North River Salmon Counting Tower
Project Summary Report, 1998

by

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INTRODUCTION

The North River counting tower is a cooperative project funded and operated by the Kawerak Corporation. The Alaska Department of Fish & Game (ADF&G) provided equipment for this project. ADF&G analyzed and expanded the tower count data and produced this report, as part of its contribution to this cooperative effort.

The North River is the largest of the five major tributaries of the Unalakleet River, which is the largest salmon producing river in Norton Sound. This was the third consecutive year a salmon counting tower was operated on the North River about two miles above it's confluence with the Unalakleet River (Figure 1) (Rob 1997 and 1998). A counting tower was previously operated on the North River for the three years from 1972 through 1974 near the North River bridge (Regnart and Trasky 1973, and Cunningham 1974 and 1975) and for the three years from 1984 through 1986 (Lean 1985,1986 and 1987). Chum salmon were the primary species of harvest for the Unalakleet subdistrict commercial fishery. The project was discontinued at that time because of a lack of funding and because the small chum salmon run on the North River was not considered to be a reliable index of chum salmon abundance for the entire Unalakleet River system. Recent increasing commercial importance of pink, king and coho salmon combined with the relatively large runs of these species in the North River, and the availability of funding combined to make this project feasible again.

OBJECTIVES

To obtain daily and seasonal information concerning the timing and magnitude of the chum, pink, king and coho salmon escapement to the North River.

METHODS

The North River counting tower camp is located on Unalakleet Native Corporation land. The camp is approximately 20 minutes by boat from the village of Unalakleet.

A tent camp with two tent frames and an outhouse was established during early June. A scaffolding tower was erected on the bank of the river to serve as an observation platform. The dirty, rock covered flash panel from the previous year remained in the river over the winter and was used until 8 July. A weir to direct the fish over the flash panel was built from within 6 feet of the mid-stream end of the flash panel to the opposite bank. On 8 and 9 July a new vinyl canvas flash panel was placed on the river bottom directly in front of the tower and the weir was rebuilt and straightened from the mid-stream end of the flash panel to the opposite bank.

Counting began on 15 June and ended on 12 August. The crew counted 24 half-hour counts each day. One day off was scheduled each week. The daily counts considered in this report run from 0000 hours to 2400 hours. The counts for each half hour shift were doubled to produce the reported hourly counts for each species. Each day the reported hourly counts were added to produce a daily subtotal. Every day, the daily and cumulative subtotals for each species were relayed to the ADF&G Unalakleet office by radio.

The expanded counts for this report were calculated using the following methods. The counts for the days off were estimated by adding the counts of each hour of the day before to the counts of each hour of the day following and dividing the result by two, giving expanded hourly counts for the hours of the day off. The expanded counts for periods of time greater than one day missed because of high water were linearly interpolated in a similar manner.

RESULTS

Table 1 shows the expanded daily and cumulative totals for each salmon species. The reported total hourly counts were: 1,170 chum salmon, 54,713 pink salmon, 1,720 king salmon, and 1,914 coho salmon (Tables 6-9). The expanded counts were: 1,526 chum salmon, 74,045 pink salmon, 2,100 king salmon, and 3,361 coho salmon (Tables 2-5).

King salmon were observed on 17 June, the third day of counting, pink salmon were first observed on 26 June, chum salmon were first observed on 1 July, and coho salmon were first observed on 21 July. The daily peak count of 119 chum salmon occurred on 11 July; the daily peak count of 12,116 pink salmon occurred on 7 July; the daily peak count of 259 king salmon occurred on 11 July; the peak daily count of 346 coho salmon occurred on 10 August (Table 1).

Approximately 77% of the chum salmon passage occurred during the month of July (Table 2 and Figures 3 and 4). Approximately 90% of the pink salmon passage occurred during the three weeks from 2 July through 22 July (Table 3 and Figures 5 and 6). Approximately 24% of the king salmon passage occurred during the two days from 11 July through 12 July and approximately 85% of the king salmon passage occurred during the three weeks from 6 July through 27 July (Table 4 and Figures 7 and 8). All coho salmon passage occurred during the last 23 days of counting tower operation (Table 5 and Figures 9 and 10).

All species counted exhibited a diurnal pattern of migration past the counting tower. During the twelve hour period from 1600 through 0300 hours, 72% of the chum salmon passed the tower (Table 2 and Figure 11). During the twleve hour period from 1500 through 0200 hours, 82% of the pink salmon passed the tower (Table 3 and Figure 12). The diurnal pattern of king salmon migration was not as pronounced as for the other species, but during the fifteen hour period from 1600 through 0600 hours 71% of the king

salmon passed the tower (Table 4 and Figure 13). During the ten hour period from 1600 through 0100 hours, 73% of the coho salmon passed the tower (Table 5 and Figure 14).

An aerial survey of the North River counted 153,150 pink salmon on 20 July, 1998. The total season expanded tower count of pink salmon was 74,045. The aerial survey counted more than double the total season expanded tower count of pink salmon. The aerial survey counted 149,850 pink salmon above the counting tower on 20 July, when the cumulative tower count of pink salmon was 65,606. The aerial survey counted more than double the cumulative tower count on 20 July (Table 1).

An aerial survey of the North River counted 591 king salmon on 20 July, 1998. The total season expanded tower count of king salmon was 2,100. The aerial survey counted 28% of the total season expanded tower count of king salmon. The aerial survey counted 591 king salmon above the counting tower on 20 July, when the cumulative tower count of king salmon was 1,576. The aerial survey counted 38% of the cumulative tower count on 20 July (Table 1).

An aerial survey of the North River counted 233 coho salmon on 8 September, 1998. The total season expanded tower count of coho salmon was 3,361. The aerial survey counted 7% of the total season expanded tower count of coho salmon (Table 1).

Climatological observations are shown in Table 10.

DISCUSSION

This was the third year of operation since a North River counting tower project was resumed in 1996. The counting season ended on 8 August because of high water (Table 10).

On 24 June, Department personnel travelled to the North River counting tower and observed that the old flash panel and the gap between the weir and the flash panel were making it very difficult to see passing fish. It was difficult to see fish unless they were passing over cleared areas of the flash panel, and almost imposssible to see fish in the gap. The weir also was not fish tight, especially in the case of pink salmon. These problems were not completely corrected until 8 July.

Normally an aerial survey counts 20% to 50% of the fish in a river depending on conditions. On 20 July, 1998 an aerial survey counted more than twice the tower count of pink salmon. Although aerial surveys do have inherent variability, this does indicate that large numbers of pink salmon were missed because of the problems with the weir and flash panel. The counts of king and chum salmon were probably impacted as well.

The chum salmon count past the counting tower was the lowest ever. Significant numbers of chum salmon were probably missed because of the problems with the weir

and flash panel (Appendix Table 1 and Figure 15). The even year pink salmon count past the counting tower was the second lowest recorded because large numbers were not counted when the weir was incomplete (Appendix Table 2 and Figure 16). The odd year pink salmon escapements are shown in Appendix Table 2 and Figure 17). The king salmon count past the counting tower was the third best ever recorded but significant numbers of king salmon were probably missed because of the problems with the weir and flash panel (Appendix Table 3 and Figure 18). The coho salmon escapement was the second highest ever recorded and was actually slightly ahead of the record year when counting stopped because of high water (Appendix Table 4 and Figure 19).

ACKNOWLEDGEMENTS

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Table 1. Expanded daily and cumulative migration of all salmon species past the North River counting tower, Norton Sound, 1998.

Prior to 8 July passage estimates are unreliable because of problems with the weir and flash panel

Date	Daily Chum	Cumulative Chum	Daily Pink	Cumulative Pink	Daily King	Cumulative King	Daily Coho	Cumulative Coho
15-Jun	0	0	0	0	0	0	0	0
16-Jun	0	0	0	0	0	0	0	0
17-Jun	0	0	0	0	2	2	0	0
18-Jun	0	0	0	0	2	4	0	0
19-Jun	0	0	0	0	3	7	0	0
20-Jun	0	0	0	0	4	11	0	0
21-Jun	0	0	0	0	4	15	0	0
22-Jun	0	0	0	0	7	22	0	0
23-Jun	0	0	0	0	22	44	0	0
24-Jun	0	0	0	0	20	64	0	0
25-Jun	0	0	0	0	26	90	0	0
26-Jun	0	0	16	16	26	116	0	0
27-Jun	0	0	18	34	11	127	0	0
28-Jun	0	0	19	53	5	132	0	0
29-Jun	0	0	90	143	8	140	0	0
30-Jun	0	0	80	223	0	140	0	0
1-Jul	6	6	202	425	20	160	0	0
2-Jul	16	22	848	1,273	12	172	0	0
3-Jul	1	23	354	1,627	5	177	0	0
4-Jul	23	46	2,896	4,523	13	190	0	0
5-Jul	24	70	2,935	7,458	13	203	0	0
6-Jul	46	116	5,598	13,056	12	215	0	0
7-Jul	88	204	12,116	25,172	88	303	0	0
8-Jul	31	235	3,866	29,038	56	359	0	0
9-Jul	34	269	1,428	30,466	71	430	0	0
10-Jul	86	355	7,522	37,988	80	510	0	0
11-Jul	119	474	4,844	42,832	259	769	0	0
12-Jul	107	581	4,901	47,733	242	1,011	0	0
13-Jul	14	595	2,782	50,515	50	1,061	0	0
14-Jul	8	603	1,456	51,971	72	1,133	0	0
15-Jul	50	653	3,254	55,225	60	1,193	0	0
16-Jul	64	717	3,684	58,909	92	1,285	0	0
17-Jul	32	749	1,736	60,645	114	1,399	0	0
18-Jul	52	801	2,446	63,091	56	1,455	0	0
19-Jul	25	826	1,501	64,592	39	1,494	0	0
20-Jul	20	846	1,014	65,606	82	1,576	0	0
21-Jul	14	860	912	66,518	92	1,668	20	20
22-Jul	12	872	652	67,170	90	1,758	36	56
23-Jul	24	896	282	67,452	106	1,864	54	110
24-Jul	17	913	404	67,856	43	1,907	42	152
25-Jul	11	924	442	68,298	39	1,946	28	180
26-Jul	29	953	555	68,853	43	1,989	52	232
27-Jul	40	993	574	69,427	20	2,009	70	302
28-Jul	40	1,033	384	69,811	2	2,011	98	400
29-Jul	32	1,065	674	70,485	14	2,025	100	500
30-Jul	38	1,103	520	71,005	12	2,037	100	600
31-Jul	69	1,172	525	71,530	14	2,051	126	726
1-Aug	41	1,213	611	72,141	10	2,061	126	852
2-Aug	32	1,245	463	72,604	7	2,068	297	1,149
3-Aug	16	1,261	188	72,792	6	2,074	232	1,381
4-Aug	16	1,277	182	72,974	5	2,079	232	1,613
5-Aug	16	1,293	182	73,156	5	2,084	232	1,845
6-Aug	16	1,309	182	73,338	5	2,089	232	2,077
7-Aug	16	1,325	182	73,520	5	2,094	232	2,309
8-Aug	21	1,346	193	73,713	2	2,096	246	2,555
9-Aug	36	1,382	134	73,847	-2	2,094	262	2,817
10-Aug	118	1,500	126	73,973	2	2,096	346	3,163
11-Aug	26	1,526	72	74,045	4	2,100	198	3,361
12-Aug	0	1,526	0	74,045	0	2,100	0	3,361

Table 2. Expanded daily hourly chum salmon migration past the North River counting tower, Norton Sound, 1998.

Outlined areas indicate hours not counted. Numbers in outlined areas indicate estimated passage

Prior to 8 July passage estimates are unreliable because of problems with the weir and flash panel

Date	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total	% of Total
15-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
17-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
18-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
19-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
20-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
21-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
22-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
26-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
27-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
28-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
1-Jul	0	2	0	0	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	-2	0	0	0	0	6	0.4%
2-Jul	0	0	0	0	0	0	0	2	4	2	4	0	0	4	0	0	0	0	0	0	0	0	0	0	16	1.0%
3-Jul	0	0	0	0	0	1	1	1	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1%
4-Jul	0	0	0	0	0	1	1	1	-1	0	0	0	0	0	0	0	0	0	0	2	1	3	12	3	23	1.5%
5-Jul	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	2	1	3	12	3	24	1.6%
6-Jul	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4	2	6	24	6	48	3.0%
7-Jul	6	4	0	0	0	4	2	2	0	0	4	2	2	0	0	0	6	12	16	8	8	4	4	4	88	5.8%
8-Jul	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	4	7	8	6	0	0	0	0	31	2.0%
9-Jul	2	0	0	0	0	0	4	0	2	0	0	1	0	3	0	0	2	2	0	8	2	0	4	4	34	2.2%
10-Jul	2	2	0	0	2	6	2	2	0	0	0	2	0	4	0	0	4	6	10	12	6	6	0	20		6%
11-Jul	16	18	22	12	2	2	8	2	1	4	1	2	0	2	0	2	2	2	2	0	3	3	1	12		1%
12-Jul	12	16	16	2	2	2	4	0	2	8	2	2	6	2	0	8	1	1	2	0	3	3	1	12	107	7.0%
13-Jul	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2	0	0	0	2	4	14	0.9%
14-Jul	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	2	2	0	8	0.5%
15-Jul	0	6	2	0	0	0	0	0	0	0	0	0	-2	0	0	0	2	4	6	6	2	6	6	12	50	3.3%
16-Jul	2	2	0	0	2	0	0	0	2	0	0	0	0	0	8	2	2	6	2	8	6	4	12	6	64	4.2%
17-Jul	1	2	0	1	2	2	6	0	0	0	2	0	0	4	5	1	0	-2	0	0	6	0	2	0	32	2.1%
18-Jul	0	2	0	2	2	2	0	2	0	1	1	0	0	8	2	0	0	2	2	22	3	0	1	0	52	3.4%
19-Jul	0	0	0	0	0	2	0	0	0	2	0	0	2	-2	2	0	0	1	1	13	3	0	1	0	25	1.6%
20-Jul	0	8	2	2	0	2	2	0	0	0	0	0	0	-2	0	2	0	0	0	4	0	0	0	0	20	1.3%
21-Jul	2	0	2	4	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	14	0.9%
22-Jul	0	4	0	2	0	0	2	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	12	0.8%
23-Jul	0	2	4	2	4	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	24	1.6%
24-Jul	1	1	2	0	3	1	1	2	4	0	0	0	0	-2	2	2	0	0	0	0	0	0	0	0	17	1.1%
25-Jul	1	1	2	0	3	1	1	2	0	0	0	0	0	0	-2	2	0	0	0	0	0	0	0	0	11	0.7%
26-Jul	1	1	2	0	3	1	1	2	0	1	0	0	0	0	-1	1	4	4	1	0	2	2	1	3	29	1.9%
27-Jul	2	0	0	-2	2	0	0	2	0	2	0	0	0	0	0	0	8	8	2	0	4	4	2	6	40	2.6%
28-Jul	2	6	2	2	0	0	2	-2	0	0	0	0	0	0	0	0	6	0	0	4	4	2	6	6	40	2.6%
29-Jul	2	4	2	4	-2	2	2	4	0	0	0	0	-2	0	0	0	2	2	2	2	2	0	0	6	32	2.1%
30-Jul	0	2	6	6	0	0	0	0	2	0	0	0	0	0	2	0	2	0	2	8	-2	10	0	0	38	2.5%
31-Jul	1	5	4	4	1	1	0	1	0	0	0	0	2	0	0	0	2	0	0	14	8	6	8	12	69	4.5%
1-Aug	1	5	4	4	1	1	0	1	6	0	2	2	2	2	4	0	-2	0	0	6	0	2	0	0	41	2.7%
2-Aug	2	8	2	2	2	2	0	2	3	0	1	2	1	1	2	2	0	0	0	0	0	0	0	0	32	2.1%
3-Aug	0	0	0	0	0	0	0	0	3	0	1	2	1	1	0	2	0	2	1	2	0	1	0	0	16	1.0%
4-Aug	0	0	0	0	0	0	0	0	3	0	1	2	1	1	0	2	0	2	1	2	0	1	0	0	16	1.0%
5-Aug	0	0	0	0	0	0	0	0	3	0	1	2	1	1	0	2	0	2	1	2	0	1	0	0	16	1.0%
6-Aug	0	0	0	0	0	0	0	0	3	0	1	2	1	1	0	2	0	2	1	2	0	1	0	0	16	1.0%
7-Aug	0	0	0	0	0	0	0	0	3	0	1	2	1	1	0	2	0	2	1	2	0	1	0	0	16	1.0%
8-Aug	0	0	0	0	0	0	0	0	3	0	1	2	1	0	0	2	0	4	2	4	0	2	0	0	21	1.4%
9-Aug	0	0	0	0	0	0	0	0	0	0	0	2	0	6	0	4	0	6	0	8	2	4	2	2	36	2.4%
10-Aug	0	0	0	0	0	0	0	0	6	0	2	4	6	2	2	0	0	4	6	4	6	14	44	18	[illegible]	7%
11-Aug	0	0	0	2	0	0	0	0	4	6	0	2	4	2	0	2	0	0	0	6	0	0	4	0	[illegible]	7%
12-Aug	0	0	0	0	0	0	0	0	End of counting season																[illegible]	0.0%
Total	56	101	74	51	31	38	44	35	55	26	25	35	27	47	26	44	47	79	71	155	72	95	153	139	1,526	
	3.7%	6.6%	4.8%	3.3%	2.0%	2.5%	2.9%	2.3%	3.6%	1.7%	1.6%	2.3%	1.8%	3.1%	1.7%	2.9%	3.1%	5.2%	4.7%	10.2%	4.7%	6.2%	10.0%	9.1%	100.0%	

e 3. Expanded daily hourly pink salmon migration past the North River counting tower, Norton Sound, 1998.

Outlined areas indicate hours not counted. Numbers in outlined areas indicate estimated passage.

Prior to 8 July passage estimates are unreliable because of problems with the weir and flash panel

Date	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total	% of Total
15-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
17-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
18-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
19-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
20-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
21-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
22-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
26-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	10	16	0.0%
27-Jun	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	4	4	0	0	0	0	2	4	18	0.0%
28-Jun	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2	2	2	0	0	4	0	1	2	19	0.0%
29-Jun	10	12	4	18	-2	0	2	0	18	10	2	0	0	0	0	8	0	0	0	0	8	0	0	0	90	0.1%
30-Jun	8	8	0	0	12	4	8	14	10	12	0	0	0	0	0	0	0	0	0	2	0	0	0	2	80	0.1%
1-Jul	82	12	12	16	6	10	4	6	6	14	10	6	12	6	0	0	0	0	0	0	0	0	0	0	202	0.3%
2-Jul	12	4	4	8	0	6	12	2	24	12	30	44	12	548	58	10	22	-8	0	6	50	0	0	0	848	1.1%
3-Jul	225	10	4	3	1	11	38	28	-12	16	6	6	10	6	2	0	0	0	0	-2	2	0	0	0	354	0.5%
4-Jul	225	10	4	3	1	11	38	28	6	20	12	4	14	3	9	5	8	17	41	27	109	259	936	1,106	2,896	3.9%
5-Jul	225	10	4	3	1	11	38	28	24	24	18	2	18	0	16	10	8	17	41	27	109	259	936	1,106	2,935	4.0%
6-Jul	438	16	4	-2	2	18	64	54	0	0	0	0	0	0	0	0	16	34	82	56	216	518	1,872	2,212	5,588	7.6%
7-Jul	1,184	410	178	84	72	210	174	520	30	10	0	0	36	48	132	6	1,536	734	1,814	1,436	1,504	1,142	654	202	12,116	16.4%
8-Jul	24	12	8	4	2	74	80	72	12	22	6	6	6	6	66	3	804	410	987	743	0	108	126	272	3,866	5.2%
9-Jul	88	32	18	10	24	46	130	168	24	2	6	3	19	75	38	0	72	86	160	50	81	48	108	140	1,429	1.9%
10-Jul	106	70	28	36	44	110	90	156	14	8	6	0	32	144	48	680	436	792	634	600	1,484	1,148	210	416	7,522	10.2%
11-Jul	302	314	298	106	52	196	246	14	20	4	7	7	58	58	62	24	398	38	76	112	833	627	561	431	4,844	6.5%
12-Jul	298	242	166	22	12	98	482	286	26	0	8	14	-4	64	86	162	221	49	81	116	833	627	561	431	4,901	6.6%
13-Jul	76	300	14	10	0	12	10	26	46	50	36	64	38	44	79	30	44	60	86	120	182	106	912	446	2,782	3.8%
14-Jul	252	48	16	2	0	4	40	16	40	14	8	10	20	26	82	48	32	84	138	158	114	144	104	64	1,456	2.0%
15-Jul	112	104	30	14	26	30	88	54	16	22	10	24	32	54	76	52	58	114	304	72	428	438	712	384	3,254	4.4%
16-Jul	136	72	20	10	8	52	72	38	22	24	20	24	18	38	46	86	144	174	242	288	358	530	772	490	3,684	5.0%
17-Jul	78	59	10	9	38	46	142	62	4	-10	16	2	26	221	101	136	36	40	42	80	132	128	152	186	1,736	2.3%
18-Jul	20	46	0	8	8	6	12	10	19	-2	9	6	34	404	156	186	328	198	158	400	69	153	101	117	2,446	3.3%
19-Jul	24	20	26	20	8	32	34	16	34	6	2	10	32	48	62	20	190	120	111	246	69	153	101	117	1,501	2.0%
20-Jul	42	58	54	46	66	44	72	26	4	-2	10	-4	8	6	2	50	52	42	64	92	6	179	50	48	1,014	1.4%
21-Jul	98	92	42	52	16	50	28	20	10	14	6	8	16	12	12	38	44	48	68	54	40	72	36	36	912	1.2%
22-Jul	56	50	28	52	20	32	36	44	-4	-2	-6	0	2	6	8	20	30	28	44	24	72	40	28	44	652	0.9%
23-Jul	34	16	36	42	16	34	54	60	36	6	-14	-32	-38	-40	-22	-26	32	56	44	0	8	-14	-6	0	292	0.4%
24-Jul	29	11	18	27	12	26	33	42	4	-6	20	4	-10	-4	-4	12	4	28	56	6	56	0	0	40	404	0.5%
25-Jul	29	11	18	27	12	26	33	42	12	16	16	14	30	16	30	44	10	18	4	10	12	2	10	0	442	0.6%
26-Jul	29	11	18	27	12	26	33	42	17	21	14	12	18	11	20	27	37	47	27	29	26	19	18	14	555	0.7%
27-Jul	24	6	0	12	8	18	12	24	22	26	12	10	6	6	10	10	64	76	50	48	40	36	26	28	574	0.8%
28-Jul	30	38	20	14	22	10	10	22	16	2	0	14	8	2	12	6	22	12	22	20	38	10	26	24	384	0.5%
29-Jul	26	48	26	28	22	46	60	68	8	28	6	6	20	40	26	14	20	38	40	30	18	24	14	20	674	0.9%
30-Jul	20	24	12	26	14	52	34	40	14	10	4	14	10	8	8	0	32	14	34	32	32	34	34	18	520	0.7%
31-Jul	37	32	21	25	16	37	47	50	4	6	28	6	12	2	28	12	14	28	14	28	28	18	14	18	525	0.7%
1-Aug	37	32	21	25	16	37	47	50	18	16	12	8	8	18	10	10	-4	14	18	38	36	52	46	46	611	0.8%
2-Aug	54	40	30	24	18	22	60	60	12	12	8	7	6	11	5	6	2	10	16	16	20	12	12	6	463	0.6%
3-Aug	12	8	0	4	0	0	0	0	12	12	8	7	6	11	0	6	8	15	17	12	19	14	15	10	186	0.3%
4-Aug	6	8	0	2	0	0	0	0	12	12	8	7	6	11	2	6	8	15	17	12	19	14	15	10	182	0.2%
5-Aug	6	8	0	2	0	0	0	0	12	12	8	7	6	11	2	6	8	15	17	12	19	14	15	10	182	0.2%
6-Aug	6	8	0	2	0	0	0	0	12	12	8	7	6	11	2	6	8	15	17	12	19	14	15	10	182	0.2%
7-Aug	6	8	0	2	0	0	0	0	12	12	8	7	6	11	2	6	8	15	17	12	19	14	15	10	182	0.2%
8-Aug	6	8	0	2	0	0	0	0	12	12	8	7	6	4	4	6	8	20	18	14	18	16	18	14	190	0.3%
9-Aug	0	8	0	0	0	0	0	0	6	8	4	6	4	8	4	2	14	22	30	6	10	4	4	2	134	0.2%
10-Aug	4	8	0	0	0	0	4	4	0	2	2	4	2	6	4	2	10	6	18	8	20	6	12	12	126	0.2%
11-Aug	0	8	0	2	2	10	8	2	4	4	2	6	4	2	4	4	2	-4	4	2	6	6	0	2	72	0.1%
12-Aug	0	0	0	0	0	0	0	0	End of counting season																0	0.0%
	4,516	2,276	1,192	827	587	1,455	2,375	2,154	638	494	384	357	558	1,962	1,299	1,742	4,792	3,543	5,653	5,272	7,172	6,973	9,232	8,560	74,045	
	6.1%	3.1%	1.6%	1.1%	0.8%	2.0%	3.2%	3.0%	0.9%	0.7%	0.5%	0.5%	0.7%	2.6%	1.8%	2.4%	6.5%	4.8%	7.6%	7.1%	9.7%	9.4%	12.5%	11.6%	100.0%	

Table 4. Expanded daily hourly king salmon migration past the North River counting tower, Norton Sound, 1998.

Outlined areas indicate hours not counted. Numbers in outlined areas indicate estimated passage.

Prior to 8 July passage estimates are unreliable because of problems with the weir and flash panel

Date	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total	% of Total
15-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
17-Jun	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1%
18-Jun	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1%
19-Jun	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.1%
20-Jun	0	0	0	0	0	0	-2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.2%
21-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	4	0.2%
22-Jun	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	3	0	-2	0	0	0	0	7	0.3%
23-Jun	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	6	0	0	0	10	3	-1	22	1.0%
24-Jun	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	6	0	2	0	2	6	-2	20	1.0%
25-Jun	0	0	0	0	0	0	0	0	0	2	0	2	0	0	2	2	2	4	4	0	0	2	0	6	26	1.2%
26-Jun	0	0	0	0	0	0	0	0	2	4	4	2	2	0	2	2	0	0	0	0	2	0	0	6	26	1.2%
27-Jun	0	0	0	0	0	0	0	0	1	2	2	1	1	0	2	2	0	0	0	0	0	0	0	0	11	0.5%
28-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	1	5	0.2%
29-Jun	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	2	8	0.4%
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
1-Jul	0	2	2	2	0	0	0	4	2	0	2	0	0	2	6	0	0	0	0	0	0	0	0	-2	20	1.0%
2-Jul	0	0	0	4	0	0	0	0	2	0	0	0	0	2	0	2	0	0	0	0	2	0	0	0	12	0.6%
3-Jul	0	0	0	2	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	5	0.2%
4-Jul	0	0	0	2	0	1	0	0	0	0	1	0	0	0	1	0	1	0	2	0	0	0	2	3	13	0.6%
5-Jul	0	0	0	2	0	1	0	0	0	0	2	0	0	0	0	0	1	0	2	0	0	0	2	3	13	0.6%
6-Jul	0	0	0	0	0	2	0	0	-2	0	0	0	-4	0	0	0	2	0	4	0	0	0	4	6	12	0.6%
7-Jul	0	2	0	0	0	0	0	2	0	0	-2	0	0	0	4	0	24	8	30	4	8	4	4	0	88	4.2%
8-Jul	0	0	0	0	0	0	0	0	-2	0	0	0	0	0	4	0	13	8	20	7	0	0	4	2	56	2.7%
9-Jul	0	0	0	2	-6	2	10	10	2	4	0	0	0	1	4	0	2	8	10	10	2	2	6	2	71	3.4%
10-Jul	2	6	0	4	4	6	8	4	2	2	0	0	0	2	0	0	8	4	4	4	6	4	2	8		1.8%
11-Jul	8	18	34	20	12	30	36	22	4	3	1	-1	4	2	12	8	24	2	2	4	4	3	1	6		.3%
12-Jul	42	20	24	8	20	42	26	8	6	4	2	-2	0	0	6	0	13	4	3	2	4	3	1	6	244	11.5%
13-Jul	0	2	0	2	2	2	0	2	2	4	4	2	2	6	0	0	2	6	4	0	2	2	0	4	50	2.4%
14-Jul	0	0	2	2	2	0	4	2	4	0	0	6	2	6	12	4	4	6	4	10	2	0	0	0	72	3.4%
15-Jul	4	2	0	6	4	0	2	0	2	4	0	0	6	2	0	6	2	4	2	6	4	2	0	2	60	2.9%
16-Jul	2	0	2	2	0	0	0	0	2	2	8	4	2	14	4	4	0	8	6	12	8	8	0	6	92	4.4%
17-Jul	1	0	1	1	10	16	20	2	8	0	4	6	6	8	2	3	2	2	4	2	8	6	0	2	114	5.4%
18-Jul	0	0	0	0	0	0	0	0	4	0	3	3	10	2	0	2	0	2	0	20	4	4	0	2	56	2.7%
19-Jul	0	0	0	0	0	0	2	0	0	0	2	0	4	0	0	6	1	3	0	11	4	4	0	2	39	1.9%
20-Jul	2	14	10	2	0	10	4	2	4	0	6	2	4	0	2	8	2	4	0	2	0	2	0	2	82	3.9%
21-Jul	4	4	10	8	6	12	4	2	0	0	4	0	2	4	2	10	6	6	4	4	0	0	0	0	92	4.4%
22-Jul	8	10	4	2	6	12	8	0	4	0	2	8	10	2	0	4	4	2	0	2	2	0	0	0	90	4.3%
23-Jul	8	0	2	10	6	12	10	10	4	4	2	6	4	6	12	4	0	0	0	0	2	2	0	2	106	5.0%
24-Jul	5	0	1	6	3	6	5	5	0	0	0	4	0	0	0	4	0	0	2	0	2	0	0	0	43	2.0%
25-Jul	5	0	1	6	3	6	5	5	2	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	39	1.9%
26-Jul	5	0	1	6	3	6	5	5	1	2	1	0	0	0	1	1	1	1	0	0	2	1	1	0	43	2.0%
27-Jul	2	0	0	2	0	0	0	0	0	2	0	0	0	0	0	2	2	2	0	0	4	2	2	0	20	1.0%
28-Jul	0	0	0	0	0	-2	2	0	0	0	0	-2	0	0	0	0	0	0	0	0	0	0	2	2	2	0.1%
29-Jul	2	0	0	0	2	2	2	2	0	0	2	0	0	-2	2	0	0	0	4	0	0	0	0	-2	14	0.7%
30-Jul	0	0	0	0	2	2	4	0	0	0	0	0	0	0	2	-2	4	0	2	-2	-2	2	0	0	12	0.6%
31-Jul	0	0	1	1	0	1	2	-1	0	0	0	2	2	0	0	2	0	0	0	2	0	0	2	0	14	0.7%
1-Aug	0	0	1	1	0	1	2	-1	4	2	0	0	2	0	0	2	0	-4	4	-2	0	2	-2	-2	10	0.5%
2-Aug	0	0	2	2	-2	0	0	-2	2	1	0	0	1	0	0	1	0	0	0	2	0	0	0	0	7	0.3%
3-Aug	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	1	1	-1	0	0	0	0	1	0	6	0.3%
4-Aug	0	0	0	0	0	0	0	0	2	1	0	0	1	0	-1	1	1	-1	0	0	0	0	1	0	5	0.2%
5-Aug	0	0	0	0	0	0	0	0	2	1	0	0	1	0	-1	1	1	-1	0	0	0	0	1	0	5	0.2%
6-Aug	0	0	0	0	0	0	0	0	2	1	0	0	1	0	-1	1	1	-1	0	0	0	0	1	0	5	0.2%
7-Aug	0	0	0	0	0	0	0	0	2	1	0	0	1	0	-1	1	1	-1	0	0	0	0	1	0	5	0.2%
8-Aug	0	0	0	0	0	0	0	0	2	1	0	0	1	0	-2	1	1	-2	0	-2	0	0	2	0	2	0.1%
9-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	-2	-4	0	0	0	-2	-0.1%
10-Aug	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		.1%
11-Aug	2	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	-2	0	0	0	0	0	0		.2%
12-Aug	0	0	0	0	0	0	0	0	End of counting season																	0.0%
Total	102	84	98	105	81	171	161	92	75	50	50	45	66	60	88	87	130	91	117	101	66	67	47	66	2,100	
	4.9%	4.0%	4.7%	5.0%	3.9%	8.1%	7.7%	4.4%	3.6%	2.4%	2.4%	2.1%	3.1%	2.9%	4.2%	4.1%	6.2%	4.3%	5.6%	4.8%	3.1%	3.2%	2.2%	3.1%	100.0%	

Table 5. Expanded daily hourly coho salmon migration past the North River counting tower, Norton Sound, 1998.

Outlined areas indicate hours not counted. Numbers in outlined areas indicate estimated passage.

Prior to 8 July passage estimates are unreliable because of problems with the weir and flash panel

Date	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total	% of Total
15-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
17-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
18-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
19-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
20-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
21-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
22-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
26-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
27-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
28-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
1-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
2-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
3-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
4-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
5-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
6-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
7-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
8-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
9-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
10-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
11-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
12-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
13-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
14-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
15-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
16-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
17-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
18-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
19-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
20-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
21-Jul	0	6	4	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	2	20	0.6%
22-Jul	4	6	6	0	0	0	2	0	0	0	2	2	0	0	0	4	0	0	0	0	2	4	4	0	36	1.1%
23-Jul	0	0	4	2	2	2	4	4	2	2	0	2	2	0	0	2	4	8	2	4	2	4	2	0	54	1.6%
24-Jul	0	0	2	1	1	2	4	2	0	0	0	2	4	0	0	0	0	0	8	0	8	0	8	0	42	1.2%
25-Jul	0	0	2	1	1	2	4	2	0	0	0	2	0	2	2	2	0	4	0	0	2	0	2	0	28	0.8%
26-Jul	0	0	2	1	1	2	4	2	0	0	1	1	0	4	1	2	6	6	2	1	5	4	4	3	52	1.5%
27-Jul	0	0	0	0	0	2	4	0	0	0	2	0	0	6	0	2	12	8	4	2	8	8	6	6	70	2.1%
28-Jul	14	16	2	2	0	0	2	4	2	0	0	0	0	0	0	0	2	2	2	0	10	6	12	22	98	2.9%
29-Jul	16	8	4	2	0	0	2	6	0	0	0	0	0	6	0	2	2	4	4	8	12	10	8	6	100	3.0%
30-Jul	16	0	2	2	0	0	2	2	0	2	0	2	0	2	2	0	10	4	16	10	0	12	8	8	100	3.0%
31-Jul	14	18	5	5	4	0	11	13	0	2	2	0	2	2	0	2	0	4	6	10	2	4	12	8	126	3.7%
1-Aug	14	18	5	5	4	0	11	13	4	2	0	4	0	2	2	0	0	0	6	10	6	16	2	2	126	3.7%
2-Aug	12	36	8	8	8	0	20	24	4	9	7	4	6	1	1	3	0	8	16	8	10	66	12	26	297	8.8%
3-Aug	20	6	8	0	0	0	0	0	4	9	7	4	6	1	0	3	8	11	25	28	10	44	18	20	232	6.9%
4-Aug	10	9	5	1	1	1	1	1	4	9	7	4	6	1	5	3	8	11	25	28	10	44	18	20	232	6.9%
5-Aug	10	9	5	1	1	1	1	1	4	9	7	4	6	1	5	3	8	11	25	28	10	44	18	20	232	6.9%
6-Aug	10	9	5	1	1	1	1	1	4	9	7	4	6	1	5	3	8	11	25	28	10	44	18	20	232	6.9%
7-Aug	10	9	5	1	1	1	1	1	4	9	7	4	6	1	5	3	8	11	25	28	10	44	18	20	232	6.9%
8-Aug	10	9	5	1	1	1	1	1	4	9	7	4	6	0	10	3	8	14	34	48	10	22	24	14	246	7.3%
9-Aug	0	12	2	2	2	2	2	2	4	16	14	4	12	14	4	6	16	18	24	16	28	8	26	28	262	7.8%
10-Aug	4	2	2	0	2	0	-2	2	14	6	6	14	6	16	4	6	20	24	44	22	20	20	80	34	346	10.3%
11-Aug	12	6	2	2	8	2	2	10	0	6	6	8	4	8	16	8	16	16	14	26	10	14	8	6	198	5.9%
12-Aug	4	0	0	0	0	-2	-2	0	End of counting season																0	0.0%
Total	180	179	85	40	38	17	75	93	54	99	76	69	72	68	62	57	136	175	307	305	189	418	308	259	3,361	
	5.4%	5.3%	2.5%	1.2%	1.1%	0.5%	2.2%	2.8%	1.6%	2.9%	2.3%	2.1%	2.1%	2.0%	1.8%	1.7%	4.0%	5.2%	9.1%	9.1%	5.6%	12.4%	9.2%	7.7%	100.0%	

Table 6. Reported hourly chum salmon observations at the North River counting tower, Norton Sound, 1998.

Outlined areas indicate hours not counted

Prior to 8 July passage estimates are unreliable because of problems with the weir and flash panel

Date	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total	% of Total
15-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
17-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
18-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
19-Jun									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									0	0.0%
22-Jun	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	0	0			0	0.0%
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
26-Jun									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%
28-Jun	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	0	0	0	0	0	0.0%
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
1-Jul	0	2	0	0	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	-2	0	0	0	0	6	0.5%
2-Jul	0	0	0	0	0	0	0	2	4	2	4	0	0	4	0	0	0	0	0	0	0	0	0	0	16	1.4%
3-Jul									-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2	-0.2%
4-Jul																									0	0.0%
5-Jul									0	0	0	0	0	0	0	0									0	0.0%
6-Jul	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4	2	6	24	6	46	3.9%
7-Jul	6	4	0	0	0	4	2	2	0	0	4	2	2	0	0	0	6	12	16	8	8	4	4	4	88	7.5%
8-Jul	0	0	0	0	0	0	0	2	0	0	0	0	0	2							0	0	0	0	4	0.3%
9-Jul	2	0	0	0	0	0	4	0	2	0					0	0	2	2	0	8	2	0	4	4	30	2.6%
10-Jul	2	2	0	0	2	6	2	2	0	0	0	2	0	4	0	0	4	6	10	12	8	6	0	20		7.4%
11-Jul	16	18	22	12	2	2	8	2					0	2	0	2	2	2	2	0						.9%
12-Jul	12	16	16	2	2	2	4	0	2	8	2	2	6	2	0	8										7.2%
13-Jul	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2	0	0	0	2	4	14	1.2%
14-Jul	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	2	2	0	8	0.7%
15-Jul	0	6	2	0	0	0	0	0	0	0	0	0	-2	0	0	0	2	4	6	6	2	6	6	12	50	4.3%
16-Jul	2	2	0	0	2	0	0	0	2	0	0	0	0	0	8	2	2	6	2	8	6	4	12	6	64	5.5%
17-Jul					2	2	6	0	0	0	2	0					0	-2	0	0	6	0	2	0	18	1.5%
18-Jul	0	2	0	2	2	2	0	2					0	8	2	0	0	2	2	22					46	3.9%
19-Jul	0	0	0	0	0	2	0	0	0	2	0	0	2	-2	2	0									6	0.5%
20-Jul	0	8	2	2	0	2	2	0	0	0	0	0	0	-2	0	2	0	0	0	4	0	0	0	0	20	1.7%
21-Jul	2	0	2	4	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	14	1.2%
22-Jul	0	4	0	2	0	0	2	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	12	1.0%
23-Jul	0	2	4	2	4	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	24	2.1%
24-Jul									4	0	0	0	0	-2	2	2	0	0	0	0	0	0	0	0	6	0.5%
25-Jul									0	0	0	0	0	0	-2	2	0	0	0	0	0	0	0	0	0	0.0%
26-Jul																									0	0.0%
27-Jul	2	0	0	-2	2	0	0	2	0	2	0	0	0	0	0	0	8	8	2	0	4	4	2	6	40	3.4%
28-Jul	2	6	2	2	0	0	2	-2	0	0	0	0	0	0	0	0	6	0	0	4	4	2	6	6	40	3.4%
29-Jul	2	4	2	4	-2	2	2	4	0	0	0	0	-2	0	0	0	2	2	2	2	2	0	0	6	32	2.7%
30-Jul	0	2	6	6	0	0	0	0	2	0	0	0	0	0	2	0	2	0	2	8	-2	10	0	0	38	3.2%
31-Jul									0	0	0	0	2	0	0	0	2	0	0	14	8	6	8	12	52	4.4%
1-Aug									6	0	2	2	2	2	4	0	-2	0	0	6	0	2	0	0	24	2.1%
2-Aug	2	8	2	2	2	2	0	2									0	0	0	0	0	0	0	0	20	1.7%
3-Aug	0	0	0	0	0	0	0	0							0										0	0.0%
4-Aug																									0	0.0%
5-Aug																									0	0.0%
6-Aug																									0	0.0%
7-Aug																									0	0.0%
8-Aug														0	0			4	2	4	0	2	0	0	12	1.0%
9-Aug	0	0	0	0	0	0	0	0	0	0	0	2	0	6	0	4	0	6	0	8	2	4	2	2	36	3.1%
10-Aug	0	0	0	0	0	0	0	0	6	0	2	4	6	2	2	0	0	4	6	4	6	14	44	18		7.1%
11-Aug	0	0	0	2	0	0	0	0	4	6	0	2	4	2	0	2	0	0	0	0	0	0	4	0		.2%
12-Aug	0	0	0	0	0	0	0	0	End of counting season																	0.0%
Total	50	86	60	42	20	30	38	24	34	20	16	18	20	34	20	28	38	56	54	120	56	76	124	106	1,170	
	4.3%	7.4%	5.1%	3.6%	1.7%	2.6%	3.2%	2.1%	2.9%	1.7%	1.4%	1.5%	1.7%	2.9%	1.7%	2.4%	3.2%	4.8%	4.6%	10.3%	4.8%	6.5%	10.6%	9.1%	100.0%	

ble 7. Reported hourly pink salmon observations at the North River counting tower, Norton Sound, 1998.

Outlined areas indicate hours not counted

Prior to 8 July passage estimates are unreliable because of problems with the weir and flash panel

Date	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total	% of Total
15-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
17-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
18-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
19-Jun									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									0	0.0%
22-Jun	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	0	0			0	0.0%
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
26-Jun									0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	10	16	0.0%
27-Jun	0	0	0	0	0	0	0	0									4	4	0	0	0	0	2	4	14	0.0%
28-Jun	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2									8	0.0%
29-Jun	10	12	4	18	-2	0	2	0	18	10	2	0	0	0	0	8	0	0	0	0	8	0	0	0	90	0.2%
30-Jun	8	8	0	0	12	4	8	14	10	12	0	0	0	0	0	0	0	0	0	2	0	0	0	2	80	0.1%
1-Jul	82	12	12	16	6	10	4	6	6	14	10	6	12	6	0	0	0	0	0	0	0	0	0	0	202	0.4%
2-Jul	12	4	4	6	0	6	12	2	24	12	30	44	12	548	56	10	22	-8	0	0	50	0	0	0	848	1.5%
3-Jul									-12	16	6	6	10	6	2	0	0	0	0	-2	2	0	0	0	34	0.1%
4-Jul																									0	0.0%
5-Jul									24	24	18	2	18	0	16	10									112	0.2%
6-Jul	438	18	4	-2	2	16	64	54	0	0	0	0	0	0	0	0	76	34	82	56	216	518	1,872	2,212	5,598	10.2%
7-Jul	1,184	410	178	84	72	210	174	520	30	10	0	0	36	48	132	6	1,536	734	1,814	1,436	1,504	1,142	654	202	12,116	22.1%
8-Jul	24	12	8	4	2	74	80	72	12	22	6	6	6	6							0	108	120	272	834	1.5%
9-Jul	88	32	18	10	24	46	130	168	24	2					38	0	72	86	160	50	81	48	108	140	1,325	2.4%
10-Jul	106	70	28	38	44	110	90	156	14	8	6	0	32	144	48	680	436	792	634	830	1,484	1,148	210	416	7,522	13.7%
11-Jul	302	314	298	106	52	196	248	14					58	58	62	24	398	38	76	112					2,354	4.3%
12-Jul	298	242	168	22	12	98	482	286	26	0	8	14	-4	64	86	182									1,982	3.6%
13-Jul	76	300	14	10	0	12	10	26	46	50	36	84	38	44	76	30	44	60	86	120	182	106	912	446	2,782	5.1%
14-Jul	252	48	16	2	0	4	40	16	40	14	8	10	20	26	82	40	32	84	138	158	114	144	104	64	1,456	2.7%
15-Jul	112	104	30	14	26	36	88	54	16	22	10	24	32	54	76	52	58	114	304	72	428	438	712	384	3,254	5.9%
16-Jul	136	72	20	10	6	52	72	38	22	24	20	24	18	38	46	86	144	174	242	288	358	530	772	490	3,684	6.7%
17-Jul					38	40	142	62	4	-10	16	2					36	40	42	80	132	128	152	186	1,096	2.0%
18-Jul	20	46	0	8	8	8	12	10					34	404	156	186	328	198	158	400					1,974	3.6%
19-Jul	24	29	26	20	8	32	34	16	34	6	2	10	32	48	62	20									394	0.7%
20-Jul	42	58	54	46	66	44	72	26	4	-2	10	-4	8	6	2	50	52	42	64	92	6	178	50	48	1,014	1.9%
21-Jul	98	92	42	52	16	50	28	20	10	14	6	8	16	12	12	38	44	48	68	54	40	72	36	38	912	1.7%
22-Jul	56	53	28	52	20	32	36	44	-4	-2	-6	0	2	6	8	20	30	28	44	24	72	40	28	44	652	1.2%
23-Jul	34	16	36	42	16	34	54	60	36	6	-14	-32	-38	-48	-22	-26	32	56	44	0	8	-14	-6	0	282	0.5%
24-Jul									4	-6	20	4	-10	-4	-4	12	4	28	56	6	56	0	0	40	206	0.4%
25-Jul									12	16	16	14	30	16	30	44	10	18	4	10	12	2	10	0	244	0.4%
26-Jul																									0	0.0%
27-Jul	24	6	0	12	8	18	12	24	22	26	12	10	6	6	10	18	64	76	50	48	40	36	26	28	574	1.0%
28-Jul	30	36	20	14	22	10	10	22	16	2	0	14	0	2	12	0	22	12	22	20	38	10	26	24	384	0.7%
29-Jul	26	46	26	28	22	46	60	68	8	28	6	6	20	40	26	14	20	38	40	30	18	24	14	20	674	1.2%
30-Jul	20	24	12	26	14	52	34	40	14	10	4	14	10	8	8	0	32	14	34	32	32	34	34	18	520	1.0%
31-Jul									-4	6	28	6	12	2	28	12	14	28	14	28	28	18	14	18	260	0.5%
1-Aug									18	16	12	8	8	18	10	10	-4	14	18	38	36	52	46	46	346	0.6%
2-Aug	54	40	30	24	18	22	60	60									2	10	16	10	20	12	12	6	396	0.7%
3-Aug	12	0	0	4	0	0	0	0							0										16	0.0%
4-Aug																									0	0.0%
5-Aug																									0	0.0%
6-Aug																									0	0.0%
7-Aug																									0	0.0%
8-Aug														4	4			20	18	14	18	16	18	14	126	0.2%
9-Aug	0	0	0	0	0	0	0	0	6	8	4	6	4	8	4	2	14	22	30	6	10	4	4	2	134	0.2%
10-Aug	4	0	0	0	0	0	4	4	0	2	2	4	2	6	4	2	10	8	16	8	20	6	12	12	126	0.2%
11-Aug	0	0	0	2	2	10	8	2	-4	4	2	6	4	2	4	-4	2	-4	4	2	6	6	0	2	72	0.1%
12-Aug	0	0	8	0	0	6	0	0		End of counting season															0	0.0%
Σ	3,572	2,090	1,074	668	516	1,270	2,068	1,884	492	366	280	276	430	1,586	1,070	1,528	3,474	2,806	4,280	4,024	5,025	4,806	5,942	5,186	54,713	
	6.5%	3.8%	2.0%	1.2%	0.9%	2.3%	3.8%	3.4%	0.9%	0.7%	0.5%	0.5%	0.8%	2.9%	2.0%	2.8%	6.3%	5.1%	7.8%	7.4%	9.2%	8.8%	10.9%	9.5%	100.0%	

Table 8. Reported hourly king salmon observations at the North River counting tower, Norton Sound, 1998.

Outlined areas indicate hours not counted

Prior to 8 July passage estimates are unreliable because of problems with the weir and flash panel

Date	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total	% of Total
15-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
17-Jun	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1%
18-Jun	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1%
19-Jun									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
20-Jun	0	0	0	0	0	0	-2	0								0	0	0	0	0	0	0	0	0	4	0.2%
21-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									0	0.0%
22-Jun	0	0	0	0	0	0	0	0											0	2	0	0	0	0	2	0.1%
23-Jun	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	6	0	0	0	10			20	1.2%
24-Jun	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	6	0	2	0	2	6	-2	20	1.2%
25-Jun	0	0	0	0	0	0	0	0	0	2	0	2	0	0	2	2	2	4	4	0	0	2	0	6	26	1.5%
26-Jun									2	4	4	2	2	0	2	2	0	0	0	0	2	0	0	6	26	1.5%
27-Jun	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	2	2									4	0.2%
29-Jun	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	2	8	0.5%
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
1-Jul	0	2	2	2	0	0	0	4	2	0	2	0	0	2	6	0	0	0	0	0	0	0	0	-2	20	1.2%
2-Jul	0	0	0	4	0	0	0	0	2	0	0	0	0	2	0	2	0	0	0	0	2	0	0	0	12	0.7%
3-Jul									0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0.1%
4-Jul																									0	0.0%
5-Jul									0	0	2	0	0	0	0	0									2	0.1%
6-Jul	0	0	0	0	0	2	0	0	-2	0	0	0	-4	0	0	0	2	0	4	0	0	0	4	6	12	0.7%
7-Jul	0	2	0	0	0	0	0	2	0	0	-2	0	0	0	4	0	24	8	30	4	8	4	4	0	88	5.1%
8-Jul	0	0	0	0	0	0	0	0	-2	0	0	0	0	0							0	0	4	2	4	0.2%
9-Jul	0	0	0	2	-6	2	10	10	2	4					4	0	2	8	10	10	2	2	6	2	70	4.1%
10-Jul	2	6	0	4	4	6	8	4	2	2	0	0	0	2	0	0	8	4	4	4	6	4	2	8	[illegible]	4.7%
11-Jul	8	18	34	20	12	30	36	22					4	2	12	6	24	2	2	4						8%
12-Jul	42	20	24	8	20	42	26	8	6	4	2	-2	0	0	6	0									[illegible]	[illegible]
13-Jul	0	2	0	2	2	2	0	2	2	4	4	2	2	6	0	0	2	6	4	0	2	2	0	4	50	2.9%
14-Jul	0	0	2	2	2	0	4	2	4	0	0	6	2	6	12	4	4	6	4	10	2	0	0	0	72	4.2%
15-Jul	4	2	0	6	4	0	2	0	2	4	0	0	6	2	0	6	2	4	2	6	4	2	0	2	60	3.5%
16-Jul	2	0	2	2	0	0	0	0	2	2	6	4	2	14	4	4	0	8	6	12	6	8	0	6	92	5.3%
17-Jul					10	16	20	2	8	0	4	6					2	2	4	2	8	6	0	2	92	5.3%
18-Jul	0	0	0	0	0	0	0	0					10	2	0	2	0	2	0	20					36	2.1%
19-Jul	0	0	0	0	0	0	2	0	0	0	2	0	4	0	0	6									14	0.8%
20-Jul	2	14	10	2	0	10	4	2	4	0	6	2	4	0	2	8	2	4	0	2	0	2	0	2	82	4.8%
21-Jul	4	4	10	8	6	12	4	2	0	0	4	0	2	4	2	10	6	6	4	4	0	0	0	0	92	5.3%
22-Jul	8	10	4	2	6	12	8	0	4	0	2	8	10	2	0	4	4	2	0	2	2	0	0	0	90	5.2%
23-Jul	8	0	2	10	6	12	10	10	4	4	2	6	4	6	12	4	0	0	0	0	2	2	0	2	106	6.2%
24-Jul									0	0	0	4	0	0	0	4	0	0	2	0	2	0	0	0	12	0.7%
25-Jul									2	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	8	0.5%
26-Jul																									0	0.0%
27-Jul	2	0	0	2	0	0	0	0	0	2	0	0	0	0	0	2	2	2	0	0	4	2	2	0	20	1.2%
28-Jul	0	0	0	0	0	-2	2	0	0	0	0	-2	0	0	0	0	0	0	0	0	0	0	2	2	2	0.1%
29-Jul	2	0	0	0	2	2	2	2	0	0	2	0	0	-2	2	0	0	0	4	0	0	0	0	-2	14	0.8%
30-Jul	0	0	0	0	2	2	4	0	0	0	0	0	0	0	2	-2	4	0	2	-2	-2	2	0	0	12	0.7%
31-Jul									0	0	0	2	2	0	0	2	0	0	0	2	0	0	2	0	10	0.6%
1-Aug									4	2	0	0	2	0	0	2	0	-4	4	-2	0	2	-2	-2	6	0.3%
2-Aug	0	0	2	2	-2	0	0	-2									0	0	0	2	0	0	0	0	2	0.1%
3-Aug	0	0	0	0	0	0	0	0							0										0	0.0%
4-Aug																									0	0.0%
5-Aug																									0	0.0%
6-Aug																									0	0.0%
7-Aug																									0	0.0%
8-Aug														0	-2			-2	0	-2	0	0	2	0	-4	-0.2%
9-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	-2	-4	0	0	0	-2	-0.1%
10-Aug	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1%
11-Aug	2	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	-2	0	0	0	0	0	0	[illegible]	[illegible]
12-Aug	0	0	0	0	0	0	0	0	End of counting season																	0%
Total	86	84	92	78	72	148	142	76	50	36	42	42	52	60	82	74	94	74	90	80	48	52	32	44	[illegible]	
	5.0%	4.9%	5.3%	4.5%	4.2%	8.6%	8.3%	4.4%	2.9%	2.1%	2.4%	2.4%	3.0%	2.9%	4.8%	4.3%	5.5%	4.3%	5.2%	4.7%	2.8%	3.0%	1.9%	2.6%	100.0%	

Table 9. Reported hourly coho salmon observations at the North River counting tower, Norton Sound, 1998.

Outlined areas indicate hours not counted

Prior to 8 July passage estimates are unreliable because of problems with the weir and flash panel

Date	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total	% of Total
15-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
17-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
18-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
19-Jun									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									0	0.0%
22-Jun	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	0	0			0	0.0%
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
26-Jun									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%
28-Jun	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	0	0	0	0	0	0.0%
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
1-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
2-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
3-Jul									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
4-Jul																									0	0.0%
5-Jul									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	0	0	0	0	0	0.0%
7-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
8-Jul	0	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	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
10-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
11-Jul	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%
13-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
14-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
15-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
16-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
17-Jul					0	0	0	0	0	0	0	0					0	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%
19-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									0	0.0%
20-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
21-Jul	0	6	4	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	2	20	1.0%
22-Jul	4	6	6	0	0	0	2	0	0	0	2	2	0	0	0	4	0	0	0	0	2	4	4	0	38	1.9%
23-Jul	0	0	4	2	2	2	4	4	2	2	0	2	2	0	0	2	4	8	2	4	2	4	2	0	54	2.8%
24-Jul									0	0	0	2	4	0	0	0	0	0	8	0	8	0	6	0	30	1.6%
25-Jul									0	0	0	2	0	2	2	2	0	4	0	0	2	0	2	0	16	0.8%
26-Jul																									0	0.0%
27-Jul	0	0	0	0	0	2	4	0	0	0	2	0	0	6	0	2	12	8	4	2	8	8	6	6	70	3.7%
28-Jul	14	16	2	2	0	0	2	4	2	0	0	0	0	0	0	0	2	2	2	0	10	6	12	22	98	5.1%
29-Jul	16	8	4	2	0	0	2	6	0	0	0	0	0	6	0	2	2	4	4	8	12	10	8	6	100	5.2%
30-Jul	16	0	2	2	0	0	2	2	0	2	0	2	0	2	2	0	10	4	16	10	0	12	8	8	100	5.2%
31-Jul									0	2	2	0	2	2	0	2	0	4	6	10	2	4	12	8	56	2.9%
1-Aug									4	2	0	4	0	2	2	0	0	0	6	10	6	16	2	2	56	2.9%
2-Aug	12	36	8	8	8	0	20	24									0	8	16	8	10	66	12	26	262	13.7%
3-Aug	20	6	8	0	0	0	0	0							0										34	1.8%
4-Aug																									0	0.0%
5-Aug																									0	0.0%
6-Aug																									0	0.0%
7-Aug																									0	0.0%
8-Aug														0	10			14	34	48	10	22	24	14	176	9.2%
9-Aug	0	12	2	2	2	2	2	2	4	16	14	4	12	14	4	6	16	18	24	16	28	8	26	28	262	13.7%
10-Aug	4	2	2	0	2	0	-2	2	14	6	6	14	6	16	4	6	20	24	44	22	20	20	80	34	346	18.1%
11-Aug	12	6	2	2	8	2	2	10	0	6	0	8	4	8	16	8	16	16	14	26	10	14	8	0	196	10.3%
12-Aug	4	0	0	0	0	-2	-2	0	End of counting season																0	0.0%
Total	102	98	44	22	22	6	36	56	26	36	26	40	30	58	40	34	82	114	180	164	134	194	214	156	1,914	
	5.3%	5.1%	2.3%	1.1%	1.1%	0.3%	1.9%	2.9%	1.4%	1.9%	1.4%	2.1%	1.6%	3.0%	2.1%	1.8%	4.3%	6.0%	9.4%	8.6%	7.0%	10.1%	11.2%	8.2%	100.0%	

Table 10. North River counting tower climatological and stream observations, Norton Sound 1998.

Date	Water Temp °C	Water Level "
20-Jun-98	10	
21-Jun-98	9	26.0
22-Jun-98	10	26.0
23-Jun-98	11	26.0
24-Jun-98	10	25.3
25-Jun-98	9	25.3
26-Jun-98	11	23.8
27-Jun-98	14	23.1
28-Jun-98	13	22.5
29-Jun-98	12	21.9
30-Jun-98	12	21.5
1-Jul-98	13	20.9
2-Jul-98	12	32.0
3-Jul-98	12	31.3
4-Jul-98		
5-Jul-98	12	30.0
6-Jul-98	12	28.0
7-Jul-98	14	28.0
8-Jul-98	13	27.8
9-Jul-98		29.3
10-Jul-98		28.0
11-Jul-98	13	25.5
12-Jul-98	12	24.5
13-Jul-98	12	24.0
14-Jul-98	11	24.3
15-Jul-98	12	24.0
16-Jul-98	14	23.8
17-Jul-98	13	22.8
18-Jul-98	14	22.5
19-Jul-98	12	23.0
20-Jul-98	15	22.0
21-Jul-98	13	22.4
22-Jul-98	13	21.4
23-Jul-98	13	29.4
24-Jul-98	11	28.8
25-Jul-98	10	28.0
26-Jul-98	9	41.0
27-Jul-98	10	36.9
28-Jul-98	11	34.9
29-Jul-98	10	33.1
30-Jul-98	9	32.5
31-Jul-98	9	31.5
1-Aug-98	9	31.0
2-Aug-98	10	36.0
3-Aug-98	9	48.8
4-Aug-98	8	
5-Aug-98	7	51.3
6-Aug-98	7	49.5
7-Aug-98	7	48.8
8-Aug-98	7	48.0

Figure 1. Area location map of the North River counting tower project site, Norton Sound, 1998.

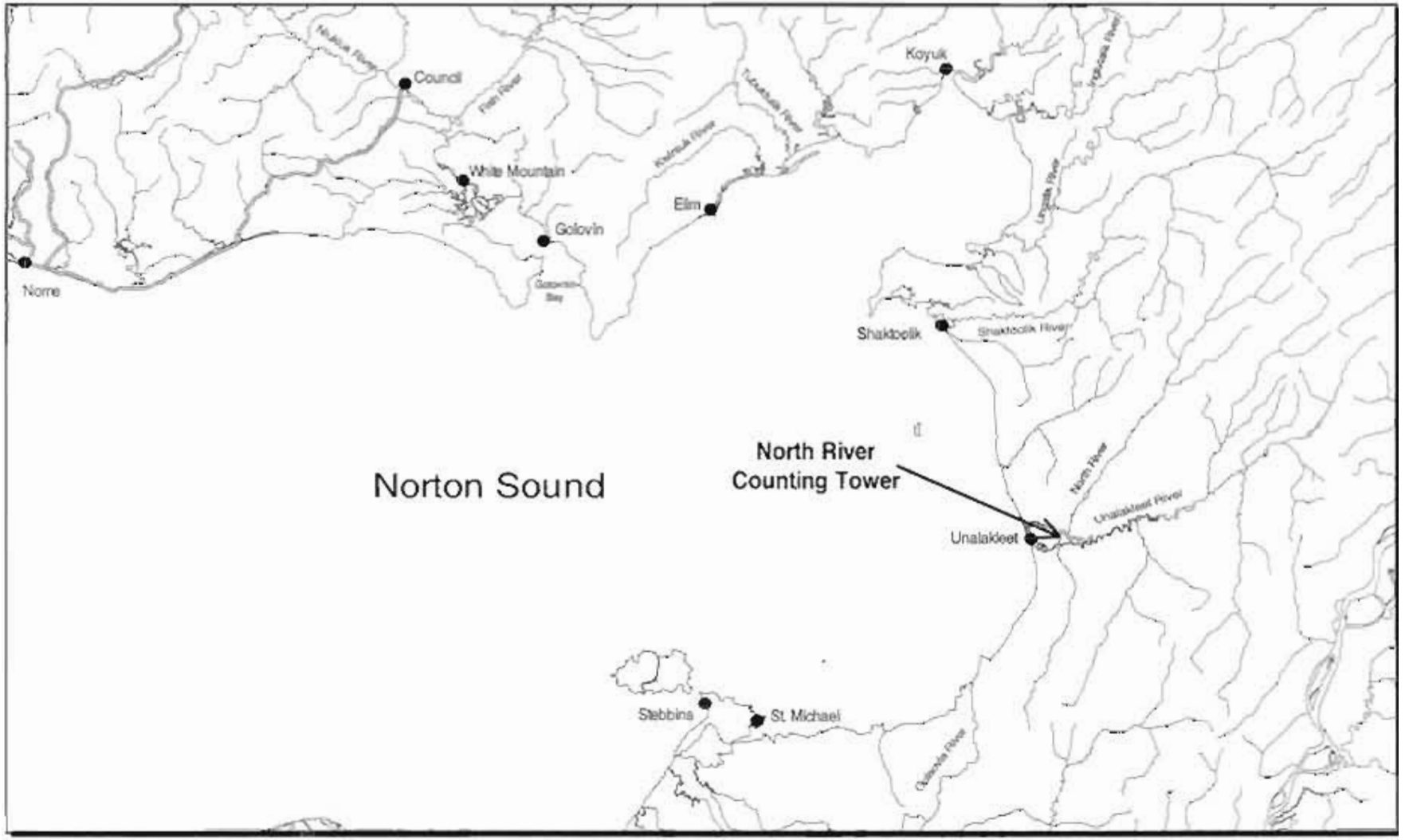


Figure 2. Cumulative migration of all salmon species, except pink salmon, past the North River counting tower, Norton Sound, 1998.

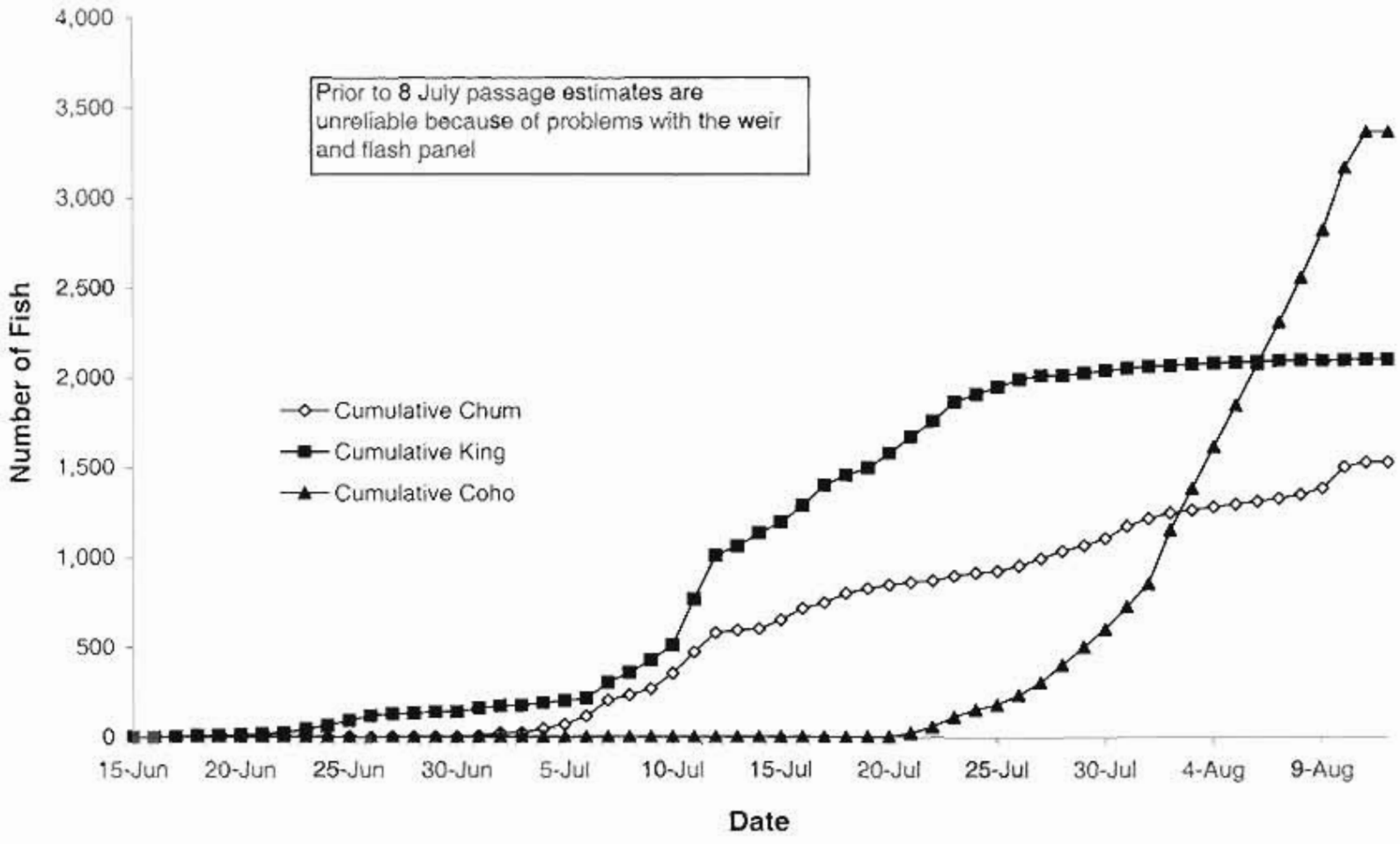


Figure 3. Daily chum salmon migration past the North River counting tower, Norton Sound, 1998.

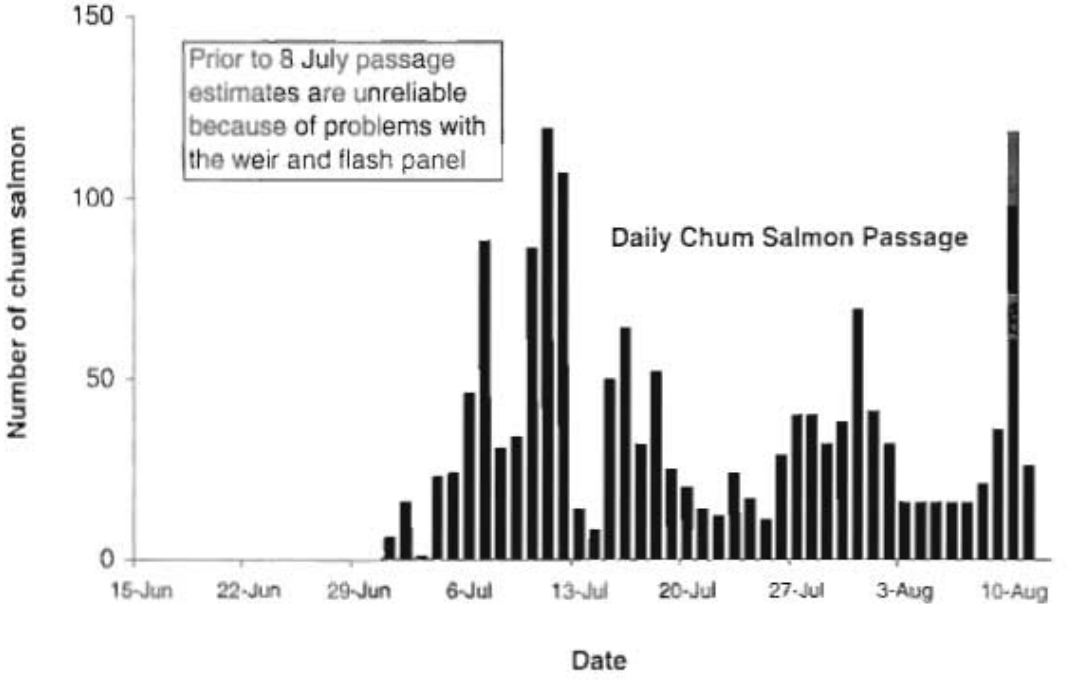


Figure 4. Cumulative chum salmon migration past the North River counting tower, Norton Sound, 1998.

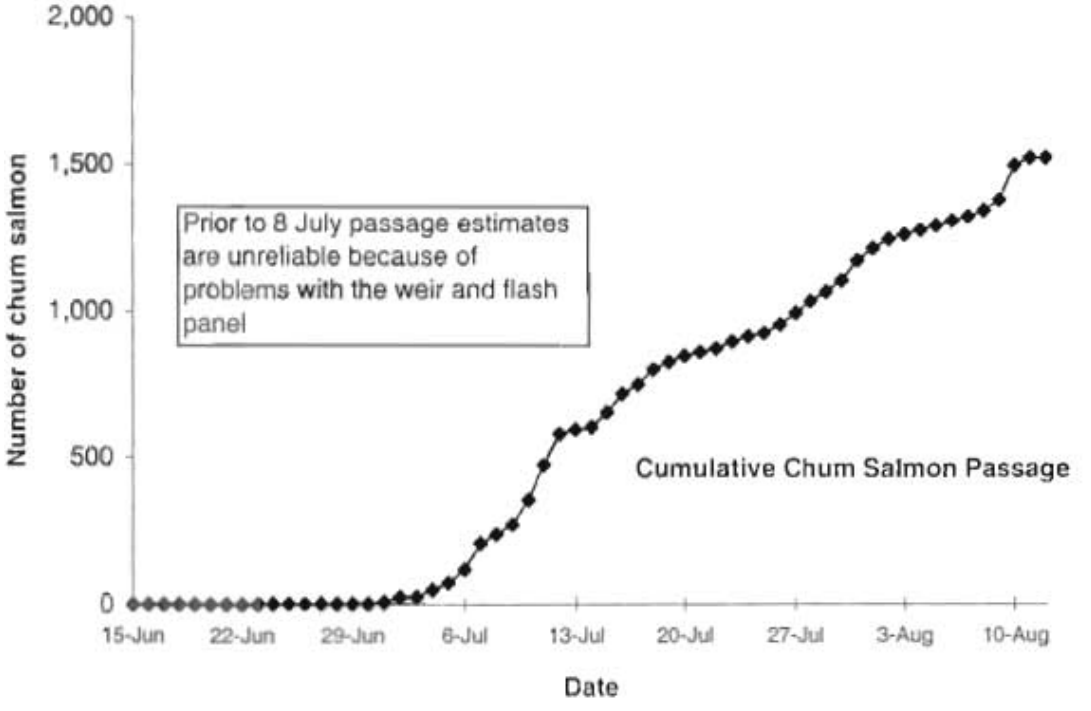


Figure 5. Daily pink salmon migration past the North River counting tower, Norton Sound, 1998.

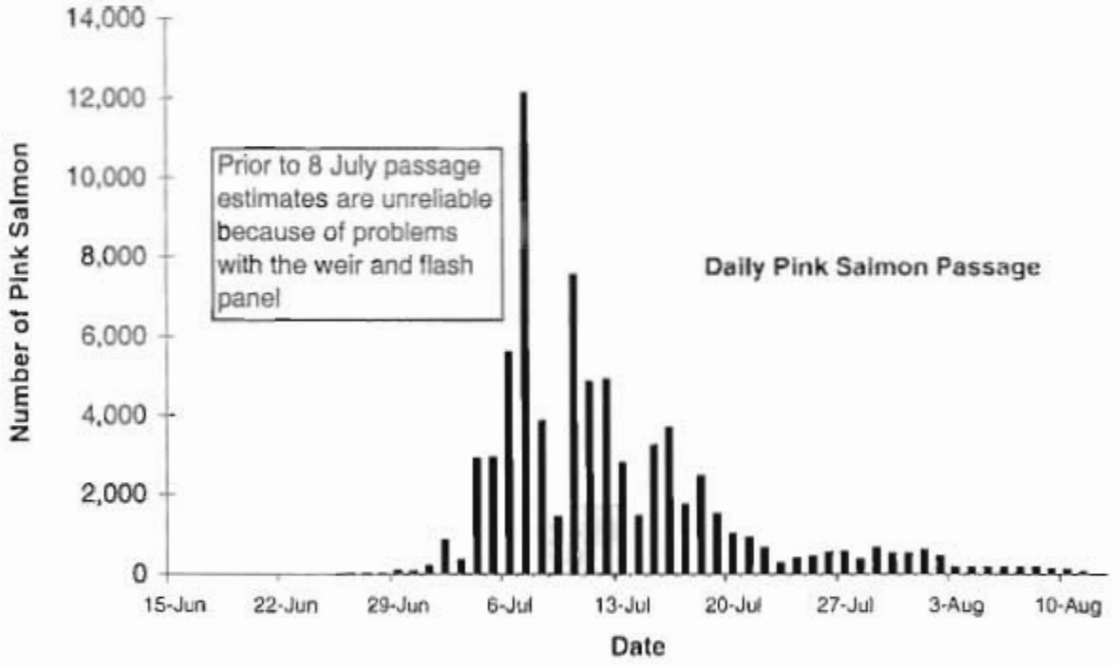


Figure 6. Cumulative pink salmon migration past the North River counting tower, Norton Sound, 1998.

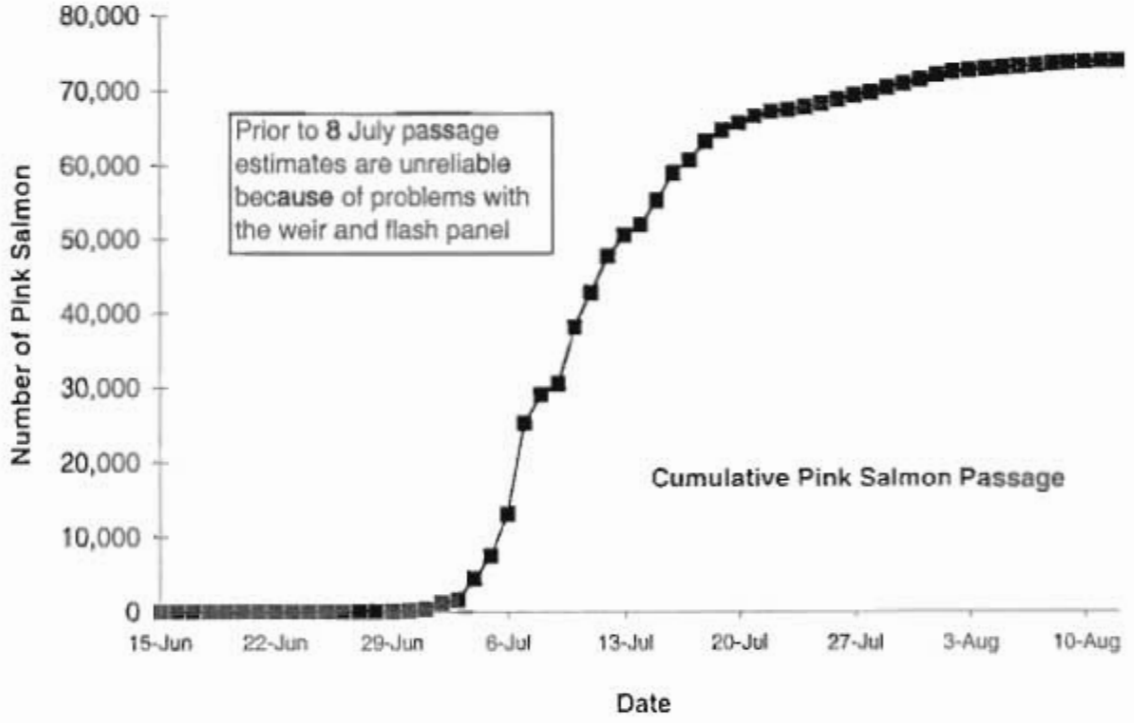


Figure 7. Daily king salmon migration past the North River counting tower, Norton Sound, 1998.

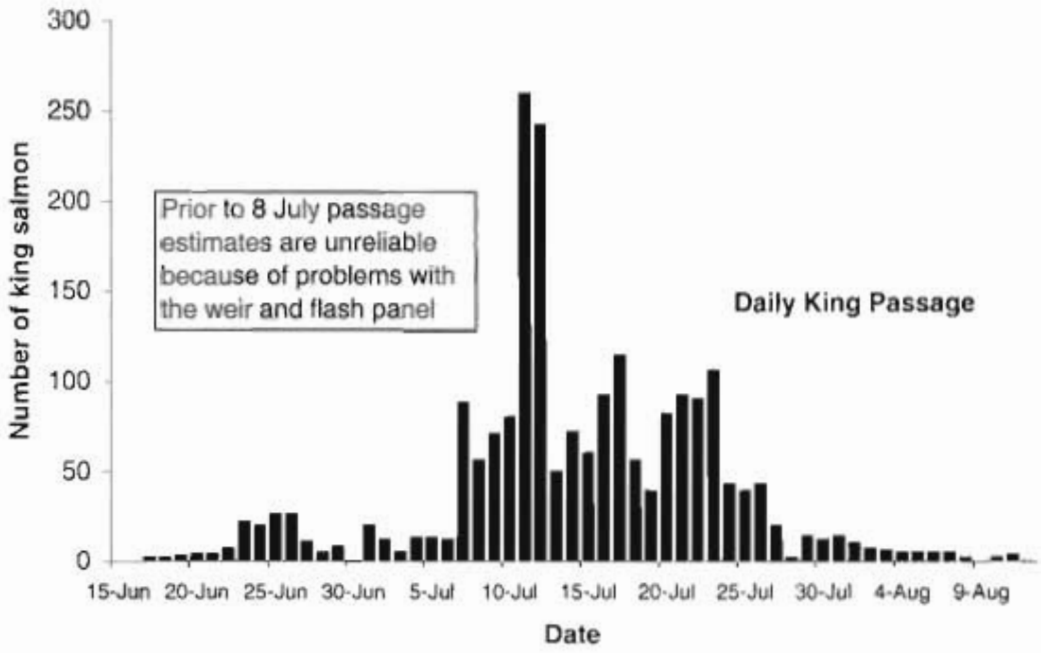


Figure 8. Cumulative king salmon migration past the North River counting tower, Norton Sound, 1998.

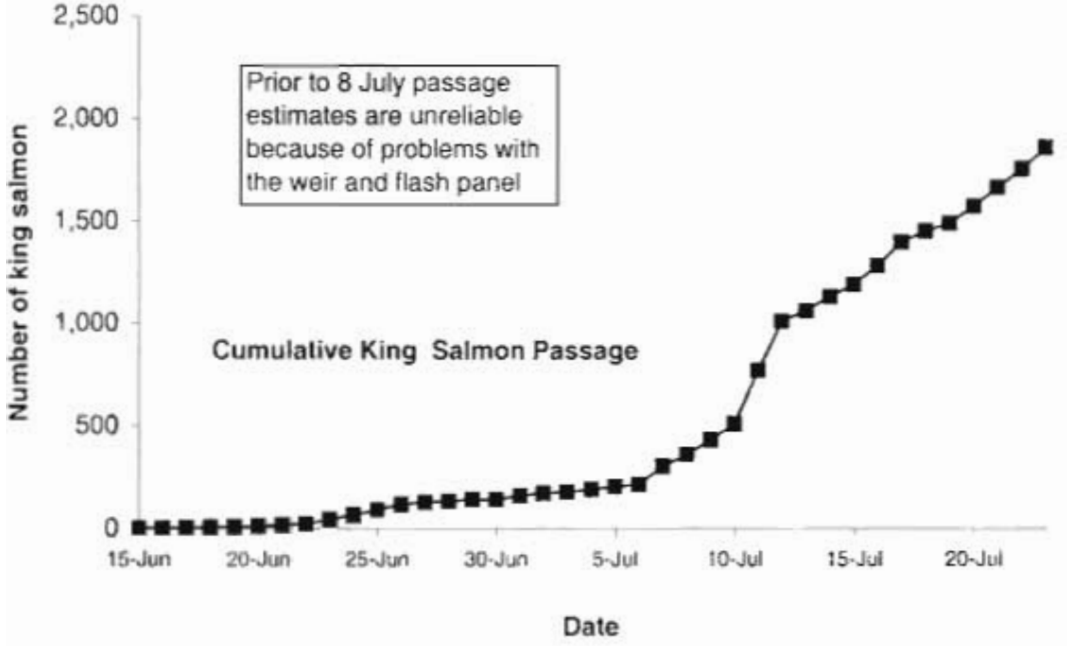


Figure 9. Daily coho salmon migration past the North River counting tower, Norton Sound, 1998.

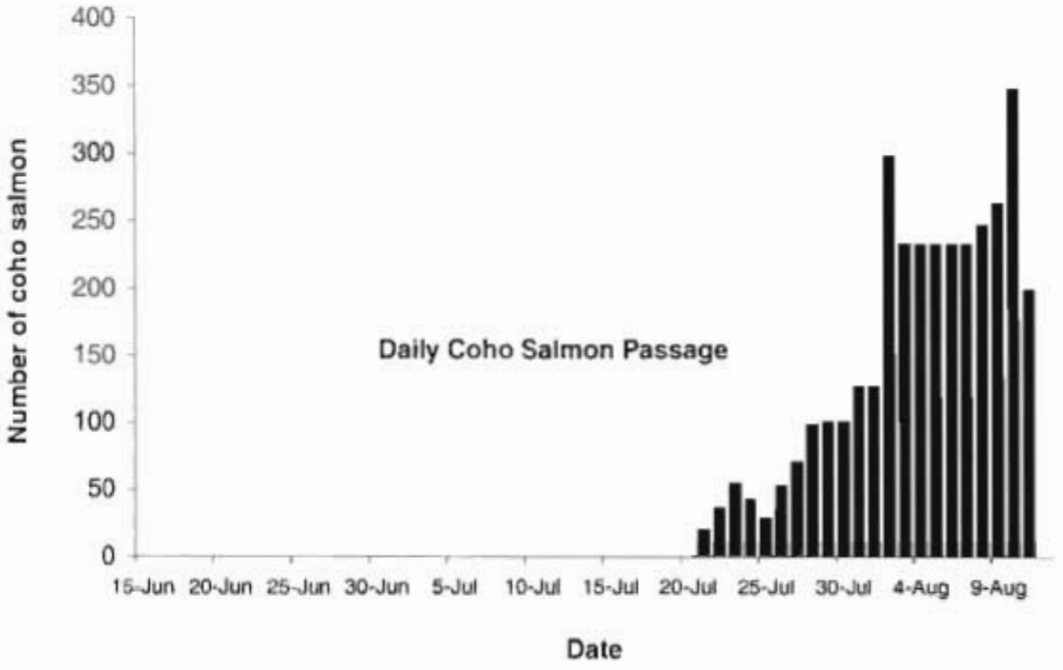
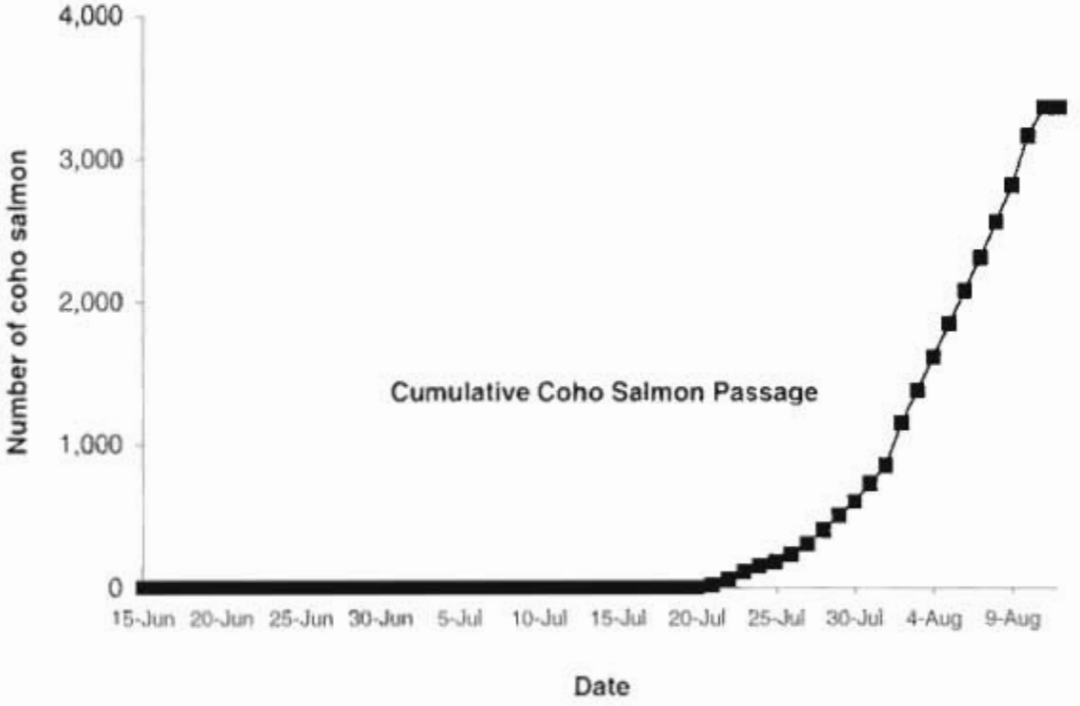


Figure 10. Cumulative coho salmon migration past the North River counting tower, Norton Sound, 1998.



igure 11. Diurnal pattern of chum salmon migration past the North River counting tower, Norton Sound, 1998.

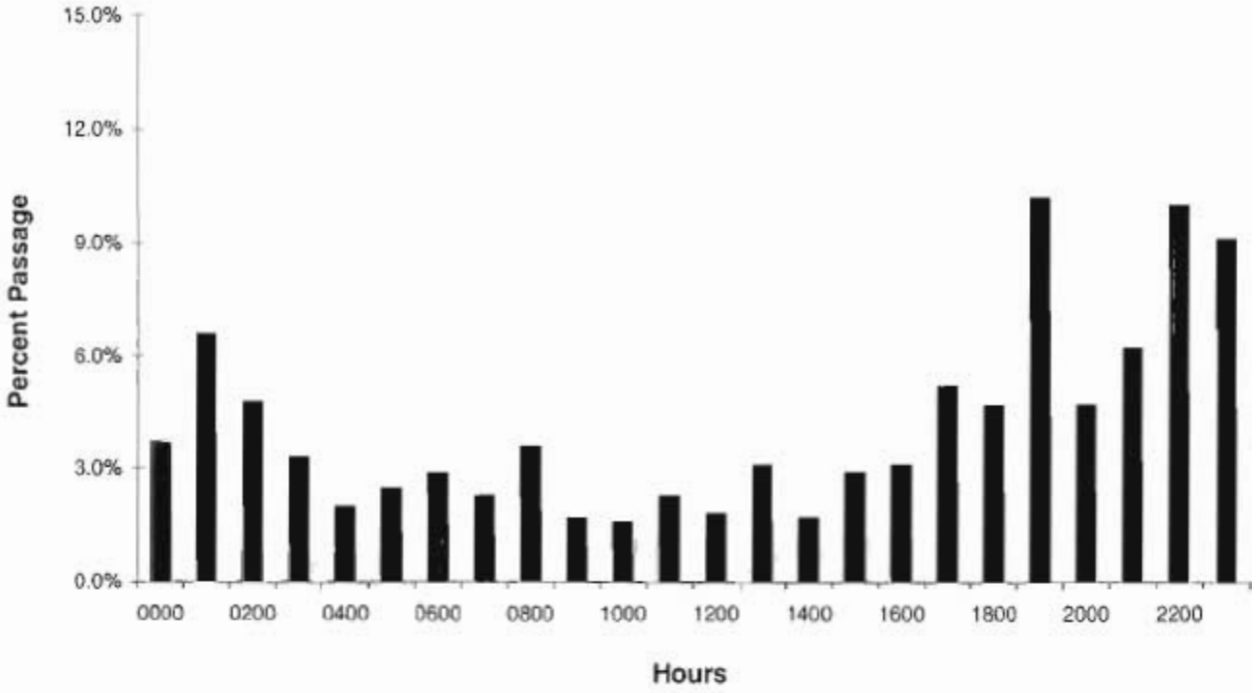


Figure 12. Diurnal pattern of pink salmon migration past the North River counting tower, Norton Sound, 1998.

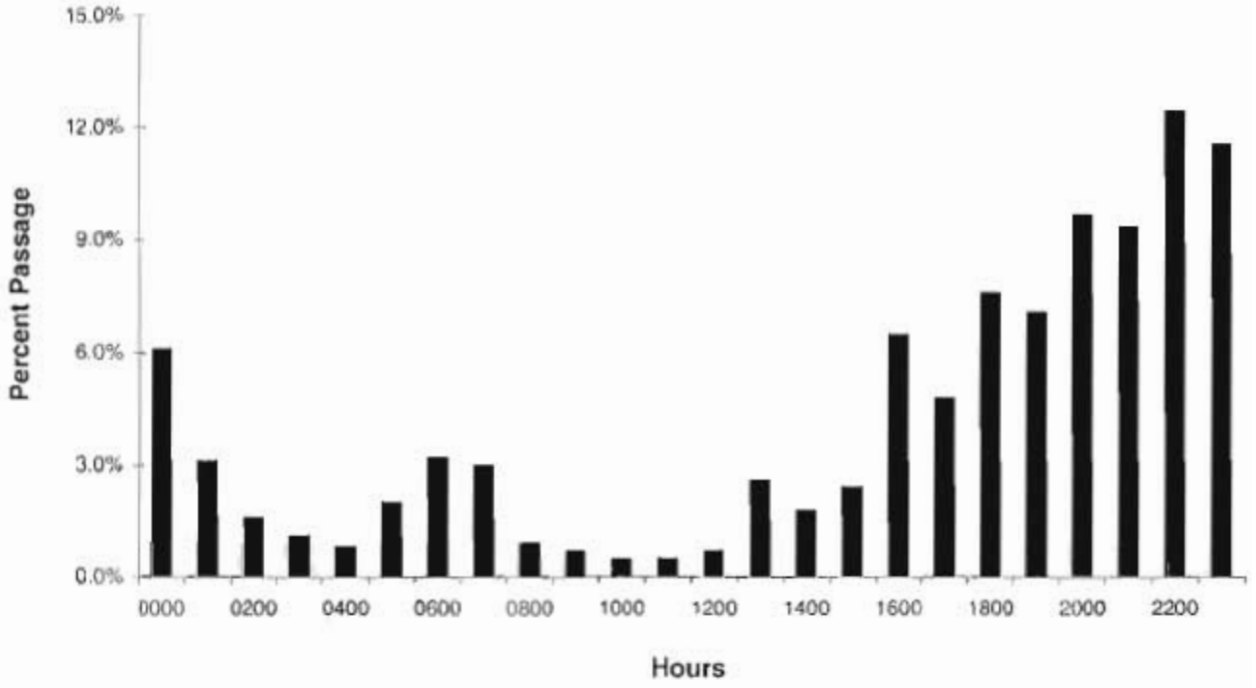


Figure 13. Diurnal pattern of king salmon migration past the North River counting tower, Norton Sound, 1998.

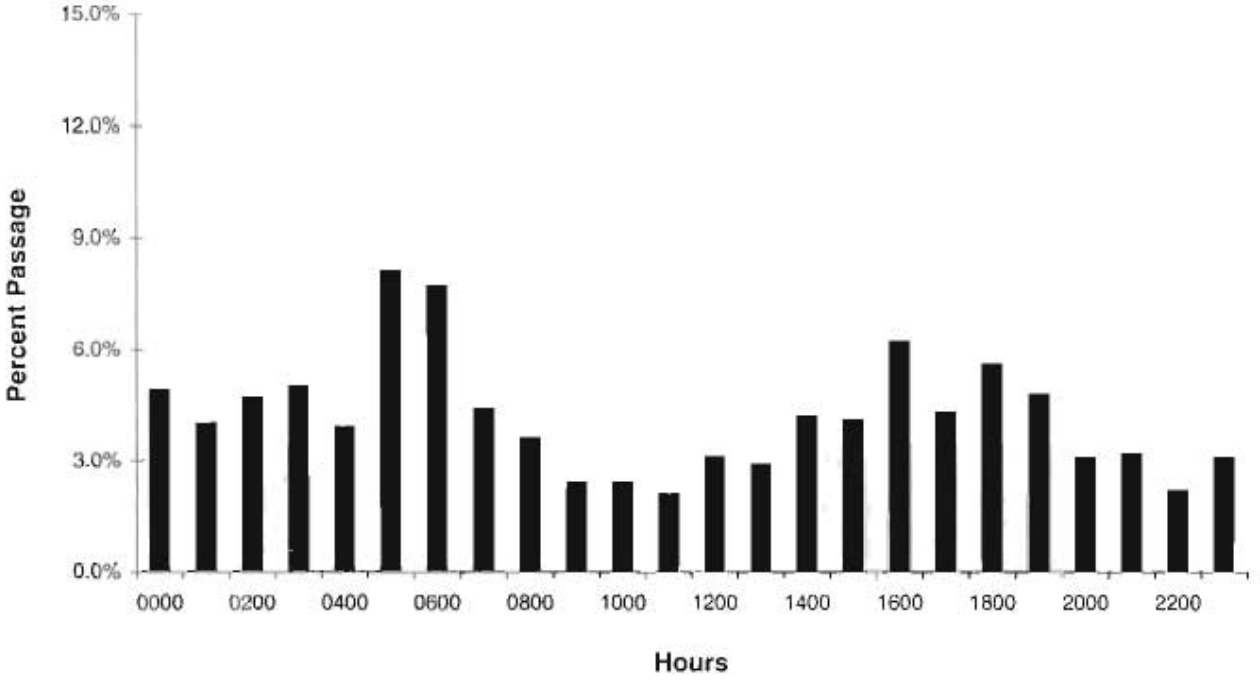


Figure 14. Diurnal pattern of coho salmon migration past the North River counting tower, Norton Sound, 1998.

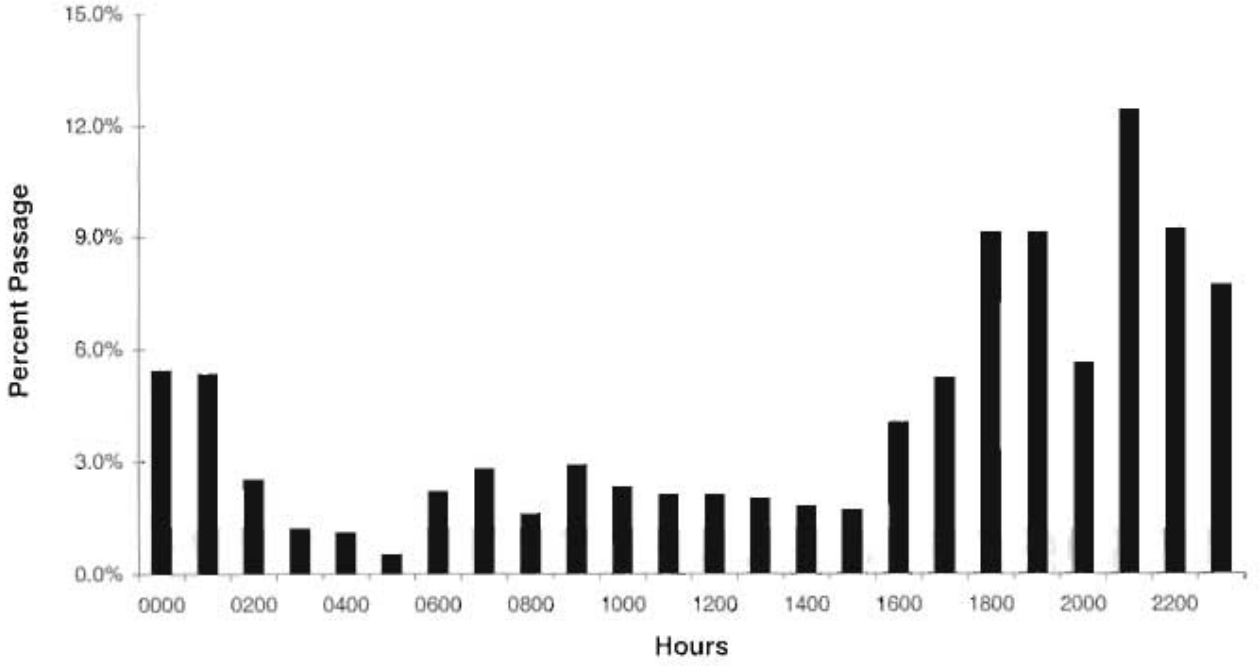


Figure 15. Cumulative chum salmon passage past the North River counting tower, Norton Sound, 1972-1974, 1984-1986, and 1997-1998.

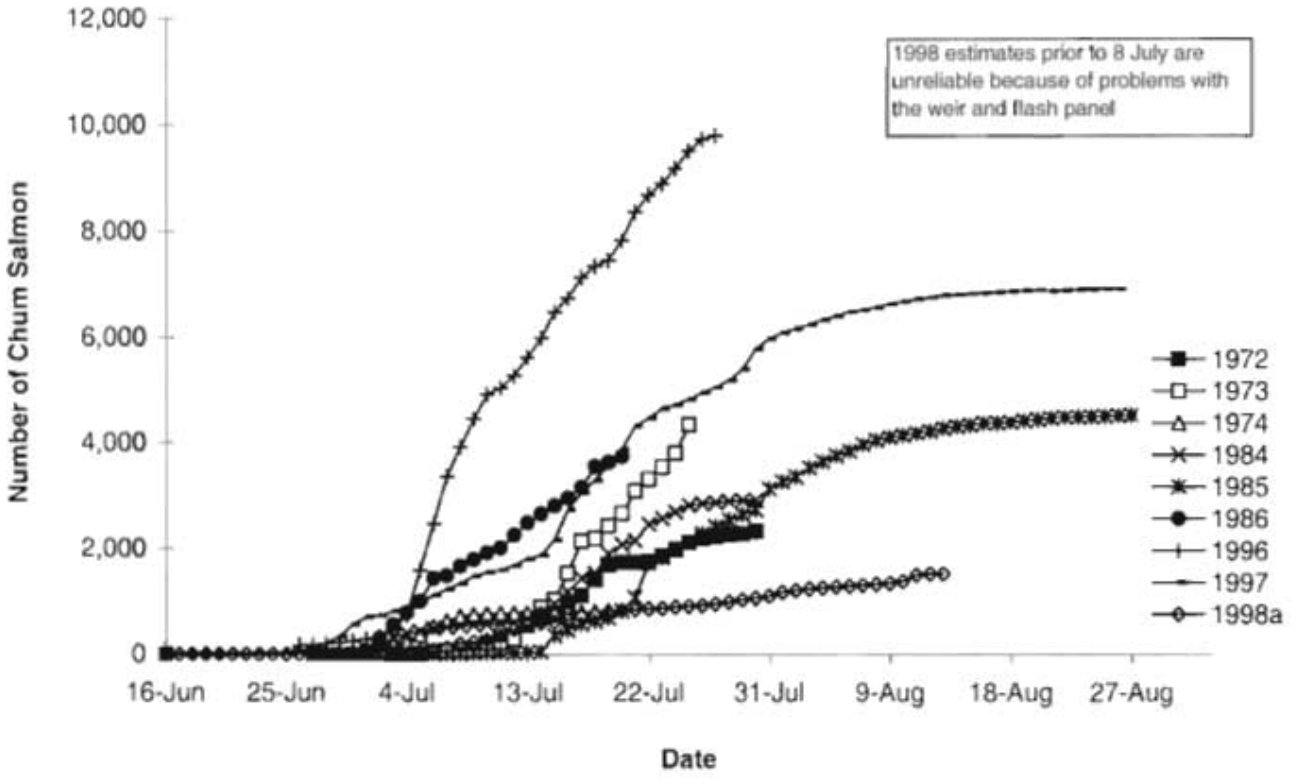


Figure 16. Even year cumulative pink salmon passage past the North River counting tower, Norton Sound, 1972-1974, 1984-1986, and 1996-1998.

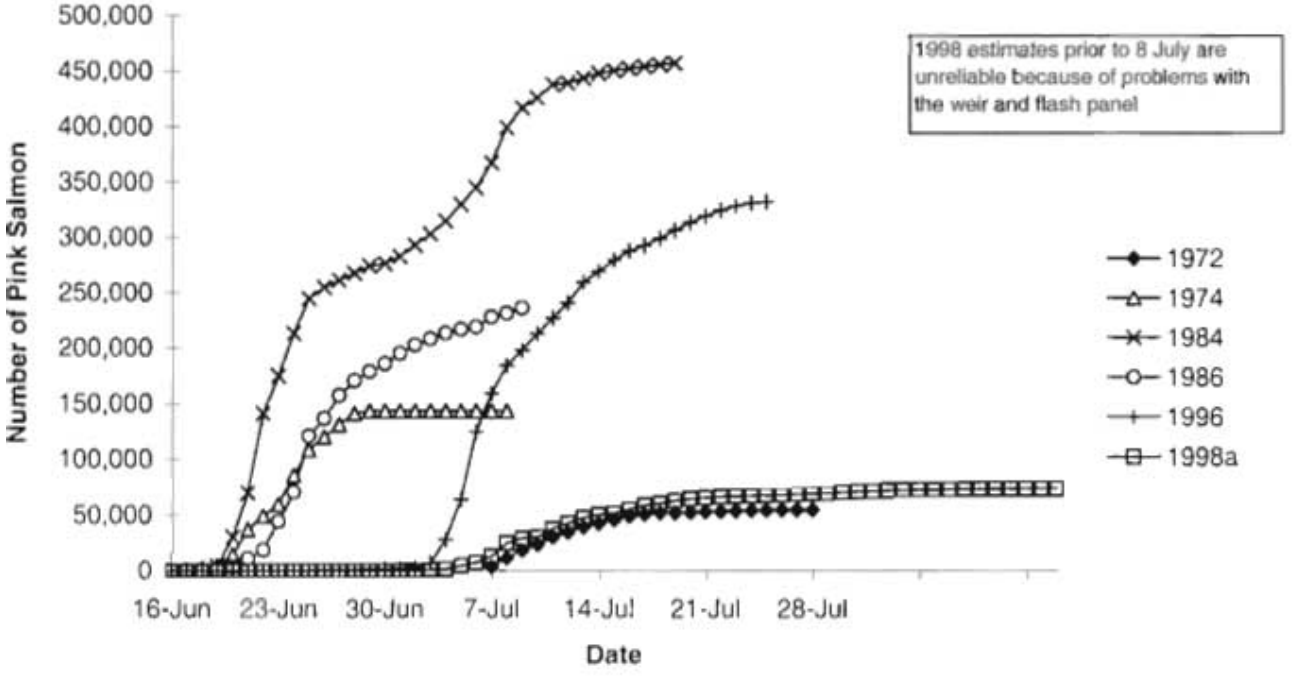


Figure 17. Odd year cumulative pink salmon passage past the North River counting tower, Norton Sound 1973, 1985 and 1997.

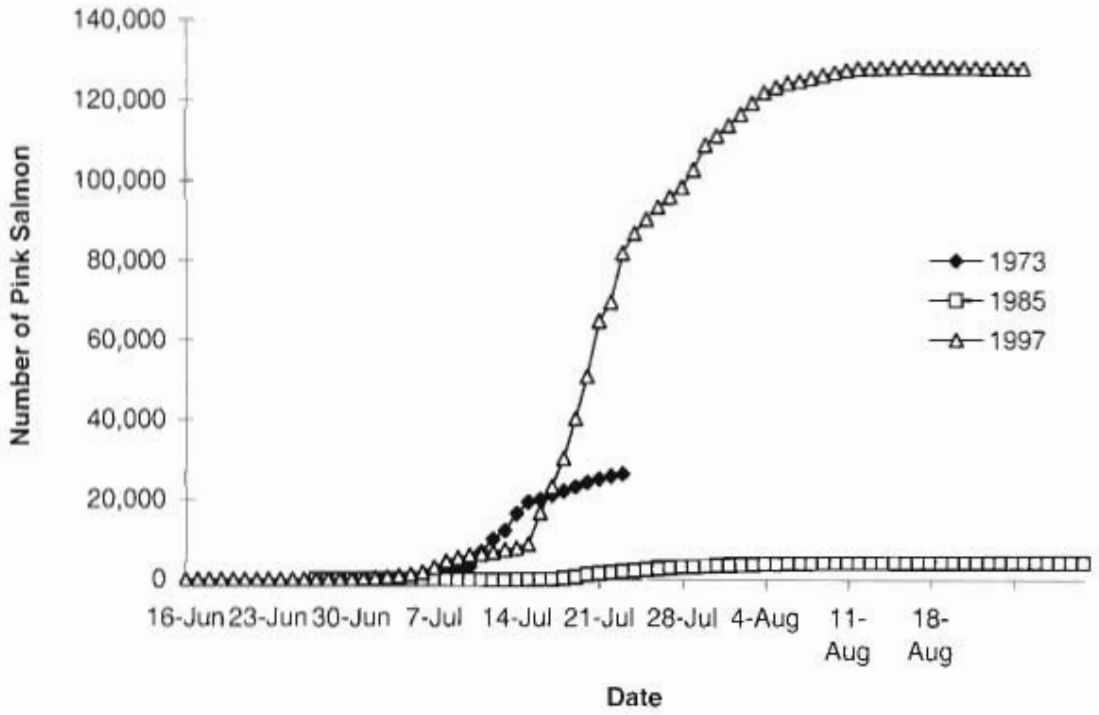


Figure 18. Cumulative king salmon passage past the North River counting tower, Norton Sound, 1972-1974, 1984-1986 and 1996-1998.

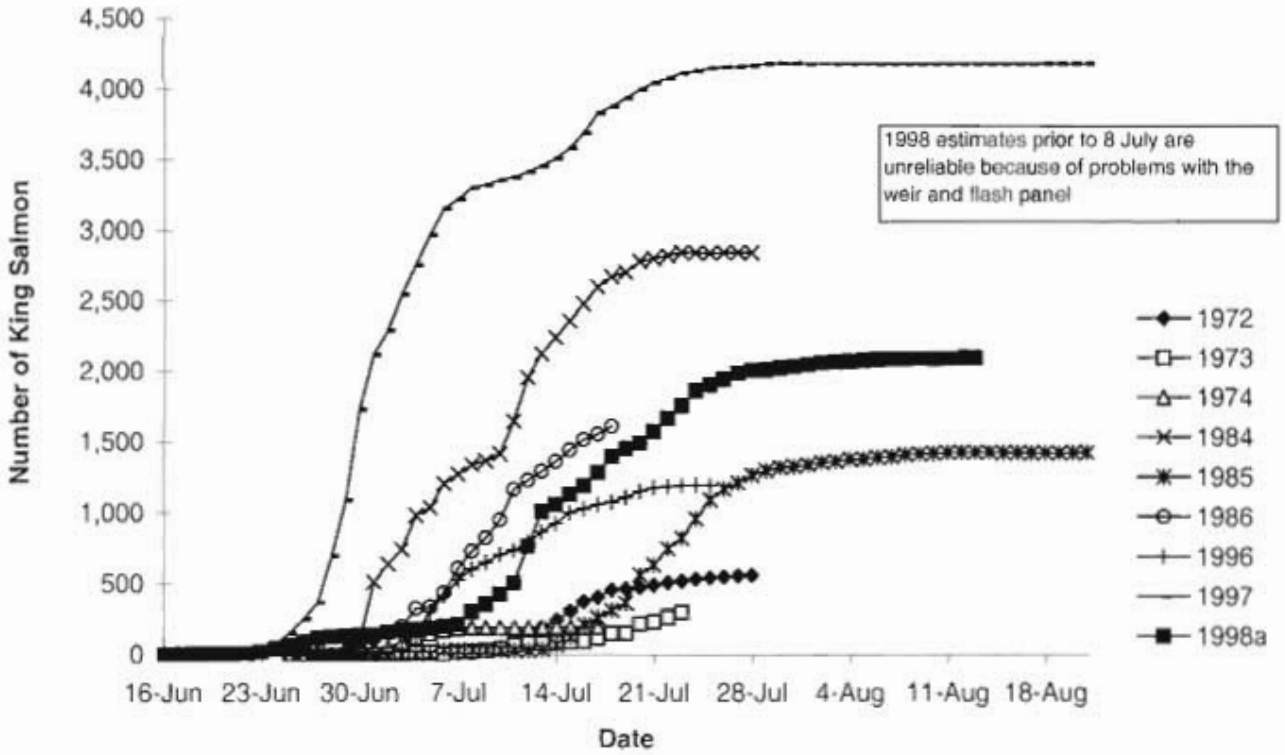
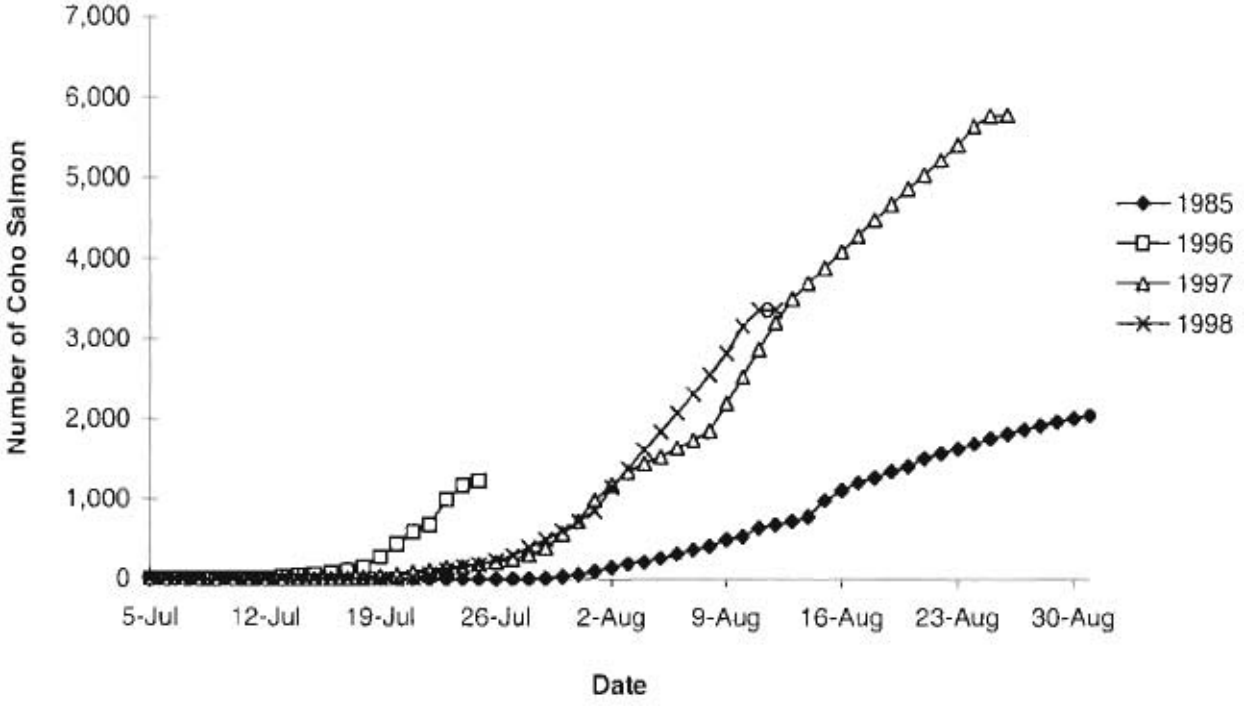


Figure 19. Cumulative coho salmon passage past the North River counting tower, Norton Sound, 1985, 1986 and 1996-1998.



Appendix Table 1 Daily cumulative chum salmon escapement past the North River counting tower, Norton Sound, 1972-1974, 1984-1986 and 1996-1998.

Date	1972	1973	1974	1984	1985	1986	1996	1997	1998[a]	Average C
15-Jun									0	
16-Jun							0	0	0	0
17-Jun							16	0	0	8
18-Jun							4	0	0	2
19-Jun							-18	0	0	-9
20-Jun							-10	0	0	-5
21-Jun							-6	2	0	-2
22-Jun							-6	3	0	-2
23-Jun							-6	5	0	-1
24-Jun							168	7	0	88
25-Jun			0	0		0	180	19	0	40
26-Jun			0	1		0	201	58	0	52
27-Jun			19	1	0	0	226	107	0	59
28-Jun			23	1	0	14	253	222	0	86
29-Jun		0	33	68	0	82	289	335	0	118
30-Jun		0	91	124	0	308	335	571	0	204
1-Jul		9	177	320	0	562	497	701	6	324
2-Jul		9	217	395	0	784	737	737	22	411
3-Jul		19	369	431	0	999	1,585	809	23	602
4-Jul		59	533	489	0	1,439	2,468	898	46	841
5-Jul		72	633	511	0	1,485	3,360	987	70	1,007
6-Jul		79	717	533	15	1,668	3,916	1,118	116	1,149
7-Jul	96	88	751	551	20	1,792	4,446	1,232	204	1,122
8-Jul	215	96	769	570	23	1,921	4,914	1,339	235	1,231
9-Jul	272	121	776	579	25	2,011	5,038	1,481	269	1,288
10-Jul	344	288	776	600	25	2,251	5,268	1,548	355	1,388
11-Jul	548	681	776	675	38	2,485	5,610	1,598	474	1,551
12-Jul	687	891	776	776	52	2,655	5,976	1,680	581	1,687
13-Jul	777	1,041	780	952	364	2,807	6,468	1,803	595	1,874
14-Jul	958	1,545	793	1,184	458	2,953	6,734	1,873	603	2,062
15-Jul	1,114	2,144	798	1,437	573	3,158	7,122	2,169	653	2,314
16-Jul	1,418	2,190	810	1,531	633	3,552	7,340	2,734	717	2,526
17-Jul	1,696	2,436	826	1,895	694	3,628	7,450	3,058	749	2,710
18-Jul	1,742	2,666		2,072	826	3,738	7,820	3,290	801	3,165
19-Jul	1,742	3,087		2,150	1,077		8,350	3,582	826	3,331
20-Jul	1,754	3,310		2,461	1,730		8,671	3,880	846	3,634
21-Jul	1,859	3,546		2,572	1,834		8,883	4,310	860	3,834
22-Jul	1,990	3,798		2,692	1,985		9,173	4,464	872	4,017
23-Jul	2,119	4,334		2,812	2,126		9,501	4,647	896	4,257
24-Jul	2,204			2,846	2,276		9,715	4,719	913	4,352
25-Jul	2,241			2,870	2,413		9,789	4,817	924	4,426
26-Jul	2,268			2,896	2,539			4,943	953	3,162
27-Jul	2,285			2,908	2,643			5,044	993	3,220
28-Jul	2,332			2,915	2,733			5,175	1,033	3,289
29-Jul					3,129			5,382	1,065	4,256
30-Jul					3,261			5,770	1,103	4,516
31-Jul					3,353			5,958	1,172	4,656
1-Aug					3,526			6,076	1,213	4,801
2-Aug					3,638			6,160	1,245	4,894
3-Aug					3,750			6,235	1,261	4,993
4-Aug					3,839			6,316	1,277	5,078
5-Aug					3,959			6,392	1,293	5,176
6-Aug					4,040			6,468	1,309	5,254
7-Aug					4,098			6,504	1,325	5,301
8-Aug					4,129			6,556	1,346	5,343
9-Aug					4,176			6,612	1,382	5,394
10-Aug					4,212			6,663	1,500	5,438
11-Aug					4,265			6,707	1,525	5,486
12-Aug					4,301			6,740	1,526	5,521
13-Aug					4,326			6,778		5,552
14-Aug					4,362			6,793		5,578
15-Aug					4,366			6,808		5,587
16-Aug					4,377			6,823		5,600
17-Aug					4,406			6,838		5,622
18-Aug					4,425			6,853		5,639
19-Aug					4,457			6,868		5,663
20-Aug					4,472			6,877		5,675
21-Aug					4,473			6,861		5,667
22-Aug					4,480			6,875		5,678
23-Aug					4,488			6,877		5,683
24-Aug					4,499			6,891		5,695
25-Aug					4,512			6,904		5,708
26-Aug					4,520			6,904		5,712
27-Aug					4,526					4,526
28-Aug					4,531					4,531
29-Aug					4,537					4,537
30-Aug					4,550					4,550
31-Aug					4,567					4,567
	2,332	4,334	826	2,915	4,567	3,738	9,789	6,904	1,526	4,426

[a] 1998 estimates prior to 8 July are unreliable because of problems with the weir and flash panel

Appendix Table 2. Daily cumulative pink salmon escapement past the North River counting tower, Norton Sound, 1972-1974, 1984-1986, and 1996-1998

Date	1972	1973	1974	1984	1985	1986	1996	1997	1998*
15-Jun									0
16-Jun							0	0	0
17-Jun							2	0	0
18-Jun							4	0	0
19-Jun							4	0	0
20-Jun							4	0	0
21-Jun							7	0	0
22-Jun							13	0	0
23-Jun							69	0	0
24-Jun							183	0	0
25-Jun			111	27		0	277	0	0
26-Jun			371	27		20	466	0	16
27-Jun			2,410	379	0	42	672	0	34
28-Jun			5,366	4,201	0	542	958	4	53
29-Jun		0	14,140	30,301	0	3,162	1,339	24	143
30-Jun		0	36,909	70,057	0	10,648	1,693	147	223
1-Jul		49	49,445	141,035	0	18,685	2,437	355	425
2-Jul		63	59,699	175,065	0	44,335	3,303	486	1,273
3-Jul		187	85,613	213,513	0	70,567	6,909	692	1,627
4-Jul		539	108,778	244,864	0	120,907	28,338	1,006	4,523
5-Jul		1,004	120,023	255,068	0	136,727	64,205	1,320	7,458
6-Jul		1,196	131,573	261,472	0	157,516	124,775	1,840	13,056
7-Jul	3,790	1,394	141,361	267,837	0	170,730	159,527	3,068	25,172
8-Jul	11,743	1,504	143,621	274,201	0	179,083	184,489	4,648	29,038
9-Jul	18,374	1,931	143,692	276,696	0	185,913	198,253	5,509	30,466
10-Jul	23,589	3,276	143,724	283,051	0	195,468	213,351	6,114	37,988
11-Jul	30,323	6,925	143,764	293,200	11	202,944	227,431	6,430	42,832
12-Jul	34,836	10,115	143,764	303,493	13	208,597	240,976	6,856	47,733
13-Jul	39,428	12,265	143,772	315,069	23	213,705	260,174	7,495	50,515
14-Jul	42,550	16,510	143,777	330,354	79	217,106	269,748	7,966	51,971
15-Jul	46,046	19,384	143,783	345,473	135	219,354	279,962	9,010	55,225
16-Jul	49,000	20,028	143,785	368,228	201	228,168	288,006	16,704	58,909
17-Jul	50,801	21,094	143,789	400,054	250	231,798	293,082	23,330	60,645
18-Jul	52,079	22,192		417,711	407	236,487	299,382	30,418	63,091
19-Jul	52,303	23,205		426,787	753		306,986	40,383	64,592
20-Jul	52,512	24,323		438,645	1,350		314,103	50,923	65,606
21-Jul	52,956	25,265		440,167	1,591		319,901	64,899	66,518
22-Jul	53,409	25,978		444,602	1,917		324,945	69,649	67,170
23-Jul	53,965	26,542		449,037	2,179		329,293	81,922	67,452
24-Jul	54,320			451,423	2,439		331,905	86,914	67,856
25-Jul	54,545			453,398	2,701		332,539	90,522	68,298
26-Jul	54,710			455,204	2,924			93,504	68,853
27-Jul	54,763			456,875	3,159			95,959	69,427
28-Jul	54,934			458,387	3,301			98,363	69,811
29-Jul					3,431			102,706	70,485
30-Jul					3,534			108,868	71,005
31-Jul					3,627			111,202	71,530
1-Aug					3,704			113,718	72,141
2-Aug					3,783			116,490	72,684
3-Aug					3,940			119,332	72,792
4-Aug					4,009			121,892	72,974
5-Aug					4,062			123,171	73,156
6-Aug					4,112			124,229	73,338
7-Aug					4,135			124,735	73,520
8-Aug					4,158			125,431	73,713
9-Aug					4,228			126,142	73,847
10-Aug					4,269			126,787	73,973
11-Aug					4,284			127,351	74,045
12-Aug					4,295			127,774	74,049
13-Aug					4,322			127,946	
14-Aug					4,322			127,989	
15-Aug					4,330			128,032	
16-Aug					4,334			128,075	
17-Aug					4,337			128,118	
18-Aug					4,337			128,161	
19-Aug					4,344			128,204	
20-Aug					4,351			128,146	
21-Aug					4,351			128,000	
22-Aug					4,349			127,968	
23-Aug					4,350			127,964	
24-Aug					4,354			127,944	
25-Aug					4,355			127,930	
26-Aug					4,356			127,926	
27-Aug					4,357				
28-Aug					4,358				
29-Aug					4,359				
30-Aug					4,360				
31-Aug					4,360				

* 1998 estimates prior to 8 July are unreliable because of problems with the weir and fish panel

Appendix Table 3. Daily cumulative king salmon escapement past the North River counting tower, Norton Sound, 1972-1974, 1984-1986, and 1996-1998.

Date	1972	1973	1974	1984	1985	1986	1996	1997	1998*
15-Jun									0
16-Jun							8	2	0
17-Jun							6	5	2
18-Jun							4	25	4
19-Jun							0	25	7
20-Jun							0	25	11
21-Jun							-6	27	15
22-Jun							-9	31	22
23-Jun							-9	45	44
24-Jun							-5	70	64
25-Jun			0	0		0	-9	150	90
26-Jun			0	0		2	-12	251	116
27-Jun			1	0	0	2	-13	367	127
28-Jun			3	0	0	2	-14	693	132
29-Jun		1	6	55	0	8	-14	1,091	140
30-Jun		1	42	101	0	42	-12	1,730	140
1-Jul		1	48	513	0	116	-2	2,118	160
2-Jul		6	53	642	0	158	6	2,288	172
3-Jul		10	88	745	0	198	44	2,543	177
4-Jul		16	125	984	0	326	145	2,756	190
5-Jul		19	151	1,038	1	338	306	2,969	203
6-Jul		2	173	1,207	35	438	416	3,150	215
7-Jul	11	22	184	1,274	34	609	528	3,220	303
8-Jul	15	26	191	1,341	34	731	606	3,304	359
9-Jul	30	33	191	1,367	34	827	652	3,324	430
10-Jul	50	43	192	1,418	34	953	708	3,358	510
11-Jul	126	71	192	1,648	32	1,167	738	3,379	769
12-Jul	172	82	192	1,957	33	1,230	793	3,416	1,011
13-Jul	194	83	193	2,126	39	1,294	869	3,460	1,061
14-Jul	245	87	196	2,242	71	1,364	927	3,508	1,133
15-Jul	309	94	196	2,358	126	1,446	1,005	3,584	1,193
16-Jul	376	97	196	2,481	213	1,518	1,033	3,690	1,285
17-Jul	406	119	196	2,602	260	1,557	1,059	3,830	1,399
18-Jul	458	150		2,674	314	1,613	1,077	3,879	1,455
19-Jul	466	150		2,706	366		1,113	3,939	1,494
20-Jul	475	216		2,784	563		1,153	3,996	1,576
21-Jul	492	231		2,803	635		1,179	4,048	1,668
22-Jul	508	262		2,825	748		1,187	4,078	1,758
23-Jul	521	298		2,847	824		1,193	4,116	1,864
24-Jul	535			2,845	958		1,197	4,131	1,907
25-Jul	544			2,840	1,093		1,197	4,150	1,946
26-Jul	551			2,844	1,168			4,158	1,989
27-Jul	556			2,848	1,213			4,160	2,009
28-Jul	561			2,844	1,266			4,169	2,011
29-Jul					1,300			4,180	2,025
30-Jul					1,322			4,186	2,037
31-Jul					1,328			4,186	2,051
1-Aug					1,341			4,186	2,061
2-Aug					1,356			4,185	2,068
3-Aug					1,366			4,185	2,074
4-Aug					1,381			4,185	2,079
5-Aug					1,382			4,185	2,084
6-Aug					1,392			4,185	2,089
7-Aug					1,397			4,185	2,094
8-Aug					1,414			4,185	2,096
9-Aug					1,418			4,185	2,094
10-Aug					1,423			4,185	2,096
11-Aug					1,427			4,185	2,100
12-Aug					1,429			4,185	2,100
13-Aug					1,429			4,185	
14-Aug					1,432			4,185	
15-Aug					1,428			4,185	
16-Aug					1,428			4,185	
17-Aug					1,425			4,185	
18-Aug					1,424			4,185	
19-Aug					1,424			4,185	
20-Aug					1,425			4,185	
21-Aug					1,426			4,185	

* 1998 estimates prior to 8 July are unreliable because of problems with the weir and flash panel.

Appendix Table 4. Daily cumulative coho salmon escapement past the North River counting tower, Norton Sound, 1985 and 1996-1998.

Date	1985	1996	1997	1998
5-Jul	0	0	0	0
6-Jul	0	0	0	0
7-Jul	0	0	0	0
8-Jul	0	0	0	0
9-Jul	0	6	0	0
10-Jul	0	8	0	0
11-Jul	0	8	0	0
12-Jul	0	12	0	0
13-Jul	0	29	0	0
14-Jul	0	41	0	0
15-Jul	0	53	0	0
16-Jul	0	73	3	0
17-Jul	0	103	9	0
18-Jul	0	149	18	0
19-Jul	0	279	35	0
20-Jul	0	441	54	0
21-Jul	0	593	80	20
22-Jul	0	681	100	56
23-Jul	0	997	140	110
24-Jul	0	1,175	158	152
25-Jul	0	1,229	192	180
26-Jul	0		214	232
27-Jul	0		246	302
28-Jul	0		301	400
29-Jul	8		395	500
30-Jul	31		569	600
31-Jul	57		725	726
1-Aug	97		991	852
2-Aug	140		1,181	1,149
3-Aug	193		1,338	1,381
4-Aug	216		1,448	1,613
5-Aug	265		1,527	1,845
6-Aug	319		1,640	2,077
7-Aug	374		1,738	2,309
8-Aug	419		1,858	2,555
9-Aug	500		2,192	2,817
10-Aug	536		2,532	3,163
11-Aug	645		2,865	3,361
12-Aug	686		3,209	3,361
13-Aug	725		3,499	
14-Aug	781		3,694	
15-Aug	988		3,889	
16-Aug	1,117		4,084	
17-Aug	1,211		4,279	
18-Aug	1,272		4,474	
19-Aug	1,345		4,669	
20-Aug	1,409		4,860	
21-Aug	1,507		5,026	
22-Aug	1,568		5,208	
23-Aug	1,631		5,404	
24-Aug	1,688		5,629	
25-Aug	1,759		5,758	
26-Aug	1,816		5,768	
27-Aug	1,872			
28-Aug	1,920			
29-Aug	1,966			
30-Aug	2,010			
31-Aug	2,045			