PACIFIC SALMON COMMISSION
JOINT TRANSBOUNDARY TECHNICAL COMMITTEE
ESTIMATES OF TRANSBOUNDARY RIVER SALMON PRODUCTION, HARVEST AND ESCAPEMENT, 1993
TCTR (96)-1

April, 1996

ESTIMATES OF TRANSBOUNDARY RIVER SALMON PRODUCTION, HARVEST AND ESCAPEMENT, 1993

By
The Transboundary Technical Committee

For
The Pacific Salmon Commission

April 1996

TABLE OF CONTENTS

Page

LIST OF TABLES iv

LIST OF FIGURES v

LIST OF APPENDICES vi

EXECUTIVE SUMMARY 1

INTRODUCTION 4

STIKINE RIVER 4

- Harvest Regulations and the Joint Management Model 4
- U.S. Fisheries 7
- Canadian Fisheries 13
  - Lower Stikine Commercial Fishery 13
  - Upper Stikine Commercial Fishery 14
  - Aboriginal Fishery 15
- Escapement 15
  - Sockeye 15
  - Chinook 16
  - Coho 16
- Preliminary Stikine Sockeye Run Reconstruction 18

TAKU RIVER 20

- Harvest Regulations 20
- U.S. Fisheries 22
- Canadian Fisheries 25
- Escapement 28
  - Sockeye 28
  - Chinook 30
  - Coho 30
  - Pink 32
  - Chum 32

TABLE OF CONTENTS (Continued)

Page

Sockeye Run Reconstruction 32

ALSEK RIVER 34

Harvest Regulations 34

U.S. Fisheries 34

Catch and Effort 34
Sockeye Management Model 35

Canadian Fisheries 38

Escapement 39

Sockeye 40
Chinook 40
Coho 40

Run Reconstruction 44

LIST OF TABLES

Page

1. Weekly forecasts of run size and total allowable catch for Stikine River sockeye salmon as determined inseason by the Stikine Management Model, 1993 7

2. Run reconstruction for Stikine sockeye salmon, 1993 19

3. Canadian inseason forecasts of total run size, TAC, and Canadian TAC of Taku sockeye salmon, 1993. 27

4. Taku sockeye salmon run reconstruction, 1993 33

5. Inseason U.S. forecasts of the total 1993 Alsek River catch, Klukshu River weir count, and total index run size (catch + Klukshu weir count) using two predictive models 38

6. Catch and Klukshu index escapement data for Alsek sockeye, chinook, and coho salmon for 1993 45

LIST OF FIGURES

		Page
1.	The Stikine River and principal U.S. and Canadian fishing areas	5
2.	Average catches and fishing efforts compared with 1993 for the Alaskan Districts 106 and 108 and for the Canadian commercial fisheries in the Stikine River	8
3.	Sockeye catches for the Alaskan Districts 106 and 108 and the combined Canadian fisheries in the Stikine River and Stikine sockeye escapements, 1979-1993	10
4.	Catches of chinook, coho, pink, and chum salmon in the combined Canadian fisheries in the Stikine River, 1979-1993	11
5.	Chinook salmon weir counts and index escapement estimates for major spawning areas and for the entire Stikine River, 1979-1993	17
6.	The Taku River and principal U.S. and Canadian fishing areas	21
7.	Average catches and fishing efforts compared with 1993 values for the Alaskan District 111 commercial fishery and the Canadian commercial fishery in the Taku River	23
8.	Sockeye catches for the Alaskan District 111, the Icy and Chatham Straits, and the combined Canadian fisheries in the Taku River and Taku sockeye escapements, 1979-1993	29
9.	Taku River chinook index escapement counts, 1975-1993	31
10.	The Alsek River and principal U.S. and Canadian fishing areas	36
11.	Average catches and fishing efforts compared with 1993 values for the Alaskan Dry Bay commercial fishery and the Canadian combined food and recreational fisheries in the Alsek River	37
12.	Alsek sockeye catches and weir counts, 1979-1993	41
13.	Alsek chinook catches and weir counts, 1979-1993	42
14.	Alsek coho catches and weir counts, 1979-1993	43

LIST OF APPENDICES

Page

A.1. Weekly salmon catch and effort in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) commercial drift gillnet fishery, 1993 47

A.2. Weekly stock proportions of sockeye salmon harvested in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) commercial drift gillnet fishery, 1993 47

A.3. Weekly stock-specific catch of sockeye salmon in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) commercial drift gillnet fishery, 1993 47

A.4. Weekly salmon catch and effort in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1993 48

A.5. Weekly stock proportions of sockeye salmon harvested in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1993 48

A.6. Weekly stock-specific catch of sockeye salmon in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1993 48

A.7. Weekly salmon catch in the Alaskan District 106 commercial drift gillnet fisheries, 1993 49

A.8. Weekly stock proportions of sockeye salmon harvested in the Alaskan District 106 commercial drift gillnet fisheries, 1993 49

A.9. Weekly stock-specific catch of sockeye salmon in the Alaskan District 106 commercial drift gillnet fisheries, 1993 49

A.10. Weekly salmon catch and effort in the Alaskan District 108 commercial drift gillnet fishery, 1993 50

A.11. Weekly stock proportions and stock-specific catch of sockeye salmon in the Alaskan District 108 commercial drift gillnet fishery, 1993 50

A.12. Weekly salmon catch and effort in the Alaskan District 108 test fishery, 1993 51

A.13. Stock compositions and stock-specific catch of sockeye salmon in the Alaskan District 108 test fishery, 1993 51

A.14. Weekly salmon and steelhead trout catch and effort in the Canadian commercial fishery in the lower Stikine River, 1993 52

A.15. Weekly sockeye salmon stock proportions and catch by stock in the Canadian commercial fishery in the lower Stikine River, 1993 52

A.16. Weekly salmon and steelhead trout catch and effort in the Canadian commercial fishery in the upper Stikine River, 1993 52

LIST OF APPENDICES (Continued)

Page

A.17. Weekly salmon and steelhead trout catch and effort in the Canadian aboriginal fishery located at Telegraph Creek, on the Stikine River, 1993 53

A.18. Weekly salmon and steelhead trout catch and effort in the Canadian test fishery in the Stikine River, 1993 53

A.19. Weekly sockeye salmon stock proportions in the Stikine River test fishery, 1993 54

A.20. Weekly catch, CPUE, and migratory timing of Tahltan and non-Tahltan sockeye stocks in the Stikine River test fishery, 1993 54

A.21. Daily counts of adult sockeye salmon passing through Tahltan weir, 1993 55

A.22. Daily counts of sockeye salmon smolt migrating through Tahltan Lake smolt weir, 1993 55

A.23. Daily counts of adult chinook salmon passing through Little Tahltan weir, 1993 56

B.1. Salmon catch and effort in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) commercial drift gillnet fishery, 1964-1993 58

B.2. Stock proportions and catches of sockeye salmon in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) commercial drift gillnet fishery, 1985-1993 58

B.3. Salmon catch and effort in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1964-1993 59

B.4. Stock proportions and catches of sockeye salmon in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1985-1993 59

B.5. Salmon catch and effort in the Alaskan District 106 commercial drift gillnet fisheries, 1964-1993 60

B.6. Stock proportions and catches of sockeye salmon in the Alaskan District 106 commercial drift gillnet fisheries, 1982-1993 60

B.7. Salmon catch and effort in the Alaskan District 108 commercial drift gillnet fishery, 1964-1993 61

B.8. Stock proportions and catches of sockeye salmon in the Alaskan District 108 commercial drift gillnet fishery, 1985-1993 61

B.9. Salmon catch in the Alaskan Subdistrict 106-41 (Sumner Strait) test fishery, 1984-1993 62

B.10. Stock proportions and catches of sockeye salmon in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) test fishery, 1984-1992 62

LIST OF APPENDICES (Continued)

Page

B.11. Salmon catch in the Alaskan Subdistrict 106-30 (Clarence Strait) test fishery, 1986-1993 63

B.12. Stock proportions and catches of sockeye salmon in the Alaskan Subdistrict 106-30 (Clarence Strait) test fishery, 1986-1993 63

B.13. Salmon catch and effort in the Alaskan District 106 test fisheries 1984-1993 64

B.14. Stock proportions and catches of sockeye salmon in the Alaskan District 106 test fisheries, 1984-1993 64

B.15. Salmon catch and effort in the Alaskan District 108 test fishery, 1984-1993 65

B.16. Stock proportions and catches of sockeye salmon in the Alaskan District 108 test fishery, 1985-1993 65

B.17. Salmon and steelhead trout catch and effort in the Canadian commercial fishery in the lower Stikine River, 1979-1993 66

B.18. Sockeye salmon stock proportions and catch by stock in the Canadian commercial fishery in the lower Stikine River, 1979-1993 66

B.19. Salmon and steelhead trout catch and effort in the Canadian commercial fishery in the upper Stikine River, 1975-1993 67

B.20. Salmon and steelhead trout catch in the Canadian aboriginal fishery located at Telegraph Creek, on the Stikine River, 1972-1993 67

B.21. Salmon and steelhead trout catch in the combined Canadian net fisheries in the Stikine River, 1972-1993 68

B.22. Salmon and steelhead trout catches and effort in Canadian test fisheries in the Stikine River, 1985-1993 69

B.23. Sockeye salmon stock proportions and catch by stock in the test fishery in the lower Stikine River, 1985-1993 70

B.24. Estimated proportion of inriver run comprised of Tahltan and non-Tahltan sockeye stocks, 1979-1993 70

B.25. Counts of adult sockeye salmon migrating through Tahltan Lake weir, 1959-1993 71

B.26. Aerial survey counts of non-Tahltan sockeye stocks in the Stikine River drainage, 1984-1993 71

LIST OF APPENDICES (Continued)

Page

B.27. Estimates of sockeye salmon smolt migrating through Tahltan Lake smolt weir, 1984-1993 72

B.28. Weir counts of chinook salmon at Little Tahltan River, 1985-1993 72

B.29. Index counts of Stikine chinook escapements, 1979-1993 73

B.30. Index counts of Stikine coho salmon escapements, 1984-1993 73

B.31. Stikine River sockeye salmon run size, 1979-1993 74

C.1. Weekly salmon catch and effort in the Alaskan District 111 commercial drift gillnet fishery, 1993 76

C.2. Weekly salmon catch and effort in the Alaskan District 111 test fishery, 1993 76

C.3. Weekly stock proportions of sockeye salmon harvested in the Alaskan District 111 commercial Drift gillnet fishery, 1993 77

C.4. Weekly stock-specific catch of Taku sockeye salmon harvested in the Alaskan District 111 commercial drift gillnet fishery, 1993 77

C.5. Weekly salmon and steelhead trout catch and effort in the Canadian commercial fishery in the Taku River, 1993 78

C.6. Weekly stock proportions of sockeye salmon harvested in the Canadian commercial fishery in the Taku River, 1993 78

C.7. Weekly stock-specific catch of sockeye salmon in the Canadian commercial fishery in the Taku River, 1993 78

C.8. Weekly salmon and steelhead trout catch in the Canadian test fishery in the Taku River, 1993 79

C.9. Weekly stock specific-catch of sockeye salmon in the Canadian test fishery in the Taku River, 1993 79

C.10. Mark-recapture estimate of above border run of sockeye and coho salmon in the Taku River, 1993 79

C.11. Daily counts of salmon passing through Little Tatsamenie weir, 1993 80

C.12. Daily counts of salmon passing through Little Trapper Lake weir, 1993 81

C.13. Daily counts of salmon passing through Nakina River weir, 1993 82

LIST OF APPENDICES (Continued)

Page

C.14. Daily counts of salmon passing through the Nahlin River weir, 1993 83

C.15. Daily counts of salmon passing through the Kuthai Lake weir, 1993 84

D.1. Salmon catches and effort in the Alaskan District 111 commercial drift gillnet fishery, 1964-1993 86

D.2. Stock proportions and catches of sockeye salmon in the Alaska District 111 commercial drift gillnet fishery, 1983-1993 86

D.3. Proportion of Taku River sockeye salmon in the Alaskan District 111 commercial drift gillnet catch, 1983-1993 87

D.4. Salmon catch in the U.S. subsistence and personal use fisheries in the Taku River, 1967-1993 87

D.5. Salmon and steelhead trout catch and effort in the Canadian commercial fishery in the Taku River, 1979-1993 88

D.6. Sockeye salmon stock proportions and catch by stock in the Canadian commercial fishery on the Taku River, 1986-1993 88

D.7. Salmon catches in the Canadian aboriginal fishery on the Taku River, 1980-1993 89

D.8. Salmon and steelhead trout catch in the Canadian test fishery in the Taku River, 1987-1993 89

D.9. Sockeye salmon escapement estimates of Taku River and Port Snettisham stocks, 1979-1993 89

D.10. Aerial survey index escapement counts of large (3-ocean and older) Taku River chinook salmon and estimated escapements of large chinook salmon to the entire Taku drainage, 1975-1993 90

D.11. Taku River (above border) coho salmon run size, 1987-1993 90

D.12. Escapement counts of Taku River coho salmon, 1984-1993 91

D.13. Taku River sockeye salmon run size, 1984-1993 91

E.1. Weekly salmon catch and effort in the U.S. commercial fishery in the Alsek River, 1993 93

E.2. Weekly salmon catch and effort in the Canadian aboriginal and sport fisheries in the Alsek River, 1993 93

LIST OF APPENDICES (Continued)

		Page
E.3.	Daily counts of salmon passing through Klukshu River weir, 1993	94
E.4.	Salmon catch and effort in the U.S. commercial fishery in the Alsek River, 1964-1993	96
E.5.	Salmon catch in the U.S. subsistence and personal use fisheries in the Alsek River, 1976-1993	96
E.6.	Salmon catches in the Canadian aboriginal and sport fisheries in the Alsek River, 1976-1993	97
E.7.	Klukshu River weir counts of chinook, sockeye, and coho salmon, 1976-1993	97
E.8.	Alsek River sockeye counts from U.S. and Canadian aerial surveys and from the electronic counter at Village Creek, 1985-1993	98
E.9.	Aerial survey index counts of Alsek chinook salmon escapements, 1984-1993	98
E.10.	Aerial survey counts of coho salmon from U.S. lower Alsek River tributaries, 1984-1993	98

EXECUTIVE SUMMARY

Estimates of catches and escapements of Pacific salmon returning to the transboundary Stikine, Taku, and Alsek rivers for 1993 are presented and compared with historical patterns. Relevant information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of inseason management models is discussed.

The 1993 Stikine sockeye run is estimated at 280,700 fish, of which an estimated 157,300 fish were harvested in various fisheries, 4,500 were used for brood stock, and 118,900 escaped to spawn. Both the total run and the catch were the highest recorded since 1982 when stock identification techniques were first used for marine catches and the escapement was the second highest estimated for the 1979 to 1992 period. The estimated U.S. marine commercial and test fishery catches of Stikine sockeye salmon were 104,400 and 200 fish, respectively; the Canadian inriver commercial, aboriginal, terminal, and test fishery catches were 40,200, 7,000, 1,800, and 3,700 fish, respectively. The preseason forecast of the run was 135,000 sockeye salmon. In 1993 the Stikine Management Model (SMM) correctly predicted a larger than average run for the Tahltan stock and for the entire Stikine sockeye run. Weekly inseason model forecasts ranged from 190,600 to 268,500 sockeye salmon; the final inseason prediction was 237,500 fish. Canada and the U.S. harvested less than the Total Allowable Catch (TAC) allowed under the Pacific Salmon Treaty. The U.S. harvest was 8% below the mid-range of 50% of the TAC, while the Canadian harvest was 58% below the same TAC. The sockeye escapement to Tahltan Lake was 51,600 fish, 81% above the 1983 to 1992 average, and above the revised goal of 24,000 fish. A total of 4,500 sockeye salmon were removed from the escapement for brood stock, leaving a natural spawning escapement of 47,100 fish. The estimated escapement of 71,800 non-Tahltan Stikine sockeye salmon was also above the escapement goal range for this stock group of 20,000 to 40,000 fish.

The chinook catch in Canadian commercial and aboriginal fisheries in the Stikine River was 2,100 fish, 92% of the 1983 to 1992 average, with approximately 49% harvested in commercial fisheries and 51% harvested in the aboriginal fishery. An additional 700 chinook salmon were taken in the Canadian inriver test fishery. The U.S. marine catch of chinook salmon in the District 106 and 108 mixed stock gillnet fisheries was 2,600 fish, approximately 48% above the 1983 to 1992 average catch. The chinook spawning escapement through the Little Tahltan River weir in 1993 was a record 11,400 large adults, 139% above the 1985 to 1992 average and 116% above the joint U.S./Canada escapement goal of 5,300 fish. Escapement surveys of other Stikine tributaries were all above average.

The U.S. marine harvest of Stikine River coho salmon is not known since there is no stock identification program in place; however, total mixed stock coho catches of 231,000 and 14,300 in District 106 and 108, respectively, were more than 94% and 76% above the respective 1983 to 1992 averages. Alaskan hatchery fish comprised approximately 32% (79,000 fish) of the combined coho harvest from the two districts. The Canadian inriver coho catch of 2,600 fish was less than the treaty entitlement of 4,000 fish. Coho escapements in the Stikine River appeared to be below average based on test fishery results and aerial

surveys.

The 1993 total Taku sockeye run estimate was 282,400 fish and included an estimated catch of 177,400 fish and an above-border escapement of 105,000 fish. The catch was the highest recorded since 1984 when a comprehensive run reconstruction program was developed. The total run size was 2% below the 1992 record of 286,500 fish. The escapement was 6% above the 1984 to 1992 average of 99,200 sockeye salmon and exceeded the upper level of the escapement goal range of 71,000 to 80,000 fish. The marine commercial catch was estimated by scale pattern analysis and incidence of the brain parasite *Myxobolus arcticus*. An estimated 141,000 Taku sockeye salmon were taken in the District 111 commercial fisheries and 2,900 taken in the U.S. inriver personal use fisheries. Canadian inriver commercial, aboriginal fishery, and test fishery catches were 33,200, 140, and 170 fish, respectively. The Pacific Salmon Treaty defines harvest sharing of Taku River sockeye salmon as 18% of the TAC to Canada and 82% to the U.S. Since the escapement goal is expressed as a range, the resulting TAC is also expressed as a range. In 1993, Canada took an estimated 16% to 17% and the U.S. took 68% to 71% of the TAC.

The catch of large chinook in the Canadian commercial fishery in the Taku River was 1,600 fish, 149% above the 1983 to 1992 average; in addition, 170 jack chinook were caught compared to an average of 190 fish. The chinook catch in the District 111 mixed stock gillnet fishery was 6,700 fish, almost three times the 1983 to 1992 average. The majority (82%) of chinook caught were mature spawners; 43% of the catch was of Alaska hatchery origin. Above average escapements were observed in all six of the Taku River chinook index tributaries in 1993. The combined aerial survey count of the index tributaries was 13,200 fish, which is 69% above the 1983 to 1992 average of 7,800 fish, and equal to the revised index escapement goal.

The Taku coho run was strong in 1993. The U.S. harvest of 65,500 coho salmon in the District 111 mixed stock fishery was the fourth highest on record but equal to the previous 10-year average as a result of extremely large coho returns during the previous three years. Alaskan hatcheries contributed an estimated 11% of the District 111 harvest, or approximately 7,300 fish. The Canadian inriver commercial and food fishery catch was 3,000 coho salmon, equaling the Treaty limit of 3,000 fish. An additional 1,600 coho salmon were taken in the Canadian inriver test fishery. The inriver run size is estimated at 114,100. After upriver Canadian catches are subtracted from the inriver run, the resulting above-border escapement is estimated at 109,500 coho salmon, exceeding the interim escapement goal range of 27,500 to 35,000 fish.

The catch of pink salmon in District 111 was 17,100 fish, 91% below the 1983 to 1992 odd-year average catch. The Canadian commercial inriver harvest of pink salmon was 16 fish. The escapement of pink salmon to the Taku River was extremely poor, as evidenced by the fish wheel catch of 1,600 pink salmon compared to the 1985 to 1991 odd-year average of 31,300 fish.

The catch of chum salmon in the District 111 fishery was 166,500 fish, composed of 156,000 summer run fish (prior to mid-August) and 10,500 fall run fish. The catch of summer chum salmon was composed primarily of Alaskan hatchery stocks and was 6% above the previous record catch of 1991. The catch of fall chum salmon was composed of wild Taku River and Port Snettisham stocks and was 70% below the 1983 to 1992 average. The Canadian inriver catch of chum salmon was below average at 15 fish reported.

Escapement appeared to be poor; the fish wheel catch of 350 chum salmon was 56% below average.

Although the catch of 20,000 Alsek sockeye was above the 1983 to 1992 average of 14,600 fish, the escapement to the Klukshu River weir of 16,700 fish was 9% below the 1983 to 1992 average. The early segment of the Alsek sockeye run was very strong as indicated by excellent early season catches in the Dry Bay fishery and above average early run escapement through the Klukshu River weir (count through August 15). The Klukshu weir counts of 5,400 early run and 11,400 late run sockeye were 70% above and 26% below the 1983 to 1992 averages, respectively.

The chinook run to the Alsek River was above average. The U.S. Dry Bay catch of 300 fish was 42% above the 1983 to 1992 average. The combined Canadian sport and aboriginal fishery catch of 300 fish was 36% below the 1983 to 1992 average. The 3,300 chinook count through the Klukshu River weir, was the second highest recorded count since the weir was installed in 1976 and was 55% above the 1983 to 1992 average of 2,100 fish. The Klukshu River escapement goal is 4,700 chinook salmon. Aerial survey index counts of other spawning systems were average to above average.

The coho run to the Alsek River was below average. The U.S. Dry Bay catch of 1,200 fish was 28% of the 1983 to 1992 average while the combined Canadian inriver aboriginal and sport fishery catch of 40 fish was 74% below the 1983 to 1992 average. Operation of the Klukshu weir does not provide a complete enumeration of the coho into this system since it is removed before the run is over, however the count of 800 coho salmon was 45% of the 1983 to 1992 average.

INTRODUCTION

This report presents estimates of 1993 catch and escapement data for Pacific salmon runs to the transboundary Stikine, Taku, and Alsek Rivers and discusses management actions taken during the season. Catch and effort data are presented by management week (U.S. Statistical Week) for each river for both U.S. and Canadian fisheries. Spawning escapement data for most species are reported from weir counts or other escapement monitoring techniques. Sockeye runs to the three rivers are reconstructed using harvest data and spawning escapement estimates.

STIKINE RIVER

Stikine River salmon are harvested by U.S. gillnet fisheries in Alaskan Districts 106 and 108, by Canadian commercial gillnet fisheries located in the lower and upper Stikine River, and by a Canadian aboriginal fishery in the upper portion of the river (Figure 1). Additional catches of unknown quantity are taken in U.S. troll and seine fisheries and in sport fisheries near Wrangell and Petersburg. A small sport fishery also exists in the Canadian portion of the Stikine drainage.

Harvest Regulations and the Joint Management Model

Efforts to re-negotiate harvest shares of Stikine salmon during the Pacific Salmon Commission negotiations in the spring of 1993 were not successful. As a result, the provisions previously agreed to were rolled over for a one year period. The harvest sharing objectives for 1993 were to share the total allowable catch (TAC) of Stikine River sockeye salmon 50% to Canada and 50% to the United States, and to allow a Canadian total catch of 4,000 coho salmon and incidental catches of other species.

Prior to the 1993 season, the Transboundary Technical Committee (TTC) met to update the management and enhancement plan and determine new parameters for input into the inseason run forecast model, referred to as the Stikine Management Model (SMM). However, publication of the plan was delayed until after the negotiation of all Pacific Salmon Treaty related fishing regimes which concluded in late June. Details regarding the transboundary river management plan appear in: ***Salmon Management and***

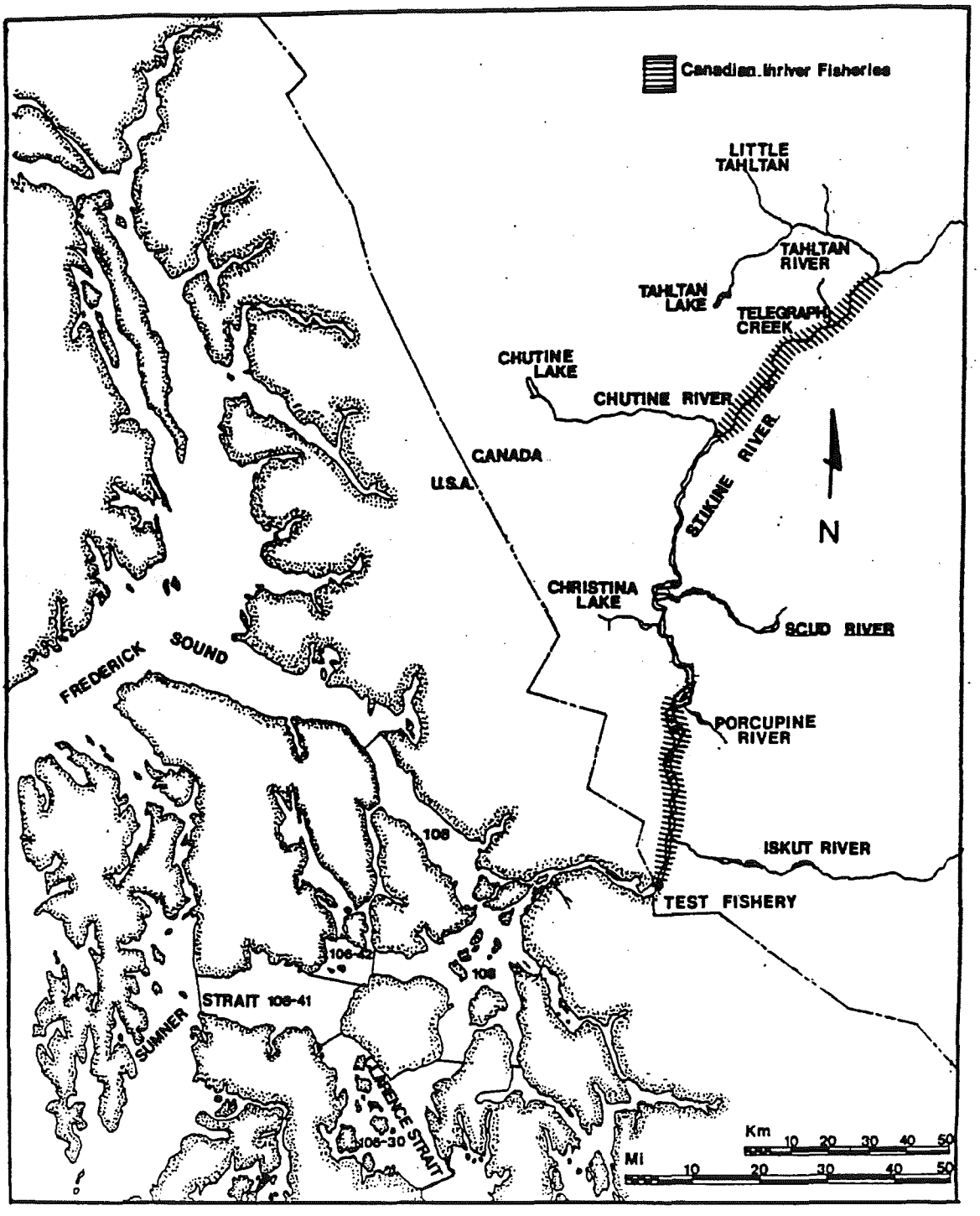

Figure 1. The Stikine River and principal U.S. and Canadian fishing areas.

Enhancement Plan for the Stikine, Taku, and Alsek rivers, 1993, Pacific Salmon Commission Transboundary Technical Committee Report TCTR (93)-2, August 1993. As required by the annex, a preseason forecast of the total Stikine sockeye run was made to guide the initial fishing patterns of U.S. and Canadian fisheries. In 1993, the preseason forecast was used during Statistical Weeks 26 (June 20 to June 26) and 27 (June 27 to July 3). Beginning the first week of July, inseason forecasts of total run size and TAC, produced by the SMM and based on catch-per-unit-effort (CPUE) data, were used to assist in determining weekly fishing plans (Table 1). The weekly inputs to the model included: the catch, effort and stock composition (proportion Tahltan) in the Canadian lower river commercial fishery; catches in the aboriginal fishery and upper river commercial fishery; the catch, effort and assumed stock composition in sub-District 106-41; and the catch and assumed stock composition in District 108 and sub-District 106-30. Unlike previous years, inseason scale pattern analyses were not conducted for District 106 and 108 sockeye catches in 1993. Historically, inseason results had proven to be unreliable. For 1993, average stock proportions from the postseason scale pattern analysis (SPA) in previous years were assumed for weekly catches; the averages used each week depended upon whether the run was judged to be below average, average, or above average.

The preseason forecast of 135,000 returning Stikine sockeye salmon was approximately 25% above the 1983-1992 average run size of 108,408 sockeye (Appendix B.31). Inseason predictions of total run were well above the preseason estimate and ranged from 190,590 to 268,534 sockeye salmon; U.S. and Canadian weekly predictions varied slightly depending on which updated catch figures were input into the model by each country (Table 1). The peak forecast occurred for Statistical Week 28 (week beginning July 4) and was the result of a very strong Tahltan Lake sockeye stock component. The non-Tahltan run strength was similar to the Tahltan which resulted in relatively stable forecasts throughout the latter half of the season. The final inseason SMM prediction was a total run of 237,530 Stikine sockeye salmon with a TAC of 183,530 fish, and a Canadian and U.S. allowable harvest of 91,765 sockeye salmon for each Party (Table 1).

The SMM also predicts the Tahltan portion of the run independently from the total run forecasts. Estimates of the Tahltan run ranged from 144,709 (week 28) to 109,615 (week 34) fish compared to the revised preseason forecast of 62,300 sockeye salmon. The final inseason estimate of Tahltan escapement was 59,807 sockeye (total run minus inriver catch), 12% above the actual Tahltan Lake weir count of 53,362 fish.

Table 1. Weekly forecasts of run size and total allowable catch for Stikine River sockeye salmon as determined inseason by the Stikine Management Model, 1993

Week	Start Date	Forecasts Run Size	U.S. TAC	Canada TAC	TAC	Cumulative Catch U.S.	Cumulative Catch Canada
Model Runs Generated by the U.S.							
26	20-Jun	135,000	81,000	40,500	40,500	2,122	0
27	27-Jun	135,000	81,000	40,500	40,500	8,875	4,019
28	04-Jul	268,534	214,534	107,267	107,267	12,835	5,650
29	11-Jul	190,590	136,590	68,295	68,295	40,390	15,999
30	18-Jul	238,729	184,729	92,365	92,365	48,465	27,303
31	25-Jul	222,822	168,822	84,411	84,411	59,443	35,864
32	01-Aug	231,393	177,393	88,697	88,697	69,203	41,218
33	08-Aug	239,047	185,047	92,524	92,524	70,921	45,322
Model Runs Generated by Canada							
26	20-Jun	135,000	81,000	40,500	40,500	2,749	0
27	27-Jun	135,000	81,000	40,500	40,500	9,305	4,273
28	04-Jul	216,000	162,000	81,000	81,000	28,220	11,245
29	11-Jul	258,845	204,845	102,423	102,423	40,390	22,184
30	18-Jul	244,201	190,201	95,101	95,101	48,465	27,281
31	25-Jul	222,621	168,621	84,311	84,311	59,443	37,744
32	01-Aug	231,227	177,227	88,614	88,614	62,861	41,196
33	08-Aug	232,455	178,455	89,228	89,228	70,646	45,779
34	15-Aug	235,902	181,902	90,951	90,951	70,934	46,290
35	22-Aug	237,530	183,530	91,765	91,765	72,797	46,538

U.S. Fisheries

The 1993 harvest in the District 106 commercial gillnet fishery included 992 chinook, 205,955 sockeye, 231,038 coho, 537,954 pink, and 134,601 chum salmon (Appendix A.7). In the District 108 fishery, 1,628 chinook, 76,874 sockeye, 14,307 coho, 39,661 pink, and 22,504 chum salmon were harvested (Appendix A.10). District 106 catches of chinook salmon were below the 1983 to 1992 average while sockeye, coho, and chum catches were all the second highest on record (Figure 2). District 108 catches of all salmon species were above average, and the sockeye and chum catches were the highest on record (Figure 2). A test fishery was conducted in District 108 to help managers ascertain the run strength of various salmon species inseason. Annual commercial and test fishery catches from 1964 to 1993 for these fisheries are provided in Appendix Tables B.1 through B.16. Catches of each species in Districts 106 and 108 consist of

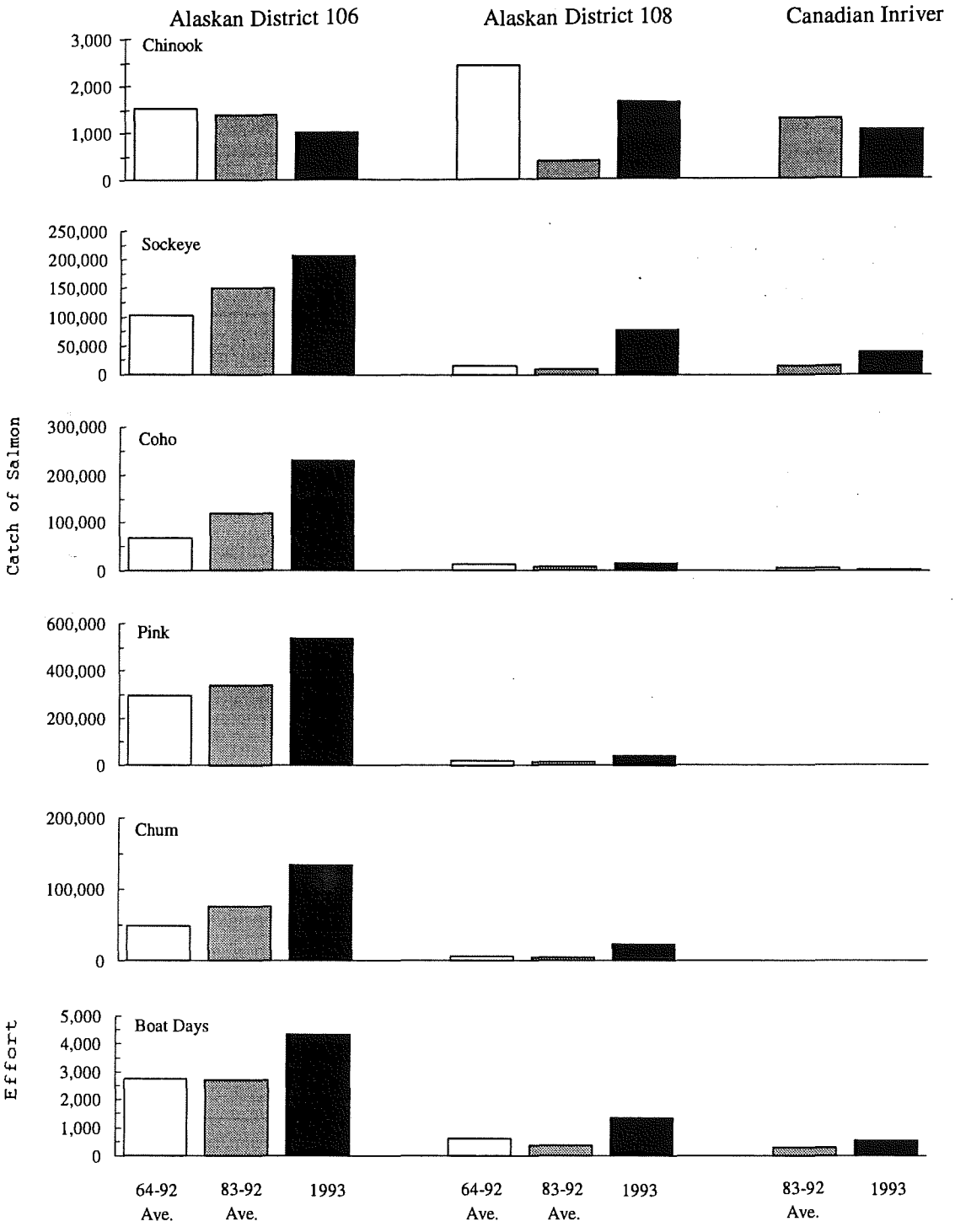

Figure 2. Average catches and fishing efforts compared with 1993 for the Alaskan Districts 106 and 108 and for the Canadian commercial fisheries in the Stikine River.

fish of mixed stock origin; the contribution of Stikine River stocks is estimated only for sockeye salmon. Scales were sampled from the various subdistricts and were used for making postseason catch estimates. The estimate of the contribution of Stikine sockeye salmon to Districts 106 and 108 was 104,411 fish or 37% of the sockeye catch (Appendix B.6 and B.8, Figure 3). The Sumner Strait fishery (Subdistricts 106-41 & 42) harvested 39,438 Stikine sockeye salmon (Appendix A.3), 30% of the total sockeye harvest in that subdistrict; the Clarence Strait fishery (Subdistrict 106-30) took 14,599 (Appendix A.6), 19% of the catch in that subdistrict; and the District 108 fishery, near the mouth of the Stikine, harvested 50,374 (Appendix A.11), 66% of the District 108 catch.

The 1993 fishing season in Districts 106 and 108 began on June 20 and continued until October 4. During the first week of the fishery, Statistical Week 26, both Districts 106 and 108 were open for two days. The initial opening in District 106 is normally two days and any decision to extend fishing is based on fishery catch rates estimated by management biologists on site in the fishery. The initial District 108 opening was based on the preseason expectation of a U.S. TAC of 40,500 Stikine River sockeye. During Statistical Weeks 27 and 28 (June 27 to July 10), both districts were open for two days with District 108 receiving two-day mid-week extensions due to the good sockeye catches in Section 6-A (Sumner Strait) and in District 108. During the following two weeks (Statistical Weeks 29 and 30, July 11 to July 25) the SMM indicated a U.S. TAC of 68,295 to 92,365 sockeye salmon so three-day mid-week extensions were given in District 108 each week. During Statistical Weeks 31 and 32 (July 26 to August 7) the SMM continued to indicate a very strong run of Stikine sockeye salmon with a U.S. TAC of 84,411 to 88,897 fish (Table 1). In addition, the inseason CPUE was 35% to 65% above the 1983 to 1992 average which indicated that the runs of local island sockeye stocks were improving. The fishing periods for Statistical Weeks 31 and 32 in both Districts 106 and 108 were increased to three days and were followed by a two-day mid-week extension in District 108 only. This management approach was used to limit the harvest of the small local island sockeye stocks in District 106 while maximizing the harvest of Stikine sockeye in District 108. By Statistical Week 33 (August 8 to August 14) both the sockeye catch and the CPUE in District 108 dropped by approximately 34% so the open periods in both districts were limited to three days, and no mid-week extensions were given in District 108.

Management emphasis changed from sockeye to pink salmon during Statistical Week 34 (August 15 to 21). In 1993, the pink catch prior to week 34 was above the 1983 to 1992 odd-year average in both districts. The total District 106 and 108 pink salmon catches of 537,954 and 39,661, respectively, are both above the 1983 to 1992 odd-year averages (Appendix B.5 and B.7). Pink catches in both districts were probably not a true reflection of the pink salmon abundance in the area because the low prices that fishermen received affected fishing patterns. During the two weeks that the fishery was managed for pink salmon, only a small number of boats used pink salmon nets. Most of the fleet continued to fish sockeye gear to target late sockeye and small coho salmon. Both Districts were open for three days per week in Statistical Weeks 34 and 35 (August 15 to August 28) when the fisheries were managed for pink salmon.

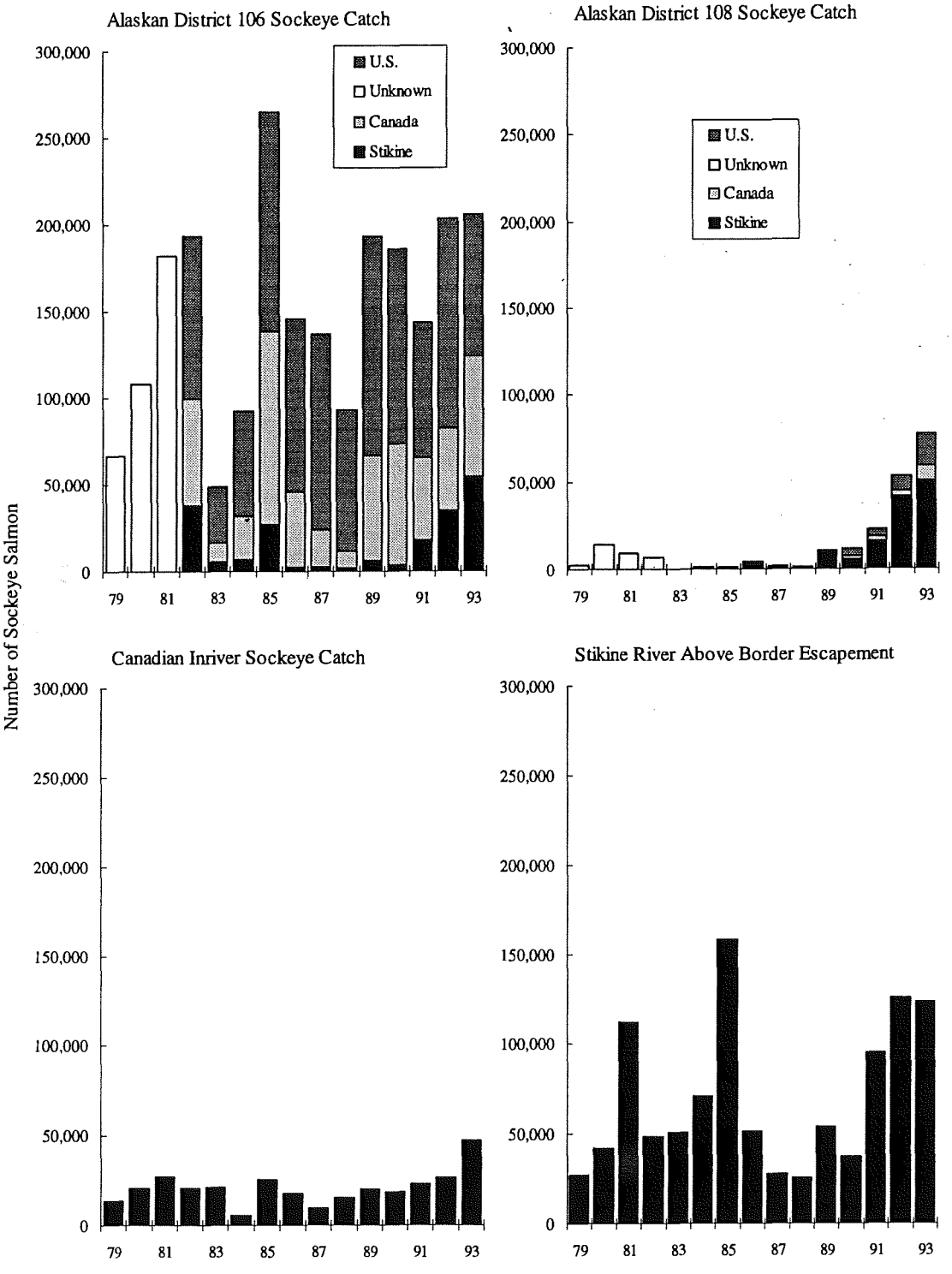

Figure 3. Sockeye catches for the Alaskan Districts 106 and 108 and the combined Canadian fisheries in the Stikine River and Stikine sockeye escapements, 1979-1993. Effort is for commercial fisheries only.

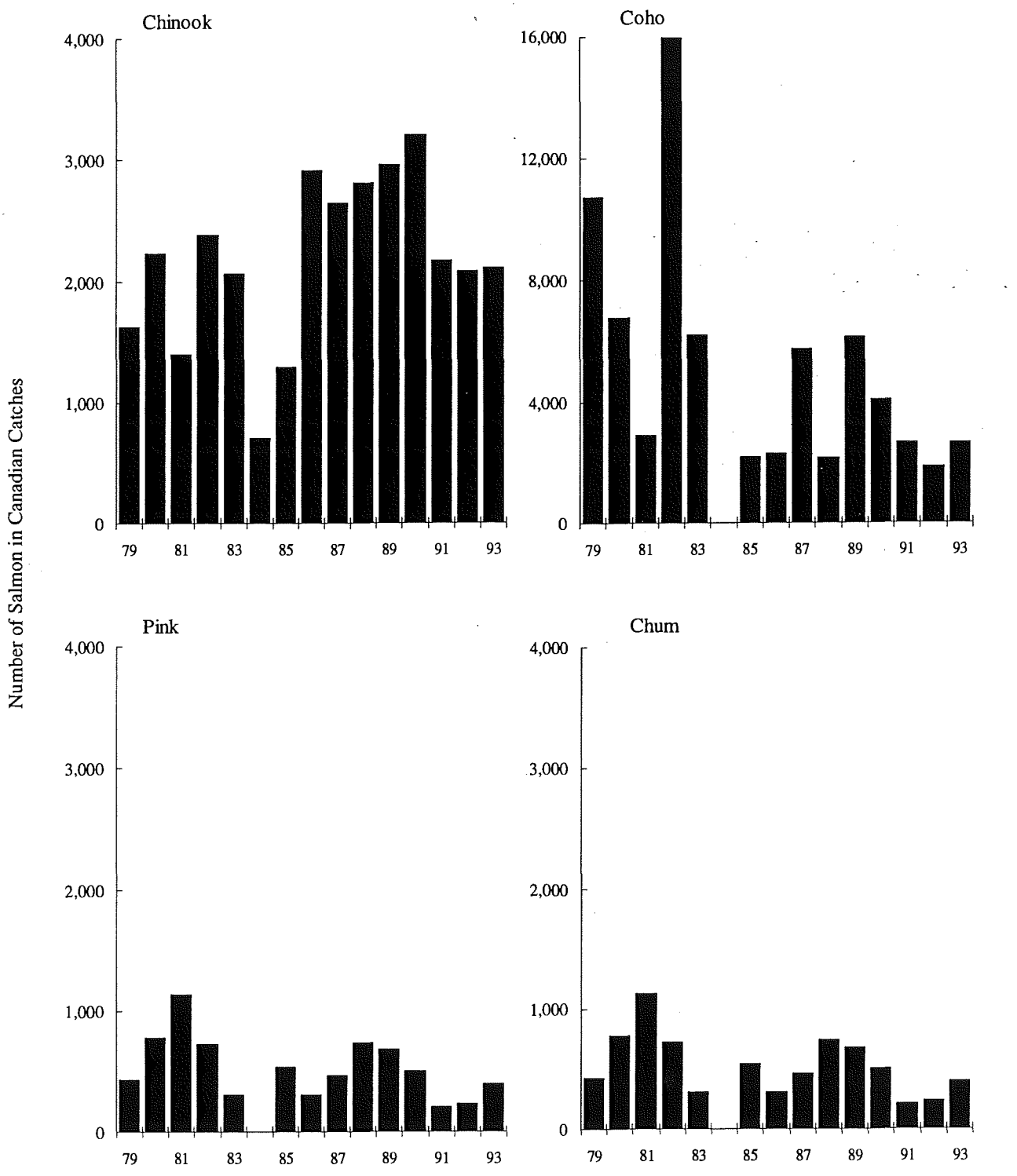

Figure 4. Catches of chinook, coho, pink, and chum salmon in the combined Canadian fisheries in the Stikine River, 1979-1993.

Coho salmon management in both the District 106 and 108 gillnet fisheries usually commences during late August or early September. During Statistical Week 36 (August 29 to September 4) the management emphasis changed from pink to coho salmon. Early indicators provided mixed predictions of coho abundance this season. The inside fisheries indicated an average run but the outside troll fishery indicated a very large run. Prior to the change to coho management, the sockeye and pink salmon fisheries harvested approximately 40% of the total District 106 coho catch and about 48% of the total District 108 coho catch. Coho CPUE in District 106 during the first week of coho management dropped to 40% below the 1983 to 1992 average. During Statistical Weeks 37 and 38 (September 5 to September 19) District 106 was restricted to two-day fishing periods and District 108 was closed. During Statistical Week 39 (September 20 to September 26) the District 106 coho catch improved to 75% above the 1983 to 1992 average and the CPUE improved to 50% above the average while the outside troll fishery continued to indicate a strong coho run. Due to the indications of above average coho runs, both Districts 106 and 108 were open for three days during week 39. Coho catches remained good but the fisheries in both districts were restricted to two days during week 40 because the high percentage of hatchery stocks in the catch suggested that wild runs were not as strong as catches indicated. One day of fishing was allowed during Statistical Week 41 since hatchery stocks represented 66% of the previous week's catch. The fishery closed later than normal on October 4. The District 106 coho catch of 231,038 fish is the second highest catch on record and is almost twice the 1983 to 1992 average of 119,063 coho salmon (Appendix B.5). The District 108 coho catch of 14,307 fish is 76% above the 1983 to 1992 average of 8,137 coho (Appendix B.7). Alaska hatcheries contributed 78,100 fish (34%) to the District 106 coho harvest and 900 fish (6%) to the District 108 coho harvest.

During the 1993 season, the gillnet fishery in District 106 was open for a total of 38 days (Appendix A.7), and in District 108 for 48 days (Appendix A.10). These were above the 1983 to 1992 averages of 31 and 25 days, respectively. District 106 fishing effort in numbers of vessels was slightly below average the first three weeks of the season, but was above average throughout the remainder of the season. Fishing effort in District 106 during the last five weeks of the coho season was two to four times higher than normal. The greatest number of boat-days (387) occurred in week 31, at the end of July, while the greatest number of boats fishing, 137, occurred during the peak of the coho fishery during week 38 in mid-September. Because of the extremely strong sockeye and coho runs, the effort of 4,353 boat-days in District 106 was 62% greater than the 1983 to 1992 average of 2,685 boat-days (Appendix B.5, Figure 2). District 108 effort was higher than average due to the extended fishing time allowed to harvest the large run of Stikine River sockeye salmon. The 1,333 boat-days fished in District 108 was nearly four times higher than the 1983 to 1992 average of 350 boat-days (Appendix B.7). Most of the boats fishing during mid-week openings in District 108 did not fish the entire opening so the effort in boat-days was adjusted to better reflect the time actually fished during these openings. For this reason the boat-days given in Appendix B.7 is less than that obtained by multiplying the number of permits fishing by the number of days the fishery was open.

Canadian Fisheries

Catches from the combined Canadian commercial and aboriginal gillnet fisheries in the Stikine River in 1993 included: 1,803 large chinook, 308 jack chinook, 47,197 sockeye, 2,616 coho, 29 pink, 395 chum salmon, and 67 steelhead (Appendix A.14 to A.17). The sockeye salmon catch was the highest on record and was 2.6 times the 1983 to 1992 average, the chum catch was average, and the catches of all other salmon species were below average. In addition to these catches, 1,752 sockeye salmon were taken terminally at Tahltan Lake.

A test fishery was conducted again in the lower Stikine River, just upstream from the Canada/U.S. border, to determine migratory timing and stock composition of the sockeye run for use in the postseason estimations of the inriver sockeye and coho run sizes. Test fishery catches included: 568 large chinook, 87 jack chinook, 3,749 sockeye, 175 coho, 13 pink, and 84 chum salmon, and 15 steelhead trout (Appendix A.18 to A.20).

Lower Stikine Commercial Fishery

Canadian commercial fishers in the lower Stikine harvested 830 large chinook, 164 jack chinook, a record 38,464 sockeye, 2,616 coho, 29 pink, 395 chum salmon, and 63 steelhead in 1993 (Appendix A.14). The sockeye catch was 157% above the 1983 to 1992 average of 14,952 sockeye (Appendix B.17). Catches of all other salmon species were below average. Of biological interest was the catch of two American shad, *Alosa sapidissima* (Wilson), which were caught incidentally in the lower Stikine River; prior to 1993, this species had not been reported in the Stikine drainage.

The fishery commenced at noon on Monday, June 28 (Statistical Week 27), for a three-day opening. Record high sockeye CPUE and relatively low effort, i.e. six fishers, lead to a twenty-four hour extension. The record high CPUE was reflected in the run forecast developed for week 28 which was based on the first inseason use of the SMM. The TAC doubled from the preseason expectation of 81,000 fish, to 162,000 sockeye (Table 1). As a result of the dramatic increase in the run forecast and above average CPUE, the fishery was extended in week 28 from the initial three-day posting, to five days (July 5 to July 10).

Weekly fishing times throughout most of the remainder of the sockeye season were extended from standard three-day openings to five days because the CPUE remained above average and model predictions of Canadian TAC increased to the range of 84,300 sockeye (week 31) to 102,400 sockeye (week 29). The final inseason sockeye forecast indicated a Canadian TAC of 91,765 sockeye salmon (Table 1). After accounting for the combined aboriginal and commercial harvest in the upper river, i.e. 8,733 sockeye salmon, the final inseason estimate translated into a lower river allowable harvest of 83,032 fish, which was

more than double the actual lower river commercial catch of 38,464 sockeye salmon.

The sockeye run timing appeared to be slightly earlier than normal with the peak CPUE occurring in week 28, the second week of the fishery. Tahltan Lake sockeye dominated the catch through mid-July; thereafter, the mainstem sockeye stock component made up the majority of the sockeye catch.

It was evident by mid-July that a near record escapement was headed towards Tahltan Lake. This prompted the issuance of an "Excess Salmon To Spawning Requirements License" (ESSR) which permitted the terminal harvest of sockeye salmon at Tahltan Lake once the escapement goal had been achieved. A total of 1,752 sockeye salmon were taken under the ESSR. Although there was opportunity to harvest additional sockeye salmon under the ESSR license, the small size of the Tahltan fish in 1993 (average weight of 2.5 kg.) made the venture unprofitable to continue.

Management emphasis usually switches to coho salmon towards the end of August. Fishing times were reduced to three days per week during the last half of August in response to decreasing sockeye abundance and below average coho CPUE. Low levels of effort (less than eight fishers weekly) and increasing coho catches prompted the scheduling of extended fishing periods (five days/week) from September 6 through the end of the season. However, after mid-September, the actual days fished varied from one to three days due to poor fishing conditions. In general, the coho run strength, based on commercial CPUE, appeared to be below average. Aerial surveys conducted later in the season also reflected below average abundance. The run appeared to peak in the lower river during week 37 (September 6 to 11). The season total coho catch was 2,616 fish, 35% (1,384 coho) below the allowance of 4,000 Stikine coho. As in 1992, unfavorable economic factors plus the low run strength were the primary reasons the quota was not taken.

Nineteen licensed fishers participated in the fishery throughout the season with an average of only eight individuals present each week, about 72% of the usual number of fishers. The total effort in terms of boat-days was 484, 67% above the 1983 to 1992 average of 289 boat-days. The increased effort level in 1993 was due to the above average sockeye run which resulted in extended fishing periods throughout most of the season. Each fisher was allowed the use of one gillnet with a maximum length of 135 meters. A delayed opening to June 27 and a maximum mesh size restriction of 146 mm through mid-July were implemented to reduce the incidental catch of chinook salmon. As in past years, both drift and setnetting techniques were utilized.

Upper Stikine Commercial Fishery

A small commercial fishery has existed near Telegraph Creek on the upper Stikine River since 1975. The catch recorded in 1993 included: 44 large chinook salmon, less then one-half the 1983 to 1992 average of 99 large fish; 2 jack chinook; 1,692 sockeye, the second highest on record and 158% above the 1983 to 1992 average of 656 sockeye; and 2 steelhead (Appendices A.16 and B.19). The fishing effort was above average

with one to four fishers fishing two days per week until mid-July, then up to four days per week for the balance of the season. Additional fishing time was allowed in the latter half of the season due to the large Tahltan Lake sockeye run.

Aboriginal Fishery

The Stikine aboriginal fishery, centered around Telegraph Creek, harvested 929 large chinook, 142 jack chinook, 7,041 sockeye, and 2 steelhead. The total chinook catch (large and jack combined) was 4% below the 1983 to 1992 average of 1,118 fish, whereas the sockeye harvest was 72% above the 1983 to 1992 average of 4,088 fish and was the second highest on record. Weekly catches in 1993 and annual catches since 1972 are listed in Appendices A.17 and B.20, respectively.

Escapement

Sockeye

A total of 53,362 sockeye salmon were counted through the Tahltan Lake weir in 1993 which was 88% above the 1983 to 1992 average of 28,442 fish, and well above the escapement goal of 24,000 (range of 18,000 to 30,000) fish (Appendix B.25). In 1993 the TTC reduced the Tahltan Lake sockeye salmon escapement goal from 30,000 to 24,000 fish, based on a Department of Fisheries and Oceans (DFO) stock-recruitment analysis and recommendation of the Pacific Salmon Stock Assessment Review Committee. The new goal is composed of 20,000 natural spawners and 4,000 fish for use as brood stock for the joint U.S./Canada Stikine River enhancement program. The 1993 count was the third highest since 1959 when the weir program began, and the third consecutive year of a weir count greater than 50,000 sockeye. An estimated 1.4%, or 747 of the escapement were four-year-old sockeye originating from the 1989 enhancement program. This number is below expectations and was based on otoliths collected from brood stock which may not have been representative of the entire escapement. Of the total number of fish enumerated through the weir, 2,253 females and 2,253 males were taken for hatchery brood stock. In addition to the brood stock take, 1,752 sockeye were harvested under an ESSR license, leaving a spawning escapement of 47,104 fish.

The total spawning escapement for the non-Tahltan stock group is estimated indirectly by computing the ratio of Tahltan to non-Tahltan fish in the inriver sockeye run from stock identification data collected in the lower river commercial and test fisheries. The ratio is applied to the estimated inriver Tahltan run size to

develop an estimate of the total inriver non-Tahltan run size. The non-Tahltan escapement is estimated by subtracting the estimated catches of non-Tahltan sockeye in the Canadian fisheries. The post season estimate of non-Tahltan sockeye escapement is 71,792 fish based on use of egg diameter, age, and sex composition data to estimate inriver stock composition of catches, and inriver test fishery CPUE data to give run timing. This estimate was 75% above the 1983 to 1992 average non-Tahltan escapement of 41,067 fish (Appendix B.31).

Aerial surveys of non-Tahltan sockeye escapement index areas indicated slightly below average numbers of spawners in 1993 (Appendix B.26). The 1993 cumulative index count of 877 sockeye was 90% of the 1984 to 1992 average of 974 fish. The 1993 survey conditions were poor. These surveys do not include all spawning populations; the index represents the combined counts from up to eight spawning areas.

Chinook

This was the ninth consecutive year of the operation of an adult chinook enumeration weir on the Little Tahltan River. The 1993 count of 11,449 large chinook was a record count and was 2.4 times the 1985 to 1992 average of 4,790 large fish (Appendix B.28). The 1993 escapement was over twice the Little Tahltan escapement goal of 5,300 chinook. The count of jack chinook was 60, 18% of the 1985 to 1992 average of 330 fish. Daily counts from the 1993 program are presented in Appendix A.23. One fish which was passed through Little Tahltan weir had been captured, marked, and released near Petersburg, Alaska as part of the Petersburg sport fish derby.

Results from aerial surveys conducted on Stikine River tributaries also indicated an above average chinook escapement in 1993. Counts for 1993 were: Little Tahltan River, 3,770 chinook versus the 1983 to 1992 average of 2,086 chinook; Beatty Creek, 757 chinook compared to the average of 263 chinook; Tahltan River, 2,249 chinook versus the average of 1,948 chinook; and Andrew Creek, 1,060 chinook versus the average of 549 chinook (Appendix B.29, Figure 5).

Coho

The lower Stikine River test fishery ended on Statistical Week 36 (August 29 to September 4) which precluded complete coverage of the coho run. The 1986 to 1990 historical test fishery catch records indicated that approximately 75% of the coho run migrates through the lower river by the end of week 36. Judging from the marine catches, however, the 1993 coho run was approximately one week to 10-days late; if migratory timing was one week late, historical records indicate that approximately 53% of the run would have migrated through the test fishery grounds by week 36. The cumulative coho test fishery CPUE was

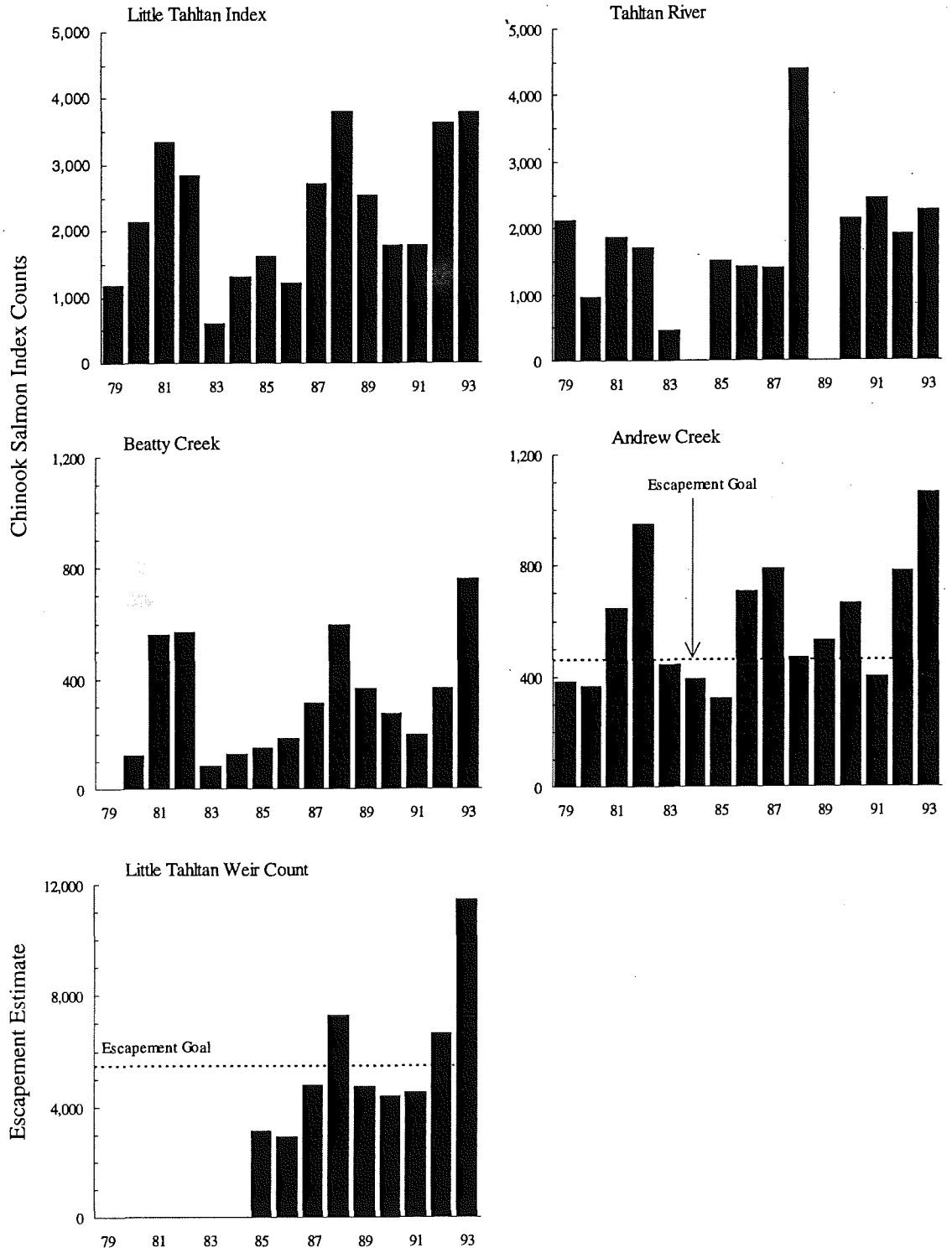

Figure 5. Chinook salmon weir counts and index escapement estimates for major spawning areas and for the entire Stikine River, 1979-1993.

expanded accordingly (1.18/0.526) and the calculated, cumulative coho CPUE was expressed as a percentage of the total cumulative sockeye CPUE of 18.15 The inriver coho run was estimated to be 12.4% that of the inriver sockeye run size of 176,100 fish, or 21,836 coho salmon. Subtracting the combined inriver catch of 2,616 coho salmon in the Canadian commercial and aboriginal fisheries, and 175 coho salmon taken in the inriver test fishery, gives an estimated total coho escapement of 19,045 fish, which is below the interim escapement goal range of 30,000 to 50,000 fish.

Preliminary Stikine Sockeye Run Reconstruction

The Stikine sockeye run is estimated to be 280,729 fish of which 124,104 were of Tahltan Lake origin and 156,627 were non-Tahltan fish (Table 2). These estimates are based on Stikine stock compositions in U.S. District 106, District 108, and test fishery catches based on scale pattern analyses; inriver stock identification data based on analysis of egg diameters, age and sex composition; Canadian commercial, aboriginal, terminal area, and test fishery catches; and escapement data. A Stikine run size of this magnitude is the highest on record and 2.6 times the 1983 to 1992 average run size of 108,408 sockeye salmon (Appendix B.31). The 1983 to 1992 average run sizes of Tahltan and non-Tahltan fish were 48,481 and 59,927 sockeye respectively.

The estimate of the total run is well above the revised preseason expectations for a total run of 135,000, a Tahltan run of 60,000 sockeye and a non-Tahltan run of 75,000 sockeye (Table 1). For the Tahltan run, the sibling forecast (84,800 sockeye) was closest to the actual run size although it was 32% below the preliminary estimate; the smolt-based Tahltan run forecast was 39,800 sockeye. For the non-Tahltan sockeye component, the preseason sibling forecast (106,200 sockeye) out-performed the forecast based on stock-recruitment data (55,800 fish); the former also being 32% below the preliminary postseason non-Tahltan run estimate.

Reasons for the better than expected Stikine River sockeye runs in 1993 are partially due to high marine survival in recent years. The contribution from Stikine enhancement was not expected to be significant in 1993. Most of the initial brood year of enhanced production is expected to return as 5-year-old fish in 1994. However, the average size of sockeye taken in the lower river commercial fishery was noticeably smaller than average this year, i.e. 2.5 kg versus an average of about 3.4 kg, giving rise to speculation that the run consisted of a higher than average return of 4-year-olds which could include enhanced fish. Otolith samples taken from Tahltan Lake adult sockeye salmon used for brood stock indicated that 1.4% of the escapement, or 747 fish were enhanced sockeye. Results of analysis of adult otolith samples taken in the District 108 fishery confirmed the presence of enhanced Tahltan sockeye salmon in 1993; an estimated 0.6% of the marine catch, approximately 600 fish, were of enhanced origin.

The SMM appeared to be successful in accurately forecasting the total run size this season (Table 1). The

Table 2. Run reconstruction for Stikine sockeye salmon, 1993.

	Tahltan	non-Tahltan	Total
Escapement			
Natural spawners	47,104	71,792	118,896
Brood stock	4,506		4,506
ESSR Terminal Catch	1,752		1,752
Total	53,362	71,792	125,154
Canadian Harvest			
Aboriginal Food	6,337	704	7,041
Upper Commercial	1,523	169	1,692
Lower Commercial	20,662	17,802	38,464
Total	28,522	18,675	47,197
% Harvest	41.7%	22.4%	31.1%
Test Fishery Catch	2,184	1,565	3,749
Inriver Run	84,068	92,033	176,100
U.S. Harvest[a]			
106-41& 106-42	17,446	21,992	39,438
106-30	2,758	11,841	14,599
108	19,688	30,686	50,374
Total	39,892	64,519	104,411
% Harvest	58.3%	77.6%	68.9%
Test Fishery Catch	144	75	218
Total Run	124,104	156,627	280,729
Escapement Goal			
Minimum	18,000	20,000	38,000
Maximum	30,000	40,000	70,000
Total Allowable Catch			
Minimum	94,104	116,627	210,729
Maximum	106,104	136,627	242,729
Canadian Harvest	28,522	18,675	47,197
% of Min. TAC	30.3%	16.0%	22.4%
% of Max. TAC	26.9%	13.7%	19.4%
U.S. Harvest	39,892	64,519	104,411
% on Min. TAC	42.3%	55.3%	49.5%
% of Max. TAC	37.6%	47.2%	43.0%

[a] U.S. harvest estimate differs from Joint Interception Committee estimate because no estimates are made for catches other than the listed fisheries.

final inseason forecast of the total run size derived from the SMM, 237,530 fish was 15% below the postseason estimate of the total run, 280,729 sockeye salmon (Table 2). The final inseason escapement estimates from the SMM were 59,807 Tahltan fish and 58,310 non-Tahltan sockeye salmon. The SMM will be reviewed and updated to include 1993 data in making predictions during the 1994 season.

The Tahltan Lake smolt count in 1993 totaled a record 3,255,045 sockeye smolts which originated primarily from the 1991 natural spawning escapement of 46,583 sockeye, i.e., the 1991 Tahltan weir count of 50,135 sockeye minus the 3,552 fish taken for brood stock, and the 1992 fry plant of 1.947 million fish. Otoliths extracted from a random portion of smolts from the 1993 emigration provide an estimate of 12% (27/220) enhanced fish. An estimated 399,483 hatchery and 2,855,562 non-hatchery smolts made up the 1993 smolt emigration.

TAKU RIVER

Taku River salmon are harvested by the U.S. in the gillnet fishery in Alaskan District 111, in northern Southeast Alaska seine and troll fisheries, in the Juneau area sport fishery, and in an inriver personal use fishery (Figure 6). Canadian fisheries for Taku River salmon include a commercial gillnet fishery located in the river near the U.S./Canada border, a sport fishery, and an aboriginal fishery.

Harvest Regulations

As with Stikine River issues, efforts to re-negotiate harvest shares of Taku River salmon during the Pacific Salmon Commission negotiations in the spring of 1993 were not successful. As a result, the provisions previously agreed to were continued for a one year period. The harvest sharing provisions for 1993 allowed Canada to harvest 18% of the TAC of Taku River sockeye salmon, 3,000 coho salmon, and incidental catches of other species. Details of the international management objectives for 1993 are outlined in: ***Salmon Management and Enhancement Plan for the Stikine, Taku, and Alsek Rivers, 1993, Pacific Salmon Commission Transboundary Technical Committee Report TCTR (93)-2, August 1993.***

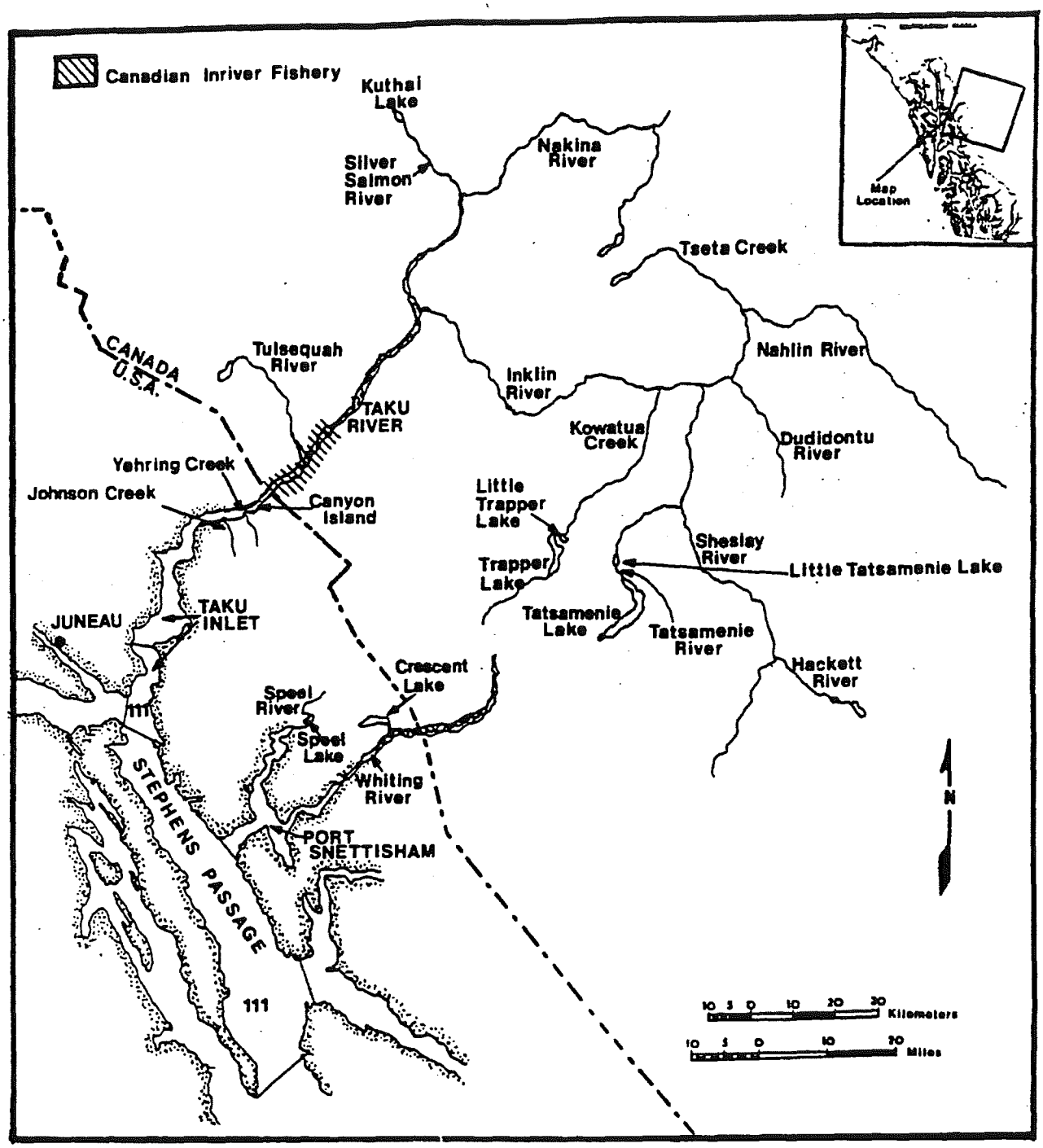

Figure 6. The Taku River and principal U.S. and Canadian fishing areas.

The District 111 drift gillnet fishery was opened June 20 and closed on September 29, for a total of 43 fishing days (Appendix C.1). Forty-three days were allowed in the traditional fishing areas of Taku Inlet and Stephens Passage, with an additional 6 fishing days open exclusively in Speel Arm in Port Snettisham to harvest Snettisham Hatchery chinook salmon runs. Fishing time was slightly above the 1983 to 1992 average of 41 days. Fishing effort in Taku Inlet and Stephens Passage totaled 3,827 boat-days and was 37% above the 1983 to 1992 average of 2,802 boat/days (Appendix D.1).

Catches in the District 111 drift gillnet fishery were very mixed in 1993. Sockeye and summer chum salmon catches were the largest in the history of the fishery while pink and fall chum catches were extremely poor. The chinook catch was the highest since a directed chinook fishery was conducted in 1973. Coho catches were average, but below those in recent years (Figure 7, Appendix D.1). The 1993 harvest included 6,748 chinook, 171,556 sockeye, 65,536 coho, 17,081 pink, and 166,480 chum salmon (Appendix C.1). Catches of sockeye and fall chum salmon were comprised primarily of mixed wild stocks from the Taku River, Port Snettisham, and drainages in lower Stephens Passage. Catches of chinook, pink, summer chum, and coho salmon were comprised of both wild stocks and local hatchery stocks.

In addition to the commercial fishery, a small gillnet test fishery was conducted inside Port Snettisham on July 25. The purpose of this study was to monitor hatchery enhanced sockeye salmon returning to Sweetheart Creek in Gilbert Bay. The test fishery caught only 2 chum, 4 pink, and 19 sockeye salmon (Appendix C.2). Although the total enhanced return was estimated to be in excess of 10,000 sockeye salmon, none of the sockeye caught contained the thermal otolith identification mark unique to this stock, therefore, test fishery catches were probably composed of wild stocks destined for Crescent or Speel lakes.

The chinook salmon harvest of 6,748 fish was almost three times the 1983 to 1992 average and was the largest catch since 1973 when District 111 was open for a targeted chinook salmon fishery. Unlike recent years, the largest component of this catch was comprised of spawners (82%). An estimated 43% of the catch was of Alaska hatchery origin (coded wire tag estimate). No night closures were imposed this year due to the small number of feeder chinook in the fishery. Management actions for chinook conservation were implemented only during the first week of the season when Taku Inlet was closed north of the latitude of Jaw Point. The largest weekly chinook catch was in the first week of the season when 1,992 fish were taken.

The sockeye salmon harvest of 171,556 fish was the largest sockeye catch on record, over twice the 1983 to 1992 average, and 27% above the previous record of 135,411 sockeye salmon set in 1992 (Appendix Table D.1). Sockeye salmon catches were distributed between Taku Inlet (145,155 fish), Stephens Passage (26,347 fish), and Port Snettisham (54 fish). Although both Taku River and Port Snettisham sockeye stocks are found in Taku Inlet and Stephens Passage, it is assumed that Stephens Passage sockeye catches are comprised of a higher proportion of Port Snettisham sockeye stocks. The sockeye harvest that occurs

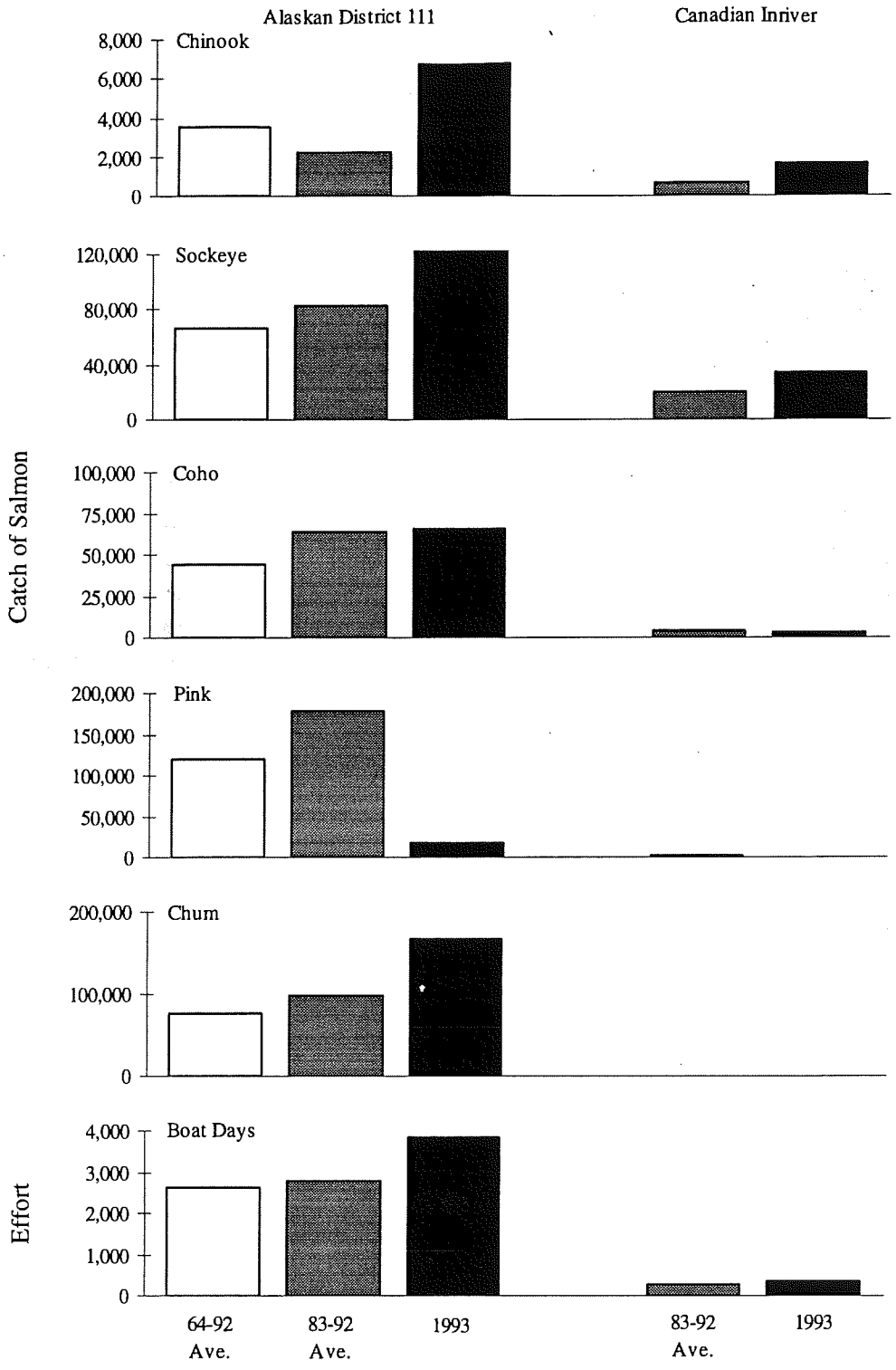

Figure 7. Average catches and fishing efforts compared with 1993 values for the Alaskan District 111 commercial fishery and the Canadian commercial fishery in the Taku River.

in Port Snettisham is considered to be comprised entirely of Port Snettisham sockeye salmon stocks from Crescent, Speel, and Sweetheart Lakes.

An estimate of 141,038 fish (82%) of the total season's catch of 171,556 sockeye salmon in District 111 were determined to have been of Taku River origin (Appendix C4 and C5). This estimate is based on analysis of scale pattern features and the incidence of the brain parasite *Myxobolus arcticus*.

The summer chum run was the largest on record. The total summer chum catch of 156,033 (i.e. the District 111 chum harvest through August 15, Statistical Week 33) was over twice the 1983 to 1992 average and was 6% above the previous record of 147,404 summer chum salmon set in 1991. Hatchery chum salmon returning to the DIPAC Hatchery in Gastineau Channel and the state Snettisham Hatchery remote release site in Limestone Inlet contributed the majority of the catch.

In contrast to the summer chum run, the fall chum run was extremely poor in 1993. The total fall chum harvest, (i.e. chum salmon caught after August 15; Statistical Week 34 through the end of the season) was 10,447 fish. This is 32% of the 1983 to 1992 average of 33,131 and is the smallest fall chum harvest since 1983. Chum salmon that are taken in the fall in District 111 are almost exclusively wild chum stocks from Taku River and Port Snettisham.

The District 111 pink salmon harvest of 17,081 was the smallest odd-year pink salmon harvest since 1967, and 91% below the 1983 to 1992 odd-year average of 199,141 fish. The catch was comprised of wild stocks returning to Taku Inlet and Stephens Passage streams and runs to the DIPAC Hatchery. The DIPAC hatchery's terminal area return of 27,000 pink salmon from a release of 47.3 million fed fry represents a survival of 0.06%.

The total coho catch of 65,536 fish was the fourth largest harvest in the history of the fishery but equal to the 1983 to 1992 average as a result of the extremely large coho salmon catches during the previous three years. This catch includes a combination of wild coho salmon runs to the Taku River and hatchery fish returning to the DIPAC facility near Juneau, as well as other natural and hatchery stocks. The estimated Alaskan hatchery contribution to the District 111 gillnet coho salmon catch was 7,273 fish, or 11% of the total coho catch.

Three-day weekly fishing periods were allowed in Taku Inlet during most of the summer sockeye season except for three four-day weekly periods from July 4 through July 22 during the peak of the sockeye run. High fishing success in both U.S. and Canadian fisheries along with inseason estimates of good escapement provided by the joint U.S./Canada Taku River mark-recapture project prompted the additional fishing time. Although excellent sockeye fishing success continued after July 22, additional fishing time beyond the scheduled three-day weekly period was not allowed due to the expected weakness of the Tatsamenie Lake sockeye run and the desire to improve sockeye escapement to that system. Besides the large sockeye escapement estimated in the Taku River by the joint mark-recapture program, an aerial survey of Crescent Lake in Port Snettisham on August 10 indicated an excellent sockeye escapement into that system also.

Speel Arm, in Port Snettisham, was open for three 2-day weekly openings from June 20 to July 8 to harvest chinook salmon returning to the Snettisham Hatchery. A total of 393 chinook was harvested in excess to hatchery brood stock needs. Port Snettisham was again open from July 11 to July 24 for two 3-day openings inside Gilbert Bay to target enhanced sockeye returning to Sweetheart Creek. These sockeye were small, 4-year-old fish, and were not available to traditional commercial sockeye salmon gear. Consequently, although several vessels attempted to fish this area, there was no reported sockeye catch.

Fall management was initiated on August 15 (Statistical Week 34), when the District 111 gillnet fishery was opened for three days. Poor chum and late coho runs characterized this year's fall fishing. Beginning August 22 (Statistical Week 35) fishing time was reduced to two days as a result of poorer than expected coho and chum catches. Area restrictions were employed during the following week when fishing time was maintained at 2 days, but Taku Inlet was closed above a line from Cooper to Greeley Points. During Statistical Week 37, fishing time was reduced to one day, but the fishing area was expanded to normal lines. During this fishing period, it became apparent that the coho run was late. Two days of fishing were allowed during Statistical Week 38, producing a catch of 14,775 coho salmon. By this time the chum run was nearly finished and three days were given during the following two weeks (Statistical Weeks 39 and 40) to harvest coho salmon. The District 111 drift gillnet fishery was closed for the season on September 29.

Several other fisheries in District 111 harvested transboundary river stocks. The U.S. personal use fishery located in U.S. portions of the Taku River harvested an estimated 21 chinook, 2,854 sockeye, 59 coho, 221 pink, and 7 chum salmon (Appendix D.4) The spring Juneau-area sport fishery harvested an estimated 6,826 chinook salmon, approximately three times the 1983 to 1992 average of 2,250 fish. An estimated 90% of the harvest was composed of mature spawners, and 13% of the harvest was of hatchery origin (coded wire tag estimate). A number of stocks are thought to contribute to the fishery, including those from the Taku, Chilkat, King Salmon and Unuk rivers, and local hatchery stocks; however, the major contributor of mature fish is believed to be the Taku River. The purse seine fishery in Chatham Strait was open north of Hanus Reef for 12 hours on July 11, harvesting 12 chinook, 6,120 sockeye, 660 coho, 80,471 pink, and 30,325 chum salmon.

Canadian Fisheries

Taku River commercial fishers harvested 33,217 sockeye, 3,033 coho, 1,619 large chinook, 171 jack chinook (fish less than 2.27 kg), 16 pink, 15 chum and 11 steelhead salmon in 1993 (Appendix C.5). The sockeye catch was a record and was 72% above the 1983 to 1992 average of approximately 19,303 fish. The catch of large chinook salmon was also a record, roughly two and one half times the 1983 to 1992 average of 651 fish, whereas, the catch of jack chinook was below the 1983 to 1992 average of 186 jack chinook. The catches of all other species were below average (Figure 7, Appendix D.5). The fishery was

open for a total of 34 days, seven days more than average. The seasonal fishing effort was 363 boat-days, 39% above the 1983 to 1992 average of 261 boat-days.

In addition to the commercial catches, the aboriginal fishery harvested an estimated 140 sockeye, 8 coho, and 25 large chinook salmon in 1993 (Appendix D.7).

The Taku River Tlingit First Nation (TRTFN), in cooperation with DFO, conducted a creel census of the Nakina River sport fishery in 1993. This was the second year that this program has operated. The estimated harvest of chinook salmon was 110 large fish; an additional 1,000 chinook were estimated to have been released. Sixty anglers participated in the chinook sport fishery.

A test fishery operated in the Taku River from late August through early October to determine the run timing of coho salmon and recover tags applied through the mark-recapture program. The test fishery catch included 166 sockeye, 1,593 coho, 50 chum, and 13 steelhead salmon (Appendix Table C.8).

The commercial fishery commenced at noon on Monday, June 21 (Statistical Week 26) for a scheduled opening of two days. Fishing time in this week and in the two following weeks was extended by 24 hours in response to above average commercial sockeye CPUE and above average fishwheel catches at Canyon Island.

The peak sockeye catch and CPUE of the season occurred in week 29 (July 12-15), roughly one week earlier than normal. Although the CPUE of 168 sockeye/boat/day was near record values, and about two times the previous ten-year average for this week, the fishery was closed after three days to keep the catch in line with the guideline harvest. The first inseason projection of the total run was made in week 29 at which time a total run of 305,000 sockeye was forecast, 50% above the Canadian preseason forecast of 204,000 sockeye. Based on the updated inseason projection and average run timing, the guideline cumulative Canadian catch through week 29 was 16,100 sockeye; the actual catch at the end of the week was approximately 350 sockeye above this target.

The sockeye catch dropped off somewhat in week 30 but remained above average through the first three days of fishing from July 19 to 22. Above average CPUE and a slight shortfall in the cumulative catch compared to the revised guideline harvest lead to a 24-hour extension. Additional justification came from the fishwheel catch at Canyon Island which peaked on July 20 with a near record catch of 334 sockeye. However, the commercial sockeye CPUE in the fourth day was well below average and the fishery closed after four days.

Fishing conditions were abysmal in week 31 as a result of a Tulsequah flood. Water levels rose about four meters during the week and fishing areas became inundated with debris causing fishing effort to decrease significantly throughout the opening. Fishing was closed after the scheduled 3 days. As a result of the poor catch in week 31, the cumulative catch lagged considerably, i.e. 6,100 sockeye, behind guideline levels.

The opening day of the fishery in week 32 was advanced to noon Sunday, August 1 to compensate for the

wash-out in the previous week. A 24-hour extension was given to the scheduled 3-day opening in this week and in week 33 in response to above average CPUE and a growing shortfall in the catch relative to guideline harvest levels. The opening in week 34 was kept to the scheduled 3-day opening as the sockeye CPUE dropped markedly to below average levels. The number of fishers in the final week of fishing, week 35 (August 23 to 27), was less than one-half the number in the previous week. Fishing time was extended to four days over the scheduled 3-day opening because of the relatively low effort and a small surplus remaining in the coho quota. As a result of the coho quota being taken, the fishery was closed for the season at noon, August 27.

Throughout the season, the inseason forecasts of the total sockeye run remained relatively constant ranging from approximately 297,400 sockeye salmon in week 32, to 314,100 fish in week 30 (Table 3). The Canadian catch of 33,357 fish represented 15.8% to 16.5% of the TAC given the estimate of a total return of 282,446 sockeye salmon.

The combined commercial and aboriginal fishery catch of coho totaled 3,041 fish which was close to the allowable harvest of 3,000 coho in 1993.

As in recent years, both set and drift gillnetting techniques were utilized with the majority of the catch taken in drift gillnets. Mesh sizes were restricted to less than 146 mm through mid-July to minimize the incidental catch of chinook salmon. In addition to this gear, one fishwheel was used by a commercial fisher.

Table 3. Canadian inseason forecasts of total run size, TAC, and Canadian TAC of Taku sockeye salmon, 1993.

Statistical Week	Total Run	TAC	Canadian TAC	Guideline Catch to Date	Actual Catch
preseason	204,000	129,000	23,200		
26	204,000	129,000	23,200	2,300	2,500
27	204,000	129,000	23,200	4,200	5,300
28	204,000	129,000	23,200	6,400	10,600
29	305,000	230,000	41,400	16,100	16,400
30	314,100	239,100	43,000	23,000	21,800
31	301,000	226,000	40,700	26,500	22,900
32	297,400	222,400	40,000	30,900	27,600
33	298,200	223,200	40,200	34,800	31,100
34	310,800	235,800	42,400	39,300	32,500
35	305,500	230,500	41,500	39,900	33,200

Escapement

Sockeye

The total spawning escapement of sockeye salmon in the Canadian portion of the Taku drainage was estimated from the joint Canada/U.S. mark-recapture program. Counting weirs operated by DFO at Little Trapper and Little Tatsamenie lakes provided information on the distribution and abundance of discrete spawning stocks within the watershed. Additional enumeration programs were conducted at Kuthai Lake and the Nahlin River by the TRTFN. Some additional sockeye escapement information was also provided by counts made at the Nakina chinook carcass weir which was also operated by the TRTFN.

The preliminary total Taku River sockeye spawning escapement estimate of 105,031 (border escapement was estimated at 138,554; Appendix C.10) was the fourth highest recorded since the mark-recapture program began in 1984. This exceeded the 1984 to 1992 average of 99,195 sockeye by 6%, and was 31% above the upper limit of the interim escapement goal range of 71,000 to 80,000 sockeye salmon. (Figure 8 and Appendix D.9).

The sockeye escapement through the Little Trapper Lake weir was 17,432, the second highest count on record, and 36% higher than the 1983 to 1992 average of 12,820 (Appendix C.12 and D.9).

The sockeye escapement through the Little Tatsamenie Lake weir was estimated to be 5,028 sockeye (Appendix C.11). This count was derived from an observed count of 4,022 with an adjustment for the number of fish which apparently moved through the weir uncounted. Approximately 20% of the tags recovered at a temporary weir located upstream at Tatsamenie Lake were not recorded as they moved through the Little Tatsamenie Lake weir. The expanded count was 24% below the 1985 to 1992 average of 6,641 (Appendix D.9). However the 1993 count was a marked improvement over the principle brood year escapements in 1988 and 1989 of 2,063 and 3,039 sockeye, respectively. The earlier cycle year is the principle brood year since this stock is predominantly composed of 5-year-old fish. After removal of 798 sockeye used for brood stock, a natural spawning escapement of 4,230 fish remained.

The sockeye escapement through the Kuthai Lake weir is estimated to be 6,312 fish (Appendix C.15). This estimate is based on an expansion of the observed count of 6,102 to account for fish which apparently moved through the weir uncounted. The count was the largest recorded for this lake, and is 3.5 times the average of 1,805 for the years in which the weir was operated. Previous weir counts at Kuthai Lake were 1,658 in 1980, 2,299 in 1981, and 1,457 in 1992.

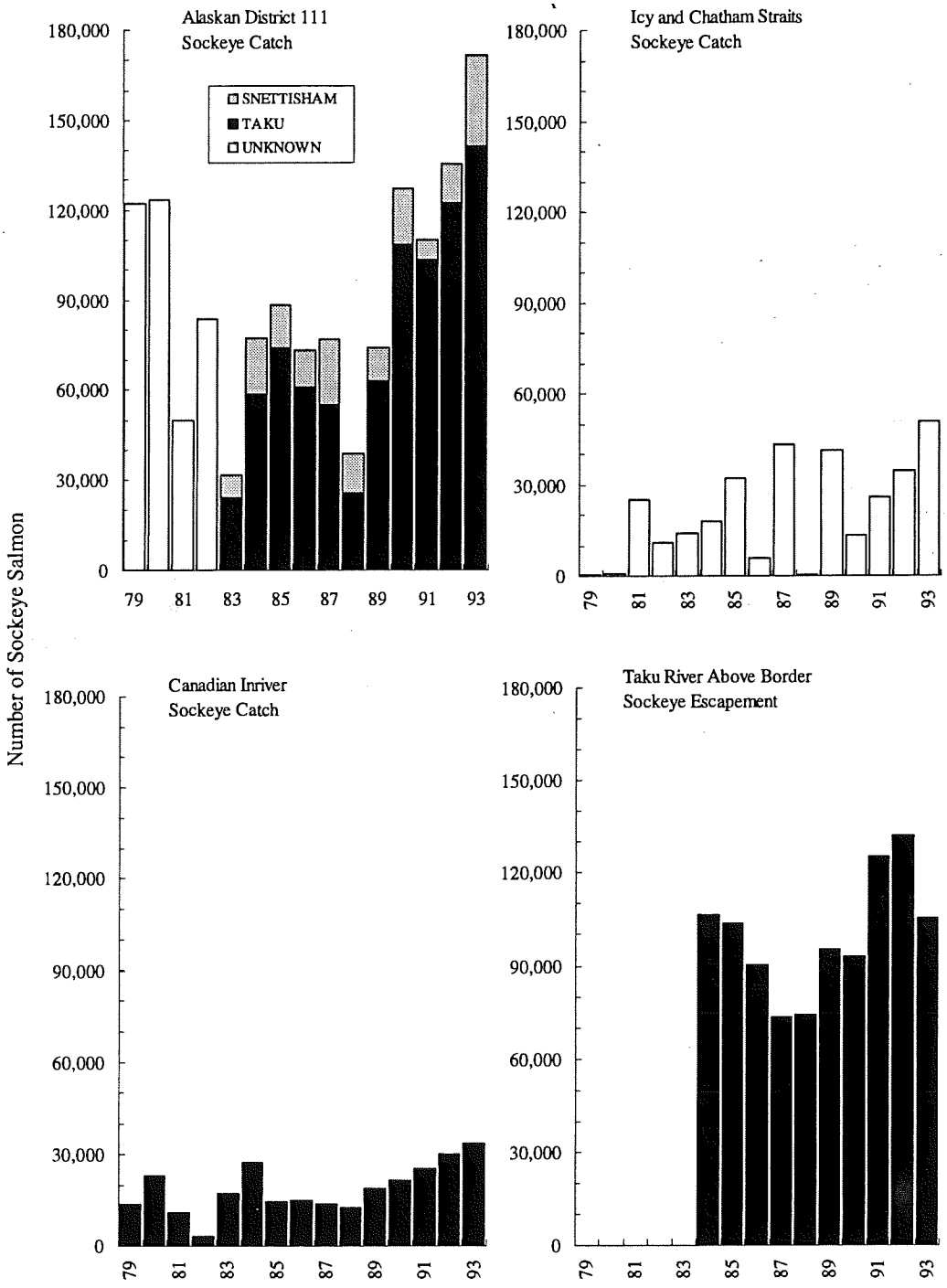

Figure 8. Sockeye catches for the Alaskan District 111, the Icy and Chatham Straits, and the combined Canadian fisheries in the Taku River and Taku sockeye escapements, 1979-1993.

The sockeye escapement through the Nahlin weir was 2,463 fish (Appendix C.14). Some of the previous sockeye counts at the Nahlin weir, (138 in 1988, and 297 in 1992) did not cover the full sockeye migration period. The previous count which is most comparable to the 1993 count was recorded in 1990 when 2,515 sockeye were counted; the weir was installed on June 29 in 1990 and June 27 in 1993.

Chinook

Above average chinook escapements were observed in all of the Taku River tributaries in 1993. The total chinook aerial escapement index count was 13,204 fish, 69% above the 1983 to 1992 average of 7,801 fish, and slightly higher than the index escapement goal of 13,200 chinook (Figure 9). The 1993 combined count was the highest since the aerial survey indices were standardized in 1975, and marked the first time the index escapement goal was achieved. The index consists of peak aerial survey counts of the Nahlin, Nakina, Kowatua, Tatsatua and Dudidontu Rivers and Tseta Creek (Appendix D.10).

Total counts of 49 jack and 584 large chinook salmon were recorded at the Little Tatsamenie Lake weir in 1993; size information was unavailable for an additional 6 fish that passed through the weir. The count of large fish was slightly above the 1985 to 1992 average of 576. The number of jacks counted was 56% of the 1985 to 1992 average of 87.

Total counts of 146 jack and 2,687 large chinook salmon were recorded at the Nahlin River weir by the TRTFN (Appendix C.14). The count of large chinook is substantially higher than counts of 1,911 and 970 recorded in 1988 and 1992, respectively.

Coho

The total above-border coho run is estimated at 114,091. The escapement of 109,457 far exceeds the escapement goal of 27,500 to 35,000 coho salmon and is 85% of the record high estimate of 127,484 in 1991.

With the exception of a 10-day period when water levels were low, fall water levels were sufficiently high in 1993 to turn at least one of the two Canyon Island fish wheels. During this low-water period, one of the fish wheels was motorized in an attempt to continue the mark-recapture program. However mechanical problems were encountered and the attempt was unsuccessful.

The coho enumeration program at Little Tatsamenie weir was terminated early in the season on October 3 and the count of 88 fish (Appendix C.11) is not comparable with previous year's counts (Appendix D.11).

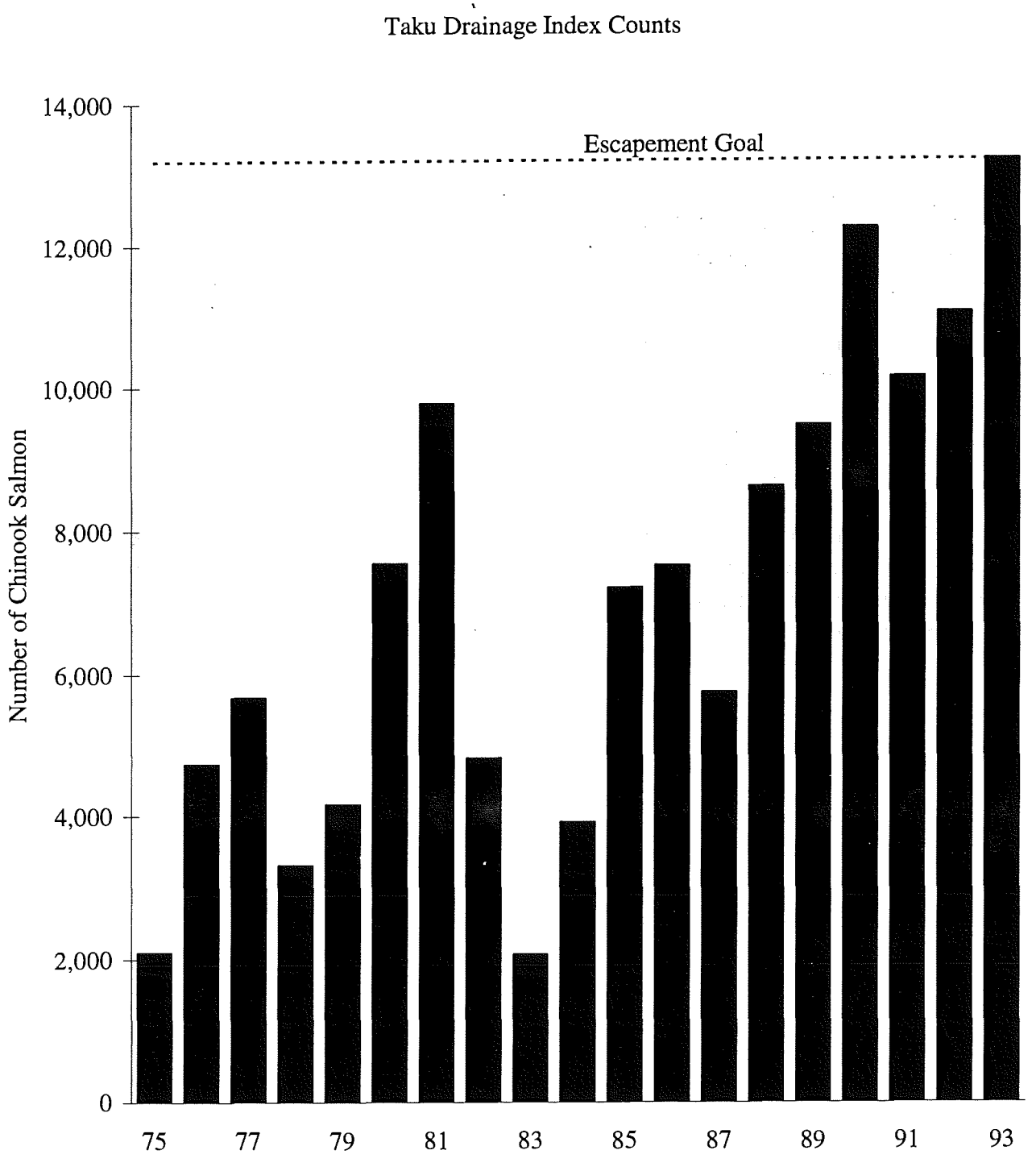

Figure 9. Taku River chinook index escapement counts, 1975-1993.

In some previous years the weir was operated until late October or early November.

The TRTFN operated a weir on the Nahlin River where a total of 326 coho salmon were counted (Appendix C.14). This count is substantially lower than the counts of 1,322 and 970 made in 1988 and 1992, respectively (Appendix D.12).

Pink

There was no program in place to directly estimate the escapement of Taku River pink salmon in 1993.

A total of 1,625 pink salmon were captured in the Canyon Island fish wheels compared to the odd-year average for the 1985 to 1991 period of 31,299. A carcass pitch was not conducted on the Nakina River in 1993 because of the poor run and low number of spaghetti tags applied (n=160). A total of only 350 pink salmon was observed in the principal spawning area on the Nakina River during a survey conducted by the TRTFN. Only one pink salmon was observed moving upstream through the Nakina weir.

Although the escapement of pink salmon in 1993 is unknown, it was certainly far below the spawning escapement goal of 150,000 to 250,000 fish.

Chum

There is no program in place to estimate the escapement of chum salmon to the Taku River. Low chum catches and CPUE in the District 111 gillnet fishery, the Canyon Island fish wheels and the Canadian inriver test fishery suggest that the spawning escapement for this species was poor. A total of 345 chum salmon were caught in the Canyon Island fish wheels in 1993, 56% below the 1984 to 1992 average of 782 fish. It is unlikely that the spawning escapement goal of 50,000 to 80,000 chum salmon was achieved.

Sockeye Run Reconstruction

Based on analysis of scale patterns and brain parasite data, an estimated 141,038 (82.2%) sockeye salmon harvested in District 111 were of Taku River origin (Table 4). An additional 2,854 sockeye salmon were estimated to have been taken in the U.S. inriver personal use fishery. Therefore, the estimated U.S. harvest of Taku River sockeye salmon is 143,892 fish.

Table 4. Taku sockeye salmon run reconstruction, 1993.

	Taku Stocks	Snettisham Stocks
Escapement	105,031	Unknown[a]
Canadian Harvest		
Commercial	33,217	
Food Fishery	140	
Total	33,357	
% Harvest	18.8%	
Test Fishery Catch	166	
Above Border Run	138,554	
U.S. Harvest[a]		
District 111	141,038	30,518
Personal Use	2,854	
Total	143,892	
% Harvest	81.2%	
Test Fishery Catch		19
Total Run	282,446	
Taku Harvest Plan	Minimum	Maximum
Escapement Goal	71,000	80,000
TAC	211,446	202,446
Canadian portion	0.158	0.165
U.S. Portion	0.681	0.711

[a] U.S. harvest estimate differs from Joint Interception Committee estimate because no estimates are made for catches other than the listed fisheries.

The estimate of the magnitude of the above-border sockeye run, based on the joint Canada/U.S. mark-recapture program, was 138,554 fish. Subtracting the total Canadian inriver catch of 33,357 sockeye salmon in the commercial, aboriginal, and test fisheries from the above-border run estimate, results in an above-border escapement estimate of 105,031 fish.

The total run, determined by summing the estimated U.S. harvest (141,038 commercial and 2,854 personal use fish) and the above-border run, was an estimated 282,446 sockeye salmon which was 45% above the 1984 to 1992 average run size of 194,504 fish (Appendix D.13). Based on the escapement goal range of 71,000 to 80,000 fish, the TAC was 202,446 to 211,446 sockeye salmon of which the U.S. harvested an estimated 68.1% to 71.1%; and Canada harvested 15.8% to 16.5% (Table 4). The overall exploitation rate on Taku River sockeye stocks was estimated to be 63% in 1993.

ALSEK RIVER

Alsek River salmon stocks contribute to the U.S. commercial gillnet fisheries located in Dry Bay, at the mouth of the Alsek River (Figure 10). An unknown quantity of Alsek origin fish are also taken in the U.S. commercial gillnet and troll fisheries in the Yakutat area. No commercial fishery exists in the Canadian portions of the Alsek River drainage, although aboriginal and recreational fisheries occur in the Tatshenshini River and some of its headwater tributaries (Figure 10).

Harvest Regulations

Although catch sharing of Alsek salmon stocks between Canada and the U.S. has not been specified, Annex IV does call for a cooperative attempt to rebuild depressed chinook and early-run sockeye stocks. Interim escapement goal ranges for Alsek sockeye and coho salmon have been set by the Transboundary Technical Committee at 33,000 to 58,000 sockeye, and 5,400 to 25,000 coho salmon. Instead of a system-wide chinook escapement goal, a revised goal has been established which is now expressed in terms of the Klukshu stock only: 4,700 chinook salmon. This revision, which was made in the fall of 1991, was made to eliminate the uncertainty over expansion factors which had no scientific backing.

U.S. Fisheries

Catch and Effort

The U.S. Dry Bay commercial set gillnet fishery harvested 300 chinook, 20,043 sockeye, 1,215 coho, and 49 chum salmon (Appendix E.1). The harvest of sockeye salmon was 37% above the 1983 to 1992 average of 14,603 and was the highest catch since 1986. The catch of chinook salmon was 42% above the 1983 to 1992 average, while the coho and chum catches were below average (Figure 11 and Appendix E.4). The inriver harvest of sockeye salmon totaled 19,295 fish, or 96% of the catch, with the surf area accounting for the remainder of the catch.

Preseason expectations were for a below average overall sockeye run, composed of an above average early run component and a below average late run componênt. As in recent years, the initial opening of the

fishery was delayed from the traditional opening on the first Monday in June in order to conserve chinook and early run sockeye salmon. The fishery began this year on the second Monday of June (June 14; Statistical Week 25).

The initial fishing period was limited to one day to conserve chinook and early run sockeye stocks. Catches and CPUE were carefully monitored inseason to assess run strength for possible extensions or reductions of fishing time. For the first week, fishing time was not extended beyond the scheduled 24-hour opening. Fishing time was increased to 48 hours during the second week of the season and 6,267 sockeye salmon were taken, a record number for this period. A three-day opening was allowed during the last week of June (Statistical Week 27) based on the excellent sockeye catches and CPUE during the prior week. CPUE and catch dropped during the third week, indicating that a strong early run of fish had already passed through the fishery. Fishing time was reduced to two days per week for the next two weeks. Fishing time was increased to three days per week beginning in Statistical Week 30 (July 19) because effort levels were reduced as a result of many fishermen having moved to fish other rivers, and forecasts from ADF&G abundance models continued to indicate good run strength. Fishing time was increased to four days during the first week of August (Statistical Week 32). Three-day fishery openings were allowed for the next six weeks. Poor coho catches late in the season caused fishing time to be reduced to two days during Statistical Week 39 (late September). The fishery was then closed because the coho harvest remained below average and initial coho salmon aerial surveys of escapement revealed few fish in U.S. spawning tributaries.

The U.S. Dry Bay fishery typically catches few Alsek chinook salmon. With the delayed opening of the fishery in recent years, most of the chinook run passes through Dry Bay prior to the initial opening. In addition, a 6-inch maximum mesh restriction through early July has been in effect since 1987, effectively eliminating the use of chinook gear.

Sockeye Management Model

ADF&G managers use abundance-forecasting models (Harvest Rate and Multiple Regression models) to assist in managing the Alsek sockeye fishery. In most years since 1984, these models have generally worked well at predicting the total season catch, Klukshu escapement, and index run size (catch + Klukshu escapement). In 1993 the models tended to over-predict abundance particularly early in the season (Table 5), although this trend was far less pronounced for the Multiple Regression Model (MRM). The MRM predictions were much more accurate than the Harvest Rate Model (HRM); after Statistical Week 29 the MRM predicted the total index run to within 1,600 fish (4%), the total season catch to within 2,000 fish (11%), and the Klukshu escapement to within 3,700 fish (22%). The MRM has been more accurate at predicting Alsek sockeye abundance during each of the last two years and will be the only model used for generating 1994 inseason abundance predictions.

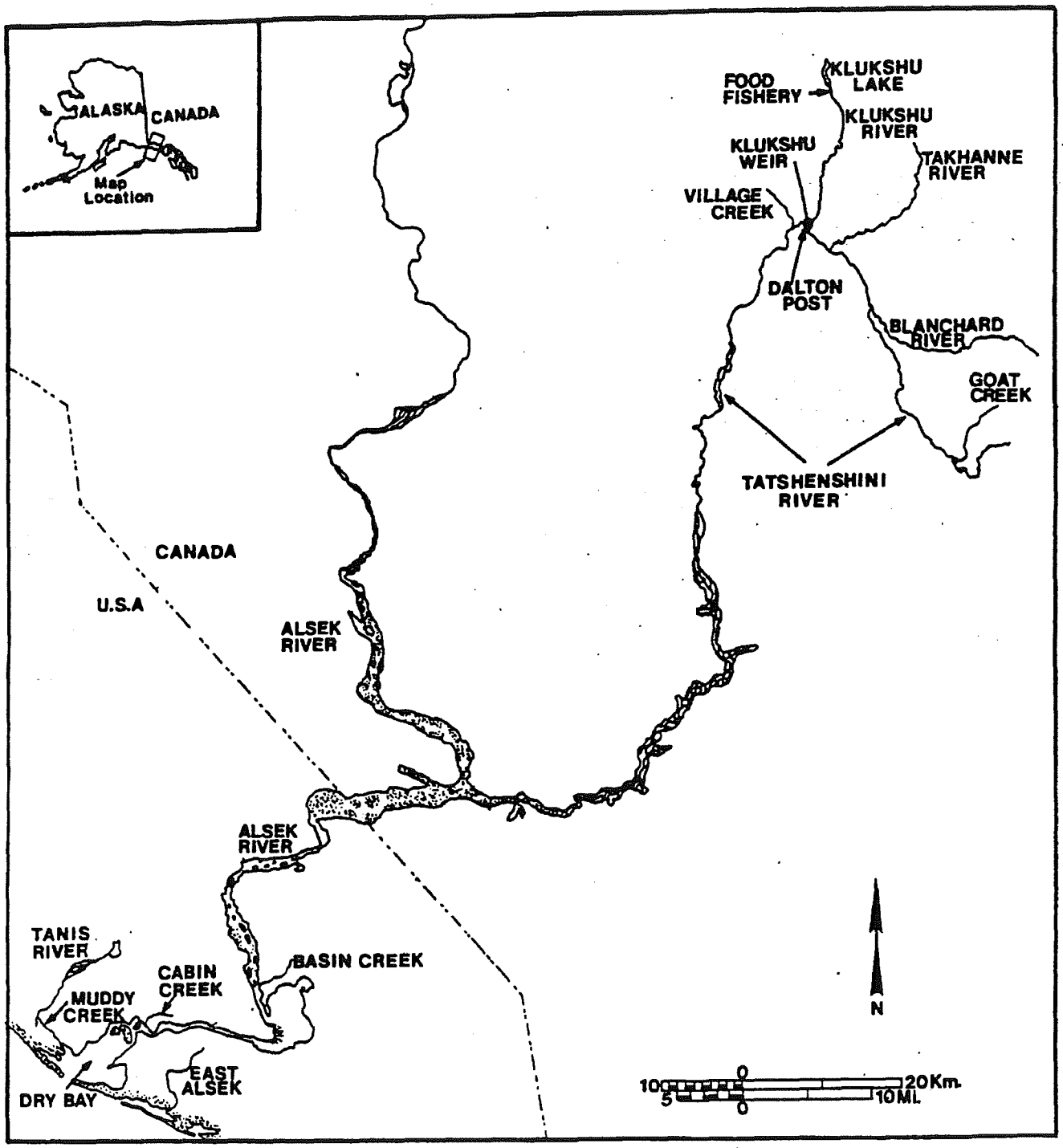

Figure 10. The Alsek River and principal U.S. and Canadian fishing areas.

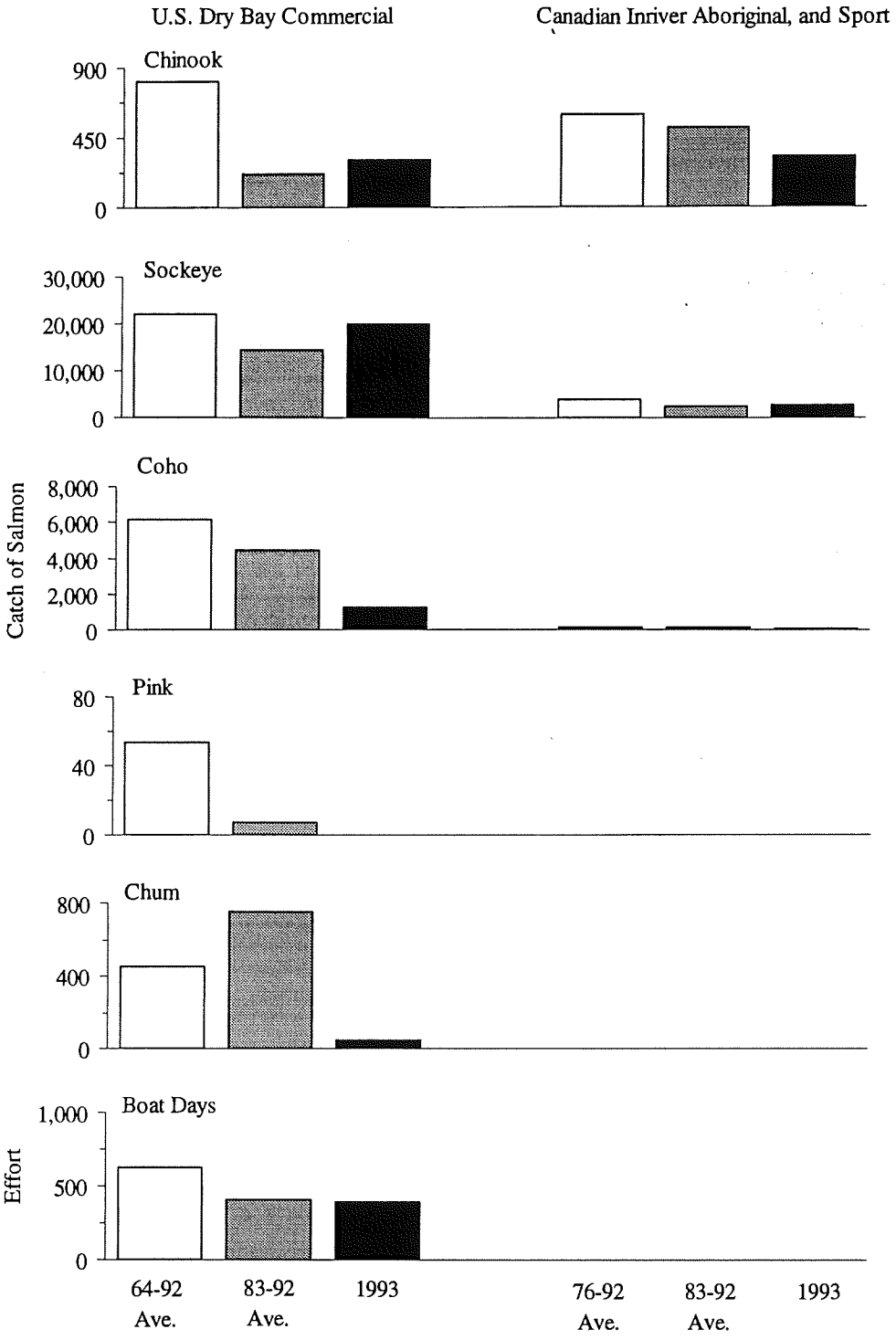

Figure 11. Average catches and fishing efforts compared with 1993 values for the Alaskan Dry Bay commercial fishery and the Canadian combined food and recreational fisheries in the Alsek River.

Table 5. Inseason U.S. forecasts of the total 1993 Alsek River catch, Klukshu River weir count, and total index run size (catch + Klukshu weir count) using two predictive models.

Stat. Week	Start Date	Harvest Rate Model			Multiple Regression Model		
		Total Catch	Klukshu Weir Count	Index Run	Total Catch	Klukshu Weir Count	Index Run
26	21-Jun	42,977	45,128	88,104	24,521	31,272	55,793
27	28-Jun	38,717	32,130	70,847	25,316	25,434	50,749
28	05-Jul	31,855	24,990	56,845	26,210	24,797	51,007
29	12-Jul	26,262	27,705	53,967	18,007	20,422	38,429
30	19-Jul	23,439	23,261	46,700	18,869	20,308	39,177
31	26-Jul	21,371	20,799	42,171	19,347	20,383	39,730
Actual		20,043	16,740	36,783	20,043	16,740	36,783

Canadian Fisheries

The center of aboriginal food fishing activity in the Alsek drainage occurs at the Champagne/Aishihik Indian village of Klukshu, on the Haines Road, about 60 km south of Haines Junction. Salmon are harvested by means of gaff and traditional fish traps as the fish migrate up the Klukshu River into Klukshu Lake. Gaff fisheries also exist on Village Creek, Goat Creek, and the Blanchard River. As in recent years, management actions were taken to conserve chinook and early run sockeye stocks. The initial fishing plan for the period prior to August 15 allowed only elders to fish by means of fish-traps for 1.25 days per week. After August 15, fishing by traps was to be allowed 3.25 days per week.

The gaff fishery was open six days per week in all areas to September 5; however, gaffing for sockeye salmon in the Klukshu River was prohibited prior to August 15, except by elders who were allowed to fish for sockeye salmon 1.25 days each week during this period. The sockeye closure was initially scheduled to be in effect until August 15; however, the strong early sockeye run resulted in the opening of the sockeye gaff fishery to non-elders for six days per week on July 17. Commencing September 5, the gaff fishery was not restricted.

The aboriginal food fishery harvested an estimated 152 chinook and 2,361 sockeye salmon. Although the Klukshu chinook escapement of 3,302 was 55% above the 1983 to 1992 average, the catch of 152 chinook did not reflect the same, and was 22% below the average of 194 fish. The sockeye catch was 18% above the

1983 to 1992 average of 2,006 sockeye (Appendix E.6). The food fishery catch data was summarized weekly from daily catch statistics gathered inseason. Weekly catches and annual comparisons appear in Appendices E.2 and E.6.

The majority of the sport fishing effort on this drainage occurs on the Tatshenshini River, at and just downstream of the mouth of the Klukshu River in the vicinity of the abandoned settlement of Dalton Post. At the onset of the season, retention of sockeye salmon in the recreational fishery was prohibited prior to August 15 to protect early runs; however, due to indications of a very strong run of early stock, the recreation fishery was opened on July 17. The chinook daily catch and possession limits were one and two, respectively; the overall daily catch and possession limits for salmon were increased from two and four to five and ten respectively to allow an increased sockeye salmon harvest, but subject to the chinook limits. Sport fishing in the Dalton Post area was open from 6:00 am Saturday to 12:00 noon Tuesday each week. After September 31, the fishery was open seven days per week and extended to include the Klukshu River. The headwater areas within the drainage, upstream of the British Columbia/Yukon border, were closed for the season to protect spawning chinook salmon.

The recreational fishery harvested an estimated 171 chinook, 329 sockeye, and 37 coho salmon. Compared to 1983 to 1992 average sport catches, the chinook catch was 45% below average, the sockeye catch was 12% below average, and the coho catch was 68% below average. The catch data was derived from a creel census program conducted in the Dalton Post area by the Klukshu weir personnel. Additional catch data was collected in other areas/tributaries by a DFO guardian. Weekly estimates and annual comparisons are listed in Appendices E.2 and E.6.

Escapement

It is currently not possible to accurately assess whether the system-wide escapement goals for Alsek sockeye and coho salmon are being met because total drainage enumeration programs are not established. A large but unknown and presumably variable proportion of the escapement of each species is enumerated at the weir on the Klukshu River. Current escapement monitoring programs including the Klukshu weir, Village Creek electronic counter, and aerial surveys do, however, allow annual comparisons of escapement indices. The most reliable comparative escapement index for Alsek drainage salmon stocks is the Klukshu River weir count.

Sockeye

A total of 16,740 sockeye salmon were counted through the Klukshu weir in 1993 and consisted of an above average early run count of 5,369 (count through August 15), and a below average 11,371 late run sockeye salmon (Figure 12). The early run was 67% above the 1983 to 1992 average of 3,206 fish. The late run, however, was 26% below average and was the seventh lowest count on record. Of the total number of sockeye migrating upstream through the weir, 1,808 sockeye were taken in the aboriginal fishery, and 11 for brood stock, leaving a spawning escapement of 14,921 fish (Appendix E.3). The estimated Village Creek sockeye escapement was 3,135, 42% below the 1986 to 1992 average of 5,432 fish (Appendix E.8).

Comparative counts for other Alsek index tributaries appear in Appendix E.8. Aerial surveys of tributaries on the U.S. side of the border were limited in 1993. A count of 4,800 sockeye salmon for Basin Creek was extremely good, exceeding the 1985 to 1992 average count of 735 fish by over six times. The peak count for the Tanis River was 900 sockeye salmon, 43% below the 1985 to 1992 average of 1,573 fish.

Chinook

The most reliable comparative escapement index for Alsek drainage is the Klukshu weir count. The chinook weir count in 1993 of 3,302 chinook salmon was 55% above the 1983 to 1992 average of 2,126 fish (Appendix E.7 and Figure 13). Of the total number of chinook that migrated upstream through the weir, 64 were caught in the aboriginal fishery, and 18 used for brood stock leaving a spawning escapement of 3,220 (Appendix E.3). Although the 1993 count was the second highest count recorded (since 1976), the escapement goal of 4,700 Klukshu chinook was not met.

Aerial surveys were again conducted in 1993 for several other index streams (Appendix E.9). The count of 351 fish in the Takhanne River exceeded the 1984 to 1992 average of 201 by 75%. Aerial counts of 326 at the Blanchard River and 50 at Goat Creek approximately equaled the 1984 to 1992 averages of 337 and 57 fish, respectively.

Coho

Although it is presumed that the Klukshu weir count of coho salmon is incomplete and does not include fish that migrate after mid-October, the 1993 count of 788 fish was 55% below the 1983 to 1992 average of 1,732 fish (Figure 14 and Appendix E.7).

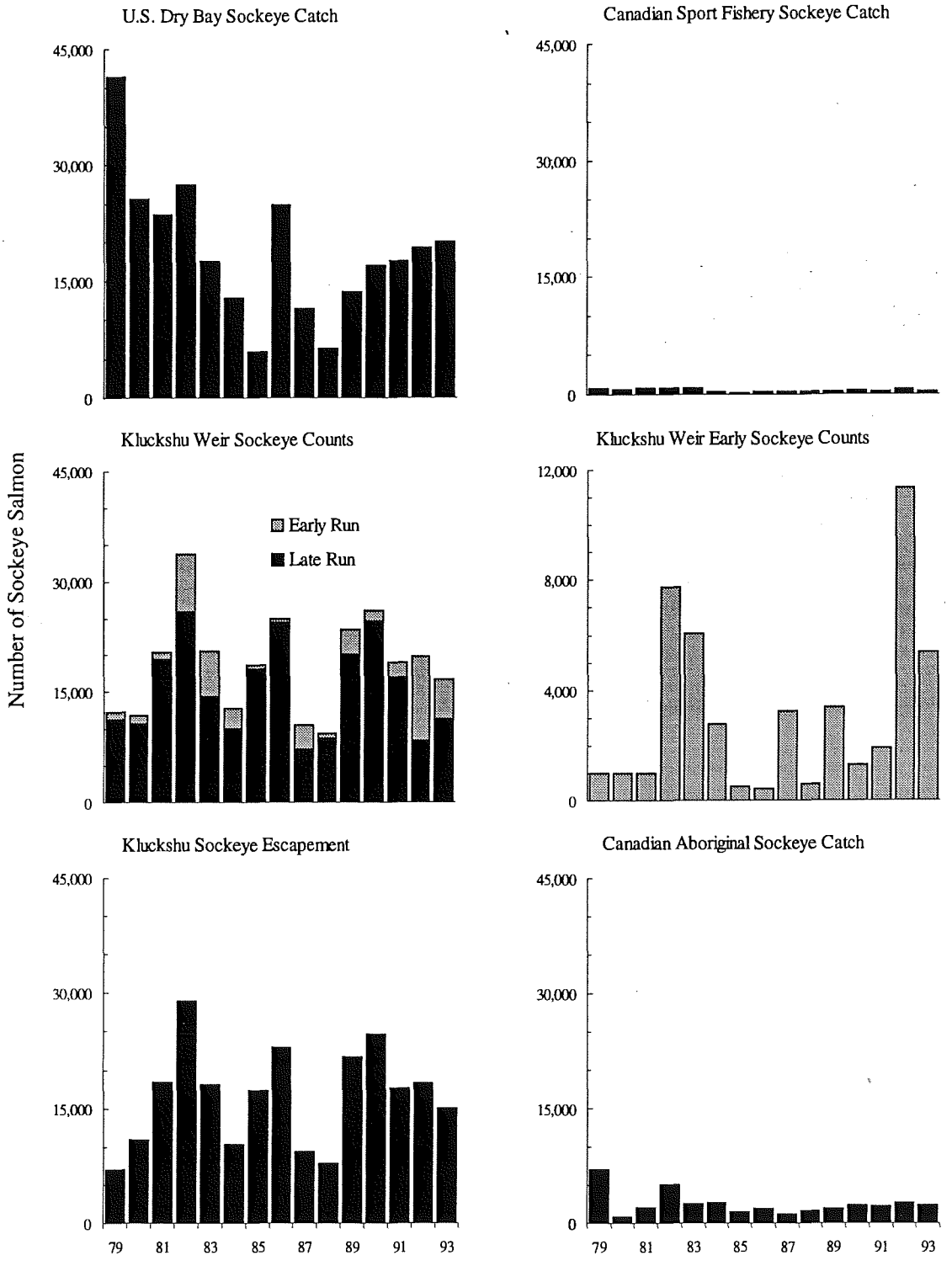

Figure 12. Alsek sockeye catches and weir counts, 1979-1993.

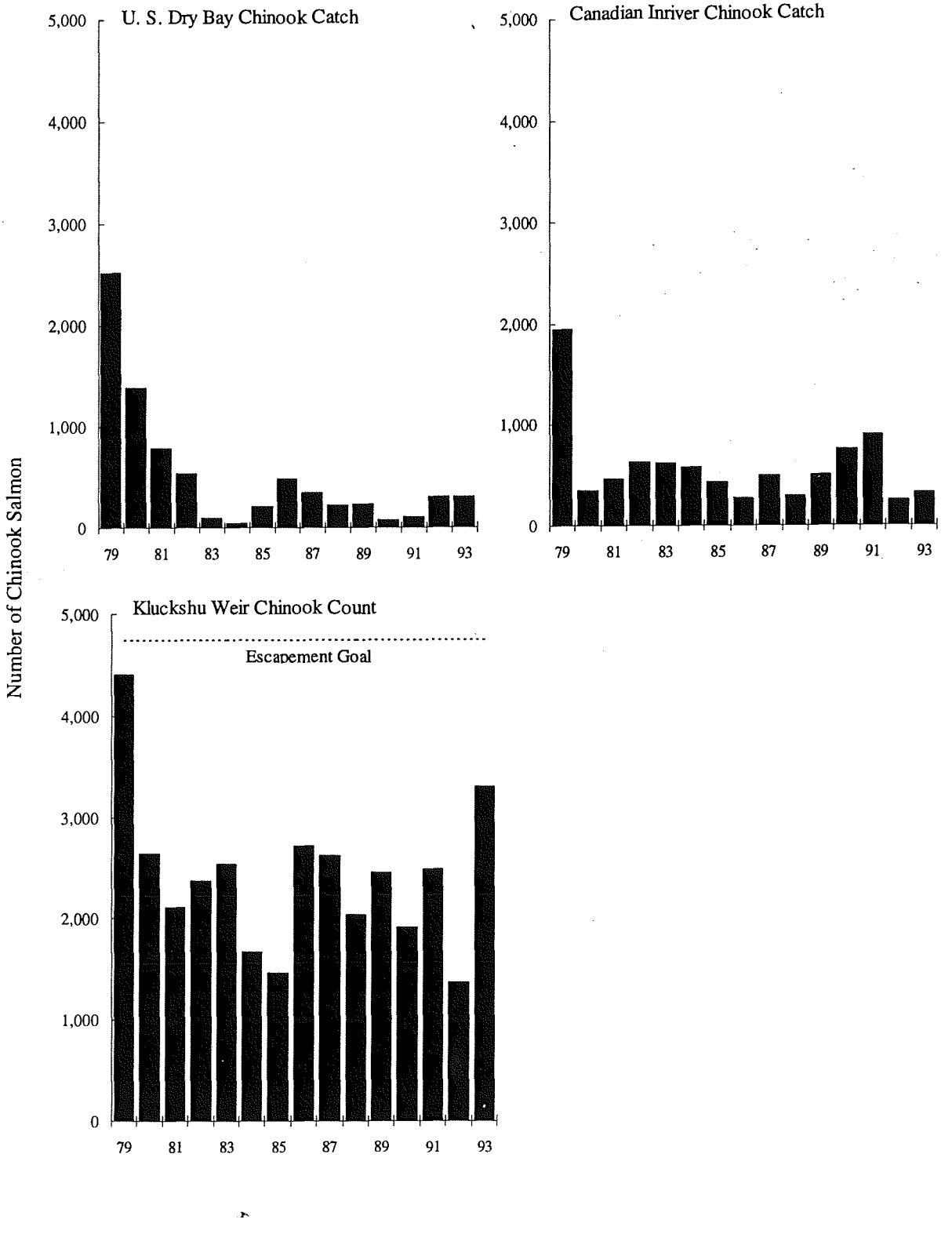

Figure 13. Alsek chinook catches and weir counts, 1979-1993.

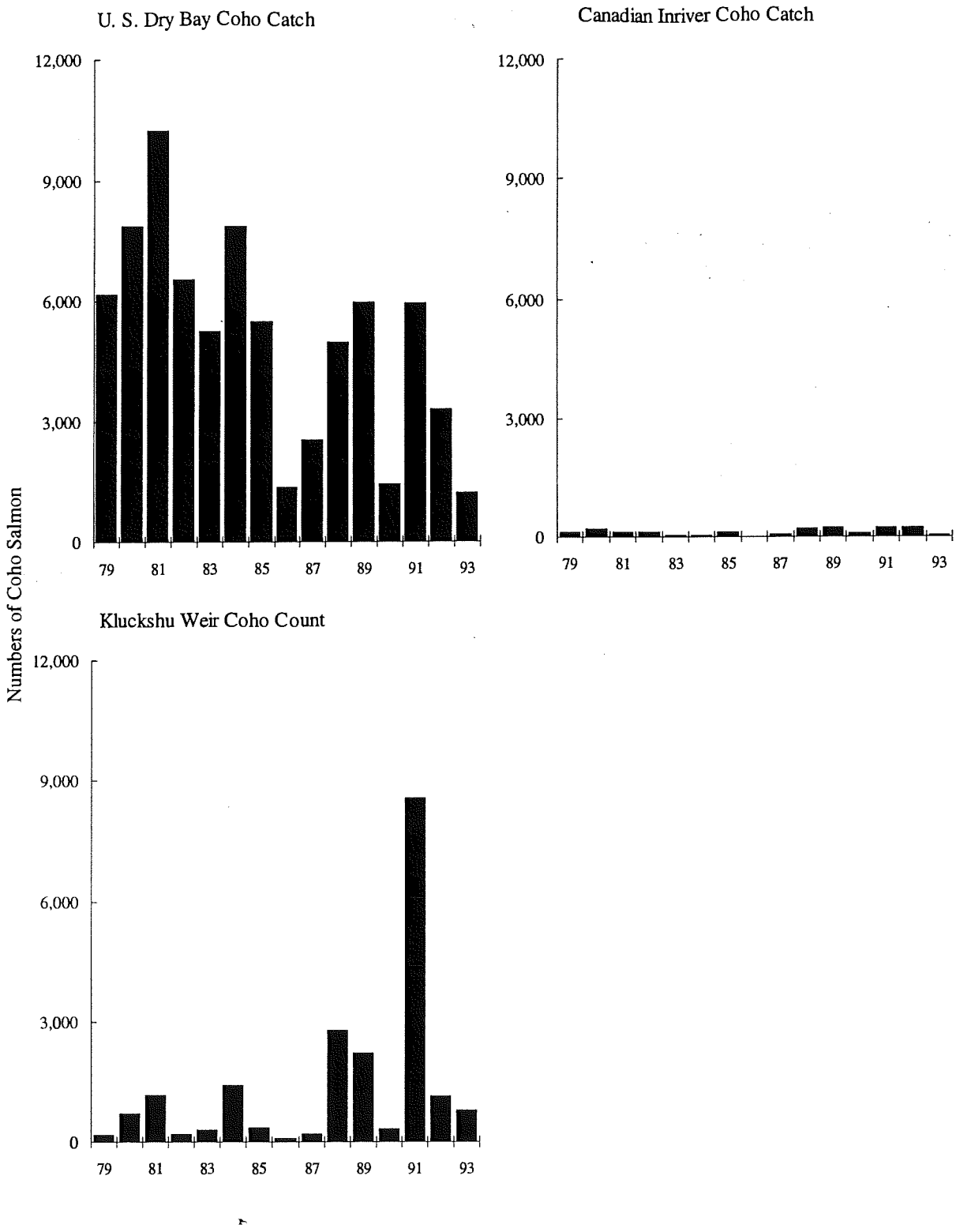

Figure 14.Alsek coho catches and weir counts, 1979-1993.

Aerial surveys for coho salmon in U.S. tributaries to the Alsek River were again limited in 1993. Combined peak aerial counts totaled 800 coho salmon, approximately 26% below the 1985 to 1992 average of 1,081 (Appendix E.10).

Run Reconstruction

Expectations for the sockeye run in 1993 were for a below average overall run composed of an above average early run component and a below average late run component. The sockeye run developed slightly better than expected, with a combined U.S. and Canadian total sockeye harvest slightly above average, an above average early run Klukshu escapement count and a below average late run escapement count (Table 6).

Estimates of the Klukshu contribution to the total sockeye run to the Alsek drainage vary from 37%, as estimated from an ADF&G mark-recapture study in 1983, to 60%, based on Canadian fishery managers' professional judgment. The Klukshu weir count divided by the estimated percent Klukshu fish minus the recreational and aboriginal fishery catches yields an escapement estimate for the Alsek River. The estimated escapement added to the U.S. commercial and subsistence catches yields an estimate of the entire Alsek run. Using the 37% to 60% contribution range, the estimated sockeye escapement in the Alsek River was on the order of 25,000 to 43,000 fish and the estimated total Alsek sockeye run was on the order of 45,000 to 63,000 sockeye salmon. The interim escapement goal for the Alsek River is from 33,000 (U.S.) to 58,000 (Canada) fish.

Table 6. Catch and Klukshu index escapement data for Alsek sockeye, chinook, and coho salmon for 1993. Data is preliminary.

	Sockeye	Chinook	Coho
Escapement Index[a]			
Klukshu Weir Count	16,740	3,302	788
Klukshu Escapement	14,921	3,220	NA
Harvest[b]			
U.S. Commercial	20,043	300	1,215
U.S. Subsistence	80	37	30
Canadian Sport	329	171	37
Canadian Abor.	2,361	152	0
Total	22,813	660	1,282

[a] Klukshu River salmon stocks represent an assumed large and variable portion of the total Alsek River salmon escapement.

[b] U.S. harvest estimate differs from Joint Interception Committee estimate because no estimates are made for catches other than the listed fisheries.

APPENDICES

Appendix A.1. Weekly salmon catch and effort in the Alaskan Subdistrict 106-41 and-106-42 (Sumner Strait) commercial drift gillnet fishery, 1993.

		Catch					Effort		
Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
26	20-Jun	132	3,180	227	598	500	58	2	116
27	27-Jun	130	12,614	1,116	29,051	3,474	66	2	132
28	04-Jul	54	13,172	1,596	21,167	11,296	68	2	136
29	11-Jul	67	17,549	3,404	32,557	20,492	80	2	160
30	18-Jul	14	13,947	3,312	19,465	10,236	74	2	148
31	25-Jul	5	23,232	6,590	40,647	17,205	78	3	234
32	01-Aug	8	20,763	5,911	27,903	8,654	79	3	237
33	08-Aug	10	12,061	5,693	28,896	6,188	73	3	219
34	15-Aug	7	8,719	9,419	50,201	3,287	72	3	216
35	22-Aug	10	3,554	20,041	39,550	6,806	79	3	237
36	29-Aug	8	556	14,802	4,611	2,552	91	3	273
37	05-Sep	5	339	13,813	1,750	2,122	86	2	172
38	12-Sep	0	137	20,286	523	1,816	87	2	174
39	19-Sep	5	34	20,921	61	1,601	59	3	177
40	26-Sep	1	2	6,999	0	666	43	2	86
41	03-Oct	2	0	772	0	100	11	1	11
Total		458	129,859	134,902	296,980	96,995	1,104	38	2,728

Appendix A.2. Weekly stock proportions of sockeye salmon harvested in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) commercial drift gillnet fishery, 1993. Data based on scale pattern analysis (SPA).

			Stikine		
Week	Alaska	Canada	Tahltan	non-Tahltan	Total
26	0.319	0.186	0.460	0.036	0.496
27	0.320	0.234	0.410	0.036	0.446
28	0.331	0.265	0.313	0.091	0.404
29	0.199	0.359	0.162	0.280	0.442
30	0.534	0.305	0.078	0.083	0.161
31	0.377	0.277	0.045	0.301	0.347
32	0.499	0.315	0.013	0.173	0.186
33	0.300	0.460	0.057	0.183	0.239
34	0.368	0.483	0.069	0.079	0.149
35	0.360	0.461	0.034	0.145	0.179
36	0.360	0.461	0.034	0.145	0.179
37	0.360	0.461	0.034	0.145	0.179
38	0.360	0.461	0.034	0.145	0.179
39	0.360	0.461	0.034	0.145	0.179
40	0.360	0.461	0.034	0.145	0.179
Total	0.369	0.327	0.134	0.169	0.304

Appendix A.3. Weekly stock-specific catch of sockeye salmon in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) commercial drift gillnet fishery, 1993. Data based on SPA.

			Stikine		
Week	Alaska	Canada	Tahltan	non-Tahltan	Total
26	1,013	590	1,462	114	1,576
27	4,034	2,954	5,167	459	5,626
28	4,366	3,484	4,128	1,194	5,322
29	3,492	6,306	2,837	4,914	7,751
30	7,454	4,249	1,085	1,159	2,244
31	8,748	6,429	1,055	7,000	8,055
32	10,365	6,542	267	3,589	3,856
33	3,623	5,553	683	2,202	2,885
34	3,211	4,211	604	693	1,297
35	1,280	1,639	121	514	635
36	200	256	19	80	99
37	122	156	12	49	61
38	49	63	5	20	24
39	12	16	1	5	6
40	1	1	0	0	0
Total	47,970	42,450	17,446	21,992	39,438

Appendix A.4. Weekly salmon catch and effort in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1993.

		Catch					Effort		
Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
26	20-Jun	35	812	115	286	139	12	2	24
27	27-Jun	43	1,481	303	3,196	340	13	2	26
28	04-Jul	71	4,721	747	15,183	2,831	25	2	50
29	11-Jul	115	9,067	3,009	23,790	7,146	44	2	88
30	18-Jul	74	12,093	2,542	16,807	5,243	53	2	106
31	25-Jul	27	15,041	5,069	35,820	6,142	51	3	153
32	01-Aug	17	13,803	3,798	21,190	2,858	48	3	144
33	08-Aug	39	10,551	4,124	32,501	2,359	51	3	153
34	15-Aug	4	5,459	4,205	37,719	2,075	40	3	120
35	22-Aug	3	2,338	7,195	42,393	2,136	42	3	126
36	29-Aug	10	359	5,398	8,252	1,447	35	3	105
37	05-Sep	29	211	6,981	2,051	992	44	2	88
38	12-Sep	43	103	12,142	1,483	1,139	50	2	100
39	19-Sep	19	44	22,491	294	1,134	65	3	195
40	26-Sep	2	13	15,114	8	1,261	66	2	132
41	03-Oct	3	0	2,903	1	364	36	1	36
Total		534	76,096	96,136	240,974	37,606	675	38	1,646

Appendix A.5. Weekly stock proportions of sockeye salmon harvested in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1993. Data based on SPA.

			Stikine		
Week	Alaska	Canada	Tahltan	non-Tahltan	Total
26	0.674	0.172	0.154	0.000	0.154
27	0.565	0.088	0.326	0.020	0.347
28	0.537	0.348	0.115	0.000	0.115
29	0.545	0.396	0.008	0.051	0.058
30	0.435	0.392	0.012	0.160	0.172
31	0.449	0.295	0.009	0.247	0.256
32	0.543	0.308	0.011	0.138	0.149
33	0.276	0.524	0.037	0.163	0.200
34	0.372	0.274	0.091	0.264	0.355
35	0.328	0.391	0.074	0.207	0.281
36	0.328	0.391	0.074	0.207	0.281
37	0.328	0.391	0.074	0.207	0.281
38	0.328	0.391	0.074	0.207	0.281
39	0.328	0.391	0.074	0.207	0.281
40	0.328	0.391	0.074	0.207	0.281
Total	0.451	0.357	0.036	0.156	0.192

Appendix A.6. Weekly stock-specific catch of sockeye salmon in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1993. Data based on SPA.

			Stikine		
Week	Alaska	Canada	Tahltan	non-Tahltan	Total
26	547	140	125	0	125
27	837	131	483	30	513
28	2,535	1,643	543	0	543
29	4,946	3,592	70	459	529
30	5,266	4,744	151	1,932	2,083
31	6,759	4,437	129	3,717	3,846
32	7,492	4,255	146	1,910	2,056
33	2,913	5,532	389	1,717	2,106
34	2,029	1,493	496	1,440	1,936
35	767	914	172	485	657
36	118	140	26	74	101
37	69	83	16	44	59
38	34	40	8	21	29
39	14	17	3	9	12
40	4	5	1	3	4
Total	34,330	27,167	2,758	11,841	14,599

Appendix A.7. Weekly salmon catch in the Alaskan District 106 commercial drift gillnet fisheries, 1993. Catches do not include Blind Slough terminal area harvests. Effort may be less than the sum of effort from 106-41 & 106-42 and 106-30 since some boats fished in more than one subdistrict.

		Catch					Effort		
Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
26	20-Jun	167	3,992	342	884	639	70	2	140
27	27-Jun	173	14,095	1,419	32,247	3,814	79	2	158
28	04-Jul	125	17,893	2,343	36,350	14,127	93	2	186
29	11-Jul	182	26,616	6,413	56,347	27,638	124	2	248
30	18-Jul	88	26,040	5,854	36,272	15,479	127	2	254
31	25-Jul	32	38,273	11,659	76,467	23,347	129	3	387
32	01-Aug	25	34,566	9,709	49,093	11,512	127	3	381
33	08-Aug	49	22,612	9,817	61,397	8,547	122	3	366
34	15-Aug	11	14,178	13,624	87,920	5,362	111	3	333
35	22-Aug	13	5,892	27,236	81,943	8,942	117	3	351
36	29-Aug	18	915	20,200	12,863	3,999	126	3	378
37	05-Sep	34	550	20,794	3,801	3,114	130	2	260
38	12-Sep	43	240	32,428	2,006	2,955	137	2	274
39	19-Sep	24	78	43,412	355	2,735	124	3	372
40	26-Sep	3	15	22,113	8	1,927	109	2	218
41	03-Oct	5	0	3,675	1	464	47	1	47
Total		992	205,955	231,038	537,954	134,601	1,772	38	4,353

Appendix A.8. Weekly stock proportions of sockeye salmon harvested in the Alaskan District 106 commercial drift gillnet fisheries, 1993. Data based on SPA.

			Stikine		
Week	Alaska	Canada	Tahltan	non-Tahltan	Total
26	0.391	0.183	0.398	0.029	0.426
27	0.346	0.219	0.401	0.035	0.436
28	0.386	0.287	0.261	0.067	0.328
29	0.317	0.372	0.109	0.202	0.311
30	0.488	0.345	0.047	0.119	0.166
31	0.405	0.284	0.031	0.280	0.311
32	0.517	0.312	0.012	0.159	0.171
33	0.289	0.490	0.047	0.173	0.221
34	0.370	0.402	0.078	0.150	0.228
35	0.347	0.433	0.050	0.169	0.219
36	0.347	0.434	0.050	0.169	0.219
37	0.348	0.434	0.049	0.169	0.218
38	0.346	0.431	0.051	0.171	0.223
39	0.342	0.422	0.056	0.180	0.236
40	0.332	0.400	0.068	0.199	0.267
Total	0.400	0.338	0.098	0.164	0.262

Appendix A.9. Weekly stock-specific catch of sockeye salmon in the Alaskan District 106 commercial drift gillnet fisheries, 1993. Catches do not include Blind Slough terminal area harvests. Data based on SPA.

			Stikine		
Week	Alaska	Canada	Tahltan	non-Tahltan	Total
26	1,561	730	1,587	114	1,701
27	4,871	3,085	5,650	489	6,139
28	6,901	5,127	4,671	1,194	5,865
29	8,438	9,898	2,907	5,373	8,280
30	12,720	8,993	1,236	3,091	4,327
31	15,507	10,866	1,184	10,717	11,901
32	17,857	10,797	413	5,499	5,912
33	6,536	11,085	1,072	3,919	4,991
34	5,240	5,704	1,100	2,133	3,233
35	2,046	2,554	294	998	1,292
36	318	397	45	155	200
37	191	239	27	93	120
38	83	103	12	41	53
39	27	33	4	14	18
40	5	6	1	3	4
Total	82,300	69,617	20,205	33,833	54,038

Numbers may not sum due to rounding error.

Appendix A.10. Weekly salmon catch and effort in the Alaskan District 108 commercial drift gillnet fishery, 1993. Catches do not include Ohmer Creek terminal area harvests. The permit days are adjusted for boats which did not fish the entire opening and are less than the sum of the permits times days open.

		Catch					Effort		
Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
26	20-Jun	589	2,317	46	30	94	47	2	94
27	27-Jun	363	11,500	152	2,521	508	61	4	140
28	04-Jul	309	19,439	307	4,776	3,261	90	4	191
29	11-Jul	196	20,132	503	7,728	5,382	101	5	222
30	18-Jul	84	11,765	563	8,825	6,221	83	5	226
31	25-Jul	40	6,797	660	6,156	3,510	38	5	101
32	01-Aug	13	3,154	509	3,938	1,372	24	5	66
33	08-Aug	14	956	444	2,322	1,058	11	3	33
34	15-Aug	4	448	1,535	1,197	341	17	3	51
35	22-Aug	10	261	1,933	1,745	378	15	3	45
36	29-Aug	1	99	2,587	423	246	28	3	84
37	05-Sep	0	0	0	0	0	0	0	0
38	12-Sep	0	0	0	0	0	0	0	0
39	19-Sep	2	2	1,738	0	33	12	3	36
40	26-Sep	2	4	2,449	0	72	15	2	30
41	03-Oct	1	0	881	0	28	14	1	14
Total		1,628	76,874	14,307	39,661	22,504	556	48	1,333

Appendix A.11. Weekly stock proportions and stock-specific catch of sockeye salmon in the Alaskan District 108 commercial drift gillnet fishery, 1993. Catches do not include Ohmer Creek terminal area harvests. Data based on SPA.

			Stikine		
Week	Alaska	Canada	Tahltan	non-Tahltan	Total
Proportions					
26	0.136	0.149	0.522	0.193	0.715
27	0.179	0.084	0.541	0.195	0.736
28	0.170	0.120	0.413	0.296	0.710
29	0.250	0.122	0.135	0.493	0.628
30	0.312	0.141	0.085	0.461	0.546
31	0.305	0.062	0.054	0.580	0.634
32	0.256	0.112	0.027	0.605	0.633
33	0.391	0.038	0.016	0.555	0.571
34	0.139	0.201	0.055	0.604	0.660
35	0.139	0.201	0.055	0.604	0.660
36	0.139	0.201	0.055	0.604	0.660
37	0.139	0.201	0.055	0.604	0.660
38	0.139	0.201	0.055	0.604	0.660
39	0.139	0.201	0.055	0.604	0.660
40	0.139	0.201	0.055	0.604	0.660
Total	0.231	0.114	0.256	0.399	0.655
Catch					
26	315	346	1,209	447	1,656
27	2,063	970	6,222	2,245	8,467
28	3,309	2,335	8,033	5,762	13,795
29	5,034	2,457	2,711	9,930	12,641
30	3,673	1,663	1,003	5,426	6,429
31	2,070	419	364	3,944	4,308
32	807	352	86	1,909	1,995
33	374	36	15	531	546
34	62	90	25	271	296
35	36	53	14	158	172
36	14	20	5	60	65
37	0	0	0	0	0
38	0	0	0	0	0
39	0	0	0	1	1
40	1	1	0	2	3
Total	17,758	8,742	19,688	30,686	50,374

Appendix A.12. Weekly salmon catch and effort in the Alaskan District 108 test fishery, 1993.

Week	Start Date	Catch					Effort		
		Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours	Boat Days
25	13-Jun	17	14	0	0	0	1	11.25	0.47
26	20-Jun	8	23	0	0	1	1	11.25	0.47
27	27-Jun	2	112	0	1	14	1	11.25	0.47
28	04-Jul	3	154	0	17	16	1	11.25	0.47
Total		30	303	0	18	31	4	45.00	1.88

Appendix A.13. Stock compositions and stock-specific catch of sockeye salmon in the Alaskan District 108 test fishery, 1993. Stock compositions from weekly commercial fishery catches were applied to weekly test fishery catches. Data based on SPA.

			Stikine		
	Alaska	Canada	Tahltan	non-Tahltan	Total
Proportions					
25	0.136	0.149	0.522	0.193	0.715
26	0.136	0.149	0.522	0.193	0.715
27	0.179	0.084	0.541	0.195	0.736
28	0.170	0.120	0.413	0.296	0.710
Total	0.169	0.110	0.474	0.246	0.720
Catch					
25	2	2	7	3	10
26	3	3	12	4	16
27	20	9	61	22	82
28	26	18	64	46	109
Total	51	33	144	75	218

Appendix A.14. Weekly salmon and steelhead trout catch and effort in the Canadian commercial fishery in the lower Stikine River, 1993.

Week	Start Date	Catch: Chinook Jacks	Catch: Chinook Large	Catch: Sockeye	Catch: Coho	Catch: Pink	Catch: Chum	Catch: Steelhead	Effort: Permits	Effort: Days	Effort: Permit Days
27	27-Jun	114	494	4,019	0	0	1	0	6.16	4.0	24.6
28	04-Jul	29	179	6,912	0	0	11	0	7.46	5.0	37.3
29	11-Jul	8	87	9,341	0	4	27	0	13.80	5.0	69.0
30	18-Jul	8	53	6,625	2	4	48	5	11.20	5.0	56.0
31	25-Jul	2	11	3,795	0	0	33	1	10.60	5.0	53.0
32	01-Aug	2	4	5,020	20	9	33	7	12.00	5.0	60.0
33	08-Aug	0	1	1,837	107	0	27	4	11.80	5.0	59.0
34	15-Aug	1	0	511	127	3	12	3	3.25	4.0	13.0
35	22-Aug	0	1	122	116	9	20	5	3.54	3.0	10.6
36	29-Aug	0	0	89	239	0	33	0	3.00	3.0	9.0
37	05-Sep	0	0	120	960	0	111	13	6.84	5.0	34.2
38	12-Sep	0	0	44	859	0	29	18	7.00	5.0	35.0
39	19-Sep	0	0	29	162	0	6	6	6.00	3.0	18.0
40	26-Sep	0	0	0	24	0	4	1	5.00	1.0	5.0
Total		164	830	38,464	2,616	29	395	63		58.0	483.8

Appendix A.15. Weekly sockeye salmon stock proportions and catch by stock in the Canadian commercial fishery in the lower Stikine River, 1993. Sex specific age compositions were calculated and the stock composition of the females sampled for egg diameters was expanded to the catch by age.

Week	Proportion Tahltan	Catch: Tahltan	Catch: non-Tahltan	CPUE: Tahltan	CPUE: non-Tahltan	CPUE: Total
27	0.793	3,187	832	129.343	33.766	163.109
28	0.831	5,746	1,166	154.048	31.260	185.308
29	0.677	6,324	3,017	91.652	43.725	135.377
30	0.464	3,073	3,552	54.875	63.429	118.304
31	0.342	1,298	2,497	24.491	47.113	71.604
32	0.149	747	4,273	12.450	71.217	83.667
33	0.073	135	1,702	2.288	28.847	31.136
34	0.166	85	426	6.530	32.778	39.308
35	0.166	20	102	1.908	9.579	11.488
36	0.166	15	74	1.643	8.246	9.889
37	0.166	20	100	0.583	2.926	3.509
38	0.166	7	37	0.209	1.048	1.257
39	0.166	5	24	0.268	1.343	1.611
Total		20,662	17,802	480.287	375.278	855.565
Proportion		0.537	0.463			

Appendix A.16. Weekly salmon and steelhead trout catch and effort in the Canadian commercial fishery in the upper Stikine River, 1993. It is assumed that 90% of the sockeye catch is of Tahltan Lake origin.

Week	Start Date	Catch: Chinook Jacks	Catch: Chinook Large	Catch: Sockeye	Catch: Coho	Catch: Pink	Catch: Chum	Catch: Steelhead	Effort: Permits	Effort: Days	Effort: Permit Days
27	27-Jun	0	30	0	0	0	0	0	1.0	2.0	2.0
28	04-Jul	0	0	150	0	0	0	0	1.0	2.0	2.0
29	11-Jul	2	10	393	0	0	0	0	4.0	3.0	12.0
30	18-Jul	0	2	491	0	0	0	0	4.0	3.0	12.0
31	25-Jul	0	0	268	0	0	0	0	2.0	4.0	8.0
32	01-Aug	0	0	372	0	0	0	0	2.0	4.0	8.0
33	08-Aug	0	2	18	0	0	0	2	1.0	4.0	4.0
Total		2	44	1,692	0	0	0	2	15.0	22.0	48.0

Appendix A.17. Weekly salmon and steelhead trout catch and effort in the Canadian aboriginal fishery located at Telegraph Creek, on the Stikine River, 1993. 90% of the sockeye catch is assumed to be of Tahltan Lake origin.

		Catch							Effort		
		Chinook									
Week	Start Date	Jacks	Large	Sockeye	Coho	Pink	Chum	Steel-head	Permits	Days	Permit Days
24	06-Jun	2	62	0	0	0	0	0	3.67	6	22.02
25	13-Jun	15	157	2	0	0	0	0	5.14	7	35.98
26	20-Jun	19	191	20	0	0	0	0	5.57	7	38.99
27	27-Jun	42	240	309	0	0	0	0	6.86	7	48.02
28	04-Jul	10	74	1,174	0	0	0	0	10.71	7	74.97
29	11-Jul	33	96	2,291	0	0	0	0	14.43	7	101.01
30	18-Jul	21	83	2,115	0	0	0	0	11.43	7	80.01
31	25-Jul	0	19	887	0	0	0	0	8.14	7	56.98
32	01-Aug	0	1	155	0	0	0	0	2.25	4	9.00
33	08-Aug	0	2	20	0	0	0	2	1.00	5	5.00
34	15-Aug	0	4	63	0	0	0	0	1.50	7	10.50
35	22-Aug	0	0	5	0	0	0	0	1.00	1	1.00
Total		142	929	7,041	0	0	0	2	71.70	72	483.48

Appendix A.18. Weekly salmon and steelhead trout catch and effort in the Canadian test fishery in the Stikine River, 1993.

		Chinook						Steel-	# Drifts/	
Week	Start Date	Jacks	Large	Sockeye	Coho	Pink	Chum	head	Set	Hours
Drift gillnet										
26	20-Jun	7	63	69	0	0	0	0	55	
27	27-Jun	2	24	60	0	0	0	0	30	
28	04-Jul	0	3	50	0	0	1	0	20	
29	11-Jul	1	2	55	0	0	0	0	20	
30	18-Jul	1	1	63	0	0	0	1	20	
31	25-Jul	0	0	37	0	1	1	0	20	
32	01-Aug	0	0	44	0	0	0	0	20	
33	08-Aug	0	1	35	2	5	2	1	24	
34	15-Aug	0	0	19	7	0	5	0	30	
35	22-Aug	0	0	6	17	0	4	2	40	
36	29-Aug	0	0	2	11	0	5	3	25	
Total		11	94	440	37	6	18	7	304	
Set gillnet										
26	20-Jun	8	64	306	0	0	0	0	242.0	
27	27-Jun	2	10	240	0	0	0	0	120.0	
28	04-Jul	0	9	138	0	0	0	0	72.0	
29	11-Jul	1	2	162	0	0	0	0	70.0	
30	18-Jul	0	0	158	0	2	1	0	72.0	
31	25-Jul	0	0	109	1	3	7	0	72.0	
32	01-Aug	0	0	71	1	0	5	0	72.0	
33	08-Aug	0	0	71	3	1	4	0	72.0	
34	15-Aug	0	0	78	26	0	6	1	120.0	
35	22-Aug	0	0	36	54	0	26	4	156.0	
36	29-Aug	0	0	15	51	0	14	1	156.0	
Total		11	85	1,384	136	6	63	6	1,224	
Additional Drifts										
26	20-Jun	49	321	286	0	0	0	0	84	
27	27-Jun	4	51	270	0	0	0	0	42	
28	04-Jul	10	9	406	0	0	0	0	37	
29	11-Jul	0	5	345	0	0	0	0	31	
30	18-Jul	1	2	300	0	1	2	0	24	
31	25-Jul	1	1	141	0	0	0	0	20	
32	01-Aug	0	0	80	0	0	1	0	14	
33	08-Aug	0	0	97	2	0	0	2	14	
Total		65	389	1,925	2	1	3	2	266	
Total Test Catch		87	568	3,749	175	13	84	15		

Appendix A.19. Weekly sockeye salmon stock proportions in the Stikine River test fishery, 1993. Sex specific age compositions were calculated and the smoothed stock composition of the females sampled for egg diameters was expanded to the catch by age.

Week	Sample Size	Tahltan	non-Tahltan
26	231	0.888	0.112
27	161	0.793	0.207
28	96	0.687	0.313
29	95	0.660	0.340
30	120	0.457	0.543
31	74	0.282	0.718
32	55	0.103	0.897
33	59	0.118	0.882
34	32	0.010	0.990
35	16	0.048	0.952
36	1	0.000	1.000
Total	940		

Appendix A.20. Weekly catch, CPUE, and migratory timing of Tahltan and non-Tahltan sockeye stocks in the Stikine River test fishery, 1993. Sex specific age composition were calculated and the smoothed stock compositions of the females sampled for egg diameters was expanded to the catch by age.

	Catch		CPUE			Migratory Timing	
Week	Tahltan	non-Tahltan	Tahltan	non-Tahltan	Total	Tahltan	non-Tahltan
Drift gillnet							
26	61	8	1.114	0.141	1.255	0.062	0.008
27	48	12	1.586	0.414	2.000	0.088	0.023
28	34	16	1.718	0.782	2.500	0.095	0.043
29	36	19	1.815	0.935	2.750	0.101	0.052
30	29	34	1.440	1.710	3.150	0.080	0.095
31	10	27	0.522	1.328	1.850	0.029	0.074
32	5	39	0.227	1.973	2.200	0.013	0.109
33	4	31	0.172	1.286	1.458	0.010	0.071
34	0	19	0.006	0.627	0.633	0.000	0.035
35	0	6	0.007	0.143	0.150	0.000	0.008
36	0	2	0.000	0.080	0.080	0.000	0.004
Total	228	212	8.606	9.420	18.026		
Proportion	0.518	0.482		Proportion of run		0.477	0.523
Set gillnet							
26	272	34	1.123	0.142	1.264	0.079	0.010
27	190	50	1.586	0.414	2.000	0.112	0.029
28	95	43	1.317	0.600	1.917	0.093	0.042
29	107	55	1.527	0.787	2.314	0.108	0.056
30	72	86	1.003	1.192	2.194	0.071	0.084
31	31	78	0.427	1.087	1.514	0.030	0.077
32	7	64	0.102	0.885	0.986	0.007	0.062
33	8	63	0.116	0.870	0.986	0.008	0.061
34	1	77	0.007	0.644	0.650	0.000	0.045
35	2	34	0.011	0.220	0.231	0.001	0.016
36	0	15	0.000	0.096	0.096	0.000	0.007
Total	785	599	7.218	6.935	14.153	0.510	0.490
Proportion	0.567	0.433					
Additional Drifts [a]							
26	254	32	4.618	0.582	5.200	0.056	0.007
27	214	56	7.137	1.863	9.000	0.087	0.023
28	279	127	13.946	6.354	20.300	0.170	0.078
29	228	117	11.385	5.865	17.250	0.139	0.072
30	137	163	6.855	8.145	15.000	0.084	0.100
31	40	101	1.988	5.062	7.050	0.024	0.062
32	8	72	0.412	3.588	4.000	0.005	0.044
33	11	86	0.477	3.565	4.042	0.006	0.044
Total	1,171	754	46.818	35.024	81.842	0.572	0.428
Proportion	0.608	0.392					

[a] Catch was apportioned based on samples from standard drift catch.

Appendix A.21. Daily counts of adult sockeye salmon passing through Tahltan Lake weir, 1993.

Date	Count	Cumulative Count	Cumulative Percent	Date	Count	Cumulative Count	Cumulative Percent
10-Jul	4	4	0.0	11-Aug	208	48,405	90.7
11-Jul	5	9	0.0	12-Aug	411	48,816	91.5
12-Jul	120	129	0.2	13-Aug	216	49,032	91.9
13-Jul	308	437	0.8	14-Aug	338	49,370	92.5
14-Jul	1763	2,200	4.1	15-Aug	111	49,481	92.7
15-Jul	1747	3,947	7.4	16-Aug	771	50,252	94.2
16-Jul	1733	5,680	10.6	17-Aug	637	50,889	95.4
17-Jul	1,605	7,285	13.7	18-Aug	253	51,142	95.8
18-Jul	2,002	9,287	17.4	19-Aug	431	51,573	96.6
19-Jul	2,022	11,309	21.2	20-Aug	53	51,626	96.7
20-Jul	1,933	13,242	24.8	21-Aug	281	51,907	97.3
21-Jul	1,512	14,754	27.6	22-Aug	208	52,115	97.7
22-Jul	2,240	16,994	31.8	23-Aug	104	52,219	97.9
23-Jul	1,476	18,470	34.6	24-Aug	74	52,293	98.0
24-Jul	1,887	20,357	38.1	25-Aug	101	52,394	98.2
25-Jul	1,287	21,644	40.6	26-Aug	121	52,515	98.4
26-Jul	1,383	23,027	43.2	27-Aug	39	52,554	98.5
27-Jul	2,208	25,235	47.3	28-Aug	117	52,671	98.7
28-Jul	2,044	27,279	51.1	29-Aug	97	52,768	98.9
29-Jul	1,931	29,210	54.7	30-Aug	45	52,813	99.0
30-Jul	2,537	31,747	59.5	31-Aug	144	52,957	99.2
31-Jul	2,090	33,837	63.4	01-Sep	173	53,130	99.6
01-Aug	2,020	35,857	67.2	02-Sep	82	53,212	99.7
02-Aug	2,190	38,047	71.3	03-Sep	41	53,253	99.8
03-Aug	3,009	41,056	76.9	04-Sep	23	53,276	99.8
04-Aug	2,000	43,056	80.7	05-Sep	12	53,288	99.9
05-Aug	1,307	44,363	83.1	06-Sep	34	53,322	99.9
06-Aug	960	45,323	84.9	07-Sep	6	53,328	99.9
07-Aug	678	46,001	86.2	08-Sep	11	53,339	100.0
08-Aug	992	46,993	88.1	09-Sep	3	53,342	100.0
09-Aug	525	47,518	89.0	10-Sep	17	53,359	100.0
10-Aug	679	48,197	90.3	11-Sep	3	53,362	100.0

Total Counted	53,362
Fish removed for broodstock	-4,506 [a]
Fish removed for ESSR	-1,752 [b]
Total Spawners	47,104
Wild Spawners	46,074
Spawners from fry plants	1,030

[a] A total of 2,253 females and 2,253 males were taken for broodstock.
[b] Fish were harvested with an Excess to Salmon Spawning Requirements (ESSR) license.

Appendix A.22. Daily counts of sockeye salmon smolt migrating through Tahltan Lake smolt weir, 1993.

Date	Count	Cumulative Count	Cumulative Percent	Date	Count	Cumulative Count	Cumulative Percent
07-May	0	0	0.0	03-Jun	18,259	3,197,027	98.2
08-May	0	0	0.0	04-Jun	16,608	3,213,635	98.7
09-May	0	0	0.0	05-Jun	17,214	3,230,849	99.3
10-May	0	0	0.0	06-Jun	7,602	3,238,451	97.0
11-May	174	174	0.0	07-Jun	7,617	3,246,068	99.7
12-May	131	305	0.0	08-Jun	2,672	3,248,740	99.8
13-May	59	364	0.0	09-Jun	785	3,249,525	99.8
14-May	7,469	7,833	0.2	10-Jun	1,872	3,251,397	99.9
15-May	39,037	46,870	1.4	11-Jun	737	3,252,134	99.9
16-May	561,281	608,151	18.7	12-Jun	810	3,252,944	99.9
17-May	1,999,455	2,607,606	80.1	13-Jun	537	3,253,481	100.0
18-May	17,500	2,625,106	80.6	14-Jun	203	3,253,684	100.0
19-May	18,795	2,643,901	81.2	15-Jun	219	3,253,903	100.0
20-May	8,631	2,652,532	81.5	16-Jun	515	3,254,418	100.0
21-May	1,306	2,653,838	81.5	17-Jun	306	3,254,724	100.0
22-May	340,431	2,994,269	92.0	18-Jun	116	3,254,840	100.0
23-May	9,481	3,003,750	92.3	19-Jun	106	3,254,946	100.0
24-May	7,163	3,010,913	92.5	20-Jun	38	3,254,984	100.0
25-May	6,507	3,017,420	92.7	21-Jun	11	3,254,995	100.0
26-May	12,274	3,029,694	93.1	22-Jun	9	3,255,004	100.0
27-May	59,216	3,088,910	94.9	23-Jun	20	3,255,024	100.0
28-May	18,152	3,107,062	95.5	24-Jun	13	3,255,037	100.0
29-May	34,526	3,141,588	96.5	25-Jun	6	3,255,043	100.0
30-May	34,428	3,176,016	97.6	26-Jun	2	3,255,045	100.0
31-May	1,653	3,177,669	97.6	27-Jun	0	3,255,045	100.0
01-Jun	747	3,178,416	97.6	28-Jun	0	3,255,045	100.0
02-Jun	352	3,178,768	97.7				

Wild	2,855,562
Hatchery	399,483

Appendix A.23. Daily counts of adult chinook salmon passing through Little Tahltan weir, 1993.

	Large Chinook			Chinook Jacks		
		Cumulative			Cumulative	
Date	Count	Count	Percent	Count	Count	Percent
20-Jun	----------weir installed----------					
21-Jun	1	1	0.01	0	0	0.00
22-Jun	1	2	0.02	0	0	0.00
23-Jun	15	17	0.15	0	0	0.00
24-Jun	50	67	0.59	0	0	0.00
25-Jun	117	184	1.61	0	0	0.00
26-Jun	119	303	2.65	0	0	0.00
27-Jun	16	319	2.79	0	0	0.00
28-Jun	374	693	6.05	0	0	0.00
29-Jun	244	937	8.18	0	0	0.00
30-Jun	83	1,020	8.91	1	1	1.67
01-Jul	172	1,192	10.41	1	2	3.33
02-Jul	463	1,655	14.46	0	2	3.33
03-Jul	397	2,052	17.92	2	4	6.67
04-Jul	160	2,212	19.32	0	4	6.67
05-Jul	124	2,336	20.40	2	6	10.00
06-Jul	408	2,744	23.97	2	8	13.33
07-Jul	147	2,891	25.25	1	9	15.00
08-Jul	506	3,397	29.67	5	14	23.33
09-Jul	16	3,413	29.81	1	15	25.00
10-Jul	102	3,515	30.70	2	17	28.33
11-Jul	323	3,838	33.52	2	19	31.67
12-Jul	418	4,256	37.17	4	23	38.33
13-Jul	535	4,791	41.85	6	29	48.33
14-Jul	148	4,939	43.14	2	31	51.67
15-Jul	691	5,630	49.17	3	34	56.67
16-Jul	253	5,883	51.38	2	36	60.00
17-Jul	599	6,482	56.62	2	38	63.33
18-Jul	478	6,960	60.79	3	41	68.33
19-Jul	289	7,249	63.32	0	41	68.33
20-Jul	301	7,550	65.94	1	42	70.00
21-Jul	180	7,730	67.52	1	43	71.67
22-Jul	481	8,211	71.72	1	44	73.33
23-Jul	722	8,933	78.02	2	46	76.67
24-Jul	322	9,255	80.84	0	46	76.67
25-Jul	256	9,511	83.07	0	46	76.67
26-Jul	347	9,858	86.10	0	46	76.67
27-Jul	417	10,275	89.75	2	48	80.00
28-Jul	341	10,616	92.72	0	48	80.00
29-Jul	0	10,616	92.72	0	48	80.00
30-Jul	80	10,696	93.42	1	49	81.67
31-Jul	213	10,909	95.28	3	52	86.67
01-Aug	184	11,093	96.89	3	55	91.67
02-Aug	7	11,100	96.95	2	57	95.00
03-Aug	147	11,247	98.24	1	58	96.67
04-Aug	98	11,345	99.09	0	58	96.67
05-Aug	39	11,384	99.43	0	58	96.67
06-Aug	20	11,404	99.61	0	58	96.67
07-Aug	15	11,419	99.74	1	59	98.33
08-Aug	9	11,428	99.82	0	59	98.33
09-Aug	7	11,435	99.88	0	59	98.33
10-Aug	12	11,447	99.98	1	60	100.00
11-Aug	1	11,448	99.99	0	60	100.00
12-Aug	0	11,448	99.99	0	60	100.00
13-Aug	1	11,449	100.00	0	60	100.00
14-Aug	0	11,449	100.00	0	60	100.00
15-Aug	0	11,449	100.00	0	60	100.00
Total Counted		11,449			60	
Adjustments		-24				
Total Spawners		11,425			60	

APPENDIX B

Appendix B.1. Salmon catch and effort in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) commercial drift gillnet fishery, 1964-1993.

	Catch					Effort	
Year	Chinook	Sockeye	Coho	Pink	Chum	Permit Days	Days Open
1964	316	52,943	27,338	183,402	22,913	2,344	49.00
1965	679	58,736	30,570	162,271	15,763	1,658	50.75
1966	690	65,721	30,792	96,287	24,235	2,080	74.25
1967	668	60,148	10,573	52,284	19,626	1,463	27.00
1968	1,010	50,212	46,111	82,012	39,001	2,997	52.00
1969	607	46,258	6,094	92,075	6,393	1,147	31.00
1970	420	26,812	15,153	29,102	18,092	905	41.00
1971	671	33,991	24,727	283,739	19,329	1,619	50.00
1972	1,747	74,745	60,827	40,644	46,511	2,152	41.00
1973	1,540	55,254	24,921	160,297	62,486	2,253	26.00
1974	1,342	46,760	28,889	57,296	38,045	1,579	28.00
1975	467	19,319	4,650	29,340	7,762	515	17.00
1976	237	9,319	10,367	20,251	2,301	366	19.00
1977	202	47,408	1,819	51,038	4,240	447	17.00
1978	274	1,422	26,762	9,546	3,142	389	26.50
1979	458	34,807	12,087	176,395	16,816	952	25.00
1980	205	48,434	10,894	17,072	15,162	596	16.00
1981	598	132,293	13,161	220,194	25,682	1,732	25.00
1982	648	121,556	21,376	10,338	11,911	1,083	22.00
1983	268	28,153	41,208	74,347	13,001	875	32.00
1984	136	27,372	19,124	99,807	28,461	587	32.00
1985	548	172,088	50,577	319,379	45,566	1,726	38.00
1986	421	85,247	104,328	105,347	48,471	1,896	32.00
1987	441	79,165	17,776	117,059	25,877	978	20.00
1988	452	57,337	6,349	10,894	42,210	815	18.00
1989	581	107,886	55,671	418,044	40,156	1,716	34.00
1990	759	104,922	94,502	84,543	42,474	1,827	34.00
1991	857	88,723	136,798	64,182	84,970	2,118	39.00
1992	743	146,558	190,800	38,465	101,263	2,630	40.00
Averages							
64-92	620	64,951	38,767	107,091	30,064	1,429	32.98
83-92	521	89,745	71,713	133,207	47,245	1,517	31.90
1993	458	129,859	134,902	296,980	96,995	2,728	38.00

Appendix B.2. Stock proportions and catches of sockeye salmon in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) commercial drift gillnet fishery, 1985-1993. Data based on SPA.

			Stikine		
Year	Alaska	Canada	Tahltan	non-Tahltan	Total
Proportions					
1985	0.480	0.401	0.109	0.010	0.119
1986	0.662	0.308	0.024	0.006	0.030
1987	0.816	0.166	0.015	0.003	0.018
1988	0.868	0.112	0.019	0.001	0.020
1989	0.653	0.303	0.009	0.036	0.044
1990	0.579	0.395	0.008	0.018	0.026
1991	0.460	0.377	0.129	0.034	0.163
1992	0.582	0.241	0.088	0.089	0.177
Averages					
85-92	0.638	0.288	0.050	0.025	0.075
1993	0.369	0.327	0.134	0.169	0.304
Catches					
1985	82,563	68,962	18,801	1,762	20,563
1986	56,462	26,214	2,070	501	2,571
1987	64,582	13,170	1,155	258	1,413
1988	49,776	6,426	1,071	64	1,135
1989	70,436	32,663	957	3,830	4,787
1990	60,795	41,415	801	1,911	2,712
1991	40,832	33,406	11,459	3,026	14,485
1992	85,335	35,265	12,957	13,001	25,958
Averages					
85-92	60,778	31,751	5,188	1,622	6,809
1993	47,970	42,450	17,446	21,992	39,438

Appendix B.3. Salmon catch and effort in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1964-1993.

	Catch					Effort	
Year	Chinook	Sockeye	Coho	Pink	Chum	Permit Days	Days Open
1964	1,766	23,598	37,316	259,684	21,305	3,039	49.00
1965	1,123	29,013	45,158	463,577	11,895	2,849	50.75
1966	975	24,126	32,031	304,645	16,521	2,898	74.25
1967	650	26,237	7,097	39,325	6,744	1,048	27.00
1968	306	14,459	21,040	87,095	22,365	1,968	52.00
1969	270	24,060	4,186	104,998	4,510	1,026	31.00
1970	365	15,966	20,317	65,790	14,139	1,025	41.00
1971	665	19,211	23,358	244,236	18,351	1,517	50.00
1972	826	26,593	32,600	48,823	25,871	1,276	41.00
1973	391	16,741	13,526	143,324	25,243	1,303	26.00
1974	584	10,586	16,762	47,107	12,264	712	28.00
1975	2,120	12,732	26,312	173,675	16,206	1,159	8.50
1976	147	6,162	8,759	119,188	4,567	527	21.00
1977	469	19,615	6,582	368,069	9,060	940	21.00
1978	2,408	40,152	28,816	215,169	13,403	1,148	16.00
1979	2,262	31,566	15,996	471,817	18,691	1,848	25.00
1980	375	58,988	5,772	28,594	11,115	749	25.00
1981	967	49,708	9,453	217,379	8,614	1,321	26.00
1982	1,000	72,140	10,288	15,141	6,719	647	21.00
1983	299	20,689	21,234	133,943	7,143	589	37.00
1984	756	64,281	22,235	243,448	41,797	1,236	24.00
1985	1,141	92,899	40,565	265,567	24,095	1,372	36.00
1986	1,283	60,462	90,584	203,137	33,818	1,664	31.00
1987	395	57,262	16,758	126,423	16,148	799	20.00
1988	652	35,192	6,754	58,605	27,410	682	19.00
1989	963	84,848	36,715	683,150	27,195	1,583	34.00
1990	1,348	80,883	69,709	234,643	30,758	1,676	34.00
1991	1,209	54,389	61,005	68,557	38,760	1,505	39.00
1992	612	56,546	107,940	55,744	39,571	1,603	40.00
Averages							
64-92	908	38,935	28,926	189,340	19,113	1,369	32.67
83-92	866	60,745	47,350	207,322	28,670	1,271	31.40
1993	534	76,096	96,136	240,974	37,606	1,646	38.00

Appendix B.4. Stock proportions and catches of sockeye salmon in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1985-1993. Data based on SPA.

			Stikine		
Year	Alaska	Canada	Tahltan	non-Tahltan	Total
Proportions					
1985	0.477	0.453	0.056	0.013	0.070
1986	0.726	0.272	0.000	0.002	0.002
1987	0.844	0.140	0.004	0.012	0.016
1988	0.883	0.095	0.021	0.000	0.021
1989	0.662	0.322	0.002	0.015	0.016
1990	0.645	0.340	0.001	0.013	0.015
1991	0.683	0.257	0.052	0.008	0.060
1992	0.630	0.211	0.022	0.138	0.159
Average					
85-92	0.694	0.261	0.020	0.025	0.045
1993	0.451	0.357	0.036	0.156	0.192
Catch					
1985	44,351	42,053	5,244	1,251	6,495
1986	43,875	16,471	11	105	116
1987	48,311	8,020	221	710	931
1988	31,092	3,358	742	0	742
1989	56,167	27,296	154	1,231	1,385
1990	52,188	27,506	114	1,075	1,189
1991	37,164	13,971	2,804	450	3,255
1992	35,612	11,930	1,226	7,778	9,004
Average					
85-92	43,595	18,826	1,315	1,575	2,890
1993	34,330	27,167	2,758	11,841	14,599

Appendix B.5. Salmon catch and effort in the Alaskan District 106 commercial drift gillnet fisheries, 1964-1993. Catches do not include Blind Slough terminal area harvests. Effort may be less than the sum of effort from 106-41/42 and 106-30 since some boats fished in more than one subdistrict.

	Catch					Effort	
Year	Chinook	Sockeye	Coho	Pink	Chum	Permit Days	Days Open
1964	2,082	76,541	64,654	443,086	44,218	5,383	49.00
1965	1,802	87,749	75,728	625,848	27,658	4,507	50.75
1966	1,665	89,847	62,823	400,932	40,756	4,978	74.25
1967	1,318	86,385	17,670	91,609	26,370	2,511	27.00
1968	1,316	64,671	67,151	169,107	61,366	4,965	52.00
1969	877	70,318	10,280	197,073	10,903	2,112	31.00
1970	785	42,778	35,470	94,892	32,231	1,863	41.00
1971	1,336	53,202	48,085	527,975	37,680	2,774	47.00
1972	2,573	101,338	93,427	89,467	72,382	3,311	41.00
1973	1,931	71,995	38,447	303,621	87,729	3,300	26.00
1974	1,926	57,346	45,651	104,403	50,309	2,177	28.00
1975	2,587	32,051	30,962	203,015	23,968	1,781	18.00
1976	384	15,481	19,126	139,439	6,868	922	22.00
1977	671	67,023	8,401	419,107	13,300	1,381	28.00
1978	2,682	41,574	55,578	224,715	16,545	1,567	27.10
1979	2,720	66,373	28,083	648,212	35,507	2,784	31.40
1980	580	107,422	16,666	45,666	26,277	1,329	25.00
1981	1,565	182,001	22,614	437,573	34,296	2,928	26.00
1982	1,648	193,696	31,664	25,479	18,630	1,659	22.50
1983	567	48,842	62,442	208,290	20,144	1,422	31.40
1984	892	91,653	41,359	343,255	70,258	1,783	31.40
1985	1,689	264,987	91,142	584,946	69,661	2,625	31.40
1986	1,704	145,709	194,912	308,484	82,289	3,446	31.40
1987	836	136,427	34,534	243,482	42,025	1,726	19.50
1988	1,104	92,529	13,103	69,499	69,620	1,460	18.50
1989	1,544	192,734	92,386	1,101,194	67,351	3,080	32.40
1990	2,107	185,805	164,211	319,186	73,232	3,440	33.40
1991	2,066	143,112	197,803	132,739	123,730	3,642	39.00
1992	1,355	203,104	298,740	94,209	140,834	4,227	39.00
Averages							
64-92	1,528	103,886	67,694	296,431	49,177	2,727	33.60
83-92	1,386	150,490	119,063	340,528	75,914	2,685	30.74
1993	992	205,955	231,038	537,954	134,601	4,353	38.00

Appendix B.6. Stock proportions and catches of sockeye salmon in the Alaskan District 106 commercial drift gillnet fisheries, 1982-1993. Catches do not include Blind Slough terminal area harvest. Data based on SPA.

			Stikine		
Year	Alaska	Canada	Tahltan	non-Tahltan	Total
Proportions					
1982	0.486	0.319			0.194
1983	0.668	0.217	0.103	0.013	0.116
1984	0.658	0.269	0.029	0.044	0.074
1985	0.479	0.419	0.091	0.011	0.102
1986	0.689	0.293	0.014	0.004	0.018
1987	0.827	0.155	0.010	0.007	0.017
1988	0.874	0.106	0.020	0.001	0.020
1989	0.657	0.311	0.006	0.026	0.032
1990	0.608	0.371	0.005	0.016	0.021
1991	0.545	0.331	0.100	0.024	0.124
1992	0.595	0.232	0.070	0.102	0.172
Averages					
83-92	0.660	0.270	0.045	0.025	0.070
1993	0.400	0.338	0.098	0.164	0.262
Catches					
1982	94,225	61,821			37,650
1983	32,603	10,589	5,020	631	5,650
1984	60,278	24,624	2,673	4,078	6,751
1985	126,914	111,015	24,045	3,013	27,058
1986	100,337	42,685	2,081	606	2,687
1987	112,893	21,190	1,376	968	2,344
1988	80,868	9,784	1,813	64	1,877
1989	126,603	59,959	1,111	5,061	6,172
1990	112,983	68,921	915	2,986	3,901
1991	77,996	47,376	14,263	3,476	17,740
1992	120,947	47,195	14,183	20,779	34,962
Averages					
83-92	95,242	44,334	6,748	4,166	10,914
1993	82,300	69,617	20,204	33,833	54,037

Appendix B.7. Salmon catch and effort in the Alaskan District 108 commercial drift gillnet fishery, 1964-1993. Catches do not include Ohmer Creek terminal area harvests. Permit days are adjusted for boats which did not fish the entire opening and may total less than the sum of the permits times days open.

	Catch					Effort	
Year	Chinook	Sockeye	Coho	Pink	Chum	Permit Days	Days Open
1964	2,911	20,299	29,388	114,555	10,771		62.0
1965	3,106	21,419	8,301	4,729	2,480		48.0
1966	4,516	36,710	16,493	61,908	17,730		62.0
1967	6,372	29,226	6,747	4,713	5,955		40.0
1968	4,604	14,594	36,407	91,028	14,537		61.0
1969	5,021	19,209	5,790	11,877	2,312	967	46.0
1970	3,207	15,120	18,403	20,523	12,305	1,222	51.0
1971	3,717	18,143	14,876	21,806	4,665	1,070	57.0
1972	9,332	51,734	38,520	17,153	17,363	2,095	64.0
1973	9,254	21,387	5,837	6,585	6,680	1,519	39.0
1974	8,199	2,428	16,021	4,188	2,107	1,178	28.5
1975	1,534	0	0	0	1	258	8.0
1976	1,123	18	6,056	722	124	372	19.0
1977	1,443	48,374	14,405	16,253	4,233	742	23.0
1978	531	56	32,650	1,157	1,001	565	12.0
1979	91	2,158	234	13,478	1,064	94	5.0
1980	631	14,053	2,946	7,224	6,910	327	22.0
1981	283	8,833	1,403	1,466	3,594	177	9.0
1982	1,033	6,911	19,971	16,988	741	494	21.0
1983	47	178	15,369	4,171	675	263	17.0
1984	14	1,290	5,141	4,960	1,892	56	8.6
1985	20	1,060	1,926	5,325	1,892	70	14.0
1986	102	4,185	7,439	4,901	5,928	246	25.0
1987	149	1,620	1,015	3,331	949	81	13.0
1988	206	1,246	12	144	3,109	66	8.0
1989	310	10,083	4,261	27,640	3,375	216	28.0
1990	557	11,574	8,218	13,822	9,382	359	34.0
1991	1,504	22,275	15,864	10,935	11,402	1,114	48.5
1992	967	52,717	22,127	66,451	15,451	1,029	51.0
Averages							
64-92	2,441	15,066	12,270	19,243	5,815	607	31.9
83-92	388	10,623	8,137	14,168	5,406	350	24.7
1993	1,628	76,874	14,307	39,661	22,504	1,333	48.0

Appendix B.8. Stock proportions and catches of sockeye salmon in the Alaskan District 108 commercial drift gillnet fishery, 1985-1993. Catches do not include Ohmer Creek terminal area harvests. Data based on SPA.

			Stikine		
Year	Alaska	Canada	Tahltan	non-Tahltan	Total
Proportions					
1985	0.064	0.000	0.292	0.644	0.936
1986	0.206	0.017	0.094	0.683	0.777
1987[a]	0.125	0.000	0.438	0.437	0.875
1988	0.213	0.039	0.178	0.571	0.749
1989	0.117	0.054	0.034	0.795	0.829
1990	0.395	0.128	0.111	0.366	0.477
1991	0.173	0.118	0.395	0.314	0.709
1992	0.163	0.051	0.258	0.528	0.786
Averages					
85-92	0.182	0.051	0.225	0.542	0.767
1993	0.231	0.114	0.256	0.399	0.655
Catch					
1985	68	0	310	683	992
1986	862	71	393	2,858	3,252
1987	203	0	710	708	1,418
1988	265	48	222	711	933
1989	1,180	545	341	8,017	8,358
1990	4,576	1,479	1,280	4,239	5,519
1991	3,859	2,622	8,807	6,987	15,794
1992	8,604	2,696	13,599	27,818	41,417
Averages					
85-92	2,452	933	3,208	6,503	9,710
1993	17,758	8,742	19,688	30,686	50,374

[a] There was no data available to determine the ratio of Tahltan to non-Tahltan Stikine stocks; a 1:1 ratio was assumed.

Appendix B.9. Salmon catch in the Alaskan Subdistrict 106-41 (Sumner Strait) test fishery, 1984-1993.

Year	Catch					Boat Hours
	Chinook	Sockeye	Coho	Pink	Chum	
1984	13	1,370	101	975	793	142.51
1985	16	4,345	301	3,230	746	156.31
1986	23	982	177	60	248	99.45
1987	24	2,659	799	4,117	741	508.10
1988	11	1,020	89	137	772	121.00
1989	11	2,043	275	6,069	856	60.20
1990	13	2,256	432	372	552	7.00
1991	There was no test fishery in 1991					
1992	There was no test fishery in 1992					
1993	There was no test fishery in 1993					

Appendix B.10. Stock proportions and catches of sockeye salmon in the Alaskan Subdistrict 106-41 and 106-42 (Sumner Strait) test fishery, 1984-1993. Data based on SPA.

Year	Alaska	Canada	Stikine		Total
			Tahltan	non-Tahltan	
Proportions					
1984	0.658	0.269	0.029	0.044	0.074
1985	0.480	0.401	0.109	0.010	0.119
1986	0.834	0.149	0.008	0.009	0.017
1987	0.816	0.166	0.015	0.003	0.018
1988	0.868	0.098	0.034	0.000	0.034
1989	0.624	0.304	0.017	0.056	0.072
1990	0.548	0.416	0.014	0.022	0.035
1991	There was no test fishery in 1991				
1992	There was no test fishery in 1992				
1993	There was no test fishery in 1993				
Catch					
1984	901	368	40	61	101
1985	2,085	1,741	475	44	519
1986	819	146	8	9	17
1987	2,169	442	39	9	47
1988	886	100	35	0	35
1989	1,274	621	34	114	148
1990	1,237	939	31	49	80
1991	There was no test fishery in 1991				
1992	There was no test fishery in 1992				
1993	There was no test fishery in 1993				

Appendix B.11. Salmon catch in the Alaskan Subdistrict 106-30 (Clarence Strait) test fishery, 1986-1993.

Year	Catch					Boat Hours
	Chinook	Sockeye	Coho	Pink	Chum	
1986	24	363	95	80	58	23.25
1987	1	899	589	1,705	467	384.00
1988	10	16	412	112	598	119.70
1989	4	37	464	431	329	
1990	There was no test fishery in 1990					
1991	There was no test fishery in 1991					
1992	There was no test fishery in 1992					
1993	There was no test fishery in 1993					

Appendix B.12. Stock proportions and catches of sockeye salmon in the Alaskan Subdistrict 106-30 (Clarence Strait) test fishery, 1986-1993. Data based on SPA.

Year			Stikine		
	Alaska	Canada	Tahltan	non-Tahltan	Total
Proportions					
1986	0.726	0.272	0.000	0.002	0.002
1987	0.844	0.140	0.004	0.012	0.016
1988	0.746	0.254	0.000	0.000	0.000
1989	0.514	0.486	0.000	0.000	0.000
1990	There was no test fishery in 1990				
1991	There was no test fishery in 1991				
1992	There was no test fishery in 1992				
1993	There was no test fishery in 1993				
Catches					
1986	263	99	0	1	1
1987	758	126	3	11	15
1988	12	4	0	0	0
1989	19	18	0	0	0
1990	There was no test fishery in 1990				
1991	There was no test fishery in 1991				
1992	There was no test fishery in 1992				
1993	There was no test fishery in 1993				

Appendix B.13. Salmon catch and effort in the Alaskan District 106 test fisheries 1984-1993.

Year	Catch					Boat Hours
	Chinook	Sockeye	Coho	Pink	Chum	
1984	13	1,370	101	975	793	142.51
1985	16	4,345	301	3,230	746	156.31
1986	47	1,345	272	140	306	122.70
1987	25	3,558	1,388	5,822	1,208	892.10
1988	21	1,036	501	249	1,370	240.70
1989	15	2,080	739	6,500	1,185	60.20
1990	13	2,256	432	372	552	7.00
1991	There were no test fisheries in 1991					
1992	There were no test fisheries in 1992					
1993	There were no test fisheries in 1993					

Appendix B.14. Stock proportions and catches of sockeye salmon in the Alaskan District 106 test fisheries, 1984-1993. Data based on SPA.

Year			Stikine		
	Alaska	Canada	Tahltan	non-Tahltan	Total
Proportions					
1984	0.658	0.269	0.029	0.044	0.074
1985	0.480	0.401	0.109	0.010	0.119
1986	0.805	0.182	0.006	0.007	0.013
1987	0.823	0.160	0.012	0.006	0.017
1988	0.867	0.100	0.033	0.000	0.033
1989	0.622	0.307	0.016	0.055	0.071
1990	0.548	0.416	0.014	0.022	0.035
1991	There were no test fisheries in 1991				
1992	There were no test fisheries in 1992				
1993	There were no test fisheries in 1993				
Catch					
1984	901	368	40	61	101
1985	2,085	1,741	475	44	519
1986	1,082	245	8	9	17
1987	2,928	568	42	20	62
1988	898	104	35	0	35
1989	1,293	639	34	114	148
1990	1,237	939	31	49	80
1991	There were no test fisheries in 1991				
1992	There were no test fisheries in 1992				
1993	There were no test fisheries in 1993				

Appendix B.15. Salmon catch and effort in the Alaskan District 108 test fishery, 1984-1993.

Year	Catch					Boat Hours
	Chinook	Sockeye	Coho	Pink	Chum	
1984	37	641	11	822	813	
1985	33	1,258	11	465	381	71.67
1986	79	564	3	36	315	72.15
1987	30	290	13	1,957	488	76.87
1988	65	451	9	1,091	1,009	126.83
1989	15	1,038	45	2,459	283	63.47
1990	19	866	45	942	643	7.00
1991	21	893	18	390	455	154.99
1992	26	1299	23	855	252	79.00
Averages 84-91	37	750	19	1,020	548	81.85
1993	30	303	0	18	31	45.00

Appendix B.16. Stock proportions and catches of sockeye salmon in the Alaskan District 108 test fishery, 1985-1993. Data based on SPA.

Year			Stikine		
	Alaska	Canada	Tahltan	non-Tahltan	Total
Proportions					
1985	0.064	0.000	0.292	0.644	0.936
1986	0.134	0.044	0.486	0.336	0.822
1987	0.125	0.000	0.438	0.437	0.875
1988	0.205	0.049	0.132	0.614	0.746
1989	0.132	0.084	0.072	0.712	0.784
1990	0.417	0.172	0.094	0.318	0.411
1991	0.128	0.128	0.494	0.251	0.745
1992	0.149	0.076	0.333	0.442	0.774
Averages 85-92	0.169	0.069	0.292	0.469	0.762
1993	0.168	0.109	0.475	0.248	0.719
Catch					
1985	81	0	367	810	1,177
1986	76	25	274	190	464
1987	36	0	127	127	254
1988	93	22	59	277	336
1989	137	87	75	739	814
1990	361	149	81	275	356
1991	114	114	441	224	665
1992	194	99	432	574	1,006
Averages 85-92	136	62	232	402	634
1993	51	33	144	75	218

Numbers may not sum due to rounding.

Appendix B.17. Salmon and steelhead trout catch and effort in the Canadian commercial fishery in the lower Stikine River, 1979-1993.

	Catch							Effort	
	Chinook							Permit	
Year	Jacks	Large	Sockeye	Coho	Pink	Chum	Steelhead	Days	Days
1979[a]	63	712	10,534	10,720	1,994	424	264	756.0	42.0
1980		1,488	18,119	6,629	736	771	362	668.0	41.0
1981		664	21,551	2,667	3,713	1,128	280	522.0	32.0
1982		1,693	15,397	15,904	1,782	722	828	1,063.0	71.0
1983	430	492	15,857	6,170	1,043	274	667	434.0	54.0
1984[b]									
1985	91	256	17,093	2,172	2,321	532	231	145.5	22.5
1986	365	806	12,411	2,278	107	295	192	239.0	13.5
1987	242	909	6,138	5,728	646	432	217	287.0	20.0
1988	201	1,007	12,766	2,112	418	730	258	320.0	26.5
1989	157	1,537	17,179	6,092	825	674	127	325.0	23.0
1990	680	1,569	14,530	4,020	496	499	188	328.0	29.0
1991	318	641	17,563	2,638	394	208	71	282.4	39.0
1992	89	873	21,031	1,850	122	231	129	235.5	55.0
Averages[c]									
79-92		1,176	15,398	5,306	1,123	532	293	431.2	36.0
83-92		1,185	14,952	3,673	708	431	231	288.5	31.4
1993	164	830	38,464	2,616	29	395	63	483.8	58.0

[a] The lower river commercial catch in 1979 includes the upper river commercial catch.
[b] There was no commercial fishery in 1984.
[c] Chinook average is for jacks and large fish combined.

Appendix B.18. Sockeye salmon stock proportions and catch by stock in the Canadian commercial fishery in the lower Stikine River, 1979-1993. Stock compositions based on: scale circuli counts 1979-1983, SPA in 1985; average of SPA and GPA 1986; SPA in 1987 and 1988; and egg diameter in 1989-1993.

	Proportions		Catch	
Year	Tahltan	non-Tahltan	Tahltan	non-Tahltan
1979	0.433	0.567	4,561	5,973
1980	0.309	0.691	5,599	12,520
1981	0.476	0.524	10,258	11,293
1982	0.624	0.376	9,608	5,789
1983	0.422	0.578	6,692	9,165
1984[a]				
1985	0.623	0.377	10,649	6,444
1986	0.489	0.511	6,069	6,342
1987	0.225	0.775	1,380	4,758
1988	0.161	0.839	2,062	10,704
1989	0.164	0.836	2,813	14,366
1990	0.346	0.654	5,029	9,501
1991	0.634	0.366	11,136	6,427
1992	0.482	0.518	10,134	10,897
Averages				
79-92	0.414	0.586	6,615	8,783
83-92	0.394	0.606	6,218	8,734
1993	0.537	0.463	20,662	17,802

[a] There was no commercial fishery in 1984.

Appendix B.19. Salmon and steelhead trout catch and effort in the Canadian commercial fishery in the upper Stikine River, 1975-1993.

	Catch							Effort	
	Chinook							Permit	
Year	Jacks	Large	Sockeye	Coho	Pink	Chum	Steelhead	Days	Days
1975		178	270	45	0	0	0		
1976		236	733	13	0	0	0		
1977		62	1,975	0	0	0	0		
1978		100	1,500	0	0	0	0		
1979[a]									
1980		156	700	40	20	0	0		
1981		154	769	0	0	0	0	11.0	5.0
1982		76	195	0	0	0	0	8.0	4.0
1983		75	614	0	0	4	1	10.0	8.0
1984[b]									
1985		62	1,084	0	0	0	0	14.0	6.0
1986	41	104	815	0	0	0	0	19.0	7.0
1987	19	109	498	0	0	19	0	20.0	7.0
1988	46	175	348	0	0	0	0	21.5	6.5
1989	17	54	493	0	0	0	0	14.0	7.0
1990	20	48	472	0	0	0	0	15.0	7.0
1991	32	117	761	0	0	0	0	13.0	6.0
1992	19	56	822	0	0	0	0	28.0	13.0
Averages[c]									
75-92		115	753	6	1	1	0		
83-92		99	656	0	0	3	0	17.2	7.5
1993	2	44	1,692	0	0	0	2	48.0	22.0

[a] Catches in 1979 were included in the lower river commercial catches.
[b] There was no commercial fishery in 1984.
[c] Chinook averages are for jacks and large fish combined.

Appendix B.20. Salmon and steelhead trout catch in the Canadian aboriginal fishery located at Telegraph Creek, on the Stikine River, 1972-1993.

	Catch						
	Chinook						
Year	Jacks	Large	Sockeye	Coho	Pink	Chum	Steelhead
1972			4,373	0	0	0	0
1973		200	3,670	0	0	0	0
1974		100	3,500	0	0	0	0
1975		1,024	1,982	5	0	0	0
1976		924	2,911	0	0	0	0
1977		100	4,335	0	0	0	0
1978		400	3,500	0	0	0	0
1979		850	3,000	0	0	0	0
1980		587	2,100	100	0	0	0
1981		586	4,697	200	144	0	4
1982		618	4,948	40	60	0	0
1983	215	851	4,649	3	77	26	46
1984	59	643	5,327	1	62	0	2
1985	94	793	7,287	3	35	4	9
1986	569	1,026	4,208	2	0	12	2
1987	183	1,183	2,979	3	0	8	2
1988	197	1,178	2,177	5	0	3	3
1989	115	1,078	2,360	6	0	0	0
1990	259	633	3,022	17	0	0	11
1991	310	753	4,439	10	0	0	0
1992	131	911	4,431	5	0	0	3
Averages[a]							
72-92		789	3,805	19	18	3	4
83-92		1,118	4,088	6	17	5	8
1993	142	929	7,041	0	0	0	2

[a] Chinook averages are for jacks and large fish combined.

Appendix B.21. Salmon and steelhead trout catch in the combined Canadian net fisheries in the Stikine River, 1972-1993.

Year	Chinook		Sockeye	Coho	Pink	Chum	Steelhead
	Jacks	Large					
1972	0	0	4,373	0	0	0	0
1973	0	200	3,670	0	0	0	0
1974	0	100	3,500	0	0	0	0
1975	0	1,202	2,252	50	0	0	0
1976	0	1,160	3,644	13	0	0	0
1977	0	162	6,310	0	0	0	0
1978	0	500	5,000	0	0	0	0
1979	63	1,562	13,534	10,720	1,994	424	264
1980	0	2,231	20,919	6,769	756	771	362
1981	0	1,404	27,017	2,867	3,857	1,128	284
1982	0	2,387	20,540	15,944	1,842	722	828
1983	645	1,418	21,120	6,173	1,120	304	714
1984[a]	59	643	5,327	1	62	0	2
1985	185	1,111	25,464	2,175	2,356	536	240
1986	975	1,936	17,434	2,280	107	307	194
1987	444	2,201	9,615	5,731	646	459	219
1988	444	2,360	15,291	2,117	418	733	261
1989	289	2,669	20,032	6,098	825	674	127
1990	959	2,250	18,024	4,037	496	499	199
1991	660	1,511	22,763	2,648	394	208	71
1992	239	1,840	26,284	1,855	122	231	132
Averages[b]							
72-92		1,610	13,910	3,308	714	333	186
83-92		2,284	18,135	3,312	655	395	216
1993	308	1,803	47,197	2,616	29	395	67

[a] There was no commercial fishery in 1984.
[b] Chinook averages are for jacks and large fish combined.

Appendix B.22. Salmon and steelhead trout catches and effort in Canadian test fisheries in the Stikine River, 1985-1993.

Year	Chinook Jacks	Chinook Large	Sockeye	Coho	Pink	Chum	Steelhead	Effort Drift=# Set=hr.
Drift Test Fishery Catches								
1985								
1986	12	27	412	226	8	25	0	405
1987[a]		128	385	162	111	61	0	845
1988	14	168	325	75	9	33	7	720
1989	4	116	364	242	41	46	5	870
1990	6	167	447	134	5	29	6	673
1991	1	90	503	118	37	30	3	509
1992	27	135	393	75	13	23	7	312
Averages								
85-92	11	119	404	147	32	35	4	619
1993	11	94	440	37	6	18	7	304
Set Test Fishery Catches								
1985			1,340					
1986								
1987[a]		61	1,283	620	587	193	0	1,456
1988	15	101	922	130	23	65	14	1,380
1989	20	101	1,243	502	249	103	17	1,392
1990	12	64	1,493	271	42	48	18	1,212
1991	15	77	1,872	127	197	48	1	1,668
1992	21	62	1,971	193	56	43	19	1,249
Averages								
85-92	17	78	1,446	307	192	83	12	1,393
1993	11	85	1,384	136	6	63	6	1,224
Additional Test Fishery Catches								
1985								
1986								
1987								
1988								
1989								
1990								
1991								
1992	134	417	594	0	0	0	0	85
Averages								
85-92	134	417	594	0	0	0	0	
1993	65	389	1,925	2	1	3	2	
Total Test Fishery Catches								
1985	0	0	1,340	0	0	0	0	
1986	12	27	412	226	8	25	0	
1987	30	189	1,668	782	698	254	0	
1988	29	269	1,247	205	32	98	21	
1989	24	217	1,607	744	290	149	22	
1990	18	231	1,940	405	47	77	24	
1991	16	167	2,375	245	234	78	4	
1992	182	614	2,958	268	69	66	26	
Averages								
85-92	39	214	1,693	359	172	93	12	
1993	87	568	3,749	175	13	84	15	

[a] 1987 jack chinook catch is for both set and drift nets.

Appendix B.23. Sockeye salmon stock proportions and catch by stock in the test fishery in the lower Stikine River, 1985-1993. Stock composition based on: SPA 1985; average of SPA and GPA 1986-1988; egg diameter 1989-1993.

	Catch Tahltan		Proportion Tahltan		Average Proportion[a]	
Year	U.S.	Canada	U.S.	Canada	Tahltan	non-Tahltan
1985	560	439	0.418	0.328	0.372	0.628
1986	164	127	0.398	0.308	0.352	0.648
1987	513	397	0.308	0.238	0.273	0.727
1988	408	295	0.327	0.237	0.282	0.718
1989		414		0.258	0.258	0.742
1990		822		0.454	0.454	0.546
1991		1443		0.608	0.608	0.392
1992		1912		0.646	0.646	0.354
Averages						
85-92					0.406	0.594
1993		2184		0.583	0.583	0.417

[a] Average proportions are from averages of weekly estimates.

Appendix B.24. Estimated proportion of inriver run comprised of Tahltan Lake and non-Tahltan sockeye stocks, 1979-1993. Stock compositions based on: scale circuli counts 1979-1983; SPA in 1985; average of SPA and GPA 1986-1988; and egg diameter analysis in 1989-1993.

	Tahltan		Average[a]	
Year	U.S.	Canada	Tahltan	non-Tahltan
1979	0.433		0.433	0.567
1980	0.305		0.305	0.695
1981	0.475		0.475	0.525
1982	0.618		0.618	0.382
1983	0.489	0.423	0.456	0.544
1984	0.635	0.394	0.493	0.507
1985	0.621	0.363	0.466	0.534
1986	0.398	0.500	0.449	0.551
1987	0.338	0.257	0.304	0.696
1988	0.209	0.122	0.172	0.828
1989		0.188	0.188	0.812
1990		0.417	0.417	0.583
1991		0.561	0.561	0.439
1992		0.496	0.496	0.504
Averages				
79-92			0.417	0.583
83-92			0.400	0.600
1993		0.477	0.477	0.523

[a] Average proportions are from averages of weekly stock composition and migratory timing (from drift test fishery) estimates.

Appendix B.25. Counts of adult sockeye salmon migrating through Tahltan Lake weir, 1959-1993.

Year	Weir Installed	Date of Arrival First	50%	90%	Total Count	Broodstock	ESSR	Total Spawners	Natural Spawners	Hatchery Spawners
1959	30-Jun	02-Aug	12-Aug	16-Aug	4,311					
1960	15-Jul	02-Aug	24-Aug	27-Aug	6,387					
1961	20-Jul	09-Aug	11-Aug	15-Aug	16,619					
1962[a]	01-Aug	02-Aug	05-Aug	08-Aug	14,508					
1963[b]	03-Aug				1,780					
1964	23-Jul	26-Jul	14-Aug	25-Aug	18,353					
1965[c]	19-Jul	18-Jul	02-Sep	07-Sep	1,471					
1966	12-Jul	03-Aug	13-Aug	21-Aug	21,580					
1967	11-Jul	14-Jul	21-Jul	28-Jul	38,801					
1968	11-Jul	21-Jul	25-Jul	08-Aug	19,726					
1969	07-Jul	11-Jul	18-Jul	31-Jul	11,805					
1970	05-Jul	25-Jul	01-Aug	11-Aug	8,419					
1971	12-Jul	19-Jul	28-Jul	12-Aug	18,523					
1972	13-Jul	13-Jul	19-Jul	31-Aug	52,545					
1973	10-Jul	24-Jul	30-Jul	07-Aug	2,877					
1974	03-Jul	28-Jul	03-Aug	17-Aug	8,101					
1975	10-Jul	25-Jul	08-Aug	17-Aug	8,159					
1976	16-Jul	29-Jul	01-Aug	06-Aug	24,111					
1977	06-Jul	11-Jul	16-Jul	10-Aug	42,960					
1978	10-Jul	10-Jul	20-Jul	29-Jul	22,788					
1979	09-Jul	23-Jul	01-Aug	11-Aug	10,211					
1980	04-Jul	15-Jul	22-Jul	12-Aug	11,018					
1981	30-Jun	16-Jul	26-Jul	03-Aug	50,790					
1982	02-Jul	10-Jul	19-Jul	29-Jul	28,257					
1983	27-Jun	05-Jul	22-Jul	05-Aug	21,256					
1984	20-Jun	19-Jul	24-Jul	03-Aug	32,777					
1985	28-Jun	18-Jul	31-Jul	06-Aug	67,326					
1986	10-Jul	26-Jul	04-Aug	11-Aug	20,280					
1987	14-Jul	21-Jul	04-Aug	13-Aug	6,958					
1988	16-Jul	16-Jul	06-Aug	14-Aug	2,536					
1989	07-Jul	09-Jul	01-Aug	14-Aug	8,316	2,210		6,106		
1990	06-Jul	15-Jul	26-Jul	03-Aug	14,927	3,302		11,625		
1991	15-Jul	17-Jul	25-Jul	07-Aug	50,135	3,552		46,583		
1992	10-Jul	18-Jul	25-Jul	03-Aug	59,907	3,694		56,213		
Averages										
59-92	10-Jul	20-Jul	31-Jul	11-Aug	21,427					
83-92	06-Jul	16-Jul	29-Jul	07-Aug	28,442					
1993	10-Jul	10-Jul	28-Jul	10-Aug	53,362	4,506	1,752	47,104	46,074	1,030

[a] Question as to date weir installed.
[b] Daily counts unavailable.
[c] A slide occurred blocking the entrance for a while.

Appendix B.26. Aerial survey counts of non-Tahltan sockeye stocks in the Stikine River drainage, 1984-1993. The index represents the combined counts from eight spawning areas.

Year	Escapement Index
1984	2,329
1985	1,136
1986	571
1987	691
1988	376
1989	809
1990	743
1991	387
1992	1,723
Averages 84-92	974
1993	877

Appendix B.27. Estimates of sockeye salmon smolt migrating through Tahltan Lake smolt weir, 1984-1993.

Year	Weir Installed	Date of Arrival: First	50%	90%	Total Estimate	Natural Smolt	Hatchery Smolt
1984	10-May	11-May	23-May	06-Jun	218,702		
1985	25-Apr	23-May	31-May	28-May	613,531		
1986	08-May	10-May	31-May	07-Jun	244,330		
1987[a]	07-May	15-May	23-May	24-May	810,432		
1988	01-May	08-May	20-May	06-Jun	1,170,136		
1989	05-May	08-May	22-May	06-Jun	580,574		
1990[b]	05-May	15-May	29-May	05-Jun	610,407		
1991[c]	05-May	14-May	21-May	30-May	1,487,265	1,220,397	266,868
1992[d]	07-May	13-May	21-May	27-May	1,555,026	750,702	804,324
Averages							
84-92	04-May	13-May	24-May	01-Jun	810,045		
1993	07-May	11-May	17-May	22-May	3,255,045	2,855,562	399,483

[a] Estimate includes approximately 30,000 mortalities fromovercrowding on 5/22, 1987.
[b] Estimate of 595,147 on June 14 expanded by average % of outmigration by date (97.5%) from historical data.
[c] Estimate of 1,439,673 on June 13 expanded by average % of outmigration by date (96.8%) from historical data.
[d] Estimate of 1,516,150 on June 14 expanded by average % of outmigration by date (97.5%) from historical data.

Appendix B.28. Weir counts of chinook salmon at Little Tahltan River, 1985-1993.

Year	Weir Installed	First Arrival	50% Arrival	90% Arrival	Total Count	No. Taken Broodstock and Other	Natural Spawners	Total Natural Spawners
Large Chinook								
1985	03-Jul	04-Jul	30-Jul	06-Aug	3,114		3,114	
1986	28-Jun	29-Jun	21-Jul	05-Aug	2,891		2,891	
1987	28-Jun	04-Jul	24-Jul	02-Aug	4,783		4,783	
1988	26-Jun	27-Jun	18-Jul	03-Aug	7,292		7,292	
1989	25-Jun	26-Jun	23-Jul	02-Aug	4,715		4,715	
1990	22-Jun	29-Jun	23-Jul	04-Aug	4,392		4,392	
1991	23-Jun	25-Jun	20-Jul	03-Aug	4,506		4,506	
1992	24-Jun	04-Jul	21-Jul	30-Jul	6,627	12	6,615	
Averages								
85-92	26-Jun	29-Jun	22-Jul	03-Aug	4,790		4,789	
1993	20-Jun	21-Jun	16-Jul	28-Jul	11,449	24	11,425	
Jack Chinook (fish <600 mm poh length)								
1985	03-Jul	04-Jul	31-Jul	10-Aug	316			3,430
1986	28-Jun	03-Jul	25-Jul	06-Aug	572			3,463
1987	28-Jun	03-Jul	26-Jul	06-Aug	365			5,148
1988	26-Jun	27-Jun	17-Jul	02-Aug	327			7,619
1989	25-Jun	26-Jun	23-Jul	02-Aug	199			4,914
1990	22-Jun	05-Jul	22-Jul	30-Jul	417			4,809
1991	23-Jun	03-Jul	24-Jul	07-Aug	313			4,819
1992	24-Jun	12-Jul	22-Jul	30-Jul	131			6,746
Averages								
85-92	26-Jun	02-Jul	23-Jul	03-Aug	330			5,119
1993	20-Jun	30-Jun	14-Jul	01-Aug	60			11,485

Appendix B.29. Index counts of Stikine chinook escapements, 1979-1993. Counts do not include jacks (fish less than 600mm mef length).

Year	Little Tahltan Weir	Little Tahltan Aerial	Tahltan Aerial	Beatty Aerial	Andrew Foot
1979		1,166	2,118		382[ab]
1980		2,137	960	122	363[ab]
1981		3,334	1,852	558	644[ab]
1982		2,830	1,690	567	947[ab]
1983		594	453	83	444[ab]
1984		1,294		126	389[ab]
1985	3,114	1,598	1,490	147	319
1986	2,891	1,201	1,400	183	707
1987	4,783	2,706	1,390	312	788[c]
1988	7,292	3,796	4,384	593	470
1989	4,715	2,527	[d]	362	530
1990	4,392	1,765	2,134	271	664
1991	4,506	1,768	2,445	193	400[e]
1992	6,627[b]	3,607	1,891	362	778[c]
Averages					
79-92		2,166	1,851	298	559
83-92	4,790	2,086	1,948	263	549
1993	11,425	3,770	2,249	757	1,060

[a] Numbers are weir counts.
[b] Count includes fish later removed for broodstock.
[c] Helicopter survey
[d] Not surveyed due to poor visibility.
[e] Fixed wing survey.

Appendix B.30. Index counts of Stikine coho salmon escapements, 1984-1993.

Year and Date	Katete South	Katete North	Craig	Jekill	Verret	Bronson Slough	Scud Slough	Porcupine	Christina	Total
1984 10/30	147	313	0	0	15	42				517
1985 10/25	590	1,217	735		39	0	924	365		3,870
1988 10/28	32	227	[a]	[a]	175		97	53	0	584
1989 10/29	336	896	992	[a]	848	120	707	90	55	4,044
1990 10/30	94	548	810		494		664	430		3,040
1991	302	878	985		218		221	352		2,956
1992	295	1346	949		320		462	316		3,688
Average 84-92	257	775	745	0	301	54	513	268	28	2,671
1993	[a]	[a]	[a]	[a]	[a]	[a]	206	324	[a]	

[a] Poor observation conditions.

Appendix B.31. Stikine River sockeye salmon run size, 1979-1993. Catches include test fishery catches.

Year	Inriver run size estimates: Canada	U.S.	Average[a]	Inriver Catch	Escapement	Marine Catch	Total Run
1979		40,353	40,353	13,534	26,819	8,299	48,652
1980		62,743	62,743	20,919	41,824	23,206	85,949
1981		138,879	138,879	27,017	111,862	27,538	166,417
1982		68,761	68,761	20,540	48,221	43,415	112,176
1983	77,260	66,838	71,683	21,120	50,563	5,799	77,482
1984	95,454	59,168	76,211	5,327	70,884	7,928	84,139
1985	237,261	138,498	184,747	26,804	157,943	29,747	214,494
1986			69,036	17,846	51,190	6,420	75,456
1987			39,264	11,283	27,981	4,077	43,342
1988			41,915	16,538	25,377	3,181	45,096
1989			75,054	21,639	53,415	15,492	90,546
1990			57,386	19,964	37,422	9,856	67,242
1991			120,152	25,138	95,014	34,199	154,351
1992			154,542	29,242	125,300	77,385	231,927
Averages							
79-92			85,766	19,779	65,987	21,182	106,948
83-92			88,999	19,490	69,509	19,408	108,408
1993			176,100	52,698	123,402	104,629	280,729
Tahltan sockeye run size							
1979			17,472	7,261	10,211	5,076	22,548
1980			19,137	8,119	11,018	11,239	30,376
1981			65,968	15,178	50,790	16,189	82,157
1982			42,493	14,236	28,257	24,785	67,278
1983			32,684	11,428	21,256	5,094	37,778
1984			37,571	4,794	32,777	3,251	40,822
1985			86,008	18,682	67,326	25,197	111,205
1986			31,015	10,735	20,280	2,757	33,771
1987			11,923	4,965	6,958	2,255	14,178
1988			7,222	4,686	2,536	2,129	9,351
1989			14,110	5,794	8,316	1,561	15,671
1990			23,923	8,996	14,927	2,307	26,230
1991			67,394	17,259	50,135	23,511	90,905
1992			76,681	16,774	59,907	28,214	104,895
Averages							
79-92			38,114	10,636	27,478	10,969	49,083
83-92			38,853	10,411	28,442	9,628	48,481
1993			84,068	32,458	51,610	40,036	124,104
Non-Tahltan sockeye run size							
1979			22,880	6,273	16,608	3,223	26,103
1980			43,606	12,800	30,806	11,967	55,573
1981			72,911	11,839	61,072	11,349	84,260
1982			26,267	6,304	19,964	18,630	44,898
1983			38,999	9,692	29,307	705	39,704
1984			38,640	533	38,107	4,677	43,317
1985			98,739	8,122	90,617	4,550	103,289
1986			38,022	7,111	30,910	3,663	41,685
1987			27,342	6,318	21,023	1,822	29,164
1988			34,693	11,852	22,841	1,052	35,745
1989			60,944	15,845	45,099	13,931	74,875
1990			33,464	10,968	22,495	7,549	41,013
1991			52,758	7,879	44,879	10,687	63,446
1992			77,861	12,468	65,393	49,171	127,032
Averages							
79-92			47,652	9,143	38,509	10,213	57,865
83-92			50,146	9,079	41,067	9,781	59,927
1993			92,032	20,240	71,792	64,593	156,626

[a] The averages for 1983-1985 are averages of weekly run timing estimates as well as stock composition estimates and are not simple averages of total estimates for the season.

APPENDIX C

Appendix C.1. Weekly salmon catch and effort in the Alaskan District 111 commercial drift gillnet fishery, 1993.

Week	Start Date	Catch					Effort		
		Chinook	Sockeye	Coho	Pink	Chum	Boats	Days Open[a]	Boat Days
26	20-Jun	1,992	8,098	16	4	1,872	72	3.0	216
27	27-Jun	1,575	10,262	47	28	4,771	86	3.0	258
28	04-Jul	922	34,835	137	1,441	21,195	97	4.0	388
29	11-Jul	1,177	27,589	619	5,591	35,666	109	4.0	436
30	18-Jul	600	31,552	559	3,549	43,664	125	4.0	500
31	25-Jul	199	27,408	1,698	3,748	29,771	131	3.0	393
32	01-Aug	160	17,888	1,903	950	11,240	96	3.0	288
33	08-Aug	54	8,735	4,467	1,477	7,854	86	3.0	258
34	15-Aug	22	3,185	4,902	141	3,119	73	3.0	219
35	22-Aug	27	1,289	5,321	144	1,403	73	2.0	146
36	29-Aug	2	275	2,965	5	955	45	2.0	90
37	05-Sep	3	244	5,081	1	692	56	1.0	56
38	12-Sep	5	136	14,775	0	1,835	66	2.0	132
39	19-Sep	5	47	17,047	2	1,850	89	3.0	267
40	26-Sep	5	13	5,999	0	593	60	3.0	180
Total		6,748	171,556	65,536	17,081	166,480		43.0	3,827

[a] Does not include 2-day openings in Speel Arm during weeks 26-28.

Appendix C.2. Weekly salmon catch and effort in the Alaskan District 111 test fishery, 1993. The fishery occured entirely within Port Snettisham.

Week	Start Date	Catch				
		Chinook	Sockeye	Coho	Pink	Chum
30-31	18-Jul	0	19	0	4	2

Appendix C.3. Weekly stock proportions of sockeye salmon harvested in the Alaskan District 111 commercial drift gillnet fishery, 1993. Estimated with scale pattern analysis.

Week	Kuthai	Little Trapper	Mainstem	Little Tatsamenie	Total Taku	Crescent	Total Speel	Snettisham
26	0.460	0.141	0.360	0.000	0.961	0.030	0.008	0.039
27	0.271	0.413	0.207	0.009	0.901	0.040	0.059	0.099
28	0.120	0.515	0.180	0.022	0.837	0.048	0.115	0.163
29	0.000	0.416	0.409	0.031	0.856	0.065	0.079	0.144
30	0.000	0.301	0.436	0.044	0.781	0.173	0.045	0.219
31	0.000	0.313	0.233	0.244	0.790	0.045	0.165	0.210
32	0.000	0.148	0.357	0.325	0.829	0.007	0.164	0.171
33	0.000	0.058	0.285	0.396	0.738	0.057	0.204	0.262
34	0.000	0.064	0.242	0.399	0.706	0.083	0.212	0.294
35	0.000	0.064	0.242	0.399	0.706	0.083	0.212	0.294
36	0.000	0.064	0.242	0.399	0.706	0.083	0.212	0.294
37	0.000	0.064	0.242	0.399	0.706	0.083	0.212	0.294
38	0.000	0.064	0.242	0.399	0.706	0.083	0.212	0.294
39	0.000	0.064	0.242	0.399	0.706	0.083	0.212	0.294
40	0.000	0.064	0.242	0.399	0.706	0.083	0.212	0.294
Total	0.062	0.328	0.308	0.123	0.822	0.069	0.109	0.178

Appendix C.4. Weekly stock-specific catch of Taku sockeye salmon harvested in the Alaskan District 111 commercial drift gillnet fishery, 1993.

Week	Kuthai	Little Trapper	Mainstem	Little Tatsamenie	Total Taku	Crescent	Total Speel	Snettisham
26	3,726	1,140	2,919	0	7,785	245	68	313
27	2,784	4,243	2,125	94	9,246	411	605	1,016
28	4,163	17,930	6,286	767	29,146	1,686	4,003	5,689
29	0	11,481	11,287	845	23,613	1,798	2,178	3,976
30	0	9,498	13,756	1,397	24,651	5,466	1,435	6,901
31	0	8,573	6,378	6,699	21,650	1,223	4,535	5,758
32	0	2,645	6,383	5,808	14,836	118	2,934	3,052
33	0	507	2,487	3,456	6,450	500	1,785	2,285
34	0	204	770	1,272	2,247	264	674	938
35	0	83	312	515	909	107	273	380
36	0	18	67	110	194	23	58	81
37	0	16	59	97	172	20	52	72
38	0	9	33	54	96	11	29	40
39	0	3	11	19	33	4	10	14
40	0	1	3	5	9	1	3	4
Total	10,673	56,350	52,876	21,139	141,038	11,877	18,641	30,518

Appendix C.5. Weekly salmon and steelhead trout catch and effort in the Canadian commercial fishery in the Taku River, 1993.

		Catch							Effort		
		Chinook									
Week	Start Date	Jacks	Large	Sockeye	Coho	Pink	Chum	Steel-head	Average Permits	Days Open	Permit Days
26	20-Jun	93	777	2,266	0	0	0	1	11.00	3.0	33.0
27	27-Jun	54	424	3,001	0	0	0	0	11.00	3.0	33.0
28	04-Jul	12	214	5,290	4	0	0	0	12.00	3.0	36.0
29	11-Jul	8	127	5,880	10	0	0	0	11.67	3.0	35.0
30	18-Jul	3	46	5,337	50	3	0	0	12.25	4.0	49.0
31	25-Jul	0	6	1,165	32	6	0	0	9.00	3.0	27.0
32	01-Aug	1	22	4,628	582	7	2	0	13.00	4.0	52.0
33	08-Aug	0	2	3,498	720	0	4	4	12.00	4.0	48.0
34	15-Aug	0	0	1,418	587	0	0	1	10.33	3.0	31.0
35	22-Aug	0	1	734	1,048	0	9	5	4.75	4.0	19.0
Total		171	1,619	33,217	3,033	16	15	11		34.0	363.0

Appendix C.6. Weekly stock proportions of sockeye salmon harvested in the Canadian commercial fishery in the Taku River, 1993.

Week	Kuthai	Little Trapper	Mainstem	Little Tatsamenie
26	0.688	0.312	0.000	0.000
27	0.494	0.472	0.000	0.034
28	0.169	0.549	0.281	0.000
29	0.031	0.524	0.383	0.061
30	0.013	0.544	0.418	0.025
31	0.000	0.291	0.672	0.037
32	0.000	0.205	0.768	0.027
33	0.000	0.153	0.694	0.153
34	0.000	0.127	0.695	0.178
35	0.000	0.022	0.856	0.123
Total	0.126	0.392	0.432	0.049

Appendix C.7. Weekly stock-specific catch of sockeye salmon in the Canadian commercial fishery in the Taku River, 1993.

Week	Kuthai	Little Trapper	Mainstem	Little Tatsamenie
26	1,558	708	0	0
27	1,483	1,415	0	103
28	896	2,906	1,488	0
29	184	3,084	2,251	361
30	71	2,904	2,231	131
31	0	339	783	43
32	0	950	3,554	124
33	0	534	2,427	536
34	0	180	985	253
35	0	16	628	90
Total	4,192	13,036	14,347	1,641

Appendix C.8. Weekly salmon and steelhead trout catch in the Canadian test fishery in the Taku River, 1993.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Steelhead[a]
35	22-Aug	0	18	61	0	0	0
36	29-Aug	0	38	128	0	0	1
37	05-Sep	0	49	599	0	21	3
38	12-Sep	0	59	534	0	7	1
39	19-Sep	0	1	207	0	20	4
40	26-Sep	0	1	60	0	2	3
41	03-Oct	0	0	4	0	0	1
Total		0	166	1,593	0	50	13

[a] An additional 9 steelhead were landed, but not recorded in drift notebook.

Appendix C.9. Weekly stock specific-catch of sockeye salmon in the Canadian test fishery in the Taku River, 1993.

Week	Kuthai	Little Trapper	Mainstem	Little Tatsamenie
35	0	0	15	2
36	0	1	33	5
37	0	1	42	6
38	0	1	50	7
39	0	0	1	0
40	0	0	1	0
41	0	0	0	0
Total	0	4	142	20

Appendix C.10. Mark-recapture estimate of above border run of sockeye and coho salmon in the Taku River, 1993.

Tagging Week	Start Date	Above Border Run	Canadian Harvests: Commercial	Test	Food[a]	Above Border Escapement
Sockeye						
26	20-Jun	8,180	2,266	0		5,914
27	27-Jun	15,174	3,001	0		12,173
28	04-Jul	15,642	5,290	0		10,352
29	11-Jul	30,306	5,880	0		24,426
30	18-Jul	12,984	5,337	0		7,647
31	25-Jul	13,210	1,165	0		12,045
32	01-Aug	16,047	4,628	0		11,419
33	08-Aug	13,745	3,498	0		10,247
34	15-Aug	6,297	1,418	0		4,879
35	22-Aug	3,417	734	18		2,665
36-40	29-Aug	3,552	0	148		3,404
Total Number		138,554	33,217	166	140	105,031
95% C.I.	126,217 - 150,891					
Coho						
28-30	04-Jul	641	96			545
31	25-Jul	2,386	582			1,804
32	01-Aug	3,186	720			2,466
33	08-Aug	4,550	587			3,963
34	15-Aug	12,759	1,048	61		11,650
35	22-Aug	3,424		128		3,296
36	29-Aug	19,703		599		19,104
37	05-Sep	15,427		805		14,622
38-41	12-Sep					
Total Number		62,076	3,033	1,593	8	57,442
95% C.I.[b]	43,411 - 80,741					
Expansion[c]		114,091				109,457

[a] Food fishery catch by week not available.
[b] Combining weeks results in tighter confidence intervals but loss of timing information.
[c] Expansion made by dividing estimate by the fraction of the District 111 CPUE for wild coho occuring through week 37 (.54409).

Appendix C.11. Daily counts of salmon passing through Little Tatsamenie weir, 1993.

Date	Chinook[a]					Sockeye			Coho[a]		
	Jack	Large Adult	Size Unknown	Cumulative Count	Cumulative Percent	Count	Cumulative Count	Cumulative Percent	Count	Cumulative Count	Cumulative Percent
29-Jul	0	3	0	3	0.5	0	0	0.0	0	0	0.0
30-Jul	0	74	0	77	12.1	0	0	0.0	0	0	0.0
31-Jul	0	8	0	85	13.3	0	0	0.0	0	0	0.0
01-Aug	1	2	0	88	13.8	0	0	0.0	0	0	0.0
02-Aug	0	9	0	97	15.2	0	0	0.0	0	0	0.0
03-Aug	4	19	0	120	18.8	0	0	0.0	0	0	0.0
04-Aug	4	58	0	182	28.5	0	0	0.0	0	0	0.0
05-Aug	7	88	0	277	43.3	2	2	0.0	0	0	0.0
06-Aug	2	7	0	286	44.8	0	2	0.0	0	0	0.0
07-Aug	4	42	0	332	52.0	3	5	0.1	0	0	0.0
08-Aug	0	13	0	345	54.0	2	7	0.2	0	0	0.0
09-Aug	0	5	0	350	54.8	1	8	0.2	0	0	0.0
10-Aug	0	0	0	350	54.8	0	8	0.2	0	0	0.0
11-Aug	6	51	3	410	64.2	19	27	0.7	0	0	0.0
12-Aug	1	5	0	416	65.1	16	43	1.1	0	0	0.0
13-Aug	0	1	0	417	65.3	29	72	1.8	0	0	0.0
14-Aug	6	3	0	426	66.7	23	95	2.4	0	0	0.0
15-Aug	4	33	0	463	72.5	63	158	3.9	0	0	0.0
16-Aug	2	28	1	494	77.3	85	243	6.0	0	0	0.0
17-Aug	0	9	0	503	78.7	114	357	8.9	0	0	0.0
18-Aug	0	10	1	514	80.4	133	490	12.2	0	0	0.0
19-Aug	0	7	0	521	81.5	159	649	16.1	0	0	0.0
20-Aug	0	0	0	521	81.5	138	787	19.6	0	0	0.0
21-Aug	0	5	0	526	82.3	136	923	22.9	0	0	0.0
22-Aug	2	2	0	530	82.9	203	1,126	28.0	0	0	0.0
23-Aug	0	9	1	540	84.5	139	1,265	31.5	0	0	0.0
24-Aug	0	13	0	553	86.5	235	1,500	37.3	0	0	0.0
25-Aug	0	6	0	559	87.5	185	1,685	41.9	1	1	1.1
26-Aug	0	2	0	561	87.8	111	1,796	44.7	0	1	1.1
27-Aug	0	14	0	575	90.0	117	1,913	47.6	0	1	1.1
28-Aug	1	0	0	576	90.1	78	1,991	49.5	1	2	2.3
29-Aug	0	2	0	578	90.5	75	2,066	51.4	0	2	2.3
30-Aug	2	16	0	596	93.3	109	2,175	54.1	0	2	2.3
31-Aug	1	5	0	602	94.2	273	2,448	60.9	0	2	2.3
01-Sep	1	13	0	616	96.4	80	2,528	62.9	0	2	2.3
02-Sep	0	14	0	630	98.6	25	2,553	63.5	0	2	2.3
03-Sep	0	0	0	630	98.6	192	2,745	68.2	1	3	3.4
04-Sep	1	2	0	633	99.1	65	2,810	69.9	0	3	3.4
05-Sep	0	1	0	634	99.2	78	2,888	71.8	2	5	5.7
06-Sep	0	0	0	634	99.2	44	2,932	72.9	1	6	6.8
07-Sep	0	0	0	634	99.2	38	2,970	73.8	1	7	8.0
08-Sep	0	2	0	636	99.5	37	3,007	74.8	0	7	8.0
09-Sep	0	1	0	637	99.7	95	3,102	77.1	0	7	8.0
10-Sep	0	2	0	639	100.0	47	3,149	78.3	0	7	8.0
11-Sep	0	0	0	639	100.0	43	3,192	79.4	1	8	9.1
12-Sep	0	0	0	639	100.0	50	3,242	80.6	1	9	10.2
13-Sep	0	0	0	639	100.0	35	3,277	81.5	1	10	11.4
14-Sep	0	0	0	639	100.0	44	3,321	82.6	0	10	11.4
15-Sep	0	0	0	639	100.0	92	3,413	84.9	3	13	14.8
16-Sep	0	0	0	639	100.0	58	3,471	86.3	1	14	15.9
17-Sep	0	0	0	639	100.0	76	3,547	88.2	0	14	15.9
18-Sep	0	0	0	639	100.0	11	3,558	88.5	0	14	15.9
19-Sep	0	0	0	639	100.0	23	3,581	89.0	0	14	15.9
20-Sep	0	0	0	639	100.0	41	3,622	90.1	1	15	17.0
21-Sep	0	0	0	639	100.0	59	3,681	91.5	1	16	18.2
22-Sep	0	0	0	639	100.0	19	3,700	92.0	2	18	20.5
23-Sep	0	0	0	639	100.0	92	3,792	94.3	1	19	21.6
24-Sep	0	0	0	639	100.0	33	3,825	95.1	2	21	23.9
25-Sep	0	0	0	639	100.0	13	3,838	95.4	1	22	25.0
26-Sep	0	0	0	639	100.0	30	3,868	96.2	2	24	27.3
27-Sep	0	0	0	639	100.0	13	3,881	96.5	3	27	30.7
28-Sep	0	0	0	639	100.0	5	3,886	96.6	0	27	30.7
29-Sep	0	0	0	639	100.0	34	3,920	97.5	18	45	51.1
30-Sep	0	0	0	639	100.0	18	3,938	97.9	0	45	51.1
01-Oct	0	0	0	639	100.0	21	3,959	98.4	18	63	71.6
02-Oct	0	0	0	639	100.0	40	3,999	99.4	16	79	89.8
03-Oct	0	0	0	639	100.0	23	4,022	100.0	9	88	100.0
Counts	49	584	6	639		4,022			88		
Adjustments											
Estimated undercount[b]						1,006					
Broodstock[c]						-798					
Spawners	49	584	6	639		4,230			88		

[a] Operation of weir did not cover entire run.
[b] Estimated number of fish which passed through the weir uncounted.
[c] Broodstock included 331 females and 312 males spawned and 65 female and 90 male mortalities.

Appendix C.12. Daily counts of salmon passing through Little Trapper Lake weir, 1993.

Date	Sockeye		
	Count	Cum.	Percent
23-Jul	----Weir Installed----		
24-Jul	0	0	0.0
25-Jul	15	15	0.1
26-Jul	41	56	0.3
27-Jul	48	104	0.6
28-Jul	267	371	2.1
29-Jul	259	630	3.6
30-Jul	208	838	4.8
31-Jul	64	902	5.2
01-Aug	311	1,213	7.0
02-Aug	398	1,611	9.2
03-Aug	458	2,069	11.9
04-Aug	299	2,368	13.6
05-Aug	150	2,518	14.4
06-Aug	162	2,680	15.4
07-Aug	406	3,086	17.7
08-Aug	554	3,640	20.9
09-Aug	944	4,584	26.3
10-Aug	1,002	5,586	32.0
11-Aug	783	6,369	36.5
12-Aug	758	7,127	40.9
13-Aug	1,048	8,175	46.9
14-Aug	990	9,165	52.6
15-Aug	847	10,012	57.4
16-Aug	902	10,914	62.6
17-Aug	1,368	12,282	70.5
18-Aug	1,049	13,331	76.5
19-Aug	1,074	14,405	82.6
20-Aug	500	14,905	85.5
21-Aug	406	15,311	87.8
22-Aug	392	15,703	90.1
23-Aug	263	15,966	91.6
24-Aug	290	16,256	93.3
25-Aug	377	16,633	95.4
26-Aug	136	16,769	96.2
27-Aug	160	16,929	97.1
28-Aug	39	16,968	97.3
29-Aug	64	17,032	97.7
30-Aug	113	17,145	98.4
31-Aug	88	17,233	98.9
01-Sep	72	17,305	99.3
02-Sep	41	17,346	99.5
03-Sep	11	17,357	99.6
04-Sep	36	17,393	99.8
05-Sep	17	17,410	99.9
06-Sep	2	17,412	99.9
07-Sep	6	17,418	99.9
08-Sep	7	17,425	100.0
09-Sep	7	17,432	100.0

Count	17,432
Broodstock[a]	-747
Spawners	16,685

[a] Broodstock included 350 males and 356 females spawned and 18 male and 23 female mortalities.

Appendix C.13. Daily counts of salmon passing through Nakina River weir, 1993. These counts represent only a portion of the run above the Nakina River weir because the weir was installed after an unknown portion of the escapement has already passed.

Date	Jack Chinook Count	Large Chinook[a]			Sockeye			Pink		
		Count	Cum.	Percent	Count	Cum.	Percent	Count	Cum.	Percent
30-Jul		---Weir Installed ---								
31-Jul		29	29	13.4	0	0	0.0	0	0	0.0
01-Aug		19	48	22.1	0	0	0.0	0	0	0.0
02-Aug		13	61	28.1	0	0	0.0	0	0	0.0
03-Aug		0	61	28.1	0	0	0.0	0	0	0.0
04-Aug		0	61	28.1	0	0	0.0	0	0	0.0
05-Aug		52	113	52.1	0	0	0.0	0	0	0.0
06-Aug		29	142	65.4	3	3	20.0	0	0	0.0
07-Aug		43	185	85.3	4	7	46.7	1	1	100.0
08-Aug		9	194	89.4	1	8	53.3	0	1	100.0
09-Aug		0	194	89.4	0	8	53.3	0	1	100.0
10-Aug		7	201	92.6	1	9	60.0	0	1	100.0
11-Aug		16	217	100.0	3	12	80.0	0	1	100.0
12-Aug		0	217	100.0	0	12	80.0	0	1	100.0
13-Aug		0	217	100.0	0	12	80.0	0	1	100.0
14-Aug		0	217	100.0	0	12	80.0	0	1	100.0
15-Aug		0	217	100.0	0	12	80.0	0	1	100.0
16-Aug		0	217	100.0	0	12	80.0	0	1	100.0
17-Aug		0	217	100.0	0	12	80.0	0	1	100.0
18-Aug		0	217	100.0	0	12	80.0	0	1	100.0
19-Aug		0	217	100.0	0	12	80.0	0	1	100.0
20-Aug		0	217	100.0	2	14	93.3	0	1	100.0
21-Aug		0	217	100.0	0	14	93.3	0	1	100.0
22-Aug		0	217	100.0	0	14	93.3	0	1	100.0
23-Aug		0	217	100.0	1	15	100.0	0	1	100.0
24-Aug		0	217	100.0	0	15	100.0	0	1	100.0
25-Aug		0	217	100.0	0	15	100.0	0	1	100.0
26-Aug		0	217	100.0	0	15	100.0	0	1	100.0
Totals		217			15			1		

[a] Large chinook are defined as fish of > 600 POH length.

Appendix C.14. Daily counts of salmon passing through the Nahlin River weir, 1993. These counts represent an unknown portion of the run above the weir because the weir was not operated throughout the run.

Date	Jack Chinook Count	Large Chinook			Sockeye			Coho		
		Count	Cum.	Percent	Count	Cum.	Percent	Count	Cum.	Percent
19-Jun	---Weir Installed ---									
20-Jun	0	1	1	0.0	0	0	0.0	0	0	0.0
21-Jun	0	1	2	0.1	0	0	0.0	0	0	0.0
22-Jun	0	1	3	0.1	0	0	0.0	0	0	0.0
23-Jun	0	1	4	0.1	0	0	0.0	0	0	0.0
24-Jun	0	0	4	0.1	0	0	0.0	0	0	0.0
25-Jun	0	0	4	0.1	0	0	0.0	0	0	0.0
26-Jun	0	0	4	0.1	0	0	0.0	0	0	0.0
27-Jun	2	16	20	0.7	3	3	0.1	0	0	0.0
28-Jun	8	36	56	2.1	11	14	0.6	0	0	0.0
29-Jun	5	20	76	2.8	5	19	0.8	0	0	0.0
30-Jun	11	27	103	3.8	3	22	0.9	0	0	0.0
01-Jul	9	7	110	4.1	1	23	0.9	0	0	0.0
02-Jul	3	25	135	5.0	17	40	1.6	0	0	0.0
03-Jul	2	29	164	6.1	32	72	2.9	0	0	0.0
04-Jul	0	16	180	6.7	72	144	5.8	0	0	0.0
05-Jul	4	60	240	8.9	41	185	7.5	0	0	0.0
06-Jul	0	4	244	9.1	48	233	9.5	0	0	0.0
07-Jul	2	4	248	9.2	48	281	11.4	0	0	0.0
08-Jul	23	84	332	12.4	206	487	19.8	0	0	0.0
09-Jul	0	17	349	13.0	87	574	23.3	0	0	0.0
10-Jul	0	18	367	13.7	14	588	23.9	0	0	0.0
11-Jul	0	58	425	15.8	109	697	28.3	0	0	0.0
12-Jul	2	50	475	17.7	93	790	32.1	0	0	0.0
13-Jul	2	17	492	18.3	103	893	36.3	0	0	0.0
14-Jul	22	104	596	22.2	60	953	38.7	0	0	0.0
15-Jul	5	41	637	23.7	69	1,022	41.5	0	0	0.0
16-Jul	0	0	637	23.7	0	1,022	41.5	0	0	0.0
17-Jul	0	0	637	23.7	0	1,022	41.5	0	0	0.0
18-Jul	8	34	671	25.0	189	1,211	49.2	0	0	0.0
19-Jul	1	13	684	25.5	139	1,350	54.8	0	0	0.0
20-Jul	0	28	712	26.5	112	1,462	59.4	0	0	0.0
21-Jul	20	37	749	27.9	84	1,546	62.8	0	0	0.0
22-Jul	0	34	783	29.1	323	1,869	75.9	0	0	0.0
23-Jul	0	1,231	2,014	75.0	234	2,103	85.4	0	0	0.0
24-Jul	0	631	2,645	98.4	22	2,125	86.3	0	0	0.0
25-Jul	0	7	2,652	98.7	0	2,125	86.3	0	0	0.0
26-Jul	2	1	2,653	98.7	0	2,125	86.3	0	0	0.0
27-Jul	1	4	2,657	98.9	0	2,125	86.3	0	0	0.0
28-Jul	4	9	2,666	99.2	25	2,150	87.3	0	0	0.0
29-Jul	7	12	2,678	99.7	18	2,168	88.0	0	0	0.0
30-Jul	2	0	2,678	99.7	0	2,168	88.0	0	0	0.0
31-Jul	0	6	2,684	99.9	25	2,193	89.0	0	0	0.0
01-Aug	0	0	2,684	99.9	0	2,193	89.0	0	0	0.0
02-Aug	1	2	2,686	100.0	29	2,222	90.2	0	0	0.0
03-Aug	0	1	2,687	100.0	65	2,287	92.9	0	0	0.0
04-Aug	0	0	2,687	100.0	20	2,307	93.7	1	1	0.3
05-Aug	0	0	2,687	100.0	0	2,307	93.7	0	1	0.3
06-Aug	0	0	2,687	100.0	3	2,310	93.8	0	1	0.3
07-Aug	0	0	2,687	100.0	4	2,314	94.0	0	1	0.3
08-Aug	0	0	2,687	100.0	9	2,323	94.3	0	1	0.3
09-Aug	0	0	2,687	100.0	5	2,328	94.5	0	1	0.3
10-Aug	0	0	2,687	100.0	40	2,368	96.1	0	1	0.3
11-Aug	0	0	2,687	100.0	0	2,368	96.1	0	1	0.3
12-Aug	0	0	2,687	100.0	18	2,386	96.9	0	1	0.3
13-Aug	0	0	2,687	100.0	30	2,416	98.1	0	1	0.3
14-Aug	0	0	2,687	100.0	8	2,424	98.4	0	1	0.3
15-Aug	0	0	2,687	100.0	0	2,424	98.4	0	1	0.3
16-Aug	0	0	2,687	100.0	6	2,430	98.7	0	1	0.3
17-Aug	0	0	2,687	100.0	5	2,435	98.9	0	1	0.3
18-Aug	0	0	2,687	100.0	0	2,435	98.9	1	2	0.6
19-Aug	0	0	2,687	100.0	0	2,435	98.9	0	2	0.6
20-Aug	0	0	2,687	100.0	0	2,435	98.9	0	2	0.6
21-Aug	0	0	2,687	100.0	0	2,435	98.9	0	2	0.6
22-Aug	0	0	2,687	100.0	6	2,441	99.1	0	2	0.6
23-Aug	0	0	2,687	100.0	0	2,441	99.1	0	2	0.6
24-Aug	0	0	2,687	100.0	22	2,463	100.0	18	20	6.1
25-Aug	0	0	2,687	100.0	0	2,463	100.0	1	21	6.4
26-Aug	0	0	2,687	100.0	0	2,463	100.0	0	21	6.4
27-Aug	0	0	2,687	100.0	0	2,463	100.0	0	21	6.4
28-Aug	0	0	2,687	100.0	0	2,463	100.0	3	24	7.4
29-Aug	0	0	2,687	100.0	0	2,463	100.0	0	24	7.4
30-Aug	0	0	2,687	100.0	0	2,463	100.0	22	46	14.1
31-Aug	0	0	2,687	100.0	0	2,463	100.0	27	73	22.4
01-Sep	0	0	2,687	100.0	0	2,463	100.0	29	102	31.3
02-Sep	0	0	2,687	100.0	0	2,463	100.0	42	144	44.2
03-Sep	0	0	2,687	100.0	0	2,463	100.0	0	144	44.2
04-Sep	0	0	2,687	100.0	0	2,463	100.0	4	148	45.4
05-Sep	0	0	2,687	100.0	0	2,463	100.0	30	178	54.6
06-Sep	0	0	2,687	100.0	0	2,463	100.0	11	189	58.0
07-Sep	0	0	2,687	100.0	0	2,463	100.0	32	221	67.8
08-Sep	0	0	2,687	100.0	0	2,463	100.0	32	253	77.6
09-Sep	0	0	2,687	100.0	0	2,463	100.0	24	277	85.0
10-Sep	0	0	2,687	100.0	0	2,463	100.0	16	293	89.9
11-Sep	0	0	2,687	100.0	0	2,463	100.0	18	311	95.4
12-Sep	0	0	2,687	100.0	0	2,463	100.0	3	314	96.3
13-Sep	0	0	2,687	100.0	0	2,463	100.0	3	317	97.2
14-Sep	0	0	2,687	100.0	0	2,463	100.0	4	321	98.5
15-Sep	0	0	2,687	100.0	0	2,463	100.0	5	326	100.0
16-Sep	0	0	2,687	100.0	0	2,463	100.0	0	326	100.0
17-Sep	0	0	2,687	100.0	0	2,463	100.0	0	326	100.0
18-Sep	0	0	2,687	100.0	0	2,463	100.0	0	326	100.0
19-Sep	0	0	2,687	100.0	0	2,463	100.0	0	326	100.0
Counts	146	2,687			2,463			326		

Appendix C.15. Daily counts of salmon passing through the Kuthai Lake weir, 1993.

Date	Sockeye Count	Cum.	Percent
11-Jul	--- Weir installed ---		
12-Jul	2	2	0.0
13-Jul	3	5	0.1
14-Jul	378	383	6.3
15-Jul	40	423	6.9
16-Jul	251	674	11.0
17-Jul	185	859	14.1
18-Jul	175	1,034	16.9
19-Jul	892	1,926	31.6
20-Jul	120	2,046	33.5
21-Jul	763	2,809	46.0
22-Jul	474	3,283	53.8
23-Jul	550	3,833	62.8
24-Jul	239	4,072	66.7
25-Jul	337	4,409	72.3
26-Jul	31	4,440	72.8
27-Jul	167	4,607	75.5
28-Jul	162	4,769	78.2
29-Jul	207	4,976	81.5
30-Jul	116	5,092	83.4
31-Jul	109	5,201	85.2
01-Aug	212	5,413	88.7
02-Aug	265	5,678	93.1
03-Aug	119	5,797	95.0
04-Aug	160	5,957	97.6
05-Aug	12	5,969	97.8
06-Aug	3	5,972	97.9
07-Aug	0	5,972	97.9
08-Aug	34	6,006	98.4
09-Aug	17	6,023	98.7
10-Aug	21	6,044	99.0
11-Aug	20	6,064	99.4
12-Aug	0	6,064	99.4
13-Aug	16	6,080	99.6
14-Aug	15	6,095	99.9
15-Aug	1	6,096	99.9
16-Aug	0	6,096	99.9
17-Aug	3	6,099	100.0
18-Aug	0	6,099	100.0
19-Aug	0	6,099	100.0
20-Aug	0	6,099	100.0
21-Aug	0	6,099	100.0
22-Aug	0	6,099	100.0
23-Aug	0	6,099	100.0
24-Aug	0	6,099	100.0
25-Aug	0	6,099	100.0
26-Aug	3	6,102	100.0
27-Aug	0	6,102	100.0
28-Aug	0	6,102	100.0
29-Aug	0	6,102	100.0
30-Aug	0	6,102	100.0
31-Aug	0	6,102	100.0
Total	6,102		
Adjusted Total[a]		6,312	

[a] Weir was not fish-tight therefore the count is an underestimate of the Kuthai Lake escapement.

APPENDIX D

Appendix D.1. Salmon catches and effort in the Alaskan District 111 commercial drift gillnet fishery, 1964-1993. Days open are for the entire district and include openings to harvest spawner chinook salmon 1964-1975. Boat-days prior to 1969 are not comparable to boat-days from 1969-1993.

	Catch					Effort	
Year	Chinook	Sockeye	Coho	Pink	Chum	Boat Days	Days Open
1964	2,509	34,140	29,315	26,593	12,853		56.00
1965	4,170	27,569	32,667	2,768	11,533		63.00
1966	4,829	33,925	26,065	23,833	35,133		64.00
1967	5,417	17,735	40,391	12,372	22,834		53.00
1968	4,904	19,501	39,103	67,365	21,890		60.00
1969	6,986	41,169	10,802	73,927	15,049	1,461	41.50
1970	3,357	50,922	44,960	197,017	110,390	2,688	53.00
1971	6,958	66,181	41,830	31,484	91,145	2,914	55.00
1972	10,955	80,404	49,780	144,339	147,957	3,100	51.00
1973	9,799	85,317	35,453	58,186	109,245	3,316	41.00
1974	2,908	38,670	38,667	57,731	86,687	2,237	29.50
1975	2,182	32,513	1,185	9,567	2,678	1,089	15.50
1976	1,757	61,749	41,729	14,962	81,803	1,939	25.00
1977	1,068	70,097	54,917	88,578	61,102	2,284	27.00
1978	1,926	55,398	31,944	51,385	36,254	2,176	26.00
1979	3,701	122,148	16,194	152,836	61,197	2,235	28.83
1980	2,251	123,451	41,677	296,572	192,647	4,080	30.92
1981	1,721	49,942	26,711	254,856	76,438	2,660	30.00
1982	3,057	83,625	29,072	109,297	37,608	2,437	35.50
1983	888	31,821	21,455	66,239	15,264	1,274	33.00
1984	1,773	77,233	33,836	145,971	86,741	2,690	52.50
1985	2,636	88,077	55,597	311,248	106,720	3,102	48.00
1986	2,584	73,061	30,512	16,568	58,792	2,102	32.83
1987	2,076	75,212	35,219	363,439	121,660	2,514	34.75
1988	1,779	38,923	44,881	157,831	139,578	2,146	32.00
1989	1,811	74,019	51,812	180,597	36,977	2,333	41.00
1990	3,480	126,884	67,530	153,036	145,799	3,202	38.33
1991	3,217	109,877	126,436	74,183	161,175	4,103	57.00
1992	2,341	135,411	172,662	314,445	112,527	4,550	50.00
Averages							
64-92	3,553	66,378	43,876	119,215	75,851	2,610	41.56
83-92	2,259	83,052	63,994	178,356	98,523	2,802	41.94
1993	6,748	171,556	65,536	17,081	166,480	3,827	43.00

Appendix D.2. Stock proportions and catches of sockeye salmon in the Alaska District 111 commercial drift gillnet fishery, 1983-1993. Data based on analysis of scale patterns and incidence of brain parasites.

Year	Kuthai	Little Trapper	Mainstem	Little Tatsamenie	Total Taku	Crescent	Speel	Total Snettisham
Proportions								
1983					0.755			0.245
1984					0.758			0.242
1985					0.838			0.162
1986	0.061	0.266	0.303	0.204	0.834	0.090	0.076	0.166
1987	0.078	0.234	0.376	0.031	0.720	0.157	0.123	0.280
1988	0.118	0.158	0.305	0.082	0.663	0.266	0.071	0.337
1989[a]	0.077	0.616		0.156	0.848	0.051	0.100	0.152
1990	0.036	0.197	0.336	0.286	0.855	0.112	0.033	0.145
1991	0.039	0.297	0.373	0.232	0.941	0.059	0.000	0.059
1992	0.048	0.220	0.445	0.191	0.904	0.036	0.060	0.096
Averages[b]	0.064	0.229	0.356	0.171	0.812	0.120	0.060	0.188
1993	0.062	0.328	0.308	0.123	0.822	0.069	0.109	0.178
Catches								
1983					24,025			7,796
1984					58,543			18,690
1985					73,809			14,268
1986	4,489	19,441	22,104	14,900	60,934	6,610	5,516	12,127
1987	5,893	17,594	28,286	2,352	54,124	11,814	9,274	21,088
1988	4,598	6,153	11,865	3,194	25,811	10,365	2,748	13,112
1989[a]	5,696	45,573		11,536	62,805	3,789	7,425	11,214
1990	4,539	24,952	42,676	36,332	108,499	14,242	4,143	18,385
1991	4,295	32,685	40,957	25,475	103,412	6,465	0	6,465
1992	6,543	29,818	60,224	25,853	122,438	4,912	8,060	12,972
Averages[b]	5,060	21,774	34,352	18,018	69,440	9,068	4,957	13,612
1993	10,673	56,350	52,876	21,139	141,038	11,877	18,641	30,518

[a] The Trapper and Mainstem groups were combined in the 1989 analysis.
[b] Averages for individual stocks do not include 1989.

Appendix D.3. Proportion of Taku River sockeye salmon in the Alaskan District 111 commercial drift gillnet catch, 1983-1993. Data based on scale patterns and incidence of brain parasites.

Year	25	26	27	28	29	30	31	32	33	34	Total
1983		0.996	0.842	0.819	0.663	0.527	0.836	0.534	0.719	0.759	0.755
1984	0.970	0.956	0.843	0.670	0.588	0.712	0.728	0.809	0.726		0.758
1985	0.999	0.986	0.928	0.974	0.868	0.706	0.737	0.826	0.801		0.838
1986	0.938	0.953	0.873	0.880	0.852	0.777	0.851	0.757	0.893	0.739	0.834
1987		0.982	0.901	0.884	0.948	0.414	0.619	0.689	0.841	0.731	0.720
1988		0.964	0.886	0.889	0.510	0.643	0.677	0.528	0.478	0.346	0.663
1989	0.943	0.989	0.979	0.852	0.835	0.641	0.681	0.919	0.676		0.848
1990	0.874	0.935	0.904	0.773	0.782	0.863	0.943	0.939	0.878	0.862	0.855
1991	0.988	0.979	0.953	0.979	0.951	0.933	0.936	0.890	0.885	0.875	0.941
1992		0.978	0.985	0.956	0.916	0.943	0.893	0.858	0.766	0.766	0.904
Average 83-92	0.952	0.972	0.909	0.868	0.791	0.716	0.790	0.775	0.766	0.725	0.812
1993		0.961	0.901	0.837	0.856	0.781	0.790	0.829	0.738	0.706	0.822

Appendix D.4. Salmon catch in the U.S. subsistence and personal use fisheries in the Taku River, 1967-1993. The subsistence fishery was open 1967 to 1976 and 1985 and the personal use fishery was open 1989-1993.

	Catch				
Year	Chinook	Sockeye	Coho	Pink	Chum
1967	0	103	221	9	25
1968	3	41	196	19	10
1969	0	122	8	11	0
1970	0	304	0	20	8
1971	0	512	0	42	0
1972	0	554	0	103	7
1973	0	1,227	0	64	14
1974	0	1,431	0	118	5
1975	0	170	0	3	0
1976	0	351	4	22	0
1985	0	924	35	19	1
1989	33	749	73	765	25
1990	52	1,560	206	130	92
1991	47	1,475	120	188	4
1992	37	2,031	147	170	0
Averages					
All	11	770	67	112	13
85-92	34	1,348	116	254	24
1993	21	2,854	59	221	7

Appendix D.5. Salmon and steelhead trout catch and effort in the Canadian commercial fishery in the Taku River, 1979-1993.

	Catch							Effort	
	Chinook								
Year	Jack	Large	Sockeye	Coho	Pink	Chum	Steelhead	Boat Days	Days Open
1979		97	13,578	6,006	13,661	15,474	254	599.0	50.00
1980		225	22,602	6,405	26,821	18,516	457	476.0	39.00
1981		159	10,922	3,607	10,771	5,591	108	242.8	31.25
1982		54	3,144	51	202	3	1	38.0	13.00
1983	400	156	17,056	8,390	1,874	1,760	213	390.0	64.00
1984	221	294	27,242	5,357	6,964	2,492	367	288.0	30.00
1985	24	326	14,244	1,770	3,373	136	32	178.0	16.00
1986	77	275	14,739	1,783	58	110	48	148.0	17.00
1987	106	127	13,554	5,599	6,250	2,270	223	280.0	26.00
1988	186	555	12,014	3,123	1,030	733	86	185.4	14.70
1989	139	895	18,545	2,876	695	42	24	270.6	25.30
1990	128	1,258	21,100	3,207	378	12	22	295.2	28.30
1991	432	1,177	25,067	3,415	296	2	5	284.0	25.00
1992	147	1,445	29,472	4,077	0	7	15	291.0	27.00
Averages									
79-92[a]		636	17,377	3,976	5,170	3,368	133	283.3	29.04
83-92	186	651	19,303	3,960	2,092	756	104	261.0	27.33
1993	171	1,619	33,217	3,033	16	15	11	363.0	34.00

[a] Chinook averages are for large fish and jacks combined.

Appendix D.6. Sockeye salmon stock proportions and catch by stock in the Canadian commercial fishery on the Taku River, 1986-1993. Data based on SPA.

Year	Kuthai	Little Trapper	Mainstem	Little Tatsamenie
Proportions				
1986	0.111	0.397	0.350	0.143
1987	0.062	0.201	0.649	0.088
1988	0.143	0.417	0.343	0.098
1989[a]	0.053	0.744		0.203
1990	0.112	0.388	0.338	0.163
1991	0.064	0.308	0.452	0.176
1992	0.092	0.240	0.569	0.099
Averages[b]				
86-92	0.097	0.325	0.450	0.128
1993	0.126	0.392	0.432	0.049
Catch				
1986	1,629	5,855	5,152	2,103
1987	834	2,728	8,793	1,199
1988	1,715	5,005	4,122	1,172
1989[a]	990	13,792		3,763
1990	2,355	8,183	7,131	3,431
1991	1,601	7,721	11,327	4,418
1992	2,699	7,085	16,764	2,924
Averages[b]				
86-92	1,627	5,898	7,305	2,465
1993	4,192	13,036	14,347	1,641

[a] The Trapper and Mainstem groups were combined in the 1989 analysis.
[b] Averages do not include 1989.

Appendix D.7. Salmon catches in the Canadian aboriginal fishery on the Taku River, 1980-1993.

Year	Chinook Jack	Chinook Large	Sockeye	Coho	Pink	Chum	Steelhead
1980		85	150	0	0	15	0
1981							
1982							
1983		9	0	0	0	0	0
1984		0	50	15	0	0	0
1985		4	167	22	0	0	0
1986		10	200	50	0	0	0
1987		0	96	113	0	0	0
1988		27	245	98	0	0	0
1989		6	53	146	0	0	0
1990		0	89	6	0	0	0
1991		0	150	20	0	0	0
1992		83	250	187	0	0	6
Averages							
80-92		20	132	60	0	1	1
83-92		14	130	66	0	0	1
1993[a]		25	140	8	0	0	0

[a] Incomplete harvest data.

Appendix D.8. Salmon and steelhead trout catch in the Canadian test fishery in the Taku River, 1987-1993.

Year	Catch Chinook	Sockeye	Coho	Pink	Chum	Steelhead
1987		237	807			
1988	72	708	422	52	222	14
1989	31	207	1,011	0	13	26
1990	48	285	472	0	0	20
1991	0	163	2,004	3	295	41
1992	0	38	1,277	0	76	88
Averages						
87-92	30	273	999	11	121	38
1993	0	166	1,593	0	50	22

Appendix D.9. Sockeye salmon escapement estimates of Taku River and Port Snettisham stocks, 1979-1993. Spawners equals escapement to weir minus fish taken for broodstock.

	Taku Above Border[a]		Little Trapper		Little Tatsamenie		Hackett	Kuthai Lake	Nahlin River	Crescent		Speel	
	Run	Escapement	Escape.	Spawners	Escape.	Spawners	Weir	Weir	Weir	Escape.	Spawners	Escape.	Spawners
1980								1,658					
1981								2,299					
1982													
1983			7,402[b]	7,402						19,422	19,422	10,484	10,484
1984	133,414	106,122	13,084	13,084						6,707	6,707	9,764	9,764
1985	118,160	103,749	14,889[b]	14,889	13,093	13,093	2,309			7,249	7,249	7,073	7,006
1986	105,109	90,170	13,820	13,820	11,446	11,446	1,004			3,414	3,414	5,857	5,457
1987	87,130	73,243	12,007[b]	12,007	2,794	2,794	910			7,839	7,839	9,319	9,319
1988	87,028	74,061	10,637	10,637	2,063	2,063	516		138[c]	1,199[d]	1,199	969	710
1989	114,068	95,263	9,606	9,606	3,039	3,039				1,109[d]	775	12,229	10,114
1990	114,254	92,780	9,443	7,777	5,736	4,929			2,515	1,262[d]	757	18,064[d]	16,867
1991	150,507	125,127	22,942	21,001	8,381	7,585				9,208[a]	8,666	299	299
1992	162,003	132,243	14,372	12,732	6,576	5,681		1,457[c]	297[c]	22,674[d]	21,849	9,439	8,136
Averages													
83-92	119,075	99,195	12,820	12,296	6,641	6,329	1,185	1,805	983	8,008	7,788	8,350	7,816
1993	138,554	105,031	17,432	16,685	5,028	4,230		6,312[d]	2,463				

[a] Mark-recapture estimates.
[b] Weir count plus spawning ground survey.
[c] Weir counts are incomplete.
[d] Counts may be low due to uncounted fish passage past weir.

Appendix D.10. Aerial survey index escapement counts of large (3-ocean and older) Taku River chinook salmon and estimated escapements of large chinook salmon to the entire Taku drainage, 1975-1993.

Year	Kowatua	Tatsatua	Dudidontu	Tseta	Nakina	Nahlin	Total Index Count
1975			15		1,800	274	2,089
1976	341	620	40		3,000	725	4,726
1977	580	573	18		3,850	650	5,671
1978	490	550	0	21	1,620	624	3,305
1979	430	750	9		2,110	857	4,156
1980	450	905	158		4,500	1,531	7,544
1981	560	839	74	258	5,110	2,945	9,786
1982	289	387	130	228	2,533	1,246	4,813
1983	171	236	117	179	968	391	2,062
1984	279	616		176[a]	1,887	951[b]	3,909
1985	699	848	475	303	2,647	2,236	7,208
1986	548	886	413	193	3,868	1,612	7,520
1987	570	678	287	180	2,906	1,122	5,743
1988	1,010	1,272	243	66	4,500	1,535	8,626
1989	601	1,228	204	494	5,141	1,812	9,480
1990	614	1,068	820	172	7,917	1,658	12,249
1991	570	1,164	804	224	5,610	1,781	10,153
1992	782	1,624	768	313	5,750	1,821	11,058
Averages							
75-92	528	838	269	216	3,651	1,321	6,672
83-92	584	962	459	230	4,119	1,492	7,801
1993	1,584	1,491	1,020	491	6,490	2,128	13,204

[a] Partial survey.
[b] Extrapolated results.

Appendix D.11. Taku River (above border) coho salmon run size, 1987-1993.

	Canadian Catch			Above Border	
Year	Commercial	Food	Test	Escapement	Run
1987	5,599	113	807	55,457	61,976[a]
1988	3,123	98	422	39,450	43,093[b]
1989	2,876	146	1,011	56,808	60,841[c]
1990	3,207	6	472	72,196	75,881[d]
1991	3,415	20	2,004	127,484	132,923
1992	4,077	187	1,277	84,624-108,145	90,165-113,686[e]
Averages					
87-92	3,716	95	999	70,279[f]	74,943[f]
1993	3,033	8	1,593	109,457	114,091[g]

[a] Mark-recapture estimate through 9/20 was 43,570. Run through 10/05 estimated using inriver test fish CPUE.
[b] Mark-recapture estimate through 9/18.
[c] Mark-recapture estimate through 10/01.
[d] A second method of estimating the above border run by expanding test fishery CPUE yielded an estimate of 85,053 coho salmon.
[e] Mark-recapture estimate of inriver run size through 9/05 was 50,249. District 111 CPUE was used to extrapolate total season above-border run size and escapement. These are presented as ranges depending on the lag time assumed between District 111 and the tagging site.
[f] Escapement and run averages do not include 1992.
[g] Inriver estimate through week 37 expanded by dividing by proportion of 111 CPUE of wild coho (.54409) through week 37.

Appendix D.12. Escapement counts of Taku River coho salmon, 1984-1993 age-.1 fish and do not include jacks.

Year	Yehring Creek Weir	Yehring Creek Aerial	Sockeye Creek Aerial	Johnson Creek Ar/Foot	Fish Creek Aerial	Flannigan Slough Aerial	Tatsamenie River Weir	Hackett River Weir	Dudidontu River Aerial	Upper Nahlin R. Aerial	Upper Nahlin R. Weir
1984		2,900	275	235	700	1,480					
1985		560	740	150	1,000	2,320	201[b]	1,031			
1986	2,116[a]	1,200	183	70	65	1,095	344[b]	2,723	108	318	
1987	1,627[a]	590	1,040	150	250	2,100	173[b]	1,715	276	165	
1988	1,423	685	660	500	1,280	1,241[c]	663[a]	1,260	367	694	1,322
1989	1,570[d]	600	400	400	760	1,464	712[a]		115	322	
1990	2,522[d]	220	230	0	250	414[c]	669[a]		25	256	
1991		500	360	120	460	1,370	1,101		458	176[e]	
1992		1,200[f]	550[f]	52	478	1,288	730				970[ab]
Averages											
84-92	1,852	939	493	186	583	1,419	574	1,682	225	322	1,146
1993		250	130	90	380		88				326

[a] Weir count combined with spawning ground count.
[b] Incomplete weir count.
[c] Count is an average of surveys by different observers.
[d] Includes mark-recapture estimate.
[e] Poor survey conditions.
[f] Foot survey.

Appendix D.13. Taku River sockeye salmon run size, 1984-1993. Run estimate does not include spawning escapements below the U.S./Canada border.

Year	Canadian Catch: Commercial	Canadian Catch: Food	Canadian Catch: Test	Escapement	Above Border Run	U.S. Catch[a]	Total Run
1984	27,242	50		106,122	133,414	58,543	191,957
1985	14,244	167		103,749	118,160	74,733	192,893
1986	14,739	200		90,170	105,109	60,934	166,043
1987	13,554	96	237	73,243	87,130	55,154	142,284
1988	12,014	245	708	74,061	87,028	25,811	112,839
1989	18,545	53	207	95,263	114,068	63,554	177,622
1990	21,100	89	285	92,780	114,254	110,059	224,313
1991	25,067	150	163	125,127	150,507	105,606	256,113
1992	29,472	250	38	132,243	162,003	124,470	286,473
Averages 84-92	19,553	144	273	99,195	119,075	75,429	194,504
1993	33,217	140	166	105,031	138,554	143,892	282,446

[a] Includes subsistence, personel use, and test fishery catches.

APPENDIX E

Appendix E.1. Weekly salmon catch and effort in the U.S. commercial fishery in the Alsek River, 1993.

Week	Start Date	Catch					Effort		
		Chinook	Sockeye	Coho	Pink	Chum	Boats	Days Open	Boat Days
25	13-Jun	228	1,125	0	0	0	28	1	28
26	20-Jun	59	6,267	0	0	0	33	2	66
27	27-Jun	11	3,681	0	0	0	30	3	90
28	04-Jul	0	2,529	0	0	0	27	2	54
29	11-Jul	1	1,656	0	0	0	6	2	12
30	18-Jul	0	1,946	0	0	0	10	3	30
31	25-Jul	0	1,637	0	0	1	7	3	21
32	01-Aug	0	692	0	0	0	3	4	12
33	08-Aug	0	269	0	0	0	[a]	3	[a]
34	15-Aug	0	140	11	0	0	[a]	3	[a]
35	22-Aug	1	80	39	0	1	[a]	3	[a]
36	29-Aug	0	5	27	0	0	[a]	3	[a]
37	05-Sep	0	7	471	0	4	6	3	18
38	12-Sep	0	8	414	0	23	7	3	21
39	19-Sep	0	1	253	0	20	5	2	10
Total		300	20,043	1,215	0	49	170	40	390

[a] Effort is not listed by week, but is included in the season total.

Appendix E.2. Weekly salmon catch and effort in the Canadian aboriginal and sport fisheries in the Alsek River, 1993. Total catches do not include released fish.

Week	Date	Chinook				Sockeye				Coho			
		Sport	Release	Aboriginal[a]	Total	Sport	Release	Aboriginal[a]	Total	Sport	Release	Aboriginal[a]	Total
25	13-Jun	0	0	0	0	0	0	0	0	0	0	0	0
26	20-Jun	14	0	0	14	0	1	3	3	0	0	0	0
27	27-Jun	59	17	5	64	0	11	3	3	0	0	0	0
28	04-Jul	56	34	11	67	0	9	16	16	0	0	0	0
29	11-Jul	22	11	28	50	1	15	14	15	0	0	0	0
30	18-Jul	17	17	57	74	5	3	81	86	0	0	0	0
31	25-Jul	2	1	13	15	0	0	40	40	0	0	0	0
32	01-Aug	1	0	24	25	1	0	54	55	0	0	0	0
33	08-Aug	0	0	9	9	3	0	83	86	0	0	0	0
34	15-Aug	0	0	0	0	14	8	45	59	0	0	0	0
35	22-Aug	0	0	5	5	52	5	172	224	0	0	0	0
36	29-Aug	0	0	0	0	41	11	581	622	0	0	0	0
37	05-Sep	0	0	0	0	77	7	601	678	0	0	0	0
38	12-Sep	0	0	0	0	46	6	590	636	0	0	0	0
39	19-Sep	0	0	0	0	43	15	76	119	1	0	0	1
40	26-Sep	0	0	0	0	20	2	2	22	14	0	0	14
41	03-Oct	0	0	0	0	26	7	0	26	22	4	0	22
42	10-Oct	0	0	0	0	0	0	0	0	0	0	0	0
Totals		171	80	152	323	329	100	2,361	2,690	37	4	0	37

[a] The total food fish catch above the Klukshu Weir was 64 chinook and 1,808 sockeye salmon. Village Creek food fish catch was 186 sockeye and 39 chinook salmon.

Appendix E.3. Daily counts of salmon passing through Klukshu River weir, 1993.

	Chinook[a]			Sockeye			Coho		
		Cumulative			Cumulative			Cumulative	
Date	Daily	Daily	Prop.	Daily	Daily	Prop.	Daily	Daily	Prop.
12-Jun	0	0	0.000	0	0	0.000	0	0	0.000
13-Jun	0	0	0.000	0	0	0.000	0	0	0.000
14-Jun	0	0	0.000	0	0	0.000	0	0	0.000
15-Jun	0	0	0.000	0	0	0.000	0	0	0.000
16-Jun	0	0	0.000	0	0	0.000	0	0	0.000
17-Jun	0	0	0.000	0	0	0.000	0	0	0.000
18-Jun	1	1	0.000	0	0	0.000	0	0	0.000
19-Jun	0	1	0.000	1	1	0.000	0	0	0.000
20-Jun	0	1	0.000	0	1	0.000	0	0	0.000
21-Jun	0	1	0.000	0	1	0.000	0	0	0.000
22-Jun	0	1	0.000	0	1	0.000	0	0	0.000
23-Jun	0	1	0.000	0	1	0.000	0	0	0.000
24-Jun	0	1	0.000	0	1	0.000	0	0	0.000
25-Jun	0	1	0.000	0	1	0.000	0	0	0.000
26-Jun	0	1	0.000	0	1	0.000	0	0	0.000
27-Jun	0	1	0.000	0	1	0.000	0	0	0.000
28-Jun	0	1	0.000	0	1	0.000	0	0	0.000
29-Jun	0	1	0.000	0	1	0.000	0	0	0.000
30-Jun	0	1	0.000	0	1	0.000	0	0	0.000
01-Jul	0	1	0.000	0	1	0.000	0	0	0.000
02-Jul	1	2	0.001	1	2	0.000	0	0	0.000
03-Jul	0	2	0.001	1	3	0.000	0	0	0.000
04-Jul	2	4	0.001	1	4	0.000	0	0	0.000
05-Jul	2	6	0.002	2	6	0.000	0	0	0.000
06-Jul	1	7	0.002	20	26	0.002	0	0	0.000
07-Jul	15	22	0.007	269	295	0.018	0	0	0.000
08-Jul	24	46	0.014	697	992	0.059	0	0	0.000
09-Jul	32	78	0.024	218	1,210	0.072	0	0	0.000
10-Jul	80	158	0.048	313	1,523	0.091	0	0	0.000
11-Jul	164	322	0.098	372	1,895	0.113	0	0	0.000
12-Jul	354	676	0.205	313	2,208	0.132	0	0	0.000
13-Jul	256	932	0.282	416	2,624	0.157	0	0	0.000
14-Jul	532	1,464	0.443	419	3,043	0.182	0	0	0.000
15-Jul	126	1,590	0.482	193	3,236	0.193	0	0	0.000
16-Jul	98	1,688	0.511	65	3,301	0.197	0	0	0.000
17-Jul	33	1,721	0.521	155	3,456	0.206	0	0	0.000
18-Jul	135	1,856	0.562	197	3,653	0.218	0	0	0.000
19-Jul	199	2,055	0.622	174	3,827	0.229	0	0	0.000
20-Jul	226	2,281	0.691	39	3,866	0.231	0	0	0.000
21-Jul	475	2,756	0.835	192	4,058	0.242	0	0	0.000
22-Jul	34	2,790	0.845	73	4,131	0.247	0	0	0.000
23-Jul	16	2,806	0.850	102	4,233	0.253	0	0	0.000
24-Jul	12	2,818	0.853	118	4,351	0.260	0	0	0.000
25-Jul	27	2,845	0.862	44	4,395	0.263	0	0	0.000
26-Jul	29	2,874	0.870	55	4,450	0.266	0	0	0.000
27-Jul	18	2,892	0.876	64	4,514	0.270	0	0	0.000
28-Jul	198	3,090	0.936	158	4,672	0.279	0	0	0.000
29-Jul	77	3,167	0.959	39	4,711	0.281	0	0	0.000
30-Jul	40	3,207	0.971	68	4,779	0.285	0	0	0.000
31-Jul	17	3,224	0.976	33	4,812	0.287	0	0	0.000
01-Aug	9	3,233	0.979	3	4,815	0.288	0	0	0.000
02-Aug	8	3,241	0.982	47	4,862	0.290	0	0	0.000
03-Aug	5	3,246	0.983	4	4,866	0.291	0	0	0.000
04-Aug	3	3,249	0.984	31	4,897	0.293	0	0	0.000
05-Aug	7	3,256	0.986	81	4,978	0.297	0	0	0.000
06-Aug	5	3,261	0.988	102	5,080	0.303	0	0	0.000
07-Aug	7	3,268	0.990	80	5,160	0.308	0	0	0.000
08-Aug	1	3,269	0.990	2	5,162	0.308	0	0	0.000
09-Aug	2	3,271	0.991	15	5,177	0.309	0	0	0.000
10-Aug	0	3,271	0.991	133	5,310	0.317	0	0	0.000
11-Aug	1	3,272	0.991	21	5,331	0.318	0	0	0.000
12-Aug	2	3,274	0.992	10	5,341	0.319	0	0	0.000
13-Aug	0	3,274	0.992	16	5,357	0.320	0	0	0.000
14-Aug	0	3,274	0.992	2	5,359	0.320	0	0	0.000
15-Aug	2	3,276	0.992	10	5,369	0.321	0	0	0.000
16-Aug	2	3,278	0.993	7	5,376	0.321	0	0	0.000
17-Aug	3	3,281	0.994	42	5,418	0.324	0	0	0.000
18-Aug	4	3,285	0.995	166	5,584	0.334	0	0	0.000
19-Aug	2	3,287	0.995	2	5,586	0.334	0	0	0.000
20-Aug	2	3,289	0.996	18	5,604	0.335	0	0	0.000
21-Aug	2	3,291	0.997	37	5,641	0.337	0	0	0.000
22-Aug	1	3,292	0.997	36	5,677	0.339	0	0	0.000
23-Aug	3	3,295	0.998	221	5,898	0.352	0	0	0.000
24-Aug	1	3,296	0.998	607	6,505	0.389	0	0	0.000
25-Aug	0	3,296	0.998	119	6,624	0.396	0	0	0.000
26-Aug	1	3,297	0.998	47	6,671	0.399	0	0	0.000
27-Aug	1	3,298	0.999	13	6,684	0.399	0	0	0.000
28-Aug	2	3,300	0.999	381	7,065	0.422	0	0	0.000
29-Aug	2	3,302	1.000	1072	8,137	0.486	0	0	0.000
30-Aug	0	3,302	1.000	347	8,484	0.507	0	0	0.000
31-Aug	0	3,302	1.000	2360	10,844	0.648	0	0	0.000
01-Sep	0	3,302	1.000	908	11,752	0.702	0	0	0.000
02-Sep	0	3,302	1.000	49	11,801	0.705	0	0	0.000

-Continued-

Appendix E.3. (page 2 of 2.)

	Chinook[a]			Sockeye			Coho		
		Cumulative			Cumulative			Cumulative	
Date	Daily	Daily	Prop.	Daily	Daily	Prop.	Daily	Daily	Prop.
03-Sep	0	3,302	1.000	521	12,322	0.736	0	0	0.000
04-Sep	0	3,302	1.000	3	12,325	0.736	0	0	0.000
05-Sep	0	3,302	1.000	99	12,424	0.742	0	0	0.000
06-Sep	0	3,302	1.000	9	12,433	0.743	0	0	0.000
07-Sep	0	3,302	1.000	1871	14,304	0.854	1	1	0.001
08-Sep	0	3,302	1.000	475	14,779	0.883	0	1	0.001
09-Sep	0	3,302	1.000	18	14,797	0.884	0	1	0.001
10-Sep	0	3,302	1.000	7	14,804	0.884	0	1	0.001
11-Sep	0	3,302	1.000	5	14,809	0.885	0	1	0.001
12-Sep	0	3,302	1.000	3	14,812	0.885	0	1	0.001
13-Sep	0	3,302	1.000	2	14,814	0.885	0	1	0.001
14-Sep	0	3,302	1.000	17	14,831	0.886	0	1	0.001
15-Sep	0	3,302	1.000	3	14,834	0.886	0	1	0.001
16-Sep	0	3,302	1.000	1	14,835	0.886	0	1	0.001
17-Sep	0	3,302	1.000	0	14,835	0.886	0	1	0.001
18-Sep	0	3,302	1.000	0	14,835	0.886	0	1	0.001
19-Sep	0	3,302	1.000	0	14,835	0.886	0	1	0.001
20-Sep	0	3,302	1.000	0	14,835	0.886	0	1	0.001
21-Sep	0	3,302	1.000	1	14,836	0.886	1	2	0.003
22-Sep	0	3,302	1.000	7	14,843	0.887	0	2	0.003
23-Sep	0	3,302	1.000	4	14,847	0.887	0	2	0.003
24-Sep	0	3,302	1.000	2	14,849	0.887	0	2	0.003
25-Sep	0	3,302	1.000	3	14,852	0.887	0	2	0.003
26-Sep	0	3,302	1.000	153	15,005	0.896	15	17	0.022
27-Sep	0	3,302	1.000	481	15,486	0.925	58	75	0.095
28-Sep	0	3,302	1.000	206	15,692	0.937	33	108	0.137
29-Sep	0	3,302	1.000	161	15,853	0.947	33	141	0.179
30-Sep	0	3,302	1.000	24	15,877	0.948	17	158	0.201
01-Oct	0	3,302	1.000	75	15,952	0.953	20	178	0.226
02-Oct	0	3,302	1.000	634	16,586	0.991	255	433	0.549
03-Oct	0	3,302	1.000	67	16,653	0.995	49	482	0.612
04-Oct	0	3,302	1.000	47	16,700	0.998	94	576	0.731
05-Oct	0	3,302	1.000	22	16,722	0.999	78	654	0.830
06-Oct	0	3,302	1.000	8	16,730	0.999	14	668	0.848
07-Oct	0	3,302	1.000	6	16,736	1.000	16	684	0.868
08-Oct	0	3,302	1.000	3	16,739	1.000	11	695	0.882
09-Oct	0	3,302	1.000	0	16,739	1.000	16	711	0.902
10-Oct	0	3,302	1.000	0	16,739	1.000	34	745	0.945
11-Oct	0	3,302	1.000	1	16,740	1.000	26	771	0.978
12-Oct	0	3,302	1.000	0	16,740	1.000	17	788	1.000
Totals		3,302			16,740			788	
Adjustments									
Broodstock		-18			-11				
Catch		-64			-1,808				
Total Escapement		3,220			14,921			788	

[a] Jack chinook included in the counts.

Appendix E.4. Salmon catch and effort in the U.S. commercial fishery in the Alsek River, 1964-1993.

	Catch					Effort	
Year	Chinook	Sockeye	Coho	Pink	Chum	Boat Days	Days Open
1964	591	14,127	9,760	144	367	592	68.00
1965	719	28,487	9,638	10	72	1,016	72.00
1966	934	29,091	2,688	22	240	500	64.00
1967	225	11,108	10,090	107	30	600	68.00
1968	215	26,918	10,586	82	240	664	68.00
1969	685	29,259	2,493	38	61	807	61.00
1970	1,128	22,654	2,188	6	26	670	52.25
1971	1,222	25,314	4,730	3	120	794	60.50
1972	1,827	18,717	7,296	37	280	640	65.00
1973	1,757	26,523	4,395	26	283	894	52.00
1974	1,162	16,747	7,046	13	107	699	46.00
1975	1,379	13,842	2,230	16	261	738	58.00
1976	512	19,741	4,883	0	368	550	58.50
1977	1,402	40,780	11,817	689	483	882	57.00
1978	2,441	50,580	13,913	59	233	929	57.00
1979	2,525	41,449	6,158	142	263	1,110	51.00
1980	1,382	25,522	7,863	21	1,005	792	42.00
1981	779	23,641	10,232	65	816	585	40.00
1982	532	27,423	6,534	6	358	555	33.00
1983	93	17,637	5,253	20	432	479	38.00
1984	46	12,751	7,867	23	1,608	429	33.00
1985	213	5,792	5,490	3	427	279	33.00
1986	481	24,791	1,344	13	462	517	34.00
1987	347	11,393	2,517	0	1,924	388	40.50
1988	223	6,286	4,986	7	907	324	34.00
1989	228	13,513	5,972	2	1,031	364	35.50
1990	78	17,013	1,437	0	495	374	38.00
1991	103	17,542	5,956	0	103	530	49.00
1992	301	19,310	3,310	1	136	404	46.00
Averages							
64-92	811	21,998	6,161	54	453	624	50.15
83-92	211	14,603	4,413	7	753	409	38.10
1993	300	20,043	1,215	0	49	390	40.00

Appendix E.5. Salmon catch in the U.S. subsistence and personal use fisheries in the Alsek River, 1976-1993.[a]

	Catch		
Year	Chinook	Sockeye	Coho
1976	13	51	5
1977	18	113	0
1978			
1979	80	35	70
1980	57	41	62
1981	32	50	74
1982	87	75	50
1983	31	25	50
1984			
1985	16	95	0
1986	22	241	45
1987	27	173	31
1988	13	148	9
1989	20	131	34
1990	85	144	12
1991	38	104	0
1992	15	37	44
Averages			
76-92	37	98	32
83-92	30	122	25
1993	37	80	30

[a] Reported catches on returned fishing permits.

Appendix E.6. Salmon catches in the Canadian aboriginal and sport fisheries in the Alsek River, 1976-1993.

	Chinook			Sockeye			Coho		
Year	Aboriginal	Sport	Total	Aboriginal	Sport	Total	Aboriginal	Sport	Total
1976	150	200	350	4,000	600	4,600	0	100	100
1977	350	300	650	10,000	500	10,500	0	200	200
1978	350	300	650	8,000	500	8,500	0	200	200
1979	1,300	650	1,950	7,000	750	7,750	0	100	100
1980	150	200	350	800	600	1,400	0	200	200
1981	150	315	465	2,000	808	2,808	0	109	109
1982	400	224	624	5,000	755	5,755	0	109	109
1983	300	312	612	2,550	732	3,282	0	16	16
1984	100	475	575	2,600	289	2,889	0	20	20
1985	175	250	425	1,361	100	1,461	50	100	150
1986	102	165	267	1,914	307	2,221	0	9	9
1987	125	367	492	1,158	383	1,541	0	49	49
1988	43	249	292	1,604	322	1,926	0	192	192
1989	234	272	506	1,851	319	2,170	0	227	227
1990	202	555	757	2,314	392	2,706	0	75	75
1991	509	388	897	2,111	303	2,414	217	260	477
1992	148	103	251	2,592	582	3,174	0	213	213
Averages									
76-92	282	313	595	3,344	485	3,829	16	128	144
83-92	194	314	507	2,006	373	2,378	27	116	143
1993	152	171	323	2,361	329	2,690	0	37	37

Appendix E.7. Klukshu River weir counts of chinook, sockeye, and coho salmon, 1976-1993. The escapement count equals the weir count minus the aboriginal fishery catch and brook stock taken.

	Chinook[a]		Sockeye				Coho[c]	
Year	Count	Escape.[d]	Early[b]	Late	Total	Escape.[d]	Count	Escape.
1976	1,278	1,153	181	11,510	11,691	7,941	1,572	
1977	3,144	2,894	8,931	17,860	26,791	15,441	2,758	
1978	2,976	2,676	2,508	24,359	26,867	19,017	30	
1979	4,404	2,454	977	11,334	12,311	7,051	175	
1980	2,637	2,487	1,008	10,742	11,750	10,850	704	
1981	2,113	1,963	997	19,351	20,348	18,448	1,170	
1982	2,369	1,969	7,758	25,941	33,699	28,899	189	
1983	2,537	2,237	6,047	14,445	20,492	18,017	303	
1984	1,672	1,572	2,769	9,958	12,727	10,227	1,402	
1985	1,458	1,283	539	18,081	18,620	17,259	350	
1986	2,709	2,607	416	24,434	24,850	22,936	71	
1987	2,616	2,491	3,269	7,235	10,504	9,346	202	
1988	2,037	1,994	585	8,756	9,341	7,737	2,774	
1989	2,456	2,289	3,400	20,142	23,542	21,636	2,219	
1990	1,915	1,742	1,316	24,679	25,995	24,607	315	
1991	2,489	2,248	1,924	17,053	18,977	17,645	8,540	8,478
1992	1,367	1,242	11,339	8,420	19,767	18,269	1,145	1,145
Averages								
76-92	2,363	2,077	3,174	16,135	19,310	16,196	1,407	
83-92	2,126	1,971	3,160	15,320	18,482	16,768	1,732	
1993	3,302	3,220	5,369	11,371	16,740	14,921	788	788

[a] Counts include jack chinook salmon.
[b] Includes sockeye counts up to and including August 15.
[c] Weir was removed prior to the end of the coho run.
[d] The chinook and sockeye escapements into Klukshu Lake are calculated from the weir count minus fish harvested above the weir site minus brood stock taken. The remainder of the food fishery harvest occured below the weir, at Village Creek, and Blanchard and Takhanne Rivers.

Appendix E.8. Alsek River sockeye counts from U.S. and Canadian aerial surveys and from the electronic counter at Village Creek, 1985-1993.

Year	U.S. Aerial Surveys[a]				Canadian Aerial Surveys[b]		
	Basin Creek	Cabin Creek	Muddy Creek	Tanis River	Tatshenshini River	Neskataheen Lake	Village Creek Counter
1985	2,600			2,200			
1986	100		300	2,700	536	750	1,490
1987	350	220		1,600			1,875
1988	500			750	433	456	433[c]
1989	320			680	1,689	1,700	9,569
1990	275	300		3,500			7,500[d]
1991				800			5,670[e]
1992	1,000	10		350			11,485[f]
Averages 85-92	735	177	300	1,573	886	969	5,432
1993	4,800			900			3,135[g]

[a] Surveys not made every year at each tributary.
[b] Includes several streams from Lo-Fog to Goat Creek.
[c] Incomplete count due to machine malfunction.
[d] Estimated count based on absolute electronic records (5,313) and the total number of non-operational days.
[e] Estimated count based on absolute electronic records (3,981) and the total number of non-operational days.
[f] Counts were estimated during the non-operational days by averaging the counts recorded three days before and before and three days after the malfunction.
[g] Estimated count based on absolute electronic records (2,101) and the total number of non-operational days.

Appendix E.9. Aerial survey index counts of Alsek chinook salmon escapements, 1984-1993.

Year	Blanchard River	Takhanne River	Goat Creek
1984	304	158	28
1985	232	184	
1986	556	358	142
1987	624	295	85
1988	437	169	54
1989	[a]	158	34
1990	[a]	325	32
1991	121	86	63
1992	86	77	16
Averages 84-92	337	201	57
1993	326	351	50

[a] Not surveyed due to poor visibility.

Appendix E.10. Aerial survey counts of coho salmon from U.S. lower Alsek River tributaries, 1984-1993.

Year	Combined U.S. Tributary Counts
1985	450
1986	1,100
1987	100
1988	1,900
1989	1,990
1990	1,600
1991	500[a]
1992	1,010[a]
Averages 85-92	1,081
1993	800[a]

[a] Few systems surveyed.