

Canadian Manuscript Report of
Fisheries and Aquatic Sciences 2476

1999

THE 1996 FISHWHEEL PROJECT ON THE NASS RIVER, BC

prepared by

Michael R. Link

LGL Limited
environmental research associates¹

for the

Nisga'a Tribal Council²

¹ 9768 Second St., Sidney, BC V8L 3Y8

² P.O. Box 231 New Aiyansh, BC V0J 1AO

© Minister of Public Works and Government Services Canada 1999

Cat. No. Fs 97-4/ 2476E

ISSN 0706-6473

Correct citation for this publication:

Link, M. R. 1999. The 1996 fishwheel project on the Nass River, B.C. Can. Manusc. Rep. Fish. Aquat. Sci. 2476: 92 p.

TABLE OF CONTENTS

LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF APPENDICES.....	viii
ABSTRACT	x
RÉSUMÉ	xi
INTRODUCTION	1
STUDY AREA.....	1
METHODS	1
Fishwheel Operation	1
Fishwheel Effort and Catch	2
Tagging.....	2
Tag Recovery.....	3
Escapement Estimates	3
Inseason Escapement Estimates	3
Post-season Escapement Estimates	3
Run Reconstruction	4
Age and Length Sampling.....	4
RESULTS	5
Fishwheel Operation	5
Fishwheel Effort	5
Catches and catch per unit effort	5
Tagging.....	7
Tag Recovery.....	7
Escapement Estimates	8
Inseason Escapement Estimates	8
Post-season Escapement Estimates	8
Run Reconstruction	9
Age and Length Sampling	9
DISCUSSION	10
Operational Evaluation	10
Escapement Estimates	10
Summary of Final Escapement Estimates	11
Fishwheels as a test fishery	12
ACKNOWLEDGMENTS	13

TABLE OF CONTENTS - Cont'd

REFERENCES.....	14
TABLES	15
FIGURES.....	26
APPENDIX A.....	42
APPENDIX B	50
APPENDIX C.....	69
APPENDIX D.....	75
APPENDIX E	86

LIST OF TABLES

Table 1.	Numbers of each species of salmon caught and tagged at four fishwheels on the Nass River, 1996.....	16
Table 2.	A summary of the number of tag recoveries by location for the tags applied at the Nass River fishwheels, 1996.	17
Table 3.	Population estimates derived from tagging of adult sockeye and coho salmon at the Nass River fishwheels and recovery of tags at the Meziadin fishway, 1996.....	18
Table 4.	Summary of escapement survey data and estimated escapement for chinook salmon upstream of Gitwinksihlkw, 1996.	19
Table 5.	The estimated percentages of adult chinook, sockeye, and coho captured with four fishwheels on the Nass River, 1996.	20
Table 6.	Means, standard errors and 95% confidence intervals for sockeye travel times from the fishwheels to the Meziadin fishway for 3-day release periods, 1996.....	21
Table 7.	Summary of age composition of chinook, sockeye, and coho salmon sampled at the Nass River fishwheels, 1996.....	22
Table 8.	Mean nose-fork length (cm) of salmon (by age) sampled at the Nass River fishwheels, 1996.	23
Table 9.	Summary of the estimates of catch, escapement, and total return to the Nass River for chinook, sockeye, and coho salmon, 1996.	24
Table 10.	Comparison of stock composition estimates for Nass River sockeye salmon (percent Meziadin) from scale, GSI and tagging methods, 1986-1996.....	25

LIST OF FIGURES

Figure 1.	The Nass watershed showing locations of the fishwheels, the Meziadin fishway and chinook spawning areas that were surveyed.....	27
Figure 2.	Fishwheel effort (h) and speed (RPM) for four fishwheels on the Nass River, 1996.....	28
Figure 3.	Fishwheel CPUE (catch per wheel hour) for adult chinook salmon captured with four fishwheels on the Nass River, 1996.	29
Figure 4.	Fishwheel CPUE (catch per wheel hour) for adult sockeye salmon captured with four fishwheels on the Nass River, 1996.	30
Figure 5.	Fishwheel CPUE (catch per wheel hour) for adult coho salmon captured with four fishwheels on the Nass River, 1996.	31
Figure 6.	Fishwheel CPUE (catch per wheel hour) for adult steelhead captured with four fishwheels on the Nass River, 1996.	32
Figure 7.	Fishwheel CPUE (catch per wheel hour) for adult pink salmon captured with four fishwheels on the Nass River, 1996.	33
Figure 8.	Fishwheel CPUE (catch per wheel hour) for adult chum salmon captured with four fishwheels on the Nass River, 1996.	34
Figure 9.	Time between release and recapture for chinook salmon tagged at fishwheels 1 and 2 and subsequently recaptured in the four fishwheels, 1996.....	35
Figure 10.	Time between release and recapture for sockeye salmon tagged at fishwheels 1 and 2 and subsequently recaptured in each of the four fishwheels, 1996.	36
Figure 11.	Daily counts and percent of fish with tags for sockeye and coho salmon passing through the Meziadin fishway, 1996.	37
Figure 12.	a) The distribution of travel times (days) to the Meziadin fishway for sockeye salmon tagged at the Nass River fishwheels and recovered at the Meziadin fishway, 1996; b) mean travel time (with 95% confidence intervals) for 3-day release periods.	38
Figure 13.	Percent of the sockeye salmon run captured by fishwheels 1 and 2 versus estimated daily escapement, 1996.....	39

LIST OF FIGURES - Cont'd

- Figure 14. Percent of the sockeye salmon run captured by fishwheels 1 and 2 versus level of the Nass River at Gitwinksihlkw, 1996. 40
- Figure 15. Weekly age composition of successfully aged sockeye salmon sampled from the Nass River fishwheel catch, 1996. 41

LIST OF APPENDICES

Appendix A.	Water temperature/level data and fishwheel effort, 1996.	
Table A-1.	Minimum and maximum water level and temperature data collected in the Nass River near Gitwinksihlkw, 15 April to 4 October, 1996.....	43
Table A-2.	Summary of daily fishwheel effort (hours), effort used to calculate CPUE and fishwheel speed (RPM) for four fishwheels used on the Nass River, 1996.....	45
Figure A-1.	Daily maximum water temperature and level in the Nass River near Gitwinksihlkw, 1996.....	49
Appendix B.	Daily catches at the Nass River fishwheels, 1996.	
Table B-1.	Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1996.....	51
Table B-2.	Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels, 1996	55
Table B-3.	Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for coho salmon captured in the Nass River fishwheels, 1996	59
Table B-4.	Daily catches of pink, chum, and steelhead at the Nass River fishwheels, 1996.....	61
Table B-5.	Catches of other species (non-Pacific salmon) captured in the Nass River fishwheels, 1996	65
Appendix C.	Summaries of recovery data for fish tagged at the Nass River fishwheels, 1996.	
Table C-1.	Summary statistics of travel time data for chinook, sockeye, and coho salmon tagged at the Nass River fishwheels, 1996.....	70
Table C-2.	Travel time information for recoveries of tagged chinook salmon by location tagged and location recovered, 1996.....	71
Table C-3.	Travel time information for recoveries of tagged sockeye salmon by location tagged and location recovered, 1996.....	72
Table C-4.	Travel time information for recoveries of tagged coho salmon by location tagged and location recovered, 1996.....	74

LIST OF APPENDICES - Cont'd

Appendix D.	Daily counts of salmon at the Meziadin fishway and inseason sockeye escapement estimates, 1996.	
Table D-1.	Daily counts of sockeye salmon through the Meziadin fishway, 1996.	76
Table D-2.	Daily counts of chinook, coho, steelhead, and pink salmon through the Meziadin fishway, 1996.	79
Table D-3.	The data used to derive the inseason sockeye salmon escapement estimates for the Nass River, 1996.	82
Appendix E:	Age and length data from fish captured in the Nass River fishwheels, 1996.	
Table E-1.	Numbers of fish by age and length for chinook salmon sampled at the Nass River fishwheels, 1996.	87
Table E-2.	Numbers of fish by age and length for sockeye salmon sampled at the Nass River fishwheels, 1996.	89
Table E-3.	Summary of weekly age composition of sockeye salmon sampled at the Nass River fishwheels, 1996.	90
Table E-4.	Summary of the numbers and mean lengths (nose-fork, cm) of successfully aged sockeye salmon from the Nass River fishwheel catch, 1996.	91
Table E-5.	Numbers of fish by age and length for coho salmon sampled at the Nass River fishwheels, 1996.	92

ABSTRACT

Link, M. R. 1999. The 1996 fishwheel project on the Nass River, BC. Can. Manusc. Rep. Fish. Aquat. Sci. 2476: xi + 92 p.

Four fishwheels were operated on the lower Nass River from 29 May to 22 September 1996. The fishwheels operated for a total of 7,705 h and captured 55,313 salmon. Exclusive of jacks, catches of salmon comprised 23,601 pink, 23,063 sockeye, 4,029 coho, 2,191 chinook, 485 steelhead, and 371 chum. Of these, 4,843 sockeye, 669 coho, and 570 chinook salmon were tagged. Totals of 296 chinook, 1,297 sockeye and 504 coho salmon from the catch were successfully aged using scales. A total of 3,676 tagged fish were later recovered in fisheries and on tributaries of the Nass River. Counts of marked and unmarked fish from the Meziadin fishway and inriver harvests were used to compute net escapement estimates for sockeye (218,116) and coho salmon (48,202). The coho estimate represented only a portion of the total coho escapement because the fishwheels did not operate through the entire coho run and recovery efforts were confined to an early run stock (Meziadin River). The net chinook escapement (21,842) was derived by a mark-recapture estimate (spawning ground surveys) minus estimated inriver harvests. The 4 fishwheels combined caught an estimated 9.9% of the sockeye run, 9.1% of the chinook run and 8.2% of an unknown portion of the coho run. Including subsequent inriver harvests, an estimated 30,019 chinook and 252,336 sockeye salmon entered the Nass River in 1996. Daily tag release (at the fishwheels) and recovery data (at the Meziadin fishway) were used to reconstruct the sockeye abundance in the lower river and assess the within-season variation in the portion of the sockeye run caught by the fishwheels. The estimated daily efficiency of the fishwheels did not vary as much within the season in 1996 as in previous years.

RÉSUMÉ

Link, M. R. 1999. The 1996 fishwheel project on the Nass River, BC. Can. Manusc. Rep. Fish. Aquat. Sci. 2476: xi + 92 p.

Quatre tourniquets, exploités dans le cours inférieur de la Nass du 29 mai au 22 septembre 1996, ont fonctionné pendant un total de 7 705 heures et prélevé 55 313 saumons. En excluant les jeunes saumons précoces, les captures de saumon comprenaient 23 601 saumons roses, 23 063 saumons rouges, 4 029 cohos, 2 191 quinnats, 485 truites arc-en-ciel anadromes et 371 kétas. De ce nombre, 4 843 saumons rouges, 669 cohos et 570 quinnats ont été marqués. On a réussi à déterminer l'âge par les écailles chez un total de 296 quinnats, 1 297 saumons rouges et 504 cohos contenus dans les prises. Un total de 3 676 poissons marqués ont été récupérés par la suite dans les pêches et les affluents de la Nass. Les dénombrements de poissons marqués et non marqués à la passe migratoire de Meziadin et les prises effectuées dans les cours d'eau ont été utilisés pour évaluer l'échappée nette de saumon rouge (218 116) et de coho (48 202). L'évaluation du coho représentait seulement une partie de l'échappée totale de cette espèce parce que les tourniquets n'ont pas fonctionné pendant toute la remonte des cohos et les efforts de récupération n'ont porté que sur un stock de la remonte hâtive (Meziadin). L'échappée nette de quinnat (21 842) a été calculée à partir d'une estimation des saumons marqués et recapturés (relevés dans les frayères) moins la valeur estimée des captures effectuées dans le cours d'eau. On a estimé que les quatre tourniquets combinés ont prélevé 9,9 % de la remonte de saumon rouge, 9,1 % de la remonte de quinnat et 8,2 % d'une portion inconnue de la remonte de coho. En incluant les captures effectuées par la suite dans le cours d'eau, on a calculé que 30 019 quinnats et 252 336 saumons rouges étaient entrés dans la Nass en 1996. Les données quotidiennes sur la récupération des étiquettes (aux tourniquets) et la récupération (à la passe migratoire sur la Meziadin) ont été utilisées pour rétablir l'abondance du saumon rouge dans le cours inférieur de la rivière et évaluer la variation pendant la saison de la portion de la remonte de saumon rouge prélevée par les tourniquets. On a observé que l'estimation de l'efficacité quotidienne des tourniquets pendant la saison en 1996 n'avait pas varié autant que les années précédentes.

INTRODUCTION

This report documents the results of the fifth consecutive year of a fishwheel project on the Nass River, British Columbia (Link et al. 1996; Link and English 1996, 1997; Link and Gurak 1997). The report documents methods, fishwheel catches and effort, tagging and mark-recapture data, population estimates, and biological and age information obtained from the 1996 season.

The objectives of the 1996 Nass River fishwheel project were:

1. use the fishwheels to capture, tag, and recapture sockeye salmon (*Oncorhynchus nerka*) for use in the inseason estimation of the sockeye escapement;
2. use the fishwheels to conduct a harvest of sockeye salmon in excess of the target escapement (the target was not exceeded and no sockeye were harvested from the fishwheels in 1996);
3. generate post-season estimates of the escapement of chinook (*O. tshawytscha*), sockeye, and coho (*O. kisutch*) salmon returning to the Nass River and document the migration timing of each species; and
4. collect and summarize biological information from fish captured in the fishwheels.

STUDY AREA

The Nass River drains 20,500 km², has an average annual discharge of 813 m³s⁻¹ and ranges from 24 m³s⁻¹ to 5,437 m³s⁻¹ within years (Holland 1976). The river originates in the Skeena Mountains and flows south and southwest for approximately 400 km, entering the Pacific Ocean at Portland Inlet on the north coast of British Columbia (Fig. 1).

METHODS

FISHWHEEL OPERATION

Four fishwheels (Meehan 1961, Donaldson and Cramer 1971) similar to those described by Link and English (1996) were operated on the Nass River in 1996. Two fishwheels were operated near the village of Gitwinksihlkw and 2 were operated upstream of Grease Harbour (Fig. 1). Fishwheel 2 differed from the other 3 fishwheels in that it was constructed almost entirely of aluminum. The design of the aluminum fishwheel was identical to the others; the only difference was that the 2" x 4" lumber in the baskets (except for the slide assembly) was replaced with the square aluminum channel (3.8 cm x 3.8 cm, 30 mm thick walls). Two fishwheels (fishwheel 2 and fishwheel 4) were fitted with smaller 3.8-cm mesh (1 1/2" stretched, black knotless nylon mesh, BL 210-60) than had been used in previous seasons on the Nass River.

Fishwheels 1 and 3 were fitted with the same mesh as used in previous years (9.8 cm or 3 7/8" 13x16 black (tarred) knotted salmon seine net).

Daily maximum and minimum water temperatures ($^{\circ}\text{C}$) and levels (m) at Gitwinksihlkw were recorded using an electronic data logger³.

FISHWHEEL EFFORT AND CATCH

Daily fishing effort of the fishwheels was measured in 2 ways. First, total effort was measured as the total time each fishwheel was fishing from midnight to midnight each day. This effort value gave an indication of the amount of down time (non-operational time) associated with each date. Second, the effort used to calculate catch per unit effort (CPUE, fish per hour) was measured as the number of hours fishing that went into obtaining each day's catch. These 2 effort values were different on most days because the time of the last sampling session on each day varied; this affected how much effort went into a given day's catch. For example, if the last tagging session on day t finished at 2200 h, and on day $t+1$ the last tagging session ended at 2000 h (all fish were removed after each session and the fishwheel fished continuously through day t and $t+1$), only 22 h of fishing effort went into obtaining the catch on day $t+1$, whereas the total effort for day $t+1$ would be 24 h.

The speed of each fishwheel was determined each day by measuring the time required for the fishwheel to complete 3 revolutions. This value was converted to revolutions per minute (RPM). If the fishwheel speed was measured more than once in a day, the arithmetic mean of the measurements was used as the value for that day.

TAGGING

As in previous years, spaghetti tags and operculum tags were used for marking fish from the fishwheels and were used later for the mark-recapture population estimates. Tags were applied only at the Gitwinksihlkw fishwheels; no tagging was done at the Grease Harbour fishwheels. In an effort to reduce the holding time for the tagged fish, we modified the study design from previous years to not tag fish that had been held in the fishwheel tanks for more than about 4 h. This was done to see if it was possible to decrease the apparent mortality of tagged fish (Link et al. 1996; Link and English 1996; Link and English 1997; Link and Gurak 1997). Therefore, all fish captured overnight, between the last tagging session and the first visit to the fishwheels the next morning, were released back to the river without sampling or tagging. In addition, fish held for more than 4 h during the day were not tagged either. This modification to the tagging program substantially reduced the portion of the catch that was tagged compared with previous years.

Numbered spaghetti tags (Floy Model FT-4)⁴ were applied to sockeye salmon (yellow) and coho salmon (red) and numbered operculum tags (Ketchum kurl-lock tag, No. 3)⁵ to chinook

³ Unidata America, Lake Oswego, OR, USA

⁴ Floy Tag and Manufacturing Co. Inc., 4616 Union Place N.E., Seattle, WA 98105 USA

salmon. The spaghetti tags were applied through the dorsal musculature near the posterior end of the dorsal fin. The operculum tags were attached to the left operculum plate of chinook salmon. The handling and tagging procedures used in 1996 were the same as those used in previous years (Link et al. 1996).

TAG RECOVERY

Fish tagged at the fishwheels were recovered throughout the Nass River watershed using a variety of techniques. The majority of tagged sockeye and coho salmon were counted and/or recovered at the Meziadin fishway (Haugan et al. 1989; Fig. 1). Tagged chinook salmon were recovered primarily during the spawning grounds surveys. Recoveries of tagged salmon were also obtained from the fishwheels (released back to the river live) and inriver net and sport fisheries.

The field crew working at the Meziadin fishway counted every tagged fish that passed through the fishway, and captured and recorded numbers from as many fish as possible, without excessively delaying the migration of fish. A portion of each day's tagged fish was captured by diverting the fish into a pen adjacent to the counting chute. The fish were then dipnetted out of the holding pen, the portion of the tag containing the tag number was cut off with scissors and the fish was released upstream of the fishway. With their tags clipped, the crew would know if a tagged fish had dropped back below the falls and reascended the fishway. The clipped tag was immediately obvious in the counting chute and a complete count of tagged fish using the fishway more than once could be obtained.

ESCAPEMENT ESTIMATES

Inseason Escapement Estimates

Inseason population estimates for sockeye salmon were derived using 2 methods. The first method provided escapement estimates using a pre-season estimate of the combined catchability coefficient for the Gitwinksihlkw fishwheels (1/16.7 per fishwheel day). These factor-based escapement estimates were used in June and were based on estimated catch rates at these 2 fishwheel sites for 1994-95. The second method used tag recovery data from the Grease Harbour fishwheels, once sufficient numbers of tagged and untagged fish were recovered to derive a reliable mark-recapture estimate (Link and English 1996). In 1996, the mark-recapture estimate was considered to be the best estimate by 15 July.

Post-season Escapement Estimates

Post-season population estimates were calculated for sockeye, coho and chinook salmon using the tag recovery information from the Meziadin fishway and spawning ground surveys. These data were pooled to include fish tagged and examined over the entire run. The post-season escapement estimates were made using the adjusted Petersen formula (Ricker 1975). For the

⁵ Ketchum Manufacturing Sales Ltd., 396 Berkley Ave., Ottawa, ON, K2A 2G6 Canada

sockeye and coho estimates, the fish examined at the Meziadin fishway were used as the recapture sample (C in the Petersen formula; Ricker 1975). For chinook salmon, live (tissue sampled) and dead fish from spawning ground surveys were pooled and used as the recapture sample. Confidence limits for the mark-recapture estimates were determined using Pearson's formulae (Appendix II of Ricker 1975).

RUN RECONSTRUCTION

Daily sockeye salmon abundance at the fishwheel site were reconstructed using tag recovery data from the fishway (Link and English 1996) and these were compared to fishwheel catches to examine the variation in the estimated portion of the run the fishwheels caught through time. This was done to assess the suitability of the fishwheels as an inseason index of the sockeye salmon escapement to the lower river. The run reconstruction was possible because daily catch and tag totals from the fishwheels and the Meziadin fishway were known, as were the travel times for the tagged fish recovered at the fishway.

AGE AND LENGTH SAMPLING

A portion of each day's catch in the Gitwinksihlkw fishwheels (up to a maximum of 25 sockeye, 20 coho, and 20 chinook) was sampled for scales, length, and sex. Up to 20 chinook salmon captured at Grease Harbour were sampled for adipose tissue for stock composition studies. In addition, nearly all steelhead (*O. mykiss*) captured in all 4 fishwheels were sampled for scales, length, sex, and adipose tissue. All adipose tissue was preserved in individually labelled vials of 95% ethanol. The nose-fork length was measured (to the nearest cm) using a fabric measuring tape affixed to the inside of the tagging tray. Jacks were defined as chinook salmon less than 50 cm (changed from 72 cm in previous years for this project), sockeye salmon less than 45 cm and coho salmon less than 40 cm. Two scales were taken from the preferred area for sockeye, and 5 scales were collected from coho, chinook, and steelhead. Scales were mounted on numbered, gummed scale cards. All scale samples were sent to the Department of Fisheries and Oceans Scale Lab in Vancouver.

Fish ages are presented using the Gilbert-Rich notation where the first digit represents total age and the second digit denotes the number of winters the fish resided in fresh water since egg deposition. The daily catch of adult fish of each species at Gitwinksihlkw was used to derive species-specific daily CPUE (catch per unit effort) and these were used to weight the age composition data for chinook and coho. The age data for sockeye salmon were weighted with the reconstructed abundance from tag recovery data. Sex was determined from visual inspection of the fish. However, because the fish were ocean-bright, it was difficult to differentiate between males and females. Therefore, the sex data is not considered reliable and is not summarized here.

RESULTS

FISHWHEEL OPERATION

The level of the Nass River at Gitwinksihlkw varied by 4.6 m between 15 April and 4 October 1996 (Table A-1). The water levels showed significant day-to-day variability throughout the season with substantial peaks in early June and in early July (Fig. A-1). Water temperature ranged from 1.7 °C to 11.5 °C over the same period and peaked at 11.5 °C on 27 July (Table A-1, Fig. A-1).

Fishwheel 1 was operated in the same location used from 1992-95; fishwheel 2 was operated at the site it was in 1994-95. Fishwheels 3 and 4 were operated in the same locations for most of 1994, and all of 1995 and 1996. Small changes in the position of fishwheels relative to the bank were common.

FISHWHEEL EFFORT

The fishwheels were operated from 29 May (fishwheel 2) to 22 September (fishwheels 1 and 4) for an estimated total fishing time of 7,705 h (Table A-2). Combined, the 4 fishwheels fished 91% of the time they were in place. Fishwheel 2 began fishing very early (29 May) and had to be shut down during the high water in early June. As a result, fishwheel 2 was operational only 87% of the time it was in place compared with 93% for all other fishwheels. Fishwheel speed ranged from 0.8 to 3.1 RPM, and ranged from 1.5 to 2.5 RPM for most of the season (Fig. 2). The 1996 season was extended into September in an effort to capture additional steelhead for genetic and biological samples (scales, tissue, and length).

CATCHES AND CATCH PER UNIT EFFORT

A total of 55,313 salmon (53,740 adults, 1,573 jacks) were captured in the fishwheels in 1996 (Table 1). The pink salmon (*O. gorbuscha*) catch was the largest (23,601), followed by sockeye (23,912), coho (4,552), chinook (2,392), steelhead (485), and chum (*O. keta*; 371). Fishwheel 2 captured the most fish (17,803), followed by fishwheel 1 (15,615), fishwheel 3 (11,305), and fishwheel 4 (10,590).

The CPUE for chinook salmon in fishwheels 1 and 2 showed a bimodal pattern with the run interrupted in late June by the very high water levels of the Nass River (Fig. 3, Fig. A-1). The peak catches of adult chinook occurred on 1 July for fishwheel 2 (148 fish) and 4 July for fishwheel 1 (103 fish, Table B-1). The 50% point of the cumulative CPUE occurred on 2 July for fishwheel 1 and on 1 July for fishwheel 2. Catches in fishwheel 3 and 4 (Grease Harbour) were less than the catches in fishwheels 1 and 2 (Fig 3, Table B-1). Catches at Grease Harbour peaked on 8 July with 73 adults caught in fishwheel 3 and 74 in fishwheel 4.

The early part of the sockeye salmon run was also interrupted by the high water in late June and there was a large spike in catches and CPUE from late June to early July once the high water receded (Fig. 4, Table B-2). Subsequent to this spike, the run was characterized by smaller

weekly cycles caused by the removal of fish by the ocean commercial fisheries (Fig. 4). The peak catch of adult sockeye occurred in fishwheel 1 on 1 July with a catch of 872 fish and a CPUE of 36.7 fish per hour (Table B-2). The 50% point in the cumulative CPUE occurred on 12 July for fishwheel 1 and on 14 July for fishwheel 2. The first sockeye salmon was caught on 30 May, the second day of operation for fishwheel 2 (Table B-2).

The first coho salmon was captured on 16 July (fishwheel 2, Table B-3) and the peaks in catch in the Gitwinksihlkw fishwheels occurred on 20 August for fishwheel 1 (107 adults, 4.3 fish per hour) and on 25 August for fishwheel 2 (66 adults, 2.7 fish per hour, Table B-3). The fishwheels appear to have fished a greater portion of the coho run in 1996 than in previous years. The 1996 season was the first year where the coho daily CPUE showed a declining limb in late August, suggesting that the fishwheels fished beyond the peak of the run (Fig. 5). The September catches may be somewhat misleading as the fishwheels did not fish as efficiently in September as they did in August. The 50% cumulative CPUE point occurred on 20 August for fishwheel 1, and on 14 August for fishwheel 2. The coho salmon CPUE at the Grease Harbour fishwheels showed a nearly identical pattern to the CPUE from the Gitwinksihlkw fishwheels (Fig. 5).

Similar to the 1996 coho catches, the steelhead catches in 1996 suggest that the fishwheels may have fished beyond the peak of the steelhead run (Fig. 6, Table B-4). Again, the mid and late September catches may be somewhat misleading for the same reason noted above. Peak catches of steelhead occurred at Gitwinksihlkw in fishwheel 2 on 27 August (14 fish) and in fishwheel 1 on the 29 August (11 fish, Table B-4). Peak catches at the Grease Harbour fishwheels occurred on 29 August with a total of 35 steelhead caught in the 2 fishwheels (Table B-4). Over the entire season, fishwheel 2 captured the most steelhead (158) followed by fishwheel 4 (118), fishwheel 3 (113) and fishwheel 1 (96).

The CPUE for pink salmon peaked in late August for all 4 fishwheels (Fig. 7). The largest catch occurred on 27 August in fishwheel 2 (473, Table B-4). The first pink salmon was caught on 6 July in fishwheel 3. The similarity in magnitude between the CPUE at Gitwinksihlkw and Grease Harbour suggests that many of the pink salmon that migrated past Gitwinksihlkw continued beyond Grease Harbour (Fig. 7).

The CPUE for chum salmon showed a run timing pattern at Gitwinksihlkw later than that for pink salmon (Fig. 8). However, in contrast to the pink salmon run, only a small portion of the chum salmon that migrated past Gitwinksihlkw appear to have migrated above Grease Harbour. The peak catch of chum salmon (23 fish) occurred on 8 September in fishwheel 1 (Table B-4). The first chum salmon was caught in fishwheel 1 on 16 June; another chum was not seen again until 4 July in fishwheels 2 and 3 (Table B-4). The early timing of the first chum salmon caught suggested that it may have been a stray from another river system.

Catches of non-salmon species (Table B-5) included 376 adult Pacific lamprey (*Lampetra tridentata*), 177 Dolly Varden (*Salvelinus malma*), 108 whitefish (species not determined), 29 cutthroat trout (*O. clarki*), and 21 rainbow trout (*O. mykiss*, less than 25 cm).

TAGGING

A total of 4,843 sockeye, 669 coho, and 570 chinook were tagged at the fishwheels (Table 1). These totals represented 32% of the sockeye, 30% of the coho, and 38% of the chinook caught in the Gitwinksihlkw fishwheels. No fish were tagged from the Grease Harbour fishwheels.

TAG RECOVERY

A total of 3,676 spaghetti- and operculum-tagged fish were recovered at the Meziadin fishway (3,063), in fishwheels (598), and at other spawning grounds (15; Table 2).

Recaptures of tagged fish in the fishwheels indicate that chinook salmon exhibited the greatest time between tagging, and subsequent recapture among the 3 tagged species. Operculum-tagged chinook salmon averaged (by fishwheel recaptured) 11.9 to 21.9 d at large before recapture in the fishwheels. The time at large for tagged chinook ranged from 0 to 48 d ($n = 63$) between tagging, and subsequent recapture in the Gitwinksihlkw fishwheels (Tables C-1, C-2, and Fig. 9). Travel times for tagged chinook salmon recovered at the Meziadin fishway ranged from 47 to 91 d, and averaged 65.8 d ($n = 4$, Tables C-1, C-2).

Recaptures of tagged sockeye at the fishwheels indicated that sockeye spend considerably less time at large than do tagged chinook (Table C-3, Fig. 10). Sixty-three percent of sockeye recaptured in fishwheels 1 and 2 were recovered within 1 d of tagging, and 65% of recaptures in fishwheel 3 were within 4 d (Table C-3). Recoveries of fish tagged in fishwheel 1 showed a similar distribution of time at large to those fish tagged in fishwheel 2 (Fig. 10).

Recaptures of tagged coho at the fishwheels indicate that coho spent slightly more time at large than did tagged sockeye, but considerably less time than tagged chinook (Tables C-1, C-4). Tagged coho salmon averaged (by fishwheel recaptured) 3.3 to 12.7 d at large before recapture in the fishwheels. The time at large for tagged coho salmon ranged from 0 to 17 d ($n = 65$) between tagging and subsequent recapture in the Gitwinksihlkw fishwheels (Table C-1, C-4). Travel times for tagged coho salmon recovered at the Meziadin fishway ranged from 19 to 46 d and averaged 30.3 d ($n = 20$, Tables C-1, C-4).

Excluding jacks, totals of 181,840 sockeye, 1,951 adult coho, and 348 adult chinook salmon were counted at the Meziadin fishway from 5 July to 27 September, 1996 (Tables D-1 and D-2). Sockeye counts at the fishway showed 2 modes; 1 peak occurred on 17 July with a count of 12,318 adult sockeye, and a second peak was on 17 August with a count of 7,760 (Fig. 11, Table D-1). The daily proportion of the sockeye count that was tagged ranged from 0% (late September) to 3.2% (24 July) and averaged 1.7% (Table D-1). The portion of sockeye with tags averaged over 2% until mid August (Fig. 11, Table D-1).

Of the 3,033 tagged sockeye observed at the Meziadin fishway, 1,794 (59%) were dipnetted out and their tag numbers were recorded (Table D-1). The remainder were simply

counted as they passed through the viewing chute. Three tagged fish that had been previously recovered at the counting chutes (clipped tags) were subsequently observed coming through the counting chute (18 July, 26 July, and 17 August), indicating that they had dropped down below the falls to reascend the fishway a second time. These 3 fish were not counted as "recovered" tagged fish a second time. Further description and analysis of the tagged sockeye recoveries at the Meziadin fishway are discussed below (see RUN RECONSTRUCTION).

The peak count of adult coho salmon at the Meziadin fishway was 110 fish on 2 September (Fig. 11, Table D-2). A total of 23 tagged coho salmon were counted at the fishway representing 1.2% of the total count. In the case of chinook salmon, 2 peaks were observed at the fishway; 1 was on 30 July (18 fish) and the other on 30 August (19 fish, Table D-2). A total of 7 tagged chinook salmon were counted at the fishway representing 2% of the total count (Table D-2).

ESCAPEMENT ESTIMATES

Inseason Escapement Estimates

From late June to late August, sockeye escapement estimates were generated daily and provided to the Department of Fisheries and Oceans in Prince Rupert at least 3 times per week (Table D-3). Due to extremely high river levels in late June, there were insufficient tag recoveries to derive reliable mark-recapture estimates until 15 July.

Post-season Escapement Estimates

For sockeye and coho salmon, a range of post-season Petersen population estimates were calculated assuming that tagged fish were selectively removed from the population at rates of 0% to 30% (Table 3). The sockeye escapement estimates ranged from 203,244 (30% differential removal of tagged fish) to 290,322 (0% removal of tagged fish).

The pooled Petersen coho salmon escapement estimate ranged from 38,170 (30% removal of tagged fish) to 54,493 (0% removal, Table 3). These estimates are based on 1,951 fish examined and 23 tags recovered from coho salmon at the Meziadin fishway. The tagging of the Nass coho run was incomplete because coho are caught in the Nass River from July to December (i.e., beyond the period when the fishwheels operated at Gitwinksihlkw in 1996 and beyond the time when Meziadin coho move through the lower river). Therefore, these are considered minimum estimates of the Nass coho salmon escapement.

A total of 12 surveys were conducted on 6 different spawning grounds (plus the Meziadin fishway counts) to obtain information to estimate the chinook salmon escapement (Tables 4). A total of 1,208 chinook were examined and 22 tags were recovered. Using a total differential tag removal rate of 20%, the adjusted Petersen estimate of the chinook salmon escapement above Gitwinksihlkw was 24,022 in 1996 (Table 4).

The proportions of the chinook, sockeye, and coho salmon run captured in all the fishwheels based on the fishwheel catches and mark-recapture derived population estimates above Gitwinksihlkw were 9.1%, 9.9%, and 8.2%, respectively (Table 5). Fishwheel 2 captured the greatest proportion of the run for all species combined (3.5%), followed by fishwheel 1 (2.7%), fishwheel 3 (2.4%), and fishwheel 4 (1.8%).

RUN RECONSTRUCTION

Analysis of the 1,794 spaghetti tags recovered from sockeye at the Meziadin fishway revealed a positively skewed distribution of travel times with a mode of 17 d, a median of 21 d, and a mean of 22.3 d (Fig. 12a, Table 6, and C-3). The tag recovery data indicate an average speed from the fishwheels to the fishway of 6.7 km per day with a maximum speed of 18.8 km per day (i.e., fish with an 8-d travel time). Similar to all previous years of the fishwheel program, the mean times for tagged sockeye salmon to travel from the fishwheels to the Meziadin fishway (by tagging period) revealed a pattern of decreasing travel times (increasing migration speed) through the season (Fig. 12b).

The reconstructed sockeye salmon abundance at Gitwinksihlkw indicated that the estimated daily efficiency of the 2 Gitwinksihlkw fishwheels (1 and 2) did not show a consistent trend through the season (Fig. 13). However, the efficiency of the 2 fishwheels appeared to covary with generally higher efficiencies in early July and mid-to-late August than at other times. The fishwheel efficiency did not appear to be correlated with the abundance (Fig. 13), suggesting density-independent catchability (efficiency).

Although equivocal, the fishwheel efficiency may be affected by the absolute level of the Nass River (Fig. 14). Moderate water levels in July and late August appeared to produce the highest fishwheel efficiencies, while very high (June) and very low (early August) water levels resulted in lower fishwheel efficiencies. Caution should be used in interpreting these data because the high estimated efficiencies in late August are based on a relatively small number of fish recovered.

AGE AND LENGTH SAMPLING

Chinook salmon that returned to the Nass River in 1996 were predominantly 5-year-old fish (66.5%) that left freshwater during their second year of life (5_2) based on chinook sampled at the fishwheels and weighted using the CPUE in the Gitwinksihlkw fishwheels (Table 7). The other significant age classes were 4_2 (23.9%) and 6_2 (6.8%). Similar to 1994-95, these data show that approximately 1% of the chinook that returned in 1996 had no fresh water annulus (i.e., "sub-1" fish). The chinook salmon age and length data are presented in Table E-1 and summarized in Tables 7 and 8. Ages could not be determined for 18% of the chinook salmon sampled (Table E-1).

Sockeye salmon that returned to the Nass River in 1996 were predominantly 5-year-old fish (78.4%; brood year 1991, Table 7). Weighting by the weekly reconstructed abundance, the dominant age classes were 5_2 (27.2%) and 5_3 (51.2%, Table 7). The sockeye salmon age and

length data are presented in Table E-2 and summarized in Tables 7, 8, E-3, and E-4. Ages could not be determined for 10% of the sockeye salmon sampled (Table E-2). The weekly age composition of sockeye showed very few 4₂ fish at any point in the run in 1996. The proportion of the run composed of 4-year-old sockeye peaked in week 27 (Fig. 15). As in previous years, the 5₃ fish dominated the run late in the year (Fig. 15).

The age composition of coho salmon that returned to the Nass in 1996 was split 50:50 between age-3 and age-4 fish (Tables 7, 8, and E-5). Age 4₃ coho were only slightly larger, on average, than age 3₂ coho (Table 8). Ages could not be determined for 7% of the coho salmon sampled (Table E-5).

DISCUSSION

OPERATIONAL EVALUATION

As in previous years, fishwheel 1 continued to provide the most consistent fishing effort through the entire season, fishing well from early June to early September (Fig. 2). Although fishwheel 2 fished well through June and July and parts of August, low water levels in August affected its operation. Due to an apparent funneling effect at the entrance to the Gitwinksihlkw canyon at moderate water levels (typically encountered in August and September), fishwheel 1 actually increases in speed at these lower water levels while fishwheel 2 begins to fish very slowly or stops entirely (Fig. 2). The compensating effects of the 2 Gitwinksihlkw fishwheels (fishwheel 2 does well at high water while fishwheel 1 tends to do better relative to fishwheel 2 at lower water) over the last few years suggests that both are necessary to adequately cover the entire chinook and sockeye runs. Both fishwheels 3 and 4 began fishing late (early July) relative to previous years and may have missed a part of the early chinook run.

ESCAPEMENT ESTIMATES

The inseason escapement estimation method for sockeye worked well once sufficient recoveries were obtained from the Grease Harbour fishwheels. Reliable mark-recapture estimates were not available until about 15 July because of the late start of the upstream Grease Harbour fishwheels and the lower portion of the Gitwinksihlkw catch tagged in 1996 compared with other years. The switch from the pre-season catchability-based estimates to an inseason mark-recapture-based estimate around 15 July was a smooth transition, requiring only a small adjustment in the cumulative escapement estimate.

Previous annual reports have discussed whether the assumptions of the Petersen estimation procedure are valid for the mark-recapture estimates derived from the fishwheel program (Link et al. 1996, Link and English 1996, 1997). These authors concluded that some differential loss of tagged fish likely occurred, primarily due to handling effects and selective removal from the Nisga'a fishery. The bias from this loss would result in an overestimate of the escapement if 1 assumed that tagged and not tagged fish had equal survival.

The results from the sockeye salmon radio tagging in 1995 were consistent with previous studies and suggested that the mortality for tagged sockeye salmon from the fishwheels have been as high as 17% (Link and Gurak 1997). Link and English (1997) estimated differential removal rates by the Nisga'a fishery were 5.2% for sockeye and 12.2% for chinook. These estimates are based on extensive sampling of the Nisga'a fishery in 1994. Combining the mortality estimate (17%) with a differential loss due to selective removal by the Nisga'a fishery of 4.8%, Link and Gurak (1997) used a rate of 21.8% for the differential removal of tagged sockeye salmon and 20% for chinook salmon. The estimate of 21.7% for sockeye salmon was likely biased high for use in 1996. This was because the radio-tagging procedure is commonly believed to be more stressful than applying a spaghetti tag, and because we tagged only fish that had spent less than 4 h in the holding tanks in 1996 compared with the radio-tagged fish in 1995. In 1995, some of the radio-tagged fish had been held for up to 14 h. In addition, mortality estimates using telemetry cannot easily account for tag regurgitation and some regurgitation events may have been included as mortality events. Therefore, I used a differential removal rate of 20% for both sockeye and chinook salmon in 1996. I used a value of 10% differential removal of tagged fish (8% mortality, 2% differential removal from Nisga'a fishery; Link and Gurak 1997) for deriving our coho population estimates.

Summary of Final Escapement Estimates

The estimated chinook salmon harvest in the Nisga'a fishery in 1996 was 7,700 (Nass and Gurak 1997) and the estimated sport fishery harvest was 477 (Nass 1997). Using proportions of the Nisga'a harvest above Gitwinksihlkw (M. Link, unpublished data) and the sport fishery harvests, I estimated the net chinook escapement in 1996 to be 21,842 (Table 9). The estimate of the total return of chinook salmon to the Nass River in 1996 (after ocean fishery harvests) was 30,019 (Table 9).

Using the same method as for the net chinook escapement, I determined the net sockeye escapement to be 218,116 (Table 9). A less-than-complete estimate of the Nass River coho escapement was 48,202 (Table 9). I estimated the total return to the Nass River for sockeye (252,336) and coho (50,380) by adding inriver harvests below the fishwheels to the mark-recapture population estimates above the fishwheels (Table 9).

Using the fishway count of sockeye and the system-wide escapement estimate, I estimated that the Meziadin stock comprised 83.4% of the Nass sockeye escapement in 1996. For the fifth consecutive year the tag-based estimate of the proportion of the Nass escapement bound for the Meziadin fishway differed from the traditional scale-based method (Todd and Dickson 1970; L. Jantz, Department of Fisheries and Oceans, Prince Rupert, pers. comm.; Table 10). However, for the first time, the difference was in the opposite direction where the tag method estimated a higher proportion Meziadin (83.4%) than the scale method (60.9%; Table 10). Microsatellite DNA techniques were used to determine the stock composition of the fishwheel catch in 1996 (Beacham and Wood 1999). Beacham and Wood (1999) estimated that the Meziadin stock comprised 73% of the sockeye salmon return in 1996 based on microsatellite characteristics in tributary and mixed-stock fishwheel samples. In comparing their estimate with the scale and tag-based estimates of the proportion Meziadin, Beacham and Wood (1999) used a

value of 15% for the differential removal rate of tagged fish (compared with 20% used here) to calculate the tag-based estimate of the proportion Meziadin of 73% (standard deviation = 4.2). Therefore, by using the value of 15% for the assumed removal rate, both the microsatellite and tag-based methods produce an identical estimate of 73% Meziadin and this suggests the scale-based method is incorrect. Using a value of 20% removal rate produces a tag-based estimate of 83.4%. A value of 15% removal rate is reasonable, but until we have further evidence (i.e., another year of microsatellite data that indicates the removal rate should be 15%) to adjust the “historical” value of 20% downward, I will continue to use 20%.

FISHWHEELS AS A TEST FISHERY

The inter-annual variability of the efficiency or catchability (q) of the Nass River fishwheels still appears very low compared with the historical variability in the catchability of the Monkley Dump test fishery (Link et al. 1996; Link and English 1996, 1997; Link and Gurak 1997). In 1996, the catchability of the Gitwinksihlkw fishwheels appeared to vary less during the season than in previous years (Fig. 13 and 14). Similar to 1995, the fishwheel catchability at Gitwinksihlkw did not appear to be related to abundance, but rather to be influenced by the absolute water level of the Nass River. In the future, emphasis should be put on quantifying the influence of the water level on the efficiency of the fishwheels. Using water-level data, it may be possible in the future to improve inseason estimates of q in a more timely manner than waiting for tag recapture data from Grease Harbour. Finally, because q continued to show substantial variation within and among seasons, the tagging and mark-recapture program should remain an integral component of the fishwheel program.

ACKNOWLEDGMENTS

The fishwheel crew was integral to making the 1996 project a success; Barry Stevens and Tim Angus were the senior technicians and field supervisors; other technicians that participated in the project were: Clyde Azak, Todd Duscharme, Terry Morven, Kevin Small, Curtis Stevens, Lawrence Stephens, Leon Stephens, Norman Squires, and Max Wright. Jeannie Morgan and Niva Percival proficiently handled the inseason data entry, compilation, and presentation. Courtney Fleek, Jim Hansen, and Shauna Murray staffed the Meziadin fishway and their dedicated tag recovery efforts were invaluable to the analysis presented here. Anita Blakely, Karen Doiron, and Tony Mochizuki assisted in the preparation of the report. Bryan Nass helped enormously with field logistics. Bill Griffiths, Russ Frith, and Karl English reviewed the report.

Funding for this project was provided by the Government of Canada as a part of the Nisga'a-Canada (Aboriginal Fisheries Strategy) Contribution Agreement (CA96-139).

REFERENCES

- Beacham, T.D., and C.C. Wood. 1999. Application of microsatellite DNA variation to estimation of stock composition and escapement of Nass River sockeye salmon (*Oncorhynchus nerka*). Can. J. Fish. Aquat. Sci. 56: 297-310.
- Donaldson, I. J., and F. K. Cramer. 1971. Fishwheels of the Columbia. Binfords and Mort, Publishers, Portland, Oregon. 124 p.
- Holland, S.S. 1976. Landforms of British Columbia, A physiographic outline. British Columbia Department of Mines and Petroleum Resources. Bulletin 48: 138 p.
- Haugan, D., A.L. Jantz, and B. Spilsted. 1989. Historical Review of the Meziadin River Fishway Biological Program from 1964 to 1986. Can. Data Rep. Fish. Aquat. Sci. 765: iii + 112p.
- Link, M.R., K.K. English, and R.C. Bocking. 1996. The 1992 Fishwheel Project on the Nass River and an Evaluation of Fishwheels as an Inseason Management and Stock Assessment Tool for the Nass River. Can. Manusc. Rep. Fish. Aquat. Sci. 2372: x + 82 p.
- Link, M.R., and K.K. English. 1996. The 1993 Fishwheel Project on the Nass River and an Evaluation of Fishwheels as an Inseason Management and Stock Assessment Tool for the Nass River. Can. Tech. Rep. Fish. Aquat. Sci. 2130: xi + 103 p.
- Link, M.R., and K.K. English. 1997. The 1994 Fishwheel Project on the Nass River, BC. Can. Manusc. Rep. Fish. Aquat. Sci. 2421: xi + 93 p.
- Link, M.R., and A.C. Gurak. 1997. The 1995 Fishwheel Project on the Nass River, BC. Can. Manusc. Rep. Fish. Aquat. Sci. 2422: xi + 99 p.
- Meehan, W.R. 1961. The use of a fishwheel in salmon research and management. Trans. Amer. Fish. Soc. 90:490-494.
- Nass, B.N., and A.C. Gurak. 1997. Nisga'a catch monitoring program: 1996 Nisga'a fishery. Report NF 96-02 prepared by LGL Limited, Sidney, BC, for Nisga'a Tribal Council, New Aiyansh, BC.
- Nass, B.N. 1997. Nass River sport fishery catch monitoring program, 1996. Report NF 96-05 prepared by LGL Limited, Sidney, BC, for Nisga'a Tribal Council, New Aiyansh, BC.
- Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Bull. Fish. Res. Bd. Can. 191:382 p.
- Todd, I.S., and F.V. Dickson. 1970. Nass River sockeye salmon a review of the commercial fishery and a summary of the 1963 to 1969 biological programs. Can. Dept. Fish. Forest. Technical Report 1970-10.

TABLES

Table 1. Numbers of each species of salmon caught and tagged at four fishwheels on the Nass River, 1996.

Species	Fishwheel 1				Fishwheel 2				Fishwheel 3				Fishwheel 4				Total			
	Catch		Jacks		Catch		Jacks		Catch		Jacks		Catch		Jacks		Catch		Jacks	
	Adults	Jacks	Adults	Jacks	Adults	Jacks														
Chinook	584	48	180		905	66	390		356	47	346	40	2,191		201		570			
Sockeye	6,161	206	1,862		9,006	250	2,981		4,697	197	3,199	196	23,063		849		4,843			
Coho	1,477	164	425		762	110	244		805	132	985	117	4,029		523		669			
Steelhead	96	0	0		158	0	0		113	0	118	0	485		0		0			
Pink	6,697	0	0		6,420	0	0		4,917	0	5,567	0	23,601		0		0			
Chum	182	0	0		126	0	0		41	0	22	0	371		0		0			
Total	15,197	418	2,467		17,377	426	3,615		10,929	376	10,237	353	53,740		1,573		6,082	16		

Table 2. A summary of the number of tag recoveries by location for the tags applied at the Nass fishwheels, 1996.

Species	Number of fish tagged	Location			Percent recovered
		Meziadin fishway ^a	Spawning grounds	Fishwheels ^b	
Chinook	570	7	15	63	85 14.9
Sockeye	4,843	3,033	0	414	3,447 71.2
Coho	669	23	0	121	144 21.5
Totals	6,082	3,063	15	598	3,676 60.4

^a - Includes all tagged fish observed but not necessarily recovered.

^b - These fish were released back to the river so some of them may have been subsequently counted or recovered.

Table 3. Population estimates derived from tagging of adult sockeye and coho salmon at the Nass River fishwheels and recovery of tags at the Meziadin fishway, 1996. The best estimates are in italics.

	Sockeye	Coho
Number tagged	4,843	669
Number fish examined for tags	181,840	1,951
Number of tagged fish observed	3,033	23
<u>Pooled Petersen Population estimates</u>		
Assumed rate of differential tag removal		
0%	290,322	54,493
10%	261,296	49,052
20%	232,270	43,611
30%	203,244	38,170
Bounds for Petersen estimate - No differential tag loss		
Lower 95 % CL	280,175	36,818
Upper 95 % CL	300,837	80,147
Bounds for Petersen estimate - 10% differential tag removal		
Lower 95 % CL	252,164	33,141
Upper 95 % CL	270,759	72,144
Bounds for Petersen estimate - 20% differential tag removal		
Lower 95 % CL	224,152	28,693
Upper 95 % CL	240,682	62,461

Table 4. Summary of escapement survey data and estimated escapement for chinook salmon upstream of Gitwinksihlkw, 1996.

System	No. of surveys	No. of fish examined		Total fish examined	No. of tags	Mark rate (examined/tags)
		Live	Carcasses			
Bell-Irving						
Snow./Teigen	3	91		91	1	91.0
Oweegee	2	126		126	1	126.0
Cranberry	1	104		104	2	52.0
Kwinageese	2		228	228	4	57.0
Damdochax	2	110	161	271	5	54.2
Meziadin	fishway count	348		348	7	49.7
Seaskinnish	2	27	13	40	2	20.0
Totals	12	806	402	1,208	22	54.9

Total tags applied at Gitwinksihlkw: 570
^aCorrected tag total: 456
 Total fish examined: 1,208
 Total tags recovered: 22

Adjusted Petersen escapement estimate past the Gitwinksihlkw fishwheels: 24,022
 Lower 95% C.I.: 16,099
 Upper 95% C.I.: 35,600

^a Adjusted for tag loss, selective removal in food fisheries and differential mortality of tagged fish (20% of total released).

Table 5. The estimated percentages of adult chinook, sockeye, and coho captured with four fishwheels on the Nass River, 1996. The percentages were derived using the Petersen escapement estimates and 95% confidence intervals (Tables 3 & 4). The estimated abundance past fishwheels 3 and 4 was determined by subtracting the estimated Nisga'a fishery harvest above Gitwinksihlkw from the estimated escapement above Gitwinksihlkw. The escapement above Gitwinksihlkw was used for calculating the "all fishwheels" percentages.

Species	Fishwheel 1				Fishwheel 2				Fishwheel 3				Fishwheel 4				All fishwheels			
	Range		Range		Range		Range		Range		Range		Range		Range		Range		Range	
	Percent	Lower	Upper	Percent	Lower	Upper	Percent	Lower	Upper	Percent	Lower	Upper	Percent	Lower	Upper	Percent	Lower	Upper		
Sockeye	2.7	2.6	2.7	3.9	3.7	4.0	2.1	2.0	2.2	1.4	1.4	1.5	9.9	9.6	10.3					
Chinook	2.4	1.6	3.6	3.8	2.5	5.6	1.6	1.1	2.5	1.6	1.0	2.4	9.1	6.2	13.6					
Coho	3.0	2.0	4.5	1.6	1.1	2.3	1.6	1.1	2.4	2.0	1.4	3.0	8.2	5.6	12.2					
Total, all spp.	2.7	2.4	3.0	3.5	3.1	3.9	2.4	2.2	2.5	1.8	1.7	2.0	9.6	8.4	10.7					

Table 6. Means, standard errors and 95% confidence intervals for sockeye travel times from the fishwheels to the Meziadin fishway for 3-day release periods, 1996.

Release periods	Number of recoveries	Mean travel time (d)	Standard error	95 % Confidence Interval	
				Lower	Upper
Period ending date					
13-Jun	27	32.6	1.41	29.8	35.4
16-Jun	37	31.1	1.03	29.0	33.1
19-Jun	63	30.2	0.71	28.7	31.6
22-Jun	84	29.6	0.59	28.4	30.8
25-Jun	4	26.0	2.12	21.8	30.2
28-Jun	0	0.0	0.00	0.0	0.0
1-Jul	294	19.8	0.24	19.3	20.3
4-Jul	173	22.3	0.41	21.5	23.1
7-Jul	57	24.4	0.70	23.0	25.8
10-Jul	72	23.9	0.76	22.4	25.4
13-Jul	123	24.0	0.49	23.0	24.9
16-Jul	61	23.8	0.74	22.3	25.2
19-Jul	77	22.7	0.81	21.1	24.3
22-Jul	67	23.4	0.67	22.1	24.8
25-Jul	97	21.1	0.71	19.7	22.5
28-Jul	110	21.2	0.70	19.8	22.6
31-Jul	98	18.5	0.66	17.1	19.8
3-Aug	93	17.7	0.55	16.6	18.8
6-Aug	71	19.0	0.52	18.0	20.1
9-Aug	20	22.2	1.55	19.1	25.2
12-Aug	63	21.8	0.58	20.6	22.9
15-Aug	13	21.0	1.89	17.2	24.8
18-Aug	32	19.1	0.79	17.5	20.6
21-Aug	18	19.1	1.04	17.0	21.2
24-Aug	15	18.8	1.10	16.6	21.0
27-Aug	7	17.7	1.85	14.0	21.4
30-Aug	5	17.0	1.14	14.7	19.3
2-Sep	8	17.5	0.65	16.2	18.8
5-Sep	4	13.5	1.04	11.4	15.6
8-Sep	1	12.0	0.00	12.0	12.0
All periods	1,794	22.3	0.16	22.0	22.6

Table 7. Summary of age composition of chinook, sockeye, and coho salmon sampled at the Nass River fishwheels, 1996. Chinook and coho portions are weighted by weekly Gitwinksihlkw fishwheel CPUE; sockeye composition weighted by the weekly escapement estimates generated by the mark-recapture data. A dash denotes no fish were sampled from that age class. The data underestimate the proportion of chinook under 50 cm nose-fork (32s and 43s) because these fish were not routinely sampled.

Table 8. Mean nose-fork length (cm) of salmon (by age) sampled at the Nass River fishwheels, 1996.

Species	Age class	Number of fish	Mean length (cm)	Standard deviation (cm)
Sockeye	3 ₁	6	53.0	3.1
	4 ₁	11	62.2	4.7
	4 ₂	137	61.2	5.8
	4 ₃	2	50.5	0.7
	5 ₂	426	65.6	3.6
	5 ₃	613	61.8	4.1
	6 ₂	2	72.0	5.7
	6 ₃	99	67.9	4.8
	6 ₄	1	69.0	-
Chinook	3 ₁	2	66.5	9.2
	3 ₂	3	42.7	2.9
	4 ₁	3	82.7	3.5
	4 ₂	98	69.3	7.6
	4 ₃	1	46.0	-
	5 ₁	1	89.0	-
	5 ₂	173	88.2	7.9
	6 ₂	18	98.9	8.7
	6 ₃	1	96.0	-
	7 ₂	1	106.0	-
Coho	3 ₂	251	64.2	5.6
	4 ₂	1	69.0	-
	4 ₃	252	64.6	5.6

Table 9. Summary of the estimates of catch, escapement, and total return to the Nass River for chinook, sockeye, and coho salmon, 1996.

Species	Escapement at		Nisga'a harvest ^a		Gitanyow harvest ^b	Sport fishery harvest ^c	Net spawning escapement	Total return to the Nass River
	Gitwinksihlkw	Above Git.	Below Git.					
Chinook	24,022	1,703	5,997	na	477	21,842	30,019	
Sockeye	232,270	9,153	20,067	5,000	-	218,116	252,336	
^d Coho	49,052	850	1,328	na	na	48,202	50,380	

na - Not available.

^a Nass and Gurak (1997) and B. Nass, LGL Limited, Sidney, BC, pers. comm.

^b The Gitanyow are a first nation living in the Skeena watershed. Catch estimate from Les Jantz, Department of Fisheries and Oceans, Prince Rupert, pers. comm.

^c Nass (1997), no sport fishery catch estimates were made for coho.

^d This represents a partial or incomplete estimate of the coho escapement.

Table 10. Comparison of stock composition estimates for Nass River sockeye salmon (percent Meziadin) from scale, GSI, and tagging methods, 1986-96.

Year	Percent Meziadin			Differences		
	Scale	GSI	^a Tag	Scale-GSI	Scale-Tag	GSI-tag
1986	61.6	63.5		-1.9		
1987	78.2	57.1		21.0		
1988	85.5	58.5		27.0		
1989	44.5	41.2		3.3		
1990	77.8	71.5		6.3		
1991	92.6	79.9		12.8		
1992	93.3	86.3	81.0	7.0	12.3	5.3
1993	86.5	76.6	73.1	9.9	13.4	3.5
1994	91.2	na	59.0	na	32.2	na
^b 1995	86.2	83.0	76.4	3.2	9.8	6.6
1996	60.9	na	83.4	na	-22.5	na
Average	78.0	68.6	74.6	7.8	9.0	5.1

^a Tagging method assumes initial 20% differential removal of tagged fish due to net fisheries and handling-induced mortality.

^b GSI method in 1995 includes only 5 late weeks of the run (50% of escapement), the estimate is likely biased high from the season-total percent Meziadin because first sampling week (adjacent to the bulk of the escapement) was only 68% Meziadin whereas late run weeks were composed of 95-100% Meziadin. This pattern suggests that the early-run component was less than the late-run average of 83%.

FIGURES

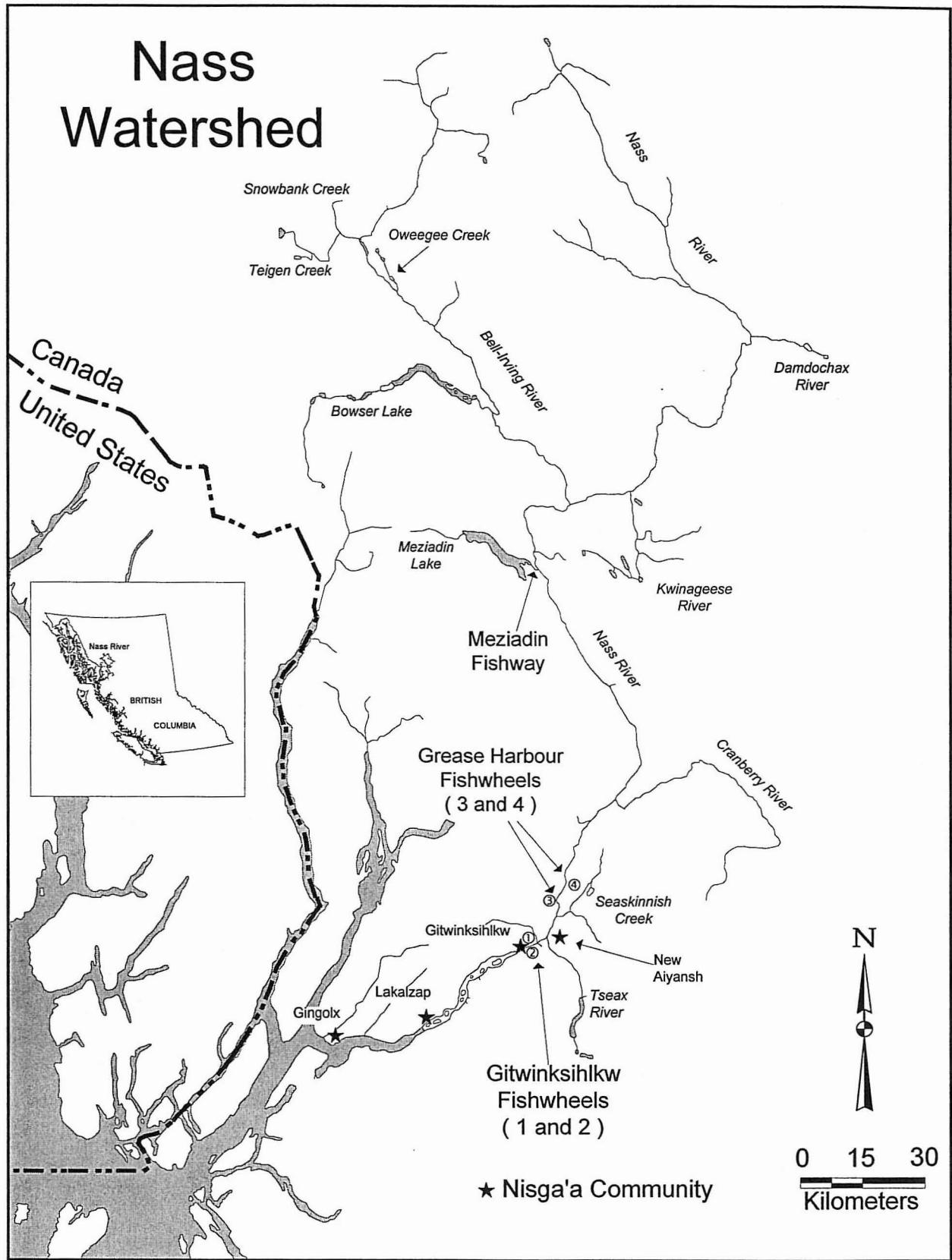


Figure 1. The Nass watershed showing locations of the fishwheels, the Meziadin fishway and chinook spawning areas that were surveyed.

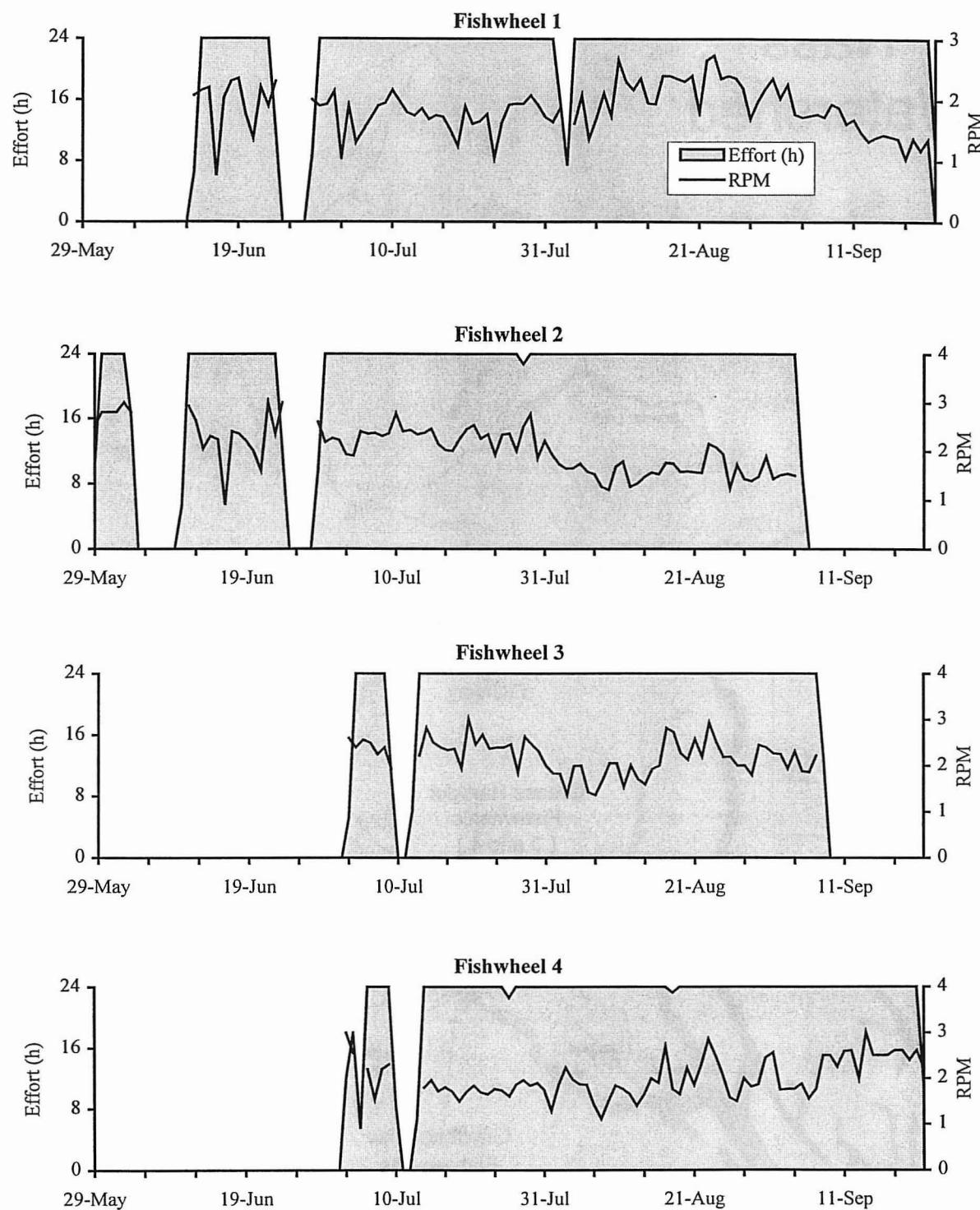


Figure 2. Fishwheel effort (h) and speed (RPM) for four fishwheels on the Nass River, 1996.

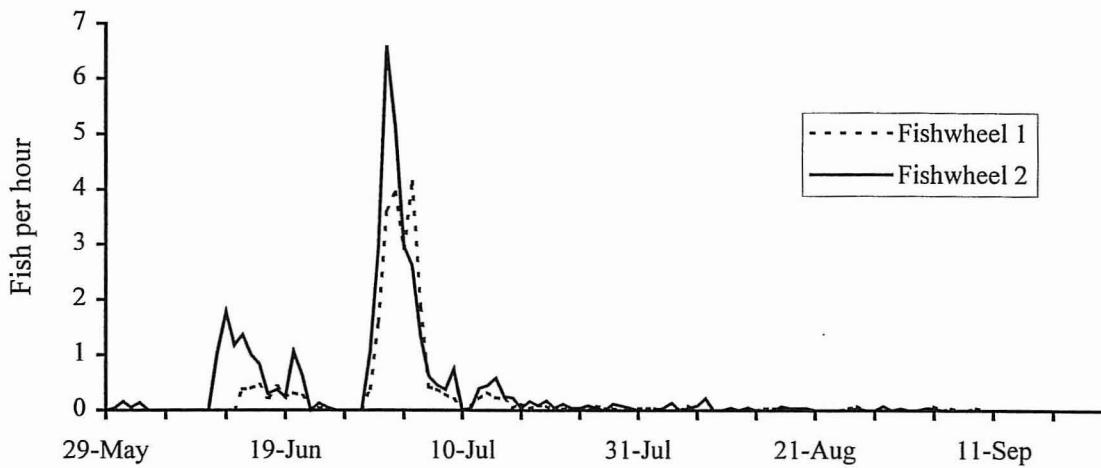
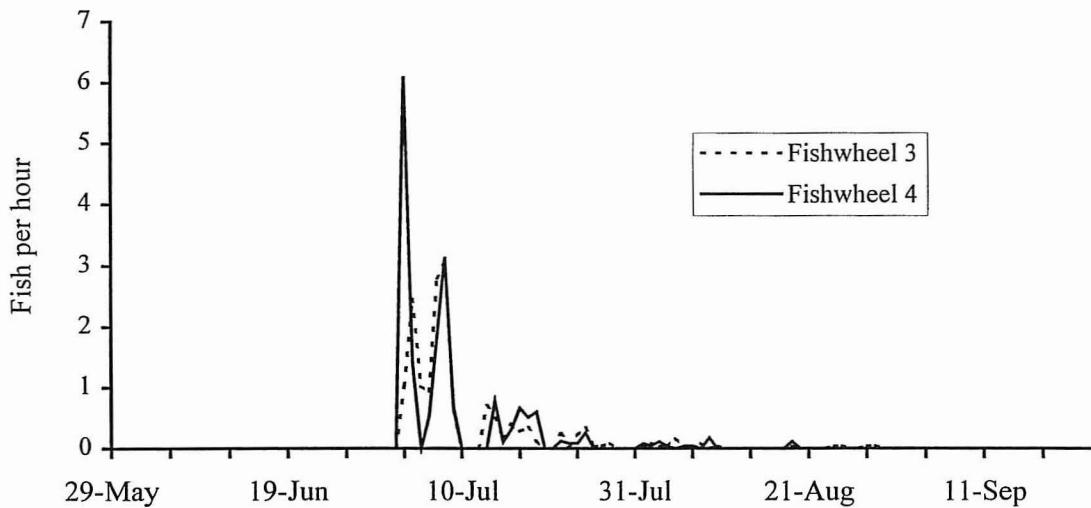
Gitwinksihlkw**Grease Harbour**

Figure 3. Fishwheel CPUE (catch per wheel hour) for adult chinook captured with four fishwheels on the Nass River, 1996.

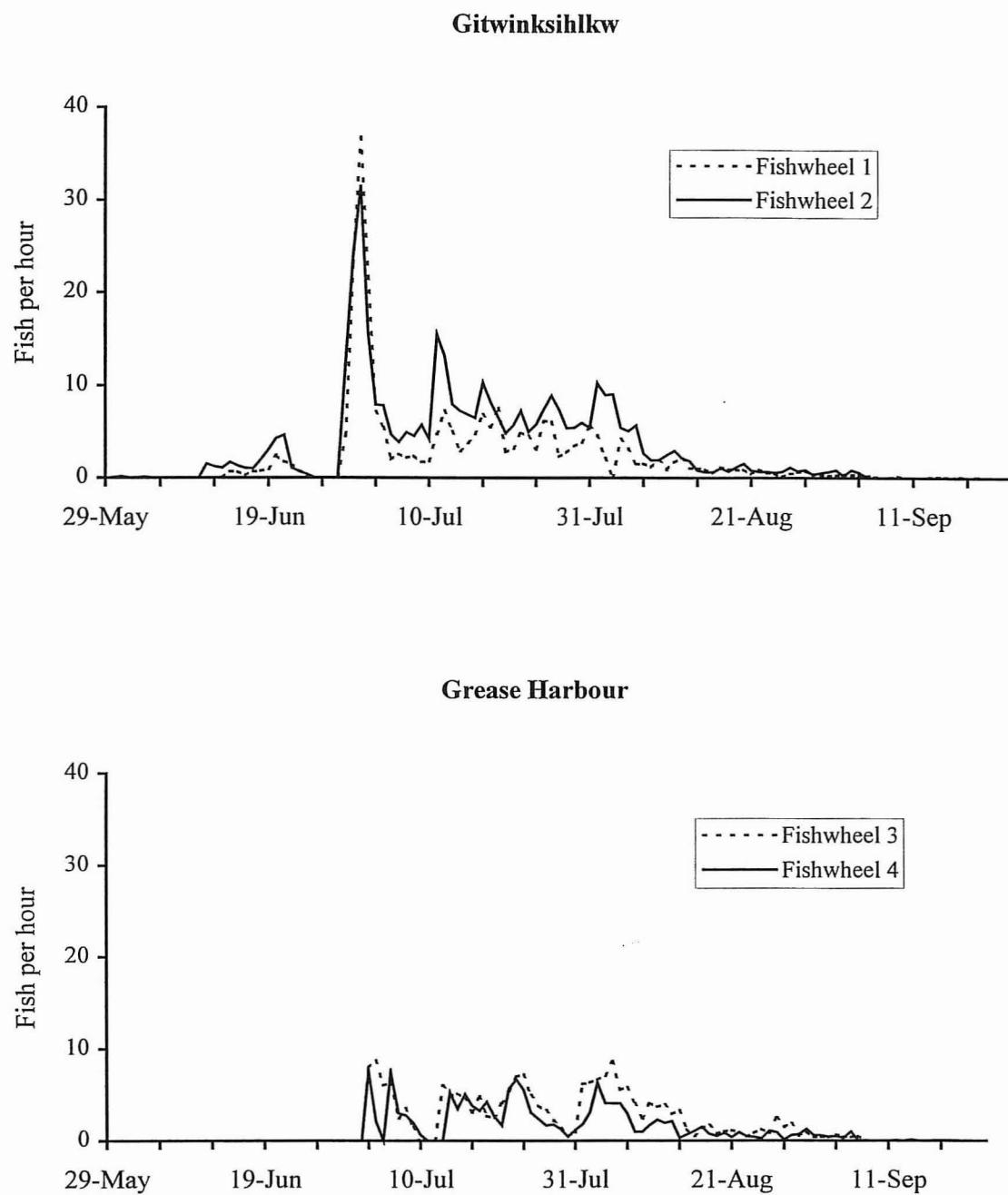


Figure 4. Fishwheel CPUE (catch per wheel hour) for adult sockeye salmon captured with four fishwheels on the Nass River, 1996.

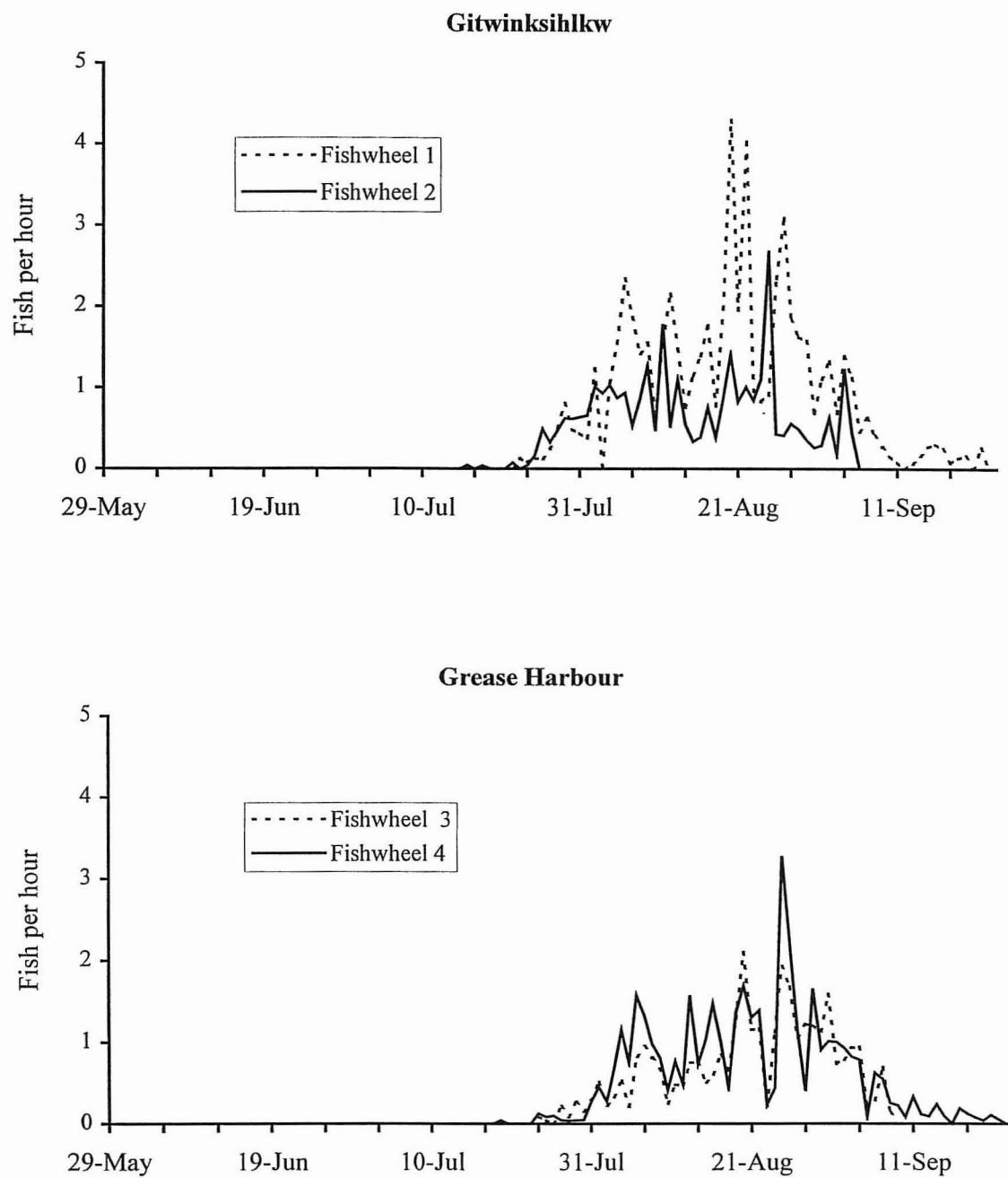


Figure 5. Fishwheel CPUE (catch per wheel hour) for adult coho salmon captured with four fishwheels on the Nass River, 1996.

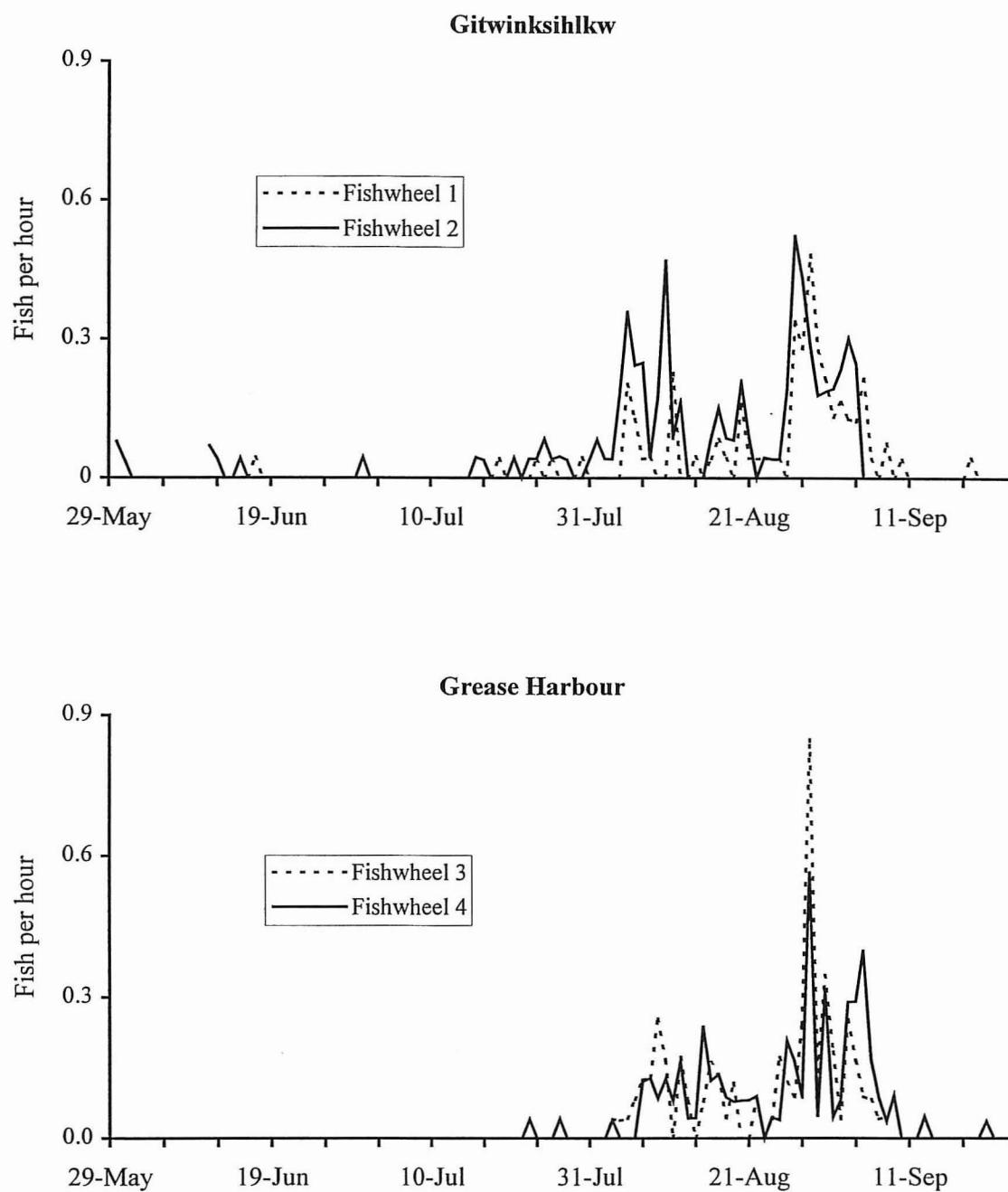


Figure 6. Fishwheel CPUE (catch per wheel hour) for adult steelhead captured with four fishwheels on the Nass River, 1996.

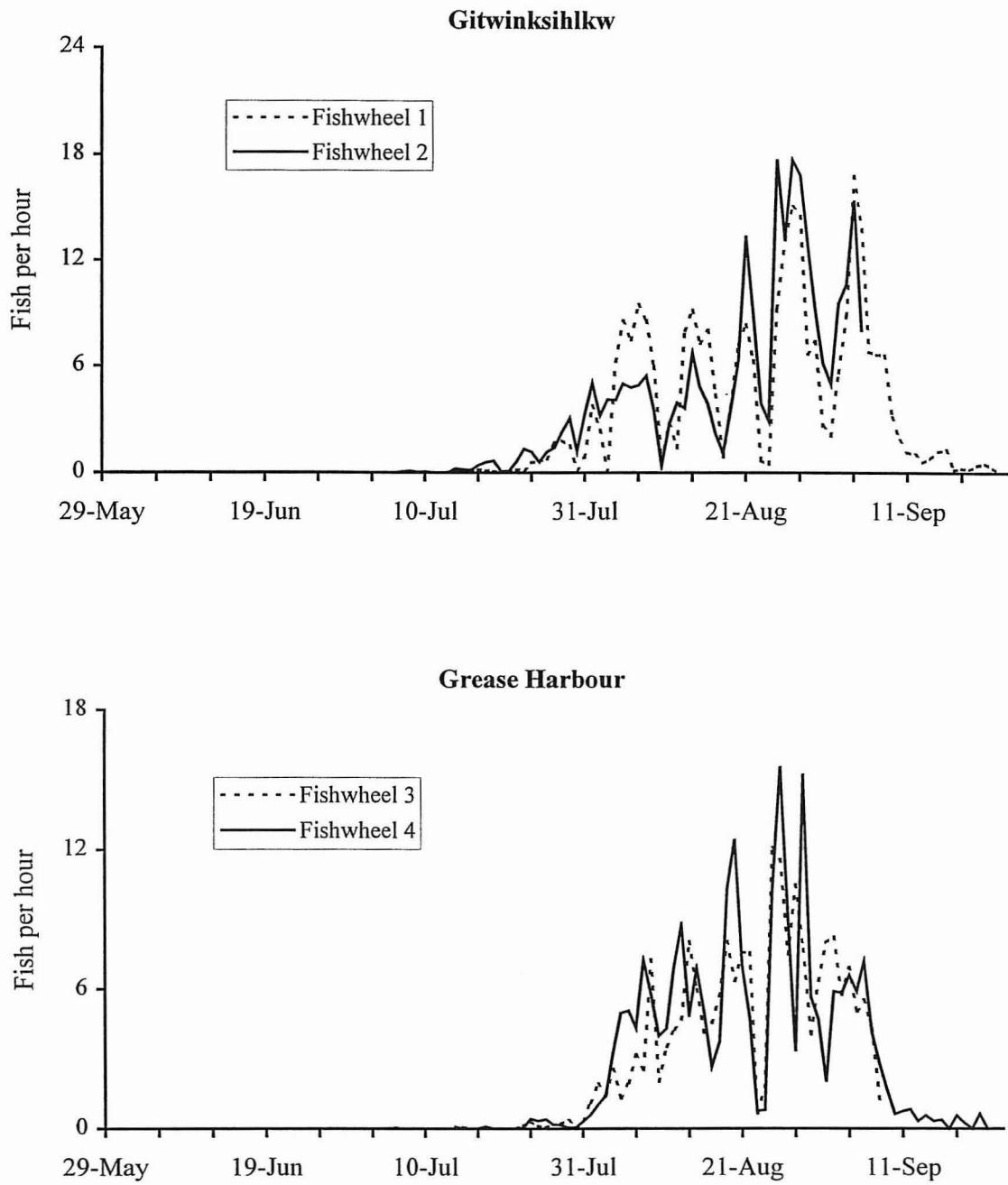


Figure 7. Fishwheel CPUE (catch per wheel hour) for adult pink salmon captured with four fishwheels on the Nass River, 1996.

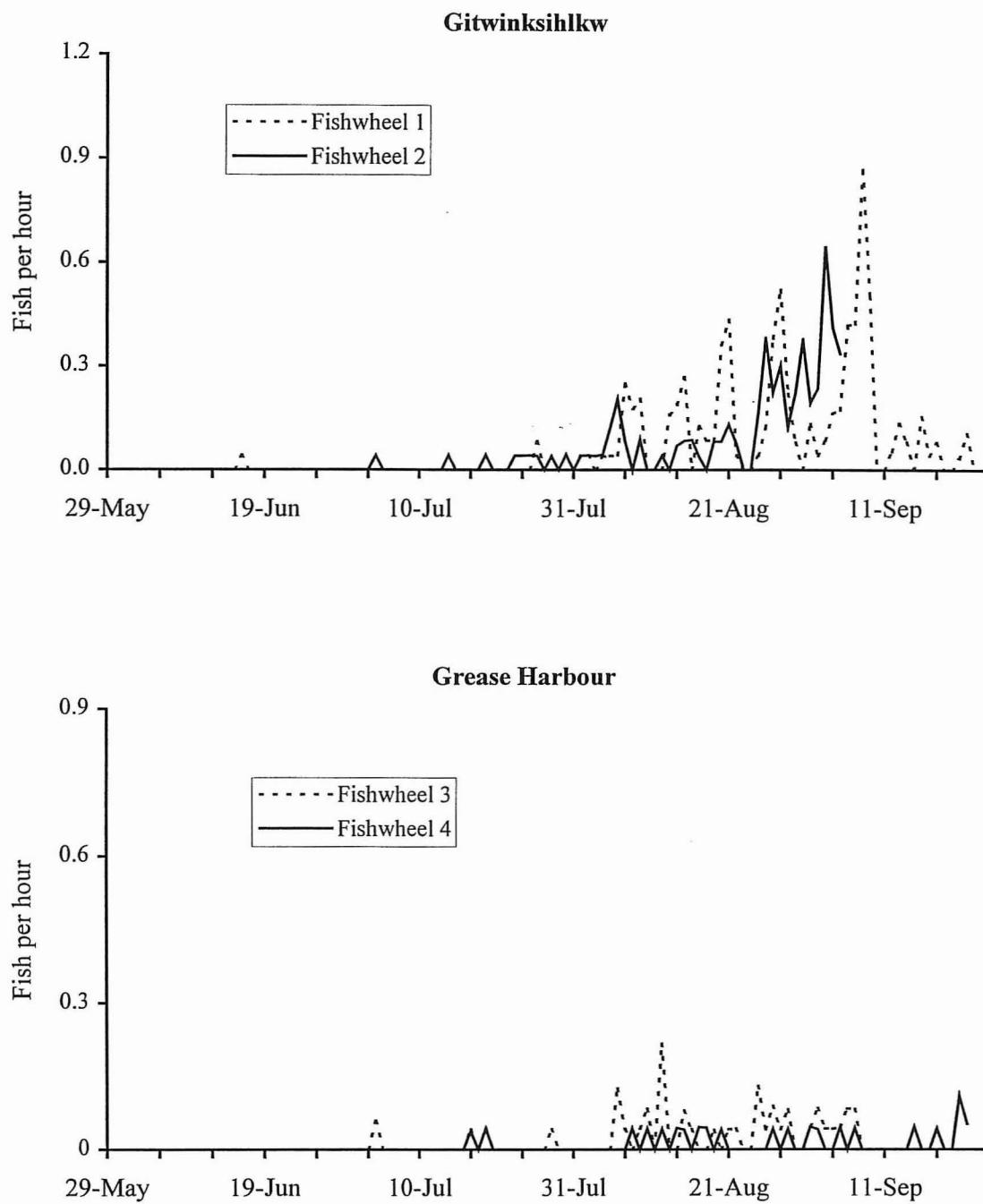


Figure 8. Fishwheel CPUE (catch per wheel hour) for adult chum salmon captured with four fishwheels on the Nass River, 1996.

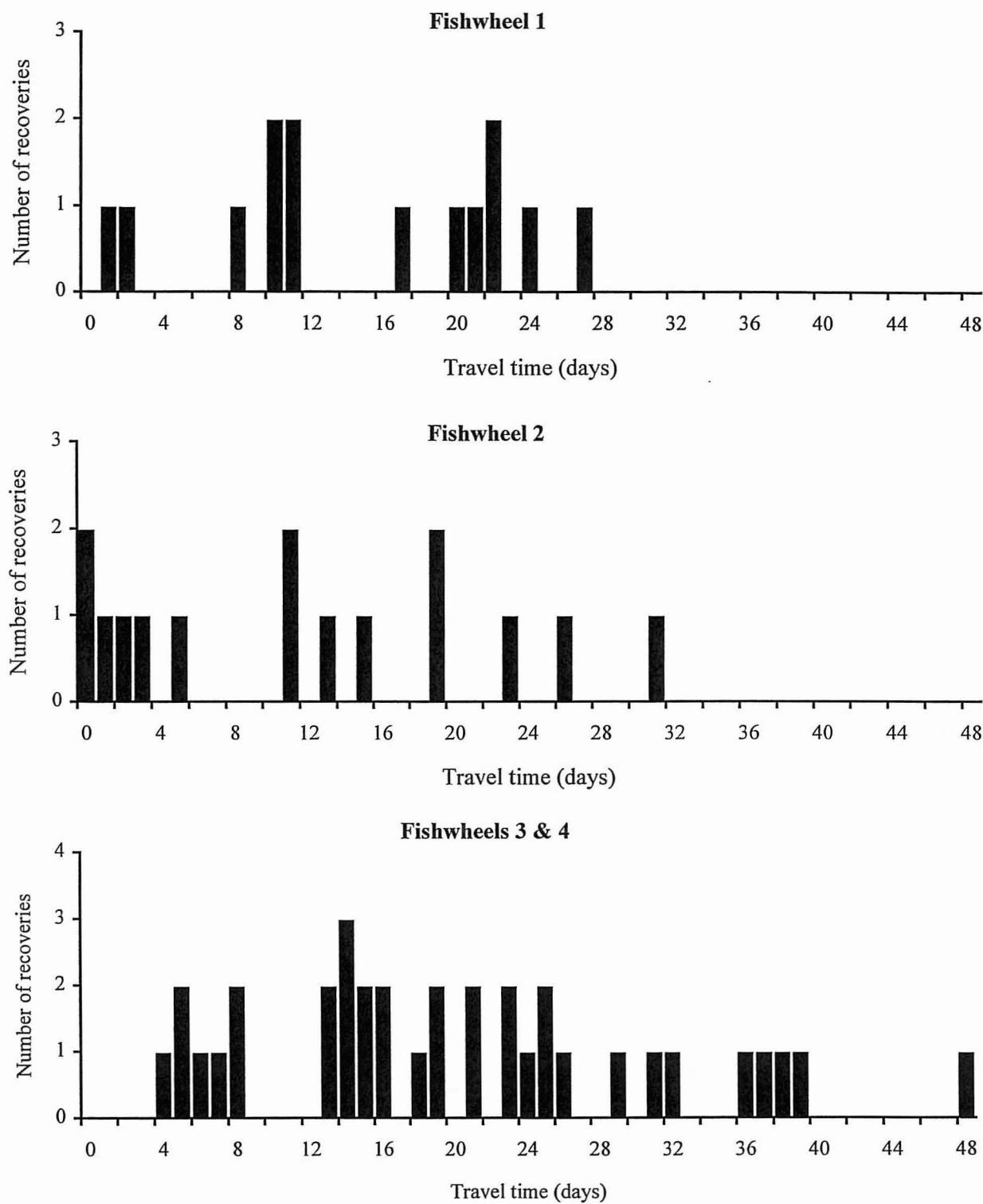


Figure 9. Time between release and recapture for chinook salmon tagged at fishwheels 1 and 2 and subsequently recaptured in the four fishwheels, 1996.

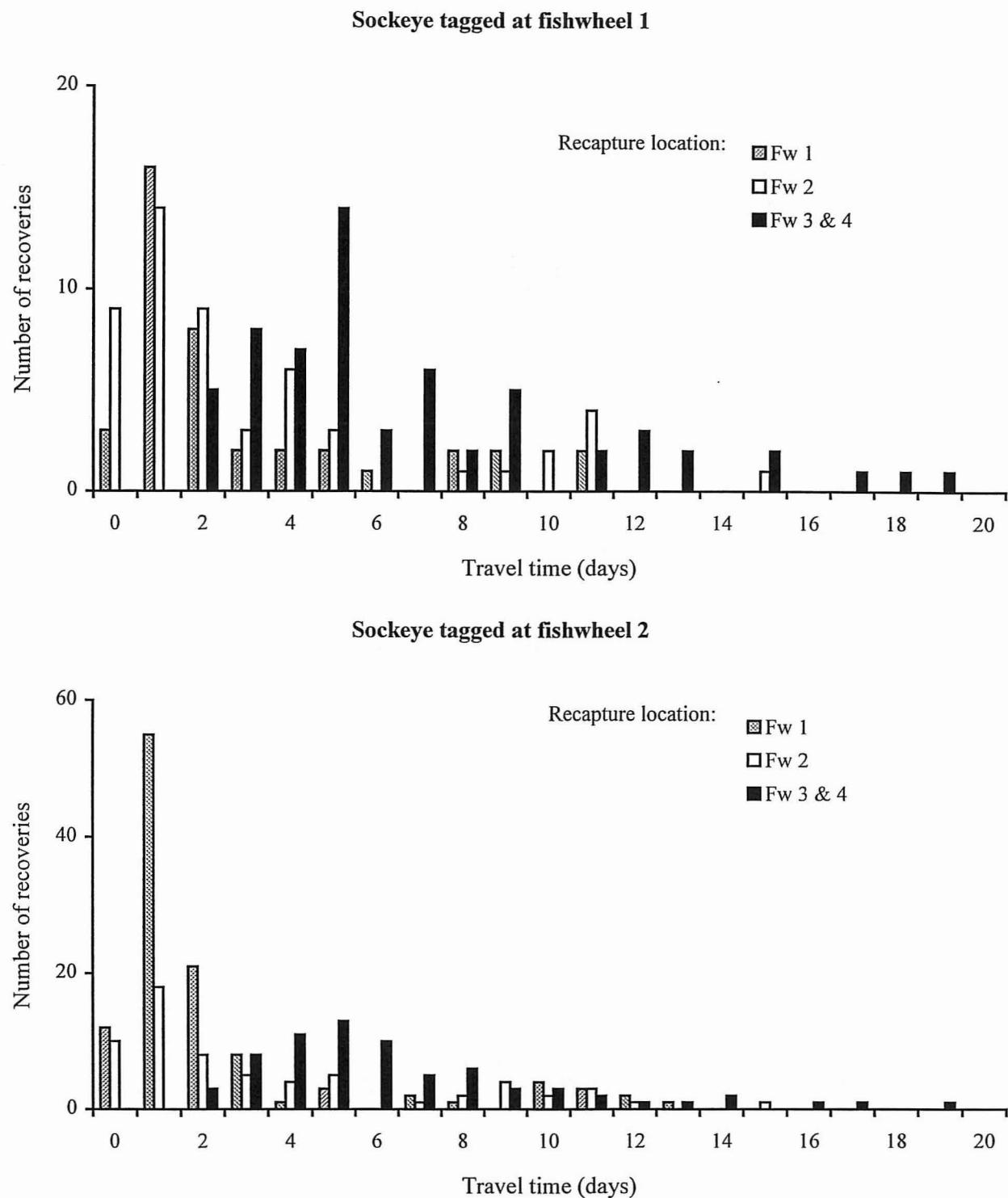


Figure 10. Time between release and recapture for sockeye salmon tagged at fishwheels 1 and 2 and subsequently recaptured in each of the four fishwheels, 1996. Fishwheel 3 and 4 were pooled for clarity.

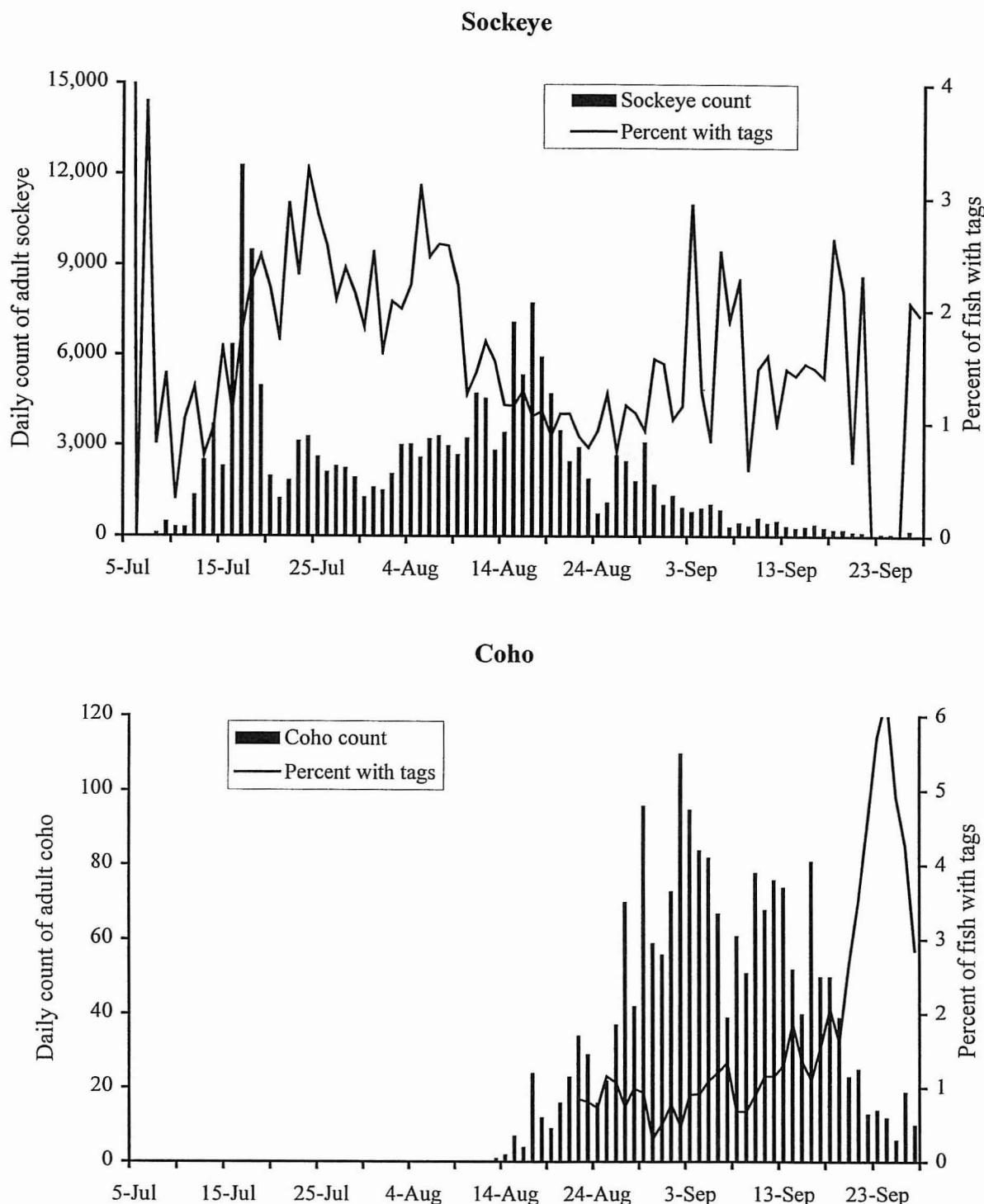


Figure 11. Daily counts and percent of fish with tags for sockeye and coho salmon passing through the Meziadin fishway, 1996. A running 5-day average was used for the percent of coho salmon with tags.

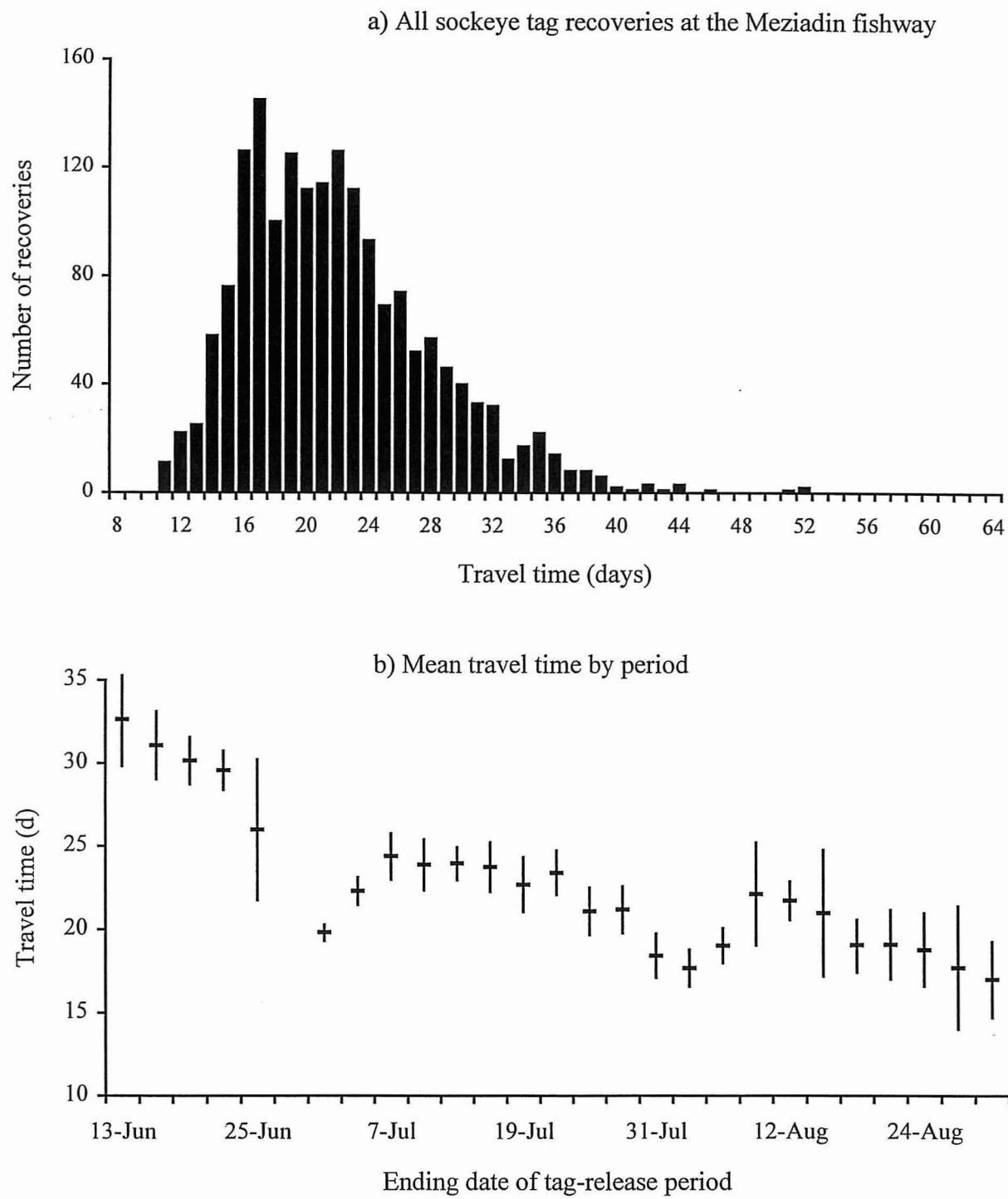


Figure 12. a) The distribution of travel times (days) to the Meziadin fishway for sockeye salmon tagged at the Nass River fishwheels and recovered at the Meziadin fishway, 1996.
b) Mean travel time (with 95% confidence intervals) for 3-day release periods.

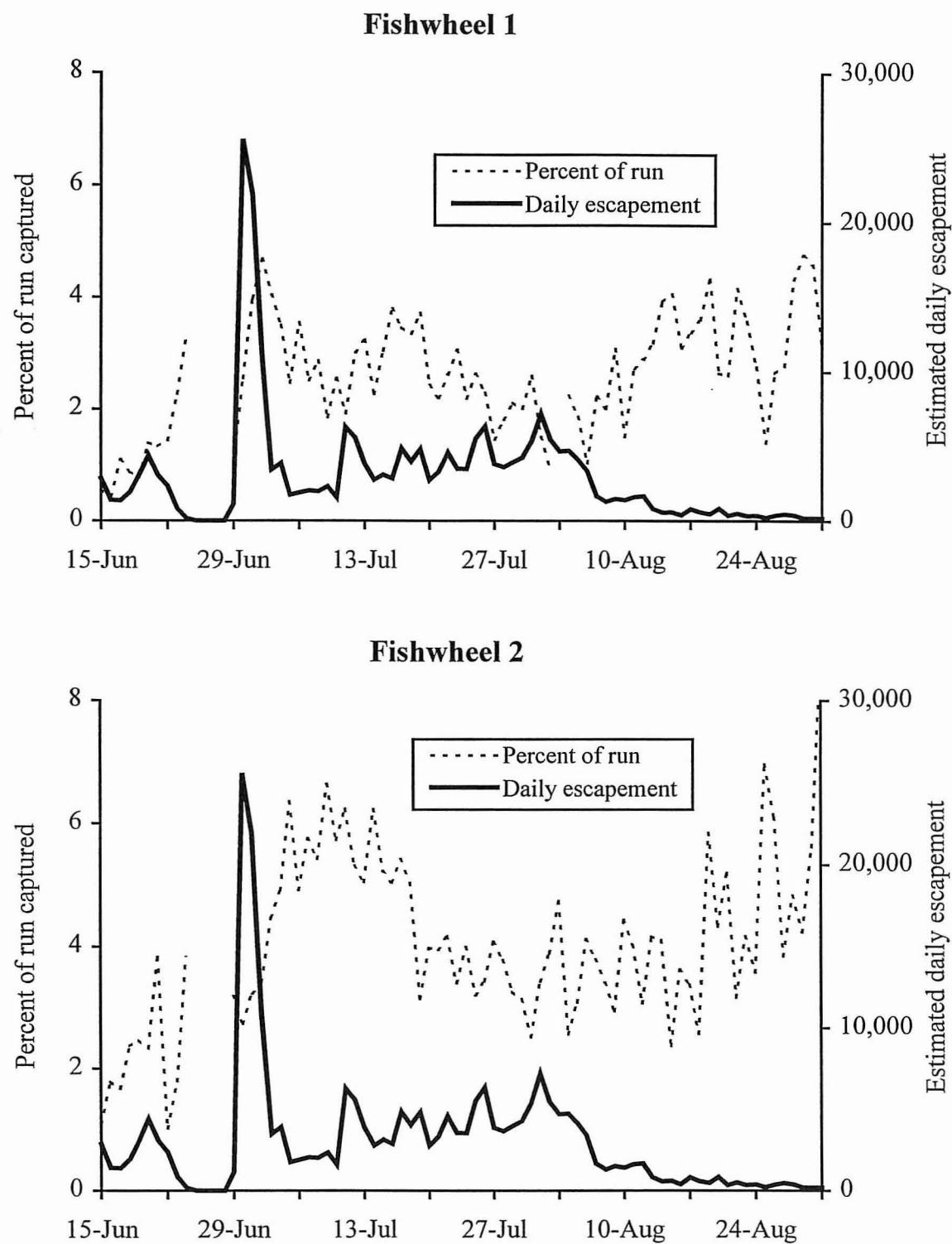


Figure 13. Percent of the sockeye salmon run captured by fishwheels 1 and 2 versus estimated daily escapement, 1996.

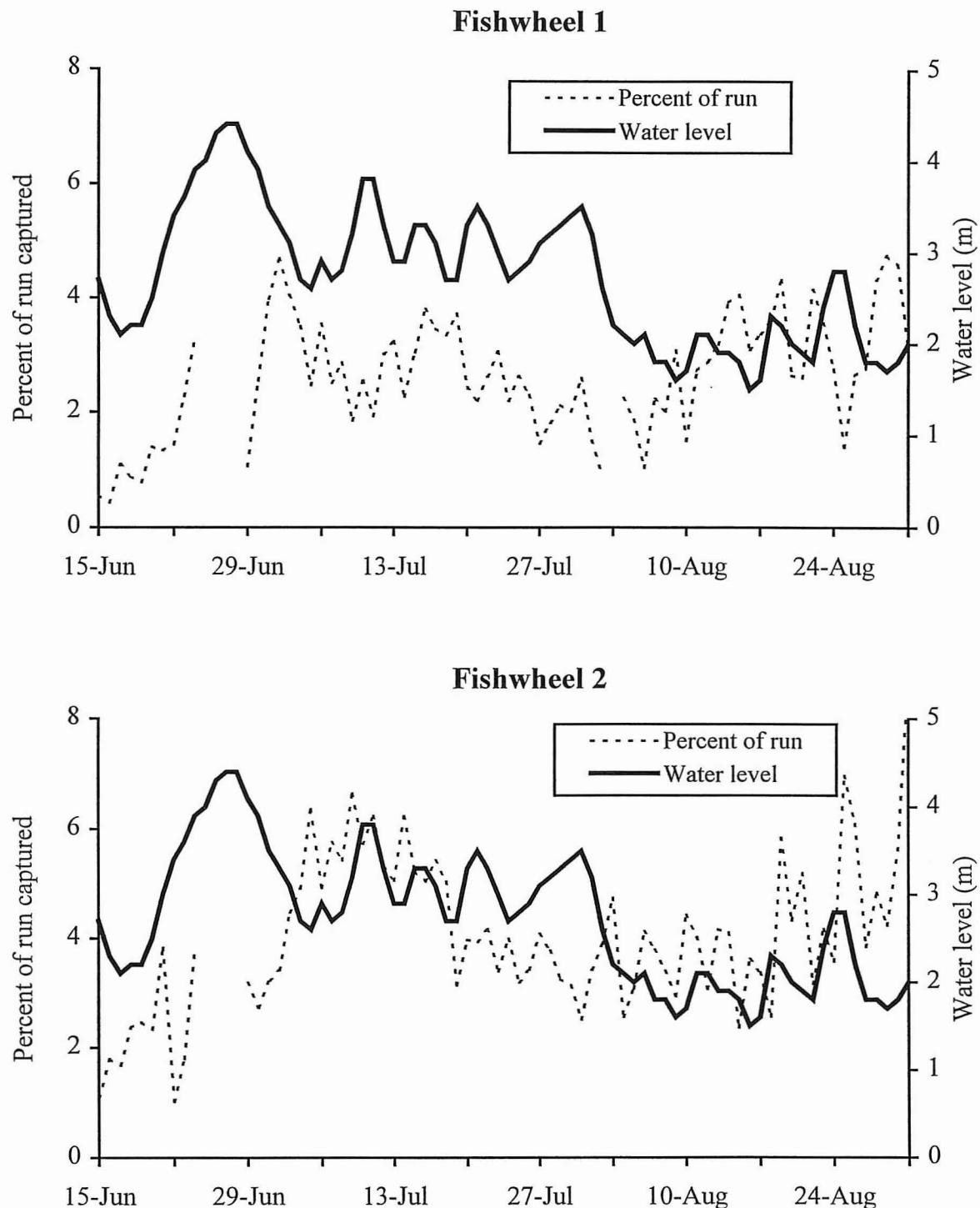


Figure 14. Percent of the sockeye salmon run captured by fishwheels 1 and 2 versus level of the Nass River at Gitwinksihlkw, 1996.

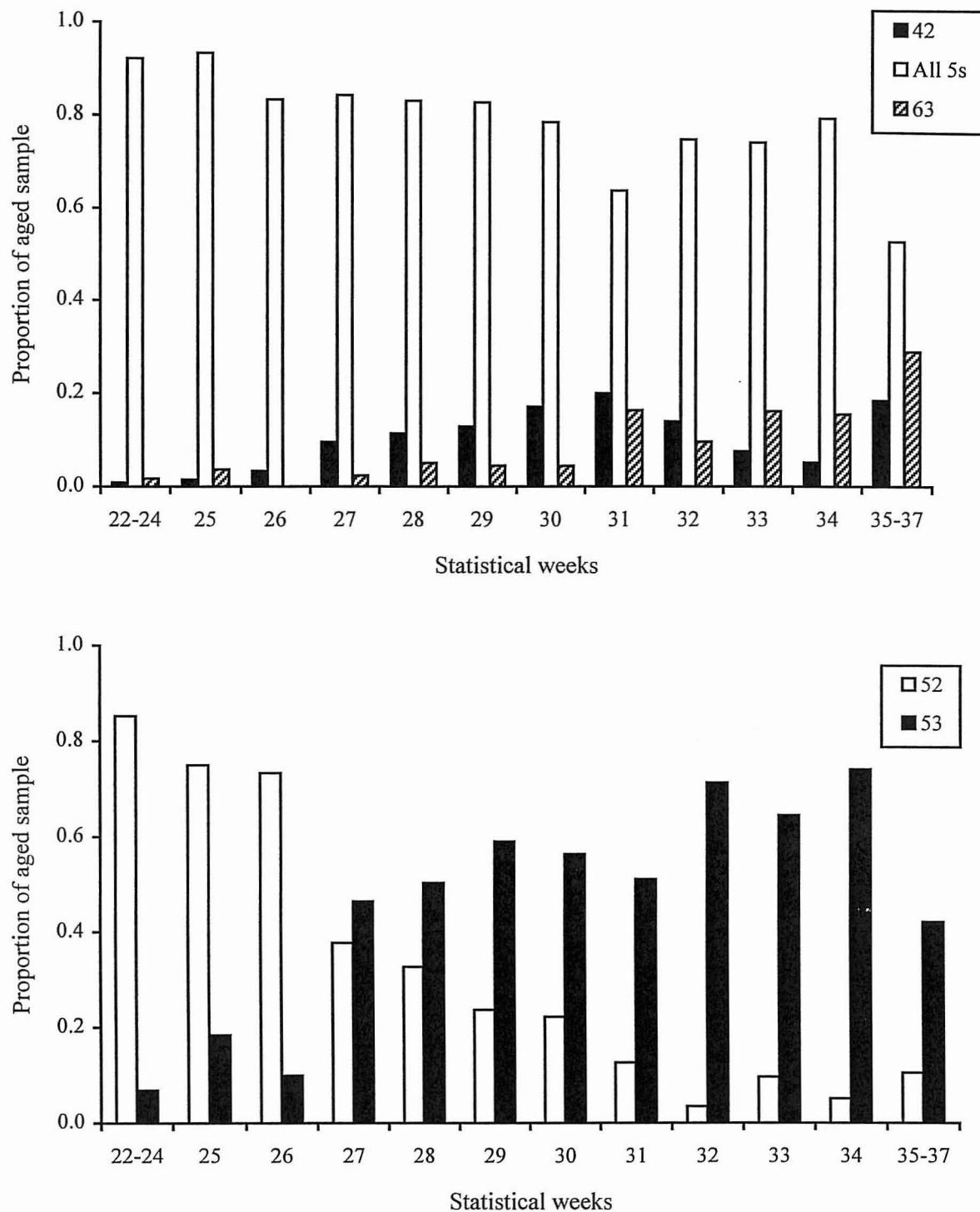


Figure 15. Weekly age composition of successfully aged sockeye salmon sampled from the Nass River fishwheel catch, 1996 (most common ages only, top: the aged-five fish were pooled for clarity).

APPENDIX A

Water temperature/level data and fishwheel effort, 1996.

Table A-1. Minimum and maximum water level and temperature collected in the Nass River near Gitwinksihlkw, 15 April to 4 October, 1996.

Date	Depth (m)		Temperature (C)		Date	Depth (m)		Temperature (C)	
	Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.
15-Apr	0.4	0.4	2.4	1.7	29-May	2.6	2.2	7.1	6.1
16-Apr	0.5	0.4	3.1	1.7	30-May	2.5	2.2	7.8	6.7
17-Apr	0.7	0.4	2.7	2.1	31-May	3.0	2.4	8.0	7.3
18-Apr	0.9	0.7	2.7	2.1	1-Jun	3.5	3.0	7.8	7.1
19-Apr	1.1	0.9	2.6	1.9	2-Jun	3.8	3.4	7.7	7.1
20-Apr	1.1	0.9	3.6	2.4	3-Jun	4.0	3.8	7.7	6.9
21-Apr	1.0	0.9	3.8	2.7	4-Jun	4.4	3.9	7.8	7.1
22-Apr	0.9	0.8	4.1	3.1	5-Jun	4.9	4.3	7.5	7.1
23-Apr	1.0	0.8	4.0	3.6	6-Jun	5.0	4.8	7.3	6.7
24-Apr	1.2	0.9	4.0	3.4	7-Jun	4.9	4.5	7.3	6.7
25-Apr	1.4	1.1	4.1	3.8	8-Jun	4.8	4.5	7.1	6.5
26-Apr	1.5	1.3	3.8	3.3	9-Jun	4.8	4.2	7.3	6.5
27-Apr	1.4	1.3	4.1	3.3	10-Jun	4.3	3.6	7.3	6.7
28-Apr	1.3	1.2	4.1	3.4	11-Jun	3.7	3.4	7.5	6.9
29-Apr	1.3	1.1	4.1	3.8	12-Jun	3.5	3.2	7.3	6.9
30-Apr	1.1	1.0	4.7	3.8	13-Jun	3.3	2.9	7.5	6.7
1-May	1.2	1.0	5.2	4.1	14-Jun	2.9	2.6	7.7	6.9
2-May	1.1	1.0	4.7	4.1	15-Jun	2.7	2.3	7.5	7.3
3-May	1.0	0.9	5.4	4.3	16-Jun	2.3	2.0	7.3	7.1
4-May	1.0	0.9	5.8	4.7	17-Jun	2.1	2.0	7.7	7.1
5-May	1.1	0.9	5.8	4.9	18-Jun	2.2	2.1	7.8	7.1
6-May	1.2	1.1	5.6	4.9	19-Jun	2.2	2.0	8.8	7.3
7-May	1.2	1.1	5.0	4.5	20-Jun	2.5	2.1	9.4	8.6
8-May	1.1	0.9	5.4	4.0	21-Jun	3.0	2.4	9.6	8.6
9-May	0.9	0.7	5.6	4.3	22-Jun	3.4	3.0	9.4	8.6
10-May	0.8	0.6	5.8	4.7	23-Jun	3.6	3.3	8.6	7.8
11-May	0.7	0.5	6.0	4.7	24-Jun	3.9	3.6	8.8	7.8
12-May	0.5	0.5	6.3	5.0	25-Jun	4.0	3.6	9.0	8.0
13-May	0.6	0.5	6.1	5.8	26-Jun	4.3	3.9	9.4	8.4
14-May	0.7	0.5	6.3	5.8	27-Jun	4.4	4.1	9.0	8.4
15-May	1.1	0.7	6.3	5.8	28-Jun	4.4	4.0	8.8	8.0
16-May	1.3	1.1	6.3	5.6	29-Jun	4.1	3.8	8.6	8.0
17-May	1.4	1.2	6.1	5.8	30-Jun	3.9	3.4	8.0	7.7
18-May	1.3	1.2	6.1	5.4	1-Jul	3.5	3.2	8.2	7.5
19-May	1.3	1.2	6.7	5.8	2-Jul	3.3	3.1	8.6	7.8
20-May	1.6	1.3	7.3	6.5	3-Jul	3.1	2.6	8.4	7.5
21-May	2.0	1.6	6.5	6.1	4-Jul	2.7	2.4	8.6	8.0
22-May	2.4	1.9	6.9	6.1	5-Jul	2.6	2.4	8.6	7.8
23-May	2.6	2.4	6.5	5.8	6-Jul	2.9	2.6	8.0	7.5
24-May	2.7	2.4	7.3	6.0	7-Jul	2.7	2.6	8.4	8.0
25-May	3.2	2.6	7.1	6.1	8-Jul	2.8	2.5	9.6	8.2
26-May	3.4	3.1	6.3	5.6	9-Jul	3.2	2.7	9.8	9.2
27-May	3.4	3.1	6.5	5.8	10-Jul	3.8	3.1	9.6	8.8
28-May	3.2	2.5	6.7	6.0	11-Jul	3.8	3.3	8.8	8.4

Table A-1 Minimum and maximum water level and temperature collected in the Nass River near Gitwinksihlkw, 15 April to 4 October, 1996.

Date	Depth (m)		Temperature (C)		Date	Depth (m)		Temperature (C)	
	Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.
12-Jul	3.3	2.9	9.0	8.4	25-Aug	2.8	2.2	9.0	8.4
13-Jul	2.9	2.7	9.8	8.6	26-Aug	2.2	1.8	9.2	8.4
14-Jul	2.9	2.8	9.8	9.2	27-Aug	1.8	1.7	9.6	8.8
15-Jul	3.3	2.9	10.2	9.4	28-Aug	1.8	1.6	10.0	9.4
16-Jul	3.3	3.0	10.0	9.4	29-Aug	1.7	1.6	10.0	9.6
17-Jul	3.1	2.6	9.6	9.0	30-Aug	1.8	1.6	10.2	9.6
18-Jul	2.7	2.4	9.2	8.4	31-Aug	2.0	1.7	10.2	9.8
19-Jul	2.7	2.4	9.0	8.4	1-Sep	2.2	2.0	10.0	9.6
20-Jul	3.3	2.7	9.0	8.4	2-Sep	2.2	1.8	9.8	9.2
21-Jul	3.5	3.2	8.4	7.8	3-Sep	1.8	1.6	9.2	8.6
22-Jul	3.3	2.9	8.4	7.8	4-Sep	1.7	1.5	9.2	8.6
23-Jul	3.0	2.7	9.0	8.2	5-Sep	1.6	1.3	9.4	8.8
24-Jul	2.7	2.6	9.6	8.6	6-Sep	1.4	1.2	9.2	8.6
25-Jul	2.8	2.6	10.7	9.2	7-Sep	1.3	1.2	9.2	8.6
26-Jul	2.9	2.7	11.1	10.0	8-Sep	1.3	1.1	9.0	8.6
27-Jul	3.1	2.8	11.5	10.4	9-Sep	1.2	0.9	9.0	8.4
28-Jul	3.2	3.0	11.3	10.7	10-Sep	0.9	0.8	9.0	8.2
29-Jul	3.3	3.0	11.3	10.7	11-Sep	0.9	0.7	8.6	8.0
30-Jul	3.4	3.2	11.1	10.7	12-Sep	0.7	0.7	8.6	8.2
31-Jul	3.5	3.1	10.9	10.4	13-Sep	0.7	0.7	9.0	8.2
1-Aug	3.2	2.5	10.4	9.8	14-Sep	0.8	0.7	9.2	8.6
2-Aug	2.6	2.2	10.0	9.6	15-Sep	0.9	0.7	9.2	8.6
3-Aug	2.2	2.0	10.2	9.4	16-Sep	1.0	0.9	9.2	8.4
4-Aug	2.1	1.9	10.2	9.6	17-Sep	0.9	0.6	8.8	8.0
5-Aug	2.0	1.9	10.0	9.4	18-Sep	0.7	0.5	8.2	7.5
6-Aug	2.1	1.8	9.8	9.2	19-Sep	0.6	0.4	7.5	7.1
7-Aug	1.8	1.7	10.2	9.4	20-Sep	0.7	0.6	7.7	7.3
8-Aug	1.8	1.6	10.0	9.8	21-Sep	0.6	0.5	7.3	6.9
9-Aug	1.6	1.4	9.8	9.6	22-Sep	0.5	0.3	6.9	6.5
10-Aug	1.7	1.4	9.6	9.0	23-Sep	0.4	0.2	6.7	6.3
11-Aug	2.1	1.6	9.6	9.0	24-Sep	0.2	0.1	6.9	6.3
12-Aug	2.1	1.8	9.6	9.0	25-Sep	0.1	0.1	8.8	6.0
13-Aug	1.9	1.8	9.6	9.4	26-Sep	0.1	0.0	10.0	6.9
14-Aug	1.9	1.7	9.8	9.4	27-Sep	0.7	0.0	8.6	7.1
15-Aug	1.8	1.5	9.6	9.2	28-Sep	2.7	0.7	8.0	7.5
16-Aug	1.5	1.3	9.6	9.0	29-Sep	2.7	2.0	7.7	7.1
17-Aug	1.6	1.3	9.4	9.0	30-Sep	2.1	1.3	7.1	6.0
18-Aug	2.3	1.6	9.2	9.0	1-Oct	1.4	1.0	6.1	5.4
19-Aug	2.2	1.9	9.0	8.8	2-Oct	1.0	0.7	5.6	5.0
20-Aug	2.0	1.8	9.4	8.8	3-Oct	0.7	0.4	5.8	5.2
21-Aug	1.9	1.7	9.2	8.6	4-Oct	2.1	0.0		5.4
22-Aug	1.8	1.6	9.2	8.6					
23-Aug	2.4	1.7	9.2	8.8					
24-Aug	2.8	2.4	9.2	8.8					

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculate CPUE and fishwheel speed (RPM) for four fishwheels used on the Nass River, 1996.

Date	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4		
	Total (h)	Effort for CPUE	RPM	Total (h)	CPUE	RPM	Total (h)	CPUE	RPM	Total (h)	CPUE	RPM
29-May				10.2	0.7	2.5						
30-May				24.0	25.6	2.8						
31-May				24.0	25.6	2.8						
1-Jun				24.0	19.5	2.8						
2-Jun				24.0	21.8	3.0						
3-Jun				16.3	29.3	2.8						
4-Jun				0.0								
5-Jun				0.0								
6-Jun				0.0								
7-Jun				0.0								
8-Jun				0.0								
9-Jun				0.0								
10-Jun				5.3								
11-Jun				24.0	14.5	2.9						
12-Jun				24.0	23.7	2.6						
13-Jun	6.4			2.1	24.0	25.5	2.1					
14-Jun	24.0	23.4	2.2	24.0	23.5	2.3						
15-Jun	24.0	25.1	2.2	24.0	24.0	2.2						
16-Jun	24.0	24.0	0.8	24.0	24.1	0.9						
17-Jun	24.0	22.5	2.0	24.0	23.2	2.4						
18-Jun	24.0	23.5	2.3	24.0	23.8	2.4						
19-Jun	24.0	25.2	2.4	24.0	25.1	2.2						
20-Jun	24.0	25.7	1.8	24.0	23.9	2.0						
21-Jun	24.0	23.5	1.4	24.0	25.4	1.6						
22-Jun	24.0	22.4	2.2	24.0	22.8	3.0						
23-Jun	24.0	24.6	1.9	24.0	23.4	2.4						
24-Jun	12.0	18.5	2.3	12.0	18.7	3.0						
25-Jun	0.0			0.0								
26-Jun	0.0			0.0								
27-Jun	0.0			0.0								
28-Jun	0.0			0.0								

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculate CPUE and fishwheel speed (RPM) for four fishwheels used on the Nass River, 1996.

Date	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4		
	Total (h)	CPUE	RPM									
29-Jun	8.7	2.6	2.0	9.7	2.9	2.6						
30-Jun	24.0	28.2	1.9	24.0	29.3	2.2						
1-Jul	24.0	23.7	1.9	24.0	22.5	2.3						
2-Jul	24.0	23.8	2.1	24.0	24.1	2.2						
3-Jul	24.0	19.6	1.1	24.0	19.6	1.9	5.2	3.9	2.6	12.1	11.1	3.0
4-Jul	24.0	24.9	1.9	24.0	24.5	1.9	24.0	17.1	2.4	18.0	18.7	2.6
5-Jul	24.0	21.7	1.3	24.0	24.0	2.4	24.0	27.3	2.6	5.4		
6-Jul	24.0	26.0	1.5	24.0	24.2	2.4	24.0	21.3	2.5	24.0	22.8	2.2
7-Jul	24.0	23.6	1.7	24.0	23.8	2.4	24.0	25.0	2.3	24.0	24.7	1.6
8-Jul	24.0	23.9	1.9	24.0	24.0	2.3	24.0	23.8	2.4	24.0	23.5	2.2
9-Jul	24.0	25.3	1.9	24.0	27.1	2.4	11.0	24.1	1.9	24.0	23.7	2.3
10-Jul	24.0	22.3	2.2	24.0	21.5	2.8				8.6	16.3	
11-Jul	24.0	25.7	2.0	24.0	25.4	2.4						
12-Jul	24.0	23.2	1.8	24.0	22.5	2.4	6.0					
13-Jul	24.0	24.9	1.7	24.0	24.5	2.3	24.0	24.4	2.2	6.6		
14-Jul	24.0	21.8	1.9	24.0	23.9	2.4	24.0	28.1	2.8	24.0	28.3	1.8
15-Jul	24.0	25.1	1.7	24.0	23.8	2.5	24.0	17.4	2.5	24.0	18.7	2.0
16-Jul	24.0	23.0	1.7	24.0	22.4	2.1	24.0	25.0	2.4	24.0	22.3	1.7
17-Jul	24.0	24.6	1.7	24.0	25.6	2.0	24.0	24.7	2.3	24.0	27.3	1.8
18-Jul	24.0	24.6	1.5	24.0	24.7	2.0	24.0	23.6	2.4	24.0	23.5	1.7
19-Jul	24.0	23.8	1.2	24.0	23.1	2.2	24.0	23.3	1.9	24.0	23.4	1.5
20-Jul	24.0	24.0	1.9	24.0	22.8	2.5	24.0	22.6	3.0	24.0	22.5	1.7
21-Jul	24.0	23.0	1.6	24.0	23.0	2.5	24.0	25.5	2.5	24.0	25.3	1.8
22-Jul	24.0	24.6	1.6	24.0	26.4	2.3	24.0	24.8	2.7	24.0	25.0	1.7
23-Jul	24.0	24.0	1.8	24.0	24.2	2.3	24.0	24.6	2.4	24.0	24.7	1.7
24-Jul	24.0	24.9	1.0	24.0	24.3	1.9	24.0	23.6	2.4	24.0	23.6	1.8
25-Jul	24.0	23.6	1.6	24.0	23.8	2.3	24.0	23.8	2.4	24.0	23.6	1.7
26-Jul	24.0	24.1	1.9	24.0	24.6	2.4	24.0	23.0	2.5	22.6	20.1	1.6
27-Jul	24.0	24.7	1.9	24.0	21.3	2.0	24.0	23.3	1.9	24.0	23.9	1.9
28-Jul	24.0	23.8	1.9	22.8	25.4	2.5	24.0	24.1	2.6	24.0	25.6	2.0
29-Jul	24.0	24.6	2.1	24.0	23.9	2.8	24.0	26.0	2.5	24.0	24.7	1.8

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculate CPUE and fishwheel speed (RPM) for four fishwheels used on the Nass River, 1996.

Date	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4		
	Total (h)	Effort for CPUE	RPM	Total (h)	CPUE	RPM	Total (h)	CPUE	RPM	Total (h)	CPUE	RPM
30-Jul	24.0	22.5	1.9	24.0	22.5	1.9	24.0	26.0	2.3	24.0	22.0	1.9
31-Jul	24.0	24.9	1.7	24.0	25.0	2.2	24.0	20.6	2.0	24.0	25.8	1.8
1-Aug	24.0	23.7	1.6	24.0	24.1	1.9	24.0	25.3	1.8	24.0	24.2	1.3
2-Aug	16.0	23.4	1.9	24.0	23.7	1.7	24.0	21.9	1.8	24.0	21.3	1.9
3-Aug	7.4			24.0	24.7	1.6	24.0	24.3	1.4	24.0	25.8	2.2
4-Aug	24.0	25.5	1.6	24.0	22.3	1.7	24.0	26.4	2.0	24.0	26.0	2.0
5-Aug	24.0	24.6	2.1	24.0	25.1	1.7	24.0	23.7	2.0	24.0	23.7	1.9
6-Aug	24.0	23.4	1.4	24.0	24.6	1.6	24.0	24.1	1.4	24.0	23.5	1.9
7-Aug	24.0	24.1	1.7	24.0	24.1	1.5	24.0	24.2	1.4	24.0	24.9	1.4
8-Aug	24.0	22.5	2.1	24.0	23.3	1.3	24.0	23.3	1.7	24.0	23.4	1.1
9-Aug	24.0	24.5	1.7	24.0	22.9	1.2	24.0	23.5	2.1	24.0	23.3	1.5
10-Aug	24.0	22.9	2.6	24.0	25.4	1.7	24.0	24.3	2.1	24.0	23.8	1.8
11-Aug	24.0	26.3	2.3	24.0	22.4	1.8	24.0	24.9	1.5	24.0	24.9	1.8
12-Aug	24.0	23.2	2.2	24.0	24.5	1.3	24.0	23.1	2.0	24.0	24.5	1.7
13-Aug	24.0	25.0	2.4	24.0	19.1	1.3	24.0	25.1	1.7	24.0	23.5	1.4
14-Aug	24.0	21.2	1.9	24.0	28.9	1.5	24.0	21.2	1.6	24.0	22.9	1.6
15-Aug	24.0	26.1	1.9	24.0	23.8	1.6	24.0	25.3	1.9	24.0	25.1	2.0
16-Aug	24.0	23.7	2.4	24.0	23.2	1.5	24.0	24.6	2.0	24.0	24.4	1.9
17-Aug	24.0	23.7	2.4	24.0	26.5	1.8	24.0	22.4	2.8	24.0	22.1	2.7
18-Aug	24.0	23.2	2.4	24.0	23.2	1.7	24.0	22.9	2.7	23.3	22.7	1.8
19-Aug	24.0	23.8	2.3	24.0	24.4	1.6	24.0	25.5	2.3	24.0	25.6	1.7
20-Aug	24.0	24.8	2.4	24.0	24.1	1.6	24.0	25.6	2.1	24.0	24.8	2.2
21-Aug	24.0	23.0	1.8	24.0	22.8	1.6	24.0	24.2	2.6	24.0	24.5	1.9
22-Aug	24.0	24.0	2.7	24.0	25.8	1.6	24.0	23.9	2.2	24.0	22.2	2.3
23-Aug	24.0	24.0	2.7	24.0	22.4	2.1	24.0	23.0	2.9	24.0	25.2	2.9
24-Aug	24.0	24.0	2.4	24.0	24.4	2.1	24.0	24.9	2.5	24.0	22.5	2.5
25-Aug	24.0	24.3	2.4	24.0	24.5	1.9	24.0	23.2	2.2	24.0	25.3	2.1
26-Aug	24.0	24.7	2.4	24.0	21.0	1.2	24.0	24.9	2.2	24.0	24.1	1.6
27-Aug	24.0	23.6	2.2	24.0	26.7	1.7	24.0	22.6	2.0	24.0	24.4	1.5
28-Aug	24.0	24.9	1.7	24.0	23.2	1.4	24.0	24.6	2.0	24.0	22.2	2.0
29-Aug	24.0	22.7	2.0	24.0	24.4	1.4	24.0	24.7	1.8	24.0	24.7	1.8

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculate CPUE and fishwheel speed (RPM) for four fishwheels used on the Nass River, 1996.

Date	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4		
	Total (h)	CPUE	RPM	Effort for	Total (h)	CPUE	RPM	Effort for	Total (h)	CPUE	RPM	Effort for
30-Aug	24.0	25.3	2.2	24.0	22.4	1.5	24.0	21.2	2.5	24.0	21.9	1.9
31-Aug	24.0	23.3	2.4	24.0	26.7	1.9	24.0	28.8	2.4	24.0	28.6	2.5
1-Sep	24.0	22.6	2.0	24.0	20.7	1.4	24.0	21.7	2.3	24.0	21.8	2.6
2-Sep	24.0	24.2	2.3	24.0	25.5	1.5	24.0	24.0	2.3	24.0	24.5	1.8
3-Sep	24.0	23.3	1.8	24.0	23.2	1.5	24.0	23.6	1.9	24.0	24.1	1.8
4-Sep	24.0	24.4	1.7	24.0	24.3	1.5	24.0	24.3	2.3	24.0	24.0	1.8
5-Sep	24.0	23.1	1.7	9.6	17.8		24.0	22.4	1.9	24.0	22.5	1.9
6-Sep	24.0	23.9	1.8				24.0	24.0	1.9	24.0	23.9	1.6
7-Sep	24.0	23.7	1.7				24.0	24.4	2.2	24.0	23.4	1.8
8-Sep	24.0	26.5	1.9				13.5	21.4		24.0	27.1	2.5
9-Sep	24.0	21.9	1.9							24.0	21.9	2.5
10-Sep	24.0	24.7	1.6							24.0	24.0	2.3
11-Sep	24.0	23.5	1.7							24.0	24.0	2.6
12-Sep	24.0	18.6	1.5							24.0	25.5	2.6
13-Sep	24.0	29.6	1.3							24.0	21.6	2.0
14-Sep	24.0	24.8	1.4							24.0	25.0	3.0
15-Sep	24.0	22.2	1.4							24.0	22.1	2.5
16-Sep	24.0	19.4	1.4							24.0	21.6	2.5
17-Sep	24.0	24.0	1.4							24.0	21.3	2.5
18-Sep	24.0	25.2	1.0							24.0	23.6	2.6
19-Sep	24.0	22.7	1.4							24.0	25.6	2.6
20-Sep	24.0	24.3	1.2							24.0	25.6	2.4
21-Sep	24.0	29.4	1.4							24.0	27.5	2.6
22-Sep	9.3	18.7	0.0							10.9	19.1	2.2
Totals	2267.8	2269.1		2077.8	2070.1		1523.6	1530.0		1835.4	1836.0	
Duration (days)		102			100			68		82		
Percent operational		93%			87%			93%		93%		

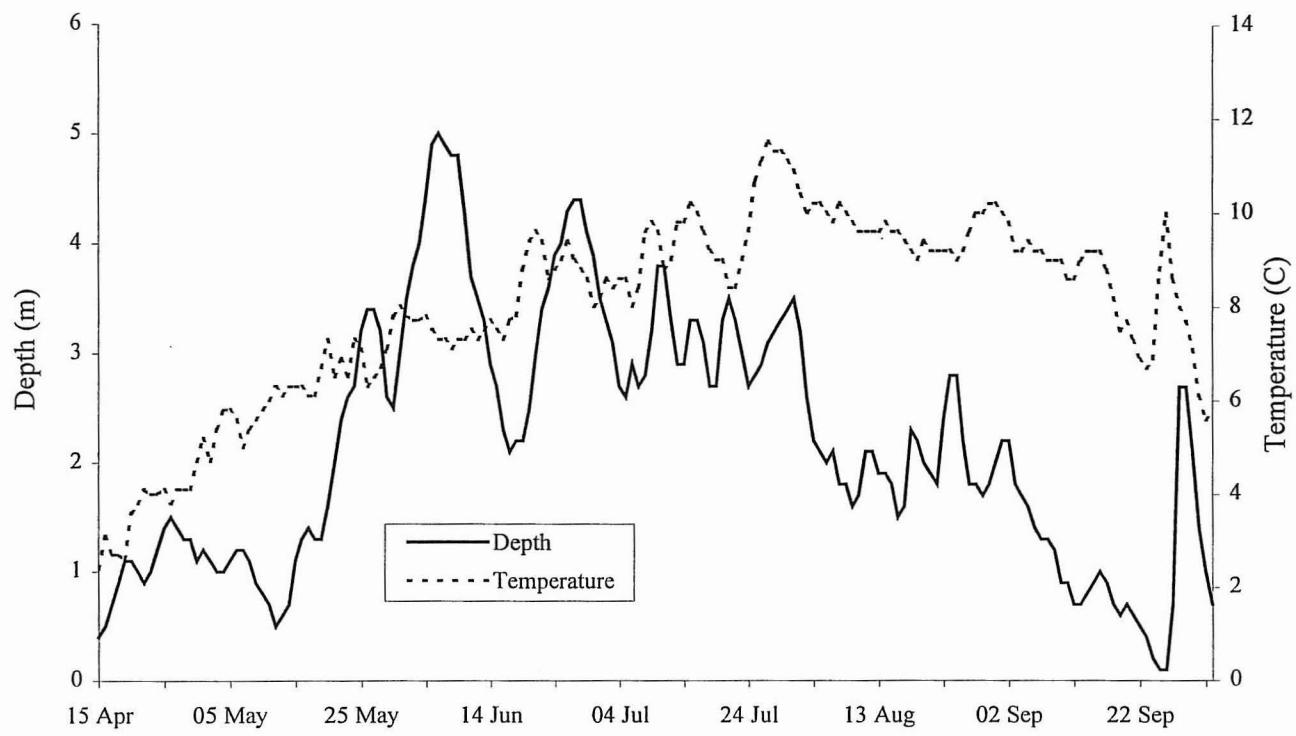


Figure A-1. Daily maximum water temperature and level in the Nass River near Gitwinksihlkw, 1996.

APPENDIX B

Daily catches at the Nass River fishwheels, 1996.

Table B-1. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1996.

Date	Fishwheel 1				Fishwheel 2				Fishwheel 3				Fishwheel 4				
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE
29-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-May	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
31-May	0	0	0	0	0	0	4	5	4	0	0	0.16	0	0	0	0	0
1-Jun	0	0	0	0	0	0	1	6	0	0	0	0.05	0	0	0	0	0
2-Jun	0	0	0	0	0	0	3	9	3	0	0	0.14	0	0	0	0	0
3-Jun	0	0	0	0	0	0	0	9	0	0	0	0.00	0	0	0	0	0
4-Jun	0	0	0	0	0	0	0	9	0	0	0	0.00	0	0	0	0	0
5-Jun	0	0	0	0	0	0	0	9	0	0	0	0.00	0	0	0	0	0
6-Jun	0	0	0	0	0	0	0	9	0	0	0	0.00	0	0	0	0	0
7-Jun	0	0	0	0	0	0	0	9	0	0	0	0.00	0	0	0	0	0
8-Jun	0	0	0	0	0	0	0	9	0	0	0	0.00	0	0	0	0	0
9-Jun	0	0	0	0	0	0	0	9	0	0	0	0.00	0	0	0	0	0
10-Jun	0	0	0	0	0	0	0	9	0	0	0	0.00	0	0	0	0	0
11-Jun	0	0	0	0	0	0	15	24	15	0	0	1.03	0	0	0	0	0
12-Jun	0	0	0	0	0	0	42	66	41	1	1	1.77	0	0	0	0	0
13-Jun	0	0	0	0	0	0	30	96	30	0	1	1.18	0	0	0	0	0
14-Jun	9	9	8	0	0	0.38	32	128	32	1	2	1.36	0	0	0	0	0
15-Jun	10	19	10	0	0	0.40	24	152	23	0	2	1.00	0	0	0	0	0
16-Jun	11	30	10	1	1	0.46	20	172	19	1	3	0.83	0	0	0	0	0
17-Jun	5	35	5	1	2	0.22	7	179	7	0	3	0.30	0	0	0	0	0
18-Jun	10	45	10	2	4	0.43	9	188	7	0	3	0.38	0	0	0	0	0
19-Jun	6	51	5	2	6	0.24	6	194	6	0	3	0.24	0	0	0	0	0
20-Jun	8	59	7	1	7	0.31	25	219	24	2	5	1.05	0	0	0	0	0
21-Jun	6	65	5	0	7	0.26	16	235	4	0	5	0.63	0	0	0	0	0
22-Jun	1	66	0	0	7	0.04	0	235	0	0	5	0.00	0	0	0	0	0
23-Jun	1	67	0	0	7	0.04	3	238	2	0	5	0.13	0	0	0	0	0
24-Jun	1	68	0	0	7	0.05	1	239	0	0	5	0.05	0	0	0	0	0
25-Jun	0	68	0	0	7	0	0	239	0	0	5	0	0	0	0	0	0
26-Jun	0	68	0	0	7	0	0	239	0	0	5	0	0	0	0	0	0
27-Jun	0	68	0	0	7	0	0	239	0	0	5	0	0	0	0	0	0
28-Jun	0	68	0	0	7	0	0	239	0	0	5	0	0	0	0	0	0
29-Jun	1	69	1	0	7	0.38	3	242	3	0	5	1.04	0	0	0	0	0

Table B-1. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1996.

Date	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.
30-Jun	45	114	8	1	8	1.60	86	328	15	5	10	2.94	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul	86	200	13	3	11	3.62	148	476	35	6	16	6.59	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul	94	294	17	2	13	3.95	123	599	29	2	18	5.10	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul	57	351	23	0	13	2.91	58	657	20	3	21	2.96	4	4	2	2	1.03	68	68	6	6	6	6	6.11
4-Jul	103	454	40	3	16	4.14	64	721	16	2	23	2.62	42	46	6	8	2.46	26	94	1	7	1.39	1	1
5-Jul	40	494	2	11	27	1.85	32	753	11	2	25	1.34	28	74	0	8	1.02	0	94	0	7	0	7	0
6-Jul	11	505	2	3	30	0.42	15	768	4	4	29	0.62	20	94	3	11	0.94	12	106	2	9	0.53	1	1
7-Jul	9	514	0	1	31	0.38	11	779	1	2	31	0.46	70	164	2	13	2.80	46	152	3	12	1.86	1	1
8-Jul	7	521	1	1	32	0.29	9	788	4	2	33	0.38	73	237	7	20	3.06	74	226	2	14	3.15	1	1
9-Jul	5	526	2	0	32	0.20	20	808	6	5	38	0.74	15	252	4	24	0.62	16	242	3	17	0.68	1	1
10-Jul	0	526	0	0	32	0.00	0	808	0	1	39	0.00	0	252	0	24	0	0	242	2	19	0.00	0	0
11-Jul	2	528	2	0	32	0.08	1	809	1	0	39	0.04	0	252	0	24	0	0	242	0	19	0	0	19
12-Jul	5	533	0	1	33	0.22	9	818	4	1	40	0.40	0	252	0	24	0	0	242	0	19	0	0	19
13-Jul	8	541	2	0	33	0.32	11	829	1	5	45	0.45	17	269	3	27	0.70	0	242	0	19	0	0	19
14-Jul	5	546	0	1	34	0.23	14	843	10	1	46	0.59	14	283	4	31	0.50	22	264	2	21	0.78	1	1
15-Jul	5	551	1	0	34	0.20	6	849	5	3	49	0.25	3	286	0	31	0.17	2	266	0	21	0.11	1	1
16-Jul	1	552	0	1	35	0.04	5	854	1	1	50	0.22	10	296	3	34	0.40	7	273	0	21	0.31	1	1
17-Jul	3	555	1	1	36	0.12	1	855	0	1	51	0.04	7	303	5	39	0.28	18	291	4	25	0.66	1	1
18-Jul	1	556	1	1	37	0.04	4	859	1	1	52	0.16	8	311	0	39	0.34	12	303	0	25	0.51	1	1
19-Jul	2	558	1	0	37	0.08	2	861	0	0	52	0.09	3	314	2	41	0.13	14	317	3	28	0.60	1	1
20-Jul	2	560	1	0	37	0.08	4	865	1	0	52	0.18	0	314	0	41	0.00	0	317	1	29	0.00	0	0
21-Jul	0	560	0	0	37	0.00	1	866	0	0	52	0.04	0	314	1	42	0.00	0	317	0	29	0.00	0	0
22-Jul	1	561	0	0	37	0.04	3	869	1	2	54	0.11	6	320	0	42	0.24	3	320	0	29	0.12	1	1
23-Jul	0	561	0	2	39	0.00	1	870	0	3	57	0.04	1	321	1	43	0.04	2	322	5	34	0.08	0	0
24-Jul	1	562	0	1	40	0.04	1	871	0	1	58	0.04	5	326	0	43	0.21	2	324	0	34	0.08	1	1
25-Jul	0	562	0	0	40	0.00	2	873	2	1	59	0.08	8	334	2	45	0.34	6	330	4	38	0.25	0	0
26-Jul	2	564	1	2	42	0.08	1	874	0	2	61	0.04	1	335	0	45	0.04	0	330	0	38	0.00	0	0
27-Jul	1	565	0	0	42	0.04	0	874	0	0	61	0.00	1	336	0	45	0.04	0	330	0	38	0.00	0	0
28-Jul	1	566	0	0	42	0.04	3	877	0	0	61	0.12	2	338	0	45	0.08	0	330	0	38	0.00	0	0
29-Jul	0	566	0	0	42	0.00	2	879	0	0	61	0.08	0	338	0	45	0.00	0	330	0	38	0.00	0	0
30-Jul	0	566	0	0	42	0.00	1	880	0	0	61	0.04	0	338	0	45	0.00	0	330	0	38	0.00	0	0
31-Jul	1	567	0	0	42	0.04	0	880	0	0	61	0.00	0	338	0	45	0.00	0	330	0	38	0.00	0	0

Table B-1. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1996.

Date	Fishwheel 1				Fishwheel 2				Fishwheel 3				Fishwheel 4									
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	CPUE	Adults	Cum.	CPUE				
1-Aug	1	568	0	0	42	0.04	0	880	0	0	61	0.00	1	339	1	46	0.04	2	332	0	38	0.08
2-Aug	1	569	0	0	42	0.04	0	880	0	0	61	0.00	2	341	1	47	0.09	1	333	1	39	0.05
3-Aug	0	569	0	0	42		1	881	0	1	62	0.04	1	342	0	47	0.04	3	336	1	40	0.12
4-Aug	0	569	0	5	47	0.00	3	884	1	2	64	0.13	1	343	0	47	0.04	1	337	0	40	0.04
5-Aug	0	569	0	0	47	0.00	0	884	0	0	64	0.00	4	347	0	47	0.17	0	337	0	40	0.00
6-Aug	2	571	0	0	47	0.09	1	885	1	0	64	0.04	1	348	0	47	0.04	1	338	0	40	0.04
7-Aug	0	571	0	0	47	0.00	2	887	0	0	64	0.08	0	348	0	47	0.00	1	339	0	40	0.04
8-Aug	0	571	0	0	47	0.00	5	892	0	0	64	0.22	2	350	0	47	0.09	0	339	0	40	0.00
9-Aug	0	571	0	0	47	0.00	0	892	0	0	64	0.00	0	350	0	47	0.00	4	343	0	40	0.17
10-Aug	0	571	0	0	47	0.00	0	892	0	1	65	0.00	1	351	0	47	0.04	0	343	0	40	0.00
11-Aug	0	571	0	0	47	0.00	1	893	0	0	65	0.04	0	351	0	47	0.00	0	343	0	40	0.00
12-Aug	0	571	0	0	47	0.00	0	893	0	0	65	0.00	0	351	0	47	0.00	0	343	0	40	0.00
13-Aug	1	572	0	0	47	0.04	1	894	0	0	65	0.05	0	351	0	47	0.00	0	343	0	40	0.00
14-Aug	0	572	0	0	47	0.00	0	894	0	0	65	0.00	0	351	0	47	0.00	0	343	0	40	0.00
15-Aug	1	573	0	1	48	0.04	0	894	0	0	65	0.00	0	351	0	47	0.00	0	343	0	40	0.00
16-Aug	1	574	0	0	48	0.04	0	894	0	0	65	0.00	0	351	0	47	0.00	0	343	0	40	0.00
17-Aug	1	575	1	0	48	0.04	2	896	0	0	65	0.08	0	351	0	47	0.00	0	343	0	40	0.00
18-Aug	1	576	0	0	48	0.04	1	897	0	0	65	0.04	0	351	0	47	0.00	0	343	0	40	0.00
19-Aug	0	576	0	0	48	0.00	1	898	0	0	65	0.04	1	352	0	47	0.04	3	346	0	40	0.12
20-Aug	1	577	0	0	48	0.04	1	899	0	0	65	0.04	0	352	0	47	0.00	0	346	0	40	0.00
21-Aug	0	577	0	0	48	0.00	0	899	0	0	65	0.00	0	352	0	47	0.00	0	346	0	40	0.00
22-Aug	0	577	0	0	48	0.00	0	899	0	0	65	0.00	0	352	0	47	0.00	0	346	0	40	0.00
23-Aug	0	577	0	0	48	0.00	0	899	0	1	66	0.00	0	352	0	47	0.00	0	346	0	40	0.00
24-Aug	0	577	0	0	48	0.00	0	899	0	0	66	0.00	1	353	0	47	0.04	0	346	0	40	0.00
25-Aug	1	578	0	0	48	0.04	0	899	0	0	66	0.00	1	354	0	47	0.04	0	346	0	40	0.00
26-Aug	2	580	0	0	48	0.08	1	900	0	0	66	0.05	0	354	0	47	0.00	0	346	0	40	0.00
27-Aug	0	580	0	0	48	0.00	0	900	0	0	66	0.00	0	354	0	47	0.00	0	346	0	40	0.00
28-Aug	0	580	0	0	48	0.00	0	900	0	0	66	0.00	1	355	0	47	0.04	0	346	0	40	0.00
29-Aug	0	580	0	0	48	0.00	2	902	0	0	66	0.08	1	356	0	47	0.04	0	346	0	40	0.00
30-Aug	0	580	0	0	48	0.00	0	902	0	0	66	0.00	0	356	0	47	0.00	0	346	0	40	0.00
31-Aug	0	580	0	0	48	0.00	1	903	0	0	66	0.04	0	356	0	47	0.00	0	346	0	40	0.00
1-Sep	0	580	0	0	48	0.00	0	903	0	0	66	0.00	0	356	0	47	0.00	0	346	0	40	0.00

Table B-1. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1996.

Date	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4						
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE
2-Sep	0	580	0	0	48	0.00	0	903	0	0	66	0.00	0	356	0	47	0.00	0	346	0	40	0.00
3-Sep	0	580	0	0	48	0.00	1	904	0	0	66	0.04	0	356	0	47	0.00	0	346	0	40	0.00
4-Sep	2	582	0	0	48	0.08	1	905	0	0	66	0.04	0	356	0	47	0.00	0	346	0	40	0.00
5-Sep	0	582	0	0	48	0.00	0	905	0	0	66	0.00	0	356	0	47	0.00	0	346	0	40	0.00
6-Sep	1	583	0	0	48	0.04	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
7-Sep	0	583	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
8-Sep	0	583	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
9-Sep	1	584	0	0	48	0.05	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
10-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
11-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
12-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
13-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
14-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
15-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
16-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
17-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
18-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
19-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
20-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
21-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
22-Sep	0	584	0	0	48	0.00	0	905	0	0	66	0	0	356	0	47	0.00	0	346	0	40	0.00
Totals	584	180	48	25.0	905	390	66	392	356	47	16.2	346	40	17.9								

Table B-2. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels 1996.

Date	Fishwheel 1				Fishwheel 2				Fishwheel 3				Fishwheel 4				
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE
29-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-May	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
31-May	0	0	0	0	0	0	4	5	2	0	0	0.16	0	0	0	0	0
1-Jun	0	0	0	0	0	0	0	5	0	0	0	0.00	0	0	0	0	0
2-Jun	0	0	0	0	0	0	0	5	0	0	0	0.00	0	0	0	0	0
3-Jun	0	0	0	0	0	0	3	8	3	0	0	0.10	0	0	0	0	0
4-Jun	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
5-Jun	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
6-Jun	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
7-Jun	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
8-Jun	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
9-Jun	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
10-Jun	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
11-Jun	0	0	0	0	0	0	22	30	21	0	0	1.52	0	0	0	0	0
12-Jun	0	0	0	0	0	0	29	59	28	0	0	1.22	0	0	0	0	0
13-Jun	0	0	0	0	0	0	27	86	26	0	0	1.06	0	0	0	0	0
14-Jun	16	16	13	0	0	0.68	40	126	38	0	0	1.70	0	0	0	0	0
15-Jun	16	32	15	0	0	0.64	31	157	27	0	0	1.29	0	0	0	0	0
16-Jun	6	38	6	0	0	0.25	25	182	23	0	0	1.04	0	0	0	0	0
17-Jun	15	53	13	0	0	0.67	23	205	23	0	0	0.99	0	0	0	0	0
18-Jun	17	70	16	0	0	0.72	46	251	44	0	0	1.93	0	0	0	0	0
19-Jun	24	94	24	0	0	0.95	76	327	74	0	0	3.03	0	0	0	0	0
20-Jun	61	155	59	0	0	2.37	102	429	98	1	1	4.26	0	0	0	0	0
21-Jun	41	196	38	0	0	1.75	118	547	49	1	2	4.65	0	0	0	0	0
22-Jun	34	230	6	0	0	1.52	24	571	10	0	2	1.05	0	0	0	0	0
23-Jun	19	249	6	0	0	0.77	15	586	6	0	2	0.64	0	0	0	0	0
24-Jun	6	255	0	0	0	0.32	7	593	0	0	2	0.37	0	0	0	0	0
25-Jun	0	255	0	0	0	0	0	593	0	0	2	0	0	0	0	0	0
26-Jun	0	255	0	0	0	0	0	593	0	0	2	0	0	0	0	0	0
27-Jun	0	255	0	0	0	0	0	593	0	0	2	0	0	0	0	0	0
28-Jun	0	255	0	0	0	0	0	593	0	0	2	0	0	0	0	0	0
29-Jun	12	267	11	1	1	4.62	36	629	33	0	2	12.49	0	0	0	0	0
30-Jun	650	917	117	0	1	23.08	699	1328	198	6	8	23.88	0	0	0	0	0

Table B-2. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels 1996.

Date	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4						
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE
1-Jul	872	1789	272	4	5	36.74	709	2037	197	6	14	31.58	0	0	0	0	0	0	0	0	0	
2-Jul	516	2305	147	0	5	21.67	376	2413	112	2	16	15.59	0	0	0	0	0	0	0	0	0	
3-Jul	140	2445	48	1	6	7.16	155	2568	41	2	18	7.91	31	31	0	0	7.98	85	85	0	0	7.63
4-Jul	136	2581	45	4	10	5.47	191	2759	57	3	21	7.81	149	180	0	0	8.72	39	124	0	0	2.09
5-Jul	43	2624	24	0	10	1.98	111	2870	50	1	22	4.63	166	346	0	0	6.07	0	124	0	0	0
6-Jul	67	2691	22	3	13	2.58	93	2963	45	11	33	3.85	135	481	2	2	6.34	171	295	3	3	7.52
7-Jul	51	2742	3	3	16	2.16	117	3080	37	2	35	4.92	62	543	2	4	2.48	74	369	0	3	3.00
8-Jul	57	2799	18	0	16	2.38	108	3188	27	1	36	4.51	84	627	1	5	3.52	65	434	0	3	2.77
9-Jul	43	2842	22	0	16	1.70	154	3342	79	5	41	5.69	35	662	0	5	1.45	47	481	0	3	1.99
10-Jul	40	2882	10	0	16	1.79	90	3432	31	2	43	4.19	0	662	0	5	10	491	0	0	3	0.61
11-Jul	121	3003	39	1	17	4.71	392	3824	120	2	45	15.42	0	662	0	5	0	491	0	0	3	0
12-Jul	168	3171	67	0	17	7.25	296	4120	86	6	51	13.16	0	662	0	5	0	491	0	0	3	0
13-Jul	125	3296	33	6	23	5.01	195	4315	45	7	58	7.95	147	809	1	6	6.04	0	491	0	0	3
14-Jul	63	3359	0	3	26	2.90	173	4488	69	4	62	7.25	137	946	3	9	4.88	149	640	1	4	5.26
15-Jul	95	3454	28	1	27	3.79	163	4651	57	4	66	6.86	90	1036	3	12	5.17	65	705	0	4	3.48
16-Jul	109	3563	25	0	27	4.73	145	4796	38	4	70	6.48	117	1153	1	13	4.69	113	818	2	6	5.08
17-Jul	168	3731	39	1	28	6.84	263	5059	63	5	75	10.26	76	1229	4	17	3.08	104	922	5	11	3.82
18-Jul	135	3866	52	0	28	5.49	203	5262	48	0	75	8.23	115	1344	0	17	4.87	77	999	2	13	3.27
19-Jul	179	4045	42	3	31	7.54	151	5413	30	3	78	6.54	63	1407	0	17	2.70	99	1098	0	13	4.22
20-Jul	67	4112	30	0	31	2.79	110	5523	29	1	79	4.84	57	1464	0	17	2.52	59	1157	1	14	2.62
21-Jul	73	4185	10	0	31	3.17	131	5654	45	1	80	5.69	105	1569	0	17	4.12	42	1199	0	14	1.66
22-Jul	120	4305	46	3	34	4.89	191	5845	44	10	90	7.23	134	1703	5	22	5.40	142	1341	1	15	5.68
23-Jul	108	4413	44	5	39	4.50	120	5965	27	7	97	4.97	173	1876	7	29	7.04	166	1507	9	24	6.73
24-Jul	77	4490	23	5	44	3.10	140	6105	39	10	107	5.77	170	2046	5	34	7.21	130	1637	4	28	5.52
25-Jul	145	4635	40	2	46	6.14	177	6282	46	10	117	7.44	118	2164	5	39	4.97	73	1710	4	32	3.09
26-Jul	146	4781	21	5	51	6.05	218	6500	66	11	128	8.87	89	2253	2	41	3.87	48	1758	0	32	2.39
27-Jul	56	4837	43	9	60	2.27	157	6657	43	6	134	7.36	77	2330	5	46	3.31	40	1798	1	33	1.67
28-Jul	66	4903	23	4	64	2.77	137	6794	45	11	145	5.39	53	2383	5	51	2.20	46	1844	1	34	1.80
29-Jul	84	4987	20	1	65	3.41	129	6923	47	6	151	5.41	35	2418	5	56	1.35	31	1875	2	36	1.25
30-Jul	86	5073	0	5	70	3.83	134	7057	56	6	157	5.95	13	2431	3	59	0.50	10	1885	1	37	0.46
31-Jul	139	5212	51	8	78	5.59	135	7192	45	5	162	5.41	19	2450	0	59	0.92	30	1915	9	46	1.16
1-Aug	108	5320	42	11	89	4.57	246	7438	76	8	170	10.20	157	2607	3	62	6.22	44	1959	5	51	1.82
2-Aug	50	5370	13	7	96	2.14	212	7650	92	1	171	8.96	140	2747	2	64	6.39	66	2025	0	51	3.09

Table B-2. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels 1996.

Date	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4						
	Adults	Cum.	Tagged	Jacks	Cum. CPUE	Adults	Cum.	Tagged	Jacks	Cum. CPUE	Adults	Cum.	Tagged	Jacks	Cum. CPUE	Adults	Cum.	Tagged	Jacks	Cum. CPUE		
3-Aug	0	5370	0	0	96	222	7872	66	5	176	9.01	162	2909	9	73	6.68	163	2188	10	61	6.33	
4-Aug	106	5476	7	5	101	4.16	121	7993	29	6	182	5.42	187	3096	1	74	7.09	107	2295	5	66	4.12
5-Aug	77	5553	21	6	107	3.13	127	8120	29	2	184	5.05	205	3301	3	77	8.66	97	2392	7	73	4.09
6-Aug	35	5588	16	5	112	1.49	139	8259	32	11	195	5.66	135	3436	7	84	5.60	96	2488	14	87	4.09
7-Aug	37	5625	4	2	114	1.54	63	8322	9	2	197	2.62	141	3577	3	87	5.83	74	2562	8	95	2.98
8-Aug	26	5651	9	2	116	1.16	44	8366	5	2	199	1.89	96	3673	4	91	4.11	23	2585	2	97	0.98
9-Aug	46	5697	7	1	117	1.88	44	8410	5	1	200	1.92	57	3730	15	106	2.43	23	2608	1	98	0.99
10-Aug	21	5718	15	1	118	0.92	62	8472	15	6	206	2.44	100	3830	8	114	4.12	40	2648	15	113	1.68
11-Aug	44	5762	7	8	126	1.67	65	8537	32	2	208	2.90	92	3922	5	119	3.69	57	2705	10	123	2.29
12-Aug	48	5810	6	10	136	2.07	51	8588	26	2	210	2.08	91	4013	12	131	3.93	48	2753	8	131	1.96
13-Aug	26	5836	17	9	145	1.04	34	8622	2	5	215	1.78	73	4086	2	133	2.91	50	2803	5	136	2.13
14-Aug	22	5858	2	1	146	1.04	23	8645	1	5	220	0.80	70	4156	6	139	3.30	7	2810	1	137	0.31
15-Aug	24	5882	18	3	149	0.92	14	8659	8	6	226	0.59	32	4188	4	143	1.26	17	2827	3	140	0.68
16-Aug	12	5894	1	1	150	0.51	14	8673	10	1	227	0.60	13	4201	6	149	0.53	25	2852	3	143	1.02
17-Aug	27	5921	16	1	151	1.14	27	8700	8	2	229	1.02	31	4232	6	155	1.39	33	2885	6	149	1.50
18-Aug	21	5942	5	7	158	0.90	15	8715	14	1	230	0.65	38	4270	6	161	1.66	17	2902	7	156	0.75
19-Aug	20	5962	4	4	162	0.84	27	8742	16	2	232	1.11	20	4290	4	165	0.78	13	2915	1	157	0.51
20-Aug	22	5984	3	1	163	0.89	36	8778	0	0	232	1.49	26	4316	1	166	1.01	21	2936	0	157	0.85
21-Aug	9	5993	0	4	167	0.39	18	8796	2	1	233	0.79	27	4343	2	168	1.11	9	2945	2	159	0.37
22-Aug	21	6014	4	3	170	0.88	16	8812	2	1	234	0.62	22	4365	6	174	0.92	20	2965	2	161	0.90
23-Aug	12	6026	3	2	172	0.50	14	8826	4	3	237	0.63	10	4375	1	175	0.44	12	2977	1	162	0.48
24-Aug	10	6036	3	0	172	0.42	13	8839	5	2	239	0.53	20	4395	3	178	0.80	9	2986	1	163	0.40
25-Aug	3	6039	2	2	174	0.12	15	8854	2	1	240	0.61	29	4424	1	179	1.25	6	2992	2	165	0.24
26-Aug	10	6049	3	0	174	0.40	23	8877	7	0	240	1.09	20	4444	4	183	0.80	26	3018	0	165	1.08
27-Aug	13	6062	2	3	177	0.55	18	8895	2	3	243	0.67	57	4501	0	183	2.52	22	3040	1	166	0.90
28-Aug	17	6079	6	3	180	0.68	19	8914	0	2	245	0.82	37	4538	1	184	1.51	3	3043	1	167	0.14
29-Aug	9	6088	2	0	180	0.40	8	8922	1	0	245	0.33	46	4584	1	185	1.86	15	3058	5	172	0.61
30-Aug	9	6097	3	2	182	0.36	11	8933	1	1	246	0.49	11	4595	2	187	0.52	15	3073	5	177	0.68
31-Aug	6	6103	4	1	183	0.26	17	8950	4	1	247	0.64	28	4623	1	188	0.97	36	3109	2	179	1.26
1-Sep	6	6109	2	0	183	0.27	17	8967	3	2	249	0.82	8	4631	1	189	0.37	13	3122	1	180	0.60
2-Sep	9	6118	0	0	183	0.37	5	8972	2	1	250	0.20	10	4641	0	189	0.42	14	3136	2	182	0.57
3-Sep	8	6126	0	2	185	0.34	19	8991	4	0	250	0.82	8	4649	2	191	0.34	10	3146	0	182	0.41
4-Sep	8	6134	0	3	188	0.33	14	9005	0	0	250	0.58	16	4665	3	194	0.66	12	3158	1	183	0.50

Table B-2. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels 1996.

Date	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4						
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE
5-Sep	5	6139	0	1	189	0.22	1	9006	0	0	250	0.06	10	4675	1	195	0.45	7	3165	0	183	0.31
6-Sep	3	6142	1	4	193	0.13	0	9006	0	0	250		9	4684	2	197	0.38	23	3188	0	183	0.96
7-Sep	1	6143	0	3	196	0.04	0	9006	0	0	250		13	4697	0	197	0.53	1	3189	3	186	0.04
8-Sep	1	6144	0	7	203	0.04	0	9006	0	0	250		0	4697	0	197	0.00	1	3190	0	186	0.04
9-Sep	4	6148	2	0	203	0.18	0	9006	0	0	250		0	4697	0	197		0	3190	2	188	0.00
10-Sep	0	6148	0	1	204	0.00	0	9006	0	0	250		0	4697	0	197		0	3190	3	191	0.00
11-Sep	1	6149	1	0	204	0.04	0	9006	0	0	250		0	4697	0	197		0	3190	1	192	0.00
12-Sep	0	6149	0	0	204	0.00	0	9006	0	0	250		0	4697	0	197		2	3192	0	192	0.08
13-Sep	2	6151	0	0	204	0.07	0	9006	0	0	250		0	4697	0	197		0	3192	0	192	0.00
14-Sep	3	6154	0	1	205	0.12	0	9006	0	0	250		0	4697	0	197		3	3195	1	193	0.12
15-Sep	2	6156	0	0	205	0.09	0	9006	0	0	250		0	4697	0	197		0	3195	0	193	0.00
16-Sep	0	6156	0	0	205	0.00	0	9006	0	0	250		0	4697	0	197		0	3195	0	193	0.00
17-Sep	3	6159	0	0	205	0.13	0	9006	0	0	250		0	4697	0	197		1	3196	0	193	0.05
18-Sep	0	6159	0	0	205	0.00	0	9006	0	0	250		0	4697	0	197		1	3197	0	193	0.04
19-Sep	2	6161	0	1	206	0.09	0	9006	0	0	250		0	4697	0	197		1	3198	0	193	0.04
20-Sep	0	6161	0	0	206	0.00	0	9006	0	0	250		0	4697	0	197		1	3199	0	193	0.04
21-Sep	0	6161	0	0	206	0.00	0	9006	0	0	250		0	4697	0	197		0	3199	2	195	0.00
22-Sep	0	6161	0	0	206	0.00	0	9006	0	0	250		0	4697	0	197		0	3199	1	196	0.00
Totals	6161	1862	206	258.1	9006	2981	250	384.4	4697	197	204.8	3199	196	196	137.8							

Table B-3. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for coho salmon captured in the Nass River fishwheels, 1996.

Date	Fishwheel 1				Fishwheel 2				Fishwheel 3				Fishwheel 4				
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE
16-Jul	0	0	0	0	0	0.00	1	1	0	0	0.04	0	0	0	0	0	0.00
17-Jul	0	0	0	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0	0.00
18-Jul	0	0	0	0	0	0.00	1	2	0	0	0.04	0	0	0	0	0	0.00
19-Jul	0	0	0	0	0	0.00	0	2	0	0	0.00	0	0	0	0	0	0.04
20-Jul	0	0	0	0	0	0.00	0	2	0	0	0.00	0	0	0	0	0	0.00
21-Jul	0	0	0	0	0	0.00	0	2	0	0	0.00	0	0	0	0	0	0.00
22-Jul	0	0	0	0	0	0.00	2	4	0	0	0.08	0	0	0	0	0	0.00
23-Jul	3	0	1	1	0.13	0	4	0	3	3	0.00	0	0	0	0	0	0.00
24-Jul	2	5	0	3	4	0.08	1	5	0	2	5	0.04	2	0	0	0	0.13
25-Jul	3	8	0	0	4	0.13	4	9	0	0	5	0.17	1	3	0	0	0.08
26-Jul	3	11	3	4	8	0.12	12	21	3	6	11	0.49	0	3	2	2	0.00
27-Jul	6	17	1	8	16	0.24	7	28	4	6	17	0.33	5	8	1	3	0.22
28-Jul	12	29	6	3	19	0.50	12	40	6	7	24	0.47	2	10	2	5	0.08
29-Jul	20	49	11	8	27	0.81	15	55	4	1	25	0.63	7	17	4	9	0.27
30-Jul	11	60	2	3	30	0.49	14	69	10	2	27	0.62	4	21	3	12	0.15
31-Jul	11	71	8	1	31	0.44	16	85	9	3	30	0.64	6	27	0	12	0.29
1-Aug	9	80	5	5	36	0.38	16	101	4	4	34	0.66	13	40	5	17	0.51
2-Aug	29	109	9	9	45	1.24	24	125	8	0	34	1.01	5	45	3	20	0.23
3-Aug	0	109	0	0	45	0	23	148	9	1	35	0.93	8	53	7	27	0.33
4-Aug	27	136	10	4	49	1.06	23	171	10	3	38	1.03	14	67	3	30	0.53
5-Aug	38	174	24	15	64	1.54	22	193	10	6	44	0.88	5	72	3	33	0.21
6-Aug	55	229	16	8	72	2.35	23	216	7	3	47	0.94	20	92	7	40	0.83
7-Aug	45	274	12	5	77	1.87	13	229	7	6	53	0.54	23	115	12	52	0.95
8-Aug	32	306	8	3	80	1.42	20	249	2	12	65	0.86	19	134	7	59	0.81
9-Aug	38	344	14	3	83	1.55	29	278	3	3	68	1.27	16	150	0	59	0.68
10-Aug	15	359	12	2	85	0.65	12	290	10	1	69	0.47	6	156	1	60	0.25
11-Aug	41	400	11	3	88	1.56	40	330	6	0	69	1.78	12	168	3	63	0.48
12-Aug	50	450	7	5	93	2.16	13	343	6	3	72	0.53	11	179	5	68	0.48
13-Aug	37	487	25	3	96	1.48	21	364	0	4	76	1.10	19	198	6	74	0.76
14-Aug	16	503	6	2	98	0.75	16	380	9	2	78	0.55	16	214	2	76	0.75
15-Aug	30	533	22	4	102	1.15	8	388	7	3	81	0.34	13	227	1	77	0.51
16-Aug	33	566	20	3	105	1.39	9	397	9	0	81	0.39	15	242	4	81	0.61
17-Aug	42	608	8	1	106	1.77	20	417	18	0	81	0.75	19	261	5	86	0.85
18-Aug	18	626	7	1	107	0.78	9	426	9	2	83	0.39	15	276	5	91	0.65
19-Aug	47	673	23	4	111	1.97	21	447	14	3	86	0.86	33	309	0	91	1.29
20-Aug	107	780	21	8	119	4.31	34	481	7	5	91	1.41	54	363	3	94	2.11
21-Aug	45	825	12	1	120	1.96	19	500	8	1	92	0.83	28	391	4	98	1.16

Table B-3. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for coho salmon captured in the Nass River fishwheels, 1996.

Date	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4						
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	
22-Aug	97	922	11	5	125	4.04	26	526	5	95	1.01	28	419	5	103	1.17	31	542	0	86	1.40	
23-Aug	23	945	2	1	126	0.96	19	545	5	0	0.85	5	424	2	105	0.22	6	548	0	86	0.24	
24-Aug	20	965	6	0	126	0.83	27	572	8	4	0.99	11	28	452	3	108	1.12	10	558	1	87	0.44
25-Aug	22	987	16	1	127	0.91	66	638	6	1	100	2.69	45	497	4	112	1.94	83	641	2	89	3.28
26-Aug	58	1045	10	1	128	2.35	9	647	1	0	100	0.43	42	539	3	115	1.68	54	695	6	95	2.25
27-Aug	73	1118	9	0	128	3.10	11	658	4	0	100	0.41	24	563	3	118	1.06	28	723	2	97	1.15
28-Aug	46	1164	8	8	136	1.84	13	671	1	1	101	0.56	30	593	5	123	1.22	9	732	1	98	0.41
29-Aug	37	1201	7	1	137	1.63	12	683	1	2	103	0.49	30	623	0	123	1.21	41	773	1	99	1.66
30-Aug	40	1241	10	1	138	1.58	8	691	1	1	104	0.36	24	647	2	125	1.13	20	793	4	103	0.91
31-Aug	16	1257	7	3	141	0.69	7	698	6	1	105	0.26	46	693	3	128	1.60	29	822	1	104	1.01
1-Sep	25	1282	6	1	142	1.11	6	704	1	0	105	0.29	16	709	1	129	0.74	22	844	0	104	1.01
2-Sep	32	1314	4	1	143	1.32	16	720	2	2	107	0.63	19	728	0	129	0.79	23	867	0	104	0.94
3-Sep	16	1330	5	0	143	0.69	4	724	1	1	108	0.17	22	750	1	130	0.93	20	887	1	105	0.83
4-Sep	34	1364	10	1	144	1.39	30	754	3	2	110	1.23	23	773	0	130	0.95	19	906	0	105	0.79
5-Sep	26	1390	0	3	147	1.12	8	762	0	0	110	0.45	5	778	0	130	0.22	2	908	0	105	0.09
6-Sep	11	1401	4	2	149	0.46	0	762	0	0	110	7	785	1	131	0.29	15	923	0	105	0.63	
7-Sep	15	1416	0	2	151	0.63	0	762	0	0	110	17	802	1	132	0.70	13	936	2	107	0.56	
8-Sep	11	1427	0	3	154	0.42	0	762	0	0	110	3	805	0	132	0.14	7	943	0	107	0.26	
9-Sep	6	1433	5	1	155	0.27	0	762	0	0	110	0	805	0	132	0	5	948	0	107	0.23	
10-Sep	4	1437	0	2	157	0.16	0	762	0	0	110	0	805	0	132	0	2	950	1	108	0.08	
11-Sep	2	1439	2	0	157	0.09	0	762	0	0	110	0	805	0	132	0	8	958	2	110	0.33	
12-Sep	0	1439	0	0	157	0.00	0	762	0	0	110	0	805	0	132	0	3	961	0	110	0.12	
13-Sep	2	1441	0	1	158	0.07	0	762	0	0	110	0	805	0	132	0	2	963	3	113	0.09	
14-Sep	4	1445	0	1	159	0.16	0	762	0	0	110	0	805	0	132	0	6	969	2	115	0.24	
15-Sep	6	1451	0	0	159	0.27	0	762	0	0	110	0	805	0	132	0	2	971	2	117	0.09	
16-Sep	6	1457	0	4	163	0.31	0	762	0	0	110	0	805	0	132	0	0	971	0	117	0.00	
17-Sep	6	1463	0	0	163	0.25	0	762	0	0	110	0	805	0	132	4	975	0	117	0.19		
18-Sep	2	1465	0	0	163	0.08	0	762	0	0	110	0	805	0	132	3	978	0	117	0.13		
19-Sep	3	1468	0	0	163	0.13	0	762	0	0	110	0	805	0	132	2	980	0	117	0.08		
20-Sep	4	1472	0	1	164	0.16	0	762	0	0	110	0	805	0	132	1	981	0	117	0.04		
21-Sep	0	1472	0	0	164	0.00	0	762	0	0	110	0	805	0	132	3	984	0	117	0.11		
22-Sep	5	1477	0	0	164	0.27	0	762	0	0	110	0	805	0	132	1	985	0	117	0.05		
Totals	1477	425	164	61.58	762	244	110	32.02	805	132	33.26	985	117	40.745								

Table B-4. Daily catches of pink, chum, and steelhead at the Nass River fishwheels, 1996.

Date	Pink				Chum				Steelhead					
	FW1	Cum.	FW2	Cum.	Fw3	Cum.	FW4	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.
29-May	0	0	0	0	0	0	0	0	0	0	0	1	1	0
30-May	0	0	0	0	0	0	0	0	0	0	0	2	3	0
31-May	0	0	0	0	0	0	0	0	0	0	1	4	0	0
1-Jun	0	0	0	0	0	0	0	0	0	0	0	4	0	0
2-Jun	0	0	0	0	0	0	0	0	0	0	0	4	0	0
3-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun	0	0	0	0	0	0	0	0	0	0	0	4	0	0
5-Jun	0	0	0	0	0	0	0	0	0	0	0	4	0	0
6-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jun	0	0	0	0	0	0	0	0	0	0	0	4	0	0
9-Jun	0	0	0	0	0	0	0	0	0	0	0	4	0	0
10-Jun	0	0	0	0	0	0	0	0	0	0	0	4	0	0
11-Jun	0	0	0	0	0	0	0	0	0	0	0	1	5	0
12-Jun	0	0	0	0	0	0	0	0	0	0	0	1	6	0
13-Jun	0	0	0	0	0	0	0	0	0	0	0	0	6	0
14-Jun	0	0	0	0	0	0	0	0	0	0	0	0	6	0
15-Jun	0	0	0	0	0	0	0	0	0	0	0	1	7	0
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	7	0
17-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
18-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
19-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
20-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
21-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
22-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
23-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
24-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
25-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
26-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
27-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	7
28-Jun	0	0	0	0	0	0	0	0	0	0	0	1	1	8
29-Jun	0	0	0	0	0	0	0	0	0	0	0	1	1	0
30-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1-Jul	0	0	0	0	0	0	0	0	0	0	0	1	1	0
2-Jul	0	0	0	0	0	0	0	0	0	0	0	1	0	8

Table B-4. Daily catches of pink, chum, and steelhead at the Nass River fishwheels, 1996.

Date	Pink				Chum				Steelhead							
	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.
3-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0
5-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
7-Jul	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0
8-Jul	0	0	0	2	3	0	1	0	0	1	0	1	0	0	0	0
9-Jul	0	0	0	1	4	0	1	0	0	1	0	1	0	0	0	0
10-Jul	0	0	0	1	5	0	1	0	0	1	0	1	0	0	0	0
11-Jul	0	0	0	0	5	0	1	0	0	1	0	1	0	0	0	0
12-Jul	0	0	0	0	5	0	1	0	0	1	0	1	0	0	0	0
13-Jul	1	1	0	5	0	1	0	0	0	1	0	1	0	0	0	0
14-Jul	1	2	5	10	0	1	2	0	1	1	2	0	1	0	8	0
15-Jul	1	3	4	14	1	2	0	2	0	1	0	2	0	1	0	8
16-Jul	2	5	3	17	0	2	0	2	0	1	0	2	0	1	1	9
17-Jul	4	9	10	27	0	2	0	2	0	1	0	2	1	1	1	10
18-Jul	3	12	14	41	1	3	2	4	0	1	0	2	0	1	0	10
19-Jul	2	14	15	56	0	3	0	4	0	1	1	3	1	2	0	10
20-Jul	0	14	2	58	0	3	0	4	0	1	0	3	0	2	0	10
21-Jul	2	16	2	60	0	3	0	4	0	1	0	3	0	2	0	11
22-Jul	4	20	16	76	0	3	0	4	0	1	0	3	0	2	0	11
23-Jul	3	23	32	108	3	6	1	5	0	1	4	0	3	0	2	1
24-Jul	14	37	28	136	7	13	10	15	0	1	5	0	3	0	2	1
25-Jul	15	52	14	150	3	16	8	23	0	1	6	0	3	0	2	1
26-Jul	18	70	28	178	1	17	8	31	2	3	1	7	0	3	0	16
27-Jul	41	111	30	208	4	21	4	35	0	3	0	7	0	3	0	17
28-Jul	43	154	58	266	5	26	4	39	0	3	1	8	1	4	0	18
29-Jul	37	191	73	339	9	35	1	40	0	3	0	8	0	4	0	18
30-Jul	3	194	27	366	0	35	1	41	0	3	1	9	0	4	0	18
31-Jul	21	215	81	447	7	42	8	49	0	3	0	9	0	4	0	19
1-Aug	89	304	121	568	28	70	14	63	1	4	1	10	0	4	0	21
2-Aug	56	360	76	644	42	112	22	85	1	5	1	11	0	4	0	22
3-Aug	0	360	101	745	34	146	36	121	0	5	1	12	0	4	0	23
4-Aug	159	519	91	836	68	214	85	206	1	6	1	13	0	4	0	24
5-Aug	210	729	125	961	31	245	118	324	1	7	3	16	0	4	0	25
6-Aug	175	904	117	1078	47	292	119	443	1	8	5	21	3	7	0	26

Table B-4. Daily catches of pink, chum, and steelhead at the Nass River fishwheels, 1996.

Date	Pink					Chum					Steelhead					
	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.
7-Aug	228	1132	118	1196	77	369	108	551	6	14	2	23	1	8	0	2
8-Aug	193	1325	126	1322	59	428	170	721	4	18	0	23	0	8	1	3
9-Aug	146	1471	82	1404	171	599	135	856	5	23	2	25	1	9	0	3
10-Aug	14	1485	10	1414	49	648	95	951	0	23	0	25	2	11	1	4
11-Aug	73	1558	61	1475	88	736	107	1058	0	23	0	25	0	11	0	4
12-Aug	32	1590	96	1571	99	835	171	1229	0	23	1	26	5	16	1	5
13-Aug	200	1790	69	1640	118	953	206	1435	4	27	0	26	0	16	0	5
14-Aug	194	1984	194	1834	171	1124	112	1547	4	31	2	28	0	16	1	6
15-Aug	190	2174	114	1948	152	1276	173	1720	7	38	2	30	2	18	1	7
16-Aug	190	2364	90	2038	102	1378	123	1843	0	38	2	32	1	19	0	7
17-Aug	104	2468	59	2097	102	1480	59	1902	3	41	1	33	0	19	1	8
18-Aug	20	2488	25	2122	131	1611	85	1987	2	43	0	33	0	19	1	9
19-Aug	88	2576	87	2209	206	1817	264	2251	2	45	2	35	1	20	0	9
20-Aug	180	2756	152	2361	163	1980	309	2560	9	54	2	37	0	20	1	10
21-Aug	192	2948	305	2666	184	2164	172	2732	10	64	3	40	1	21	0	10
22-Aug	151	3099	226	2892	181	2345	107	2839	1	65	2	42	1	22	0	10
23-Aug	16	3115	87	2979	15	2360	19	2858	0	65	0	42	0	22	0	10
24-Aug	11	3126	71	3050	44	2404	18	2876	0	65	0	42	0	22	0	10
25-Aug	225	3351	435	3485	281	2685	259	3135	1	66	4	46	3	25	0	10
26-Aug	325	3676	278	3763	289	2974	375	3510	3	69	8	54	1	26	0	10
27-Aug	355	4031	473	4236	170	3144	219	3729	9	78	6	60	2	28	1	11
28-Aug	362	4393	391	4627	258	3402	74	3803	13	91	7	67	1	29	0	11
29-Aug	152	4545	314	4941	191	3593	377	4180	5	96	3	70	2	31	1	12
30-Aug	187	4732	203	5144	86	3679	124	4304	2	98	5	75	0	31	0	12
31-Aug	61	4793	164	5308	183	3862	135	4439	0	98	10	85	0	31	0	12
1-Sep	47	4840	103	5411	174	4036	44	4483	3	101	4	89	1	32	1	13
2-Sep	136	4976	244	5655	198	4234	145	4628	1	102	6	95	2	34	1	14
3-Sep	206	5182	247	5902	136	4370	141	4769	2	104	15	110	1	35	0	14
4-Sep	411	5593	375	6277	169	4539	158	4927	4	108	10	120	1	36	0	14
5-Sep	318	5911	143	6420	113	4652	133	5060	4	112	6	126	1	37	1	15
6-Sep	163	6074	0	6420	133	4785	172	5232	10	122	0	126	2	39	0	15
7-Sep	157	6231	0	6420	105	4890	97	5329	10	132	0	126	2	41	1	16
8-Sep	175	6406	0	6420	27	4917	76	5405	23	155	0	126	0	41	0	16
9-Sep	68	6474	0	6420	0	4917	36	5441	11	166	0	126	0	41	0	16
10-Sep	45	6519	0	6420	0	4917	15	5456	0	166	0	126	0	41	0	16

Table B-4. Daily catches of pink, chum, and steelhead at the Nass River fishwheels, 1996.

Date	Pink					Chum					Steelhead					
	FW1	Cum.	FW2	Cum.	Fw3	Cum.	Fw4	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.
11-Sep	27	6546	0	6420	0	4917	18	5474	0	166	0	126	0	41	0	95
12-Sep	19	6565	0	6420	0	4917	21	5495	1	167	0	126	0	41	0	95
13-Sep	17	6582	0	6420	0	4917	7	5502	4	171	0	126	0	41	0	95
14-Sep	20	6602	0	6420	0	4917	14	5516	2	173	0	126	0	41	0	95
15-Sep	26	6628	0	6420	0	4917	7	5523	0	173	0	126	0	41	1	95
16-Sep	25	6653	0	6420	0	4917	8	5531	3	176	0	126	0	41	0	95
17-Sep	4	6657	0	6420	0	4917	0	5531	1	177	0	126	0	41	0	95
18-Sep	6	6663	0	6420	0	4917	13	5544	2	179	0	126	0	41	1	95
19-Sep	4	6667	0	6420	0	4917	6	5550	0	179	0	126	0	41	0	96
20-Sep	10	6677	0	6420	0	4917	0	5550	0	179	0	126	0	41	0	96
21-Sep	15	6692	0	6420	0	4917	17	5567	1	180	0	126	0	41	3	96
22-Sep	5	6697	0	6420	0	4917	0	5567	2	182	0	126	0	41	1	96

Table B-5. Catches of other species (non-Pacific salmon) captured in the Nass River fishwheels, 1996.

Date	Dolly Varden				Cutthroat trout				Rainbow trout				Whitefish				Pacific Lamprey			
	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4
29-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1-Jun	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
2-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jun	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jun	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
16-Jun	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
17-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Jun	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0
20-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Jun	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
22-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B-5. Catches of other species (non-Pacific salmon) captured in the Nass River fishwheels, 1996.

Date	Dolly Varden				Cutthroat trout				Rainbow trout				Whitefish				Pacific Lamprey			
	FW1	FW2	FW4	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4
30-Jun	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	6
5-Jul	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
11-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
14-Jul	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0
15-Jul	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
16-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
17-Jul	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
18-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
19-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Jul	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
21-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Jul	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
23-Jul	1	4	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
24-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	6
25-Jul	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	3	1
26-Jul	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
27-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1
28-Jul	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
29-Jul	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
30-Jul	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	2
31-Jul	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

Table B-5. Catches of other species (non-Pacific salmon) captured in the Nass River fishwheels, 1996.

Date	Dolly Varden				Cutthroat trout				Rainbow trout				Whitefish				Pacific Lamprey			
	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4
1-Aug	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
2-Aug	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
3-Aug	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4-Aug	3	2	0	0	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1
5-Aug	4	6	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1
6-Aug	3	6	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Aug	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
8-Aug	3	8	0	0	0	0	0	2	0	0	0	0	0	2	1	0	0	0	0	2
9-Aug	2	2	1	0	0	1	0	0	0	0	0	0	0	3	0	2	4	0	0	3
10-Aug	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	1	5
11-Aug	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12-Aug	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2
13-Aug	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
14-Aug	2	3	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0
15-Aug	3	2	0	0	0	1	0	0	0	0	0	0	0	3	0	1	0	0	1	0
16-Aug	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5
17-Aug	0	1	1	0	0	0	0	0	0	1	0	0	0	1	2	3	0	2	0	14
18-Aug	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
19-Aug	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	10	9	20
20-Aug	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	6
21-Aug	0	1	0	1	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	13
22-Aug	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4
23-Aug	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0
24-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	2	0
25-Aug	0	3	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0
26-Aug	5	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	1
27-Aug	3	0	0	1	0	0	0	0	0	1	0	0	0	0	3	2	0	1	0	6
28-Aug	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	10	2
29-Aug	0	1	1	0	0	0	0	0	0	0	0	0	0	3	0	1	1	0	0	12
30-Aug	2	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0
31-Aug	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	2
1-Sep	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0

Table B-5. Catches of other species (non-Pacific salmon) captured in the Nass River fishwheels, 1996.

Date	Dolly Varden				Cutthroat trout				Rainbow trout				Whitefish				Pacific Lamprey			
	FW1	FW2	FW4	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4
2-Sep	0	1	0	0	0	0	0	0	2	0	0	1	0	0	0	0	2	0	0	2
3-Sep	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Sep	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Sep	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	0
6-Sep	2	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0
7-Sep	2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
8-Sep	1	0	0	1	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0
9-Sep	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
10-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
13-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
14-Sep	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
15-Sep	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
16-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
18-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	59	102	5	11	5	18	3	3	5	11	3	2	34	21	23	30	0	121	56	199

APPENDIX C

Summaries of recovery data for fish tagged at the Nass River fishwheels, 1996.

Table C-1. Summary statistics of travel time data for chinook, sockeye, and coho salmon tagged at the Nass River fishwheels, 1996.

Recapture Location	Fish tagged at fishwheel 1										Fish tagged at fishwheel 2										Both fishwheels combined						
	Chinook					Coho					Chinook					Coho					Chinook			Coho			
	N Mean	SD	N Mean	SD	N Mean	SD	N Mean	SD	N Mean	SD	N Mean	SD	N Mean	SD	N Mean	SD	N Mean	SD	N Mean	SD	N Mean	SD	N Mean	SD	N Mean	SD	
Fishwheel 1	2	15.5	6.4	40	3.0	3.1	27	5.4	4.0	11	13.7	8.6	114	2.6	3.5	24	4.8	4.6	13	14.0	8.1	154	2.7	3.4	51	5.1	4.2
Fishwheel 2	7	14.9	10.6	53	3.3	3.7	11	3.6	3.6	8	9.4	9.5	68	4.3	4.7	3	2.0	0.0	15	11.9	10.1	121	3.9	4.3	14	3.3	3.2
Fishwheel 3	5	20.4	6.3	33	8.5	9.8	22	12.7	7.3	9	22.8	12.1	41	8.1	8.3	9	7.8	3.1	14	21.9	10.2	74	8.3	8.9	31	11.3	6.7
Fishwheel 4	8	16.1	10.2	32	7.4	4.4	13	13.4	10.0	13	20.8	12.5	33	7.4	5.6	12	12.0	5.4	21	19.0	11.7	65	7.4	5.0	25	12.7	8.0
Mezadin	1	58.0	-	695	22.3	6.6	14	30.4	6.9	3	68.3	22.0	1100	22.2	6.7	6	30.2	9.3	4	65.8	18.7	1795	22.3	6.7	20	30.3	7.4
Totals	23	853		87						44			1356			54			67			2209			141		

Table C-2. Travel time information for recoveries of tagged chinook salmon by location tagged and location recovered, 1996.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Grand Total
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
0	0	1	0	0	0	1	0	1	0	0	0	1	2
1	0	0	0	0	0	0	1	1	0	0	0	2	2
2	0	0	0	0	0	0	1	1	0	0	0	2	2
3	0	0	0	0	0	0	0	1	0	0	0	1	1
4	0	0	0	0	0	0	0	0	0	1	0	1	1
5	0	1	0	1	0	2	0	0	0	1	0	1	3
6	0	0	0	0	0	0	0	0	1	0	0	1	1
7	0	0	0	0	0	0	0	0	0	1	0	1	1
8	0	0	0	2	0	2	1	0	0	0	0	1	3
10	0	0	0	0	0	0	2	0	0	0	0	2	2
11	1	1	0	0	0	2	1	1	0	0	0	2	4
13	0	0	0	1	0	1	0	1	1	0	0	2	3
14	0	0	1	0	0	1	0	0	0	2	0	2	3
15	0	1	0	1	0	2	0	0	1	0	0	1	3
16	0	0	1	0	0	1	0	0	0	1	0	1	2
17	0	0	0	0	0	0	1	0	0	0	0	1	1
18	0	0	1	0	0	1	0	0	0	0	0	0	1
19	0	1	0	0	0	1	0	1	1	1	0	3	4
20	1	0	0	0	0	1	0	0	0	0	0	0	1
21	0	0	0	1	0	1	1	0	0	0	1	0	2
22	0	0	0	0	0	0	2	0	0	0	0	2	2
23	0	1	0	1	0	2	0	0	1	0	0	1	3
24	0	0	0	0	0	0	0	0	1	0	0	1	1
25	0	0	1	0	0	1	0	0	0	1	0	1	2
26	0	0	0	0	0	0	0	1	1	0	0	2	2
27	0	0	0	0	0	0	1	0	0	0	0	1	1
29	0	0	1	0	0	1	0	0	0	0	0	0	1
31	0	1	0	0	0	1	0	0	1	0	0	1	2
32	0	0	0	0	0	0	0	0	0	1	0	1	1
36	0	0	0	1	0	1	0	0	0	0	0	0	1
37	0	0	0	0	0	0	0	0	0	1	0	1	1
38	0	0	0	0	0	0	0	0	0	1	0	1	1
39	0	0	0	0	0	0	0	0	0	1	0	1	1
47	0	0	0	0	0	0	0	0	0	0	1	1	1
48	0	0	0	0	0	0	0	0	1	0	0	1	1
58	0	0	0	0	1	1	0	0	0	0	0	0	1
67	0	0	0	0	0	0	0	0	0	0	1	1	1
91	0	0	0	0	0	0	0	0	0	0	1	1	1
Totals	2	7	5	8	1	23	11	8	9	13	3	44	67

Table C-3. Travel time information for recoveries of tagged sockeye salmon by location tagged and location recovered, 1996.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Grand Total	
	Location recovered													
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total		
0	3	9	0	0	0	12	12	10	0	0	0	22	34	
1	16	14	0	0	0	30	55	18	0	0	0	73	103	
2	8	9	3	2	0	22	21	8	3	0	0	33	55	
3	2	3	4	4	0	13	8	5	4	4	0	21	34	
4	2	6	4	3	0	15	1	4	9	2	0	16	31	
5	2	3	9	5	0	19	3	5	6	7	0	21	40	
6	1	0	2	1	0	4	0	0	2	8	0	10	14	
7	0	0	1	5	0	6	2	1	2	3	0	8	14	
8	2	1	0	2	1	6	1	2	4	2	0	9	15	
9	2	1	2	3	0	8	0	4	1	2	0	7	15	
10	0	2	0	0	0	2	4	2	2	1	0	9	11	
11	2	4	0	2	2	10	3	3	1	1	10	18	28	
12	0	0	2	1	9	12	2	1	1	0	14	18	30	
13	0	0	2	0	9	11	1	0	0	1	17	19	30	
14	0	0	0	0	17	17	0	0	2	0	42	44	61	
15	0	1	0	2	29	32	0	1	0	0	48	49	81	
16	0	0	0	0	51	51	0	3	1	0	76	80	131	
17	0	0	0	1	52	53	0	1	1	0	94	96	149	
18	0	0	1	0	35	36	0	0	0	0	66	66	102	
19	0	0	0	1	53	54	0	0	0	1	73	74	128	
20	0	0	0	0	53	53	0	0	0	0	60	60	113	
21	0	0	1	0	56	57	1	0	0	0	59	60	117	
22	0	0	0	0	55	55	0	0	0	0	72	72	127	
23	0	0	1	0	43	44	0	0	0	0	70	70	114	
24	0	0	0	0	34	34	0	0	0	0	60	60	94	
25	0	0	0	0	25	25	0	0	0	0	45	45	70	
26	0	0	0	0	27	27	0	0	0	0	48	48	75	
27	0	0	0	0	17	17	0	0	0	0	36	36	53	
28	0	0	0	0	21	21	0	0	0	0	37	37	58	
29	0	0	0	0	13	13	0	0	0	0	34	34	47	
30	0	0	0	0	16	16	0	0	1	0	25	26	42	
31	0	0	0	0	15	15	0	0	0	0	19	19	34	
32	0	0	0	0	14	14	0	0	0	0	19	19	33	
33	0	0	0	0	5	5	0	0	0	1	8	9	14	
34	0	0	0	0	5	5	0	0	0	0	13	13	18	
35	0	0	0	0	12	12	0	0	0	0	11	11	23	
36	0	0	0	0	7	7	0	0	0	0	8	8	15	
37	0	0	0	0	6	6	0	0	0	0	3	3	9	
38	0	0	0	0	1	1	0	0	0	0	8	8	9	
39	0	0	0	0	3	3	0	0	0	0	4	4	7	
40	0	0	0	0	1	1	0	0	0	0	2	2	3	
41	0	0	0	0	1	1	0	0	0	0	1	1	2	
42	0	0	0	0	1	1	0	0	0	0	3	3	4	

Table C-3. Travel time information for recoveries of tagged sockeye salmon by location tagged and location recovered, 1996.

Travel time (d)	Fish tagged at fishwheel 1					Fish tagged at fishwheel 2					Grand Total	
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	
43	0	0	0	0	0	0	0	0	0	0	2	2
44	0	0	0	0	0	0	0	0	0	0	4	4
46	0	0	0	0	0	0	0	0	0	0	2	2
47	0	0	0	0	1	1	0	0	0	0	0	1
48	0	0	0	0	1	1	0	0	1	0	0	2
50	0	0	0	0	0	0	0	0	0	0	1	1
51	0	0	0	0	0	0	0	0	0	0	2	2
52	0	0	0	0	1	1	0	0	0	0	2	3
54	0	0	1	0	0	1	0	0	0	0	0	1
58	0	0	0	0	1	1	0	0	0	0	0	1
61	0	0	0	0	1	1	0	0	0	0	0	1
63	0	0	0	0	0	0	0	0	0	0	1	1
64	0	0	0	0	1	1	0	0	0	0	0	1
Totals	40	53	33	32	695	853	114	68	41	33	1099	1356
												2209

Table C-4. Travel time information for recoveries of tagged coho salmon by location tagged and location recovered, 1996.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Grand Total
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
0	0	3	0	0	0	3	1	0	0	0	0	1	4
1	4	2	0	0	0	6	8	0	0	0	0	8	14
2	3	0	0	0	0	3	2	3	0	0	0	5	8
3	3	0	2	1	0	6	3	0	0	0	0	3	9
4	3	2	0	0	0	5	1	0	1	0	0	2	7
5	4	1	2	0	0	7	0	0	2	0	0	2	9
6	3	0	2	2	0	7	1	0	0	1	0	2	9
7	1	1	0	1	0	3	1	0	1	0	0	2	5
8	0	1	2	2	0	5	2	0	3	2	0	7	12
9	2	0	2	1	0	5	1	0	0	2	0	3	8
10	2	1	0	1	0	4	0	0	0	2	0	2	6
11	0	0	0	1	0	1	1	0	0	0	0	1	2
12	0	0	1	0	0	1	2	0	1	1	0	4	5
13	0	0	4	0	0	4	0	0	1	1	0	2	6
14	1	0	0	0	0	1	0	0	0	1	0	1	2
16	0	0	0	0	0	0	1	0	0	0	0	1	1
17	1	0	1	0	0	2	0	0	0	0	0	0	2
19	0	0	0	1	0	1	0	0	0	0	0	1	2
20	0	0	2	0	0	2	0	0	0	0	0	0	2
21	0	0	1	0	1	2	0	0	0	0	0	0	2
22	0	0	0	1	0	1	0	0	0	1	0	1	2
23	0	0	1	0	2	3	0	0	0	1	0	1	4
24	0	0	0	0	1	1	0	0	0	0	0	0	1
25	0	0	0	0	1	1	0	0	0	0	1	1	2
26	0	0	2	0	0	2	0	0	0	0	0	0	2
27	0	0	0	0	1	1	0	0	0	0	1	1	2
28	0	0	0	0	1	1	0	0	0	0	0	0	1
29	0	0	0	0	0	0	0	0	0	0	1	1	1
30	0	0	0	0	1	1	0	0	0	0	0	0	1
32	0	0	0	1	0	1	0	0	0	0	0	0	1
33	0	0	0	1	0	1	0	0	0	0	0	0	1
34	0	0	0	0	1	1	0	0	0	0	0	0	1
35	0	0	0	0	0	0	0	0	0	0	1	1	1
36	0	0	0	0	2	2	0	0	0	0	0	0	2
38	0	0	0	0	2	2	0	0	0	0	0	0	2
42	0	0	0	0	1	1	0	0	0	0	0	0	1
46	0	0	0	0	0	0	0	0	0	0	1	1	1
Totals	27	11	22	13	14	87	24	3	9	12	6	54	141

APPENDIX D

Daily counts of salmon at the Meziadin fishway and inseason sockeye escapement estimates,
1996.

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 1996.

Date	Adults		Jacks		All sockeye		No. of tags counted		Recovered tags	Portion recovered	Portion daily	Portion of adults tagged Cum.
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.				
5-Jul	7	7	0	0	7	7	1	1	1	1	1.00	0.038
6-Jul	5	12	0	0	5	12	0	1	0	0	0.00	0.019
7-Jul	26	38	0	0	26	38	1	2	1	1	1.00	0.053
8-Jul	123	161	1	1	124	162	1	3	0	0	0.008	0.015
9-Jul	485	646	3	4	488	650	7	10	6	6	0.86	0.014
10-Jul	310	956	0	4	310	960	1	11	0	0	0.00	0.003
11-Jul	289	1,245	1	5	290	1,250	3	14	3	3	1.00	0.011
12-Jul	1,368	2,613	1	6	1,369	2,619	18	32	14	14	0.78	0.013
13-Jul	2,526	5,139	1	7	2,527	5,146	18	50	16	16	0.89	0.007
14-Jul	3,718	8,857	0	7	3,718	8,864	36	86	30	30	0.83	0.010
15-Jul	2,336	11,193	0	7	2,336	11,200	39	125	25	25	0.64	0.017
16-Jul	6,358	17,551	0	7	6,358	17,558	70	195	41	41	0.59	0.011
17-Jul	12,317	29,868	1	8	12,318	29,876	221	416	95	95	0.43	0.018
18-Jul	9,491	39,359	2	10	9,493	39,369	214	630	61	61	0.29	0.023
19-Jul	5,000	44,359	5	15	5,005	44,374	124	754	34	34	0.27	0.025
20-Jul	2,007	46,366	0	15	2,007	46,381	44	798	31	31	0.70	0.022
21-Jul	1,261	47,627	0	15	1,261	47,642	22	820	18	18	0.82	0.017
22-Jul	1,863	49,490	0	15	1,863	49,505	55	875	44	44	0.80	0.030
23-Jul	3,153	52,643	0	15	3,153	52,658	73	948	53	53	0.73	0.023
24-Jul	3,296	55,939	9	24	3,305	55,963	107	1,055	76	76	0.71	0.032
25-Jul	2,632	58,571	11	35	2,643	58,606	75	1,130	48	48	0.64	0.028
26-Jul	2,136	60,707	8	43	2,144	60,750	55	1,185	44	44	0.80	0.026
27-Jul	2,337	63,044	9	52	2,346	63,096	49	1,234	32	32	0.65	0.021
28-Jul	2,278	65,322	8	60	2,286	65,382	54	1,288	18	18	0.33	0.024
29-Jul	1,957	67,279	7	67	1,964	67,346	42	1,330	14	14	0.33	0.021
30-Jul	1,298	68,577	15	82	1,313	68,659	24	1,354	10	10	0.42	0.018
31-Jul	1,629	70,206	13	95	1,642	70,301	41	1,395	24	24	0.59	0.025
1-Aug	1,535	71,741	8	103	1,543	71,844	25	1,420	14	14	0.56	0.016
2-Aug	2,072	73,813	13	116	2,085	73,929	43	1,463	28	28	0.65	0.021
3-Aug	3,032	76,845	11	127	3,043	76,972	61	1,524	48	48	0.79	0.020
4-Aug	3,058	79,903	18	145	3,076	80,048	68	1,592	30	30	0.44	0.022

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 1996.

Date	Adults		Jacks		All sockeye		No. of tags counted		Recovered tags	Portion recovered	Portion daily	Portion of adults tagged Cum.
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.				
5-Aug	2,613	82,516	27	172	2,640	82,688	81	1,673	29	0.36	0.031	0.020
6-Aug	3,233	85,749	26	198	3,259	85,947	80	1,753	36	0.45	0.025	0.020
7-Aug	3,329	89,078	23	221	3,352	89,299	86	1,839	32	0.37	0.026	0.021
8-Aug	2,998	92,076	50	271	3,048	92,347	77	1,916	54	0.70	0.026	0.021
9-Aug	2,706	94,782	34	305	2,740	95,087	60	1,976	27	0.45	0.022	0.021
10-Aug	3,254	98,036	34	339	3,288	98,375	41	2,017	31	0.76	0.013	0.021
11-Aug	4,761	102,797	57	396	4,818	103,193	69	2,086	46	0.67	0.014	0.020
12-Aug	4,589	107,386	46	442	4,635	107,828	79	2,165	57	0.72	0.017	0.020
13-Aug	2,854	110,240	42	484	2,896	110,724	44	2,209	34	0.77	0.015	0.020
14-Aug	3,446	113,686	59	543	3,505	114,229	40	2,249	32	0.80	0.012	0.020
15-Aug	7,114	120,800	99	642	7,213	121,442	82	2,331	60	0.73	0.012	0.019
16-Aug	5,361	126,161	108	750	5,469	126,911	69	2,400	44	0.64	0.013	0.019
17-Aug	7,760	133,921	92	842	7,852	134,763	82	2,482	52	0.63	0.011	0.019
18-Aug	5,960	139,881	90	932	6,050	140,813	66	2,548	17	0.26	0.011	0.018
19-Aug	4,754	144,635	76	1,008	4,830	145,643	42	2,590	20	0.48	0.009	0.018
20-Aug	3,506	148,141	60	1,068	3,566	149,209	38	2,628	24	0.63	0.011	0.018
21-Aug	2,491	150,632	45	1,113	2,536	151,745	27	2,655	18	0.67	0.011	0.018
22-Aug	2,952	153,584	50	1,163	3,002	154,747	26	2,681	22	0.85	0.009	0.017
23-Aug	1,917	155,501	27	1,190	1,944	156,691	15	2,696	9	0.60	0.008	0.017
24-Aug	751	156,252	16	1,206	767	157,458	7	2,703	6	0.86	0.009	0.017
25-Aug	1,116	157,368	27	1,233	1,143	158,601	14	2,717	12	0.86	0.013	0.017
26-Aug	2,688	160,056	40	1,273	2,728	161,329	20	2,737	19	0.95	0.007	0.017
27-Aug	2,505	162,561	49	1,322	2,554	163,883	29	2,766	24	0.83	0.012	0.017
28-Aug	1,839	164,400	45	1,367	1,884	165,767	20	2,786	18	0.90	0.011	0.017
29-Aug	3,116	167,516	61	1,428	3,177	168,944	29	2,815	27	0.93	0.009	0.017
30-Aug	1,722	169,238	42	1,470	1,764	170,708	27	2,842	19	0.70	0.016	0.017
31-Aug	1,049	170,287	18	1,488	1,067	171,775	16	2,858	11	0.69	0.015	0.017
1-Sep	1,356	171,643	32	1,520	1,388	173,163	14	2,872	13	0.93	0.010	0.017
2-Sep	957	172,600	21	1,541	978	174,141	11	2,883	9	0.82	0.011	0.017
3-Sep	816	173,416	17	1,558	833	174,974	24	2,907	22	0.92	0.029	0.017
4-Sep	933	174,349	12	1,570	945	175,919	12	2,919	10	0.83	0.013	0.017

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 1996.

Date	Adults		Jacks		All sockeye		No. of tags counted		Recovered tags	Portion recovered	Portion daily	Portion of adults tagged Cum.
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.				
5-Sep	1,071	175,420	14	1,584	1,085	177,004	9	2,928	5	0.56	0.008	0.017
6-Sep	871	176,291	13	1,597	884	177,888	22	2,950	21	0.95	0.025	0.017
7-Sep	314	176,605	5	1,602	319	178,207	6	2,956	5	0.83	0.019	0.017
8-Sep	444	177,049	8	1,610	452	178,659	10	2,966	9	0.90	0.023	0.017
9-Sep	346	177,395	1	1,611	347	179,006	2	2,968	2	1.00	0.006	0.017
10-Sep	609	178,004	15	1,626	624	179,630	9	2,977	8	0.89	0.015	0.017
11-Sep	439	178,443	10	1,636	449	180,079	7	2,984	7	1.00	0.016	0.017
12-Sep	508	178,951	10	1,646	518	180,597	5	2,989	5	1.00	0.010	0.017
13-Sep	339	179,290	6	1,652	345	180,942	5	2,994	5	1.00	0.015	0.017
14-Sep	282	179,572	3	1,655	285	181,227	4	2,998	4	1.00	0.014	0.017
15-Sep	328	179,900	7	1,662	335	181,562	5	3,003	5	1.00	0.015	0.017
16-Sep	404	180,304	6	1,668	410	181,972	6	3,009	6	1.00	0.015	0.017
17-Sep	285	180,589	9	1,677	294	182,266	4	3,013	4	1.00	0.014	0.017
18-Sep	229	180,818	4	1,681	233	182,499	6	3,019	6	1.00	0.026	0.017
19-Sep	231	181,049	6	1,687	237	182,736	5	3,024	5	1.00	0.022	0.017
20-Sep	153	181,202	1	1,688	154	182,890	1	3,025	1	1.00	0.007	0.017
21-Sep	130	181,332	2	1,690	132	183,022	3	3,028	3	1.00	0.023	0.017
22-Sep	51	181,383	0	1,690	51	183,073	0	3,028	0	0.000	0.017	
23-Sep	89	181,472	0	1,690	89	183,162	0	3,028	0	0.000	0.017	
24-Sep	85	181,557	1	1,691	86	183,248	0	3,028	0	0.000	0.017	
25-Sep	38	181,595	0	1,691	38	183,286	0	3,028	0	0.000	0.017	
26-Sep	194	181,789	11	1,702	205	183,491	4	3,032	0	0.00	0.021	0.017
27-Sep	51	181,840	0	1,702	51	183,542	1	3,033	0	0.00	0.020	0.017
Total									1,794			

Table D-2. Daily counts of chinook, coho, steelhead, and pink salmon through the Meziadin fishway, 1996.

Date	Chinook			Coho			Steelhead			Pink		
	Adults	Daily	Cum.	Tags	Daily	Cum.	Jacks	Daily	Cum.	Tags	Daily	Cum.
5-Jul	0	0	0	0.000	0	0	0	0	0	0.000	0	0
6-Jul	0	0	0	0.000	0	0	0	0	0	0.000	0	0
7-Jul	0	0	0	0.000	0	0	0	0	0	0.000	0	0
8-Jul	2	2	0	0.000	0	0	0	0	0	0.000	0	0
9-Jul	1	3	0	0.000	0	0	0	0	0	0.000	0	0
10-Jul	0	3	0	0.000	0	0	0	0	0	0.000	0	0
11-Jul	0	3	0	0.000	0	0	0	0	0	0.000	0	0
12-Jul	1	4	0	0.000	0	0	0	0	0	0.000	0	0
13-Jul	1	5	0	0.000	0	0	0	0	0	0.000	0	0
14-Jul	1	6	0	0.000	1	1	0	0	0	0.000	0	0
15-Jul	3	9	0	0.000	0	1	0	0	0	0.000	0	0
16-Jul	1	10	0	0.000	0	1	0	0	0	0.000	0	0
17-Jul	6	16	0	0.000	0	1	0	0	0	0.000	0	0
18-Jul	5	21	0	0.000	0	1	0	0	0	0.000	0	0
19-Jul	8	29	0	0.000	0	1	0	0	0	0.000	0	0
20-Jul	5	34	0	0.000	0	1	0	0	0	0.000	0	0
21-Jul	0	34	0	0.000	0	1	0	0	0	0.000	0	0
22-Jul	0	34	0	0.000	0	1	0	0	0	0.000	0	0
23-Jul	2	36	0	0.000	0	1	0	0	0	0.000	0	0
24-Jul	0	36	0	0.000	0	1	0	0	0	0.000	0	0
25-Jul	1	37	0	0.000	0	1	0	0	0	0.000	0	0
26-Jul	7	44	0	0.000	0	1	0	0	0	0.000	0	0
27-Jul	6	50	0	0.000	0	1	0	0	0	0.000	0	0
28-Jul	12	62	0	0.000	0	1	0	0	0	0.000	0	0
29-Jul	12	74	0	0.000	0	1	0	0	0	0.000	0	0
30-Jul	18	92	0	0.000	0	1	0	0	0	0.000	0	0
31-Jul	14	106	0	0.000	0	1	0	0	0	0.000	0	0
1-Aug	9	115	0	0.000	1	2	0	0	0	0.000	0	0
2-Aug	3	118	0	0.000	1	3	0	0	0	0.000	0	0
3-Aug	3	121	0	0.000	0	3	0	0	0	0.000	0	0

Table D-2. Daily counts of chinook, coho, steelhead, and pink salmon through the Meziadin fishway, 1996.

Date	Chinook						Coho						Steelhead						Pink										
	Adults		Daily		Tags		Cumulative		Jacks		Adults		Tags		Portion tagged		Jacks		Daily		Cum.		Steelhead		Daily		Cum.		
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	
4-Aug	7	128	0	0	0.000	0	3	0	0	0	0.000	0.000	0	0	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	
5-Aug	6	134	0	0	0.000	0	3	0	0	0	0.000	0.000	0	0	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	
6-Aug	4	138	0	0	0.000	0	1	4	0	0	0.000	0.000	0	0	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	
7-Aug	16	154	0	0	0.000	0	4	0	0	0	0.000	0.000	0	0	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	
8-Aug	9	163	0	0	0.000	0	2	6	0	0	0.000	0.000	0	0	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	
9-Aug	2	165	0	0	0.000	0	6	0	0	0	0.000	0.000	0	0	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	
10-Aug	11	176	0	0	0.000	0	6	0	0	0	0.000	0.000	0	0	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	
11-Aug	8	184	0	0	0.000	0	2	8	0	0	0.000	0.000	0	0	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	
12-Aug	7	191	0	0	0.000	0	8	0	0	0	0.000	0.000	0	0	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	
13-Aug	3	194	0	0	0.000	0	1	9	1	1	0	0.000	0.000	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
14-Aug	2	196	0	0	0.000	0	2	11	2	3	0	0.000	0.000	0	0	0.000	0	1	0	0	0	0	0	0	0	0	0		
15-Aug	2	198	0	0	0.000	0	1	12	7	10	0	0.000	0.000	0	0	0.000	0	1	0	0	0	0	0	0	0	0	0		
16-Aug	4	202	0	0	0.000	0	0	12	4	14	0	0.000	0.000	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
17-Aug	10	212	0	0	0.000	0	0	12	24	38	0	0.000	0.000	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	
18-Aug	13	225	2	2	0.009	0	0	12	12	50	0	0.000	0.000	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	
19-Aug	10	235	1	3	0.013	1	13	9	59	0	0.000	0.000	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20-Aug	6	241	0	3	0.012	3	16	16	75	0	0.000	0.000	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21-Aug	2	243	0	3	0.012	0	16	23	98	0	0.000	0.000	6	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22-Aug	2	245	0	3	0.012	0	16	34	132	1	1	0.029	0.008	4	13	1	0	0	0	0	0	0	0	0	0	0	0	0	
23-Aug	3	248	0	3	0.012	0	16	29	161	0	1	0.000	0.006	0	13	0	1	0	0	0	0	0	0	0	0	0	0	0	
24-Aug	1	249	0	3	0.012	1	17	16	177	0	1	0.000	0.006	0	13	0	1	0	0	0	0	0	0	0	0	0	0	0	
25-Aug	0	249	0	3	0.012	0	17	22	199	0	1	0.000	0.005	1	14	0	1	0	0	0	0	0	0	0	0	0	0	0	
26-Aug	7	256	0	3	0.012	0	17	37	236	0	1	0.000	0.004	4	18	0	1	0	0	0	0	0	0	0	0	0	0	0	
27-Aug	2	258	0	3	0.012	0	17	70	306	2	3	0.029	0.010	6	24	0	1	0	0	0	0	0	0	0	0	0	0	0	
28-Aug	6	264	0	3	0.011	0	17	42	348	0	3	0.000	0.009	3	27	0	1	0	0	0	0	0	0	0	0	0	0	0	
29-Aug	11	275	1	4	0.015	0	17	96	444	0	3	0.000	0.007	5	32	0	1	0	0	0	0	0	0	0	0	0	0	0	
30-Aug	19	294	1	5	0.017	1	18	59	503	1	4	0.017	0.008	3	35	0	1	0	0	0	0	0	0	0	0	0	0	0	
31-Aug	5	299	0	5	0.017	0	18	56	559	0	4	0.000	0.007	1	36	0	1	0	0	0	0	0	0	0	0	0	0	0	
1-Sep	7	306	0	5	0.016	0	18	73	632	0	4	0.000	0.006	2	38	0	1	0	0	0	0	0	0	0	0	0	0	0	
2-Sep	7	313	0	5	0.016	0	18	110	742	1	5	0.009	0.007	3	41	0	1	0	0	0	0	0	0	0	0	0	0	0	0

Table D-2. Daily counts of chinook, coho, steelhead, and pink salmon through the Meziadin fishway, 1996.

Date	Chinook				Coho				Steelhead				Pink					
	Adults	Daily	Cum.	Tags	Cumulative	portion tagged	Daily	Cum.	Adults	Daily	Cum.	Tags	Daily	Cum.	Jacks	Daily	Cum.	
3-Sep	10	323	0	5	0.015	0	18	95	837	1	6	0.011	0.007	2	43	0	1	0
4-Sep	1	324	0	5	0.015	0	18	84	921	0	6	0.000	0.007	1	44	0	1	0
5-Sep	1	325	0	5	0.015	0	18	82	1,003	2	8	0.024	0.008	0	44	0	1	0
6-Sep	3	328	1	6	0.018	0	18	67	1,070	0	8	0.000	0.007	0	44	0	1	0
7-Sep	3	331	0	6	0.018	0	18	39	1,109	1	9	0.026	0.008	0	44	0	1	0
8-Sep	0	331	0	6	0.018	0	18	61	1,170	1	10	0.016	0.009	0	44	0	1	0
9-Sep	6	337	1	7	0.021	0	18	51	1,221	0	10	0.000	0.008	0	44	0	1	0
10-Sep	0	337	0	7	0.021	0	18	78	1,299	0	10	0.000	0.008	1	45	0	1	0
11-Sep	3	340	0	7	0.021	0	18	68	1,367	0	10	0.000	0.007	0	45	0	1	0
12-Sep	1	341	0	7	0.021	0	18	76	1,443	2	12	0.026	0.008	1	46	0	1	0
13-Sep	0	341	0	7	0.021	0	18	74	1,517	2	14	0.027	0.009	0	46	0	1	0
14-Sep	3	344	0	7	0.020	0	18	52	1,569	0	14	0.000	0.009	0	46	0	1	0
15-Sep	0	344	0	7	0.020	0	18	40	1,609	0	14	0.000	0.009	0	46	0	1	0
16-Sep	0	344	0	7	0.020	0	18	81	1,690	2	16	0.025	0.009	3	49	0	1	0
17-Sep	0	344	0	7	0.020	0	18	50	1,740	0	16	0.000	0.009	2	51	1	2	0
18-Sep	1	345	0	7	0.020	0	18	50	1,790	1	17	0.020	0.009	0	51	1	3	0
19-Sep	0	345	0	7	0.020	0	18	39	1,829	1	18	0.026	0.010	0	51	1	4	0
20-Sep	1	346	0	7	0.020	0	18	23	1,852	1	19	0.043	0.010	0	51	1	5	0
21-Sep	1	347	0	7	0.020	0	18	25	1,877	0	19	0.000	0.010	0	51	0	5	0
22-Sep	0	347	0	7	0.020	0	18	13	1,890	1	20	0.077	0.011	0	51	3	8	0
23-Sep	0	347	0	7	0.020	0	18	14	1,904	1	21	0.071	0.011	0	51	0	8	0
24-Sep	0	347	0	7	0.020	0	18	12	1,916	1	22	0.083	0.011	0	51	0	8	0
25-Sep	0	347	0	7	0.020	0	18	6	1,922	1	23	0.167	0.012	0	51	0	8	0
26-Sep	1	348	0	7	0.020	0	18	19	1,941	0	23	0.000	0.012	1	52	0	8	0
27-Sep	0	348	0	7	0.020	0	18	10	1,951	0	23	0.000	0.012	0	52	0	8	0

Table D-3. The data used to derive the inseason sockeye salmon escapement estimates for the Nass River, 1996. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals. The catches in bold were estimates.

Date	Fishwheel Catch			Fishwheel Tags			Grease Harbour (FW3&4)			Estimated escapement			
	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Cum. catch	Adj. Recaps	Mark-Recap.	Expansion factor (fw1;1&2)
29-May	0	0	0	0	0	0	0	0	0%	0	0	0	0
30-May	0	1	1	1	1	0	0	0	0%	0	0	0	0
31-May	0	4	4	5	5	0	2	2	50%	0	0	0	0
1-Jun	0	0	0	5	0	0	0	0	0%	0	0	0	0
2-Jun	0	0	0	5	0	0	0	0	0%	0	0	0	0
3-Jun	0	3	3	8	0	0	3	3	100%	0	0	0	0
4-Jun	0	0	0	8	0	0	0	0	0%	0	0	0	0
5-Jun	0	0	0	8	0	0	0	0	0%	0	0	0	0
6-Jun	0	0	0	8	0	0	0	0	0%	0	0	0	0
7-Jun	0	0	0	8	0	0	0	0	0%	0	0	0	0
8-Jun	0	0	0	8	0	0	0	0	0%	0	0	0	0
9-Jun	0	0	0	8	0	0	0	0	0%	0	0	0	0
10-Jun	0	0	0	8	0	0	0	0	0%	0	0	0	0
11-Jun	0	22	22	30	0	21	21	21	95%	0	0	0	0
12-Jun	0	29	29	59	0	28	28	54	97%	0	0	0	0
13-Jun	0	27	27	86	0	26	26	80	96%	0	0	0	0
14-Jun	16	40	56	142	13	38	51	131	91%	0	0	0	2,150
15-Jun	16	31	47	189	15	27	42	173	89%	0	0	0	2,950
16-Jun	6	25	31	220	6	23	29	202	94%	0	0	0	3,750
17-Jun	15	23	38	258	13	23	36	238	95%	0	0	0	4,050
18-Jun	17	46	63	321	16	44	60	298	95%	0	0	0	4,800
19-Jun	24	76	100	421	24	74	98	396	98%	0	0	0	5,650
20-Jun	61	102	163	584	59	98	157	553	96%	0	0	0	6,850
21-Jun	41	118	159	743	38	49	87	640	55%	0	0	0	9,900
22-Jun	34	24	58	801	6	10	16	656	28%	0	0	0	11,950
23-Jun	19	15	34	835	6	6	12	668	35%	0	0	0	13,650
24-Jun	6	7	13	848	0	0	0	668	0%	0	0	0	14,600
25-Jun	0	0	0	848	0	0	0	668	0%	0	0	0	14,900
26-Jun	0	0	0	848	0	0	0	668	0%	0	0	0	14,900
27-Jun	0	0	0	848	0	0	0	668	0%	0	0	0	14,900
28-Jun	0	0	0	848	0	0	0	668	0%	0	0	0	14,900
29-Jun	96	216	312	1160	11	33	44	712	14%	0	0	0	19,334
30-Jun	650	699	1349	2509	117	198	315	1027	23%	0	0	0	41,818

Table D-3. The data used to derive the inseason sockeye salmon escapement estimates for the Nass River, 1996. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals. The catches in bold were estimates.

Date	Fishwheel Catch						Fishwheel Tags						Grease Harbour (FW3&4)						Estimated escapement		
	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Catch	Cum. catch	Raw recaps	Cum. recaps	Adj. recaps	Exp. Factor	Mark-Recap.	Factor	expansion factor (fw1,1;&2)			
1-Jul	872	709	1581	4090	272	197	469	1496	30%	0	0	0	0	0	0	0	68,168				
2-Jul	516	376	892	4982	147	112	259	1755	29%	0	0	0	0	0	0	0	83,035				
3-Jul	140	155	295	5277	48	41	89	1844	30%	116	116	2	2	6	6	15	87,952				
4-Jul	136	191	327	5604	45	57	102	1946	31%	188	304	5	7	15	12	12	93,402				
5-Jul	43	111	154	5758	24	50	74	2020	48%	166	470	3	10	16	10	10	95,969				
6-Jul	67	93	160	5918	22	45	67	2087	42%	306	776	5	15	20	11	11	98,635				
7-Jul	51	117	168	6086	3	37	40	2127	24%	136	912	7	22	19	9	9	101,435				
8-Jul	57	108	165	6251	18	27	45	2172	27%	149	1061	5	27	7	10	10	104,185				
9-Jul	43	154	197	6448	22	79	101	2273	51%	82	1143	2	29	2	10	10	107,469				
10-Jul	40	90	130	6578	10	31	41	2314	32%	10	1153	2	31	3	10	10	109,636				
11-Jul	121	392	513	7091	39	120	159	2473	31%	0	1153	0	31	0	9	9	118,186				
12-Jul	168	296	464	7555	67	86	153	2626	33%	0	1153	0	31	0	15	15	125,919				
13-Jul	125	195	320	7875	33	45	78	2704	24%	147	1300	5	36	18	8	8	131,253				
14-Jul	63	173	236	8111	0	69	69	2773	29%	286	1586	6	42	30	7	7	135,186				
15-Jul	95	163	258	8369	28	57	85	2858	33%	155	1741	6	48	25	6	6	139,486				
16-Jul	109	145	254	8623	25	38	63	2921	25%	230	1971	5	53	17	7	7	143,720				
17-Jul	168	263	431	9054	39	63	102	3023	24%	180	2151	5	58	17	7	7	148,249				
18-Jul	135	203	338	9392	52	48	100	3123	30%	192	2343	3	61	9	9	9	153,130				
19-Jul	179	151	330	9722	42	30	72	3195	22%	162	2505	1	62	3	10	10	156,536				
20-Jul	67	110	177	9899	30	29	59	3254	33%	116	2621	0	62	0	15	15	162,037				
21-Jul	73	131	204	10103	10	45	55	3309	27%	147	2768	2	64	8	17	17	143,720				
22-Jul	120	191	311	10414	46	44	90	3399	29%	276	3044	8	72	29	14	14	165,256				
23-Jul	108	120	228	10642	44	27	71	3470	24%	137	4011	5	95	15	10	10	173,570				
24-Jul	77	139	216	10858	23	38	61	3531	28%	300	3683	3	80	10	14	14	167,927				
25-Jul	145	177	322	11180	40	46	86	3617	27%	191	3874	10	90	32	10	10	177,370				
26-Jul	146	218	364	11544	21	66	87	3704	24%	137	4011	5	95	15	10	10	186,337				
27-Jul	56	157	213	11757	43	43	86	3790	40%	117	4128	0	95	0	12	12	192,404				
28-Jul	66	136	202	11959	23	44	67	3857	33%	99	4227	0	95	0	12	12	195,954				
29-Jul	84	129	213	12172	20	47	67	3924	31%	66	4293	1	96	4	10	10	180,970				
30-Jul	86	134	220	12392	0	56	56	3980	25%	23	4316	0	96	0	10	10	199,321				
31-Jul	139	135	274	12666	51	45	96	4076	35%	49	4365	2	98	7	10	10	202,871				
1-Aug	102	246	348	13014	36	76	112	4188	32%	201	4566	4	102	13	10	10	216,904				
2-Aug	133	212	345	13359	13	92	105	4293	30%	206	4772	5	107	14	12	12	222,654				

Table D-3. The data used to derive the inseason sockeye salmon escapement estimates for the Nass River, 1996. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals. The catches in bold were estimates.

Date	Fishwheel Catch						Fishwheel Tags						Grease Harbour (FW3&4)						Estimated escapement		
	Daily	Daily	Cum.	Daily	Daily	Total	FW1	FW2	Total	Cum.	Prop.	Catch	Cum.	Raw	Cum.	Adj.	Exp.	Mark-	Recap.	expansion	
																				factor (fw1; 1&2)	
3-Aug	139	222	361	13720	0	66	4359	18%	325	5097	7	114	24	11	207,124	228,671					
4-Aug	106	121	227	13947	0	66	4395	16%	294	5391	3	117	11	12	211,195	232,455					
5-Aug	77	127	204	14151	21	29	50	4445	25%	302	5693	5	122	19	13	216,251	235,855				
6-Aug	35	139	174	14325	16	32	48	4493	28%	231	5924	3	125	11	14	220,049	238,755				
7-Aug	37	63	100	14425	4	9	13	4506	13%	215	6139	0	125	0	17	222,341	240,421				
8-Aug	26	44	70	14495	9	5	14	4520	20%	119	6258	2	127	6	19	224,687	241,588				
9-Aug	46	44	90	14585	7	5	12	4532	13%	80	6338	2	129	6	18	228,144	243,088				
10-Aug	21	62	83	14668	15	15	30	4562	36%	140	6478	1	130	3	25	230,400	244,472				
11-Aug	44	65	109	14777	7	32	39	4601	36%	149	6627	0	130	0	22	233,097	246,288				
12-Aug	48	51	99	14876	6	26	32	4633	32%	139	6766	1	131	3	23	235,829	247,938				
13-Aug	26	34	60	14936	17	2	19	4652	32%	123	6889	0	131	0	34	237,082	248,938				
14-Aug	22	23	45	14981	2	1	3	4655	7%	77	6966	1	132	4	38	237,813	249,688				
15-Aug	24	14	38	15019	18	8	26	4681	68%	49	7015	1	133	4	27	238,352	250,322				
16-Aug	12	14	26	15045	1	10	11	4692	42%	38	7053	2	135	6	25	238,630	250,755				
17-Aug	27	54	15099	16	8	24	4716	44%	64	7117	1	136	3	28	239,178	251,655					
18-Aug	21	15	36	15135	5	14	19	4735	53%	55	7172	3	139	7	21	239,573	252,255				
19-Aug	20	27	47	15182	4	16	20	4755	43%	33	7205	1	140	2	16	240,246	253,038				
20-Aug	22	36	58	15240	3	0	3	4758	5%	47	7252	1	141	2	14	241,130	254,005				
21-Aug	9	18	27	15267	0	2	2	4760	7%	36	7288	1	142	2	11	241,815	254,455				
22-Aug	21	16	37	15304	4	2	6	4766	16%	42	7330	1	143	3	10	243,183	255,072				
23-Aug	12	14	26	15330	3	4	7	4773	27%	22	7352	0	143	0	11	244,529	255,505				
24-Aug	10	13	23	15353	3	5	8	4781	35%	29	7381	0	143	0	14	246,975	255,888				
25-Aug	3	15	18	15371	2	2	4	4785	22%	35	7416	0	143	0	15	248,077	256,188				
26-Aug	10	19	29	15400	3	3	6	4791	21%	46	7462	0	143	0	25	250,072	256,672				
27-Aug	13	18	31	15431	2	2	4	4795	13%	79	7541	0	143	0	37	252,159	257,188				
28-Aug	17	19	36	15467	6	0	6	4801	17%	40	7581	0	143	0	52	254,512	257,788				
29-Aug	9	8	17	15484	2	1	3	4804	18%	61	7642	0	143	0	67	255,987	258,072				
30-Aug	9	11	20	15504	3	1	4	4808	20%	26	7668	1	144	4	61	255,319	258,405				
31-Aug	6	17	23	15527	4	4	8	4816	35%	64	7732	0	144	0	69	255,672	258,789				
1-Sep	6	17	23	15550	2	3	5	4821	22%	21	7753	0	144	0	67	255,987	259,172				
2-Sep	9	5	14	15564	0	2	2	4823	14%	24	7777	0	144	0	65	256,256	259,405				
3-Sep	8	19	27	15591	0	4	4	4827	15%	18	7795	1	145	5	28	256,776	259,855				
4-Sep	8	14	22	15613	0	0	0	4827	0%	28	7823	1	146	4	17	257,200	260,222				

Table D-3. The data used to derive the inseason sockeye salmon escapement estimates for the Nass River, 1996. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals. The catches in bold were estimates.

Date	Fishwheel Catch			Fishwheel Tags			Grease Harbour (FW3&4)			Estimated escapement							
	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Catch	Cum. catch	Raw recaps	Cum. recaps	Adj. Recaps	Exp. Factor	Mark-Recap.	Expansion factor (fw1;1&2)
5-Sep	5	1	6	15619	0	0	0	4827	0%	17	7840	0	146	0	15	257,316	260,322
6-Sep	3	3	3	15622	1	0	1	4828	33%	32	7872	0	146	0	14	257,373	260,372
7-Sep	1	1	1	15623	0	0	0	4828	0%	14	7886	0	146	0	19	257,393	260,389
8-Sep	1	1	1	15624	0	0	0	4828	0%	1	7887	0	146	0	19	257,412	260,405
9-Sep	4	4	4	15628	2	0	2	4830	50%	0	7887	0	146	0	19	257,412	260,472
10-Sep	0	0	0	15628	0	0	0	4830	0%	0	7887	0	146	0	19	257,412	260,472
11-Sep	0	0	0	15628	0	0	0	4830	0%	0	7887	0	146	0	19	257,412	260,472
12-Sep	0	0	0	15628	0	0	0	4830	0%	0	7887	0	146	0	19	257,412	260,472
13-Sep	0	0	0	15628	0	0	0	4830	0%	0	7887	0	146	0	19	257,412	260,472
Total	6448	9180	15628	1855	2975	4830	7887	146									

APPENDIX E

Age and length data from fish captured in the Nass River fishwheels, 1996.

Table E-1. Numbers of fish by age and length for chinook salmon sampled at the Nass River fishwheels, 1996.

Nose-fork length (cm)	Numbers of fish by age class								Total aged	Fish sampled but not aged ^a					Total not aged	Percent not aged	
	31	32	41	42	43	51	52	62	63	72	1M	2M	3M	4M	RG		
40	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
41	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
46	0	1	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	100
54	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
57	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
58	0	0	0	1	0	0	1	0	0	0	2	0	0	0	0	0	0
59	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0
60	1	0	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0
61	0	0	0	6	0	0	0	0	0	0	6	0	0	0	0	0	0
62	0	0	0	4	0	0	0	0	0	0	4	0	0	0	0	1	20
63	0	0	0	3	0	0	0	0	0	0	3	0	0	0	0	1	25
64	0	0	0	3	0	0	0	0	0	0	3	0	1	0	0	1	25
65	0	0	0	3	0	0	1	0	0	0	4	0	1	0	0	1	20
66	0	0	0	7	0	0	0	0	0	0	7	0	1	0	0	1	13
67	0	0	0	9	0	0	0	0	0	0	9	0	1	0	0	1	10
68	0	0	0	1	0	0	0	0	0	0	1	0	3	0	0	3	75
69	0	0	0	7	0	0	0	0	0	0	7	0	1	0	0	1	13
70	0	0	0	10	0	0	0	0	0	0	10	0	1	0	0	1	9
71	0	0	0	8	0	0	2	0	0	0	10	0	0	0	0	0	0
72	0	0	0	10	0	0	0	0	0	0	10	0	1	0	0	1	9
73	1	0	0	2	0	0	1	0	0	0	4	0	2	0	0	2	33
74	0	0	0	5	0	0	2	1	0	0	8	0	1	1	0	2	20
75	0	0	0	3	0	0	3	0	0	0	6	0	2	0	0	2	25
76	0	0	0	2	0	0	3	0	0	0	5	0	0	1	0	1	17
77	0	0	0	2	0	0	0	0	0	0	2	0	1	0	0	1	33
79	0	0	1	0	0	0	2	0	0	0	3	0	0	0	0	0	0
80	0	0	0	0	0	0	5	0	0	0	5	0	0	1	0	1	17
81	0	0	0	1	0	0	5	0	0	0	6	0	0	3	0	3	33
82	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	1	33
83	0	0	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0
84	0	0	0	1	0	0	5	0	0	0	6	0	0	0	0	0	0
85	0	0	0	0	0	0	14	0	0	0	14	0	0	0	0	0	0
86	0	0	1	1	0	0	10	0	0	0	12	0	0	5	1	8	40
87	0	0	0	0	0	0	11	0	0	0	11	1	0	3	0	1	5
88	0	0	0	0	0	0	9	0	0	0	9	0	0	4	1	1	6
89	0	0	0	0	0	1	16	0	0	0	17	0	0	2	0	2	19
90	0	0	0	1	0	0	13	0	0	0	14	0	0	2	0	2	13
91	0	0	0	1	0	0	10	0	0	0	11	0	0	2	1	0	3
92	0	0	0	0	0	0	15	0	0	0	15	0	0	0	0	1	6
93	0	0	0	0	0	0	9	1	0	0	10	0	0	0	0	0	0
94	0	0	0	0	0	0	7	1	0	0	8	0	0	0	0	2	20
95	0	0	0	0	0	0	6	1	0	0	7	0	0	0	0	1	13

Table E-1. Numbers of fish by age and length for chinook salmon sampled at the Nass River fishwheels, 1996.

Nose-fork length (cm)	Numbers of fish by age class								Total aged	Fish sampled but not aged ^a					Total not aged	Percent not aged	
	31	32	41	42	43	51	52	62	63	72	1M	2M	3M	4M	RG		
96	0	0	0	0	0	0	3	1	1	0	5	0	0	1	0	0	17
97	0	0	0	0	0	0	4	2	0	0	6	0	0	0	1	1	25
98	0	0	0	0	0	0	3	2	0	0	5	0	0	0	0	0	0
99	0	0	0	0	0	0	1	2	0	0	3	0	0	2	1	0	50
101	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0
102	0	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	0
103	0	0	0	0	0	0	3	2	0	0	5	0	0	0	0	0	0
104	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
106	0	0	0	0	0	0	1	0	0	1	2	0	0	0	1	0	33
108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	100
110	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
111	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
118	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
Totals	2	3	3	98	1	1	173	18	1	1	301	2	16	28	7	13	66
Percent	0.7	1.0	1.0	32.6	0.3	0.3	57.5	6.0	0.3	0.3							18

^a Age error codes: M refers to marine annuli, the numbers refer to the number of marine annuli and RG is regenerated scale.

Table E-2. Numbers of fish by age and length for sockeye salmon sampled at the Nass River fishwheels, 1996.

Nose-fork length (cm)	Numbers of fish by age class						Number of fish sampled but could not be aged ^a						Percent not aged					
	31	41	42	43	52	53	62	63	64	Total	1M	2M	3M	RG	S2	S3	Total	
44	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	100
47	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	2	0	2	1	1	1	2	0	0	8	0	0	0	0	0	0	0	0
51	0	0	2	1	0	2	0	0	0	5	0	1	0	1	0	0	2	29
52	1	0	4	0	0	2	0	0	0	7	0	0	0	0	0	0	0	0
53	1	0	2	0	1	7	0	0	0	11	0	0	0	0	0	0	0	0
54	0	0	4	0	0	5	0	0	0	9	0	1	0	0	0	0	0	0
55	1	1	6	0	2	9	0	1	0	20	0	3	0	0	0	0	3	13
56	0	0	6	0	1	23	0	0	0	30	0	2	0	0	0	0	2	6
57	0	1	6	0	4	32	0	2	0	45	0	4	0	0	0	0	4	8
58	1	1	12	0	5	34	0	0	0	53	0	1	0	0	0	0	1	2
59	0	1	6	0	5	55	0	3	0	70	0	6	0	2	0	0	8	10
60	0	1	10	0	13	55	0	2	0	81	0	2	0	4	0	0	6	7
61	0	0	7	0	12	58	0	3	0	80	0	7	1	2	0	0	10	11
62	0	0	13	0	39	73	0	4	0	129	0	6	1	7	0	0	14	10
63	0	0	11	0	30	63	0	4	0	108	0	2	5	6	0	0	13	11
64	0	3	7	0	37	44	0	2	0	93	0	6	3	1	0	0	10	10
65	0	1	9	0	55	51	0	6	0	122	0	1	3	5	1	0	10	8
66	0	0	6	0	47	26	0	11	0	90	1	2	2	5	0	0	10	10
67	0	0	8	0	44	19	0	3	0	74	0	1	6	3	2	1	13	15
68	0	1	1	0	46	20	1	13	0	82	0	4	1	5	0	0	10	11
69	0	0	3	0	23	10	0	8	1	45	0	1	5	6	0	1	13	22
70	0	1	0	0	25	9	0	7	0	42	0	0	1	4	0	0	5	11
71	0	0	3	0	20	3	0	5	0	31	0	0	1	0	0	0	1	2
72	0	0	3	0	6	1	0	7	0	17	0	1	0	0	0	0	1	6
73	0	0	1	0	7	2	0	4	0	14	0	0	0	0	0	0	0	0
74	0	0	1	0	1	4	0	7	0	13	0	0	1	0	0	0	1	7
75	0	0	0	0	1	1	0	3	0	5	0	0	0	0	0	0	0	0
76	0	0	1	0	0	0	1	0	3	0	5	0	0	0	0	0	0	0
77	0	0	0	0	1	1	0	0	0	0	2	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
79	0	0	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
Totals	6	11	137	2	426	613	2	99	1	1297	1	52	30	52	3	3	141	10

^a Age error codes: 1M, 2M, 3M, refers to 1, 2 or 3 marine annuli; RG, regenerated; S2, sub-two (1 fresh water annulus); S3, sub-three (2 fresh water annuli).

Table E-3. Summary of weekly age composition of sockeye salmon sampled at the Nass River fishwheels, 1996.

Week ending	Stat. week	Portion of total run	Numbers of fish by age class						Proportions by week												
			31	41	42	43	52	53	62	63	64	Totals	31	41	42	43	52	53	62	63	64
15-Jun	22-24	0.0124	0	5	1	0	98	8	1	2	0	115	0.00	0.04	0.01	0.00	0.85	0.07	0.01	0.02	0.00
22-Jun	25	0.0402	2	0	2	0	102	25	0	5	0	136	0.01	0.00	0.01	0.00	0.75	0.18	0.00	0.04	0.00
29-Jun	26	0.0236	0	4	1	0	22	3	0	0	0	30	0.00	0.13	0.03	0.00	0.73	0.10	0.00	0.00	0.00
6-Jul	27	0.3011	3	2	12	0	48	59	0	3	0	127	0.02	0.02	0.09	0.00	0.38	0.46	0.00	0.02	0.00
13-Jul	28	0.0700	1	0	18	0	52	80	0	8	0	159	0.01	0.00	0.11	0.00	0.33	0.50	0.00	0.05	0.00
20-Jul	29	0.1251	0	0	20	0	37	92	0	7	0	156	0.00	0.00	0.13	0.00	0.24	0.59	0.00	0.04	0.00
27-Jul	30	0.0826	0	0	23	0	30	76	0	6	0	135	0.00	0.00	0.17	0.00	0.22	0.56	0.00	0.04	0.00
3-Aug	31	0.1249	0	0	27	0	17	69	0	22	0	135	0.00	0.00	0.20	0.00	0.13	0.51	0.00	0.16	0.00
10-Aug	32	0.1019	0	0	16	0	4	82	1	11	1	115	0.00	0.00	0.14	0.00	0.03	0.71	0.01	0.10	0.01
17-Aug	33	0.0384	0	0	7	2	9	60	0	15	0	93	0.00	0.00	0.08	0.02	0.10	0.65	0.00	0.16	0.00
24-Aug	34	0.0341	0	0	3	0	3	43	0	9	0	58	0.00	0.00	0.05	0.00	0.05	0.74	0.00	0.16	0.00
31-Aug	35-37	0.0457	0	0	7	0	4	16	0	11	0	38	0.00	0.00	0.18	0.00	0.11	0.42	0.00	0.29	0.00
Totals		1.0000	6	11	137	2	426	613	2	99	1	1297	0.00	0.01	0.11	0.00	0.33	0.47	0.00	0.08	0.00
			Proportions weighted by portion of run:						0.008	0.008	0.120	0.001	0.272	0.512	0.001	0.076	0.001				

Table E-4. Summary of the numbers and mean lengths (nose-fork, cm) of successfully aged sockeye salmon from the Nass River fishwheel catch, 1996.

Age class	June ^a				July				August				September				Total			
	N	Mean	SD ^b	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD		
31	3	53.7	4.0	3	52.3	2.5	0	-	-	0	-	-	6	53.0	3.1					
41	10	62.5	4.9	1	59.0	-	0	-	-	0	-	-	11	62.2	4.7					
42	6	61.7	2.7	91	59.9	5.4	36	63.4	6.0	4	68.8	4.9	137	61.2	5.8					
43	0	-	-	0	-	-	2	50.5	0.7	0	-	-	2	50.5	0.7					
52	234	65.4	3.2	169	66.0	3.8	21	64.8	5.5	2	61.5	0.7	426	65.6	3.6					
53	39	60.1	3.5	350	61.5	3.5	221	62.7	5.0	3	61.7	2.1	613	61.8	4.1					
62	1	68.0	-	0	-	-	1	76.0	-	0	-	-	2	72.0	5.7					
63	8	65.9	2.8	38	67.7	4.3	50	68.2	5.5	3	70.0	3.6	99	67.9	4.8					
64	0	-	-	0	-	-	1	69.0	-	0	-	-	1	69.0	-					
Totals	301	64.5	3.9	652	62.8	4.7	332	63.7	5.7	12	66.1	5.1	1297	63.4	4.9					

^a Includes 3 aged-52 fish from 31 May.

^b Standard deviation

Table E-5. Numbers of fish by age and length for coho salmon sampled at the Nass River fishwheels, 1996.

Nose-fork length (cm)	Numbers of fish by age class			Total aged	Fish sampled but not aged ^a		Total not aged	Percent not aged
	32	42	43		1M	RG		
44	1	0	0	1	0	0	0	0
45	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0
48	1	0	0	1	0	0	0	0
49	1	0	0	1	0	1	1	50
50	0	0	3	3	0	0	0	0
51	1	0	2	3	0	0	0	0
52	1	0	3	4	0	0	0	0
53	1	0	1	2	1	0	1	33
54	4	0	6	10	1	0	1	9
55	10	0	7	17	0	0	0	0
56	10	0	1	11	0	0	0	0
57	5	0	6	11	1	0	1	8
58	3	0	5	8	1	0	1	11
59	8	0	5	13	2	0	2	13
60	11	0	11	22	3	0	3	12
61	12	0	10	22	0	0	0	0
62	19	0	16	35	3	0	3	8
63	19	0	18	37	2	0	2	5
64	14	0	22	36	0	0	0	0
65	27	0	24	51	2	0	2	4
66	20	0	17	37	4	0	4	10
67	21	0	17	38	2	0	2	5
68	14	0	19	33	6	0	6	15
69	6	1	19	26	2	0	2	7
70	10	0	8	18	0	0	0	0
71	11	0	11	22	1	0	1	4
72	7	0	6	13	2	0	2	13
73	3	0	4	7	0	0	0	0
74	4	0	4	8	0	1	1	11
75	4	0	3	7	0	0	0	0
76	1	0	1	2	0	0	0	0
77	0	0	2	2	0	0	0	0
78	0	0	0	0	0	0	0	0
79	1	0	0	1	0	0	0	0
80	0	0	0	0	1	0	1	
81	0	0	0	0	0	0	0	
82	1	0	0	1	0	0	0	0
83	0	0	0	0	0	0	0	
84	0	0	0	0	0	0	0	
85	0	0	0	0	0	0	0	
86	0	0	0	0	0	0	0	
87	0	0	0	0	0	0	0	
88	0	0	0	0	0	0	0	
89	0	0	1	1	0	0	0	0
Total	251	1	252	504	34	2	36	7
Percent	49.8	0.2	50.0					

^a Age error codes: M refers to marine annuli, the numbers refer to the number of marine annuli and RG is regenerated scale.