1993 ANNUAL MANAGEMENT REPORT

FOR THE SUBSISTENCE AND COMMERCIAL FISHERIES OF THE KUSKOKWIM AREA

April 1994

Regional Information Report[1] No. 3A94-21

Prepared by:

R. Kim Francisco
Cindy Anderson
Charles Burkey Jr.
Mike Coffing
Karen Hyer
Douglas Molyneaux
Charles Uttermole

Alaska Department of Fish and Game
Division of Commercial Fisheries
Management and Development, AYK Region
333 Raspberry Road
Anchorage, Alaska 99518

[1] The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports to this series undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries Management and Development.

AUTHORS

R. Kim Francisco is Kuskokwim Area Management Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, P.O. Box 90, Bethel, Alaska 99559-0090

Cindy J. Anderson is Assistant Area Management Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 333 Raspberry Road, Anchorage, Alaska 99518-1599.

Charles Burkey Jr. is Assistant Area Management Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, P.O. Box 90, Bethel, Alaska 99559-0090

Douglas B. Molyneaux is Salmon Research Project Leader for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 333 Raspberry Road, Anchorage, Alaska 99518-1599.

Karen Hyer is Kuskokwim Sonar Project Leader for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 333 Raspberry Road, Anchorage, Alaska 99518-1599. Ms. Hyer resigned in September and was replaced by Mr. Vaught.

Michael W. Coffing is Resource Specialist for the Alaska Department of Fish and Game, Division of Subsistence, P.O. Box 1788, Bethel, Alaska 99559-1788

Charles Uttermole is Regional Biometrician for the Alaska Department of Fish and Game, Division of Subsistence, 333 Raspberry Road, Anchorage, Alaska 99518-1599

Kyle Vaught is Kuskokwim Sonar Project Leader for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 333 Raspberry Road, Anchorage, Alaska 99518-1599

OEO/ADA Statement

The Alaska Department of Fish and Game administers all programs and activities free from discrimination on the basis of sex, color, race, religion, national origin, age, marital status, pregnancy, parenthood, or disability. For information on alternative formats available for this and other department publications, contact the department ADA Coordinator at (voice) 907-465-4120, or (TDD) 907-465-3646. Any person who believes s/he has been discriminated against should write to: ADF&G, PO Box 25526, Juneau, Alaska 99802-5526; or O.E.O., U.S Department of the Interior, Washington, DC 20240.

ACKNOWLEDGMENTS

Many people contributed toward the collection and processing of the data used in this report. Alaska Department of Fish and Game employees worked long and irregular hours at various locations throughout the Kuskokwim Area collecting the data presented in this report. We thank Doug Bue, Karen Hyer, Robin Thompson, Joy Wintersteen, Doug Wade, Allen Glore, Mary Sattler, Robert Stewart, Victoria Baker, Philip Perry, Chris Schmierbach, Joshua Arnold, Richard Chapell, John Buchanon, Greg Christen, Roberta Lewando, Matt Niclai, Dave Vozka and Jon Becker. In addition, we would like to recognize Inna Rganimova, Valerie Bjornstad, Syma Ebbin, Patricia and Randy Burkey, and Marsha Francisco; the volunteers in the Kuskokwim Area. They provided valuable assistance by completing projects that were not funded. Mike Wade performed many useful tasks as a volunteer maintaining the bunkhouse. A special thanks goes to Bobbi Fisher, Fish and Game Field Office Assistant, for keeping the paper moving. Salmon processors contributed data, communications, transportation, and advice. We gratefully acknowledge the subsistence and commercial fishers who voluntarily provided their time, skill and knowledge. The Yukon Delta National Wildlife Refuge (United States Fish and Wildlife Service) provided valuable flight time, meeting space, sampling assistance, escapement data, and advice.

TABLE OF CONTENTS

	Page
LIST OF TABLES	iii
LIST OF FIGURES	v
LIST OF APPENDICES	vi
PREFACE	1
PART I. SALMON FISHERY	1
Fishery Resources	1
Management Programs	1
COMMERCIAL FISHERY	2
Escapement Monitoring	2
Area and District Boundaries	3
Public Communications	4
Commercial Fishery Data	4
SEASON SUMMARY	5
Kuskokwim River (District 1 and 2)	5
Chinook Salmon	6
Sockeye Salmon	7
Chum Salmon	7
Coho Salmon	8
Quinhagak (District 4)	9
Chinook Salmon	10
Sockeye Salmon	10
Chum Salmon	10
Coho Salmon	10
Goodnews Bay (District 5)	11
Chinook Salmon	11
Sockeye Salmon	11
Chum Salmon	11
Coho Salmon	12
Enforcement	12
OUTLOOK FOR 1994	12
Chinook Salmon	12
Sockeye Salmon	13
Chum Salmon	13
Coho Salmon	13
SUBSISTENCE SALMON FISHERY	14
Background	14
Subsistence Salmon Fishing Regulations	14
Participation	14
Licenses, Permits, and Gear	15

In-Season Closures . . . 15
Additional Subsistence Closures in 1993 . . . 15

SUBSISTENCE SALMON HARVEST SURVEYS . . . 15
Methods . . . 16
Catch Calendars . . . 16
Household Surveys . . . 16
Postcard Surveys . . . 17
Telephone Surveys . . . 17
Subsistence Salmon Harvest Estimation . . . 18
1993 Sampling Summary . . . 19
1993 Harvest Summary . . . 19

PART II: FRESHWATER FIN FISH FISHERY . . . 21
Subsistence Fishery . . . 21
Commercial Fishery . . . 21
Status of the Stocks . . . 22

PART III: MISCELLANEOUS SALTWATER FINFISH . . . 23

PART IV. HERRING FISHERY: INTRODUCTION . . . 24
Area and District Boundaries . . . 24
Management Programs . . . 24
Season Summary . . . 25

STOCK STATUS . . . 25
Assessment Methods . . . 25
Spawning Populations . . . 26
Security Cove District . . . 26
Goodnews Bay District . . . 26
Cape Avinof District . . . 26
Nelson Island District . . . 27
Nunivak Island District . . . 27

SUBSISTENCE FISHERY . . . 27

COMMERCIAL FISHERY . . . 27
Security Cove District . . . 27
Goodnews Bay District . . . 28
Cape Avinof District . . . 28
Nelson Island District . . . 29
Nunivak Island District . . . 29
Enforcement . . . 30

OUTLOOK AND MANAGEMENT STRATEGY FOR 1994 . . . 30
Security Cove District . . . 30
Goodnews Bay District . . . 30
Cape Avinof District . . . 31
Nelson Island District . . . 31
Nunivak Island District . . . 31

LITERATURE CITED . . . 32

TABLES . . . 35

FIGURES . . . 77

APPENDICES . . . 89

LIST OF TABLES

Table		Page
Table 1.	Peak aerial survey salmon escapement estimates in Kuskokwim Area spawning tributaries by species, 1993	36
Table 2.	Daily and cumulative salmon escapement for the Tuluksak River weir, 1993	37
Table 3.	Chum salmon escapement estimation for 1993 using side scan sonar migration timing data from the years 1980-88, Aniak River, Alaska	39
Table 4.	Daily chinook salmon estimated season escapements using early, normal and late timing models, Kogrukluk River, Alaska, 1993	40
Table 5.	Daily sockeye salmon estimated season escapements using early, normal and late timing models, Kogrukluk River, Alaska, 1993	41
Table 6.	Daily chum salmon estimated season escapements using early, normal and late timing models, Kogrukluk River, Alaska, 1993	42
Table 7.	Daily coho salmon estimated season escapements using early, normal and late timing models, Kogrukluk River, Alaska, 1993	43
Table 8.	1993 Goodnews River Weir Project Daily Counts	44
Table 9.	Cumulative estimated fish passage at the Kuskokwim river sonar site, 1993	45
Table 10.	Daily estimated fish passage at the Kuskokwim river sonar site, 1993	47
Table 11.	1993 Kuskokwim area fish ticket summary	49
Table 12.	Kuskokwim Area salmon entry permits issued by village, 1993	50
Table 13.	Ex-vessel Value of Kuskokwim Area Salmon Catch by District	51
Table 14.	Executive summary of working group and department actions, 1993	52
Table 15.	Lower Kuskokwim River, District 1, commercial salmon harvest and fishing effort by period, 1993	55
Table 16.	Middle Kuskokwim River, District 2, commercial salmon harvest and fishing effort by period, 1993	56
Table 17.	The 1993 commercial salmon catch statistics for statistical area 335-11	57
Table 18.	The 1993 commercial salmon catch statistics for statistical area 335-12	58
Table 19.	The 1993 commercial salmon catch statistics for statistical area 335-13	59
Table 20.	The 1993 commercial salmon catch statistics for statistical area 335-14	60

LIST OF TABLES (continued)

Table		Page
Table 21.	Quinhagak, District 4, commercial salmon harvest and fishing effort by period, 1993	61
Table 22.	Goodnews Bay, District 5, commercial salmon harvest and fishing effort by period, 1993	62
Table 23.	Preliminary projections of the 1994 Kuskokwim Area commercial salmon harvests in thousands of fish by species	63
Table 24.	1993 Kuskokwim Area Subsistence Salmon Project Sampling Summary	64
Table 25.	1993 Kuskokwim Area Subsistence Salmon Harvests	65
Table 26.	Catch in commercial freshwater gillnets by day by gear size in District 1, 335-12, 1993	66
Table 27.	Catch in commercial freshwater gillnets by day by gear size in District 1. 335-13, 1993	67
Table 28.	Kuskokwim area Pacific herring proportion of biomass by age class, 1993	70
Table 29.	Kuskokwim area Pacific herring age frequency by district, 1993	71
Table 30.	Summary of Pacific herring commercial harvest by fishing period for Kuskokwim Area fishing districts, Alaska, 1993	72
Table 31.	Projections of Pacific herring spawning biomass and harvest for commercial fishing districts in the Kuskokwim Area, Alaska, 1994	74
Table 32.	Daily and cumulative salmon escapement for the Kogrukluk Weir, 1993	75

LIST OF FIGURES

Figure		Page
1.	Kuskokwim Area Map	78
2.	Kuskokwim Management Area, District 1	79
3.	Kuskokwim Management Area, District 2	80
4.	Kuskokwim Management Area District 4	81
5.	Kuskokwim Management Area District 5	82
6.	Kuskokwim drainage aerial chinook salmon escapement index, 1992	83
7.	Goodnews Bay and Security Cove Herring District	84
8.	Cape Avinof Herring District	85
9.	Nelson Island Herring District	86
10.	Nunivak Island Herring District	87
11.	Age composition of Pacific herring in spawning populations and commercial harvest, Kuskokwim Area, 1992	88

LIST OF APPENDICES

APPENDIX A — Page

A.1 Kuskokwim Area escapement index objectives for chinook, sockeye, coho and chum salmon 91

A.2. Kuskokwim Area commercial, subsistence, and personal use salmon catches, 1913-1993 92

A.3. Historic events which have potential or actual influence on the commercial salmon fisheries of the Kuskokwim area 94

A.4. Estimated dollar value of Kuskokwim Area commercial salmon fishery, 1964 - 1993 98

A.5. Maximum, mean, and minimum number of permits used in a single period by district, 1962 - 1993 99

A.6. Commercial Fishing Effort in Kuskokwim Area by Permit-Hour[a], 1960-1993 100

A.7. Mean salmon weights and prices paid to commercial fishers in the Kuskokwim Area, 1967-1993 101

A.8. Historic salmon escapement data from current Kuskokwim Area projects, 1976-1993 102

A.9. Fish species commonly found in the Kuskokwim Area 104

A.10. Kuskokwim Area subsistence chinook salmon harvest by village, 1960-1993 105

A.11. Kuskokwim Area subsistence sockeye salmon harvest by village, 1985 - 1993 108

A.12. Kuskokwim Area subsistence coho salmon harvest by village, 1985 - 1993 109

A.13. Kuskokwim Area subsistence chum salmon harvest by village, 1985 - 1993 110

APPENDIX B

B.1. Kuskokwim River distances 112

B.2. Historic daily CPUE for chinook salmon catches in the Eek test fishery 114

B.3. Historic daily CPUE for sockeye salmon catches in the Eek test fishery 116

B.4. Historic daily CPUE for coho salmon catches in the Eek test fishery 118

B.5. Historic daily CPUE for chum salmon catches in the Eek test fishery 119

B.6. Historic daily CPUE for chinook salmon catches in the Bethel test fishery 121

B.7. Historic daily CPUE for sockeye salmon catches in the Bethel test fishery 123

B.8. Historic daily CPUE for coho salmon catches in the Bethel test fishery 125

B.9. Historic daily CPUE for chum salmon catches in the Bethel test fishery 126

LIST OF APPENDICES (continued)

APPENDIX B | Page

B.10. Historic daily CPUE for chinook salmon catches in the Aniak test fishery 128

B.11. Historic daily CPUE for sockeye salmon catches in the Aniak test fishery 130

B.12. Historic daily CPUE for coho salmon catches in the Aniak test fishery 132

B.13. Historic daily CPUE for chum salmon catches in the Aniak test fishery 133

B.14. Lower Kuskokwim River, District 1, and the middle Kuskokwim River, District 2, combined commercial salmon harvest, 1960-1993 135

B.15. Comparative chinook salmon catches by fishing period by year in District 1, Lower Kuskokwim River, 1974 - 1993 136

B.16. Comparative chinook salmon catches by fishing period by year in District 2, Middle Kuskokwim River, 1985-1993 142

B.17. Comparative sockeye salmon catches by fishing period by year in District 1, Lower Kuskokwim River, 1981 - 1993 143

B.18. Comparative sockeye salmon catches by fishing period by year in District 2, Middle Kuskokwim River, 1985-1993 145

B.19. Commercial coho salmon catches by period, lower Kuskokwim River (District 1), 1974-1993 146

B.20 Comparative coho salmon catches by fishing period by year in District 2, Middle Kuskokwim River, 1985-1993 151

B.21. Comparative chum salmon catches by fishing period by year in District 1, Lower Kuskokwim River, 1971 - 1993 153

B.22. Comparative chum salmon catches by fishing period by year in District 2, Middle Kuskokwim River, 1985 - 1993 158

B.23. Historic commercial salmon catches by statistical area in District 1 of the Kuskokwim River 160

B.24. Lower Kuskokwim River, District 1, commercial effort, 1970 - 1993. 161

B.25. Middle Kuskokwim River, District 2, commercial effort 1970-1993 162

B.26. Age distribution of historic commercial chinook salmon catches from the lower Kuskokwim River by sample trip 163

B.27 Age distribution of historic commercial sockeye salmon catches from the lower Kuskokwim River by sample trip 166

LIST OF APPENDICES (continued)

APPENDIX B — Page

B.28 Age distribution of historic commercial coho salmon catches from the lower Kuskokwim River by sample trip 168

B.29. Age distribution of historic commercial chum salmon catches from the lower Kuskokwim River by sample trip 172

B.30. Utilizations of Kuskokwim River chinook salmon, 1960-1993 176

B.31. Utilizations of Kuskokwim River chum salmon, 1960-1993. 177

B.32 Historical daily cumulative salmon escapement at the Tuluksak Weir 1991-1993 178

B.32 Historical daily cumulative salmon escapement at the Tuluksak Weir 1991-1993 180

B.33 Historic daily estimates of chum salmon escapement at the Aniak River Sonar site 181

B.34. Historical cumulative estimated escapement of chinook salmon at the Kogrukluk weir for years with adequate data. 182

B.35. Historical cumulative estimated escapement of sockeye salmon at the Kogrukluk weir for years with adequate data 184

B.36. Historical cumulative estimated escapement of coho salmon at the Kogrukluk weir for years with adequate data. 186

B.37. Historical cumulative estimated escapement of chum salmon at the Kogrukluk weir for years with adequate data. 188

B.38. Factor table for historical escapement estimates, Kogrukluk River, 1976-1993. 190

B.39. Chinook salmon sex ratios and proportion of females with gill net marks, Kogrukluk weir, 1979-1993 . 191

APPENDIX C

C.1. Quinhagak District commercial salmon harvest, 1960-1993. 193

C.2. Summary of historical commercial salmon harvest by period Quinhagak chinook salmon 1981-1993 . . . 194

C.3. Summary of historical commercial harvest by period Quinhagak District sockeye salmon, 1981-1993 . . 196

C.4. Summary of historical commercial harvest by period Quinhagak District coho salmon 1979-1993 198

C.5. Summary of historical commercial harvest by period Quinhagak District chum salmon 1981-1993 200

C.6. Quinhagak District commercial effort 1970-1993. 202

C.7. Historical age composition percentage, chinook salmon, Quinhagak commercial harvest and escapement, 1982 -1988 203

LIST OF APPENDICES (continued)

APPENDIX C — Page

C.8. Historical age composition percentage, sockeye salmon, Quinhagak commercial catch and escapement, 1982 - 1988. 206

C.9. Historical age composition percentage, chum salmon, Quinhagak commercial harvest and escapement, 1982 - 1989. 208

C.10. Kanektok River peak aerial surveys by species, 1962 - 1993 210

APPENDIX D

D.1. Goodnews Bay District commercial salmon harvest, 1968-1993. 212

D.2. Summary of historical commercial harvest by period, Goodnews Bay, chinook salmon, 1981-1992 213

D.3 Summary of historical commercial harvest by period Goodnews Bay, sockeye salmon, 1981-1992 215

D.4 Summary of historical commercial harvest by period, Goodnews Bay, coho salmon, 1979-1992 217

D.5. Summary of historical commercial harvest by period, Goodnews Bay, chum salmon, 1981-1992 218

D.6. Goodnews Bay, District 5 commercial effort 1970-1993 220

D.7. Historical age composition percentage, chinook salmon, Goodnews Bay commercial catch and escapement 1982 - 1989 221

D.8. Historical age composition percentage, sockeye salmon, Goodnews Bay commercial catch and escapement, 1982 - 1989 223

D.9. Historical age composition percentage, chum salmon, Goodnews Bay commercial catch and escapement, 1982 - 1989 225

D.10. Average cumulative estimated escapement and proportion by day for chinook, sockeye and chum salmon, Goodnews River weir 1981-1993 228

D.11. Estimated daily escapement of chinook salmon at the Middle Fork Goodnews River weir 1981-1993 . . 230

D.12. Estimated daily escapement of sockeye salmon at the Middle Fork Goodnews River weir 1981-1993 . . 232

D.13. Estimated daily escapement of coho salmon at the Middle Fork Goodnews River weir 1981-1993 234

D.14. Estimated daily escapement of chum salmon at the Middle Fork Goodnews River weir 1981-1993 236

D.15. Peak aerial survey results Goodnews River 1980-1993. 238

D.16. Historical estimated salmon run size and commercial exploitation rate, Goodnews River, 1981-1993 . . 239

LIST OF APPENDICES (continued)

APPENDIX F Page

F.1. Commercial freshwater fin fishery catch data, Kuskokwim Area, 1977-1993. 242

APPENDIX G

G.1. Commercial miscellaneous saltwater finfish fishery catch data, Kuskokwim Area, 1988-1993. 244

APPENDIX H

H.1. Estimated biomass and commercial harvest of Pacific herring in Kuskokwim Area fishing districts, Alaska, 1981-1993. 246

H.2. Number of buyers and fishermen participating in Kuskokwim Area Pacific herring fisheries, Alaska, 1981-1993. 248

H.3. Pacific herring subsistence harvest (st) and effort data from selected Kuskokwim Area villages, Alaska, 1975-1993 250

H.4. Commercial harvest, effort and value of Pacific herring in Kuskokwim Area fishing districts, Alaska, 1981-1993. 251

APPENDIX S

S.1. Subsistence salmon survey calendar, 1993 254

S.2. Post-season subsistence salmon harvest survey, Kuskokwim Area, 1993 256

S.3. Post-season subsistence salmon harvest survey postcard, 1993 258

PREFACE

This is the thirty-second (1985/1986 was a single report) annual management report detailing the management activities of the Division of Commercial Fisheries Management and Development staff in the Kuskokwim Area. The 1960-1974 management reports for the "Kuskokwim District" appear in the Arctic-Yukon-Kuskokwim Area report series. The 1975-1986 management reports appear in the Kuskokwim Area Annual Report series. The annual management report became a part of the Regional Information Report Series in 1987.

Data presented in this report supersede information found in previous management reports. This report includes summary data from many special research projects. Complete documentation of these projects and results appear in separate reports. The bibliography includes both referenced and unreferenced reports concerning the Kuskokwim Area fisheries. Some of the data presented is preliminary and may be presented with minor differences in future reports.

Subsistence catch estimates for the years before 1978 are different from the estimates presented in the Kuskokwim Area Annual Management Reports for 1978 through 1984. The historical data was reanalyzed in 1978 and tables were revised. The method and the reason for the revision was not recorded. In an effort to standardize the subsistence catch data, the estimates originally reported in the Management Reports before 1978 have replaced the 1978 revisions.

To simplify use of this report, the tabular data are separated into current year tables and appendices. The appendices are separated by fishery and fishing district. The appendices show annual comparisons and information that seldom change.

The ages of fish in this report are presented as both total age, year spawned to year recorded and in the European notation. In the European system the number of winters in freshwater after hatching is followed by the number of winters in salt water. The fresh and salt water winters are separated by a decimal point. To derive total age from the European system you must add the fresh and saltwater winters and add one for the year of spawning. For example an age 1.3 chinook salmon's total age is 5 years; 1+3+1=5.

PART I. SALMON FISHERY

Fishery Resources

Six species of Pacific salmon are indigenous to the area; chinook or "king" salmon (Oncorhynchus tshawytscha), sockeye or "red" salmon (O. nerka), coho or "silver" salmon (O. kisutch), pink or "humpy" salmon (O. gorbuscha) chum or "dog" salmon (O. keta) and rainbow trout (O. mykis). The Kuskokwim River drainage has the largest populations of chinook, sockeye, coho and chum salmon in the Kuskokwim area. Pink salmon occur throughout the area. Little quantitative data on the population size of pink salmon is available because of the lack of commercial markets and interest by subsistence fishers. Rainbow trout are rare or absent upstream of the Aniak River drainage and west of the Kuskokwim River. The largest populations in the area are found in the Kanektok and Goodnews Rivers. There is no commercial fishery on rainbow trout. Their contribution to the subsistence fishery has not been quantified, except in the Kanektok River (Wagner 1991). There is a growing sport fishery on all six species that is documented by the Division of Sport Fish.

Management Programs

The management objective for chinook, coho, and chum salmon in Districts 1 and 2 is to achieve desired escapement objectives and allow for the orderly harvest of fish surplus to spawning requirements. Sockeye and pink salmon are not actively managed. The management objective for chinook, coho, and sockeye salmon in Districts 4 and 5 is to achieve desired escapement objectives and allow for the orderly harvest of fish surplus to spawning requirements. Chum and pink salmon are not actively managed. Subsistence uses receive the highest priority among consumptive uses of the resources. Inseason management depends heavily on commercial catch data, the test fisheries and escapement models. Escapement

models predict the final escapement by extrapolating the inseason counts using the historical percentage of run passage for that date.

COMMERCIAL FISHERY

Prior to 1983, a management strategy of conservatively increasing the commercial catch harvest guidelines to establish definite trends between catch and escapement allowed development of the fishery. The change from a harvest-guideline-based management strategy to an escapement-objective-based strategy in 1983 appears to be increasing the average harvest (Appendix A.2). It is too early to determine if the escapement-based management strategy will provide a long term increase in production in the Kuskokwim Area. The historic escapement levels supported much lower harvest levels and may not be able to support the increased harvest levels. The only stock in the Kuskokwim Area which is a conservation concern[2] is Goodnews Bay chinook salmon. The failure of Aniak River chum salmon to reach its escapement objective in 1992 and 1993 will require special management measures in the 1996 through 1998 return years to prevent the creation of a conservation concern.

Escapement Monitoring

The area's escapement data base allowed the assignment of provisional salmon spawning escapement objectives in major spawning systems in 1983. These objectives are the average escapement counts obtained under acceptable conditions by aerial survey, tower, weir, and sonar indices in these systems since 1959 (Appendix A.1). Indices obtained under poor conditions (primarily turbid water or radically incomplete counts) were excluded. Surveys of an unusual magnitude were not used to calculate the index because of their disproportionate effect. The objectives represent the minimum escapement levels needed to maintain the salmon stocks at past levels of abundance. Continuing evaluation of the escapement data provided for refinements to the objectives.

Aerial surveys of "key" streams and lakes throughout the area provided escapement indexes in 1993 (Table 1). The United States Fish and Wildlife Service (USFWS) operated the Tuluksak River weir for the third year in 1993 (Table 2 & Appendix B.32). A sonar project in the Aniak River provides an annual assessment of spawning escapement in that stream (Table 3 & Appendix B.33). A weir project on the Kogrukluk River provided salmon escapement estimates for that Kuskokwim River drainage index stream (Table 32). The Goodnews River Weir provided salmon escapement estimates for District 5 and the Goodnews River (Table 8). The USFWS ceased operation of the Kwethluk River weir after a single year of operation (1992) due to opposition from the village of Kwethluk.

Turbid water conditions and inclement weather often prevent accurate estimates of escapements by aerial survey. Timely escapement estimates for inseason management are difficult to obtain. Most spawning streams are many miles upstream of the commercial fishing districts. This results in a long delay between the commercial periods and their visible effects on escapement. Escapement estimates can be too late for adjustment of fishing time. Inseason management depends heavily on commercial catch data, the test fisheries and escapement projection models. Escapement models predict the final escapement by extrapolating the inseason counts by the historical percentage of run passage for that date (Tables 4 - 9).

A processor sponsored test fishery near Eek (Figure 2) operated from 1988 through 1990. They were unable to provide for the fishery in 1991. The Department funded the fishery beginning the last week of July 1992 through 1993. Funding for this project in 1994 is uncertain. This fishery provides information on the entry timing of salmon into the river. The increasing data base is providing comparative catch data on run abundance (Appendices B.1 - B.4).

The Department operated the Bethel Test Fishery for the tenth year in 1993. This extensive comparative data base allows this test fishery to provide the best inseason information on run abundance (Appendices B.5 - B.8).

---

[2] A conservation concern is a stock which fails to reach its escapement objective despite repeated proactive management measures.

The processor in Aniak funded new test fisheries at two locations; Aniak and Chuathbaluk, beginning in 1992 (Figure 3, Appendices B.9 - B.12). The Aniak Test Fishery provided data which showed that the Aniak River chum salmon were critically weak. More importantly it showed that the upper Kuskokwim drainage chum salmon run was strong enough to support subsistence fishing because the index was higher on the north bank than when escapement objectives were made in 1992 (Appendix B.12). This made it unnecessary to close subsistence fishing in the Kuskokwim drainage above District 2. The Chuathbaluk Test Fishery is an inconsistent performer for unknown reasons. An increased data base may allow interpretation of the data from this fishery.

CPUE in the test fisheries is a standardized value to enhance comparability of the catch results. The test fishery CPUE considers differences in the length of the net used and the mean fishing time of each sampling period. The CPUE is expressed in terms of the number of fish that would have been caught if 180 m (100 fathoms) of net were fished for exactly 60 minutes.

Development of a dual beam side-scanning sonar project in the Kuskokwim River near Bethel began in 1988. New equipment and procedures underwent a feasibility test in 1993. The project was successful in 1993 and will provide inseason run assessment in 1994. (Table 9 & 10). The Kuskokwim River sonar project provided estimates of salmon species passage from 3 June through 20 August. Project upgrades in 1993 included a change in sonar frequency to 120 kHz in order to circumvent attenuation problems experienced in previous years, and hydroacoustic sampling on the left bank through radiotelemetry. Transect data was not used in 1993 to estimate the proportion of fish passage in the unensonified mid-river zone. Fish passage in the unensonified zone was estimated based on the assumption of uniform distribution throughout the river's cross-section. Severe hydroacoustic noise was encountered on the right bank, and was circumvented through sonar system and signal processing software parameter settings. Total season passage estimates for chinook, sockeye, chum and coho salmon were 93,515, 282,461, 424,097, and 320,613. Whitefish season passage was estimated at 387,214. It is probable that coho salmon passage was overestimated, due to cisco appearing in sonar counts but not in the test fishing catch. Bethel test fish CPUE largely corroborated sonar passage estimates, with the exception of coho salmon.

Area and District Boundaries

The Kuskokwim Area includes all waters of Alaska between Cape Newenham and the Naskonat Peninsula, plus Nunivak and St. Matthew Islands (Figure 1). Commercial salmon fishing occurs in four districts in the area:

District 1, the Lower Kuskokwim River, consists of the Kuskokwim River from a line between Apokak Slough and Popokamiut, upstream to a line between ADF&G regulatory markers located about one mile above the Tuluksak River (Figure 2). The downstream boundary has been in effect since 1986 and the upstream boundary was established in 1990 (Appendix A.3).

District 2, the Middle Kuskokwim River, consists of the Kuskokwim River from ADF&G regulatory markers located at the upstream entrance to the second slough on the west bank downstream from Kalskag to the regulatory markers at Chuathbaluk (Figure 3). The downstream boundary of District 2 was used for the first time in 1990 (Appendix A.3).

District 4, Quinhagak, consists of the waters of Kuskokwim Bay between the mouth of Weelung Creek (misspelled in the regulations as Wheeling) and the South Mouth of the Arolik River (Figure 4). The northern boundary was new in 1990 and the first boundary change since 1960 (Appendix A.3).

District 5 consists of the waters of Goodnews Bay (Figure 5). This boundary has been in effect since the inception of the fishery in 1968.

The "W" precedes the district number on the figures and in news releases (eg. W-1). This helps the public differentiate between announcements for the Yukon River districts (Y) and the Kuskokwim River (W) districts. "W" is the letter code assigned to the Kuskokwim Area by the Commercial Fisheries Entry Commission.

Public Communications

Communicating management plans and decisions to the public is always difficult. Many people in the Kuskokwim Area cannot read or speak English. More often English is a second language, which increases the challenge of communicating management plans and decisions. The Department and the Kuskokwim River Salmon Management Working Group's relationship has dramatically improved the acceptance and understanding of many users. Special regulation notices are broadcast over local radio stations, VHF and CB radio in English and Yup'ik. The Department participates in school and workshop programs in the winter. News releases are now much more widely distributed through a computerized FAX system.

Commercial Fishery Data

Catch per unit effort or CPUE is the catch during a fishing period divided by the product of the number of unique CFEC permits used in a fishing period multiplied by the total number of hours the district was open to commercial fishing. Commercial CPUE equals catch per permit-hour in this report.

Computer tabulations of fish tickets provide the commercial catch data presented in this report. The computer software program used to tabulate fish ticket data is the statewide system provided by the Division of Commercial Fisheries Computer Services section. During 1993 the Bethel office tabulated 12,890 fish tickets (Table 11).

The relative lack of comparative catch data, caused by the expansion of the fisheries since their initiation, hampers management. Management of the commercial harvest is complicated by the need to provide optimum spawning escapements, as well as sufficient harvest to the important subsistence fishery.

The commercial fishery has expanded during the last ten years. This expansion is due to increased participation by individual fishers and improvements in fishing gear, tendering, and processing capabilities. In 1993, 807 of the 832 permit holders made at least one landing (Appendix A.4). The number of permits fished in 1993 was above average. Since the peak of 824 permits fished in 1989 and 1990, the number of active permits has declined slightly (Appendix A.4). The number of fishers participating in each fishing period is beginning to stabilize. Significant fluctuations do occur (Appendix A.5).

The number of permit-hours fished was below average, at 89,090 in 1993 (Appendix A.6). Permit-hours were below average in Districts 1 and 2 due to the long closure during the chum salmon fishery. Permit holders can transfer freely between districts. This caused the closure in Districts 1 and 2 to contribute to the above average number of permit-hours in Districts 4 and 5.

Appendix A.6 shows that permit-hours peaked in 1975; probably due to the impending limited entry permit moratorium. Since that time, maintaining adequate subsistence harvests and average spawning escapements required reductions in fishing time. Fisher efficiency has increased, as the increase in harvest (Appendix A.2) and the decrease in permit-hours (Appendix A.6) shows. Commercial harvest guidelines and gear restrictions have also offset increases in fishing efficiency. Improved run strength, escapement based management, and increased participation has resulted in permit-hours stabilizing around 105,000 since 1988 (Appendix A.6).

Commercial fishing regulations set maximum gill net specifications of; 6-inch or smaller mesh, 50 fathoms in length and 45 meshes in depth for all districts. Fishing periods in District 1 and 2 are usually six hours in duration from 1:00 p.m. until 7:00 p.m., as required by the management plan. Longer fishing periods divide the extra time before 1:00 p.m. and after 7:00 p.m. In Districts 4 and 5 fishing periods are normally 12 to 24 hours in length. Fishers prefer daylight fishing hours so the periods are normally 9:00 a.m. until 9:00 p.m.

Adjustments of the number and duration of commercial fishing periods and time intervals between periods are the primary methods of distributing the harvest throughout the run. This avoids overharvesting discrete stocks and allows harvests to remain within guidelines, achievement of escapement objectives, and sufficient fishing time for the subsistence

fishery. Commercial fishing periods varied between 6 and 12 hours in length depending on the species, effort, and return magnitude. Run magnitude is measured by commercial catch data and by various Department, USFWS and industry sponsored projects.

Kuskokwim Area fishers owned 97 percent of the commercial permits in 1993 (excluding educational permits held by local schools). Non-local Alaskan residents owned 2 percent (19) of the permits (Table 12). Only 3 permits are owned by non-residents.

SEASON SUMMARY

The total 1993 Kuskokwim Area commercial salmon catch (Districts 1, 2, 4 and 5) consisted of 26,636 chinook, 167,235 sockeye, 686,570 coho, 71 pink and 94,937 chum salmon (Appendix A.2). In 1993 the average Kuskokwim permit holder earned $4,911 (Appendix A.4). The total amount paid to fishers was $3,962,890, excluding bonuses and other incentives (Appendix A.4). The value of the 1993 catch was $1,509,842 below average. Prices for chinook, sockeye, and coho salmon were below average (Appendix A.7). The above average prices for pink and chum salmon did little to increase the value of the catch due to the low catches of these species. Coho salmon were the only species heavier than average in 1993 (Appendix A.7). Coho salmon were the most abundant and valuable species bringing fishers over 67 percent of the exvessel value (Table 13).

Kuskokwim River (District 1 and 2)

The Kuskokwim River Salmon Management Working Group (Working Group) continued to work closely with the Department in 1993. Representatives of Kuskokwim River salmon users comprise the Working Group. Through uncommon dedication by all the concerned parties the Working Group provided inseason management recommendations that helped accomplish management objectives (Table 14). During the season the Working Group met 22 times to evaluate the status of the salmon runs and make recommendations to the Department.

Run assessment in early to mid June showed low chum salmon abundance. There were no recommendations to fish made at the first four meetings during the salmon run (Table 14). At the fifth meeting the Working Group disagreed with the Department. They recommended fishing for 8 hours downstream of Bethel (Stat. Areas 335-11 & 335-12; Figure 2) in compliance with 5 AAC 07.365. KUSKOKWIM RIVER SALMON MANAGEMENT PLAN. The Working Group felt commercial catch data would improve run assessment. The Department allowed the period since previously the chum salmon run was always strong enough to support at least two commercial periods in June.

The chum salmon catch during the first period confirmed the other run indicators with the lowest CPUE ever recorded on that date (Appendix B.21). Chinook and sockeye abundance appeared average.

The 1993 chum salmon return was expected to be below average. The five year old fish, spawned in 1988, were expected to be weak due to their poor return as four year olds in 1992. The four year old chum salmon from the strong 1989 escapement were expected to be average in abundance. The chum salmon run continued to appear weak in all projects, therefore no commercial fishing periods were recommended during subsequent Working Group meetings (Table 14). At the meeting on 2 July the Department announced that sport fishing for chum salmon would close and no further commercial openings were likely until coho salmon dominated in the river. The Department requested the Working Group's recommendations on how to restrict the subsistence fishery (Table 14). The Working Group requested that the Commissioner of Fish and Game close the South Peninsula fishery (it was already closed under the post June salmon management plan). The Working Group advised the Department to use their data and knowledge to restrict the subsistence fishery. The Working Group adjourned until the Commissioner arrived to meet with them (Table 14).

On 30 July the Working Group met and the Department reported that normal subsistence fishing had resumed in District 1. The cumulative test fish index for coho salmon was the highest on record for this date. The Department recommended opening District 1 for 6 hours on 31 July. After much discussion, the Working Group didn't reach consensus by 12:59 p.m. The Kuskokwim River Salmon Management Plan (5 AAC 07.365) requires 24 hours advanced

notice of commercial periods and that the periods be from 1:00 p.m. until 7:00 p.m. Because of these requirements the Department announced that District 1 would open at 1:00 p.m. on 31 July. This caused much dissatisfaction with the Department. The Working Group continued their discussion, and at 2:00 p.m. reached consensus to fish from 1:00 p.m. to 7:00 p.m. downstream of Bethel on 31 July. The Department's 1:00 p.m. announcement opening all of District 1 was the period allowed by emergency order (Table 15). Coho salmon continued to show average run strength and the Working Group's recommendations were used to manage the fishery for the remainder of the run.

District 2 remained closed to protect chum salmon until 6 August (Table 16). The commercial catch in District 2 on 6 August was only 4 percent chum salmon.

On 12 August the Kuskokwim River Salmon Management Working Group reached consensus to open for 6 hours from noon to 6:00 p.m.; contrary to 5 AAC 07.365.(b)(7), which requires the periods to be 1:00 p.m. to 7:00 p.m. The Kuskokwim River Salmon Management Working Group reached this consensus over the objections of the District 2 Subsistence representative and the Department. The Working Group felt that Thursday and Friday was enough notice of the change and subsistence fishers would not accidently fish during the closure. The change in hours would allow for safer daylight travel for commercial fishers. The District 2 Subsistence representative and Department felt changing the time would be difficult for subsistence fishers. The Lower and Middle Kuskokwim Advisory Committees spent a great deal of time in 1987 determining when the maximum amount of daylight would be available for travel and enforcement. They recommended the 1:00 p.m. to 7:00 p.m. period to the Board for adoption as a regulation. The Department allowed the time change in the interest of cooperative management. The Department called 27 contacts in District 2, where there is poor radio reception, to try to insure that fishers were aware of the change. We received many complaints, in person and by phone, from fishers in District 1 concerning the change in time. The Kuskokwim Native Association's (nonprofit agency representing middle Kuskokwim villages) attorney wrote the Director complaining of the change in time.

No citations were issued for subsistence fishing during the closure. The Department informed the Working Group that due to the wide spread dissatisfaction in both districts, no more changes to the standard fishing time would be allowed. Fishing continued based on the Working Group's recommendations until the regulatory closure on 1 September.

In District 1, 48 percent of the commercial effort occurred in statistical area 335-12 (Figure 2 & Tables 17 - 20). This resulted in statistical area 335-12 having the largest catches of all species. Statistical area 335-11, the mouth or the river, had the highest CPUE for chinook, sockeye, and chum salmon (Figure 2 & Tables 17 - 20). Statistical area 335-14, which had the lowest effort, had the highest CPUE for coho salmon (Figure 2 & Tables 17 - 20).

Chinook Salmon

The combined commercial and subsistence chinook salmon harvest has increased from an average of 56,000 fish from 1960-1969 to 100,240 during 1983-1992 (Appendix B.30). A conservation concern for Kuskokwim River chinook salmon occurred following a series of poor chinook salmon escapements in the mid 1980's (Figure 6). Along with poor escapement, the low number of female chinook salmon in the escapement compounded the conservation concern (Appendix B.39).

Beginning in 1984, the Board began restricting the commercial fishery since the Department was unable to correct the problem through inseason management measures. In 1985, a shift to 6-inch or smaller commercial gillnets reduced the harvest of larger female chinook salmon. This gear change was successful in shifting the sex ratio in the commercial catch from 60 percent female to 70 percent male (Appendix B. 26). Total escapement continued to decline (Figure 6). To provide for the subsistence harvest and maintain average spawning escapements the directed commercial harvest of chinook salmon was prohibited in 1987. This action resulted in chinook salmon approaching or reaching the escapement objective in subsequent years (Figure 6). An unexpected benefit of this action was an increase in the commercial harvest of chinook salmon (Appendix B. 14). The subsistence fishery continues to target large chinook salmon with "king" gear. Improved survival (perhaps related to reductions in and most recently elimination of the directed high seas salmon fishery) played a role in the success of these management changes.

Chinook salmon escapement goals were generally achieved in 1993 (Figure 6). The dramatic reduction in commercial fishing during June and July did not cause a dramatic increase in escapement. This shows that no adjustment in the chinook salmon management plan is warranted at this time.

Sockeye Salmon

The sockeye salmon catch is incidental to the chum salmon fishery in Districts 1 and 2. Before 1981, sockeye and chum salmon were not accurately identified in commercial or subsistence catches. This prevented an accurate record of the sockeye and chum salmon harvest in the Kuskokwim River. Sockeye salmon comprised 5 to 33 percent of the commercial sockeye-chum salmon catch since 1981. Before 1981, the reported sockeye salmon catch was less than 2 percent of the sockeye-chum salmon catch (Appendix B. 14). The subsistence catch was reported by species beginning in 1985. This resulted in a drop in the "small or chum" salmon catch (Appendices A. 11 - 13).

In 1993, the commercial harvest of 27,008 sockeye salmon was a record 38 percent of the sockeye-chum salmon catch. Three factors contributed to this record sockeye salmon composition:

1. The single 25 June opening, in the lower half of District 1, was four days after the sockeye salmon peak in the Eek Test Fishery (Appendix B.2) and 1 day before the peak in the Bethel Test Fishery (Appendix B.6).

2. The extremely weak chum salmon run.

3. Average sockeye salmon abundance.

Sockeye salmon escapement is documented ancillary to the other species. The Kogrukluk weir escapement estimate of 29,358 sockeye salmon in 1993 was the highest ever recorded (Appendix B.35). The lack of incidental harvest in 1993 increased sockeye salmon escapement.

Chum Salmon

Before 1971, chum salmon were an incidental catch during the chinook and coho salmon fisheries. The expansion of the commercial chum salmon fishery began in 1971. Based upon 1924-1943 subsistence harvest estimates, a total chum salmon harvest of 400,000 appeared to be consistent with the reproductive potential of the run (Appendix A.2). A combined catch of 400,000 chum salmon was the management goal from 1971 to 1979. Subsistence chum salmon catches for the entire river have continued to decline since the inception of the commercial fishery in 1971 (Appendix B. 31). From 1971 to 1980 the average subsistence harvest was 173,680. The average harvest declined to 127,862 for the period 1981 to 1990. This is due to the decline in the use of dog teams for transportation, not the increased commercial harvest.

The commercial chum salmon harvest for the Kuskokwim River (Districts 1 and 2) has averaged 507,703 salmon in the last ten years (Appendix A.14). The following guidelines control the commercial harvest:

1. Test fishing indexes show that the relative abundance of chum salmon is similar to years in which adequate escapement occurred.

2. Commercial catch per unit effort compares to previous years when escapement was adequate.

3. Subsistence fishers report adequate subsistence catches.

4. Chum salmon escapement projects predict that adequate escapements will occur.

Declining run strength normally results in a 2 to 3 week closure beginning in early to mid-July. Before 1985, only that portion of District 1 downstream of Bethel was open to commercial fishing during the chum salmon fishery. The Board

instructed the Department to use the entire length of District 1 beginning in 1985. This increased the efficiency of the fleet and resulted in low chum escapements in 1986 and 1987. Returns in 1988 and 1989 were at record high levels, but in order to reach escapement objectives more time was required between fishing periods. The 1990 and 1991 returns were smaller but 4 to 6 day spacing between periods resulted in chum salmon escapement objectives being approached or reached.

In 1992, the early chum salmon stocks reached escapement objectives, while the later Aniak River stock had the worst escapement to date (Appendix B. 33). An extensive closure of the commercial fishery during July did not bring the Aniak chum salmon escapement up to its' objective. The poor survival of 4 year old chum salmon caused this failure.

The later running 4 year old chum salmon were weak in 1992, so their return early in the 1993 run as 5 year old chum salmon was expected to be weak. The 1993 chum salmon run was weak in June. Inseason age data showed that 5 year old chum salmon dominated the test fishery catch the entire month of June. Given the weakness of the 5 year old chum salmon, even an average return of 4 year old chum salmon should have dominated the run in June.

The new test fisheries at Aniak and Chuathbaluk showed that most of the chum salmon in the mainstem Kuskokwim River were passing the Aniak River. The Kogrukluk weir (the index stream for fish upstream of Aniak) reached its chum salmon objective (Appendix B. 37). The sonar project in the Aniak River continued to show record low escapement despite the total closure of the commercial, sport and subsistence fisheries. The final escapement for the Aniak Sonar was 6 percent of the objective (Appendix B.33). In the District 1 spawning tributaries, the Tuluksak River weir was in its third year of operation (Appendix Table B. 32). Comparison of aerial survey and weir results show that chum salmon met escapement objectives in the lower Kuskokwim River tributaries.

Parent year escapements were excellent in both the 1988 and 1989 brood years. The poor return of 5 year old chum salmon in 1993 is coincidental with the record cold temperatures in January and February of 1989. We suspect that a freeze-down during the 1988-89 winter caused increased mortality of chum salmon eggs resulting in the weak return of 5 year old fish in 1993. The poor survival of 4 year old chum salmon was unexpected and unexplained. The cause of the much poorer survival of Aniak River chum salmon, when compared to the rest of the drainage, is unknown. The two weak years back to back signal poor returns in 1996 through 1998 even with normal survival. The management of the mixed stock fishery in Districts 1 and 2 will be a challenge if the rest of the Kuskokwim drainage has normal survival.

Coho Salmon

Limited funding has resulted in only three primary indicators of coho salmon escapement in the Kuskokwim River: the Bethel Test Fishery, the Tuluksak weir, and the Kogrukluk weir. The test fisheries at Eek, Aniak and Chuathbaluk and the commercial catch data in Districts 1 and 2 also provide coho salmon run assessment information.

The objective at the Kogrukluk weir is 25,000 coho salmon. Past years' commercial CPUE in District 2 showed that the weir reached 25,000 when the cumulative CPUE was at or above 37 coho per hour in District 2. The Central Kuskokwim Advisory Committee reports poor subsistence fishing in years when CPUE is less than 37 fish per hour. This is a useful tool inseason since the migration delay is much less than for the weir.

The Tuluksak River weir is now beginning to provide an index to coho salmon escapement in the lower Kuskokwim tributaries. USFWS is uncertain of future funding for this project.

Traditionally the subsistence fishery took few coho salmon due to poor drying conditions during August and September. Earlier migrating species normally met subsistence needs. This pattern has been changing gradually as the number of families with freezers increases. Coho salmon are a popular species for freezing, accounting in part for the increased subsistence use of coho salmon during the last five years. Another factor is the Department's emphasis on collection of subsistence coho salmon catch data in recent years.

The Kuskokwim River commercial fishery reopens when coho salmon predominate in the subsistence and test fisheries. An assessment of run strength, shown by test fishing, subsistence and commercial catches, and the escapement trend at the Kogrukluk weir determines the amount of fishing time. Districts 1 and 2 close by regulation on 1 September. A strong run in 1984 and a late run in 1989 resulted in extending the season into September. The management strategy is similar to the strategy for chum salmon presented above.

Since statehood the commercial coho salmon catch for the entire river has ranged from 2,498 in 1960 to 666,000 fish in 1992 (Appendix B. 14). The previous ten year average (1983-1992) is 479,638 fish. Effort, in number of fishing permits, has ranged from 83 in 1971 to 736 in 1990 (Appendix B. 24). In 1993, 717 fishers landed coho salmon in District 1.

Since 1988 and the beginning of cooperative management with the Working Group overfishing of the coho salmon run has been a problem. Based on the available indicators, coho salmon made or approached escapement objectives in 1989, 1992, and 1993. Distrust of the test fish data by the Working Group, the long time lag before the weir escapement projections became useful and the frequent weir washouts contributed to the overfishing. The Department's uncertainty in how to use assessment data has often delayed corrective measures in management of this fishery.

During 1993, the cumulative CPUE in District 2 was 31.5, below the desired level of 37 discussed above (Appendix B. 20). Figure 7 shows the District 2 commercial CPUE. The periods on 14 and 17 August fell below years when escapements were made. The three periods after 21 August are only compared to the record 1992 return. District 2 was not opened this late in August in earlier years. The original calculation of the average 37 CPUE was based on fishing periods during the first 21 days of August. The 1993 cumulative CPUE through 21 August was 36, very close to the 37 CPUE objective. The three latter periods depressed the season CPUE.

The Bethel Test Fishery cumulative CPUE index was comparable to years when the escapement objective was reached (Appendix B. 8). The Aniak Test Fishery CPUE in 1993 was greater than the 1992 CPUE (Appendix B. 12). The escapement objective was reached at Kogrukluk weir in 1993. The Tuluksak River had the highest coho salmon escapement in its three years of operation (Appendix B. 32). No coho escapement objective has been established for this project.

It appears that in 1993 cooperative management was successful in approaching or reaching the Kuskokwim River coho salmon escapement objectives. Unfortunately high water prevented positive confirmation of the coho salmon escapement at the Kogrukluk River weir.

Quinhagak (District 4)

District 4 is located in the marine waters adjacent to the village of Quinhagak at the mouth of the Kanektok River, about 25 miles south of the Kuskokwim River (Figure 4). Commercial fishing occurs only in the marine waters of Kuskokwim Bay to ensure adequate escapement of salmon into the Kanektok and Arolik Rivers. Commercial fishing occurs primarily in the tidal channels that radiate out into the bay from the freshwater streams in the district.

Commercial fishing effort in this district has increased considerably in the last decade. Effort for the season has ranged from 117 permits in 1982 to a record high during the 1993 season of 409 permit holders (Appendix C. 6). The past 10 year average is 302 permit holders. Recent changes in the June Kuskokwim River commercial fishery have shifted effort to this district, which has a targeted chinook salmon fishery in June.

District 4 opened on 14 June in compliance with 5 AAC 07.367. DISTRICT 4 SALMON MANAGEMENT PLAN, which requires an opening before 16 June. During the first two openings permit holders sat on the beach striking for higher prices. Following the strike settlement, the first commercial deliveries began on 21 June (Table 21). In 1993 fishing effort on a per period basis peaked at 219 permit holders in early July (Table 21). Whenever possible, coincidental openings with other districts helped to lower effort levels.

Chinook Salmon

The third commercial opening in this district had a normal chinook salmon catch for that date. Commercial fishing continued on the normal two twelve hour periods per week schedule. On 24 June 212 permit holders had a below average chinook salmon catch and a record sockeye salmon catch. The total chinook catch in District 4 was 15,784 in 1993, the third lowest in the last decade (Appendix C.1). This catch is well below the recent ten year average of 24,800 and is in part a result of the fisher's strike. The below objective escapement, despite the strike, shows the chinook run was weak (Appendix C. 10). Buyers paid an average price of $.62 per pound. The exvessel value of chinook salmon was $142,900, which was 16% of the total value of the commercial catch in this district (Table 13).

The DISTRICT 4 SALMON MANAGEMENT PLAN (5 AAC 07.367) requires management for sockeye salmon when sockeye salmon are more than 50 percent of the chinook-sockeye salmon catch in District 4. The strong sockeye salmon run resulted in this provision taking effect on 24 June in 1993 (Table 21).

Sockeye Salmon

Sockeye salmon catches on 28 June were a record 10,941 fish. Fishing time increased to 3 twelve hour periods per week (Table 21). The sockeye salmon catch peaked in this district on 5 July with a catch of 15,375 fish. Effort was above normal in 1993 because of closure of the Kuskokwim River fishing districts. The sockeye salmon catch of 80,934 is the second highest on record and 50,000 fish above the ten year average (Appendix C.1). An aerial survey on 12 June provided an index count of 23,128 sockeye salmon in the Kanektok River drainage, which exceeds the objective of 15,000 (Appendix C.10). The average price paid for sockeye salmon was $.70 per pound. A total of $402,910 was paid for this species, which was 45% of the total value of the commercial catch in this district (Table 13).

Chum Salmon

Chum salmon are an incidental catch in the chinook and sockeye salmon commercial fisheries in District 4. The 1993 chum salmon catch was 40,943; which is above the 10 year average of 37,636 fish (Appendix C.1). Chum salmon brought an average of $.40 per pound, resulting in $104,347 in payment to fishers (Table 13). This was 12% of the total value of the fishery in this district. The escapement objective for chum salmon is 30,500; only 1,285 chum salmon were seen in a good aerial survey (Appendix C.10).

Coho Salmon

Coho salmon dominated the commercial catch on 30 July. During the first two weeks of August the fleet fished 2 twelve hour periods a week instead of the normal three. There are no escapement projects in this district and commercial catch figures were below normal, indicating a weak coho salmon run (Appendix C.4). When commercial catch figures climbed to average, the normal schedule of 3 twelve hour periods a week was resumed. The commercial coho salmon catch peaked at 9,516 fish on 18 August (Table 21). The commercial salmon fishing season closed by regulation on 8 September. The 1993 coho salmon harvest of 55,817 is almost equal to the ten year average of 57,449 (Appendix C.1). In 1993 commercial fishers were paid $.58 per pound for coho salmon. Coho salmon sales totaled $245,982 which was 27% of the value of this district's commercial fishery (Table 13). Weather and water conditions prevented coho escapement assessment by aerial surveys, but sport fishing catches indicated coho salmon were well distributed throughout the drainage.

Aerial surveys are the only measure of escapement in District 4. Historical commercial catch levels and when possible, inseason aerial surveys, help managers assess run size and fishing time. Early surveys of the Kanektok River drainage were unsuccessful due to high, turbid water. An aerial survey flown of the Kanektok River on 12 July provided index counts of 4,670 chinook, 23,128 sockeye and 1,285 chum salmon (Appendix C.10). Chinook were slightly below escapement objective in 1993. Sockeye salmon reached escapement objective. The chum salmon index was only 1,285 during the peak survey (Appendix C.10). This is only 4% of the 30,500 chum salmon objective and the worst chum salmon escapement ever recorded. The poor chum salmon escapement was a result of the weak chum salmon return

and the near record sockeye salmon return. Sockeye salmon are the target species in District 4 and there was a heavy fishing schedule in response to the strong sockeye salmon return. Effort was at record high levels because of the closure of Districts 1 and 2. Despite the second largest sockeye salmon catch on record, sockeye salmon achieved their escapement objective. The incidental chum salmon catch was above average resulting in the record low chum salmon escapement.

Goodnews Bay (District 5)

The Goodnews Bay fishing district is the southernmost salmon district in the Kuskokwim Area (Figure 5). Fishing is done primarily with drift gillnets in tidal channels in Goodnews Bay and a few set gillnets near the mouth of the bay. The 30-35 permit holders residing in the villages of Platinum and Goodnews Bay fish steadily during the season (Table 22). The 1993 effort increased to 114 permit holders due to closures in other Kuskokwim districts. Goodnews Bay effort peaked in 1988 at 125 permit holders and in the last decade has averaged 86 permit holders (Appendix D.6).

A counting tower on the middle fork of the Goodnews River provided estimates of salmon escapement from 1981 through 1990. In 1991, a weir replaced the tower. This provided more accurate counts at a lower cost. The savings allowed the project to extend into the coho salmon return for the first time. The primary objective of this project is to provide daily escapement information to improve management of the commercial fishery. The Goodnews River weir project also provides a calibration of aerial survey accuracy.

Chinook Salmon

The Goodnews Bay district opened to commercial fishing on 28 June. Effort peaked at 80 permit holders on 16 July (Table 22). The chinook salmon management strategy in this district for the last 3 years has been to start commercial fishing 5 to 7 days later than the normal historical opening date. This allows for an increased escapement of chinook salmon into the Goodnews River. This strategy helped achieve the escapement objective of 3,500 fish in 1990 but was not successful in 1991 and 1992 (Appendix D.11). To correct this in 1993 the fishery opened later, 28 June, the date by which 50 percent of the chinook salmon run has passed through District 5 (Appendix D.2) In 1993, an estimated 2,491 chinook salmon passed the weir, below the objective for the third year in a row (Appendix D.11). The catch of 2,117 chinook salmon, was below the 10 year average of 5,028 (Appendix D.1). Fishers received $.62 per pound, which totaled $21,351 paid for this species. This was 4% of the total value of the commercial fishery in this district (Table 13).

Sockeye Salmon

Sockeye salmon catches in Goodnews Bay were above average for the first commercial period. Sockeye salmon increased in abundance and the run remained strong. Three commercial fishing periods per week continued throughout the sockeye salmon run (Table 22). Sockeye catches peaked on 7 July at 6,200 fish. The season total of 59,293 sockeye salmon is more than twice the 10 year average of 25,700 fish (Appendix D.1). Sockeye salmon prices averaged $.70 per pound resulting in $296,437 paid to fishers in 1993 (Table 13). This species was 67% of the 1993 total value of the Goodnews Bay District. During the peak of sockeye salmon escapement, the weir washed out. Using historical sockeye salmon run timing to estimate the total season escapement resulted in an estimate for 1993 of 26,044 sockeye salmon, which meets the escapement objective of 25,000 (Appendix D.12).

Chum Salmon

The chum salmon catch is incidental to the sockeye salmon fishery in District 5. The 1993 catch of 10,657 chum salmon is below the ten year average of 15,059 fish (Appendix D.1). Permit holders were paid $.40 per pound for this species, which totaled $28,304 or 6% of the total commercial fishery value in this district (Table 13). Chum salmon escapement of 14,287 at the Goodnews River weir nearly achieved the goal of 15,000 fish (Appendix D.14).

Coho Salmon

The 1993 coho salmon catch of 20,014 is well below the 10 year average of 25,900 fish (Appendix D.1). Fishers received $.58 per pound for coho salmon for a total of $95,043 (Table 13). This is 21% of the total fishery value in this district. A good aerial survey of a portion of the Goodnews River provided a count of 8,800 coho salmon, but poor conditions in a portion of the drainage prevented a complete coho salmon escapement survey (D.15). Coho salmon escapement counts from the Goodnews River weir were incomplete because of a high water wash out during late August (Appendix D.13).

On 16 July, while patrolling a commercial period in District 5, the Division of Fish and Wildlife Protection found 4 boats fishing outside the district boundary in Kuskokwim Bay. They were unable to take action for two reasons:

1. The regulatory markers describing the outer boundary were moved to give the appearance that part of Kuskokwim Bay was open;

2. The area the boats were fishing in was open to subsistence fishing.

The Department returned the regulatory markers to the correct location on 17 July. Two emergency orders were issued on 19 July. One redescribed the outer district boundary geographically instead of by reference to regulatory markers. The second closed a portion of Kuskokwim Bay to subsistence fishing before, during, and after commercial fishing periods in District 5.

Enforcement

During the 1993 salmon season five enforcement officers patrolled the salmon fisheries with three float planes and two skiffs. A total for 52 citations were issued. The majority of the citations were issued for closed season and closed water violations. Three citations were issued for commercial fishing without a CFEC permit. A number of crewmembers were cited for fishing without crewmember licenses. The remainder of violations included failure to display 12" numbers on tenders, fishing with illegal gear, interference with commercial fishing gear and failure to mark net buoys.

The extra attention given in recent years to subsistence nets fishing during the subsistence closures resulted in only 4 nets being pulled in 1993. All of these were pulled from the river during the subsistence closure on 12 July. Only one had been left unattended for so long that the fish had spoiled. This was an improvement over 1991 and 1992.

OUTLOOK FOR 1994

Due to the limited information available, only broad harvest projections are made for the Kuskokwim Area based upon an evaluation of brood year escapements and recent harvest trends.

Chinook Salmon

Chinook salmon return to the Kuskokwim Area primarily as age 4, 5, and 6 fish. The primary brood years for 1994 will be 1988 through 1990.

Chinook salmon escapements reached objective levels in all the brood years in the Kuskokwim River drainage (Figure 6). Catch levels in the Bethel test fishery were average to above average in all brood years. An incidental chinook harvest in the lower half of the range of 9,000 to 56,000 is expected (Table 23). The slightly below average to critically low projection for chum salmon, the target species in the fishery, is expected to result in reduced fishing that will reduce the incidental catch of chinook salmon.

Quinhagak (District 4) has the only directed chinook salmon fishery in the Kuskokwim Area. Chinook salmon escapement indexes were below objective levels in the Kanektok River in one of the three brood years (Appendix C.10). A harvest in the lower half of the range of 9,000 to 46,000 chinook salmon will likely occur in 1994 (Table 23). Recent years' catch trends have been below average.

Goodnews River chinook salmon were below the escapement objectives in two of the three brood years (Appendix D.16). The recent years' harvest trend has been below average, due to weak returns and the chinook salmon rebuilding program being carried out in Goodnews Bay. The incidental catch probably will be in the lower part of the range of 1,000 to 8,600 chinook salmon (Table 23).

Sockeye Salmon

Sockeye salmon return primarily as 5 year old fish in the Kuskokwim Area. Quinhagak (District 4) and Goodnews Bay (District 5) are the only fisheries in the Kuskokwim Area that target on sockeye salmon.

The sockeye salmon escapement at the Kogrukluk weir, where sockeye escapement is monitored in the Kuskokwim River, was above average in 1989 (Appendix A.8). Catches in the Bethel test fishery were below average in 1989 (Appendix B.7) The sockeye salmon catch in the Kuskokwim River is incidental to the chum salmon fishery. The slightly below average to critically low projection for chum salmon, the target species in the fishery, may result in an incidental sockeye salmon catch in the lower half of the catch range of 27,000 to 137,000 (Table 23).

The 1989 brood year escapement index in the Kanektok River was 19,000 sockeye salmon, which is above the escapement objective of 15,000 (Appendix C.10). Harvest ranges in recent years vary from 6,700 to a record high of 83,700 sockeye salmon (Appendix C.1). The sockeye harvest in District 4 will likely be within the top half of this range (Table 23).

The 1989 brood year escapement in the Goodnews River was 21,000, which just reached the objective of 20,000 to 30,000 (Appendix D.16). This should result in an average number of sockeye salmon in District 5 (Table 23). The previous 10 year average catch is 25,700.

Chum Salmon

Chum salmon return to the Kuskokwim Area primarily as 4 and 5 year old fish. The Kuskokwim River fishery targets on chum salmon. The chum salmon catch is incidental in Districts 4 and 5.

Chum salmon spawning escapement to the Aniak River in 1990 was 50 percent above the escapement goal of 250,000, while the Kogrukluk River was about 11% below it's goal of 30,000 in 1990 (Appendix A.8). The poor survival of the 1988 and 1989 brood years seen in the 1992 and 1993 returns may be a trend. Considering the expected poor return of 5 year old (1989 brood year) chum salmon, the outlook for Kuskokwim River chum salmon is slightly below average if the 1990 spawn has normal survival. Another profound production failure, such as occurred in 1993, could result in a critically low chum salmon return. The chum salmon harvest probably will be in the lower part of the recent 43,000 to 1,380,000 range (Table 23).

Escapement levels in 1989 and 1990 were poor in District 4 and District 5 (Appendix A.8). The catch of chum salmon will likely be in the lower half of the recent 8,500 and 46,000 catch in District 4. District 5 will likely have an incidental catch in the lower half of the recent 5,000 to 33,000 catch range (Table 23).

Coho Salmon

Coho salmon return primarily as 4 year old fish in the Kuskokwim Area. There is very little information on which to base coho salmon run outlooks. The Kogrukluk River weir is the only coho salmon escapement project in the Kuskokwim River.

In 1990 the Kogrukluk River weir washed out for a long period, therefore the total season escapement estimate of 5,100 is suspect. This estimate is based on only 46% of the run and is thought to be imprecise. The commercial CPUE in District 2 in 1990 was 34.6, just below the target level of 37. The catch in the Bethel test fishery was slightly below average in 1990. A slightly below average run in 1994 should produce a catch in the lower half of the 196,000 to 666,000 range (Table 23). Recent years' survival trend for coho salmon has been above average, which could result in a larger than expected return.

The past years' harvest are the only guide to the coho salmon run in Districts 4 and 5. The coho harvest in 1990 was well below average in District 4 and District 5 (Appendices C.1 & D.1). In the last five years coho catches have ranged from 27,000 to 86,400 in District 4 and from 7,800 to 31,800 in District 5. Catches in the lower half of these ranges are expected in 1994 (Table 23).

SUBSISTENCE SALMON FISHERY

Background

Subsistence fishing and summer fishing camps have a long history in the Kuskokwim Fisheries Management Area. The harvest of fish and wildlife for subsistence use continue to be an important component of the mixed subsistence-cash economy throughout the area. During summer, early June through August, the day-to-day activities of many Kuskokwim Area households revolve around the harvesting, processing, and preserving of salmon for subsistence use.

The Kuskokwim Area subsistence salmon fishery is one of the largest and most important in the state. More than 1,300 households in the region annually harvest salmon for subsistence use. Many other households, which are not directly involved in catching salmon, participate by assisting family and friends with cutting, drying, smoking, and associated preservation activities (salting, canning and freezing).

There are 37 communities consisting of approximately 4,000 households within the Kuskokwim Area (Figure 1). During 1993, approximately 2,600 households were located in 26 communities situated along the Kuskokwim River or its tributaries. Residents of Kwigillingok, Kongiganak and Kipnuk, located along the northern shore of Kuskokwim Bay, comprised 186 households and are thought to harvest primarily Kuskokwim River salmon stocks, however, local salmon stocks are also utilized.

In the southern portion of the Kuskokwim Area, residents of Quinhagak, Goodnews Bay, and Platinum, comprised approximately 200 households and utilize salmon stocks primarily from the Kanektok, Arolik, Goodnews river systems. Residents of Bering Sea coast communities of Mekoryuk, Toksook Bay, Nightmute, Tununak, and Newtok, consisted of approximately 300 households, harvested salmon bound for both local and more distant (Yukon-Kuskokwim) drainages.

Five species of salmon (chinook, chum, sockeye, coho and pink) are harvested in the Kuskokwim Area for subsistence use. Annual subsistence harvest surveys have been aimed at gathering data on only chinook, sockeye, chum, and coho salmon. Subsistence catches of chinook salmon in the Kuskokwim Area often exceed the commercial catch of this species (Table A.2.).

Subsistence Salmon Fishing Regulations

Participation

Beginning in 1990 individuals who had been Alaskan residents for the preceding 12 consecutive months were eligible to harvest Kuskokwim salmon for subsistence use. Prior to 1990 there were additional restrictions on participation in the fishery. These are described in earlier annual management reports for the Kuskokwim Area. The majority of those individuals subsistence fishing for salmon in the Kuskokwim Area are residents of the area, however, some people living in other parts of the state who have family or friends in the region do return each year to harvest or help process salmon.

Licenses, Permits, and Gear

In 1993 licenses and permits were not required for subsistence fishing in the Kuskokwim Area. Salmon harvested for subsistence use could be caught using set and drift gill nets, beach seines, and fish wheels. In the Holitna, Kanektok, Arolik, and Goodnews river drainages only, spears could also be used. The total length of set or drift gill nets in use by an individual could not exceed 50 fathoms. Unless changed by emergency order, gill nets used for harvesting salmon anywhere in the Kuskokwim Area could be of any sized mesh, however, nets with six inch or smaller mesh could not be more than 45 meshes in depth and nets with greater than six inch mesh could not be more than 35 meshes in depth. All gill nets used for subsistence fishing were required to have a buoy attached with the name and address of the operator written on it. Fish wheels were also required to have the name and address of the operator inscribed on the side of the fish wheel facing midstream of the river (ADF&G 1992). There were no restrictions on the number of salmon that could be harvested by individual fishers or households.

In-Season Closures

Subsistence salmon fishing is periodically closed in the commercial fishing districts and adjacent areas before, during, and after each commercial fishing period. Generally speaking, the majority of commercial fishers are local residents who also participate in the subsistence fishery. The purpose of these closures is to discourage illegal commercial fishing and to help prevent the sale of subsistence caught salmon in the commercial fishery.

Regulations adopted by the Alaska Board of Fisheries closed subsistence salmon fishing in each of the four commercial salmon fishing districts 16 hours before, during, and 6 hours after each commercial salmon fishing period in the respective fishing district. In addition, the Goodnews, Kanektok, and Arolik Rivers were closed to all subsistence fishing with nets 16 hours before, during and 6 hours after each commercial fishing period near those areas. Only in District 2 did the tributaries close to subsistence salmon fishing before, during and after the commercial fishing periods. In District 1, Kuskokuak Slough remained opened to subsistence fishing after July 31, even during commercial fishing periods. That portion of the Kuskokwim River between Districts 1 and 2 was closed to subsistence fishing at the same time subsistence closures occurred in District 1.

Additional Subsistence Closures in 1993

In 1993, in response to a low chum salmon return and in an effort to obtain chum salmon escapement goals, subsistence salmon fishing was totally closed in the Kuskokwim River drainage downstream of Chuathbaluk from 9 July beginning at 6:00 P.M. until 12 July at 8:00 A.M.. Following the closure, all subsistence gill net fishing in District 1 and Kuskokuak Slough was restricted to five inch mesh or less from 12 July through 26 July. The five inch maximum mesh size also applied to the Eek, Kwethluk, Kasigluk, Kisaralik, and Tuluksak rivers from 12 July until 6:00 P.M. 14 July. In District 2 the five inch maximum gill net mesh restriction began at 6:00 P.M. 16 July. On 1 August, the mesh size restrictions in District 2 were incrementally lifted until on 23 August when the remaining mesh size restrictions on the Aniak River and Aniak Slough were removed.

SUBSISTENCE SALMON HARVEST SURVEYS

The management of Kuskokwim Area salmon fisheries requires that the Department know how many salmon are harvested in both the subsistence and commercial fisheries. Data on the subsistence harvest of salmon is collected annually. The Division of Commercial Fisheries began annual subsistence salmon harvest surveys along the Kuskokwim River in 1960, in Quinhagak in 1967, and in Goodnews Bay and Platinum in 1979. In 1988 the Division of Subsistence took over the annual subsistence salmon harvest surveys under a memorandum of agreement with the Division of Commercial Fisheries and have been responsible for collecting and analyzing the data since that time.

Methods

During 1993, four methods were used to gather subsistence salmon harvest data. These methods were:

1) subsistence salmon catch calendars,
2) post-season community surveys of Kuskokwim Area households,
3) postcard surveys, and
4) telephone surveys.

In early 1993, after the 1992 data analysis had been completed, the Division of Subsistence updated its household list database in order to better define households potentially harvesting Kuskokwim Area salmon stocks in 1993 for subsistence use. Each household in the database was designated as either "usually fish" or "does not usually fish" depending on past fishing history. Households listed in the database were the basis of sampling and estimation of subsistence salmon harvests for the Kuskokwim Area. Each household on the list was assigned a unique identifier through which subsequent information could be tracked.

The goals of the post-season survey were to:

1) collect harvest data that would result in a total harvest estimate for subsistence salmon by species for the Kuskokwim Fisheries Management Area by community;

2) compile information on fishing effort, gear types, participation rates, and timing of the subsistence harvest;

3) update community household lists and identify fishing households

4) identify if subsistence salmon needs were being met and if not why;

Catch Calendars

In May 1993, subsistence salmon catch calendars were mailed to all Kuskokwim Area households which had been identified as "usually fish." Three similar but unique catch calendars (Appendix S.1) were designed for recording the daily catch of each salmon species harvested for subsistence use. One style of calendar was sent to households in communities along the Lower and Middle regions of the Kuskokwim River, to communities along the Bering Sea coast and along North Kuskokwim Bay, as well as those communities in the Upper Kuskokwim River region upstream as far as the community of Stony River. A second style of calendar was sent to the remaining households in the Upper Kuskokwim River region and a third style was sent to households in Quinhagak, Goodnews Bay, and Platinum. Where addresses were available, the calendars were mailed to post office boxes; otherwise calendars were sent general delivery for the post office clerk to distribute. Each calendar was postage paid and addressed for return to the Bethel Division of Subsistence office. Subsistence salmon catch calendars were distributed to 1,701 households.

Household Surveys

The second method of collecting subsistence salmon harvest information was the post-season household surveys. With this method, staff traveled to communities in the Kuskokwim Area and went house-to-house interviewing residents about their 1993 salmon fishing efforts. Similar to the approach used in developing the catch calendars, three color coded survey instruments were developed and used (Appendix S.2). Except for local terms used for the salmon species, the survey questions asked in each region were identical.

Twenty-nine communities were targeted for post-season surveys over a two month period beginning in early October after most residents had completed salmon fishing for the season and after most hunters had returned home from fall moose and caribou hunting. Communities in which residents usually harvest salmon through October were surveyed in

November. Division of Subsistence staff conducted house-to-house surveys in 25 communities. House-to-house surveys were not attempted in 12 communities (Bethel, McGrath, Telida, Takotna, Kipnuk, Kongiganak, Kasigluk, Mekoryuk, Newtok, Nightmute, Toksook Bay, and Tununak). Communities where house-to-house surveys were not attempted were surveyed using calendar, postcard, or telephone surveys. For a few years now Kipnuk, Kongiganak, and Kasigluk have opted to not allow Department staff to conduct household interviews. Budget constraints have precluded attempts to conduct house-to-house surveys in Bethel, Mekoryuk, Newtok, Nightmute, Toksook Bay, and Tununak.

Survey work was conducted systematically. Prior to beginning the community surveys, efforts were made to inform and prepare residents for the arrival of staff doing the surveys. This was done weeks or days in advance of their arrival through letters to City, IRA, or Traditional council offices in each community, radio announcements, posters in public buildings and phone calls to community officials.

Upon arrival in a community, staff checked in with the City or Council office to introduce themselves and outline their task. Staff used community household "checklists", prepared in advance, to help them identify households they needed to contact while conducting the household surveys. Each "checklist" contained a listing of all known households in the community, identified those households which were reported to have subsistence fished in 1992, households which were mailed 1993 catch calendars, and identified which households had already returned their 1993 catch calendars to the Department. Knowledgeable individuals in the community helped to update the community household list and identify which households "usually fish" and which households "usually did not fish." In addition, these individuals helped to identify households that subsistence fished for salmon in 1993.

Staff attempted to contact all households that were either identified as "usually fish" or were known to have fished during 1993. Structured interviews were conducted with these households through the use of a survey instrument. Subsistence salmon catch calendars that had not been mailed back to the department were also collected. If time permitted, other households on the community list were contacted about their salmon fishing activities, if any. Nearly 1,000 households were surveyed using this method.

Postcard Surveys

The third method of collecting information on subsistence harvest of salmon was through the use of postcard surveys (Appendix S.3). The postcard survey simply asked if the household harvested salmon from the Kuskokwim Area for subsistence use, the species and quantities harvested, the type of fishing gear used, if subsistence salmon needs were met and if not why. The postcard could be separated in half and returned postage paid. This type of survey was the primary method of obtaining harvest data from "usually fish" households in Bethel, McGrath, Kipnuk, Kongiganak, Kasigluk, Mekoryuk, Newtok, Nightmute, Toksook Bay, and Tununak.

Postcard surveys were mailed out to Bethel and McGrath households in late September. Households that had not returned their catch calendar or postcard survey were contacted by telephone in November. If the households did not have a telephone, a second postcard was sent to them in November. A primary factor limiting contacts of Bethel households was that for many, neither a mailing address nor telephone number was available. Households in other communities that were not available during the staff visits to conduct house-to-house surveys or had not returned their salmon catch calendar were also mailed postcard surveys. Approximately 1,500 households were mailed postcard surveys.

Telephone Surveys

The fourth method of collecting information on subsistence harvest of salmon was through telephone surveys. These surveys were conducted in Bethel, McGrath, and Takotna and followed the questioning format of the postcards except households were not asked if their subsistence needs were met. A total of 349 households were surveyed using this method.

Subsistence Salmon Harvest Estimation

Information from the four information sources (catch calendars, household, postcard, and telephone surveys) was entered into a computer database. Data were verified against source documents, and several logic checks of the data were made. The master list of names and addresses of resident households was updated to reflect changes in household composition and number of households residing in each community. The unique household numbering system was maintained on the master list and on the database tables containing information from each of the four information sources.

In order to provide a single best estimate for a household's harvest of a salmon species during 1993, information was composited from the various information sources. This process was conducted by a single researcher on the project to ensure data consistency. In most cases, there were few discrepancies between the information available from the different sources. In those cases where a household was determined to have fished for salmon, but no salmon harvest could be quantified through any information source, the harvest was identified as "missing."

Guidelines developed during the course of the process to composite harvest information included the assumptions that:

(1) the salmon catch calendar contained the best means of recording the household's harvest;

(2) information from the different sources needed to be evaluated con-currently in order to identify the harvest for each species;

(3) information from the different sources for a particular species may be different due to the timing of the collection of this information;

(4) information on the use of salmon to feed dogs be used as a minimum estimate of the household's harvest if no other information was available.

Salmon harvests identified as "removed from the commercial catch for subsistence use" were included in the household's subsistence harvest.

The average community catch (C_k) was estimated for salmon species from the composite catch per household data. Mean community catch (C_k) was estimated by:

$$C_k = \Sigma^1_{i=0} (N_{ki} * C_{ki}) / \Sigma^1_{i=0} N_{ki}$$

where
k = community
i = indicates whether the group "usually fishes" (1) or "usually does not fish"(0)
N_{ki} = number of households that "usually fish" or "usually do not fish "
C_{ki} = mean harvest for households that "usually fish" or "usually do not fish"

The total community catch (T_k) was estimated by $T_k = \Sigma^1_{i=0} (N_{ki} * C_{ki})$ and its variance (V_k) includes a finite population correction factor:

$$V_k = \Sigma^1_{i=0} ((N_{ki}^2)(1-(n_{ki}/ N_{ki}))(s_{ki}^2/ n_{ki}))$$

where n_{ki} = number of households for which information is available that "usually fish" or "usually do not fish"s S_{ki}^2 = variance for the amount harvested for the "usually fish" or "usually do not fish" households.

Community catch estimates and their variances were summed across communities for region subtotals and across all regions for Area totals.

1993 Sampling Summary

A summary of the sampling information and subsistence salmon harvest estimates by community and fishing area are presented in Table 24. Of the estimated 3,276 households located in the Kuskokwim Area, information was obtained on 2,157 (66%).

Approximately 1,627 households have been classified as "usually fish." In 1993, subsistence salmon harvest information was collected from 1,386 (85%) of these households. Approximately 1,649 households have been classified as "usually do not fish" for subsistence salmon. Information was collected from 620 (37%) of these households. Many (42%) of the households classified as "usually do not fish" resided in Bethel.

Of the total 2,609 defined households living in communities along the Kuskokwim River drainage, 1,773 (68%) were contacted. Information was especially absent for Bethel where 658 (57%) households did not provide fishing or harvest data to the Department or were otherwise not contacted. Sixty-six percent of the Kuskokwim River drainage households contacted (1,171) fished for subsistence salmon in 1993.

In the District 4 and District 5 communities of Quinhagak, Goodnews Bay, and Platinum, the majority (85%) of the 193 households living in the region were contacted. Fishing status information for 1993 was gathered for 86% (167) of the region households. Of these 167 households, 103 (62%) fished for subsistence salmon in 1993.

In Kongiganak, Kipnuk, and Kwigillingok, communities along northern Kuskokwim Bay, data was obtained from 59 households (32%). The majority of the data available came from Kongiganak (54 households) and there was very little response from either Kipnuk (4) or Kwigillingok (1). Sixty-eight percent of the households in Kongiganak reported fishing for subsistence salmon in 1993.

Approximately 286 households have been identified in the Bering Sea coast communities of Mekoryuk, Newtok, Nightmute, Toksook Bay, and Tununak. Because house-to-house surveys were not conducted in these communities, data was obtained only by catch calendars and postcards. Only 10 households in this region provided information and all 10 reported harvesting salmon. Based on data gathered other years, actual participation in salmon harvesting activities is thought to be much greater than that reported by catch calendars or postcard surveys. Chefornak was not included in the study.

House-to-house surveys continue to be the primary vehicle for gathering data on harvest and use of subsistence salmon. Except for Bethel and McGrath where postcard surveys and telephone interviews were the primary data collection method, house-to-house surveys accounted for 76 percent of all households contacted.

Approximately 17% (283) of the 1,701 subsistence salmon calendars which were mailed pre-season were used and returned. More than half of those returned were actually collected during the house-to-house surveys. In addition, there were responses to about 22% (314) of the 1,457 postcard surveys which were mailed to Kuskokwim Area households who had not returned harvest calendars and were not interviewed by staff.

1993 Harvest Summary

A summary of the subsistence salmon harvest estimates by community and fishing area are presented in Table 25. The 1993 total subsistence salmon harvest estimates for the Kuskokwim Area are 75,466 chinook, 48,235 chum, 41,323 sockeye, and 28,848 coho salmon. Comparison of the 1993 subsistence salmon harvests with the five-year average harvest from 1988 to 1992 indicate that both the chinook and sockeye salmon harvests were up in 1993. Specifically, the chinook harvest was 7 percent above the average and the sockeye harvest was 17 percent greater that the average. In contrast, the chum salmon harvest was 53 percent less than the 1988 to 1992 average and the coho harvest was 34 percent below

the average for that species. The number of households fishing for subsistence salmon in 1993 was 2 percent above the five-year average.

Overall, chinook and chum salmon harvests usually account for the largest proportion of the total subsistence salmon harvest and this was again the case in 1993. During most years the total subsistence chum salmon harvest is usually greater than each of the other salmon species. In 1987 and 1991 chum and chinook salmon harvests were nearly equal, however, in 1993 the number of chinook salmon harvested outnumbered chum salmon by 27,231 fish.

Subsistence harvests in the District 1 usually account for approximately 70 percent of the total annual subsistence salmon harvest in the Kuskokwim management area. Correspondingly, approximately 70 percent of the area population also resides in District 1.

Comparison of the 1993 chum salmon harvests with the 1988 to 1992 average subsistence harvests in each of the four commercial fishing districts and the "Upriver" area indicate that 1993 subsistence chum salmon harvests declined the most in the "Upriver" (-68%) and District 5 (-72%) regions. Although the greatest relative decline in chum salmon harvests along the Kuskokwim River occurred in the "Upriver" area, the greatest relative increase in number of households that fished for subsistence during 1993 was also occurred in the "Upriver" area (+10%).

Throughout the Kuskokwim River drainage the 1993 harvest of chum and coho salmon was lower than the 1988 to 1992 average. Chum salmon harvests in District 1, District 2, and the "Upriver" areas in the Kuskokwim River drainage have declined steadily since 1988 while subsistence harvests of chinook, sockeye, and coho salmon have remained relatively stable over time.

Also throughout the Kuskokwim River drainage (Districts 1, District 2, and "Upriver") there was a larger than average harvest of chinook and sockeye salmon and of households participating in the subsistence fishery during 1993. In Districts 4 and 5 a lower than average number of households participating in the fishery during 1993 was followed by a lower than average harvest of each salmon species.

A total of 1,026 households responded to a survey question aimed at determining if households caught enough salmon to meet their subsistence salmon needs for the year. Except for the communities on Nelson Island and Mekoryuk where only 14 households responded, the proportion of responses for each region closely matched the proportion of fishing households in each district or region. A total of 681 (66%) of the households responding indicated that their subsistence salmon needs were met, 307 (30%) reported that their household's subsistence salmon needs were not met, and 38 (4%) reported that they weren't sure if their needs were met or not.

The percentage of households from each area responding that subsistence needs were met was as follows; North Kuskokwim Bay (45%), District 1 (68%), District 2 (66%), Upper Kuskokwim (69%), District 4 (77%) District 5 (33%), and Bering Coast (50%). The percentage of households from each area responding that subsistence needs were met not met was as follows; North Kuskokwim Bay (55%), District 1 (28%), District 2 (32%), Upper Kuskokwim (31%), District 4 (23%), District 5 (48%), and the Bering Coast (50%).

More than one-half (54%) of the households whose needs were not met indicated reasons of a personal nature as the cause. Personal reasons were the most common answer households in each region gave for not catching enough salmon for subsistence. These personal reasons included lack of necessary equipment such as a boat, motor, fishcamp, or lack of money to repair equipment or buy gasoline; sickness or physical disability, a death in the family, other health reasons; lack of time due to wage employment or other job related obligations or the primary household fishers and processors were not at home during the summer. Approximately 19 percent of households not meeting their subsistence salmon needs reported that low salmon abundance was the cause and 11 percent reported that the subsistence closure was the reason they didn't catch enough salmon. Three percent reported that natural factors such as high water and rainy weather prevented them from catching salmon and another 3 percent said that the restriction on gill net mesh size was responsible. Nine percent did not provide a reason why their subsistence salmon needs were not met.

Reasons for not meeting subsistence needs varied from region to region. In District 1, 46 percent reported personal reasons for not meeting their subsistence needs, 22 percent reported low salmon abundance as the reason, and 21 percent reported the subsistence closure and the gill net mesh restrictions prevented them from fishing.

In the District 2 region personal reasons were given by 60 percent of the respondents not meeting their needs, low salmon abundance was the reason given by 19 percent and 9 percent reported the subsistence closure as the reason for not catching enough subsistence salmon.

Households in the "Upriver" region, an area unaffected by the subsistence closure or the five inch mesh size restriction, reported that low salmon abundance (18%) and natural factors such as high water (7%) were the cause. Seventy-one percent of the households in this region responding that their subsistence salmon needs were not met reported personal reasons as the cause.

In District 4 (Quinhagak), 60% reported personal reasons while for 27% the reason was not given. In District 5, 85% gave personal reasons for not catching an adequate amount of subsistence salmon. Seven percent of the District 4 respondents and 8% of the District 5 respondents indicated that low salmon abundance was the reason.

Of the 14 households reporting from the Nelson Island or Mekoryuk area, seven reported their needs were not met; 86 percent indicated personal reasons while 14 percent reported low salmon abundance as the reason.

When staff asked households how they expected to meet their subsistence needs 193 (63%) of the 307 households who reported their needs were not met responded. A total of 125 (65%) reported that they hoped to harvest other fish including whitefish, pike, burbot, tomcod, blackfish, and smelt. Forty-seven (24%) said they didn't know how they would compensate for the shortage of subsistence salmon. Six households reported they hoped to harvest additional moose or caribou to make up the difference, three replied that they would try to get some salmon from other households, four planned to substitute wage income and buy what they needed, and two indicated they would need to apply for public assistance. Four households said they would resort to buying commercial dog food for their dogteams and two additional households told staff that they would have to get rid of their dogteams. One household in Nikolai told staff that they had already gotten rid of 18 dogs.

PART II: FRESHWATER FIN FISH FISHERY

Several species other than salmon, herring, and halibut are used for commercial, subsistence, and recreation purposes in the Kuskokwim Area. They are inconnu or sheefish (Stenodus leucichthys), whitefish (Coregonus spp. and Prosopium spp.), char (Salvelinus sp), rainbow trout (Oncorhynchus mykiss), burbot (Lota lota), Arctic grayling (Thymallus arcticus), northern pike (Esox lucius), Arctic lamprey (Lamperta japonica), rainbow smelt (Osmerus mordax), blackfish (Dallia pectoralis) and longnose sucker (Catostomus) (Appendix A.9). The Division of Sport Fish documents the recreational fisheries.

Subsistence Fishery

Miscellaneous fin fish are taken by seine, set and drift gillnets, fish pots (traps), dip nets, "jigging" through the ice and rod and reel. Subsistence catches taken during the winter are usually stored frozen. Human consumption is the primary use but dog food is a significant use. No regulations limit the number of these miscellaneous species taken for subsistence. There is no funding to monitor this harvest.

Commercial Fishery

The commercial fishery has been sporadic, primarily harvesting whitefish and burbot for local markets. Most of the whitefish harvest occurs under the ice in the winter.

A permit from the Commercial Fisheries Entry Commission is required. A permit from the Department to conduct commercial fisheries on whitefish, sheefish, char, trout, pike, smelt, burbot, and lamprey is also required. Those species may also be taken incidentally to commercial salmon fishing. There were five freshwater permits issued in 1993 for the Kuskokwim Area. All five fishers made landings (Appendix F.1). The guidelines for permits are:

1. All waters of the area are open, except for the Johnson River drainage and Whitefish Lake, to commercial freshwater fin fishing. The heavy subsistence utilization of those species in these areas is the reason for the closure.

2. Whitefish, cisco, smelt, pike, burbot, and lamprey may be taken. Sheefish, char, and trout may not be taken due to their small population, low reproductive rates, and their heavy utilization in the subsistence and sport fisheries.

3. All legal commercial gear types are allowed.

4. Gill nets must be greater than 5 inches stretch mesh. Long lines and set lines must use hooks with a gap between point and shank larger than 3/4 inch. These restrictions minimize the incidental catch of grayling, trout, char and other forbidden species and the catch of whitefish, burbot, and pike is predominantly of older age fish that have spawned at least once.

In 1993, four special permits allowing the use of smaller than 5 inch mesh gear were issued for the Kuskokwim River. A targeted cisco fishery was the purpose of these permits. A daily catch log was required for these experimental permits (Tables 26-27). A 4-3/8 inch mesh net, fished in July and August in Statistical Area 335-12 (Figure 2), caught 80 percent salmon, 20 percent whitefish and no cisco. In Statistical Area 335-13 a three inch mesh net fished for one day in July caught 91 percent whitefish, 9 percent salmon and char and no cisco. Cisco were only 3 percent of the catch in the four inch mesh net fished in statistical area 335-13. Whitefish, other (salmon, char & grayling) sheefish, pike, and burbot, in that order, composed the majority of the nontargeted catch. The catch in the four-3/8 inch net caught 83 percent salmon similar to statistical area 335-12. The 4.5 inch mesh nets fished in statistical area 335-13 caught no cisco. Ninety-three percent of the catch was whitefish.

In the four inch gear, the only one that caught any of the target species, the cisco were most abundant during the first week of April (03/28-04/03).

In 1991 a similar experiment near Kalskag in the spring showed that 3 inch mesh was 98 percent successful in targeting cisco (Francisco 1992). The 1991 and 1992 catch logs showed nets with four inch or larger mesh were unsuccessful in targeting cisco. Their catch was predominately whitefish in the winter and salmon in the summer. At this time the relatively light effort with mesh smaller than five inch will allow continuing the special permits with log book requirements. This should provide increased data on gillnet selectivity by species. Based on the data collected to date mesh sizes from four inch to five inch mesh have an unacceptably high catch of fish other than cisco.

Appendix F.1 presents the freshwater fin fish fishery catches and value since 1977. Only 5 permits landed fish in 1993. The $4,898 earned was the third most valuable harvest on record.

Status of the Stocks

The Department does not monitor the status of the freshwater species in the Kuskokwim Area. Limited Department observations, advisory committee recommendations and fishers interviews give no indication of declining populations in most drainages.

PART III: MISCELLANEOUS SALTWATER FINFISH

An "undocumented commercial" fishery on Saffron or "Tom Cod" has occurred in the Kuskokwim Area for some time. These fish were surplus to subsistence needs and fishers and local stores were (often still are) unaware of the regulatory requirements. The Department has been trying to inform buyers and sellers of these requirements. Since 1988 we have had information on the sale of fish exported from the coastal villages to Bethel. Sales within the villages are still undocumented. The available data on this fishery is reported in Appendix G.1. No landings were documented in 1993.

PART IV. HERRING FISHERY: INTRODUCTION

Area and District Boundaries

There are five commercial gillnet sac roe districts and a subsistence herring fishery in the Kuskokwim Area. The Security Cove District includes all waters between the latitude of Cape Newenham and the latitude of the Salmon River (Figure 7). The Goodnews Bay District includes the waters of Goodnews Bay inside the north and south spits at the mouth and a line between the Ukfigag and Tunulik Rivers. The Cape Avinof District (Figure 8) consists of all waters landward of Kikegtek, Pingurbek and Kwigluk Islands from the longitude of Ishkowik River (162° 44' W. long) to the longitude of the Ursukfak River (164° 11' W. long). The Nelson Island District consists of all waters north of Chinigyak Cape and east of Atrnak Point, and all waters north of Talurarevuk Point and south of the southernmost tip of Chinit Point and east of 165° 30' W. long., and all waters north of the northernmost tip of Chinit Point and south of Kigigak Island and east of 165° 30' W. long. (Figure 9). The Nunivak Island District includes all waters extending three miles seaward of mean low water along the northern and east sides of Nunivak Islands from Kikoojit Rocks (60° 20' 00" N. lat., 166° 39' 05" W. long.) to the small bay approximately two miles east of Ingrirak Hill (59° 52' 50" N. lat., 165° 56' 50" W. long.) (Figure 10).

Management Programs

The Security Cove and Goodnews Bay commercial herring fisheries are managed under the Bering Sea Herring Fishery Management Plan which sets the maximum exploitation rate in the Security Cove and Goodnews Bay Districts at 20% of the estimated spawning biomass. The Department attempts to harvest stocks in good condition (large volume, increasing abundance, good recruitment) at the upper end of the range (15-20%). Stocks in poor condition (small volume, decreasing abundance, poor recruitment) are exploited at lower than maximum rates (0-15%). The Alaska Board of Fisheries has directed the Department to manage the commercial herring fisheries in the Nelson Island, Nunivak Island and Cape Avinof Districts for an exploitation rate not to exceed 15% of the estimated available biomass. To provide additional protection for the subsistence herring harvest in the Nelson Island District, the following guidelines have been established by the Board of Fisheries:

1. The commercial fishery will be allowed to take up to 15% of the herring biomass, compared to up to 20% for most other fisheries having stocks of similar size and condition.

2. The commercial fishing season will be opened when a biomass of 3,000 tons or spawning activity is documented.

3. Periodic closures of the commercial fishery will be scheduled, during which time only subsistence fishing will be allowed.

4. Several important subsistence use areas occur throughout the district (e.g. waters north of Cape Vancouver) and specific areas may be closed to commercial fishing to insure the adequacy of subsistence harvests.

5. The Department will use all available means, including input from local residents, to insure the adequacy of subsistence herring harvests during the commercial fishing season.

In 1990 the Nelson and Nunivak Island Districts were given limited entry status by the Commercial Fisheries Entry Commissions. Entry permits were issued to qualified applicants who had fished in these fisheries before 1 January 1988.

Season Summary

The total Kuskokwim Area Pacific herring harvest for 1993 was approximately 1,913 tons with a total estimated value to the fishers of approximately $568,000 (Appendix H.1). Fishers received approximately $150 less per ton for sac roe herring than they did in 1992. The average price paid in all districts was $300 per ton for 10% roe recovery, with an increase or decrease of $30 per ton for each percentage point above or below 10%. Commercial fisheries occurred in all but the Nunivak Island District. The only food/bait fishery in this area occurs during the sac roe fishery when the roe content is below the processors' acceptable minimums. Food/bait sales are a smaller portion of the harvest. Food/bait sales totaled 70 tons, while the sac roe harvest was 1,769 tons. Seventy-four tons of herring were dumped after processors refused purchase.

Fishing effort, measured in number of fishers who made deliveries, decreased from 1992 levels by 88% in the Security Cove, 19% in the Goodnews Bay, 14% in the Nelson Island and 20% in the Cape Avinof District (Appendix H.2). A total of 242 permit holders landed herring in the Kuskokwim Area, a decrease of 32% from 1992. Effort was low in all districts as fishers were discouraged by both low prices and fewer buyers. Only three companies bought herring in the Kuskokwim Area in 1993, the lowest number since 1982. Expectations of a record east Pacific sac roe herring harvest combined with a depressed market caused many processors to bypass the Kuskokwim Area. Average percent roe recovery, from sac roe quality herring, ranged from 10.3 in the Goodnews Bay District to 12.8 in the Security Cove District. Percent harvest of estimated herring biomass ranged from 0.1 in the Security Cove District to 15.4 in the Goodnews Bay District (Appendix H.1).

The 1993 total estimated herring spawning biomass was 26,163 tons for the surveyed portion of the Kuskokwim Area herring districts. This was 6% lower than the 1992 estimate (Appendix H.1). Ages 9 and older herring comprised 33% of the total biomass (Table 25). Younger age fish (ages 3, 4, and 5) accounted for 57% of the total run in number of fish (Table 26).

STOCK STATUS

Assessment Methods

Aerial surveys were flown throughout the Pacific herring spawning season in all Kuskokwim Area commercial fishing districts to determine relative abundance, distribution, and biomass of herring. Occurrence and extent of milt, numbers of fishing vessels, and visibility features affecting survey quality were also recorded. Data collection methods were similar to those used since 1978.

Approximately 42 hours were spent conducting aerial surveys in the Kuskokwim Area: 12 hours in Security Cove and Goodnews Bay, 7 hours in the Cape Avinof District, 6 hours in Nelson Island and 17 hours in Nunivak Island. Weather and sea conditions were fair at best in all Districts, with the majority of surveys being conducted under poor conditions.

Standard conversions of 1.00 tons/538 ft^2 (water depths less than 8 ft), 1.52 tons/538 ft^2 (water depths between 8 and 16 ft), 2.58 tons/538 ft^2 (water depths between 16 and 26 ft) and 2.83 tons/538 ft^2 (water depths greater than 26 ft) were used to convert estimated herring school surface areas to biomass within all districts.

Test fishing with variable mesh gillnets occurred in all districts to determine age, sex, size and sexual maturity of herring and to note occurrence of other schooling fishes. The sampling goal for test fish catches was to sample a minimum of 60 herring per day or 420 per week from each district. Commercial landings were sampled in the Security Cove, Goodnews Bay, Cape Avinof and Nelson Island fishing districts. Age composition of herring collected from the Department test fishery and the commercial catch is summarized, by district, in Table 26. Additionally, volunteer gillnet vessels collected herring samples within all districts. This information allows interpretation and modification of aerial survey biomass data.

Ground surveys conducted in some districts provide information on the distribution and density of eel grass beds and herring spawn deposition.

Spawning Populations

Security Cove District

Twelve aerial surveys were flown on 12 days during the 1993 season, from 28 April to 17 May. Herring schools were first observed in the district on 28 May (2,378 tons). On 29 April, 2,774 tons of herring were observed during an aerial survey. Another 4,216 tons were seen during a 16 May survey. This does not include the 5 tons of herring harvested prior to the survey. The total biomass present in the district (6,995 tons) is calculated by combining the two surveys and the commercial catch. A total of 12.7 linear miles of milt was observed in spawn sightings during aerial surveys with peak spawning on 4 May when 2.7 miles of milt were seen.

The Security Cove test fish crew fished from 4 May to 26 May with variable mesh gillnets. From this catch, 1,294 herring were sampled for age, sex, size and maturity. Age 9 and older herring comprised 25% of the biomass (Table 25) while 3 to 5 year old fish were 62% of the return in numbers of fish (Table 26).

Volunteer commercial fishers collected herring samples from designated areas of the district that industry roe technicians evaluated for roe quality. This program allowed the openings to be timed to maximize roe production.

Goodnews Bay District

Twelve aerial surveys were flown on 12 days during the 1993 season, from 28 April to 27 May. Only one of the surveys was flown under satisfactory conditions. A survey on 24 May saw 5,970 tons in the district. The total biomass estimate of 6,211 tons was calculated by combining the aerial survey and the commercial catch (241 tons) prior to the survey. No spawn was observed during aerial surveys of the district.

Test fishing occurred from 5 May to 26 May. The catch of 1,497 herring were sampled for age-sex-size data. Age 5 herring dominated both the biomass (31%) and the return in numbers of fish (37%) (Figure 12). Age 9 and older herring made up 26% of the biomass (Table 25) while aged 3 to 5 fish were 50% of the test catch (Table 26).

Volunteer commercial fishers collected herring samples from designated areas of the Bay which industry roe technicians evaluated for roe quality. This program allowed the openings to be timed to maximize roe production.

Cape Avinof District

Between 20 May and 1 June, 6 aerial surveys were flown in the Cape Avinof District. Only two of these surveys were flown under satisfactory conditions. An aerial survey on 31 May saw 203 tons of herring. The total biomass present in the district was estimated to be 2,837 tons based on the projected return from the 1992 escapement. No spawn was observed in the Cape Avinof District in 1993.

The Department's test fisheries near Kipnuk and Kwigillingok captured 1,575 herring between 18 May and 9 June to sample for age-sex-size data. Age 5 herring were the predominant age class (26%) while 35% of the biomass was age 9 or older (Table 25). Recruit herring represented 51% of the return in numbers of fish (Table 26).

Commercial fishers brought in herring samples from various areas in the district for industry roe technicians to evaluate. This information was used to help determine the timing of fishing periods.

Nelson Island District

Fifteen aerial surveys were flown on 15 days from 8 May to 1 June during the 1993 season. Four of these surveys were made under acceptable conditions. During an aerial survey on 17 May, 4,944 tons of herring were observed in the district. A total of 13.0 linear miles of milt was observed during aerial surveys with a peak spawning of 5.5 linear miles on 25 May.

Test fishing with variable mesh gillnets occurred from 22 May to 12 June. Age, sex, size and maturity information was taken from 1,400 herring. Age 3 to 5 fish made up 63% of the test catch with 19% being age 9 or older herring. Age 5 herring dominated the return in both biomass (33%) (Table 25) and numbers of fish (42%) (Table 26).

Nunivak Island District

Eleven aerial surveys were flown on 11 days between 8 May and 1 June during the 1993 season. Two surveys were made under fair conditions. During an aerial survey on 8 May, 2,694 tons of herring were observed. Another survey was conducted on 31 May during which 2,482 tons of herring were sighted. The total biomass in the Nunivak Island District was estimated to be 5,176 by combining the two surveys. Only 2.6 linear miles of spawn was observed during aerial surveys with a peak spawn of 2.0 miles documented on 8 May.

The Department test fishery sampled 232 herring for biological data between 16 May and 3 June. Age 5 herring dominated the return in both biomass (26%) (Table 25) and number of fish (38%) (Table 26). Recruit herring were 47% of the run in number of fish.

SUBSISTENCE FISHERY

Subsistence fishing for Pacific herring in the northeastern Bering Sea is very important in villages of the Yukon-Kuskokwim River delta. The subsistence fishery is conducted primarily by residents of the coastal villages of Kwigillingok, Kongiganak, Kipnuk, Chefornak, Toksook Bay, Umkumiut, Nightmute, Tununak, and Newtok. The herring stocks utilized by the subsistence fishery are the same ones targeted by the commercial fishery in the nearby commercial fishing districts.

Subsistence harvest surveys have occurred annually in Nelson Island villages since 1985 and sporadically in Kuskokwim delta villages since 1975. Average annual herring subsistence harvests have been at least 110 tons since 1975 (Appendix H.3). The 1993 subsistence survey of Nelson Island communities resulted in an estimated 82.0 tons of subsistence herring harvested. A survey of Nunivak Island residents estimated 1.5 tons of herring were taken for subsistence use. Subsistence survey results reflect harvest trends and reported catches represent minimum figures since not all fishers are contacted and other Kuskokwim River delta villages were not surveyed.

This was the second lowest documented harvest since 1986, but was a considerable improvement in both quality and quantity over 1991 when 74 tons were caught and many herring were fat and difficult to dry. Unlike 1991, spoilage of processed herring was not reported.

COMMERCIAL FISHERY

Security Cove District

The commercial herring fishery in the Security Cove District has opened and closed by emergency order since 1981 to provide for an orderly fishery and periodic assessment of herring biomass. A total of 5.2 tons of herring was harvested during four openings in the Security Cove District (Table 27).

The low harvest in the Security Cove District was due to the relatively late arrival of fishers and processors. The district was placed on two hour advanced notice for commercial fishing on 5 May. Even though the Department offered a copy

of our cookbook to the first processor to buy fish in the district, fishers did not arrive in the district until 12 May. The average time between the first commercial periods in the Togiak and Security Cove Districts is four days (range 2 to 9 days). This year there were 15 days between the first opening at Togiak and Security Cove. There were a total of 11.7 miles of spawn observed in the district before 12 May.

The district was opened to commercial harvest for three hours starting at 12:00 noon on 12 May. One processors purchased 5.2 tons of sac roe herring with an average roe percentage of 12.8% from nine fishers. There were three more openings: 6 hours on 12-13 May, 6.5 hours on 13 May and 9 hours on 14 May. No herring were delivered during these openings. The processor and all fishers left the district after the 14 May opening. Total exvessel value of the catch to nine fishers was approximately $2,000 (Appendix H.1).

The commercial exploitation rate was 0.1% of the estimated available biomass (Appendix H.1). A sample of 98 herring from the commercial catch was 68% age 9 and older. Herring of age 4 and 5 comprised 5% of the catch (Figure 11).

Goodnews Bay District

Since 1981, to provide for an orderly fishery and periodic reassessments of herring biomass, commercial herring fishing in Goodnews Bay has opened and closed by emergency order. A total of 945 tons was taken during 123 hours of fishing over a record 20 periods (Table 27).

The harvest quota was raised from the pre-season projection of 720 tons to 1,194 tons after 5,970 tons of herring were observed in the district on a 24 May aerial survey. Beach meetings with fishers occurred to monitor the quality of the herring in Goodnews Bay. Samples were brought in by volunteer fishers and analyzed by industry roe technicians. On 11 May roe content of commercial test fish samples averaged 13.8%.

The fishery first opened on 12 May for 6 hours with 33 fishers delivering 65.5 tons of sac roe herring with an average roe content of 10.5% and 0.7 tons of bait. Total catch was 944.9 tons of sac roe quality herring with an average roe content of 10.3% and 9.3 tons of bait. Catches ranged from 130 tons on 18 May to 0.0 tons on 27 May and 29 May. During the fishery roe contents ranged from 9.6% to 12.1%. Three processors bought herring from 63 permit holders who made 705 deliveries with an estimated exvessel value of $293,000. The exploitation rate was 15.4% of the available biomass (Appendix H.1).

A sample of 745 herring was taken from the commercial catch. Ages 9 and older herring comprised 61% of the total harvest by weight. Younger herring (ages 4 and 5) comprised 5% of the harvest sample.

Management of the 1993 herring fishery in Goodnews Bay was without major problems. The Fish and Wildlife Protection vessel Wolstad patrolled the district during the season. Several fishing violations were reported.

Cape Avinof District

This was the sixth year that a commercial herring fishery occurred in the Cape Avinof District. As in all other Kuskokwim Bay districts, commercial herring fishing is regulated by emergency order. A total of 215 tons of herring were harvested during 106 hours of fishing time (Table 27).

Samples brought to Kipnuk by commercial fishers on 22 May had an average roe content of 11.7%. The district was first opened to commercial fishing for 2 hours starting at 1:30 pm on 23 May. The harvest was 28.3 tons of sac roe herring with an average roe content of 10.8%. Fifty-three fishers made deliveries. Between 24 May and 1 June the district was reopened fifteen times for 104 hours of fishing time. Catches ranged from 59.6 tons on 24 May to 0.1 tons on 1 June. Roe contents ranged from 15.0% to 10.4%. A total of 205.9 tons of sac roe quality herring with an average roe content of 12.0% and 9.3 tons of bait were caught.

A tender was available near the Ishkowik River in the eastern part of the Cape Avinof District. A total of 18 tons of sac roe herring with a 12.1% roe content were delivered by 12 permit holders in the eastern half of the district.

In the entire Cape Avinof District, one processor paid approximately $75,000 to 97 fishers who made 478 deliveries. The exploitation rate of herring was 7.6% of the estimated available biomass (Appendix H.1).

A commercial catch sample of 980 herring was obtained. Ages 9 and older herring comprised 82% of the catch by weight. Young herring (ages 3, 4, and 5) made up only 3% of the harvest.

Nelson Island District

The commercial harvest of herring began in the Nelson Island District in 1985. To provide for an adequate subsistence harvest, an orderly commercial fishery, and to allow for periodic assessment of the herring biomass, the commercial fishery has opened and closed by emergency order.

The Nelson Island District did not open to commercial fishing in 1990 or 1991 because the herring biomass was below the level necessary to allow a fishery. On 17 May, 4,944 tons of herring were observed during an aerial survey of the district. Based on this survey, the harvest quota for the commercial fishery was set at 742 tons. A total of 739 tons of herring was taken in sixteen periods (Table 27).

The first opening was for 1.5 hours starting at 8:00 pm on 17 May. Sixteen fishers landed 28.6 tons of sac roe herring with an average roe content of 9.3%, 1.4 tons of bait and 3.0 tons of waste. The next commercial period was on 18 May for 4 hours starting at 6:00 pm. Catch from this period was 32.8 tons of sac roe herring with a roe content of 9.5%, 5.7 tons of bait and 3.6 tons of waste. Thirty permit holders made 31 deliveries. On 19 May, after being informed that two tenders would be available in the District, two periods were announced. Later, when told that one of the tenders would not be available, the Department canceled the second period. Even though fishers were notified by the Department and processor after approximately two hours of fishing time that the available tender capacity was going to be exceeded, most continued to fish. The 19 May period saw a total catch of 151.8 tons; 69.4 tons of sac roe quality herring at 10.0% average roe content, 25.4 tons bait and 57.0 tons waste.

Between 26 May and 3 June, thirteen additional commercial periods (52 hours of fishing time) were conducted. Catches ranged from 117.6 tons on 30 May to 0.0 tons on 27 May. Average roe content ranged from 9.8% to 12.7%. The total catch of 739 tons consisted of 613 tons of sac roe quality herring with an average roe content of 10.6%, 51.6 tons of bait and 74.0 tons of waste.

One processor paid approximately $198,000 to 73 fishers who made 487 deliveries. The exploitation rate was 14.9% of the available biomass. A total of 547 herring was sampled from the commercial catch. The age composition showed that 85% of the catch was age 9 or older. Only 1% of the harvest was recruit herring.

Nunivak Island District

The initial commercial fishery for herring in the Nunivak Island District occurred in 1985. To provide for an orderly fishery and to allow for periodic assessment of herring biomass the fishery has opened and closed by emergency order.

The Nunivak Island District had no commercial fishing periods for herring in 1993. Between 13 May and 16 May approximately six fishers attempted to locate herring between Cape Manning and Cape Corwin. A total of 13 samples averaged 4.9% roe content. High male content, combined with immature and spent fish, made location of market quality herring difficult. The tender left the Nunivak Island District for the season on 17 May.

Enforcement

The Department of Public Safety, Division of Fish and Wildlife Protection was present in all but the Security Cove and Cape Avinof Districts during the 1993 commercial herring fishery. The protection vessel *Wolstad*, a C-185 floatplane and a helicopter were present in the Goodnews Bay, Nelson Island, and Nunivak Island Districts. Details on the number and type of violations observed are not available at this time.

OUTLOOK AND MANAGEMENT STRATEGY FOR 1994

Projections from post-season escapement estimates, using historic mean rates of survival and growth for each age class (Bromaghin and Hamner 1993, ADF&G, Anchorage, personal communication), and estimates of recruitment (Wespedstad, 1982), indicate that the 1994 spawning biomass for the Kuskokwim Area herring stocks (Security Cove to Nelson Island) should be roughly 25,941 tons (Table 28). These projections can be viewed as minimums since age-2 and age-3 herring are not included. However, variability in the quality of aerial survey assessments of biomass and deviations from the assumed survival or recruitment rates may result in the observed biomass being either above or below these projections.

Recruitment of younger age classes (ages 4 to 6) was relatively high in all districts in 1993. Ages 2, 3, 4, and 5 herring comprised 56% of the herring population, the highest level since 1983. Since accurate methods to forecast herring returns are not available, harvest levels will be adjusted during the season according to observed herring spawning biomass. In addition, in accordance with the AYK Region harvest policy, newly recruited age classes will not be targeted by the commercial fishery. If it is not possible to determine herring abundance using aerial survey methods, stock abundance will be assessed using information from the projected biomass, test and commercial catches, and spawn deposition observations.

Security Cove District

The commercial season opens when the biomass reaches 1,200 tons or spawning activity is observed. The occurrence and length of fishing periods will depend on stock strength, fishing effort, and spawning activity. The increased recruitment of younger age fish into the population allows a 20% exploitation rate for the Security Cove herring stock in 1994. A 20% exploitation rate on the projected return of 7,683 tons would result in a harvest of about 1,528 tons (Table 28). A larger catch may occur if the 1994 biomass assessment is greater than the projection.

Ages 5, 6 and 7 are expected to dominate the return. Age 9 and older herring are expected to comprise approximately 16% of the biomass.

Goodnews Bay District

Management strategy for this district will be similar to that used for Security Cove. The season will open and close by emergency order when a biomass of 1,200 tons is observed or spawning activity occurs. The 1994 projected return of herring to the Goodnews Bay District is 5,679 tons. A 20% exploitation rate would result in a harvest of 1,136 tons (Table 28). A larger catch may occur if the 1994 biomass assessment is greater than the projection.

Ages 6 and 7 herring are expected to be the dominant year classes in the return. Age 9 and older herring are expected to comprise approximately 20% of the biomass.

Cape Avinof District

Either spawning activity or a biomass of 500 tons must be observed before the commercial herring season can be opened. The season will open and close by emergency order. The projected 1994 biomass for the Cape Avinof area stock is 2,827 tons (Table 28). The 15% exploitation rate will take into account the limited data base for this area and insure recognition of the subsistence fishing priority. Assuming a 15% commercial exploitation rate, the projected harvest would be 424 tons of herring. With an additional estimated 30 tons of subsistence herring harvest, total exploitation rate in 1994 would be 16%.

Age 6 herring are expected to be the largest year class in the returning population. Age 9 and older herring are expected to comprise approximately 29% of the returning population.

Nelson Island District

In the Bering Sea Herring Fishery Management Plan the Alaska Board of Fisheries set a minimum biomass level of 3,000 tons for the Nelson Island District. The inseason estimate of herring biomass must exceed the threshold level before a commercial fishery can be allowed.

The spawning biomass projected to return to the Nelson Island District in 1994 is 4,888 tons (Table 28). At the 15% exploitation rate the harvest will be 733 tons. A larger harvest may occur if the 1994 biomass assessment is greater than the projection.

Age 6 herring are expected to be the dominant age group. Herring age 9 and older are expected to comprise 17% of the return.

Nunivak Island District

The commercial season opens when the biomass reaches 1,500 tons or when significant spawning is observed. The projected biomass of herring returning to the Nunivak Island District in 1994 is 4,909 tons. A 15% exploitation rate would result in a 736 ton harvest (Table 28). A larger catch may occur if the 1994 biomass assessment is greater than the projection.

Age 6 herring are expected to be the dominant age group. Herring age 9 and older are expected to comprise 40% of the return.

LITERATURE CITED

Alaska Department of Fish and Game. 1961. Kuskokwim River Salmon Tagging Studies, 1961. Kuskokwim Salmon Stock Separation Reports No. 1. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Alaska Department of Fish and Game. 1962. Kuskokwim River Salmon Tagging Studies, 1962. Kuskokwim Salmon Stock Separation Reports No. 2. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Alaska Department of Fish and Game. 1966. Kuskokwim River Salmon Tagging Studies, 1966. Kuskokwim Salmon Stock Separation Reports No. 3. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Alaska Department of Fish and Game A. 1992. 1992-1994 Arctic-Yukon-Kuskokwim Region Commercial and Subsistence Fishing Regulations Salmon and Miscellaneous Finfish. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Alaska Department of Fish and Game. 1990 B. 1990 Commercial Herring Fishing Regulations. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Anderson, C. A. **In press.** Abundance, Age, and Size of Salmon (Oncorhynchus spp.) Catches and Escapements in the Kuskokwim Area, 1987. Alaska Department of Fish and Game, Commercial Fisheries, Juneau.

Bill, Donald L.; Russell, Richard B.; Skrade, Jeffrey R.; Bucher, Wesley A.; Fried, Stephen M., Bue, Brian; Cross, Beverly A.; Rowell, Katherine A. 1989. Annual Management Report -1988- Bristol Bay Area. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 4D89-09, Anchorage.

Coffing, M. and Uttermole, C. In Prep. Subsistence Salmon Harvests in Kuskokwim Area in 1990. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 204, Juneau.

Coffing, M. Kwethluk Subsistence: Contemporary Land Use Patterns, Wild Resource Harvest and Use, and the Subsistence Economy of A Lower Kuskokwim River Area Community. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 157, Juneau. 1991.

Francisco, Kim R. Et. Al. Annual Management Report for the Subsistence and Commercial Fisheries of the Kuskokwim Area, 1991. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 3A92-06, Anchorage. 1992.

Hamner, Helen. 1986. Migratory Timing of Coho Salmon in the Kuskokwim Area, 1979-1984. Kuskokwim Salmon Escapement Report No. 46. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Huttunen, Daniel C. 1984. Abundance, Age, and Size of Salmon (Oncorhynchus spp.) Catches and Escapements in the Kuskokwim Area, 1982. Alaska Department of Fish and Game, Commercial Fisheries, Technical Data Report No. 111, Juneau.

Huttunen, D.C. 1984. 1982-1983 Kuskokwim River Test Fishing Projects. AYK Region, Kuskokwim River Salmon Test Fishing Report No. 13. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

LITERATURE CITED (Continued)

Huttunen, D.C. 1984. 1984 Kanektok River Sonar Project Report, 1984. Alaska Department of Fish and Game, Division of Commercial Fisheries, AYK Region Kuskokwim Escapement Report. Anchorage.

Huttunen, D.C. 1985. Abundance, Age, and Size of Salmon (Oncorhynchus spp.) Catches and Escapements in the Kuskokwim Area, 1983. Alaska Department of Fish and Game, Commercial Fisheries, Technical Data Report No. 133, Juneau.

Huttunen, D.C. 1985. Kuskokwim River Salmon Test Fishing, 1984. AYK Region, Kuskokwim River Salmon Test Fishing Report No. 15. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Huttunen, D.C. 1986. 1986 Kanektok River Sonar Project Report, 1986. Alaska Department of Fish and Game, Division of Commercial Fisheries, AYK Region Kuskokwim Escapement Report. Anchorage.

Huttunen, D.C. 1986. Abundance, Age, and Size of Salmon (Oncorhynchus spp.) Catches and Escapements in the Kuskokwim Area, 1984. Alaska Department of Fish and Game, Commercial Fisheries, Technical Data Report No. 186, Juneau.

Huttunen, D.C. 1986. Kuskokwim River Test Fishing Report, 1986. AYK Region, Kuskokwim River Salmon Test Fishing Report No. 16. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Huttunen, D.C. 1987. Abundance, Age, and Size of Salmon (Oncorhynchus spp.) Catches and Escapements in the Kuskokwim Area, 1985. Alaska Department of Fish and Game, Commercial Fisheries, Technical Data Report No. 212, Juneau.

Huttunen, D.C. 1987. 1986 Kuskokwim River Salmon Abundance Estimation Based on Calibrated Test Fishing CPUE Data. AYK Region, Kuskokwim River Salmon Test Fishing Report No. 17. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Huttunen, D.C. 1987. Abundance, Age, Sex, and Size of Salmon (Oncorhynchus) Catches and Escapements in the Kuskokwim Area, 1985. ADF&G Technical Data Report No. 212. Alaska Department of Fish and Game, P.O. Box 3-2000, Juneau, Alaska 99802.

Huttunen, D.C. 1989. Abundance, Age, and Size of Salmon (Oncorhynchus spp.) Catches and Escapements in the Kuskokwim Area, 1986. ADF&G Technical Fishery Report No. 89-21. Alaska Department of Fish and Game, Commercial Fisheries, Juneau.

Hyer, K.E., D.C. Mesiar, D.C. Huttunen (in preparation). Kuskokwim River Sonar Progress Report, 1991. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report, Anchorage.

Jonrowe, Dee Dee A.S. and three coauthors. 1982. Annual Management Report 1981 Kuskokwim Area. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Molyneaux, D.B. (in preparation). Bethel Salmon Test Fish Project, 1991. Alaska Department of Fish & Game, Division of Commercial Fisheries, Fisheries Technical Fisheries Report, Anchorage.

LITERATURE CITED (Continued)

Pete, Mary C. 1992. Subsistence Herring Fishing in the Nelson Island and Nunivak Island Districts, 1992. Tech. Paper No. 221. ADF&G, Division of Subsistence, Fairbanks.

Schneiderhan, D.J. 1982. 1982 Aniak River sonar studies. Alaska Department of Fish and Game, Division of Commercial Fisheries, Kuskokwim Escapement Report No. 26, Anchorage.

Schneiderhan, D.J. 1982a. 1982 Salmon River Weir studies. Alaska Department of Fish and Game, Division of Commercial Fisheries, Kuskokwim Escapement Report No. 29, Anchorage.

Schneiderhan, D.J. 1984. 1982 Ignatti Weir study. Alaska Department of Fish and Game, Division of Commercial Fisheries, Kuskokwim Escapement Report No. 30, Anchorage.

Schneiderhan, D.J. 1984a. 1983 Ignatti Weir study. Alaska Department of Fish and Game, Division of Commercial Fisheries, Kuskokwim Escapement Report No. 31, Anchorage.

Schneiderhan, D.J. 1984b. 1983 Aniak River Sonar study. Alaska Department of Fish and Game, Division of Commercial Fisheries, Kuskokwim Escapement Report No. 32, Anchorage.

Schneiderhan, D.J. 1985. Salmon escapement study, Kogrukluk River weir, 1984. Alaska Department of Fish and Game, Division of Commercial Fisheries, Kuskokwim Escapement Report No. 35, Anchorage.

Schneiderhan, D.J. 1985. 1984 Aniak River salmon escapement study. Alaska Department of Fish and Game, Division of Commercial Fisheries, Kuskokwim Escapement Report No. 36, Anchorage.

Schneiderhan, D.J. 1988. Kogrukluk Weir Salmon Escapement Study 1985-1987. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 3A88-16, Anchorage.

Schneiderhan, D.J. 1988a. Aniak River salmon escapement study, 1985-1987. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 3A88-17, Anchorage.

Schneiderhan, D.J. 1988b. Kuskokwim Area salmon escapement observation catalog 1984-1988. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 3B88-29, Anchorage.

Schneiderhan, D.J. 1988c. Aniak River salmon escapement study, 1988. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 3A88-33, Anchorage.

Schneiderhan, D.J. 1988. Kogrukluk Weir salmon escapement study 1988. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 3A89-09, Anchorage.

Schultz, K. and Williams, Mark. 1984. Kanektok River Sonar Enumeration Project, 1983. Alaska Department of Fish and Game, Division of Commercial Fisheries, AYK Region Kuskokwim Escapement Report. Anchorage.

Wagner, Teresa A. 1991. Southwestern Alaska Rainbow Trout Investigations, Kanektok River, Togiak National Wildlife Refuge, Alaska 1985-1987 Final Report. U.S. Fish and Wildlife Service, King Salmon Fishery Assistance Office. King Salmon.

Wespedstad, V.G., 1982. Cohort analysis of catch data on Pacific herring in the eastern Bering Sea, 1959-81. Nat. Oceanic and Atmospheric Admin., Nat. Marine Fisheries Service, Tech. Memo. NMFS F/NWC-24, Seattle.

TABLES

TABLES

Table 1. Peak aerial survey salmon escapement estimates in Kuskokwim Area spawning tributaries by species, 1993[a].

Location	Date	Chinook	Sockeye	Coho	Chum
KUSKOKWIM RIVER:					
Aniak R.	21-Jul	2,687	970	na	4,295
	26-Aug	na	na	1,471	na
Salmon R. (Aniak)	21-Jul	1,082	0	na	1,385
	26-Aug	na	na	455	na
Kipchuk R.	21-Jul	1,248	0	na	610
	26-Aug	na	na	806	na
Aniak Slough	22-Jul	0	0	na	1,000
Holokuk R.	22-Jul	114	0	na	1,635
Oskawalik R.	22-Jul	103	0	na	1,405
Holitna R.	22-Jul	1,573	3,375	na	14,600
Tevyaraq Lake	22-Jul	0	725	na	0
Gagaryak R.	29-Jul	419	0	na	0
Cheeneetnuk R.	29-Jul	678	0	na	360
Salmon R. (Pitka Fk)	30-Jul	1,012	0	na	0
Selatna R.	30-Jul	5	0	na	0
George R.	30-Jul	75	0	na	0
Kwethluk R.	23-Aug	na	na	4,723	na
Kisaralik R.	24-Aug	na	na	2,375	na
Canyon Cr.	24-Aug	na	na	648	na
Tuluksak R.	26-Aug	na	na	845	na
Eek R.	27-Aug	na	na	1,551	na
KUSKOKWIM BAY:					
Goodnews River[b]	29-Aug	na	na	19,178	na
Salmon R.	29-Aug	na	na	500	na

a Peak aerial salmon escapement index count. Aerial index counts do not represent total escapement, but reflect annual spawner abundance trends when made using standard survey methods under acceptable conditions.

b Goodnews River and Middle Fork Goodnews River.

Table 2. Daily and cumulative salmon escapement for the Tuluksak River weir, 1993.

	Chinook		Chum		Sockeye		Pink		Coho	
Date	Daily count	Cum. count	Daily count	Cum. count	Daily count	Cum. count	Daily count	Cum. count	Daily count	Cum. count
06-12		0		0		0		0		0
06-13		0		0		0		0		0
06-14		0		0		0		0		0
06-15		0		0		0		0		0
06-16		0		0		0		0		0
06-17	0	0		0		0		0		0
06-18	0	0	1	1	0	0	0	0	0	0
06-19	0	0	1	2	0	0	0	0	0	0
06-20	0	0	0	2	0	0	0	0	0	0
06-21	0	0	10	12	0	0	0	0	0	0
06-22	1	1	2	14	0	0	0	0	0	0
06-23	0	1	1	15	0	0	0	0	0	0
06-24	0	1	7	22	0	0	0	0	0	0
06-25	1	2	18	40	0	0	0	0	0	0
06-26	0	2	17	57	0	0	0	0	0	0
06-27	2	4	22	79	0	0	0	0	0	0
06-28	1	5	42	121	0	0	0	0	0	0
06-29	0	5	26	147	0	0	0	0	0	0
06-30	14	19	37	184	0	0	0	0	0	0
07-01	40	59	101	285	0	0	0	0	0	0
07-02	35	94	146	431	0	0	0	0	0	0
07-03	102	196	119	550	1	1	0	0	0	0
07-04	84	280	154	704	0	1	0	0	0	0
07-05	120	400	149	853	0	1	0	0	0	0
07-06	187	587	205	1058	0	1	0	0	0	0
07-07	157	744	313	1371	0	1	0	0	0	0
07-08	37	781	312	1683	0	1	0	0	0	0
07-09	93	874	242	1925	0	1	0	0	0	0
07-10	171	1045	255	2180	4	5	0	0	0	0
07-11	100	1145	379	2559	4	9	0	0	0	0
07-12	215	1360	215	2774	2	11	0	0	0	0
07-13	107	1467	341	3115	2	13	3	3	0	0
07-14	80	1547	467	3582	4	17	1	4	0	0
07-15	43	1590	413	3995	1	18	0	4	0	0
07-16	58	1648	402	4397	1	19	1	5	0	0
07-17	63	1711	816	5213	4	23	5	10	0	0
07-18	60	1771	1010	6223	3	26	3	13	0	0
07-19	64	1835	745	6968	5	31	2	15	0	0
07-20	61	1896	534	7502	7	38	3	18	0	0
07-21	47	1943	563	8065	8	46	4	22	0	0
07-22	54	1997	377	8442	0	46	3	25	0	0
07-23	18	2015	250	8692	2	48	1	26	3	3
07-24	23	2038	243	8935	7	55	3	29	1	4
07-25	10	2048	255	9190	0	55	3	32	1	5
07-26	15	2063	324	9514	3	58	9	41	0	5
07-27	24	2087	451	9965	2	60	9	50	1	6
07-28	24	2111	387	10352	1	61	4	54	1	7
07-29	14	2125	301	10653	6	67	5	59	7	14
07-30	21	2146	322	10975	2	69	8	67	3	17
07-31	10	2156	387	11362	4	73	18	85	2	19
08-01	10	2166	334	11696	5	78	6	91	4	23
08-02	2	2168	248	11944	0	78	7	98	4	27
08-03	1	2169	184	12128	0	78	4	102	7	34
08-04	7	2176	234	12362	0	78	3	105	25	59

-continued-

Table 2. (page 2 of 2)

	Chinook		Chum		Sockeye		Pink		Coho	
Date	Daily count	Cum. count	Daily count	Cum. count	Daily count	Cum. count	Daily count	Cum. count	Daily count	Cum. count
08-05	4	2180	213	12575	2	80	1	106	22	81
08-06	9	2189	194	12769	1	81	7	113	21	102
08-07	13	2202	193	12962	1	82	10	123	66	168
08-08	3	2205	148	13110	1	83	4	127	50	218
08-09	5	2210	83	13193	0	83	4	131	111	329
08-10	1	2211	63	13256	1	84	1	132	83	412
08-11	5	2216	54	13310	1	85	3	135	129	541
08-12	1	2217	48	13358	0	85	5	140	42	583
08-13	0	2217	53	13411	0	85	6	146	42	625
08-14	0	2217	50	13461	0	85	4	150	149	774
08-15	0	2217	31	13492	0	85	4	154	117	891
08-16	0	2217	23	13515	1	86	2	156	46	937
08-17	0	2217	15	13530	0	86	4	160	67	1004
08-18	1	2218	30	13560	0	86	5	165	105	1109
08-19	0	2218	27	13587	0	86	5	170	137	1246
08-20	0	2218	55	13642	0	86	3	173	166	1412
08-21	0	2218	26	13668	0	86	8	181	358	1770
08-22	0	2218	9	13677	0	86	2	183	342	2112
08-23	0	2218	16	13693	0	86	8	191	199	2311
08-24	0	2218	9	13702	0	86	1	192	143	2454
08-25	0	2218	22	13724	0	86	4	196	211	2665
08-26	0	2218	24	13748	0	86	3	199	396	3061
08-27	0	2218	19	13767	1	87	2	201	504	3565
08-28	0	2218	8	13775	1	88	2	203	221	3786
08-29	0	2218	6	13781	0	88	1	204	227	4013
08-30	0	2218	3	13784	0	88	2	206	406	4419
08-31	0	2218	2	13786	0	88	1	207	617	5036
09-01	0	2218	6	13792	0	88	0	207	545	5581
09-02	0	2218	2	13794	0	88	2	209	620	6201
09-03	0	2218	2	13796	0	88	1	210	1274	7475
09-04	0	2218	1	13797	0	88	0	210	247	7722
09-05	0	2218	2	13799	0	88	0	210	134	7856
09-06	0	2218	0	13799	0	88	0	210	70	7926
09-07	0	2218	2	13801	0	88	0	210	171	8097
09-08	0	2218	1	13802	0	88	0	210	70	8167
09-09	0	2218	1	13803	0	88	0	210	90	8257
09-10	0	2218	1	13804	0	88	0	210	71	8328

Table 3. Chum salmon escapement estimation for 1993 using side scan sonar migration timing data from the years 1980-88, Aniak River, Alaska.[a]

	Normal Timing		Late Timing		Early Timing			Estimated
Date	Daily Prop.	Cum. Prop.	Daily Prop.	Cum. Prop.	Daily Prop.	Cum. Prop.	Adjusted Count	Daily Escapemen
15-Jun	0.00014	0.00014	0.00000	0.00000	0.00103	0.00103	1.2	1.
16-Jun	0.00103	0.00117	0.00000	0.00000	0.00606	0.00709	8.6	14.0
17-Jun	0.00116	0.00233	0.00000	0.00000	0.00698	0.01407	9.7	15.7
18-Jun	0.00115	0.00348	0.00000	0.00000	0.00586	0.01993	9.6	15.
19-Jun	0.00197	0.00544	0.00000	0.00000	0.00729	0.02723	16.4	26.
20-Jun	0.00171	0.00715	0.00000	0.00000	0.00461	0.03183	14.3	23.2
21-Jun	0.00273	0.00988	0.00000	0.00000	0.00240	0.03423	23.0	37.2
22-Jun	0.00411	0.01399	0.00043	0.00043	0.00494	0.03917	34.6	56.
23-Jun	0.00538	0.01937	0.00033	0.00076	0.00837	0.04754	45.4	73.
24-Jun	0.00860	0.02797	0.00025	0.00101	0.01399	0.06152	16	26.0
25-Jun	0.00653	0.03450	0.00024	0.00125	0.00324	0.06476	12	19.0
26-Jun	0.01037	0.04487	0.00060	0.00185	0.01297	0.07773	27	44.
27-Jun	0.01460	0.05947	0.00154	0.00339	0.03390	0.11163	9	15.
28-Jun	0.01609	0.07556	0.00116	0.00454	0.02971	0.14134	44	71.0
29-Jun	0.01333	0.08889	0.00189	0.00643	0.01421	0.15555	175	284.0
30-Jun	0.01256	0.10145	0.00619	0.01263	0.00967	0.16522	89	144.
01-Jul	0.01851	0.11996	0.01030	0.02293	0.01673	0.18195	373	604.
02-Jul	0.02030	0.14026	0.01363	0.03656	0.03606	0.21800	1110	1798.0
03-Jul	0.02904	0.16930	0.02709	0.06365	0.06474	0.28274	325	527.0
04-Jul	0.03721	0.20651	0.02208	0.08573	0.07010	0.35284	178	288.
05-Jul	0.03222	0.23874	0.01257	0.09831	0.01399	0.36683	409	663.
06-Jul	0.02961	0.26835	0.02261	0.12092	0.01154	0.37836	34	55.0
07-Jul	0.02563	0.29398	0.01846	0.13938	0.02029	0.39865	19	31.0
08-Jul	0.02746	0.32144	0.02867	0.16805	0.03133	0.42998	4	7.
09-Jul	0.03188	0.35332	0.02264	0.19069	0.05343	0.48341	84	136.
10-Jul	0.03325	0.38657	0.02353	0.21422	0.04217	0.52558	565	915.0
11-Jul	0.03521	0.42178	0.02353	0.23775	0.04698	0.57257	247	400.0
12-Jul	0.03704	0.45882	0.03098	0.26873	0.03362	0.60619	271	439.
13-Jul	0.03103	0.48985	0.01916	0.28789	0.04762	0.65381	147	238.
14-Jul	0.03391	0.52376	0.01831	0.30621	0.04044	0.69425	333	539.0
15-Jul	0.03368	0.55743	0.02929	0.33550	0.02979	0.72404	146	237.0
16-Jul	0.03496	0.59239	0.05812	0.39362	0.03380	0.75784	400	648.
17-Jul	0.03377	0.62616	0.04876	0.44237	0.03027	0.78811	221	358.
18-Jul	0.03164	0.65780	0.02989	0.47226	0.02009	0.80819	163	264.0
19-Jul	0.02599	0.68379	0.02357	0.49583	0.03124	0.83944	109	176.0
20-Jul	0.02670	0.71049	0.02774	0.52358	0.02439	0.86383	254	411.
21-Jul	0.02473	0.73522	0.02797	0.55155	0.01915	0.88298	127	206.
22-Jul	0.03287	0.76809	0.07317	0.62472	0.02517	0.90815	159	258.0
23-Jul	0.02812	0.79621	0.02874	0.65345	0.01682	0.92496	302	489.0
24-Jul	0.02651	0.82271	0.04653	0.69998	0.01999	0.94495	468	758.
25-Jul	0.01990	0.84262	0.02226	0.72224	0.01572	0.96067	66	107.
26-Jul	0.01944	0.86206	0.03527	0.75752	0.01411	0.97478	203	329.0
27-Jul	0.01917	0.88123	0.03212	0.78964	0.01384	0.98862	120	194.0
28-Jul	0.01696	0.89819	0.02240	0.81204	0.01138	1.00000	325	527.
29-Jul	0.01479	0.91298	0.02439	0.83643			125.4	203.2
30-Jul	0.01215	0.92513	0.01441	0.85084			103.3	167.4
31-Jul	0.01288	0.93800	0.02199	0.87283			109.4	177.3
01-Aug	0.01077	0.94877	0.02210	0.89493			91.7	148.5
02-Aug	0.01060	0.95937	0.02148	0.91641			89.9	145.7
03-Aug	0.01327	0.97263	0.02931	0.94572			112.8	182.8
04-Aug	0.01159	0.98422	0.02463	0.97035			98.5	159.5
05-Aug	0.01278	0.99700	0.01867	0.98902			108.7	176.1
06-Aug	0.00300	1.00000	0.01098	1.00000			25.2	40.9

Escapement Objective = 250,000 Estimated Total Escapement = 13,870

a Daily escapements for the periods June 15-22 and August 1-5 were estimated from historic daily proportions for a normal migration. All other daily estimates were determined from adjusted daily counts as listed. Daily escapement estimates represent adjusted sonar counts which have been expanded by a factor of 1.62 to account for salmon which swim outside of the ensonified water column.

Table 4. Daily chinook salmon estimated season escapements using early, normal and late timing models, Kogrukluk River, Alaska, 1993.

			Early Run Timing		Normal Run Timing		Late Run Timing	
Date	Daily Count	Cum. Count	Cum. Prop.	Total Esc. Est.	Cum. Prop.	Total Esc. Est.	Cum. Prop.	Total Esc. Est.
18-Jun	0.1	0	0.00006	1370	0.00001	12332	0.00000	
19-Jun	0.7	1	0.00020	3695	0.00006	12332	0.00000	
20-Jun	0.9	2	0.00048	3354	0.00013	12332	0.00000	
21-Jun	1.9	3	0.00108	3218	0.00028	12332	0.00000	
22-Jun	4.3	8	0.00228	3391	0.00063	12332	0.00000	
23-Jun	8.9	17	0.00482	3445	0.00135	12332	0.00000	
24-Jun	14.4	31	0.00949	3273	0.00252	12332	0.00000	
25-Jun	26.4	57	0.01909	3010	0.00466	12332	0.00000	
26-Jun	29.8	87	0.02510	3475	0.00707	12332	0.00000	
27-Jun	58.4	146	0.04431	3285	0.01181	12332	0.00000	
28-Jun	81.4	227	0.06437	3526	0.01840	12332	0.00000	
29-Jun	122.4	349	0.09637	3625	0.02833	12332	0.00000	
30-Jun	125.1	474	0.13011	3646	0.03847	12332	0.00060	796734
01-Jul	249.2	724	0.16716	4329	0.05868	12332	0.00375	192966
02-Jul	293.2	1017	0.22144	4592	0.08246	12332	0.00411	247585
03-Jul	606	1623	0.27421	5918	0.11082	14644	0.00732	221660
04-Jul	362.2	1985	0.31864	6230	0.14019	14160	0.01000	198506
05-Jul	657.0	2642	0.37875	6976	0.17251	15315	0.02250	117425
06-Jul	708	3350	0.44359	7552	0.20810	16099	0.03018	111008
07-Jul	876	4226	0.51654	8181	0.24687	17119	0.04196	100706
08-Jul	715	4941	0.56295	8777	0.28912	17090	0.07000	70587
09-Jul	880	5821	0.62582	9302	0.33829	17208	0.12571	46304
10-Jul	1004	6825	0.68484	9966	0.40176	16988	0.20804	32807
11-Jul	683	7508	0.72981	10288	0.45032	16673	0.25980	28900
12-Jul	653	8161	0.76139	10719	0.49901	16354	0.30468	26785
13-Jul	688	8849	0.79087	11189	0.56376	15696	0.37887	23356
14-Jul	426	9275	0.81837	11334	0.61911	14981	0.43711	21219
15-Jul	367	9642	0.85200	11317	0.66383	14525	0.46872	20571
16-Jul	409	10051	0.87914	11433	0.70996	14157	0.53831	18672
17-Jul	334	10385	0.90189	11515	0.74895	13866	0.57682	18004
18-Jul	411	10796	0.92122	11719	0.78786	13703	0.63617	16971
19-Jul	162	10958	0.93912	11668	0.82096	13348	0.68757	15937
20-Jul	272	11230	0.95371	11775	0.84583	13277	0.72668	15454
21-Jul	200	11430	0.96494	11845	0.87263	13098	0.75665	15106
22-Jul	59	11489	0.97592	11773	0.88997	12910	0.77491	14826
23-Jul	101	11590	0.98301	11790	0.90580	12795	0.79555	14569
24-Jul	88	11678	0.98769	11824	0.92506	12624	0.83823	13932
25-Jul	52	11730	0.99021	11846	0.93704	12518	0.86125	13620
26-Jul	76	11806	0.99267	11893	0.94882	12443	0.88904	13280
27-Jul	77	11883	0.99454	11948	0.95602	12430	0.90214	13172
28-Jul	121	12004	0.99670	12044	0.96362	12457	0.92160	13025
29-Jul	75.5	12080	0.99856	12097	0.96926	12463	0.93251	12954
30-Jul	30.0	12110	1.00000	12110	0.97357	12438	0.94006	12882
31-Jul	19	12129	1.00000	12129	0.97730	12410	0.94661	12813
01-Aug	14	12143	1.00000	12143	0.98085	12380	0.95494	12715
02-Aug	7	12150	1.00000	12150	0.98408	12346	0.96189	12631
03-Aug	16	12166	1.00000	12166	0.98671	12329	0.96705	12580
04-Aug	25	12191	1.00000	12191	0.98811	12337	0.96844	12588
05-Aug	23	12214	1.00000	12214	0.98945	12344	0.97142	12573
06-Aug	20	12234	1.00000	12234	0.99068	12349	0.97420	12558
07-Aug	29	12263	1.00000	12263	0.99267	12353	0.97730	12547
08-Aug	21	12284	1.00000	12284	0.99454	12351	0.98085	12523
09-Aug	11	12295	1.00000	12295	0.99670	12335	0.98408	12493
10-Aug	15	12310	1.00000	12310	0.99856	12327	0.98671	12475
11-Aug	5	12315	1.00000	12315	1.00000	12315	0.98811	12463
12-Aug	11	12326	1.00000	12326	1.00000	12326	0.98945	12457
13-Aug	6	12332	1.00000	12332	1.00000	12332	0.99068	12448

Note: Numbers with decimal points are estimates calculated from historical passage rates.

Table 5. Daily sockeye salmon estimated season escapements using early, normal and late timing models, Kogrukluk River Alaska, 1993.

			Early Run Timing		Normal Run Timing		Late Run Timing	
Date	Daily Count	Cum. Count	Cum. Prop.	Total Esc. Est.	Cum. Prop.	Total Esc. Est.	Cum. Prop.	Total Esc. Est.
21-Jun	1.0	1	0.00024	4008	0.00003	29358	0.00000	
22-Jun	1.6	3	0.00055	4689	0.00009	29358	0.00000	
23-Jun	3.4	6	0.00161	3754	0.00021	29358	0.00000	
24-Jun	11.4	17	0.00437	3985	0.00059	29358	0.00000	
25-Jun	16.8	34	0.00858	3987	0.00117	29358	0.00000	
26-Jun	18.2	52	0.01362	3845	0.00178	29358	0.00000	
27-Jun	32.5	85	0.02076	4088	0.00289	29358	0.00000	
28-Jun	49.0	134	0.03305	4051	0.00456	29358	0.00000	
29-Jun	125.7	260	0.06294	4124	0.00884	29358	0.00000	
30-Jun	177.8	437	0.10196	4289	0.01490	29358	0.00000	
01-Jul	242.1	679	0.15587	4359	0.02314	29358	0.00000	
02-Jul	409.1	1089	0.22517	4834	0.03708	29358	0.00038	2860646
03-Jul	120	1209	0.27721	4360	0.05277	22900	0.00069	1755988
04-Jul	498.8	1707	0.31175	5477	0.06976	24473	0.00252	676554
05-Jul	524.0	2231	0.35592	6269	0.08841	25237	0.00344	648414
06-Jul	648	2879	0.40247	7154	0.11789	24423	0.00551	522952
07-Jul	1126	4005	0.43540	9199	0.15102	26521	0.00986	406025
08-Jul	1371	5376	0.47061	11424	0.20352	26417	0.02134	251992
09-Jul	2157	7533	0.50947	14787	0.26162	28795	0.03877	194306
10-Jul	2517	10050	0.54015	18606	0.31739	31665	0.05965	168497
11-Jul	1899	11949	0.58340	20482	0.37338	32003	0.08924	133900
12-Jul	1796	13745	0.66636	20627	0.42960	31995	0.13994	98223
13-Jul	1818	15563	0.72072	21594	0.49689	31322	0.19362	80380
14-Jul	1502	17065	0.78281	21800	0.56485	30212	0.22689	75215
15-Jul	1822	18887	0.84558	22337	0.62857	30048	0.26772	70548
16-Jul	2028	20915	0.88629	23599	0.68421	30569	0.31544	66305
17-Jul	2040	22955	0.94250	24356	0.73458	31249	0.35788	64142
18-Jul	1711	24666	0.99631	24758	0.77075	32003	0.39757	62043
19-Jul	832	25498	0.99631	25593	0.79566	32047	0.45699	55797
20-Jul	945	26443	0.99631	26541	0.82044	32231	0.49736	53167
21-Jul	779	27222	0.99631	27323	0.84999	32026	0.54485	49963
22-Jul	220	27442	0.99631	27544	0.87298	31435	0.57398	47810
23-Jul	286	27728	0.99631	27831	0.88905	31189	0.60037	46186
24-Jul	202	27930	0.99631	28034	0.90857	30741	0.65244	42809
25-Jul	191	28121	0.99631	28225	0.92411	30431	0.70796	39722
26-Jul	214	28335	0.99631	28440	0.93452	30321	0.74467	38051
27-Jul	230	28565	0.99631	28671	0.94416	30255	0.78229	36515
28-Jul	182	28747	0.99631	28854	0.95573	30079	0.82680	34770
29-Jul	162.0	28909	0.99631	29016	0.96439	29977	0.86281	33506
30-Jul	142.0	29051	0.99631	29159	0.97169	29898	0.89287	32537
31-Jul	87	29138	0.99631	29246	0.97744	29811	0.91420	31873
01-Aug	51	29189	0.99631	29297	0.98268	29704	0.93898	31086
02-Aug	29	29218	0.99631	29327	0.98591	29636	0.95205	30690
03-Aug	19	29237	0.99631	29346	0.98871	29571	0.96192	30395
04-Aug	16	29253	0.99631	29362	0.99124	29512	0.97132	30117
05-Aug	16	29269	0.99670	29366	0.99268	29485	0.97752	29942
06-Aug	20	29289	0.99742	29365	0.99444	29453	0.98371	29774
07-Aug	24	29313	0.99814	29368	0.99631	29422	0.98591	29732
08-Aug	17	29330	0.99885	29364	0.99670	29427	0.98871	29665
09-Aug	14	29344	0.99957	29357	0.99742	29420	0.99124	29604
10-Aug	2	29346	1.00000	29346	0.99814	29401	0.99268	29563
11-Aug	2	29348	1.00000	29348	0.99885	29382	0.99444	29512
12-Aug	6	29354	1.00000	29354	0.99957	29367	0.99631	29463
13-Aug	4	29358	1.00000	29358	1.00000	29358	0.99670	29455

Note: Numbers with decimal points are estimates calculated from historical passage rates.

Table 6. Daily chum salmon estimated season escapements using early, normal and late timing models, Kogrukluk River, Alaska, 1993.

			Early Run Timing		Normal Run Timing		Late run Timing	
Date	Daily Count	Cum. Count	Cum. Prop.	Total Esc. Est.	Cum. Prop.	Total Esc. Est.	Cum. Prop.	Total Esc. Est.
15-Jun	0.1	0	0.00003	3544	0.00000	31899	0.00000	
16-Jun	0.1	0	0.00004	6518	0.00001	31899	0.00000	
17-Jun	0.7	1	0.00011	8759	0.00003	31899	0.00000	
18-Jun	0.6	1	0.00019	7812	0.00005	31899	0.00000	
19-Jun	1.0	3	0.00024	10313	0.00008	31899	0.00000	
20-Jun	4.0	7	0.00059	11093	0.00021	31899	0.00000	
21-Jun	4.4	11	0.00115	9504	0.00034	31899	0.00000	
22-Jun	10.6	22	0.00188	11437	0.00068	31899	0.00000	
23-Jun	20.9	42	0.00355	11963	0.00133	31899	0.00013	318494
24-Jun	20.7	63	0.00581	10878	0.00198	31899	0.00013	473924
25-Jun	34.3	97	0.00812	12002	0.00305	31899	0.00013	731065
26-Jun	57.9	155	0.01196	12991	0.00487	31899	0.00073	211909
27-Jun	94.1	249	0.01923	12975	0.00782	31899	0.00093	267399
28-Jun	164.4	414	0.04020	10296	0.01297	31899	0.00180	230009
29-Jun	307.9	722	0.07967	9060	0.02263	31899	0.00388	186042
30-Jun	426.9	1149	0.11897	9654	0.03601	31899	0.00720	159582
01-Jul	675.8	1824	0.16517	11045	0.05719	31899	0.01006	181289
02-Jul	827.5	2652	0.22646	11710	0.08313	31899	0.01260	210536
03-Jul	844	3496	0.28934	12082	0.11507	30381	0.02739	127629
04-Jul	1065.7	4562	0.32607	13990	0.14848	30722	0.04572	99776
05-Jul	1000.0	5562	0.35982	15457	0.18010	30880	0.07351	75659
06-Jul	1314	6876	0.40990	16774	0.21292	32292	0.08839	77785
07-Jul	1418	8294	0.44905	18469	0.25025	33141	0.10232	81057
08-Jul	1244	9538	0.48218	19780	0.29096	32779	0.11388	83753
09-Jul	1417	10955	0.53259	20569	0.34489	31763	0.12662	86516
10-Jul	1436	12391	0.59383	20866	0.39798	31134	0.15711	78868
11-Jul	1251	13642	0.64417	21177	0.45178	30195	0.20361	66998
12-Jul	1082	14724	0.71055	20721	0.50604	29096	0.26958	54616
13-Jul	1390	16114	0.76012	21199	0.55431	29069	0.33389	48260
14-Jul	1006	17120	0.81267	21066	0.60584	28258	0.38101	44933
15-Jul	1405	18525	0.85749	21603	0.65157	28431	0.41813	44304
16-Jul	1511	20036	0.88270	22698	0.69459	28845	0.47384	42283
17-Jul	2030	22066	0.90109	24488	0.73279	30112	0.52209	42264
18-Jul	1785	23851	0.91146	26168	0.76398	31219	0.56514	42203
19-Jul	524	24375	0.92307	26406	0.79084	30821	0.60700	40156
20-Jul	1017	25392	0.93154	27258	0.81451	31174	0.64105	39609
21-Jul	1242	26634	0.94024	28326	0.84181	31639	0.67251	39603
22-Jul	500	27134	0.94605	28681	0.86319	31434	0.69821	38862
23-Jul	487	27621	0.95094	29046	0.88038	31374	0.72267	38220
24-Jul	336	27957	0.97043	28808	0.90097	31030	0.76894	36357
25-Jul	490	28447	0.97955	29040	0.91482	31095	0.80726	35238
26-Jul	266	28713	0.98349	29195	0.92553	31023	0.82284	34894
27-Jul	377	29090	0.98756	29456	0.93511	31108	0.84155	34567
28-Jul	489	29579	0.98904	29906	0.94456	31315	0.86187	34319
29-Jul	451.5	30030	0.99199	30273	0.95366	31489	0.88833	33805
30-Jul	414.0	30444	0.99372	30637	0.96145	31665	0.90892	33495
31-Jul	307	30751	0.99458	30919	0.96884	31740	0.92838	33123
01-Aug	205	30956	0.99606	31079	0.97444	31768	0.93942	32952
02-Aug	127	31083	0.99754	31160	0.97919	31744	0.94935	32741
03-Aug	109	31192	0.99815	31250	0.98277	31739	0.95541	32648
04-Aug	127	31319	0.99926	31342	0.98582	31770	0.96121	32583
05-Aug	104	31423	0.99938	31442	0.98772	31814	0.96508	32560
06-Aug	150	31573	0.99938	31593	0.98916	31919	0.96854	32599
07-Aug	114	31687	0.99951	31703	0.99199	31943	0.96884	32706
08-Aug	79	31766	0.99963	31778	0.99372	31967	0.97444	32599
09-Aug	43	31809	0.99975	31817	0.99458	31982	0.97919	32485
10-Aug	15	31824	0.99988	31828	0.99606	31950	0.98277	32382
11-Aug	10	31834	1.00000	31834	0.99754	31913	0.98582	32292
12-Aug	15	31849	1.00000	31849	0.99815	31908	0.98772	32245
13-Aug	26	31875	1.00000	31875	0.99926	31899	0.98916	32224
14-Aug	3.9	31879	1.00000	31879	0.99938	31899	0.99199	32136
15-Aug	0.0	31879	1.00000	31879	0.99938	31899	0.99372	32081
16-Aug	3.9	31883	1.00000	31883	0.99951	31899	0.99458	32057
17-Aug	3.9	31887	1.00000	31887	0.99963	31899	0.99606	32013
18-Aug	3.9	31891	1.00000	31891	0.99975	31899	0.99754	31970
19-Aug	3.9	31895	1.00000	31895	0.99988	31899	0.99815	31954
20-Aug	3.9	31899	1.00000	31899	1.00000	31899	0.99926	31922

Note: Numbers with decimal points are estimates calculated from historical passage rates.

Table 7. Daily coho salmon estimated season escapements using early, normal and late timing models, Kogrukluk River, Alaska, 1993.

			Early Run Timing		Normal Run Timing		Late Run Timing	
Date	Daily Count	Cum. Count	Cum. Prop.	Total Esc. Est.	Cum. Prop.	Total Esc. Est.	Cum. Prop.	Total Esc. Est.
25-Jul	7	7	0.00000		0.00000		0.00000	
26-Jul	2	9	0.00000		0.00000		0.00000	
27-Jul	2	11	0.00000		0.00000		0.00000	
28-Jul	1	12	0.00000	3097710	0.00000		0.00000	
29-Jul	0	12	0.00006	207047	0.00000		0.00000	
30-Jul	0	12	0.00009	138031	0.00000		0.00000	
31-Jul	4	16	0.00017	94118	0.00000		0.00000	
01-Aug	10	26	0.00061	42623	0.00000	6711705	0.00000	
02-Aug	5	31	0.00104	29808	0.00006	534871	0.00000	
03-Aug	13	44	0.00121	36364	0.00009	506114	0.00000	
04-Aug	15	59	0.00208	28365	0.00017	347059	0.00000	
05-Aug	22	81	0.00433	18707	0.00061	132787	0.00000	20909543
06-Aug	31	112	0.00606	18482	0.00104	107692	0.00006	1932436
07-Aug	49	161	0.00797	20201	0.00121	133058	0.00009	1851918
08-Aug	106	267	0.01333	20030	0.00208	128365	0.00017	1570588
09-Aug	133	400	0.01643	24346	0.00433	92379	0.00061	655738
10-Aug	159	559	0.01829	30563	0.00606	92244	0.00104	537500
11-Aug	113	672	0.02832	23729	0.00797	84316	0.00121	555372
12-Aug	266	938	0.03550	26423	0.01333	70368	0.00208	450962
13-Aug	439	1377	0.04178	32958	0.01643	83810	0.00433	318014
14-Aug	38.7	1416	0.04931	28711	0.01829	77404	0.00606	233618
15-Aug	208.8	1625	0.06356	25559	0.02832	57364	0.00797	203833
16-Aug	149.5	1774	0.07782	22797	0.03550	49973	0.01333	133086
17-Aug	130.7	1905	0.08609	22125	0.04178	45591	0.01643	115933
18-Aug	156.8	2062	0.09812	21011	0.04931	41808	0.01829	112715
19-Aug	296.7	2358	0.11578	20368	0.06356	37103	0.02832	83271
20-Aug	296.9	2655	0.13282	19990	0.07782	34119	0.03550	74792
21-Aug	172.2	2827	0.15293	18488	0.08609	32841	0.04178	67671
22-Aug	250.5	3078	0.16706	18423	0.09812	31367	0.04931	62417
23-Aug	367.7	3445	0.18465	18659	0.11578	29759	0.06356	54208
24-Aug	354.8	3800	0.21243	17889	0.13282	28612	0.07782	48834
25-Aug	418.7	4219	0.22593	18674	0.15293	27587	0.08609	49006
26-Aug	294.2	4513	0.24069	18751	0.16706	27015	0.09812	45996
27-Aug	366.2	4879	0.26429	18462	0.18465	26425	0.11578	42143
28-Aug	578.4	5458	0.31193	17497	0.21243	25692	0.13282	41091
29-Aug	281.1	5739	0.32775	17510	0.22593	25401	0.15293	37525
30-Aug	307.3	6046	0.36873	16397	0.24069	25120	0.16706	36191
31-Aug	388	6434	0.41702	15429	0.26429	24345	0.18465	34845
01-Sep	551	6985	0.44618	15655	0.31193	22393	0.21243	32882
02-Sep	632	7617	0.50792	14997	0.32775	23240	0.22593	33714
03-Sep	735	8352	0.54214	15406	0.36873	22651	0.24069	34701
04-Sep	286	8638	0.57136	15118	0.41702	20714	0.26429	32684
05-Sep	348	8986	0.60497	14854	0.44618	20140	0.31193	28808
06-Sep	1285.4	10271	0.67099	15308	0.50792	20223	0.32775	31339
07-Sep	712.5	10984	0.70486	15583	0.54214	20260	0.36873	29789
08-Sep	608.4	11592	0.71641	16181	0.57136	20289	0.41702	27798
09-Sep	699.8	12292	0.73726	16673	0.60497	20318	0.44618	27550
10-Sep	1374.5	13667	0.79892	17106	0.67099	20368	0.50792	26907
11-Sep	705.2	14372	0.81376	17661	0.70486	20390	0.54214	26509
12-Sep	240.5	14612	0.83010	17603	0.71641	20396	0.57136	25574
13-Sep	434.1	15046	0.86128	17470	0.73726	20408	0.60497	24871
14-Sep	1283.8	16330	0.89205	18306	0.79892	20440	0.67099	24337
15-Sep	309.0	16639	0.91331	18218	0.81376	20447	0.70486	23606
16-Sep	340.2	16979	0.93063	18245	0.83010	20454	0.71641	23700
17-Sep	649.2	17628	0.94259	18702	0.86128	20468	0.73726	23911
18-Sep	640.6	18269	0.96296	18972	0.89205	20480	0.79892	22867
19-Sep	442.6	18712	0.97318	19227	0.91331	20488	0.81376	22994
20-Sep	360.6	19072	0.98319	19398	0.93063	20494	0.83010	22976
21-Sep	249.0	19321	0.98731	19570	0.94259	20498	0.86128	22433
22-Sep	424.1	19745	0.99127	19919	0.96296	20505	0.89205	22135
23-Sep	212.8	19958	0.99181	20123	0.97318	20508	0.91331	21853
24-Sep	208.4	20167	0.99189	20331	0.98319	20511	0.93063	21670
25-Sep	85.8	20252	0.99229	20410	0.98731	20513	0.94259	21486
26-Sep	82.4	20335	1.00000	20335	0.99127	20514	0.96296	21117
27-Sep	11.3	20346	1.00000	20346	0.99181	20514	0.97318	20907
28-Sep	1.6	20348	1.00000	20348	0.99189	20514	0.98319	20696
29-Sep	8.3	20356	1.00000	20356	0.99229	20514	0.98731	20618
30-Sep	160.5	20517	1.00000	20517	1.00000	20517	0.99127	20697

Note: Numbers with decimal points are estimates calculated from historical passage rates.

Table 8. 1993 Goodnews River Weir Project Daily Counts.

DATE	CHINOOK	SOCKEYE	CHUM	COHO	PINK
6/22	12.0	202.0	130.2		
6/23	27	692	142		
6/24	158	1044	59		
6/25	66	692	190		
6/26	95	939	7		
6/27	26	935	290		
6/28	10	221	24		
6/29	36	700	20		
6/30	68	1072	58		
7/01	32	780	56		
7/02	5	31	11		
7/03	9	121	7		
7/04	4	230	5		
7/05	15	405	15		
7/06	64.2	1272.8	258.0		
7/07	90.8	1236.0	275.4		
7/08	69.3	1404.0	295.5		
7/09	88.1	1467.0	504.9		
7/10	144	1239	1062		
7/11	153	1459	273		
7/12	84	1445	216		
7/13	99	1080	354		
7/14	14	1056	277		
7/15	19	736	429		
7/16	92	1124	1054		22
7/17	93	752	887		44
7/18	169	561	716		27
7/19	31	427	535		16
7/20	179	208	367		28
7/21	39	650	175		11
7/22	60	358	838		17
7/23	32	163	281	2	4
7/24	49	257	472	0	8
7/25	11	84	549	0	1
7/26	31	300	1141	0	10
7/27	5	64	263	0	0
7/28	7	105	155	0	0
7/29	23	191	328	0	3
7/30	1	135	641	0	8
7/31	21	65	171	0	4
8/01	5	50	74	0	2
8/02	0	-18	59	0	0
8/03	0	23	16	0	3
8/04	17	60	164	10	13
8/05	6	42	77	6	4
8/06	20	17	74	9	4
8/07	24	62	208	12	9
8/08	8	48	98	2	5
8/09	4	20	63	23	3
8/10	2	37	107	38	7
8/11				30	
8/12				48	
8/13				16	
8/14				84	
8/15				73	
8/16				11	
8/17				77	
8/18				1010	
TOTAL	2,317	26,244	14,472	1,451	253

Table 9. Cumulative estimated fish passage at the Kuskokwim river sonar site, 1993.

DATE	King			Red	Chum	Pink	Coho	White-fish	Other	Total
	Large	Small	Total							
06/01	0	0	0	0	0	0	0	0	0	0
06/02	0	0	0	0	0	0	0	0	0	0
06/03	174	477	651	105	17	0	0	0	0	773
06/04	534	1466	2000	323	51	0	0	0	0	2374
06/05	881	2416	3297	532	84	0	0	0	0	3913
06/06	1271	3488	4759	768	122	0	0	0	0	5649
06/07	1770	4855	6625	1069	169	0	0	0	0	7863
06/08	1923	5275	7198	1162	184	0	0	0	0	8544
06/09	3872	8273	12145	1623	1286	0	0	0	0	15054
06/10	4706	9557	14263	1821	1758	0	0	0	0	17842
06/11	6035	11601	17636	2136	2509	0	0	0	0	22281
06/12	6886	12425	19311	4009	3006	0	0	173	0	26499
06/13	7927	13433	21360	6300	3612	0	0	384	0	31656
06/14	8934	14409	23343	8518	4200	0	0	589	0	36650
06/15	10500	18087	28587	16616	5378	0	0	727	52	51360
06/16	11636	20757	32393	22495	6233	0	0	828	89	62038
06/17	13651	25491	39142	32919	7750	0	0	1007	156	80974
06/18	15193	28805	43998	40788	10061	0	0	1522	543	96912
06/19	16661	31961	48622	48278	12261	0	0	2012	912	112085
06/20	18170	35206	53376	55982	14523	0	0	2516	1291	127688
06/21	19160	37086	56246	63853	20679	0	0	3498	1652	145928
06/22	20148	38963	59111	71713	26827	0	0	4479	2013	164143
06/23	21184	40932	62116	79958	33276	0	0	5508	2392	183250
06/24	21805	42598	64403	93130	45985	0	0	5508	3871	212897
06/25	22358	44082	66440	104859	57302	0	0	5508	5188	239297
06/26	22780	45214	67994	113811	65939	0	0	5508	6193	259445
06/27	23742	46206	69948	127385	70470	0	0	8811	6424	283038
06/28	25024	47525	72549	145460	76502	0	0	13209	6732	314452
06/29	26133	48667	74800	161103	81723	0	0	17014	6998	341638
06/30	26657	48843	75500	187448	97317	0	0	17221	7197	384683
07/01	27144	49007	76151	211926	111805	0	0	17413	7382	424677
07/02	27489	49123	76612	229274	122073	0	0	17550	7513	453022
07/03	27620	49314	76934	233507	133119	0	0	26702	7877	478139
07/04	27771	49533	77304	238358	145778	0	0	37189	8294	506923
07/05	27933	49768	77701	243549	159326	0	0	48413	8741	537730
07/06	28090	50120	78210	251473	169354	0	0	63053	8741	570831
07/07	28225	50422	78647	258284	177974	0	0	75638	8741	599284
07/08	28368	50740	79108	265449	187043	0	0	88877	8741	629218
07/09	28917	51319	80236	267869	193734	0	0	111736	8741	662316
07/10	29468	51900	81368	270296	200448	0	0	134669	8741	695522
07/11	30030	52493	82523	272772	207294	0	0	158053	8741	729383
07/12	30086	52584	82670	274630	222342	0	276	179914	9042	768874
07/13	30140	52674	82814	276451	237079	0	547	201322	9337	807550
07/14	30201	52774	82975	278485	253547	0	849	225245	9667	850768
07/15	30201	53025	83226	279653	277211	487	951	244680	10078	896286
07/16	30201	53265	83466	280763	299702	949	1048	263153	10468	939549
07/17	30201	53423	83624	281500	314627	1256	1112	275411	10727	968257
07/18	30201	53551	83752	281500	334680	1256	3253	281252	10727	996420
07/19	30201	53682	83883	281500	355455	1256	5471	287305	10727	1025597
07/20	30201	53796	83997	281500	373412	1256	7388	292536	10727	1050816
07/21	30201	53880	84081	281684	384007	1256	9938	308057	10727	1079750
07/22	30201	53951	84152	281838	392887	1256	12075	321066	10727	1104001
07/23	30201	54034	84235	282021	403417	1256	14609	336491	10727	1132756
07/24	32502	54570	87072	282021	407322	1256	25905	346350	11309	1161235
07/25	34700	55082	89782	282021	411051	1256	36693	355765	11865	1188433
07/26	37325	55694	93019	282021	415506	1256	49580	367012	12528	1220922
07/27	37511	55694	93205	282186	417280	1256	64568	370378	12688	1241561
07/28	37661	55694	93355	282319	418702	1256	76586	373077	12954	1258249
07/29	37821	55694	93515	282461	420229	1256	89493	375976	12954	1275884
07/30	37821	55694	93515	282461	421005	1679	102382	376262	12954	1290258
07/31	37821	55694	93515	282461	421679	2046	113573	376510	12954	1302738

Table 9. Cumulative estimated fish passage at the Kuskokwim River sonar site, 1993 (cont.d).

DATE	King			Red	Chum	Pink	Coho	White-fish	Other	Total
	Large	Small	Total							
08/01	37821	55694	93515	282461	422378	2427	125187	376768	12954	1315690
08/02	37821	55694	93515	282461	422583	2427	136489	376768	12954	1327197
08/03	37821	55694	93515	282461	422843	2427	150891	376768	12954	1341859
08/04	37821	55694	93515	282461	423093	2427	164716	376768	12954	1355934
08/05	37821	55694	93515	282461	423288	2427	175720	377086	12990	1367487
08/06	37821	55694	93515	282461	423512	2427	188409	377454	13033	1380811
08/07	37821	55694	93515	282461	423688	2427	198339	377741	13066	1391237
08/08	37821	55694	93515	282461	423688	2427	210226	377741	13066	1403124
08/09	37821	55694	93515	282461	423688	2427	220468	377741	13066	1413366
08/10	37821	55694	93515	282461	423688	2427	231194	377741	13066	1424092
08/11	37821	55694	93515	282461	423832	2427	241485	379461	13066	1436247
08/12	37821	55694	93515	282461	423986	2427	252511	381304	13066	1449270
08/13	37821	55694	93515	282461	424097	2427	260433	382628	13066	1458627
08/14	37821	55694	93515	282461	424097	2427	268849	383710	13066	1468125
08/15	37821	55694	93515	282461	424097	2427	276903	384745	13066	1477214
08/16	37821	55694	93515	282461	424097	2427	291582	386632	13066	1493780
08/17	37821	55694	93515	282461	424097	2427	300019	386801	13066	1502386
08/18	37821	55694	93515	282461	424097	2427	307137	386944	13066	1509647
08/19	37821	55694	93515	282461	424097	2427	314411	387089	13066	1517066
08/20	37821	55694	93515	282461	424097	2427	320613	387214	13066	1523393

Table 10. Daily estimated fish passage at the Kuskokwim River sonar site, 1993

DATE	King			Red	Chum	Pink	Coho	White-fish	Other	Total
	Large	Small	Total							
06/01	0	0	0	0	0	0	0	0	0	0
06/02	0	0	0	0	0	0	0	0	0	0
06/03	174	477	651	105	17	0	0	0	1250	2023
06/04	360	989	1349	218	34	0	0	0	2590	4191
06/05	347	950	1297	209	33	0	0	0	2489	4028
06/06	390	1072	1462	236	38	0	0	0	2808	4544
06/07	499	1367	1866	301	47	0	0	0	3581	5795
06/08	153	420	573	93	15	0	0	0	1101	1782
06/09	1949	2998	4947	461	1102	0	0	0	9508	16018
06/10	834	1284	2118	198	472	0	0	0	4072	6860
06/11	1329	2044	3373	315	751	0	0	0	6483	10922
06/12	851	824	1675	1873	497	0	0	173	5042	9260
06/13	1041	1008	2049	2291	606	0	0	211	6165	11322
06/14	1007	976	1983	2218	588	0	0	205	5970	10964
06/15	1566	3678	5244	8098	1178	0	0	138	18336	32994
06/16	1136	2670	3806	5879	855	0	0	101	13311	23952
06/17	2015	4734	6749	10424	1517	0	0	179	23603	42472
06/18	1542	3314	4856	7869	2311	0	0	515	18865	34416
06/19	1468	3156	4624	7490	2200	0	0	490	17960	32764
06/20	1509	3245	4754	7704	2262	0	0	504	18469	33693
06/21	990	1880	2870	7871	6156	0	0	982	19759	37638
06/22	988	1877	2865	7860	6148	0	0	981	19731	37585
06/23	1036	1969	3005	8245	6449	0	0	1029	20697	39425
06/24	621	1666	2287	13172	12709	0	0	0	29834	58002
06/25	553	1484	2037	11729	11317	0	0	0	26567	51650
06/26	422	1132	1554	8952	8637	0	0	0	20275	39418
06/27	962	992	1954	13574	4531	0	0	3303	24354	47716
06/28	1282	1319	2601	18075	6032	0	0	4398	32425	63531
06/29	1109	1142	2251	15643	5221	0	0	3805	28062	54982
06/30	524	176	700	26345	15594	0	0	207	43022	85868
07/01	487	164	651	24478	14488	0	0	192	39973	79782
07/02	345	116	461	17348	10268	0	0	137	28330	56544
07/03	131	191	322	4233	11046	0	0	9152	24944	49697
07/04	151	219	370	4851	12659	0	0	10487	28586	56953
07/05	162	235	397	5191	13548	0	0	11224	30595	60955
07/06	157	352	509	7924	10028	0	0	14640	33453	66554
07/07	135	302	437	6811	8620	0	0	12585	28755	57208
07/08	143	318	461	7165	9069	0	0	13239	30252	60186
07/09	549	579	1128	2420	6691	0	0	22859	33677	66775
07/10	551	581	1132	2427	6714	0	0	22933	33787	66993
07/11	562	593	1155	2476	6846	0	0	23384	34454	68315
07/12	56	91	147	1858	15048	0	276	21861	39281	78471
07/13	54	90	144	1821	14737	0	271	21408	38471	76852
07/14	61	100	161	2034	16468	0	302	23923	42988	85876
07/15	0	251	251	1168	23664	487	102	19435	45358	90465
07/16	0	240	240	1110	22491	462	97	18473	43113	85986
07/17	0	158	158	737	14925	307	64	12258	28607	57056
07/18	0	128	128	0	20053	0	2141	5841	28291	56454
07/19	0	131	131	0	20775	0	2218	6053	29308	58485
07/20	0	114	114	0	17957	0	1917	5231	25333	50552
07/21	0	84	84	184	10595	0	2550	15521	29018	57952
07/22	0	71	71	154	8880	0	2137	13009	24322	48573
07/23	0	83	83	183	10530	0	2534	15425	28838	57593
07/24	2301	536	2837	0	3905	0	11296	9859	28433	56330
07/25	2198	512	2710	0	3729	0	10788	9415	27154	53796
07/26	2625	612	3237	0	4455	0	12887	11247	32438	64264
07/27	186	0	186	165	1774	0	14988	3366	20479	40958
07/28	150	0	150	133	1422	0	12018	2699	16422	32844
07/29	160	0	160	142	1527	0	12907	2899	17635	35270
07/30	0	0	0	0	776	423	12889	286	14374	28748
07/31	0	0	0	0	674	367	11191	248	12480	24960

Table 10. Daily estimated fish passage at the Kuskokwim River sonar site, 1993 (cont'd).

DATE	King			Red	Chum	Pink	Coho	White-fish	Other	Total
	Large	Small	Total							
08/01	0	0	0	0	699	381	11614	258	12952	25904
08/02	0	0	0	0	205	0	11302	0	11507	23014
08/03	0	0	0	0	260	0	14402	0	14662	29324
08/04	0	0	0	0	250	0	13825	0	14075	28150
08/05	0	0	0	0	195	0	11004	318	11517	23034
08/06	0	0	0	0	224	0	12689	368	13281	26562
08/07	0	0	0	0	176	0	9930	287	10393	20786
08/08	0	0	0	0	0	0	11887	0	11887	23774
08/09	0	0	0	0	0	0	10242	0	10242	20484
08/10	0	0	0	0	0	0	10726	0	10726	21452
08/11	0	0	0	0	144	0	10291	1720	12155	24310
08/12	0	0	0	0	154	0	11026	1843	13023	26046
08/13	0	0	0	0	111	0	7922	1324	9357	18714
08/14	0	0	0	0	0	0	8416	1082	9498	18996
08/15	0	0	0	0	0	0	8054	1035	9089	18178
08/16	0	0	0	0	0	0	14679	1887	16566	33132
08/17	0	0	0	0	0	0	8437	169	8606	17212
08/18	0	0	0	0	0	0	7118	143	7261	14522
08/19	0	0	0	0	0	0	7274	145	7419	14838
08/20	0	0	0	0	0	0	6202	125	6327	12654

Table 11. 1993 Kuskokwim area fish ticket summary.

STAT AREA	DISTRICT NAME	BATCH RANGE	TICKET RANGE	TOTAL TICKETS
335-10	LOWER KUSKOKWIM (S)	101-141	700,001-706,556	6,556
335-20	MIDDLE KUSKOKWIM (S)	201-206	720,001-720,146	146
335-40	QUINHAGAK (S)	401-425	730,001-733,318	3,318
335-50	GOODNEWS BAY (S)	501-519	740,001-741,191	1,191
335-49	SECURITY COVE (H)			
335-50	GOODNEWS BAY (H)			
335-60	NELSON ISLAND (H)			
335-70	NUNIVAK ISLAND (H)			
335-80	CAPE AVINOF (H)			
TOTAL ALL	HERRING DISTRICTS	900-910	725,001-726,679	1,679 TICKETS
TOTAL	SALMON	91 BATCHES		11,211 TICKETS
TOTAL	HERRING	11 BATCHES		1,679 TICKETS
TOTAL	FISH TICKETS	102 BATCHES		12,890 TICKETS

Table 12. Kuskokwim Area salmon entry permits issued by village, 1993

VILLAGE	NUMBER OF ENTRY PERMITS
AKIACHAK	63
AKIAK	24
ANIAK	8
ATMAUTLUAK	26
BETHEL	160
CHUATHBALUK	2
CHEFORNAK	6
EEK	41
GOODNEWS BAY	29
LOWER KALSKAG	3
UPPER KALSKAG	6
KASIGLUK	40
KIPNUK	16
KONGIGANAK	20
KWETHLUK	59
KWIGILLINGOK	18
MEKORYUK	1
MCGRATH	1
NAPAKIAK	41
NAPASKIAK	31
NUNAPITCHUK	48
OSCARVILLE	5
PLATINUM	6
QUINHAGAK	79
SLEETMUTE	1
TULUKSAK	27
TUNTUTULIAK	46
EDUCATIONAL PERMITS	3
KUSKOKWIM AREA SUBTOTAL	**810**
ANCHORAGE	10
DILLINGHAM	1
FAIRBANKS	3
KENAI	1
MANOKOTAK	2
TOGIAK	1
ALEKNAGIK	1
NON-LOCAL ALASKA RESIDENTS SUBTOTAL	**19**
VALENCIA, CA.	1
PAUL SMITHS, NY	1
TACOMA, WA	1
NON-RESIDENT SUBTOTAL	**3**
TOTAL # OF PERMITS	**832**

Table 13. Ex-vessel Value of Kuskokwim Area Salmon Catch by District.

	Chinook	Sockeye	Coho	Pink	Chum	Total
Lower Kuskokwim River, District W-1						
			1993			
Fish	8,714	27,003	586,330	64	42,718	665,048
Value	$72,659	$140,789	$2,209,058	$59	$112,756	$2,535,321
			Ave. 1988-92			
Fish	45,833	83,841	497,141	4,457	651,445	1,280,718
Value	$503,909	$594,483	$2,256,827	$1,776	$1,462,472	$4,819,468
Middle Kuskokwim River, District W-2						
			1993			
Fish	21	5	24,456	0	619	25,132
Value	$153	$35	$88,714	$0	$1,371	$ 90,273
			Ave. 1988-92			
Fish	1,635	2,393	19,176	46	22,332	45,502
Value	$19,842	$15,426	$76,582	$25	$39,103	$150,978
Quinhagak, District W-4						
			1993			
Fish	15,784	80,934	55,817	7	40,943	188,725
Value	$142,918	$402,910	$245,982	$4	$104,347	$896,161
			Ave. 1988-92			
Fish	17,803	48,077	53,820	19,584	48,834	188,117
Value	$220,658	$310,941	$291,137	$6,204	$99,058	$927,998
Goodnews Bay, District W-5						
			1993			
Fish	2,117	59,293	20,014	0	10,657	92,081
Value	$21,351	$296,437	$95,043	$0	$28,304	$441,135
			Ave. 1988-92			
Fish	3,135	34,104	20,734	4,112	18,857	80,943
Value	$43,513	$254,514	$126,199	$1,171	$45,811	$471,208
Kuskokwim Area Total						
			1993			
Fish	26,636	167,235	686,570	71	94,937	975,449
Value	$237,081	$840,171	$2,638,797	$63	$246,778	$3,962,890
			Ave. 1988-92			
Fish	68,406	168,415	590,872	28,199	741,469	1,595,280
Value	$787,921	$1,175,365	$2,750,744	$9,176	$1,646,445	$6,369,653

Table 14. Executive summary of working group and department actions, 1993.

DATE	DEPT. RECOMMENDATIONS	WORKING GROUP RECOMMENDATIONS	ACTUAL
03 Feb		The Working Group will meet with Upriver subsistence representatives the first week of April in Aniak, the Working Group will seek funding for the Aniak meeting, the purpose of the meeting is to resolve our differences. A letter from the Upriver Subsistence Council was requested saying that they did not intend to sue the Working Group and are willing to meet with the Working Group to resolve the issues. The AVCP Mixed Stock Policy Board of Fisheries proposal was supported, pending review of the final draft of the policy. Requested that Kwethluk and USFWS present their positions on the Kwethluk River weir.	
19 Feb		Central Kuskokwim Advisory Committee passed resolution to meet with Working Group to resolve differences. CKAC nominated people to fill four seats on the Working Group; Upriver Commercial Fisher, Upper River Subsistence Fisher, Sportfisher, and District W-2 Subsistence Fisher. These nominations were placed on agenda for next meeting in Aniak.	
	That the Working Group should support the continued operation of Kwethluk Weir by USFWS.	That USFWS meet with Kwethluk and reach a compromise. Points of compromise to be: 1. FWS maximize local hire. 2. FWS sample dead salmon on fence for spawning condition. 3. FWS sample salmon carcasses 2 miles up and down stream of weir. 4. FWS count at night. ADF&G attend as mediator.	Kwethluk refused compromise. Due to lack of public support weir was closed and removed.
03 April		Working Group voted unanimously to reactivate the inactive Sportfish and Upper River Subsistence Fisher positions. CKAC's nominees were seated in the four vacant seats. A request was sent to BSFA to locate grants and legislative funding to support Working Group.	
01 June	Presented Informational Letter explaining upcoming seasons management plan for approval.	A motion to take no action passed after motions to table and accept failed.	Informational Letter was distributed stamped DRAFT.
10 June	Meet again not enough information to set period.	A motion to meet again on 16 June passed.	Working Group met again on 16 June.

- continued -

Table 14. (page 2 of 3)

DATE	DEPT. RECOMMENDATIONS	WORKING GROUP RECOMMENDATIONS	ACTUAL
16 June	Meet again chinook salmon outnumber chum salmon in all test fisheries.	A motion to meet on 19 June passed.	Working Group met on 19 June.
19 June	Meet again due to weak chum salmon run.	A motion to meet on 21 June passed.	Working Group met on 21 June.
21 June	Meet again due to weak chum salmon run.	A motion to meet on 22 June passed.	Working Group met on 22 June.
22 June	Meet again due to weak chum salmon run.	A motion to fish downstream of Bethel (required by regulation) for eight hours on 25 June passed.	Fished District 1 downstream of Bethel noon to 8:00 p.m.
28 June	Meet again due to weak chum salmon run.	A motion to meet on 30 June passed.	Working Group met on 30 June.
30 June	Meet again due to weak chum salmon run.	A motion to meet on 2 July passed.	Working Group met on 2 July.
02 July	Drastic measures to conserve chum salmon are necessary. Sport and commercial fishing closed Test fishing reduced. Requested advice on subsistence fishery restrictions.	Motion directing Commissioner to close South Peninsula fishery until 23 July. Motion requesting Commissioner, BOF, and Department meet with Work Group ASAP. Prohibit power boats from Aniak River downstream of Salmon River. Department told to use their information to restrict subsistence fishery. Adjourn until Commissioner's party arrives or fish arrive.	South Peninsula closed by regulation until 20 July. Governor and Chum Disaster Task Force met with Work Group on 22 July. Data review showed effects of power boats uncertain, no action taken.
22 July		Meeting was an open forum chaired by AVCP. The public and Work Group testified and questioned Commissioners Blatchford and Rosier, Director Koenings, Regional Supervisor Hilsinger, and Area Biologist Francisco.	

- continued -

Table 14. (page 3 of 3)

DATE	DEPT. RECOMMENDATIONS	WORKING GROUP RECOMMENDATIONS	ACTUAL
30 July	Six hour fishing period in District 1 on 31 July.	A motion to accept the recommendation failed by a vote of 7 to 3.	The 24 hour notice required for commercial periods the Department to call the period without consensus of the Working Group.
		Debate continued for another hour and the Working Group reached consensus on a period downstream of Bethel on 31 July.	Department did not allow this motion because it did not provide the regulatory notice time.
02 August	Six hour period in W-1 & W-2 on 4 August.	Six hour period in W-1 on 4 August.	Six hours in W-1 on 4 August.
05 August	Six hour period in W-1	Eight hour period in W-1 & W-2 on 6	Eight hour period in W-1 and W-2 on 6 August.
07 August	Six hour period in W-1	Six hour period in W-1 & W-2 on W-2 on 9 August.	Six hour period in W-1 & W-2 on 9 August.
10 August	Meet again due to decline in coho salmon catch.	Meet on 12 August.	Met again on 12 August.
12 August	Six hour period in W-1 & W-2 on 14 August.	Six hour period in W-1 & W-2 on 14 August.	Six hour period in W-1 & W-2 on 14 August.
16 August	Six hour period in W-1 & W-2 on 19 August.	Six hour period in W-1 & W-2 on 17 August.	Six hour period in W-1 & W-2 on 17 August. Dept. expressed reservations.
18 August	Six hour period in W-1 & W-2 on 21 August.	Six hour period in W-1 & W-2 on 21 August.	Six hour period in W-1 & W-2 on 21 August.
23 August	Six hour period in W-1 & W-2 on 25 August.	Six hour periods in W-1 & W-2 on 25 and 28 August and further periods at Dept. discretion.	Six hour periods in W-1 & W-2 on 25 and 28 August.
29 August			After data review Dept. announced 6 hour period in W-1 & W-2 for 1 Sept.

Table 15. Lower Kuskokwim River, District 1, commercial salmon harvest and fishing effort by period, 1993.

				CHINOOK		SOCKEYE		COHO		PINK		CHUM	
PERIOD	DATE	HOURS	PERMITS	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE
01	06/25	8	622	8,184	1.64	26,363	5.30					34,123	6.86
02	07/31	6	625	172	0.05	210	0.06	56,107	14.96	17		4,133	1.10
03	08/04	6	656	98	0.02	141	0.53	137,649	34.97	9		2,080	0.53
04	08/06	8	632	88	0.02	84	0.02	91,400	18.08	10		1,396	0.28
05	08/09	6	628	65	0.02	75	0.02	58,817	14.55	4		446	0.12
06	08/14	6	640	46	0.01	39	0.01	80,226	20.89	11		287	0.07
07	08/17	6	620	30	0.01	31	0.01	82,696	22.23	7		119	0.03
08	08/21	6	592	9		25	0.01	47,097	13.26	1		58	0.02
09	08/25	6	441	6		13		10,556	3.99			28	0.01
10	08/28	6	387	12	.01	19	.01	13,592	5.85	2		30	0.01
11	09/01	6	274	4		3		12,190	7.41			18	.01
TOTALS		70	739	8,714	0.17	27,003	0.52	586,330	11.33	64		42,718	0.83

Table 16. Middle Kuskokwim River, District 2, commercial salmon harvest and fishing effort by period, 1993.

				CHINOOK		SOCKEYE		COHO		PINK		CHUM	
PERIOD	DATE	HOURS	PERMITS	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE
01	08/06	8	15	9	0.08	2	0.02	6,828	56.90			303	2.53
02	08/09	6	17	4	0.04	1	0.01	3,839	37.64			153	1.50
03	08/14	6	17	3	0.03	1	0.01	2,681	26.28			70	0.69
04	08/17	6	16	3	0.03			2,349	24.47			23	0.24
05	08/21	6	17					3,115	30.54			26	0.25
06	08/25	6	15			1	.01	3,008	33.42			24	0.27
07	08/28	6	14	1	0.01			1,798	21.40			11	0.13
08	09/01	6	13	1	0.01			791	10.14			9	0.01
TOTALS		50	20	21	0.02	5	0.02	24,409	24.41			619	0.62

Table 17. The 1993 commercial salmon catch statistics for statistical area 335–11.

Fishing Period	Date	Hours	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1	6/25	8	1,464	2,073	1.42	9,803	6.70	10,844	7.41	0	0.00
	Subtotal		1,464	2,073	1.42	9,803	6.70	10,844	7.41	0	0.00
2	7/31	6	900	44	0.05	78	0.09	867	0.96	11538	12.82
	Subtotal		900	44	0.05	78	0.09	867	0.96	11,538	12.82
3	8/04	6	978	10	0.01	32	0.03	264	0.27	16,044	16.40
4	8/06	8	952	21	0.02	43	0.05	120	0.13	16,922	17.78
5	8/09	6	672	13	0.02	32	0.05	41	0.06	10,192	15.17
6	8/14	6	978	18	0.02	22	0.02	67	0.07	27,176	27.79
	Subtotal		3,580	62	0.02	129	0.04	492	0.14	70,334	19.65
7	8/17	6	780	9	0.01	17	0.02	38	0.05	19,712	25.27
8	8/21	6	750	2	0.00	5	0.01	6	0.01	5,531	7.37
9	8/25	6	498	3	0.01	9	0.02	12	0.02	2,932	5.89
10	8/28	6	426	5	0.01	13	0.03	12	0.03	3,265	7.66
11	9/01	6	144	0	0.00	0	0.00	1	0.01	644	4.47
	Subtotal		2,616	19	0.01	44	0.02	69	0.03	32,084	12.26
	TOTAL		8,560	2,198		10,054		12,272		113,956	

Table 18. The 1993 commercial salmon catch statistics for statistical area 335–12.

Fishing Period	Date	Hours	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1	6/25	8	3,528	6,111	1.73	16,560	4.69	23,279	6.60	0	0.00
	Subtotal		3,528	6,111	4.17	16,560	11.31	23,279	15.90	0	0.00
2	7/31	6	1,716	59	0.03	60	0.03	1,558	0.91	25420	14.81
	Subtotal		1,716	59	0.07	60	0.07	1,558	1.73	25,420	28.24
3	8/04	6	1,548	41	0.03	93	0.06	929	0.60	53,888	34.81
4	8/06	8	2,232	31	0.01	28	0.01	535	0.24	37,491	16.80
5	8/09	6	1,848	30	0.02	38	0.02	203	0.11	23,634	12.79
6	8/14	6	1,722	16	0.01	12	0.01	115	0.07	34,600	20.09
	Subtotal		7,382	118	0.02	171	0.02	1,782	0.24	149,613	20.27
7	8/17	6	1,452	6	0.00	7	0.00	39	0.03	25,986	17.90
8	8/21	6	1,464	3	0.00	14	0.01	30	0.02	13,822	9.44
9	8/25	6	888	1	0.00	3	0.00	4	0.00	2,420	2.73
10	8/28	6	768	3	0.00	5	0.01	11	0.01	3,406	4.43
11	9/01	6	576	1	0.00	1	0.00	9	0.02	5,452	9.47
	Subtotal		7,032	14	0.00	30	0.00	93	0.01	51,086	7.26
	TOTAL		19,658	6,302		16,821		26,712		226,119	

Table 19. The 1993 commercial salmon catch statistics for statistical area 335–13.

Fishing Period	Date	Hours	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1	6/25	8	0								
	Subtotal		0								
2	7/31	6	876	50	0.06	66	0.08	950	1.08	13,815	15.77
	Subtotal		876	50	0.06	66	0.08	950	1.08	13,815	15.77
3	8/04	6	1,116	27	0.02	13	0.01	445	0.40	51,261	45.93
4	8/06	8	1,480	27	0.02	12	0.01	296	0.20	27,064	18.29
5	8/09	6	948	18	0.02	4	0.00	73	0.08	12,821	13.52
6	8/14	6	846	6	0.01	5	0.01	69	0.08	10,512	12.43
	Subtotal		3,904	78	0.02	34	0.01	883	0.23	101,658	26.04
7	8/17	6	1,152	11	0.01	7	0.01	38	0.03	26,249	22.79
8	8/21	6	900	3	0.00	5	0.01	20	0.02	16,709	18.57
9	8/25	6	876	0	0.00	1	0.00	8	0.01	3,237	3.70
10	8/28	6	888	4	0.00	1	0.00	5	0.01	5,061	5.70
11	9/01	6	696	2	0.00	2	0.00	8	0.01	4,479	6.44
	Subtotal		4,506	20	0.00	16	0.00	79	0.02	55,735	12.37
	TOTAL		9,286	148		116		1,912		171,208	

Table 20. The 1993 commercial salmon catch statistics for statistical area 335–14.

Fishing Period	Date	Hours	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1	6/25	8	0								
	Subtotal		0								
2	7/31	6	276	19	0.07	6	0.02	758	2.75	5334	19.33
	Subtotal		276	19	0.07	6	0.02	758	2.75	5,334	19.33
3	8/04	6	360	20	0.06	3	0.01	442	1.23	16,456	45.71
4	8/06	8	456	9	0.02	1	0.00	445	0.98	9,923	21.76
5	8/09	6	300	4	0.01	1	0.00	129	0.43	8,170	27.23
6	8/14	6	330	6	0.02	0	0.00	36	0.11	7,938	24.05
	Subtotal		1,506	39	0.03	5	0.00	1,052	0.70	42,487	28.21
7	8/17	6	348	4	0.01	0	0.00	4	0.01	10,749	30.89
8	8/21	6	444	1	0.00	1	0.00	2	0.00	11,035	24.85
9	8/25	6	390	2	0.01	0	0.00	4	0.01	1,967	5.04
10	8/28	6	240	0	0.00	0	0.00	2	0.01	1,860	7.75
11	9/01	6	228	1	0.00	0	0.00	0	0.00	1,615	7.08
	Subtotal		1,686	8	0.00	1	0.00	12	0.01	27,226	16.15
	TOTAL		3,468	66		12		1,822		75,047	

Table 21. Quinhagak, District 4, commercial salmon harvest and fishing effort by period, 1993.

				CHINOOK		SOCKEYE		COHO		PINK		CHUM	
PERIOD	DATE	HOURS	PERMITS	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE
01	06/14	12		NO COMMERCIAL FISHING - STRIKE									
02	06/16	12		NO COMMERCIAL FISHING - STRIKE									
03	06/21	12	163	6,194	3.17	2,322	1.19					868	0.44
04	06/24	12	206	2,419	0.98	3,271	1.32					1,238	0.50
05	06/28	12	146	1,772	1.01	10,941	6.24					3,200	1.83
06	06/30	12	210	1,272	0.50	7,574	3.01					2,501	0.99
07	07/02	12	191	1,105	0.48	5,229	2.28					3,348	1.46
08	07/05	12	155	611	0.33	15,375	8.27					4,475	2.41
09	07/07	12	219	620	0.24	3,837	1.46					3,380	1.29
10	07/09	12	154	441	0.24	9,824	5.32					3,846	2.08
11	07/12	12	190	306	0.13	6,696	2.94					3,864	1.69
12	07/14	12	174	328	0.16	7,490	3.59					5,131	2.46
13	07/16	12	150	220	0.12	3,209	1.78	4				2,124	1.18
14	07/19	12	71	105	0.12	1,426	1.67	3				1,577	1.85
15	07/21	12	65	90	0.12	1,331	1.71	19	0.02			1,780	0.02
16	07/23	12	66	66	0.08	715	0.92	96	0.12			1,261	1.62
17	07/26	12	46	42	0.08	394	0.71	122	0.22			603	0.22
18	07/28	12	32	31	0.08	363	0.95	294	0.77			428	0.77
19	07/30	12	56	49	0.07	379	0.56	535	0.80	6	0.01	535	0.82
20	08/02	12	42	24	0.05	87	0.49	1,789	3.55			246	0.49
21	08/06	12	64	19	0.02	143	0.19	4,978	6.48			242	0.32
22	08/09	12	62	11	0.01	113	0.15	3,574	4.80	1		107	0.14
23	08/11	12	91	17	0.02	93	0.09	4,686	4.29			51	0.05
24	08/16	12	70	12	0.01	18	0.02	6,926	8.25			38	0.05
25	08/18	12	69	12	0.01	27	0.03	9,516	11.49			23	0.03
26	08/20	12	61	7	0.01	34	0.05	5,529	7.55			4	0.01
27	08/23	12	77	5	0.01	17	0.02	3,564	3.86			10	0.01
28	08/25	12	53	4	0.01	10	0.02	3,174	4.99			2	
29	08/28	12	51	2		5	0.01	4,546	7.43			2	
30	09/01	12	18			2	0.01	1,916	8.87				
31	09/03	12	30			8	0.02	2,777	7.71			43	0.12
32	09/06	12	19			1		1,769	7.76				
TOTALS		384	409	15,784	0.11	80,934	0.55	55,817	0.38	7		40,943	0.28

Table 22. Goodnews Bay, District 5, commercial salmon harvest and fishing effort by period, 1993.

				CHINOOK		SOCKEYE		COHO		PINK		CHUM	
PERIOD	DATE	HOURS	PERMITS	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE	NUMBER	CPUE
01	06/28	12	34	567	1.39	4,163	10.20					526	1.29
02	06/30	12	37	242	0.55	6,089	13.71					1,093	2.46
03	07/02	12	35	166	0.40	4,684	11.15					565	1.35
04	07/05	12	46	128	0.23	5,195	9.41					967	1.68
05	07/07	12	65	132	0.17	6,283	8.06					1,036	1.33
06	07/09	12	76	99	0.11	4,518	4.95					1,024	1.12
07	07/12	12	73	145	0.17	5,009	5.72					1,501	1.71
08	07/14	12	76	130	0.14	4,876	5.35					1,372	1.50
09	07/16	12	80	138	0.14	3,653	3.81					1,105	1.15
10	07/19	12	57	61	0.09	2,830	4.14					459	0.67
11	07/21	12	54	62	0.10	2,559	3.95	1				348	0.54
12	07/23	12	38	39	0.09	1,949	4.27	1				228	0.50
13	07/26	12	22	32	0.12	1,804	6.83	4	0.02			117	0.02
14	07/28	12	23	22	0.08	893	3.24	4	0.01			89	0.32
15	07/30	12	20	26	0.11	1,256	5.23	28	0.12			28	0.12
16	08/02	12	27	27	0.08	872	2.69	105	0.32			85	0.26
17	08/04	12	27	23	0.07	739	2.28	285	0.88			60	0.19
18	08/06	12	21	10	0.04	312	1.24	420	1.67			24	0.10
19	08/09	12	27	21	0.06	485	1.50	891	2.75			13	0.04
20	08/13	12	33	5	0.01	347	0.88	2,717	6.86			9	0.02
21	08/16	12	33	16	0.04	322	0.81	2,936	7.41			8	0.02
22	08/18	12	10	4	0.03	33	0.28	1,033	8.61			1	0.01
23	08/23	12	40	9	0.02	193	0.40	3,659	7.62			4	0.01
24	08/26	12	38	4	0.01	75	0.16	2,769	6.07			4	0.01
25	08/28	12	44	5	0.01	51	0.10	1,992	3.77			1	
26	09/01	12	30	2	0.01	54	0.15	2,002	5.56			2	0.01
27	09/03	12	27	2	0.01	49	0.15	1,167	3.60				
28	09/06	12				NO COMMERCIAL FISHING - NO BUYER							
TOTALS		336	114	2,117	0.06	59,293	1.61	20,014	0.29			10,657	0.54

Table 23. Preliminary projections of the 1994 Kuskokwim Area commercial salmon harvests in thousands of fish by species.

Total Species	Management Region: Kuskokwim River	Quinhagak	Goodnews Bay	Kuskokwim Area[a]
Chinook	9 - 56	9 - 46	1 - 14	19 - 112
Sockeye	27 - 137	6 - 84	7 - 59	40 - 280
Coho	196 - 666	27 - 135	8 - 71	231 - 872
Pink	2 - 11[b]	9 - 64[b]	1 - 14	12 - 89
Chum	43 - 1,382	9 - 73	5 - 33	57 - 1,488
Total	277 - 2,252	60 - 402	22 - 191	359 - 2,841

a Except as noted all the projections are based on the previous years (1984-93) catches in all districts.

b Kuskokwim Area pink salmon display a strong odd-even year cycle. This projection is based on the even year catch for the previous 10 years.

Table 24. 1993 Kuskokwim Area Subsistence Salmon Project Sampling Summary.

Community	Total Households	Calendars Mailed To	Calendars Returned From	Postcards Mailed To	Postcards Returned From	Personal Interviews	Telephone Surveys	Any Info	Reported Subsistence Fishing
Kipnuk	97	8	0	96	5	0	0	6	4
Kwigillingok	35	1	0	34	1	0	0	1	1
Kongiganak	54	41	1	14	0	30	0	54	37
North Kuskokwim Bay Totals	186	50	1	144	6	30	0	61	42
Tuntutuliak	62	55	15	12	0	52	0	60	51
Eek	68	55	18	20	4	42	0	61	38
Kasigluk	82	59	1	66	7	0	0	9	6
Nunapitchuk	83	65	15	9	2	59	0	80	61
Atmautluak	52	40	6	13	3	40	0	46	36
Napakiak	73	51	10	20	5	45	0	64	46
Napaskiak	73	51	7	17	1	55	0	68	51
Oscarville	13	10	7	2	0	11	0	12	11
Bethel	1,157	456	52	715	213	0	261	614	315
Kwethluk	132	101	28	25	4	97	0	125	92
Akiachak	112	88	13	34	2	66	0	98	80
Akiak	55	44	7	15	2	34	0	54	45
Tuluksak	62	54	10	5	2	49	0	61	47
Lower Kuskokwim District 1 Totals	2,024	1,129	189	953	245	550	261	1,352	879
Lower Kalskag	60	43	9	5	0	44	0	59	38
Upper Kalskag	40	28	11	3	2	33	0	39	29
Aniak	144	104	16	34	7	82	0	132	75
Chuathbaluk	32	25	6	4	1	22	0	32	28
Middle Kuskokwim District 2 Totals	276	200	42	46	10	181	0	262	170
Crooked Creek	31	21	4	6	0	18	0	31	22
Red Devil	19	16	4	3	0	13	0	19	15
Sleetmute	39	32	14	4	0	33	0	37	31
Stony River	20	12	1	4	0	12	0	20	10
Lime Village	16	7	0	1	1	5	0	16	5
McGrath	138	40	2	49	24	0	74	131	27
Takotna	14	0	0	0	0	0	14	14	0
Nikolai	29	18	2	2	0	19	0	28	12
Telida	3	0	0	0	0	0	0	0	0
Upper Kuskokwim Totals	309	146	27	69	25	100	88	296	122
KUSKOKWIM RIVER[A] TOTALS	2,795	1,525	259	1,212	286	861	349	1,971	1,213
Quinhagak	122	105	17	37	8	83	0	102	68
District 4 Totals	122	105	17	37	8	83	0	102	68
Goodnews Bay	58	36	6	15	2	25	0	53	27
Platinum	13	9	0	4	0	7	0	12	8
District 5 Totals	193	150	23	56	10	115	0	167	103
Mekoryuk	55	9	0	42	9	0	0	9	5
Newtok	53	1	0	29	3	0	0	3	0
Nightmute	24	4	0	17	0	0	0	0	0
Toksook Bay	78	9	1	52	3	0	0	4	4
Tununak	76	2	0	49	3	0	0	3	1
Bering Sea Coast Totals	286	25	1	189	18	0	0	19	10
Other[B]	2	1	0	0	0	0	0	0	0
KUSKOKWIM AREA TOTALS	3,276	1,701	283	1,457	314	976	349	2,157	1,326

A Includes North Kuskokwim Bay.
B Includes harvest by fishers living outside of the Kuskokwim Fisheries Management Area.

Table 25. 1993 Kuskokwim Area Subsistence Salmon Harvests.

	Households		Chinook		Chum		Sockeye		Coho	
Community	Total	Contacts	Reported Harvest	Est'd Total	Reported Harvest	Est'd Total	Reported Harvest	Est'd Total	Reported Harvest	Est'd Total
Kipnuk[A]	97	4	348	348	601	601	90	90	25	25
Kwigillingok[A]	35	1	80	80	200	200	140	140	80	80
Kongiganak	54	54	497	497	520	520	452	452	322	322
North Kuskokwim Bay Totals	186	59		925		1,321		682		427
Tuntutuliak	62	60	2,667	2,668	2,248	2,249	772	772	605	605
Eek	68	58	1,977	2,080	190	199	326	342	164	172
Kasigluk[A]	82	6	548	548	374	374	122	122	228	228
Nunapitchuk	83	79	3,015	3,125	3,916	4,059	2,025	2,096	228	236
Atmautluak	52	46	1,546	1,733	1,096	1,164	1,072	1,171	320	354
Napakiak	73	65	2,899	2,912	1,703	1,720	866	874	461	469
Napaskiak	73	69	3,780	3,854	2,351	2,397	2,376	2,423	557	568
Oscarville	13	12	1,475	1,475	566	566	932	932	0	0
Bethel	1,157	499	14,289	21,920	5,935	8,956	6,686	10,427	8,668	13,976
Kwethluk	132	125	7,486	7,563	2,707	2,735	3,045	3,076	1,460	1,475
Akiachak	112	98	4,766	4,885	2,303	2,421	3,025	3,101	929	929
Akiak	55	52	2,686	2,746	4,757	4,863	2,222	2,271	828	846
Tuluksak	62	61	3,056	3,056	3,161	3,161	2,056	2,056	340	340
Lower Kuskokwim District 1 Totals	2,024	1,230		58,565		34,864		29,663		20,198
Lower Kalskag	60	59	2,172	2,172	1,626	1,626	1,260	1,260	386	386
Upper Kalskag	40	39	1,608	1,662	549	567	334	345	326	337
Aniak	144	131	3,527	3,781	2,252	2,413	1,107	1,187	864	927
Chuathbaluk	32	32	1,155	1,155	2,296	2,296	659	659	290	290
Middle Kuskokwim District 2 Totals	276	261		8,770		6,902		3,451		1,940
Crooked Creek	31	31	581	581	536	536	623	623	311	311
Red Devil	19	19	365	365	753	753	538	538	1,359	1,359
Sleetmute	39	37	1,499	1,499	430	430	1,365	1,365	747	747
Stony River	20	20	399	399	710	710	1,332	1,332	450	450
Lime Village	16	16	35	35	355	355	2,200	2,200	470	470
McGrath	138	117	515	531	87	90	0	0	937	970
Takotna	14	14	0	0	0	0	0	0	0	0
Nikolai	29	28	425	449	316	334	0	0	239	252
Telida[A]	3	0	0	A	0	A	0	0	0	A
Upper Kuskokwim Totals	309	282		3,859		3,208		6,058		3,938
KUSKOKWIM RIVER[A B] TOTALS	2,795	1,832	63,396	72,119	42,538	46,295	35,625	39,854	20,992	26,503
Quinhagak	122	100	2,505	2,726	639	703	741	801	1,317	1,381
District 4 Totals	122	100	2,505	2,726	639	703	741	801	1,317	1,381
Goodnews Bay	58	52	388	438	118	133	478	540	705	796
Platinum	13	12	50	50	0	0	32	32	18	18
District 5 Totals	193	164		3,214		836		1,373		2,195
Mekoryuk[A]	55	5	0	A	778	778	0	A	23	23
Newtok[A]	53	0	0	A	0	A	0	A	0	A
Nightmute[A]	24	0	0	A	0	A	0	A	0	A
Toksook Bay[A]	78	4	128	128	296	296	66	66	57	57
Tununak[A]	76	1	5	5	30	30	30	30	70	70
Bering Sea Coast Totals	286	10		133		1,104		96		150
Other[C]	2	0	0		0	0	0	0	0	0
KUSKOKWIM[B] AREA TOTALS	3,276	2,006	66,472	75,466	44,399	48,235	36,972	41,323	23,182	28,848

A Harvest information not available or not enough fishers reported to allow staff to generate reliable estimates of total community harvests. Where available, reported harvest numbers were used.
B Includes North Kuskokwim Bay.
C Includes harvest by fishers living outside of the Kuskokwim Fisheries Management Area.

Table 26. Catch in commercial freshwater gillnets by day by gear size in District 1, 335-12, 1993

			Four & 3/8 Inch Mesh			
Date	Cisco	Whitefish	Pike	Sheefish	Burbot	Other
07/22	0	6	0	0	0	14 chum 7 pink
Weekly Subtotal	**0**	**6**	**0**	**0**	**0**	**21 salmon**
08/01	0	2	0	0	0	4 coho 2 pink
08/02	0	3	0	0	0	6 coho 5 pink
08/04	0	1	0	0	0	2 coho 4 pink
08/05	0	2	0	0	0	5 coho 3 pink
08/06	0	3	0	0	0	3 coho 4 pink
08/07	0	1	0	0	0	2 coho 3 pink
Weekly Subtotal	**0**	**11**	**0**	**0**	**0**	**43 salmon**
Total	**0**	**17**	**0**	**0**	**0**	**64 salmon**

Table 27. Catch in commercial freshwater gillnets by day be gear size in District 1. Stat. Area 335-13, 1993

Date	Cisco	Whitefish	Pike	Sheefish	Burbot	Other
			Three Inch Mesh			
07-04			Set Net			
07-05	0	234	0	0	0	2 pink 3 char 5 chum 14 sockeye
Total	**0**	**234**	**0**	**0**	**0**	**24**

Date	Cisco	Whitefish	Pike	Sheefish	Burbot	Other
			Four Inch Mesh			
03-15			Set Net			
03-17	0	27	0	0	0	0
03-19	0	24	0	1	0	0
Weekly Subtotal	**0**	**51**	**0**	**1**	**0**	**0**
03-21	0	25	0	0	0	0
03-23	2	13	0	0	0	0
03-26	3	3	0	0	0	0
Weekly Subtotal	**5**	**61**	**0**	**0**	**0**	**0**
03-25	3	21	0	1	1	0
03-30	4	13	0	1	0	0
04-01	4	16	0	2	0	0
04-02	3	20	1	2	0	0
04-03	3	15	0	2	0	0
Weekly Subtotal	**17**	**85**	**1**	**8**	**1**	**0**
04-04	1	25	1	0	0	0
04-05	0	26	0	1	0	0
04-06	0	20	1	1	1	0
04-07	0	14	0	1	0	1 grayling
04-08	0	20	0	0	0	0
04-09	0	21	1	0	0	0
04-10	1	18	0	0	0	0
Weekly Subtotal	**2**	**144**	**3**	**3**	**1**	**1**
04-11	1	35	0	0	0	0
04-12	1	31	0	0	0	0
04-13	0	33	0	0	0	0
04-14	0	26	0	0	1	0
Weekly Subtotal	**2**	**125**	**0**	**0**	**1**	**0**
07-11			Set Net			
07-12	0	462	0	0	0	2 pink 3 chum 4 char 9 sockeye
Weekly Subtotal	**0**	**462**	**0**	**0**	**0**	**18**

Table 27. (page 2 of 3)

Date	Cisco	Whitefish	Pike	Sheefish	Burbot	Other
			Four Inch Mesh			
11-30			Set Net			
12-01	2	21	2	1	2	0
12-03	1	19	1	0	2	0
Weekly Subtotal	**3**	**40**	**3**	**1**	**4**	**0**
12-06	2	23	1	1	0	0
12-07	0	7	1	0	0	0
12-09	1	8	0	1	0	0
Weekly Subtotal	**3**	**38**	**2**	**2**	**0**	**0**
12-13	0	12	2	0	1	0
12-17	0	13	1	0	1	0
Weekly Subtotal	**0**	**25**	**3**	**0**	**2**	**0**
12-21	0	10	1	1	1	0
12-24	0	9	2	0	0	0
Weekly Subtotal	**0**	**19**	**3**	**1**	**1**	**0**
12-28	0	26	2	1	0	0
12-31	2	19	0	1	0	1 char
Weekly Subtotal	**2**	**45**	**2**	**2**	**0**	**0**
Total	**34**	**1,095**	**17**	**18**	**10**	**20**

Date	Cisco	Whitefish	Pike	Sheefish	Burbot	Other
			Four and three eighths Inch Mesh			
07-17			Set Net			
07-18	2	10	0	2	0	4 char 6 pink 48 chum
07-20	0	9	0	0	0	17 chum 1 king
07-21	0	3	0	0	0	15 chum 1 coho
07-22	0	2	0	0	0	6 pink 18 chum 4 coho
Total	**0**	**24**	**0**	**0**	**0**	**120**

Date	Cisco	Whitefish	Pike	Sheefish	Burbot	Other
			Four and one half Inch Mesh			
02-03			Set Net			
02-05	0	17	0	1	0	0
Weekly Subtotal	**0**	**17**	**0**	**1**	**0**	**0**
02-08	0	8	0	1	0	0
02-12	0	14	0	1	0	0
Weekly Subtotal	**0**	**22**	**0**	**2**	**0**	**0**

-continued-

Table 27. (page 3 of 3)

	Four and one half Inch Mesh					
Date	Cisco	Whitefish	Pike	Sheefish	Burbot	Other
02-16	0	18	0	0	1	0
02-20	0	14	0	1	1	0
Weekly Subtotal	**0**	**32**	**0**	**2**	**0**	**0**
02-24	0	11	0	1	0	0
Weekly Subtotal	**0**	**11**	**0**	**1**	**0**	**0**
02-28	0	16	0	0	1	0
03-04	0	18	0	1	1	0
Weekly Subtotal	**0**	**34**	**0**	**0**	**2**	**0**
03-08	0	22	0	1	0	0
03-12	0	8	0	0	0	0
Weekly Subtotal	**0**	30	0	1	0	0
03-15	0	6	0	3	0	0
03-17	0	7	0	0	0	0
03-19	0	12	0	2	0	0
Weekly Subtotal	**0**	**25**	**0**	**5**	**0**	**0**
03-21	0	18	0	1	1	0
03-23	0	14	0	0	0	0
03-26	0	20	0	1	1	0
Weekly Subtotal	**0**	**52**	**0**	**2**	**2**	**0**
03-28	0	14	0	2	1	0
03-30	0	16	0	0	1	0
04-01	0	19	0	2	0	0
04-02	0	21	0	2	1	0
04-03	0	14	0	1	0	0
Weekly Subtotal	0	84	0	7	3	0
04-04	0	19	0	0	0	0
04-05	0	29	0	0	0	0
04-06	0	27	0	0	0	0
04-07	0	18	0	0	0	0
04-08	0	22	0	1	0	0
04-09	0	24	0	1	0	0
04-10	0	35	0	2	0	0
Weekly Subtotal	**0**	**174**	**0**	**4**	**0**	**0**
04-11	0	32	0	4	0	0
04-12	0	52	0	2	0	0
04-13	0	35	0	5	0	0
04-14	0	35	0	5	1	0
Weekly Subtotal	**0**	**154**	**0**	**16**	**1**	**0**
Total	**0**	**635**	**0**	**41**	**8**	**0**

Table 28. Kuskokwim area Pacific herring proportion of biomass by age class, 1993.

District	Age (years) 2	3	4	5	6	7	8	9	10	11	12	13+	Total weight (st)
Commercial catch[a]													
Security Cove				1.4	8.4	4.7	9.3	27.8	17.9	11.4	12.0	7.1	5
Goodnews Bay			0.1	4.4	15.6	6.5	12.0	23.7	15.8	14.2	5.5	2.2	954
Cape Avinof		0.1	0.1	2.8	3.2	3.6	8.0	28.4	21.0	12.3	12.7	7.9	215
Nelson Island			0.1	0.5	3.9	2.7	7.5	26.2	21.7	19.4	12.3	5.7	739
Nunivak Island[b]													
All Districts		0.0	0.1	2.7	9.7	4.7	9.8	25.2	18.7	16.0	9.0	4.2	1913
Test Fishery[c]													
Security Cove		1.8	12.3	33.0	23.2	3.0	1.8	8.2	5.5	4.8	3.5	2.9	6995
Goodnews Bay		0.3	6.0	30.9	25.5	3.3	8.2	12.1	6.2	4.8	2.3	0.5	6211
Cape Avinof	<0.001	2.3	6.1	26.3	12.4	8.8	9.0	17.0	7.2	6.0	3.4	1.5	2837
Nelson Island	<0.001	4.0	6.5	33.3	13.8	4.1	3.0	11.1	9.7	5.5	3.8	5.1	4944
Nunivak Island		0.2	4.9	25.7	15.8	1.4	3.8	15.5	11.1	15.9	4.1	1.8	5176
All Districts	<0.001	1.6	7.6	30.4	19.3	3.6	4.7	12.1	7.8	7.3	3.4	2.4	26163

a Commercial gill net

b No commercial fishery in 1993

c ADF&G variable mesh gill net

Table 29. Kuskokwim area Pacific herring age frequency by district, 1993.

District	Age (years) 2	3	4	5	6	7	8	9	10	11	12	13+	Sample Size
Commercial catch[a]													
Security Cove				2.3	11.2	5.6	10.1	28.1	16.9	10.1	10.1	5.6	89
Goodnews Bay			0.1	6.5	20.4	7.8	12.7	22.3	13.4	11.3	4.1	1.5	692
Cape Avinof		0.2	0.2	4.5	4.7	4.7	9.1	29.6	20.0	10.6	10.3	6.2	641
Nelson Island			0.2	0.8	5.8	3.5	8.7	27.7	21.5	17.1	10.3	4.5	516
Nunivak Island[b]													0
All Districts		0.05	0.2	4.1	10.9	5.5	10.3	26.4	17.9	12.6	8.1	4.0	1938
Test Fishery[c]													
Security Cove		4.1	19.5	38.3	21.4	2.3	1.2	4.8	3.0	2.4	1.6	1.3	1157
Goodnews Bay		0.9	10.0	38.6	25.9	2.9	6.0	8.1	3.7	2.7	1.2	0.2	1384
Cape Avinof													
Kipnuk	0.3	5.3	8.8	30.2	13.0	10.1	9.0	11.1	6.9	2.4	2.1	0.8	377
Kwigillingok	0.1	6.7	11.3	35.2	12.4	6.6	5.9	12.1	3.7	3.8	1.7	0.7	1020
Nelson Island	0.1	10.6	10.0	41.8	13.5	3.5	2.1	6.6	5.2	2.7	1.8	2.2	1361
Nunivak Island		0.4	9.1	37.9	18.5	1.3	3.0	10.8	6.9	9.1	2.2	0.9	232
All Districts	0.1	5.3	12.1	38.1	18.2	4.0	4.1	8.1	4.3	3.1	1.6	1.1	5531

a Commercial gill net

b No commercial fishery in 1993

c ADF&G variable mesh gill net

Table 30. Summary of Pacific herring commercial harvest by fishing period for Kuskokwim Area fishing districts, Alaska, 1993.

District	Period	Date	Time	Total hours	Harvest (st)
Security Cove	1	5/12	1200-1500	3.0	5.2
	2	5/12-13	2200-0400	6.0	0.0
	3	5/13	1000-1630	6.5	0.0
	4	5/14	0900-1800	9.0	0.0
			Total	24.5	5.2
Goodnews Bay	1	5/12	0900-1500	6.0	66.3
	2	5/13	1000-1800	8.0	119.8
	3	5/14	1100-1700	6.0	55.3
	4	5/15	1200-1800	6.0	100.3
	5	5/16	1300-1900	6.0	68.0
	6	5/17	1400-2100	7.0	99.5
	7	5/18	1500-2200	7.0	130.0
	8	5/19	1500-2200	7.0	124.4
	9	5/20	0400-1000	6.0	59.3
	10	5/21	0400-1000	6.0	21.6
	11	5/21	1730-2300	6.0	41.4
	12	5/22	0530-1130	6.0	26.2
	13	5/22	1800-2400	6.0	17.4
	14	5/23-24	1900-0100	6.0	2.2
	15	5/24	0800-1200	4.0	11.5
	16	5/27	0830-1430	6.0	8.9
	17	5/27-28	2030-0230	6.0	0.0
	18	5/28	0930-1530	6.0	1.9
	19	5/28-29	2130-0330	6.0	0.2
	20	5/29	1030-1630	6.0	0.0
			Total	123.0	954.2
Cape Avinof	1	5/23	1330-1530	2.0	28.3
	2	5/24	1000-1600	6.0	59.6
	3	5/25	1000-1700	7.0	22.2
	4	5/26	1100-1800	7.0	21.9
	5	5/26-27	2300-0630	7.0	19.7
	6	5/27	1200-1900	7.0	0.3
	7	5/28	0030-0730	7.0	13.7
	8	5/28	1300-2000	7.0	27.6
	9	5/29	0130-0830	7.0	8.5
	10	5/29	1400-2100	7.0	2.7
	11	5/30	0230-0930	7.0	5.3
	12	5/30	1500-2200	7.0	0.2
	13	5/31	0330-1030	7.0	1.7
	14	5/31	1530-2230	7.0	1.5
	15	6/01	0400-1100	7.0	0.1
	16	6/01	1630-2330	7.0	1.9
			Total	106.0	215.2

- Continued -

Table 30. (page 2 of 2)

District	Period	Date	Time	Total hours	Harvest (st)
Nelson Island	1	5/17	2000-2130	1.5	33.0
	2	5/18	1800-2200	4.0	42.1
	3	5/19	1700-2300	6.0	152.0
	4	5/26	0230-0430	2.0	23.0
	5	5/27	1400-1700	3.0	0.0
	6	5/29	0230-0630	4.0	35.4
	7	5/29	1300-1900	6.0	60.3
	8	5/30	0200-0700	5.0	4.9
	9	5/30	1400-2000	6.0	117.6
	10	5/31	0700-0900	2.0	30.2
	11	5/31	1700-2100	4.0	20.1
	12	6/01	0700-1000	3.0	26.8
	13	6/01	1830-2230	4.0	56.6
	14	6/02	0800-1100	3.0	24.3
	15	6/02	1730-2330	6.0	86.3
	16	6/03	0800-1200	4.0	25.9
			Total	63.5	738.5
Nunivak Island	No Commercial Fishery				

Table 31. Projections of Pacific herring spawning biomass and harvest for commercial fishing districts in the Kuskokwim Area, Alaska, 1994.

	1994 Projection[a]			
District	Biomass (st)	Threshold (st)[b]	Harvest (st)	Exploitation Rate (%)
Security Cove	7,638	1,200	1,528	20
Goodnews Bay	5,679	1,200	1,136	20
Cape Avinof	2,827	500	424	15
Nelson Island	4,888	3,000	733	15
Nunivak Island	4,909	1,500	736	15
Total	25,941		4,557	

a Preseason projection. Projection may be adjusted based on inseason biomass estimates.

b Threshold biomass needed to allow a commercial fishery from 5 AAC 27.060 Bering Sea Herring Fishery Management Plan

Table 32. Daily and cumulative salmon escapement for the Kogrukluk Weir, 1993.

	Chinook		Sockeye		Coho		Chum	
Date	Daily count	Cum. count	Daily count	Cum. count	Daily count	Cum. count	Daily count	Cum. count
17-Jun	0.0	0	0.0	0	0.0	0	1.0	1
18-Jun	0.0	0	0.0	0	0.0	0	0.0	1
19-Jun	1.0	1	0.0	0	0.0	0	2.0	3
20-Jun	1.0	2	0.0	0	0.0	0	4.0	7
21-Jun	1.0	3	1.0	1	0.0	0	4.0	11
22-Jun	5.0	8	2.0	3	0.0	0	11.0	22
23-Jun	9.0	17	3.0	6	0.0	0	20.0	42
24-Jun	14.0	31	11.0	17	0.0	0	21.0	63
25-Jun	26.0	57	17.0	34	0.0	0	34.0	97
26-Jun	30.0	87	18.0	52	0.0	0	58.0	155
27-Jun	59.0	146	33.0	85	0.0	0	94.0	249
28-Jun	81.0	227	49.0	134	0.0	0	165.0	414
29-Jun	122.0	349	126.0	260	0.0	0	308.0	722
30-Jun	125.0	474	177.0	437	0.0	0	427.0	1149
01-Jul	250.0	724	242.0	679	0.0	0	675.0	1824
02-Jul	293.0	1017	410.0	1089	0.0	0	828.0	2652
03-Jul	606	1623	120	1209	0	0	844	3496
04-Jul	362.0	1985	498.0	1707	0.0	0	1066.0	4562
05-Jul	657.0	2642	524.0	2231	0.0	0	1000.0	5562
06-Jul	708	3350	648	2879	0	0	1314	6876
07-Jul	876	4226	1126	4005	0	0	1418	8294
08-Jul	715	4941	1371	5376	0	0	1244	9538
09-Jul	880	5821	2157	7533	0	0	1417	10955
10-Jul	1004	6825	2517	10050	0	0	1436	12391
11-Jul	683	7508	1899	11949	0	0	1251	13642
12-Jul	653	8161	1796	13745	0	0	1082	14724
13-Jul	688	8849	1818	15563	0	0	1390	16114
14-Jul	426	9275	1502	17065	0	0	1006	17120
15-Jul	367	9642	1822	18887	0	0	1405	18525
16-Jul	409	10051	2028	20915	0	0	1511	20036
17-Jul	334	10385	2040	22955	0	0	2030	22066
18-Jul	411	10796	1711	24666	0	0	1785	23851
19-Jul	162	10958	832	25498	0	0	524	24375
20-Jul	272	11230	945	26443	1	1	1017	25392
21-Jul	200	11430	779	27222	1	2	1242	26634
22-Jul	59	11489	220	27442	1	3	500	27134
23-Jul	101	11590	286	27728	0	3	487	27621
24-Jul	88	11678	202	27930	2	5	336	27957
25-Jul	52	11730	191	28121	2	7	490	28447
26-Jul	76	11806	214	28335	2	9	266	28713
27-Jul	77	11883	230	28565	2	11	377	29090
28-Jul	121	12004	182	28747	1	12	489	29579
29-Jul	76.0	12080	162.0	28909	0.0	12	451.0	30030
30-Jul	30.0	12110	142.0	29051	0.0	12	414.0	30444
31-Jul	19	12129	87	29138	4	16	307	30751
01-Aug	14	12143	51	29189	10	26	205	30956
02-Aug	7	12150	29	29218	5	31	127	31083
03-Aug	16	12166	19	29237	13	44	109	31192
04-Aug	25	12191	16	29253	15	59	127	31319
05-Aug	23	12214	16	29269	22	81	104	31423
06-Aug	20	12234	20	29289	31	112	150	31573
07-Aug	29	12263	24	29313	49	161	114	31687
08-Aug	21	12284	17	29330	106	267	79	31766
09-Aug	11	12295	14	29344	133	400	43	31809
10-Aug	15	12310	2	29346	159	559	15	31824
11-Aug	5	12315	2	29348	113	672	10	31834

- continued -

Table 32. (page 2 of 2)

	Chinook		Sockeye		Coho		Chum	
Date	Daily count	Cum. count	Daily count	Cum. count	Daily count	Cum. count	Daily count	Cum. count
12-Aug	11	12326	6	29354	266	938	15	31849
13-Aug	6	12332	4	29358	439	1377	26	31875
14-Aug	0.0	12332	0.0	29358	39.0	1416	4.0	31879
15-Aug	0.0	12332	0.0	29358	209.0	1625	0.0	31879
16-Aug	0.0	12332	0.0	29358	149.0	1774	4.0	31883
17-Aug	0.0	12332	0.0	29358	131.0	1905	4.0	31887
18-Aug	0.0	12332	0.0	29358	157.0	2062	4.0	31891
19-Aug	0.0	12332	0.0	29358	296.0	2358	4.0	31895
20-Aug	0.0	12332	0.0	29358	297.0	2655	4.0	31899
21-Aug	0.0	12332	0.0	29358	172.0	2827	0.0	31899
22-Aug	0.0	12332	0.0	29358	251.0	3078	0.0	31899
23-Aug	0.0	12332	0.0	29358	367.0	3445	0.0	31899
24-Aug	0.0	12332	0.0	29358	355.0	3800	0.0	31899
25-Aug	0.0	12332	0.0	29358	419.0	4219	0.0	31899
26-Aug	0.0	12332	0.0	29358	294.0	4513	0.0	31899
27-Aug	0.0	12332	0.0	29358	366.0	4879	0.0	31899
28-Aug	0.0	12332	0.0	29358	579.0	5458	0.0	31899
29-Aug	0.0	12332	0.0	29358	281.0	5739	0.0	31899
30-Aug	0.0	12332	0.0	29358	307.0	6046	0.0	31899
31-Aug	0.0	12332	0.0	29358	388	6434	0.0	31899
01-Sep	0.0	12332	0.0	29358	551	6985	0.0	31899
02-Sep	0.0	12332	0.0	29358	632	7617	0.0	31899
03-Sep	0.0	12332	0.0	29358	735	8352	0.0	31899
04-Sep	0.0	12332	0.0	29358	286	8638	0.0	31899
05-Sep	0.0	12332	0.0	29358	348	8986	0.0	31899
06-Sep	0.0	12332	0.0	29358	1285.0	10271	0.0	31899
07-Sep	0.0	12332	0.0	29358	713.0	10984	0.0	31899
08-Sep	0.0	12332	0.0	29358	608.0	11592	0.0	31899
09-Sep	0.0	12332	0.0	29358	700.0	12292	0.0	31899
10-Sep	0.0	12332	0.0	29358	1375.0	13667	0.0	31899
11-Sep	0.0	12332	0.0	29358	705.0	14372	0.0	31899
12-Sep	0.0	12332	0.0	29358	240.0	14612	0.0	31899
13-Sep	0.0	12332	0.0	29358	434.0	15046	0.0	31899
14-Sep	0.0	12332	0.0	29358	1284.0	16330	0.0	31899
15-Sep	0.0	12332	0.0	29358	309.0	16639	0.0	31899
16-Sep	0.0	12332	0.0	29358	340.0	16979	0.0	31899
17-Sep	0.0	12332	0.0	29358	649.0	17628	0.0	31899
18-Sep	0.0	12332	0.0	29358	641.0	18269	0.0	31899
19-Sep	0.0	12332	0.0	29358	443.0	18712	0.0	31899
20-Sep	0.0	12332	0.0	29358	360.0	19072	0.0	31899
21-Sep	0.0	12332	0.0	29358	249.0	19321	0.0	31899
22-Sep	0.0	12332	0.0	29358	424.0	19745	0.0	31899
23-Sep	0.0	12332	0.0	29358	213.0	19958	0.0	31899
24-Sep	0.0	12332	0.0	29358	209.0	20167	0.0	31899
25-Sep	0.0	12332	0.0	29358	85.0	20252	0.0	31899
26-Sep	0.0	12332	0.0	29358	83.0	20335	0.0	31899
27-Sep	0.0	12332	0.0	29358	11.0	20346	0.0	31899
28-Sep	0.0	12332	0.0	29358	2.0	20348	0.0	31899
29-Sep	0.0	12332	0.0	29358	8.0	20356	0.0	31899
30-Sep	0.0	12332	0.0	29358	161.0	20517	0.0	31899

Note: Numbers with decimal points are estimates calculated from historical passage data.

FIGURES

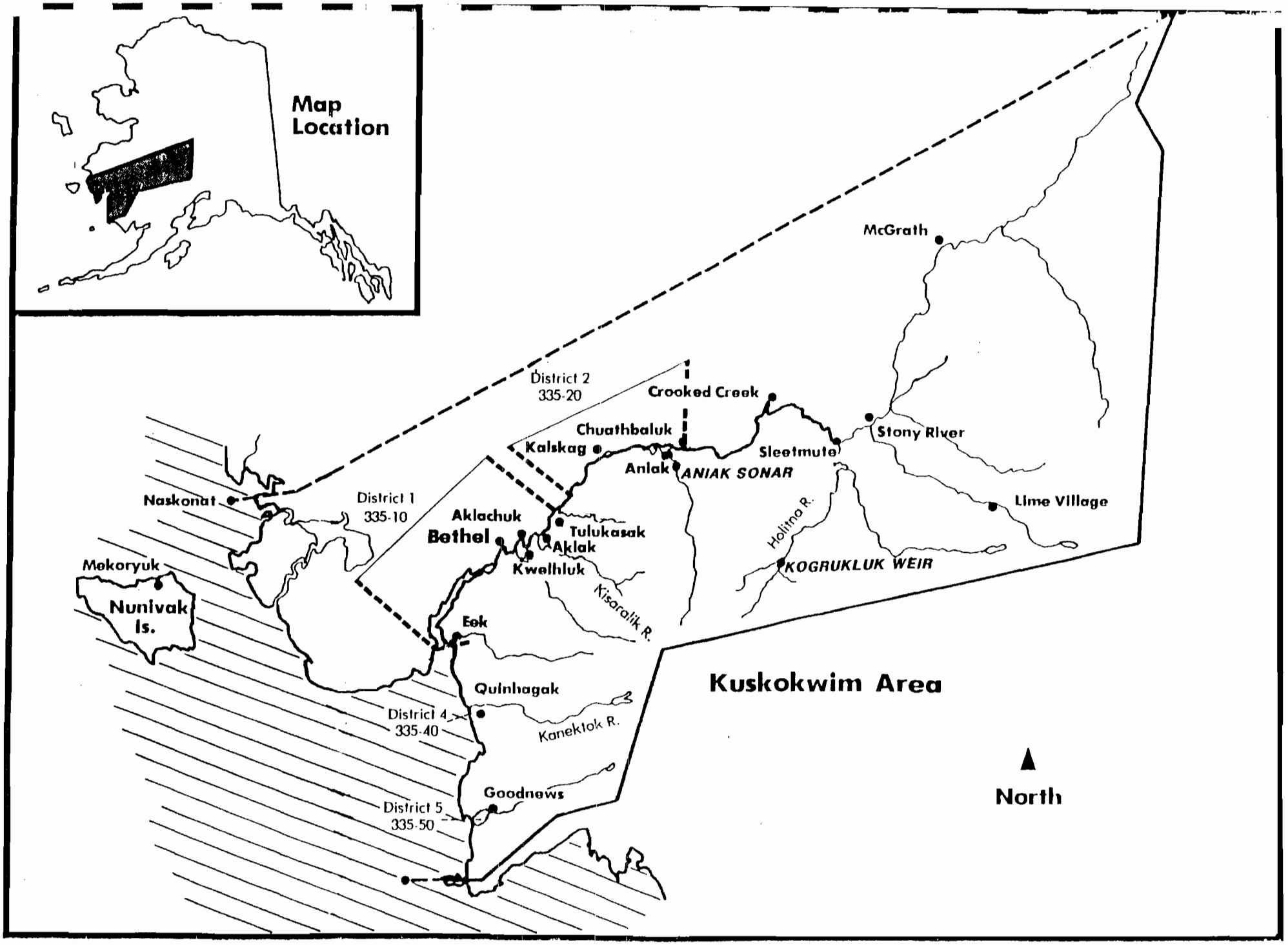


Figure 1. Kuskokwim Area Map.

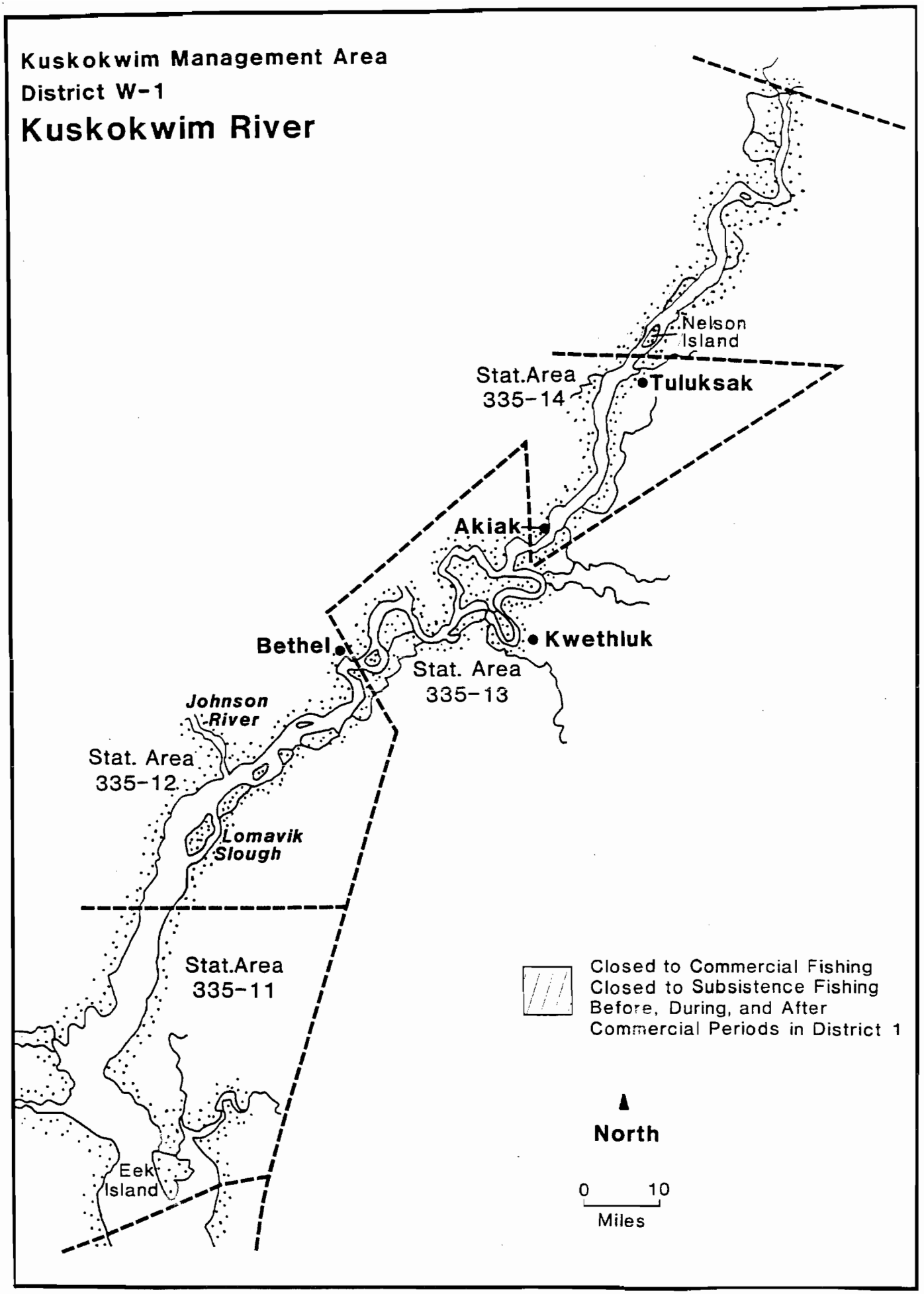


Figure 2 . Kuskokwim Management Area, District W-1

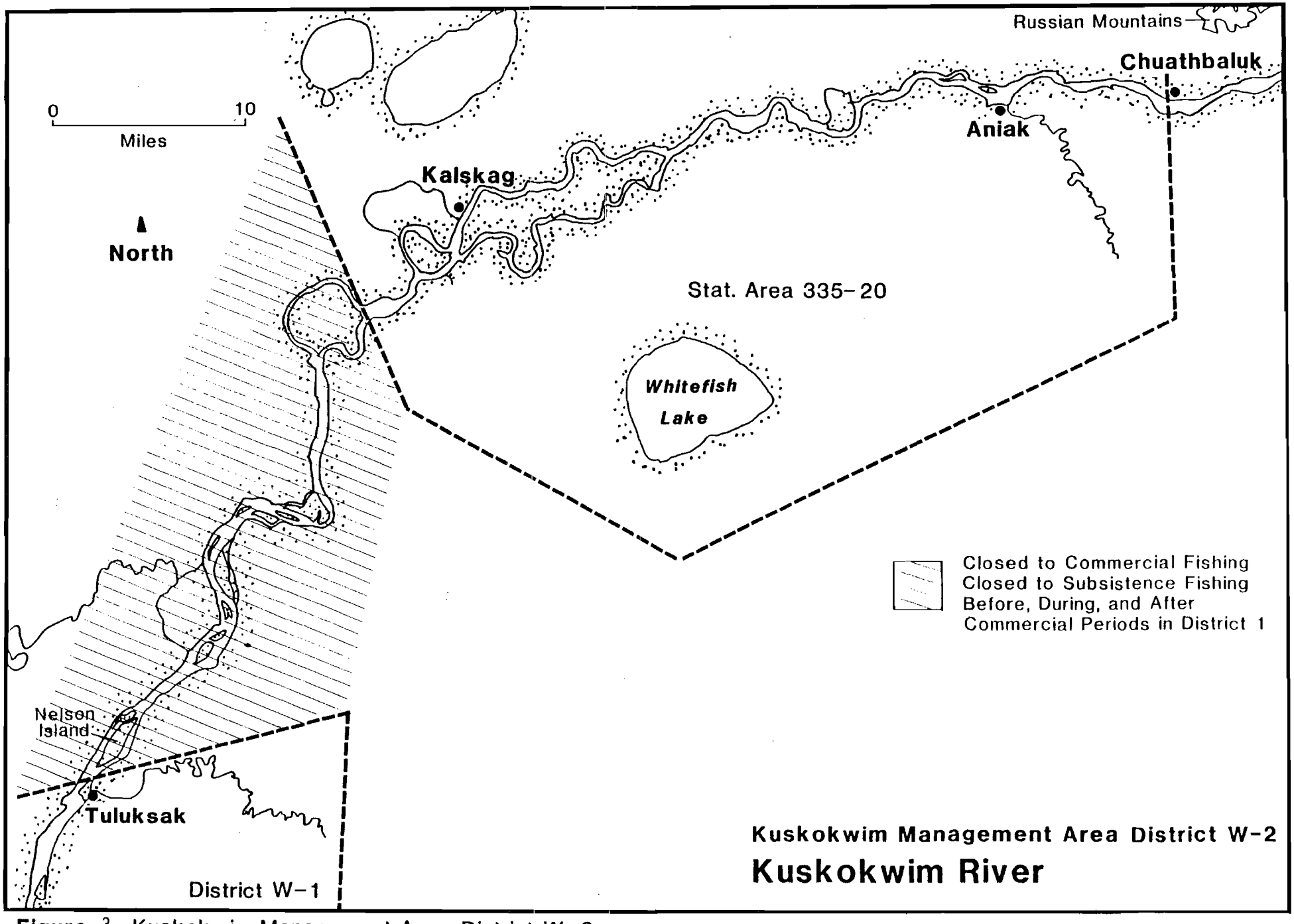


Figure 3. Kuskokwim Management Area, District W-2

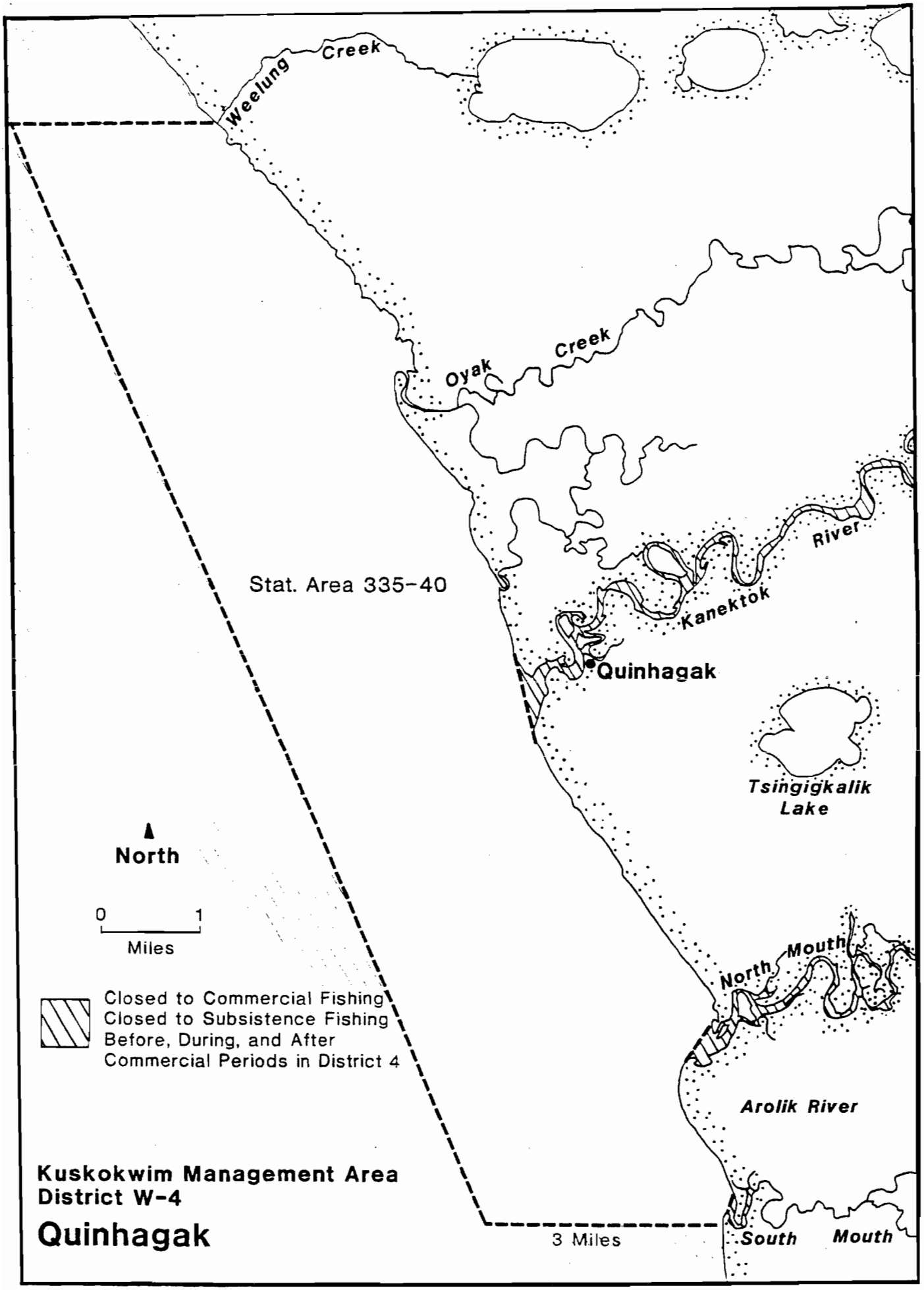


Figure 4 . Kuskokwim Management Area, District W-4

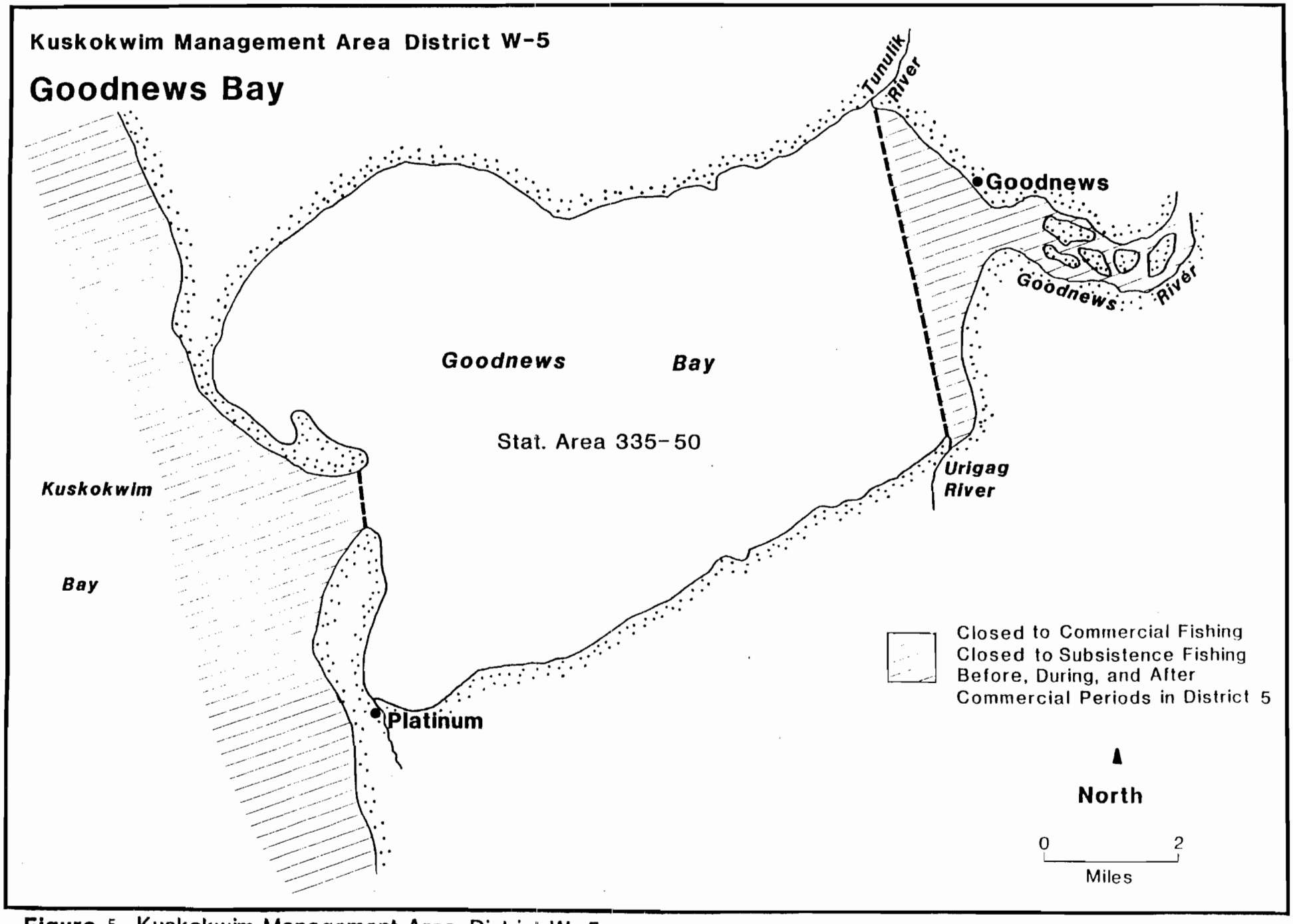
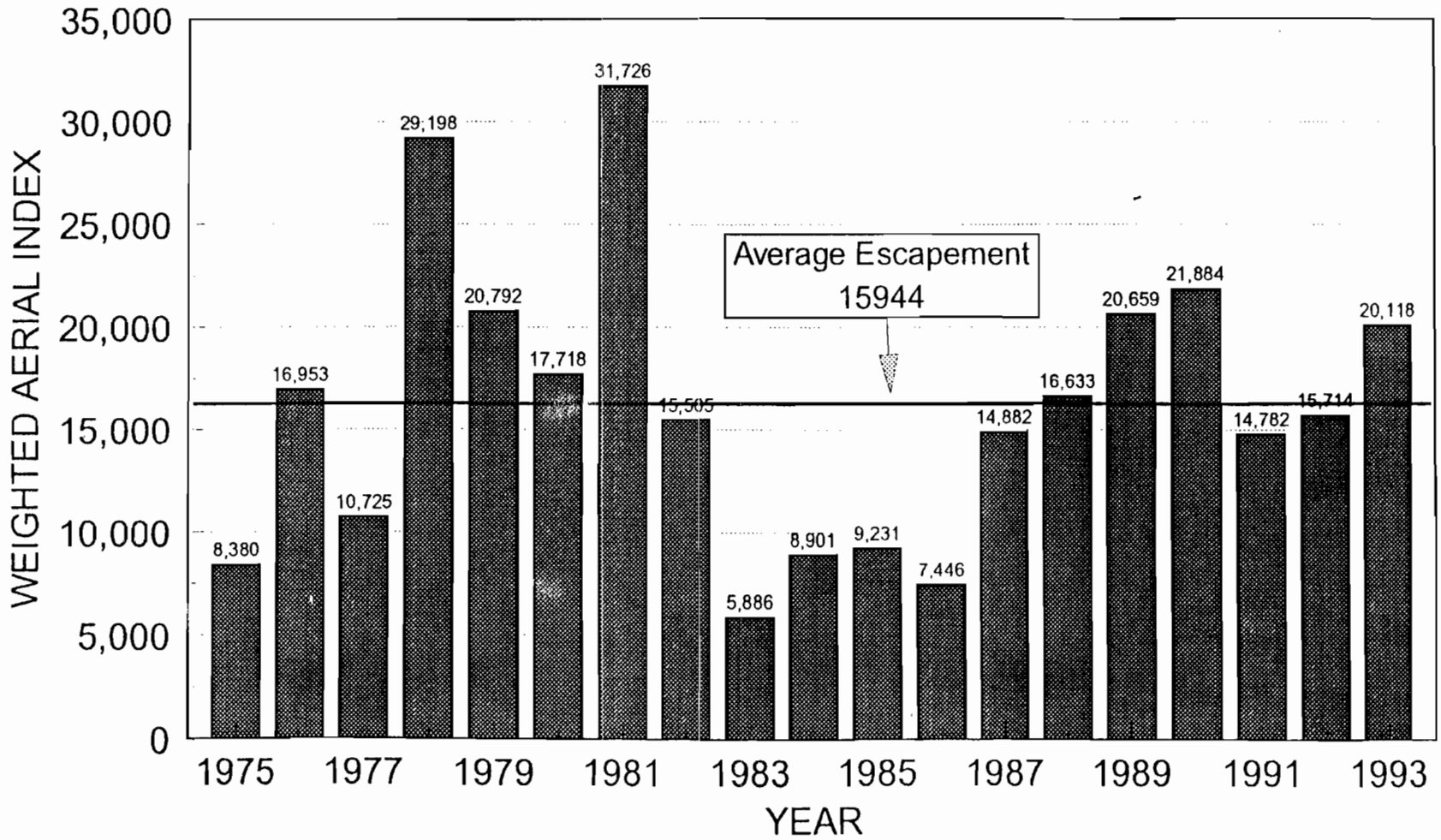


Figure 5 . Kuskokwim Management Area, District W-5

Figure 6.

Kuskokwim River Aerial Index

Chinook Salmon, 1975 - 1993



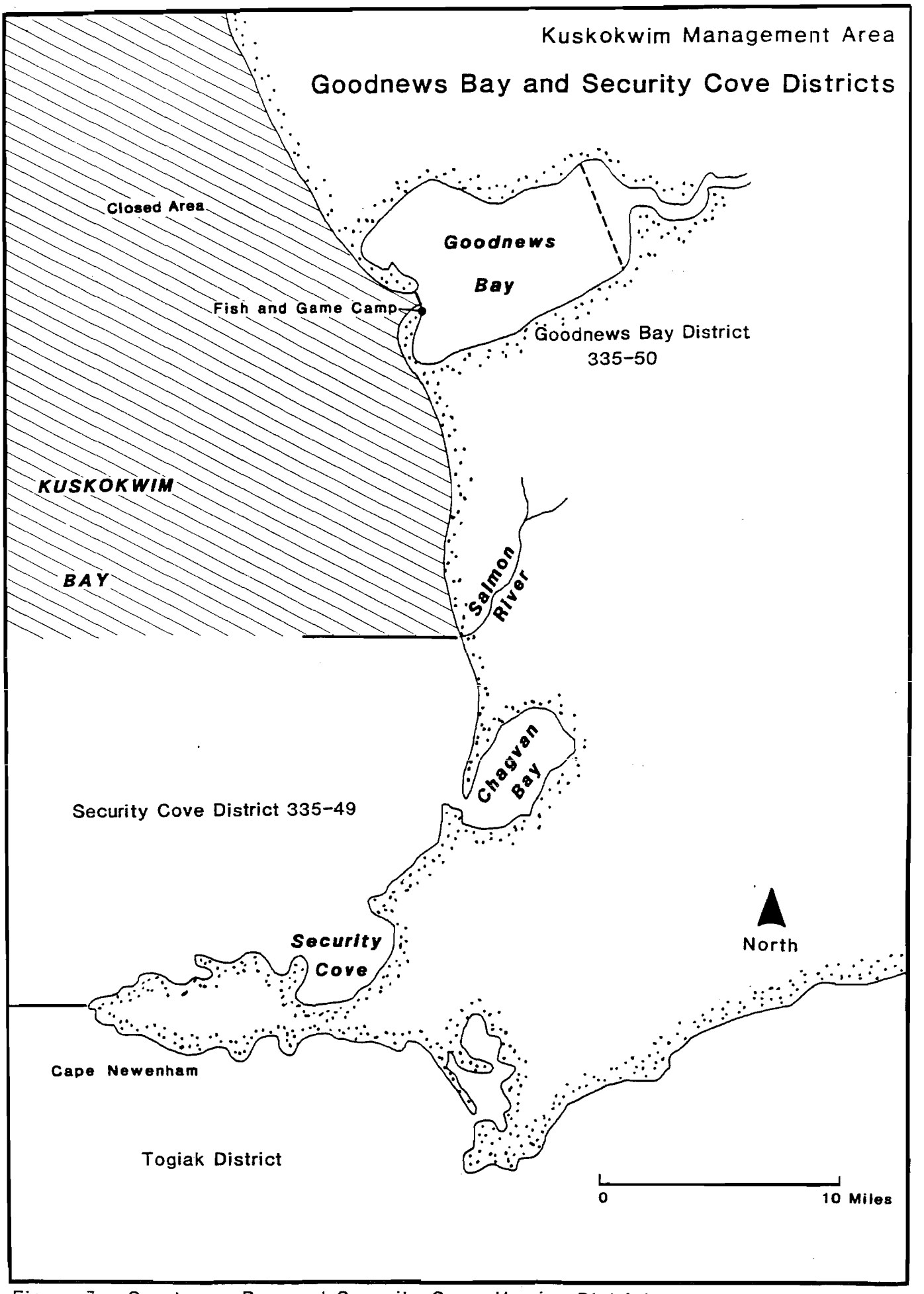


Figure 7. Goodnews Bay and Security Cove Herring Districts

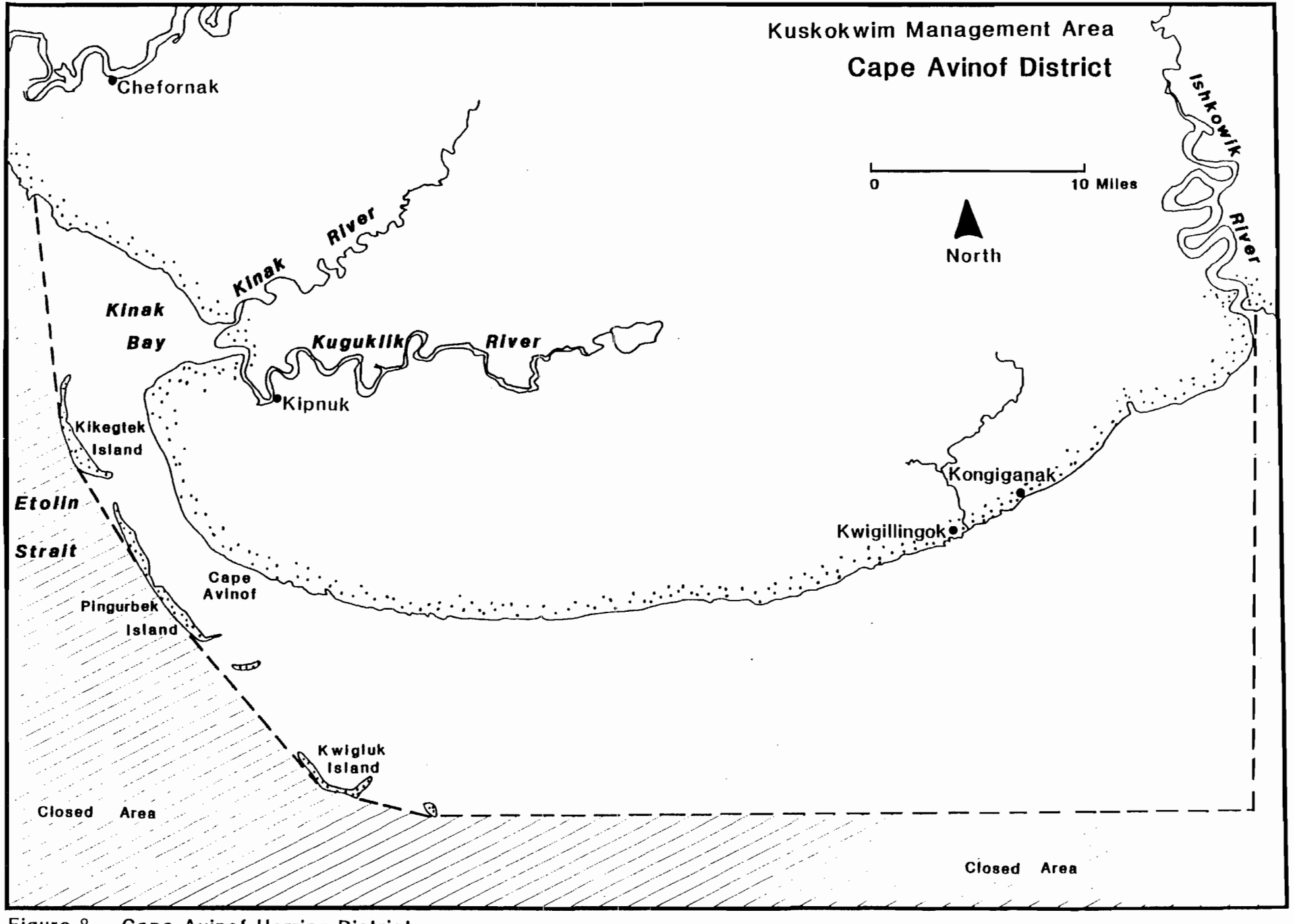


Figure 8 . Cape Avinof Herring District

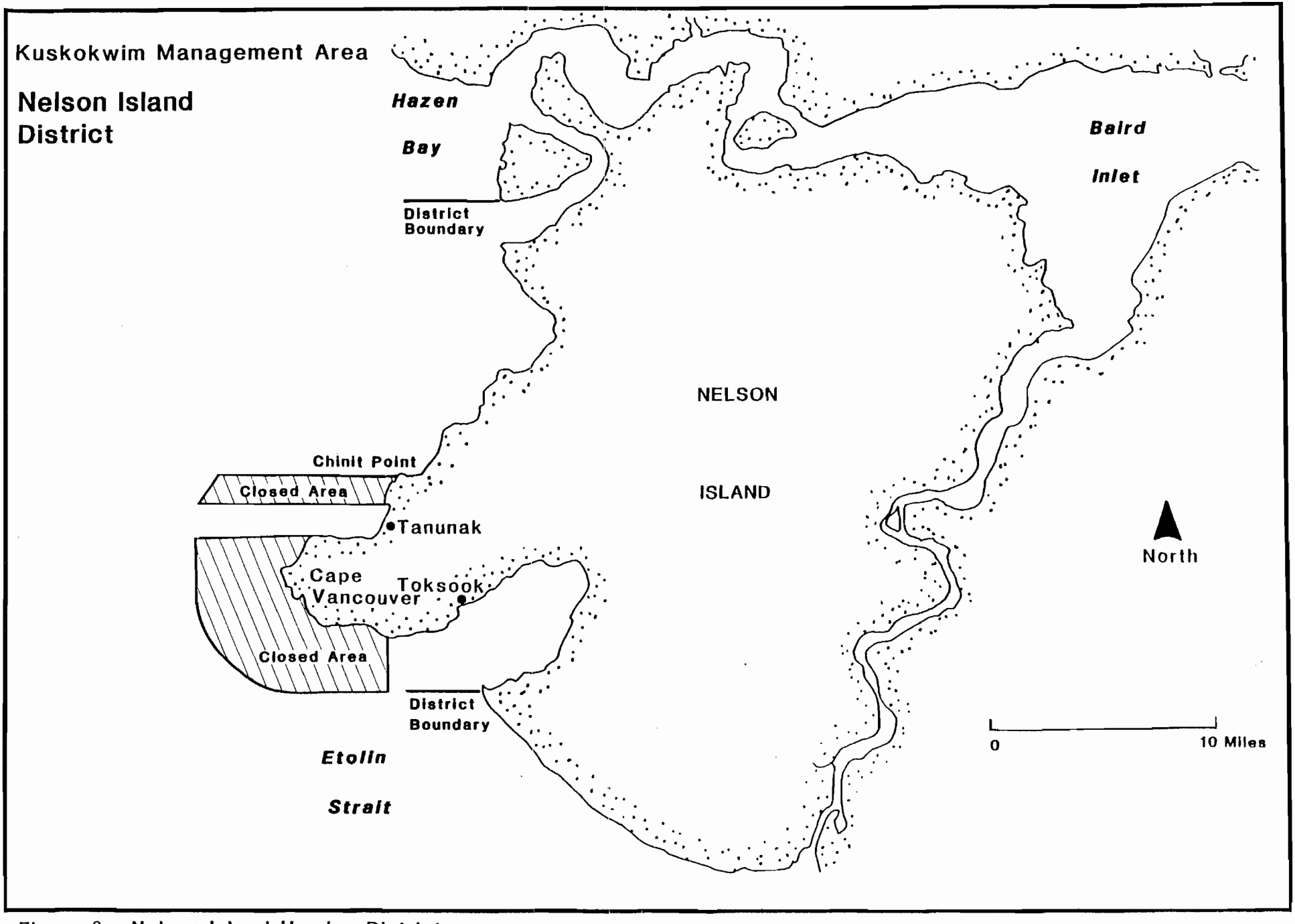


Figure 9. Nelson Island Herring District

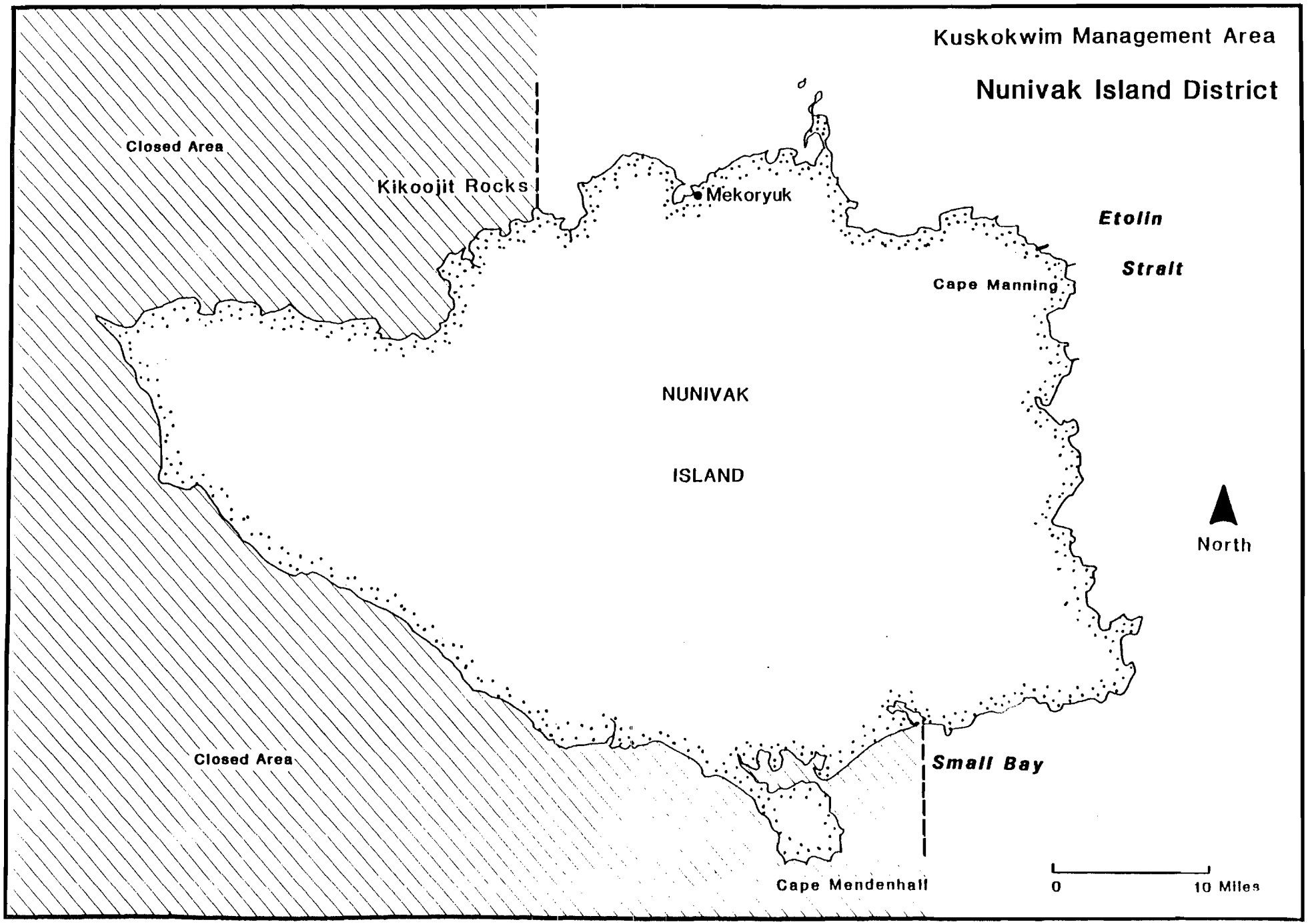
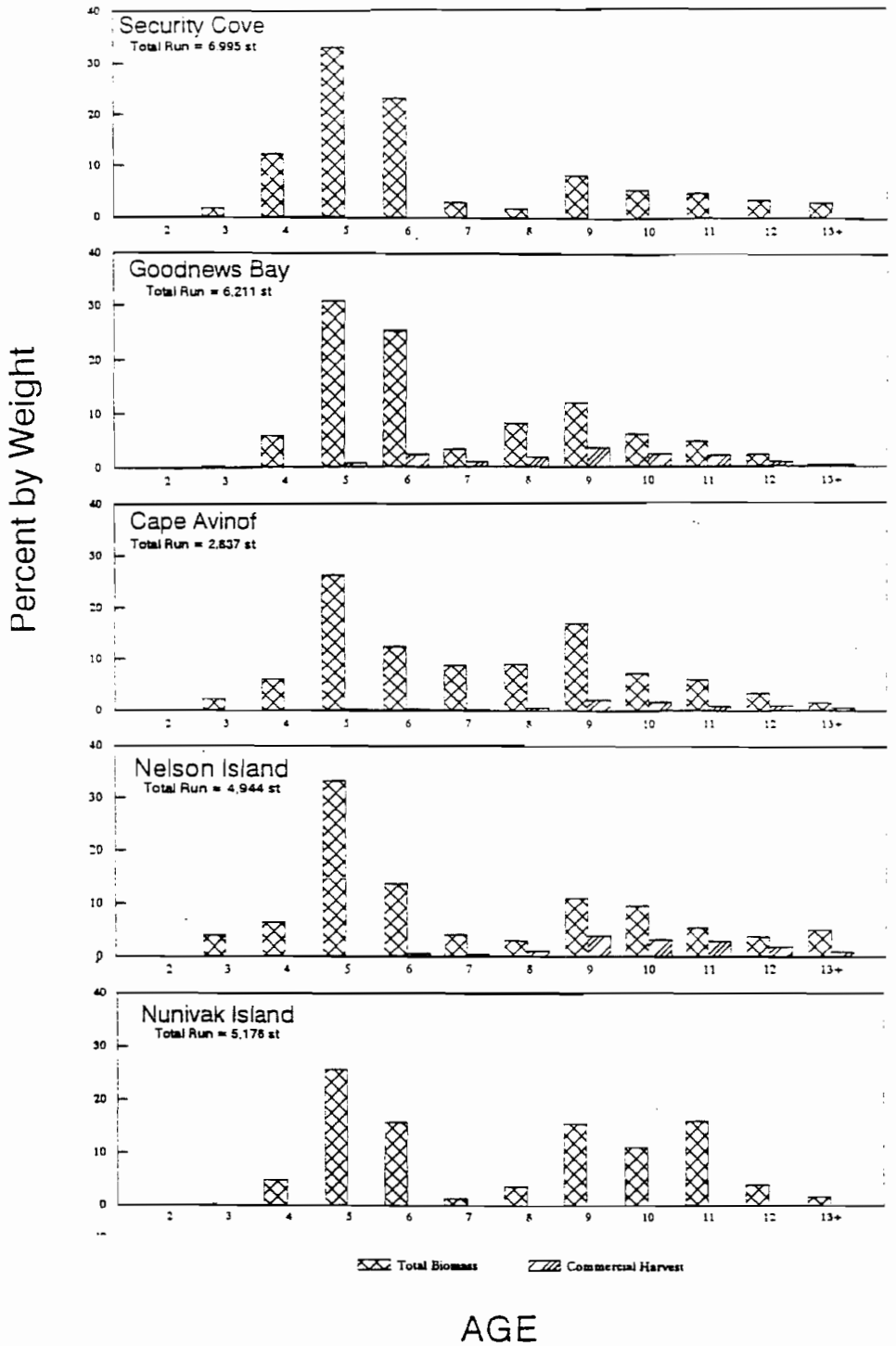


Figure 10. Nunivak Island Herring District

Figure 11. Age composition of Pacific herring in spawning populations and commercial harvest, Kuskokwim Area, 1992.



APPENDICES

APPENDIX A

Appendix A.1 Kuskokwim Area escapement index objectives for chinook, Sockeye, coho and chum salmon.

	Escapement Objectives[a]			
	Chinook	Sockeye	Coho	Chum
KUSKOKWIM RIVER:				
1. Kwethluk River				
a. 3-step Mt. to Canyon Cr.	1.0	-	-	7.0
b. Canyon Creek	0.2	-	-	-
2. Kisaralik River				
a. Airstrip to Kisaralik L.	1.0	-	-	8.0
b. Kasigluk R. (upper to lower)	0.1	-	-	4.0
3. Tuluksak R. (Fog R. to Bear Cr.)	0.4	-	-	5.0
4. Aniak River				
a. Buckstock R. to Aniak L.	1.5	-	-	10.0
b. Salmon River	0.6	-	-	3.0
c. Aniak Sonar Project[b]	-	-	-	250.0
5. Holitna River				
a. Nogamut to Kashegelok	2.0	1.0	-	12.0
b. Kogrukluk Weir[c]	10.0	2.0	25.0	30.0
6. Salmon River (Pitka Fork)	1.3	-	-	-
KUSKOKWIM BAY:				
1. Kanektok River to Kagati Lake	5.8	15.0	25.0	30.5
2. Goodnews River System				
a. Main Fork and lakes	1.6	10.4	15.0	17.0
b. Middle Fork and lakes	0.8	5.0	2.0	4.0
c. Middle Fork Tower Project[d]	3.5	25.0	-	15.0

a Escapement objectives in thousands of fish are preliminary and are subject to change as additional data becomes available. Unless otherwise indicated, escapement objectives are based on aerial index counts which do not represent total escapement, but do reflect annual spawner abundance trends when made using standard survey methods under acceptable survey conditions.

b Sonar total escapement estimates.

c Total Kogrukluk River escapement estimates.

d Tower total escapement estimates.

Appendix A.2. Kuskokwim Area commercial, subsistence, and personal use salmon harvests, 1913-1993.

	COMMERCIAL HARVEST						SUBSISTENCE HARVEST			COMBINED TOTAL
Year	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook		Small	Total	HARVEST
1913	7,800					7,800					7,800
1914	2,667					2,667					2,667
1915											
1916	949					949					949
1917	7,878					7,878					7,878
1918	3,055					3,055					3,055
1919	4,836					4,836					4,836
1920	34,853					34,853					34,853
1921	9,854					9,854					9,854
1922	8,944	6,120				15,064				180,000	195,064
1923	7,254					7,254					7,254
1924	19,253	900	7,167	7,167		34,487	17,700		203,148	220,848	255,335
1925	1,644	5,800				7,444	10,800		230,850	241,650	249,094
1926										738,576	738,576
1927										286,254	286,254
1928										481,090	481,090
1929										560,196	560,196
1930	7,626	2,448				10,074				538,650	548,724
1931	8,541					8,541				389,367	397,908
1932	9,339					9,339				746,415	755,754
1933							6,290		443,998	450,288	450,288
1934							20,800		597,132	617,932	617,932
1935	6,448		8,296			14,744	22,930		554,040	576,970	591,714
1936	624					624	33,500		549,423	582,923	583,547
1937	480					480				537,111	537,591
1938	624		828			1,452	10,153		400,242	410,395	411,847
1939	134					134	14,000		125,425	139,425	139,559
1940	247		500			747	8,000		415,523	423,523	424,270
1941	187		674			861	8,000		415,523	423,523	424,384
1942							6,400		325,339	331,739	331,739
1943							6,400		325,339	331,739	331,739
:::											
1946	2,288		674			2,962					2,962
1947	5,356					5,356					5,356
:::											
1951	4,210					4,210					4,210
:::											
1954	57					57					57
:::											
:::											
1959	3,760					3,760					3,760
1960	5,969	5,649	5,498		3	17,119	18,887		301,753	320,640	337,759
1961	23,246	2,308	5,090	91	18,864	49,599	28,934		179,529	208,463	258,062

- Continued -

Appendix A.2. (page 2 of 2)

Year	COMMERCIAL HARVEST Chinook	Sockeye	Coho	Pink	Chum	Total	SUBSISTENCE HARVEST Chinook	Sockeye	Coho[B]	Pink[C]	Small [A]Chum	Total	COMBINED TOTAL HARVEST
1962	20,867	10,313	12,598	4,340	45,707	93,825	13,582				175,304	188,886	282,711
1963	18,571		15,660			34,231	34,482				170,829	205,311	239,542
1964	21,230	13,422	28,992	939	707	65,290	29,017				219,208	284,225	313,515
1965	24,965	1,886	12,191		4,242	43,284	24,697				250,878	275,575	318,859
1966	25,823	1,030	22,985	268	2,610	52,716	49,325				175,735	225,060	277,776
1967	29,986	652	58,239		8,235	97,112	61,262				214,468	275,730	372,842
1968	43,157	5,887	154,302	75,818	19,694	298,858	35,698				278,008	313,706	612,564
1969	64,777	10,362	110,473	1,251	50,377	237,240	40,617				204,105	244,722	481,962
1970	65,032	12,654	62,245	27,422	60,566	227,919	69,612		12,884		246,810	329,306	557,225
1971	44,936	6,054	10,006	13	99,423	160,432	43,242		8,273		116,391	167,906	328,338
1972	55,482	4,312	23,880	1,952	97,197	182,823	40,396		1,703		120,316	162,415	345,238
1973	51,374	5,224	152,408	634	184,207	393,847	39,093		28,868		179,259	242,220	641,067
1974	30,670	29,003	179,579	60,052	196,127	495,431	27,139		41,247		277,170	345,556	840,987
1975	27,799	17,535	109,814	899	223,532	379,579	48,448				176,389	224,837	604,416
1976	49,262	13,636	112,130	39,998	231,877	446,903	58,606		5,579		223,792	287,977	734,880
1977	58,256	18,621	263,728	434	298,959	639,998	59,166		17,914		203,397	280,477	920,475
1978	63,194	13,734	247,271	61,968	282,044	668,211	38,598		15,849		125,052	179,499	847,710
1979	53,314	39,463	308,683	574	297,167	699,201	58,041		30,705		163,451	252,197	951,398
1980	48,242	42,213	327,908	30,306	561,483	1,010,152	62,522		55,730		168,987	287,329	1,297,391
1981	79,378	105,940	278,587	463	485,635	950,003	65,300		36,634		163,554	265,488	1,215,491
1982	79,816	97,716	567,451	18,259	325,471	1,088,713	61,656		56,859		195,691	314,206	1,402,919
1983[D]	93,676	90,834	249,018	379	306,554	740,461	51,020		4.089		149,172	204,281	944,742
1984[D]	74,006	81,307	829,965	23,902	488,482	1,497,662	60,668		1,844		144,651	207,163	1,704,825
							Chinook	Sockeye	Coho[B]	Pink[C]	Chum	Total	
1985	74,083	121,221	382,096	111	224,680	802,191	46,641	33,632	24,524	1,062	95,999	201,858	1,004,049
1986[D]	44,972	142,029	736,910	16,569	349,268	1,289,748	54,256	20,239	29,742		142,930	247,167	1,536,915
1987[D]	65,558	170,849	478,594	163	603,274	1,318,438	71,804	25,180	18,085	291	70,709	186,069	1,504,507
1988[E]	74,552	149,927	623,719	37,592	1,443,916	2,329,706	56,973	28,930	32,573		119,361	237,837	2,567,543
1989[E]	67,003	82,628	556,312	819	802,199	1,508,961	76,821	33,518	50,011		127,928	288,278	1,797,239
1990	84,706	203,374	445,062	16,082	522,535	1,271,759	77,302	31,799	44,134		100,692	253,927	1,525,686
1991	48,170	202,441	556,818	522	501,692	1,309,643	85,142	51,815	52,545		84,594	274,096	1,583,739
1992	67,597	192,341	772,449	85,978	436,506	1,554,871	57,267	29,925	37,751		80,335	205,278	1,760,149
1993	26,636	167,235	686,570	71	94,937	975,449	75,466	41,323	28,848		48,235	193,872	1,169,321
Ten Year Average (1983-1992)	69,432	143,695	563,094	36,025[G]	567,911	1,362,344	65,776[F]	35,197[F]	43,403[F]		102,582[F]	251,883[F]	1,592,939

A Primarily chum and sockeye salmon.
B Coho salmon subsistence harvests prior to 1988 is poorly documented.
C Pink salmon occur on even year cycles. Relatively few pink salmon are utilized in the subsistence fishery. Harvest data for pink salmon is not available.
D Subsistence harvest estimates based on a sample of communities.
E The personal use catch is included with the subsistence catch.
F Previous five year average (1988-1992) excluding years prior to 1988 when chum, sockeye, and coho were poorley differentiated.
G Average harvest based on 1984, 1986, 1988, 1990 and 1992 data.

Appendix A.3. Historic events which have potential or actual influence on the commercial salmon fisheries of the Kuskokwim Area.

Year	Event[a]
1954	Commercial chinook salmon quota established.
1959	First chinook landing since quota established.
1960	Kanektok Counting Tower (1960-1962). Kuskokwim Area divided into four subdistricts; Lower Kuskokwim River (Subdistrict 1), Middle Kuskokwim River (Subdistrict 2), Upper Kuskokwim River (Subdistrict 3), Quinhagak (Subdistrict 4). District boundaries are not well recorded; in the Aniak area some commonly used drift sites overlap between District 2 and 3 which confused catch reporting. Kuskokwim River Drainage Surveys, 1960
1961	ADF&G Kuskokwim River tagging study.
1962	ADF&G Kuskokwim River tagging study. Boundary between Subdistricts 2 and 3 changed; the new location was not recorded but the most likely location was Kolmakoff River. The reason for the change was to move the boundary to a point which was between commonly used gillnet drift locations and thereby avoid confusion in catch reporting. As a result, there were no landings in Subdistrict 3.
1963	ADF&G Kuskokwim River tagging study. Boundaries of subdistrict documented; Subdistrict 1 extended from Kuskokwauk to Mishevik Slough, Subdistrict 2 was from Mishevik Slough to Kolmakoff River, Subdistrict 3 was upstream of Kolmakoff River.
1965	Kwegooyuk test fishery (1965-1984; no records available for 1965).
1966	ADF&G Kuskokwim River salmon tagging study. Subdistrict 3 was deleted from the regulations due to a lack of landings.
1968	Goodnews Bay was established as District 5 and opened for coho season.
1969	District 4 tagging study. Kogrukluk River (aka. Holitna River, Ignatti) tower/weir (1969-present).
1970	Effect of explosive detonation in ice on northern pike.
1971	Commercial fishing time in the Kuskokwim River reduced from two 24 hour periods per week to two 12 hour periods per week. Chum fishery begins in the Kuskokwim River; season was from 25 June to 31 July, location limited to waters downstream of Napakiak, mesh size restricted to 6 in. or smaller.

- continued -

Appendix A.3. (page 2 of 4)

Year	Event[a]
	Fishing periods established by Emergency Order in August. Gillnet mesh size in Districts 4 and 5 restricted to 6 in. or smaller.
1976	Commercial fishing time in the Kuskokwim River was reduced from two 12 hour periods per week to two 6 hour periods per week. Eek River reconnaissance survey. Study on genetic variants in chum and chinook salmon.
1977	Fishing periods to be established by Emergency Order before 26 June and after 31 July. Limited entry permits issued. Subsistence fishing closed 24 hours before and 6 hours after each commercial fishing period. Hoholitna River reconnaissance survey.
1978	Kasigluk River reconnaissance survey. Kwethluk River sonar project.
1979	The portion of District 1 used during the chum salmon season was extended from Napakiak upstream too Bethel. Kasigluk River sonar project. High seas salmon fleet moved to 20° west
1980	Subsistence fishing closed 24 hours before, during, and 6 hours after each commercial fishing period. Aniak River sonar project
1981	Pilot test fish and FanScan projects at Bethel. Inventory of Kisaralik River and Lake. Goodnews River counting tower (1981-1990). Salmon River (Pitka Fork drainage) weir project (1981-1984).
1982	Kanektok River sonar project (1982-1986).
1983	Pilot test fish project at Bethel using drift gillnets.
1984	Kwegooyuk test fishery replaced by the Bethel drift test fishery.
1985	Commercial fishing restricted to mesh sizes less than or equal to 6 inches Chum season utilizes entire length of District 1.
1986	*Migratory timing of coho salmon in the Kuskokwim Area, 1979-1984.* Kuskokwim River salmon abundance estimate based on calibrated test fish CPUE. Downstream boundary of District 1 extended to a line from Apokak Slough to Popokamiut.
1987	Discontinued the directed chinook salmon fishery in the Kuskokwim River. First fishing period restricted to that portion of District 1 which is

- continued -

Appendix A.3. (page 3 of 4)

Year	Event[a]
	downstream of Bethel due to chinook conservation concerns. Subsistence fishing in all of District 1 is closed before, during and after commercial periods.
	South peninsula sockeye and chum salmon tagging study.
1988	Review of the estimation of Kuskokwim River annual salmon passage through expansion of the Bethel test fish CPUE. Kuskokwim River sonar project (1988 - present). Kuskokwim River subsistence test fisheries (1988 - 1990). District 1 upstream boundary extended to Bogus Creek. District 2 reduced in size; downstream boundary moved upstream to High Bluffs, the upstream boundary moved downstream to Chuathbaluk. Portion of Kuskokwim River between Districts 1 and 2 closed to subsistence fishing when District 1 subsistence fishing is closed. Reorganization of District 1 Statistical Areas. District 4 Salmon Management Plan adopted. Establishment of the Kuskokwim River Cooperative Management Group (1988 -present)
	Eek Test Fishery (1988 - 1990, 1992 to present).
1989	USFWS conducted genetic sampling throughout the Kuskokwim Area. USFWS conducted chinook tagging study in the lower Kuskokwim River. Record low temperatures recorded in interior Alaska coupled with shallow snow pack threaten survival of salmon eggs/fry from 1988 spawning.
1990	ADF&G genetic sampling. Reorganization of District 1 Statistical Areas. Upstream boundary of District 1 moved downstream from Bogus Creek to Big Island. Downstream boundary of District 2 moved upstream to second slough below Kalskag. District 4 northern boundary is extended north to Weelung Creek.
1991	ADF&G genetic sampling. USFWS begin operation of weir on Tuluksak River (1991 to present). Weir replaces counting tower on Goodnews River (1991 to present).
1992	ADF&G genetic sampling. Initiation of the Aniak and Chuathbaluk test fisheries. Eek test fishery is re-established for the coho season. USFWS begins operation of the Kwethluk River weir. Ban on high-seas drift gillnet fishing imposed. Unusual proportion of returning 5 year old chum salmon had a compressed annulus between the second and third winter checks. Failure of age 4 chum salmon in the Kuskokwim River; Aniak drainage especially hard hit; attributed to cold winter of 1988-89.

- continued -

Appendix A.3. (page 4 of 4)

Year	Event[a]
1993	Failure of age 4 and 5 chum salmon in the Kuskokwim River, Yukon River, and the Norton Sound/Kotzebue Area; cause unknown; escpecially hard hit were the Aniak drainage and the Yukon fall chum; commercial fishing severely restricted, chum sport fishery was closed, and the subsistence salmon fishery was restricted and closed for a period of time (first time ever). ADF&G genetic sampling.

[a] For additional information on specific topics refer to the Region III Report Catalog or historic Area Management Reports for the Kuskokwim Area.

Appendix A.4. Estimated dollar value of Kuskokwim Area commercial salmon fishery, 1964 - 1993.

Year	Gross Value of Catch to Fishermen	Permits Fished[a]	Average Income
1964	83,030		
1965	90,950		
1966	87,466		
1967	138,647		
1968	290,370		
1969	297,233		
1970	362,470		
1971	371,220		
1972	360,727		
1973	827,735		
1974	1,056,042		
1975	899,178		
1976	1,380,229		
1977	3,891,950		
1978	2,337,470		
1979	3,678,000		
1980	2,725,134		
1981	3,766,525		
1982	4,213,954		
1983	2,670,400		
1984	5,809,000	774	7,505
1985	3,248,089	781	4,159
1986	4,746,089	789	6,015
1987	6,392,822	798	8,011
1988	12,514,492	811	15,431
1989	5,194,025	824	6,303
1990	4,895,070	824	5,941
1991	3,961,423	820	4,831
1992	5,295,912	814	6,506
1993	3,962,890	807	4,911
Ten Year Average (1983-1992)	$5,472,732	804[b]	7,189[b]

a Permit holders who made at least one delivery. Information not available prior to 1983.

b The previous nine year average, data not available for ten year average.

Appendix A.5. Maximum, mean, and minimum number of permits used in a single period by district, 1962 - 1993.

	District 1			District 2			District 4			District 5		
Year	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.
1962	190	121	25				32	19	7		Closed	
1963	103	17	1	17	10	2	30	13	1		Closed	
1964	113	30	1	30	4	1	29	15	1		Closed	
1965	164	43	1	5	3	1	31	13	1		Closed	
1966	172	122	61	1	1	1	12	8	1		Closed	
1967	208	144	10	4	2	1	19	8	1		Closed	
1968	262	164	2				78	38	8	17	13	5
1969	274	161	1	11	2	1	119	51	1	28	21	10
1970	320	198	22	11	6	3	75	48	21	25	16	5
1971	355	117	5	20	14	2	48	36	3	11	9	8
1972	341	149	28	12	10	8				12	9	5
1973	372	234	3	18	11	1	70	42	17	17	10	5
1974	444	272	25							40	23	7
1975	483	280	12				106	47	13	30	20	10
1976	495	357	174	55	33	11	99	44	5	35	13	4
1977	487	380	204	83	54	24	172	70	7	21	15	5
1978	509	390	72	24	12	3	123	38	3	24	15	5
1979	549	456	179	33	27	20	126	63	12	27	19	6
1980	482	421	319	37	23	12	101	56	3	35	22	9
1981	541	442	278	151	42	11	126	69	30	38	24	10
1982	499	414	302	47	27	10	107	67	5	38	27	1
1983	547	442	323	34	24	9	134	70	10	62	30	11
1984	542	411	39	33	17	8	165	82	34	47	38	29
1985	530	446	262	15	11	6	191	84	7	47	34	12
1986	600	489	234	27	9	3	216	86	2	52	31	19
1987	607	513	132	22	16	13	253	105	48	75	41	23
1988	640	583	408	21	17	13	202	73	29	68	39	22
1989	679	509	126	22	17	14	140	77	51	65	39	18
1990	653	616	534	18	16	14	218	106	1	58	27	1
1991	662	589	512	19	17	16	227	81	4	50	28	1
1992	653	577	374	21	15	9	187	86	19	91	34	17
1993	656	556	274	17	16	13	219	94	18	80	40	10

Appendix A.6. Commercial Fishing Effort in Kuskokwim Area by Permit-Hour[a], 1960-1993.

Year	Dist. 1	Dist. 2	Dist. 3	Dist. 4	Dist. 5	Total
1960	5,136	960	648	4,368	Closed	11,112
1961	16,200	1,512	1,512	4,992	Closed	24,216
1962	14,274		0	8,434	Closed	22,708
1963	5,712	1,722	0	5,520	Closed	12,954
1964	6,468	1,140	0		Closed	7,608
1965	13,500	546	0	3,696	Closed	17,742
1966	18,270		Closed		Closed	18,270
1967	88,248	1,932		3,954	Closed	94,134
1968	77,466	720		7,986	4,704	90,876
1969	67,140	1,488		29,952	14,055	112,635
1970	56,646	3,414		22,080	9,756	91,896
1971	18,060	1,842				19,902
1972	47,802					47,802
1973	77,478	3,072		18,372	2,928	101,850
1974	124,569	4,950		18,984	8,148	156,651
1975	181,786	3,648		12,312	5,400	203,146
1976	82,788	3,894		14,784	4,848	106,314
1977	73,944	3,426		17,592	3,780	98,742
1978	71,856	1,892		14,952	3,672	92,372
1979	49,608	984		27,096	8,220	85,908
1980	33,370	714		21,636	9,504	65,224
1981	45,096	1,248		25,656	11,256	83,256
1982	46,108	1,128		22,656	14,556	84,448
1983	47,040	708		20,748	9,456	77,952
1984	62,643	1,050		31,488	14,004	109,185
1985	37,452	462		22,254	8,544	68,712
1986	48,744	606		25,740	10,572	85,662
1987	60,525	576		21,222	10,332	92,655
1988	81,724	912		27,440	14,064	124,140
1989	66,470	816		26,134	12,552	105,972
1990	50,642	1,051		44,520	10,548	106,761
1991	62,672	1,320		29,160	11,532	104,684
1992	54,288	1,164		35,380	15,180	106,012
1993	39,210	774		35,988	13,118	89,090
Ten Year Average (1983-92)	57,220	867		28,409	11,678	98,173

a. The number of permits that made deliveries times the number of hours in the period.

Appendix A.7. Mean salmon weights and prices paid to commercial fishers in the Kuskokwim Area, 1967-1993.

	Mean Weight - Pounds					Average Price - $/Pound				
Year	Chinook	Sockeye	Coho	Pink	Chum	Chinook	Sockeye	Coho	Pink	Chum
1967	27.8	7.4	5.9	a	7.0	0.13	0.05	0.09	a	0.04
1968	23.8	6.2	7.2	4.0	7.9	0.16	0.10	0.09	0.05	0.04
1969	19.6	6.2	7.3	3.6	5.8	0.19	0.15	0.10	0.06	0.07
1970	18.9	5.4	7.3	3.3	6.1	0.20	0.21	0.14	0.08	0.08
1971[b]	26.2	6.9	6.1	a	6.4	0.17	0.10	0.13	a	0.08
1972	a	a	a	a	a	0.20	a	0.16	a	0.08
1973	a	a	a	a	a	0.25	a	0.26	a	0.19
1974	a	a	a	a	a	0.46	0.34	0.27	0.23	0.25
1975	a	a	a	a	a	0.54	a	0.31	a	0.26
1976[c]	17.0	6.7	7.8	3.5	7.0	0.64	0.43	0.40	0.25	0.27
1977	22.7	8.3	7.8	3.9	7.3	1.15	0.45	0.65	0.25	0.45
1978	24.2	6.5	7.1	3.9	8.9	0.50	0.49	0.40	0.12	0.32
1979	16.6	6.9	7.9	3.9	7.0	0.66	0.53	0.75	0.11	0.37
1980	14.1	6.7	6.9	3.6	6.4	0.47	0.31	0.64	0.12	0.24
1981	17.8	7.2	6.4	3.5	7.5	0.84	0.61	0.63	0.11	0.23
1982	19.3	7.2	7.3	3.6	7.3	0.82	0.41	0.53	0.05	0.22
1983	18.8	6.8	6.8	3.5	7.4	0.54	0.51	0.39	0.05	0.33
1984	16.4	6.6	7.7	3.2	6.7	0.89	0.52	0.55	0.07	0.28
1985	17.0	7.0	7.5	3.6	7.1	0.71	0.59	0.51	0.05	0.25
1986	17.0	7.2	6.4	3.4	6.8	0.80	0.70	0.60	0.05	0.25
1987	15.2	7.5	7.2	3.7	6.8	1.10	1.30	0.73	0.10	0.27
1988	15.1	7.3	7.5	3.4	8.1	1.30	1.42	1.25	0.15	0.40
1989	16.6	7.2	7.3	3.4	6.8	0.75	1.20	0.55	0.05	0.26
1990	15.1	6.7	6.5	3.2	6.9	0.56	1.05	0.75	0.12	0.26
1991	15.3	6.9	6.5	3.4	6.3	0.56	0.67	0.45	0.12	0.31
1992	13.4	7.0	7.3	3.9	6.8	0.66	0.90	0.45	0.06	0.32
1993	14.3	7.1	6.6	3.4	6.5	0.62	0.70	0.58	0.25	0.40
Ten Year Average (1983-92)	16.0	7.0	7.1	3.5	7.0	0.78	0.89	0.63	0.08	0.29

[a] Information unavailable.
[b] Information was not available for district 5.
[c] Information was not available for district 4.

Appendix A.8. Historic salmon escapement data from current Kuskokwim Area projects, 1976-1993.

YEAR	Operating Period	SPECIES Chinook	Sockeye	Coho	Pink	Chum
KOGRUGLUK WEIR[a] Objectives						
1976	06/29 to 07/31	5,579	2,326	b	-	8,117
1977	07/14 to 07/27	1,945	1,637	b	2	19,444
1978	06/28 to 07/31	13,667	1,670	b	2	48,125
1979	07/01 to 07/24	11,338	2,628	b	1	18,599
1980	07/01 to 07/11	6,572	3,200	b	1	41,777
1981	06/27 to 10/25	16,655	18,066	11,455	6	57,365
1982	07/09 to 09/14	10,993	17,297	37,796	19	64,077
1983	06/22 to 07/02	2,992	1,176	8,538	-	9,407
1984	06/19 to 09/15	4,928	4,133	27,595	-	41,484
1985	06/29 to 09/07	4,619	4,359	16,441	-	15,005
1986	07/06 to 10/05	5,038	4,224	22,506	-	14,693
1987	08/09 to 09/23	4,063	b	22,821	-	17,422
1988	07/05 to 09/17	8,505	4,397	13,512	-	39,540
1989	07/07 to 09/14	11,940	5,811	b	-	39,548
1990	06/28 to 09/07	10,218	8,406	6,132	1	26,765
1991	07/04 to 09/15	7,850	16,455	9,933	4	24,188
1992	07/01 to 08/21	6,755	7,540	26,057	11	34,105
1993	07/02 to 09/06	12,332	29,358	20,517	0	31,899
ANIAK SONAR[c] Objective						250,000
1980	06/22 to 07/30	56,469	-	-	-	1,169,470
	08/16 to 09/12	-	-	81,556	-	-
1981	06/16 to 08/06	42,060	-	-	-	589,286
1982	06/21 to 08/01	33,864	-	-	-	442,461
1983	06/18 to 07/28	4,911	-	-	-	129,367
1984	06/16 to 07/30	-	-	-	-	266,976
1985	06/22 to 07/28	-	-	-	-	253,051
1986	06/26 to 07/24	-	-	-	-	209,080
1987	06/22 to 07/31	-	-	-	-	193,013
1988	06/22 to 07/31	-	-	-	-	401,511
1989	06/21 to 07/24	-	-	-	-	243,922
1990	06/23 to 08/06	-	-	-	-	377,213
1991	06/29 to 07/29	-	-	-	-	314,166
1992	06/22 to 07/29	-	-	-	-	83,439
1993	06/24 to 07/28	-	-	-	-	14,157

- continued -

Appendix A.8. (page 2 of 2)

YEAR	Operating Period	SPECIES Chinook	Sockeye	Coho	Pink	Chum
TULUKSAK RIVER WEIR						
1991	06/12 to 09/18	697	34	4,651	391	7,675
1992	06/24 to 09/10	1,083	129	7,501	2,458	11,183
1993	06/17 to 09/10	2,218	88	8,328	210	13,804
KWETHLUK RIVER WEIR						
1992	06/18 to 09/12	9,675	1,316	45,605	45,952	30,596
MIDDLE FORK GOODNEWS RIVER TOWER/WEIR[d]						
Objectives		3,500	25,000	NA	NA	15,000
1981	06/13 to 08/15	3,688	49,108	357	1,327	21,827
1982	06/23 to 08/03	1,395	56,255	62	13,855	6,767
1983	06/11 to 07/28	6,027	25,816	0	34	15,548
1984	06/15 to 07/31	3,260	32,053	249	13,744	19,003
1985	06/27 TO 07/31	2,831	24,131	282	144	10,367
1986	06/16 TO 07/24	2,083	51,069	163	8,133	14,756
1987	06/22 to 07/30	2,274	28,871	62	62	17,519
1988	06/23 to 07/30	2,712	15,799	6	6,781	20,799
1989	06/29 to 07/31	1,915	21,196	145	246	10,380
1990	06/19 to 07/24	3,636	31,679	0	3,378	6,410
1991[e]	06/29 to 08/24	2,147	47,397	92	1,694	27,525
1992	06/29 to 08/25	1,899	27,267	150	23,030	22,023
1993	06/22 to 08/18	2,491	26,044	1,451	253	14,287

a Pink salmon can pass freely through the Kogrukluk Weir.
b No counts or incomplete count as project was not operated during the species' migration.
c Aniak sonar counts are adjusted to provide the total estimated escapements.
d The Goodnews River salmon counting tower's scheduled termination date precludes adequate assessment of the coho and pink salmon escapement.
e The Goodnews tower was converted into a weir in 1991

Appendix A.9. Fish species commonly found in the Kuskokwim Area[a].

Species Code	Genus and Species	Common Name
110	Gadus macrocephalus	Pacific Cod
113	Eleginus gracilis	Saffron Cod
129	Platichthys stellatus	Starry Flounder
122	Pleuronectes glacialis	Arctic Flounder
127	Pleuronectes aspera	Yellowfin Sole
128	Pleuronectes vetulus	English Sole
162	Cottus cognatus	Slimy Sculpin
166	Oligocottus maculosus	Tidepool Sculpin
192	Hexagrammos stelleri	Whitespotted Greenling
200	Hippoglossus stenolepis	Pacific Halibut
230	Clupea pallasi	Pacific Herring
410	Oncorhynchus tshawytscha	Chinook Salmon
420	Onchornynchus nerka	Sockeye Salmon
430	Onchornynchus kisutch	Coho Salmon
440	Onchornynchus gorbuscha	Pink Salmon
450	Onchornynchus keta	Chum Salmon
500	Esox lucius	Northern Pike
513	Osmerus mordax	Rainbow Smelt
514	Hypomesus olidus	Pond Smelt
516	Mallotus villosus	Capelin
520	Salvelinus alpinus	Arctic Char
532	Salvelinus malma	Dolly Varden (none anadromous)
541	Onchornynchus mykiss	Rainbow Trout
550	Salvelinus namaycush	Lake Trout
570	Stenodus leucichthys	Inconnu
588	Coregonus nasus	Broad Whitefish
589	Coregonus pidschian	Humpback Whitefish
583	Coregonus sardinella	Least Cisco
584	Coregonus autumnalis	Arctic Cisco
586	Prosopium cylindraceum	Round Whitefish
590	Lota lota	Burbot
600	Lampetra tridentata	Pacific Lamprey
601	Lampetra japonica	Arctic Lamprey
610	Thymallus arcticus	Arctic Grayling
630	Dallia pectoralis	Alaska Blackfish
640	Catostomus catostomus	Longnose Sucker
660	Gasterosteus aculeatus	Threespine Stickleback
661	Pungitius pungitius	Ninespine Stickleback
670	Percopsis omiscomaycus	Trout Perch
NA	Megalocottus platycephalus	Belligerent Sculpin
NA	Myoxocephalus quadricornis	Fourhorn Sculpin

a Based on American Fisheries Society Special Publication No. 20, Common and Scientific Names of Fishes from the United States and Canada (Fifth Edition). Committee and Names of Fishes, Bethesda, Maryland, 1991.

Appendix A.10. Kuskokwim Area subsistence chinook salmon harvest by village, 1960-1993.

COMMUNITY	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
KIPNUK		248	11	123	75	a							
KWIGILLINGOK	250	35	43	106	339	a	250	957	70		220	200	10
KONGIGANAK	b	b	b	b						385	891	41	
TUNTUTULIAK	226	2,226	842	2,853	1,826	1,575	3,097	3,462	2,214	2,195	3,558	1,841	3,214
EEK					c	c	2,921	4,572	2,566	2,038	2,065	1,882	1,969
KASIGLUK & EEK					1,857	3,123							
KASIGLUK	135	1,215	127	1,302	c	c	1,032	2,766	1,485	2,888	3,931	1,645	1,292
NUNAPITCHUK	683	2,042	848	1,874	636	490	2,213	1,926	1,750	2,279	4,680	1,978	2,496
ATMAUTLUAK	b	b	b	b	b	b	b	b	b	b	1,205	548	864
NAPAKIAK	1,830	2,573	2,191	3,148	2,677	2,872	3,658	3,895	2,468	3,546	4,960	1,868	2,009
NAPASKIAK	536	1,258	759	1,569	2,201	1,071	2,710	2,998	1,663	2,227	3,446	1,916	1,578
OSCARVILLE	1,968	282	75	309	339	688	322	1,127	393	457	542	570	196
BETHEL	1,923	4,150	1,378	7,019	4,114	3,371	8,046	13,925	6,205	7,472	17,026	8,731	8,371
KWETHLUK	2,692	3,763	2,329	5,050	3,262	2,887	6,551	6,993	2,848	3,187	7,932	5,564	5,137
AKIACHAK	1,626	3,052	1,800	2,533	3,488	3,685	4,904	5,543	3,755	2,602	7,022	4,818	3,872
AKIAK	1,865	3,159	906	2,869	2,495	1,345	3,670	3,660	1,822	1,275	3,290	2,688	1,899
TULUKSAK	737	1,486	493	1,295	572	1,021	1,576	1,709	1,048	1,131	1,995	1,280	1,318
LOWER KALSKAG	961	571	c	c	710	c	c	c	1,502	2,102	2,146	2,355	2,604
UPPER KALSKAG	667	1,049	c	c	1,143	c	c	c	1,619	1,623	734	601	401
KALSKAGS COMB.			805	2,661		1,395	3,379	3,567					
ANIAK	1,057	688	185	602	1,104	c	2,072	1,280	517	1,406	2,136	1,076	2,105
ANIAK[d]						642							
CHUATHBALUK	64	54	10	30	74	c	139	217	34	180	219	179	261
NAPAIMUTE	20	16	44	52	134	a	78	60	94	19	22	17	20
CROOKED CREEK	747	518	561	859	1,358	374	1,446	585	77	541	684	291	183
GEORGETOWN							12		0	9	2	0	0
RED DEVIL	c	40	c	c	c	c			111	142	232	135	182
SLEETMUTE	c	222	c	c	c	c	303	343	207	267	161	181	69
SLEETMUTE[e]	465	262	144	228	314	79			318	409	393	316	251
KASHEGELOK[f]							10						
STONY RIVER	435	25	31		299	79	636	303	176	2,187	105	402	95
LIME VILLAGE										50	15	2,119	
MCGRATH							300	25					
TAKOTNA													
NIKOLAI													
TELIDA													
QUINHAGAK								1,349	2,756				
GOODNEWS BAY													
PLATINUM													
TOTAL	18,887	28,934	13,582	34,482	29,017	24,697	49,325	61,262	35,698	40,617	69,612	43,242	40,396

Explanation of the above footnotes can be found at the end of this Table.

-continued-

Appendix A.10. (page 2 of 3)

COMMUNITY	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
KIPNUK[g]										60			
KWIGILLINGOK[g]				75	382	75							
KONGIGANAK				122	361					52			235
TUNTUTULIAK	2,859	1,577	3,492	4,807	2,470	1,656	2,268	2,545	4,446	1,984	2,523	3,519	2,644
EEK	1,981	2,356	2,110	3,232	2,675	1,807	2,003	1,557	1,731	2,578	2,040		1,436
KASIGLUK	1,864	1,411	1,713	1,613	1,324	608	1,142	1,704	3,377	3,115			2,054
NUNAPITCHUK	2,663	1,165	2,092	2,578	2,622	2,178	2,109	2,612	2,918	2,577	2,688		2,019
ATMAUTLUAK	1,106	382	1,042	1,159	1,015	966	2,242	1,288	1,247	1,752			1,559
NAPAKIAK	1,763	1,224	2,864	3,330	2,702	2,140	2,191	2,582	3,017	3,500	2,047		1,805
NAPASKIAK	2,048	900	2,303	3,566	1,989	2,122	2,085	3,160	2,911	2,872			2,155
OSCARVILLE	586	180	891	623	672	349	629	477	495	523			916
BETHEL	8,898	4,631	11,688	13,215	9,408	6,905	11,564	12,591	15,367	13,516	8,492	11,066	6,940
KWETHLUK	3,444	2,694	3,179	4,193	5,563	3,172	6,919	7,627	6,167	5,897		6,732	4,937
AKIACHAK	2,592	1,726	3,534	4,915	5,407	2,951	4,818	5,405	3,094	4,468		5,588	3,254
AKIAK	1,895	1,292	2,837	3,076	2,880	1,850	3,567	3,355	2,386	2,745		3,413	2,975
TULUKSAK	1,322	883	1,338	1,411	2,906	1,906	1,489	2,807	2,446	2,220	1,671	2,286	2,749
LOWER KALSKAG	1,309	1,586	2,755	4,536	1,750	1,951	2,821	3,917	3,271	2,594		3,242	1,707
UPPER KALSKAG	938	463	1,752	1,413	2,813	1,253	1,590	1,889	1,171	963		657	605
ANIAK	1,030	1,952	1,391	1,490	4,991	1,331	2,634	2,750	3,102	2,071	3,174	1,847	1,828
CHUATHBALUK	942	674	594	657	1,507	1,238	2,189	1,507	841	1,491			1,102
NAPAIMUTE	13	6	16	420	176	144	149	90	45	138			53
CROOKED CREEK	269	650	238	264	619	488	728	654	512	515			218
GEORGETOWN	0				66	0		93					
RED DEVIL	138	205	623	195	324	153	488	255	298	273			176
SLEETMUTE	504	269	256	356	684	300	755	220	728	242		154	745
SLEETMUTE[e]	642	474	879	551	1,008	453	988	475	1,026	515			921
KASHEGELOK[f]				156	233	92							
STONY RIVER	287	439	761	620	33	182	171	332	233	419			167
LIME VILLAGE			100	33	0		38						
McGRATH							581			160	830	730	59
TAKOTNA							65						
NIKOLAI							60		500	778	750	795	615
TELIDA													
QUINHAGAK					2,012	2,328	1,420	1,940	2,562	2,402	2,542	3,109	2,341
GOODNEWS BAY					574		228	498	1,309	1,185	1,004	597	399
PLATINUM							110	192	100	51	62	32	27
MEKORYUK													
NEWTOK													
NIGHTMUTE													
TOKSOOK BAY													
TUNUNAK													
TOTAL	39,093	27,139	48,448	58,606	59,166	38,598	58,041	62,522	65,300	61,656	51,020[h]	60,668[h]	46,641

-continued-

Appendix A.10. (page 3 of 3)

COMMUNITY	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
KIPNUK[g]				134	108	44		348					
KWIGILLINGOK[g]							9	80					
KONGIGANAK			468	1,307	915	533	573	497					
TUNTUTULIAK	2,452	2,522	2,580	3,552	2,537	3,997	2,175	2,668					
EEK			1,987	1,685	4,609	2,881	1,772	2,080					
KASIGLUK			1,077	2,013	2,869	2,566	2,278	548					
NUNAPITCHUK	3,410	3,372	1,664	3,087	2,244	3,472	1,695	3,125					
ATMAUTLUAK			891	1,227	2,067	1,369	1,043	1,733					
NAPAKIAK		2,760	1,960	3,785	3,413	2,476	2,536	2,912					
NAPASKIAK		2,907	2,977	4,181	3,413	2,961	2,873	3,854					
OSCARVILLE		745	415	1,200	721	1,088	856	1,475					
BETHEL	11,984	8,107	11,671	19,336	18,248	30,233	16,166	21,920					
KWETHLUK	5,824	8,779	7,543	7,388	7,335	7,072	5,099	7,563					
AKIACHAK		4,871	5,613	5,438	5,204	4,547	2,907	4,885					
AKIAK		3,683	3,235	4,562	4,177	2,576	2,117	2,746					
TULUKSAK		3,712	2,720	3,781	1,706	2,780	1,808	3,056					
LOWER KALSKAG	1,666		3,312	2,843	2,515	3,835	2,014	2,172					
UPPER KALSKAG	587		800	1,256	1,446	841	1,285	1,662					
ANIAK	4,624	2,131	2,709	2,860	3,075	3,303	3,355	3,781					
CHUATHBALUK			102	446	1,290	672	771	1,155					
CROOKED CREEK			481	427	591	1,027	337	581					
RED DEVIL			175	156	250	92	280	365					
SLEETMUTE			308	420	597	775	686	1,499					
STONY RIVER			210	692	385	537	161	399					
LIME VILLAGE			426	105	205	50	196	35					
MCGRATH			253	519	688	821	845	531					
TAKOTNA			150	62	126	0	0	0					
NIKOLAI			150	706	547	316	571	449					
TELIDA				1									
QUINHAGAK	2,682	3,663	2,508	3,048	5,050	3,536	2,545	2,726					
GOODNEWS BAY	513	640	289	414	682	664	195	438					
PLATINUM	42	176	21	44	177	18	49	50					
MEKORYUK[g]				0	0	0		0					
NEWTOK[g]			56	5	1								
NIGHTMUTE[g]			22		3	10							
TOKSOOK BAY[g]			136	136	108	40	49	128					
TUNUNAK[g]			64	5	0	10		5					
OTHER[g]						0	21						
TOTAL	54,256[h]	71,804[h]	56,973	76,821	77,302	85,142	57,267	75,466					

a Data collected, combined with unspecified village or villages.
b Village not yet founded.
c Data collected, but reported with another village.
d Aniak, Chuathbaluk and Russian Mission.
e Sleetmute to Red Devil.
f Kashegelok and Holitna.
g Reported catch only.
h Kuskokwim Area total estimate based on a village subsistence survey.

Appendix A.11. Kuskokwim Area subsistence sockeye salmon harvest by village, 1985 - 1993.

COMMUNITY	1985	1986	1987	1988	1989	1990	1991	1992	1993
KIPNUK[a]					402	175	38		90
KWIGILLINGOK[a]									140
KONGIGANAK	130			664	603	264	325	580	452
TUNTUTULIAK	1,498	288	991	565	1,018	955	1,646	1,167	772
EEK	241			302	168	1,212	552	545	342
KASIGLUK	1,138			296	231	732	1,249	627	122
NUNAPITCHUK	1,447	905	1,187	640	987	702	1,951	1,055	2,096
ATMAUTLUAK	1,308			252	1,129	1,121	652	1,093	1,171
NAPAKIAK	1,242		1,439	689	1,722	1,070	1,150	994	874
NAPASKIAK	1,181		2,199	855	620	894	2,080	1,681	2,423
OSCARVILLE	942		438	1,752	329	122	506	677	932
BETHEL	3,409	7,730	3,810	4,357	5,712	5,892	18,205	6,708	10,427
KWETHLUK	5,584	5,423	3,845	3,592	2,443	3,234	3,559	1,438	3,076
AKIACHAK	3,182		3,532	2,870	2,584	2,115	3,344	2,017	3,101
AKIAK	1,368		1,883	1,203	1,301	1,393	1,316	986	2,271
TULUKSAK	1,620		1,733	1,235	2,234	991	2,976	1,643	2,056
LOWER KALSKAG	948	783		1,732	765	662	925	400	1,260
UPPER KALSKAG	187	1,182		321	338	292	237	321	345
ANIAK	2,116	2,652	2,101	740	761	1,194	2,086	1,002	1,187
CHUATHBALUK	1,797			132	229	885	1,059	384	659
NAPAIMUTE	125								
CROOKED CREEK	1,218			254	413	940	1,007	349	623
RED DEVIL	205			291	332	408	232	266	538
SLEETMUTE	1,351			640	776	890	1,366	715	1,365
STONY RIVER	585			130	1,084	685	1,753	1,012	1,332
LIME VILLAGE				571	5,653	2,100	797	2,850	2,200
McGRATH				0	0	0	0	0	0
TAKOTNA				0	0	0	0	0	0
NIKOLAI	0			0	0	0	0	0	0
TELIDA					0				
QUINHAGAK	106	423	1,067	857	450	1,544	1,538	857	801
GOODNEWS BAY	562	860	834	898	704	905	780	418	540
PLATINUM	142	83	121	167	151	140	120	138	32
MEKORYUK[a]				1	0	50	1	0	0
NEWTOK[a]				50	10	3			
NIGHTMUTE[a]				510	0	10	110		
TOKSOOK BAY[a]				1,739	286	212	155	1	66
TUNUNAK[a]				625	83	7	100		30
OTHER[a]							0	1	
TOTAL	33,632	20,239[b]	25,180[b]	28,930	33,518	31,799	51,815	29,925	41,323

a Reported harvest only.
b Estimated total based on sampled villages.

Appendix A.12. Kuskokwim Area subsistence coho salmon harvest by village, 1985 - 1993.

COMMUNITY	1985	1986	1987	1988	1989	1990	1991	1992	1993
KIPNUK[a]					243	460	30		25
KWIGILLINGOK[a]									80
KONGIGANAK	88			917	525	265	370	346	322
TUNTUTULIAK	371	1,692	760	710	484	759	723	454	605
EEK	406			261	299	1,703	457	464	172
KASIGLUK	1,763			713	687	908	1,687	999	228
NUNAPITCHUK	513	1,084	696	651	487	287	904	1,016	236
ATMAUTLUAK	326			266	971	322	294	270	354
NAPAKIAK	836		959	373	1,763	1,506	559	934	469
NAPASKIAK	415		629	1,148	809	674	595	600	568
OSCARVILLE	155		40	50	684	34	95	216	0
BETHEL	6,094	19,351	8,077	6,434	18,594	18,126	29,229	14,899	13,976
KWETHLUK	3,041	3,545	2,537	3,649	3,307	3,406	2,185	1,816	1,475
AKIACHAK	967		286	4,653	1,879	915	1,887	1,402	929
AKIAK	1,270		1,294	1,377	2,523	1,715	1,660	750	846
TULUKSAK	1,723		337	1,271	1,261	846	1,567	1,263	340
LOWER KALSKAG	596	2,211		173	731	676	410	413	386
UPPER KALSKAG	105	759		126	688	261	387	899	337
ANIAK	1,552	1,051	2,302	1,244	2,461	1,094	1,042	1,545	927
CHUATHBALUK	393			216	305	601	79	278	290
NAPAIMUTE	211								
CROOKED CREEK	290			69	536	534	190	315	311
RED DEVIL	846			448	1,516	794	617	966	1,359
SLEETMUTE	1,330			1,266	1,009	859	1,614	855	747
STONY RIVER	395			107	611	195	460	415	450
LIME VILLAGE				1,319	2,025	484	280	1,027	470
McGRATH				454	697	1,512	818	2,351	349
TAKOTNA				0	40	0	0	0	0
NIKOLAI	550			583	328	55	62	163	252
TELIDA					60				
QUINHAGAK	67	41	125	2,933	3,346	3,510	2,901	2,172	1,381
GOODNEWS BAY	210	0	0	1,072	819	1,472	1,222	740	796
PLATINUM	11	8	43	90	68	90	31	166	18
MEKORYUK[a]					117	52	130	2	23
NEWTOK[a]					15	4			
NIGHTMUTE[a]					70	0	20		
TOKSOOK BAY[a]					44	15	1	15	57
TUNUNAK[a]					9	0	0		70
OTHER[a]							39	0	
TOTAL	24,524	29,742[b]	18,085[b]	32,573	50,011	44,134	52,545	37,751	28,848

a Reported harvest only.
b Estimated total based on sampled villages.

Appendix A.13. Kuskokwim Area subsistence chum salmon harvest by village, 1985 - 1993.

COMMUNITY	1985	1986	1987	1988	1989	1990	1991	1992	1993
KIPNUK[a]					37	540	15		601
KWIGILLINGOK[a]									200
KONGIGANAK	671			1,178	1,830	618	679	951	520
TUNTUTULIAK	4,346	2,734	5,385	4,424	4,559	4,072	4,620	3,685	2,249
EEK	401			1,188	966	2,665	843	1,210	199
KASIGLUK	4,199			2,788	2,872	2,623	2,972	2,814	374
NUNAPITCHUK	4,346	4,676	4,621	5,312	6,674	4,053	5,262	3,902	4,059
ATMAUTLUAK	4,440			3,701	3,014	3,168	1,801	2,242	1,164
NAPAKIAK	3,686		2,784	2,876	6,934	6,538	2,272	3,358	1,720
NAPASKIAK	5,810		6,832	8,876	12,203	5,488	5,042	4,239	2,397
OSCARVILLE	1,294		1,135	2,461	1,132	676	567	1,209	566
BETHEL	9,260	14,778	7,974	13,536	19,214	16,852	23,444	13,922	8,956
KWETHLUK	6,866	9,736	7,636	14,667	10,237	8,016	4,921	5,910	2,735
AKIACHAK	5,931		4,355	10,417	7,307	6,222	4,764	3,846	2,421
AKIAK	6,724		3,837	5,847	7,216	6,227	4,097	3,801	4,863
TULUKSAK	6,064		3,466	5,826	7,961	4,967	4,697	3,645	3,161
LOWER KALSKAG	4,637	2,538		9,016	4,069	3,637	2,128	2,433	1,626
UPPER KALSKAG	1,855	3,684		3,090	3,427	1,320	2,129	2,498	567
ANIAK	8,804	5,905	5,751	7,551	9,332	6,175	3,533	6,281	2,413
CHUATHBALUK	3,782			1,350	2,280	2,102	1,625	2,062	2,296
NAPAIMUTE	414								
CROOKED CREEK	2,888			597	772	1,760	1,130	571	536
RED DEVIL	1,021			2,112	1,153	1,344	674	1,305	753
SLEETMUTE	3,689			3,472	1,813	1,574	1,915	2,610	430
STONY RIVER	722			2,270	1,352	597	552	924	710
LIME VILLAGE				570	2,100	2,250	596	1,522	355
McGRATH				367	2,258	1,833	999	2,394	90
TAKOTNA				300	250	128	0	0	0
NIKOLAI	2,900			2,644	1,178	829	371	772	334
TELIDA					15				
QUINHAGAK	901	808	1,084	724	1,262	2,620	1,346	1,334	703
GOODNEWS BAY	339	188	371	405	609	342	102	574	133
PLATINUM	9	3	207	43	140	125	4	74	0
MEKORYUK[a]				500	3,601	1,067	1,178	0	778
NEWTOK[a]				22	20	4			
NIGHTMUTE[a]				218	30	35	60		
TOKSOOK BAY[a]				745	95	160	253	246	296
TUNUNAK[a]				268	16	65	0		30
OTHER[a]							3	1	
TOTAL	95,999	142,930[b]	70,709[b]	119,361	127,928	100,692	84,594	80,335	48,235

a Reported harvest only.
b Estimated total based on sampled villages.

APPENDIX B

Appendix B.1. Kuskokwim River distances*.

	Distance from the Mouth		Distance from Bethel	
	Kilometer	Miles	Kilometer	Miles
Popokamiut (Lower boundary District 1)	-3	-2	-129	-80
Kuskokwim River Mouth 60.80 N, 162.42 W	0	0	-125	-78
Eek Island, Southernmost tip, (Lower boundary District 1)	19	12	-106	-66
Apokak Slough (Lower boundary District 1)	35	22	-90	-56
Eek River	39	24	-87	-54
Kwegooyuk	42	26	-84	-52
Kinak River	48	30	-78	-48
Tuntutuliak Village	56	35	-87	-54
Kialik River	59	37	-66	-41
Fowler Island	83	52	-42	-26
Johnson River	93	58	-32	-20
Napakiak Village	104	65	-21	-13
Napaskiak Village	115	71	-12	-7
Oscarville Village	115	71	-11	-7
Bethel City	125	78	0	0
Gweek River	145	90	20	12
Kwethluk Village	159	99	34	21
Akiachak Village	169	105	43	27
Kasigluk River	173	108	48	30
Kisaralik River	175	109	50	31
Akiak Village	190	118	64	40
Mishevik Slough,	212	132	87	54
Tuluksak Village	218	136	93	58
Nelson Island (District 1 Boundary)	220	137	95	59
Bogus Creek	234	146	109	68
High Bluffs	264	164	139	86
Boundary of District 2	295	183	170	105
Mud Creek Slough	297	185	172	107
Kalskag Village	309	192	184	114
Aniak Village, Aniak River	362	225	237	147
Chuathbaluk Village (Upper boundary District 2)	375	233	250	155
Kolmakof River	395	246	270	168
Napaimiut Village	410	255	285	177
Holokuk River	415	258	290	180
Oskawalik River	449	279	324	201
Crooked Creek Village	466	290	341	212
Georgetown Village, George River	497	309	372	231
Red Devil Village	526	327	401	249
Sleetmute village	539	335	414	257

-continued-

Appendix B.1. (page 2 of 2)

	Distance from the Mouth		Distance from From Bethel	
	Kilometer	Miles	Kilometer	Miles
Holitna River	540	336	415	258
Stony River Village	585	364	460	286
Stony River	587	365	462	287
Swift River	611	380	486	302
Tatlawisksuk River	616	383	491	305
Devil's Elbow	645	401	520	323
Vinasale	740	460	615	382
McGrath Village	815	507	690	429
Middle Fork	889	553	764	475
Big River	801	560	776	482
Pitka Fork	920	572	795	494
Medra Village	928	577	803	499
South Fork	931	579	806	501
East Fork	943	586	818	508
North Fork	943	586	818	508
Nikolai Village	999	621	874	543
Swift Fork	1,136	706	1,011	628
Telida Village	1,184	736	1,059	658
Highpower Creek	1,200	746	1,075	668
Fish Creek	1,284	798	1,159	720
North Fork Lake	1,334	829	1,209	751
Top of Kuskokwim Drainage	1,498	931	1,373	853

a These distances were taken from the USGS 1:36,300 series of topographic maps. The "mouth" was defined as the point where the "grassland" banks are 24 miles apart. Some locations are not on the mainstem of the Kuskokwim River, as a result their mileages appear to be out of sequence since they are listed in the order of the turn off.

Appendix B.2. Historic daily CPUE for chinook salmon catches in the Eek test fishery.

Date	Daily CPUE				Cumulative CPUE (begin 6/7)				Percent Passage				
	1988	1989	1990	1993	1988	1989	1990	1993	1988	1989	1990	1993	Mean 88–90
06/01			2	17									
06/02			4	16									
06/03			4	17									
06/04		w	7	5		w							
06/05		14	27	11									
06/06		10	22	3									
06/07	9	8	12	5	15	8	12	5	3	2	3	1	3
06/08	15	17	12	8	30	25	23	13	5	7	5	4	6
06/09	9	9	24	10	39	34	47	23	7	9	11	7	9
06/10	24	11	20	24	63	45	67	48	11	12	15	13	13
06/11	29	11	13	13	92	57	80	60	16	15	18	17	17
06/12	12	14	17	10	104	71	97	71	19	19	22	20	20
06/13	38	12	31	29	142	83	128	100	25	23	30	28	26
06/14	57	36	0	13	199	119	128	113	36	32	30	32	33
06/15	52	38	19	25	251	157	147	138	45	43	34	39	41
06/16	40 c	60	10	11	291 c	217	157	149	52	59	36	42	49
06/17	27	12	17	28	318	229	174	177	57	63	40	50	53
06/18	22 w	22	12	20	339 w	251	186	197	61	69	43	55	57
06/19	22 m	12 c	12	12	361 m	263 c	198	208	65	72	46	58	61
06/20	22 c	3	10 c	6	382 c	265	208 c	214	68	73	48	60	63
06/21	17	8	8	16	399	274	217	231	71	75	50	65	65
06/22	3	27	16 w	3	402	301	233 w	234	72	82	54	66	69
06/23	8	19 c	23	6	410	320 c	256	239	73	87	59	67	73
06/24	8 c	12	9	15	418 c	332	265	255	75	91	61	71	76
06/25	8	4	5 c	14 c	426	335	270 c	269 c	76	92	62	75	77
06/26	13	3 c	0	13 w	439	338 c	270	282 w	79	92	62	79	78
06/27	18	2	6	12	458	340	276	294	82	93	64	83	80
06/28	10 c	0	13	3	468 c	340	289	297	84	93	67	83	81
06/29	2	6	12 c	4	469	346	301 c	301	84	95	70	84	83
06/30	8	3 c	10	15	478	349 c	311	316	86	95	72	89	84
07/01	20	0	6	6	497	349	317	322	89	95	73	90	86
07/02	11 c	0	4	2	508 c	349	321	323	91	95	74	91	87
07/03	2	3 c	10	10	510	353 c	331	333	91	96	77	93	88
07/04	2 h	3 h	2	2	512 h	356 h	332	335	92	97	77	94	89
07/05	2 c	3 c	11 c	0	514 c	359 c	343 c	335	92	98	79	94	90
07/06	2	7	20	1	517	366	363	336	93	100	84	94	92
07/07	0	0	7	7	517	366	369	344	93	100	85	96	93
07/08	2 c	0 c	7	3	519 c	366 c	376	347	93	100	87	97	93
07/09	5	0 m	5 c	2	524	366 m	380 c	349	94	100	88	98	94
07/10	0	0	3	0	524	366	384	349	94	100	89	98	94
07/11	3 c	0 c	9	2	527 c	366 c	393	350	94	100	91	98	95
07/12	3 w	0	8	3	529 w	366	401	353	95	100	93	99	96
07/13	3 w	0	7	0	532 w	366	408	353	95	100	94	99	97
07/14	3 c	0 c	3 c	2	535 c	366 c	411 c	355	96	100	95	100	97
07/15	5	0	0	0	540	366	411	355	97	100	95	100	97
07/16	2	0	0	0	542	366	411	355	97	100	95	100	97
07/17	0	0 h	0	1	542	366 h	411	356	97	100	95	100	97
07/18	0 c	0 c	3	0	542 c	366 c	415	356	97	100	96	100	98
07/19	0	0 h	2	0	542	366 h	416	356	97	100	96	100	98
07/20	0	0 h	0	0	542	366 h	416	356	97	100	96	100	98
07/21	1 c	0 h	4	0	543 c	366 h	420	356	97	100	97	100	98
07/22	1 h	0	2 h	0	543 h	366	422 h	356	97	100	98	100	98
07/23	1 h	0	0	0	544 h	366	422	356	97	100	98	100	98
07/24	1 h	0	7	0 h	544 h	366	429	356 h	97	100	99	100	99
07/25	1 c	0	0	0 h	545 c	366	429	356 h	98	100	99	100	99
07/26	1 h	0	0	0	545 h	366	429	356	98	100	99	100	99
07/27	1 h	0 c	0	0 h	546 h	366 c	429	356 h	98	100	99	100	99
07/28	1 c	0	0	0 h	546 c	366	429	356 h	98	100	99	100	99
07/29	2	0	0	0 h	548	366	429	356 h	98	100	99	100	99
07/30	0	0 w	0	0	548	366 w	429	356	98	100	99	100	99
07/31	0	0	0	0 c	548	366	429	356 c	98	100	99	100	99

–Continued–

Appendix B.2. (page 2 of 2)

Date	Daily CPUE				Cumulative CPUE (begin 6/7)				Percent Passage				
	1988	1989	1990	1993	1988	1989	1990	1993	1988	1989	1990	1993	Mean 88-90
08/01	2 c	0	0 c	0 w	550 c	366	429 c	356 w	98	100	99	100	99
08/02	4	0	0	0 w	553	366	429	356 w	99	100	99	100	99
08/03	0	0 c	0	0 w	553	366 c	429	356 w	99	100	99	100	99
08/04	0 c	0	3	0 c	553 c	366	432	356 c	99	100	100	100	100
08/05	0 w	0	0	0 w	553 w	366	432	356 w	99	100	100	100	100
08/06	0	0	0 c	0 c	553	366	432 c	356 c	99	100	100	100	100
08/07	2	0 c	0	0	555	366 c	432	356	99	100	100	100	100
08/08	1 c	0	0	0	556 c	366	432	356	100	100	100	100	100
08/09	1 w	0 c	0	0 c	557 w	366 c	432	356 c	100	100	100	100	100
08/10	1 c	0	0 c	0	557 c	366	432 c	356	100	100	100	100	100
08/11	1 w	0 w	0 w	0	558 w	366 w	432 w	356	100	100	100	100	100
08/12	1 c	0 c	0	0	558 c	366 c	432	356	100	100	100	100	100
08/13	0	0	0 c	0	558	366	432 c	356	100	100	100	100	100
08/14	0 w	0	0	0 c	558 w	366	432	356 c	100	100	100	100	100
08/15	0 c	0 c	0	0 w	558 c	366 c	432	356 w	100	100	100	100	100
08/16	0	0	0 c	0	558	366	432 c	356	100	100	100	100	100
08/17	0	0	0 w	0 c	558	366	432 w	356 c	100	100	100	100	100
08/18	0 c	0 c	0	0	558 c	366 c	432	356	100	100	100	100	100
08/19	0 m	0	0	0 w	558 m	366	432	356 w	100	100	100	100	100
08/20	0 c	0	0 c	0 w	558 c	366	432 c	356 w	100	100	100	100	100
08/21	0	0	0 w	0 c	558	366	432 w	356 c	100	100	100	100	100
08/22	0	0	0 w	0	558	366	432 w	356	100	100	100	100	100
08/23	0	0 c	0 w	0	558	366 c	432 w	356	100	100	100	100	100
08/24	0	0	0	0	558	366	432	356	100	100	100	100	100
08/25	0	0	0 w	0 c	558	366	432 w	356 c	100	100	100	100	100
08/26	0	0 c	0	0	558	366 c	432	356	100	100	100	100	100
08/27	0 c	0	0 c	0	558 c	366	432 c	356	100	100	100	100	100
08/28	0	0	0	0 c	558	366	432	356 c	100	100	100	100	100
08/29	0	0 c	0	0	558	366 c	432	356	100	100	100	100	100
08/30		0		0	558	366	432	356	100	100	100	100	100
08/31	c			0	558 c	366	432	356	100	100	100	100	100

"c" CPUE is estimated; no test fishing due to commercial fishing period.
"m" CPUE is estimated; no test fishing due to mechanical problems.
"o" CPUE is estimated; no test fishing due to reasons other than those described.
"w" CPUE is estimated; no test fishing due to hazardous weather conditions.

Appendix B.3. Historic daily CPUE for sockeye salmon catches in the Eek test fishery.

Date	Daily CPUE				Cumulative CPUE (begin 6/7)				Percent Passage				
	1988	1989	1990	1993	1988	1989	1990	1993	1988	1989	1990	1993	Mean 88–90
06/01			0	0									
06/02			0	2									
06/03			0	0									
06/04		w	0	0		w							
06/05		0	0	0									
06/06		2	0	2									
06/07	2	2	3	2	1	2	3	2	0	1	0	0	0
06/08	1	11	2	0	3	13	5	2	0	4	1	0	2
06/09	8	2	6	0	11	15	11	2	1	5	1	0	3
06/10	6	0	2	5	17	15	12	6	2	5	2	0	3
06/11	25	6	8	8	41	20	21	14	5	7	3	1	5
06/12	1	2	17	6	42	22	38	20	5	7	5	1	6
06/13	14	2	11	12	57	24	49	33	7	8	6	2	7
06/14	30	16	10	5	86	40	59	38	10	13	8	3	10
06/15	65	23	38	21	151	62	97	58	18	20	13	4	17
06/16	58 c	31	15	13	209 c	93	112	71	25	31	15	5	23
06/17	51	7	32	17	259	100	144	88	31	33	19	6	27
06/18	45 w	24	18	28	304 w	124	162	116	36	41	21	8	33
06/19	45 m	33 c	11	39	349 m	157 c	172	155	42	52	22	11	39
06/20	45 c	42	28 c	14	394 c	200	201 c	169	47	65	26	12	46
06/21	39	13	46	40	434	212	246	209	52	70	32	15	51
06/22	42	35	41 w	29	475	247	287 w	238	57	81	37	17	58
06/23	73	19 c	37	53	548	266 c	324	291	65	87	42	21	65
06/24	44 c	4	48	184	592 c	270	372	474	71	89	48	34	69
06/25	15	5	36 c	157 c	607	275	408 c	631 c	72	90	53	46	72
06/26	21	3 c	24	130 w	628	279 c	432	761 w	75	91	56	55	74
06/27	27	2	25	102	655	281	457	864	78	92	59	63	77
06/28	29 c	0	35	71	683 c	281	492	934	82	92	64	68	79
06/29	31	15	18 c	50	714	296	510 c	985	85	97	66	72	83
06/30	47	7 c	0	35	761	303 c	510	1020	91	99	66	74	85
07/01	17	0	20	19	778	303	529	1039	93	99	69	76	87
07/02	18 c	0	9	31	796 c	303	539	1070	95	99	70	78	88
07/03	18	0 c	13	56	815	303 c	552	1126	97	99	72	82	89
07/04	9 h	0 h	29	7	824 h	303 h	581	1133	98	99	75	82	91
07/05	9 c	0 c	46 c	4	833 c	303 c	627 c	1137	99	99	81	83	93
07/06	0	0	63	105	833	303	690	1241	99	99	90	90	96
07/07	0	0	20	19	833	303	710	1260	99	99	92	92	97
07/08	0 c	0 c	3	5	833 c	303 c	714	1265	99	99	93	92	97
07/09	0	0 m	8 c	2	833	303 m	722 c	1267	99	99	94	92	97
07/10	2	0	13	0	835	303	735	1267	100	99	95	92	98
07/11	1 c	0 c	14	15	836 c	303 c	749	1282	100	99	97	93	99
07/12	1 w	0	0	31	837 w	303	749	1313	100	99	97	95	99
07/13	1 w	0	0	7	838 w	303	749	1320	100	99	97	96	99
07/14	1 c	0 c	3 c	6	839 c	303 c	752 c	1326	100	99	98	96	99
07/15	0	0	6	3	839	303	758	1330	100	99	98	97	99
07/16	0	0	0	0	839	303	758	1330	100	99	98	97	99
07/17	0	0 h	0	7	839	303 h	758	1337	100	99	98	97	99
07/18	0 c	0 c	0	0	839 c	303 c	758	1337	100	99	98	97	99
07/19	0	0 h	0	5	839	303 h	758	1342	100	99	98	98	99
07/20	0	0 h	0	3	839	303 h	758	1345	100	99	98	98	99
07/21	0 c	0 h	0	5	839 c	303 h	758	1349	100	99	98	98	99
07/22	0 h	0	0 h	9	839 h	303	758 h	1358	100	99	98	99	99
07/23	0 h	2	0	2	839 h	305	758	1360	100	100	98	99	99
07/24	0 h	0	0	2 h	839 h	305	758	1362 h	100	100	98	99	99
07/25	0 c	0	0	2 h	839 c	305	758	1364 h	100	100	98	99	99
07/26	0 h	0	0	2	839 h	305	758	1366	100	100	98	99	99
07/27	0 h	0 c	0	1 h	839 h	305 c	758	1367 h	100	100	98	99	99
07/28	0 c	0	0	1 h	839 c	305	758	1368 h	100	100	98	99	99
07/29	0	0	0	1 h	839	305	758	1369 h	100	100	98	99	99
07/30	0	0 w	0	0	839	305 w	758	1369	100	100	98	99	99
07/31	0	0	0	0 c	839	305	758	1369 c	100	100	98	99	99

–Continued–

Appendix B.3. (page 2 of 2)

Date	Daily CPUE				Cumulative CPUE (begin 6/7)				Percent Passage				
	1988	1989	1990	1993	1988	1989	1990	1993	1988	1989	1990	1993	Mean 88-90
08/01	0 c	0	0 c	0 w	839 c	305	758 c	1369 w	100	100	98	99	99
08/02	0	0	0	0 w	839	305	758	1369 w	100	100	98	99	99
08/03	0	0 c	0	0 w	839	305 c	758	1369 w	100	100	98	99	99
08/04	0 c	0	4	0 c	839 c	305	761	1369 c	100	100	99	99	100
08/05	0 w	0	0	0 w	839 w	305	761	1369 w	100	100	99	99	100
08/06	0	0	3 c	0 c	839	305	764 c	1369 c	100	100	99	99	100
08/07	0	0 c	6	0	839	305 c	771	1369	100	100	100	99	100
08/08	0 c	0	0	0	839 c	305	771	1369	100	100	100	99	100
08/09	0 w	0 c	0	0 c	839 w	305 c	771	1369 c	100	100	100	99	100
08/10	0 c	0	0 c	1	839 c	305	771 c	1370	100	100	100	100	100
08/11	0 w	0 w	0 w	0	839 w	305 w	771 w	1370	100	100	100	100	100
08/12	0 c	0 c	0	0	839 c	305 c	771	1370	100	100	100	100	100
08/13	0	0	0 c	3	839	305	771 c	1373	100	100	100	100	100
08/14	0 w	0	0	2 c	839 w	305	771	1375 c	100	100	100	100	100
08/15	0 c	0 c	0	1 w	839 c	305 c	771	1376 w	100	100	100	100	100
08/16	0	0	0 c	0	839	305	771 c	1376	100	100	100	100	100
08/17	0	0	0 w	0 c	839	305	771 w	1376 c	100	100	100	100	100
08/18	0 c	0 c	0	0	839 c	305 c	771	1376	100	100	100	100	100
08/19	0 m	0	0	0 w	839 m	305	771	1376 w	100	100	100	100	100
08/20	0 c	0	0 c	0 w	839 c	305	771 c	1376 w	100	100	100	100	100
08/21	0	0	0 w	0 c	839	305	771 w	1376 c	100	100	100	100	100
08/22	0	0	0 w	0	839	305	771 w	1376	100	100	100	100	100
08/23	0	0 c	0 w	0	839	305 c	771 w	1376	100	100	100	100	100
08/24	0	0	0	0	839	305	771	1376	100	100	100	100	100
08/25	0	0	0 w	0 c	839	305	771 w	1376 c	100	100	100	100	100
08/26	0	0 c	0	0	839	305 c	771	1376	100	100	100	100	100
08/27	0 c	0	0 c	0	839 c	305	771 c	1376	100	100	100	100	100
08/28	0	0	0	0 c	839	305	771	1376 c	100	100	100	100	100
08/29	0	0 c	0	0	839	305 c	771	1376	100	100	100	100	100
08/30		0		0	839	305	771	1376	100	100	100	100	100
08/31	c			0	839 c	305	771	1376	100	100	100	100	100

"c" CPUE is estimated; no test fishing due to commercial fishing period.
"m" CPUE is estimated; no test fishing due to mechanical problems.
"o" CPUE is estimated; no test fishing due to reasons other than those described.
"w" CPUE is estimated; no test fishing due to hazardous weather conditions.

Appendix B.4. Historic daily CPUE for coho salmon catches in the Lek test fishery.

Date	Daily CPUE					Cumulative CPUE (begin 7/27)					Percent Passage					
	1988	1989	1990	1992	1993	1988	1989	1990	1992	1993	1988	1989	1990	1992	1993	Mean 88–92
07/09	0	0 m	0 c		0											
07/10	0	0	0		0											
07/11	0 c	0 c	0		0											
07/12	1 w	0	0		2											
07/13	1 w	0	0		0											
07/14	0 c	0 c	0 c		10											
07/15	2	0	0		8											
07/16	0	5	0		7											
07/17	4	7 h	0		20											
07/18	3 c	7 c	7		0											
07/19	2	7 h	7		13											
07/20	11	7 h	7		39											
07/21	79 c	7 h	3		79											
07/22	79 h	8	2 h		77											
07/23	79 h	12	0		114											
07/24	79 h	0	7		87 h											
07/25	79 c	0	19		60 h											
07/26	79 h	4	83		33											
07/27	79 h	10 c	63	27	59 h	79 h	10 c	63	27	59 h	3	0	1	0	2	1
07/28	79 c	17	27	76	84 h	159 c	27	90	103	143 h	5	1	2	2	5	2
07/29	147	16	40	135	110 h	306	43	130	238	253 h	10	1	3	4	9	4
07/30	335	157 w	17	191	135	641	199 w	147	429	388	20	7	3	7	14	9
07/31	60	298	33	142	130 c	701	497	180	571	518 c	22	16	4	9	19	13
08/01	140 c	105	24 c	238	124 w	841 c	602	204 c	809	643 w	27	20	4	13	23	16
08/02	220	151	15	114	119 w	1060	753	218	923	761 w	33	25	4	15	28	19
08/03	209	137 c	107	77 c	113 w	1270	890 c	325	1000 c	875 w	40	29	6	16	32	23
08/04	130 c	123	121	40	108 c	1400 c	1013	446	1040	983 c	44	33	9	17	36	26
08/05	130 w	56	736	59	102 w	1530 w	1069	1182	1099	1085 w	48	35	23	18	39	31
08/06	50	133	512 c	623 c	97 c	1580	1202	1694 c	1722 c	1182 c	50	39	33	28	43	38
08/07	127	240 c	287	1186	91	1707	1442 c	1981	2908	1273	54	47	39	47	46	47
08/08	111 c	347	253	69	96	1818 c	1790	2234	2977	1369	57	59	44	49	50	52
08/09	111 w	208 c	161	148 w	54 c	1929 w	1998 c	2395	3124 w	1423 c	61	65	47	51	52	56
08/10	111 c	69	241 c	148 w	152	2040 c	2067	2635 c	3272 w	1575	64	68	51	53	57	59
08/11	111 w	78 w	241 w	148 c	139	2151 w	2145 w	2876 w	3420 c	1714	68	70	56	56	62	62
08/12	111 c	78 c	320	227	287	2262 c	2222 c	3196	3647	2002	71	73	62	60	73	66
08/13	95	86	181 c	162	211	2357	2308	3377 c	3809	2213	74	76	66	62	80	69
08/14	56 w	35	42	227 c	156 c	2413 w	2344	3419	4036 c	2369 c	76	77	67	66	86	71
08/15	56 c	32 c	267	292	102 w	2470 c	2376 c	3685	4328	2471 w	78	78	72	71	90	75
08/16	18	29	178 c	493	47	2488	2405	3863 c	4821	2518	79	79	75	79	91	78
08/17	29	8	178 w	380 c	28 c	2517	2413	4041 w	5201 c	2547 c	79	79	79	85	92	81
08/18	64 c	71 c	89	268	10	2581 c	2484 c	4130	5469	2557	81	81	81	89	93	83
08/19	64 m	135	254	163 w	15 w	2645 m	2619	4384	5631 w	2571 w	84	86	85	92	93	87
08/20	64 c	199	151 c	163 c	19 w	2710 c	2818	4534 c	5794 c	2590 w	86	92	88	95	94	90
08/21	99	104	47 w	58	24 c	2809	2922	4582 w	5852	2614 c	89	96	89	96	95	92
08/22	93	8	47 w	59	29	2902	2930	4629 w	5911	2643	92	96	90	97	96	94
08/23	80	17 c	47 w	59	13	2981	2947 c	4676 w	5970	2656	94	96	91	97	96	95
08/24	48	27	47	34 c	26	3029	2974	4724	6004 c	2682	96	97	92	98	97	96
08/25	20	16	65 w	34 w	20 c	3050	2990	4788 w	6038 w	2702 c	96	98	93	99	98	97
08/26	17	21 c	82	8	15	3067	3011 c	4870	6046	2718	97	99	95	99	99	97
08/27	18 c	26	91 c	12 c	14	3085 c	3037	4961 c	6057 c	2732	97	99	97	99	99	98
08/28	19	8	101	17	12 c	3104	3045	5062	6074	2744 c	98	100	99	99	99	99
08/29	39	6 c	66	22	10	3143	3051 c	5128	6096	2754	99	100	100	100	100	100
08/30	25	4		29	2	3168	3056	5128	6125	2755	100	100	100	100	100	100
08/31	c			c	3	3168 c	3056	5128	6125 c	2759	100	100	100	100	100	100

"c" CPUE is estimated; no test fishing due to commercial fishing period.
"m" CPUE is estimated; no test fishing due to mechanical problems.
"o" CPUE is estimated; no test fishing due to reasons other than those described.
"w" CPUE is estimated; no test fishing due to hazardous weather conditions.

Appendix B.5. Historic daily CPUE for chum salmon catches in the Eek test fishery.

Date	Daily CPUE				Cumulative CPUE (begin 6/7)				Percent Passage				
	1988	1989	1990	1993	1988	1989	1990	1993	1988	1989	1990	1993	Mean 88–90
06/01			2	0									
06/02			0	0									
06/03			2	0									
06/04		w	0	4		w							
06/05		0	1	0									
06/06		17	2	3									
06/07	0	2	2	2	0	2	0	2	0	0	0	0	0
06/08	28	26	10	0	28	28	10	2	0	1	0	0	1
06/09	68	33	6	0	96	61	16	2	2	2	0	0	1
06/10	19	22	2	3	115	82	18	5	2	3	0	0	2
06/11	39	10	13	14	154	92	31	19	2	3	1	1	2
06/12	7	41	14	12	161	133	45	31	3	5	1	2	3
06/13	42	31	15	20	203	164	60	51	3	6	2	3	4
06/14	131	38	21	10	333	202	81	61	5	8	2	4	5
06/15	239	23	27	3	572	225	107	64	9	9	3	4	7
06/16	147 c	116	55	6	719 c	340	162	70	11	13	4	4	10
06/17	55	46	44	23	775	386	207	93	12	15	6	5	11
06/18	77 w	110	14	34	852 w	496	221	127	13	19	6	7	13
06/19	77 m	101 c	5	32	930 m	597 c	226	158	15	23	6	9	14
06/20	77 c	92	52 c	12	1007 c	689	278 c	171	16	26	7	10	16
06/21	100	90	98	28	1107	779	376	199	17	30	10	12	19
06/22	142	278	78 w	13	1248	1057	454 w	212	20	40	12	12	24
06/23	948	204 c	59	66	2196	126[illegible] c	513	278	35	48	14	16	32
06/24	555 c	131	54	112	2751 c	1392	567	391	43	53	15	23	37
06/25	162	78	75 c	98 c	2913	1470	642 c	489 c	46	56	17	28	40
06/26	166	73 c	97	84 w	3079	1543 c	739	573 w	48	59	20	33	42
06/27	169	69	77	69	3248	1612	816	641	51	61	22	37	45
06/28	124 c	25	18	52	3372 c	1637	834	693	53	62	22	40	46
06/29	78	320	36 c	57	3450	1957	870 c	750	54	74	23	44	51
06/30	199	181 c	54	28	3649	2138 c	924	778	57	81	25	45	54
07/01	198	42	89	12	3848	2179	1014	790	61	83	27	46	57
07/02	211 c	39	73	129	4059 c	2218	1086	919	64	84	29	53	59
07/03	223	44 c	12	55	4282	2262 c	1098	975	67	86	29	57	61
07/04	153 h	44 h	105	33	4435 h	2306 h	1203	1007	70	88	32	59	63
07/05	153 c	44 c	99 c	27	4588 c	2350 c	1301 c	1034	72	89	35	60	65
07/06	95	47	93	131	4683	2397	1394	1164	74	91	37	68	67
07/07	181	21	185	50	4863	2418	1580	1214	77	92	42	71	70
07/08	134 c	35 c	95	19	4998 c	2453 c	1674	1234	79	93	45	72	72
07/09	88	35 m	125 c	22	5085	2488 m	1799 c	1255	80	94	48	73	74
07/10	204	49	155	33	5289	2537	1954	1288	83	96	52	75	77
07/11	124 c	25 c	340	24	5413 c	2562 c	2293	1313	85	97	61	76	81
07/12	124 w	2	369	60	5537 w	2564	2662	1372	87	97	71	80	85
07/13	124 w	12	144	10	5661 w	2577	2806	1382	89	98	75	80	87
07/14	124 c	6 c	157 c	41	5785 c	2583 c	2962 c	1423	91	98	79	83	89
07/15	43	0	170	43	5829	2583	3132	1466	92	98	84	85	91
07/16	41	0	108	23	5870	2583	3240	1489	92	98	87	87	92
07/17	54	0 h	92	51	5924	2583 h	3332	1540	93	98	89	90	93
07/18	35 c	0 c	104	33	5959 c	2583 c	3436	1573	94	98	92	91	95
07/19	16	0 h	67	13	5975	2583 h	3503	1586	94	98	94	92	95
07/20	38	0 h	31	7	6014	2583 h	3534	1592	95	98	95	93	96
07/21	34 c	0 h	25	16	6048 c	2583 h	3559	1608	95	98	95	94	96
07/22	34 h	0	36 h	32	6081 h	2583	3595 h	1640	96	98	96	95	97
07/23	34 h	12	47	29	6115 h	2595	3641	1669	96	98	98	97	97
07/24	34 h	2	20	19 h	6149 h	2597	3661	1688 h	97	99	98	98	98
07/25	34 c	2	6	10 h	6183 c	2599	3668	1698 h	97	99	98	99	98
07/26	34 h	0	6	0	6217 h	2599	3674	1698	98	99	98	99	98
07/27	34 h	0 c	13	1 h	6251 h	2599 c	3687	1699 h	98	99	99	99	99
07/28	34 c	0	0	2 h	6285 c	2599	3687	1700 h	99	99	99	99	99
07/29	30	2	27	2 h	6315	2601	3713	1702 h	99	99	99	99	99
07/30	11	1 w	0	3	6326	2602 w	3713	1705	100	99	99	99	99
07/31	4	0	4	3 c	6330	2602	3717	1708 c	100	99	100	99	99

–Continued–

Appendix B.5. (page 2 of 2)

Date	Daily CPUE				Cumulative CPUE (begin 6/7)				Percent Passage				
	1988	1989	1990	1993	1988	1989	1990	1993	1988	1989	1990	1993	Mean 88–90
08/01	3 c	0	2 c	3 w	6333 c	2602	3719 c	1711 w	100	99	100	99	99
08/02	2	5	0	2 w	6335	2607	3719	1713 w	100	99	100	100	99
08/03	9	3 c	7	2 w	6344	2610 c	3726	1715 w	100	99	100	100	100
08/04	4 c	0	7	1 c	6348 c	2610	3733	1716 c	100	99	100	100	100
08/05	4 w	3	0	1 w	6353 w	2612	3733	1717 w	100	99	100	100	100
08/06	0	3	0 c	0 c	6353	2615	3733 c	1717 c	100	99	100	100	100
08/07	0	1 c	0	0	6353	2617 c	3733	1717	100	99	100	100	100
08/08	0 c	0	0	0	6353 c	2617	3733	1717	100	99	100	100	100
08/09	0 w	1 c	0	0 c	6353 w	2618 c	3733	1717 c	100	99	100	100	100
08/10	0 c	2	0 c	1	6353 c	2620	3733 c	1719	100	99	100	100	100
08/11	0 w	1 w	0 w	1	6353 w	2621 w	3733 w	1720	100	99	100	100	100
08/12	0 c	1 c	0	0	6353 c	2622 c	3733	1720	100	100	100	100	100
08/13	0	0	0 c	0	6353	2622	3733 c	1720	100	100	100	100	100
08/14	0 w	0	0	0 c	6353 w	2622	3733	1720 c	100	100	100	100	100
08/15	0 c	0 c	0	0 w	6353 c	2622 c	3733	1720 w	100	100	100	100	100
08/16	0	0	0 c	0	6353	2622	3733 c	1720	100	100	100	100	100
08/17	0	0	0 w	0 c	6353	2622	3733 w	1720 c	100	100	100	100	100
08/18	0 c	0 c	0	0	6353 c	2622 c	3733	1720	100	100	100	100	100
08/19	0 m	0	0	0 w	6353 m	2622	3733	1720 w	100	100	100	100	100
08/20	0 c	0	0 c	0 w	6353 c	2622	3733 c	1720 w	100	100	100	100	100
08/21	0	0	0 w	0 c	6353	2622	3733 w	1720 c	100	100	100	100	100
08/22	0	0	0 w	0	6353	2622	3733 w	1720	100	100	100	100	100
08/23	0	0 c	0 w	0	6353	2622 c	3733 w	1720	100	100	100	100	100
08/24	0	0	0	0	6353	2622	3733	1720	100	100	100	100	100
08/25	0	0	0 w	0 c	6353	2622	3733 w	1720 c	100	100	100	100	100
08/26	2	4 c	0	0	6355	2627 c	3733	1720	100	100	100	100	100
08/27	1 c	8	0 c	0	6356 c	2635	3733 c	1720	100	100	100	100	100
08/28	0	0	0	0 c	6356	2635	3733	1720 c	100	100	100	100	100
08/29	0	0 c	0	0	6356	2635 c	3733	1720	100	100	100	100	100
08/30		0		0	6356	2635	3733	1720	100	100	100	100	100
08/31	c			0	6356 c	2635	3733	1720	100	100	100	100	100

"c" CPUE is estimated; no test fishing due to commercial fishing period.
"m" CPUE is estimated; no test fishing due to mechanical problems.
"o" CPUE is estimated; no test fishing due to reasons other than those described.
"w" CPUE is estimated; no test fishing due to hazardous weather conditions.

Appendix B.6. Historic daily CPUE for chinook salmon catches in the Bethel test fishery. Years during which escapement objectives were not achieved at Kogrukluk weir and/or the Kuskokwim River drainage index are noted in parentheses.

	Daily CPUE									Cumulative CPUE									Percent Passage (through August)									
	(1985)	(1986)	(1987)	(1988)	1989	1990	(1991)	(1992)	1993	(1985)	(1986)	(1987)	(1988)	1989	1990	(1991)	(1992)	1993	(1985)	(1986)	(1987)	(1988)	1989	1990	(1991)	(1992)	1993	Mean 85–92
05/30	0									0																		
05/31	0									0																		
06/01	0				0	0		0	3	0				0	0		0	3	0	0	0	0	0	0	0	0	1	0
06/02	0			3	0	2	0	0	4	0			3	0	2	0	0	7	0	0	0	1	0	0	0	0	1	0
06/03	0	0		0	0	0	0	0	10	0	0		3	0	2	0	0	17	0	0	0	1	0	0	0	0	4	0
06/04	0	3	0	0	0	1	0	0	3	0	3	0	3	0	3	0	0	20	0	1	0	1	0	1	0	0	4	0
06/05	0	1	5	2	0	1	1	0	8	0	4	5	5	0	4	1	0	28	0	2	1	1	0	1	1	0	6	1
06/06	0	1	3	0	0	1	3	2	11	0	6	8	5	0	6	4	2	39	0	3	1	1	0	1	2	0	8	1
06/07	0	5	5	3	2	3	6	0	5	0	10	13	8	2	8	10	2	45	0	5	2	2	0	2	6	0	9	2
06/08	0	0	16	22	7	4	2	3	8	0	10	29	30	8	13	11	5	52	0	5	5	8	2	3	7	1	11	4
06/09	0	1	9	14	9	5	1	6	29	0	12	38	44	17	17	13	11	81	0	6	7	12	3	4	7	3	17	5
06/10	0	0	20	5	15	8	0	7	16	0	12	59	49	32	25	13	18	97	0	6	10	14	6	6	7	5	20	7
06/11	0	0	18	21	4	14	3	21	3	0	12	77	71	36	39	16	39	100	0	6	13	20	7	9	9	11	21	9
06/12	0	0	22	18	9	14	0	22	20	0	12	98	89	45	53	16	61	120	0	6	17	25	9	12	9	17	25	12
06/13	0	0	13	11	11	6	2	21	14	0	12	112	100	56	58	17	82	134	0	6	19	28	11	13	10	23	28	14
06/14	0	1	21	3	27	2	2	18	10	0	13	133	103	83	61	19	100	143	0	6	23	29	16	14	11	29	30	16
06/15	0	9	10	8	19	9	1	11	22	0	22	143	111	102	69	20	111	166	0	11	25	31	20	16	12	32	35	18
06/16	0	20	11	8 c	7	11	3	21	17	0	42	154	119 c	109	81	23	132	182	0	21	26	33	21	18	13	38	39	21
06/17	0	14	54	21	21	6	3	24	37	0	56	208	140	130	87	26	156	220	0	28	36	39	25	20	15	45	46	26
06/18	0	4	14 c	7	35	13	12	9 c	30	0	59	222 c	147	165	100	38	165 c	250	0	30	38	41	32	23	22	47	53	29
06/19	0	15	13	13	19 c	26	6	5	29	0	74	235	160	185 c	126	43	170	279	0	37	40	44	35	28	25	49	59	32
06/20	1 c	3	18	25 c	16	9 c	15 c	9	30	1 c	77	253	185 c	201	135 c	59 c	179	309	1	38	44	51	36	30	34	51	65	3c
06/21	7	17	23	16	14	12	6	9	27	8	94	277	201	215	146	64	188	336	7	47	48	56	41	33	37	54	71	40
06/22	0	15	30	13	17	19	4	0 c	31	8	109	306	214	231	165	68	188 c	367	7	54	53	59	44	37	40	54	78	44
06/23	3	14	26	16	23 c	9	6	6	13	11	123	333	231	255 c	174	74	194	380	9	61	57	64	49	39	43	56	80	47
06/24	0 c	13	9 c	21 c	21	24	6 c	14	21	11 c	136	342 c	252 c	276	198	80 c	208	401	9	68	59	70	53	45	46	60	85	51
06/25	4	1	38	8	26	34 c	7	12 c	8 c	15	138	379	260	302	232 c	87	220 c	409 c	13	68	65	72	58	52	51	63	86	55
06/26	0	5 c	20	10	48 c	31	4	11	2	15	143 c	400	270	350 c	263	91	230	410	13	71	69	75	67	59	53	66	87	59
06/27	3 c	8	25	14	50	13	2	9	5	18 c	151	425	284	401	276	93	239	416	15	75	73	79	77	62	54	69	88	63
06/28	8	0	15	5 c	11	25	7	13	5	26	151	440	289 c	412	301	99	252	420	23	75	76	80	79	68	58	72	89	66
06/29	9	3	18	3	3	21 c	16	11 c	7	35	154	458	292	415	322 c	116	263 c	427	30	76	79	81	79	73	67	75	90	70
06/30	4	3 c	12 c	3	22 c	0	9	6	12	38	156 c	471 c	295	437 c	322	125	268	440	34	78	81	82	83	73	72	77	93	72
07/01	12 c	7	15	12	11	2	9 c	11	3	51 c	163	486	307	448	324	133 c	279	443	44	81	83	85	86	73	77	80	94	76
07/02	1	6	9	1 c	3	9	8	6	4	52	169	495	308 c	451	333	141	285	446	45	84	85	85	86	75	82	82	94	78
07/03	9	7 c	3 c	5	9 c	17	6	7	3	60	176 c	498 c	313	461 c	350	147	293	450	53	87	86	87	88	79	86	84	95	81
07/04	6 c	3	8	5	7	20	6	10	3	67 c	179	506	318	468	370	153	303	453	59	89	87	88	89	83	89	87	96	84
07/05	9	3	7	8 c	10 c	5 c	1	3	0	76	182	513	326 c	477 c	375 c	154	306	453	67	90	88	90	91	85	90	88	96	86
07/06	8	1	9	0	2	6	2 c	0 c	0	85	183	522	326	479	381	156 c	306 c	453	74	91	90	90	92	86	91	88	96	88
07/07	3	1 c	15 c	0	9	8	3	0	2	87	184 c	537 c	326	488	388	159	306	455	77	92	92	90	93	88	92	88	96	89
07/08	5	4	0	0 c	4 c	14	2	3	2	93	189	537	326 c	492 c	403	160	309	457	81	94	92	90	94	91	93	89	97	91
07/09	5	3	1	0	5	5 c	0	0	4	98	191	538	326	496	408 c	160	309	461	86	95	92	90	95	92	93	89	98	92
07/10	1	0 c	3	0	4	0	2	3	2	99	191 c	541	326	500	408	162	313	464	87	95	93	90	96	92	94	90	98	92
07/11	2	2	2 c	0 c	0 c	0	0	4	2	102	193	543 c	326 c	500 c	408	162	317	466	89	96	93	90	96	92	94	91	99	93
07/12	1	0	2	0	1	4	0	4	2	103	193	545	326	501	411	162	321	468	90	96	94	90	96	93	94	92	99	93
07/13	1	0	2	0	0	2	2 c	4	0	105	193	548	326	501	414	163 c	325	468	92	96	94	90	96	93	95	93	99	94
07/14	0	1	1	8 c	0 c	2 c	1	0	0	105	194	549	334 c	501 c	416 c	165	325	468	92	97	94	92	96	94	96	93	99	94
07/15	2	0	0 c	0	0	2	1	0	0	106	194	549 c	334	501	418	166	325	468	93	97	94	92	96	94	97	93	99	95

–Continued–

Appendix B.6. (page 2 of 2)

Date	Daily CPUE									Cumulative CPUE									Percent Passage (through August)									
	(1985)	(1986)	(1987)	(1988)	1989	1990	(1991)	(1992)	1993	(1985)	(1986)	(1987)	(1988)	1989	1990	(1991)	(1992)	1993	(1985)	(1986)	(1987)	(1988)	1989	1990	(1991)	(1992)	1993	Mean 85–92
07/16	0	0	0	8	0	2	2	4	0	106	194	549	341	501	420	168	329	468	93	97	94	95	96	95	98	95	99	95
07/17	1	0	3	6	1	2	0	5	2	107	194	551	347	503	422	168	335	470	94	97	95	96	96	95	98	96	100	96
07/18	0	0	0	2 c	2 c	0	2 c	6	0	107	194	551	349 c	504 c	422	170 c	341	470	94	97	95	97	96	95	99	98	100	96
07/19	0	0	14	0	1	0	2	3	2	107	194	566	349	505	422	172	344	473	94	97	97	97	97	95	100	99	100	97
07/20	0	0	1 c	0	5	0	0	0	0	107	194	567 c	349	510	422	172	344	473	94	97	97	97	98	95	100	99	100	97
07/21	0	2	2	0 c	1	0	0	0	0	107	196	569	349 c	511	422	172	344	473	94	98	98	97	98	95	100	99	100	97
07/22	0	2	0	0	6	4	0 c	0	0	107	198	569	349	518	425	172 c	344	473	94	99	98	97	99	96	100	99	100	98
07/23	0	0	3	0	0	0	0	0	0	107	198	572	349	518	425	172	344	473	94	99	98	97	99	96	100	99	100	98
07/24	0	3	0	1	0	2	0	0	0	107	201	572	350	518	427	172	344	473	94	100	98	97	99	96	100	99	100	98
07/25	0	0	0	0 c	0	0	0 c	0	0	107	201	572	350 c	518	427	172 c	344	473	94	100	98	97	99	96	100	99	100	98
07/26	0	0	0	2	0	4	0	0	0	107	201	572	352	518	431	172	344	473	94	100	98	98	99	97	100	99	100	98
07/27	2	0	4	2	0 c	0	0	0	0	109	201	577	354	518 c	431	172	344	473	96	100	99	98	99	97	100	99	100	99
07/28	0	0	0	0 c	0	2	0	0	0	109	201	577	354 c	518	433	172	344	473	96	100	99	98	99	98	100	99	100	99
07/29	2	0	0	0	0	4	0 c	0	0	111	201	577	354	518	438	172 c	344	473	97	100	99	98	99	99	100	99	100	99
07/30	0	0	0	4	0	0	0	0	0	111	201	577	358	518	438	172	344	473	97	100	99	99	99	99	100	99	100	99
07/31	0	0 c	0	0	0	0	0	0	0 c	111	201 c	577	358	518	438	172	344	473 c	97	100	99	99	99	99	100	99	100	99
08/01	0	0	0	0 c	0	0 c	0 c	0	0	111	201	577	358 c	518	438 c	172 c	344	473	97	100	99	99	99	99	100	99	100	99
08/02	0 c	0	0	0	1	0	0	0	0	111 c	201	577	358	519	438	172	344	473	97	100	99	99	99	99	100	99	100	99
08/03	0	0	1	0	0 c	0	0	0 c	0	111	201	578	358	519 c	438	172	344 c	473	97	100	99	99	99	99	100	99	100	99
08/04	0	0 c	0	0 c	0	0	0	0	0 c	111	201 c	578	358 c	519	438	172	344	473 c	97	100	99	99	99	99	100	99	100	99
08/05	0 c	0	0	0	0	0	0 c	0	0	111 c	201	578	358	519	438	172 c	344	473	97	100	99	99	99	99	100	99	100	99
08/06	0	0	0	0	0	2 c	0	0 c	0 c	111	201	578	358	519	439 c	172	344 c	473 c	97	100	99	99	99	99	100	99	100	[illegible]
08/07	0	0 c	2	0	0 c	0	0	2	0	111	201 c	580	358	519 c	439	172	347	473	97	100	100	99	99	99	100	99	100	99
08/08	2 c	0	0 c	0 c	0	0	0 c	0	0	113 c	201	580 c	358 c	519	439	172 c	347	473	99	100	100	99	99	99	100	99	100	99
08/09	0	0	0	0	1 c	0	0	0	0 c	113	201	580	358	520 c	439	172	347	473 c	99	100	100	99	99	99	100	99	100	99
08/10	0	0	0	0 c	0	2 c	0	0	0	113	201	580	358 c	520	441 c	172	347	473	99	100	100	99	99	100	100	99	100	100
08/11	0	0 c	2	3	0	0	0	0 c	0	113	201 c	582	361	520	441	172	347 c	473	99	100	100	100	99	100	100	99	100	100
08/12	0 c	0	0	0 c	0 c	0	0 c	0	0	113 c	201	582	361 c	520 c	441	172 c	347	473	99	100	100	100	99	100	100	99	100	100
08/13	0	0 c	0 c	0	2	0 c	0	0	0	113	201 c	582 c	361	522	441 c	172	347	473	99	100	100	100	100	100	100	99	100	100
08/14	0	0	0	0	0	0	0 c	0 c	0 c	113	201	582	361	522	441	172 c	347 c	473 c	99	100	100	100	100	100	100	99	100	100
08/15	0 c	0 c	0	0 c	0 c	2	0	0	0	113 c	201 c	582	361 c	522 c	443	172	347	473	99	100	100	100	100	100	100	99	100	100
08/16	0	0	0	0	0	0 c	0	0	0	113	201	582	361	522	443 c	172	347	473	99	100	100	100	100	100	100	99	100	100
08/17	0	0	0 c	0	0	0	0	0 c	0 c	113	201	582 c	361	522	443	172	347 c	473 c	99	100	100	100	100	100	100	99	100	100
08/18	0	0 c	0	0 c	0 c	0	0	0	0	113	201 c	582	361 c	522 c	443	172	347	473	99	100	100	100	100	100	100	99	100	100
08/19	0 c	0	0 c	0	0	0	0 c	2	0	113 c	201	582 c	361	522	443	172 c	349	473	99	100	100	100	100	100	100	100	100	100
08/20	1	0	0	0 c	2	0 c	0	0 c	0	114	201	582	361 c	523	443 c	172	349 c	473	100	100	100	100	100	100	100	100	100	100
08/21	0	0 c	0 c	0	0	0	0	0	0 c	114	201 c	582 c	361	523	443	172	349	473 c	100	100	100	100	100	100	100	100	100	100
08/22	0 c	0	0	0	0	0	0	0	0	114 c	201	582	361	523	443	172	349	473	100	100	100	100	100	100	100	100	100	100
08/23	0	0	0	0	0 c	0	0	0	0	114	201	582	361	523 c	443	172	349	473	100	100	100	100	100	100	100	100	100	100
08/24	0	0	0 c	0	0	0	0	0 c	0	114	201	582 c	361	523	443	172	349 c	473	100	100	100	100	100	100	100	100	100	100
08/25	0	0 c	0	0	0	0	0	0	0 c	114	201 c	582	361	523	443	172	349	473 c	100	100	100	100	100	100	100	100	100	100
08/26	0 c	0	0	0	0 c	2	0 c	0	0	114 c	201	582	361	523 c	445	172 c	349	473	100	100	100	100	100	100	100	100	100	100
08/27	0	0	0 c	0 c	0	0 c	0	0 c	0	114	201	582 c	361 c	523	445 c	172	349 c	473	100	100	100	100	100	100	100	100	100	100
08/28	0	0 c	0	0	0	0	0	0	0 c	114	201 c	582	361	523	445	172	349	473 c	100	100	100	100	100	100	100	100	100	100
08/29	0 c		0	0	0 c	0	0	0	0	114 c		582	361	523 c	445	172	349	473	100	100	100	100	100	100	100	100	100	100
08/30	0		0		0	0	0	0	0	114		582		523	445	172	349	473	100	100	100	100	100	100	100	100	100	100
08/31			0 c	c	0	0	0	0 c	0			582 c	c	523	445	172	349 c	473	100	100	100	100	100	100	100	100	100	100
09/01		c	0		c				c		c	582		c				c										

"c" indicates days when commercial fishing periods occured in District 1

Appendix B.7. Historic daily CPUE for sockeye salmon catches in the Bethel test fishery.

Date	Daily CPUE									Cumulative CPUE									Percent Passage (through August)									
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1985	1986	1987	1988	1989	1990	1991	1992	1993	1985	1986	1987	1988	1989	1990	1991	1992	1993	Mean 85–92
05/30	0									0																		
05/31	0									0																		
06/01	0				0	0		0	0	0				0	0		0	0	0	0	0	0	0	0	0	0	0	0
06/02	0			0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/03	0	0		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/04	0	0	6	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/05	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/06	0	0	3	0	3	0	0	0	0	0	0	9	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/07	0	6	9	0	0	0	0	0	0	0	6	18	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0
06/08	0	8	17	12	0	0	0	0	3	0	14	35	12	3	0	0	0	3	0	1	1	1	0	0	0	0	0	0
06/09	0	13	13	14	3	0	0	0	3	0	27	48	27	6	0	0	0	6	0	1	2	2	1	0	0	0	0	1
06/10	0	3	16	12	3	0	0	0	0	0	30	64	38	9	0	0	0	6	0	1	2	3	1	0	0	0	0	1
06/11	0	21	16	43	20	8	0	0	7	0	50	80	82	29	8	0	0	14	0	2	3	5	4	1	0	0	1	2
06/12	0	6	112	62	12	3	0	0	6	0	56	191	143	40	11	0	0	20	0	2	7	10	5	1	0	0	1	3
06/13	0	11	49	47	11	0	3	9	31	0	68	240	191	51	11	3	9	50	0	3	9	13	6	1	0	1	3	4
06/14	0	6	9	14	27	16	3	13	7	0	73	249	205	78	27	6	22	57	0	3	9	14	10	2	1	2	3	5
06/15	0	48	42	9	24	14	3	13	3	0	121	290	214	102	41	9	35	60	0	5	11	14	13	4	1	3	4	6
06/16	0	102	168	7 c	15	20	0	14	23	0	223	458	221 c	117	60	9	49	83	0	9	17	15	15	5	1	4	5	8
06/17	0	49	252	26	15	63	12	48	66	0	273	710	247	132	123	21	97	149	0	11	26	16	17	11	4	9	9	12
06/18	3	79	69 c	48	46	16	51	45 c	41	3	352	779 c	296	178	139	71	142 c	190	0	14	28	20	22	12	12	13	11	15
06/19	13	119	17	98	28 c	38	11	9	16	16	471	796	394	207 c	177	83	151	207	1	19	29	26	26	16	14	14	12	18
06/20	0 c	34	47	26 c	19	31 c	39	15	63	16 c	505	843	419 c	226	207 c	122 c	167	269	1	21	31	28	28	19	21	15	16	20
06/21	12	145	76	135	53	15	9	28	136	28	650	919	554	278	222	130	194	406	2	27	33	37	35	20	22	18	24	24
06/22	11	169	166	135	58	14	43	36 c	46	40	819	1085	690	336	236	173	230 c	451	2	34	39	46	42	21	30	21	26	29
06/23	97	63	355	117	36 c	77	17	39	54	137	882	1440	807	372 c	313	190	269	506	8	36	52	54	47	28	33	24	30	35
06/24	0 c	33	142 c	63 c	40	60	6	67	90	137 c	915	1582 c	869 c	412	374	196 c	336	596	8	37	57	58	52	34	34	30	35	39
06/25	135	226	49	29	83	91 c	9	96 c	110 c	272	1141	1631	898	495	464 c	204	432 c	705 c	16	47	59	60	62	42	35	39	41	45
06/26	128	198 c	62	115	26 c	25	6	19	23	400	1339 c	1693	1013	521 c	489	210	451	728	24	55	61	68	65	44	36	41	43	49
06/27	126 c	202	34	69	53	43	21	49	21	526 c	1541	1727	1082	574	532	231	499	749	32	63	63	72	72	48	40	45	44	54
06/28	117	138	41	42 c	40	90	39	141	25	643	1679	1768	1124 c	614	622	270	640	774	39	69	64	75	77	56	46	58	45	60
06/29	256	20	37	9	35	104 c	25	108 c	62	899	1699	1805	1133	648	726 c	295	748 c	836	54	70	65	76	81	65	51	68	49	66
06/30	150	221 c	164 c	45	40 c	6	20	71	428	1049	1920 c	1969 c	1176	688 c	732	315	819	1264	63	79	71	78	86	66	54	74	74	71
07/01	190 c	15	241	91	13	24	28	35	117	1239 c	1935	2211	1269	702	756	343 c	854	1380	75	79	80	85	88	68	59	77	81	76
07/02	54	98	63	28 c	11	24	35	36	55	1293	2032	2273	1297 c	713	780	378	890	1435	78	83	82	86	89	70	65	80	84	79
07/03	68	85 c	36 c	32	22 c	65	62	78	14	1361	2117 c	2309 c	1329	736 c	845	440	967	1449	82	87	84	89	92	76	76	87	85	84
07/04	33 c	32	124	54	1	96	36	22	57	1394 c	2149	2433	1383	737	941	476	989	1505	84	88	88	92	92	84	82	89	88	88
07/05	45	42	166	45 c	5 c	22 c	38	6	10	1439	2191	2599	1428 c	742 c	963 c	514	995	1515	87	90	94	95	93	86	89	90	89	90
07/06	56	33	12	17	3	3	7	12 c	32	1495	2224	2611	1445	745	966	521 c	1008 c	1546	90	91	95	96	93	87	90	91	91	92
07/07	58	74 c	44 c	11	13	23	7	0	20	1553	2298 c	2655 c	1456	759	988	528	1008	1566	94	94	96	97	95	89	91	91	92	93
07/08	3	21	6	13 c	15 c	38	0	13	58	1556	2319	2662	1469 c	774 c	1027	528	1020	1625	94	95	96	98	97	92	91	92	95	94
07/09	23	11	30	10	3	29 c	27	3	6	1579	2330	2691	1478	777	1055 c	555	1024	1631	95	95	98	99	97	95	96	92	96	96
07/10	6	2 c	30	5	0	14	6	4	4	1584	2332 c	2722	1483	777	1069	561	1028	1635	96	95	99	99	97	96	97	93	96	96
07/11	12	9	4 c	4 c	2 c	6	3	7	4	1597	2341	2726 c	1488 c	779 c	1076	563	1034	1639	97	96	99	99	98	97	97	93	96	97
07/12	6	23	3	0	5	4	3	6	0	1603	2365	2729	1488	784	1080	566	1040	1639	97	97	99	99	98	97	98	94	96	97
07/13	5	17	7	0	4	8	3	19	21	1607	2382	2736	1488	788	1088	569 c	1059	1660	97	97	99	99	99	98	98	96	97	98
07/14	2	13	5	3 c	0 c	6 c	3	23	30	1609	2395	2741	1491 c	788 c	1093 c	572	1082	1690	97	98	99	99	99	98	99	98	99	98
07/15	0	2	3 c	2	0	8	3	4	9	1609	2397	2744 c	1492	788	1102	575	1086	1698	97	98	99	99	99	99	99	98	100	99

–Continued–

Appendix B.7. (page 2 of 2)

Date	Daily CPUE									Cumulative CPUE									Percent Passage (through August)									
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1985	1986	1987	1988	1989	1990	1991	1992	1993	1985	1986	1987	1988	1989	1990	1991	1992	1993	Mean 85–92
07/16	9	8	0	0	8	4	0	10	2	1619	2404	2744	1492	795	1106	575	1097	1700	98	98	99	99	100	99	99	99	100	99
07/17	4	6	2	3	1	0	2	4	0	1622	2411	2746	1496	797	1106	577	1101	1700	98	99	100	100	100	99	99	99	100	99
07/18	4	3	0	2 c	1 c	0	0	6	0	1626	2414	2746	1498 c	798 c	1106	577 c	1107	1700	98	99	100	100	100	99	99	100	100	99
07/19	3	4	6	0	1	2	0	0	0	1629	2418	2752	1498	799	1108	577	1107	1700	98	99	100	100	100	99	99	100	100	99
07/20	5	4	3 c	0	0	0	0	0	0	1635	2421	2755 c	1498	799	1108	577	1107	1700	99	99	100	100	100	99	99	100	100	100
07/21	5	7	0	0 c	0	0	0	0	2	1639	2428	2755	1498 c	799	1108	577	1107	1703	99	99	100	100	100	99	99	100	100	100
07/22	8	3	0	1	0	0	2	0	2	1648	2431	2755	1499	799	1108	579 c	1107	1705	100	99	100	100	100	99	100	100	100	100
07/23	3	3	0	0	0	0	2	0	0	1651	2434	2755	1499	799	1108	581	1107	1705	100	100	100	100	100	99	100	100	100	100
07/24	0	0	0	1	0	0	0	0	0	1651	2434	2755	1500	799	1108	581	1107	1705	100	100	100	100	100	99	100	100	100	100
07/25	0	0	0	0 c	0	0	0	0	0	1651	2434	2755	1500 c	799	1108	581 c	1107	1705	100	100	100	100	100	99	100	100	100	100
07/26	2	0	0	0	0	0	0	0	0	1653	2434	2755	1500	799	1108	581	1107	1705	100	100	100	100	100	99	100	100	100	100
07/27	0	1	0	0	0 c	0	0	0	0	1653	2435	2755	1500	799 c	1108	581	1107	1705	100	100	100	100	100	99	100	100	100	100
07/28	0	0	0	0 c	0	2	0	0	0	1653	2435	2755	1500 c	799	1109	581	1107	1705	100	100	100	100	100	100	100	100	100	100
07/29	0	2	0	0	0	0	0	0	0	1653	2437	2755	1500	799	1109	581 c	1107	1705	100	100	100	100	100	100	100	100	100	100
07/30	0	2	0	0	0	1	0	0	0	1653	2439	2755	1500	799	1111	581	1107	1705	100	100	100	100	100	100	100	100	100	100
07/31	0	0 c	0	1	0	2	0	0	0 c	1653	2439 c	2755	1501	799	1113	581	1107	1705 c	100	100	100	100	100	100	100	100	100	100
08/01	0	1	0	0 c	0	0 c	0	0	0	1653	2441	2755	1501 c	799	1113 c	581 c	1107	1705	100	100	100	100	100	100	100	100	100	100
08/02	0 c	0	2	0	0	0	0	0	0	1653 c	2441	2757	1501	799	1113	581	1107	1705	100	100	100	100	100	100	100	100	100	100
08/03	2	0	2	0	0 c	0	0	0 c	0	1654	2441	2759	1501	799 c	1113	581	1107 c	1705	100	100	100	100	100	100	100	100	100	100
08/04	0	0 c	0	0 c	0	0	0	0	0 c	1654	2441 c	2759	1501 c	799	1113	581	1107	1705 c	100	100	100	100	100	100	100	100	100	100
08/05	0 c	0	0	0	0	0	0	0	0	1654 c	2441	2759	1501	799	1113	581 c	1107	1705	100	100	100	100	100	100	100	100	100	100
08/06	0	1	0	0	0	2 c	0	0 c	0 c	1654	2442	2759	1501	799	1114 c	581	1107 c	1705 c	100	100	100	100	100	100	100	100	100	100
08/07	0	0 c	0	0	0 c	0	0	0	0	1654	2442 c	2759	1501	799 c	1114	581	1107	1705	100	100	100	100	100	100	100	100	100	100
08/08	0 c	0	0 c	0 c	0	0	0	0	0	1654 c	2442	2759 c	1501 c	799	1114	581 c	1107	1705	100	100	100	100	100	100	100	100	100	100
08/09	0	0	0	0	0 c	0	0	0	0 c	1654	2442	2759	1501	799 c	1114	581	1107	1705 c	100	100	100	100	100	100	100	100	100	100
08/10	0	3	0	0 c	0	0 c	0	0	0	1654	2444	2759	1501 c	799	1114 c	581	1107	1705	100	100	100	100	100	100	100	100	100	100
08/11	0	0 c	0	0	0	0	0	0 c	0	1654	2444 c	2759	1501	799	1114	581	1107 c	1705	100	100	100	100	100	100	100	100	100	100
08/12	0 c	0	2	0 c	0 c	0	0	2	0	1654 c	2444	2761	1501 c	799 c	1114	581 c	1109	1705	100	100	100	100	100	100	100	100	100	100
08/13	0	0 c	0 c	0	0	0 c	0	0	0	1654	2444 c	2761 c	1501	799	1114 c	581	1109	1705	100	100	100	100	100	100	100	100	100	100
08/14	0	0	0	0	0	0	0	0 c	0 c	1654	2444	2761	1501	799	1114	581 c	1109 c	1705 c	100	100	100	100	100	100	100	100	100	100
08/15	0 c	0 c	0	0 c	0 c	0	0	0	0	1654 c	2444 c	2761	1501 c	799 c	1114	581	1109	1705	100	100	100	100	100	100	100	100	100	100
08/16	0	0	0	0	0	0 c	0	0	0	1654	2444	2761	1501	799	1114 c	581	1109	1705	100	100	100	100	100	100	100	100	100	100
08/17	0	0	0 c	0	0	0	0	0 c	0 c	1654	2444	2761 c	1501	799	1114	581	1109 c	1705 c	100	100	100	100	100	100	100	100	100	100
08/18	0	0 c	0	0 c	0 c	0	0	0	0	1654	2444 c	2761	1501 c	799 c	1114	581	1109	1705	100	100	100	100	100	100	100	100	100	100
08/19	0 c	0	0 c	0	0	0	0	0	0	1654 c	2444	2761 c	1501	799	1114	581 c	1109	1705	100	100	100	100	100	100	100	100	100	100
08/20	0	0	0	0 c	0	0 c	0	0 c	0	1654	2444	2761	1501 c	799	1114 c	581	1109 c	1705	100	100	100	100	100	100	100	100	100	100
08/21	0	0 c	0 c	0	0	0	0	0	0 c	1654	2444 c	2761 c	1501	799	1114	581	1109	1705 c	100	100	100	100	100	100	100	100	100	100
08/22	0 c	0	0	0	0	0	0	0	0	1654 c	2444	2761	1501	799	1114	581	1109	1705	100	100	100	100	100	100	100	100	100	100
08/23	0	0	0	0	0 c	0	0	0	0	1654	2444	2761	1501	799 c	1114	581	1109	1705	100	100	100	100	100	100	100	100	100	100
08/24	0	1	1 c	0	0	0	0	0 c	0	1654	2445	2762 c	1501	799	1114	581	1109 c	1705	100	100	100	100	100	100	100	100	100	100
08/25	0	0 c	0	0	0	0	0	0	0 c	1654	2445 c	2762	1501	799	1114	581	1109	1705 c	100	100	100	100	100	100	100	100	100	100
08/26	0 c	0	0	0	0 c	0	0	0	0	1654 c	2445	2762	1501	799 c	1114	581 c	1109	1705	100	100	100	100	100	100	100	100	100	100
08/27	0	0	0 c	0 c	0	0 c	0	0 c	0	1654	2445	2762 c	1501 c	799	1114 c	581	1109 c	1705	100	100	100	100	100	100	100	100	100	100
08/28	0	0 c	0	0	0	0	0	0	0 c	1654	2445 c	2762	1501	799	1114	581	1109	1705 c	100	100	100	100	100	100	100	100	100	100
08/29	0 c		0	0	0 c	0	0	0	0	1654 c		2762	1501	799 c	1114	581	1109	1705	100	100	100	100	100	100	100	100	100	100
08/30	0		0		0	0	0	0	0	1654		2762		799	1114	581	1109	1705	100	100	100	100	100	100	100	100	100	100
08/31			0 c	c	0	0	0	0 c	0			2762 c	c	799	1114	581	1109 c	1705	100	100	100	100	100	100	100	100	100	100
09/01		c	0		c				c		c	2762		c				c										

"c" indicates days when commercial fishing periods occured in District 1

Appendix B.8. Historic daily CPUE for coho salmon catches in the Bethel test fishery. Years during which the escapement objective was not achieved at Kogrukluk River weir are noted in parentheses. Years with insufficent escapement data from the weir are followed by a question mark (?).

Date	Daily CPUE										Cumulative CPUE										Percent Passage										
	1984	(1985)	1986	1987	(1988)	1989?	(1990)	(1991)	1992?	1993?	1984	(1985)	1986	1987	(1988)	1989?	(1990)	(1991)	1992?	1993?	1984	(1985)	1986	1987	(1988)	1989?	(1990)	(1991)	1992?	1993?	Mean 85–92
07/09	0	0	0	0	0	0	0 c	0	0	0	0	0	0	0	0	0	0 c	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/10	0	0	0 c	0	0	0	0	0	0	0	0	0	0 c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/11	0	0	0	0 c	0 c	0 c	0	0	0	0	0	0	0	0 c	0 c	0 c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/13	0	0	0	0	2	2	0	0 c	6	7	0	0	0	0	2	2	0	0 c	6	7	0	0	0	0	0	0	0	0	0	0	0
07/14	0	0	0	0	0 c	2 c	0 c	0	2	0	0	0	0	0	2 c	4 c	0 c	0	6	7	0	0	0	0	0	0	0	0	0	0	0
07/15	0	0	2	0 c	0	2	0	0	0	0	0	0	2	0 c	2	6	0	0	6	7	0	0	0	0	0	0	0	0	0	0	0
07/16	2	0	2	0	0	0	0	0	2	0	2	0	4	0	2	6	0	0	10	7	0	0	0	0	0	0	0	0	0	0	0
07/17	2	2	2	0	4	2	0	0	1	0	3	2	6	0	6	8	0	0	11	7	0	0	0	0	0	0	0	0	0	0	0
07/18	3	0	2	0	0 c	4 c	0	0 c	7	0	7	2	8	0	6 c	12 c	0	0 c	18	7	0	0	0	0	0	0	0	0	1	0	0
07/19	7	2	4	0	0	0	4	2	9	9	13	3	11	0	6	12	4	2	27	16	0	0	0	0	0	0	0	0	1	1	0
07/20	7	4	4	0 c	4	10	13	6	5	2	21	7	15	0 c	10	22	17	8	31	18	1	0	0	0	0	1	1	0	1	1	1
07/21	5	5	10	0	2 c	7	10	7	3	5	26	12	25	0	12 c	30	27	15	34	23	1	1	1	0	0	1	1	1	1	1	1
07/22	5	20	6	7	4	16	7	4 c	7	24	31	33	33	7	16	46	34	19 c	40	47	1	2	1	0	0	2	1	1	1	2	1
07/23	12	0	21	2	0	6	3	6	2	26	43	33	54	9	16	51	37	25	43	75	1	2	1	0	0	2	2	2	2	3	1
07/24	9	2	54	0	12	6	8	4	4	9	51	35	107	9	26	57	45	29	47	84	2	2	2	0	1	2	2	2	2	3	2
07/25	16	24	29	0	16 c	4	2	7 c	9	6	67	59	136	9	44 c	61	47	36 c	55	90	2	3	3	0	1	2	2	2	2	3	2
07/26	12	21	26	0	8	0	2	2	11	4	79	80	163	9	53	61	49	38	66	95	3	4	4	0	2	2	2	2	2	3	2
07/27	16	6	74	2	44	2 c	10	23	10	20	97	86	236	11	97	63 c	59	61	76	114	3	5	5	1	3	2	2	4	3	4	3
07/28	29	15	20	2	72 c	9	43	34	11	71	126	103	256	14	169 c	72	102	95	86	185	4	6	6	1	5	3	4	6	3	7	4
07/29	60	40	64	12	28	8	35	42 c	23	67	186	143	320	25	197	80	136	137 c	110	252	6	8	7	1	6	3	6	8	4	9	5
07/30	201 c	14	54	5	43	37	12	71	25	69	387 c	157	374	30	239	117	148	208	135	322	12	9	8	2	7	4	6	13	5	12	7
07/31	154	29	31 c	5	75	343	10	64	13	73 c	541	186	405 c	35	314	460	158	271	148	395 c	17	10	9	2	9	18	6	17	5	14	10
08/01	179	50 c	323	13	43 c	218	26 c	42 c	32	73	720	237 c	727	47	358 c	678	184 c	314 c	179	468	23	13	16	2	10	26	7	19	7	17	14
08/02	104 c	37	101	40	32	447	22	24	17	146	824 c	274	828	87	390	1125	205	337	196	616	26	15	19	4	11	43	8	21	7	22	17
08/03	312	69	404	93	79	78 c	21	118	50 c	302	1136	343	1233	180	468	1203 c	226	455	246 c	917	36	19	28	9	14	46	9	28	9	33	22
08/04	45	60	419 c	69	42 c	24	54	124	11	536 c	1182	402	1652 c	249	511 c	1227	260	579	257	1455 c	38	23	37	13	15	47	11	36	9	52	25
08/05	78	47 c	253	27	45	159	65	10 c	11	127	1259	450 c	1905	276	556	1386	345	589 c	268	1582	40	25	43	14	16	53	14	36	10	58	28
08/06	169 c	92	249	42 c	300	348	78 c	32	57 c	318 c	1428 c	542	2154	316 c	656	1734	423 c	621	325 c	1900 c	46	30	46	16	25	66	17	38	12	69	33
08/07	45	182	210 c	103	370	195 c	50	20	56	102	1473	724	2363 c	421	1226	1929 c	473	641	381	2002	47	41	53	21	36	74	19	40	14	73	38
08/08	108	86 c	86	53	183 c	54	73	64 c	115	73	1581	809 c	2450	475	1409 c	1983	546	705 c	496	2075	51	46	55	24	41	76	22	44	18	76	42
08/09	76 c	114	180	34	41	185 c	118	43	250	34 c	1657 c	924	2630	509	1450	2168 c	664	746	746	2108 c	53	52	59	26	42	83	27	46	27	77	46
08/10	55	124	297	43	106 c	33	58 c	42	675	11	1712	1047	2927	551	1556 c	2202	722 c	790	1421	2120	55	59	65	28	45	84	29	49	52	77	52
08/11	105	218	87 c	35	257	111	64	35	420 c	25	1817	1266	3014 c	587	1813	2312	786	824	1841 c	2144	58	71	67	30	53	89	32	51	67	78	58
08/12	98	96 c	326	189	256 c	74 c	210	248 c	91	66	1915	1361 c	3340	776	2070 c	2386 c	996	1072 c	1932	2210	61	77	75	40	60	91	40	66	70	81	65
08/13	25 c	75	96 c	142 c	68	24	180 c	91	123	32	1940 c	1437	3436 c	918 c	2138	2410	1176 c	1163	2056	2242	62	81	77	47	62	92	48	72	75	82	66
08/14	24	29	64	348	174	17	166	40 c	126 c	0 c	1964	1466	3501	1266	2312	2427	1342	1203 c	2183 c	2242 c	63	82	78	65	67	93	54	74	79	82	73
08/15	113	84 c	180 c	205	185 c	2 c	258	36	41	9	2077	1550 c	3681 c	1470	2497 c	2429 c	1600	1239	2224	2252	66	87	82	75	73	93	65	77	81	82	78
08/16	10 c	68	55	121	58	0	108 c	20	80	109	2087 c	1619	3735	1591	2555	2429	1708 c	1259	2304	2361	67	91	84	81	74	93	69	78	84	86	80
08/17	279	19	48	107 c	152	15	91	25	78 c	18 c	2366	1637	3784	1699 c	2706	2444	1798	1284	2382 c	2379 c	76	92	85	87	79	94	73	79	86	87	83
08/18	304	23	101 c	52	112 c	4 c	86	88	41	33	2669	1661	3885 c	1751	2818 c	2448 c	1884	1371	2422	2412	85	93	87	89	82	94	76	85	88	88	87
08/19	204	8 c	91	19 c	35	6	61	35 c	32	136	2874	1669 c	3976	1770 c	2853	2455	1945	1406 c	2455	2548	92	94	89	90	83	94	79	87	89	93	89
08/20	6 c	12	30	9	41 c	14	83 c	26	137 c	114	2880 c	1680	4006	1779	2894 c	2468	2029 c	1433	2592 c	2662	92	95	90	91	84	95	82	89	94	97	90
08/21	28	17	94 c	16 c	10	35	39	38	17	27 c	2908	1698	4100 c	1795 c	2903	2503	2067	1471	2609	2689 c	93	95	92	92	84	96	84	91	95	98	91
08/22	110	0 c	52	9	74	22	69	20	42	4	3017	1698 c	4152	1804	2978	2525	2136	1491	2651	2693	97	95	93	92	87	97	87	92	96	98	93
08/23	4 c	17	136	21	68	11 c	131	10	53	0	3021 c	1715	4288	1825	3046	2536 c	2267	1501	2703	2693	97	96	96	93	89	97	92	93	98	98	95
08/24	8	8	100	25 c	108	3	40	26	4 c	4	3030	1723	4388	1850 c	3154	2539	2307	1527	2707 c	2697	97	97	98	94	92	97	94	94	98	98	96
08/25	33	12	26 c	9	121	26	61	14	21	9 c	3062	1734	4414 c	1859	3275	2564	2368	1540	2729	2706 c	98	98	99	95	95	98	96	95	99	99	97
08/26	26	0 c	43	19	89	10 c	56	42 c	13	18	3088	1734 c	4457	1878	3364	2574 c	2424	1583 c	2741	2724	99	98	100	96	98	99	98	98	100	99	98
08/27	24 c	10	10	32 c	64 c	17	39 c	17	9 c	10	3112 c	1744	4467	1910 c	3428 c	2591	2463 c	1600	2750 c	2734	100	98	100	97	100	99	100	99	100	100	99
08/28	14	34	4 c	50	9	17	2	18	4	12 c	3126	1778	4471 c	1960	3437	2609	2465	1618	2754	2745 c	100	100	100	100	100	100	100	100	100	100	100
08/29	46	12 c		35	4	6 c	13	18	2	13	3175	1790 c		1995	3441	2615 c	2477	1636	2757	2758											
08/30	21 c	0		48		2	8	9	5	5	3196 c	1790		2043		2616	2485	1645	2762	2763											
08/31	24			0 c	c	7	0	0	4 c	2	3219			2043 c		c 2624	2485	1645	2766 c	2765											
09/01	5		c	20		c				c	3225			c 2063		c				c											

"c" indicates days when commercial fishing periods occured in District 1

Appendix B.9. Historic daily CPUE for chum salmon catches in the Bethel test fishery. Years during which escapement objectives were not achieved at Kogrukluk River weir and/or Aniak River sonar are noted in parentheses.

Date	Daily									Cumulative CPUE									Percent Passage									
	(1985)	(1986)	(1987)	1988	(1989)	(1990)	(1991)	(1992)	(1993)	(1985)	(1986)	(1987)	1988	(1989)	(1990)	(1991)	(1992)	(1993)	(1985)	(1986)	(1987)	1988	(1989)	(1990)	(1991)	(1992)	1993	Mean 85-92
05/30	0									0																		
05/31	0									0																		
06/01	0				3	0		0	0	0				3	0		0	0	0	0	0	0	0	0	0	0	0	0
06/02	0			0	0	0	0	0	0	0			0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/03	0	0		0	0	0	0	0	0	0	0		0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/04	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/05	0	6	3	9	3	0	0	0	0	0	6	3	9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/06	0	10	12	0	0	3	0	7	3	0	16	16	9	6	3	0	7	3	0	0	0	0	0	0	0	0	0	0
06/07	0	0	6	3	6	0	0	3	0	0	16	22	12	11	3	0	10	3	0	0	0	0	0	0	0	0	0	0
06/08	0	8	9	11	10	0	0	3	0	0	24	30	23	22	3	0	13	3	0	1	1	0	1	0	0	0	0	0
06/09	0	28	15	38	9	0	0	3	0	0	53	45	61	30	3	0	16	3	0	1	1	1	1	0	0	1	0	1
06/10	0	6	6	29	12	0	0	6	6	0	59	52	90	42	3	0	22	9	0	1	1	2	2	0	0	1	0	1
06/11	0	9	21	63	3	0	0	12	8	0	68	72	153	45	3	0	34	17	0	2	1	3	2	0	0	1	1	1
06/12	0	9	13	91	17	3	3	9	0	0	77	86	244	62	6	3	43	17	0	2	2	5	2	0	0	1	1	2
06/13	3	0	19	87	20	0	0	44	9	3	77	105	331	82	6	3	87	27	0	2	2	6	3	0	0	3	1	2
06/14	0	9	3	19	7	13	6	21	7	3	86	108	350	90	18	9	108	33	0	2	2	7	3	1	1	4	1	2
06/15	3	38	10	45	36	0	0	105	13	5	124	117	395	126	18	9	212	46	0	3	2	8	5	1	1	7	2	3
06/16	3	46	42	26 c	24	3	0	116	3	8	170	159	421 c	150	21	9	328	49	1	4	3	8	6	1	1	11	2	4
06/17	8	121	122	56	4	22	0	55	10	16	290	281	477	154	43	9	383	59	1	7	6	9	6	2	1	13	2	6
06/18	8	108	41 c	195	49	20	0	43 c	35	25	398	322 c	671	203	63	9	426 c	93	2	10	7	13	8	2	1	14	4	7
06/19	65	151	6	160	68 c	28	0	0	0	90	549	328	832	271 c	91	9	426	93	7	14	7	16	10	3	1	14	4	9
06/20	115 c	64	60	50 c	44	9 c	25 c	33	11	205 c	613	388	881 c	315	100 c	34 c	460	105	15	15	8	17	12	4	3	15	[illegible]	11
06/21	3	87	24	143	76	30	3	58	44	207	700	412	1025	391	130	37	518	149	16	17	8	20	15	5	3	17	6	13
06/22	25	104	200	251	56	22	9	49 c	95	232	804	613	1276	446	152	46	567 cf	244	17	20	13	25	17	6	4	19	9	15
06/23	28	203	103	246	79 c	53	14	53	65	260	1007	715	1522	525 c	205	60	620	310	20	25	15	29	20	8	5	20	12	18
06/24	3 c	112	48 c	86 c	167	77	6 c	29	126	263 c	1119	763 c	1608 c	692	282	66 c	649	436	20	28	16	31	27	10	5	21	17	20
06/25	52	460	66	16	208	32 c	9	39 c	107 c	315	1579	829	1624	900	314 c	74	688 cf	543 c	24	39	17	31	34	12	6	23	21	23
06/26	65	177 c	100	63	111 c	49	32	43	0	380	1756 c	928	1687	1011 c	363	106	732	543	29	43	19	33	39	13	8	24	21	26
06/27	58 c	109	87	306	134	168	58	212	7	438 c	1865	1015	1993	1145	531	163	943	550	33	46	21	38	44	20	13	31	21	31
06/28	24	35	105	109 c	78	72	50	107	13	463	1901	1120	2101 c	1223	603	213	1050	563	35	47	23	40	47	22	17	34	22	33
06/29	180	6	268	108	122	87 c	64	130 c	30	643	1907	1389	2210	1345	690 c	277	1180 cf	594	48	47	28	43	52	25	22	39	23	38
06/30	177	105 c	246 c	88	106 c	32	8	136	153	820	2012 c	1635 c	2298	1452 c	722	285	1316	746	62	49	33	44	56	27	23	43	29	42
07/01	77 c	3	152	382	115	67	30 c	124	120	896 c	2015	1787	2680	1567	789	315 c	1440	866	68	50	36	52	60	29	25	47	33	46
07/02	31	70	120	188 c	66	28	91	43	19	928	2085	1906	2868 c	1633	817	406	1483	885	70	51	39	55	63	30	32	48	34	49
07/03	24	193 c	34 c	437	78 c	200	22	267	125	952	2277 c	1941 c	3306	1711 c	1017	427	1750	1010	72	56	40	64	66	37	34	57	39	53
07/04	5 c	123	62	469	57	214	33	322	82	957 c	2401	2003	3775	1768	1231	461	2072	1092	72	59	41	73	68	45	36	68	42	58
07/05	40	309	177	192 c	182 c	188 c	6	189	78	997	2709	2180	3966 c	1950 c	1419 c	466	2261	1170	75	67	44	76	75	52	37	74	45	63
07/06	25	140	389	120	59	26	12 c	105 c	39	1022	2850	2569	4086	2009	1445	478 c	2366 cf	1209	77	70	52	79	77	53	38	77	47	65
07/07	93	62 c	463 c	27	117	173	12	13	24	1115	2912 c	3032 c	4114	2126	1618	490	2379	1233	84	72	62	79	81	59	39	78	48	69
07/08	3	68	38	34 c	65 c	136	9	139	71	1118	2979	3070	4148 c	2190 c	1754	499	2518	1304	84	73	63	80	84	64	40	82	50	71
07/09	5	246	272	92	57	61 c	60	48	31	1123	3225	3342	4240	2247	1815 c	559	2567	1335	85	79	68	82	86	67	44	84	52	74
07/10	0	34 c	208	148	66	81	46	46	28	1123	3260 c	3550	4388	2314	1896	605	2613	1363	85	80	72	85	89	70	48	85	53	77
07/11	0	87	63 c	83 c	3 c	78	26	48	37	1123	3347	3612 c	4471 c	2317 c	1975	631	2661	1400	85	82	74	86	89	73	50	87	54	78
07/12	3	163	53	65	7	74	43	59	62	1126	3510	3665	4536	2324	2048	674	2719	1461	85	86	75	87	89	75	53	89	56	80
07/13	10	134	87	63	55	23	21 c	51	270	1137	3644	3752	4599	2379	2071	695 c	2770	1731	86	90	77	89	91	76	55	91	67	82
07/14	0	25	255	38 c	35 c	33 c	28	49	67	1137	3669	4007	4637 c	2414 c	2104 c	723	2820	1798	86	90	82	89	92	77	57	92	69	83
07/15	0	10	61 c	69	11	24	20	27	140	1137	3679	4068 c	4706	2424	2128	743	2846	1938	86	90	83	91	93	78	59	93	75	84

–Continued–

Appendix B.9. (page 2 of 2)

Date	Daily CPUE									Cumulative CPUE									Percent Passage (through August)									
	(1985)	(1986)	(1987)	1988	(1989)	(1990)	(1991)	(1992)	(1993)	(1985)	(1986)	(1987)	1988	(1989)	(1990)	(1991)	(1992)	(1993)	(1985)	(1986)	(1987)	1988	(1989)	(1990)	(1991)	(1992)	1993	Mean 85-92
07/16	6	16	33	82	20	37	12	21	88	1142	3696	4101	4788	2445	2165	755	2867	2026	86	91	84	92	94	80	60	94	78	85
07/17	32	43	107	64	17	24	16	23	75	1174	3739	4208	4852	2462	2190	770	2890	2101	88	92	86	94	94	80	61	95	81	86
07/18	9	43	125	57 c	23 c	59	51 c	25	53	1183	3782	4333	4909 c	2485 c	2249	821 c	2915	2154	89	93	88	95	95	83	65	95	83	88
07/19	19	50	202	16	16	66	16	29	94	1202	3831	4535	4925	2501	2315	837	2944	2248	91	94	93	95	96	85	66	96	87	89
07/20	7	36	170 c	29	29	73	16	4	52	1209	3867	4706 c	4954	2530	2388	853	2948	2299	91	95	96	95	97	88	68	96	89	91
07/21	5	52	23	36 c	13	57	40	3	51	1214	3919	4729	4990 c	2543	2445	894	2952	2350	91	96	97	96	97	90	71	97	91	92
07/22	12	34	12	10	7	40	57 c	0	134	1225	3953	4740	4999	2551	2485	951 c	2952	2484	92	97	97	96	98	91	75	97	96	93
07/23	6	26	8	6	13	35	33	23	28	1231	3979	4748	5005	2564	2520	983	2975	2512	93	98	97	96	98	93	78	97	97	94
07/24	2	29	28	24	0	24	12	6	9	1233	4008	4776	5030	2564	2544	995	2981	2521	93	99	97	97	98	93	79	97	97	94
07/25	9	11	41	15 c	4	8	56 c	10	0	1243	4019	4817	5045 c	2568	2552	1051 c	2991	2521	94	99	98	97	98	94	83	98	97	95
07/26	6	2	20	13	0	2	8	7	2	1249	4021	4837	5058	2568	2554	1059	2999	2523	94	99	99	97	98	94	84	98	98	95
07/27	2	3	4	18	0 c	18	49	8	7	1251	4023	4841	5075	2568 c	2572	1108	3006	2530	94	99	99	98	98	94	88	98	98	96
07/28	4	7	6	10 c	0	35	18	9	4	1255	4031	4847	5085 c	2568	2607	1126	3015	2534	95	99	99	98	98	96	89	99	98	97
07/29	10	11	5	13	1	36	36 c	4	5	1265	4042	4852	5098	2570	2643	1162 c	3019	2539	95	99	99	98	98	97	92	99	98	97
07/30	4	5	2	23	0	9	14	6	2	1269	4047	4854	5120	2570	2651	1175	3025	2541	96	100	99	99	98	97	93	99	98	98
07/31	1	0 c	1	6	14	2	24	0	6 c	1270	4047 c	4856	5126	2584	2653	1199	3025	2547 c	96	100	99	99	99	97	95	99	98	98
08/01	0	5	4	5 c	6	6 c	8 c	0	5	1270	4051	4860	5131 c	2590	2659 c	1207 c	3025	2552	96	100	99	99	99	98	96	99	99	98
08/02	1 c	0	3	4	8	6	6	15	7	1271 c	4051	4863	5135	2598	2665	1213	3040	2558	96	100	99	99	100	98	96	99	99	98
08/03	2	4	9	6	4 c	6	12	2 c	2	1272	4055	4872	5142	2602 c	2671	1224	3042 c	2561	96	100	99	99	100	98	97	99	99	99
08/04	8	0 c	11	3 c	1	2	10	0	11 c	1281	4055 c	4884	5145 c	2603	2672	1234	3042	2571 c	96	100	100	99	100	98	98	99	99	99
08/05	0 c	0	3	3	0	1	0 c	0	9	1281 c	4055	4887	5148	2603	2673	1234 c	3042	2580	96	100	100	99	100	98	98	99	100	99
08/06	4	3	4 c	7	3	23 c	2	4 c	2 c	1285	4058	4891 c	5155	2606	2697 c	1236	3046 c	2583 c	97	100	100	99	100	99	98	100	100	99
08/07	6	1 c	0	19	2 c	6	2	0	0	1290	4059 c	4891	5174	2608 c	2703	1238	3046	2583	97	100	100	100	100	99	98	100	100	99
08/08	0 c	0	0	3 c	0	0	5 c	0	0	1290 c	4059	4891	5177 c	2608	2703	1243 c	3046	2583	97	100	100	100	100	99	98	100	100	99
08/09	0	2	2	3	2 c	4	2	4	0 c	1290	4062	4893	5180	2610 c	2707	1245	3050	2583 c	97	100	100	100	100	99	99	100	100	99
08/10	36	0	2	4 c	0	2 c	3	0	0	1326	4062	4895	5184 c	2610	2708 c	1248	3050	2583	100	100	100	100	100	100	99	100	100	100
08/11	1	0 c	0	3	0	2	4	2 c	0	1327	4062 c	4895	5187	2610	2710	1252	3052 c	2583	100	100	100	100	100	100	99	100	100	100
08/12	0 c	0	0	2 c	0 c	4	3 c	6	0	1327 c	4062	4895	5189 c	2610 c	2714	1255 c	3058	2583	100	100	100	100	100	100	99	100	100	100
08/13	0	0 c	0 c	0	0	0 c	2	0	0	1327	4062 c	4895 c	5189	2610	2714 c	1256	3058	2583	100	100	100	100	100	100	100	100	100	100
08/14	0	2	0	0	0	0	0 c	0 c	0 c	1327	4063	4895	5189	2610	2714	1256 c	3058 c	2583 c	100	100	100	100	100	100	100	100	100	100
08/15	0 c	2 c	4	0 c	0 c	2	2	0	0	1327 c	4066 c	4899	5189 c	2610 c	2716	1258	3058	2583	100	100	100	100	100	100	100	100	100	100
08/16	0	0	1	0	0	2 c	0	0	0	1327	4066	4900	5189	2610	2718 c	1258	3058	2583	100	100	100	100	100	100	100	100	100	100
08/17	0	0	0 c	0	0	0	2	0 c	0 c	1327	4066	4900 c	5189	2610	2718	1260	3058 c	2583 c	100	100	100	100	100	100	100	100	100	100
08/18	0	0 c	0	0 c	0 c	0	2	0	0	1327	4066 c	4900	5189 c	2610 c	2718	1262	3058	2583	100	100	100	100	100	100	100	100	100	100
08/19	0 c	0	0 c	0	0	0	0 c	0	2	1327 c	4066	4900 c	5189	2610	2718	1262 c	3058	2585	100	100	100	100	100	100	100	100	100	100
08/20	0	0	0	0 c	0	0 c	0	0 c	0	1327	4066	4900	5189 c	2610	2718 c	1262	3058 c	2585	100	100	100	100	100	100	100	100	100	100
08/21	0	0 c	0 c	0	0	0	0	0	0 c	1327	4066 c	4900 c	5189	2610	2718	1262	3058	2585 c	100	100	100	100	100	100	100	100	100	100
08/22	0 c	0	0	0	0	2	0	0	0	1327 c	4066	4900	5189	2610	2720	1262	3058	2585	100	100	100	100	100	100	100	100	100	100
08/23	0	0	0	0	0 c	0	0	0	0	1327	4066	4900	5189	2610 c	2720	1262	3058	2585	100	100	100	100	100	100	100	100	100	100
08/24	0	0	0 c	0	0	0	0	0 c	0	1327	4066	4900 c	5189	2610	2720	1262	3058 c	2585	100	100	100	100	100	100	100	100	100	100
08/25	0	0 c	0	0	0	0	0	0	0 c	1327	4066 c	4900	5189	2610	2720	1262	3058	2585 c	100	100	100	100	100	100	100	100	100	100
08/26	0 c	0	0	0	0 c	0	0 c	0	0	1327 c	4066	4900	5189	2610 c	2720	1262 c	3058	2585	100	100	100	100	100	100	100	100	100	100
08/27	0	0	0 c	0 c	0	2 c	0	0 c	0	1327	4066	4900 c	5189 c	2610	2722 c	1262	3058 c	2585	100	100	100	100	100	100	100	100	100	100
08/28	0	0 c	0	0	0	0	0	0	0 c	1327	c	4900	5189	2610	2722	1262	3058	2585 c	100	100	100	100	100	100	100	100	100	100
08/29	0 c		0	0	0 c	0	0	0	2	1327 c		4900		2610 c	2722	1262	3058	2587	100	100	100	100	100	100	100	100	100	100
08/30	0		0		0	0	0	0	0	1327		4900		2610	2722	1262	3058	2587	100	100	100	100	100	100	100	100	100	100
08/31			0 c	c	0	0	0	0 c	0			4900 c	c	2610	2722	1262	3058 c	2587	100	100	100	100	100	100	100	100	100	100
09/01		c	0		c				c		c	4900			c			c										

"c" indicates days when commercial fishing periods occured in District 1

Appendix B.10. Historic mean daily CPUE for chinook salmon caught in the Aniak testfishery.

Date	Both Shores						South Shore (Aniak)						North Shore					
	Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.	
	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993
05/31		0												0				
06/01		2						0						3				
06/02		1						0						2				
06/03		2						0						4				
06/04		3						1						5				
06/05		3						2						3				
06/06		8						9						7				
06/07		5						2						7				
06/08		23						4						33				
06/09		7						4						10				
06/10		9						3						11				
06/11		13						3						18				
06/12		5						3						6				
06/13		5						4						5				
06/14		12						7						18				
06/15		44						8						62				
06/16	23	42	23	42	3	4	3	16	3	16	0	2	42	68	42	68	6	6
06/17	13	54	35	96	5	9	3	24	6	41	1	4	22	83	64	151	9	13
06/18	23 c	74	58 c	169	8	16	6 c	23	12 c	63	1	7	40 c	125	104 c	276	14	23
06/19	22	16	80	185	11	18	14	15	25	78	3	9	31	16	135	292	19	25
06/20	30	22	109	208	14	20	13	23	38	102	5	11	46	22	181	313	25	26
06/21	20	56	129	264	17	26	35	58	73	160	9	18	5	54	186	367	26	31
06/22	17 c	55	146 c	319	19	31	13 c	38	86 c	198	11	22	22 c	73	207 c	440	29	37
06/23	56	93	202	413	27	40	27	32	112	230	14	25	85	155	292	595	41	50
06/24	49	96	251	509	33	49	63	56	175	285	22	32	36	136	328	732	46	62
06/25	15 c	58 c	266 c	567 c	35	55	13 c	70 c	188 c	355 c	24	39	16 c	56 c	344 c	787 c	48	66
06/26	25	54	291	621	39	60	27	70	214	425	27	47	24	38	368	826	51	70
06/27	15	46	306	666	41	65	14	54	228	479	29	53	17	37	384	863	54	73
06/28	22	40	328	706	43	68	31	46	259	525	33	58	13	34	397	897	55	76
06/29	31 c	55	359 c	761	48	74	23 c	59	282 c	584	35	65	40 c	50	436 c	947	61	80
06/30	32	39	391	800	52	77	27	46	308	630	39	70	37	31	474	978	66	83
07/01	16	55	407	855	54	83	3	72	312	703	39	78	28	38	502	1016	70	86
07/02	28	33	435	888	58	86	38	52	350	755	44	84	19	13	520	1029	73	87
07/03	15	18	449	906	60	88	22	23	371	779	47	86	8	13	528	1043	74	88
07/04	13	18	462	924	61	90	14	23	385	802	48	89	12	13	540	1056	75	89
07/05	11	21	473	946	63	92	9	14	394	816	50	90	12	29	551	1085	77	92
07/06	24 c*	14	497 c*	959	66	93	28 c*	14	422 c*	829	53	92	20 c*	13	571 c	1099	80	93
07/07	24 *	5	521 *	965	69	93	28 *	7	450 *	836	57	93	20 *	4	591 *	1102	82	93
07/08	37	12	558	977	74	95	46	14	497	850	62	94	28	11	619	1113	86	94
07/09	55	5	613	982	81	95	89	0	586	850	74	94	21	10	641	1123	89	95
07/10	40 *	3 *	653 *	985 *	87	95	62 *	0 *	648 *	850 *	81	94	18 *	5 *	659 *	1128 *	92	95
07/11	25	3 *	679	987 *	90	96	35	0 *	683	850 *	86	94	15	5 *	674	1133 *	94	96
07/12	10	0	689	987	91	96	13	0	697	850	88	94	8	0	681	1133	95	96
07/13	9	0	698	987	93.	96	12	0	709	850	89	94	5	0	687	1133	96	96
07/14	17	10	715	997	95	97	33	10	741	860	93	95	2	10	689	1144	96	97
07/15	3	9	718	1006	95	97	7	14	748	874	94	97	0	3	689	1147	96	97
07/16	7	6	725	1012	96	98	12	7	760	881	96	98	2	5	690	1152	96	97
07/17	4	2 *	729	1014 *	97	98	6	3 *	767	883 *	96	98	2	2 *	692	1155 *	96	97
07/18	2	1 *	731	1015 *	97	98	0	0 *	767	883 *	96	98	3	4 *	695	1159 *	97	98
07/19	1	0 *	732	1016 *	97	98	1	1 *	768	884 *	97	98	0	0 *	695	1159 *	97	98
07/20	3	2 *	735	1018 *	98	99	7	3 *	775	887 *	97	98	0	0 *	695	1159 *	97	98

–Continued–

Appendix B.10. (page 2 of 2)

Date	Both Shores						South Shore (Aniak)						North Shore					
	Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.	
	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993	(1992)	1993
07/21	2	1 *	737	1019 *	98	99	0	0 *	775	887 *	97	98	4	4 *	699	1163 *	97	98
07/22	4	2 *	741	1021 *	98	99	4	2 *	779	889 *	98	98	4	5 *	703	1168 *	98	99
07/23	0	0 *	741	1021 *	98	99	0	0 *	779	889 *	98	98	0	0 *	704	1168 *	98	99
07/24	2	1 *	743	1022 *	99	99	3	2 *	782	890 *	98	99	0	0 *	704	1168 *	98	99
07/25	0	0 *	743	1022 *	99	99	0	0 *	782	890 *	98	99	0	0 *	704	1168 *	98	99
07/26	1	0 *	744	1023 *	99	99	0	0 *	782	890 *	98	99	2	2 *	705	1170 *	98	99
07/27	1	0 *	744	1023 *	99	99	0	0 *	782	890 *	98	99	2	2 *	707	1172 *	99	99
07/28	2	1 *	746	1024 *	99	99	2	1 *	784	891 *	98	99	2	2 *	709	1174 *	99	99
07/29	0	0 *	746	1024 *	99	99	0	0 *	784	891 *	98	99	0	0 *	709	1174 *	99	99
07/30	2	1 *	748	1025 *	99	99	5	3 *	789	894 *	99	99	4	5 *	713	1179 *	99	100
07/31	0	0 c*	748	1025 c*	99	99	0	0 c*	789	894 c*	99	99	0	0 c*	713	1179 c*	99	100
08/01	3	2 *	751	1027 *	100	99	2	1 *	791	895 *	99	99	3	4 *	716	1183 *	100	100
08/02	1	0	752	1027	100	99	1	0	792	895	100	99	1	0	717	1183	100	100
08/03	0 c	1	752 c	1028	100	100	0 c	2	792 c	896	100	99	0 c	0	717 c	1183	100	100
08/04	0	2 c	752	1029 c	100	100	0	3 c	792	900 c	100	100	0	0 c	717	1183 c	100	100
08/05	0	0	752	1029	100	100	0	0	792	900	100	100	0	0	717	1183	100	100
08/06	0 c	0 c	752 c	1029 c	100	100	0 c	0 c	792 c	900 c	100	100	0 c	0 c	717 c	1183 c	100	100
08/07	0	1	752	1030	100	100	0	0	792	900	100	100	0	2	717	1184	100	100
08/08	0	0	752	1030	100	100	0	0	792	900	100	100	0	0	717	1184	100	100
08/09	1	0 c	753	1030 c	100	100	2	0 c	794	900 c	100	100	0	0 c	717	1184 c	100	100
08/10	0	0	753	1030	100	100	0	0	794	900	100	100	0	0	717	1184	100	100
08/11	0 c	0	753 c	1030	100	100	0 c	0	794 c	900	100	100	0 c	0	717 c	1184	100	100
08/12	0	0	753	1030	100	100	0	0	794	900	100	100	0	0	717	1184	100	100
08/13	0	2	753	1033	100	100	0	3	794	903	100	100	0	0	717	1184	100	100
08/14	0 c	0 c	753 c	1033 c	100	100	0 c	0 c	794 c	903 c	100	100	0 c	0 c	717 c	1184 c	100	100
08/15	0	0	753	1033	100	100	0	0	794	903	100	100	0	0	717	1184	100	100
08/16	0	0	753	1033	100	100	0	0	794	903	100	100	0	0	717	1184	100	100
08/17	0 c	0 c	753 c	1033 c	100	100	0 c	0 c	794 c	903 c	100	100	0 c	0 c	717 c	1184 c	100	100
08/18	0	0	753	1033	100	100	0	0	794	903	100	100	0	0	717	1184	100	100
08/19	1	0	754	1033	100	100	2	0	796	903	100	100	0	0	717	1184	100	100
08/20	0 c	0	754 c	1033	100	100	0 c	0	796 c	903	100	100	0 c	0	717 c	1184	100	100
08/21	0	0 c	754	1033 c	100	100	0	0 c	796	903 c	100	100	0	0 c	717	1184 c	100	100
08/22	0	0	754	1033	100	100	0	0	796	903	100	100	0	0	717	1184	100	100
08/23	0	0	754	1033	100	100	0	0	796	903	100	100	0	0	717	1184	100	100
08/24	0 c	0	754 c	1033	100	100	0 c	0	796 c	903	100	100	0 c	0	717 c	1184	100	100
08/25	0	0 c	754	1033 c	100	100	0	0 c	796	903 c	100	100	0	0 c	717	1184 c	100	100
08/26	0	0	754	1033	100	100	0	0	796	903	100	100	0	0	717	1184	100	100
08/27	0 c	0	754 c	1033	100	100	0 c	0	796 c	903	100	100	0 c	0	717 c	1184	100	100
08/28	0	0 c	754	1033 c	100	100	0	0 c	796	903 c	100	100	0	0 c	717	1184 c	100	100
08/29	0	0	754	1033	100	100	0	0	796	903	100	100	0	0	717	1184	100	100
08/30	0	0	754	1033	100	100	0	0	796	903	100	100	0	0	717	1184	100	100
08/31	0 c	0	754 c	1033	100	100	0 c	0	796 c	903	100	100	0 c	0	717 c	1184	100	100
09/01	0	0 c	754	1033 c	100	100	0	0 c	796	903 c	100	100	0	0 c	717	1184 c	100	100
09/02	0	0	754	1033	100	100	0	0	796	903	100	100	0	0	717	1184	100	100
09/03	0	0	754	1033	100	100	0	0	796	903	100	100	0	0	717	1184	100	100
09/04	0	0	754	1033	100	100	0		796	903	100	100	0		717			
09/05	0		754				0		796				0		717			
09/06	0		754				0		796				0		717			
09/07	0		754				0		796				0		717			
09/08	0		754				0		796				0		717			
09/09	0		754				0		796				0		717			
09/10	0		754				0		796				0		717			

"c" indicates days when commercial fishing periods occured in District 1.
* CPUE estimated; no test fishing.

Appendix B.11. Historic mean daily CPUE for sockeye salmon caught in the Aniak test fishery.

Date	Both Shores						South Shore (Aniak)						North Shore					
	Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.	
	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993
05/31		0		0				0		0				0		0		
06/01		0		0				0		0				0		0		
06/02		0		0				0		0				0		0		
06/03		0		0				0		0				0		0		
06/04		0		0				0		0				0		0		
06/05		0		0				0		0				0		0		
06/06		0		0				0		0				0		0		
06/07		0		0				0		0				0		0		
06/08		0		0				0		0				0		0		
06/09		0		0				0		0				0		0		
06/10		0		0				0		0				0		0		
06/11		0		0				0		0				0		0		
06/12		1		1				0		0				2		2		
06/13		0		1				0		0				0		2		
06/14		2		3				0		0				3		5		
06/15	4	4	4	7	0	0	4	0	4	0	0	0		6		11		
06/16	0	5	4	12	0	0	0	2	4	2	0	0	0	8	0	20	0	0
06/17	2	18	6	30	0	1	2	4	6	5	1	0	3	33	3	52	0	1
06/18	7 c	21	14 c	51	1	2	7 c	12	12 c	17	1	1	8 c	30	11 c	82	1	2
06/19	10	13	23	64	2	2	2	21	14	39	2	2	18	4	29	86	2	2
06/20	15	22	38	86	3	3	3	23	17	62	2	3	26	21	55	107	4	3
06/21	6	63	43	149	3	5	0	45	17	107	2	5	12	81	66	188	5	5
06/22	15 c	78	58 c	227	4	7	6 c	78	23 c	185	3	8	24 c	78	90 c	266	7	7
06/23	17	107	76	334	6	11	7	158	29	342	3	16	28	57	118	323	9	8
06/24	18	151	93	484	7	16	16	133	45	476	5	22	20	168	138	490	11	12
06/25	14 c	110 c	107 c	594 c	8	19	28 c	41 c	73 c	517 c	8	24	0 c	135 c	138 c	625 c	11	16
06/26	16	162	123	757	9	25	4	167	77	684	9	31	28	157	165	782	13	20
06/27	21	142	143	898	11	29	11	158	87	842	10	39	32	125	197	908	15	23
06/28	4	126	148	1025	11	33	7	55	94	897	11	41	2	198	199	1106	16	28
06/29	8 c	131	155 c	1155	12	37	9 c	59	102 c	956	12	44	6 c	202	205 c	1308	16	33
06/30	13	152	168	1307	13	42	7	70	109	1027	12	47	20	233	225	1541	18	39
07/01	20	94	189	1401	15	45	2	71	111	1097	13	50	39	116	263	1658	21	42
07/02	39	154	228	1555	18	50	39	73	150	1170	17	54	39	235	302	1893	24	48
07/03	23	293	251	1848	19	60	23	183	174	1354	20	62	24	403	326	2296	25	58
07/04	20	213	272	2061	21	67	11	23	185	1377	21	63	30	403	356	2699	28	68
07/05	43	143	314	2205	24	71	78	79	263	1456	30	67	7	208	362	2907	28	74
07/06	98 c*	163	412 c*	2367	32	77	85 c*	69	348 c*	1525	40	70	72 c*	257	435 c*	3163	34	80
07/07	98 *	130	510 *	2497	39	81	85 *	55	433 *	1579	49	72	72 *	205	507 *	3368	40	85
07/08	154	101	664	2598	51	84	92	69	526	1648	60	76	138	134	645	3502	50	89
07/09	90	87	754	2686	58	87	50	82	576	1730	66	79	84	93	729	3595	57	91
07/10	60 *	57 *	814 *	2743 *	63	89	37 *	55 *	613 *	1785 *	70	82	54 *	59 *	783 *	3653 *	61	93
07/11	31	57 *	845	2800 *	65	91	23	55 *	635	1841 *	72	84	24	59 *	807	3712 *	63	94
07/12	19	26	864	2826	67	92	13	28	648	1869	74	86	15	25	822	3737	64	95
07/13	33	17	897	2843	69	92	18	14	666	1883	76	86	32	21	854	3757	67	95
07/14	5	19	902	2862	70	93	3	34	669	1917	76	88	4	3	859	3761	67	95
07/15	33	3	935	2866	72	93	21	7	690	1924	79	88	30	0	888	3761	69	95
07/16	37	14	973	2880	75	93	18	23	708	1947	81	89	38	5	926	3766	72	96
07/17	32	21 *	1005	2901 *	77	94	9	13 *	717	1960 *	82	90	39	19 *	965	3785 *	75	96
07/18	42	27 *	1047	2928 *	81	95	15	22 *	732	1983 *	83	91	48	24 *	1013	3809 *	79	97
07/19	46	30 *	1093	2958 *	84	96	8	11 *	740	1994 *	84	91	62	30 *	1074	3839 *	84	97
07/20	50	32 *	1143	2990 *	88	97	32	47 *	771	2041 *	88	94	43	21 *	1118	3861 *	87	98

–Continued–

Appendix B.11. (page 2 of 2)

Date	Both Shores						South Shore (Aniak)						North Shore					
	Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.	
	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993
07/21	19	13 *	1162	3003 *	90	97	14	20 *	785	2061 *	89	94	15	8 *	1133	3868 *	89	98
07/22	46	30 *	1208	3033 *	93	98	21	31 *	806	2092 *	92	96	48	24 *	1181	3892 *	92	99
07/23	16	10 *	1224	3043 *	94	99	10	15 *	816	2107 *	93	97	14	7 *	1195	3899 *	93	99
07/24	8	5 *	1232	3048 *	95	99	7	10 *	823	2117 *	94	97	5	3 *	1201	3901 *	94	99
07/25	11	7 *	1244	3056 *	96	99	5	8 *	828	2124 *	94	97	12	6 *	1212	3907 *	95	99
07/26	10	7 *	1254	3062 *	97	99	5	8 *	833	2132 *	95	98	10	5 *	1223	3912 *	96	99
07/27	17	11 *	1271	3073 *	98	100	12	17 *	844	2149 *	96	98	13	7 *	1236	3919 *	97	99
07/28	3	2 *	1274	3075 *	98	100	0	0 *	844	2149 *	96	98	5	3 *	1241	3921 *	97	99
07/29	8	5 *	1282	3081 *	99	100	6	9 *	851	2158 *	97	99	6	3 *	1247	3924 *	97	100
07/30	2	1 *	1284	3082 *	99	100	15	22 *	866	2181 *	99	100	21	10 *	1268	3935 *	99	100
07/31	3	2 c*	1287	3084 c*	99	100	0	0 c*	866	2181 c*	99	100	5	2 c*	1273	3937 c*	99	100
08/01	0	0 *	1287	3084 *	99	100	0	0 *	866	2181 *	99	100	0	0 *	1273	3937 *	99	100
08/02	4	0	1291	3084	100	100	2	0	868	2181	99	100	3	0	1276	3937	100	100
08/03	0 c	1	1291 c	3085	100	100	0 c	0	868 c	2181	99	100	0 c	2	1276 c	3939	100	100
08/04	0	0 c	1291	3085 c	100	100	0	0 c	868	2181 c	99	100	0	0 c	1276	3939 c	100	100
08/05	0	0	1291	3085	100	100	0	0	868	2181	99	100	0	0	1276	3939	100	100
08/06	2 c	2 c	1292 c	3086 c	100	100	5 c	1 c	873 c	2182 c	99	100	2 c	2 c	1278 c	3941 c	100	100
08/07	0	0	1292	3086	100	100	0	0	873	2182	99	100	0	0	1278	3941	100	100
08/08	1	0	1293	3086	100	100	1	0	874	2182	100	100	1	0	1278	3941	100	100
08/09	3	0 c	1297	3086 c	100	100	3	0 c	877	2182 c	100	100	2	0 c	1280	3941 c	100	100
08/10	0	0	1297	3086	100	100	0	0	877	2182	100	100	0	0	1280	3941	100	100
08/11	0 c	0	1297 c	3086	100	100	0 c	0	877 c	2182	100	100	0 c	0	1280 c	3941	100	100
08/12	0	0	1297	3086	100	100	0	0	877	2182	100	100	0	0	1280	3941	100	100
08/13	0	0	1297	3086	100	100	0	0	877	2182	100	100	0	0	1280	3941	100	100
08/14	0 c	0 c	1297 c	3086 c	100	100	0 c	0 c	877 c	2182 c	100	100	0 c	0 c	1280 c	3941 c	100	100
08/15	0	0	1297	3086	100	100	0	0	877	2182	100	100	0	0	1280	3941	100	100
08/16	0	0	1297	3086	100	100	0	0	877	2182	100	100	0	0	1280	3941	100	100
08/17	0 c	1 c	1297 c	3087 c	100	100	0 c	0 c	877 c	2182 c	100	100	0 c	1 c	1280 c	3942 c	100	100
08/18	0	0	1297	3087	100	100	0	0	877	2182	100	100	0	0	1280	3942	100	100
08/19	0	0	1297	3087	100	100	0	0	877	2182	100	100	0	0	1280	3942	100	100
08/20	0 c	0	1297 c	3087	100	100	0 c	0	877 c	2182	100	100	0 c	0	1280 c	3942	100	100
08/21	0	0 c	1297	3087 c	100	100	0	0 c	877	2182 c	100	100	0	0 c	1280	3942 c	100	100
08/22	0	0	1297	3087	100	100	0	0	877	2182	100	100	0	0	1280	3942	100	100
08/23	0	0	1297	3087	100	100	0	0	877	2182	100	100	0	0	1280	3942	100	100
08/24	0 c	0	1297 c	3087	100	100	0 c	0	877 c	2182	100	100	0 c	0	1280 c	3942	100	100
08/25	0	0 c	1297	3087 c	100	100	0	0 c	877	2182 c	100	100	0	0 c	1280	3942 c	100	100
08/26	0	0	1297	3087	100	100	0	0	877	2182	100	100	0	0	1280	3942	100	100
08/27	0 c	0	1297 c	3087	100	100	0 c	0	877 c	2182	100	100	0 c	0	1280 c	3942	100	100
08/28	0	0 c	1297	3087 c	100	100	0	0 c	877	2182 c	100	100	0	0 c	1280	3942 c	100	100
08/29	0	0	1297	3087	100	100	0	0	877	2182	100	100	0	0	1280	3942	100	100
08/30	0	0	1297	3087	100	100	0	0	877	2182	100	100	0	0	1280	3942	100	100
08/31	0 c	0	1297 c	3087	100	100	0 c	0	877 c	2182	100	100	0 c	0	1280 c	3942	100	100
09/01	0	0 c	1297	3087 c	100	100	0	0 c	877	2182 c	100	100	0	0 c	1280	3942 c	100	100
09/02	0	0	1297	3087	100	100	0	0	877	2182	100	100	0	0	1280	3942	100	100
09/03	0	0	1297	3087	100	100	0	0	877	2182	100	100	0	0	1280	3942	100	100
09/04	0	0	1297	3087	100	100	0	0	877	2182	100	100	0		1280			
09/05	0		1297				0		877				0		1280			
09/06	0		1297				0		877				0		1280			
09/07	0		1297				0		877				0		1280			
09/08	0		1297				0		877				0		1280			
09/09	0		1297				0		877				0		1280			
09/10	0		1297				0		877				0		1280			

"c" indicates days when commercial fishing periods occured in District 1.

* CPUE estimated; no test fishing.

Appendix B 12. Historic mean daily CPUE for coho salmon caught in the Aniak test fishery

Date	Both Shores								South Shore (Aniak)						North Shore					
	Daily		Cumulative		Average Threshold		Percent Pass		Daily		Cumulative		Percent Pass		Daily		Cumulative		Percent Pass	
	1992	1993	1992	1993			1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993
07/10	0 *	0 *	0 *	0 *			0	0	0 *	0 *	0 *	0 *	0	0	0 *	0 *	0 *	0 *	0	0
07/11	0	0 *	0	0 *			0	0	0	0 *	0	0 *	0	0	0	0 *	0	0 *	0	0
07/12	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/13	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/14	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/15	0	2	0	2			0	0	0	3	0	3	0	0	0	0	0	0	0	0
07/16	0	0	0	2			0	0	0	0	0	3	0	0	0	0	0	0	0	0
07/17	0	0 *	0	2 *			0	0	0	0 *	0	3 *	0	0	0	0 *	0	0 *	0	0
07/18	4	5 *	4	6 *			0	0	7	8 *	7	11 *	0	0	0	0 *	0	0 *	0	0
07/19	0	0 *	4	6 *			0	0	0	0 *	7	11 *	0	0	0	0 *	0	0 *	0	0
07/20	0	0 *	4	6 *			0	0	0	0 *	7	11 *	0	0	0	0 *	0	0 *	0	0
07/21	8	10 *	11	17 *			0	0	10	12 *	17	23 *	1	1	5	9 *	5	9 *	0	0
07/22	5	7 *	17	23 *			1	1	11	12 *	28	34 *	1	1	0	0 *	5	9 *	0	0
07/23	8	10 *	24	34 *			1	1	8	9 *	36	44 *	2	2	7	11 *	12	20 *	0	0
07/24	7	9 *	32	43 *			1	1	8	9 *	45	53 *	2	2	6	9 *	18	29 *	0	1
07/25	8	11 *	40	53 *			1	1	9	10 *	53	63 *	2	2	7	12 *	26	41 *	1	1
07/26	14	18 *	53	71 *	62	0	2	2	15	17 *	69	80 *	3	3	12	19 *	38	60 *	1	1
07/27	31	40 *	84	111 *	98	0	3	3	51	57 *	120	136 *	5	5	10	16 *	48	76 *	1	2
07/28	25	32 *	109	143 *	126	0	3	4	39	44 *	159	180 *	7	7	10	16 *	59	92 *	1	2
07/29	48	63 *	157	206 *	182	0	5	5	35	39 *	194	219 *	8	8	62	97 *	120	189 *	3	4
07/30	48	62 *	205	269 *	237	0	6	7	40	45 *	234	263 *	10	10	15	24 *	135	213 *	3	5
07/31	94	123 c*	299	391 c*	345	0	9	10	101	112 c*	334	375 c*	14	14	88	138 c*	223	350 c*	6	7
08/01	115	150 *	414	541 *	476	0	13	14	163	181 *	497	556 *	21	21	67	105 *	290	455 *	7	10
08/02	142	197	556	738	647	0	17	20	149	230	647	786	28	30	135	163	425	618	11	13
08/03	120 c	269	676 c	1007	841	0	21	27	112 c	224	759 c	1010	32	38	127 c	314	552 c	932	14	20
08/04	163	113 c	839	1119 c	979	0	26	30	203	129 c	961	1139 c	41	43	124	97 c	676	1029 c	17	22
08/05	115	118	954	1237	1096	0	30	33	122	55	1084	1194	46	45	108	180	784	1209	20	26
08/06	127 c	174 c	1081 c	1411 c	1246	0	34	38	113 c	139 c	1197 c	1334 c	51	50	140 c	242 c	924 c	1452 c	23	31
08/07	95	189	1176	1599	1366	0	37	43	122	99	1319	1433	56	54	66	233	992	1685	25	36
08/08	33	139	1208	1738	1473	0	38	46	44	60	1363	1493	58	56	21	217	1013	1902	26	41
08/09	33	148 c	1241	1886 c	1564	0 c	39	50	35	197 c	1398	1690 c	60	64	30	51 c	1043	1953 c	26	42
08/10	40	149	1281	2036	1658	0	40	54	24	138	1422	1828	61	69	55	161	1099	2113	28	45
08/11	60 c	96	1341 c	2132	1736	0	42	57	21 c	38	1443 c	1866	61	70	100 c	154	1199 c	2268	30	48
08/12	61	105	1402	2237	1819	0	44	60	51	70	1494	1936	64	73	70	175	1269	2443	32	52
08/13	153	126	1555	2363	1959	0	49	63	66	61	1560	1998	66	75	240	254	1509	2696	38	57
08/14	215 c	58 c	1770 c	2420 c	2095	0	55	64	59 c	12 c	1619 c	2009 c	69	76	371 c	104 c	1880 c	2800 c	47	60
08/15	162	48	1932	2468	2200	0	60	66	103	19	1722	2028	73	76	222	77	2103	2877	53	61
08/16	179	68	2111	2556	2334	0	66	68	49	39	1771	2067	75	78	308	137	2411	3014	61	64
08/17	69 c	89 c	2180 c	2645 c	2412	0	68	70	50 c	55 c	1821 c	2121 c	78	80	88 c	106 c	2498 c	3120 c	63	66
08/18	76	148	2256	2793	2524	0	71	74	29	93	1850	2214	79	83	123	204	2621	3324	66	71
08/19	36	91	2291	2884	2588	0	72	77	27	52	1876	2266	80	85	45	130	2666	3454	67	74
08/20	67 c	74	2359 c	2958	2659	0	74	79	35 c	18	1911 c	2284	81	86	100 c	102	2766 c	3557	70	76
08/21	37	86 c	2396	3044 c	2720	0	75	81	26	5 c	1937	2289 c	82	86	49	126 c	2816	3683 c	71	78
08/22	26	35	2422	3079	2750	0	76	82	31	3	1967	2292	84	86	20	51	2836	3733	71	80
08/23	63	92	2485	3171	2826	0	78	84	80	33	2048	2325	87	87	45	152	2881	3885	73	83
08/24	33 c	127	2518 c	3298	2906	0	79	88	36 c	43	2083 c	2368	89	89	31 c	210	2912 c	4095	73	87
08/25	13	84 c	2532	3382 c	2957	0	79	90	8	46 c	2091	2415 c	89	91	19	122 c	2931	4217 c	74	90
08/26	80	122	2612	3504	3037	0	82	93	19	65	2110	2479	90	93	142	179	3073	4397	77	94
08/27	47 c	46	2659 c	3551	3084	0	83	95	28 c	27	2138 c	2507	91	94	65 c	65	3139 c	4462	79	95
08/28	104	29 c	2762	3579 c	3187	0	86	95	12	27 c	2150	2534 c	92	95	195	30 c	3334	4492 c	84	96
08/29	101	43	2863	3622	3288	0	89	96	13	20	2163	2554	92	96	188	66	3522	4558	89	97
08/30	34	32	2897	3655	3322	0	91	97	35	25	2198	2579	94	97	33	40	3555	4598	90	98
08/31	35 c	7	2932 c	3662	3357	0	92	98	9 c	6	2207 c	2584	94	97	61 c	9	3616 c	4607	91	98
09/01	75	29 c	3007	3691 c	3432	0	94	98	27	21 c	2235	2606 c	95	98	123	37 c	3739	4644 c	94	99
09/02	118	25	3125	3716	3550	0	98	99	53	15	2287	2620	97	99	183	35	3923	4679	99	100
09/03	40	14	3165	3730	3591	0	99	99	35	12	2322	2632	99	99	46	16	3969	4695	100	100
09/04	34	25	3199	3755	3624	0	100	100	26	25	2348	2657	100	100	41		4010			
09/05	22		3221		3646	0			25		2373				19		4029			
09/06	48		3269		3695	0			79		2451				18		4047			
09/07	32		3302		3727	0			48		2499				17		4064			
09/08	37		3339		3765	0			50		2549				25		4089			
09/09	25		3364		3789	0			36		2585				13		4102			
09/10	26		3390						38		2623				15		4116			
09/11	156		3546						57		2680				21		4138			
09/12	77		3623						10		2689				29		4167			

c = commercial fishing period in District W1.
* = estimated CPUE

Appendix B.13. Historic mean daily CPUE for chum salmon caught in the Aniak test fishery.

Date	Both Shores						South Shore (Aniak)						North Shore					
	Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.	
	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)
05/31		0						0						0				
06/01		0						0						0				
06/02		0						0						0				
06/03		1						1						1				
06/04		1						1						1				
06/05		1						0						3				
06/06		1						0						1				
06/07		1						1						1				
06/08		2						0						3				
06/09		1						1						1				
06/10		0						0						0				
06/11		2						2						2				
06/12		8						0						11				
06/13		6						3						9				
06/14		5						0						10				
06/15	11	21	11	21	0	0	11	4	11	4	0	0		28				
06/16	60	18	71	39	1	0	33	7	44	11	0	0	86	29	86	29	1	0
06/17	92	27	163	66	2	1	23	10	67	21	1	0	162	44	248	73	2	1
06/18	48 c	29	210 c	95	2	1	35 c	12	102 c	34	1	0	60 c	47	308 c	119	3	1
06/19	90	13	300	108	3	1	56	7	158	40	2	1	124	18	432	137	4	1
06/20	89	18	389	126	4	1	21	12	179	52	2	1	156	25	588	162	6	1
06/21	40	94	429	221	4	2	25	72	203	124	2	2	56	117	644	279	6	2
06/22	126 c	116	555 c	337	6	4	102 c	89	305 c	214	3	3	150 c	143	794 c	422	8	3
06/23	153	137	708	474	7	5	59	113	364	326	4	5	247	162	1041	584	10	5
06/24	140	176	847	651	8	7	146	149	510	475	5	7	134	204	1174	788	11	6
06/25	62 c	106 c	909 c	758 c	9	8	85 c	105 c	595 c	580 c	6	8	39 c	105 c	1213 c	893 c	12	7
06/26	61	155	970	913	10	10	35	140	629	719	6	10	88	169	1301	1063	12	8
06/27	114	149	1084	1062	11	12	74	182	703	902	7	13	155	116	1455	1179	14	9
06/28	29	189	1113	1251	11	14	44	110	746	1011	7	15	14	269	1469	1447	14	11
06/29	79 c	234	1192 c	1485	12	16	58 c	120	804 c	1132	8	16	100 c	347	1569 c	1794	15	14
06/30	63	186	1254	1671	12	18	83	129	887	1260	9	18	42	243	1611	2038	15	16
07/01	230	166	1485	1837	15	20	59	161	946	1421	9	21	402	172	2013	2210	19	17
07/02	259	163	1744	2000	17	22	182	106	1128	1527	11	22	336	220	2349	2430	23	19
07/03	153	155	1897	2155	19	23	156	77	1284	1604	13	23	149	233	2498	2663	24	21
07/04	202	155	2099	2310	21	25	151	77	1435	1680	14	24	253	233	2751	2896	26	23
07/05	218	283	2317	2593	23	28	258	86	1693	1766	17	26	178	480	2930	3376	28	27
07/06	351 c*	366	2668 c*	2959	26	32	447 c*	185	2140 c*	1951	21	28	255 c*	547	3185 c*	3923	31	31
07/07	351 *	369	3019 *	3328	30	36	447 *	230	2587 *	2181	25	32	255 *	508	3440 *	4431	33	35
07/08	484	276	3504	3604	35	39	637	161	3224	2342	32	34	332	392	3772	4823	36	38
07/09	527	353	4030	3958	40	43	698	223	3922	2565	39	37	355	483	4127	5306	40	42
07/10	351 *	302 *	4382 *	4259 *	43	46	461 *	210 *	4383 *	2775 *	43	40	242 *	393 *	4369 *	5700 *	42	45
07/11	176	302 *	4558	4561 *	45	49	224	210 *	4607	2985 *	45	43	128	393 *	4497	6093 *	43	48
07/12	129	251	4687	4812	47	52	164	198	4771	3183	47	46	94	304	4592	6397	44	51
07/13	312	243	4999	5055	50	55	254	226	5025	3409	50	49	370	261	4962	6657	46	53
07/14	455	201	5454	5256	54	57	703	261	5728	3670	56	53	206	141	5168	6798	50	54
07/15	409	261	5863	5516	58	60	601	261	6329	3930	62	57	218	261	5386	7058	52	56
07/16	382	272	6245	5789	62	63	468	267	6797	4197	67	61	296	278	5682	7337	55	58
07/17	390	343 *	6635	6131 *	66	67	380	276 *	7177	4474 *	71	65	400	461 *	6082	7797 *	58	62
07/18	317	278 *	6951	6409 *	69	70	283	206 *	7460	4679 *	73	68	350	403 *	6432	8200 *	62	65
07/19	210	184 *	7161	6593 *	71	72	171	124 *	7631	4804 *	75	70	248	286 *	6680	8486 *	64	67
07/20	321	282 *	7482	6875 *	74	75	245	178 *	7876	4982 *	78	72	397	457 *	7077	8943 *	68	71

–Continued–

Appendix B.13. (page 2 of 2)

Date	Both Shores						South Shore (Aniak)						North Shore					
	Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.		Daily		Cumulative		Percent Pass.	
	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)	(1992)	(1993)
07/21	290	255 *	7772	7130 *	77	77	198	144 *	8074	5126 *	80	74	383	441 *	7460	9384 *	72	74
07/22	382	336 *	8155	7466 *	81	81	277	201 *	8350	5327 *	82	77	488	562 *	7948	9946 *	76	79
07/23	170	150 *	8325	7616 *	83	83	156	114 *	8507	5441 *	84	79	185	213 *	8132	10159 *	78	80
07/24	192	169 *	8517	7784 *	85	84	193	141 *	8700	5582 *	86	81	191	220 *	8323	10378 *	80	82
07/25	160	140 *	8677	7925 *	86	86	104	76 *	8804	5657 *	87	82	216	248 *	8539	10626 *	82	84
07/26	179	157 *	8856	8082 *	88	88	108	79 *	8913	5736 *	88	83	250	288 *	8789	10915 *	84	86
07/27	193	169 *	9049	8251 *	90	90	185	135 *	9098	5871 *	90	85	200	230 *	8989	11144 *	86	88
07/28	152	133 *	9200	8384 *	91	91	93	68 *	9191	5939 *	91	86	210	241 *	9198	11386 *	88	90
07/29	148	130 *	9349	8515 *	93	92	92	67 *	9283	6006 *	91	87	205	236 *	9403	11622 *	90	92
07/30	121	106 *	9469	8621 *	94	94	268	195 *	9551	6200 *	94	90	397	458 *	9800	12079 *	94	96
07/31	123	108 c*	9593	8729 c*	95	95	104	76 c*	9655	6276 c*	95	91	142	164 c*	9943	12243 c*	95	97
08/01	134	117 *	9726	8846 *	97	96	118	86 *	9773	6362 *	96	92	149	172 *	10092	12415 *	97	98
08/02	71	49	9798	8895	97	97	78	67	9851	6429	97	93	65	31	10157	12446	98	98
08/03	72 c	70	9869 c	8965	98	97	85 c	90	9936 c	6519	98	95	58 c	49	10215 c	12496	98	99
08/04	59	74 c	9928	9039 c	99	98	69	142 c	10005	6661 c	99	97	48	6 c	10263	12501 c	99	99
08/05	14	29	9942	9068	99	98	22	44	10027	6705	99	97	6	14	10269	12516	99	99
08/06	42 c	32 c	9985 c	9100 c	99	99	39 c	38 c	10066 c	6744 c	99	98	46 c	19 c	10316 c	12535 c	99	99
08/07	17	39	10002	9139	99	99	10	72	10076	6816	99	99	24	22	10340	12557	99	99
08/08	11	21	10012	9160	99	99	15	36	10091	6852	99	99	7	6	10346	12563	99	99
08/09	10	16 c	10022	9176 c	99	100	15	17 c	10106	6869 c	100	100	4	13 c	10351	12576 c	99	100
08/10	6	10	10028	9185	100	100	7	5	10113	6874	100	100	5	14	10356	12590	99	100
08/11	14 c	4	10042 c	9190	100	100	12 c	2	10125 c	6876	100	100	16 c	7	10372 c	12596	100	100
08/12	5	2	10048	9192	100	100	5	0	10130	6876	100	100	5	7	10377	12603	100	100
08/13	5	10	10053	9202	100	100	2	8	10132	6883	100	100	9	14	10386	12617	100	100
08/14	7 c	3 c	10060 c	9205 c	100	100	7 c	1 c	10139 c	6885 c	100	100	6 c	5 c	10392 c	12622 c	100	100
08/15	1	1	10061	9206	100	100	2	0	10142	6885	100	100	0	3	10392	12625	100	100
08/16	4	3	10065	9209	100	100	3	0	10144	6885	100	100	5	5	10397	12630	100	100
08/17	2 c	0 c	10067 c	9209 c	100	100	2 c	0 c	10147 c	6885 c	100	100	2 c	0 c	10400 c	12630 c	100	100
08/18	2	0	10069	9209	100	100	0	0	10147	6885	100	100	4	0	10404	12630	100	100
08/19	2	2	10071	9211	100	100	2	3	10149	6888	100	100	2	2	10405	12632	100	100
08/20	1 c	0	10073 c	9211	100	100	1 c	0	10151 c	6888	100	100	2 c	0	10407 c	12632	100	100
08/21	1	1 c	10073	9212 c	100	100	1	0 c	10152	6888 c	100	100	0	1 c	10407	12633 c	100	100
08/22	0	1	10073	9213	100	100	0	3	10152	6890	100	100	0	0	10407	12633	100	100
08/23	0	0	10073	9213	100	100	0	0	10152	6890	100	100	0	0	10407	12633	100	100
08/24	0 c	1	10073 c	9214	100	100	0 c	2	10152 c	6893	100	100	0 c	0	10407 c	12633	100	100
08/25	0	0 c	10073	9214 c	100	100	0	0 c	10152	6893 c	100	100	0	0 c	10407	12633 c	100	100
08/26	1	2	10074	9216	100	100	0	0	10152	6893	100	100	2	3	10409	12637	100	100
08/27	1 c	0	10075 c	9216	100	100	0 c	0	10152 c	6893	100	100	1 c	0	10410 c	12637	100	100
08/28	1	0 c	10076	9216 c	100	100	0	0 c	10152	6893 c	100	100	2	0 c	10412	12637 c	100	100
08/29	1	0	10077	9216	100	100	0	0	10152	6893	100	100	2	0	10414	12637	100	100
08/30	0	1	10077	9217	100	100	0	1	10152	6894	100	100	0	0	10414	12637	100	100
08/31	0 c	0	10077 c	9217	100	100	0 c	0	10152 c	6894	100	100	0 c	0	10414 c	12637	100	100
09/01	0	1 c	10077	9218 c	100	100	0	1 c	10152	6895 c	100	100	0	1 c	10414	12638 c	100	100
09/02	0	0	10077	9218	100	100	0	0	10152	6895	100	100	0	0	10414	12638	100	100
09/03	0	0	10077	9218	100	100	0	0	10152	6895	100	100	0	0	10414	12638	100	100
09/04	0	0	10077	9218	100	100	0	0	10152	6895	100	100	0		10414			
09/05	0		10077				0		10152				0		10414			
09/06	0		10077				0		10152				0		10414			
09/07	0		10077				0		10152				0		10414			
09/08	0		10077				0		10152				0		10414			
09/09	0		10077				0		10152				0		10414			
09/10	0		10077				0		10152				0		10414			

"c" indicates days when commercial fishing periods occured in District 1.
* CPUE estimated; no test fishing.

Appendix B.14. Lower Kuskokwim River, District 1, and the middle Kuskokwim River, District 2, combined commercial salmon harvest, 1960-1993.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	5,969	0	2,498	0	0	8,467
1961	18,918	0	5,044	0	0	23,962
1962	15,341	0	12,432	0	0	27,773
1963	12,016	0	15,660	0	0	27,676
1964	17,149	0	28,613	0	0	45,762
1965	21,989	0	12,191	0	0	34,180
1966	25,545	0	22,985	0	0	48,530
1967	29,986	0	56,313	0	148	86,447
1968	34,278	0	127,306	0	187	161,771
1969	43,997	322	83,765	0	7,165	135,249
1970	39,290	117	38,601	44	1,664	79,716
1971	40,274	2,606	5,253	0	68,914	117,047
1972	39,454	102	22,579	8	78,619	140,762
1973	32,838	369	130,876	33	148,746	312,862
1974	18,664	136	147,269	84	171,887	338,040
1975	21,720	23	81,945	10	181,840	285,538
1976	30,735	2,971	88,501	133	177,864	300,204
1977	35,830	9,379	241,364	203	248,721	535,497
1978	45,641	733	213,393	5,832	248,656	514,255
1979	38,966	1,054	219,060	78	261,874	521,032
1980	35,881	360	222,012	803	483,211	742,267
1981	47,663	48,375	211,251	292	418,677	726,258
1982	48,234	33,154	447,117	1,748	278,306	808,559
1983	33,174	68,855	196,287	211	267,698	566,225
1984	31,742	48,575	623,447	2,942	423,718	1,130,424
1985	37,889	106,647	335,606	75	199,478	679,695
1986	19,414	95,433	659,988	3,422	309,213	1,087,470
1987	36,179	136,602	399,467	43	574,336	1,146,627
1988	55,716	92,025	524,296	10,825	1,381,674	2,064,536
1989	43,217	42,747	479,856	464	749,182	1,315,466
1990	53,759	84,870	410,332	3,397	461,624	1,013,982
1991	37,778	108,946	500,935	378	431,802	1,079,839
1992	46,872	92,218	666,170	7,451	344,603	1,157,314
1993	8,735	27,008	610,739	64	43,337	689,883
Ten Year Average (1983-1992)	39,574	87,692	479,638	179[a]	514,333	1,124,158

a Odd years only.

Appendix B.15. Comparative chinook salmon catches by fishing period by year in District 1, Lower Kuskokwim River, 1974 - 1993[a].

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1974	June 10-11	4,384	422	5,064	0.90
	June 13-14	5,790	488	5,957	1.00
	June 17-18	5,857	506	6,072	1.00
Subtotal[b]		16,031	606	16,992	0.94
	June 27	558	267	1,602	0.40
	July 01-02	561	380	4,560	0.08
	July 04-05	196	282	3,384	0.06
	July 08-09	286	376	4,512	0.06
	July 18	31	190	1,140	0.03
	Total	17,663	666	32,190	0.55
1975	June 16	359	12	72	5.00
	June 19-20	1,031	46	552	1.90
	June 23-24	17,235	483	5,796	2.90
Subtotal[b]		18,625	541	6,420	2.90
	June 30	691	279	1,674	0.40
	July 03	636	360	2,160	0.30
	July 07	421	369	2,214	0.20
	July 10	195	304	1,824	0.10
	July 14	179	326	1,956	0.10
	Total	20,747	539	16,248	1.28
1976	June 17	6,962	459	2,754	2.50
	June 21	13,048	495	2,970	4.40
Subtotal[b]		20,010	561	5,724	3.50
	June 28	4,143	348	2,088	2.00
	July 01	1,550	415	2,490	0.60
	July 08	894	381	2,286	0.40
	July 12	377	344	2,262	0.20
	July 15	236	265	1,590	0.10
	Total	27,177	517	16,440	1.65

- Continued -

Appendix B.15. (page 2 of 6)

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1977	June 15	12,458	467	2,802	4.50
	June 20	16,227	484	2,904	5.60
Subtotal[b]		28,685	563	5,706	5.03
	June 27	1,337	378	2,268	0.60
	June 30	504	409	2,454	0.20
	July 04	266	331	1,986	0.10
	July 07	407	368	2,208	0.20
	July 14	153	385	2,310	0.06
	Total	31,352	653	16,932	1.85
1978	June 09	7,590	509	3,054	2.50
	June 14	6,142	266	1,596	3.90
	June 16	12,341	396	2,376	5.20
	June 22	1,724	72	288	6.00
	June 23	8,342	429	1,716	4.90
Subtotal[b]		36,139	615	9,030	4.00
	June 26	1,964	499	2,694	0.70
	June 29	1,759	422	2,652	0.70
	July 03	894	476	2,856	0.30
	July 06	1,460	485	5,820	0.30
	July 10	694	428	5,136	0.10
	July 10	293	422	2,532	0.10
	Total	43,203	617	30,720	1.41
1979	June 11	12,270	523	3,138	3.90
	June 15	12,363	549	3,294	3.80
Subtotal[b]		24,633	591	6,432	3.83
	June 22	5,651	502	3,012	1.90
	June 26	2,277	531	3,186	0.70
	June 29	1,583	542	3,252	0.30

- Continued -

Appendix B.15. (page 3 of 6)

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1979	July 03	1,233	542	3,252	0.40
	July 10	470	520	3,120	0.20
	Total	35,847	617	22,254	1.61
1980	June 12	9,891	469	2,814	3.50
	June 18	16,921	468	2,808	6.00
Subtotal[b]		26,812	553	5,622	4.77
	June 23	4,777	426	2,616	1.80
	June 26	1,460	408	2,448	0.60
	July 02	498	383	2,298	0.20
	July 09	445	431	2,586	0.20
	Total	33,992	597	15,570	2.18
1981	June 10	11,897	489	2,934	4.10
	June 16	17,985	541	3,246	5.50
Subtotal[a]		29,882	589	6,180	4.84
	June 22	3,830	511	3,066	1.25
	June 25	2,000	508	3,048	0.66
	June 30	2,563	484	2,904	0.88
	July 02	1,707	459	2,754	0.62
	July 06	1,088	461	2,766	0.39
	July 09	491	440	2,640	0.37
	Total	42,011	613	23,358	1.80
1982	June 14	4,912	464	2,784	1.80
	June 17	11,285	496	2,892	3.80
	June 21	13,343	499	2,994	4.50
	June 24	8,548	459	1,836	4.70
Subtotal[b]		38,088	610	10,506	3.63

- Continued -

Appendix B.15. (page 4 of 6)

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1982	June 28	1,943	352	1,408	1.38
	June 30	2,064	483	1,932	1.07
	July 02	1,095	434	1,736	0.63
	July 05	875	372	2,232	0.39
	July 08	748	435	2,610	0.29
	July 12	307	354	2,124	0.14
	Total	45,120	610	22,548	2.00
1983	June 13	7,445	489	2,934	2.54
	June 16	5,961	450	2,700	2.21
Subtotal[b]		13,406	544	5,634	2.38
	June 20	4,776	474	2,844	1.68
	June 23	3,287	450	2,700	1.22
	June 27	2,566	446	2,676	0.96
	June 30	2,359	547	3,282	0.72
	July 04	1,213	443	2,658	0.46
	July 07	1,202	496	2,976	0.40
	July 11	633	466	2,796	0.23
	Total	16,036	619	25,566	0.63
1984	June 18	10,845	484	2,904	3.73
	June 21	6,336	443	2,658	2.38
Subtotal		17,181	520	5,562	3.09
	June 25	3,018	466	2,796	1.08
	June 28	2,625	470	2,820	0.93
	July 02	1,988	483	2,898	0.69
	July 05	1,218	426	2,556	0.48
	July 09	1,211	496	2,976	0.41
	July 12	858	436	2,616	0.33
	July 16	744	373	2,238	0.33
	Total	28,843	587	24,462	1.18

-Continued-

Appendix B.15. (page 5 of 6)

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1985	June 20	6,519	423	2,538	2.07
	June 24	10,413	488	2,928	3.56
	June 27	8,791	492	2,952	2.98
	July 01	6,168	514	3,084	2.00
	July 04	3,774	460	2,760	1.37
	Total	35,665	598	14,262	2.50
1986	June 26	7,786	514	3,084	2.52
	June 30	4,200	576	3,456	1.22
	July 03	3,224	556	3,336	0.97
	July 07	1,805	586	3,516	0.51
	July 10	1,156	532	3,192	0.36
	Total	18,171	631	16,584	1.10
1987	June 18	18,336	526	4,208	4.36
	June 24				
	June 30				
	July 03	5,970	580	3,480	1.72
	July 07	3,636	578	3,468	1.05
	July 11	1,910	597	3,582	0.53
	July 15	1,415	569	3,414	0.41
	July 20	1,227	551	3,306	0.37
	Total	32,494	677	21,458	1.51
1988	June 16	12,640	602	4,816	2.62
	June 20	11,708	612	3,672	3.18
	June 24	9,710	644	3,864	2.51
	June 28	5,350	609	3,654	1.46
	July 02	3,531	580	3,480	1.01
	July 05	2,340	579	3,474	0.67
	July 08	1,891	604	3,624	0.52
	July 11	1,628	598	3,588	0.45
July 14		1,751	597	3,582	0.49
	July 18	1,107	575	3,450	0.32
	Total	51,656	746	37,204	1.39

-continued-

Appendix B.15. (page 6 of 6)

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1989	June 19	9,204	374	2,988	3.08
	June 23	6,011	277	2,218	2.71
	June 26	1,862	126	1,006	1.85
	June 30	9,232	642	5,129	1.80
	July 03	4,600	629	3,770	1.22
	July 05	3,311	553	3,311	1.00
	July 08	3,136	621	3,733	0.84
	July 11	1,691	616	3,676	0.46
	July 14	1,216	590	3,576	0.34
	July 18	868	437	2,630	0.33
Total		41,131	745	32,037	1.28
1990	June 20	16,690	630	3,780	4.42
	June 25	16,031	611	3,666	4.37
	June 29	9,428	645	3,870	2.44
	July 05	4,071	591	3,546	1.15
	July 09	2,804	589	3,534	0.79
	July 14	2,127	625	5,000	0.43
Total		51,151	743	23,396	2.19
1991	June 20	13,813	601	3,606	3.83
	June 24	12,612	616	3,696	3.41
	July 01	5,966	629	3,774	1.58
	July 06	2,102	589	3,534	0.59
	July 13	904	571	3,426	0.26
	July 18	452	568	3,408	0.13
Total		35,849	749	21,444	1.67
1992	June 18	9,756	567	4,536	2.15
	June 22	14,578	619	4,952	2.94
	June 25	8,984	627	5,016	1.79
	June 29	7,323	602	3,612	2.03
	July 06	3,250	587	4,696	0.69
Total		43,891	741	22,812	1.92
1993	June 25	8,184	622	4,976	1.64
Total		8,184	622	4,976	1.64

a The catch totals exclude small numbers of chinook salmon taken after 20 July.
b Unrestricted mesh size.

Appendix B.16. Comparative chinook salmon catches by fishing period by year in District 2, Middle Kuskokwim River, 1985-1993[a].

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1985	June 20	136	8	48	2.83
	June 24	263	11	66	3.98
	June 27	548	12	72	7.61
	July 01	779	15	90	8.66
July 04		0	0	0	0
	Total	1,726	17	276	6.25
1986	June 26	186	3	18	10.33
	June 30	386	13	78	4.95
	July 03	168	8	48	3.50
	July 07	117	2	12	9.75
	July 10	45	6	36	1.25
	Total	4,354	13	744	5.85
1987	July 03	1,325	15	90	14.72
	July 07	935	22	132	7.08
	Total	2,260	22	222	10.18
1988	June 24	669	13	78	8.58
	June 28	746	17	102	7.31
	July 02	468	19	114	4.11
	Total	1,883	19	294	6.40
1989	June 30	610	15	120	1.80
	July 03	371	18	108	1.22
	July 05	264	14	84	1.00
	July 11	3	14	84	0.46
	Total	1,248	18	396	3.15
1990	June 29	641	14	84	7.63
	July 05	467	15	90	5.19
	July 09	255	17	102	2.50
	July 14	209	17	136	1.54
	Total	1,572	17	412	3.82
1991	July 01	483	17	102	4.74
	July 06	341	16	96	3.55
	July 13	112	18	108	1.04
	July 18	49	17	102	0.48
	Total	985	18	408	2.41
1992	June 25	1,021	16	128	7.98
	June 29	815	15	90	9.06
	July 06	310	9	72	4.31
	Total	2,146	16	290	7.40
1993	FISHERY DID NOT OPEN UNTIL 6 AUGUST.				

a Excluding small numbers of chinook salmon caught after 20 July.

Appendix B.17. Comparative sockeye salmon catches by fishing period by year in District 1, Lower Kuskokwim River, 1981 - 1993[b].

YEAR	DATE	CATCH	PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1981	June 10[b]	48	489	2,934	0.02
	June 16[b]	316	541	3,246	0.10
	June 22	3,852	511	3,066	1.26
	June 25	6,037	508	3,048	1.98
	June 30	12,262	484	2,904	4.22
	July 02	9,769	459	2,754	3.55
	July 06	5,510	461	2,766	1.99
	Total	37,794	613	20,718	1.82
1982	June 14[b]	321	464	2,784	0.12
	June 17[b]	1,061	496	2,892	0.37
	June 21[b]	2,432	499	2,994	0.81
	June 24[b]	3,157	459	1,836	1.72
	June 28	9,938	352	1,408	7.06
	June 30	5,824	483	1,932	3.01
	July 02	3,110	434	1,736	1.79
	July 05	2,769	372	2,232	1.24
	Total	28,612	610	17,814	1.61
1983	June 13[b]	114	489	2,934	0.04
	June 16[b]	156	450	2,700	0.06
	June 20	3,289	474	2,844	1.16
	June 23	4,807	450	2,700	1.78
	June 27	10,465	446	2,676	3.91
	June 30	12,490	547	3,282	3.81
	July 04	24,540	443	2,658	9.23
	July 07	7,286	496	2,976	2.45
	Total	63,147	619	22,770	2.77
1984	June 18[b]	409	484	2,904	0.14
	June 21[b]	2,618	443	2,658	0.98
	June 25	10,743	466	2,796	3.84
	June 28	10,942	470	2,820	3.88
	July 02	8,145	483	2,898	2.81
	July 05	6,798	426	2,556	2.66
	Total	39,655	587	16,632	2.38
1985	June 20	5,246	423	2,538	2.07
	June 24	25,536	488	2,928	8.72
	June 27	26,155	492	2,952	8.86
	July 01	31,082	514	3,084	10.08
	July 04	16,114	460	2,760	5.84
	Total	104,133	598	14,262	7.30
1986	June 26	40,468	514	3,084	13.12
	June 30	22,633	576	3,456	6.55
	July 03	15,766	556	3,336	4.73
	July 07	8,347	586	3,516	2.37
	July 10	5,488	532	3,192	1.72
	Total	92,702	631	16,584	5.59

-continued-

Appendix B.17. (page 2 of 2)

YEAR	DATE	CATCH	PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1987	June 18	9,102	526	4,208	2.16
	June 24	24,355	607	4,856	5.02
	June 30	39,112	564	4,512	8.67
	July 03	44,030	580	3,480	12.65
	July 07	9,196	578	3,468	2.65
	Total	125,795	677	20,524	6.13
1988	June 16	7,408	602	4,816	1.53
	June 20	14,502	612	3,672	3.95
	June 24	19,894	644	3,864	5.15
	June 28	17,628	609	3,654	4.82
	July 02	15,102	580	3,480	4.34
	July 05	7,284	579	3,474	2.10
	Total	81,818	746	22,960	3.56
1989	June 19	5,495	374	2,988	1.84
	June 23	7,011	277	2,218	3.16
	June 26	3,746	126	1,006	3.72
	June 30	10,214	642	5,129	1.99
	July 03	5,808	629	3,770	1.54
	July 05	2,917	553	3,311	0.88
	Total	35,191	688	18,422	1.91
1990	June 20	10,318	630	3,780	2.73
	June 25	27,024	611	3,666	7.37
	June 29	18,774	645	3,870	4.85
	July 05	10,759	591	3,546	3.03
	Total	66,875	722	14,862	4.50
1991	June 20	19,732	601	3,606	5.47
	June 24	19,262	616	3,696	5.21
	July 01	24,428	629	3,774	6.47
	July 06	24,219	589	3,534	6.85
	Total	87,641	705	14,610	6.00
1992	June 18	8,508	567	4,536	1.88
	June 22	25,017	619	4,952	5.05
	June 25	21,922	627	5,016	4.37
	June 29	26,082	602	3,612	7.22
	July 06	7,962	587	4,696	1.70
	Total	89,491	669	22,812	3.92
1992	June 25	26,363	622	4,976	5.30

a Excludes small numbers of sockeye salmon caught after 7 July.
b Unrestricted mesh size.

Appendix B.18. Comparative sockeye salmon catches by fishing period by year in District 2, Middle Kuskokwim River, 1985-1993[a].

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1985	June 20	115	8	48	2.40
	June 24	340	11	66	5.15
	June 27	739	12	72	10.26
	July 01	1,100	15	90	12.22
	July 04	0	0	0	0.00
	Total	2,294	23	276	8.31
1986	June 26	616	3	18	34.22
	June 30	1,171	13	78	15.01
	July 03	265	8	48	5.52
	July 07	26	2	12	2.17
	Total	2,078	43	156	13.32
1987	July 03	511	15	90	5.68
	July 07	1,459	22	132	11.05
	Total	1,970	29	222	8.87
1988	June 24	1,041	13	78	13.35
	June 28	639	17	102	6.26
	July 02	579	19	114	5.08
	Total	2,259	29	294	7.68
1989	June 30	587	15	120	4.89
	July 03	238	18	108	2.20
	July 05	176	14	84	2.10
	Total	1,001	30	312	3.21
1990	June 29	735	14	84	8.75
	July 05	561	15	90	6.23
	Total	1,296	22	174	7.45
1991	July 01	1,200	17	102	11.76
	July 06	613	16	96	6.39
	Total	1,813	23	198	9.16
1992	June 25	930	16	128	7.27
	June 29	525	15	90	5.83
	July 06	486	9	72	6.75
	Total	1,941	22	290	6.69
1993	No periods during the sockeye run.				

a Excludes small numbers of sockeye salmon caught after 7 July.

Appendix B.19. Commercial coho salmon catches by period, lower Kuskokwim River (District 1), 1974-1993[a].

YEAR	DATE	CATCH	PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1974	Aug 01-02	9,576	267	3,444	2.8
	Aug 05-08	59,090	444	31,968	1.8
	Aug 12-15	58,066	396	28,512	2.0
	Aug 19-22	12,301	263	18,936	0.6
	Aug 26-29	5,360	107	7,704	0.7
	Sept 2-05	430	25	1,815	0.2
	TOTALS	144,823	516	92,379	1.6
1975	Aug 10	2,357	142	852	2.8
	Aug 04-06	12,500	292	14,016	0.9
	Aug 11-13	18,551	373	17,904	1.0
	Aug 18-20	34,435	388	18,624	1.9
	Aug 25-27	16,277	270	12,960	1.3
	TOTALS	84,120	533	64,356	1.3
1976	Aug 02-03	10,534	286	6,864	1.5
	Aug 09-11	29,728	400	19,200	1.5
	Aug 16-18	28,664	387	18,576	1.5
	Aug 23-25	14,543	300	14,400	1.0
	Aug 30-31	4,420	174	7,308	0.6
	TOTALS	87,889	516	66,348	1.3
1977	Aug 01-02	23,987	360	8,640	2.8
	Aug 03-10	91,474	487	23,376	3.9
	Aug 15-16	60,935	438	10,512	5.8
	Aug 18	25,589	378	4,536	5.6
	Aug 22	16,980	361	4,332	3.9
	Aug 25	11,874	264	3,168	3.7
	Aug 29	6,819	204	2,448	2.8
	TOTALS	237,658	572	57,012	4.2
1978	Aug 01	6,311	297	3,564	1.8
	Aug 04	9,455	364	4,368	2.2
	Aug 08	20,501	433	5,196	3.9
	Aug 11	42,428	485	5,820	7.3
	Aug 15	48,950	476	5,712	8.6
	Aug 18	29,485	434	5,208	5.7
	Aug 22	22,287	396	4,752	4.7
	Aug 25	11,168	293	3,516	3.2
	Aug 29	12,215	250	3,000	4.1
	TOTALS	202,800	597	41,136	4.9

-continued-

Appendix B.19 (page 2 of 5)

YEAR	DATE	CATCH	PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1979	Aug 02	52,276	478	5,736	9.1
	Aug 06	53,797	480	2,880	18.7
	Aug 09	26,422	497	2,982	8.9
	Aug 13	27,915	463	2,778	10.0
	Aug 16	21,675	467	2,802	7.7
	Aug 20	19,445	390	2,340	8.3
	Aug 23	5,376	328	1,968	2.7
	Aug 27	6,342	310	3,720	1.7
	Aug 30	2,182	179	2,148	1.0
	TOTALS	215,430	613	27,354	7.9
1980	Aug 02	9,889	375	2,250	4.4
	Aug 07	36,126	455	2,730	13.2
	Aug 11	35,178	482	2,892	12.2
	Aug 14	28,211	439	2,634	10.7
	Aug 18	43,748	441	2,646	16.5
	Aug 21	33,274	419	2,514	13.2
	Aug 25	19,264	370	2,220	8.7
	Aug 28	13,484	319	1,914	7.0
	TOTALS	219,174	586	19,800	11.1
1981	Aug 03	16,184	430	2,580	6.3
	Aug 06	13,885	441	2,646	5.2
	Aug 10	26,972	445	2,670	10.1
	Aug 13	46,252	473	2,838	16.3
	Aug 17	34,739	458	2,748	12.6
	Aug 20	24,184	380	2,280	10.6
	Aug 24	23,771	372	2,232	10.7
	Aug 27	13,785	346	2,076	6.6
	Aug 31	8,096	278	1,668	4.9
	TOTALS	207,868	586	21,738	9.6
1982	July 29	19,561	416	2,496	7.8
	Aug 02	31,944	388	2,328	13.7
	Aug 05	35,766	455	2,670	13.4
	Aug 09	61,231	442	2,652	23.1
	Aug 12	80,685	449	2,694	29.9
	Aug 16	77,785	420	2,520	30.9
	Aug 19	49,566	403	2,418	20.5
	Aug 23	25,218	349	2,094	12.0
	Aug 26	26,761	314	1,884	14.2
	Aug 30	26,815	302	1,812	14.8
	TOTALS	435,332	596	23,568	18.5

-continued-

Appendix B.19 (page 3 of 5)

YEAR	DATE	CATCH	PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1983	Aug 01	9,767	377	2,262	4.3
	Aug 04	15,389	430	2,580	6.0
	Aug 08	34,541	383	2,298	15.0
	Aug 11	35,268	485	2,910	12.1
	Aug 15	24,072	462	2,772	8.7
	Aug 18	22,822	408	2,448	9.3
	Aug 22	34,918	388	2,328	15.0
	Aug 26	19,039	323	1,938	9.8
	TOTALS	195,816	577	19,536	10.0
1984	July 30	56,609	459	2,754	20.6
	Aug 02	79,240	401	2,406	32.9
	Aug 06	84,406	542	4,878	17.3
	Aug 09	80,990	523	4,707	17.2
	Aug 13	80,268	504	4,536	17.7
	Aug 16	78,342	502	4,518	17.3
	Aug 20	63,829	491	4,419	14.4
	Aug 23	49,372	481	4,329	11.4
	Aug 27	16,472	350	3,150	5.2
	Aug 30	11,222	210	1,890	5.9
	Sept 03	1,603	69	360	4.5
	Sept 06	1,877	39	234	8.0
	TOTALS	604,230	619	38,181	15.8
1985	Aug 01	34,052	487	2,922	11.7
	Aug 05	54,819	527	3,162	17.3
	Aug 08	78,149	525	3,150	24.8
	Aug 12	77,809	530	3,180	24.5
	Aug 15	28,013	441	2,646	10.6
	Aug 19	19,316	406	2,436	7.9
	Aug 22	17,534	390	2,340	7.5
	Aug 26	10,688	297	1,782	6.0
	Aug 29	9,568	262	1,572	6.1
	TOTALS	329,948	627	23,190	14.2
1986	July 31	27,553	352	2,112	13.0
	Aug 04	96,127	530	3,180	30.2
	Aug 07	127,024	600	5,400	23.5
	Aug 11	82,215	553	3,318	24.8
	Aug 13	92,918	526	3,156	29.4
	Aug 15	55,633	519	3,114	17.9
	Aug 18	51,328	477	2,862	17.9
	Aug 21	50,640	465	2,790	18.2
	Aug 25	37,365	458	2,748	13.6
	Aug 28	16,436	346	2,076	7.9
	Sept 01	5,949	234	1,404	4.2
	TOTALS	643,188	663	32,160	20.0

-continued-

Appendix B.19 (page 4 of 5)

YEAR	DATE	CATCH	PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)	
1987	Aug 06	46,182	590	3,540	13.0	
	Aug 13	104,968	604	3,624	29.0	
	Aug 17	73,867	595	3,570	20.7	
	Aug 19	45,277	585	3,510	12.9	
	Aug 21	33,601	540	3,240	10.4	
	Aug 24	27,607	500	3,000	9.2	
	Aug 27	21,772	479	2,874	7.6	
	Aug 31	12,873	364	2,184	5.9	
	Sept 03	11,352	278	1,668	6.8	
	Sept 07	4,311	132	792	5.4	
	TOTALS	381,810	694	28,002	13.6	
1988	July 28	20,970	552	3,312	6.33	
	Aug 01	33,954	594	3,564	9.53	
	Aug 04	76,576	639	3,834	19.97	
	Aug 08	76,345	640	3,840	19.88	
	Aug 10	53,874	596	3,576	15.06	
	Aug 12	84,700	624	3,744	22.62	
	Aug 15	59,724	613	3,678	16.23	
	Aug 18	37,415	620	3,720	10.06	
	Aug 20	24,046	577	3,462	6.95	
	Aug 27	22,683	532	3,192	7.10	
	Aug 31	12,264	412	2,472	4.96	
	TOTALS	502,551	746	38,394	13.09	
1989	July 27	5,651	562	3,364	1.68	
	Aug 03	99,022	679	5,432	18.23	
	Aug 07	73,514	642	3,853	19.08	
	Aug 09	103,158	644	3,864	26.70	
	Aug 12	81,970	650	3,900	21.02	
	Aug 15	23,071	616	3,697	6.24	
	Aug 18	5,938	381	2,284	2.60	
	Aug 23	30,940	528	3,167	9.77	
	Aug 26	20,881	508	4,063	5.14	
	Aug 29	11,080	423	3,388	3.27	
	Sept 01	3,225	194	1,421	2.77	
	TOTALS	458,450	745	38,433	11.93	
1990	Aug 01	23,549	611	3,666	6.42	
	Aug 06	61,450	631	3,786	16.23	
	Aug 10	58,251	653	3,918	14.87	
	Aug 13	115,444	642	3,852	29.97	
	Aug 16	68,605	650	5,850	11.73	
	Aug 20	51,838	594	3,564	14.54	Aug 27
16,030	534	3,204	5.00			
	TOTALS	395,167	743	27,840	14.19	

-continued-

Appendix B.19 (page 5 of 5)

YEAR	DATE	CATCH	PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1991	July 29	37,141	534	3,204	8.69
	Aug 01	38,284	602	3,612	10.60
	Aug 05	56,262	643	3,858	10.94
	Aug 08	72,037	634	3,804	14.20
	Aug 12	114,581	662	5,296	21.64
	Aug 14	58,393	601	4,808	12.14
	Aug 19	57,364	590	3,540	16.20
	Aug 26	43,664	512	4,096	10.66
	TOTALS	477,726	749	32,218	14.83
1992	Aug 03	78,233	619	4,952	15.80
	Aug 06	57,506	590	3,540	16.24
	Aug 11	181,905	653	3,918	46.43
	Aug 14	87,959	632	3,792	23.20
	Aug 17	79,357	596	3,576	22.19
	Aug 20	73,363	578	3,468	21.15
	Aug 24	28,069	550	3,300	8.51
	Aug 27	28,238	481	2,886	9.78
	Aug 31	16,962	374	2,284	7.56
	TOTALS	631,592	741	31,716	19.91
1993	July 31	56,107	625	3,750	14.96
	Aug 04	137,649	656	3,936	34.97
	Aug 06	91,400	632	5,056	18.08
	Aug 09	54,817	628	3,768	14.55
	Aug 14	80,226	640	3,840	20.89
	Aug 17	82,696	620	3,720	22.23
	Aug 21	47,097	592	3,552	13.26
	Aug 25	10,556	441	2,646	3.99
	Aug 28	13,592	387	2,322	5.85
	Sept 01	12,190	274	1,644	7.41
	TOTALS	586,330	741	34,234	17.13

a Does not include small numbers of coho salmon caught before 26 July.

Appendix B.20 Comparative coho salmon catches by fishing period by year in District 2, Middle Kuskokwim River, 1985-1993*.

YEAR	DATE	CATCH	PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1985	Aug. 08	739	6	48	20.53
	Aug. 12	2,914	14	84	34.69
	Aug. 15	2,005	11	66	30.38
	Total	5,658	23	198	28.58
1986	Aug. 07	2,445	8	48	50.94
	Aug. 11	2,677	10	60	44.62
	Aug. 13	2,787	10	60	46.45
	Aug. 15	5,761	27	162	35.56
	Aug. 18	1,804	8	48	37.58
	Aug. 21	1,325	6	36	36.81
	Total	16,799	43	414	40.58
1987	Aug. 13	2,273	14	84	27.06
	Aug. 17	3,374	14	84	40.17
	Aug. 19	3,928	13	78	50.36
	Aug. 21	4,571	18	108	42.32
	Total	14,146	29	354	40.00
1988	Aug 08	1,465	14	84	17.44
	Aug 10	3,823	16	96	39.82
	Aug 12	5,216	20	120	43.47
	Aug 15	2,317	21	126	18.39
	Aug 18	1,485	15	90	16.50
	Aug 20	1,573	17	102	15.42
	Total	15,879	29	618	25.69
1989	Aug 07	6,607	22	132	50.05
	Aug 09	5,714	18	108	52.91
	Aug 15	1,867	15	90	20.74
	Aug 18	2,733	20	120	22.78
	Total	16,921	30	450	37.60

-Continued-

Appendix B.20 (page 2 of 2)

YEAR	DATE	CATCH	PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1990	Aug 06	1,111	15	90	12.34
	Aug 10	1,946	15	90	21.62
	Aug 13	4,192	16	96	43.67
	Aug 16	2,239	17	153	14.63
	Aug 20	2,548	18	108	23.59
	Aug 27	1,780	17	102	17.45
	Total	13,816	22	639	21.62
1991	July 29	177	16	128	1.38
	Aug 05	1,596	17	136	11.74
	Aug 08	2,381	17	136	17.51
	Aug 12	1,829	16	128	14.29
	Aug 14	2,461	15	120	20.51
	Aug 19	1,689	19	114	14.82
	Aug 26	4,425	16	128	34.57
	Total	14,558	23	890	16.36
1992	Aug 03	5,106	17	136	37.54
	Aug 06	3,832	17	102	37.57
	Aug 11	3,837	19	114	33.66
	Aug 14	8,216	21	126	65.21
	Aug 17	5,685	16	96	59.22
	Aug 20	2,682	14	84	31.93
	Aug 24	2,827	24	84	33.65
	Aug 27	1,238	11	66	18.76
	Aug 31	1,153	11	66	17.47
	Total	34,576	22	874	39.56
1993	Aug 06	6,828	15	120	56.90
	Aug 09	3,839	17	102	37.64
	Aug 14	2,681	17	102	26.28
	Aug 17	2,349	16	96	24.47
	Aug 21	3,115	17	102	30.54
	Aug 25	3,008	15	90	33.42
	Aug 28	1,798	14	84	21.40
	Sept 01	791	13	78	10.14
	Total	24,409	20	774	31.54

a Excludes small numbers of coho salmon caught before 26 July.

Appendix B.21. Comparative chum salmon catches by fishing period by year in District 1, Lower Kuskokwim River, 1971 - 1993[a].

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1971	June 28-29	11,386	150	180	6.30
	July 01-02	8,949	111	1,332	6.70
	July 05-06	17,672	104	1,248	14.20
	July 08-09	12,603	93	1,116	11.30
	July 12-13	2,550	18	216	11.80
	July 15-16	8,000	69	828	9.70
	July 19-20	5,989	71	852	7.00
	Totals	67,149	216	5,772	11.63
1972	June 29-30	9,863	87	1,044	9.40
	July 03-04	19,084	115	1,380	13.80
	July 06-07	19,839	101	1,212	16.40
	July 10-11	13,972	113	1,356	10.30
	July 13-14	6,290	80	960	6.60
	Totals	69,048	176	5,952	10.09
1973	June 25-26	19,073	202	2,424	7.90
	June 28-29	47,258	250	6,000	7.90
	July 02-03	21,410	242	2,904	7.40
	July 05-06	31,056	212	2,544	12.20
	July 09-10	24,593	217	2,604	9.40
	Totals	143,390	341	16,476	8.70
1974	June 27	27,017	267	1,602	16.90
	July 01-02	55,356	380	4,560	12.10
	July 04-05	27,211	282	3,384	8.00
	July 08-09	50,672	376	4,512	11.20
	July 18	6,661	190	1,140	5.84
	Totals	166,917	467	15,198	10.98
1975	June 30	31,216	279	1,674	18.60
	July 03	35,525	360	2,160	16.00
	July 07	39,369	396	2,214	17.80
	July 10	39,910	304	1,824	21.90
	July 14	21,092	326	1,956	10.80
	Totals	167,112	539	25,026	6.68
1976	June 28	42,464	348	2,088	20.30
	July 01	44,024	415	2,490	17.70
	July 08	48,669	381	2,286	21.30
	July 12	21,153	377	2,262	9.40
	July 15	14,176	265	1,590	8.90
	Totals	170,486	517	10,716	15.91

-Continued-

Appendix B.21. (page 2 of 5)

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1977	June 27	40,321	378	2,268	17.80
	June 30	58,884	409	2,454	24.00
	July 04	37,500	331	1,986	18.90
	July 07	56,943	368	2,208	25.80
	July 14	24,765	385	2,310	10.70
	Totals	218,413	522	11,226	19.46
1978	June 26	44,296	449	2,694	16.40
	June 29	36,793	442	2,652	13.90
	July 03	26,629	476	2,856	9.30
	July 06	48,031	485	5,820	8.30
	July 10	48,931	428	5,136	9.50
	July 13	14,935	422	2,532	5.90
	Totals	219,615	617	21,690	10.13
1979	June 22	32,295	502	3,012	10.70
	June 26	53,648	531	3,186	16.80
	June 29	48,643	542	3,252	14.90
	July 03	83,164	542	3,252	25.60
	July 10	32,434	520	3,120	10.40
	Totals	250,184	617	15,822	15.81
1980	June 23	105,825	436	2,616	40.50
	June 26	131,945	408	2,448	53.90
	July 02	122,613	383	2,298	53.40
	July 09	90,233	431	2,586	34.90
	Totals	450,616	579	9,948	45.30
1981	June 22	78,168	511	3,066	25.50
	June 25	81,431	508	3,048	26.70
	June 30	51,942	484	2,904	17.90
	July 02	58,594	459	2,754	21.30
	July 06	55,799	461	2,766	20.20
	July 09	66,138	440	2,640	25.00
	Totals	392,072	613	17,178	22.82
1982	June 28	58,528	352	1,408	41.60
	June 30	47,773	483	1,932	24.70
	July 02	38,918	434	1,736	22.40
	July 05	29,315	372	2,232	13.10
	July 08	28,942	435	2,610	11.90
	July 12	20,709	354	2,124	9.80
	Totals	224,185	576	12,042	18.62

-Continued-

Appendix B.21. (page 3 of 5)

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1983	June 20	28,915	474	2,844	10.20
	June 23	24,625	450	2,700	9.10
	June 27	44,802	446	2,676	16.70
	June 30	55,209	547	3,282	16.80
	July 04	46,176	443	2,658	17.40
	July 07	36,965	496	2,976	12.40
	July 11	20,560	466	2,769	7.40
	Totals	257,252	619	19,905	12.93
1984	June 25	91,773	466	2,796	32.80
	June 28	67,120	470	2,820	23.80
	July 02	69,897	483	2,898	24.10
	July 05	54,981	426	2,556	21.50
	July 09	36,440	496	2,976	12.10
	July 12	24,269	436	2,616	9.30
	July 16	18,613	373	2,238	8.30
	Totals	363,093	587	18,900	19.21
1985	June 20	19,762	423	2,538	7.79
	June 24	42,778	488	2,928	14.61
	June 27	47,443	492	2,952	16.07
	July 01	47,471	514	3,084	15.39
	July 04	28,581	460	2,760	10.36
	Total	186,035	598	14,262	13.04
1986	June 26	68,947	514	3,084	22.36
	June 30	60,780	576	3,456	17.59
	July 03	65,839	556	3,336	19.74
	July 07	55,983	586	3,516	15.92
	July 10	48,990	532	3,192	15.35
	Total	300,539	631	16,584	18.12
1987	June 18	13,472	526	4,208	3.20
	June 24	54,454	607	4,856	11.21
	June 30	112,963	564	4,512	25.04
	July 03	66,783	580	3,480	19.19
	July 07	103,059	578	3,468	29.72
	July 11	72,118	597	3,582	20.13
	July 15	71,923	569	3,414	21.07
	July 20	62,044	551	3,306	18.77
	Total	556,816	677	30,826	18.06

-Continued-

Appendix B.21. (page 4 of 5)

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1988	June 16	72,219	602	4,816	15.00
	June 20	113,628	612	3,672	30.94
	June 24	119,808	644	3,864	31.00
	June 28	154,027	609	3,654	42.15
	July 02	187,916	580	3,480	54.00
	July 05	163,971	579	3,474	47.20
	July 08	138,772	604	3,624	38.20
	July 11	137,450	598	3,588	38.31
	July 14	116,930	597	3,582	32.64
	July 18	57,749	575	3,450	16.73
	July 21	39,643	539	3,234	12.25
	July 25	24,893	494	2,964	8.40
	Total	1,327,006	746	43,402	30.57
1989	June 19	41,789	374	2,988	13.97
	June 23	65,650	277	2,218	29.63
	June 26	32,373	126	1,006	32.12
	June 30	131,629	642	5,129	26.63
	July 03	91,345	629	3,770	24.20
	July 05	85,727	553	3,311	25.84
	July 08	119,066	621	3,733	31.96
	July 11	78,053	616	3,676	21.12
	July 14	44,401	590	3,576	12.54
	July 18	26,407	437	2,630	10.07
	Total	716,440	745	32,037	23.36
1990	June 20	30,306	630	3,780	8.02
	June 25	58,944	611	3,666	16.08
	June 29	74,911	645	3,870	19.36
	July 05	86,835	591	3,546	24.49
	July 09	91,411	589	3,534	25.87
	July 14	79,803	625	5,000	15.96
	Total	422,210	743	23,396	18.05
1991	June 20	13,266	601	3,606	3.68
	June 24	30,632	616	3,696	8.29
	July 01	50,121	629	3,774	13.28
	July 06	40,060	589	3,534	11.34
	July 13	52,552	571	3,426	15.34
	July 18	78,797	568	3,408	23.12
	July 22	49,788	543	3,258	15.28
	July 25	30,083	533	3,198	7.06
	Total	345,299	749	27,900	12.38

-Continued-

Appendix B.21. (page 5 of 5)

YEAR	DATE	CATCH	NUMBER OF PERMITS	PERMIT HOURS	CATCH PER HOUR (CPUE)
1992	June 18	32,695	567	4,536	7.21
	June 22	74,429	619	4,952	15.03
	June 25	55,114	627	5,016	10.99
	June 29	80,213	602	3,612	22.21
	July 06	84,196	587	4,696	17.93
	Total	326,647	741	22,812	14.32
1993	June 25	34,123	622	4,976	6.86
	Total	34,123	622	4,976	6.86

a Excludes small numbers of chum salmon caught after 26 July.

Appendix B.22. Comparative chum salmon catches by fishing period by year in District 2, Middle Kuskokwim River, 1985 - 1993*.

YEAR	DATE	CATCH	NUMBER OF FISHERMEN	FISHERMEN HOURS	CATCH PER HOUR (CPUE)
1985	June 20	647	8	48	13.48
	June 24	2,411	11	66	36.53
	June 27	2,263	12	72	31.43
	July 01	2,854	15	90	31.71
	July 04	0	0	0	0
	Total	8,175	23	276	29.61
1986	June 26	439	3	18	24.39
	June 30	1,619	13	78	20.76
	July 03	1,249	8	48	26.02
	July 07	387	2	12	32.25
	July 10	1,282	6	36	35.61
	Total	4,976	43	192	25.92
1987	July 03	3,200	15	90	35.56
	July 07	4,152	22	132	31.45
	Total	7,352	29	222	33.12
1988	June 24	4,232	13	78	54.26
	June 28	6,087	17	102	59.68
	July 02	8,155	19	114	71.54
	Total	18,474	29	294	62.84
1989	June 30	7,353	15	120	61.28
	July 03	5,101	18	108	47.23
	July 05	3,542	14	84	42.17
	July 11	4,580	14	84	54.52
	Total	20,576	30	396	51.96
1990	June 29	3,838	14	84	45.69
	July 05	4,397	15	90	48.86
	July 09	5,163	17	102	50.46
	July 14	6,999	17	136	51.46
	Total	20,397	22	412	49.51
1991	July 01	3,043	17	102	29.83
	July 06	2,381	16	96	24.80
	July 13	4,384	18	108	40.59
	July 18	6,534	17	102	64.06
	July 22	7,154	19	114	62.75
	July 25	7,686	17	136	56.51
	Total	31,182	23	658	47.39

-continued-

Appendix B.22. Page 2 of 2.

YEAR	DATE	CATCH	NUMBER OF FISHERMEN	FISHERMEN HOURS	CATCH PER HOUR (CPUE)
1992	June 25	3,916	16	128	30.59
	June 29	2,439	15	120	27.10
	July 07	2,840	9	72	39.44
	Total	9,195	22	320	28.73
1993	No commercial periods during the chum salmon run.				

a Excludes small numbers of chum salmon caught after 26 July.

Appendix B.23. Historic commercial salmon catches by statistical area in District 1 of the Kuskokwim River.

Year	Statistical Area 335–11				Statistical Area 335–12				Statistical Area 335–13				Statistical Area 335–14			
	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho
1984	20,229	45,276	385,178	332,679	9,717	1,295	10,853	272,419								
(Gillnet mesh size was unrestricted in both statistical areas 335–11 and –12 through 25 June; after that date mesh size was restricted to less than or equal to 6 inches and only statistical area 335–11 was open to commercial fishing in District 1; both statistical areas 335–11 and –12 were open for coho season.)																
1985	18,146	53,395	116,832	168,192	17,885	50,655	73,843	161,233								
1986	9,329	46,505	169,958	301,093	9,181	46,670	134,243	342,096								
1987	32,182	82,130	329,748	226,229	13,415	52,046	232,995	159,053								
(Through 1987 statistical area 335–11 was located downstream of Bethel and statistical area 335–12 was located upstream of Bethel to Misevek Slough.)																
1988	40,355	60,168	861,433	290,872	12,540	27,127	453,012	199,036	915	2,469	47,537	18,509				
1989	29,702	28,319	498,490	233,182	10,856	11,499	203,120	192,796	1,187	1,570	25,782	35,056				
(The upriver boundry of District 1 was move upstream to Bogus Creek; the area from the old boundry to Bogus Creek was designated statistical area 335–13.)																
1990	6,195	8,992	54,434	64,169	29,195	38,113	224,148	196,827	12,017	20,959	103,220	94,842	4,731	14,349	57,737	40,678
1991	4,218	15,961	63,636	98,565	23,104	50,760	165,651	217,820	5,840	19,884	92,063	117,335	3,544	17,815	72,984	52,525
1992	7,754	18,253	76,215	124,583	23,177	36,938	178,693	271,900	9,064	22,829	43,979	159,189	4,682	11,936	34,249	75,922
1993	2,198	10,054	12,272	113,956	6,302	16,821	26,712	226,119	148	116	1,912	171,208	66	12	1,822	75,047

(From 1990 through present the upstream boundry of District 1 was moved down stream to Nelson Island and the district was split into four statistical areas of approximately equal length; the former statistical area 335–11 was split in to two statistical areas, 335–11 and –12, and the areas upstream of Bethel were renumbered as 335–13 and 335–14 to account for the change.)
(From 1987 to present statistical areas upstream of Bethel were typically closed to commercial fishing during the first 1 or 2 periods as a chinook salmon conservation measure.)
(From 1985 through present the entire length of District 1 was open to commercial fishing except as noted above; gillnet mesh was restricted throughout the season to sizes less than or equal to 6 inches.)

Appendix B.24. Lower Kuskokwim River, District 1, commercial effort, 1970 - 1993.

Year	Unrestricted Mesh Season	Restricted Mesh Season	Coho Salmon Season	Total
1970	361	a	266	387
1971	418	216	83	422
1972	405	176	245	425
1973	456	341	411	530
1974	606	467	516	666
1975	472	540	533	737
1976	561	517	516	674
1977	563	522	572	653
1978	615	617	597	723
1979	591	617	613	685
1980	553	579	586	663
1981	589	613	586	679
1982	610	576	596	686
1983	544	619	577	679
1984	520	587	619	654
1985	b	598	627	654
1986	b	631	663	688
1987	b	680	694	703
1988	b	c	c	746

	Number of Permits Landing Each Species						
	Chinook	Sockeye	Coho	Pink	Chum	Roe	
1989	695	688	732	261	719	22	745
1990	724	722	714	526	736	1	744
1991	687	705	731	159	733	1	749
1992	711	706	706	520	722	0	741
1993	669	654	717	54	715	0	740
Ten Year Average (1983-1992)							710

a No commercial salmon season.
b No unrestricted mesh season.
c Fishery continued without interruption.

Appendix B.25. Middle Kuskokwim River, District 2, commercial effort 1970-1993.

YEAR	UNRESTRICTED MESH SEASON	RESTRICTED MESH SEASON	COHO SALMON SEASON	TOTAL
1970	10	a	11	18
1971	22	a	a	22
1972	12	a	a	12
1973	28	a	a	28
1974	36	a	16	37
1975	38	a	a	38
1976	55	a	11	57
1977	83	54	24	105
1978	28	a	16	43
1979	41	a	20	43
1980	37	21	12	43
1981	153	11	16	153
1982	38	50	25	60
1983	14	42	9	43
1984	15	49	32	58
1985	b	17	16	23
1986	b	21	35	43
1987	b	24	20	29
1988	b	19	21	29

	Number of Permits Landing Each Species						
	Chinook	Sockeye	Coho	Pink	Chum	Roe	
1989	20	19	29	8	26	2	30
1990	19	19	21	13	20	0	22
1991	20	20	22	9	22	0	23
1992	18	18	22	3	21	0	22
1993	10	4	20	0	19	0	20
Ten Year Average (1983-1992)							32

a No commercial salmon season.
b No unrestricted mesh season.

Appendix B.26. Age distribution of historic commercial chinook salmon catches from the lower Kuskokwim River, by sample trip.[a,b]

Year	Sample Date	Sample Size	Sex	Age Composition (%)																									
				0.2		1.1		1.2		0.4		1.3		2.2		1.4		2.3		1.5		2.4		1.6		2.5		Total	
				Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%
1985	6/20	367	M	0	0.0	0	0.0	1,121	17.2	0	0.0	1,675	25.7	20	0.3	926	14.2	0	0.0	143	2.2	0	0.0	0	0.0	0	0.0	3,885	59.6
			F	0	0.0	0	0.0	248	3.8	0	0.0	893	13.7	0	0.0	1,193	18.3	0	0.0	300	4.6	0	0.0	0	0.0	0	0.0	2,634	40.4
			Subtotal	0	0.0	0	0.0	1,369	21.0	0	0.0	2,568	39.4	20	0.3	2,119	32.5	0	0.0	443	6.8	0	0.0	0	0.0	0	0.0	6,519	100.0
	6/24	91	M	0	0.0	0	0.0	2,968	28.5	0	0.0	1,031	9.9	0	0.0	1,375	13.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5,373	51.6
			F	0	0.0	0	0.0	802	7.7	0	0.0	916	8.8	0	0.0	2,864	27.5	0	0.0	458	4.4	0	0.0	0	0.0	0	0.0	5,040	48.4
			Subtotal	0	0.0	0	0.0	3,770	36.2	0	0.0	1,947	18.7	0	0.0	4,238	40.7	0	0.0	458	4.4	0	0.0	0	0.0	0	0.0	10,413	100.0
	6/27	88	M	0	0.0	0	0.0	2,892	32.9	0	0.0	2,497	28.4	0	0.0	1,002	11.4	0	0.0	97	1.1	0	0.0	0	0.0	0	0.0	6,488	73.8
			F	0	0.0	0	0.0	501	5.7	0	0.0	703	8.0	0	0.0	897	10.2	0	0.0	202	2.3	0	0.0	0	0.0	0	0.0	2,303	26.2
			Subtotal	0	0.0	0	0.0	3,393	38.6	0	0.0	3,200	36.4	0	0.0	1,899	21.6	0	0.0	299	3.4	0	0.0	0	0.0	0	0.0	8,791	100.0
	7/1	74	M	0	0.0	0	0.0	1,912	31.0	0	0.0	1,332	21.6	86	1.4	752	12.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4,083	66.2
			F	0	0.0	0	0.0	167	2.7	0	0.0	419	6.8	0	0.0	1,412	22.9	0	0.0	86	1.4	0	0.0	0	0.0	0	0.0	2,085	33.8
			Subtotal	0	0.0	0	0.0	2,079	33.7	0	0.0	1,752	28.4	86	1.4	2,165	35.1	0	0.0	86	1.4	0	0.0	0	0.0	0	0.0	6,168	100.0
	7/4	17	M	0	0.0	0	0.0	1,883	49.9	0	0.0	944	25.0	0	0.0	472	12.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3,298	87.4
			F	0	0.0	0	0.0	238	6.3	0	0.0	236	6.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	476	12.6
			Subtotal	0	0.0	0	0.0	2,121	56.2	0	0.0	1,181	31.3	0	0.0	472	12.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3,774	100.0
	Season	637	M	0	0.0	0	0.0	10,777	30.2	0	0.0	7,479	21.0	106	0.3	4,527	12.7	0	0.0	240	0.7	0	0.0	0	0.0	0	0.0	23,128	64.8
			F	0	0.0	0	0.0	1,955	5.5	0	0.0	3,170	8.9	0	0.0	6,366	17.8	0	0.0	1,047	2.9	0	0.0	0	0.0	0	0.0	12,537	35.2
			Total	0	0.0	0	0.0	12,731	35.7	0	0.0	10,649	29.9	106	0.3	10,892	30.5	0	0.0	1,287	3.6	0	0.0	0	0.0	0	0.0	35,665	100.0
1986	[illegible]on	142	M	0	0.0	382	2.1	2,181	12.0	0	0.0	7,668	42.2	0	0.0	1,799	9.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	12,029	66.2
			F	0	0.0	0	0.0	127	0.7	0	0.0	2,308	12.7	0	0.0	2,689	14.8	0	0.0	890	4.9	0	0.0	127	0.7	0	0.0	6,142	33.8
			Total	0	0.0	382	2.1	2,308	12.7	0	0.0	9,976	54.9	0	0.0	4,488	24.7	0	0.0	890	4.9	0	0.0	127	0.7	0	0.0	18,171	100.0
1987	Season (6/18)	550	M	0	0.0	0	0.0	15,026	45.7	0	0.0	4,242	12.9	0	0.0	6,313	19.2	0	0.0	164	0.5	0	0.0	0	0.0	0	0.0	25,745	78.3
			F	0	0.0	0	0.0	526	1.6	0	0.0	888	2.7	0	0.0	5,425	16.5	0	0.0	296	0.9	0	0.0	0	0.0	0	0.0	7,135	21.7
			Total	0	0.0	0	0.0	15,552	47.3	0	0.0	5,129	15.6	0	0.0	11,738	35.7	0	0.0	460	1.4	0	0.0	0	0.0	0	0.0	32,880	100.0
1988	Season	646	M	0	0.0	0	0.0	13,465	25.0	0	0.0	14,758	27.4	0	0.0	3,339	6.2	0	0.0	754	1.4	0	0.0	0	0.0	0	0.0	32,316	60.0
			F	0	0.0	0	0.0	1,777	3.3	0	0.0	10,987	20.4	0	0.0	5,925	11.0	0	0.0	2,855	5.3	0	0.0	0	0.0	0	0.0	21,544	40.0
			Total	0	0.0	0	0.0	15,242	28.3	0	0.0	25,745	47.8	0	0.0	9,264	17.2	0	0.0	3,609	6.7	0	0.0	0	0.0	0	0.0	53,860	100.0
1989	6/19	147	M	0	0.0	0	0.0	2,375	25.8	0	0.0	1,187	12.9	129	1.4	2,062	22.4	377	4.1	0	0.0	249	2.7	0	0.0	0	0.0	6,378	69.3
			F	0	0.0	0	0.0	129	1.4	0	0.0	377	4.1	64	0.7	1,813	19.7	0	0.0	129	1.4	249	2.7	0	0.0	64	0.7	2,826	30.7
			Subtotal	0	0.0	0	0.0	2,503	27.2	0	0.0	1,565	17.0	193	2.1	3,875	42.1	377	4.1	129	1.4	497	5.4	0	0.0	64	0.7	9,204	100.0
	6/23,26,30, 7/3,5	211	M	0	0.0	0	0.0	7,875	24.2	0	0.0	5,076	15.6	781	2.4	3,384	10.4	456	1.4	781	2.4	163	0.5	0	0.0	0	0.0	18,516	56.9
			F	0	0.0	0	0.0	3,710	11.4	0	0.0	3,384	10.4	618	1.9	4,458	13.7	163	0.5	1,399	4.3	293	0.9	0	0.0	0	0.0	14,025	43.1
			Subtotal	0	0.0	0	0.0	11,585	35.6	0	0.0	8,461	26.0	1,399	4.3	7,842	24.1	618	1.9	2,180	6.7	456	1.4	0	0.0	0	0.0	32,541	100.0
	Season	358	M	0	0.0	0	0.0	10,250	24.6	0	0.0	6,264	15.0	910	2.2	5,446	13.0	833	2.0	781	1.9	411	1.0	0	0.0	0	0.0	24,894	59.6
			F	0	0.0	0	0.0	3,839	9.2	0	0.0	3,762	9.0	683	1.6	6,271	15.0	163	0.4	1,528	3.7	541	1.3	0	0.0	64	0.2	16,851	40.4
			Total	0	0.0	0	0.0	14,088	33.7	0	0.0	10,025	24.0	1,593	3.8	11,717	28.1	996	2.4	2,309	5.5	953	2.3	0	0.0	64	0.2	41,745	100.0
1990	6/20,25	256	M	0	0.0	0	0.0	15,412	47.1	0	0.0	9,455	28.9	0	0.0	2,552	7.8	0	0.0	524	1.6	0	0.0	0	0.0	0	0.0	27,944	85.4
			F	0	0.0	0	0.0	262	0.8	0	0.0	2,061	6.3	0	0.0	2,061	6.3	0	0.0	393	1.2	0	0.0	0	0.0	0	0.0	4,777	14.6
			Subtotal	0	0.0	0	0.0	15,673	47.9	0	0.0	11,518	35.2	0	0.0	4,614	14.1	0	0.0	916	2.8	0	0.0	0	0.0	0	0.0	32,721	100.0

– continued –

Appendix B.26. (page 2 of 3).

Year	Sample Date	Sample Size	Sex	Age Composition (%) 0.2 Catch	0.2 %	1.1 Catch	1.1 %	1.2 Catch	1.2 %	0.4 Catch	0.4 %	1.3 Catch	1.3 %	2.2 Catch	2.2 %	1.4 Catch	1.4 %	2.3 Catch	2.3 %	1.5 Catch	1.5 %	2.4 Catch	2.4 %	1.6 Catch	1.6 %	2.5 Catch	2.5 %	Total Catch	Total %
	6/29,7/5,9	152	M	0	0.0	0	0.0	5,672	29.6	0	0.0	6,304	32.9	0	0.0	2,146	11.2	0	0.0	498	2.6	0	0.0	0	0.0	0	0.0	14,621	76.3
			F	0	0.0	0	0.0	134	0.7	0	0.0	1,763	9.2	0	0.0	2,261	11.8	0	0.0	383	2.0	0	0.0	0	0.0	0	0.0	4,541	23.7
			Subtotal	0	0.0	0	0.0	5,806	30.3	0	0.0	8,067	42.1	0	0.0	4,407	23.0	0	0.0	881	4.6	0	0.0	0	0.0	0	0.0	19,162	100.0
	Season	408	M	0	0.0	0	0.0	21,084	40.6	0	0.0	15,761	30.4	0	0.0	4,698	9.1	0	0.0	1,022	2.0	0	0.0	0	0.0	0	0.0	42,564	82.0
			F	0	0.0	0	0.0	396	0.8	0	0.0	3,824	7.4	0	0.0	4,323	8.3	0	0.0	776	1.5	0	0.0	0	0.0	0	0.0	9,319	18.0
			Total	0	0.0	0	0.0	21,479	41.4	0	0.0	19,585	37.7	0	0.0	9,021	17.4	0	0.0	1,798	3.5	0	0.0	0	0.0	0	0.0	51,883	100.0
1991	6/20	155	M	0	0.0	0	0.0	4,020	29.1	0	0.0	2,942	21.3	539	3.9	981	7.1	539	3.9	0	0.0	0	0.0	0	0.0	83	0.6	9,103	65.9
			F	0	0.0	0	0.0	262	1.9	0	0.0	1,699	12.3	83	0.6	1,961	14.2	0	0.0	359	2.6	262	1.9	0	0.0	83	0.6	4,710	34.1
			Subtotal	0	0.0	0	0.0	4,282	31.0	0	0.0	4,641	33.6	622	4.5	2,942	21.3	539	3.9	359	2.6	262	1.9	0	0.0	166	1.2	13,813	100.0
	6/24	129	M	0	0.0	0	0.0	4,477	35.5	0	0.0	2,157	17.1	0	0.0	1,173	9.3	0	0.0	101	0.8	101	0.8	0	0.0	0	0.0	8,009	63.5
			F	0	0.0	0	0.0	202	1.6	0	0.0	1,665	13.2	0	0.0	2,535	20.1	0	0.0	202	1.6	0	0.0	0	0.0	0	0.0	4,603	36.5
			Subtotal	0	0.0	0	0.0	4,679	37.1	0	0.0	3,821	30.3	0	0.0	3,708	29.4	0	0.0	303	2.4	101	0.8	0	0.0	0	0.0	12,612	100.0
	7/6	71	M	0	0.0	0	0.0	2,275	28.2	0	0.0	1,702	21.1	0	0.0	912	11.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4,889	60.6
			F	0	0.0	0	0.0	0	0.0	0	0.0	565	7.0	0	0.0	2,275	28.2	0	0.0	339	4.2	0	0.0	0	0.0	0	0.0	3,179	39.4
			Subtotal	0	0.0	0	0.0	2,275	28.2	0	0.0	2,267	28.1	0	0.0	3,187	39.5	0	0.0	339	4.2	0	0.0	0	0.0	0	0.0	8,068	100.0
	7/13	44	M	0	0.0	0	0.0	249	27.5	0	0.0	203	22.5	0	0.0	103	11.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	555	61.4
			F	0	0.0	0	0.0	81	9.0	0	0.0	61	6.8	0	0.0	186	20.6	0	0.0	20	2.2	0	0.0	0	0.0	0	0.0	349	38.6
			Subtotal	0	0.0	0	0.0	330	36.5	0	0.0	265	29.3	0	0.0	289	32.0	0	0.0	20	2.2	0	0.0	0	0.0	0	0.0	904	100.0
	7/18	21	M	63	4.8	0	0.0	496	37.9	0	0.0	124	9.5	63	4.8	124	9.5	0	0.0	0	0.0	63	4.8	0	0.0	0	0.0	933	71.3
			F	0	0.0	0	0.0	63	4.8	0	0.0	63	4.8	0	0.0	187	14.3	0	0.0	0	0.0	63	4.8	0	0.0	0	0.0	37[illegible]	28.7
			Subtotal	63	4.8	0	0.0	559	42.7	0	0.0	187	14.3	63	4.8	312	23.8	0	0.0	0	0.0	126	9.6	0	0.0	0	0.0	1,309	100.0
	Season	420	M	63	0.2	0	0.0	11,517	31.4	0	0.0	7,129	19.4	602	1.6	3,293	9.0	539	1.5	101	0.3	164	0.4	0	0.0	83	0.2	23,489	64.0
			F	0	0.0	0	0.0	608	1.7	0	0.0	4,053	11.0	83	0.2	7,145	19.5	0	0.0	920	2.5	325	0.9	0	0.0	83	0.2	13,217	36.0
			Total	63	0.2	0	0.0	12,125	33.0	0	0.0	11,182	30.5	684	1.9	10,438	28.4	539	1.5	1,021	2.8	489	1.3	0	0.0	166	0.5	36,706	100.0
1992	6/18	194	M	0	0.0	98	1.0	3,649	37.4	0	0.0	3,015	30.9	49	0.5	751	7.7	0	0.0	49	0.5	0	0.0	0	0.0	0	0.0	7,610	78.0
			F	0	0.0	0	0.0	98	1.0	0	0.0	449	4.6	0	0.0	1,454	14.9	0	0.0	146	1.5	0	0.0	0	0.0	0	0.0	2,146	22.0
			Subtotal	0	0.0	98	1.0	3,746	38.4	0	0.0	3,463	35.5	49	0.5	2,205	22.6	0	0.0	195	2.0	0	0.0	0	0.0	0	0.0	9,756	100.0
	6/22	191	M	0	0.0	306	2.1	6,575	45.1	0	0.0	2,901	19.9	0	0.0	1,064	7.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10,846	74.4
			F	0	0.0	0	0.0	379	2.6	0	0.0	1,297	8.9	0	0.0	1,983	13.6	0	0.0	73	0.5	0	0.0	0	0.0	0	0.0	3,732	25.6
			Subtotal	0	0.0	306	2.1	6,954	47.7	0	0.0	4,198	28.8	0	0.0	3,047	20.9	0	0.0	73	0.5	0	0.0	0	0.0	0	0.0	14,578	100.0
	6/25	137	M	0	0.0	63	0.7	3,953	44.0	0	0.0	1,770	19.7	0	0.0	916	10.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6,702	74.6
			F	0	0.0	0	0.0	0	0.0	0	0.0	323	3.6	0	0.0	1,833	20.4	0	0.0	63	0.7	63	0.7	0	0.0	0	0.0	2,282	25.4
			Subtotal	0	0.0	63	0.7	3,953	44.0	0	0.0	2,093	23.3	0	0.0	2,749	30.6	0	0.0	63	0.7	63	0.7	0	0.0	0	0.0	8,984	100.0
	6/29	195	M	0	0.0	57	0.5	5,770	50.8	0	0.0	2,385	21.0	57	0.5	1,102	9.7	0	0.0	57	0.5	0	0.0	0	0.0	0	0.0	9,428	83.0
			F	0	0.0	0	0.0	0	0.0	0	0.0	239	2.1	0	0.0	1,636	14.4	0	0.0	57	0.5	0	0.0	0	0.0	0	0.0	1,931	17.0
			Subtotal	0	0.0	57	0.5	5,770	50.8	0	0.0	2,624	23.1	57	0.5	2,738	24.1	0	0.0	114	1.0	0	0.0	0	0.0	0	0.0	11,359	100.0
	Season	717	M	0	0.0	523	1.2	19,947	44.6	0	0.0	10,071	22.5	106	0.2	3,834	8.6	0	0.0	106	0.2	0	0.0	0	0.0	0	0.0	34,586	77.4
			F	0	0.0	0	0.0	477	1.1	0	0.0	2,308	5.2	0	0.0	6,905	15.5	0	0.0	339	0.8	63	0.1	0	0.0	0	0.0	10,091	22.6
			Total	0	0.0	523	1.2	20,423	45.7	0	0.0	12,379	27.7	106	0.2	10,738	24.0	0	0.0	444	1.0	63	0.1	0	0.0	0	0.0	44,677	100.0

– continued –

Appendix B.26. (page 3 of 3).

Year	Sample Date	Sample Size	Sex	Age Composition (%)																									
				0.2		1.1		1.2		0.4		1.3		2.2		1.4		2.3		1.5		2.4		1.6		2.5		Total	
				Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%
1993	Season 6/25	102	M	0	0.0	0	0.0	5,368	61.6	0	0.0	1,874	21.5	0	0.0	418	4.8	418	4.8	0	0.0	87	1.0	0	0.0	0	0.0	8,165	93.7
			F	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	418	4.8	0	0.0	44	0.5	0	0.0	0	0.0	87	1.0	549	6.3
			Total	0	0.0	0	0.0	5,368	61.6	0	0.0	1,874	21.5	0	0.0	837	9.6	418	4.8	44	0.5	87	1.0	0	0.0	87	1.0	8,714	100.0
All Years (Unrestricted Mesh Size)		3,790	M	0	0.0	194	0.1	8,633	3.2	12	0.0	76,334	28.3	0	0.0	62,884	23.3	247	0.1	5,520	2.0	271	0.1	0	0.0	23	0.0	154,117	57.2
			F	0	0.0	0	0.0	503	0.2	0	0.0	21,137	7.8	0	0.0	85,033	31.6	226	0.1	8,214	3.0	247	0.1	0	0.0	15	0.0	115,375	42.8
			Grand Total	0	0.0	194	0.1	9,136	3.4	12	0.0	97,471	36.2	0	0.0	147,918	54.9	473	0.2	13,733	5.1	518	0.2	0	0.0	38	0.0	269,492	100.0
All Years [a] (Restricted Mesh Size)		4,746	M	63	0.0	1,697	0.4	131,197	33.3	0	0.0	95,721	24.3	1,845	0.5	41,575	10.6	1,842	0.5	3,616	0.9	662	0.2	0	0.0	83	0.0	278,301	70.7
			F	0	0.0	0	0.0	10,647	2.7	0	0.0	35,373	9.0	766	0.2	55,671	14.2	163	0.0	11,192	2.8	930	0.2	127	0.0	234	0.1	115,102	29.3
			Grand Total	63	0.0	1,697	0.4	141,843	36.1	0	0.0	131,094	33.3	2,611	0.7	97,246	24.7	2,005	0.5	14,808	3.8	1,592	0.4	127	0.0	317	0.1	393,403	100.0
All Years [a] (Restricted & Unrestricted Mesh Size)		7,934	M	63	0.0	1,891	0.3	139,804	23.8	12	0.0	151,540	25.8	1,845	0.3	87,007	14.8	2,089	0.4	7,279	1.2	933	0.2	0	0.0	106	0.0	392,569	66.7
			F	0	0.0	0	0.0	11,150	1.9	0	0.0	48,515	8.2	766	0.1	114,977	19.5	388	0.1	18,203	3.1	1,177	0.2	127	0.0	249	0.0	195,552	33.3
			Grand Total	63	0.0	1,891	0.3	150,954	25.7	12	0.0	200,055	34.0	2,611	0.4	201,984	34.3	2,478	0.4	25,482	4.3	2,110	0.4	127	0.0	355	0.1	588,121	100.0

[a] Percentages by sample date are based on commercial catch samples collected in Bethel; catch numbers, by age class and sex, are derived from those percentages; discrepancies in sums are attributed to rounding errors.
[b] For season summaries the catch estimates, by age class and sex, are tallied and the percentages are derived from the sums.
[c] The years 1975, 1976 and 1978 are excluded because no samples were collected from chinook salmon caught during the portion of the season with restricted mesh size.

Appendix B.27. Age distribution of historic commercial sockeye salmon catches from the lower Kuskokwim River, by sample trip.[a,b]

Year	Date	Sample Size	Sex	Age Class 0.2		1.1		0.3		1.2		0.4		1.3		2.2		1.4		2.3		2.4		3.3		Total	
				Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%
1984	Season	296	M	0	0.0	0	0.0	1,236	2.7	1,374	3.0	0	0.0	12,499	27.3	1,557	3.4	137	0.3	4,899	10.7	0	0.0	0	0.0	21,702	47.4
			F	137	0.3	137	0.3	1,877	4.1	2,930	6.4	137	0.3	13,552	29.6	1,557	3.4	137	0.3	3,617	7.9	0	0.0	0	0.0	24,083	52.6
			Total	137	0.3	137	0.3	3,113	6.8	4,304	9.4	137	0.3	26,052	56.9	3,113	6.8	275	0.6	8,516	18.6	0	0.0	0	0.0	45,785	100.0
1985	6/20–27	544	M	0	0.0	0	0.0	740	1.3	1,879	3.3	114	0.2	15,942	28.0	1,993	3.5	399	0.7	2,277	4.0	0	0.0	0	0.0	23,344	41.0
			F	0	0.0	0	0.0	1,139	2.0	2,391	4.2	342	0.6	22,490	39.5	3,644	6.4	0	0.0	3,587	6.3	0	0.0	0	0.0	33,593	59.0
			Subtotal	0	0.0	0	0.0	1,879	3.3	4,270	7.5	455	0.8	38,432	67.5	5,637	9.9	399	0.7	5,865	10.3	0	0.0	0	0.0	56,937	100.0
	7/1–4	349	M	0	0.0	0	0.0	519	1.1	425	0.9	283	0.6	14,725	31.2	3,115	6.6	425	0.9	3,115	6.6	0	0.0	0	0.0	22,607	47.9
			F	0	0.0	0	0.0	425	0.9	1,227	2.6	425	0.9	15,103	32.0	2,643	5.6	283	0.6	4,484	9.5	0	0.0	0	0.0	24,589	52.1
			Subtotal	0	0.0	0	0.0	944	2.0	1,652	3.5	708	1.5	29,828	63.2	5,758	12.2	708	1.5	7,599	16.1	0	0.0	0	0.0	47,196	100.0
	Season	893	M	0	0.0	0	0.0	1,259	1.2	2,304	2.1	397	0.4	30,668	29.6	5,108	5.1	823	0.8	5,392	5.3	0	0.0	0	0.0	45,951	44.5
			F	0	0.0	0	0.0	1,564	1.5	3,618	3.4	766	0.8	37,593	35.8	6,287	6.0	283	0.3	8,071	7.9	0	0.0	0	0.0	58,182	55.6
			Total	0	0.0	0	0.0	2,823	2.7	5,922	5.5	1,163	1.2	68,260	65.4	11,395	11.1	1,106	1.1	13,463	13.2	0	0.0	0	0.0	104,133	100.0
1986	Season	535	M	0	0.0	0	0.0	2,966	3.2	2,596	2.8	0	0.0	36,061	38.9	834	0.9	371	0.4	3,337	3.6	0	0.0	0	0.0	46,166	49.8
			F	0	0.0	0	0.0	3,615	3.9	3,152	3.4	185	0.2	33,929	36.6	1,761	1.9	185	0.2	3,801	4.1	0	0.0	0	0.0	46,629	50.3
			Total	0	0.0	0	0.0	2,155	2.3	4,172	4.5	1,228	1.3	59,584	64.3	10,777	11.6	1,205	1.3	13,581	14.7	0	0.0	0	0.0	92,702	100.0
1987	6/18	68	M	0	0.0	0	0.0	0	0.0	137	1.5	0	0.0	2,276	25.0	0	0.0	137	1.5	674	7.4	0	0.0	0	0.0	3,222	35.4
			F	0	0.0	0	0.0	137	1.5	537	5.9	0	0.0	4,533	49.8	0	0.0	0	0.0	674	7.4	0	0.0	0	0.0	5,880	64.6
			Subtotal	0	0.0	0	0.0	137	1.5	674	7.4	0	0.0	6,808	74.8	0	0.0	137	1.5	1,347	14.8	0	0.0	0	0.0	9,102	100.0
	6/24	331	M	0	0.0	0	0.0	365	1.5	365	1.5	0	0.0	8,622	35.4	146	0.6	365	1.5	804	3.3	0	0.0	0	0.0	10,667	43.8
			F	0	0.0	0	0.0	731	3.0	1,242	5.1	0	0.0	10,034	41.2	438	1.8	73	0.3	1,169	4.8	0	0.0	0	0.0	13,688	56.2
			Subtotal	0	0.0	0	0.0	1,096	4.5	1,607	6.6	0	0.0	18,656	76.6	585	2.4	438	1.8	1,973	8.1	0	0.0	0	0.0	24,355	100.0
	6/30	168	M	0	0.0	0	0.0	0	0.0	3,601	3.6	600	0.6	39,810	39.8	0	0.0	600	0.6	4,201	4.2	0	0.0	0	0.0	48,812	48.8
			F	0	0.0	0	0.0	600	0.6	3,001	3.0	0	0.0	35,709	35.7	1,200	1.2	600	0.6	10,102	10.1	0	0.0	0	0.0	51,212	51.2
			Subtotal	0	0.0	0	0.0	600	0.6	6,602	6.6	600	0.6	75,518	75.5	1,200	1.2	1,200	1.2	14,303	14.3	0	0.0	0	0.0	100,024	100.0
	Season	567	M	0	0.0	0	0.0	365	0.5	4,103	2.2	600	0.2	50,707	33.4	146	0.2	1,102	1.2	5,678	5.0	0	0.0	0	0.0	62,701	42.7
			F	0	0.0	0	0.0	1,467	1.7	4,780	4.7	0	0.0	50,276	42.2	1,639	1.0	673	0.3	11,945	7.4	0	0.0	0	0.0	70,780	57.3
			Total	0	0.0	0	0.0	1,833	2.2	8,883	6.9	600	0.2	100,982	75.6	1,785	1.2	1,775	1.5	17,623	12.4	0	0.0	0	0.0	133,481	100.0
1988	Season	453	M	0	0.0	0	0.0	180	0.2	628	0.7	0	0.0	26,570	29.6	628	0.7	359	0.4	10,323	11.5	180	0.2	180	0.2	39,047	43.5
			F	0	0.0	0	0.0	0	0.0	628	0.7	0	0.0	38,957	43.4	628	0.7	1,616	1.8	8,527	9.5	180	0.2	180	0.2	50,716	56.5
			Total	0	0.0	0	0.0	180	0.2	1,257	1.4	0	0.0	65,527	73.0	1,257	1.4	1,975	2.2	18,850	21.0	359	0.4	359	0.4	89,763	100.0
1989	Season (6/19,23, 26,30,7/3)	175	M	0	0.0	0	0.0	0	0.0	453	1.1	0	0.0	12,025	29.2	1,647	4.0	453	1.1	3,294	8.0	453	1.1	0	0.0	18,325	44.5
			F	0	0.0	0	0.0	0	0.0	947	2.3	0	0.0	12,272	29.8	2,594	6.3	1,400	3.4	5,395	13.1	0	0.0	247	0.6	22,855	55.5
			Total	0	0.0	0	0.0	0	0.0	1,400	3.4	0	0.0	24,296	59.0	4,242	10.3	1,853	4.5	8,689	21.1	453	1.1	247	0.6	41,180	100.0
1990	Season (6/25,29, 7/9)	250	M	0	0.0	328	0.4	0	0.0	983	1.2	0	0.0	30,154	36.8	2,294	2.8	328	0.4	5,900	7.2	0	0.0	0	0.0	39,987	48.8
			F	0	0.0	0	0.0	328	0.4	1,967	2.4	656	0.8	33,104	40.4	1,639	2.0	1,967	2.4	2,294	2.8	0	0.0	0	0.0	41,953	51.2
			Total	0	0.0	328	0.4	328	0.4	2,950	3.6	656	0.8	63,258	77.2	3,933	4.8	2,294	2.8	8,194	10.0	0	0.0	0	0.0	81,940	100.0

– continued –

Appendix B.27. (page 2 of 2)

Year	Date	Sample Size	Sex	Age Class 0.2 Catch	0.2 %	1.1 Catch	1.1 %	0.3 Catch	0.3 %	1.2 Catch	1.2 %	0.4 Catch	0.4 %	1.3 Catch	1.3 %	2.2 Catch	2.2 %	1.4 Catch	1.4 %	2.3 Catch	2.3 %	2.4 Catch	2.4 %	3.3 Catch	3.3 %	Total Catch	Total %
1991	6/20	147	M	0	0.0	0	0.0	273	0.7	273	0.7	0	0.0	17,469	44.8	0	0.0	546	1.4	780	2.0	0	0.0	0	0.0	19,341	49.6
			F	273	0.7	0	0.0	0	0.0	1,872	4.8	0	0.0	16,962	43.5	273	0.7	0	0.0	273	0.7	0	0.0	0	0.0	19,653	50.4
			Subtotal	273	0.7	0	0.0	273	0.7	2,145	5.5	0	0.0	34,432	88.3	273	0.7	546	1.4	1,053	2.7	0	0.0	0	0.0	38,994	100.0
	7/1	98	M est.	0	0.0	0	0.0	366	1.5	977	4.0	0	0.0	9,771	40.0	0	0.0	244	1.0	733	3.0	0	0.0	0	0.0	12,092	49.5
			F est.	0	0.0	0	0.0	122	0.5	2,443	10.0	244	1.0	9,283	38.0	244	1.0	0	0.0	0	0.0	0	0.0	0	0.0	12,336	50.5
			Subtotal	0	0.0	0	0.0	489	2.0	3,420	14.0	244	1.0	19,054	78.0	244	1.0	244	1.0	733	3.0	0	0.0	0	0.0	24,428	100.0
	7/6	148	M	0	0.0	0	0.0	484	2.0	993	4.1	170	0.7	8,162	33.7	170	0.7	654	2.7	1,308	5.4	0	0.0	0	0.0	11,940	49.3
			F	0	0.0	0	0.0	170	0.7	1,962	8.1	339	1.4	9,639	39.8	170	0.7	0	0.0	0	0.0	0	0.0	0	0.0	12,279	50.7
			Subtotal	0	0.0	0	0.0	654	2.7	2,955	12.2	509	2.1	17,801	73.5	339	1.4	654	2.7	1,308	5.4	0	0.0	0	0.0	24,219	100.0
	7/13	99	M	0	0.0	0	0.0	194	3.0	387	6.0	0	0.0	2,131	33.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2,712	42.0
			F	0	0.0	0	0.0	65	1.0	517	8.0	65	1.0	2,971	46.0	0	0.0	65	1.0	65	1.0	0	0.0	0	0.0	3,746	58.0
			Subtotal	0	0.0	0	0.0	258	4.0	904	14.0	65	1.0	5,102	79.0	0	0.0	65	1.0	65	1.0	0	0.0	0	0.0	6,458	100.0
	7/18	21	M	0	0.0	0	0.0	0	0.0	566	5.0	0	0.0	5,661	50.0	0	0.0	566	5.0	0	0.0	0	0.0	0	0.0	6,793	60.0
			F	0	0.0	0	0.0	0	0.0	566	5.0	0	0.0	3,396	30.0	0	0.0	0	0.0	566	5.0	0	0.0	0	0.0	4,528	40.0
			Subtotal	0	0.0	0	0.0	0	0.0	1,132	10.0	0	0.0	9,057	80.0	0	0.0	566	5.0	566	5.0	0	0.0	0	0.0	11,321	100.0
	Season	513	M	0	0.0	0	0.0	1,317	1.2	3,197	3.0	170	0.2	43,194	41.0	170	0.2	2,010	1.9	2,821	2.7	0	0.0	0	0.0	52,878	50.2
			F	273	0.3	0	0.0	356	0.3	7,359	7.0	648	0.6	42,251	40.1	687	0.7	65	0.1	904	0.9	0	0.0	0	0.0	52,542	49.8
			Total	273	0.3	0	0.0	1,674	1.6	10,556	10.0	817	0.8	85,445	81.1	856	0.8	2,075	2.0	3,724	3.5	0	0.0	0	0.0	105,420	100.0
1992	6/18	175	M	0	0.0	0	0.0	94	1.1	145	1.7	196	2.3	3,352	39.4	51	0.6	340	4.0	289	3.4	0	0.0	0	0.0	4,467	52.5
			F	0	0.0	0	0.0	247	2.9	145	1.7	51	0.6	2,723	32.0	51	0.6	196	2.3	630	7.4	0	0.0	0	0.0	4,041	47.5
			Subtotal	0	0.0	0	0.0	340	4.0	289	3.4	247	2.9	6,075	71.4	102	1.2	536	6.3	919	10.8	0	0.0	0	0.0	8,508	100.0
	6/22	162	M	0	0.0	0	0.0	0	0.0	1,455	3.1	282	0.6	16,523	35.2	563	1.2	563	1.2	3,192	6.8	0	0.0	0	0.0	22,578	48.1
			F	0	0.0	0	0.0	563	1.2	1,455	3.1	0	0.0	16,523	35.2	1,173	2.5	1,455	3.1	3,192	6.8	0	0.0	0	0.0	24,361	51.9
			Subtotal	0	0.0	0	0.0	563	1.2	2,910	6.2	282	0.6	33,045	70.4	1,737	3.7	2,018	4.3	6,384	13.6	0	0.0	0	0.0	46,939	100.0
	6/29	167	M	0	0.0	0	0.0	414	1.2	1,656	4.8	207	0.6	10,525	30.5	207	0.6	2,278	6.6	1,656	4.8	0	0.0	0	0.0	16,944	49.1
			F	0	0.0	0	0.0	828	2.4	621	1.8	0	0.0	12,596	36.5	828	2.4	828	2.4	1,863	5.4	0	0.0	0	0.0	17,565	50.9
			Subtotal	0	0.0	0	0.0	1,242	3.6	2,278	6.6	207	0.6	23,121	67.0	1,035	3.0	3,106	9.0	3,520	10.2	0	0.0	0	0.0	34,509	100.0
	Season	504	M	0	0.0	0	0.0	508	0.6	3,256	3.6	684	0.8	30,400	33.8	821	0.9	3,181	3.5	5,138	5.7	0	0.0	0	0.0	43,988	48.9
			F	0	0.0	0	0.0	1,638	1.8	2,221	2.5	51	0.1	31,841	35.4	2,053	2.3	2,479	2.8	5,685	6.3	0	0.0	0	0.0	45,968	51.1
			Total	0	0.0	0	0.0	2,146	2.4	5,477	6.1	735	0.8	62,241	69.2	2,874	3.2	5,660	6.3	10,822	12.0	0	0.0	0	0.0	89,956	100.0
1993	Season (6/25)	186	M	0	0.0	0	0.0	432	1.6	3,051	11.3	0	0.0	7,399	27.4	1,161	4.3	0	0.0	1,458	5.4	0	0.0	0	0.0	13,502	50.0
			F	0	0.0	0	0.0	0	0.0	2,916	10.8	297	1.1	7,534	27.9	1,296	4.8	594	2.2	864	3.2	0	0.0	0	0.0	13,502	50.0
			Total	0	0.0	0	0.0	432	1.6	5,968	22.1	297	1.1	14,933	55.3	2,457	9.1	594	2.2	2,322	8.6	0	0.0	0	0.0	27,003	100.0
All Years		4,372	M	0	0.0	328	0.0	8,264	1.0	21,944	2.7	1,851	0.2	279,676	34.5	14,367	1.8	8,765	1.1	48,240	5.9	633	0.1	180	0.0	384,246	47.4
			F	410	0.1	137	0.0	10,846	1.3	30,519	3.8	2,741	0.3	301,308	37.1	20,141	2.5	9,399	1.2	51,102	6.3	180	0.0	427	0.1	427,209	52.7
			Grand Total	410	0.1	465	0.1	14,683	1.8	50,887	6.3	5,635	0.7	570,578	70.3	42,688	5.3	18,813	2.3	105,785	13.0	812	0.1	606	0.1	811,363	100.0

* Percentages by sample date are based on commercial catch samples collected in Bethel; catch numbers, by age class and sex, are derived from those percentages; discrepencies in sums are attributed to rounding errors.

* For season summaries the catch estimates, by age class and sex, are tallied and the percentages are derived from the sums.

Appendix B.28. Age distribution of historic commercial coho salmon catches from the lower Kuskokwim River, by sample trip.[a,b]

Year	Sample Date	Sample Size	Sex	Age Class 1.1 Catch	1.1 %	2.1 Catch	2.1 %	3.1 Catch	3.1 %	Total Catch	Total %
1984	7/12–8/2	271	M	3,532	2.6	65,615	48.3	2,038	1.5	71,185	52.4
			F	2,038	1.5	60,181	44.3	2,445	1.8	64,664	47.6
			Subtotal	5,570	4.1	125,796	92.6	4,483	3.3	135,849	100.0
	8/3–9	243	M	1,323	0.8	85,179	51.5	662	0.4	87,164	52.7
			F	3,473	2.1	73,436	44.4	1,323	0.8	78,232	47.3
			Subtotal	4,796	2.9	158,615	95.9	1,985	1.2	165,396	100.0
	8/10–16	252	M	3,807	2.4	74,864	47.2	1,903	1.2	80,574	50.8
			F	5,076	3.2	70,423	44.4	2,538	1.6	78,036	49.2
			Subtotal	8,882	5.6	145,287	91.6	4,441	2.8	158,610	100.0
	8/17–27	328	M	1,945	1.5	60,428	46.6	4,409	3.4	66,782	51.5
			F	3,890	3.0	56,667	43.7	2,334	1.8	62,891	48.5
			Subtotal	5,835	4.5	117,095	90.3	6,743	5.2	129,673	100.0
	8/28–9/3	239	M	559	3.8	6,145	41.8	426	2.9	7,130	48.5
			F	676	4.6	6,101	41.5	794	5.4	7,572	51.5
			Subtotal	1,235	8.4	12,247	83.3	1,220	8.3	14,702	100.0
	Season	1,333	M	11,166	1.8	292,231	48.4	9,438	1.6	312,835	51.8
			F	15,153	2.5	266,808	44.2	9,434	1.6	291,395	48.2
			Total	26,319	4.4	559,039	92.5	18,872	3.1	604,230	100.0
1985	8/1–5	255	M	3,466	3.9	39,459	44.4	3,110	3.5	46,035	51.8
			F	3,821	4.3	35,193	39.6	3,821	4.3	42,836	48.2
			Subtotal	7,287	8.2	74,652	84.0	6,932	7.8	88,871	100.0
	8/8–12	239	M	5,147	3.3	79,695	51.1	2,651	1.7	87,492	56.1
			F	4,523	2.9	61,915	39.7	2,027	1.3	68,466	43.9
			Subtotal	9,669	6.2	141,610	90.8	4,679	3.0	155,958	100.0
	8/15–19	249	M	3,976	8.4	21,487	45.4	757	1.6	26,220	55.4
			F	2,082	4.4	17,701	37.4	1,325	2.8	21,109	44.6
			Subtotal	6,058	12.8	39,188	82.8	2,082	4.4	47,329	100.0
	8/22–29	376	M	2,608	6.9	15,381	40.7	1,096	2.9	19,084	50.5
			F	2,419	6.4	15,683	41.5	605	1.6	18,706	49.5
			Subtotal	5,026	13.3	31,063	82.2	1,701	4.5	37,790	100.0
	Season	1,119	M	15,196	4.6	156,021	47.3	7,615	2.3	178,832	54.2
			F	12,845	3.9	130,492	39.5	7,779	2.4	151,116	45.8
			Total	28,041	8.5	286,513	86.8	15,394	4.7	329,948	100.0
1986	6/31–8/4	250	M	4,947	4.0	62,829	50.8	495	0.4	68,271	55.2
			F	2,968	2.4	52,440	42.4	0	0.0	55,409	44.8
			Subtotal	7,916	6.4	115,270	93.2	495	0.4	123,680	100.0
	8/7–15	336	M	9,660	2.7	180,684	50.5	4,293	1.2	194,638	54.4
			F	6,440	1.8	148,125	41.4	8,587	2.4	163,152	45.6
			Subtotal	16,101	4.5	328,809	91.9	12,880	3.6	357,790	100.0
	8/17–9/01	255	M	3,234	2.0	76,493	47.3	3,881	2.4	83,608	51.7
			F	3,881	2.4	70,994	43.9	3,234	2.0	78,110	48.3
			Subtotal	7,116	4.4	147,487	91.2	7,116	4.4	161,718	100.0

– continued –

Appendix B.28. (page 2 of 4)

Year	Sample Date	Sample Size	Sex	Age Class 1.1 Catch	1.1 %	2.1 Catch	2.1 %	3.1 Catch	3.1 %	Total Catch	Total %
	Season	841	M	17,842	2.8	320,006	49.8	8,669	1.3	346,517	53.9
			F	13,290	2.1	271,560	42.2	11,821	1.8	296,671	46.1
			Total	31,132	4.8	591,566	92.0	20,491	3.2	643,188	100.0
1987	8/6	126	M	369	0.8	16,856	36.5	2,909	6.3	20,135	43.6
			F	4,387	9.5	17,272	37.4	4,387	9.5	26,047	56.4
			Subtotal	4,757	10.3	34,128	73.9	7,297	15.8	46,182	100.0
	8/13	111	M	7,558	7.2	33,065	31.5	4,724	4.5	45,346	43.2
			F	1,889	1.8	49,230	46.9	8,502	8.1	59,622	56.8
			Subtotal	9,447	9.0	82,295	78.4	13,226	12.6	104,968	100.0
	8/17,19	158	M	2,264	1.9	43,011	36.1	10,604	8.9	55,879	46.9
			F	2,979	2.5	50,517	42.4	9,770	8.2	63,265	53.1
			Subtotal	5,242	4.4	93,528	78.5	20,374	17.1	119,144	100.0
	8/21,24	147	M	2,081	3.4	24,177	39.5	4,162	6.8	30,420	49.7
			F	1,653	2.7	21,668	35.4	7,467	12.2	30,788	50.3
			Subtotal	3,734	6.1	45,845	74.9	11,630	19.0	61,208	100.0
	8/27,31,9/3,7	278	M	2,918	5.8	20,023	39.8	4,176	8.3	27,116	53.9
			F	1,459	2.9	17,759	35.3	3,974	7.9	23,192	46.1
			Subtotal	4,377	8.7	37,781	75.1	8,150	16.2	50,308	100.0
	Season	820	M	15,190	4.0	137,132	35.9	26,575	7.0	178,896	46.9
			F	12,367	3.2	156,445	41.0	34,101	8.9	202,914	53.1
			Total	27,557	7.2	293,578	76.9	60,676	15.9	381,810	100.0
1988	7/25,28	221	M	1,053	3.6	14,273	48.8	0	0.0	15,326	52.4
			F	263	0.9	13,513	46.2	146	0.5	13,922	47.6
			Subtotal	1,316	4.5	27,786	95.0	146	0.5	29,248	100.0
	8/1,4	244	M	2,211	2.0	53,607	48.5	1,326	1.2	57,144	51.7
			F	1,768	1.6	50,733	45.9	884	0.8	53,386	48.3
			Subtotal	3,979	3.6	104,340	94.4	2,211	2.0	110,530	100.0
	8/8,10	238	M	3,654	1.7	103,161	48.0	1,719	0.8	108,534	50.5
				5,373	2.5	99,293	46.2	1,719	0.8	106,385	49.5
			Subtotal	9,027	4.2	202,454	94.2	3,439	1.6	214,919	100.0
	8/15,18	240	M	2,060	1.7	55,018	45.4	969	0.8	58,048	47.9
			F	4,605	3.8	58,532	48.3	0	0.0	63,137	52.1
			Subtotal	6,665	5.5	113,550	93.7	969	0.8	121,185	100.0
	8/27,31	484	M	594	1.7	14,922	42.7	349	1.0	15,866	45.4
			F	944	2.7	17,648	50.5	489	1.4	19,081	54.6
			Subtotal	1,538	4.4	32,571	93.2	839	2.4	34,947	100.0
	Season	1,427		9,571	1.9	240,982	47.2	4,365	0.9	254,918	49.9
				12,953	2.5	239,719	46.9	3,239	0.6	255,911	50.1
				22,525	4.4	480,701	94.1	7,604	1.5	510,829	100.0
1989	7/18,27,8/3	229	M	4,719	4.4	55,666	51.9	1,394	1.3	61,780	57.6
			F	5,148	4.8	40,329	37.6	0	0.0	45,477	42.4
			Subtotal	9,868	9.2	95,995	89.5	1,394	1.3	107,257	100.0

– continued –

Appendix B.28. (page 3 of 4)

Year	Sample Date	Sample Size	Sex	Age Class 1.1 Catch	1.1 %	2.1 Catch	2.1 %	3.1 Catch	3.1 %	Total Catch	Total %
	8/7,9,12	127	M	18,364	7.1	120,010	46.4	2,069	0.8	140,443	54.3
			F	4,138	1.6	107,854	41.7	6,207	2.4	118,199	45.7
			Subtotal	22,502	8.7	227,864	88.1	8,277	3.2	258,642	100.0
	8/15,18	132	M	870	3.0	15,172	52.3	232	0.8	16,274	56.1
			F	1,305	4.5	10,762	37.1	667	2.3	12,735	43.9
			Subtotal	2,176	7.5	25,934	89.4	899	3.1	29,009	100.0
	8/23,26	127	M	2,021	3.9	23,682	45.7	829	1.6	26,532	51.2
			F	2,850	5.5	22,024	42.5	415	0.8	25,289	48.8
			Subtotal	4,871	9.4	45,706	88.2	1,244	2.4	51,821	100.0
	8/29	128	M	901	6.3	4,921	34.4	329	2.3	6,151	43.0
			F	787	5.5	6,823	47.7	558	3.9	8,168	57.1
			Subtotal	1,688	11.8	11,744	82.1	887	6.2	14,305	100.1
	Season	743	M	26,875	5.8	219,451	47.6	4,854	1.1	251,180	54.5
			F	14,229	3.1	187,792	40.7	7,847	1.7	209,868	45.5
			Subtotal	41,104	8.9	407,243	88.3	12,701	2.8	461,034	100.0
1990	8/1,6,10	222	M	2,006	1.4	77,249	53.9	5,160	3.6	84,415	58.9
			F	2,006	1.4	53,602	37.4	3,296	2.3	58,905	41.1
			Subtotal	4,013	2.8	130,851	91.3	8,456	5.9	143,320	100.0
	8/13,16, 20,27	167	M	7,558	3.0	128,226	50.9	4,535	1.8	140,318	55.7
			F	7,558	3.0	96,484	38.3	7,558	3.0	111,599	44.3
			Subtotal	15,115	6.0	224,710	89.2	12,092	4.8	251,917	100.0
	Season	389	M	9,564	2.4	205,475	52.0	9,694	2.5	224,733	56.9
			F	9,564	2.4	150,086	38.0	10,854	2.7	170,504	43.1
			Total	19,128	4.8	355,561	90.0	20,548	5.2	395,237	100.0
1991	7/25	89	M	94	1.1	5,844	68.6	94	1.1	6,031	70.8
			F	0	0.0	2,488	29.2	0	0.0	2,488	29.2
			Subtotal	94	1.1	8,332	97.8	94	1.1	8,519	100.0
	8/1	94	M	4,827	6.4	38,467	51.0	4,827	6.4	48,121	63.8
			F	2,414	3.2	23,306	30.9	1,584	2.1	27,304	36.2
			Subtotal	7,241	9.6	61,773	81.9	6,411	8.5	75,425	100.0
	8/8	98	M	4,858	2.0	173,659	71.5	14,816	6.1	193,332	79.6
			F	2,429	1.0	44,690	18.4	2,429	1.0	49,548	20.4
			Subtotal	7,286	3.0	218,349	89.9	17,244	7.1	242,880	100.0
	8/14	95	M	642	1.1	29,488	50.5	4,321	7.4	34,452	59.0
			F	1,226	2.1	20,262	34.7	2,453	4.2	23,941	41.0
			Subtotal	1,869	3.2	49,751	85.2	6,774	11.6	58,393	100.0
	8/19	98	M	1,147	2.0	17,553	30.6	1,778	3.1	20,479	35.7
			F	2,352	4.1	31,034	54.1	3,499	6.1	36,885	64.3
			Subtotal	3,499	6.1	48,587	84.7	5,277	9.2	57,364	100.0
	8/26	99	M	437	1.0	17,640	40.4	1,310	3.0	19,387	44.4
			F	2,664	6.1	20,304	46.5	1,310	3.0	24,277	55.6
			Subtotal	3,100	7.1	37,944	86.9	2,620	6.0	43,664	100.0

– continued –

Appendix B.28. (page 4 of 4)

Year	Sample Date	Sample Size	Sex	Age Class 1.1 Catch	1.1 %	2.1 Catch	2.1 %	3.1 Catch	3.1 %	Total Catch	Total %
	Season	573	M	12,005	2.5	282,652	58.1	27,146	5.6	321,803	66.2
			F	11,084	2.3	142,084	29.2	11,274	2.3	164,442	33.8
			Total	23,089	4.7	424,736	87.4	38,420	7.9	486,245	100.0
1992	8/03	151	M	12,624	9.3	56,604	41.7	950	0.7	70,178	51.7
			F	5,430	4.0	56,604	41.7	3,529	2.6	65,563	48.3
			Subtotal	18,054	13.3	113,208	83.4	4,479	3.3	135,741	100.0
	8/11	191	M	19,700	7.3	111,724	41.4	12,684	4.7	144,107	53.4
			F	11,334	4.2	113,073	41.9	1,349	0.5	125,757	46.6
			Subtotal	31,034	11.5	224,797	83.3	14,033	5.2	269,864	100.0
	8/17		M	9,774	6.4	49,329	32.3	3,971	2.6	63,073	41.3
		155	F	13,745	9.0	71,015	46.5	4,887	3.2	89,647	58.7
			Subtotal	23,519	15.4	120,343	78.8	8,858	5.8	152,720	100.0
	8/24	155	M	3,998	7.1	22,523	40.0	1,070	1.9	27,590	49.0
			F	5,462	9.7	21,791	38.7	1,464	2.6	28,717	51.0
			Subtotal	9,460	16.8	44,314	78.7	2,534	4.5	56,307	100.0
	8/31	152	M	1,900	11.2	6,361	37.5	441	2.6	8,702	51.3
			F	1,119	6.6	6,242	36.8	899	5.3	8,260	48.7
			Subtotal	3,019	17.8	12,603	74.3	1,340	7.9	16,962	100.0
	Season	804	M	47,996	7.6	246,540	39.0	19,115	3.0	313,651	49.7
			F	37,090	5.9	268,725	42.5	12,129	1.9	317,943	50.3
			Total	85,086	13.5	515,264	81.6	31,244	4.9	631,594	100.0
1993	7/31	153	M	6,394	3.3	92,422	47.7	2,519	1.3	101,334	52.3
			F	2,519	1.3	87,384	45.1	2,519	1.3	92,422	47.7
			Subtotal	8,913	4.6	179,806	92.8	5,038	2.6	193,756	100.0
	8/06		M	7,246	3.2	109,598	48.4	5,888	2.6	122,732	54.2
		155	F	4,302	1.9	96,465	42.6	2,944	1.3	103,711	45.8
			Subtotal	11,549	5.1	206,063	91.0	8,831	3.9	226,443	100.0
	8/21	120	M	2,386	1.7	62,034	44.2	3,509	2.5	67,929	48.4
			F	9,403	6.7	63,017	44.9	0	0.0	72,420	51.6
			Subtotal	11,789	8.4	125,051	89.1	3,509	2.5	140,349	100.0
	8/28	112	M	1,392	5.4	11,060	42.9	0	0.0	12,453	48.3
			F	464	1.8	12,865	49.9	0	0.0	13,329	51.7
			Subtotal	1,856	7.2	23,926	92.8	0	0.0	25,782	100.0
	Season	540	M	17,418	3.0	275,115	46.9	11,915	2.0	304,448	51.9
			F	16,689	2.8	259,731	44.3	5,463	0.9	281,882	48.1
			Total	34,107	5.8	534,845	91.2	17,378	3.0	586,330	100.0
All Years		8,589	M	182,823	3.6	2,375,605	47.2	129,386	2.6	2,687,813	53.4
			F	155,264	3.1	2,073,441	41.2	113,941	2.3	2,342,647	46.6
			Grand Total	338,086	6.7	4,449,046	88.4	243,327	4.8	5,030,445	100.0

[a] Percentages by sample date are based on commercial catch samples collected in Bethel; catch numbers, by age class and sex, are derived from those percentages; discrepencies in sums are attributed to rounding errors.

[b] For season summaries the catch estimates, by age class and sex, are tallied and the percentages are derived from the sums.

Appendix B.29. Age distribution of historic commercial chum salmon catches from the lower Kuskokwim River, by sample trip.[a,b]

Year	Sample Date	Sample Size	Sex	Age Class 0.2 Catch	0.2 %	0.3 Catch	0.3 %	0.4 Catch	0.4 %	0.5 Catch	0.5 %	Total Catch	Total %
1984	6/18–21	261	M		0.0		31.3		22.6		2.3		56.2
			F		0.0		34.2		8.8		0.5		43.5
			Subtotal		0.0		65.5		31.4		2.8		99.7
	6/22–28	419	M	477	0.3	78,016	49.1	6,674	4.2	1,271	0.8	86,438	54.4
			F	0	0.0	65,305	41.1	6,674	4.2	477	0.3	72,455	45.6
			Subtotal	477	0.3	143,321	90.2	13,347	8.4	1,748	1.1	158,893	100.0
	6/29–7/5	884	M	624	0.5	38,088	30.5	3,497	2.8	250	0.2	42,459	34.0
			F	250	0.2	76,300	61.1	5,869	4.7	0	0.0	82,419	66.0
			Subtotal	874	0.7	114,388	91.6	9,366	7.5	250	0.2	124,878	100.0
	7/6–16	624	M	238	0.3	21,972	27.7	2,300	2.9	635	0.8	25,145	31.7
			F	1,428	1.8	48,624	61.3	3,966	5.0	159	0.2	54,177	68.3
			Subtotal	1,666	2.1	70,597	89.0	6,266	7.9	793	1.0	79,322	100.0
	Season	2,188	M	1,339	0.4	138,076	38.0	12,470	3.4	2,155	0.6	154,041	42.4
			F	1,678	0.5	190,230	52.4	16,509	4.5	635	0.2	209,052	57.6
			Total	3,017	0.8	328,306	90.4	28,979	8.0	2,791	0.8	363,093	100.0
1985	6/20–27	606	M	220	0.2	12,868	11.7	34,975	31.8	330	0.3	48,393	44.0
			F	0	0.0	17,597	16.0	43,773	39.8	220	0.2	61,590	56.0
			Subtotal	220	0.2	30,465	27.7	78,748	71.6	550	0.5	109,983	100.0
	7/1–4	424	M	380	0.5	17,264	22.7	19,697	25.9	152	0.2	37,494	49.3
			F	684	0.9	16,503	21.7	21,371	28.1	0	0.0	38,558	50.7
			Subtotal	1,065	1.4	33,767	44.4	41,068	54.0	152	0.2	76,052	100.0
	Season	1,030	M	600	0.3	30,132	16.2	54,672	29.4	482	0.3	85,886	46.2
			F	684	0.4	34,101	18.3	65,144	35.0	220	0.1	100,149	53.8
			Total	1,285	0.7	64,232	34.5	119,816	64.4	702	0.4	186,035	100.0
1986	6/26–7/3	636	M	0	0.0	73,142	37.4	24,641	12.6	391	0.2	98,174	50.2
			F	391	0.2	71,577	36.6	24,641	12.6	978	0.5	97,587	49.9
			Subtotal	391	0.2	144,719	74.0	49,283	25.2	1,369	0.7	195,566	100.1
	7/4–10	428	M	525	0.5	35,271	33.6	7,558	7.2	210	0.2	43,564	41.5
			F	525	0.5	43,757	47.4	11,022	10.5	0	0.0	61,304	58.4
			Subtotal	1,050	1.0	85,028	81.0	18,580	17.7	210	0.2	104,973	99.9
	Season	1,064	M	525	0.2	108,413	36.1	32,199	10.7	601	0.2	141,738	47.2
			F	916	0.3	121,334	40.4	35,663	11.9	978	0.3	158,892	52.9
			Total	1,441	0.5	229,747	76.4	67,863	22.6	1,579	0.5	300,539	100.0
1987	6/18,24	256	M	0	0.0	7,132	10.5	23,095	34.0	543	0.8	30,770	45.3
			F	0	0.0	11,683	17.2	24,657	36.3	815	1.2	37,156	54.7
			Subtotal	0	0.0	18,816	27.7	47,752	70.3	1,359	2.0	67,926	100.0
	6/30	528	M	0	0.0	29,031	25.7	22,141	19.6	1,017	0.9	52,189	46.2
			F	565	0.5	28,467	25.2	31,630	28.0	0	0.0	60,661	53.7
			Subtotal	565	0.5	57,498	50.9	53,770	47.6	1,017	0.9	112,963	99.9
	7/3,7	214	M	1,529	0.9	35,667	21.0	31,760	18.7	0	0.0	68,956	40.6
			F	849	0.5	55,538	32.7	44,499	26.2	0	0.0	100,886	59.4
			Subtotal	2,378	1.4	91,205	53.7	76,259	44.9	0	0.0	169,842	100.0
	7/11	212	M	1,010	1.4	15,650	21.7	12,909	17.9	649	0.9	30,217	41.9
			F	649	0.9	24,160	33.5	16,659	23.1	361	0.5	41,828	58.0
			Subtotal	1,659	2.3	39,809	55.2	29,568	41.0	1,010	1.4	72,118	99.9

– continued –

Appendix B.29. (page 2 of 4)

Year	Sample Date	Sample Size	Sex	Age Class 0.2 Catch	0.2 %	0.3 Catch	0.3 %	0.4 Catch	0.4 %	0.5 Catch	0.5 %	Total Catch	Total %
	7/15	198	M	1,079	1.5	17,046	23.7	11,292	15.7	360	0.5	29,776	41.4
			F	360	0.5	27,618	38.4	14,169	19.7	0	0.0	42,147	58.6
			Subtotal	1,438	2.0	44,664	62.1	25,461	35.4	360	0.5	71,923	100.0
	7/20	218	M	869	1.4	15,635	25.2	7,942	12.8	0	0.0	24,445	39.4
			F	1,737	2.8	27,051	43.6	8,562	13.8	310	0.5	37,661	60.7
			Subtotal	2,606	4.2	42,686	68.8	16,504	26.6	310	0.5	62,044	100.1
	Season	1,626	M	4,486	0.8	120,161	21.6	109,139	19.6	2,569	0.5	236,354	42.4
			F	4,160	0.7	174,517	31.3	140,176	25.2	1,486	0.3	320,339	57.5
			Total	8,646	1.6	294,678	52.9	249,314	44.8	4,055	0.7	556,816	100.0
1988	6/16,20	387	M	0	0.0	50,922	27.4	40,329	21.7	2,416	1.3	93,667	50.4
			F	0	0.0	52,781	28.4	36,426	19.6	2,974	1.6	92,180	49.6
			Subtotal	0	0.0	103,703	55.8	76,755	41.3	5,390	2.9	185,847	100.0
	6/24,28	416	M	1,369	0.5	105,426	38.5	43,540	15.9	1,917	0.7	152,252	55.6
			F	0	0.0	89,544	32.7	30,396	11.1	1,917	0.7	121,857	44.5
			Subtotal	1,369	0.5	194,971	71.2	73,935	27.0	3,834	1.4	273,835	100.1
	7/2,5	370	M	1,759	0.5	160,812	45.7	30,262	8.6	1,056	0.3	193,890	55.1
			F	1,056	0.3	134,069	38.1	22,873	6.5	0	0.0	157,997	44.9
			Subtotal	2,815	0.8	294,881	83.8	53,135	15.1	1,056	0.3	351,887	100.0
	7/8,11	372	M	1,381	0.5	122,643	44.4	15,468	5.6	0	0.0	139,492	50.5
			F	829	0.3	127,062	46.0	8,839	3.2	0	0.0	136,730	49.5
			Subtotal	2,210	0.8	249,705	90.4	24,308	8.8	0	0.0	276,222	100.0
	7/14,18	409	M	1,223	0.7	52,928	30.3	11,529	6.6	0	0.0	65,679	37.6
			F	2,620	1.5	96,947	55.5	8,559	4.9	873	0.5	109,000	62.4
			Subtotal	3,843	2.2	149,875	85.8	20,088	11.5	873	0.5	174,679	100.0
	7/21,25,28	450	M	204	0.2	41,580	40.7	5,415	5.3	409	0.4	47,608	46.6
			F	715	0.7	49,243	48.2	4,495	4.4	0	0.0	54,453	53.3
			Subtotal	919	0.9	90,823	88.9	9,910	9.7	409	0.4	102,163	99.9
	Season	2,404	M	5,937	0.4	534,312	39.2	146,543	10.7	5,797	0.4	692,588	50.8
			F	5,220	0.4	549,645	40.3	111,588	8.2	5,764	0.4	672,216	49.3
			Total	11,156	0.8	1,083,957	79.4	258,131	18.9	11,561	0.8	1,364,633	100.0
1989	6/19	147	M	0	0.0	16,116	15.0	29,223	27.2	752	0.7	46,091	42.9
			F	0	0.0	14,612	13.6	43,835	40.8	2,579	2.4	61,025	56.8
			Subtotal	0	0.0	30,728	28.6	73,059	68.0	3,331	3.1	107,439	99.7
	6/26,30	149	M	0	0.0	27,552	16.8	53,957	32.9	1,148	0.7	82,657	50.4
			F	0	0.0	27,552	16.8	53,957	32.9	0	0.0	81,509	49.7
			Subtotal	0	0.0	55,105	33.6	107,913	65.8	1,148	0.7	164,002	100.1
	7/3,5	143	M	0	0.0	53,897	18.2	93,283	31.5	0	0.0	147,181	49.7
			F	0	0.0	41,459	14.0	105,721	35.7	2,073	0.7	149,254	50.4
			Subtotal	0	0.0	95,356	32.2	199,005	67.2	2,073	0.7	296,138	100.1
	7/11,14,18	201	M	799	0.5	24,611	15.4	38,195	23.9	799	0.5	64,405	40.3
			F	799	0.5	54,816	34.3	38,195	23.9	1,598	1.0	95,408	59.7
			Subtotal	1,598	1.0	79,427	49.7	76,391	47.8	2,397	1.5	159,813	100.0
	Season	640	M	799	0.1	122,177	16.8	214,659	29.5	2,699	0.4	340,334	46.8
			F	799	0.1	138,439	19.0	241,708	33.2	6,250	0.9	387,196	53.2
			Total	1,598	0.2	260,616	35.8	456,367	62.7	8,949	1.2	727,392	100.0

– continued –

Appendix B.29. (page 3 of 4)

Year	Sample Date	Sample Size	Sex	Age Class 0.2 Catch	0.2 %	0.3 Catch	0.3 %	0.4 Catch	0.4 %	0.5 Catch	0.5 %	Total Catch	Total %
1990	6/20,25,29	206	M	821	0.5	46,950	28.6	46,950	28.6	4,761	2.9	99,482	60.6
			F	821	0.5	49,412	30.1	14,282	8.7	0	0.0	64,515	39.3
			Subtotal	1,642	1.0	96,363	58.7	61,232	37.3	4,761	2.9	164,161	99.9
	7/5,9	154	M	0	0.0	57,930	32.5	23,172	13.0	0	0.0	81,102	45.5
			F	0	0.0	72,903	40.9	23,172	13.0	1,069	0.6	97,144	54.5
			Subtotal	0	0.0	130,833	73.4	46,344	26.0	1,069	0.6	178,246	100.0
	7/14,8/1,6	198	M	1,434	1.5	29,164	30.5	1,912	2.0	0	0.0	32,511	34.0
			F	956	1.0	52,973	55.4	8,701	9.1	0	0.0	62,631	65.5
			Subtotal	2,391	2.5	82,138	85.9	10,614	11.1	0	0.0	95,620	99.5
	Season	558	M	2,255	0.5	134,044	30.6	72,034	16.4	4,761	1.1	213,094	48.6
			F	1,777	0.4	175,289	40.0	46,155	10.5	1,069	0.2	224,290	51.2
			Total	4,032	0.9	309,333	70.6	118,190	27.0	5,830	1.3	438,027	100.0
1991	6/20	154	M	0	0.0	1,981	14.9	3,360	25.3	0	0.0	5,341	40.3
			F	0	0.0	2,498	18.8	5,427	40.9	0	0.0	7,925	59.7
			Subtotal	0	0.0	4,479	33.8	8,787	66.2	0	0.0	13,266	100.0
	6/24	145	M	211	0.7	8,028	26.2	7,394	24.1	0	0.0	15,633	51.0
			F	0	0.0	7,394	24.1	7,605	24.8	0	0.0	14,999	49.0
			Subtotal	211	0.7	15,422	50.3	14,999	49.0	0	0.0	30,632	100.0
	7/1	172	M (est.)	0	0.0	16,388	32.7	11,392	22.7	0	0.0	27,322	54.5
			F (est.)	0	0.0	13,219	26.4	9,336	18.6	0	0.0	22,799	45.5
			Subtotal	0	0.0	29,070	58.0	21,051	42.0	0	0.0	50,121	100.0
	7/6	169	M	237	0.6	14,697	36.7	8,059	20.1	237	0.6	23,230	58.0
			F	711	1.8	11,141	27.8	4,978	12.4	0	0.0	16,830	42.0
			Subtotal	948	2.4	25,838	64.5	13,037	32.5	237	0.6	40,060	100.0
	7/13	136	M	386	0.7	14,684	27.9	6,569	12.5	0	0.0	21,639	41.2
			F	1,159	2.2	19,321	36.8	10,433	19.9	0	0.0	30,913	58.8
			Subtotal	1,546	2.9	34,004	64.7	17,002	32.4	0	0.0	52,552	100.0
	7/18	153	M	1,545	2.0	23,176	29.4	10,300	13.1	0	0.0	35,021	44.4
			F	2,060	2.6	31,416	39.9	10,300	13.1	0	0.0	43,776	55.6
			Subtotal	3,605	4.6	54,591	69.3	20,601	26.1	0	0.0	78,797	100.0
	7/22	158	M	0	0.0	17,233	26.6	8,206	12.7	0	0.0	25,439	39.2
			F	821	1.3	26,670	41.1	11,899	18.4	0	0.0	39,390	60.8
			Subtotal	821	1.3	43,904	67.7	20,105	31.0	0	0.0	64,830	100.0
	7/29	146	M	535	1.4	9,365	24.0	3,479	8.9	0	0.0	13,379	34.2
			F	535	1.4	20,069	51.4	5,084	13.0	0	0.0	25,688	65.8
			Subtotal	1,070	2.7	29,434	75.3	8,563	21.9	0	0.0	39,067	100.0
	8/1	146	M	90	0.7	2,781	21.2	718	5.5	0	0.0	3,588	27.4
			F	90	0.7	7,267	55.5	2,153	16.4	0	0.0	9,510	72.6
			Subtotal	179	1.4	10,048	76.7	2,871	21.9	0	0.0	13,098	100.0
	8/5	140	M	131	2.1	1,566	25.7	522	8.6	0	0.0	2,219	36.4
			F	87	1.4	3,133	51.4	653	10.7	0	0.0	3,872	63.6
			Subtotal	218	3.6	4,699	77.1	1,175	19.3	0	0.0	6,091	100.0
	8/8	109	M	107	1.8	3,738	64.2	320	5.5	427	7.3	4,592	78.9
			F	53	0.9	961	16.5	53	0.9	160	2.8	1,228	21.1
			Subtotal	160	2.8	4,699	80.7	374	6.4	587	10.1	5,820	100.0

– continued –

Appendix B.29. (page 4 of 4)

Year	Sample Date	Sample Size	Sex	Age Class 0.2 Catch	0.2 %	0.3 Catch	0.3 %	0.4 Catch	0.4 %	0.5 Catch	0.5 %	Total Catch	Total %
	Season	1,628	M	3,242	0.8	113,636	28.8	60,319	15.3	664	0.2	177,403	45.0
			F	5,516	1.4	143,088	36.3	67,922	17.2	160	0.0	216,930	55.0
			Total	8,758	2.2	256,187	65.0	128,564	32.6	824	0.2	394,334	100.0
1992	6/18	182	M	163	0.5	6,997	21.4	14,386	44.0	883	2.7	22,429	68.6
			F	0	0.0	4,708	14.4	5,199	15.9	360	1.1	10,266	31.4
			Subtotal	163	0.5	11,705	35.8	19,584	59.9	1,242	3.8	32,695	100.0
	6/22	188	M	0	0.0	14,067	18.9	26,943	36.2	1,191	1.6	42,201	56.7
			F	0	0.0	11,090	14.9	20,989	28.2	372	0.5	32,451	43.6
			Subtotal	0	0.0	25,157	33.8	47,932	64.4	1,563	2.1	74,429	100.3
	6/25	183	M	0	0.0	11,739	21.3	14,440	26.2	606	1.1	26,785	48.6
			F	0	0.0	9,921	18.0	18,353	33.3	0	0.0	28,273	51.3
			Subtotal	0	0.0	21,660	39.3	32,793	59.5	606	1.1	55,114	99.9
	6/29	191	M	0	0.0	14,278	17.8	19,732	24.6	802	1.0	34,812	43.4
			F	0	0.0	20,133	25.1	24,385	30.4	802	1.0	45,320	56.5
			Subtotal	0	0.0	34,411	42.9	44,117	55.0	1,604	2.0	80,213	99.9
	7/06	191	M	0	0.0	26,859	31.9	14,566	17.3	421	0.5	41,845	49.7
			F	0	0.0	23,322	27.7	17,597	20.9	1,347	1.6	42,266	50.2
			Subtotal	0	0.0	50,181	59.6	32,163	38.2	1,768	2.1	84,196	99.9
	8/03	154	M	0	0.0	1,856	28.6	461	7.1	0	0.0	2,317	35.7
			F	39	0.6	3,368	51.9	714	11.0	39	0.6	4,159	64.1
			Subtotal	39	0.6	5,224	80.5	1,175	18.1	39	0.6	6,489	99.8
	Season	1,089	M	163	0.0	75,795	22.8	90,528	27.2	3,903	1.2	170,390	51.1
			F	39	0.0	72,542	21.8	87,236	26.2	2,920	0.9	162,737	48.9
			Total	202	0.1	148,337	44.5	177,764	53.4	6,823	2.0	333,136	100.0
1993	6/25	194	M	0	0.0	4,914	14.4	13,547	39.7	1,399	4.1	19,860	58.2
			F	171	0.5	4,402	12.9	8,633	25.3	1,058	3.1	14,263	41.8
			Subtotal	171	0.5	9,316	27.3	22,180	65.0	2,457	7.2	34,123	100.0
	7/31	124	M	275	3.2	1,667	19.4	1,315	15.3	206	2.4	3,464	40.3
			F	138	1.6	2,776	32.3	2,218	25.8	0	0.0	5,131	59.7
			Subtotal	413	4.8	4,444	51.7	3,533	41.1	206	2.4	8,595	100.0
	Season	318	M	275	0.6	6,581	15.4	14,862	34.8	1,605	3.8	23,323	54.6
			F	308	0.7	7,178	16.8	10,851	25.4	1,058	2.5	19,395	45.4
			Total	583	1.4	13,759	32.2	25,712	60.2	2,663	6.2	42,718	100.0
All Years		12,545	M	19,621	0.4	1,383,327	29.4	807,425	17.2	25,237	0.5	2,235,152	47.5
			F	21,097	0.4	1,606,363	34.1	822,952	17.5	20,540	0.4	2,471,196	52.5
			Grand Total	40,718	0.9	2,989,153	63.5	1,630,700	34.6	45,777	1.0	4,706,723	100.0

[a] Percentages by sample date are based on commercial catch samples collected in Bethel; catch numbers, by age class and sex, are derived from those percentages; discrepencies in sums are attributed to rounding errors.

[b] For season summaries the catch estimates, by age class and sex, are tallied and the percentages are derived from the sums.

Appendix B.30. Utilizations of Kuskokwim River chinook salmon, 1960-1993.

Year	Commercial Harvest[a]	Estimated Subsistence Harvest[b]	Total Utilization
1960	5,969	20,361	26,330
1961	18,918	30,910	49,828
1962	15,341	14,642	29,983
1963	12,016	37,246	49,262
1964	17,149	29,017	46,166
1965	21,989	27,143	49,132
1966	25,545	49,606	75,151
1967	29,986	57,875	87,861
1968	34,278	30,230	64,508
1969	43,997	40,138	84,135
1970	39,290	69,204	108,494
1971	40,274	42,926	83,200
1972	39,454	40,145	79,599
1973	32,838	38,526	71,364
1974	18,664	26,665	45,329
1975	21,720	47,784	69,504
1976	30,735	58,185	88,920
1977	35,830	55,577	91,407
1978	45,641	35,881	81,522
1979	38,966	55,524	94,490
1980	35,881	59,900	95,781
1981	47,663	59,669	107,332
1982	48,234	53,310	101,544
1983	33,174	52,000	85,174
1984	31,742	57,000	88,742
1985	37,889	42,277	80,166
1986	19,414	51,019	70,433
1987	36,179	67,352	103,504
1988	55,716	53,877	109,593
1989	43,217	73,035	116,252
1990	53,504	71,281	124,785
1991	37,778	80,865	118,643
1992	46,872	58,239	105,111
1993	8,735	72,119	80,854
Ten Year Average (1983-1992)	39,548	60,695	100,240

a District 1, 2 and 3.
b Estimated subsistence harvest expanded from villages surveyed.
c Estimate from prototype main river sonar, accuracy and precision unknown.
d Previous 5 year average, subsistence catch not available at this time.

Appendix B.31. Utilizations of Kuskokwim River chum salmon, 1960-1993.

Year	Commercial Harvest[a]	Estimated Subsistence Harvest[b]	Total Utilization
1960	0	301,753[c]	301,753
1961	0	179,529[c]	179,529
1962	0	161,849[c]	161,849
1963	0	137,649[c]	137,649
1964	0	190,191[c]	190.191
1965	0	250,878[c]	250,878
1966	0	175,735[c]	175,735
1967	148	208,445[c]	208,593
1968	187	275,008[c]	275,195
1969	7,165	204,105[c]	211,270
1970	1,664	246,810[c]	248,474
1971	68,914	116,391[c]	185,305
1972	78,619	120,316[c]	198,935
1973	148,746	179,259[c]	328,005
1974	171,887	277,170[c]	449,057
1975	181,840	176,389[c]	358,229
1976	177,864	223,792[c]	401,656
1977	248,721	198,355[c]	447,076
1978	248,656	118,809[c]	367,465
1979	261,874	161,239[c]	423,113
1980	483,211	165,172[c]	648,383
1981	418,677	157,306[c]	575,983
1982	278,306	190,011[c]	468,317
1983	267,698	146,876[c]	414,574
1984	423,718	142,542[c]	566,260
1985	199,478	95,542	295,020
1986	309,213	141,931[c]	451,144
1987	574,336	69,047	643,383
1988	1,381,674	117,008	1,498,682
1989	749,182	122,086	871,268
1990	461,624	96,273	557,897
1991	431,802	81,652	513,454
1992	344,603	85,203	444,607
1993	43,337	46,295	89,632
Ten Year Average (1983-1992)	518,667	95,128	625,629

a District 1 and 2.

b Estimated subsistence harvest expanded from villages surveyed.

c Includes small numbers of small chinook, sockeye and coho salmon.

Appendix B.32 Historical daily cumulative salmon escapement at the Tuluksak Weir 1991-1993

DATE	CHINOOK			SOCKEYE			COHO			PINK			CHUM		
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
06-12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06-19	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
06-20	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
06-21	0	0	0	0	0	0	0	0	0	0	0	0	1	0	12
06-22	0	0	1	0	0	0	0	0	0	0	0	0	1	0	14
06-23	1	0	1	0	0	0	0	0	0	0	0	0	2	0	15
06-24	4	0	1	0	0	0	0	0	0	0	0	0	2	1	22
06-25	4	0	2	0	0	0	0	0	0	0	0	0	2	20	40
06-26	7	1	2	0	0	0	0	0	0	0	0	0	5	120	57
06-27	10	1	4	0	0	0	0	0	0	0	0	0	11	195	79
06-28	14	3	5	0	0	0	0	0	0	0	0	0	13	266	121
06-29	15	7	5	0	0	0	0	0	0	0	0	0	24	359	147
06-30	21	17	19	0	0	0	0	0	0	0	0	0	44	529	184
07-01	29	32	59	0	0	0	0	0	0	0	0	0	67	771	285
07-02	35	44	94	0	0	0	0	0	0	0	0	0	117	867	431
07-03	41	66	196	0	0	1	0	0	0	0	1	0	181	1022	550
07-04	69	151	280	0	0	1	0	0	0	0	1	0	294	1162	704
07-05	82	191	400	0	0	1	0	0	0	0	2	0	391	1312	853
07-06	106	204	587	0	0	1	0	0	0	1	3	0	450	1419	1058
07-07	121	232	744	0	0	1	0	0	0	1	4	0	565	1577	1371
07-08	144	287	781	0	0	1	0	0	0	1	6	0	844	1806	1683
07-09	181	358	874	0	0	1	0	0	0	2	8	0	1005	2034	1925
07-10	435	475	1045	0	2	5	0	0	0	5	11	0	1331	2314	2180
07-11	443	528	1145	1	3	9	0	0	0	6	13	0	1627	2555	2559
07-12	481	553	1360	3	3	11	0	0	0	11	16	0	1903	2757	2774
07-13	493	585	1467	3	3	13	0	0	0	12	19	3	2072	3011	3115
07-14	497	632	1547	3	5	17	0	0	0	14	23	4	2192	3318	3582
07-15	502	670	1590	3	5	18	0	0	0	16	28	4	2361	3736	3995
07-16	513	702	1648	3	9	19	0	0	0	18	37	5	2571	4123	4397
07-17	545	710	1711	4	10	23	0	0	0	23	40	10	2729	4297	5213
07-18	588	734	1771	9	11	26	0	0	0	77	73	13	3119	4807	6223
07-19	615	761	1835	10	13	31	0	0	0	142	94	15	3417	5125	6968
07-20	630	773	1896	13	15	38	0	0	0	201	104	18	3651	5390	7502
07-21	644	789	1943	15	17	46	0	0	0	229	123	22	3870	5650	8065
07-22	654	829	1997	16	22	46	0	0	0	268	140	25	4102	6133	8442
07-23	657	875	2015	16	42	48	0	1	3	279	161	26	4256	6692	8692
07-24	669	942	2038	16	64	55	0	2	4	286	228	29	4380	7356	8935
07-25	674	986	2048	18	72	55	0	2	5	294	288	32	4535	7786	9190
07-26	675	998	2063	18	75	58	0	3	5	303	334	41	4642	8016	9514
07-27	679	1007	2087	18	76	60	0	3	6	310	391	50	4736	8279	9965
07-28	681	1015	2111	18	82	61	0	4	7	311	434	54	4878	8609	10352
07-29	685	1022	2125	21	86	67	0	5	14	317	517	59	5138	8922	10653

-continued-

Appendix B.32 (2 of 2)

DATE	CHINOOK			SOCKEYE			COHO			PINK			CHUM		
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
07-30	686	1031	2146	22	90	69	0	9	17	329	618	67	5388	9122	10975
07-31	686	1036	2156	22	91	73	0	10	19	331	744	85	5546	9360	11362
08-01	686	1042	2166	22	95	78	0	13	23	334	794	91	5677	9556	11696
08-02	688	1045	2168	22	98	78	0	16	27	338	873	98	5816	9767	11944
08-03	689	1049	2169	22	99	78	0	18	34	341	916	102	6006	9910	12128
08-04	689	1051	2176	23	99	78	1	21	59	342	965	105	6174	10029	12362
08-05	689	1058	2180	26	100	80	3	41	81	347	1059	106	6333	10166	12575
08-06	690	1062	2189	26	102	81	3	69	102	354	1163	113	6541	10301	12769
08-07	690	1065	2202	26	104	82	7	90	168	355	1245	123	6694	10371	12962
08-08	690	1067	2205	27	104	83	7	101	218	361	1345	127	6786	10488	13110
08-09	690	1068	2210	27	104	83	10	117	329	366	1490	131	6893	10591	13193
08-10	690	1068	2211	27	106	84	14	134	412	369	1588	132	7011	10671	13256
08-11	690	1070	2216	27	107	85	18	176	541	372	1680	135	7110	10768	13310
08-12	691	1070	2217	28	107	85	34	257	583	375	1881	140	7183	10850	13358
08-13	694	1070	2217	29	107	85	53	301	625	375	1946	146	7261	10882	13411
08-14	695	1071	2217	30	107	85	73	422	774	376	2032	150	7322	10915	13461
08-15	696	1072	2217	30	107	85	75	608	891	376	2078	154	7360	10943	13492
08-16	696	1072	2217	30	108	86	100	651	937	377	2106	156	7413	10959	13515
08-17	696	1072	2217	30	110	86	126	731	1004	379	2145	160	7468	10989	13530
08-18	696	1073	2218	30	111	86	181	824	1109	382	2192	165	7499	11011	13560
08-19	696	1073	2218	30	112	86	247	978	1246	382	2256	170	7528	11031	13587
08-20	696	1073	2218	31	118	86	317	1042	1412	382	2272	173	7555	11053	13642
08-21	697	1075	2218	31	119	86	406	1409	1770	383	2308	181	7571	11078	13668
08-22	697	1076	2218	31	121	86	448	1938	2112	383	2323	183	7580	11091	13677
08-23	697	1076	2218	31	121	86	507	2256	2311	383	2330	191	7597	11109	13693
08-24	697	1076	2218	31	121	86	559	2357	2454	383	2336	192	7608	11113	13702
08-25	697	1077	2218	32	122	86	939	2777	2665	384	2344	196	7621	11122	13724
08-26	697	1077	2218	32	122	86	1078	3023	3061	384	2347	199	7628	11130	13748
08-27	697	1077	2218	32	122	87	1157	3670	3565	384	2368	201	7634	11145	13767
08-28	697	1078	2218	32	122	88	1157	4572	3786	384	2394	203	7636	11154	13775
08-29	697	1078	2218	32	123	88	1158	5020	4013	384	2404	204	7643	11160	13781
08-30	697	1080	2218	32	123	88	1293	5577	4419	384	2414	206	7654	11161	13784
08-31	697	1080	2218	32	123	88	1443	5738	5036	384	2418	207	7660	11162	13786
09-01	697	1082	2218	32	126	88	1592	5912	5581	386	2422	207	7660	11164	13792
09-02	697	1083	2218	32	126	88	1757	6834	6201	386	2436	209	7666	11172	13794
09-03	697	1083	2218	32	127	88	1950	7033	7475	386	2444	210	7667	11174	13796
09-04	697	1083	2218	32	128	88	2306	7138	7722	386	2449	210	7671	11174	13797
09-05	697	1083	2218	32	128	88	2695	7374	7856	386	2456	210	7673	11177	13799
09-06	697	1083	2218	32	129	88	3593	7458	7926	386	2463	210	7674	11179	13799
09-07	697	1083	2218	32	129	88	3905	7476	8097	386	2464	210	7674	11180	13801
09-08	697	1083	2218	32	129	88	4085	7477	8167	386	2467	210	7674	11181	13802
09-09	697	1083	2218	32	129	88	4242	7485	8257	386	2469	210	7674	11183	13803
09-10	697	1083	2218	33	129	88	4340	7501	8328	389	2470	210	7674	11183	13804
09-11	697	1083		33	129		4380	7501		389	2470		7674	11183	
09-12	697	1083		33	129		4439	7501		390	2470		7674	11183	
09-13	697	1083		33	129		4484	7501		391	2470		7675	11183	
09-14	697	1083		33	129		4519	7501		391	2470		7675	11183	
09-15	697	1083		33	129		4539	7501		391	2470		7675	11183	
09-16	697	1083		34	129		4568	7501		391	2470		7675	11183	
09-17	697	1083		34	129		4627	7501		391	2470		7675	11183	
09-18	697	1083		34	129		4651	7501		392	2470		7675	11183	

Appendix B. 33. Historic daily estimates of chum salmon escapement at the Aniak River Sonar site.

Date	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
15-Jun		609.1							84.3	33.7			11.7	1.9
16-Jun		281.9	81.0		1893.8				606.3	251.1			86.0	14.0
17-Jun		283.5	648.0		1863.0				602.3	282.5			96.9	15.7
18-Jun		596.2	931.5		1564.9				550.1	280.5			96.1	15.6
19-Jun		962.3	1377.0	419.6	1947.2				979.7	480.3			164.6	26.6
20-Jun		1479.1	1944.0	262.4	1229.6				738.8	416.8			142.9	23.2
21-Jun		2034.7	2630.9	544.3	639.9			1015.7	1312.9	665			228.3	37.2
22-Jun	508.7	2119.0	1710.7	1054.6	1318.7	534.6	145.2	1727.7	1710.4	323.3		157	790.6	56.1
23-Jun	382.3	5553.4	358.0	1273.3	2234.0	783.7	105.9	2429.5	1379.3	1245	225	126	1300.9	73.5
24-Jun	293.2	9225.9	605.9	1190.7	1174.5	1354.0	84.7	6702.0	2422.2	1084	481	94	2906.3	26.0
25-Jun	280.3	11228.2	2686.0	912.1	1339.7	821.5	1137.2	625.2	3779.2	2449	2454	94	1785.2	19.0
26-Jun	698.2	7712.8	8072.5	928.3	5546.9	680.4	711.2	1547.7	7769.8	1727	2685	220	2906.3	44.0
27-Jun	1798.2	8948.9	5705.6	1221.5	9049.3	992.9	4507.6	3161.8	6662.5	2925	1924	534	6073.4	15.0
28-Jun	1351.1	10622.3	6595.0	1514.7	7933.1	1761.5	6478.3	3136.4	6075.9	3414	1671	408	8156.7	71.0
29-Jun	2209.7	21050.3	5976.2	2112.5	3794.0	1637.5	1774.6	2409.3	4355.8	3080	1813	1809	3110.4	284.0
30-Jun	7244.6	10638.5	8799.8	2430.0	2580.7	1652.8	2680.4	914.7	6568.4	2055	3173	3809	3878.3	144.0
01-Jul	12047.9	13873.7	13980.6	2882.0	4032.2	2078.1	2045.1	1351.3	15551.9	4712	3566	4299	1605.4	604.0
02-Jul	15940.8	12621.4	20765.2	2426.8	10060.2	1702.0	2397.5	440.6	9573.8	6555	2469	3800	3253.0	1798.0
03-Jul	31684.0	10155.8	18775.8	2817.2	17283.8	4215.4	4047.5	3613.2	13387.6	8321	2061	5578	1991.0	527.0
04-Jul	44415.5	13201.4	20687.4	7646.4	18714.2	3480.7	5162.4	4363.6	15065.8	7427	2248	6397	3351.8	288.0
05-Jul	22675.1	30396.1	14795.5	5869.3	3734.1	3181.8	3494.8	10040.8	18044.5	12648	2966	9082	2533.7	663.0
06-Jul	41538.4	22425.7	14805.2	7661.0	3079.6	5721.3	2739.5	5488.6	9867.9	12709	4334	8659	2857.7	55.0
07-Jul	22229.6	16062.3	12802.9	6313.1	5417.3	4671.4	3845.8	6110.5	7163.8	5104	5133	8998	2094.7	31.0
08-Jul	15030.4	12892.0	16804.3	4885.9	8364.1	7254.7	5400.7	3820.4	12471.1	8645	6828	17919	1608.7	7.0
09-Jul	33874.2	13975.7	32351.4	4843.8	5462.6	5728.9	3477.8	4405.7	16524.4	7617	5224	10381	1216.6	136.0
10-Jul	34932.1	9956.5	15422.4	8783.6	6608.0	5954.8	6970.6	6026.0	14797.4	6642	7805	9306	2833.4	915.0
11-Jul	38235.2	19817.5	16102.8	6078.2	8947.3	5955.1	4958.5	10872.8	12073.2	7414	5345	12773	4532.8	400.0
12-Jul	40477.3	19284.5	15649.2	4349.7	10348.6	7839.4	6805.2	12271.1	12516.6	7260	7363	11614	6852.6	439.0
13-Jul	48708.5	11459.9	12811.0	6160.9	12519.4	4848.9	4886.6	4533.7	11525.7	6385	4983	10814	4318.9	238.0
14-Jul	27395.8	15574.7	24107.2	5231.0	10282.1	4634.6	6489.2	7983.9	12506.5	8565	6001	11641	874.8	539.0
15-Jul	26457.8	11380.5	15412.7	3854.0	19072.3	7412.3	5569.7	5619.5	16077.1	12238	5406	5952	630.2	237.0
16-Jul	37742.8	14013.0	10259.5	4372.4	11664.0	14706.5	7658.1	5905.9	13064.4	11163	7180	6234	1670.2	648.0
17-Jul	46686.8	13071.8	13065.3	3915.5	7761.4	12338.3	4926.1	7168.5	17454.4	10018	7194	15273	881.3	358.0
18-Jul	76745.9	10194.7	14578.4	2598.5	8156.7	7562.7	4465.1	5755.8	14935.7	8374	8480	14676	183.1	264.0
19-Jul	68443.4	13112.3	8563.3	4041.9	2826.9	5965.6	3957.8	4302.5	10917.2	6295	6536	20248	139.3	176.0
20-Jul	52585.2	11986.4	7722.5	3155.8	5371.9	7020.6	5531.1	6278.9	10543.0	5163	5175	19295	32.4	411.0
21-Jul	35858.7	13902.8	4908.6	2477.0	6556.1	7077.7	8769.4	4534.6	8066.7	3075	6759	18902	311.0	206.0
22-Jul	39003.1	17001.9	7256.0	3256.2	6290.5	18515.2	11025.1	2788.4	11307.1	2397	7551	8017	129.6	258.0
23-Jul	43999.2	18450.2	3878.3	2175.7	4150.4	20274.2	4375.1	3404.1	9774.5	7886	4989	6299	136.1	489.0
24-Jul	41677.7	19487.0	4617.0	2585.5	4325.4	5238.0	9728.6	5291.9	11474.6	3355	4031	4525	95.6	758.0
25-Jul	43412.8	13285.6	4147.2	2033.1	4770.9	5818.0	4654.3	1811.0	8775.4	4854	6747	4186	106.9	107.0
26-Jul	29466.2	14209.0	5810.9	1825.7	2997.0	4712.0	7374.8	3926.0	5205.5	4742	8092	4333	408.2	329.0
27-Jul	16430.0	12935.7	4915.1	1790.1	3865.3	7058.8	6715.4	3179.4	8277.5	4676	11293	4428	278.6	194.0
28-Jul	25411.3	11829.2	3912.3	1472.6	3688.7	4301.2	6140.7	2695.7	6624.3	4138	7575	6791	239.8	527.0
29-Jul	24335.6	9201.6	4571.6		2195.1	6172.8	4773.4	3730.7	4640.2	3607	8655	2199	43.7	203.2
30-Jul	17956.1	6979.0	4770.9		2439.7	3645.9	3623.9	2796.4	6414.4	2963	9203	3769	1013.0	167.4
31-Jul	17010.0	8637.8	4997.7		1880.8	5563.8	4483.0	2867.1	4039.3	3141	6481	4648	1089.3	177.3
01-Aug	16038.0	8360.8	3254.6			5592.4	4337.8	2774.3	1774.7	2626	9417	4491	908.7	148.5
02-Aug	15066.0	8119.4	4560.3			5436.4	4216.8	2696.9	1120.2	2585	8184	4366	894.1	145.7
03-Aug	14256.0	11085.7	3847.5			7417.5	5753.5	3679.7	1529.8	3236	5998	5967	1122.7	182.8
04-Aug	13284.0	9525.6	3499.2			6411.4	4973.0	3180.5	1308.9	2826	6562	5151	979.3	159.5
05-Aug	12312.0	11003.0	3142.8			7323.9	5680.9	3633.3	1517.7	3117		5905	1065.5	176.1
06-Aug	11340.0	6470.3	2786.4							731			250.9	40.9
Total	1,169,470	589,286	442,461	129,367	266,976	253,051	209,080	193,013	401,511	243,922	232,260	314,166	84,269	13,870

Note: All daily estimated escapements are derived by multiplying the daily adjusted sonar count by an expansion factor of 1.62.
Reference to data expanded by 1.5 will reveal different calculated daily escapement estimates and season totals.

Appendix B.34. Historical cumulative estimated escapement of chinook salmon at the Kogrukluk weir for years with adequate data.

	Cumulative Counts												
Date	1976	1978	1979	1981	1982	1984	1985	1986	1988	1990	1991	1992	1993
17-Jun				0									
18-Jun		0		1	0								
19-Jun		1		3	1	1				1			1
20-Jun		3	0	8	3	1				1	1	1	2
21-Jun		6	1	18	8	1				3	2	2	4
22-Jun		11	3	38	23	1				6	5	4	8
23-Jun		19	7	78	53	3				13	11	9	17
24-Jun		29	15	158	98	4	0		0	25	20	17	31
25-Jun		49	30	318	163	6	1		3	47	37	31	57
26-Jun		99	60	418	253	7	3		8	72	56	47	87
27-Jun		179	105	738	373	11	6		18	121	93	79	146
28-Jun		279	130	1072	523	68	11		48	127	145	123	227
29-Jun	0	391	205	1605	708	155	21	0	98	150	223	190	349
30-Jun	5	456	290	2167	938	200	41	3	178	269	303	259	474
01-Jul	21	798	420	2784	1228	515	61	28	228	318	462	331	724
02-Jul	23	916	576	3688	1583	819	111	125	338	781	649	586	1017
03-Jul	41	1401	683	4567	2003	1073	231	192	553	1142	872	973	1623
04-Jul	56	2205	941	5307	2523	1212	276	283	828	1321	1102	1136	1985
05-Jul	126	2834	1312	6308	3173	1309	311	344	1177	1748	1252	1371	2642
06-Jul	169	3179	1694	7388	3953	1547	333	395	1642	2201	1420	1445	3350
07-Jul	235	3432	2003	8603	4793	1721	393	455	2338	2456	1606	1590	4226
08-Jul	392	4051	2393	9376	5668	1865	499	585	2921	3298	1810	1728	4941
09-Jul	704	4935	2736	10423	6628	2030	618	662	3492	3449	2432	2545	5821
10-Jul	1165	5606	3355	11406	7237	2053	1034	1144	4176	4677	2949	2870	6825
11-Jul	1512	6307	3817	12155	7702	2157	1200	1426	4880	5205	3230	3301	7508
12-Jul	1786	6939	4577	12681	8082	2442	1445	1535	5538	6206	3671	3786	8161
13-Jul	2502	7536	5509	13172	8431	2704	1750	1992	6030	6317	4359	3924	8849
14-Jul	2814	8149	6491	13630	8802	3028	2019	2273	6625	6704	4876	4229	9275
15-Jul	3065	8822	7039	14190	8961	3359	2165	2577	7075	7759	5196	4637	9642
16-Jul	3312	9549	7739	14642	9385	3635	2493	2712	7386	8406	5613	4802	10051
17-Jul	3599	10201	8409	15021	9719	3860	[illegible]	2906	7536	8624	6128	5128	10385
18-Jul	4023	10689	8873	15343	9950	3965	2967	3205	7639	9032	6506	5408	10796
19-Jul	4306	11250	9228	15641	10115	4064	3226	3464	7763	9092	6834	5603	10958
20-Jul	4400	11725	9562	15884	10307	4201	3403	3661	7810	9189	7125	5747	11230
21-Jul	4792	11996	9907	16071	10409	4325	3554	3812	7917	9386	7283	5914	11430
22-Jul	4982	12298	10085	16254	10456	4436	3626	3904	8025	9487	7452	6079	11489
23-Jul	5153	12501	10216	16372	10537	4525	3730	4008	8109	9615	7498	6238	11590
24-Jul	5235	12800	10524	16450	10591	4594	3900	4223	8165	9672	7544	6341	11678
25-Jul	5322	12980	10640	16492	10652	4630	4016	4339	8211	9709	7589	6425	11730
26-Jul	5378	13094	10780	16533	10691	4674	4146	4479	8249	9764	7628	6458	11806
27-Jul	5428	13186	10846	16564	10743	4704	4212	4545	8276	9799	7658	6484	11883
28-Jul	5448	13258	10944	16600	10777	4741	4290	4643	8292	9843	7696	6511	12004
29-Jul	5476	13322	10999	16631	10797	4773	4345	4698	8319	9913	7730	6541	12080
30-Jul	5500	13381	11037	16655	10829	4799	4373	4736	8350	9960	7742	6561	12110
31-Jul	5518	13433	11070		10853	4821	4406	4769	8373	10016	7760	6582	12129
01-Aug	5533	13467	11112		10869	4837	4441	4811	8390	10061	7771	6599	12143
02-Aug	5545	13487	11147		10887	4859	4476	4846	8400	10103	7796	6624	12150
03-Aug	5554	13519	11173		10914	4877	4500	4872	8404	10132	7812	6634	12166
04-Aug	5560	13543	11180		10934	4889	4507	4879	8416	10143	7820	6643	12191
05-Aug	5563	13559	11195		10945	4893	4521	4894	8422	10157	7823	6653	12214
06-Aug	5566	13577	11209		10953	4896	4535	4908	8429	10168	7828	6661	12234
07-Aug	5567	13604	11212		10963	4900	4537	4911	8435	10174	7833	6674	12263
08-Aug	5568	13624	11230		10968	4908	4555	4929	8445	10183	7833	6687	12284
09-Aug	5570	13635	11239		10972	4911	4563	4938	8448	10190	7833	6702	12295
10-Aug	5575	13643	11258		10975	4912	4582	4957	8449	10192	7834	6709	12310
11-Aug	5577	13653	11272		10980	4915	4595	4971	8454	10202	7837	6716	12315
12-Aug	5578	13658	11284		10986	4916	4607	4983	8464	10206	7838	6723	12326
13-Aug	5579	13662	11290		10991	4921	4612	4989	8466	10208	7840	6731	12332
14-Aug	5579	13665	11296		10992	4922	4618	4995	8469	10209	7842	6732	
15-Aug		13666	11298		10992	4923	4619	4997	8471	10212	7842	6737	
16-Aug		13666	11298		10993	4924	4619	4997	8474	10214	7843	6746	
17-Aug		13667	11304		10993	4925	4619	5003	8479	10214	7845	6748	
18-Aug		13667	11307			4925	4619	5006	8483	10215	7845	6752	
19-Aug			11316			4927	4619	5015	8486	10216	7846	6754	

- continued -

Appendix B.34. (page 2 of 2)

	Cumulative Counts												
Date	1976	1978	1979	1981	1982	1984	1985	1986	1988	1990	1991	1992	1993
20-Aug			11323			4927	4619	5022	8489	10216	7847	6755	
21-Aug			11327			4928	4619	5024	8492	10217	7847	6755	
22-Aug			11332				4619	5031	8495	10217	7848		
23-Aug			11335				4619	5035	8497	10218	7848		
24-Aug			11337				4619	5036	8497	10218	7848		
25-Aug			11338				4619	5036	8498	10218	7849		
26-Aug			11338				4619	5036	8499	10218	7850		
27-Aug							4619	5037	8500	10218	7850		
28-Aug							4619	5038	8504	10218	7850		
29-Aug							4619	5038	8505	10218	7850		

Appendix B.35. Historical cumulative estimated escapement of sockeye salmon at the Kogrukluk Weir for years with adequate data.

	Cumulative Counts													
Date	1976	1978	1979	1981	1982	1984	1985	1986	1988	1989	1990	1991	1992	1993
19-Jun						0								
20-Jun						0								
21-Jun				1		1								1
22-Jun				10		1					1	1		3
23-Jun				29		1				1	2	3	1	6
24-Jun				79		4				3	5	10	4	17
25-Jun				155		6			2	7	10	19	8	34
26-Jun				246	1	7			3	11	15	29	13	52
27-Jun				375	10	9			11	17	24	47	21	85
28-Jun		0		597	29	12			15	27	24	75	34	134
29-Jun	1	0		1137	79	22		2	25	52	24	145	66	260
30-Jun	1	1		1842	155	34		3	57	87	29	245	112	437
01-Jul	2	12	0	2816	246	41		11	74	135	35	381	145	679
02-Jul	6	48	1	4068	375	126	2	15	86	216	112	610	233	1089
03-Jul	13	103	9	5008	597	250	3	25	104	307	267	868	414	1209
04-Jul	15	175	28	5632	1137	307	11	57	150	406	374	1148	545	1707
05-Jul	32	233	42	6430	1842	358	15	74	225	515	645	1202	650	2231
06-Jul	59	299	51	7271	2816	639	24	86	375	686	1105	1282	727	2879
07-Jul	125	330	126	7866	4068	817	43	104	658	759	1406	1388	860	4005
08-Jul	258	431	250	8502	5568	1031	93	150	1134	855	2040	1520	921	5376
09-Jul	462	536	311	9204	7593	1190	169	223	1639	1006	2244	2277	1066	7533
10-Jul	669	679	376	9639	9343	1214	260	403	2058	1408	3071	3036	1191	10050
11-Jul	789	795	460	10286	10091	1276	389	767	2565	2106	3508	3408	1546	11949
12-Jul	927	850	644	10778	10921	1571	610	973	2930	2550	4125	3997	1812	13745
13-Jul	1157	922	959	11199	11742	1744	844	1373	3169	3077	4241	5033	2037	15563
14-Jul	1269	1048	1228	11583	12317	2083	989	1873	3442	3283	4763	6020	2431	17065
15-Jul	1370	1115	1448	12052	12619	2521	1167	2371	3718	3653	5500	6762	2847	18887
16-Jul	1513	1178	1687	12647	13305	2740	1375	2685	3897	3976	5963	7540	3253	20915
17-Jul	1615	1252	1861	13068	14086	2932	1560	3065	4006	4269	6372	8354	3492	22955
18-Jul	1762	1300	2007	13498	14457	3016	1733	3240	4089	4479	6801	9282	3958	24666
19-Jul	1841	1345	2089	13884	14900	3079	1992	3345	4135	4624	6891	10230	4376	25498
20-Jul	1893	1396	2179	14270	15530	3200	2168	3450	4172	4768	7048	11159	4648	26443
21-Jul	2059	1420	2262	14865	15845	3369	2375	3575	4212	4940	7231	11913	4893	27222
22-Jul	2154	1469	2310	15391	15985	3557	2502	3672	4241	5074	7424	12672	5031	27442
23-Jul	2197	1509	2357	15756	16134	3646	2617	3740	4274	5167	7561	13289	5349	27728
24-Jul	2230	1550	2432	16101	16321	3729	2844	3823	4302	5280	7634	13891	5610	27930
25-Jul	2264	1582	2464	16398	16506	3767	3086	3889	4311	5370	7691	14477	5852	28121
26-Jul	2269	1597	2482	16655	16647	3827	3246	3933	4320	5431	7774	14972	6004	28335
27-Jul	2276	1605	2496	16942	16770	3877	3410	3974	4324	5487	7795	15394	6249	28565
28-Jul	2285	1620	2528	17184	16859	3934	3604	4023	4334	5554	7868	15650	6485	28747
29-Jul	2288	1631	2553	17373	16945	3966	3761	4060	4340	5604	7985	15831	6767	28909
30-Jul	2296	1639	2576	17514	17022	3984	3892	4091	4349	5647	8066	15959	6979	29051
31-Jul	2302	1646	2596	17624	17089	3998	3985	4115	4361	5680	8126	16095	7128	29138
01-Aug	2304	1648	2604	17704	17145	4030	4093	4137	4369	5710	8185	16199	7228	29189
02-Aug	2307	1651	2606	17771	17171	4055	4150	4151	4373	5729	8249	16282	7380	29218
03-Aug	2310	1654	2609	17836	17200	4078	4193	4163	4374	5745	8294	16330	7442	29237
04-Aug	2313	1657	2612	17877	17223	4098	4234	4174	4377	5760	8311	16366	7461	29253
05-Aug	2314	1658	2615	17895	17240	4106	4261	4180	4380	5768	8339	16390	7472	29269
06-Aug	2320	1664	2616	17922	17252	4108	4288	4188	4382	5778	8351	16404	7485	29289
07-Aug	2323	1667	2622	17935	17260	4111	4299	4196	4383	5785	8365	16414	7499	29313
08-Aug	2323	1667	2625	17950	17269	4114	4326	4198	4383	5791	8378	16417	7502	29330
09-Aug	2324	1668	2625	17973	17275	4117	4334	4201	4384	5795	8383	16420	7508	29344
10-Aug	2325	1669	2626	17993	17280	4118	4341	4204	4387	5798	8384	16424	7514	29346
11-Aug	2325	1669	2627	18001	17285	4124	4342	4207	4388	5800	8388	16430	7518	29348
12-Aug	2325	1669	2627	18013	17288	4127	4355	4210	4389	5803	8394	16439	7525	29354
13-Aug	2325	1669	2627	18023	17288	4127	4357	4212	4390	5804	8398	16443	7531	29358
14-Aug	2326	1670	2627	18033	17292	4128	4358	4212	4391	5806	8401	16443	7535	
15-Aug	2326	1670	2628	18038	17296	4129	4359	4212	4391	5807	8403	16444	7535	
16-Aug			2628	18044	17297	4129	4359	4212	4391	5807	8403	16445	7535	
17-Aug				18051	17297	4129	4359	4212	4391	5807	8406	16446	7539	
18-Aug				18052		4129	4359	4212	4393	5808	8406	16450	7539	
19-Aug				18054		4130	4359	4212	4394	5808	8406	16450	7539	
20-Aug				18056		4130	4359	4212	4394	5808	8406	16451	7539	
21-Aug				18056		4131	4359	4213	4395	5808	8406	16451	7540	

- continued -

Appendix B.35. (page 2 of 2)

	Cumulative Counts													
Date	1976	1978	1979	1981	1982	1984	1985	1986	1988	1989	1990	1991	1992	1993
22-Aug				18058		4131	4359	4215	4396	5809	8406	16451		
23-Aug				18058		4131	4359	4217	4396	5810	8406	16451		
24-Aug				18061		4131	4359	4220	4396	5811	8406	16452		
25-Aug				18061		4132	4359	4220	4396		8406	16452		
26-Aug				18062		4133	4359	4221	4396		8406	16454		
27-Aug				18063		4133	4359	4223	4397		8406	16454		
28-Aug				18064		4133	4359	4224	4397		8406	16454		
29-Aug				18066		4133	4359	4224	4397		8406	16455		

Appendix B.36. Historical cumulative estimated escapement of coho salmon at the Kogrukluk weir for years with adequate data.

	Cumulative Counts									
Date	1981	1982	1983	1984	1985	1986	1987	1988	1990	1991
20-Jul								1		
21-Jul								1		
22-Jul								1		
23-Jul								1		
24-Jul				1				2		
25-Jul				5				2		
26-Jul				7				2		
27-Jul				8				2		
28-Jul				9				2		
29-Jul				13				2		
30-Jul				15		1		2		
31-Jul				18		1		2		
01-Aug				29	6	2		2		
02-Aug		5		43	10	2		2	1	
03-Aug		11		62	17	4	1	2	3	1
04-Aug	2	26		94	24	9	1	2	4	2
05-Aug	7	43		112	38	12	2	2	11	11
06-Aug	12	59		165	46	20	2	6	19	14
07-Aug	14	101	2	264	64	38	4	12	26	19
08-Aug	24	137	7	308	113	67	9	23	35	21
09-Aug	50	192	12	427	126	102	12	38	44	22
10-Aug	70	234	18	479	220	141	20	63	56	27
11-Aug	92	340	33	701	279	202	38	101	98	40
12-Aug	154	431	50	816	397	288	67	181	185	74
13-Aug	216	489	68	1040	465	428	102	267	211	99
14-Aug	349	567	103	1187	547	671	141	313	270	114
15-Aug	503	762	159	1366	631	870	202	338	300	122
16-Aug	644	818	177	1510	855	1168	288	443	316	174
17-Aug	753	1329	203	1596	1002	1580	428	600	548	359
18-Aug	863	1794	249	2854	1181	1866	671	858	620	560
19-Aug	1159	2165	273	3849	1325	2184	870	1060	633	723
20-Aug	1473	2448	284	4386	1411	2711	1168	1350	646	829
21-Aug	1660	2857	287	4707	1911	3340	1580	1702	689	903
22-Aug	1845	2999	354	6119	2361	4107	1866	2085	746	952
23-Aug	2042	3227	506	7849	2661	5583	2184	2408	887	1063
24-Aug	2297	3874	606	9039	2982	7470	2711	2797	1042	1079
25-Aug	2713	4742	641	11070	3213	8834	3369	3055	1139	1514
26-Aug	3031	5546	647	13106	3413	10057	4145	3953	1547	1642
27-Aug	3400	6492	674	13837	3886	11148	4907	4331	1609	1760
28-Aug	3667	7312	944	14421	4776	12403	5721	4949	1619	1794
29-Aug	3811	7944	993	14791	5593	13226	6872	5502	1638	1818
30-Aug	4113	9432	1021	15479	6087	13882	8013	6272	1649	1823
31-Aug	4435	11112	1182	16386	6946	14496	9837	6766	1670	1834
01-Sep	4731	12649	1762	16999	8326	14916	10845	7096	1693	1838
02-Sep	5059	14554	1789	17820	9597	15445	12618	7465	1762	2097
03-Sep	5355	16534	2258	18533	10163	16079	13778	7703	1809	3044
04-Sep	5967	17819	2621	19386	10720	16418	16728	7940	1937	3507
05-Sep	6502	19600	2721	20173	11351	16741	17781	8111	2327	3819
06-Sep	7157	24613	3277	20915	11881	16975	18743	8281	2508	4178
07-Sep	7663	27832	3482	21258	12734	17428	19299	8434	2513	4648
08-Sep	8184	29997	3593	22365	13552	17873	19504	8879	2531	5120
09-Sep	8751	31457	3744	23446	14141	18052	19615	9058	2736	5593
10-Sep	9086	32683	4602	23493	14480	18486	19766	9492	3115	6137
11-Sep	9369	33604	4962	24323	14635	19452	20624	10458	3325	6379
12-Sep	9615	34326	4977	24686	14943	19888	20984	10894	3504	6516
13-Sep	9854	35074	5152	24910	15176	20145	20999	11151	3710	6583
14-Sep	10048	35582	6039	25267	15435	20297	21174	11303	4115	6808
15-Sep	10205	36006	6173	25304	15676	20409	21195	11415	4323	7034
16-Sep	10373	36411	6324	25479	15816	20530	21256	11536	4394	7149
17-Sep	10505	36680	6748	26366	15929	20716	21379	11722	4522	7357
18-Sep	10654	36869	7153	26500	16013	21121	21454	12127	4900	7973
19-Sep	10772	36994	7422	26651	16151	21390	21605	12396	4991	8120
20-Sep	10910	37251	7611	27075	16241	21579	21858	12585	5091	8283
21-Sep	11013	37365	7736	27213	16301	21704	21968	12710	5282	8593

- continued -

Appendix B.36. (page 2 of 2)

	Cumulative Counts									
Date	1981	1982	1983	1984	1985	1986	1987	1988	1990	1991
22-Sep	11127	37500	7993	27303	16339	21961	22021	12967	5471	8900
23-Sep	11205	37547	8107	27363	16348	22075	22196	13081	5601	9111
24-Sep	11249	37592	8242	27401	16362	22210	22309	13216	5707	9284
25-Sep	11279	37635	8289	27410	16382	22257	22393	13263	5780	9402
26-Sep	11308	37664	8334	27424	16401	22302	22531	13308	5905	9604
27-Sep	11334	37690	8377	27444	16419	22345	22621	13351	5968	9705
28-Sep	11347	37703	8406	27463	16434	22374	22681	13380	6029	9804
29-Sep	11361	37717	8432	27481	16441	22400	22719	13406	6054	9844
30-Sep	11381	37737	8445	27496		22413	22728	13419	6078	9883
01-Oct	11400	37756	8459	27503		22427	22742	13433	6081	9888
02-Oct	11418	37774	8479	27529		22447	22762	13453	6082	9889
03-Oct	11433	37789	8498	27542		22466	22781	13472	6085	9893
04-Oct	11440	37796	8516	27556		22484	22799	13490	6105	9963
05-Oct	11450		8531	27576		22499	22814	13505	6122	
06-Oct	11455		8538	27595		22506	22821	13512	6132	

Appendix B.37. Historical cumulative estimated escapement of chum salmon at the Kogrukluk Weir for years with adequate data.

	Cumulative Counts													
Date	1976	1978	1979	1981	1982	1984	1985	1986	1988	1989	1990	1991	1992	1993
15-Jun				2										
16-Jun		2		2										
17-Jun		2	2	2	2				2	1			1	1
18-Jun		2	2	11	2				2	2	1		2	1
19-Jun		11	2	14	2	2			2	3	2		3	3
20-Jun		14	11	27	11	2			11	8	5		8	7
21-Jun		27	14	66	14	2			14	13	9		13	11
22-Jun		66	27	108	27	11			27	26	18		24	22
23-Jun	2	108	66	151	66	14	2	2	66	52	35	3	46	42
24-Jun	2	151	108	189	108	27	2	2	108	78	53	3	68	63
25-Jun	2	189	151	411	151	66	2	2	151	121	82	3	104	97
26-Jun	11	411	189	686	189	108	11	11	189	193	131	18	165	155
27-Jun	14	686	239	1103	411	151	14	14	411	310	210	23	265	249
28-Jun	27	994	304	2306	686	189	27	27	686	514	228	44	440	414
29-Jun	53	1612	384	4570	1103	411	66	57	1103	896	297	94	769	722
30-Jun	102	2241	484	6825	2306	686	108	126	2042	1425	428	174	1225	1149
01-Jul	220	2889	579	9475	4570	1103	151	310	4042	2263	607	243	2279	1824
02-Jul	301	3921	706	12991	6825	2042	189	462	6542	3289	1353	304	4695	2652
03-Jul	431	5616	823	16598	9475	3196	411	753	9042	4552	2390	662	7310	3496
04-Jul	620	7295	1136	18705	12991	4567	686	1225	11042	5873	3829	1105	9225	4562
05-Jul	802	9249	1434	20641	16598	5408	1103	1531	12887	7124	5612	1462	10920	5562
06-Jul	1141	11400	1644	23514	18705	7024	1364	1874	14267	8422	7204	1782	11931	6876
07-Jul	1664	12803	1903	25760	20641	8920	2049	2240	15961	9415	8005	2064	13138	8294
08-Jul	2277	14959	2118	27660	23514	10870	2430	2749	17920	10252	9746	2309	14052	9538
09-Jul	2956	17255	2355	30552	27983	12834	3048	3674	20671	11758	10835	3089	15221	10955
10-Jul	3466	20057	2922	34065	31379	13926	3590	5073	22822	13484	12822	3638	15940	12391
11-Jul	3831	23026	3787	36953	34378	15227	3972	6694	25460	16295	14236	4155	17201	13642
12-Jul	4252	25376	5014	38984	36959	17993	4471	7861	28095	19376	15229	5314	18451	14724
13-Jul	4588	27548	6310	40853	39920	20070	5010	8800	30055	21711	15957	6750	19395	16114
14-Jul	4910	30899	7475	43140	42362	22393	5717	9654	32133	23963	16829	7768	20738	17120
15-Jul	5233	33401	8285	45596	44307	24905	6274	10545	33905	25772	18382	8769	22204	18525
16-Jul	5574	35981	9252	47526	46728	27176	7110	11021	34902	27473	19605	9749	23458	20036
17-Jul	5839	37862	10201	48706	49746	29083	7834	11621	35629	28984	20269	10708	24365	22066
18-Jul	6172	39384	10854	50006	52309	30419	8480	11983	36039	30218	21386	11748	25627	23851
19-Jul	6454	40765	11448	50934	54228	31388	9108	12327	36498	31280	21589	12490	26698	24375
20-Jul	6694	42076	11999	51363	55938	32808	9619	12557	36833	32216	21992	12957	27510	25392
21-Jul	7285	42721	12572	52087	57352	34496	10091	12750	37177	33296	22599	13419	27994	26634
22-Jul	7538	43696	12986	52773	58256	36148	10564	12978	37407	34142	23040	14207	28512	27134
23-Jul	7704	44462	13441	53304	59172	37353	11013	13073	37600	34822	23356	15020	29422	27621
24-Jul	7877	45341	14538	53805	59919	38065	11538	13197	37828	35636	23432	15878	29975	27957
25-Jul	7951	46156	15039	54070	60557	38455	12113	13300	37923	36184	23531	16781	30655	28447
26-Jul	7983	46719	15304	54418	61104	38872	12572	13419	38047	36608	23626	17721	31053	28713
27-Jul	8016	47109	15652	54796	61580	39329	12888	13516	38150	36987	23721	18488	31520	29090
28-Jul	8028	47348	16030	55288	61973	39654	13229	13663	38269	37361	23883	19136	31894	29579
29-Jul	8052	47563	16522	55671	62357	39974	13471	13797	38366	37721	24245	19632	32193	30030
30-Jul	8066	47673	16905	56033	62797	40242	13688	13910	38513	38029	24569	20244	32470	30444
31-Jul	8073	47785	17267	56317	63070	40560	13947	14002	38647	38321	24850	21096	32724	30751
01-Aug	8085	47885	17551	56526	63300	40840	14096	14073	38760	38543	25198	21850	32888	30956
02-Aug	8097	47959	17760	56709	63487	41057	14245	14145	38852	38731	25621	22444	33128	31083
03-Aug	8102	47991	17943	56855	63659	41216	14336	14206	38923	38873	25919	22931	33311	31192
04-Aug	8111	48024	18089	56933	63750	41349	14423	14268	38995	38994	26154	23250	33415	31319
05-Aug	8112	48036	18167	56968	63854	41399	14481	14323	39056	39069	26311	23533	33480	31423
06-Aug	8112	48060	18202	57023	63886	41419	14533	14376	39118	39126	26389	23746	33529	31573
07-Aug	8112	48074	18257	57066	63923	41432	14585	14421	39173	39182	26464	23838	33625	31687
08-Aug	8113	48081	18300	57109	63945	41440	14662	14468	39226	39242	26505	23896	33684	31766
09-Aug	8113	48093	18343	57150	63983	41449	14707	14503	39271	39289	26554	23932	33714	31809
10-Aug	8114	48105	18384	57197	64002	41460	14789	14540	39318	39347	26600	23981	33774	31824
11-Aug	8116	48110	18431	57226	64018	41471	14843	14558	39353	39389	26642	23996	33843	31834
12-Aug	8117	48119	18460	57251	64034	41480	14873	14574	39390	39419	26681	24033	33913	31849
13-Aug		48120	18485	57278	64049	41480	14911	14581	39408	39443	26699	24061	33995	31875
14-Aug		48120	18512	57302	64055	41481	14930	14594	39424	39463	26722	24081	34020	31879
15-Aug		48120	18536	57325	64057	41482	14946	14614	39431	39482	26734	24089	34045	31879
16-Aug		48121	18559	57331	64059	41482	14961	14634	39444	39500	26740	24096	34062	31883
17-Aug		48121	18565	57336	64063	41483	14973	14649	39464	39512	26751	24130	34078	31887

- continued -

Appendix B.37. (page 2 of 2)

	Cumulative Counts													
Date	1976	1978	1979	1981	1982	1984	1985	1986	1988	1989	1990	1991	1992	1993
18-Aug		48122	18570	57340	64066	41484	14985	14661	39484	39523	26752	24165	34087	31891
19-Aug		48124	18574	57342	64067	41484	14990	14673	39499	39531	26756	24177	34088	31895
20-Aug		48125	18576	57351	64072	41484	14999	14678	39511	39538	26759	24177	34092	31899
21-Aug			18585	57356	64073		15000	14687	39523	39545	26761	24182	34105	
22-Aug			18590	57356	64077		15000	14688	39528	39547	26761	24182		
23-Aug			18590	57357			15000	14688	39537	39548	26761	24182		
24-Aug			18591	57360			15001	14688	39538		26762	24183		
25-Aug			18594	57362			15001	14689	39538		26763	24186		
26-Aug			18596	57363			15002	14689	39538		26763	24187		
27-Aug			18597	57365			15004	14690	39539		26764	24187		
28-Aug			18599	57365			15005	14692	39539		26764	24187		
29-Aug			18599	57365				14693	39540		26765	24188		

Appendix B.38. Factor table for historical escapement estimates, Kogrukluk River, 1976-1993.

	Chinook				Sockeye				Coho				Chum			
Year	Tb	Count	Prop. Missed	Est'd Total	Tb	Count	Prop. Missed	Est'd Total	Tb	Count	Prop. Missed	Est'd Total	Tb	Count	Prop. Missed	Est'd Total
1976	L	5,500	0.0142	5,579	N	2,302	0.0103	2,326					N	8,046	0.0087	8,117
1977	(N)	763	0.6077	1,945	(N)	732	0.5527	1,637					(N)	7,404	0.6192	19,443
1978	N	13,102	0.0413	13,667	N	1,646	0.0144	1,670					N	47,099	0.0213	48,125
1979	N	10,104	0.1088	11,338	N	2,432	0.0746	2,628					L	13,959	0.2495	18,599
1980		676	c	6,572		403	c	3,200						5,638	c	41,777
1981	E	16,052	0.0362	16,655	E	17,691	0.0208	18,066	N	11,450	0.0004	11,455	E	56,262	0.0192	57,365
1982	E	5,325	0.5156	10,993	E	11,729	0.3219	17,297	N	35,582	0.0586	37,796	N	40,549	0.3672	64,077
1983	(N)	1,032	0.6551	2,992	(N)	375	0.6812	1,176	L	8,327	0.0247	8,538	(N)	3,248	0.6547	9,407
1984	N	4,928	0.0000	4,928	N	4,133	0.0000	4,133	E	25,304	0.0830	27,595	N	41,484	0.0000	41,484
1985	L	4,304	0.0682	4,619	L	4,344	0.0034	4,359	E	14,318	0.1291	16,441	L	13,851	0.0769	15,005
1986	L	2,922	0.4200	5,038	N	3,252	0.2301	4,224	E	14,717	0.3461	22,506	N	11,980	0.1846	14,693
1987		d		4,063		d		973	N	19,756	0.1343	22,821		d		17,422
1988	N	7,677	0.0974	8,505	E	4,235	0.0368	4,397	N	11,722	0.1325	13,512	E	28,498	0.2793	39,540
1989	N	4,908	0.5889	11,940	N	2,599	0.5527	5,811				f	N	15,543	0.6070	39,548
1990	N	10,097	0.0118	10,218	N	8,382	0.0029	8,406	L	2,736	0.5538	6,132	N	26,555	0.0078	26,765
1991	N	5,781	0.2636	7,850	N	13,687	0.1682	16,455	L	7,034	0.2919	9,933	L	22,481	0.0706	24,188
1992	N	6,359	0.0586	6,755	L	7,395	0.0192	7,540	(N)	2,715	0.8958	26,057	N	31,423	0.0786	34,105
1993	N	10,516	0.1473	12,332	N	27,219	0.0729	29,358	(N)	4,437	0.7837	20,517	N	26,926	0.1559	31,899

a Coho migrations were not monitored prior to 1981.

b The timing model used for estimating missed counts depends on the distribution of mean date of migration from appendices C - F (E=early, N=normal, L=late). The use of parentheses () indicates assumed timing.

c From Baxter (1980); insufficient data to estimate escapements using time series techniques.

d Except for coho, escapements were estimated from a ratio of unknown 1987 escapement and known 1987 aerial assessment to known 1988 escapement and known 1988 aerial assessment. Coho escapements estimated using time series techniques.

e Aerial sockeye counts in riverine spawning habitat are subject to a wide range of error when surveys are not targeting the species.

f Heavy rain and high river levels allowed only two days of counts during the coho migration.

Appendix B.39. Chinook salmon sex ratios and proportion of females with gill net marks, Kogrukluk weir, 1979-1993.

Year	Actual Count	Number Females	Sex Ratio (% female)	% of females with gill net marks
1979	10,125	1,786	17.6	11.03
1980	676	136	20.1	a
1981	16,075	7,584	47.2	12.47
1982	5,325	2,431	45.7	12.99
1983	1,049	285	27.2	16.49
1984	4,928	1,146	23.3	11.08
1985	4,306	1,485	34.5	18.99
1986	2,968	705	23.8	19.43
1987 b	770			
1988	7,677	2,631	34.3	13.34
1989	4,911	1,884	38.4	16.46
1990	10,093	2,271	22.5	14.35
1991	6,132	2,860	46.6	19.26
1992	6,397	2,138	33.4	30.03
1993	10,516	2,961	28.2	11.25
1979-84 Average			30.2	10.68
1985-93 Average			32.7	17.89

a Gill net mark data was not reported.
b Sample size to small to assess sex ratio and percentage of gill net marks.

APPENDIX C

Appendix C.1. Quinhagak District commercial salmon harvest, 1960-1993.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	5,649	3,000	0	0	8,649
1961	4,328	2,308	46	90	18,864	25,636
1962	5,526	10,313	0	4,340	45,707	65,886
1963	6,555	0	0	0	0	6,555
1964	4,081	13,422	379	939	707	19,528
1965	2,976	1,886	0	0	4,242	9,104
1966	278	1,030	0	268	2,610	4,186
1967	0	652	1,926	0	8,087	10,665
1968	8,879	5,884	21,511	75,818	19,497	131,589
1969	16,802	3,784	15,077	953	38,206	74,822
1970	18,269	5,393	16,850	15,195	46,556	102,263
1971	4,185	3,118	2,982	13	30,208	40,506
1972	15,880	3,286	376	1,878	17,247	38,667
1973	14,993	2,783	16,515	277	19,680	54,248
1974	8,704	19,510	10,979	43,642	15,298	98,133
1975	3,928	8,584	10,742	486	35,233	58,973
1976	14,110	6,090	13,777	31,412	43,659	109,048
1977	19,090	5,519	9,028	202	43,707	77,546
1978	12,335	7,589	20,114	47,033	24,798	111,869
1979	11,144	18,828	47,525	295	25,995	103,787
1980	10,387	13,221	62,610	21,671	65,984	173,873
1981	24,524	17,292	47,557	160	53,334	142,867
1982	22,106	25,685	73,652	11,838	33,346	166,627
1983	46,385	10,263	32,442	168	23,090	112,348
1984	33,652	17,258	135,342	16,249	50,424	252,925
1985	30,401	7,876	29,992	28	20,418	88,715
1986	22,835	21,484	57,544	8,700	29,700	140,263
1987	26,022	6,489	50,070	66	8,557	91,204
1988	13,872	21,534	68,591	21,258	29,183	154,438
1989	20,820	20,582	44,607	273	39,395	125,677
1990	27,644	83,681	26,926	12,056	47,717	198,024
1991	9,480	53,657	42,571	115	54,493	160,316
1992	17,197	60,929	86,404	64,217	73,383	302,130
1993	15,784[a]	80,934	55,817	7	40,943	193,485
Ten Year Average (1983-1992)	24,831	30,375	57,449	207[b]	37,636	162,604

a Fishers were on strike first 2 openings.
b Odd years only.

Appendix C.2. Summary of historical commercial harvest by period, Quinhagak District, chinook salmon, 1981–1993.

Date	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
6/12	1	0	0	0	0.00000
6/13	3	33	7720	3156	0.02258
6/14	2	0	5080	2540	0.03671
6/15	3	2948	3914	3426	0.07609
6/16	4	0	7835	2254	0.09561
6/17	1	3527	3527	3527	0.10788
6/18	5	1942	11997	6595	0.20065
6/19	2	3525	5801	4663	0.23321
6/20	3	803	6617	3484	0.27900
6/21	4	4268	6194	5103	0.34902
6/22	2	4002	10586	7294	0.39286
6/23	3	2039	11652	6656	0.44086
6/24	5	1403	6698	3745	0.51231
6/25	4	2732	4539	3776	0.55439
6/26	2	1703	1741	1722	0.56656
6/27	3	1849	9711	5118	0.60727
6/28	4	1438	4089	2646	0.65107
6/29	2	0	1696	848	0.65866
6/30	4	690	4496	1911	0.68642
7/1	3	657	3752	2099	0.70969
7/2	6	1105	3602	1926	0.74993
7/3	4	1479	2771	2147	0.78043
7/4	3	508	4068	2434	0.79937
7/5	6	611	2710	1205	0.82611
7/6	3	273	1008	759	0.83596
7/7	6	620	1566	1232	0.85889
7/8	4	465	2407	1112	0.87677
7/9	5	441	1259	825	0.88944
7/10	3	334	736	572	0.89580
7/11	6	406	1545	1003	0.91399
7/12	3	306	687	481	0.91953
7/13	5	205	1011	569	0.92897
7/14	6	220	1351	597	0.94066
7/15	4	230	1306	781	0.95128
7/16	4	220	533	399	0.95633
7/17	4	130	290	211	0.95994
7/18	4	202	845	438	0.96444
7/19	4	97	792	346	0.96930
7/20	3	89	490	330	0.97217
7/21	5	90	248	167	0.97557
7/22	4	35	629	235	0.97785
7/23	4	66	324	180	0.97988

–continued–

Appendix C.2. (page 2 of 2)

Date	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
7/24	4	33	187	89	0.98128
7/25	4	0	379	158	0.98321
7/26	3	0	42	23	0.98364
7/27	7	0	194	94	0.98571
7/28	2	31	56	44	0.98605
7/29	5	21	116	77	0.98752
7/30	4	49	111	84	0.98860
7/31	5	0	46	27	0.98918
8/1	5	54	153	88	0.99032
8/2	4	14	53	34	0.99090
8/3	7	16	160	65	0.99224
8/4	3	0	30	19	0.99244
8/5	6	6	141	53	0.99333
8/6	6	19	78	38	0.99404
8/7	3	27	43	32	0.99439
8/8	6	0	71	28	0.99499
8/9	4	6	22	12	0.99520
8/10	6	10	125	50	0.99597
8/11	4	6	17	12	0.99616
8/12	5	16	74	41	0.99680
8/13	5	0	36	15	0.99700
8/14	5	6	29	14	0.99727
8/15	4	8	43	29	0.99763
8/16	6	1	12	7	0.99780
8/17	6	2	66	23	0.99822
8/18	5	7	12	10	0.99840
8/19	7	3	51	16	0.99876
8/20	5	6	16	9	0.99891
8/21	6	4	13	7	0.99907
8/22	4	3	33	13	0.99921
8/23	6	1	5	4	0.99929
8/24	5	3	14	6	0.99940
8/25	6	0	16	5	0.99949
8/26	6	4	17	7	0.99970
8/27	4	3	4	3	0.99974
8/28	6	2	8	4	0.99982
8/29	5	0	7	3	0.99987
8/30	2	0	1	1	0.99987
8/31	6	0	3	2	0.99991
9/1	5	0	10	2	0.99993
9/2	6	0	4	1	0.99995
9/3	4	0	2	1	0.99997
9/4	4	0	2	2	0.99998
9/5	6	0	2	1	1.00000
9/6	3	0	1	0	1.00000
9/7	6	0	0	0	1.00000
9/8	3	0	0	0	1.00000

Appendix C.3. Summary of historical commercial harvest by period, Quinhagak District, sockeye salmon, 1981–1993.

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median Harvest	Cumulative proportion harvest
6/12	1	0	0	0	0.00000
6/13	3	4	151	14	0.00065
6/14	2	0	384	192	0.00100
6/15	3	89	440	134	0.00245
6/16	4	0	277	150	0.00457
6/17	1	1119	1119	1119	0.00792
6/18	5	355	574	462	0.01813
6/19	2	171	741	456	0.02152
6/20	3	111	411	367	0.02450
6/21	4	1039	2322	1738	0.04003
6/22	2	379	746	563	0.05056
6/23	3	343	1741	1371	0.06455
6/24	5	638	3271	1643	0.08354
6/25	4	732	1667	1466	0.11096
6/26	2	1717	2300	2009	0.12562
6/27	3	461	4923	543	0.14125
6/28	4	1908	10941	2190	0.17475
6/29	2	0	3940	1970	0.17972
6/30	4	1360	7574	2348	0.22020
7/1	3	975	8625	3498	0.24563
7/2	6	1242	5654	2649	0.28601
7/3	4	2244	3604	3373	0.34195
7/4	3	627	5743	1201	0.36662
7/5	6	1157	15375	2614	0.41607
7/6	3	1126	8381	3951	0.43732
7/7	6	1211	8326	3320	0.48940
7/8	4	1289	8229	3227	0.52759
7/9	5	1532	9824	3048	0.57072
7/10	3	2229	7583	2786	0.59862
7/11	6	1901	7672	2989	0.67510
7/12	3	1468	6696	1601	0.69175
7/13	5	1842	10755	4241	0.73473
7/14	6	878	7490	2369	0.78504
7/15	4	1240	4763	3802	0.82340
7/16	4	564	8537	2251	0.84069
7/17	4	937	3725	2402	0.85975
7/18	4	657	1454	1007	0.88037
7/19	4	866	12850	1908	0.89955
7/20	3	477	1722	1252	0.91092
7/21	5	477	1331	769	0.92242
7/22	4	799	1312	1176	0.93740
7/23	4	328	4361	538	0.94468
7/24	4	215	1138	747	0.95180
7/25	4	0	2681	355	0.95708
7/26	3	0	529	394	0.95821
7/27	7	0	2096	202	0.96466

–continued–

Appendix C.3 (page 2 of 2)

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median Harvest	Cumulative proportion harvest
7/28	2	102	363	232	0.96531
7/29	5	126	997	356	0.97069
7/30	4	19	1516	301	0.97286
7/31	4	97	429	301	0.97488
8/1	5	42	757	129	0.97786
8/2	4	38	138	90	0.97861
8/3	7	30	408	127	0.98267
8/4	3	3	93	69	0.98323
8/5	6	6	333	121	0.98644
8/6	6	16	254	91	0.98893
8/7	3	30	240	122	0.99026
8/8	6	0	198	15	0.99091
8/9	4	6	113	50	0.99126
8/10	6	10	77	29	0.99270
8/11	4	6	93	26	0.99299
8/12	5	1	116	64	0.99420
8/13	5	0	89	19	0.99466
8/14	5	1	145	34	0.99516
8/15	4	12	42	21	0.99576
8/16	6	0	39	14	0.99593
8/17	6	1	71	21	0.99692
8/18	5	6	36	11	0.99707
8/19	7	2	26	10	0.99741
8/20	5	3	42	27	0.99762
8/21	6	0	28	7	0.99787
8/22	4	1	32	5	0.99815
8/23	6	1	51	10	0.99827
8/24	5	0	18	5	0.99840
8/25	6	0	28	4	0.99866
8/26	6	0	27	8	0.99882
8/27	4	0	30	4	0.99888
8/28	6	0	13	6	0.99901
8/29	5	0	7	5	0.99911
8/30	2	0	0	0	0.99911
8/31	7	0	20	3	0.99940
9/1	4	0	8	3	0.99944
9/2	5	0	14	4	0.99963
9/3	5	0	8	4	0.99965
9/4	4	0	18	3	0.99989
9/5	6	0	16	8	0.99995
9/6	3	0	1	1	0.99996
9/7	6	0	5	1	0.99998
9/8	3	0	3	1	1.00000

Appendix C.4. Summary of historical commercial harvest by period, Quinhagak District, coho salmon, 1979–1993.

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
6/30	5	0	2	1	0.00000
7/1	3	0	0	0	0.00000
7/2	8	0	1	0	0.00000
7/3	4	0	0	0	0.00000
7/4	5	0	0	0	0.00000
7/5	6	0	0	0	0.00000
7/6	4	0	0	0	0.00000
7/7	7	0	0	0	0.00000
7/8	4	0	0	0	0.00000
7/9	7	0	39	4	0.00010
7/10	3	0	5	2	0.00011
7/11	8	0	9	4	0.00011
7/12	3	0	2	1	0.00011
7/13	6	0	7	3	0.00012
7/14	7	0	2	1	0.00012
7/15	4	0	18	4	0.00017
7/16	6	0	39	8	0.00021
7/17	4	4	14	8	0.00025
7/18	6	0	234	31	0.00046
7/19	4	3	88	30	0.00065
7/20	4	3	787	27	0.00110
7/21	6	0	366	71	0.00180
7/22	4	1	131	9	0.00194
7/23	6	0	1386	96	0.00311
7/24	4	21	400	55	0.00362
7/25	6	0	3482	145	0.00641
7/26	3	0	122	82	0.00668
7/27	8	0	5512	249	0.01120
7/28	3	294	1214	352	0.01303
7/29	5	152	1336	410	0.01607
7/30	6	0	3079	770	0.02349
7/31	5	146	1281	410	0.02697
8/1	7	0	5680	910	0.03748
8/2	4	390	2806	1375	0.04420
8/3	8	592	5390	1226	0.05943
8/4	3	190	1755	864	0.06319
8/5	7	387	4517	2987	0.08258
8/6	8	2068	8436	4202	0.11941
8/7	3	693	8188	5243	0.13666
8/8	7	0	19215	3768	0.17309

–continued–

Appendix C. 4. (page 2 of 2)

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
8/9	4	1831	5676	4434	0.19327
8/10	7	2429	9428	5430	0.23694
8/11	5	3863	10076	6800	0.27467
8/12	5	2857	10458	3362	0.30493
8/13	7	1561	10961	5284	0.35266
8/14	5	1671	7883	3138	0.37815
8/15	6	1603	15733	7005	0.42643
8/16	6	1403	6926	3923	0.46541
8/17	7	2008	9785	4203	0.50164
8/18	6	1008	9776	9170	0.55161
8/19	7	2532	9959	4679	0.59913
8/20	7	3958	8728	5529	0.64788
8/21	6	2110	7631	3427	0.67892
8/22	6	1972	5231	4582	0.70481
8/23	6	2400	11957	3764	0.75216
8/24	6	1708	8673	3488	0.77725
8/25	7	115	6095	3414	0.80702
8/26	6	1419	6505	4634	0.83668
8/27	6	1431	5975	3605	0.85920
8/28	6	1514	4684	3245	0.88444
8/29	7	0	3623	2720	0.90493
8/30	2	1054	9431	5242	0.91581
8/31	7	1427	3382	2198	0.93334
9/1	5	1407	2365	1916	0.94672
9/2	6	535	4065	1453	0.96261
9/3	5	600	2777	2017	0.97157
9/4	4	1126	2058	1484	0.98033
9/5	8	0	3799	956	0.98809
9/6	3	950	1769	1158	0.99379
9/7	6	0	1798	485	0.99741
9/8	2	0	1262	631	1.00000

Appendix C.5. Summary of historical commercial harvest by period, Quinhagak District, chum salmon, 1981–1993.

Date	No. Years w/ fishing period this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
6/12	1	0	0	0	0.00000
6/13	3	14	1092	84	0.00317
6/14	2	0	2125	1063	0.00660
6/15	3	1008	2821	1122	0.01320
6/16	4	0	847	787	0.01805
6/17	1	1556	1556	1556	0.02164
6/18	5	1162	2611	1629	0.04293
6/19	2	1198	1913	1556	0.04977
6/20	3	563	968	746	0.05617
6/21	4	868	4471	2214	0.07334
6/22	2	1051	2177	1614	0.08593
6/23	3	1103	3226	1774	0.10143
6/24	5	732	5332	1403	0.12577
6/25	4	1711	5417	2941	0.15829
6/26	2	1529	4329	2929	0.17249
6/27	3	1855	2722	1874	0.18957
6/28	4	2458	5449	3951	0.22277
6/29	2	0	4666	2333	0.22766
6/30	4	2066	4903	3180	0.27050
7/1	3	1836	10722	2131	0.29236
7/2	6	1972	6034	3918	0.33614
7/3	4	1788	5724	2851	0.37294
7/4	3	2333	3155	2612	0.39628
7/5	6	1820	6778	3735	0.44176
7/6	3	2192	8484	2953	0.45801
7/7	6	2939	4827	3544	0.50697
7/8	4	3050	6350	3451	0.53977
7/9	5	3518	7408	3846	0.58074
7/10	3	4022	5221	4774	0.60596
7/11	6	2552	9329	3766	0.66084
7/12	3	3211	3864	3742	0.68300
7/13	5	4270	7438	4882	0.72024
7/14	6	732	5131	2025	0.75608
7/15	4	2796	10756	6260	0.79810
7/16	4	1784	3369	2158	0.81530
7/17	4	2326	5988	3530	0.83845
7/18	4	1310	4343	2716	0.86412
7/19	4	1577	4960	3202	0.88603
7/20	3	2127	3934	2256	0.89738
7/21	5	1143	1941	1780	0.91532
7/22	4	990	2219	1740	0.92842
7/23	4	791	1690	1288	0.93734

–continued–

Appendix C.5. (page 2 of 2)

Date	No. Years w/ fishing period this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
7/24	4	499	2254	1343	0.94482
7/25	4	0	1397	933	0.95079
7/26	3	0	1446	603	0.95396
7/27	7	0	1085	465	0.96068
7/28	2	333	428	381	0.96225
7/29	5	353	1412	797	0.96882
7/30	4	173	802	391	0.97194
7/31	5	5	665	191	0.97403
8/1	5	246	479	272	0.97822
8/2	4	153	288	215	0.97981
8/3	7	110	580	220	0.98454
8/4	3	4	134	116	0.98508
8/5	6	98	357	236	0.98807
8/6	6	52	285	146	0.99192
8/7	3	101	185	114	0.99247
8/8	6	0	136	106	0.99329
8/9	4	11	265	70	0.99396
8/10	6	16	108	56	0.99550
8/11	4	4	51	32	0.99576
8/12	5	15	109	47	0.99630
8/13	5	2	95	19	0.99673
8/14	5	13	166	37	0.99721
8/15	4	6	53	26	0.99749
8/16	6	2	96	22	0.99784
8/17	6	2	50	22	0.99835
8/18	5	7	23	9	0.99847
8/19	7	5	54	9	0.99875
8/20	5	3	27	11	0.99886
8/21	6	2	21	8	0.99901
8/22	4	1	18	7	0.99911
8/23	6	3	22	10	0.99925
8/24	5	0	8	6	0.99933
8/25	6	0	5	3	0.99937
8/26	6	0	10	6	0.99949
8/27	4	0	6	2	0.99951
8/28	6	1	5	3	0.99958
8/29	5	0	3	2	0.99959
8/30	2	0	1	1	0.99960
8/31	6	0	10	2	0.99970
9/1	5	0	2	1	0.99971
9/2	6	0	7	3	0.99978
9/3	4	0	43	22	0.99986
9/4	4	0	13	7	0.99998
9/5	6	0	5	3	0.99999
9/6	3	0	0	0	0.99999
9/7	6	0	2	1	1.00000
9/8	3	0	0	0	1.00000

Appendix C.6. Quinhagak District commercial effort 1970-1993.

YEAR	EFFORT[a]
1970	88
1971	61
1972	107
1973	109
1974	196
1975	127
1976	181
1977	258
1978	200
1979	206
1980	169
1981	186
1982	117
1983	226
1984	263
1985	300
1986	324
1987	310
1988	288
1989	227
1990	390
1991	346
1992	349
1993	409
TEN YEAR AVERAGE (1983-1992)	302

a Permits that made at least one delivery during that year.

Appendix C.7. Historical age composition percentage, chinook salmon, Quinhagak commercial harvest and escapement, 1982 -1988.

	Sample Size	Total years of life at maturity 3	4	5	6	7+	Total
1982							
Commercial							
Male		0.0	3.6	33.3	9.4	1.3	47.6
Female		0.0	1.3	31.1	18.4	1.6	52.4
Combined	309	0.0	4.9	64.4	27.8	2.9	100.0
Commercial Catch[b]		0	1,083	14,236	6,145	641	22,106
1983							
Commercial							
Male		0.4	25.9	6.1	27.3	1.5	61.2
Female		0.0	0.1	0.8	37.0	0.9	38.8
Combined	758	0.4	26.0	6.9	64.3	2.4	100.0
Commercial Catch[b]		186	12,060	3,201	29,826	1,113	46,385
Escapement							
Male		0.3	6.7	10.9	29.7	1.0	48.6
Female		0.0	0.2	2.4	45.8	3.0	51.4
Combined	580	0.3	6.9	13.3	75.5	4.0	100.0
Escapement[c]		148	3,403	6,558	37,231	1,972	49,312
1984							
Commercial							
Male		0.0	12.0	52.7	14.8	3.9	83.4
Female		0.0	0.0	1.5	10.1	5.0	16.6
Combined	583	0.0	12.0	54.2	24.9	8.9	100.0
Commercial Catch[b]		0	4,038	18,239	8,379	2,995	33,652
Escapement							
Male		1.5	5.0	34.0	20.0	2.6	63.1
Female		0.0	0.0	4.3	28.5	4.1	36.9
Combined	545	1.5	5.0	38.3	48.5	6.7	100.0
Escapement[c]		574	1,912	35,973	14,648	18,549	38,245

-continued-

Appendix C.7 (page 2 of 3)

	Sample Size	Total years of life at maturity 3	4	5	6	7+	Total
1985							
Commercial							
Male		0.0	19.3	20.9	26.7	1.6	59.1
Female		0.0	0.0	2.5	28.3	0.7	40.9
Combined	569	0.0	19.3	23.4	55.0	2.3	100.0
Commercial Catch[b]		0	5,867	7,114	16,721	699	30,401
Escapement							
Male		0.6	5.3	11.0	30.6	0.9	48.4
Female		0.0	0.0	3.7	45.5	2.4	51.6
Combined	661	0.6	5.3	14.7	76.1	3.3	100.0
Escapement[c]		215	1,895	5,256	27,210	1,180	35,755
1986							
Commercial							
Male		2.0	6.0	43.0	16.0	4.0	71.0
Female		0.0	0.0	2.0	19.0	8.0	29.0
Combined	502	2.0	6.0	45.0	35.0	12.0	100.0
Commercial Harvest		457	1,370	10,276	7,992	2,740	22,835
Escapement							
Male		1.5	6.0	21.2	18.1	6.0	52.8
Female		0.0	0.0	6.5	26.6	14.1	47.2
Combined	199	1.5	6.0	27.7	44.7	20.1	100.0
Escapement[c]		343	1,375	6,349	10,246	4,607	22,922
1987							
Commercial							
Male		0.4	26.7	17.9	36.4	1.3	82.7
Female		0.0	0.0	0.0	16.4	1.0	17.3
Combined	525	0.4	26.7	17.9	52.8	2.3	100.0
Commercial Catch		99	6,939	4,659	13,730	595	26,022
Escapement							
Male		0.5	2.9	10.8	34.6	3.1	52.0
Female		0.0	0.8	3.7	39.4	3.9	48.0
Combined		0.5	3.7	14.4	74.0	7.1	100.0
Escapement[c]	381	44	2,944	1,974	5,823	253	11,029

-continued-

Appendix C.7 (page 3 of 3)

	Sample Size	Total years of life at maturity 3	4	5	6	7+	Total
1988							
Commercial							
Male		0.0	19.8	24.2	12.8	3.0	59.8
Female		0.0	2.7	9.5	18.1	9.8	40.2
Combined	592	0.0	22.5	33.6	30.9	12.8	100.0
Commercial Catch		0	3,119	4,666	4,292	1,782	13,883
		Escapement samples not collected					

a) Total represents number of freshwater and marine annuli, plus one.
b) Based on commercial catch samples.
c) Escapement numbers based on Kanektok River Sonar estimates.

Appendix C.8. Historical age composition percentage, sockeye salmon, Quinhagak commercial catch and escapement, 1982 - 1988.

Age Composition	Sample Size	Total years of life at maturity[a] 3	4	5	6	Total
1982						
Commercial						
Male		0.0	17.2	38.0	0.0	55.2
Female		0.0	13.3	31.5	0.0	44.8
Combined	203	0.0	30.5	69.5	0.0	100.0
Commercial Catch[b]		0	7,834	17,851	0	25,685
Escapement sockeye salmon samples were not collected.						
1983						
Commercial						
Male		0.0	23.0	20.9	4.0	47.9
Female		0.0	31.0	18.5	2.6	52.1
Combined	470	0.0	54.0	39.4	6.6	100.0
Commercial Catch[b]		0	5,542	4,044	677	10,263
Escapement sockeye salmon samples were not collected.						
1984						
Commercial						
Male		0.0	17.1	34.5	4.9	56.5
Female		0.0	10.0	30.1	3.4	43.5
Combined	531	0.0	27.1	64.6	8.3	100.0
Commercial Catch[b]		0	4,677	11,149	1,432	17,258
Escapement						
Male		0.3	22.8	36.7	1.5	61.3
Female		0.0	8.9	29.0	0.8	38.7
Combined	382	0.3	31.7	65.7	2.3	100.0
Escapement[c]		164	17,357	35,973	1,259	54,754
1985						
Commercial						
Male		0.0	9.3	40.4	1.6	59.1
Female		0.0	11.9	35.3	1.6	40.9
Combined	569	0.0	21.2	75.6	3.2	100.0
Commercial Catch[b]		0	1,666	5,957	252	7,876

-continued-

Appendix C.8 (page 2 of 2)

Age Composition	Sample Size	Total years of life at maturity[a] 3	4	5	6	Total
1986						
Commercial						
Male		0.0	11.7	39.2	0.2	51.1
Female		0.0	9.8	39.2	0.0	48.9
Combined	314	0.0	21.4	78.3	0.2	100.0
Commercial Catch[b]		0	4,607	16,827	50	21,484
Escapement						
Male		0.0	10.1	26.6	0.0	36.7
Female		0.0	10.1	50.6	2.6	63.3
Combined		0.0	20.2	77.2	2.6	100.0
Escapement Estimate[c]		0	1,565	5,983	202	7,751
1987						
Commercial						
Male		0	20.3	38.6	0	58.9
Female		0	10.5	30.7	0	41.1
Combined	153	0	30.7	69.3	0	100.0
Commercial Catch[b]		0	1,993	4,496	0	6,489
Escapement						
Male		0	34.6	12.2	0	46.8
Female		0	46.8	6.5	0	53.3
Combined	295	0	81.4	18.7	0	100.0
Escapement[c]		0	8,563	1,967	0	10,520
1988						
Commercial						
Male		0.1	6.4	50.4	3.3	60.4
Female		0	3.8	32.8	3.0	39.6
Combined	748	0.1	10.1	83.3	6.3	100.0
Commercial Catch[b]		29	2,190	17,954	1,384	21,557
Escapement samples not collected.						

[a] Age classes are a total of fresh water and marine growth.
[b] Age classes based on commercial catch samples.
[c] Age classes based on escapement samples. Escapement estimate based on the Kanektok River Sonar/aerial surveys.
[d] Preliminary data.

Appendix C.9. Historical age composition percentage, chum salmon, Quinhagak commercial harvest and escapement, 1982 - 1989.

Age Composition	Sample Size	Total years of life at maturity[a] 3	4	5	6	Total
1982						
Commercial						
Male		1.0	24.6	13.7	1.0	40.3
Female		0.0	38.7	19.6	1.4	59.7
Combined	414	1.0	63.3	33.3	2.4	100.0
Commercial Catch[b]		333	21,108	11,104	800	33,346
Escapement samples were not collected.						
1983						
Commercial						
Male		0.0	24.7	16.0	0.6	41.3
Female		0.6	34.9	22.8	0.4	58.7
Combined	482	0.6	59.6	38.8	1.0	100.0
Commercial Catch[b]		139	13,762	8,959	231	23,090
Escapement						
Male		0.0	15.5	37.6	1.0	54.1
Female		0.2	21.9	23.8	0.0	45.9
Combined	401	0.2	37.4	61.4	1.0	100.0
Escapement[c]		108	20,157	33,092	539	53,895
1984						
Commercial						
Male		0.2	33.8	13.4	0.0	47.4
Female		0.0	39.9	12.1	0.6	52.6
Combined	464	0.2	73.7	25.5	0.6	100.0
Commercial Catch[b]		101	37,162	12,858	303	50,424
Escapement						
Male		0.1	38.1	17.1	1.2	56.5
Female		0.1	32.0	11.1	0.3	43.5
Combined	772	0.2	70.1	28.2	1.5	100.0
Escapement[c]		400	140,298	56,439	3,002	200,140
1985						
Commercial						
Male		0.0	25.5	21.4	0.2	59.1
Female		0.0	27.5	25.3	0.0	40.9
Combined	458	0.0	53.0	46.7	0.2	100.0
Commercial Catch[b]		0	1,666	5,957	252	7,876
Escapement						
Male		0.2	24.1	27.1	0.0	51.4
Female		0.2	25.7	22.7	0.0	48.6
Combined	440	0.4	49.8	49.8	0.0	100.0
Escapement[c]		61	7,632	7,632	0	15,325

-continued-

Appendix C.9 (page 2 of 2)

Age Composition	Sample Size	Total years of life at maturity[a] 3	4	5	6	Total
1986						
Commercial						
Male		0.0	22.6	17.1	0.0	39.7
Female		0.0	41.7	18.6	0.0	60.3
Combined	314	0.0	64.3	35.7	0.0	100.0
Commercial Catch[b]		0	19,100	10,600	0	29,700
Escapement						
Male		0.2	27.1	28.8	0.9	57.0
Female		0.0	23.0	19.3	0.7	43.0
Combined	431	0.2	50.1	48.1	1.6	100.0
Escapement[c]		38	9,422	9,046	302	18,808
1987						
Commercial						
Male		0	20.7	35.3	0	56.0
Female		0	17.4	26.6	0	44.0
Combined	241	0	38.1	61.9	0	100.0
Commercial Catch[b]		0	3,267	5,290	0	8,557
Escapement						
Male		0	14.0	32.0	2.0	48.0
Female		0	22.0	30.0	0	52.0
Combined	150	0	37.0	62.0	2.0	100.0
Escapement[c]		0	4,118	6,901	223	11,132
1988						
Commercial						
Male		0.7	34.1	14.8	0.8	50.4
Female		.5	31.0	16.9	1.2	49.6
Combined	593	1.2	65.1	31.7	2.0	100.0
Commercial Catch[b]		345	19,020	9,264	591	29,220
Escapement samples not collected.						
1989[d]						
Commercial						
Male		0	23.4	24.2	0.4	48.0
Female		0	26.1	24.4	0.6	51.1
Combined	641	0	49.5	48.6	1.0	100.0
Commercial Catch[b]		0	19,698	19,308	389	39,395
Escapement samples not collected.						

[a] Age classes are a total of fresh water and marine growth.
[b] Age classes based on commercial catch samples.
[c] Age classes based on escapement samples. Escapement estimate based on the Kanektok River Sonar/aerial surveys.
[d] Preliminary data.

Appendix C.10. Kanektok River peak aerial surveys by species, 1962 - 1993[a].

Year	SPECIES Chinook	Sockeye	Coho	Chum
1962	935	43,108		
1963				
1964				
1965				
1966	3,718			28,800
1967				
1968	4,170	8,000		14,000
1969				
1970	4,112	3,028		80,100
1971				
1972				
1973	814			
1974				
1975		6,018		
1976		2,936		8,697
1977	5,787	6,304		32,157
1978[b]	19,180	44,215		229,290
1979				
1980	6,172	113,931	69,325	25,950
1981[c]	15,900	49,175		71,840
1982[d]	8,142	55,940		
1983	8,890	2,340		9,360
1984[e]	12,182	30,840	46,830	48,360
1985	13,465	16,270		14,385
1986	3,643	14,949		16,790
1987	4,223	51,753	20,056	9,420
1988	11,140	30,440		20,063
1989	7,914	14,735		6,270
1990	2,563	32,082		2,475
1991[d]	2,100	43,500	4,330	18,000
1992[f]	3,856	14,955		25,675
1993	4,670	23,128		1,285
10 YR. AVG:	6,996	25,186	23,738	17,079
OBJECTIVE:	5,000	15,000		30,500

a Peak aerial surveys are those rated fair or good surveys obtained between 20 July and 5 August for chinook and sockeye salmon, 20-31 July for chum salmon, and 20 August and 5 September for coho salmon. Some surveys which do not meet these criteria may be referenced in this table; test are footnoted.

b Chum salmon count excluded from escapement objective calculation due to exceptional magnitude.

c Poor survey for chinook, sockeye, chum salmon.

d Late Survey for chinook, sockeye salmon (after 5 August).

e Poor coho survey.

f Some chum may have been sockeye.

APPENDIX D

Appendix D.1. Goodnews Bay District commercial salmon harvest, 1968-1993.

YEAR	CHINOOK	SOCKEYE	COHO	PINK	CHUM	TOTAL
1968			5,458			5,458
1969	3,978	6,256	11,631	298	5,006	27,169
1970	7,163	7,144	6,794	12,183	12,346	45,630
1971	477	330	1,771	0	301	2,879
1972	264	924	925	66	1,331	3,510
1973	3,543	2,072	5,017	324	15,781	26,737
1974	3,302	9,357	21,340	16,373	8,942	59,314
1975	2,156	9,098	17,889	419	5,904	35,466
1976	4,417	5,575	9,852	8,453	10,354	38,651
1977	3,336	3,723	13,335	29	6,531	26,954
1978	5,218	5,412	13,764	9,103	8,590	42,087
1979	3,204	19,581	42,098	201	9,298	74,382
1980	2,331	28,632	43,256	7,832	11,748	93,799
1981	7,190	40,273	19,749	11	13,642	80,865
1982	9,476	38,877	46,683	4,673	13,829	113,538
1983	14,117	11,716	19,660	0	6,766	52,259
1984	8,612	15,474	71,176	4,711	14,340	114,313
1985	5,793	6,698	16,498	8	4,784	33,781
1986	2,723	25,112	19,378	4,447	10,355	62,015
1987	3,357	27,758	29,057	54	20,381	80,607
1988	4,964	36,368	30,832	5,509	33,059	110,732
1989	2,966	19,299	31,849	82	13,622	67,818
1990	3,303	35,823	7,804	629	13,194	60,753
1991	912	39,838	13,312	29	15,892	69,983
1992	3,528	39,194	19,875	14,310	18,520	95,427
1993	2,117	59,293	20,014	0[a]	10,657	92,081
Ten year Average (1983-1992)	5,028	25,728	25,944	18[a]	15,091	74,769

a Odd years only.

Appendix D.2. Summary of historical commercial harvest by period, Goodnews Bay District, chinook salmon, 1981-1992.

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
6/12	0	0	0	0	0.00000
6/13	1	1252	1252	1252	0.00806
6/14	0	0	0	0	0.00806
6/15	1	197	197	197	0.01055
6/16	2	251	1096	673	0.02221
6/17	1	362	362	362	0.02568
6/18	3	387	1706	1158	0.06881
6/19	2	296	390	343	0.09065
6/20	5	139	2642	404	0.14894
6/21	2	1298	1535	1416	0.17737
6/22	1	1591	1591	1191	0.19748
6/23	3	583	1639	788	0.27167
6/24	3	476	988	620	0.30602
6/25	3	340	1896	1154	0.35589
6/26	2	352	416	384	0.38039
6/27	3	173	3944	1627	0.44856
6/28	3	807	1307	959	0.49022
6/29	2	330	457	457	0.50508
6/30	3	460	1551	927	0.55916
7/1	2	77	1156	616	0.58498
7/2	4	234	710	329	0.61907
7/3	2	156	391	274	0.63444
7/4	1	2301	2301	2301	0.64925
7/5	6	95	1809	409	0.70708
7/6	1	272	272	272	0.71052
7/7	6	196	1119	737	0.78409
7/8	4	93	495	169	0.80622
7/9	3	135	351	245	0.81697
7/10	3	156	203	199	0.83092
7/11	6	53	408	166	0.85422
7/12	2	327	737	532	0.86475
7/13	3	66	135	104	0.87555
7/14	5	54	514	210	0.89221
7/15	4	0	354	130	0.90215
7/16	4	54	294	77	0.90994
7/17	2	65	210	138	0.91908
7/18	4	54	217	65	0.92520
7/19	2	33	66	50	0.92912
7/20	4	75	192	84	0.93733
7/21	3	35	68	44	0.94050
7/22	3	19	228	80	0.94487
7/23	4	17	97	38	0.94837
7/24	3	20	77	23	0.95204

-continued-

Appendix D.2 (page 2 of 2)

Date	No. years w/fishing period on this date	Minimum harvest	Maximum harvest	Average harvest	Cumulative proportion harvest
7/25	5	0	82	30	0.95537
7/26	2	0	10	5	0.95637
7/27	5	24	122	39	0.96028
7/28	2	5	21	13	0.96103
7/29	4	15	157	32	0.96451
7/30	4	16	73	27	0.96696
7/31	3	7	34	20	0.96870
8/1	6	12	78	27	0.97155
8/2	3	6	26	19	0.97312
8/3	6	9	102	40	0.97643
8/4	3	6	17	12	0.97726
8/5	5	6	54	18	0.97903
8/6	4	6	79	9	0.98057
8/7	2	15	43	29	0.98157
8/8	6	0	60	9	0.98321
8/9	3	7	18	11	0.98456
8/10	6	5	78	18	0.98637
8/11	3	5	15	9	0.98717
8/12	4	7	47	23	0.98825
8/13	5	0	36	10	0.98931
8/14	4	4	41	10	0.99069
8/15	4	5	26	14	0.99142
8/16	5	0	12	3	0.99212
8/17	5	2	22	10	0.99295
8/18	3	0	8	4	0.99346
8/19	5	4	14	8	0.99448
8/20	4	1	12	6	0.99501
8/21	5	0	7	3	0.99556
8/22	4	3	17	10	0.99604
8/23	3	0	7	6	0.99635
8/24	4	2	17	8	0.99695
8/25	4	0	13	3	0.99719
8/26	5	0	8	4	0.99757
8/27	4	2	13	3	0.99791
8/28	5	0	8	2	0.99830
8/29	5	2	4	3	0.99862
8/30	3	1	4	2	0.99878
8/31	5	0	6	2	0.99898
9/1	4	0	7	1	0.99924
9/2	5	1	5	3	0.99976
9/3	3	0	2	2	0.99978
9/4	3	0	6	1	0.99988
9/5	5	0	5	2	0.99997
9/6	2	0	0	0	0.99997
9/7	5	0	1	0	0.99999
9/8	4	0	2	1	1.00000
9/9	1	0	0	0	1.00000

Appendix D.3 Summary of historical commercial harvest by period Goodnews Bay District, sockeye salmon, 1981-1992.

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Average harvest	Cumulative proportion harvest
6/12	0	0	0	0	0.00000
6/13	1	27	27	27	0.00019
6/14	0	0	0	0	0.00019
6/15	1	70	70	70	0.00034
6/16	2	125	696	410	0.00282
6/17	1	744	744	744	0.00444
6/18	3	281	596	348	0.00868
6/19	2	478	551	515	0.01265
6/20	5	102	1989	523	0.02427
6/21	2	967	1280	1123	0.03226
6/22	2	569	1074	822	0.03572
6/23	3	1029	2701	1466	0.05165
6/24	3	596	2120	1892	0.06935
6/25	4	852	2087	1348	0.08841
6/26	2	1719	1909	1814	0.10236
6/27	3	685	3040	952	0.12401
6/28	3	2097	3371	2932	0.14935
6/29	3	1422	3323	2104	0.16449
6/30	3	2037	8143	5094	0.20628
7/1	2	1143	3376	2259	0.22757
7/2	5	1818	8198	2657	0.27426
7/3	2	2589	5510	4049	0.30198
7/4	1	1598	1598	1598	0.31335
7/5	5	1254	4221	2056	0.35141
7/6	3	2346	6093	3352	0.37614
7/7	6	2057	4833	3654	0.44474
7/8	4	1231	5916	2864	0.48509
7/9	4	2167	4315	3446	0.52139
7/10	3	1759	4494	3217	0.55056
7/11	6	1397	3898	2758	0.61323
7/12	2	1444	2318	1881	0.62605
7/13	4	2046	5275	3900	0.65828
7/14	5	1039	3173	2481	0.69556
7/15	4	0	4818	2005	0.72916
7/16	5	902	4969	2071	0.76162
7/17	2	2978	3936	3457	0.77599
7/18	4	559	3049	1545	0.79592
7/19	2	1683	2151	1917	0.80408
7/20	5	395	3852	1679	0.82752
7/21	3	507	1318	887	0.83683
7/22	3	614	2207	2056	0.85006
7/23	5	162	3966	829	0.86539
7/24	3	588	2458	1502	0.86539
7/25	5	0	1534	388	0.88307
7/26	2	0	963	482	0.88508

-continued-

Appendix D.3 (page 2 of 2)

Date	No. Years w/fishing period on this date	Minimum harvest	Maximum harvest	Average harvest	Cumulative proportion harvest
7/27	6	166	2903	449	0.90023
7/28	2	278	555	417	0.90268
7/29	4	605	1312	912	0.91390
7/30	5	84	1982	344	0.92143
7/31	3	300	803	344	0.92511
8/1	6	45	811	330	0.93406
8/2	3	204	335	256	0.93632
8/3	7	36	975	578	0.94739
8/4	3	188	208	190	0.94933
8/5	5	94	932	308	0.95575
8/6	5	34	498	251	0.95903
8/7	2	178	686	432	0.96122
8/8	6	0	926	132	0.96520
8/9	3	46	209	135	0.96632
8/10	7	18	659	286	0.97235
8/11	3	0	174	80	0.97328
8/12	4	17	564	185	0.97620
8/13	5	0	204	131	0.97773
8/14	5	4	382	164	0.98012
8/15	4	5	398	72	0.98167
8/16	5	0	110	23	0.98248
8/17	6	4	498	172	0.98510
8/18	3	0	120	96	0.98592
8/19	5	5	360	99	0.98759
8/20	5	0	139	98	0.98858
8/21	6	1	239	89	0.99045
8/22	4	7	353	60	0.99175
8/23	3	0	88	4	0.99218
8/24	5	1	244	66	0.99346
8/25	4	0	90	30	0.99413
8/26	5	0	204	75	0.99499
8/27	5	0	148	73	0.99567
8/28	6	1	79	57	0.99656
8/29	5	1	155	17	0.99725
8/30	3	0	68	4	0.99759
8/31	6	0	88	60	0.99830
9/1	4	0	57	23	0.99871
9/2	5	2	69	36	0.99918
9/3	4	0	72	21	0.99940
9/4	4	0	61	27	0.99970
9/5	5	0	61	31	0.99984
9/6	2	0	0	0	0.99984
9/7	6	0	63	3	1.00000
9/8	4	0	0	0	1.00000
9/9	1	0	0	0	1.00000

Appendix D.4 Summary of historical commercial harvest by period, Goodnews Bay, coho salmon, 1979-1992.

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Average harvest	Cumulative proportion harvest
7/14	3	0	1	1	0.00000
7/15	1	0	0	0	0.00000
7/16	4	1	18	2	0.00004
7/17	1	0	0	0	0.00004
7/18	2	0	5	3	0.00006
7/19	2	0	6	3	0.00007
7/20	4	1	111	7	0.00022
7/21	4	1	18	5	0.00028
7/22	1	1	1	1	0.00028
7/23	5	2	195	16	0.00068
7/24	3	5	33	14	0.00080
7/25	4	2	383	52	0.00156
7/26	2	9	40	25	0.00167
7/27	5	6	1059	68	0.00323
7/28	3	36	153	68	0.00378
7/29	5	5	91	25	0.00427
7/30	4	47	1306	209	0.00767
7/31	5	24	364	38	0.00889
8/1	7	56	2811	171	0.01505
8/2	4	96	1148	547	0.01966
8/3	7	66	3943	111	0.02619
8/4	5	92	949	553	0.03243
8/5	5	126	752	210	0.03865
8/6	7	314	4275	934	0.05598
8/7	2	231	812	522	0.05863
8/8	7	357	2712	1133	0.07902
8/9	3	516	2240	2163	0.09007
8/10	8	463	4198	1018	0.11811
8/11	4	663	6065	1872	0.13860
8/12	4	1255	2074	1696	0.16154
8/13	7	673	4852	1561	0.19211
8/14	5	1325	2374	2041	0.22783
8/15	6	1225	5999	2826	0.26372
8/16	5	462	5456	2226	0.30119
8/17	7	1390	6880	3002	0.35287
8/18	4	1446	3864	2638	0.37774
8/19	5	1394	4180	2573	0.42156
8/20	7	68	9590	2462	0.47289
8/21	6	968	3459	1897	0.51656
8/22	6	1723	6731	2665	0.55818
8/23	4	1308	5306	3098	0.58422
8/24	6	1597	4356	3407	0.62764
8/25	5	1739	3709	3158	0.66247
8/26	5	15	3249	2033	0.69293
8/27	7	1101	6625	2519	0.75291
8/28	6	1016	3529	1840	0.79301
8/29	7	725	4972	1675	0.83085
8/30	4	1483	3926	2764	0.85415
8/31	7	1084	3479	1698	0.89136
9/1	5	604	2778	1819	0.91135
9/2	5	576	3233	792	0.93242
9/3	6	377	3822	1765	0.95187
9/4	4	374	2685	1099	0.96923
9/5	7	0	2695	1630	0.98602
9/6	3	0	1715	1154	0.99055
9/7	6	0	1656	426	0.99694
9/8	3	0	843	422	1.00000

Appendix D.5. Summary of historical commercial harvest by period, Goodnews Bay District, chum salmon, 1981-1992.

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Average harvest	Cumulative proportion harvest
6/12	0	0	0	0	0.00000
6/13	1	10	10	10	0.00012
6/14	1	0	0	0	0.00012
6/15	1	102	102	102	0.00075
6/16	2	89	1091	590	0.00459
6/17	1	167	167	167	0.00560
6/18	3	194	501	254	0.01073
6/19	2	249	557	403	0.01614
6/20	5	137	3501	341	0.03549
6/21	2	591	698	645	0.04313
6/22	2	708	2124	1416	0.05702
6/23	3	886	7833	4360	0.08931
6/24	3	594	1188	821	0.11205
6/25	4	724	2351	1580	0.14678
6/26	2	866	1241	1054	0.16135
6/27	3	691	758	728	0.18631
6/28	3	649	8369	1981	0.22283
6/29	3	425	2983	1235	0.24665
6/30	3	1349	2048	1627	0.27308
7/1	2	710	850	780	0.28991
7/2	5	713	3434	2232	0.33824
7/3	2	1309	3074	2192	0.35881
7/4	1	1626	1626	1626	0.37882
7/5	5	976	3193	1720	0.42117
7/6	3	963	2390	1162	0.44390
7/7	6	1357	4478	1850	0.52863
7/8	4	949	1894	1585	0.56770
7/9	4	1191	2503	1364	0.60267
7/10	3	1346	2085	1601	0.63604
7/11	6	562	5830	1143	0.69778
7/12	2	1057	1384	1221	0.71227
7/13	4	896	2288	1490	0.74517
7/14	5	601	2123	1019	0.78795
7/15	4	0	2495	1356	0.82450
7/16	5	476	1360	1095	0.85423
7/17	2	1532	2019	1776	0.87418
7/18	4	488	1191	604	0.89493
7/19	2	506	1465	986	0.90566
7/20	5	479	1265	657	0.92601
7/21	3	233	467	440	0.93386
7/22	3	307	1177	362	0.94636
7/23	5	35	545	253	0.95404
7/24	3	244	874	315	0.96204
7/25	5	0	236	205	0.96624
7/26	2	0	608	304	0.96943

-continued-

Appendix D.5. (page 2 of 2)

Date	No. Years w/fishing period on this date	Minimum harvest	Maximum harvest	Average harvest	Cumulative proportion harvest
7/27	6	58	177	144	0.97480
7/28	2	89	93	91	0.97607
7/29	4	32	223	119	0.97966
7/30	5	42	124	102	0.98258
7/31	3	8	121	92	0.98383
8/1	6	22	61	56	0.98636
8/2	3	47	110	92	0.98779
8/3	7	22	105	51	0.98983
8/4	3	23	36	29	0.99041
8/5	5	21	165	23	0.99222
8/6	5	18	41	29	0.99309
8/7	2	16	21	19	0.99332
8/8	6	0	26	18	0.99382
8/9	3	19	63	45	0.99454
8/10	7	8	36	17	0.99524
8/11	3	10	25	13	0.99555
8/12	4	0	16	8	0.99579
8/13	5	2	22	12	0.99607
8/14	5	3	62	10	0.99691
8/15	4	0	10	6	0.99703
8/16	5	0	16	10	0.99729
8/17	6	0	22	7	0.99758
8/18	3	0	6	3	0.99764
8/19	5	2	16	5	0.99781
8/20	5	0	11	5	0.99797
8/21	6	0	127	6	0.99881
8/22	4	3	6	5	0.99893
8/23	3	0	6	3	0.99897
8/24	5	0	8	3	0.99902
8/25	4	0	4	3	0.99910
8/26	5	0	42	6	0.99936
8/27	5	0	5	3	0.99942
8/28	6	0	11	2	0.99952
8/29	5	0	6	4	0.99962
8/30	3	0	2	1	0.99965
8/31	6	0	9	3	0.99970
9/1	4	0	4	2	0.99975
9/2	5	0	10	4	0.99985
9/3	4	0	4	2	0.99989
9/4	4	0	9	3	0.99996
9/5	5	0	3	2	0.99999
9/6	2	0	0	0	0.99999
9/7	5	0	2	1	1.00000
9/8	4	0	0	0	1.00000
9/9	1	0	0	0	1.00000

Appendix D.6. Goodnews Bay, District 5 commercial effort 1970-1993.

YEAR	EFFORT[a]
1970	35
1971	16
1972	14
1973	21
1974	49
1975	50
1976	40
1977	34
1978	35
1979	30
1980	48
1981	48
1982	48
1983	79
1984	77
1985	69
1986	86
1987	69
1988	125
1989	88
1990	82
1991	72
1992	111
1993	114
TEN YEAR AVERAGE (1983-1992)	86

a Permits that made at least one delivery during that year.

Appendix D.7. Historical age composition percentage, chinook salmon, Goodnews Bay commercial catch and escapement 1982 - 1989.

Age Composition	Sample Size	Total years of life at maturity[a] 3	4	5	6	7+	Total
1982							
Commercial							
Male		0.0	5.6	37.4	11.2	0.0	54.2
Female		0.0	2.8	29.9	13.1	0.0	45.8
Combined	107	0.0	8.4	67.3	24.3	0.0	100.0
Commercial Catch[b]		0	796	6,377	2,303	0	9,476
Escapement samples were not collected.							
1983							
Commercial							
Male		0.0	14.4	7.6	25.3	1.1	48.4
Female		0.0	0.2	0.6	48.8	2.0	51.6
Combined	655	0.0	14.6	8.2	74.1	3.1	100.0
Commercial Catch[b]		0	2,061	1,158	10,461	438	14,117
Escapement							
Male		0.0	0.0	9.4	39.5	2.9	51.8
Female		0.0	0.0	2.2	44.6	1.4	48.2
Combined	139	0.0	0.0	11.6	84.1	4.3	100.0
Escapement[c]		0	0	1,670	12,109	619	14,398
1984							
Commercial							
Male		0.2	7.6	32.4	22.4	5.4	68.0
Female		0.0	0.0	2.8	22.0	7.2	32.0
Combined	500	0.2	7.6	35.2	44.4	12.6	100.0
Commercial Catch[b]		17	655	3,031	3,824	1,085	8,612
Escapement							
Male		0.0	4.5	22.6	20.7	3.6	51.4
Female		0.0	0.0	4.5	39.6	4.5	48.6
Combined	111	0.0	4.5	27.1	60.3	8.1	100.0
Escapement[c]		0	393	2,369	5,272	709	8,743
1985							
Commercial							
Male		0.2	18.2	7.5	30.8	2.4	59.1
Female		0.0	10.0	4.5	25.2	1.1	40.9
Combined	532	0.2	28.2	12.0	56.0	3.6	100.0
Commercial Catch[b]		12	1,634	695	3,244	208	5,793
Escapement							
Male		0.0	0.0	0.0	21.0	5.3	59.1
Female		0.0	0.0	0.0	73.7	0.0	40.9
Combined	19	0.0	0.0	0.0	94.7	5.3	100.0
Escapement[c]		0	0	0	7,556	423	7,979

-continued-

Appendix D.7 (page 2 of 2)

Age Composition	Sample Size	Total years of life at maturity[a] 3	4	5	6	7+	Total
1986							
Commercial							
Male		0.0	17.0	49.0	16.0	4.0	86.0
Female		0.0	0.0	2.0	19.0	8.0	29.0
Combined	363	0.0	17.0	51.0	35.0	12.0	115.0
Commercial Catch[b]		0	463	1,389	953	327	2,723
1987							
Commercial							
Male		0	12.9	19.2	15.5	0	47.6
Female		0	3.0	12.5	34.3	2.6	52.4
Combined	271	0	15.9	31.7	49.8	2.6	100.0
Commercial Catch[b]		0	533	1,065	1,672	87	3,357
Escapement							
Male		0	12.8	7.7	25.6	0	46.2
Female		0	5.1	17.9	23.1	7.7	53.8
Combined	39	0	17.9	25.6	48.7	7.7	100.0
Escapement[c]		0	406	581	1,106	175	2,272
1988							
Commercial							
Male		0	18.7	16.2	15.2	2.5	52.6
Female		0	8.0	8.4	27.6	3.4	47.4
Combined	475	0	26.7	24.6	42.7	5.9	100.0
Commercial Catch[b]		1,327	1,223	2,121	293	0	4,964
Escapement							
Male		0	2.1	12.8	35.1	8.5	58.5
Female		0	0	10.6	22.3	8.5	41.5
Combined	94	0	2.1	23.4	57.4	17.0	100.0
Escapement[c]		0	114	1,268	3,110	921	5,419
1989							
Commercial							
Male		0	7.2	24.4	24.4	2.0	58.0
Female		0	2.4	15.2	22.0	2.4	42.0
Combined	250	0	9.6	39.6	46.4	4.4	100.0
Commercial Catch[b]		0	285	1,175	1,376	131	2,966
Escapement							
Male		6.3	0	15.6	28.1	3.1	53.1
Female		0	0	6.3	34.4	6.3	46.9
Combined		6.3	0	21.9	62.5	9.4	100.0
Escapement[c]		182	0	633	1,806	271	2,891

[a] Total years of life is total number of years spent in fresh water and marine.
[b] Allocations by age class based on commercial catch samples.
[c] Age class is based on escapement samples. Escapement estimate based on the Goodnews River Project.
[d] Preliminary data.

Appendix D.8. Historical age composition percentage, sockeye salmon, Goodnews Bay commercial catch and escapement, 1982 - 1989.

Age Composition	Sample Size	Total years of life at maturity[a] 3	4	5	6	Total
1982						
Commercial						
Male		0.0	3.9	43.1	10.8	57.8
Female		0.0	1.0	36.3	4.9	42.2
Combined	102	0.0	4.9	79.4	15.7	100.0
Commercial Catch[b]		0	1,905	30,868	6,104	38,877
Escapement samples were not collected.						
1983						
Commercial						
Male		0.0	19.0	31.3	4.2	54.5
Female		0.0	20.0	22.3	3.2	45.5
Combined	404	0.0	39.0	53.6	7.4	100.0
Commercial Catch[b]		0	4,569	6,280	867	11,716
Escapement						
Male		0.0	72.2	11.1	0.0	83.3
Female		0.0	5.6	11.1	0.0	16.7
Combined		0.0	77.8	22.2	0.0	100.0
Escapement[c]	18	0	54,425	15,530	0	69,955
1984						
Commercial						
Male		0.0	14.8	45.1	2.2	62.1
Female		0.0	6.2	31.0	0.7	37.9
Combined	549	0	21.0	76.1	2.9	100.0
Commercial Catch[b]		3,250	15,025	12,224	449	15,474
Escapement						
Male		0.0	23.4	27.7	0.0	51.1
Female		0.0	21.3	27.6	0.0	48.9
Combined	47	0.0	44.7	55.3	0.0	100.0
Escapement[c]		0	30,044	37,169	0	67,213
1985						
Commercial						
Male		0.0	10.7	43.6	0.0	59.1
Female		0.0	13.5	32.2	0.0	40.9
Combined	488	0.0	24.2	75.8	0.0	100.0
Commercial Catch[b]		0	1,621	5,077	0	6,698
Escapement						
Male		0.0	17.7	47.0	0.0	64.7
Female		0.0	29.4	5.9	0.0	35.3
Combined	17	0.0	47.1	52.9	0.0	100.0
Escapement[c]		0	23,777	26,704	0	50,481

-continued-

Appendix D.8. (page 2 of 2)

Age Composition	Sample Size	Total years of life at maturity[a] 3	4	5	6	Total
1986						
Commercial						
Male		0.0	5.1	49.8	0.0	54.9
Female		0.0	3.5	41.6	0.0	45.1
Combined	488	0.0	8.5	91.5	0.0	100.0
Commercial Catch[b]		0	2,146	22,966	0	25,112
Escapement						
Male		0.0	5.5	54.9	0.0	60.4
Female		1.1	2.2	36.3	0.0	39.6
Combined	91	1.1	7.7	91.2	0.0	100.0
Escapement[c]		1,026	7,179	85,024	0	93,228
1987						
Commercial						
Male		0.0	4.0	45.5	0.0	49.5
Female		0.0	2.9	47.6	0.0	50.5
Combined	546	0.0	6.9	93.0	0.0	100.0
Commercial Catch[b]		0	1,932	25,826	0	27,758
Escapement						
Male		0.0	4.0	46.6	2.4	53.0
Female		0.0	6.1	39.3	1.6	47.0
Combined	578	0.0	10.1	85.9	4.0	100.0
Escapement[c]		0	2,915	24,800	1,154	28,871
1988						
Commercial						
Male		3.5	51.8	3.0	0.1	58.5
Female		0.7	37.9	2.9	0.0	41.5
Combined	738	4.2	89.7	5.9	0.1	100.0
Commercial Catch[b]		1,527	32,623	2,146	36	36,368
Escapement						
Male		5.1	36.0	1.0	0.0	42.1
Female		8.0	48.0	1.9	0.0	57.9
Combined	315	13.1	84.0	2.9	0.0	100.0
Escapement[c]		5,019	32,188	1,112	0	38,319
1989[d]						
Commercial						
Male		6.6	46.8	1.8	0	55.3
Female		3.8	38.5	2.1	0	44.6
Combined	579	10.4	85.7	3.9	0	100.0
Commercial Catch		2,000	16,532	734	0	19,299
Escapement						
Male		0	53.9	10.3	0	64.1
Female		0	30.8	5.1	0	35.9
Combined		0	84.7	15.4	0	100.0
Escapement	39	0	30,048	5,463	0	35,476

[a] Age classes are a total of fresh water and marine growth.
[b] Age classes based on commercial catch samples.
[c] Age classes based on escapement samples. Escapement estimate based on the Goodnews River counting tower.
[d] Preliminary data.

Appendix D.9. Historical age composition percentage, chum salmon, Goodnews Bay commercial catch and escapement, 1982 - 1989.

Age Composition	Sample Size	Total years of life at maturity[a] 3	4	5	6	Total
1982						
Commercial						
Male		0.0	16.3	20.0	0.0	36.3
Female		0.7	29.6	32.7	0.7	63.7
Combined	135	0.7	45.9	52.7	0.7	100.0
Commercial Catch[b]		97	6,348	7,288	97	13,829
Escapement samples were not collected.						
1983						
Commercial						
Male		0.9	15.3	22.7	0.5	39.4
Female		2.8	27.3	30.5	0.0	60.6
Combined	216	3.7	42.6	53.2	0.5	100.0
Commercial Catch[b]		250	2,882	3,600	34	6,766
Escapement						
Male		0.6	19.0	37.3	0.0	56.9
Female		0.6	15.5	27.0	0.0	43.1
Combined	174	1.2	34.5	64.3	0.0	100.0
Escapement[c]		186	5,364	9,997	0	15,548
1984						
Commercial						
Male		0.0	30.6	15.3	2.0	47.9
Female		0.4	38.5	12.5	0.7	52.1
Combined	457	69.5	96.9	30.5	2.7	100.0
Commercial Catch[b]		9,966	13,895	4,374	387	14,340
Escapement						
Male		0.0	32.3	4.4	0.0	36.7
Female		0.0	56.6	6.7	0.0	63.3
Combined	90	0.0	88.9	11.1	0.0	100.0
Escapement[c]		0	104,670	13,069	0	117,739
1985						
Commercial						
Male		0.0	27.8	14.4	0.0	59.1
Female		0.0	30.0	27.5	0.0	40.9
Combined	270	0.0	57.8	41.9	0.0	100.0
Commercial Catch[b]		0	2,765	2.004	0	4,784
Escapement						
Male		0.0	30.4	19.6	0.0	50.0
Female		0.0	28.3	21.7	0.0	50.0
Combined	46	0.0	58.7	41.3	0.0	100.0
Escapement[c]		0	14,690	10,335	0	25,025

-continued-

Appendix D.9. (page 2 of 3)

Age Composition	Sample Size	Total years of life at maturity[a] 3	4	5	6	Total
1986						
Commercial						
Male		0.2	37.7	12.2	0.2	50.3
Female		0.5	36.0	12.5	0.7	49.7
Combined	353	0.7	73.7	24.7	0.9	100.0
Commercial Catch[b]		72	7,632	2,558	93	10,355
Escapement						
Male		0.0	38.0	19.0	0.0	57.0
Female		0.0	33.0	10.0	0.0	43.0
Combined	21	0.0	71.0	29.0	0.0	100.0
Escapement[c]		0	36,856	15,054	0	51,910
1987						
Commercial						
Male		0	37.2	17.9	0	55.1
Female		0	28.6	16.3	0	44.9
Combined	430	0	65.8	34.2	0	10.0
Commercial Catch[b]		0	13,414	6,967	0	20,381
Escapement						
Male		0.0	37.3	30.2	0.0	67.5
Female		0.2	22.3	10.1	0.0	32.5
Combined	467	0.2	59.5	40.3	0.0	100.0
Escapement[c]		81	22,503	15,218	0	37,802
1988						
Commercial						
Male		.6	9.4	33.9	1.1	45.0
Female		.2	13.6	40.7	0.4	55.0
Combined	469	.9	23.0	74.6	1.5	100.0
Commercial Catch[b]		282	7,613	24,671	493	33,059
Escapement						
Male		0.7	12.5	35.1	1.2	49.5
Female		0.0	16.4	32.1	0.9	49.5
Combined	422	0.7	28.9	67.2	2.1	100.0
Escapement[c]		276	11,416	26,544	830	39,501

-continued-

Appendix D.9. (page 3 of 3)

Age Composition		Total years of life at maturity[a] 3	4	5	6	Total
1989[d]	Sample Size					
Commercial						
Male		0.2	27.0	27.2	1.3	55.7
Female		0.2	20.9	22.6	0.6	44.3
Combined	540	0.4	48.0	49.8	1.9	100.0
Commercial Catch[b]		50	6,534	6,786	252	13,622
Escapement						
Male		1.0	50.0	22.5	0	73.5
Female		0.0	19.6	6.9	0	26.5
Combined		1.0	69.6	29.4	0	100.0
Escapement[c]		150	10,681	4,664	0	15,495

[a] Age classes are a total of fresh water and marine growth.
[b] Age classes based on commercial catch samples.
[c] Age classes based on escapement samples. Escapement estimate based on the Goodnews River counting tower.
[d] Preliminary data.

Appendix D.10. Average cumulative estimated escapement and proportion by day for chinook, sockeye and chum salmon, Goodnews River weir, 1981–1993. *a*

	Chinook		Sockeye		Chum	
Date	Avg. Number	Cum. Percent	Avg. Number	Cum. Percent	Avg. Number	Cum. Percent
6/11	0	0.0000	0	0.0000	0	0.0000
6/12	0	0.0000	0	0.0000	0	0.0000
6/13	0	0.0000	0	0.0000	0	0.0000
6/14	0	0.0000	0	0.0000	0	0.0000
6/15	0	0.0000	8	0.0003	0	0.0000
6/16	0	0.0000	9	0.0003	0	0.0000
6/17	1	0.0003	12	0.0004	0	0.0000
6/18	1	0.0003	19	0.0006	0	0.0000
6/19	2	0.0007	44	0.0015	0	0.0000
6/20	5	0.0015	63	0.0021	0	0.0000
6/21	11	0.0037	132	0.0045	1	0.0000
6/22	15	0.0052	246	0.0077	3	0.0002
6/23	33	0.0112	557	0.0159	4	0.0002
6/24	65	0.0223	1089	0.0305	15	0.0010
6/25	103	0.0353	1813	0.0528	69	0.0045
6/26	145	0.0498	2509	0.0733	127	0.0082
6/27	205	0.0703	3713	0.1112	227	0.0147
6/28	251	0.0864	4545	0.1389	276	0.0178
6/29	305	0.1048	5427	0.1666	348	0.0225
6/30	376	0.1292	6391	0.1958	463	0.0299
7/1	467	0.1607	7615	0.2349	673	0.0435
7/2	533	0.1833	8763	0.2740	840	0.0543
7/3	603	0.2073	9844	0.3105	1048	0.0678
7/4	681	0.2340	11192	0.3558	1313	0.0849
7/5	784	0.2694	12921	0.4134	1613	0.1043
7/6	865	0.2972	14469	0.4619	1867	0.1208
7/7	979	0.3364	15973	0.5090	2141	0.1385
7/8	1066	0.3663	17681	0.5625	2432	0.1573
7/9	1176	0.4043	19468	0.6184	2930	0.1895
7/10	1322	0.4544	21010	0.6668	3518	0.2276
7/11	1462	0.5025	22572	0.7151	4105	0.2655
7/12	1593	0.5474	23924	0.7563	4772	0.3086
7/13	1700	0.5844	25008	0.7896	5332	0.3449
7/14	1796	0.6172	26027	0.8207	5896	0.3813
7/15	1898	0.6523	26968	0.8503	6572	0.4251
7/16	2000	0.6875	27861	0.8769	7375	0.4770
7/17	2125	0.7304	28568	0.8984	8094	0.5235
7/18	2226	0.7652	29180	0.9174	8658	0.5600
7/19	2301	0.7909	29706	0.9339	9088	0.5878
7/20	2389	0.8210	30176	0.9492	9633	0.6230

–Continued–

Appendix D.10. (page 2 of 2)

	Chinook		Sockeye		Chum	
Date	Avg. Number	Cum. Percent	Avg. Number	Cum. Percent	Avg. Number	Cum. Percent
7/21	2461	0.8458	30596	0.9613	10144	0.6561
7/22	2533	0.8706	30913	0.9709	10732	0.6941
7/23	2605	0.8954	31126	0.9776	11319	0.7321
7/24	2678	0.9205	31317	0.9833	11809	0.7638
7/25	2721	0.9352	31450	0.9875	13505	0.8735
7/26	2764	0.9501	31553	0.9900	13881	0.8978
7/27	2787	0.9579	31629	0.9924	14198	0.9183
7/28	2809	0.9655	31694	0.9942	14543	0.9406
7/29	2834	0.9742	31754	0.9956	14759	0.9546
7/30	2854	0.9810	31804	0.9969	14913	0.9646
7/31	2867	0.9855	31832	0.9976	15038	0.9726
8/1	2884	0.9912	31852	0.9981	15360	0.9935
8/2	2888	0.9926	31863	0.9986	15392	0.9955
8/3	2893	0.9943	31875	0.9989	15429	0.9979
8/4	2897	0.9957	31888	0.9991	15435	0.9983
8/5	2900	0.9967	31897	0.9993	15442	0.9987
8/6	2904	0.9979	31901	0.9994	15446	0.9990
8/7	2907	0.9991	31910	0.9994	15448	0.9992
8/8	2908	0.9996	31917	0.9995	15451	0.9993
8/9	2909	0.9999	31921	0.9996	15453	0.9995
8/10	2910	1.0000	31927	0.9996	15454	0.9995
8/11	2910	1.0000	29267	0.9997	15456	0.9997
8/12	2910	1.0000	29268	0.9997	15458	0.9997
8/13	2910	1.0000	29268	0.9997	15459	0.9998
8/14	2910	1.0000	29268	0.9997	15459	0.9999
8/15	2910	1.0000	29269	0.9998	15461	1.0000
8/16	2910	1.0000	31930	1.0000	15461	1.0000
8/17	2910	1.0000	31930	1.0000	15461	1.0000
8/18	2910	1.0000	31930	1.0000	15461	1.0000
8/19	2910	1.0000	31930	1.0000	15461	1.0000
8/20	2910	1.0000	31930	1.0000	15461	1.0000
8/21	2910	1.0000	31930	1.0000	15461	1.0000
8/22	2910	1.0000	31930	1.0000	15461	1.0000
8/23	2910	1.0000	31930	1.0000	15461	1.0000
8/24	2910	1.0000	31930	1.0000	15461	1.0000
8/25	2910	1.0000	31930	1.0000	15461	1.0000

a Average for the years 1981–1993 excluding 1986 and 1992. Early termination date of the project in 1986 and high water during the peak in 1992 precluded assessment of the entire chinook, sockeye and chum salmon migration. In 1993, this project began to assess coho salmon strength. This project changed from a tower to a weir in 1991.

Appendix D.11. Summary of historical commercial harvest by period, Goodnews Bay District, chinook salmon, 1981–1993.

DATE	No. Years w/ fishing period on this date	Minimum Harvest	Maximum harvest	Median harvest	Cumulative Proportion harvest
6/12	0	0	0	0	0.00000
6/13	1	1252	1252	1252	0.00682
6/14	0	0	0	0	0.00682
6/15	1	197	197	197	0.00893
6/16	2	251	1096	674	0.01879
6/17	1	362	362	362	0.02173
6/18	3	387	1706	1158	0.05822
6/19	2	296	390	343	0.07670
6/20	5	139	2642	404	0.12602
6/21	2	1298	1535	1417	0.15008
6/22	2	792	1591	1192	0.18437
6/23	3	583	1639	788	0.24715
6/24	3	476	988	620	0.27621
6/25	4	340	1896	1154	0.33338
6/26	2	352	416	384	0.35411
6/27	3	173	3944	1627	0.41180
6/28	4	567	1307	457	0.46765
6/29	3	330	921	457	0.50031
6/30	4	242	1551	694	0.55486
7/1	2	77	1156	617	0.57671
7/2	6	166	710	324	0.61851
7/3	2	156	391	274	0.63152
7/4	1	2301	2301	2301	0.64406
7/5	7	95	1809	351	0.69764
7/6	2	235	272	272	0.70567
7/7	7	132	1119	736	0.77272
7/8	4	93	495	169	0.79145
7/9	5	99	351	143	0.80726
7/10	3	156	203	199	0.81906
7/11	6	53	408	166	0.83878
7/12	3	145	737	327	0.85295
7/13	4	66	139	104	0.86512
7/14	6	54	514	170	0.88394
7/15	4	0	354	130	0.89236
7/16	6	54	294	94	0.90638
7/17	2	65	210	138	0.91411
7/18	4	54	217	65	0.91930
7/19	3	33	66	61	0.92483
7/20	5	38	192	84	0.93260
7/21	4	35	68	53	0.93754
7/22	3	19	228	80	0.94124
7/23	6	17	97	38	0.94645
7/24	3	20	77	23	0.94955

–continued–

Appendix D.11. (page 2 of 2)

DATE	No. Years w/ fishing period on this date	Minimum Harvest	Maximum harvest	Median harvest	Cumulative Proportion harvest
7/25	5	0	82	30	0.95237
7/26	3	0	32	10	0.95437
7/27	6	24	122	39	0.95838
7/28	3	5	22	21	0.95981
7/29	4	15	157	32	0.96276
7/30	6	16	73	26	0.96619
7/31	3	7	34	20	0.96767
8/1	6	12	78	27	0.97007
8/2	4	6	27	23	0.97239
8/3	7	9	102	40	0.97547
8/4	4	6	23	14	0.97701
8/5	5	6	54	18	0.97850
8/6	6	6	79	8	0.98032
8/7	2	15	43	29	0.98117
8/8	6	0	60	9	0.98256
8/9	4	7	21	12	0.98447
8/10	7	5	78	18	0.98619
8/11	3	5	15	9	0.98687
8/12	4	7	47	23	0.98778
8/13	6	0	36	5	0.98886
8/14	5	4	41	10	0.99025
8/15	4	5	26	14	0.99087
8/16	6	0	16	4	0.99204
8/17	6	2	22	10	0.99283
8/18	4	0	8	4	0.99340
8/19	5	4	14	7	0.99427
8/20	5	1	12	6	0.99480
8/21	6	0	7	3	0.99531
8/22	4	3	17	9	0.99572
8/23	4	0	9	6	0.99631
8/24	5	2	17	7	0.99686
8/25	4	0	13	3	0.99707
8/26	6	0	8	4	0.99753
8/27	5	0	13	3	0.99782
8/28	7	0	8	3	0.99833
8/29	5	2	4	3	0.99860
8/30	3	1	4	2	0.99873
8/31	6	0	6	2	0.99893
9/1	5	0	7	1	0.99922
9/2	5	1	5	2	0.99965
9/3	5	0	3	2	0.99981
9/4	4	0	6	1	0.99990
9/5	5	0	5	2	0.99997
9/6	3	0	0	0	0.99997
9/7	6	0	1	0	0.99999
9/8	4	0	2	1	0.99999
9/9	1	0	0	0	1.00000

Appendix D.12. Summary of historical commercial harvest by period, Goodnews Bay District, sockeye salmon, 1981 – 1993.

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
6/12	0	0	0	0	0.00000
6/13	1	27	27	27	0.00021
6/14	0	0	0	0	0.00021
6/15	1	70	70	70	0.00037
6/16	2	125	696	411	0.00308
6/17	1	744	744	744	0.00484
6/18	3	281	596	348	0.00947
6/19	2	478	551	515	0.01380
6/20	5	102	1989	523	0.02647
6/21	2	967	1280	1124	0.03519
6/22	2	569	1074	822	0.03647
6/23	3	1029	2701	1466	0.05385
6/24	3	596	2120	1892	0.07317
6/25	4	852	2087	1348	0.09198
6/26	2	1719	1909	1814	0.10719
6/27	3	685	3040	952	0.13082
6/28	4	2097	4163	3151	0.15846
6/29	3	1422	3323	2932	0.17010
6/30	4	2037	8143	5591	0.21569
7/1	2	1143	3376	2260	0.23891
7/2	6	1818	8198	2839	0.28284
7/3	2	2589	5510	2692	0.31308
7/4	1	1598	1598	1598	0.32548
7/5	6	1254	5195	3352	0.36700
7/6	3	2346	6093	2692	0.38620
7/7	7	2057	6283	4282	0.46105
7/8	4	1231	5916	2864	0.50506
7/9	5	2167	4518	3751	0.53465
7/10	3	1759	4494	3217	0.56647
7/11	6	1397	3898	2757	0.63484
7/12	3	1444	5009	2318	0.64882
7/13	4	2046	5275	3900	0.67175
7/14	6	1039	4876	2758	0.71242
7/15	4	0	4818	2004	0.74908
7/16	6	902	4969	2456	0.77295
7/17	2	2978	3936	3457	0.78864
7/18	4	559	3049	1545	0.81038
7/19	3	1683	2830	2151	0.81928
7/20	5	395	3852	1679	0.83943
7/21	4	507	2559	1102	0.84958
7/22	3	614	2207	2056	0.86402
7/23	6	162	3966	851	0.87154
7/24	3	588	2458	1502	0.88329
7/25	5	0	1534	388	0.89082
7/26	3	0	1804	963	0.89302

–continued–

Appendix D.12. (page 2 of 2)

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
7/27	6	166	2903	449	0.90282
7/28	3	278	893	555	0.90548
7/29	4	605	1312	911	0.91773
7/30	6	84	1982	383	0.92135
7/31	3	300	803	344	0.92536
8/1	6	45	811	330	0.93512
8/2	4	204	872	295	0.93758
8/3	7	36	975	578	0.94740
8/4	4	188	739	199	0.94952
8/5	5	94	932	308	0.95652
8/6	6	34	498	281	0.95921
8/7	2	178	686	432	0.96160
8/8	6	0	926	148	0.96595
8/9	4	46	485	172	0.96717
8/10	7	18	659	286	0.97309
8/11	3	0	174	80	0.97409
8/12	4	17	564	184	0.97729
8/13	6	0	347	158	0.97895
8/14	5	4	382	164	0.98067
8/15	4	5	398	72	0.98236
8/16	6	0	322	66	0.98325
8/17	6	4	498	171	0.98563
8/18	4	0	120	64	0.98652
8/19	5	5	360	99	0.98834
8/20	5	0	139	98	0.98911
8/21	6	1	239	89	0.99094
8/22	4	7	353	60	0.99237
8/23	4	0	193	46	0.99284
8/24	5	1	244	66	0.99378
8/25	4	0	90	29	0.99451
8/26	6	0	204	75	0.99544
8/27	5	0	148	73	0.99592
8/28	7	1	79	51	0.99672
8/29	5	1	155	17	0.99747
8/30	3	0	68	4	0.99784
8/31	6	0	88	60	0.99845
9/1	5	0	57	39	0.99891
9/2	5	2	69	36	0.99941
9/3	5	0	72	35	0.99949
9/4	4	0	61	27	0.99968
9/5	5	0	61	30	0.99983
9/6	3	0	0	0	0.99983
9/7	6	0	63	3	1.00000
9/8	4	0	0	0	1.00000
9/9	1	0	0	0	1.00000

Appendix D.13. Summary of historical commercial harvest by period, Goodnews Bay, coho salmon, 1979–1993.

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
7/14	4	0	1	0	0.00000
7/15	1	0	0	0	0.00000
7/16	5	0	18	2	0.00004
7/17	1	0	0	0	0.00004
7/18	2	0	5	3	0.00005
7/19	3	0	6	3	0.00006
7/20	4	1	111	7	0.00020
7/21	5	1	18	4	0.00026
7/22	1	1	1	1	0.00027
7/23	6	1	195	14	0.00064
7/24	3	5	33	52	0.00076
7/25	4	2	383	122	0.00146
7/26	3	4	40	9	0.00158
7/27	5	6	1059	68	0.00304
7/28	4	4	153	52	0.00356
7/29	5	5	91	25	0.00402
7/30	6	28	1306	177	0.00728
7/31	5	24	364	38	0.00843
8/1	7	56	2811	171	0.01417
8/2	5	96	1148	203	0.01883
8/3	7	66	3943	111	0.02492
8/4	6	92	949	461	0.03169
8/5	5	126	752	210	0.03750
8/6	8	314	4275	696	0.05507
8/7	2	231	812	522	0.05755
8/8	7	357	2712	1133	0.07658
8/9	4	516	2240	1527	0.08986
8/10	8	463	4198	1018	0.11603
8/11	4	663	6065	1871	0.13515
8/12	4	1255	2074	1696	0.15656
8/13	8	673	4852	1592	0.19415
8/14	5	1325	2374	2041	0.22748
8/15	6	1225	5999	2826	0.26098
8/16	6	462	5456	2391	0.30573
8/17	7	1390	6880	3002	0.35397
8/18	5	1033	3864	2595	0.38062
8/19	5	1394	4180	2573	0.42152
8/20	7	68	9590	2462	0.46943

–continued–

Appendix D. 13 (page 2 of 2)

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
8/21	6	968	3459	1896	0.51019
8/22	6	1723	6731	2664	0.54903
8/23	5	1308	5306	3417	0.58552
8/24	6	1597	4356	3406	0.62605
8/25	5	1739	3709	3158	0.65856
8/26	6	15	3249	2401	0.69621
8/27	7	1101	6625	2519	0.75219
8/28	7	1016	3529	1896	0.79625
8/29	7	725	4972	1675	0.83157
8/30	4	1483	3926	2764	0.85332
8/31	7	1084	3479	1698	0.88805
9/1	6	604	2778	1910	0.91338
9/2	5	576	3233	792	0.93304
9/3	7	377	3822	1432	0.95507
9/4	4	374	2685	1098	0.97128
9/5	7	0	2695	1629	0.98695
9/6	4	0	1715	1154	0.99118
9/7	6	0	1656	426	0.99714
9/8	3	0	843	421	1.00000

Appendix D.14. Summary of historical commercial harvest by period, Goodnews Bay District, chum salmon, 1981–1993.

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
6/12	0	0	0	0	0.00000
6/13	1	10	10	10	0.00011
6/14	1	0	0	0	0.00011
6/15	1	102	102	102	0.00069
6/16	2	89	1091	590	0.00424
6/17	1	167	167	167	0.00517
6/18	3	194	501	254	0.00991
6/19	2	249	557	403	0.01490
6/20	5	137	3501	341	0.03276
6/21	2	591	698	645	0.03982
6/22	2	708	2124	1416	0.05263
6/23	3	886	7833	3202	0.08244
6/24	3	594	1188	821	0.10343
6/25	4	724	2351	1579	0.13549
6/26	2	866	1241	1054	0.14893
6/27	3	691	758	728	0.17198
6/28	4	649	8369	2917	0.20999
6/29	3	425	2983	1235	0.23197
6/30	4	1349	7613	1837	0.26485
7/1	2	710	850	780	0.28038
7/2	6	713	3952	2254	0.32940
7/3	2	1309	3074	2192	0.34839
7/4	1	1626	1626	1626	0.36686
7/5	6	976	6332	1848	0.41301
7/6	3	963	2390	1162	0.43399
7/7	7	1357	6743	1890	0.51971
7/8	4	949	1894	1584	0.55578
7/9	5	1191	6706	1371	0.59553
7/10	3	1346	2085	1601	0.62634
7/11	6	562	5830	1366	0.68333
7/12	3	1057	9887	1384	0.70771
7/13	4	896	2288	1489	0.73808
7/14	6	601	8502	1491	0.78705
7/15	4	0	2495	1355	0.82079
7/16	6	476	6565	1155	0.85555
7/17	2	1532	2019	1776	0.87396
7/18	4	488	1191	603	0.89312
7/19	3	506	2782	1465	0.90612
7/20	5	479	1265	657	0.92490
7/21	4	233	2020	454	0.93440
7/22	3	307	1177	362	0.94594
7/23	6	35	1330	277	0.95451
7/24	3	244	874	315	0.96189
7/25	5	0	236	205	0.96578
7/26	3	0	680	608	0.96948

–continued–

Appendix D. 14 (page 2 of 2)

DATE	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
7/27	6	58	177	144	0.97616
7/28	3	89	499	93	0.97948
7/29	6	32	223	119	0.98253
7/30	3	42	325	111	0.98368
7/31	6	8	121	92	0.98603
8/1	6	22	61	56	0.98603
8/2	4	47	527	101	0.98793
8/3	7	22	105	42	0.98981
8/4	4	23	370	32	0.99076
8/5	5	21	165	23	0.99243
8/6	6	18	125	30	0.99337
8/7	2	16	21	19	0.99358
8/8	6	0	26	18	0.99404
8/9	4	19	67	54	0.99478
8/10	7	2	36	17	0.99543
8/11	3	10	25	13	0.99571
8/12	4	0	16	8	0.99594
8/13	6	2	48	18	0.99625
8/14	5	3	62	10	0.99703
8/15	4	0	10	5	0.99714
8/16	6	0	36	14	0.99742
8/17	6	0	22	7	0.99768
8/18	4	0	7	5	0.99774
8/19	5	2	16	5	0.99791
8/20	5	0	11	5	0.99805
8/21	6	0	127	5	0.99883
8/22	4	3	6	5	0.99894
8/23	4	0	19	6	0.99899
8/24	5	0	8	3	0.99904
8/25	4	0	4	2	0.99912
8/26	6	0	42	7	0.99938
8/27	5	0	5	3	0.99944
8/28	7	0	11	2	0.99954
8/29	5	0	6	3	0.99963
8/30	3	0	2	1	0.99965
8/31	6	0	9	3	0.99970
9/1	5	0	17	2	0.99977
9/2	5	0	10	3	0.99986
9/3	5	0	4	2	0.99990
9/4	4	0	9	3	0.99997
9/5	5	0	3	2	0.99999
9/6	3	0	0	0	0.99999
9/7	6	0	2	1	1.00000

Appendix D. 15 Peak aerial survey results, Goodnews River 1980–1993.

Year	Goodnews River and Lake			Middle Fork Goodnews River and Lakes			Total		
	Chinook	Sockeye	Chum	Chinook	Sockeye	Chum	Chinook	Sockeye	Chum
1980	1,228	41,576	1,975	1,164	18,596	3,782	2,392	60,172	5,757
1981	a	a	a	a	a	a	a	a	a
1982	1,990	19,160	9,700	1,546	2,327	6,300	3,536	21,487	16,000
1983	2,600	9,650		2,500	5,900	a	5,241	15,600	a
1984	3,235	9,240	17,250	2,020	12,897	9,172	5,261	22,137	27,347
1985	3,535	2,843	4,415	2,050	2,710	3,593	5,585	5,553	8,008
1986	1,068	8,960	11,850	1,249	16,990	4,400	2,317	25,950	16,250
1987	2,234	19,786	12,103	1,598	9,033	2,805	3,870	28,819	15,588
1988	637	5,880	3,846	1,024	5,831	5,814	1,661	11,711	9,660
1989	8	30,764	a	1,277	1,145	2,922	1,285	31,909	2,922
1990	0	22,100	a	38	1,092	311	38	23,192	311
1991	127	1,285	365	a	a	a	127	1,285	365
1992	875	10,397	1,950	1,012	7,200	3,270	1,887	17,597	5,220
1993	a	a	a	a	a	a			
Escapement Objective b/	**1,600**	**15,000**	**17,000**	**800**	**5,000**	**4,000**	**2,400**	**20,000**	**21,000**

a/ Information not available

b/ Escapement objectives are preliminary and are subject to change as additional data becomes available. Escapement objectives are based on aerial index counts which do not represent total escapement, but do reflect annual spawner abundance trends when made using standard survey methods under acceptable survey conditions.

Appendix D.16. Historical estimated salmon run size and commercial exploitation rate, Goodnews River, 1981-1993.

Year	Species	Middle Fork Tower/Weir Estimate	Middle Fork Aerial Survey Count as a Percentage of Tower Est.	Goodnews River Escapement Estimate	Goodnews Bay Subsistence Harvest Estimate	Goodnews Bay Commercial Harvest	Total Run Size Estimate	Exploitation[a] Rate (% of Run)
1981	Chinook	3,688	-b	7,766[c]	1,409	7,190	16,365	53%
	Sockeye	49,108	-b	100,029[c]	3,511[d]	40,273	143,813	30%
	Chum	21,827	-b	53,799[c]	-	13,642	67,441	20%
1982	Chinook	1,395	-b	2,937[c]	1,236	9,476	13,649	78%
	Sockeye	56,255	-b	114,587[c]	2,754[d]	38,877	156,218	27%
	Chum	6,767	-b	16,679[c]	-	13,829	30,508	45%
1983	Chinook	6,027	36%	14,398	1,066	14,117	29,581	51%
	Sockeye	25,816	22%	69,955	1,518[d]	11,716	83,189	16%
	Chum	15,548	-b	38,323[c]	-	6,766	45,089	15%
1984	Chinook	3,260	35%	8,743	629	8,612	17,984	51%
	Sockeye	32,053	27%	67,213	964	15,474	83,651	20%
	Chum	19,003	35%	117,739	189	14,340	132,268	11%
1985	Chinook	2,831	70%	7,979	426	5,793	14,198	44%
	Sockeye	24,131	11%	50,481	704	6,698	57,883	13%
	Chum	10,367	32%	25,025	348	4,784	30,157	17%
1986	Chinook	2,083	57%	4,094	555	2,723	7,372	44%
	Sockeye	51,069	28%	93,228	942	22,608	116,778	20%
	Chum	14,765	38%	51,910	191	10,355	62,456	17%
1987	Chinook	2,274	100%	4,490	816	3,357	8,663	48%
	Sockeye	28,871	85%	51,989	955	27,758	80,702	36%
	Chum	17,519	58%	37,802	578	20,381	58,761	36%
1988	Chinook	2,712	39%	5,419	310	4,964	10,693	49%
	Sockeye	15,799	30%	38,319	1065	36,368	75,752	49%
	Chum	20,799	21%	39,501	448	33,059	73,008	46%

-continued-

Appendix D.16. (page 2 of 2)

Year	Species	Middle Fork Tower/Weir Estimate	Middle Fork Aerial Survey Count as a Percentage of Tower Est.	Goodnews River Escapement Estimate	Goodnews Bay Subsistence Harvest Estimate	Goodnews Bay Commercial Harvest	Total Run Size Estimate	Exploitation[a] Rate (% of Run)
1989	Chinook	1,915	67%	2,891	467	2,966	6,324	54%
	Sockeye	21,186	60%	35,476	869	19,299	55,644	36%
	Chum	10,380	28%	15,495	760	13,622	29,877	48%
1990	Chinook	3,636	-[b]	7,656[c]	682	3,303	11,641	34%
	Sockeye	31,679	-[b]	64,528[c]	905	35,823	101,256	36%
	Chum	6,410	-[b]	15,799[c]	342	13,194	29,335	46%
1991[e]	Chinook	2,147	-[b]	4,521[c]	682	912	6,115	26%
	Sockeye	47,397	-[b]	96,544[c]	900	39,838	137,228	30%
	Chum	27,525	-[b]	67,844[c]	106	15,892	83,842	19%
1992[e]	Chinook	1,899	53%	3,560	252	3,528	7,340	51%
	Sockeye	27,267	26%	67,681	905	25,696	94,282	28%
	Chum	22,023	14%	37,286	662	18,520	56,468	34%
1993[e]	Chinook	2,491	53%	4,700	478[f]	2,117	7,295	35%
	Sockeye	26,044	26%	100,169	928	59,293	160,390	38%
	Chum	14,287	14%	102,050	464	69,035	171,555	40%

a Commercial and subsistence exploitation

b Incomplete aerial survey results

c Average Middle Fork/Goodnews River escapement estimate ratio for 1983-1989 used to estimate Goodnews River escapement in years with no aerial survey data.

d Subsistence caught chum salmon is included in subsistence sockeye salmon harvest

e Goodnews Tower Project changed to weir project in 1991.

f Estimate based on recent 5 year average.

APPENDIX F

Appendix F.1. Commercial freshwater fin fishery catch data, Kuskokwim Area, 1977-1993.

Year	Number of Fishermen[b]	Number Caught[a]		Total Weight (lbs)		Total Value ($)		
		Whitefish[c]	Burbot	Whitefish	Burbot	Whitefish	Burbot	Total
1977	3	718	0	d	0	952	0	952
1978	b	1,735	0	6,017	0	d	0	d
1979	b	3,219	0	11,211	0	d	0	d
1980	4	603	0	2,173	0	830	0	830
1981	4	1,197	0	4,620	0	2,310	0	2,310
1982	5	1,512	0	6,219	0	2,856	0	2,856
1983	0	0	0	0	0	0	0	0
1984	2	0	651	0	d	0	d	d
1985	5	555	1,829	2,275	2,016	1,137	455	1,593
1986	3	0	0	0	3,428	0	857	857
1987	4	417	0	1,260	0	1,008	0	1,008
1988	3	d	d	2,588	7	1,991	3	1,994
1989	7	178	282	583	270	501	597	1,098
1990	11	1,664	d	5,502	10	5,166	5	5,171
1991	5	1,413	41	2,442	256	2,412	197	2,609
1992	6	2,124	18	6,309	86	6,285	43	6,328
1993	5	2,509	0	5,208	0	4,898	0	4,898

a Does not include catches incidental to the commercial salmon fishery.

b Does not include fisherman who delivered catches incidental to the commercial salmon fishery.

c Includes cisco and pike.

d Data not available.

APPENDIX G

Appendix G.1. Commercial miscellaneous saltwater finfish fishery catch data, Kuskokwim Area, 1988-1993.

Year	Number of Fishermen	Species	Number Caught	Total Weight (lbs)	Total Value ($)
1988	4	Tom Cod[a]	b	439	878
1989	2	Tom Cod	b	591	1,180
1990	1	Tom Cod	300	221	442
1991	2	Tom Cod	b	1,356	2,690
1992	1	Tom Cod	b	303	303
1993					

a Tom Cod is the local name for Saffron Cod (*Eleginus gracilis*).
b Data not available

APPENDIX H

Appendix H.1. Estimated biomass and commercial harvest of Pacific herring in Kuskokwim Area fishing districts, Alaska, 1981-1993.

District	Estimated Biomass (st)	Harvest Sac-roe	Bait	Waste	Total	Roe%*	Estimated Value ($ X 1000)	Exploitation Rate (%)
1993								
Security Cove	6995	5	0	0	5	12.8	2	0.1
Goodnews Bay	6221	945	9	0	954	10.3	293	15.4
Cape Avinof	2837	206	9	0	215	12.0	75	7.6
Nelson Is.	4944	613	52	74	739	10.6	198	14.9
Nunivak Is.	5176	-	-	-	-	-	-	-
Total	26163	1769	70	74	1913	10.6	568	7.3
1992								
Security Cove	7773	697	127	10	834	9.2	285	10.7
Goodnews Bay	5572	711	29	0	740	9.5	286	13.3
Cape Avinof	3446	443	9	0	452	9.9	178	13.1
Nelson Is.	5275	188	52	6	246	8.3	78	4.7
Nunivak Is.	5703	7	20	0	27	8.5	4	0.5
Total	27769	2046	237	16	2299	9.4	830	8.3
1991								
Security Cove	4434	561	9	0	570	9.3	208	12.9
Goodnews Bay	4387	259	4	0	263	8.9	93	6.0
Cape Avinof	2083	240	27	0	267	9.5	94	12.8
Nelson Is.	2385	-	-	-	-	-	-	-
Nunivak Is.	3903	17	42	0	59	7.5	9	-
Total	17192	1077	82	0	1159	9.2	404	6.7
1990								
Security Cove	2650	174	60	0	234	8.7	94	8.8
Goodnews Bay	2577	427	28	0	455	12.2	314	17.7
Cape Avinof	2020	49	1	0	50	12.0	35	2.5
Nelson Is.	2705	-	-	-	-	-	-	-
Nunivak Is.	422	-	-	-	-	-	-	-
Total	10374	650	89	0	739	11.2	443	7.1
1989								
Security Cove	2830	544	10	0	554	9.4	256	19.6
Goodnews Bay	4044	453	162	0	616	8.4	335	15.2
Cape Avinof	2780	90	39	0	129	8.0	54	4.6
Nelson Is.	3316	122	100	11	233	8.5	57	7.0
Nunivak Is.	617	79	37	0	116	9.4	42	18.8
Total	13587	1289	347	11	1647	8.9	744	12.1
1988								
Security Cove	4906	324	0	0	324	9.3	362	6.6
Goodnews Bay	4479	473	10	0	483	8.0	463	10.8
Cape Avinof	4108	348	0	0	348	8.6	264	8.5
Nelson Is.	7152	760	15	0	775	9.2	713	10.8
Nunivak Is.	2800	-		-	-	-	-	-
Total	23445	1905	25	0	1930	8.8	1802	8.2

- Continued -

Appendix H.1. (page 2 of 2)

District	Estimated Biomass (st)	Harvest Sac-roe	Harvest Bait	Harvest Waste	Harvest Total	Roe%*	Estimated Value ($ X 1000)	Exploitation Rate (%)
1987								
Security Cove	2300	312	1	0	313	9.7	242	13.6
Goodnews Bay	2000	179	142	0	321	7.3	133	16.1
Nelson Is.	8100	915	8	0	923	9.2	661	11.4
Nunivak Is.	4400	254	160	0	414	7.8	231	9.4
Total	16800	1660	311	0	1971	8.9	1267	11.7
1986								
Security Cove	3700	747	4	0	751	11.2	535	20.3
Goodnews Bay	3000	554	3	0	557	10.4	325	18.6
Nelson Is.	7300	852	34	0	886	10.3	428	12.1
Nunivak Is.	6000	469	42	0	511	10.1	213	8.5
Total	20000	2622	83	0	2705	10.5	1501	13.5
1985								
Security Cove	4900	703	0	30	733	10.1	355	15.0
Goodnews Bay	4300	711	0	13	724	8.7	309	16.8
Nelson Is.	9500	967	10	0	977	10.6	527	10.3
Nunivak Is.	5700	349	9	0	358	8.9	146	6.3
Total	24400	2730	19	43	2792	9.8	1337	11.4
1984								
Security Cove	5100	325	0	10	335	11.8	110	6.6
Goodnews Bay	4100	667	0	50	717	10.1	168	17.5
Total	9200	992	0	60	1052	10.7	278	11.4
1983								
Security Cove	6400	966	107	0	1073	9.4	443	16.8
Goodnews Bay	3200	426	9	0	435	9.4	185	13.6
Total	9600	1392	116	0	1508	9.4	628	15.7
1982								
Security Cove	5100	707	106	0	813	9.3	271	15.9
Goodnews Bay	2600	437	49	0	486	9.5	188	18.7
Total	7700	1144	155	0	1299	9.4	459	16.9
1981								
Security Cove	8300	1150	23	0	1173	8.1	347	14.1
Goodnews Bay	4300	558	99	0	657	7.7	196	15.3
Total	12600	1708	122	0	1830	8.0	543	14.5

Appendix H.2. Number of buyers and fishermen participating in Kuskokwim Area Pacific herring fisheries, Alaska, 1981-1993.

Year	District	Number of Buyers	Number of Fishermen	Number of Deliveries
1993	Security Cove	1	9	9
	Goodnews Bay	3	63	705
	Cape Avinof	1	97	478
	Nelson Island	1	73	487
	Nunivak Island	No commercial opening		
1992	Security Cove	6	58	178
	Goodnews Bay	3	78	375
	Cape Avinof	2	121	335
	Nelson Island	3	85	222
	Nunivak Island	1	14	23
1991	Security Cove	6	52	100
	Goodnews Bay	2	103	137
	Cape Avinof	1	137	463
	Nelson Island	No commercial opening		
	Nunivak Island	2	17	31
1990	Security Cove	9	52	77
	Goodnews Bay	3	126	530
	Cape Avinof	1	101	109
	Nelson Island	No commercial opening		
	Nunivak Island	No commercial opening		
1989	Security Cove	8	104	108
	Goodnews Bay	6	138	533
	Cape Avinof	3	147	335
	Nelson Island	4	162	438
	Nunivak Island	3	45	210
1988	Security Cove	4	31	51
	Goodnews Bay	6	60	309
	Cape Avinof	1	98	485
	Nelson Island	7	174	547
	Nunivak Island	No commercial opening		
1987	Security Cove	8	65	67
	Goodnews Bay	4	117	191
	Nelson Island	9	235	633
	Nunivak Island	4	61	341
1986	Security Cove	11	88	199
	Goodnews Bay	5	104	319
	Nelson Island	4	163	1,099
	Nunivak Island	5	36	284

-continued-

Appendix H.2. (page 2 of 2)

Year	District	Number of Buyers	Number of Fishermen	Number of Deliveries
1985	Security Cove	6	107	268
	Goodnews Bay	5	83	420
	Nelson Island	6	143	776
	Nunivak Island	5	37	273
1984	Security Cove	4	38	86
	Goodnews Bay	4	130	390
1983	Security Cove	6	94	312
	Goodnews Bay	4	84	225
1982	Security Cove	3	107	250
	Goodnews Bay	3	84	297
1981	Security Cove	7	113	311
	Goodnews Bay	5	175	479

Appendix H.3. Pacific herring subsistence harvest (st) and effort data from selected Kuskokwim Area villages, Alaska, 1975-1993[a].

Village	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
	Year																		
Nelson Island																			
Tununak	22	15	57	38	34	65	40	48	94	e	43	63	48	49	47	54	21	32	45
Umkumiut	33	9	3	11	8	3	10	0	e	e	e	e	d	d	d	d	d	d	d
Toksook Bay	34	35	21	37	51	29	14	35	-	-	46	70	51	59	52	46	40	43	23
Nightmute	-	-	-	-	-	-	-	-	-	-	3[b]	21	15	16	15	18	8	10	9
Newtok	-	-	-	-	-	-	-	-	-	-	7[b]	13	10	12	10	8	1	7	6
Total	89	59	81	86	93	97	64	83	94	-	99	167	124	136	124	126	70	92	82
No. of Fishing Families	109	42	90	83	54	70	93	65	43	-	65[b]	72[b]	96	104	-[b]	100	85	97	89
Nunivak Island																			
Mekoryuk	-	-	-	-	-	-	-	-	-	-	<1	<1	-	e	e	5	4	4	2
No. of Fishing Families	-	-	-	-	-	-	-	-	-	-	11	6[b]	-	e	e	19	20	17	16
Other Kuskokwim Delta																			
Chefornak	-	-	-	-	-	-	-	-	-	-	13[b]	c	14	e	e	e	e	e	e
Kipnuk	-	-	-	-	-	-	-	-	-	-	9	c	14	c	e	e	e	e	e
Kongiganak	-	-	-	-	-	-	-	-	-	-	3	2	c	e	e	e	e	e	e
Kwigillingok	-	11	1	-	8	13		13	-	-	5	c	c	e	e	e	e	e	e
Total	-	11	1	-	8	13	-	13	-	-	30	2	28	e	e	e	e	e	e
No. of Fishing Families	-	8	9	-	22	19	-	21	-	-	55[b]	12[b]	49	e	e	e	e	e	e
All Areas Combined																			
Total Catch	92	75	85	91	112	121	78	107	103	11	138	177	155	136	124	145	74	95	84
No. of Fishing Families	143	91	129	112	160	150	139	89	80	47	175[b]	131	184	104	-[b]	119	95	114	105

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

b Fishing families were not interviewed or only a portion of fishing families were interviewed as catch was enumerated while on drying racks.

c Survey not allowed by village council.

d Umkumiut effort included with Toksook Bay and Nightmute.

e Not surveyed.

Appendix H.4. Commercial harvest, effort and value of Pacific herring in Kuskokwim Area fishing districts, Alaska, 1981-1993.

Year	District	Estimated Harvest (st)	Number of permits	Hours fished	CPUE[a] (st)	Estimated Value	Income per permit
1993	Security Cove	5	9	24.5	0.02	2,000	222
	Goodnews Bay	954	63	123.0	0.12	$293,000	4,651
	Cape Avinof	215	106	106.0	0.02	$75,000	708
	Nelson Island	739	73	63.5	0.16	$198,000	2,712
	Nunivak Island	--	--	--	--	--	--
1992	Security Cove	834	58	34.0	0.42	$285,000	$4,914
	Goodnews Bay	740	78	29.0	0.33	$286,000	$3,667
	Cape Avinof	452	121	12.0	0.31	$178,000	$1,471
	Nelson Is.	246	85	10.0	0.29	$78,000	$918
	Nunivak Is.	27	14	6.0	0.32	$4,000	$286
1991	Security Cove	570	52	12.0	0.91	$208,000	$4,000
	Goodnews Bay	263	103	4.0	0.64	$93,000	$903
	Cape Avinof	267	137	28.0	0.07	$94,000	$686
	Nelson Is.	--	--	--	--	--	--
	Nunivak Is.	59	17	12.0	0.29	$9,000	$529
1990	Security Cove	234	52	7.0	0.64	$94,000	$1,808
	Goodnews Bay	455	126	32.0	0.11	$314,000	$2,492
	Cape Avinof	50	101	3.0	0.17	$35,000	$347
	Nelson Is.	--	--	--	--	--	--
	Nunivak Is.	--	--	--	--	--	--
1989	Security Cove	554	104	4.0	1.33	$256,000	$2,462
	Goodnews Bay	616	138	50.0	0.09	$335,000	$2,428
	Cape Avinof	129	147	194.0	0.00	$54,000	$367
	Nelson Is.	233	162	15.0	0.10	$57,000	$352
	Nunivak Is.	116	45	186.0	0.01	$42,000	$933
1988	Security Cove	324	31	23.5	0.44	$362,000	$11,677
	Goodnews Bay	483	60	40.0	0.20	$463,000	$7,717
	Cape Avinof	348	98	88.5	0.04	$264,000	$2,694
	Nelson Is.	775	174	7.5	0.59	$713,000	$4,098
	Nunivak Is.	--	--	--	--	--	--

-continued-

Appendix H.4. (page 2 of 2)

Year	District	Estimated Harvest (st)	Number of permits	Hours fished	CPUE[a] (st)	Estimated Value	Income per permit
1987	Security Cove	313	65	13.0	0.37	$242,000	$3,723
	Goodnews Bay	321	117	11.0	0.25	$133,000	$1,137
	Nelson Is.	923	235	6.0	0.65	$661,000	$2,813
	Nunivak Is.	414	61	39.0	0.17	$231,000	$3,787
1986	Security Cove	751	88	73.0	0.12	$535,000	$6,080
	Goodnews Bay	557	104	53.0	0.10	$325,000	$3,125
	Nelson Is.	886	163	40.0	0.14	$428,000	$2,626
	Nunivak Is.	511	36	156.0	0.09	$213,000	$5,917
1985	Security Cove	733	107	125.0	0.05	$335,000	$3,131
	Goodnews Bay	724	83	130.0	0.07	$309,000	$3,723
	Nelson Is.	977	143	44.0	0.16	$527,000	$3,685
	Nunivak Is.	358	37	228.0	0.04	$146,000	$3,946
1984	Security Cove	335	38	345.0	0.03	$110,000	$2,895
	Goodnews Bay	717	130	139.0	0.04	$168,000	$1,292
1983	Security Cove	1073	94	87.0	0.13	$443,000	$4,713
	Goodnews Bay	435	84	278.0	0.02	$185,000	$2,202
1982	Security Cove	813	107	302.0	0.03	$271,000	$2,533
	Goodnews Bay	486	84	314.0	0.02	$188,000	$2,238
1981	Security Cove	1173	113	90.0	0.12	$347,000	$3,071
	Goodnews Bay	657	175	133.0	0.03	$196,000	$1,120

a CPUE = catch per permit per hour fished

APPENDIX S

Appendix S.1. Subsistence salmon survey calendar, 1993

Division of Subsistence
Alaska Department of Fish and Game
Box 1768
Bethel, Alaska 99559

PLEASE WRITE THE NUMBER OF ALL SALMON CAUGHT EACH DAY BY PEOPLE LIVING IN YOUR HOUSE. PLEASE INCLUDE SALMON THAT WERE GIVEN TO PEOPLE WHO LIVE IN OTHER HOUSES AND SALMON THAT WERE CAUGHT FOR DOGFOOD. DO NOT INCLUDE SALMON SOLD WHEN COMMERCIAL FISHING.

WHEN DONE SALMON FISHING FOR THE YEAR, FOLD THIS CALENDAR SO THAT THE ADDRESS ON THE BACK IS VISIBLE AND DROP IN THE MAIL. WE HAVE PAID THE POSTAGE.

This calendar is sent to you by the Alaska Department of Fish and Game in Bethel.

Bulk Rate
U.S. Postage
Paid
Fairbanks, AK
Permit No. 69

NAME

MAY 1993 PLEASE WRITE THE TOTAL NUMBER OF SALMON CAUGHT IN MAY.
KING_____ CHUM_____ RED_____

JUNE 1993 SUBSISTENCE SALMON CALENDAR

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1 KING CHUM RED	2 KING CHUM RED	3 KING CHUM RED	4 KING CHUM RED	5 KING CHUM RED
TARYAQVAK= IQALLUK= SAYAK=	6 KING CHUM RED	7 KING CHUM RED	8 KING CHUM RED	9 KING CHUM RED	10 KING CHUM RED	11 KING CHUM RED	12 KING CHUM RED
	13 KING CHUM RED	14 KING CHUM RED	15 KING CHUM RED	16 KING CHUM RED	17 KING CHUM RED	18 KING CHUM RED	19 KING CHUM RED
	20 KING CHUM RED	21 KING CHUM RED	22 KING CHUM RED	23 KING CHUM RED	24 KING CHUM RED	25 KING CHUM RED	26 KING CHUM RED
	27 KING CHUM RED	28 KING CHUM RED	29 KING CHUM RED	30 KING CHUM RED			

JULY 1993 SUBSISTENCE SALMON CALENDAR

Common name:
King or Chinook salmon

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1 KING CHUM RED	2 KING CHUM RED	3 KING CHUM RED
TARYAQVAK= IQALLUK= SAYAK=	4 KING CHUM RED	5 KING CHUM RED	6 KING CHUM RED	7 KING CHUM RED	8 KING CHUM RED	9 KING CHUM RED	10 KING CHUM RED
	11 KING CHUM RED	12 KING CHUM RED	13 KING CHUM RED	14 KING CHUM RED	15 KING CHUM RED	16 KING CHUM RED	17 KING CHUM RED
TARYAQVAK= IQALLUK= SAYAK= QAKSYAQ=	18 KING CHUM RED SILVER	19 KING CHUM RED SILVER	20 KING CHUM RED SILVER	21 KING CHUM RED SILVER	22 KING CHUM RED SILVER	23 KING CHUM RED SILVER	24 KING CHUM RED SILVER
	25 KING CHUM RED SILVER	26 KING CHUM RED SILVER	27 KING CHUM RED SILVER	28 KING CHUM RED SILVER	29 KING CHUM RED SILVER	30 KING CHUM RED SILVER	31 KING CHUM RED SILVER

PLEASE WRITE THE NUMBER OF ALL SALMON CAUGHT EACH DAY BY PEOPLE LIVING IN YOUR HOUSE. PLEASE INCLUDE SALMON THAT WERE GIVEN TO PEOPLE WHO LIVE IN OTHER HOUSES AND SALMON THAT WERE CAUGHT FOR DOGFOOD. DO NOT INCLUDE SALMON SOLD WHEN COMMERCIAL FISHING.

WHEN DONE SALMON FISHING FOR THE YEAR, FOLD THIS CALENDAR SO THAT THE ADDRESS ON THE BACK IS VISIBLE AND DROP IN THE MAIL. WE HAVE PAID THE POSTAGE.

This calendar is sent to you by the Alaska Department of Fish and Game in Bethel.

NAME

AUGUST 1993 SUBSISTENCE SALMON CALENDAR

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6	7
ARYAQVAK =	KING ____	KING ____	KING ____	KING ____	KING ____	KING ____	KING ____
IQALLUK =	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____
SAYAK =	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____
QAKIIYAQ =	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____
	8	9	10	11	12	13	14
	KING ____	KING ____	KING ____	KING ____	KING ____	KING ____	KING ____
	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____
	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____
	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____
	15	16	17	18	19	20	21
IQALLUK =	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____
SAYAK =	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____
QAKIIYAQ =	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____
	22	23	24	25	26	27	28
	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____
	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____
	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____
	29	30	31				
	CHUM ____	CHUM ____	CHUM ____				
	RED ____	RED ____	RED ____				
	SILVER ____	SILVER ____	SILVER ____				

Breeding male

Common name: Silver or Coho salmon

SEPTEMBER 1993 SUBSISTENCE SALMON CALENDAR

Mature female

Common name: Silver or Coho salmon

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2	3	4
				CHUM ____	CHUM ____	CHUM ____	CHUM ____
				RED ____	RED ____	RED ____	RED ____
				SILVER ____	SILVER ____	SILVER ____	SILVER ____
	5	6	7	8	9	10	11
IQALLUK =	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____
SAYAK =	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____
QAKIIYAQ =	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____
	12	13	14	15	16	17	18
	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____
	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____
	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____
	19	20	21	22	23	24	25
	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____
	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____	RED ____
	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____
	26	27	28	29	30		
	CHUM ____	CHUM ____	CHUM ____	CHUM ____	CHUM ____		
	RED ____	RED ____	RED ____	RED ____	RED ____		
	SILVER ____	SILVER ____	SILVER ____	SILVER ____	SILVER ____		

Appendix S.2. Post-season subsistence salmon harvest survey, Kuskokwim Area, 1993

Division of Subsistence, Bethel COFFING, A:\SFORMLK3.DOC, 02:34 PM, October 15, 1993.

Chinook= *"taryaqvak."* Chum= *"iqaliuk."* Sockeye= *"savak."* Coho= *"qakiyaq"* HHID# _____

KUSKOKWIM AREA 1993

POST-SEASON SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY

* (Questions marked with an asterisk are asked of all households interviewed) lk

Interviewer: BP SM Person Interviewed: _____

Community: _____ Relation to Household Head: Same, _____

Survey Date: _____, 1993 Was household in community last year?: No ___ Yes___

***1. We would like to make sure we have the correct name and address for this household.**

Name of household head: _____ Same as person interviewed _____

Post Office Box: _____

_____

***2. Did this household catch salmon for subsistence use this year?** No___ (go to # 5) Yes___

3. May I have your calendar?

[Will return it later____ Didn't get one____ Didn't use____ Not available____] (go to # 8)

[ADF&G has it____ Picked up by interviewer ____] (go to # 11)

***4. Does this household usually subsistence fish for salmon?** No___ Yes___

HOUSEHOLD DIDN'T FISH

5. Did this household help another household process ("put up") salmon?

No ____ (go to # 17) Yes ____: (Names, HHIDs) _____

_____

6. Please estimate how many salmon all of you processed ("put up").

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") Could not estimate_____

7. Please estimate how many salmon were for your household only.

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") Could not estimate_____

(Go to Question 17)

HOUSEHOLD FISHED, ADF&G *DOES NOT HAVE* CALENDAR

8. Did other households fish with you? No ____ Yes ____: (Names, HHIDs) _____

_____

9. Please estimate how many salmon your household (or all households together) caught. (Ask about salmon already eaten, frozen, given to other households, and dog food)

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") Could not estimate_____

Salmon are included with Household _____ (HHID)

10. Please estimate how many salmon were for your household only.

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") All____ Could not estimate____

(Go to Question 16)

HOUSEHOLD FISHED, ADF&G *DOES HAVE* CALENDAR

11. Are all of the salmon this household caught written on the calendar? (Ask about salmon already eaten, frozen, given to other households, and dog food) No ____ Yes ____ (go to # 13)

12. How many additional salmon, not written on the calendar, were caught?

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") Could not estimate_____

(This Block is continued on back side)

13. Did other households fish with you? No ____ (go to # 16) Yes ____: (Names, HHIDs)

_____

14. Are the salmon they caught written on your calendar? No ____ Yes ____

15. Please estimate how many salmon were for your household only. All_____

CHINOOK_____ CHUM_____ SOCKEYE_____ COHO_____ Could not estimate_____

(Go to Question 16) .....

FISHING GEAR (For subsistence fishing households only)

16. What type(s) of fishing gear was used for catching subsistence salmon this year?

Drift net ____, Fish wheel ____, Seining ____, Spear ____, Set net ____, Rod-and-reel ____.

Other (Identify)_____

COMMERCIAL FISHING

***17. Does this household commercial fish?** No ____ (go to # 21), Yes ____

If yes, where ? ____Kuskokwim River or Bay ____Yukon Area ____Bristol Bay

18. Were all of the salmon caught when commercial fishing sold or were some brought home to eat or processed for subsistence? All were sold ____ Some were used for subsistence ____

19. How many commercially caught salmon were used for subsistence?

CHINOOK_____ CHUM_____ SOCKEYE_____ COHO_____

20. Are those listed on the salmon calendar or included in the estimates you gave me?

Yes____, No ____

HOUSEHOLD SIZE

***21. How many people live in this household?** _____

DOG FOOD (For subsistence fishing households only)

22. Did this household catch salmon for dog food? Only backbones/heads/guts/scraps _____ (go to # 25)

No ____ (go to # 25) Yes ____:

23. How many? CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers")

24. Are the salmon harvested for dog food included on your calendar or in the estimates you gave me ?

Yes____, No ____

25. How many dogs does this household have? _____

26. (For subsistence fishing households only)

Were your household's subsistence salmon needs met this year? Yes____ No____

If no, why, _____

How do you plan to meet those needs? (other fish, food stamps, etc) _____

***27. Do you have any suggestions or comments?** _____

Appendix S.3. Post-season subsistence salmon harvest survey postcard, 1993

Dear Kuskokwim Area Resident,

Each year the Subsistence Division of the Department of Fish and Game gathers information from Kuskokwim Area households about subsistence salmon fishing. This information is used to help ensure that there can be enough salmon for subsistence use. We would appreciate your help.

Please take a moment to answer the questions on the back side and drop it in the mail to us. No stamp is necessary, postage is already paid. We will mail you a subsistence salmon harvest summary after the survey data is compiled.

Thank you,
Subsistence Division
Room 214, BNC Complex
Bethel (543-3100)

Division of Subsistence
Alaska Dept. of Fish and Game
P.O. Box 1788
Bethel, AK 99559

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
First Class Mail Permit No. 50 Fairbanks, AK.

Postage Will Be Paid By Addressee

State of Alaska
Department of Fish and Game
Subsistence Division
P.O. Box 1788
Bethel, AK 99559-1788

Subsistence Division
Alaska Dept. of Fish and Game
P. O. Box 1788
Bethel, AK 99559

ADDRESS CORRECTION REQUESTED
DO NOT FORWARD

mailing label

(correct your address if necessary)
NAME:_____
P.O. BOX:_____
CITY, STATE:_____
ZIPCODE:_____

1. **Did your household harvest salmon for subsistence use this year?**
(include any salmon kept for subsistence when commercial fishing) Yes__ No___

2. **How many subsistence salmon did your household harvest?**
(include salmon eaten, given away, frozen, dried, smoked, canned, or for dogfood)

Chinook_____ (King salmon) Chum_____ (Dog salmon) Sockeye_____ (Red salmon) Coho_____ (Silver salmon)

3. **What type(s) of gear did your household use to catch subsistence salmon ?**
Set net___ Drift net___ Fishwheel___ Rod and reel_____

4. **Were your household's subsistence salmon needs met this year?** Yes__ No___
If No, Why?_____