,265	8,058	9,951	8,935	9,196	9,263
Emmonak	8,426	8,401	10,063	8,742	12,618	11,177	10,528	22,985	15,215	8,401	12,296	15,568	10,624	14,893
Kolik	3,816	5,241	5,610	6,188	10,201	7,210	8,825	13,437	13,061	9,105	9,577	7,121	7,607	10,460
Retained From Commercial												296		
Mouth to Anuk River Subtotal	18,452	24,678	28,469	24,349	38,954	30,760	28,934	52,844	36,999	27,790	33,239	34,285	30,271	36,972
Mt Village	3,854	10,183	8,855	6,745	11,468	12,456	9,248	15,889	9,950	4,743	7,894	10,505	9,716	9,788
Pikas Pt/St. Marys	9,405	8,569	11,019	7,556	14,986	12,402	10,501	13,124	9,515	9,284	8,555	7,406	11,293	9,577
Pilot Station	2,135	4,693	3,236	3,133	7,870	4,279	4,242	6,783	8,606	4,634	6,236	5,841	4,552	5,968
Marshall	3,048	3,961	4,076	2,361	7,172	3,997	4,796	3,927	2,290	2,042	2,076	1,745	4,480	2,416
Retained From Commercial												120		
Anuk River to Owl Slough Subtotal	18,442	27,396	26,966	19,795	41,496	33,134	28,787	39,703	26,453	20,703	24,731	25,417	30,042	27,777
Russian Mission	1,419	1,576	2,227	1,817	3,136	2,283	2,784	2,229	2,146	837	3,331	1,838	2,451	2,076
Holy Cross	4,421	3,033	5,124	1,870	2,362	1,878	3,036	1,753	857	1,028	1,001	1,517	2,080	1,231
Retained From Commercial												21		
Owl Slough to Bonasila R. Subtotal	5,840	4,609	7,351	3,687	5,528	4,161	5,820	3,982	3,003	1,865	4,332	3,376	5,311	3,307
Lower Yukon Total	42,734	56,684	62,806	47,831	85,878	68,055	63,551	96,529	68,455	50,358	62,302	63,078	65,624	68,056
Anvik	27,087	20,582	22,433	24,850	41,581	28,887	12,007	410	2,032	878	1,142	1,735	25,082	1,239
Grayling	47,006	22,958	28,080	23,837	35,284	21,264	22,634	14,570	1,430	8,094	3,605	1,137	26,236	5,787
Kaltag	37,125	27,674	1,800	26,965	24,067	28,550	3,592	632	6,956	2,287	1,204	1,116	17,115	2,439
Nulato	19,740	11,130	232	16,315	10,348	16,299	10,201	200	502	159	898	15	10,679	353
Koyukuk	18,149	14,440	5,215	9,888	6,250	9,718	284	381	263	2,328	1,130	230	8,227	870
Galena	20,434	5,789	19,480	16,212	6,618	11,776	7,413	6,216	1,780	3,483	3,232	2,477	12,300	3,436
Ruby/Kolnnes	7,539	8,804	4,262	13,556	7,883	8,786	4,010	1,844	351	1,352	2,420	1,459	7,703	1,485
Retained From Commercial														
Bonasila R. to Minors Cr Subtotal	177,090	111,387	61,502	131,601	132,632	125,280	60,741	24,253	13,314	18,587	13,622	8,169	105,351	15,589
Shageluk					6,710	8,015	8,779	8,842	6,518	3,680	5,267	4,183	4,701	5,698
Innoko River Subtotal														
Hana	6,809	18,588	12,550	13,430	10,516	11,042	14,895	10,005	7,368	7,857	13,670	8,343	12,487	9,449
Hughes	8,409	1,905	14,744	12,788	7,280	4,389	2,445	3,087	509	1,257	1,625	827	8,325	1,581
Atkasook/Alatna b	7,687	4,165	4,186	7,564	8,934	8,700	8,524	2,915	5,319	7,413	6,858	2,703	7,576	5,042
Bettles								75	24	155	37	34	0	85
Kgyukuk River Subtotal	22,605	24,658	31,463	33,782	26,730	24,111	25,864	16,882	13,220	16,682	22,190	11,907	28,390	16,136
District 4 Subtotal	199,985	136,045	112,965	165,383	186,072	157,406	95,384	49,777	33,662	38,949	41,079	24,259	136,442	37,423

Continued

Village	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1984-1988 Average	1989-1993 Average
Tanana	3,214	5,552	10,620	11,148	11,646	10,876	13,972	7,756	5,905	2,779	4,553	4,245	11,652	5,048
Rampart	0	3,698	7,650	5,133	1,450	2,434	3,383	28	58	20	4,494	1,489	4,010	1,218
Fairbanks (permits) c, d	2,056	2,194	4,065	2,027	1,382	1,493	0	0	25	1,068	706	465	1,793	453
Stevens Village	666	5,051	5,952	3,046	3,116	1,446	865	2,375	1,671	1,385	460	653	2,885	1,309
Beaver	534	100	167	263	0	657	214	124	108	2,355	12	134	260	547
Ft. Yukon	1,434	7,142	3,032	4,410	3,264	1,187	7,717	1,760	145	11,974	1,700	3,830	3,922	3,882
Circle/Central (permits) d	0	73	0	930	459	2,078	871	351	1,267	51	356	85	868	424
Eagle (permits) d	1,887	133	49	39	516	497	1,273	547	361	607	23	32	459	314
Other (permits) d, e									187	32	291	24	0	107
Retained From Commercial												159		
<i>Illinois Cr. to U.S. Can. Border</i>														
<i>Subtotal</i>	9,791	23,943	31,535	26,996	21,833	20,588	28,295	12,951	9,727	20,271	12,595	11,116	25,849	13,300
Venette	0	0	0	0	0	0	701	30	0	3,393	0	129	140	710
Chalkyitsik					0	0	327	0	90	500	17	0	65	121
<i>Chandalar/Black Rivers</i>														
<i>Subtotal</i>	0	0	0	0	0	0	1,028	30	90	3,893	17	129	206	832
<i>District 5 Subtotal</i>	9,791	23,943	31,535	26,996	21,833	20,588	29,323	12,981	9,817	24,164	12,612	11,245	26,055	14,132
Manley f	871	7,245	1,260	856	604	287	3,731	2,457	2,250	1,716	850	1,310	1,344	1,717
Minto f	808	7,414	5,042	5,291	1,587	1,383	947	1,425	500	748	625	367	2,850	733
Nenana f	3,972	6,779	13,962	15,825	10,827	21,214	5,654	3,986	1,383	1,499	6,372	5,019	13,496	3,652
Fairbanks d, g	2,708	2,276	3,177	2,646	4,024	1,461	0	0	152	1,096	1,342	97	2,262	537
Other f, h							0	0	0	10	315	0	0	65
Retained From Commercial												5		
<i>Tanana River</i>														
<i>Subtotal</i>	8,459	23,714	23,441	24,618	17,042	24,325	10,332	7,868	4,285	5,089	9,504	6,798	19,952	6,704
Upper Yukon Total i	218,235	183,702	167,941	216,997	204,947	202,319	135,039	70,626	47,154	68,182	63,195	42,302	185,449	58,259
Alaska Total	260,969	240,386	230,747	264,828	290,825	270,374	198,590	167,155	115,609	118,540	125,497	105,380	251,073	126,315

a 1961-1981 chum salmon data available from 1981 Yukon Annual Management Report. Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. District 4 summer chum salmon subsistence harvest estimates prior to 1988 and Districts 5 and 6 prior to 1989 included commercially caught summer chum salmon carcasses retained for subsistence use. Beginning in 1988 and 1989, efforts were made to exclude commercial carcasses from subsistence harvest estimates.

b Alaina combined with Allakaket

c Catches by Fairbanks subsistence use permit holders that fished in District 5 near the Yukon River bridge crossing.

d Salmon catches expanded for permits not returned and household interviews (1981-1989). Beginning in 1990, reported harvest is from returned permits only.

e Other permit holders that fished in District 5 but did not reside in the villages listed

f Permits required beginning in 1988 for Subdistricts 6-A and 6-B. In 1988 and 1989, permit and household interview data were expanded. Beginning in 1990, reported harvest is from returned permits only

g Catches by Fairbanks subsistence use permit holders that fished in the Tanana River. Permits required beginning in 1964 for the Tanana River upstream of Wood River

h Other permit holders that fished in District 6 but did not reside in the villages listed

i Estimated summer chum salmon carcasses available for subsistence use as a by product of commercial roe sale are documented in total utilization tables

Appendix D.3 Estimated Yukon River fall chum salmon subsistence harvest in numbers of fish by village, 1982-1993. a

Village	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1984-1988 Average	1989-1993 Average
Sheldon Pt	886	233	555	713	259	882	289	586	102	84	490	158	540	284
Alokanuk	1,338	903	1,219	2,803	2,030	3,748	1,184	430	287	183	401	182	2,159	295
Emmonak	4,458	2,715	3,329	4,539	2,746	8,160	1,792	840	2,353	2,027	1,628	1,507	4,113	1,671
Kotlik	3,338	4,367	3,762	5,420	3,865	5,677	2,200	3,058	2,613	1,621	2,687	5,923	4,209	3,184
<i>Mouth to Anuk River Subtotal</i>	10,016	8,238	8,895	13,275	9,000	18,467	5,475	4,914	5,335	3,935	5,216	7,770	11,020	5,434
MR. Village	2,810	4,085	3,497	3,591	2,947	4,897	1,880	4,641	1,566	1,473	1,052	1,113	3,262	1,569
Pitkas Pt./St. Marys	2,386	3,138	3,827	3,315	5,401	3,966	2,532	1,970	956	2,202	77	708	3,828	1,183
Pilot Station	1,568	1,302	832	1,957	1,863	563	1,372	1,872	1,941	1,062	3,526	1,017	1,281	1,884
Marshall	2,747	1,836	3,138	2,681	3,472	4,008	2,815	1,532	1,724	891	2,727	256	3,223	1,426
<i>Anuk River to Owl Slough Subtotal</i>	9,511	10,341	11,394	11,544	13,483	13,454	8,600	10,015	6,187	5,628	7,382	3,064	11,695	6,461
Russian Mission	630	773	860	1,266	637	1,255	1,151	308	878	425	648	172	1,034	488
Holy Cross	1,029	2,090	1,373	1,024	1,148	1,596	596	711	1,178	190	845	1,066	1,148	798
<i>Owl Slough to Bonasila R. Subtotal</i>	1,659	2,863	2,233	2,290	1,785	2,853	1,747	1,019	2,056	615	1,493	1,238	2,182	1,284
Lower Yukon Total	21,186	21,442	22,512	27,109	24,268	34,774	15,822	15,948	13,578	10,178	14,091	12,102	24,897	13,179
Anvik	4,088	902	720	2,125	913	394	136	168	583	452	894	420	858	503
Graling	2,972	3,847	1,950	3,106	4,204	4,750	1,700	630	1,405	3,816	2,903	2,083	3,154	2,185
Katag	812	2,833	1,330	1,570	2,024	7,474	2,293	1,694	2,327	2,834	2,522	704	2,938	2,908
Nulato	217	3,159	1,675	4,240	1,762	2,300	1,673	2,436	3,548	1,637	1,910	571	2,310	2,020
Koyukuk	1,355	1,120	1,560	798	2,195	2,492	587	2,460	860	2,761	2,817	2,052	1,526	2,190
Galena	2,164	4,259	7,270	4,476	4,818	10,509	4,308	6,438	3,202	5,525	2,389	3,255	6,276	4,182
Ruby/Kokines	6,662	12,319	8,505	6,717	7,101	11,000	5,171	6,589	3,352	2,856	4,499	1,085	7,699	3,678
<i>Bonasila R. to Athol's Cr. Subtotal</i>	18,270	28,439	23,010	23,032	23,016	38,819	15,928	20,583	15,275	19,681	18,028	10,170	24,761	16,747
Shageluk				0	370	434	0	4	0	0	865	211	161	216
<i>Innoko River Subtotal</i>				0	370	434	0	4	0	0	865	211	161	216
Hustlin	102	3,528	6,306	276	808	585	1,697	1,728	846	411	1,286	258	1,934	806
Hughes	1,231	327	1,280	1,260	1,422	586	311	260	70	270	325	189	972	219
Allakaket/Alatna t/ Bettles	716	1,915	556	707	878	1,477	443	1,969	3,050	513	1,579	235	812	1,469
<i>Koyukuk River Subtotal</i>	2,049	5,770	8,142	2,243	3,108	2,548	2,451	3,957	3,966	1,194	3,204	662	3,718	2,597
District 4 Subtotal	20,319	34,209	31,152	25,275	26,496	41,901	18,279	24,544	19,241	20,875	22,097	11,043	26,641	19,590

Continued

Village	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1984-1988 Average	1989-1993 Average
Tanana	31,470	41,630	42,690	28,113	32,049	41,825	55,998	40,845	41,145	40,868	19,365	23,103	40,135	33,065
Rampart	5,495	5,627	4,395	19,619	3,950	8,092	3,600	2,472	10,818	6,801	5,701	3,272	7,331	5,613
Fairbanks (permits) c, d	9,272	12,865	12,920	13,874	11,708	5,264		7	82	2,022	2,491	930	8,753	1,106
Stevens Village	7,392	3,502	4,932	11,879	4,150	7,538	1,451	6,633	3,857	2,481	150	862	5,950	2,797
Beaver	1,878	6,004	0	1,761	3,321	5,750	96	7,242	757	7	361	692	2,186	1,812
Fl. Yukon	1,926	3,967	7,525	12,719	8,543	15,200	2,766	27,790	11,627	7,467	2,284	2,380	9,351	10,310
Circle/Central (permits) d	290	3,687	3,107	4,096	3,650	7,691	4,396	4,478	6,804	6,413	6,379	349	4,588	4,885
Eagle (permits) d	13,255	20,021	18,519	25,264	16,027	19,678	14,800	11,557	8,027	7,985	5,630	2,070	18,858	7,054
Other (permits) d, e									529	100	0	1,750	0	476
<i>Illinois Cr. to U.S. Can. Border</i>														
Subtotal	70,978	97,303	94,088	117,125	83,398	108,038	83,107	101,024	83,646	73,144	42,361	35,408	97,151	67,117
Venelle	850	7,800	4,345		3,193	2,774	34	7,977	5,377	758	3,066	7,881	2,069	5,012
Chalkyitsik					1,533	2,686	1,068	3,000	1,490	100	274	475	1,057	1,068
<i>Chandalar/Black Rivers</i>														
Subtotal	850	7,800	4,345		4,726	5,460	1,102	10,977	6,867	858	3,340	8,356	3,127	6,080
District 5 Subtotal	71,828	105,103	98,433	117,125	88,124	113,498	84,209	112,001	90,513	74,002	45,701	43,764	100,278	73,196
Manley f	4,444	11,400	2,196	6,560	5,905	4,267	8,899	21,087	25,860	13,243	7,010	3,215	5,165	14,083
Minto f	3,568	6,489	4,025	4,642	545	5,419	2,615	2,005	3,652	5,276	3,017	301	3,449	2,850
Nenana f	9,034	11,685	13,520	22,901	15,902	26,909	26,889	25,340	12,484	17,932	13,253	5,929	21,224	14,984
Fairbanks (permits) d, g	2,518	2,600	2,985	2,860	2,803	0	0	0	309	1,671	1,394	56	1,730	686
Other f, h								10,222	2,283	2,347	1,039	352	0	3,249
<i>Tanana River</i>														
Subtotal	19,564	32,174	22,726	36,963	25,155	36,695	36,403	58,654	44,568	40,469	25,713	9,853	31,568	35,851
Upper Yukon Total i	111,711	171,486	152,311	179,363	139,775	191,994	138,991	195,199	154,322	135,348	93,511	64,660	160,487	128,608
Alaska Total	132,897	192,928	174,823	206,472	164,043	226,768	154,813	211,147	167,900	145,524	107,602	76,762	185,384	141,787

a 1961-1981 chum salmon data available from 1981 Yukon Annual Management Report. Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Includes commercial related harvest to produce roe sold, 1982-1988.

b Alaina combined with Allakaket.

c Catches by Fairbanks subsistence use permit holders that fished in District 5 near the Yukon River bridge crossing.

d Salmon catches expanded for permits not returned and household interviews (1981-1989). Beginning 1990, reported harvest is from returned permits only.

e Other permit holders that fished in District 5 but did not reside in the villages listed.

f Permits required beginning in 1988 for Subdistricts 6-A and 6-B. In 1988 and 1989, permit and household interview data were expanded. Beginning in 1990, reported harvest is from returned permits only.

g Catches by Fairbanks subsistence permit holders that fished in the Tanana River. Permits required beginning in 1964 for the Tanana River upstream of Wood River.

h Other permit holders that fished in District 6 but did not reside in the villages listed.

i Estimated fall chum salmon carcasses available for subsistence use as a by product of commercial roe sales are documented in total utilization tables.

Appendix D.4. Estimated Yukon River coho salmon subsistence harvest in numbers of fish by village, 1982-1993. a

Village	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1984-1988 Average	1989-1993 Average
Sheldon Pt.	1,770	170	245	48	237	308	189	467	78	35	441	78	202	224
Alakanuk	1,313	438	776	894	1,518	1,116	634	334	156	391	866	138	988	397
Emmonak	4,795	1,290	3,859	1,552	732	3,497	1,578	1,259	1,283	801	866	196	2,204	841
Kotik	3,314	1,692	1,415	751	238	1,475	2,006	2,997	1,784	581	3,353	1,931	1,177	2,129
<i>Mouth to Anuk River Subtotal</i>	11,192	3,590	6,095	3,246	2,725	6,396	4,389	5,077	3,301	1,808	5,428	2,343	4,570	3,591
Mt. Village	3,025	2,500	982	1,527	828	2,481	1,314	2,365	1,754	868	1,971	447	1,426	1,465
Pitkas Pt/St. Marys	2,783	1,529	2,024	1,113	4,832	1,740	3,147	971	515	1,817	2,771	451	2,571	1,265
Pilot Station	2,644	638	1,114	710	1,514	300	876	379	1,968	553	300	477	903	735
Marshall	1,777	1,405	2,946	1,484	1,966	2,373	1,787	1,304	2,107	259	1,545	320	2,107	1,107
<i>Anuk River to Owl Slough Subtotal</i>	10,229	6,072	7,066	4,834	9,140	6,894	7,104	5,039	6,344	3,297	6,587	1,695	7,006	4,592
Russian Mission	158	540	740	276	679	423	804	20	688	396	1,148	152	544	481
Holy Cross	519	377	0	100	102	259	935	517	338	944	105	68	279	398
<i>Owl Slough to Bonasila R. Subtotal</i>	675	917	740	376	781	682	1,539	537	1,026	1,340	1,253	240	824	879
Lower Yukon Total	22,096	10,579	13,901	8,456	12,646	13,972	13,032	10,653	10,671	6,445	13,268	4,278	12,401	9,063
Anvik	58	250	40	272	296	405	97	40	238	347	202	115	222	188
Grayling	1,014	1,275	97	0	890	599	692	969	10	1,363	859	164	450	673
Katbag	62	0	0	0	229	0	0	792	501	1,260	2,105	334	46	998
Nulato	78	0	0	510	69	85	234	276	845	75	435	37	180	334
Koyukuk	187	40	200	120	154	894	10	110	162	307	1,877	70	276	505
Galena	347	759	452	1,072	485	1,349	1,029	415	572	422	1,398	124	873	588
Ruby/Kokrine	867	1,122	1,631	1,719	339	0	2,169	1,069	974	410	1,299	308	1,172	812
<i>Bonasila R. to Illinois Cr. Subtotal</i>	2,611	3,446	2,420	3,693	2,412	3,332	4,231	3,671	3,300	4,184	8,175	1,152	3,218	4,096
Shageluk														
<i>Innoko River Subtotal</i>					173	72	128	0	0	0	296	39	75	67
Huska	17	475	12	0	31	124	201	150	235	150	233	9	74	155
Hughes	0	0	400	138	0	0	104	91	43	9	21	3	128	33
Allakaket/Alaina b	324	25	35	118	15	23	178	118	36	108	0	3	74	53
Bettles								0	0	0	0	0	0	0
<i>Koyukuk River Subtotal</i>	341	500	447	258	48	147	483	359	314	267	254	15	276	242
District 4 Subtotal	2,952	3,946	2,857	3,949	2,631	3,551	4,842	4,030	3,614	4,451	8,725	1,206	3,568	4,405

Continued.

Village	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1984-1988 Average	1989-1993 Average
Tanana	3,260	2,312	16,898	7,384	4,691	6,680	16,922	5,518	8,580	4,448	11,406	5,576	10,515	7,106
Rampart	0	47	120	513	110	81	842	87	591	58	76	38	333	170
Fairbanks (permits) c, d	20	78	254	13	709	6	0	0	5	8	34	0	196	9
Stevens Village	23	0	145	182	67	0	604	208	479	0	20	0	200	141
Beaver	0	0	0	1	124	0	164	774	172	1	398	135	58	296
Ft. Yukon	125	11	33	3	118	41	370	406	727	380	341	5	113	372
Circle/Central (permits) d	0	0	0	0	37	0	41	1	206	6	54	10	16	55
Eagle (permits) d	0	0	17	2	6	0	11	0	0	0	3	85	7	18
Other (permits) d, e							0	165	450	12	0	0	0	125
<i>Illinois Cr. to U.S. Can. Border</i>														
<i>Subtotal</i>	3,428	2,448	17,467	8,098	5,862	6,808	18,954	7,169	11,210	4,912	12,331	5,849	11,438	8,292
Venetie	0	0	0		0	17	0	2	348	12	45	135	3	108
Chalkyitsik					8	2	801	26	4	7	0	0	162	7
<i>Chandalar/Black River</i>														
<i>Subtotal</i>	0	0	0		8	19	801	26	352	19	45	135	166	116
<i>District 5 Subtotal</i>	3,428	2,448	17,467	8,098	5,870	6,827	19,755	7,187	11,562	4,931	12,376	5,984	11,803	8,408
Manley I	837	1,350	1,568	1,926	538	1,467	2,103	5,310	7,574	6,361	4,725	1,535	1,520	5,101
Minto I	1,600	0	800	1,144	1,058	671	2,729	1,179	818	526	614	300	1,280	687
Nenana I	3,076	4,352	10,270	7,614	10,090	19,592	25,369	7,593	7,381	10,171	8,895	1,314	14,587	7,071
Fairbanks (permits) d, g	2,003	1,230	2,149	1,077	1,635	0	0	0	66	2,501	2,281	0	972	970
Other f, h								4,769	1,774	2,002	1,039	1,155	0	2,146
<i>Tanana River</i>														
<i>Subtotal</i>	7,418	6,932	14,785	11,761	13,321	21,730	30,201	18,841	17,613	21,561	17,554	4,304	18,360	15,975
Upper Yukon Total	13,798	13,328	35,119	23,808	21,822	32,108	64,798	30,058	32,789	30,943	38,555	11,494	33,531	28,788
Alaska Total	35,894	23,905	49,020	32,264	34,468	46,080	67,830	40,711	43,460	37,388	51,921	15,772	45,932	37,850

a 1961-1981 coho salmon data available from 1981 Yukon Annual Management Report. Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households

b Alutna combined with Allakaket.

c Catches by Fairbanks subsistence use permit holders that fished in District 5 near the Yukon River bridge crossing.

d Salmon catches expanded for permits not returned and household interviews (1981-1989). Beginning 1990, reported harvest is from returned permits only.

e Other permit holders that fished in District 5 but did not reside in the villages listed.

f Permits required beginning in 1988 for Subdistricts 6-A and 6-B. In 1988 and 1989, permits and household interview data were expanded. Beginning in 1990, reported harvest is from returned permits only.

g Catches by Fairbanks subsistence use permit holders that fished in the Tanana River. Permits required beginning in 1964 for the Tanana River upstream of Wood River.

h Other permit holders that fished in District 6 but did not reside in the villages listed.

i Estimated coho salmon carcasses available for subsistence use as a by product of commercial roe sales are documented in total utilization tables.

Appendix D.5. Estimated subsistence salmon harvest for Scammon and Hooper Bay, 1987-1993.

Year	Scammon Bay				Hooper Bay				Total			
	Chinook	Summer Chum	Fall Chum	Coho	Chinook	Summer Chum	Fall Chum	Coho	Chinook	Summer Chum	Fall Chum	Coho
1987	838	6,200	117	64	2,738	23,468	105	69	3,576	29,668	222	133
1988	489	8,171	551	326	1,099	23,059	1,711	1,523	1,588	31,230	2,262	1,849
1989	-	-	-	-	-	-	-	-	-	-	-	-
1990	-	-	-	-	-	-	-	-	-	-	-	-
1991	-	-	-	-	-	-	-	-	-	-	-	-
1992	948	3,795	79	31	503	12,900	127	28	1,451	16,695	206	59
1993	1,199	4,692	7	40	230	16,106	113	0	1,429	20,798	120	40

Appendix D.6. Subsistence salmon catches taken under authority of a permit in District 5, Upper Yukon Area.
1974-1993. a

Upper Yukon River (Hess Creek to Dall River) Subsistence Salmon Fishery b							
Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches c	Chinook	Summer Chum d	Fall Chum d	Coho
1974	29	e	e	591		1,857	1,271
1975	19	e	e	727		778	70
1976	28	e	18	531		974	e
1977	38	e	e	467		2,567	e
1978	57	e	e	1,333		9,735	e
1979	55	e	41	2,194		12,374	e
1980	70	e	67	1,350		6,488	36
1981	57	e	24	1,095		12,034	e
1982	64	e	44	1,935		11,328	20
1983	68	e	46	2,672		15,059	e
1984	67	e	54	4,676		27,869	399
1985	55	e	42	2,618		21,832	33
1986	76	e	58	3,827		18,690	759
1987 f	16	e	14	1,818	2,091	7,631	6
1988	24	21	18	1,747	2,097	3,183	606
1989	26	20	13	2,483	574	1,157	309
1990 g	26	25	16	2,033	3,493	1,109	455
1991	52	46	34	2,529	1,295	3,953	20
1992	45	42	33	2,241	975	2,491	34
1993	49	47	36	3,767	492	2,915	16

Upper Yukon River (22 Mi Slough to U.S./Canada Border) Subsistence Salmon Fishery							
Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches c	Chinook	Summer Chum d	Fall Chum d	Coho
1979	75	e	6	4,063		30,475	114
1980	48	e	39	3,649		18,477	6
1981	71	e	51	4,510		38,333	e
1982	60	e	61	3,833		15,432	e
1983	53	e	52	2,831		23,708	e
1984	58	e	54	2,543		21,675	17
1985	59	e	36	2,419		19,059	2
1986	40	e	52	4,148		20,701	43
1987 f	51	51	58	3,602	2,495	27,369	0
1988	58	57	50	2,783	2,134	9,078	101
1989	59	56	42	1,186	68	7,515	1
1990 g	81	75	54	3,746	1,629	14,992	206
1991	70	69	48	3,219	658	14,898	5
1992	85	79	54	2,984	409	12,009	57
1993	79	79	49	1,910	118	2,419	95

a Salmon catches expanded for permits not returned (1974-1987). Beginning in 1988, reported harvest from returned permits only.

b Includes catches from Stevens Village and Rampart.

c Some fishermen reporting catches did not have permits.

d Summer chum and fall chum salmon undifferentiated from 1974-1986.

e Information not available.

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

g Some fishermen may have had personal use catches due to changes in the subsistence law.

No personal use permits have been issued since 1990.

Appendix D.7. Subsistence salmon catches taken under authority of a permit, in the Tanana River drainage, 1973-1993. a

Tanana River (Subdistrict 6-A) Subsistence Salmon Fishery b, c							
Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1988	28	24	18	845	1,389	9,165	3,455
1989 d	29	28	24 e	651	1,918	25,266	5,292
1990 d	42	38	26	1,369	2,250	27,957	8,408
1991	45	41	31	420	1,716	17,472	8,486
1992	38	35	28	508	450	5,999	5,028
1993 d	42	41	22	331	784	2,617	1,317

Tanana River (Subdistrict 6-B) Subsistence Salmon Fishery							
Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1988	75	66	52	3,721	3,167	18,902	18,906
1989 f	60	51	37 e	455	363	18,506	8,453
1990 f	70	58	38	1,234	1,966	18,332	9,155
1991 f	87	78	51	1,796	2,373	21,629	11,971
1992 f	98	89	57	1,587	7,820	18,782	11,409
1993	99	89	38	1,341	5,976	7,166	2,987

Upper Tanana River (Upstream of Wood River) Subsistence Salmon Fishery							
Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1973	22	g	4	26	771	886	h
1974	70	g	9	38	1,373	1,580	h
1975	36	g	9	32	751	864	h
1976	110	g	9	31	1,314	1,512	h
1977	89	g	33	81	118	607	h
1978	160	g	126	126	2,729	1,188	h
1979	246	g	199	264	2,384	4,459	h
1980	315	g	254	282	3,729	4,059	h
1981	346	g	228	440	3,239	5,770	h
1982	330	g	209	451	2,708	4,521	h
1983	259	g	147	475	2,276	3,830	h
1984	308	g	212	321	3,177	5,134	h
1985	291	g	155	328	2,646	3,937	h
1986	323	g	211	637	4,031	4,437	h
1987 i	217	g	123	531	2,739	0	0
1988	0	0	0	0	0	0	0
1989	2	2	2	5	0	39	0
1990 j	20	19	6	15	69	279	50
1991	157	149	104	299	980	1,368	1,103
1992	160	157	94	343	1,234	932	1,117
1993 k	10	10	8	0	0	5	0

- a Salmon catches expanded for permits not returned (1973-1987). Beginning in 1988, reported harvest from returned permits only.
- b Includes Kantishna River catches.
- c Permit requirement for Subdistricts 6-A and 6-B went into effect in 1988; however, very few permits were issued in 1988, and not all fishermen had permits in 1989.
- d Includes salmon given away as part of the Departments test fishing projects in Manley.
- e Some fishermen reporting catches did not have permits.
- f Includes salmon given away as part of the Departments test fishing projects in Nenana.
- g Information not available.
- h Fall chum and coho salmon were not reported as separate species from 1973-1987.
- i Personal use fishery established for nonrural residents beginning in July of 1987.
- j Some fishermen had both personal use and subsistence permits since the McDowell Decision which became effective July 1990 stated that all Alaskan residents were eligible subsistence participants.
- k Personal use fishery established for those fishing for salmon in this area (fall chum are from incidental subsistence whitefish and sucker permits).

Appendix D.8. Personal use salmon catches taken under authority of a permit in the Lower Yukon Area, and in District 5, Upper Yukon Area, 1987-1993. a

Lower Yukon Personal Use Salmon Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1987	0	0	0			0	
1988	17	14	10	67	416	5	0
1989	26	23	12	286	381	18	59
1990	19	16	15	450	256	60	8
1991	0	0	0	0	0	0	0
1992	Regulations did not provide for a personal use fishery.						
1993	Regulations did not provide for a personal use fishery.						

Upper Yukon River (Hess Creek to Dall River) Personal Use Salmon Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches b	Chinook	Summer Chum	Fall Chum	Coho
1987	42	c	33	1,674	4,262	15,750	58
1988	45	42	35	1,435	567	1,762	103
1989	45	42	32	1,877	295	3,294	82
1990 d	41	36	26	1,529	641	3,723	18
1991	0	0	0	0	0	0	0
1992	Regulations did not provide for a personal use fishery.						
1993	Regulations did not provide for a personal use fishery.						

Upper Yukon River (22 Mi Slough to U.S./Canada Border) Personal Use Salmon Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches b	Chinook	Summer Chum	Fall Chum	Coho
1987	2	2	2	32	0	0	0
1988	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0
1990	4	4	3	164	0	0	0
1991	0	0	0	0	0	0	0
1992	Regulations did not provide for a personal use fishery.						
1993	Regulations did not provide for a personal use fishery.						

a Personal use fishery during 1987 applied to nonrural residents harvesting only fall chum. Beginning in 1988, nonrural personal use fishing applied to all salmon species and reported harvest is from returned permits only. Effective July 1, 1990 all Alaskan residents became eligible for subsistence fishing permits.

b Some fishermen reporting catches did not have permits.

c Information not available.

d Includes personal use catches of two chinook salmon taken by one permittee from a non-permit area below Rampart.

Appendix D.9. Personal use salmon catches taken under authority of a permit in the Tanana River drainage, 1987-1993. a

Tanana River (Subdistrict 6-A) Personal Use Fishery b

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1987	0	0	0			0	
1988	1	1	0	0	0	0	0
1989	1	1	1	0	4	0	0
1990	1	1	0	0	0	0	0
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0
1993	Regulations did not provide for a personal use fishery.						

Tanana River (Subdistrict 6-B) Personal Use Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1987	0	0	0			0	
1988	1	1	1	306	60	40	22
1989	1	1	1	56	220	0	0
1990	4	4	3	9	12	40	35
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0
1993	Regulations did not provide for a personal use fishery.						

Upper Tanana River (Upstream of Wood River) Personal Use Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1987	132 c	d	60 e			3,316	2,465
1988	208	162	120	317	1,182	2,074	1,125
1989	175	160	112	397	991	1,770	731
1990	152	144	102	442	918	1,353	1,120
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0
1993	137	135	81	426	674	163	0

a Personal use fishery during 1987 applied to nonrural residents harvesting only fall chum. Beginning in 1988, nonrural personal use fishing applied to all salmon species and reported harvest is from returned permits only. Effective July 1, 1990 all Alaskan residents became eligible for subsistence fishing permits. In 1993, Upper Tanana River is again a personal use area only.

b Includes Kantishna River catches.

c Represents 60 former subsistence fishermen who were reissued permits to fish fall chum salmon for personal use.

d Information not available.

e Some fishing families used both subsistence and personal-use permits.

Appendix D.10. Subsistence and personal use chum salmon carcasses taken under authority of a permit,
Tanana River drainage, 1973-1993.

Upper Tanana R. (Big Delta area) Subsistence and Personal Use Chum Salmon Carcass Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Fall Chum Carcasses
1973	16	a	8	1,561
1974	21	a	a	1,974
1975	26	a	a	2,573
1976	36	a	a	3,441
1977	46	a	29	5,816
1978	70	a	43	2,517
1979	32	a	25	4,582
1980	57	a	36	4,915
1981	43	a	27	5,030
1982	37	a	13	1,690
1983	45	a	29	5,357
1984	31	a	14	2,353
1985	30	a	14	2,111
1986	27	a	19	2,276
1987 b	20	17	13	1,931
1988 b	22	20	15	2,100
1989 b	12	12	10	1,785
1990 b	7	7	3	750
1991	8	4	3	741
1992	10	10	9	1,897
1993 b,c	0	0	0	0

a Information not available.

b Personal use permits 1987-1990 and 1993, all other years subsistence permits.

c The department did not issue Delta River carcass permits to reduce spawning habitat disturbances.

APPENDIX E

YUKON RIVER SALMON ESCAPEMENT

Appendix E.1. Yukon River salmon interim spawning escapement objectives for selected species and streams, 1993.

Stream	Escapement Goals ^a			
	Chinook	Summer Chum	Fall Chum	Coho
Andreafsky River				
East Fork	>1,500	>109,000		
West Fork	>1,400	>116,000		
Anvik River				
Aerial				
Entire Drainage	>1,300			
Yellow River to McDonald Creek	> 500			
Goblet Creek to McDonald Creek		>356,000		
Sonar ^b		>500,000 ^b		
Nulato River				
North Fork	> 800	> 53,000		
South Fork	> 500			
Hogatza River				
Clear Creek		> 8,000		
Caribou Creek		> 9,000		
Gisasa River	> 600			
Chena River				
Mainstem from Flood Control Dam to Middle Fork	>1,700			
Salcha River				
TAPS to Caribou Creek	>2,500	> 3,500		
Sheenjek River			> 64,000 ^c	
Fishing Branch River (YT, Canada)			50,000-120,000 ^d	
Toklat River			> 33,000 ^c	
Delta River			> 11,000 ^c	>9,000 ^j
Mainstem Yukon River in Y.T., Canada	33,000-43,000 ^{f,g}		> 80,000 ^{g,h}	

^a Index streams have been designated because of their importance as spawning areas and/or by their geographic location with respect to other unsurveyable salmon spawning streams in the general area. Escapement goals represent the approximate number of desired spawners considered necessary to maintain the historical yield from the stocks and are based upon historical performance, i.e., they are predicated upon some measure of historic average. Unless otherwise indicated, escapement goals 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. These survey goals represent the latest review and revision by ADF&G (March 1992), unless otherwise noted.

^b Escapement goals of total spawning abundance based upon sonar, weir mark-and-recapture, or expansions from inseason point estimates.

^c Escapement goals developed by ADF&G for November 1990 U.S./Canada JTC meeting.

^d Escapement goals developed by JTC in October 1987. (see page 42 of the October 6-8, 1987 JTC report).

^f Escapement goals developed by JTC in March 1987. Additionally, a stabilization escapement goal for years 1990-1995 of 18,000 chinook salmon has been agreed to by the U.S. and Canada.

^g Estimated total spawning escapement excluding the Porcupine River (estimated mainstem Yukon River border passage minus Canadian harvests).

^h Escapement goals developed by JTC in November 1990.

^j Escapement goals established by ADG&G in March 1993.

Appendix E.2. Salmon spawning escapement estimates for the Yukon River drainage, 1993.

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chums	Fall Chums	Coho
Andreafsky River						
East Fork	7/11	Good	5,855	10,935	(Few Pink Salmon)	--
West Fork	7/11	Good	2,765	9,111	--	--
Subtotal			8,620	20,046	--	--
Innoko River						
Iditarod River	USFWS		Date not yet available		--	--
Yukon River (Pilot Station)						
Main River (Biosonics Sonar)	6/4-8/31		(137,239) _{pm}	(949,776) _{pm}	(295,303) _{pm}	(40,474) _{pm}
Amvik River						
Aenal Counts						
Mainstem - Goblet Cr to McDonald Cr	7/23	Fair-Poor	1,620	(58,175)	--	--
Mainstem - Yellow Ri to McDonald Cr	7/23	Fair-Poor	(1,525)	--	--	--
Beaver Creek	7/23	Fair-Poor	100	(8,000)	--	--
Bendix Sonar Estimata	6/19-7/25		--	517,409	--	--
Subtotal			1,720	517,409	--	--
Blackburn Creek	7/19	Good	2	1,362	--	--
Rodo River	7/18	Good	529	7,867	--	--
Kattag River - counting tower (4-H You(h))	7/7-29	Partial Cts	145	10,005	--	--
Nutato River						
South Fork	7/22	Good	1,181	5,486	--	--
North Fork (from conflu w/ Yukon)	7/22	Good	1,844	7,682	--	--
Subtotal			3,025	13,148	--	--
Total Lower Yukon River (downstream of Koyukuk River)			14,041	569,837	0	0
Koyukuk River Drainage						
Gisasa River	7/22	Good	1,573	1,581	--	--
Katoof River	7/27	Fair	112	7	--	--
Huslia River	USFWS		Data not yet available		--	--
Oakli River	7/23	Flyover-incomplete		2,027	--	--
Wheeler Creek	7/22	Flyover-incomplete		3,875	--	--
Subtotal			0	5,902	--	--
Hogatza River						
Caribou Creek - upper portion	7/28	Good	--	525	--	--
Kanuti River	USFWS		Data not yet available		--	--
Mathews Slough						
Pocahontus Creek	7/28	Incomplete	0	0	--	--
Indian River	7/28	Incomplete	0	413	--	--
Alatna River						
Helmajack Creek	7/28	Fair	0	14	--	--
Malamute Fork	7/28	Fair	34	12	--	--
Iniakuk River	7/28	Fair	4	139	--	--
Subtotal			38	165	--	--
Henshaw Creek	7/23	Good	330	1,773	--	--
South Fork Koyukuk River	7/23	Fair	260	92	--	--
Jun River	7/23	Fair-Good	161	32	--	--
Subtotal			421	124	--	--
John River - Timber Creek	7/28	Poor	0	0	--	--
Total Koyukuk River			2,474	10,490	0	0

-continued-

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chums	Fall Chums	Coho
Melosi Hot Springs Creek	7/21	Good-Fair	15	590	--	--
Tozilna River	7/21	Good	389	970	--	--
Total Yukon River (downstream of Tanana River)			16,919	581,887	0	0
Lower Tanana River Drainage						
Kantishna River Drainage						
Yokial River (upper index area - aerial)	10/22	Fair	--	--	(16,068)	(30)
Benton Creek (upper spring area)	10/25	Fair	--	--	0	141
Floodplain vic Rdhse a	10/20-25	Good-Fair	--	--	(14,661)	69
Geiger Creek b	10/21	Good	--	--	(5,358)	138
Sushana River b	10/23	Fair-Good	--	--	(1,908)	39
Population Estimate r	10/20-25, 11/12		--	--	26,171	--
Subtotal			--	--	28,171	387
Nenana River Drainage						
(Aerial - Immediately upstream of Tektanika R)	10/4	Early (?)	--	--	75	419
Eastern spring area off Tektanika River vicinity Comma Lake	10/25	Fair	--	--	--	3
Seventeen Mile Slough	10/4	Fair	--	--	352	581
Lost Slough (east floodplain)	10/22	Fair	--	--	0	240
Lost Slough (west floodplain)	10/4	Early (?)	--	--	0	244
Panguingue Creek b	10/12	Fair	--	--	--	4
Lignite Spring b	10/12	Good	--	--	--	41
Subtotal			0	0	427	1,532
Chatanika River (Steese Brdg to Elliot Brdg) a						
Chatanika River	7/23	Good	253	(1)	--	--
Chatanika River	7/26	Fair	(75)	30	--	--
Subtotal			253	30	--	--
Chena River						
Mainstem River (aerial)	7/25	Fair	2,943	168	--	--
MCD to Middle Fk (index area)	7/25	Fair	(2,860)	--	--	--
Slough #1 (Foot survey)	8/16	Good	(0)	(324)	--	--
Slough #2 (Foot survey)	8/16	Good	(0)	(156)	--	--
Slough #3 (Foot survey)	8/17	Good	(0)	(108)	--	--
Slough #4 (Foot survey)	8/17	Good	(0)	(304)	--	--
Population Estimate a	7/1-8/7		(12,241) m	(5,400) m	--	--
Subtotal			2,943	168	--	--
Salcha River						
Mainstem River (aerial)	7/25	Fair	3,636	212	--	--
TAPS to Caribou Cr (index area)	7/25	Fair	(3,562)	--	--	--
Slough #1 (Foot survey)	8/12	Good	(0)	(90)	--	--
Slough #2 (Foot survey)	8/12	Good	(0)	(356)	--	--
Slough #3 (Foot survey)	8/12	Good	(14)	(697)	--	--
Slough #4 (Foot survey)	8/12	Good	(0)	(273)	--	--
Population Estimate a	7/1-8/7		(10,007) m	(5,800) m	--	--
Subtotal			3,636	212	--	--
Total Lower Tanana River			6,832	410	28,598	1,919
Upper Tanana River Drainage						
Mainstem Tanana sloughs						
Open water vic of Little Delta R	11/9	Partial/ice cvr	--	--	253	0
Slough immediately upstream Shaw Creek b	10/13	Poor	--	--	3	0
Sloughs across from Timber a	11/9	Partial/ice cvr	--	--	907	0
Delta River						
Foot Survey (peak count)	11/12	Good	--	--	(19,560)	--
Population Estimate j			--	--	19,857 k	--
Goodpastor River						
Bluff Cabin Slough (BCS)	7/26	Fair	224	0	--	--
Sloughs adjacent to BCS off main Tanana	11/9	Fair	--	--	5,550	1
Clearwater Lake Outlet Slough	11/9	Fair	--	--	440	0
Clearwater Lake Outlet a	11/9	Fair	--	--	2,490	10
Clearwater Lake Outlet a	10/29	Good	--	--	less than 50	550

-continued-

Appendix E.2. (page 3 of 4)

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chums	Fall Chums	Coho
Delta Clearwater River ^u	10/21, 10/29	Good, Good	--	--	751	10,875
Onemile Slough - aerial	11/9	Fair	--	--	1,270	50
Other upper Tanana sloughs from upper end onemile slough to 4 miles upstr.	11/9	Fair	--	--	35	2
Total Upper Tanana River			224	0	31,558	11,488
Total Tanana River			7,058	410	80,154	13,407
Beaver Creek ^u	7/15-24	Good	89	1	--	--
Chandalar River ^r	10/4	Fair	--	--	1,390	--
Porcupine River Drainage						
Sheenjek River						
Bendix Sonar Estimate	8/8-9/28		--	--	43,000 ^m	--
Coleen River ^r	8/18, 10/5	Good, Good	0	0	0	0
Fishing Branch River (aerial)	10/17	Good	--	--	(4,471)	--
Weir Passage ^a	8/31-10/25		--	--	28,707	--
Total Porcupine River			0	0	71,707	0
Yukon River (Eagle)						
Main River HTI Sonar (split beam)			--	(2nd Year - Developmental)	--	--
Total Alaskan Portion of Drainage			24,084	582,298	104,544 ^a	13,407
Yukon Territory Streams ^a						
White River						
Danjek River	10/21	GSI collections	--	--	15	--
Kluana River	10/21	Good	--	--	4,610	--
Koidem River	10/21	Good	--	--	0	--
Subtotal			0	--	4,625	--
Pelly River Drainage						
Ross River	8/20	Good	400	--	--	--
Tatchun Creek ^u	8/19	Good	183	--	--	--
Little Salmon River	8/19	Good	184	--	--	--
Big Salmon River						
Big Salmon Lake to vicinity Souch Cr	8/19	Good	572	--	--	--
Testlin River Drainage						
Mainstem vicinity Boswell Cr	10/29	Good	--	--	555	--
Nisutlin River						
Mainstem (Sidney Cr-100mile Cr)	8/19	Good	339	--	--	--
Wolf River (Wolf Lk-Fish Cr)	8/19	Good	168	--	--	--
Subtotal			507	--	555	--
McIntyre Creek ^a	8/26	Fair	9	--	--	--
Whitehorse Fishway	7/24-??		668 ^p	--	--	--
Michie Creek aerial	8/19	flyover-Poor	(10)	--	--	--
Michie Creek weir	???		(284)	--	--	--
Mainstem Yukon River						
Tatchun Creek to Ft Selkirk	10/23	Fair	--	--	2,620	--
Border Passaga Estimate ^u			(45,027 ^m)	--	(42,290 ^m)	--
Subtotal			--	--	2,620	--
Total Yukon Territory (observed)			2,514	--	36,567 ^a	--
Total Yukon Territory (estimated) ^u			(28,578 ^m)	--	(29,938 ^m)	--
Yukon River Drainage Totals			26,578	582,298	141,051	13,407

-continued-

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chums	Fall Chums	Coho
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- Estimates are from aerial surveys (peak count) unless otherwise indicated; carcass counts included. Data in parentheses not included in totals or subtotals.
- Foot survey.
- Unexpanded (partial) tower counts. Numbers represent "net" upstream movement (i.e., upstream minus downstream passage).
- Combination foot and aerial survey.
- Population estimate based upon survey timing and salmon streamlife data.
- Sport Fish Division estimate.
- Boat survey.
- Population estimate based upon expanded counting tower observations.
- Population estimate based upon replicate foot surveys and salmon streamlife data.
- The 95% Confidence Interval on the estimate is 19,560 - 20,998.
- Canadian Department of Fisheries and Oceans (DFO) estimate.
- Total for Alaskan portion of drainage does not include Fishing Branch River. Total for Yukon Territory includes Fishing Branch River.
- Only ??? of the chinook salmon which returned to the fishway were passed. ?? females and ?? males were taken for hatchery brood stock. The number of clipped chinook salmon which returned to the fishway totaled 288.
- Preliminary data.
- Population estimate based upon mark and recapture.
- USFWS estimate.
- BLM estimate.
- Canadian border passage estimate for Yukon Territory streams excluding the Fishing Branch River. Canadian harvest has not been removed, these are "border" escapement estimates.
- Canadian estimated spawning escapement for Yukon Territory streams excluding the Fishing Branch River; from DFO tagging study (border passage estimate minus Canadian harvest).

Appendix E.3. Sonar estimates of salmon passage on the mainstem Yukon River at Pilot Station, 1986-1993.

Year	Dates of Operation	Chinook	Summer Chum	Fall Chum	Coho	Pink	Other Fish ^a
1986	6/09-9/12	169,068	1,932,868	583,439	210,066	1,082,000	314,362
1987	6/09-9/06	116,126	826,384	596,410	227,982	13,000	90,289
1988	6/02-9/14	120,652	1,772,839	424,356	263,053	612,000	205,114
1989	6/04-9/11	91,548	1,603,647	605,843	169,358	3,000	320,881
1990	6/05-9/04	156,028	931,498	545,963 ^d	241,023 ^d	206,000	282,167 ^r
1991	6/05-9/01	75,681	1,232,874	596,922 ^d	70,725 ^d	^g	302,724 ^r
1992 ^b	-	-	-	-	-	-	-
1993 ^c	6/04-8/31	137,239	949,776	295,303	40,474	^g	367,542 ^r

^a "Other Fish" may include pink salmon, which are abundant in even-numbered years, whitefish, sheefish, northern pike, and other species.

^b Project did not operate.

^c New sonar equipment was used in 1993 which provided greaterinsonification ranges.

^d Includes an estimate of offshore fish passage beyond the insonified zone. This estimate was based on down-looking sonar transects conducted across the width of the river and onshore gillnet test fishing data.

^r Does not include fish passing within the first few near shore meters along the left (south) bank.

^g Pink salmon passage estimate unavailable. Included in "Other Fish" category.

Appendix E.4. Chinook salmon escapement counts for selected Alaskan spawning stocks in the Yukon River drainage, 1961-1993. *

Year	Andreasfky River			Anvik River		Nulato River			Cisasa River		Chena River		Salcha River			
	East Fork		West Fork	Aerial River ^b	Index Area ^b	Aerial		Mainstem Tower Counts	Aerial	Weir	Pop. Est. or Tower Counts	Aerial		Pop. Est. or Tower Counts	Aerial	
	Aerial	Tower or Weir Cnt	Aerial			North Fork	South Fork					River	Index Area ^d		River	Index Area ^e
1961	1,003			1,226		376 ^g	167		266 ^g					2,878		
1962	675 ^g		762 ^g									61 ^{g, h}		937		
1963												137 ^g				
1964	867		705											450		
1965			344 ^g	650 ^g										408		
1966	361		303	638										800		
1967			276 ^g	336 ^g												
1968	380		383	310 ^g										739		
1969	274 ^g		231 ^g	296 ^g										461 ^g		
1970	865		574 ^g	368										1,882		
1971	1,904		1,682									6 ^g		158 ^g		
1972	798		582 ^g	1,198								193 ^{g, h}		1,193	1,034	
1973	825		788	613								138 ^{g, h}		391	352 ⁱ	
1974			285	471 ^g		55 ^g	23 ^g		161		1,018 ^h	959 ^h		1,857	1,620	
1975	993		301	730		123	81		385		316 ^h	282 ^h		1,055	950 ⁱ	
1976	818		643	1,053		471	177		332		531	496		1,641	1,473	
1977	2,008		1,499	1,371		288	201		255		563			1,202	1,052	
1978	2,487		1,082	1,324		498	422		45 ^g		1,726			3,489	3,258	
1979	1,180		1,134	1,484		1,093	414		484		1,159 ^g			4,789	4,310 ⁱ	
1980	958 ^g		1,500	1,330	1,192	954 ^g	369 ^g		951		2,541			6,757	6,126	
1981	2,146 ^g		231 ^g	807 ^g	577 ^g		791				600 ^g			1,237	1,121	
1982	1,274		851						421		2,073			2,534	2,346	
1983				653 ^g	376 ^g	526	480		572		2,553	2,336		1,961	1,803	
1984	1,573 ^g		1,993	841 ^g	574 ^g						501	494		1,031	906	
1985	1,617		2,248	1,051	720	1,800	1,180		735		2,553	2,262		2,035	1,860	
1986	1,954	1,530 ^h	3,158	1,118	918	1,452	1,522		1,346	9,065 ^m	2,031	1,935		3,368	3,031 ⁱ	
1987	1,608	2,011 ^h	3,281	1,174	879	1,145	493		731	6,404 ^m	1,312	1,209	4,771 ^m	1,898	1,671	
1988	1,020	1,339 ^h	1,448	1,805	1,449	1,061	714		797	3,348 ^m	1,968	1,760	4,562 ^m	2,761	2,553	
1989	1,399		1,089	442 ^g	212 ^g					2,666 ^m	1,280	1,185	3,294 ^m	2,333	2,136	
1990	2,503		1,545	2,347	1,595	568 ^g	430 ^{g, n}		884 ^g	5,603 ^m	1,436	1,402	10,728 ^m	3,744	3,429	
1991	1,938		2,544	875 ^g	625 ^g	767	1,253		1,690	3,025 ^m	1,277 ^g	1,277 ^g	6,608 ^m	2,212 ^g	1,925 ^g	
1992	1,030 ^g		2,002 ^g	1,536	931	348	231		910	5,230 ^m	826 ^g	799 ^g	7,862 ^m	1,484 ^g	1,436 ^g	
1993	5,855		2,765	1,720	1,526	1,844	1,181		1,573	12,241 ^k	2,943	2,680	10,007 ^l	3,836	3,562	
E.O. ⁿ	>1,500		>1,400	>1,300 ^o	>500 ^o	>800	>500		>600				>1,700		>2,500	

* Data obtained by aerial survey unless otherwise noted. Only peak counts are listed. Survey rating is fair to good, unless otherwise noted. Latest table revision: November 18, 1994.

^b From 1961-1970, river count data are from aerial surveys of various segments of the mainstem Anvik River. From 1972-1979, counting lower operated; mainstem aerial survey counts below the tower were added to lower counts. From 1980-present, aerial survey counts for the river are best available minimal estimates for the entire Anvik River drainage. Index area counts are from the mainstem Anvik River between the Yellow River and McDonald Creek.

^c Includes mainstem counts below the confluence of the North and South Forks, unless otherwise noted.

^d Chena River index area for assessing the escapement objective is from Moose Creek Dam to Middle Fork River.

^e Salcha River index area for assessing the escapement objective is from the TAPS crossing to Caribou Creek.

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

^h Boat survey

ⁱ Data unavailable for index area. Calculated from historic (1972-91) average ratio of index area counts to total river counts (0.90:1.0).

^j Mainstem counts below the confluence of the North and South Forks Nulato River included in the South Fork counts

^m Interim escapement objectives. Established March 1992.

ⁿ Interim escapement objectives for the entire Anvik River drainage is 1,300 salmon. Interim escapement objective for mainstem Anvik River between the Yellow River and McDonald Creek is 500 salmon.

Appendix E.5. Chinook salmon escapement counts for selected spawning areas in the Canadian portion of the Yukon River drainage, 1961-1993.

Year	Tinoup Creek	Tatchun Rivers	Little Salmon River	Big Salmon River ^c	Nisutlin River ^d	Ross 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 ^k						563	
1967								533	
1968			173 ^k	857 ^k	407 ^k	104 ^k		414	
1969			120	286	105			334	
1970		100		670	615		71 ^k	625	
1971		130		275	650		750	856	
1972		80	126	415	237		13	391	
1973		99	27 ^k	75 ^k	36 ^k			224	
1974		192		70 ^k	48 ^k			273	
1975		175		153 ^k	249		40 ^k	313	
1976		52		86 ^k	102			121	
1977		150	408	316 ^k	77			277	
1978		200	330	524	375			725	
1979		150	489 ^k	632	713		183 ^k	1,184	
1980		222	286 ^k	1,436	975		377	1,383	
1981		133	670	2,411	1,626	949	395	1,555	
1982		73	403	758	578	155	104	473	19,790
1983	100	264	101 ^k	540	701	43 ^{k,m}	95	905	28,989
1984	150	153	434	1,044	832	151 ^k	124	1,042	27,616 ⁿ
1985	210	190	255	801	409	23 ^k	110	508	10,730
1986	228	155	54 ^k	745	459 ^k	72 ⁿ	109	557	16,415
1987	100	159	468	891	183	180 ^k	35	327	13,260
1988	204	152	368	765	267	242	66	405	23,118
1989	88	100	862	1,662	695	433 ^p	146	549	25,201
1990	83	643	665	1,806	652	457 ^k	188	1,407	37,699
1991			326	1,040		250	201 ^r	1,266	20,743
1992	73	106	494	617	241	423	110 ^r	758	25,497
1993		183	184	572	339	400	168 ^r	668	28,558
E.O.									33,000-43,000 ^s

^a Data obtained by aerial survey unless otherwise noted. Only peak counts are listed. Survey rating is fair to good, unless otherwise noted. Latest table revision: December 3, 1993.

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

^c 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.

^d One Hundred Mile Creek to Sidney Creek.

^e Big Timber Creek to Lewis Lake.

^f Wolf Lake to Red River.

^g Includes 50, 90, 292, 506, 243, 288 fin-dipped hatchery-origin salmon in 1988, 1989, 1990, 1991, 1992, and 1993, respectively.

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

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

^m Estimate derived by dividing the annual 5-area (Whitehorse Fishway, Big Salmon, Nisutlin, Wolf, Tatchun) count by the average proportion of the annual 5-area index count to the estimated spawning escapements from the DFO tagging study for years 1982, 1983, and 1985-1989.

ⁿ Information on area surveyed is unavailable.

^o Counts are for Big Timber Creek to Sheldon Lake.

^p Counts are for Wolf Lake to Fish Lake outlet.

^s Interim escapement objective. Stabilization escapement objective for years 1990 - 1995 is 18,000 salmon.

Appendix E.6. Summer chum salmon escapement counts for selected spawning areas in the Yukon River drainage, 1973-1993.

Androafsky River.													
Year	East Fork		West Fork	Anvik River.		Rodo River.	Nulato River.		Gisasa River.	Hogatza River.	Tozitna River.	Chena River.	Salcha River.
	Aerial	Sonar or Tower		Tower & Aerials	Sonar		South Fork	North Fork.		(Clear and Caribou Crs)			
1973	10,149 _d		51,835	86,665 _d								79 _d	
1974	3,215 _d		33,578	201,277		16,137	29,016	29,334	22,022		1,823	4,349	3,510
1975	223,486		235,954	845,485		25,335	51,215	87,280	56,904	22,355	3,512	1,670	7,573
1976	105,347		118,420	406,166		38,258	9,230 _d	30,771	21,342	20,744	725 _d	685	6,474
1977	112,722		63,120	262,654		16,118	11,385	58,275	2,204 _d	10,734	781 _d	610	677 _d
1978	127,050		57,321	251,339		17,845	12,821	41,659	9,280 _d	5,102	2,262	1,609	5,405 _d
1979	66,471		43,391	81,830 _d	280,537		1,506	35,598	10,962	14,221		1,025 _d	3,060
1980	36,823 _d		114,759		492,676		3,702 _d	11,244 _d	10,388	19,786	580	338	4,140
1981	81,555	147,312 _r			1,486,182			14,348				3,500	8,500
1982	7,501 _d	181,352 _r	7,267 _d		444,581				334 _d	4,984 _d	874	1,509	3,756
1983		110,608 _r			362,912		1,263 _d	19,749	2,356 _d	28,141	1,604	1,097	716 _d
1984	95,200 _d	70,125 _r	238,565		891,028							1,861	9,810
1985	66,146		52,750		1,080,243	24,576	10,494	19,344	13,232	22,566	1,030	1,005	3,178
1986	83,931	167,614 _d	99,373		1,189,602		16,848	47,417	12,114		1,778	1,509	8,028
1987	6,687 _d	45,221 _d	35,535		455,878		4,094	7,163	2,123	5,669 _d		333	3,657
1988	43,066	68,937 _d	45,432		1,125,449	13,872	15,132	26,951	9,284	6,890	2,983	432	2,889 _d
1989	21,460 _d				636,906							714 _d	1,574 _d
1990	11,519 _d		20,426 _d		403,627	1,941 _d	3,196 _{ab}	1,419 _d	450 _d	2,177 _d	36	100 _d	450 _d
1991	31,886		46,657		847,772	3,977	13,150	12,491	7,003	9,947	93	10 _d	154 _d
1992	11,308 _d		37,808 _d		775,626	4,465	5,322	12,358	9,300	2,986	784	648 _d	3,222
1993	10,935 _d		9,111 _d		517,409	7,887	5,486	7,698	1,581		970	168	212
E.O. _d	>109,000		>116,000		>500,000 _e			>53,000 _{ab}		>17,000 _n			>3,500

fi Data obtained by aerial survey unless otherwise noted. Only peak counts are listed. Latest table revision January 11, 1994.

a From 1972-1979, counting tower operated; mainstem aerial survey counts below the tower were added to tower counts.

b Includes mainstem counts below the confluence of the North and South Forks, unless otherwise noted.

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

r Sonar count.

y Tower count.

n Mainstem counts below the confluence of the North and South Forks Nulato River included in the South Fork counts.

j Interim escapement objective.

k The Anvik River Escapement Objective was rounded upward to 500,000 from 487,000 in March, 1992.

l Interim escapement objective for North Fork Nulato River only.

m Consists of Clear and Caribou Creeks interim escapement objectives of 9,000 and 8,000, respectively.

Appendix E.7. Fall chum salmon escapement counts for selected spawning areas in Alaskan and Canadian portions of the Yukon River drainage, 1971-1993. ^a

Year	Alaska				Canada					
	Toklat River ^b	Delta River ^c	Chandalar River ^d	Sheenjek River ^{d, l}	Fishing Branch River ^p	Mainstem Yukon River Index ^{g, h}	Koideem River ^o	Kluane River ^{o, i}	Teslin River ^{o, k}	Mainstem Tagging Estimate ^m
1971					312,800					
1972		5,384			35,125 ⁿ			198 ^{p, r}		
1973		10,469			15,989 ^s	383		2,500		
1974	41,798	5,915		89,966 ^t	32,525 ^s			400		
1975	92,265	3,734 ^v		173,371 ^t	353,282 ^s	7,671		362 ^r		
1976	52,891	6,312 ^v		26,354 ^t	36,584			20		
1977	34,887	16,876 ^v		45,544 ^t	88,400			3,555		
1978	37,001	11,136		32,449 ^t	40,800			0 ^r		
1979	158,336	8,355		91,372 ^t	119,898			4,640 ^r		
1980	26,346	5,137		28,933 ^t	55,268			3,150		
1981	15,623	23,508		74,560	57,386 ^w			25,806		
1982	3,624	4,235		31,421	15,901	1,020 ^x		5,378		31,958
1983	21,869	7,705		49,392	27,200	7,560		8,578 ^r		90,875
1984	16,758	12,411		27,130	15,150	2,800 ^y	1,300	7,200	200	56,633 ^z
1985	22,750	17,276 ^v		152,768	56,016 ^s	10,760	1,195	7,538	356	62,010
1986	17,976	6,703 ^v	59,313	84,207 ^{aa}	31,723 ^s	825	14	16,686	213	87,940
1987	22,117	21,180	52,416	153,267 ^{aa}	48,956 ^s	6,115	50	12,000		80,776
1988	13,436	18,024	33,619	45,206 ^{aa}	23,597 ^s	1,550	0	6,950	140	36,786
1989	30,421	21,342 ^v	69,161	99,116 ^{aa}	43,834 ^s	5,320	40	3,050	210 ^p	35,750
1990	34,739	8,992 ^v	78,631	77,750 ^{aa}	35,000 ^{ab}	3,651	1	4,683	739	51,755
1991	13,487	32,905 ^v		86,496 ^{ac}	37,733 ^s	2,426	53	11,675	468	78,461
1992	14,070	8,893 ^v		78,808 ^{ac}	22,517 ^s	4,438	4	3,339	450	49,082
1993	27,838	19,857		42,922 ^{ac}	28,707 ^v	2,620	0	4,610	555	29,743
E.O. ^{ad}	> 33,000	> 11,000		> 64,000 ^{af}	50,000 - 120,000					> 80,000

continued

- ^a Latest table revision April 14, 1995.
- ^b Expanded total abundance estimates for upper Toklat River index area using stream life curve (SLC) developed with 1987-1993 data. Index area includes Geiger Creek, Sushana River, and mainstem floodplain sloughs from approximately 0.25 mile upstream of roadhouse to approximately 1.25 mile downstream of roadhouse.
- ^c Estimates are a total spawner abundance, generally from using spawner abundance curves and streamlife data.
- ^d Side-scan sonar estimate, unless otherwise indicated.
- ^f Within the Canadian Porcupine River drainage. Total escapement estimated using weir to aerial survey expansion factor of 2.72, unless otherwise indicated.
- ^g Aerial survey count unless otherwise indicated.
- ^h Tatchun Creek to Fort Selkirk.
- ⁱ Duke River to end of spawning sloughs below Swede Johnston Creek.
- ^k Boswell Creek area (5 km below to 5 km above confluence).
- ^m Excludes Fishing Branch River escapement (estimated border passage minus Canadian removal).
- ⁿ Weir installed on September 22. Estimate consists of a weir count of 17,190 after September 22, and a tagging passage estimate of 17,935 prior to weir installation.
- ^p Incomplete and/or poor survey conditions resulting in minimal or inaccurate counts.
- ^r Foot survey
- ^s Weir count.
- ^l Total escapement estimate using sonar to aerial survey expansion factor of 2.22.
- ^v Population estimate from replicate foot surveys and stream life data.
- ^w 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.
- ^x Boat survey.
- ^y Total index area not surveyed. Survey included the mainstem Yukon River between Yukon Crossing to 30 km below Fort Selkirk.
- ^z Escapement estimate based on mark-recapture program unavailable. Estimate based on assumed average exploitation rate.
- ^{aa} Expanded estimates for period approximating second week August through middle fourth week September, using Chandalar River run timing data.
- ^{ab} Weir was not operated. Although only 7,541 chum salmon were counted on a single survey flown October 26, a population estimate of approximately 27,000 fish was made through date of survey, based upon historic average aerial-to-weir expansion of 28%. Actual population of spawners was reported by DFO as between 30,000 - 40,000 fish considering aerial survey timing.
- ^{ac} Total abundance estimates are for the period approximating second week August through middle fourth week of September. Comparatively escapement estimates prior to 1986 are considered more conservative; approximating the period of end of August through middle week of September.
- ^{ad} Interim escapement objective.
- ^{af} Based on escapement estimates for years 1974-1990.

Appendix E.8. Coho salmon escapement counts for selected spawning areas in the Yukon River drainage, 1972-1993.

Year	Andreaszky River		Kantishna River			Nenana River Drainage			Delta Clearwater River _u	Clearwater Lake and Outlet	Richardson Clearwater River	
	East Fork	West Fork	Arvik River	Geiger Creek	Barton Creek	Lost Slough	Nenana Mainstem	Wood Creek				17-Mile Slough
1972										630	417	454 _h
1973										3,322	551 _h	376 _h
1974						1,388			27	3,854 _h	560	652 _h
1975						943			956	5,100	1,575 _{ef}	4 _h
1976			457 _h	25 _l		118			281	1,920	1,500 _{ef}	80 _h
1977			81 _h	60		524		310 _l	1,167	4,793	730 _{ef}	327
1978						350		300 _l	466	4,798	570 _{ef}	
1979						227			1,987	8,970	1,015 _{ef}	372
1980				3 _l		490		1,603 _l	592	3,946	1,545 _{ef}	611
1981	1,657 _h					274		849 _{h,h}	1,005	8,563 _m	459 _h	550
1982				81 _f				1,438 _{h,h}		8,365 _m		
1983				42 _l		766		1,042 _h	103	8,019 _m	253	88
1984				20		2,677		8,626 _h		11,061	1,368	428
1985				42		1,584		4,470 _h	2,081	5,358	750	
1986				5 _l	496	794		1,864 _h	219 _{ef}	10,857	3,577	146 _h
1987				1,175 _f		2,511		2,387 _h	3,802	22,300	4,225 _{ef}	
1988	1,913	830	1,203	159 _h	437	348		2,046 _h		21,600	825 _{ef}	
1989				155 _h	12 _h			412 _h	824 _h	11,000	1,600 _{ef}	483
1990				211 _f		688	1,308		15 _h	8,325	2,375 _{ef}	
1991				427 _h	457 _h	564	447		52	23,900	3,150 _{ef}	
1992				77 _h	55 _h	372			490	3,983	229 _{ef}	500 _h
1993				138 _h	141	484	419	666 _h	581	10,875	3,525 _{ef}	
E.O. _h										>9,000		

_h Only peak counts presented. Survey rating is fair to good, unless otherwise noted. Latest table revision: November 10, 1993

_h Mainstem Nenana River between confluences of Lost Slough and Teklanika River

_h Surveyed by F.R.E.D.

_h Surveyed by Sport Fish Division.

_f Boat survey.

_h Aerial survey.

_h Poor survey.

_h Foot survey.

_h Weir count.

_h Expanded estimate based on partial survey counts and historic distribution of spawners from 1977-1990.

_h Coho weir was operated at the mouth of Clear Creek (Shores Landing).

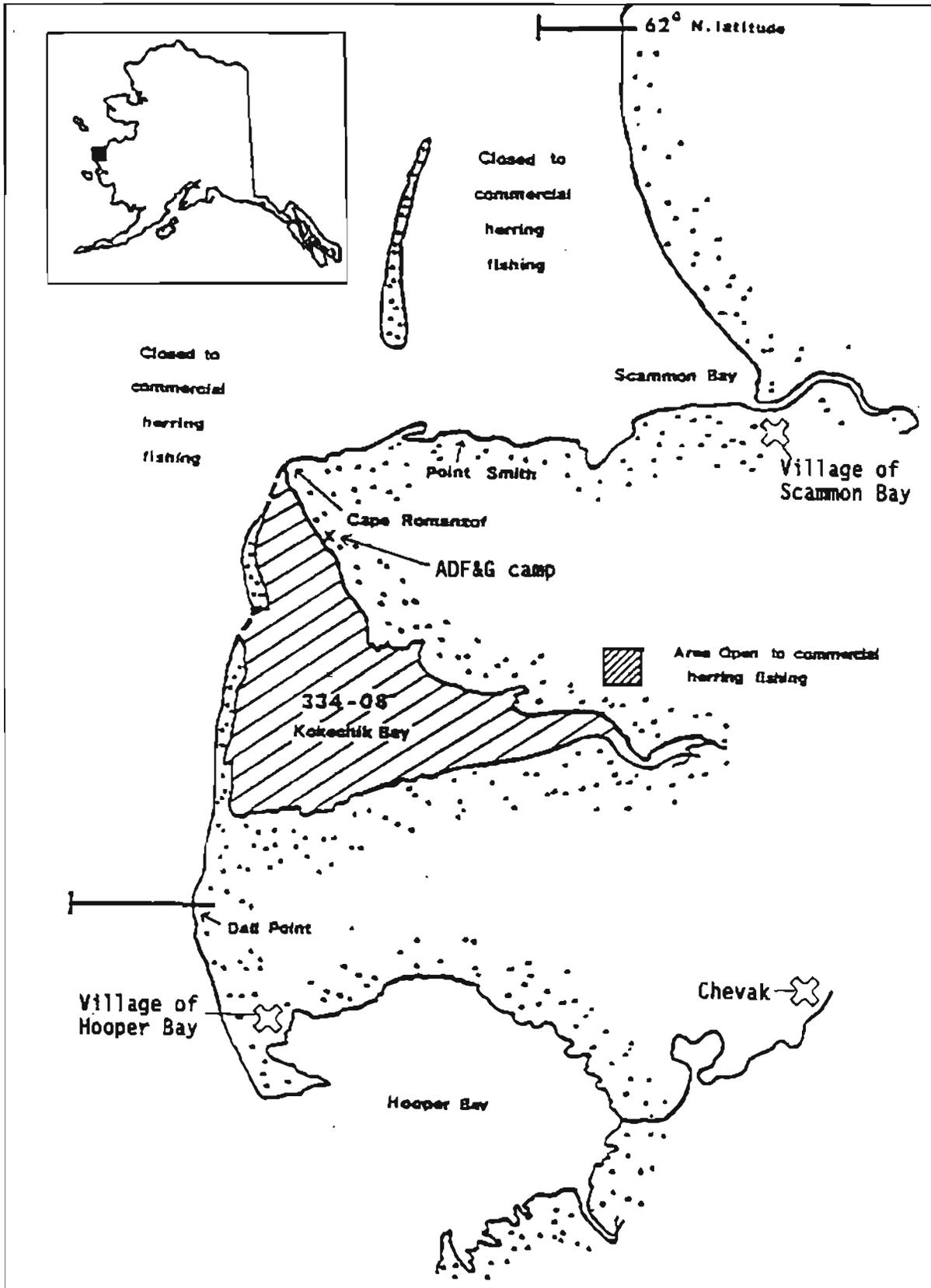
_h Weir project terminated on October 4. Weir normally operated until mid to late October.

_h Preliminary.

_h Interim escapement objective established March, 1993.

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, 1993.

Date	Time of Fishery	Hours Fished	Number			Period Catch (st)			
			Fishermen	Vessels	Landings	Bait	Sac Roe	Total	Roe %
May 17	2230-2400	1.5	27	27	40	0.0	98.8	98.8	9.17
May 18	1400-1500	1.0	37	37	39	0.0	44.7	44.7	9.06
May 20	1400-1500	1.0	29	29	31	0.0	22.1	22.1	10.99
May 22	0000-0400	4.0	29	29	85	0.0	104.3	104.3	10.08
May 22	1400-1700	3.0	26	26	44	0.0	59.2	59.2	9.1
May 23	1530-1730	2.0	24	24	32	0.0	41.9	41.9	9.66
Total		12.5	41	41	271	0.0	371.0	371.0	9.56

Appendix F.3. List of Lower Yukon Area emergency orders pertaining to the Cape Romanzof Herring District, 1993.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-H-01-93	May 17	Established a 1.5 hour commercial herring fishing period beginning 10:30 p.m. May 17 until 12:00 midnight. Also restricted gear to no more than 50 fathoms and one gillnet per vessel.	Test fishing crew began catching herring on May 13. The first spawn was documented on May 16. Test samples indicated a majority of herring were ripe.
3-LY-H-02-93	May 18	Established a 1-hour commercial herring fishing period beginning 2:00 p.m. May 18 until 3:00 p.m. May 18.	Herring samples obtained by commercial fishermen indicated a majority of the fish were ripe, with an average roe recovery of 9.6%.
3-LY-H-03-93	May 20	Established a 1-hour commercial herring fishing period beginning 2:00 p.m. May 20 until 3:00 p.m. May 20.	The preseason harvest projection was 367 st. The cumulative harvest to date was approximately 142 st.
3-LY-H-04-93	May 21	Established a 3-hour commercial herring fishing period beginning 12:00 midnight May 21 until 3:00 a.m. May 22.	Herring samples indicated a majority of the fish were ripe. Roe recovery was 13% from a 3.25 inch net. The cumulative harvest was 164 st.
3-LY-H-05-93	May 22	Extended the 3-hour commercial herring fishing period by one hour. The amended fishing period began at 12:00 midnight May 21 and was extended until 4:00 a.m. May 22.	In consideration of ripe herring and a high roe recovery, a one-hour extension to the commercial fishing period established by emergency order 3-LY-H-04-93 was warranted.

Appendix F.3. (page 2 of 2).

E.O. Number	Effective Date	Action Taken	Comments
3-LY-H-06-93	May 22	Established a 3-hour commercial herring fishing period beginning 2:00 p.m. May 22 until 5:00 p.m. May 22.	Approximately 104.3 st of herring were harvested during the fourth commercial fishing period. The cumulative harvest was 268.3 st.
3-LY-H-07-93	May 23	Established a 1.5 hour commercial herring fishing period beginning 3:30 p.m. until 5:00 p.m. May 23.	In consideration of a large abundance of ripe herring, a 1.5 hour commercial fishing period with a possible extension was warranted.
3-LY-H-08-93	May 23	Extended the 1.5 hour commercial herring fishing period established by emergency order 3-LY-H-07-93 by one-half hour.	Herring samples obtained from commercial deliveries during the first hour of the period ranged from 8 to 10% roe recovery. The half-hour extension was warranted based on roe recovery and in order to achieve the preseason projected harvest of 367 st.

Appendix F.4. Commercial Pacific herring fishery data, Cape Romanzof District, 1980-1993.

	1980	1981	1982	1983 ^a	1984	1985	1986	1987 ^d	1988	1989	1990	1991	1992	1993
Catch (st)	811	720	657	816	1,185	1,209	1,865	1,342	1,119	926	329	526	530	371
Hours Fished	326	120	180	144	90	60	42	8	11	13	3	5	6	12.5
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	8.0	9.6
Estimated Value (\$ millions)	0.13	0.21	0.22	0.37	0.31	0.55	1.14	1.00	1.02	0.49	0.16	0.21	0.16	0.11
Number of Buyers	2	4	2	3	3	2	5	9	6	6	4	2	2	2
Number of Fishermen	69	111	75	63	66	73	97	157	113	115	95	80	73	41
Number of Vessels	54	82	50	57	59	69	90	152	108	110	90	79	73	41
% Effort by Local Fishermen ^b	70	81	85	92	88.5	91	84	63	63	87	76	96	97	95
% Harvest by Local Fishermen ^b	40	60	84	88	99.8	94	70	33	60	82	77	97	96	91
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	4,500	4,000
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	11.8	9.3

^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.

^d Last year mechanical shekers were allowed.

Appendix F.5. Pacific herring processors and associated data, Cape Romanzof District, 1993.

Commercial operation (Processing location/ buying station)	Representative	Product	Processing/Tendering Vessels
Icicle Seafoods, Inc. P.O. Box 79003 Seattle, WA 98199	Kelly Pettingill	Sac Roe Herring (frozen)	M/V Cordova M/V Gandil
NorQuest Fisheries 4225 23rd Ave. W. Seattle, WA 98119	Marty Jacques	Sac Roe Herring (frozen)	P/V Lafayette P/V Pribilof M/V Afognak M/V Zingaro

Appendix F.6. Test sample data collected by commercial fishermen, Cape Romanzof District, 1993.

Capture Date/Time	Mesh Size (Inches)	Sample Size		% Female	Female % Gonad Maturity			% Roe	Capture Location
		Wt.(kg)	No.		Green	Ripe	Spent		
May 17 8:15 p.m.	2 3/4	10.0	28	29	0	100	0	6.5	onshore 1 mile north of ADF&G camp (Tim's camp)
	3	10.0	26	52	0	100	0	12.1	
	3 1/4	10.0	22	55	0	100	0	14.5	offshore near Cape
	3 1/4	9.4	22	64	0	100	0	14.9	onshore near Cape
	Subtotal	39.4	97	48	0	100	0	12.0	
May 18 12:00 p.m.	3	10.0	25	52	0	100	0	12.9	onshore 1 mile north of ADF&G camp (Tim's camp)
	3	10.0	25	56	0	100	0	13.4	
	3	10.0	25	39	0	100	0	6.1	onshore 1 mile south of ADF&G camp
	3	10.0	27	59	0	100	0	12.0	
	3	10.0	26	42	0	100	0	9.2	
	3 1/4	10.0	23	57	0	85	15	11.0	onshore near Cape
Subtotal	60.0	151	42	0	97	3	10.8		
May 18 9:30 p.m.	2 3/4	10.0	27	28	29	57	14	5.0	onshore 1 mile north of ADF&G camp (Tim's camp)
	3	10.0	22	73	31	69	0	8.5	
	3	10.0	25	52	46	39	15	3.5	
	3 1/4	10.0	24	85	0	100	0	11.5	onshore near Cape
	3 1/4	10.0	23	52	17	83	0	9.25	
Subtotal	50.0	121	57	25	69	5	7.55		
May 18 1:00 p.m.	3	10.0	27	37	10	90	0	7.9	onshore 1/2 mile north of ADF&G camp
	3	10.0	26	42	0	100	0	9.9	
	3	10.0	26	38	0	100	0	8.5	
	2 3/4	10.0	28	57	0	100	0	12.3	onshore 1 1/2 mile N of ADF&G camp (1/2 way b/w Cape and Tim's camp)
	2 3/4	10.0	29	28	0	100	0	6.6	onshore 1 mile south of ADF&G camp
	3	10.0	24	54	8	92	0	10.4	
	Subtotal	60.0	160	43	3	97	0	9.3	
2 3/4		11	73					fish sampled for sex ratio only	
May 20 12:00 p.m.	3	10.0	24	29	0	100	0	6.5	onshore 1 mile north of ADF&G camp (Tim's camp)
	3	7.1	19	53	0	100	0	11.8	onshore at point 300m north of ADF&G camp
	2 3/4	10.0	29	34	0	100	0	6.5	onshore 1 mile north of ADF&G camp (Tim's camp)
	3	10.0	28	50	0	100	0	9.3	onshore 1 mile south of ADF&G camp
	2 3/4	10.0	23	70	0	100	0	9.1	
	Subtotal	47.1	123	46	0	100	0	8.8	
2 3/4		8	63					fish sampled for sex ratio only	
May 21 9:30 p.m.	3 1/4	10.0	23	78	0	100	0	18.1	onshore 3/4 mile north of ADF&G camp
	3 1/4	10.0	9	44	0	100	0	11.3	offshore 3/4 mile north of ADF&G camp
	Subtotal	20.0	32	69	0	100	0	14.7	
	3 1/4		22	59					fish sampled for sex ratio only
3 1/4		31	58					fish sampled for sex ratio only	
May 22 12:30 p.m.	3		84	65				fish sampled for sex ratio only/ 300 meters south ADF&G camp	
May 23 2:00 p.m.	3	10.0	37	41				fish sampled for sex ratio only/ 300 meters south ADF&G camp	

Appendix F.7. Subsistence herring harvest (st) and effort data, Cape Romanzof, 1975-1993. ^a

Year	Scammon Bay		Chevak		Hooper Bay		Totals	
	Harvest(st)	Number of Fishermen	Harvest(st)	Number of Fishermen	Harvest(st)	Number of Fishermen	Harvest(st)	Fishing Families
1975	-	-	-	-	3	34	3	34
1976	1	4	1	9	3	28	5	41
1977	-	-	<1	2	2	28	2	30
1978	1	1	-	-	4	28	5	29
1979	6	21	2	21	3	42	11	84
1980	3	18	4	20	4	23	11	61
1981	8	16	2	9	4	20	14	45
1982	4	15	2	10	5	18	11	43
1983	3	14	1	5	5	18	9	37
1984	4	16	3	7	4	23	11	46
1985	2	12	2	12	4	20	8	44
1986	2	17	1	19	4	4	7	40
1987	1	9	1	6	1	10	3	25
1988	2	7	2	6	4	19	7	32
1989	1	7	<1	1	2	16	3	24
1990	2	5	1	3	6	24	8	32
1991	1	7	<1	3	2	8	3	18
1992	1	10	<1	4	2	16	4	30
1993	3	17	<1	1	2	24	5	42

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

Appendix F.8. Aerial survey biomass estimates of Pacific herring, Cape Romanzof District, 1993.

Date	Flight		Survey Rating ^b	Spawn Length		Biomass (st) Estimates by Index Area ^a		
	No.	Hrs.		No.	(miles)	Kokechik Bay	Scammon Bay	Total
May 10	1	0.17	4	0	0.00	0.0	0.0	0.0
May 16	2	0.28	4	3	1.00	155.0	381.5	536.5
May 21	3	0.33	5	0	0.00	0.0	0.0	0.0
May 22	4	0.25	5	0	0.00	0.0	0.0	0.0
May 25	5	0.33	4	0	0.00	50.2	146.4	196.6
May 27	6	0.25	5	0	0.00	0.0	0.0	0.0
June 3	7	0.25	5	0	0.00	0.0	0.0	0.0
Total		1.86		3	1.00			

^a Index Areas: Kokechik Bay and offshore waters from Cape Romanzof to Hooper Bay.
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)

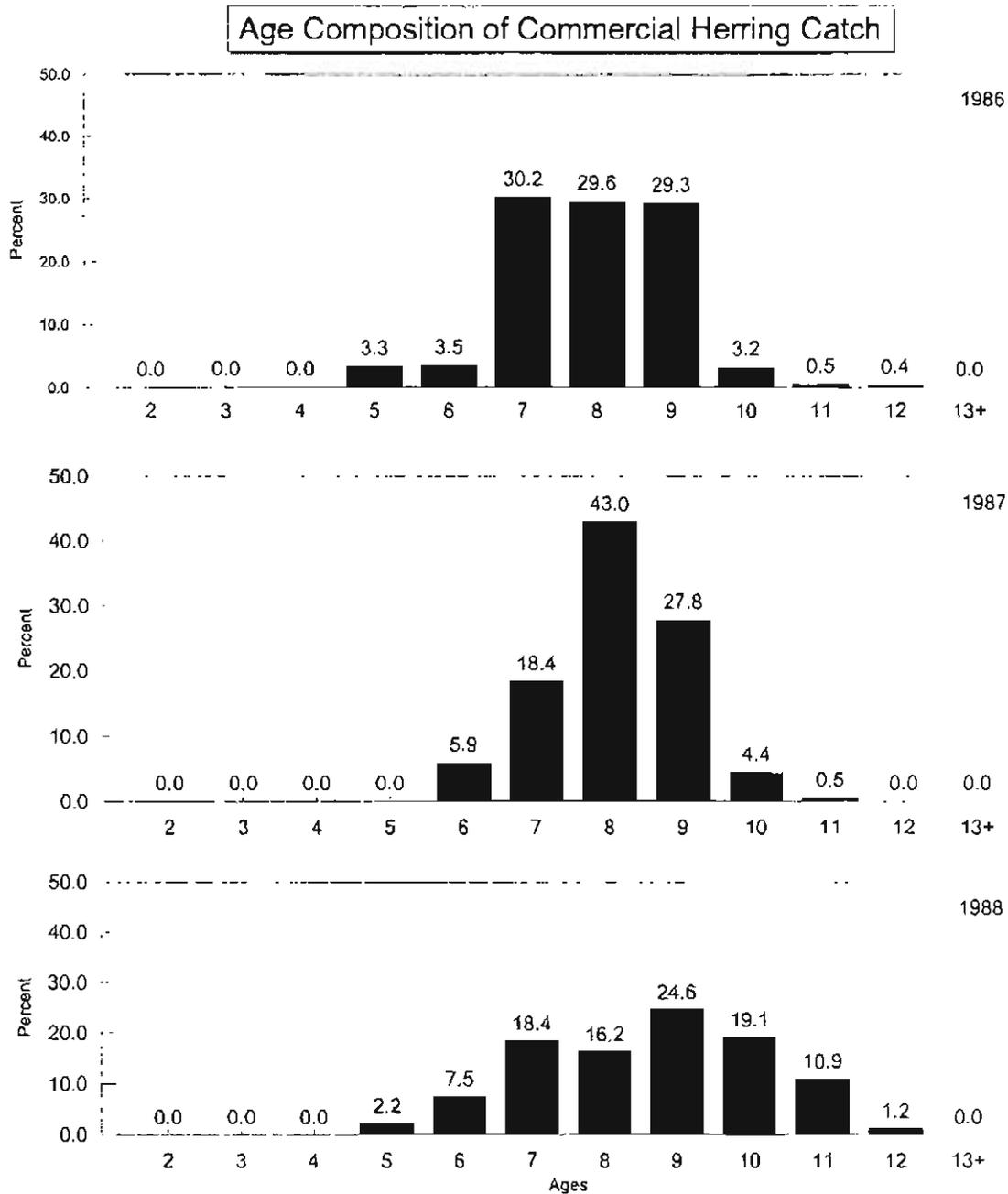
5=Unsatisfactory

Appendix F.9. Percent age composition of herring sampled from commercial harvest, Cape Romanzof District, 1980-1993. *

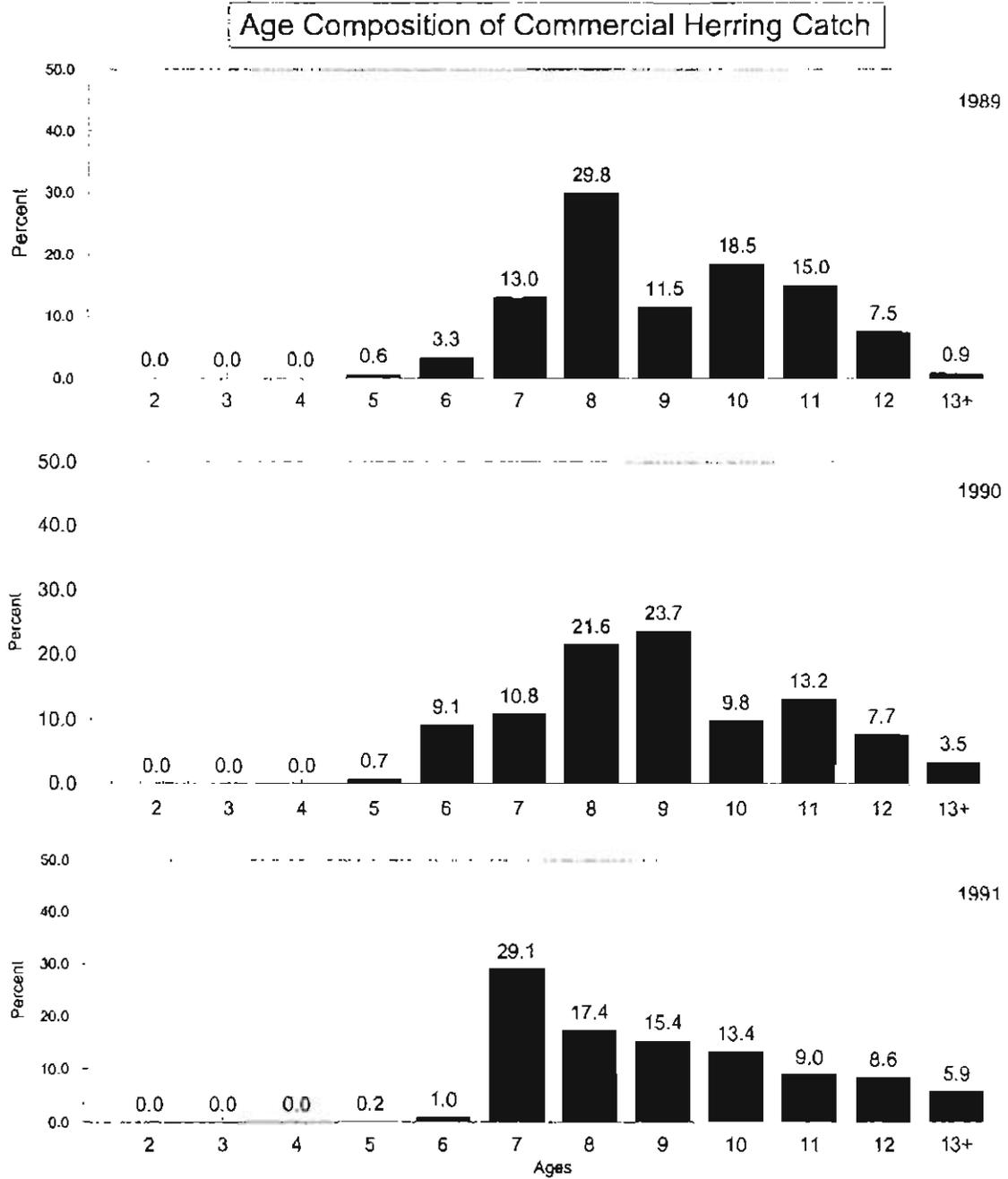
Year	Number Sampled *	Age in Years												Total *
		2	3	4	5	6	7	8	9	10	11	12	13+	
1980	374	0.0	2.4	20.1	5.1	38.0	9.9	23.0	0.5	0.3	0.5	0.3	0.0	100.1
1981	315	0.0	0.3	55.9	25.1	1.6	11.7	2.2	3.2	0.0	0.0	0.0	0.0	100.0
1982	604	0.0	0.2	13.7	66.4	13.2	1.2	3.3	1.0	1.0	0.0	0.0	0.0	100.0
1983	913	0.0	0.0	15.8	29.8	45.1	6.7	0.4	1.6	0.4	0.1	0.0	0.0	99.9
1984	543	0.0	0.0	0.6	17.3	35.2	41.3	2.9	1.7	0.6	0.4	0.2	0.0	100.2
1985	583	0.0	0.0	6.5	8.9	34.6	29.3	16.6	3.4	0.5	0.0	0.0	0.0	99.8
1986	570	0.0	0.0	0.0	3.3	3.5	30.2	29.6	29.3	3.2	0.5	0.4	0.0	100.0
1987	407	0.0	0.0	0.0	0.0	5.9	18.4	43.0	27.8	4.4	0.5	0.0	0.0	100.0
1988	414	0.0	0.0	0.0	2.2	7.5	18.4	16.2	24.6	19.1	10.9	1.2	0.0	100.1
1989	702	0.0	0.0	0.0	0.6	3.3	13.0	29.8	11.5	18.5	15.0	7.5	0.9	100.1
1990	287	0.0	0.0	0.0	0.7	9.1	10.8	21.6	23.7	9.8	13.2	7.7	3.5	100.1
1991	591	0.0	0.0	0.0	0.2	1.0	29.1	17.4	15.4	13.4	9.0	8.6	5.9	100.0
1992	401	0.0	0.0	0.0	0.0	1.0	1.0	27.7	17.5	17.5	16.7	7.5	11.1	100.0
1993	819	0.0	0.0	0.0	0.7	3.5	2.6	2.0	29.8	13.4	14.8	16.6	16.6	100.0

- * Data from Age, Size, and Sex Composition ADF&G Technical Data Reports, except for 1988 and 1989, which have not been published as yet.
- * Number sampled shown are number of fish which could be aged.
- * Totals may not equal 100% due to rounding errors.

Appendix F.10. Age composition of Pacific herring sampled from the commercial harvest, Cape Romanzof District, 1986-1993.

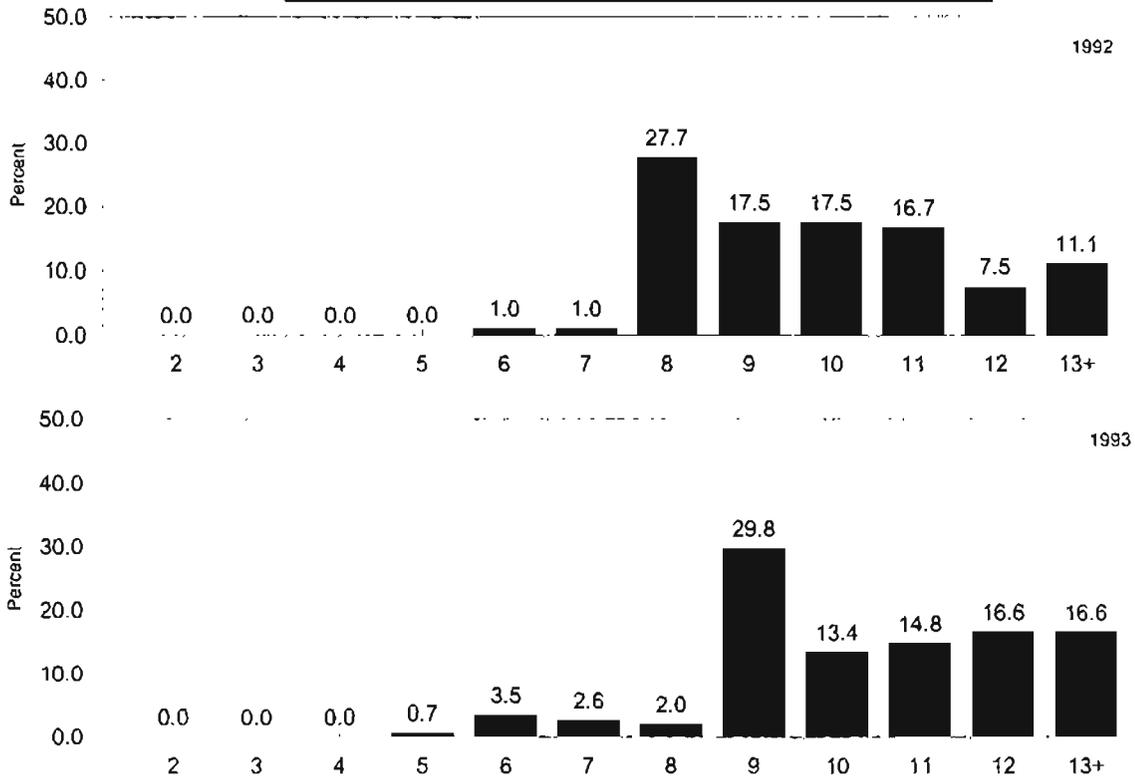


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Age Composition of Commercial Herring Catch



Appendix F.11. Percent age composition of herring sampled from variable mesh gillnet catches, Cape Romanzof District, 1980-1993. ¹²

Year	Number Sampled ^a	Age in Years												Total ^d
		2	3	4	5	6	7	8	9	10	11	12	13+	
1980	447	0.4	19.2	17.0	2.0	27.3	6.9	25.3	0.4	0.4	0.4	0.4	0.0	99.7
1981	589	0.0	7.8	55.3	13.2	1.5	10.4	4.8	6.3	0.2	0.0	0.3	0.2	100.0
1982	611	0.7	7.5	20.3	39.3	9.5	1.8	7.4	7.2	5.6	0.7	0.0	0.2	100.2
1983	829	0.0	0.6	21.2	25.2	39.8	5.3	1.4	3.9	1.9	0.5	0.1	0.0	99.9
1984	735	0.0	1.5	5.7	26.9	19.3	36.1	4.8	3.5	1.6	0.3	0.3	0.0	100.0
1985	531	0.0	1.7	21.8	6.4	22.8	16.9	26.2	2.8	0.8	0.6	0.0	0.0	100.0
1986	511	0.0	0.0	4.9	18.2	7.0	25.4	20.7	20.4	2.5	0.6	0.2	0.0	99.9
1987	690	0.0	0.0	0.7	6.7	11.7	18.0	31.7	23.2	7.7	0.3	0.0	0.0	100.0
1988	608	0.0	0.3	3.9	7.9	13.8	19.7	11.7	19.2	14.8	7.4	0.7	0.5	99.9
1989	378	0.0	0.5	1.9	17.5	9.0	13.2	17.7	7.4	11.6	13.2	6.9	1.0	99.9
1990	1,011	0.0	1.0	4.7	3.6	24.6	11.2	12.7	17.5	7.7	9.4	5.3	2.3	100.0
1991	1,152	0.0	0.1	3.0	3.9	3.0	29.3	13.9	15.0	13.4	7.3	6.3	4.8	100.0
1992	994	0.0	0.0	6.4	4.6	4.7	2.0	19.4	12.7	20.6	12.9	7.7	8.8	99.8
1993	1,263	0.0	0.7	2.3	16.9	10.5	5.8	3.9	20.0	10.1	13.6	8.4	7.9	100.1

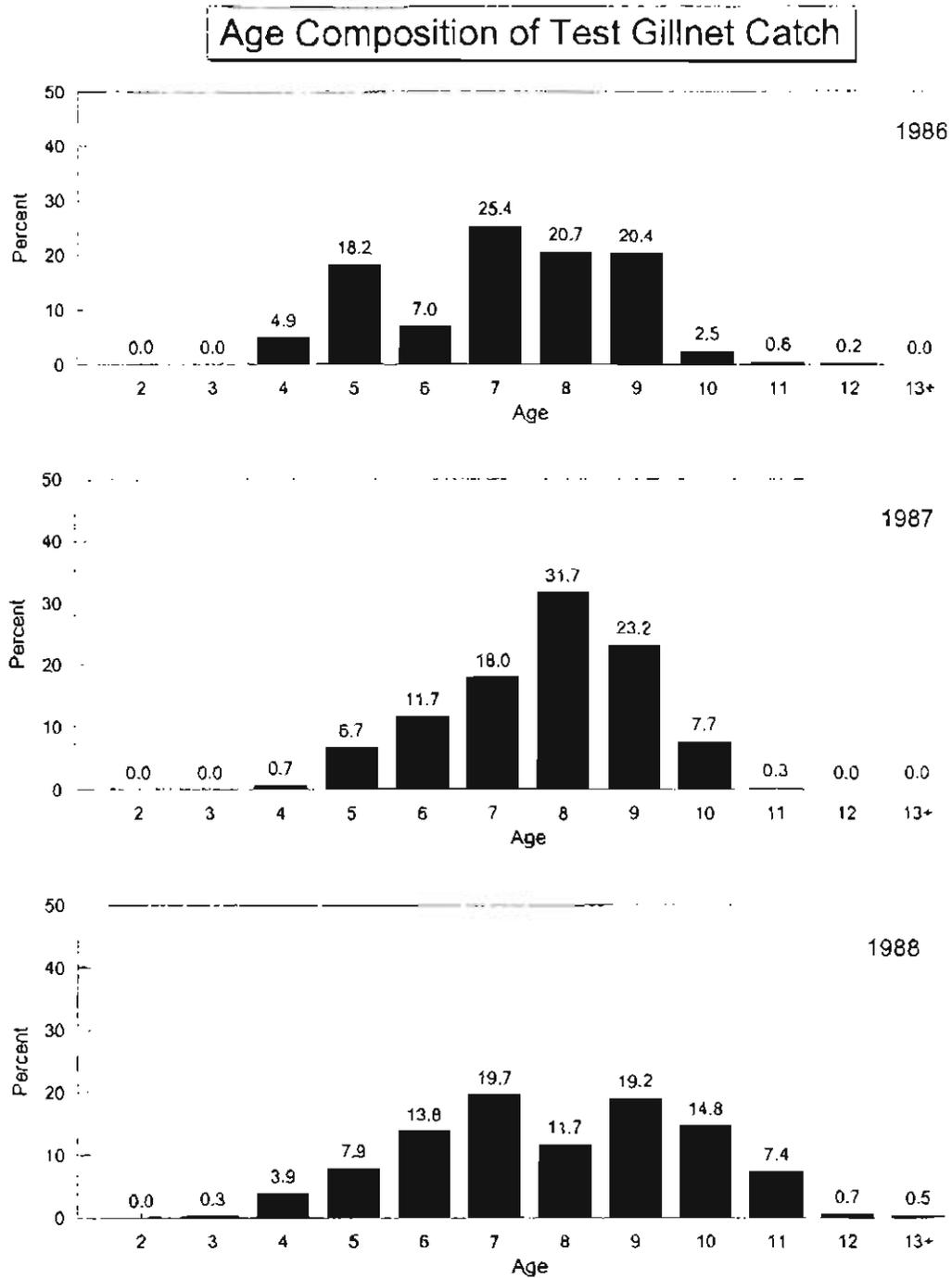
^a Data from Age, Size, and Sex Composition ADF&G Technical Data Reports, except for 1988 and 1989, which have not been published as yet.

^b Variable mesh test gill net samples include Kokechik Bay and Scammon Bay fish sampled combined.

^c Number sampled shown are number of fish which could be aged.

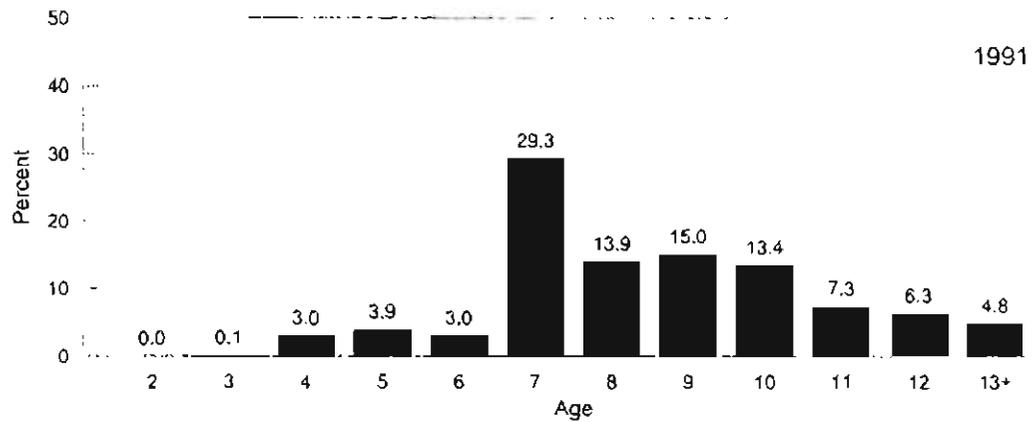
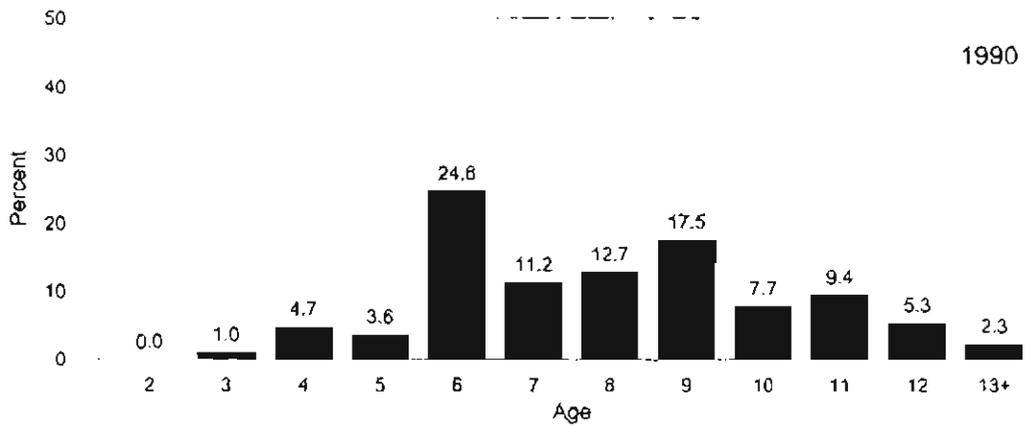
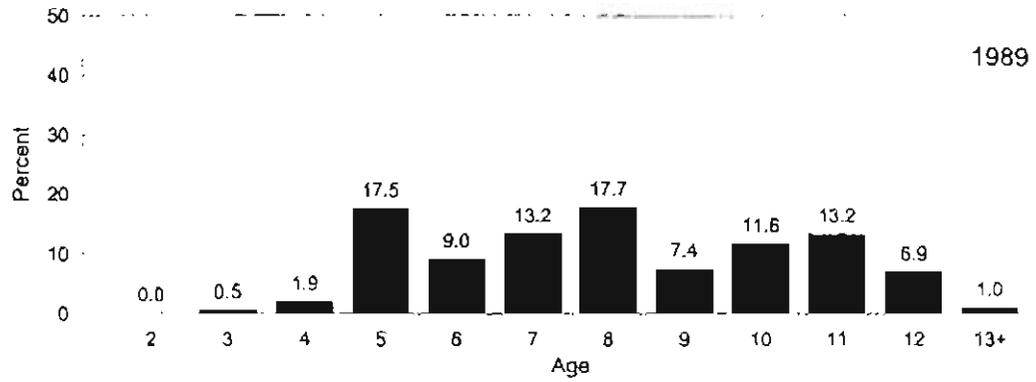
^d Totals may not equal 100% due to rounding errors.

Appendix F.12. Age composition of Pacific herring sampled from variable mesh gillnet catches, Cape Romanzof District, 1986-1993.



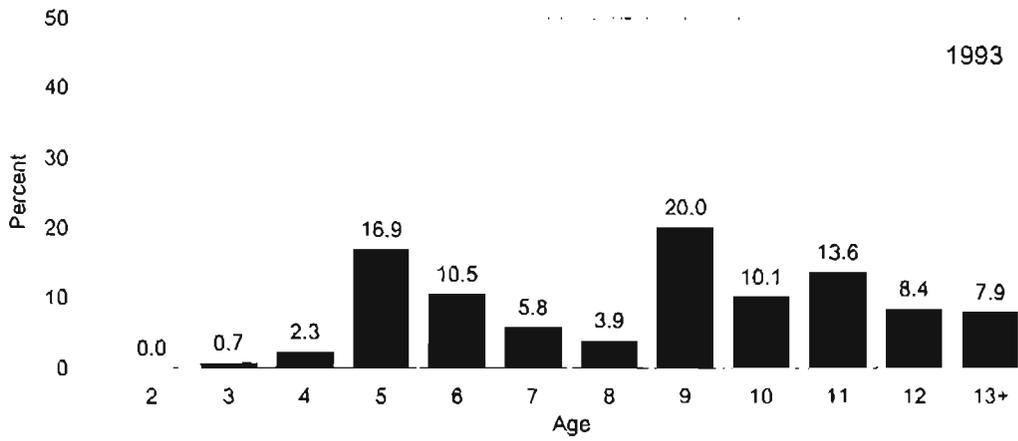
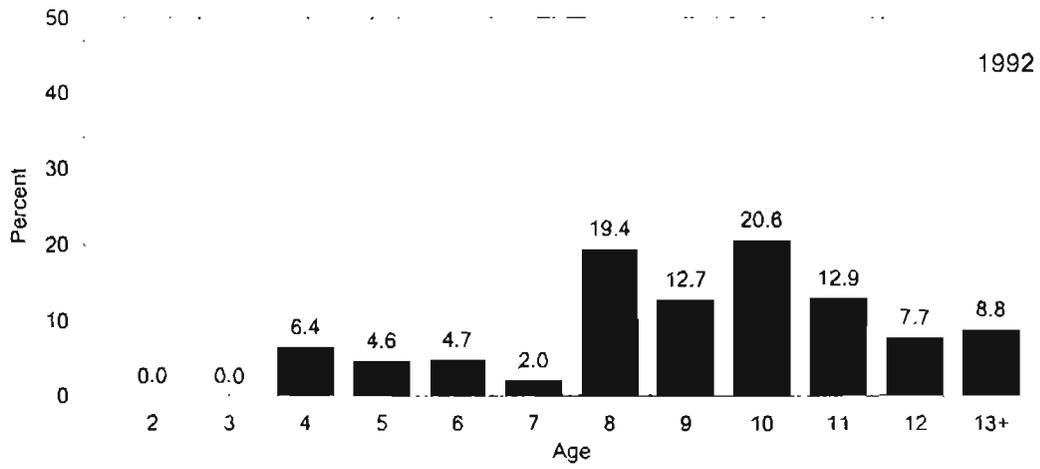
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Age Composition of Test Gillnet Catch



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Appendix F.12. (page 3 of 3).



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APPENDIX G

YUKON AREA FRESHWATER FISHERIES

Appendix G.1. Commercial freshwater fishery catches, Lower Yukon Area, 1978-1993.

Year	Sheefish		Whitefish		Burbot		Pike	Lamprey	Blackfish
	Number	Pounds	Number	Pounds	Number	Pounds	Pounds	Pounds	Pounds
1978	0	0	19	87	0	0	0	0	0
1979	5	39	23	55	0	0	0	0	0
1980	283	2,265	78	250	0	0	0	0	293
1981	299	2,812	779	2,875	0	0	9	0	0
1982	754	6,161	1,633	6,214	102	482	0	0	0
1983	395	2,692	163	648	0	0	0	0	0
1984	94	762	794	2,362	0	0	0	0	0
1985	358	3,081	1,514	4,586	0	0	0	0	0
1986	0	0	1,533	5,845	0	0	0	80	0
1987	0	0	2,144	7,564	0	0	0	0	0
1988	0	0	696	2,171	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0
1990	0	0	180	260	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	0	0	95	640	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0

Appendix G.2. Colville River commercial whitefish catches, Northern Area, 1964-1993. ^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 ^g				
1968	3,130		42,055	18,180
1969 ^g				
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
1992	126	5,209	20,939	6,962
1993	20	5,339	31,310	6,037

^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.

^g No data available.

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, 1971-1993. ^a

Year	Healy Lake		Lake Minichumina		Tanana River		Tanana River		Yukon 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		no effort		1	-	809	-	0	0	985	2,078
1991	no effort		no effort									
1992	no effort		0	0	0	0	0	0	0	0	0	0
1993	no effort											

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

Appendix G.4. Subsistence and personal use freshwater finfish catches taken under authority of a permit,
Yukon Area, 1993. a

Permit Fishing Area	Permit Type	Issued	Returned	Percent Returned	Fished b	Whitefish	Sheefish	Burbot	Pike
Subsistence Use									
District 5									
Yukon River near Haul Road Bridge	SY-#-93	49	47	96%	38	1,009	13	23	26
Yukon River near Circle and Eagle	SE-#-93	79	79	100%	49	680	3	1	39
District 6									
Tanana River Fishing Subdistrict 6A	SA-#-93	38	37	97%	21	216	8	21	54
Tanana River Fishing Subdistrict 6B	SB-#-93	99	89	90%	38	407	8	13	211
Tanana River Upstream of Subdistrict 6C	SU-#-93	10	10	100%	8	483	0	1	51
Kantishna River Fishing Subdistrict 6A	SK-#-93	4	4	100%	1	0	0	0	0
<i>Subsistence Permit Subtotals</i>		279	266	95%	153	2,795	32	59	381
Personal Use									
Tanana River Fishing Subdistrict 6C	PC-#-93	133	131	98%	79	33	3	2	1
Tanana River Whitefish	PU-#-93	4	4	100%	2	191	0	0	1
<i>Personal Use Permit Subtotals</i>		137	135	99%	81	224	3	2	2
Delta River Carcasses c	PD-#-93	0	0	100%	0	0	0	0	0
Total		416 d	401	96%	234	3,019	35	61	383

a Does not include permit information returned after February 14, 1994.

b The number of fishermen who fished based on returned permits.

c The department chose not to issue any carcass permits to reduce spawning habitat disturbances.

d Six households were counted twice because they fished in two different permit areas.

Attachment 1. Summary of Yukon Area salmon fishery regulations adopted by the Alaska Board of Fisheries during hearings in February and March 1993.

Commercial Regulations

5 AAC 05.370. REGISTRATION AND REREGISTRATION

The board changed the 48-hour waiting period after reregistration and reduced the number of transfers allowed during the summer season.

(b) After initial registration for Districts 1 and 2, a permit holder may take salmon in another district following reregistration for the district of intended operation. The permit holder may not take salmon during the 72-hour waiting period following reregistration. District reregistration is accomplished by contacting a local representative of the department. Only one transfer is allowed before July 15.

(g) After fishing in either Districts 1 or 2, a salmon interim-use or entry permit holder shall wait 72 -hours before fishing in another district.

5 AAC 05.340. VESSEL IDENTIFICATION

The board adopted a new regulation requiring vessel identification.

A vessel used by a commercial salmon permit holder to take salmon during the open commercial fishing season in Districts 1, 2, and 3, must display, on both sides of the hull or cabin, in permanent symbols at least 12 inches high and 1 inch wide that contrast with the background either the ADF&G vessel license plate number or the fishermen's 5 digit CFEC permit serial number and the letter following.

5 AAC 05.335. MINIMUM DISTANCE BETWEEN UNITS OF GEAR

The board changed the minimum distance between units of gear in a small area of Subdistrict 4-C.

(c) In Districts 4, 5, and 6, no person may set commercial fishing gear within 200 feet of other commercial or subsistence gear, except as follows:

(1) at the site approximately one mile upstream from Ruby on the south bank of the Yukon River between ADF&G regulatory markers containing the area known locally as the "slide", there is no minimum distance requirement between subsistence gear and commercial gear.

Yukon River Drainage Fisheries Association Petition

The following is a summary of the regulations adopted by the Board of Fisheries during the review of the Yukon River Drainage Fisheries Association's (YRDFA) petition. The YRDFA petitioned the Board of Fisheries and provided recommendations on management actions that could be taken in an effort to rebuild the depressed Toklat River fall chum salmon stock.

5 AAC 01.248. THE TOKLAT RIVER FALL CHUM SALMON REBUILDING MANAGEMENT PLAN.

(a) The Board of Fisheries finds that a comprehensive long term management plan is necessary to promote sustained yield of the Toklat River fall chum salmon stock. The lack of complete resource information concerning the Toklat River fall chum salmon stock limits the ability of the board to develop a long term management approach at this time. The YRDFA presented to the board a Toklat River Fall Chum Salmon Rebuilding Management Plan which contained recommended management actions that would aid in the rebuilding effort of the Toklat River fall chum salmon stock. The objective of the plan is to achieve the minimum escapement objective of 33,000 fall chum salmon on the Toklat River spawning grounds. To accomplish this objective, the Board of Fisheries finds it necessary to implement the following regulations for the season:

(1) Between August 15 through May 15, the Toklat River drainage is closed to sport, personal use, and subsistence fishing.

(2) In the Kantishna River, the following subsistence permit requirements apply as follows:

(A) Between August 15 and December 31, the subsistence salmon harvest limit in the Kantishna River is 2,000 chum salmon;

(B) Between August 15 and December 31, the annual possession limit for the holder of a Kantishna River subsistence salmon fishing permit is 450 chum salmon. Until the fishery harvest limit is reached, permits for additional salmon may be issued by the department.

(C) Salmon may be taken only by set gill net or fish wheel. Except after August 15, once the allowable fishery harvest limit of 2,000 chum salmon is reached, only fish wheels equipped with "live boxes" may be operated; all chum salmon caught must be returned alive to the water. For the purpose of this subsection, a "live box" is a submerged container attached to the fish wheel that will keep fish caught by the fish wheel alive.

Attachment 1. (p. 3 of 5)

(3) The fishery management strategy would be to commercially harvest to a lower level than the overall strength of the Yukon River fall chum salmon return would indicate. The 1993 Yukon Area commercial fisheries will be managed from a low end of 77,900 fall chum salmon to a high end of 113,000 fall chum salmon as follows by district:

- (A) Districts 1, 2, and 3: 60,000 to 87,000 fall chum salmon;
- (B) Subdistricts 4-B and 4-C: 6,900 to 10,000 fall chum salmon;
- (C) Subdistricts 5-A, 5-B, and 5-C: 6,200 to 9,000 fall chum salmon;
- (D) Subdistrict 5-D: 1,000 to 1,500 fall chum salmon;
- (E) District 6: 3,800 to 5,500 fall chum salmon;

(1) Subdistricts 6-B and 6-C may harvest to a different level within their guideline harvest range (5 AAC 05.367. (5)) depending on inseason run strength indicators.

(4) In Subdistricts 6-A and 5-A, during the commercial fall chum salmon season there will be no more than one 24-hour commercial period per week.

(5) In Subdistrict 5-A, following the commercial salmon season closure, salmon may be taken by subsistence fishermen from 6:00 p.m. Tuesday until 6:00 p.m. Sunday.

(b) The provision of this section supersedes corresponding commercial, sport, personal use, and subsistence regulations contained in 5 AAC.

5 AAC 05.365. YUKON RIVER FALL CHUM SALMON MANAGEMENT PLAN

The Board of Fisheries adopted the YRDEFA's recommendation to eliminate coho salmon from the Upper Yukon Area fall season guideline harvest range (5 AAC 05.367). The Board of Fisheries will be reviewing the Toklat River Fall Chum Salmon Rebuilding Management Plan during the 1993/1994 meeting cycle.

Subsistence Regulations

5 AAC 01.210. FISHING SEASONS AND PERIODS

A new regulation separates the subsistence and commercial fishing periods in Districts 1, 2, and 3. Subsistence fishing will be open continuously until 24-hours before the opening of the

commercial season. During the commercial season, subsistence fishing will only be allowed between commercial periods. Subsistence fishing will open 12 hours after the close of a commercial period and will end 18 hours before the start of the next commercial opening.

5 AAC 01.240. MARKING OF SUBSISTENCE TAKEN SALMON

In Districts 1, 2, and 3, no person may possess chinook (king) salmon taken for subsistence purposes, unless the dorsal fin has been **immediately** removed. This regulation requires subsistence fishermen to remove the dorsal fin (big one on the back) of chinook salmon immediately upon landing. A person may not sell or purchase salmon from which the dorsal fin has been removed.

5 AAC 01.220. LAWFUL GEAR AND GEAR SPECIFICATIONS

In District 4, from September 21 through May 15, the Board of Fisheries adopted regulations that allows jigging gear to be operated by subsistence fishermen from shore ice. Jigging gear consists of a line or lines with lures or baited hooks which are drawn through the water by hand.

5 AAC 77.157. RESTRICTIONS ON PERSONAL USE SALMON FISHING

In the Kantishna River from the mouth of the Toklat River to the Kantishna River's confluence with the Tanana River, from August 15 through May 15, all chum salmon caught must be returned alive to the water.

5 AAC 77.172. PERSONAL USE SALMON FISHING PERMITS AND REPORTS

(b) Personal use salmon harvest limits in Subdistrict 6-C are 750 king salmon and 5,000 chum salmon taken through August 15, and 5,200 chum salmon and coho salmon combined taken after August 15. When either the king or chum salmon harvest limit for periods before August 16 has been taken, the personal use salmon fishing season in Subdistrict 6-C will close. A later season will open after August 15 to allow the taking of the harvest limit for periods after August 15. If the chum salmon harvest limit has not been obtained through August 15, the remaining harvest will not be added to the chum salmon harvest level for periods after August 15.

5 AAC 77.173. PERSONAL USE SALMON FISHING SEASONS AND PERIODS

(a) Unless altered by emergency order, personal use salmon fishing periods are from 6:00 p.m. Friday until 12:00 noon Sunday, and from 6:00 p.m. Monday until 12:00 noon Wednesday.

(b) Salmon fishing seasons or periods may be altered by emergency order for conservation purposes or to prevent harvest limits from being exceeded.

(c) In Subdistrict 6-C, salmon may be taken only by set gillnet or fishwheel. A person may not operate a set gillnet with a mesh size greater than six inches after a date specified by emergency order issued between July 5 through July 25.

5 AAC 77.174. WATERS CLOSED TO PERSONAL USE FISHING

Waters of the Tanana River drainage are closed to the personal use taking of Pike above the mouth of the Kantishna River.

(b) The following waters are closed to personal use fishing:

(1) The Delta Clearwater River (Clearwater Creek at 64°14' N.lat., 146°16' W.long), Goodpaster River, Chena River, Little Chena River, Little Salcha River, Blue Creek, Shaw Creek, Bear Creek, McDonald Creek, and Moose Creek within 500 feet of their mouths;

(2) the Salcha River upstream of a line between ADF&G regulatory markers at its mouth;

(3) Boleo, Birch, lost, Harding, Craig, Fielding, Quartz, and Little Harding lakes;

(4) Piledriver and Badger (Chena) sloughs;

(5) the Toklat River drainage from August 15 through May 15.

In February 1993, the Board of Fisheries established the Fairbanks Non-Subsistence Area (Figure 1). In this area, personal use regulations are in effect.

Finally, the Alaska State Legislature adopted new statutes in 1992, effective at the beginning of the 1993 season, which require that a fish ticket recording the purchase of salmon must include the current price per pound for each species of salmon purchased. In addition, a fish processor/buyer is required to prominently post the current price paid for salmon at each location where salmon are purchased.

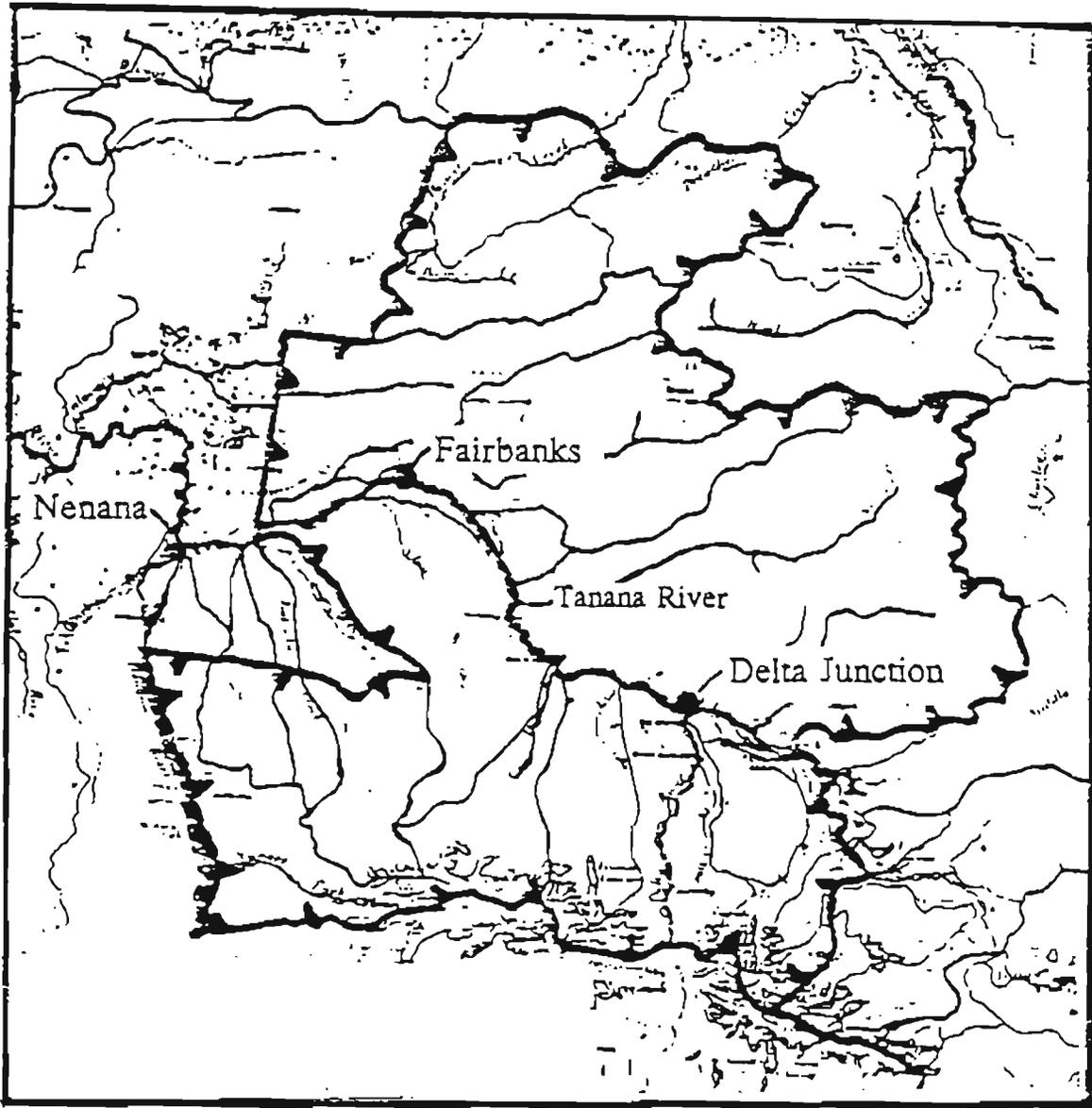


Figure 1. Fairbanks Non-Subsistence Area, 1993.

