NORTH RIVER SALMON COUNTING TOWER PROJECT, 2001

By

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and

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Commercial Fisheries Division, AYK Region
333 Raspberry Road
Anchorage, Alaska 99518-1599

Regional Informational Report[1] No. 3A02-23

March 2002

[1]The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports.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

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PROJECT SPONSORSHIP

The North River counting tower is a cooperative project operated by the Kawerak Corporation with assistance provided by the Alaska Department of Fish & Game (ADF&G). Funding is provided by the Bering Sea Fishermen's Association (BSFA) and the Norton Sound Economic Development Corporation (NSEDC). ADF&G analyzed and expanded the tower count data and produced this report.

ACKNOWLEDGEMENTS

The ADF&G thanks Kawerak Corporation for operating this project and in particular the tower crew who operated the tower. Susan McNeil and Linda Brannian reviewed a draft of this report.

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ABSTRACT

The North River is the largest of the five major tributaries of the Unalakleet River, which is the largest salmon producer in Norton Sound. The counting tower is located approximately 20 minutes by boat upstream from the village of Unalakleet in Eastern Norton Sound. This was the sixth consecutive year a salmon counting tower was operated. A counting tower was previously operated for three years from 1972 through 1974 and for three years from 1984 through 1986. The objective of the project was to obtain daily and seasonal information concerning the timing and magnitude of the chum, pink, chinook and coho salmon escapement to the North River. Counting began on 5 July and ended on 15 September in 2001. The expanded counts for 2001 were: 6,515 chum salmon, 24,737 pink salmon, 1,337 chinook salmon, and 12,383 coho salmon.

KEY WORDS: chum salmon, chinook salmon, pink salmon, coho salmon, counting tower, North River, Unalakleet, *Oncorhynchus*

INTRODUCTION

The North River is the largest of the five major tributaries of the Unalakleet River, which is the largest salmon producing system in Norton Sound. This was the sixth consecutive year a salmon counting tower was operated on the North River, approximately three km above its confluence with the Unalakleet River (Figure 1) (Rob 1997, 1998, 1999 and Kohler 2000, 2001). A counting tower was previously operated on the North River for the three years from 1972 through 1974 near the North River bridge (Regnant and Trasky 1973, and Cunningham 1974 and 1975) and for the three years from 1984 through 1986 (Lean 1985-1987). Chum salmon were the primary species of harvest for the Unalakleet Subdistrict commercial fishery during the early years of the project. The project was discontinued at that time because there was no funding for the the project 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, chinook 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.

The objective of this project was to obtain daily and seasonal information concerning the timing and magnitude of the chum, pink, chinook 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 mid-June. A scaffolding tower was erected on the bank of the river to serve as an observation platform. A 15 x 2.5 m vinyl canvas flash panel was placed on the river bottom directly in front of the tower. A weir to direct the fish over the flash panel was built from the mid-stream end of the flash panel to the opposite bank. An array of four 120 volt lights was mounted on a post below the tower to illuminate the flash panel during periods of low light and darkness.

Counting began on 5 July and ended on 15 September. The project design called for the crew to count 20 half-hour counts for three days followed by 24 half-hour counts on the foruth day. In actuality only three 24-hour counts were made the entire season. The daily counts considered in this report run from 0000 hours to 2330 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 were linearly interpolated in a similar manner (Rob 1999).

RESULTS

The expanded daily and cumulative totals for each salmon species are shown in Table 1. Challenges with high water conditions, personnel, and mechanical problems with the weir are described in the discussion section, affected reliability of the reported salmon passage estimates, most notably between 17 and 20 July, 10 and 12 August, 15 and 18 August, and 5 to 10 September. The expanded counts were: 6,515 chum salmon, 24,737 pink salmon, 1,337 chinook salmon, and 12,383 coho salmon (Tables 2-5, Figure 2). The actual reported total hourly counts were: 4,587 chum salmon, 20,144 pink salmon, 888 chinook salmon, and 7,572 coho salmon (Tables 6-9).

Chum, pink, and, chinook salmon were observed on 5 July, the first day of counting and coho salmon were first observed on 24 July. The daily peak count of 424 chum salmon occurred on 13 July; the daily peak count of 1,981 pink salmon occurred on 24 July; the daily peak of 131 chinook salmon occurred on 16 July; the daily peak count of 2,107 coho salmon occurred on 8 August (Table 1).

Approximately 72% of the chum salmon passage occurred during the month of July (Table 2, Figures 3 and 4). Approximately 82% of the pink salmon passage occurred during the 3 weeks from 23 July through 12 August (Table 3, Figures 5 and 6). All of the chinook salmon passage occurred before 1 August (Table 4, Figures 7 and 8). Approximately 72% of coho salmon passage occurred between 8 and 28 August (Table 5, Figures 9 and 10).

All species counted exhibited a diurnal pattern of migration past the counting tower. During the twelve-hour period from 1600 to 0400 hours, 82% of the chum salmon passed the tower (Table 2 and Figure 11). During the twelve-hour period from 1600 to 0200 hours, 80% of the pink salmon passed the tower (Table 3 and Figure 12). During the period from 1600 to 0600 hours 91% of the chinook salmon passed the tower (Table 4 and Figure 13). During the eleven-hour period from 1600 to 0300 hours, 76% of the coho salmon passed the tower (Table 5 and Figure 14).

A peak aerial survey count of 330 chum salmon was made on 31 July 2001. The aerial survey counted 5% of the total season total count of chum salmon. The peak aerial survey counted 330 chum salmon above the weir on 31 July, when the cumulative tower count of chum salmon was 4,735 (Table 1). The aerial survey counted 7% of the cumulative tower count on 31 July.

An aerial survey count of 367 chinook salmon was made on 31 July 2001. The aerial survey counted 27% of the total season weir count of chinook salmon. The aerial survey counted 367 chinook salmon above the tower on 31 July, when the cumulative tower count of chinook salmon was 1,337 (Table 1). The aerial survey counted 27% of the cumulative tower count on 31 July.

Climatological observations are shown in Table 10.

DISCUSSION

This was the sixth year the North River tower project operated at this site. It was started in 1996 through the cooperation with the Bering Sea Fishermen's Association and Kawerak Incorporated. Water conditions at this site have been marginal at best with high water washouts causing the project to shut down prematurely during the previous five seasons. In 2001 daily counting was begun on 5 July, but the weir and flash panel installation was not completely in the water until 7 July. The weir was removed during the last three weeks of counting and the flash panel did not extend the entire width of the river.

The counts were used as relative comparisons from day to day for assessing run strength. Large blocks of time were not counted due to poor conditions, personnel problems, and weir failure. Although count expansions were calculated to estimate salmon abundance, confidence in those numbers should be minimal because broad liberties were taken with the sampling assumptions. During the periods from 17 July to 19 July, 10 August to 11 August, 15 August to 17 August, and 5 September to 9 September all the counts were missed and a considerable portion of the run could have passed during this time (Tables 2-9). Efforts were made to count during the times of day when the highest salmon passage typically occurred (mornings and evenings). Often, much of the river was not visible during low light and murky conditions after the weir was removed and the flash panel did not span the entire river. Therefore, actual counts should be considered minimal counts and expansions are simply best approximations.

The chum salmon passage estimate was near average since the project started in 1972. 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 odd year pink salmon passage estimate was the second lowest recorded but well above the minimum tower Biological Escapement Goal (BEG) of 8,500 (Appendix Table 2 and Figure 17). The even year pink salmon escapements are shown in Appendix Table 2 and Figure 16). The chinook salmon passage estimate was the third lowest ever recorded and at the lower end of the tower BEG range of 1,200 to 2,400. However, the chinook expansion for the periods 6-9 July and 16-20 July played a large role in the passage estimate (Appendix Table 3 and Figure 18). The coho salmon escapement was the highest ever recorded (Appendix Table 4 and Figure 19).

Caution should be taken when using this data as numerous counts were missed and other counts were excluded due to data collection methods.

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Table 1. Expanded daily and cumulative migration of all salmon species past the North River counting tower, Norton Sound, 2001.

Date	Daily Chum	Cumulative Chum	Daily Pink	Cumulative Pink	Daily Chinook	Cumulative Chinook	Daily Coho	Cumulative Coho
5-Jul	2	2	6	6	10	10	0	0
6-Jul	175	177	78	84	65	75	0	0
7-Jul	333	510	341	425	99	174	0	0
8-Jul	198	708	238	663	106	280	0	0
9-Jul	255	963	234	897	100	380	0	0
10-Jul	203	1,166	125	1,022	24	404	0	0
11-Jul	316	1,482	112	1,134	42	446	0	0
12-Jul	399	1,881	131	1,265	60	506	0	0
13-Jul	424	2,305	259	1,524	97	603	0	0
14-Jul	132	2,437	156	1,680	72	675	0	0
15-Jul	79	2,516	150	1,830	36	711	0	0
16-Jul	305	2,821	482	2,312	131	842	0	0
17-Jul	215	3,036	363	2,675	92	934	0	0
18-Jul	215	3,251	363	3,038	92	1,026	0	0
19-Jul	215	3,466	363	3,401	92	1,118	0	0
20-Jul	145	3,611	235	3,636	53	1,171	0	0
21-Jul	62	3,673	221	3,857	29	1,200	0	0
22-Jul	53	3,726	261	4,118	11	1,211	0	0
23-Jul	68	3,794	209	4,327	0	1,211	0	0
24-Jul	89	3,883	1,981	6,308	22	1,233	41	41
25-Jul	48	3,931	1,445	7,753	14	1,247	41	82
26-Jul	110	4,041	1,594	9,347	10	1,257	122	204
27-Jul	78	4,119	566	9,913	8	1,265	150	354
28-Jul	272	4,391	1,739	11,652	15	1,280	376	730
29-Jul	156	4,547	1,494	13,146	23	1,303	338	1,068
30-Jul	124	4,671	1,421	14,567	27	1,330	320	1,388
31-Jul	64	4,735	949	15,516	7	1,337	86	1,474
1-Aug	60	4,795	1,505	17,021	0	1,337	109	1,583
2-Aug	68	4,863	825	17,846	0	1,337	131	1,714
3-Aug	82	4,945	1,680	19,526	0	1,337	244	1,958
4-Aug	48	4,993	508	20,034	0	1,337	150	2,108
5-Aug	37	5,030	619	20,653	0	1,337	243	2,351
6-Aug	67	5,097	583	21,236	0	1,337	261	2,612
7-Aug	60	5,157	741	21,977	0	1,337	207	2,819
8-Aug	104	5,261	575	22,552	0	1,337	243	3,062
9-Aug	373	5,634	699	23,251	0	1,337	2,107	5,169
10-Aug	202	5,836	417	23,668	0	1,337	1,236	6,405
11-Aug	202	6,038	417	24,085	0	1,337	1,236	7,641
12-Aug	69	6,107	266	24,351	0	1,337	565	8,206
13-Aug	32	6,139	75	24,426	0	1,337	403	8,609
14-Aug	42	6,181	61	24,487	0	1,337	374	8,983
15-Aug	34	6,215	54	24,541	0	1,337	311	9,294
16-Aug	34	6,249	53	24,594	0	1,337	308	9,602
17-Aug	34	6,283	53	24,647	0	1,337	308	9,910
18-Aug	31	6,314	48	24,695	0	1,337	218	10,128
19-Aug	32	6,346	28	24,723	0	1,337	145	10,273
20-Aug	20	6,366	4	24,727	0	1,337	167	10,440
21-Aug	46	6,412	6	24,733	0	1,337	338	10,778
22-Aug	12	6,424	4	24,737	0	1,337	107	10,885
23-Aug	4	6,428	0	24,737	0	1,337	143	11,028
24-Aug	2	6,430	0	24,737	0	1,337	161	11,189
25-Aug	6	6,436	0	24,737	0	1,337	102	11,291
26-Aug	18	6,454	0	24,737	0	1,337	172	11,463
27-Aug	4	6,458	0	24,737	0	1,337	92	11,555
28-Aug	5	6,463	0	24,737	0	1,337	147	11,702
29-Aug	1	6,464	0	24,737	0	1,337	45	11,747
30-Aug	1	6,465	0	24,737	0	1,337	37	11,784
31-Aug	1	6,466	0	24,737	0	1,337	49	11,833
1-Sep	2	6,468	0	24,737	0	1,337	58	11,891
2-Sep	7	6,475	0	24,737	0	1,337	83	11,974
3-Sep	8	6,483	0	24,737	0	1,337	87	12,061
4-Sep	8	6,491	0	24,737	0	1,337	59	12,120
5-Sep	4	6,495	0	24,737	0	1,337	34	12,154
6-Sep	4	6,499	0	24,737	0	1,337	34	12,188
7-Sep	4	6,503	0	24,737	0	1,337	34	12,222
8-Sep	4	6,507	0	24,737	0	1,337	34	12,256
9-Sep	4	6,511	0	24,737	0	1,337	34	12,290
10-Sep	4	6,515	0	24,737	0	1,337	25	12,315
11-Sep	0	6,515	0	24,737	0	1,337	10	12,325
12-Sep	0	6,515	0	24,737	0	1,337	12	12,337
13-Sep	0	6,515	0	24,737	0	1,337	18	12,355
14-Sep	0	6,515	0	24,737	0	1,337	20	12,375
15-Sep	0	6,515	0	24,737	0	1,337	8	12,383
Total	6,515		24,737		1,337		12,383	

Table 2. Expanded daily hourly chum salmon migration past the North River counting tower, Norton Sound, 2001

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

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
5-Jul																		0	0	0	2	0	0	0	2	0.0%
6-Jul	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	4	15	147	175	2.7%
7-Jul	2	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	9	15	294	333	5.1%
8-Jul	32	14	26	32	12	0	4	8	0	0	0	0	0	0	0	0	0	1	0	3	1	9	30	26	198	3.0%
9-Jul	68	24	4	34	14	20	12	18	0	5		0	0	0	0	0	0	2	0	6	0	8	23	17	255	3.9%
10-Jul	52	6	76	0	0	0	14	0	0	10		0	2	7	0	0	0	0	0	4	0	8	16	8	203	3.1%
11-Jul	8	4	26	2	18	0	0	34	4	2		0	2	7	0	0	86	6	0	10	16	16	59	16	316	4.9%
12-Jul	100	28	16	4	2	16	8	0	0	0		0	2	7	0	2	6	4	0	16	32	24	102	32	399	6.1%
13-Jul	68	60	8	8	0	2	0	0	6	2	0	0	4	14	0	0	0	2	0	56	24	76	30	68	424	6.5%
14-Jul	22	16	62	0	0	6	0	0				2	0	0	0	0	10	0	0	2	0	6	2	4	132	2.0%
15-Jul	4	14	24	0	0	0	0	0				1	0	0	8	0	0	-2	0	0	0	4	8	18	79	1.2%
16-Jul	22	28	18	0	0	2	0	2				6	0	0	0	8	46	8	34	30	68	14	6	13	305	4.7%
17-Jul	12	14	9	3	2	8	0	2				4	0	0	0	4	26	11	19	24	46	12	6	13	215	3.3%
18-Jul	12	14	9	3	2	8	0	2				4	0	0	0	4	26	11	19	24	46	12	6	13	215	3.3%
19-Jul	12	14	9	3	2	8	0	2				4	0	0	0	4	26	11	19	24	46	12	6	13	215	3.3%
20-Jul	12	14	9	3	2	8	0	2				3	0	0	0	4	6	14	4	18	24	10	4	8	145	2.2%
21-Jul	2	0	0	6	4	14	0	2				2	0	0	0	0	0	4	4	10	6	8	0	0	62	1.0%
22-Jul	0	0	0	4	0	2	8	12				1	0	0	2	0	0	4	2	4	12	2	0	0	53	0.8%
23-Jul	0	0	6	2	8	0	2	6				2	0	0	0	0	2	6	10	4	12	0	6	2	68	1.0%
24-Jul	2	0	4	6	4	4	2	4	0	0		2	0	1	4	14	6	20	6	4	0	0	4	2	89	1.4%
25-Jul	2	4	0	4	2	0	0	0	0	2		1	0	1	8	4	0	4	4	2	4	2	4	0	48	0.7%
26-Jul	2	0	8	4	2	2	2	2	0	0		3	0	1	16	18	16	20	6	2	0	4	0	2	110	1.7%
27-Jul	2	4	4	0	0	4	0	2	0	6	2	0	0	2	4	12	26	0	0	0	0	0	2	8	78	1.2%
28-Jul	6	2	8	0	0	4	0	0	20	34	12	12	8	4	2	8	14	0	2	1	1	88	20	26	272	4.2%
29-Jul	24	30	16	0	0	4	0	0	11	17		14	2	2	8	4	2	0	4	2	2	2	6	6	156	2.4%
30-Jul	16	6	14	4	0	0	0	0	11	17		11	2	2	-2	6	2	2	4	4	7	6	4	8	124	1.9%
31-Jul	0	2	0	0	0	2	0	0	2	0		6	1	1	0	0	0	6	4	6	12	10	2	10	64	1.0%
1-Aug	8	6	12	0	0	0	6	0	0	0		0	1	1	0	0	0	0	8	4	6	4	0	4	60	0.9%
2-Aug	0	4	6	0	0	0	2	6	0	2		0	1	1	0	4	6	4	4	2	2	6	14	4	68	1.0%
3-Aug	2	6	0	0	2	2	0	2	6	0		0	0	0	2	0	2	14	8	22	10	4	0	0	82	1.3%
4-Aug	2	2	4	0	2	8	6	2	2	4	0	0	0	0	0	0	0	2	4	2	0	6	2	0	48	0.7%
5-Aug	0	2	2	2	0	6	2	2	1	2		0	0	0	0	0	4	4	0	2	4	2	0	2	37	0.6%
6-Aug	8	6	6	12	0	2	8	2	1	2		0	4	0	0	0	0	0	2	4	4	2	2	2	67	1.0%
7-Aug	4	2	10	0	0	0	2	0	0	0		0	4	0	4	2	2	2	8	6	14	0	2	-2	60	0.9%
8-Aug	14	30	6	8	2	2	0	0	0	0		0	4	0	2	0	6	0	2	4	4	0	16	4	104	1.6%
9-Aug	36	10	8	2	0	2	12	14	2	0		0	4	0	2	8	5	78	80	42	46	12	10	0	373	5.7%
10-Aug	20	6	8	1	0	1	6	7		1		0	4	0	1	5	5	39	40	21	23	6	6	2	202	3.1%
11-Aug	20	6	8	1	0	1	6	7		1		0	4	0	1	5	5	39	40	21	23	6	6	2	202	3.1%
12-Aug	20	6	8	1	0	1	6	7		0		0	4	0	1	5	4	0	0	0	0	0	2	4	69	1.1%
13-Aug	4	2	8	0	0	0	0	0		0		0	4	0	0	2	4	0	0	0	0	0	2	6	32	0.5%
14-Aug	8	6	4	2	4	4	0	0		0		0	2	0	0	3	2	0	0	0	0	3	1	3	42	0.6%
15-Aug	4	4	2	1	3	5	1	0		0		0	2	0	0	3	2	0	0	0	0	3	1	3	34	0.5%
16-Aug	4	4	2	1	3	5	1	0		0		0	2	0	0	3	2	0	0	0	0	3	1	3	34	0.5%
17-Aug	4	4	2	1	3	5	1	0		0		0	2	0	0	3	2	0	0	0	0	3	1	3	34	0.5%
18-Aug	4	4	2	1	3	5	1	0		0		0	2	0	0	3	0	0	0	0	0	6	0	0	31	0.5%
19-Aug	0	2	0	0	2	6	2	0		0		0	0	0	0	4	2	2	0	6	2	4	0	0	32	0.5%
20-Aug	0	0	0	2	2	2	0	2		0		0	0	0	0	0	0	4	2	0	4	2	0	0	20	0.3%
21-Aug	0	0	8	2	0	4	2	6		0		0	0	0	0	2	0	4	4	6	2	4	2	0	46	0.7%
22-Aug	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	4	6	2	0	12	0.2%
23-Aug	0	0	0	0	0	4	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.1%
24-Aug	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	2	0	0	0	0	2	0.0%
25-Aug	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	4	2	6	0.1%
26-Aug	4	0	4	0	0	0	0	0	0	0		0	0	0	0	0	4	0	0	0	0	0	0	6	18	0.3%
27-Aug	0	0	2	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	2	4	0.1%
28-Aug	0	2	0	0	0	0	0	0	0	0		0	0	0	2	0	0	0	0	0	0	0	0	1	5	0.1%
29-Aug	0	0	0	0	0	0	0	0	0	0		0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.0%
30-Aug	0	0	0	0	0	0	0	0	0	0		0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.0%
31-Aug	0	0	0	0	0	0	0	0	0	0		0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.0%
1-Sep	0	0	0	0	0	0	0	0	0	0		0	0	1	0	0	0	0	1	0	0	0	0	0	2	0.0%
2-Sep	0	0	0	1	0	0	0	2	0	0		0	0	2	0	0	0	0	2	0	0	0	0	0	7	0.1%
3-Sep	0	0	0	2	0	0	0	4	0	0		0	0	0	0	0	0	2	0	0	0	0	0	0	8	0.1%
4-Sep	0	2	0	0	4	0	2	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	8	0.1%
5-Sep	0	1	0	0	2	0	1	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.1%
6-Sep	0	1	0	0	2	0	1	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.1%
7-Sep	0	1	0	0	2	0	1	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.1%
8-Sep	0	1	0	0	2	0	1	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.1%
9-Sep	0	1	0	0	2	0	1	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.1%
10-Sep	0	1	0	0	2	0	1	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.1%
11-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	0	0	0	0	0	0	0	0															0	0.0%
Total	648	422	470	162	116	181	124	161	66	107	14	78	67	57	65	144	357	330	346	406	511	428	450	805	6,515	100%
	9.9%	6.5%	7.2%	2.5%	1.8%	2.8%	1.9%	2.5%	1.0%	1.6%	0.2%	1.2%	1.0%	0.9%	1.0%	2.2%	5.5%	5.1%	5.3%	6.2%	7.8%	6.6%	6.9%	12.4%	100%	

Table 3. Expanded daily hourly pink salmon migration past the North River counting tower, Norton Sound, 2001.

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

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
5-Jul																		0	0	0	6	0	0	0	6	0.0%
6-Jul	6	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	6	7	5	48	78	0.3%
7-Jul	28	36	50	34	22	16	16	14	0	0	0	2	0	0	0	0	0	1	0	1	6	14	5	96	341	1.4%
8-Jul	26	42	16	34	24	12	18	10	0	0	0	0	0	0	0	0	0	1	0	1	6	8	10	30	238	1.0%
9-Jul	36	28	10	24	16	28	18	24	3	2		0	0	0	0	4	0	2	0	2	6	2	11	18	234	0.9%
10-Jul	30	6	18	0	0	0	12	2	6	4		0	0	3	0	0	0	0	0	12	0	14	12	6	125	0.5%
11-Jul	8	6	10	0	10	0	0	8	4	0		0	0	3	0	0	22	0	0	6	0	22	7	6	112	0.5%
12-Jul	26	14	0	2	0	0	32	4	0	0		0	0	3	0	0	0	2	0	0	0	30	2	16	131	0.5%
13-Jul	12	18	16	2	4	0	0	0	0	0	0	0	0	6	0	0	0	1	6	50	12	72	20	40	259	1.0%
14-Jul	26	14	58	2	2	2	0	0				0	0	0	0	0	12	0	12	6	0	18	4	0	156	0.6%
15-Jul	8	26	28	4	0	0	0	0				0	0	0	6	0	0	8	2	8	6	6	14	34	150	0.6%
16-Jul	18	28	22	0	0	2	0	2				0	0	0	0	12	56	18	76	84	100	18	17	29	482	1.9%
17-Jul	13	20	12	7	4	3	6	14				0	0	3	1	8	36	20	43	56	53	18	17	29	363	1.5%
18-Jul	13	20	12	7	4	3	6	14				0	0	3	1	8	36	20	43	56	53	18	17	29	363	1.5%
19-Jul	13	20	12	7	4	3	6	14				0	0	3	1	8	36	20	43	56	53	18	17	29	363	1.5%
20-Jul	13	20	12	7	4	3	6	14				0	0	3	1	8	16	22	10	28	6	18	20	24	235	0.9%
21-Jul	8	12	2	14	8	4	12	26				21	0	6	2	4	2	16	6	20	32	22	2	2	221	0.9%
22-Jul	4	0	2	8	14	26	16	22				25	0	6	2	8	14	10	22	26	34	8	4	10	261	1.1%
23-Jul	10	4	14	8	2	16	22	6				19	0	2	0	0	6	10	28	18	14	16	10	4	209	0.8%
24-Jul	100	108	92	70	80	52	24	14	36	6		147	5	9	184	300	194	180	184	18	42	74	32	30	1,981	8.0%
25-Jul	86	72	48	12	68	34	50	8	10	22		107	5	9	144	134	56	130	66	90	76	54	106	48	1,445	5.8%
26-Jul	150	18	50	34	38	22	62	44	16	30		118	5	9	182	200	58	46	76	102	54	206	28	46	1,594	6.4%
27-Jul	32	14	62	22	4	42	20	12	34	56	12	30	10	16	22	46	74	2	2	4	10	4	20	14	566	2.3%
28-Jul	22	12	18	2	4	10	4	6	56	94	78	62	38	12	10	43	81	23	14	15	19	646	272	198	1,739	7.0%
29-Jul	226	246	188	26	2	6	28	2	35	55		120	36	20	32	38	88	44	26	26	28	40	78	104	1,494	6.0%
30-Jul	204	188	186	32	16	18	6	14	35	55		114	28	16	38	42	30	14	56	36	41	48	89	115	1,421	5.7%
31-Jul	24	40	8	26	22	32	18	18	14	16		76	29	86	0	2	0	12	84	106	54	56	100	126	949	3.8%
1-Aug	76	64	30	48	22	32	74	10	22	14		0	29	86	10	0	12	42	240	114	182	212	64	122	1,505	6.1%
2-Aug	26	38	70	14	8	8	64	26	14	8		0	29	86	6	6	44	50	70	66	32	56	50	54	825	3.3%
3-Aug	22	34	56	4	12	10	22	48	18	10		0	30	156	32	24	80	302	252	234	128	126	32	48	1,680	6.8%
4-Aug	14	14	16	24	22	54	26	26	36	28	0	0	0	2	4	0	12	40	38	28	42	58	6	18	508	2.1%
5-Aug	50	12	18	48	14	46	54	26	23	14		0	0	0	2	4	10	24	42	64	54	32	54	28	619	2.5%
6-Aug	42	52	16	66	36	24	32	28	23	14		0	4	4	2	6	10	28	38	36	22	54	22	24	583	2.4%
7-Aug	32	42	50	28	40	2	14	0	10	0		0	5	6	20	28	6	58	120	104	106	36	16	16	741	3.0%
8-Aug	70	114	54	24	8	4	18	0	2	0		0	5	6	4	16	30	68	70	10	8	22	30	12	575	2.3%
9-Aug	76	82	60	10	4	4	26	10	8	4		0	5	6	24	28	20	82	114	68	28	20	16	4	699	2.8%
10-Aug	43	44	34	7	2	2	13	5		7		0	5	6	13	17	20	48	60	40	16	19	11	5	417	1.7%
11-Aug	43	44	34	7	2	2	13	5		7		0	5	6	13	17	20	48	60	40	16	19	11	5	417	1.7%
12-Aug	43	44	34	7	2	2	13	5		5		0	5	6	13	17	10	8	6	12	4	18	6	6	266	1.1%
13-Aug	10	6	8	4	0	0	0	0		1		0	6	8	2	6	2	2	2	4	2	0	4	8	75	0.3%
14-Aug	10	6	2	6	4	2	0	0		1		0	3	4	1	3	1	1	2	4	1	2	4	4	61	0.2%
15-Aug	5	5	1	4	2	5	1	0		1		0	3	4	1	3	1	1	2	4	1	2	4	4	54	0.2%
16-Aug	5	5	1	4	2	5	1	0		0		0	3	4	1	3	1	1	2	4	1	2	4	4	53	0.2%
17-Aug	5	5	1	4	2	5	1	0		0		0	3	4	1	3	1	1	2	4	1	2	4	4	53	0.2%
18-Aug	5	5	1	4	2	5	1	0		0		0	3	4	1	3	0	0	2	4	0	4	4	0	48	0.2%
19-Aug	0	4	0	2	0	8	2	0		0		0	0	0	0	0	0	0	0	4	2	6	0	0	28	0.1%
20-Aug	0	0	0	0	0	0	0	4		0		0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.0%
21-Aug	0	0	0	0	0	0	0	0		0		0	0	0	0	0	0	0	2	4	0	0	0	0	6	0.0%
22-Aug	0	0	0	0	0	0	2	2	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.0%
23-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
31-Aug	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	0	0	0	0	0	0	0	0															0	0.0%
Total	1,719	1,632	1,432	699	536	554	781	487	405	456	90	841	299	516	776	1,051	1,097	1,407	1,923	1,676	1,363	2,159	1,261	1,497	24,737	100%
	6.9%	6.6%	5.8%	2.8%	2.2%	2.2%	3.1%	2.0%	1.6%	1.8%	0.4%	3.4%	1.2%	2.5%	3.1%	4.2%	4.4%	5.7%	7.8%	6.8%	5.5%	8.7%	5.1%	6.1%	100%	

Table 4. Expanded daily hourly chinook salmon migration past the North River counting tower, Norton Sound, 2001.

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

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
5-Jul																		0	4	2	4	0	0	0	10	0.7%
6-Jul	4	4	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	1	2	7	2	7	3	29	65	4.9%
7-Jul	2	2	2	2	0	0	4	0	0	0	0	0	0	0	0	0	0	1	2	7	2	14	3	58	99	7.4%
8-Jul	8	12	6	14	4	6	20	0	0	0	0	0	0	0	0	0	0	1	2	7	2	8	6	10	106	7.9%
9-Jul	20	10	2	8	6	16	4	8	2	0		0	0	0	0	0	0	2	0	12	0	2	3	5	100	7.5%
10-Jul	2	2	6	0	0	0	2	0	4	0		0	0	0	0	2	0	2	4	0	0	0	0	0	24	1.8%
11-Jul	0	6	6	0	0	0	0	2	2	0		0	0	0	0	0	10	4	0	6	2	1	3	0	42	3.1%
12-Jul	12	2	0	6	0	2	2	0	0	0		0	0	4	0	2	0	2	0	12	4	2	6	4	60	4.5%
13-Jul	0	4	4	0	6	4	0	0	0	0	0	0	0	8	0	0	0	1	0	30	2	14	6	18	97	7.3%
14-Jul	12	10	22	2	4	8	0	0				0	0	0	0	0	6	0	0	0	0	4	2	2	72	5.4%
15-Jul	0	6	8	0	0	0	0	0				0	0	0	2	0	0	0	0	0	4	2	2	12	36	2.7%
16-Jul	6	4	8	0	0	0	2	4				0	0	0	0	2	20	8	32	14	16	4	4	7	131	9.8%
17-Jul	3	2	5	0	2	2	2	5				0	0	0	0	2	12	5	16	10	8	7	4	7	92	6.9%
18-Jul	3	2	5	0	2	2	2	5				0	0	0	0	2	12	5	16	10	8	7	4	7	92	6.9%
19-Jul	3	2	5	0	2	2	2	5				0	0	0	0	2	12	5	16	10	8	7	4	7	92	6.9%
20-Jul	3	2	5	0	2	2	2	5				0	0	0	0	2	4	2	0	6	0	10	6	2	53	4.0%
21-Jul	0	0	2	0	4	4	2	6				3	0	0	0	2	0	0	0	2	4	0	0	0	29	2.2%
22-Jul	0	0	0	0	2	0	6	2				1	0	0	0	0	0	0	0	0	0	0	0	0	11	0.8%
23-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%
24-Jul	0	0	6	4	2	2	0	0	2	0		0	0	0	4	0	0	0	0	0	0	2	0	0	22	1.6%
25-Jul	0	0	8	0	2	0	0	0	0	2		0	0	0	0	0	0	0	0	0	0	0	2	0	14	1.0%
26-Jul	0	0	2	4	0	0	0	0	0	0		0	0	0	2	0	0	0	0	0	0	0	2	0	10	0.7%
27-Jul	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	2	8	0.6%
28-Jul	2	0	2	0	0	0	0	0	4	2	0	2	0	0	0	0	2	1	0	0	0	0	0	0	15	1.1%
29-Jul	0	2	0	0	0	0	0	0	2	1		6	2	4	0	0	2	2	0	0	0	0	0	2	23	1.7%
30-Jul	2	4	2	6	2	0	0	0	2	1		4	0	0	0	2	0	0	0	0	0	0	1	1	27	2.0%
31-Jul	0	2	0	0	2	0	0	0	0	0		1	0	0	0	0	0	0	0	0	0	0	2	0	7	0.5%
1-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	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-Aug	0	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-Aug	0	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-Aug	0	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-Aug	0	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-Aug	0	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-Aug	0	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-Aug	0	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-Aug	0	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-Aug	0	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-Aug	0	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-Aug	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	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-Aug	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
31-Aug	0	0	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-Sep	0	0	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-Sep	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	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-Sep	0	0	0	0	0	0	0	0	0	0															0	0.0%
Total	82	78	106	48	42	50	52	46	18	6	0	17	2	16	10	18	82	42	94	135	66	91	63	173	1,337	100%
	6.1%	5.8%	7.9%	3.6%	3.1%	3.7%	3.9%	3.4%	1.3%	0.4%	0.0%	1.3%	0.1%	1.2%	0.7%	1.3%	6.1%	3.1%	7.0%	10.1%	4.9%	6.8%	4.7%	12.9%	100%	

Table 5. Expanded daily hourly coho salmon migration past the North River counting tower, Norton Sound, 2001.

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

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
5-Jul																		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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
21-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%
22-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%
23-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%
24-Jul	0	0	4	12	0	0	0	2	0	0		3	0	2	0	0	4	4	2	0	0	0	6	2	41	0.3%
25-Jul	0	4	2	0	0	0	0	0	0	0		3	0	2	6	2	2	2	2	4	0	4	6	2	41	0.3%
26-Jul	0	0	6	2	6	4	0	6	0	0		8	0	2	10	12	4	14	4	16	4	8	2	14	122	1.0%
27-Jul	6	12	4	20	16	10	2	18	4	0	2	8	0	4	8	10	16	0	0	2	0	2	6	0	150	1.2%
28-Jul	8	2	18	4	0	2	0	0	16	22	28	12	14	2	6	12	16	6	4	7	3	132	16	46	376	3.0%
29-Jul	54	46	22	10	6	4	0	0	11	11		36	10	6	2	14	16	12	8	12	6	16	12	24	338	2.7%
30-Jul	44	24	38	6	2	0	2	6	11	11		34	12	4	10	12	8	6	18	28	5	14	6	19	320	2.6%
31-Jul	4	6	2	0	2	0	2	4	6	0		9	6	5	0	0	0	4	2	4	4	12	0	14	86	0.7%
1-Aug	2	4	4	6	0	0	8	4	2	0		0	6	5	2	0	0	0	22	10	10	16	0	8	109	0.9%
2-Aug	8	10	28	2	0	0	4	0	0	4		0	6	5	2	0	2	10	10	12	8	6	8	6	131	1.1%
3-Aug	6	12	22	4	0	0	10	6	2	0		0	0	6	0	4	14	48	26	44	22	10	2	6	244	2.0%
4-Aug	18	8	4	2	4	8	14	6	6	6	0	0	0	0	0	0	0	4	6	10	10	14	8	22	150	1.2%
5-Aug	56	4	38	18	8	12	10	4	4	3		0	4	2	0	0	6	10	10	6	16	8	14	10	243	2.0%
6-Aug	22	30	14	28	10	4	16	8	4	3		0	4	2	0	2	4	8	18	38	10	14	16	6	261	2.1%
7-Aug	16	20	26	6	4	0	2	6	2	0		0	14	5	4	2	2	6	4	18	56	6	4	4	207	1.7%
8-Aug	30	66	34	8	4	0	10	0	6	0		0	14	5	2	0	0	32	8	6	2	0	6	10	243	2.0%
9-Aug	36	66	46	20	0	2	22	40	18	42		0	14	5	126	140	8	302	448	390	200	108	50	24	2,107	17.0%
10-Aug	26	44	37	13	2	5	13	25		35		0	14	5	67	80	8	156	239	213	116	73	31	34	1,236	10.0%
11-Aug	26	44	37	13	2	5	13	25		35		0	14	5	67	80	8	156	239	213	116	73	31	34	1,236	10.0%
12-Aug	26	44	37	13	2	5	13	25		16		0	14	5	67	80	16	10	30	36	32	38	12	44	565	4.6%
13-Aug	16	22	28	6	4	8	4	10		11		0	24	8	8	20	24	16	2	0	8	48	58	78	403	3.3%
14-Aug	68	54	46	6	6	4	0	0		11		0	12	4	4	13	12	19	8	1	7	30	30	39	374	3.0%
15-Aug	34	30	23	3	7	13	6	7		9		0	12	4	4	13	12	19	8	1	7	30	30	39	311	2.5%
16-Aug	34	30	23	3	7	13	6	7		6		0	12	4	4	13	12	19	8	1	7	30	30	39	308	2.5%
17-Aug	34	30	23	3	7	13	6	7		6		0	12	4	4	13	12	19	8	1	7	30	30	39	308	2.5%
18-Aug	34	30	23	3	7	13	6	7		4		0	12	4	4	13	0	22	14	2	6	12	2	0	218	1.8%
19-Aug	0	6	0	0	8	22	12	14		3		0	0	0	0	6	4	4	12	20	6	28	0	0	145	1.2%
20-Aug	0	4	2	6	2	10	16	12		3		0	0	0	10	0	2	14	10	6	36	26	8	0	167	1.3%
21-Aug	2	0	4	8	14	10	24	20		6		0	2	12	8	6	6	18	46	62	42	34	14	0	338	2.7%
22-Aug	0	6	2	0	4	0	4	6	2	0		0	4	7	2	2	0	4	0	4	8	26	20	6	107	0.9%
23-Aug	0	4	0	0	2	0	0	0	2	0		0	4	7	14	6	22	0	2	10	40	2	28	0	143	1.2%
24-Aug	0	0	0	0	0	0	0	0	0	0		0	4	7	0	0	4	10	34	24	12	6	0	60	161	1.3%
25-Aug	6	4	0	0	2	0	2	0	0	0		0	6	2	8	0	8	0	4	0	0	2	26	32	102	0.8%
26-Aug	28	16	12	0	0	0	0	0	0	0		0	2	2	0	4	18	6	2	4	0	4	38	36	172	1.4%
27-Aug	12	6	8	0	2	0	0	0	0	0		0	0	0	0	2	6	0	0	0	0	0	24	32	92	0.7%
28-Aug	44	18	14	8	2	6	0	0	0	0		0	2	0	10	2	8	1	0	0	0	0	11	21	147	1.2%
29-Aug	6	0	6	4	2	0	-4	6	0	0		0	1	0	2	0	0	2	0	4	-2	10	-2	10	45	0.4%
30-Aug	10	20	4	2	2	-2	0	0	0	0		0	1	0	0	0	0	0	0	0	0	0	8	-8	37	0.3%
31-Aug	8	14	12	2	8	2	0	2	-14	10		0	1	0	0	2	0	2	0	0	2	4	0	-6	49	0.4%
1-Sep	10	6	4	2	0	0	0	0	4	5		0	1	0	0	4	0	4	6	2	2	5	2	1	56	0.5%
2-Sep	5	4	2	6	2	4	2	3	2	5		0	0	0	0	6	0	6	12	4	2	6	4	8	83	0.7%
3-Sep	0	2	0	10	4	8	4	6	2	5		0	0	0	0	0	0	10	18	4	6	8	0	0	87	0.7%
4-Sep	2	8	4	12	2	0	4	2	2	5		0	0	2	0	0	0	8	0	2	4	2	0	0	59	0.5%
5-Sep	1	4	3	6	1	0	2	1	2	5		0	0	1	0	0	0	4	0	1	2	1	0	0	34	0.3%
6-Sep	1	4	3	6	1	0	2	1	2	5		0	0	1	0	0	0	4	0	1	2	1	0	0	34	0.3%
7-Sep	1	4	3	6	1	0	2	1	2	5		0	0	1	0	0	0	4	0	1	2	1	0	0	34	0.3%
8-Sep	1	4	3	6	1	0	2	1	2	5		0	0	1	0	0	0	4	0	1	2	1	0	0	34	0.3%
9-Sep	1	4	3	6	1	0	2	1	2	5		0	0	1	0	0	0	4	0	1	2	1	0	0	34	0.3%
10-Sep	1	4	3	6	1	0	2	1	2	5		0	0	0	0	0	0	0	0	0	0	0	0	0	25	0.2%
11-Sep	0	0	2	0	0	0	0	0	0	0		0	0	0	0	0	0	0	2	0	0	0	0	6	10	0.1%
12-Sep	6	0	0	0	0	2	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	4	0	12	0.1%
13-Sep	2	0	0	2	0	0	2	0	0	0		0	0	0	0	2	0	2	0	0	0	0	0	8	18	0.1%
14-Sep	0	6	2	0	0	0	0	6	0	0		0	0	0	0	0	0	6	2	0	0	0	-2	0	20	0.2%
15-Sep	0	4	0	2	0	0	2	0	0	0															8	0.1%
Total	755	794	685	311	166	187	249	306	104	307	30	113	258	149	461	577	284	1,021	1,296	1,226	630	902	599	769	12,383	100%
	6.1%	6.4%	5.5%	2.5%	1.4%	1.5%	2.0%	2.5%	0.8%	2.5%	0.2%	0.9%	2.1%	1.2%	3.7%	4.7%	2.3%	8.2%	10.5%	9.9%	6.7%	7.3%	4.8%	6.2%	100%	

Table 6. Reported hourly chum salmon observations at the North River counting tower, Norton Sound, 2001.

Outlined areas indicate hours not counted

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
5-Jul																		0	0	0	2	0	0	0	2	0.0%
6-Jul	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0									4	0.1%
7-Jul	2	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0						9		294	313	6.8%
8-Jul	32	14	26	32	12	0	4	8	0	0	0	0	0	0	0	0							30	26	184	4.0%
9-Jul	68	24	4	34	14	20	12	18					0	0	0	0	0	2	0	6	0	8			210	4.6%
10-Jul	52	6	76	0	0	0	14	0	0	10					0	0	0	0	0	4	0	8	16	8	194	4.2%
11-Jul	8	4	26	2	18	0	0	34	4	2					0	0	86	6	0					16	206	4.5%
12-Jul	100	26	16	4	2	16	8	0	0	0					0	2	6	4	0	16	32	24	102	32	390	8.5%
13-Jul	66	60	8	6	0	2	0	0	6	2	0	0	4	14	0	0	0			56	24	76	30	68	422	9.2%
14-Jul	22	16	62	0	0	6	0	0					0	0	0	0	10	0	0	2	0	6	2	4	130	2.8%
15-Jul	4	14	24	0	0	0	0	0					0	0	8	0	0	-2	0	0	0	4	8	16	78	1.7%
16-Jul	22	28	18	0	0	2	0	2					0	0	0	8	46	8	34	30	68	14			280	6.1%
17-Jul																									0	0.0%
18-Jul																									0	0.0%
19-Jul																									0	0.0%
20-Jul																	6	14	4	18	24	10	4	8	88	1.9%
21-Jul	2	0	0	6	4	14	0	2					0	0	0	0	0	4	4	10	6	8	0	0	60	1.3%
22-Jul	0	0	0	4	0	2	8	12					0	0	2	0	0	4	2	4	12	2	0	0	52	1.1%
23-Jul	0	0	6	2	8	0	2	6					0	0	0	0	2	6	10	4	12	0	6	2	66	1.4%
24-Jul	2	0	4	6	4	4	2	4	0	0					4	14	6	20	6	4	0	0	4	2	86	1.9%
25-Jul	2	4	0	4	2	0	0	0	0	2					8	4	0	4	4	2	4	2	4	0	46	1.0%
26-Jul	2	0	8	4	2	2	2	2	0	0					16	18	16	20	6	2	0	4	0	2	106	2.3%
27-Jul	2	4	4	0	0	4	0	2	0	6	2	0	0	2	4	12	26	0	0	0	0	0	2	8	78	1.7%
28-Jul	6	2	8	0	0	4	0	0	20	34	12	12	8	4	2							88	20	26	246	5.4%
29-Jul	24	30	16	0	0	4	0	0					2	2	8	4	2	0	4	2	2	2	6	6	114	2.5%
30-Jul	16	6	14	4	0	0	0	0					2	2	-2	6	2	2	4	4					60	1.3%
31-Jul	0	2	0	0	0	2	0	0	2	0					0	0	0	6	4	6	12	10	2	10	56	1.2%
1-Aug	8	6	12	0	0	0	6	0	0	0					0	0	0	0	8	4	6	4	0	4	58	1.3%
2-Aug	0	4	6	0	0	0	2	6	0	2					0	4	6	4	4	2	2	6	14	4	66	1.4%
3-Aug	2	6	0	0	2	2	0	2	6	0			0	0	2	0	2	14	8	22	10	4	0	0	82	1.8%
4-Aug	2	2	4	0	2	8	6	2	2	4	0	0	0	0	0	0	0	2	4	2	0	6	2	0	48	1.0%
5-Aug	0	2	2	2	0	6	2	2					0	0	0	0	4	4	0	2	4	2	0	2	34	0.7%
6-Aug	8	6	6	12	0	2	8	2					4	0	0	0	0	0	2	4	4	2	2	2	64	1.4%
7-Aug	4	2	10	0	0	0	2	0	0	0					4	2	2	2	8	6	14	0	2	-2	56	1.2%
8-Aug	14	30	6	8	2	2	0	0	0	0					2	0	6	0	2	4	4	0	16	4	100	2.2%
9-Aug	36	10	8	2	0	2	12	14	2	0					2	8		78	80	42	46	12	10	0	364	7.9%
10-Aug																									0	0.0%
11-Aug																									0	0.0%
12-Aug																	4	0	0	0	0	0	2	4	10	0.2%
13-Aug	4	2	8	0	0	0	0	0					4	0	0	2	4	0	0	0	0	0	2	6	32	0.7%
14-Aug	8	6	4	2	4	4	0	0																	28	0.6%
15-Aug																									0	0.0%
16-Aug																									0	0.0%
17-Aug																									0	0.0%
18-Aug																	0	0	0	0	0	6	0	0	6	0.1%
19-Aug	0	2	0	0	2	6	2	0					0	0	0	4	2	2	0	6	2	4	0	0	32	0.7%
20-Aug	0	0	0	2	2	2	0	2					0	0	0	0	0	4	2	0	4	2	0	0	20	0.4%
21-Aug	0	0	8	2	0	4	2	6					0	0	0	2	0	4	4	6	2	4	2	0	46	1.0%
22-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	4	6	2	0	12	0.3%
23-Aug	0	0	0	0	0	4	0	0	0	0					0	0	0	0	0	0	0	0	0	0	4	0.1%
24-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	2	0	0	0	0	2	0.0%
25-Aug	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	4	2	6	0.1%
26-Aug	4	0	4	0	0	0	0	0					0	0	0	0	4	0	0	0	0	0	0	6	18	0.4%
27-Aug	0	0	2	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	2	4	0.1%
28-Aug	0	2	0	0	0	0	0	0					0	0	2	0	0		0	0	0	0			4	0.1%
29-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
30-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
31-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
1-Sep	0	0	0	0	0	0	0	0	0																0	0.0%
2-Sep													0	2	0	0	0	0	2	0	0	0	0	0	4	0.1%
3-Sep	0	0	0	2	0	0	0	4					0	0	0	0	0	2	0	0	0	0	0	0	8	0.2%
4-Sep	0	2	0	0	4	0	2	0					0	0	0	0	0	0	0	0	0	0	0	0	8	0.2%
5-Sep																									0	0.0%
6-Sep																									0	0.0%
7-Sep																									0	0.0%
8-Sep																									0	0.0%
9-Sep																									0	0.0%
10-Sep																		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	0	0.0%
12-Sep	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
13-Sep	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
14-Sep	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
15-Sep	0	0	0	0	0	0	0	0	0	0															0	0.0%
Total	524	326	402	142	84	126	96	130	42	62	14	12	24	26	62	90	242	214	206	272	300	333	284	564	4,587	100%
	11.4%	7.1%	8.8%	3.1%	1.8%	2.7%	2.1%	2.8%	0.9%	1.4%	0.3%	0.3%	0.5%	0.6%	1.4%	2.0%	5.3%	4.7%	4.5%	5.9%	6.5%	7.3%	6.4%	12.3%	100%	

Table 7. Reported hourly pink salmon observations at the North River counting tower, Norton Sound, 2001.

Outlined areas indicate hours not counted

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
5-Jul																		0	0	0	6	0	0	0	6	0.0%
6-Jul	6	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0									10	0.0%
7-Jul	28	36	50	34	22	16	16	14	0	0	0	2	0	0	0	0						14		96	328	1.6%
8-Jul	26	42	16	34	24	12	18	10	0	0	0	0	0	0	0	0							10	30	222	1.1%
9-Jul	36	28	10	24	16	28	18	24					0	0	0	4	0	2	0	2	6	2			200	1.0%
10-Jul	30	6	18	0	0	0	12	2	6	4					0	0	0	0	0	12	0	14	12	6	122	0.6%
11-Jul	8	6	10	0	10	0	0	8	4	0					0	0	22	0	0					6	74	0.4%
12-Jul	26	14	0	2	0	0	32	4	0	0					0	0	0	2	0	0	0	30	2	16	128	0.6%
13-Jul	12	16	16	2	4	0	0	0	0	0	0	0	0	6	0	0	0			50	12	72	20	40	252	1.3%
14-Jul	26	14	58	2	2	2	0	0					0	0	0	0	12	0	12	6	0	18	4	0	156	0.8%
15-Jul	8	26	28	4	0	0	0	0					0	0	6	0	0	6	2	8	6	6	14	34	150	0.7%
16-Jul	18	28	22	0	0	2	0	2					0	0	0	12	56	18	76	84	100	18			436	2.2%
17-Jul																									0	0.0%
18-Jul																									0	0.0%
19-Jul																									0	0.0%
20-Jul																	16	22	10	28	6	18	20	24	144	0.7%
21-Jul	8	12	2	14	8	4	12	26					0	6	2	4	2	16	6	20	32	22	2	2	200	1.0%
22-Jul	4	0	2	8	14	26	16	22					0	6	2	8	14	10	22	26	34	8	4	10	236	1.2%
23-Jul	10	4	14	8	2	16	22	6					0	2	0	0	6	10	28	18	14	16	10	4	190	0.9%
24-Jul	100	108	92	70	80	52	24	14	36	6					184	300	194	180	184	18	42	74	32	30	1,820	9.0%
25-Jul	86	72	48	12	68	34	50	8	10	22					144	134	56	130	66	90	76	64	106	48	1,324	6.6%
26-Jul	150	16	50	34	38	22	62	44	16	30					182	200	58	46	76	102	54	206	28	46	1,462	7.3%
27-Jul	32	14	62	22	4	42	20	12	34	56	12	30	10	16	22	48	74	2	2	4	10	4	20	14	566	2.8%
28-Jul	22	12	18	2	4	10	4	6	56	94	78	62	38	12	10							646	272	198	1,544	7.7%
29-Jul	226	246	188	26	2	6	28	2					36	20	32	38	88	44	26	26	28	40	78	104	1,284	6.4%
30-Jul	204	188	186	32	16	18	6	14					28	16	38	42	30	14	56	36					924	4.6%
31-Jul	24	40	8	26	22	32	18	18	14	16					0	2	0	12	84	106	54	56	100	126	758	3.8%
1-Aug	76	64	30	48	22	32	74	10	22	14					10	0	12	42	240	114	182	212	64	122	1,390	6.9%
2-Aug	26	38	70	14	8	8	64	26	14	6					6	6	44	50	70	66	32	56	50	54	710	3.5%
3-Aug	22	34	56	4	12	10	22	48	18	10			30	156	32	24	80	302	252	234	128	126	32	48	1,680	8.3%
4-Aug	14	14	16	24	22	54	26	26	36	28	0	0	0	2	4	0	12	40	38	28	42	58	6	18	508	2.5%
5-Aug	50	12	18	48	14	46	54	26					0	0	2	4	10	24	42	64	54	32	54	28	582	2.9%
6-Aug	42	52	16	66	36	24	32	28					4	4	2	6	10	28	38	36	22	54	22	24	546	2.7%
7-Aug	32	42	50	28	40	2	14	0	10	0					20	28	6	58	120	104	106	38	16	16	730	3.6%
8-Aug	70	114	54	24	8	4	18	0	2	0					4	16	30	68	70	10	8	22	30	12	564	2.8%
9-Aug	76	82	60	10	4	4	26	10	8	4					24	28		82	114	68	28	20	16	4	668	3.3%
10-Aug																									0	0.0%
11-Aug																									0	0.0%
12-Aug																	10	8	6	12	4	18	6	6	70	0.3%
13-Aug	10	6	8	4	0	0	0	0					6	8	2	6	2	2	2	4	2		4	8	74	0.4%
14-Aug	10	6	2	6	4	2	0	0																	30	0.1%
15-Aug																									0	0.0%
16-Aug																									0	0.0%
17-Aug																									0	0.0%
18-Aug																	0	0	2	4	0	4	4	0	14	0.1%
19-Aug	0	4	0	2	0	8	2	0					0	0	0	0	0	0	0	4	2	6	0	0	28	0.1%
20-Aug	0	0	0	0	0	0	0	4					0	0	0	0	0	0	0	0	0	0	0	0	4	0.0%
21-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	2	4	0	0	0	0	6	0.0%
22-Aug	0	0	0	0	0	0	2	2	0	0					0	0	0	0	0	0	0	0	0	0	4	0.0%
23-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
24-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
25-Aug	0	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-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
27-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
28-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0		0	0	0	0			0	0.0%
29-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
30-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
31-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
1-Sep	0	0	0	0	0	0	0	0	0																0	0.0%
2-Sep													0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
3-Sep	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
4-Sep	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
5-Sep																									0	0.0%
6-Sep																									0	0.0%
7-Sep																									0	0.0%
8-Sep																									0	0.0%
9-Sep																									0	0.0%
10-Sep																		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	0	0.0%
12-Sep	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
13-Sep	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
14-Sep	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
15-Sep	0	0	0	0	0	0	0	0	0	0															0	0.0%
Total	1,518	1,400	1,278	634	506	516	694	416	286	294	90	94	152	254	728	910	844	1,220	1,646	1,388	1,090	1,974	1,038	1,174	20,144	100%
	7.5%	6.9%	6.3%	3.1%	2.5%	2.6%	3.4%	2.1%	1.4%	1.5%	0.4%	0.5%	0.8%	1.3%	3.6%	4.5%	4.2%	6.1%	8.2%	6.9%	5.4%	9.8%	5.2%	5.8%	100%	

Table 8. Reported hourly chinook salmon observations at the North River counting tower, Norton Sound, 2001.

Outlined areas indicate hours not counted

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
5-Jul																		0	4	2	4	0	0	0	10	1.1%
6-Jul	4	4	0	2	0	0	0	4	0	0	0	0	0	0	0	0									14	1.6%
7-Jul	2	2	2	2	0	0	4	0	0	0	0	0	0	0	0	0						14		58	84	9.5%
8-Jul	8	12	6	14	4	6	20	0	0	0	0	0	0	0	0	0							6	10	86	9.7%
9-Jul	20	10	2	8	6	16	4	8					0	0	0	0	0	2	0	12	0	2			90	10.1%
10-Jul	2	2	6	0	0	0	2	0	4	0					0	2	0	2	4	0	0	0	0	0	24	2.7%
11-Jul	0	6	6	0	0	0	0	2	2	0					0	0	10	4	0					0	30	3.4%
12-Jul	12	2	0	6	0	2	2	0	0	0					0	2	0	2	0	12	4	2	6	4	56	6.3%
13-Jul	0	4	4	0	6	4	0	0	0	0	0	0	0	8	0	0	0			30	2	14	6	18	96	10.8%
14-Jul	12	10	22	2	4	8	0	0					0	0	0	0	6	0	0	0	0	4	2	2	72	8.1%
15-Jul	0	6	8	0	0	0	0	0					0	0	2	0	0	0	0	0	4	2	2	12	36	4.1%
16-Jul	6	4	8	0	0	0	2	4					0	0	0	2	20	8	32	14	16	4			129	13.5%
17-Jul																									0	0.0%
18-Jul																									0	0.0%
19-Jul																									0	0.0%
20-Jul																	4	2	0	6	0	10	6	2	30	3.4%
21-Jul	0	0	2	0	4	4	2	6					0	0	0	2	0	0	0	2	4	0	0	0	26	2.9%
22-Jul	0	0	0	0	2	0	6	2					0	0	0	0	0	0	0	0	0	0	0	0	10	1.1%
23-Jul	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
24-Jul	0	0	6	4	2	2	0	0	2	0					4	0	0	0	0	0	0	2	0	0	22	2.5%
25-Jul	0	0	8	0	2	0	0	0	0	2					0	0	0	0	0	0	0	0	2	0	14	1.6%
26-Jul	0	0	2	4	0	0	0	0	0	0					2	0	0	0	0	0	0	0	2	0	10	1.1%
27-Jul	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	2	8	0.9%
28-Jul	2	0	2	0	0	0	0	0	4	2	0	2	0	0	0							0	0	0	12	1.4%
29-Jul	0	2	0	0	0	0	0	0					2	4	0	0	2	2	0	0	0	0	0	2	14	1.6%
30-Jul	2	4	2	6	2	0	0	0					0	0	0	2	0	0	0	0					18	2.0%
31-Jul	0	2	0	0	2	0	0	0	0	0					0	0	0	0	0	0	0	0	2	0	6	0.7%
1-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
2-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
3-Aug	0	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-Aug	0	0	0	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-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
6-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
7-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
8-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
9-Aug	0	0	0	0	0	0	0	0	0	0					0	0		0	0	0	0	0	0	0	0	0.0%
10-Aug																									0	0.0%
11-Aug																									0	0.0%
12-Aug																	0	0	0	0	0	0	0	0	0	0.0%
13-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
14-Aug	0	0	0	0	0	0	0	0																	0	0.0%
15-Aug																									0	0.0%
16-Aug																									0	0.0%
17-Aug																									0	0.0%
18-Aug																	0	0	0	0	0	0	0	0	0	0.0%
19-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
20-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
21-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
22-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
23-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
24-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
25-Aug	0	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-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
27-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
28-Aug	0	0	0	0	0	0	0	0					0	0	0	0	0		0	0	0	0			0	0.0%
29-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
30-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
31-Aug	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
1-Sep	0	0	0	0	0	0	0	0	0																0	0.0%
2-Sep													0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
3-Sep	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
4-Sep	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
5-Sep																									0	0.0%
6-Sep																									0	0.0%
7-Sep																									0	0.0%
8-Sep																									0	0.0%
9-Sep																									0	0.0%
10-Sep																		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	0	0.0%
12-Sep	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
13-Sep	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
14-Sep	0	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0%
15-Sep	0	0	0	0	0	0	0	0	0	0															0	0.0%
Total	70	70	86	48	34	42	44	28	12	4	0	2	2	12	10	10	44	22	40	78	34	54	34	110	888	100%
	7.9%	7.9%	9.7%	5.4%	3.8%	4.7%	5.0%	2.9%	1.4%	0.5%	0.0%	0.2%	0.2%	1.4%	1.1%	1.1%	5.0%	2.5%	4.5%	8.8%	3.8%	6.1%	3.8%	12.4%	100%	

Table 9. Reported hourly coho salmon observations at the North River counting tower, Norton Sound, 2001.

Outlined areas indicate hours not counted

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
5-Jul																		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%
7-Jul	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%
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%
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	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%
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%
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%
16-Jul	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%
18-Jul																									0	0.0%
19-Jul																									0	0.0%
20-Jul																	0	0	0	0	0	0	0	0	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	0	0.0%
22-Jul	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
23-Jul	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
24-Jul	0	0	4	12	0	0	0	2	0	0					0	0	4	4	2	0	0	0	6	2	36	0.5%
25-Jul	0	4	2	0	0	0	0	0	0	0					6	2	2	2	2	4	0	4	6	2	36	0.5%
26-Jul	0	0	6	2	6	4	0	6	0	0					10	12	4	14	4	16	4	8	2	14	112	1.5%
27-Jul	6	12	4	20	16	10	2	18	4	0	2	8	0	4	8	10	16	0	0	2	0	2	6	0	150	2.0%
28-Jul	8	2	18	4	0	2	0	0	16	22	28	12	14	2	6							132	16	46	328	4.3%
29-Jul	54	46	22	10	6	4	0	0					10	6	2	14	16	12	8	12	6	16	12	24	280	3.7%
30-Jul	44	24	38	6	2	0	2	6					12	4	10	12	8	6	16	28					220	2.9%
31-Jul	4	6	2	0	2	0	2	4	6	0					0	0	0	4	2	4	4	12	0	14	66	0.9%
1-Aug	2	4	4	6	0	0	8	4	2	0					2	0	0	0	22	10	10	16	0	8	98	1.3%
2-Aug	8	10	28	2	0	0	4	0	0	4					2	0	2	10	10	12	8	6	8	6	120	1.6%
3-Aug	6	12	22	4	0	0	10	6	2	0			0	6	0	4	14	48	26	44	22	10	2	6	244	3.2%
4-Aug	18	8	4	2	4	8	14	6	6	6	0	0	0	0	0	0	0	4	6	10	10	14	8	22	150	2.0%
5-Aug	56	4	38	18	8	12	10	4					4	2	0	0	6	10	10	6	16	8	14	10	236	3.1%
6-Aug	22	30	14	28	10	4	16	8					4	2	0	2	4	8	18	38	10	14	16	6	254	3.4%
7-Aug	16	20	26	6	4	0	2	6	2	0					4	2	2	6	4	18	56	6	4	4	188	2.5%
8-Aug	30	66	34	8	4	0	10	0	6	0					2	0	0	32	8	6	2	0	6	10	224	3.0%
9-Aug	36	68	46	20	0	2	22	40	18	42					126	140		302	448	390	200	108	50	24	2,080	27.5%
10-Aug																									0	0.0%
11-Aug																									0	0.0%
12-Aug																	16	10	30	36	32	38	12	44	218	2.9%
13-Aug	16	22	28	6	4	8	4	10					24	8	8	20	24	16	2	0	8	48	58	78	392	5.2%
14-Aug	68	54	46	6	6	4	0	0																	184	2.4%
15-Aug																									0	0.0%
16-Aug																									0	0.0%
17-Aug																									0	0.0%
18-Aug																	0	22	14	2	6	12	2	0	58	0.8%
19-Aug	0	6	0	0	8	22	12	14					0	0	0	6	4	4	12	20	6	28	0	0	142	1.9%
20-Aug	0	4	2	6	2	10	16	12					0	0	10	0	2	14	10	6	36	26	8	0	164	2.2%
21-Aug	2	0	4	8	14	10	24	20					2	12	8	6	6	18	46	62	42	34	14	0	332	4.4%
22-Aug	0	6	2	0	4	0	4	6	2	0					2	2	0	4	0	4	8	26	20	6	96	1.3%
23-Aug	0	4	0	0	2	0	0	0	2	0					14	6	22	0	2	10	40	2	28	0	132	1.7%
24-Aug	0	0	0	0	0	0	0	0	0	0					0	0	4	10	34	24	12	6	0	60	150	2.0%
25-Aug	6	4	0	0	2	0	2	0	0	0			6	2	8	0	8	0	4	0	0	2	26	32	102	1.3%
26-Aug	28	16	12	0	0	0	0	0					2	2	0	4	18	6	2	4	0	4	38	38	172	2.3%
27-Aug	12	6	8	0	2	0	0	0					0	0	0	2	6	0	0	0	0	0	24	32	92	1.2%
28-Aug	44	18	14	8	2	6	0	0					2	0	10	2	8		0	0	0	0			114	1.5%
29-Aug	6	0	6	4	2	0	-4	6	0	0					2	0	0	2	0	4	-2	10	-2	10	44	0.6%
30-Aug	10	20	4	2	2	-2	0	0	0	0					0	0	0	0	0	0	0	0	8	-8	36	0.5%
31-Aug	8	14	12	2	8	2	0	2	-14	10					0	2	0	2	0	0	2	4	0	-6	48	0.6%
1-Sep	10	6	4	2	0	0	0	0	4																26	0.3%
2-Sep													0	0	0	6	0	6	12	4	2	6	4	8	48	0.6%
3-Sep	0	2	0	10	4	8	4	6					0	0	0	0	0	10	18	4	6	8	0	0	80	1.1%
4-Sep	2	8	4	12	2	0	4	2					0	2	0	0	0	8	0	2	4	2	0	0	52	0.7%
5-Sep																									0	0.0%
6-Sep																									0	0.0%
7-Sep																									0	0.0%
8-Sep																									0	0.0%
9-Sep																									0	0.0%
10-Sep																		0	0	0	0	0	0	0	0	0.0%
11-Sep	0	0	2	0	0	0	0	0	0	0					0	0	0	0	2	0	0	0	0	6	10	0.1%
12-Sep	6	0	0	0	0	2	0	0	0	0					0	0	0	0	0	0	0	0	4	0	12	0.2%
13-Sep	2	0	0	2	0	0	2	0	0	0					0	2	0	2	0	0	0	0	0	8	18	0.2%
14-Sep	0	6	2	0	0	0	0	6	0	0					0	0	0	6	2	0	0	0	-2	0	20	0.3%
15-Sep	0	4	0	2	0	0	2	0	0	0															8	0.1%
Total	530	514	462	218	126	116	172	194	56	84	30	20	80	52	240	256	196	602	778	782	550	612	398	504	7,572	100%
	7.0%	6.8%	6.1%	2.9%	1.7%	1.5%	2.3%	2.6%	0.7%	1.1%	0.4%	0.3%	1.1%	0.7%	3.2%	3.4%	2.6%	8.0%	10.3%	10.3%	7.3%	8.1%	5.3%	6.7%	100%	

Table 10. North River counting tower climatological and stream observations, Norton Sound, 2001.

Date	Water Temp °F	Water Level "
5-Jul		
6-Jul		
7-Jul		
8-Jul		
9-Jul	52	36.0
10-Jul	50	36.0
11-Jul		
12-Jul	50	29.0
13-Jul	49	30.0
14-Jul	50	31.0
15-Jul	54	31.0
16-Jul	50	36.0
17-Jul		
18-Jul		
19-Jul		
20-Jul	53	43.0
21-Jul	52	41.0
22-Jul	50	39.0
23-Jul	53	36.0
24-Jul	48	38.0
25-Jul		
26-Jul		
27-Jul	48	34.0
28-Jul	50	31.0
29-Jul	49	32
30-Jul	51	31
31-Jul	50	30
1-Aug	51	29
2-Aug		
3-Aug	46	28
4-Aug	42	27
5-Aug	45	22
6-Aug	45	26
7-Aug	46	26
8-Aug	48	25
9-Aug	50	38
10-Aug		
11-Aug		
12-Aug	50	39
13-Aug	50	39
14-Aug		45
15-Aug		
16-Aug		
17-Aug		
18-Aug	43	56
19-Aug	46	52
20-Aug	48	55
21-Aug	46	53
22-Aug	43	47
23-Aug	43	45
24-Aug	48	42
25-Aug		
26-Aug	46	38
27-Aug	44	36
28-Aug		
29-Aug	50	35
30-Aug	49	33
31-Aug	49	36
1-Sep	49	35
2-Sep	48	34
3-Sep	46	32
4-Sep	46	
5-Sep	44	
6-Sep		
7-Sep		
8-Sep		
9-Sep		
10-Sep	45	51
11-Sep	45	49
12-Sep	45	47
13-Sep	45	41
14-Sep	43	41
15-Sep	42	40

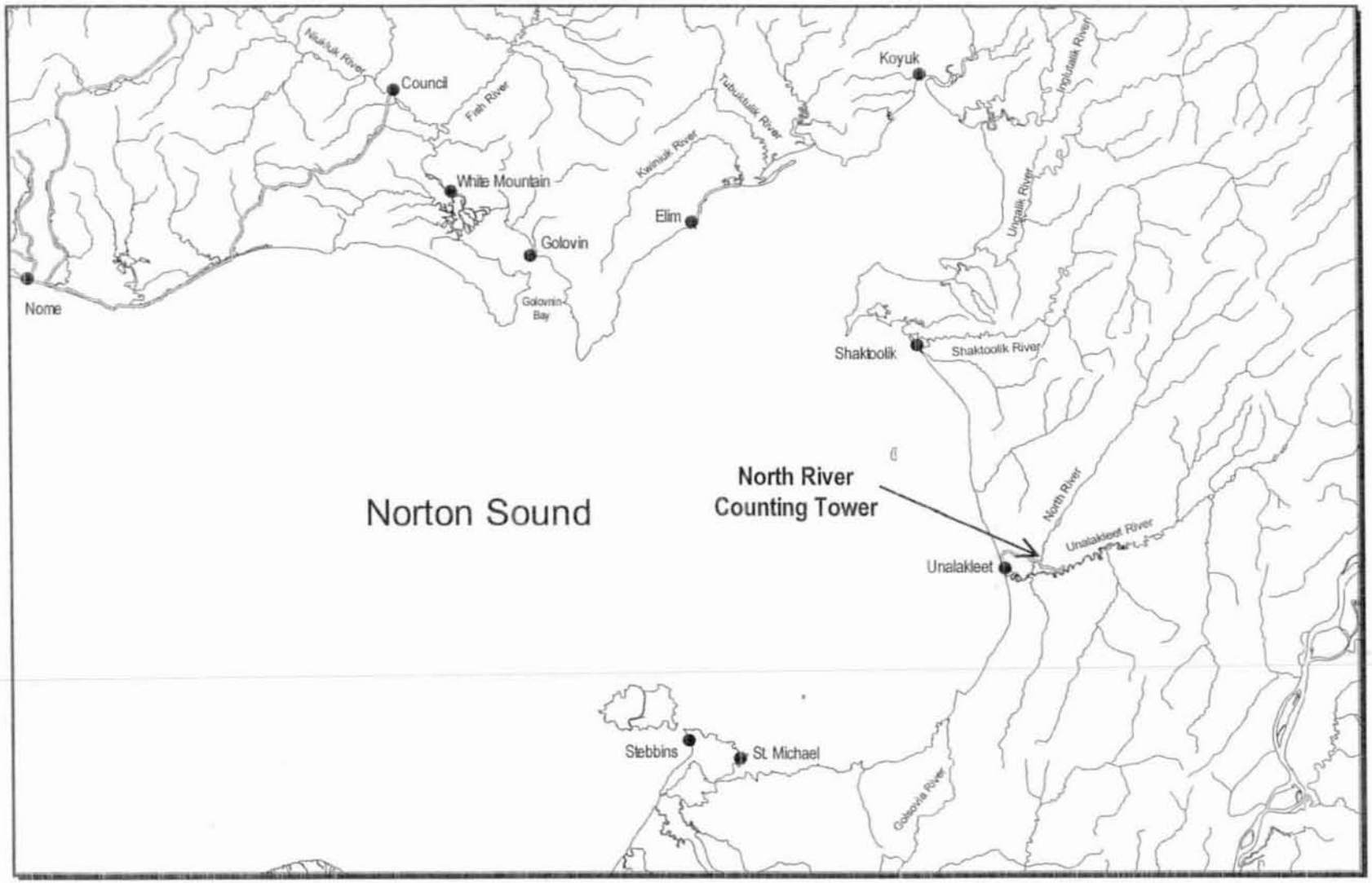

Figure 1. Area location map of the North River counting tower project site, Norton Sound, 2001.

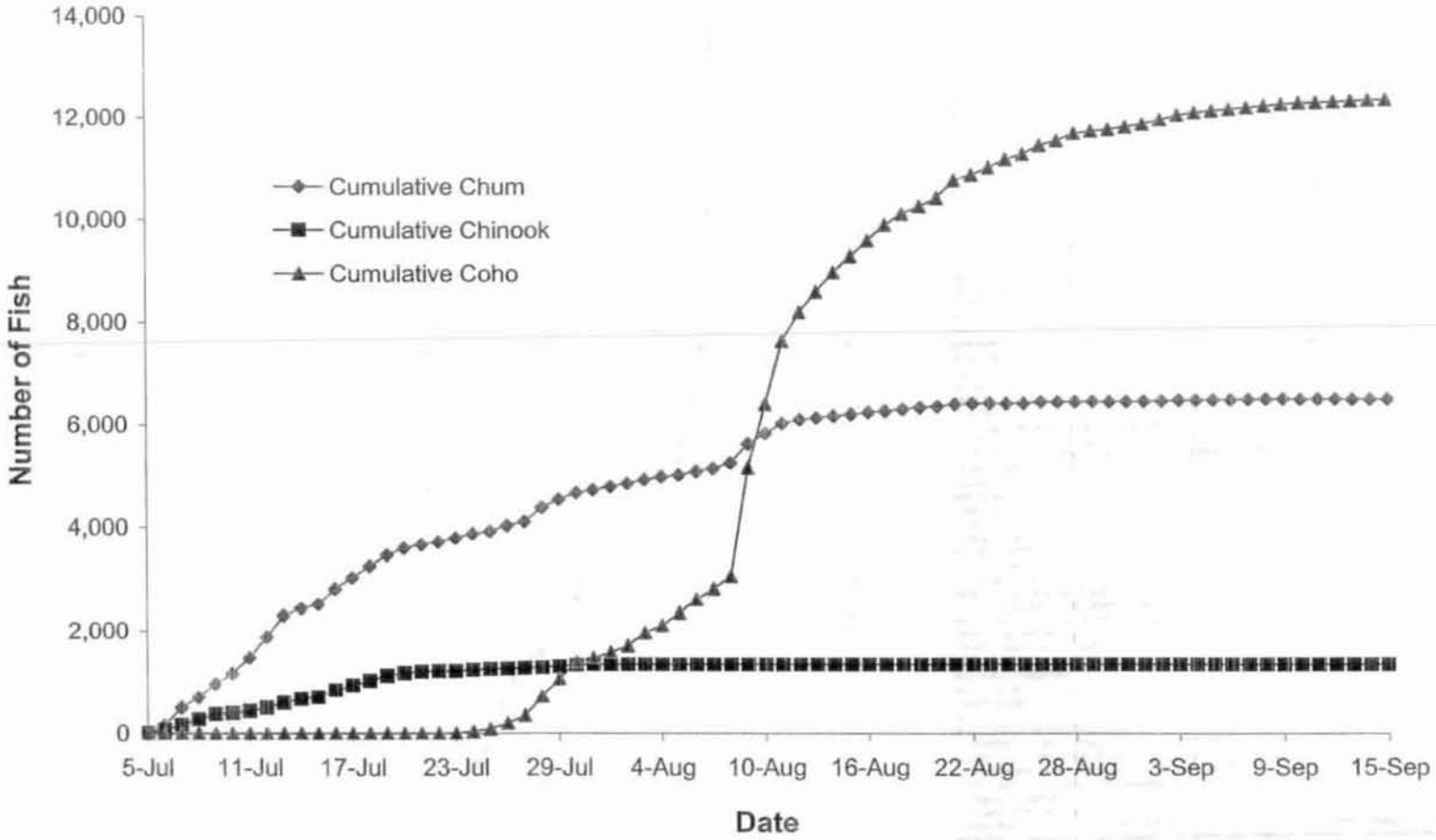

Figure 2. Cumulative migration of all salmon species, except pink salmon, past the North River counting tower, Norton Sound, 2001.

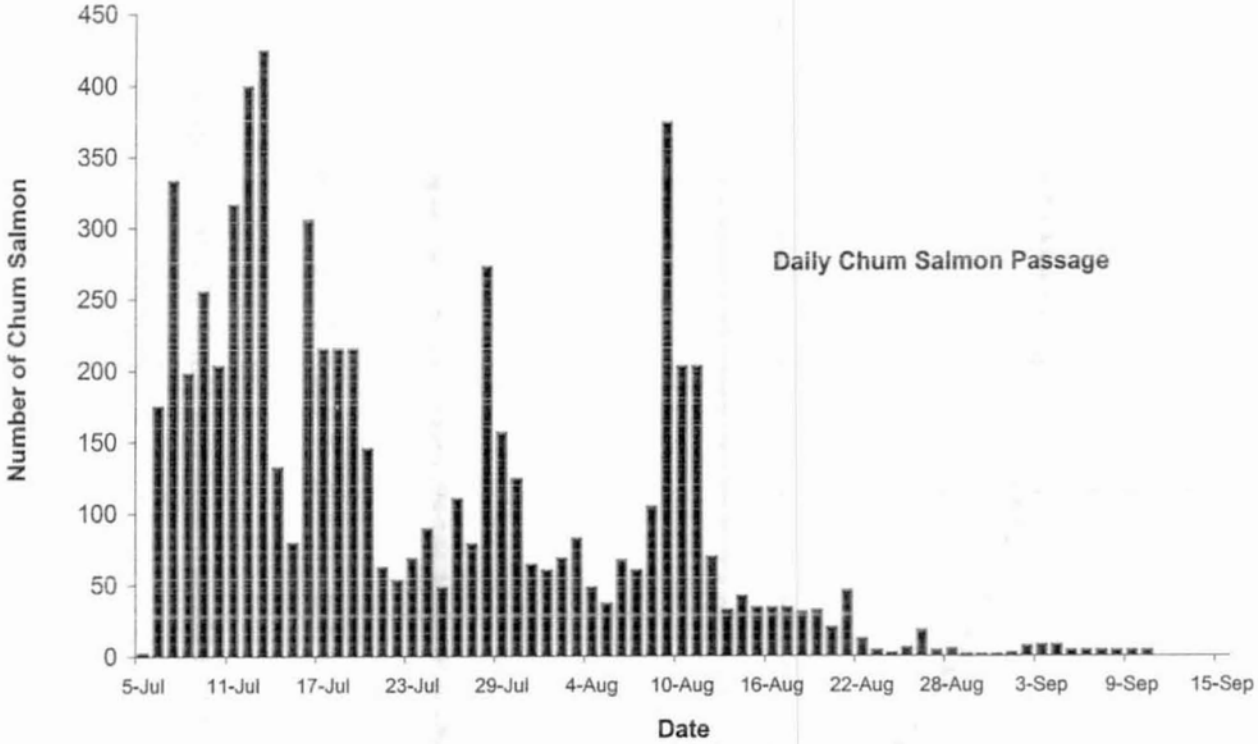

Figure 3. Daily chum salmon migration past the North River counting tower, Norton Sound, 2001.

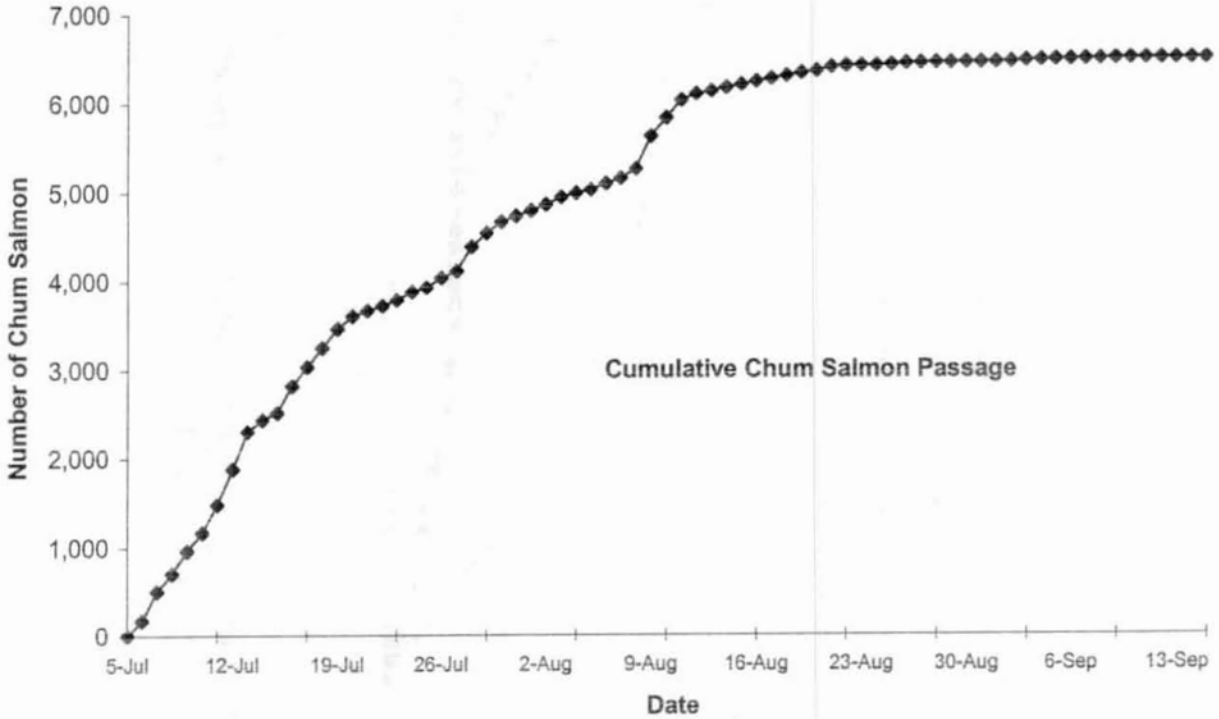

Figure 4. Cumulative chum salmon migration past the North River counting tower, Norton Sound, 2001.

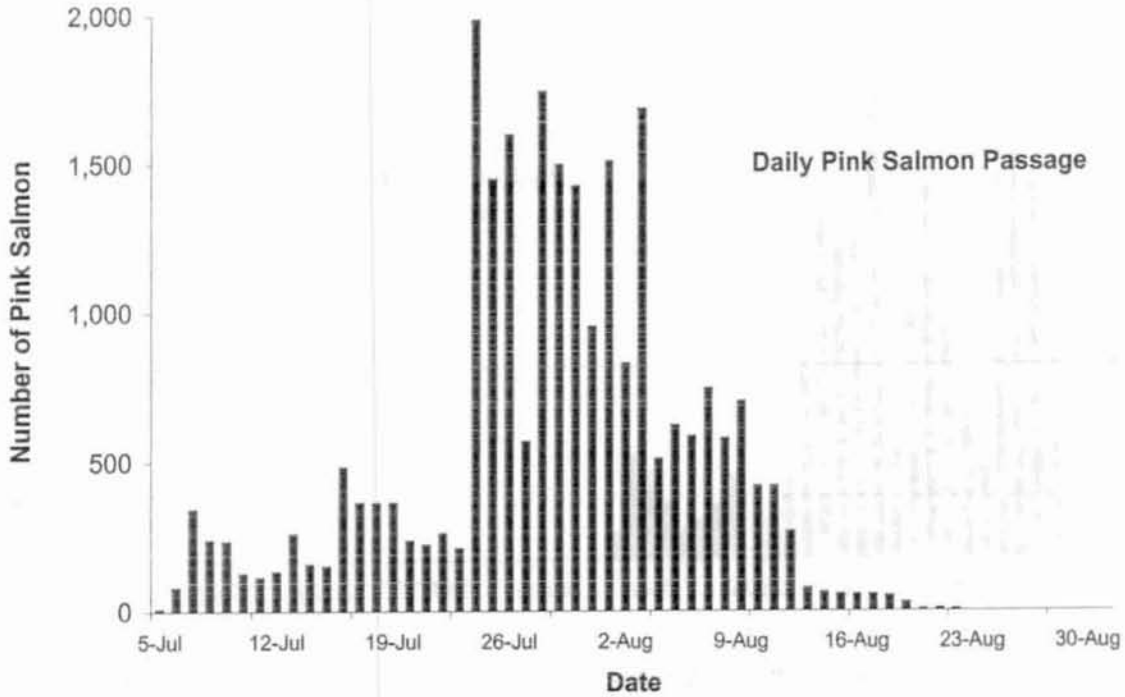

Figure 5. Daily pink salmon migration past the North River counting tower, Norton Sound, 2001.

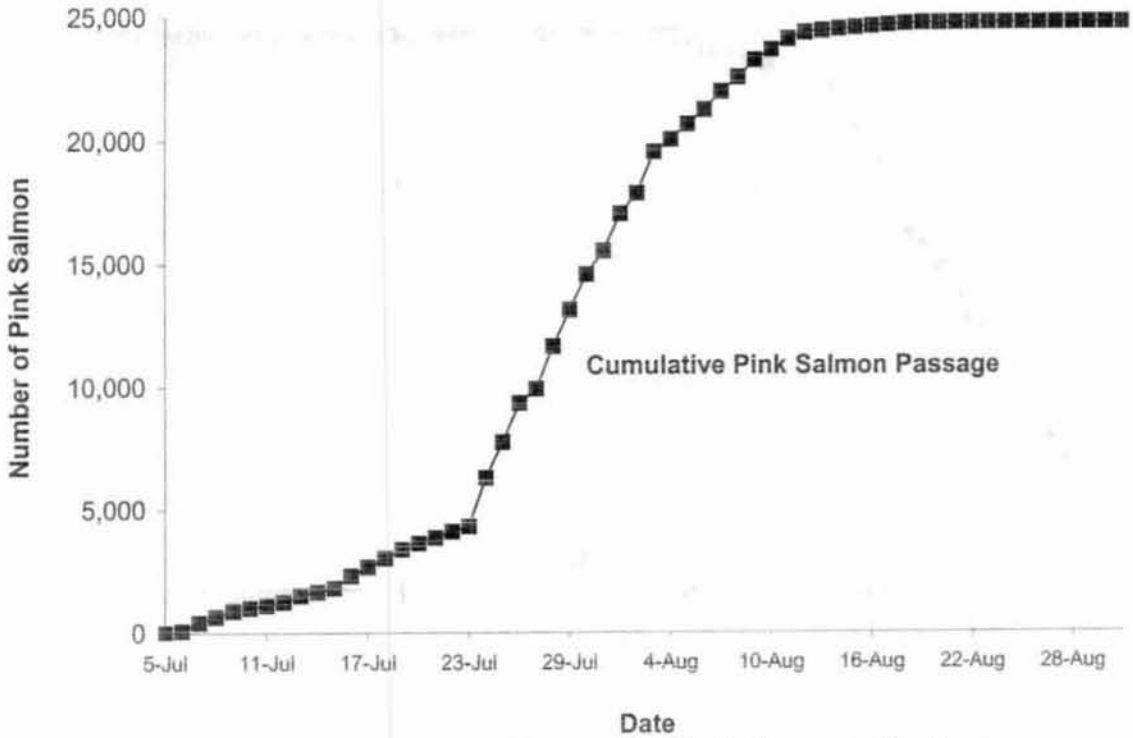

Figure 6. Cumulative pink salmon migration past the North River counting tower, Norton Sound, 2001.

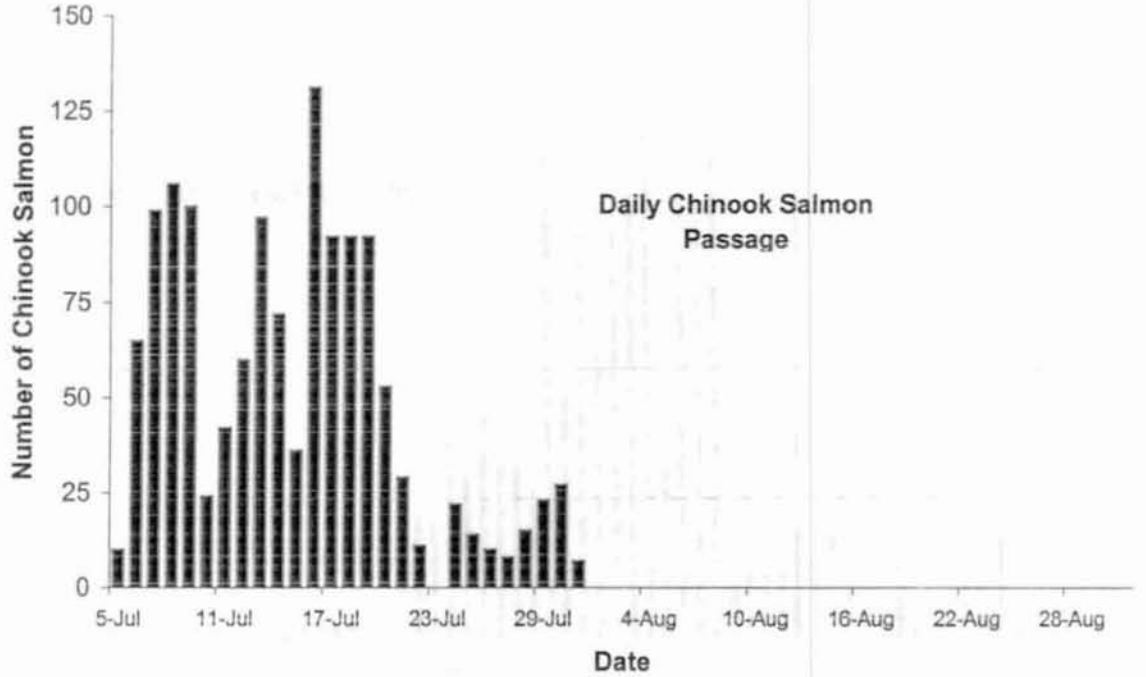

Figure 7. Daily chinook salmon migration past the North River counting tower, Norton Sound, 2001.

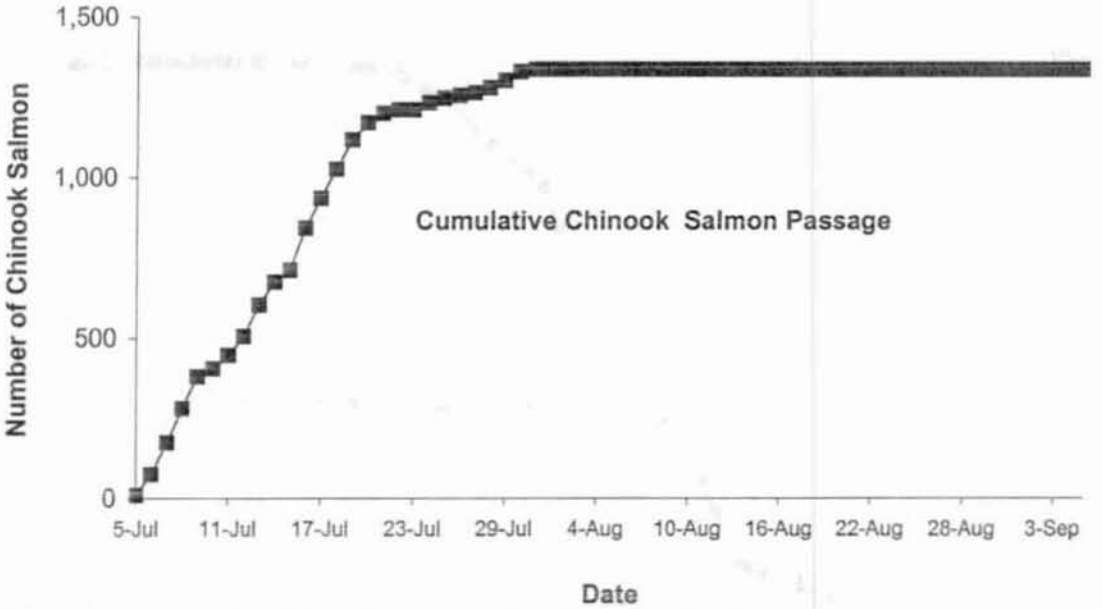

Figure 8. Cumulative chinook salmon migration past the North River counting tower, Norton Sound, 2001.

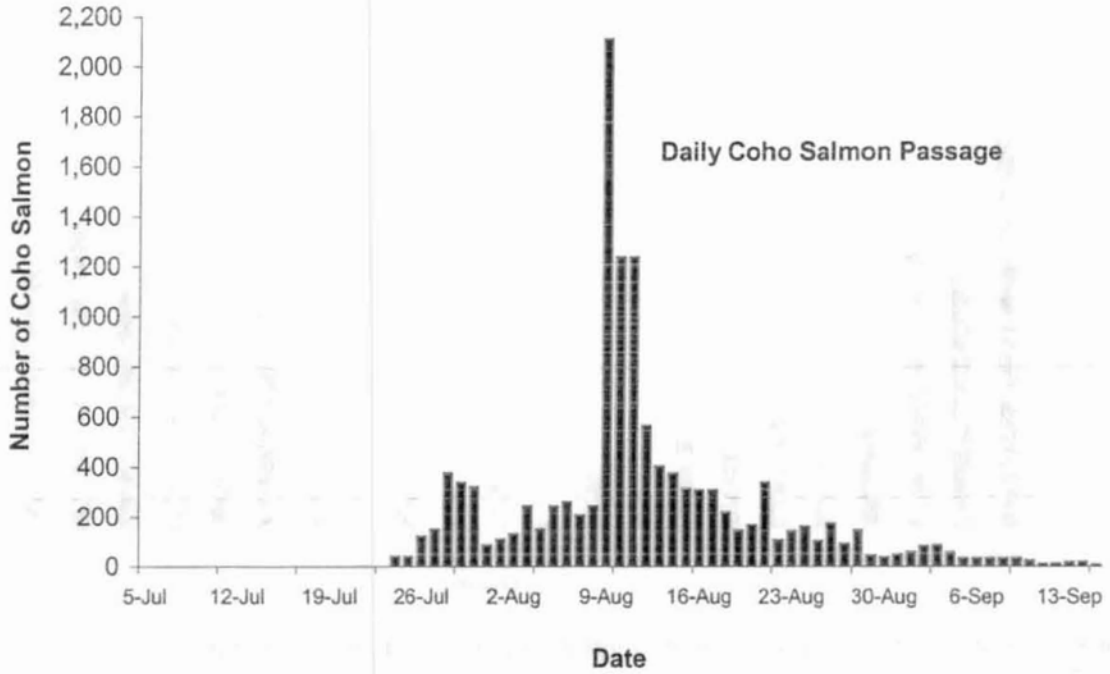

Figure 9. Daily coho salmon migration past the North River counting tower, Norton Sound, 2001.

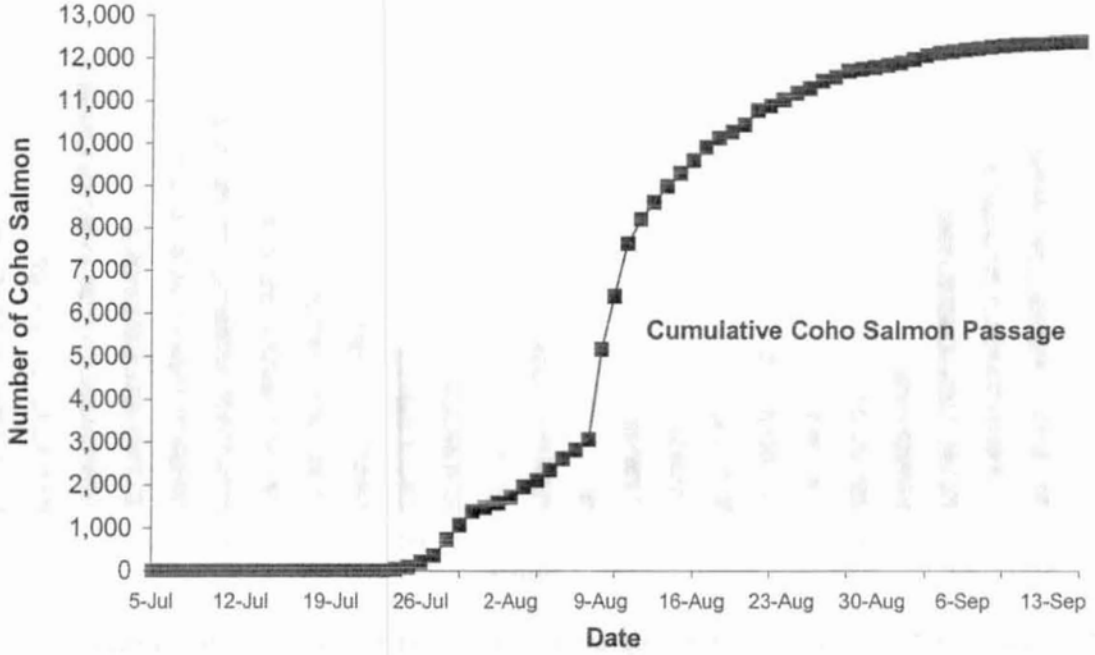

Figure 10. Cumulative coho salmon migration past the North River counting tower, Norton Sound, 2001.

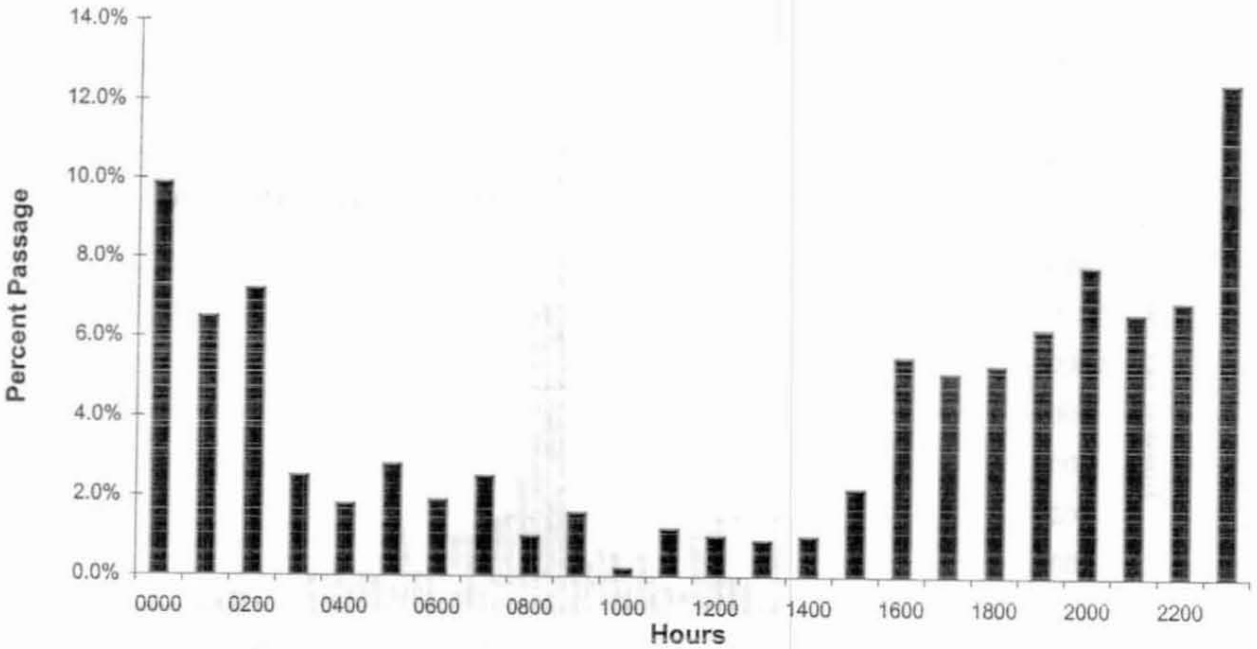

Figure 11. Diurnal pattern of chum salmon migration past the North River counting tower, Norton Sound, 2001.

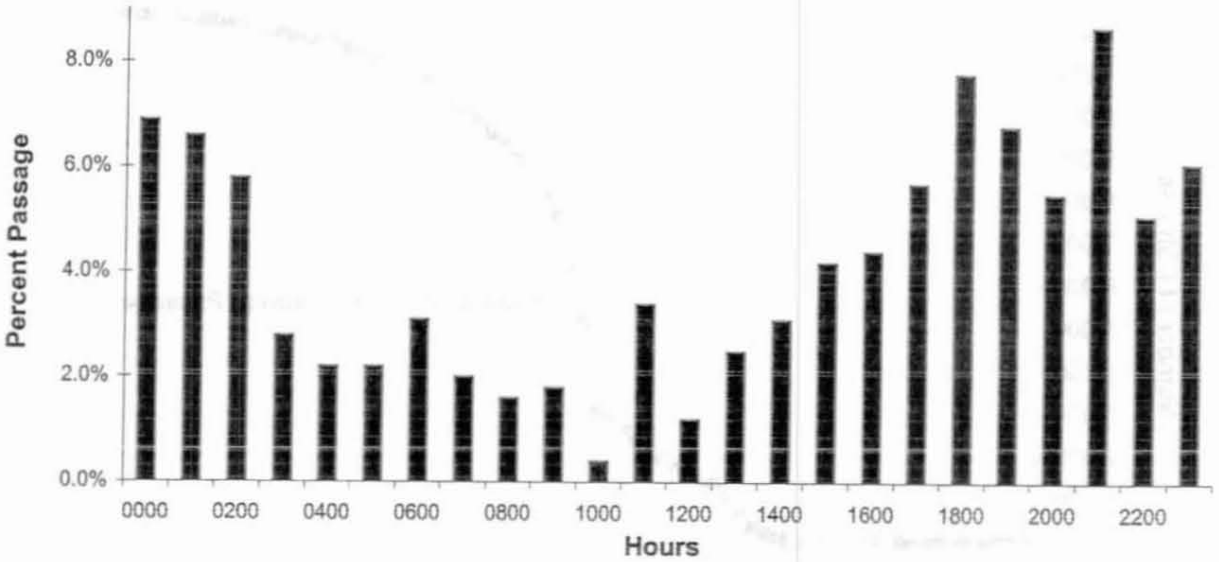

Figure 12. Diurnal pattern of pink salmon migration past the North River counting tower, Norton Sound, 2001.

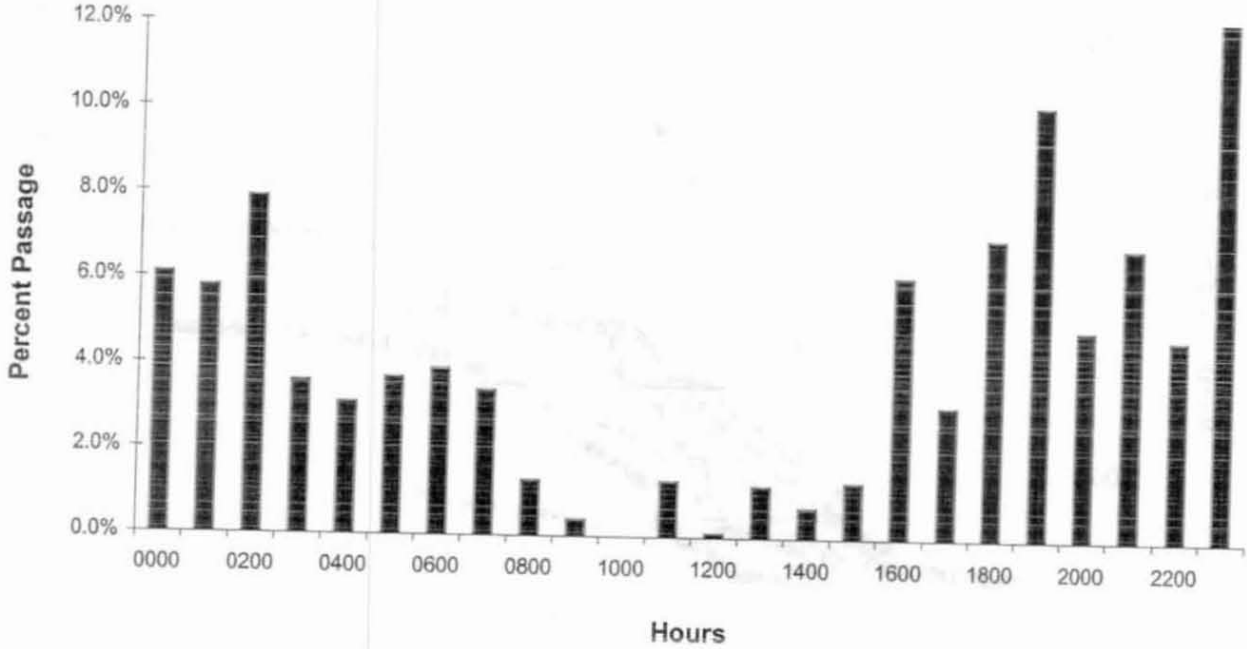

Figure 13. Diurnal pattern of chinook salmon migration past the North River counting tower, Norton Sound, 2001.

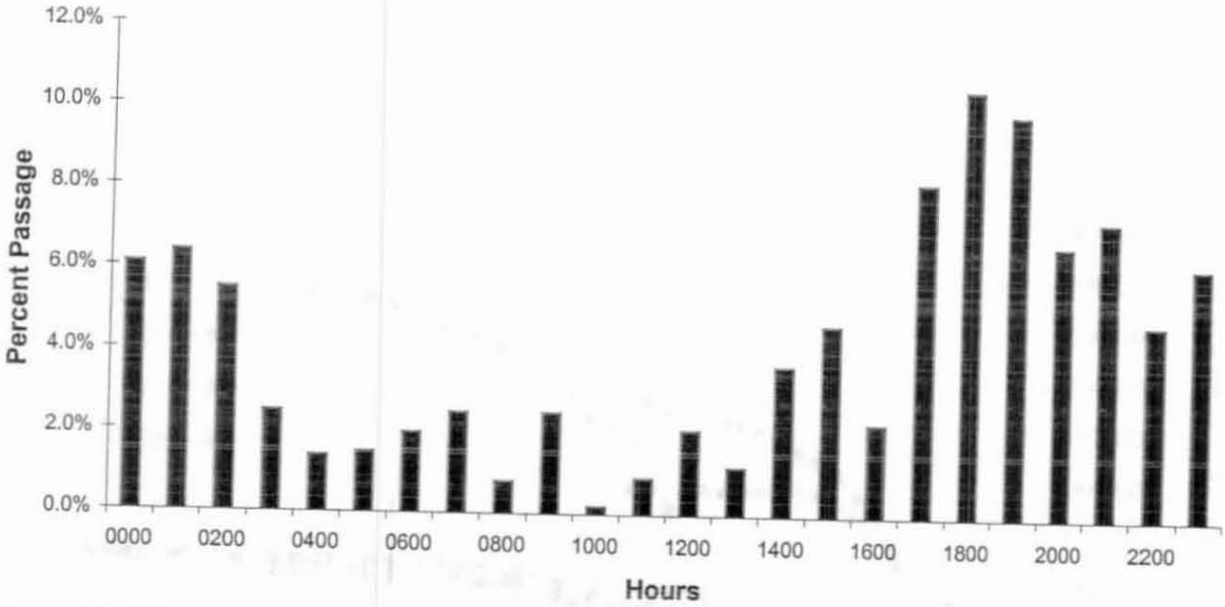

Figure 14. Diurnal pattern of coho salmon migration past the North River counting tower, Norton Sound, 2001.

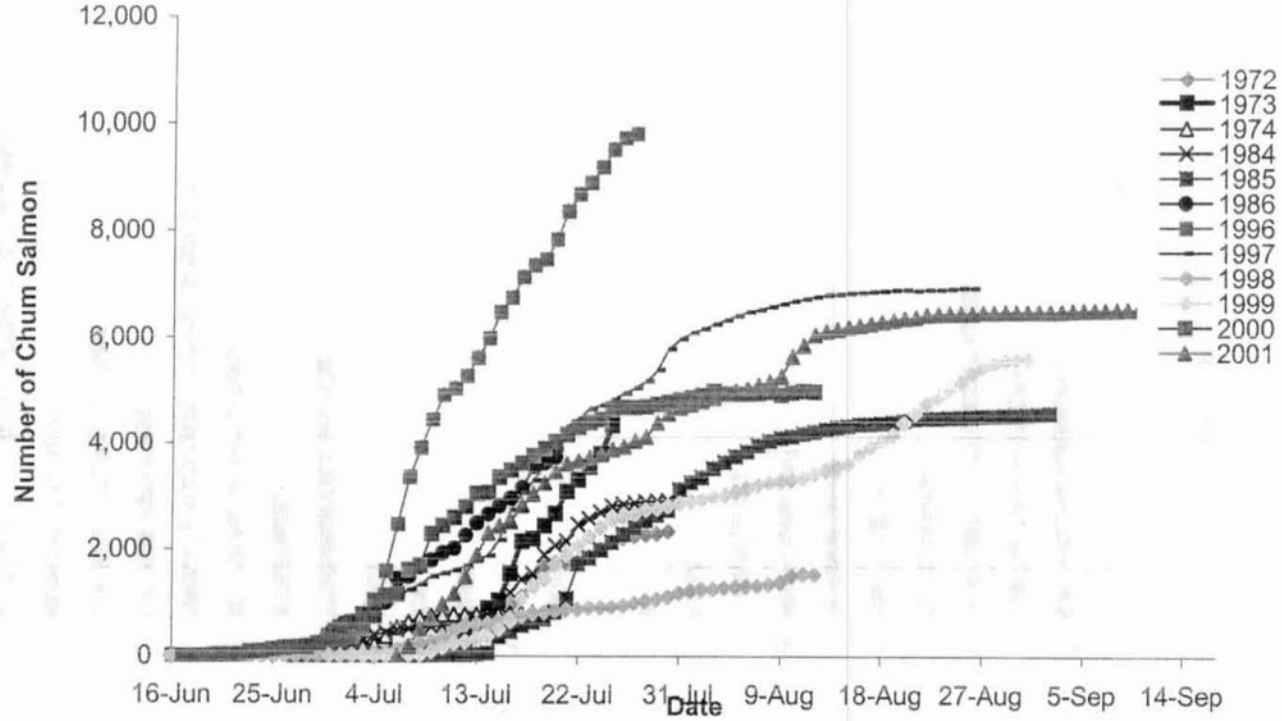

Figure 15. Cumulative chum salmon passage past the North River counting tower, Norton Sound, 1972-1974, 1984-1986, and 1996-2001.

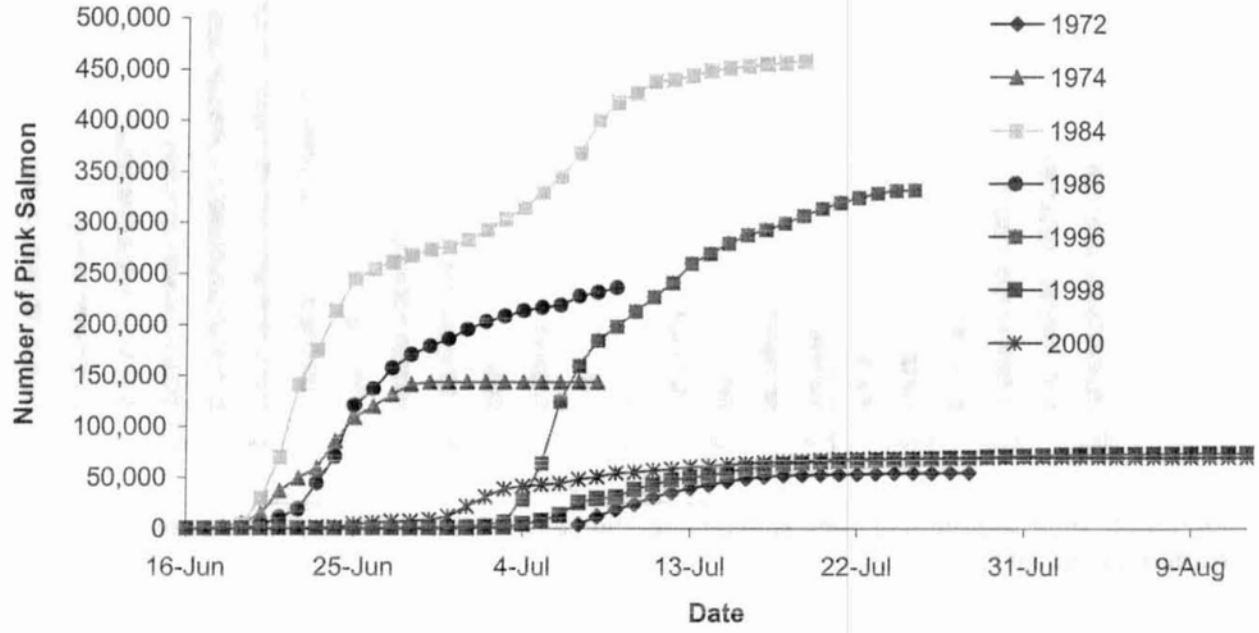

Figure 16. Even year cumulative pink salmon passage past the North River counting tower, Norton Sound, 1972-1974, 1984-1986, and 1996-2000.

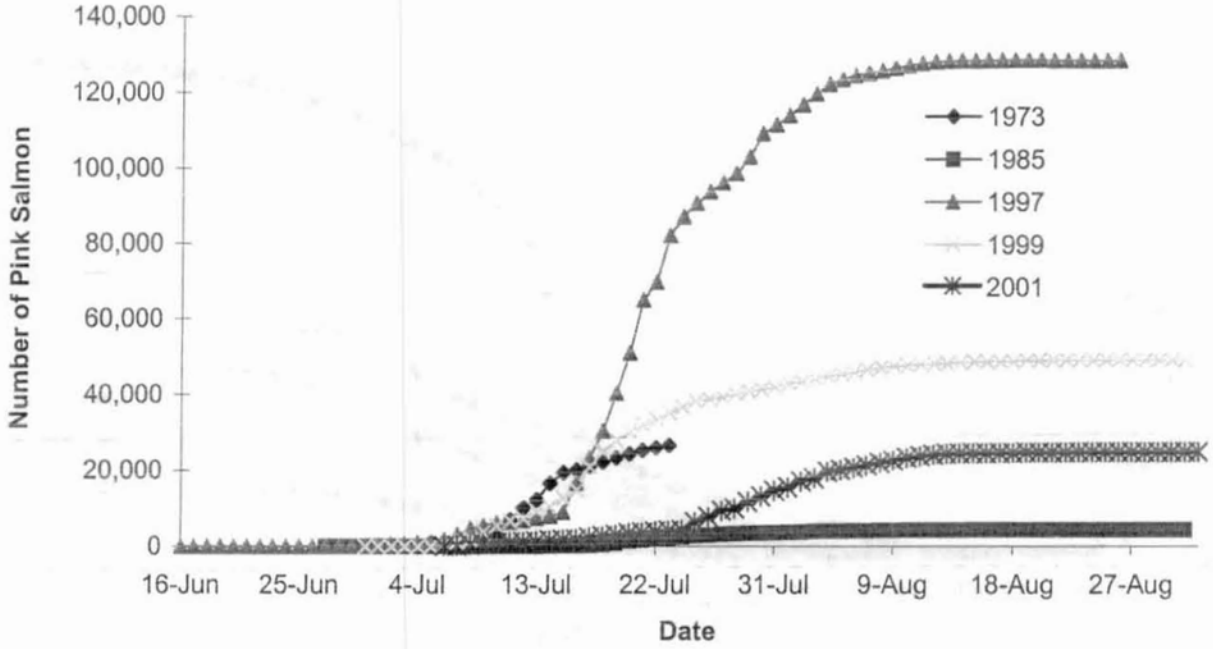

Figure 17. Odd year cumulative pink salmon passage past the North River counting tower, Norton Sound, 1973, 1985, 1997, 1999 and 2001.

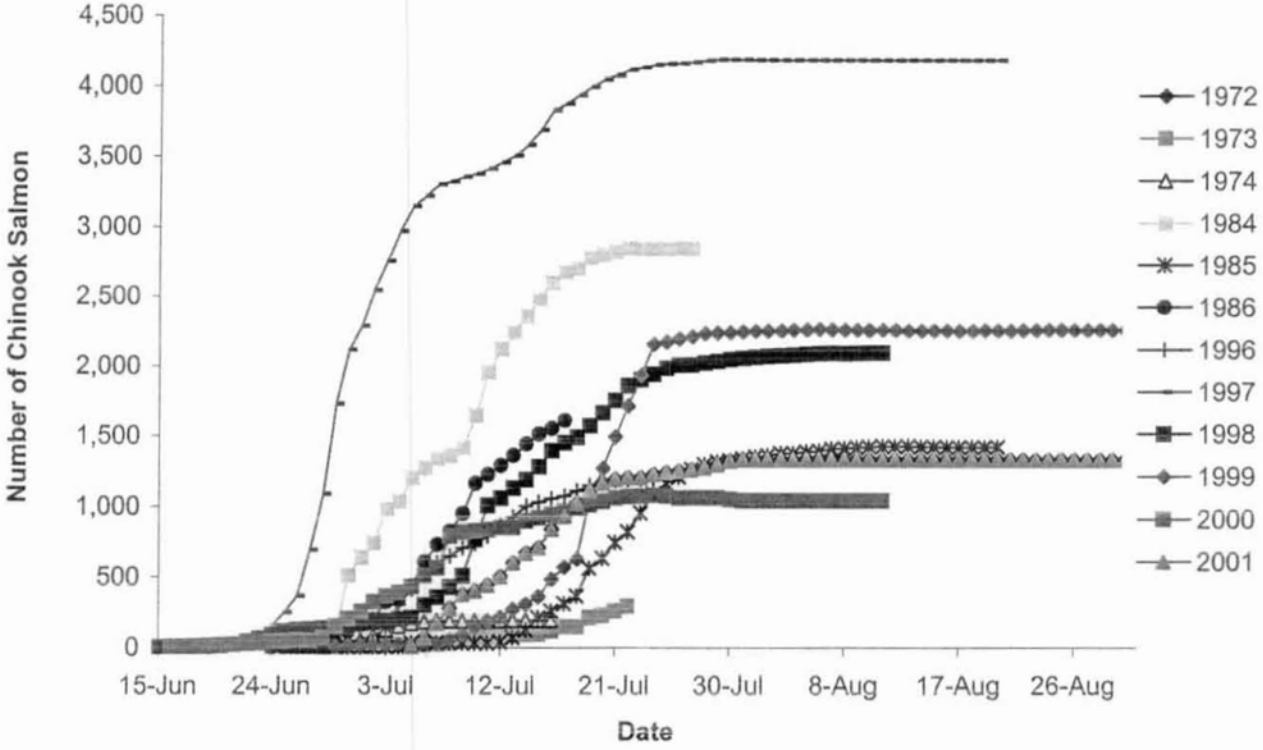

Figure 18. Cumulative chinook salmon passage past the North River counting tower, Norton Sound, 1972-1974, 1984-1986 and 1996-2001.

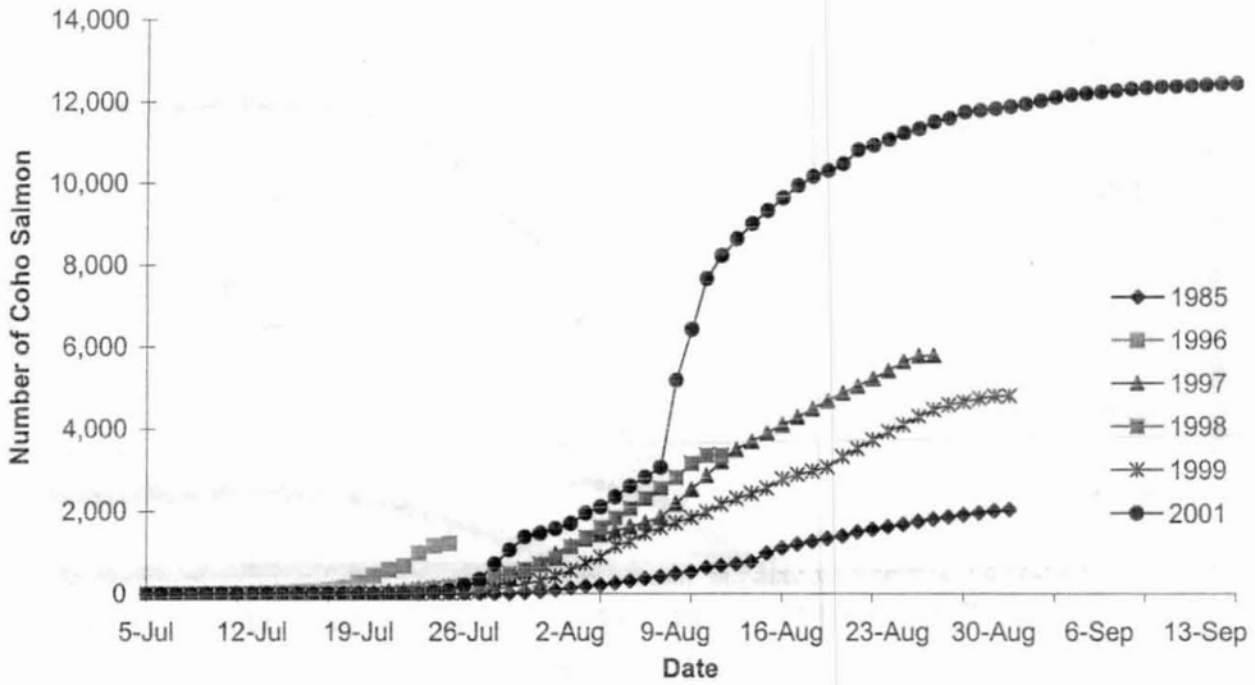

Figure 19. Cumulative coho salmon passage past the North River counting tower, Norton Sound, 1985, and 1996-2001.

Appendix Table 1. Daily cumulative chum salmon escapement past the North River counting tower, Norton Sound, 1972-1974, 1984-1986 and 1996-2001.

Date	1972	1973	1974	1984	1985	1986	1996	1997	1998[a]	1999	2000	2001	1972-74, 1984-86, 1996-2001 Average Cumulative Chum Salmon
15-Jun									0				
16-Jun							0	0	0				0
17-Jun							16	0	0		2		5
18-Jun							4	0	0		2		2
19-Jun							-18	0	0		2		-4
20-Jun							-10	0	0		22		3
21-Jun							-6	2	0		24		5
22-Jun							-6	3	0		28		6
23-Jun							-6	5	0		80		20
24-Jun							168	7	0		92		67
25-Jun			0	0		0	180	19	0		128		47
26-Jun			0	1		0	201	58	0		148		58
27-Jun			19	1	0	0	226	107	0		162		64
28-Jun			23	1	0	14	253	222	0		166		85
29-Jun		0	33	88	0	82	289	335	0		238		118
30-Jun		0	91	124	0	308	335	571	0	0	370		180
1-Jul		9	177	320	0	562	497	701	6	2	534		261
2-Jul		9	217	395	0	784	737	737	22	3	628		353
3-Jul		19	369	431	0	999	1,585	809	23	3	774		501
4-Jul		59	533	489	0	1,439	2,468	898	46	3	1,030		697
5-Jul		72	633	511	0	1,485	3,360	987	70	3	1,122	2	824
6-Jul		79	717	533	15	1,668	3,916	1,118	116	3	1,152	177	932
7-Jul	96	88	751	551	20	1,792	4,446	1,232	204	17	1,614	510	983
8-Jul	215	96	769	570	23	1,921	4,914	1,339	235	19	1,691	708	1,072
9-Jul	272	121	776	579	25	2,011	5,038	1,481	269	85	2,283	963	1,176
10-Jul	344	288	776	600	25	2,251	5,268	1,548	355	158	2,437	1,166	1,277
11-Jul	548	681	776	675	38	2,485	5,610	1,598	474	243	2,587	1,482	1,429
12-Jul	687	891	776	776	52	2,655	5,976	1,680	581	267	2,799	1,881	1,558
13-Jul	777	1,041	780	952	364	2,807	6,468	1,803	595	325	3,049	2,305	1,724
14-Jul	958	1,545	793	1,184	458	2,953	6,734	1,873	603	371	3,067	2,437	1,867
15-Jul	1,114	2,144	798	1,437	573	3,158	7,122	2,169	653	507	3,351	2,516	2,093
16-Jul	1,418	2,190	810	1,531	633	3,552	7,340	2,734	717	658	3,487	2,821	2,279
17-Jul	1,696	2,436	826	1,895	694	3,628	7,450	3,058	749	1,069	3,623	3,036	2,466
18-Jul	1,742	2,666		2,072	826	3,738	7,820	3,290	801	1,294	3,759	3,251	2,801
19-Jul	1,742	3,087		2,150	1,077		8,350	3,582	826	1,432	3,895	3,466	2,905
20-Jul	1,754	3,310		2,461	1,730		8,671	3,880	846	1,722	4,031	3,611	3,156
21-Jul	1,859	3,546		2,572	1,834		8,883	4,310	860	1,891	4,167	3,673	3,325
22-Jul	1,990	3,798		2,692	1,985		9,173	4,464	872	2,060	4,303	3,726	3,482
23-Jul	2,119	4,334		2,812	2,126		9,501	4,647	896	2,229	4,392	3,794	3,673
24-Jul	2,204			2,846	2,276		9,715	4,719	913	2,398	4,445	3,883	3,690
25-Jul	2,241			2,870	2,413		9,789	4,817	924	2,567	4,642	3,931	3,783
26-Jul	2,268			2,896	2,539			4,943	953	2,607	4,678	4,041	2,983
27-Jul	2,285			2,908	2,643			5,044	993	2,663	4,674	4,119	3,030
28-Jul	2,332			2,915	2,733			5,175	1,033	2,739	4,688	4,391	3,088
29-Jul					3,129			5,382	1,065	2,769	4,740	4,547	3,417
30-Jul					3,261			5,770	1,103	2,811	4,780	4,671	3,545
31-Jul					3,353			5,958	1,172	2,856	4,825	4,735	3,633
1-Aug					3,526			6,076	1,213	2,895	4,863	4,795	3,715
2-Aug					3,638			6,150	1,245	2,937	4,912	4,863	3,776
3-Aug					3,750			6,235	1,261	2,986	4,984	4,945	3,843
4-Aug					3,839			6,316	1,277	3,010	4,934	4,993	3,875
5-Aug					3,959			6,392	1,293	3,084	4,935	5,030	3,933
6-Aug					4,040			6,468	1,309	3,140	4,937	5,097	3,979
7-Aug					4,098			6,504	1,325	3,204	4,943	5,157	4,015
8-Aug					4,129			6,556	1,346	3,254	4,964	5,261	4,050
9-Aug					4,176			6,612	1,382	3,283	4,912	5,634	4,073
10-Aug					4,212			6,663	1,500	3,301	4,951	5,836	4,125
11-Aug					4,265			6,707	1,526	3,348	4,981	6,038	4,165
12-Aug					4,301			6,740	1,526	3,419	4,971	6,107	4,191
13-Aug					4,326			6,778		3,480		6,139	4,861
14-Aug					4,362			6,793		3,540		6,181	4,898
15-Aug					4,366			6,808		3,599		6,215	4,924
16-Aug					4,377			6,823		3,800		6,249	5,000
17-Aug					4,406			6,838		3,929		6,283	5,058
18-Aug					4,425			6,853		4,046		6,314	5,108
19-Aug					4,457			6,868		4,158		6,346	5,161
20-Aug					4,472			6,877		4,378		6,366	5,242
21-Aug					4,473			6,861		4,570		6,412	5,301
22-Aug					4,480			6,875		4,747		6,424	5,367
23-Aug					4,488			6,877		4,877		6,428	5,414
24-Aug					4,499			6,891		5,023		6,430	5,471
25-Aug					4,512			6,904		5,165		6,436	5,527
26-Aug					4,520			6,904		5,317		6,454	5,580
27-Aug					4,528					5,421		6,458	4,974
28-Aug					4,531					5,490		6,463	5,011
29-Aug					4,537					5,559		6,464	5,048
30-Aug					4,550					5,596		6,465	5,073
31-Aug					4,567					5,600		6,466	5,084
1-Sep												6,468	
2-Sep												6,475	
3-Sep												6,483	
4-Sep												6,491	
5-Sep												6,495	
6-Sep												6,499	
7-Sep												6,503	
8-Sep												6,507	
9-Sep												6,511	
10-Sep												6,515	
11-Sep												6,515	
12-Sep												6,515	
13-Sep												6,515	
14-Sep												6,515	
15-Sep												6,515	
	2,332	4,334	826	2,915	4,567	3,738	9,789	6,904	1,526	5,600	4,971	6,515	4,318

[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 1996-2001.

Date	1972	1973	1974	1984	1985	1986	1996	1997	1998[a]	1999	2000	2001
15-Jun									0			
16-Jun							0	0	0			
17-Jun							2	0	0		0	
18-Jun							4	0	0		0	
19-Jun							4	0	0		0	
20-Jun							4	0	0		0	
21-Jun							7	0	0		0	
22-Jun							13	0	0		6	
23-Jun							69	0	0		1,164	
24-Jun							183	0	0		1,312	
25-Jun			111	27		0	277	0	0		4,358	
26-Jun			371	27		20	466	0	16		5,358	
27-Jun			2,410	379	0	42	672	0	34		7,024	
28-Jun			5,366	4,201	0	542	958	4	53		7,174	
29-Jun		0	14,140	30,301	0	3,162	1,339	24	143		8,780	
30-Jun		0	36,909	70,057	0	10,648	1,683	147	223	0	11,852	
1-Jul		49	49,445	141,035	0	18,685	2,437	355	425	0	21,560	
2-Jul		83	59,699	175,065	0	44,335	3,303	486	1,273	0	30,766	
3-Jul		187	85,613	213,513	0	70,567	6,909	692	1,627	0	38,808	
4-Jul		539	108,778	244,864	0	120,907	28,338	1,006	4,523	0	41,252	
5-Jul		1,004	120,023	255,068	0	136,727	64,205	1,320	7,458	0	42,866	6
6-Jul		1,196	131,573	261,472	0	157,516	124,775	1,840	13,056	166	43,958	84
7-Jul	3,790	1,394	141,361	267,837	0	170,730	159,527	3,068	25,172	1172	48,344	425
8-Jul	11,743	1,504	143,621	274,201	0	179,083	184,489	4,648	29,038	1,890	50,585	663
9-Jul	18,374	1,931	143,692	276,696	0	185,913	198,253	5,509	30,466	3,653	54,095	897
10-Jul	23,589	3,276	143,724	283,051	0	195,468	213,351	6,114	37,988	5,412	55,163	1022
11-Jul	30,323	6,925	143,764	293,200	11	202,944	227,431	6,430	42,832	6,711	56,667	1134
12-Jul	34,836	10,115	143,764	303,493	13	208,597	240,976	6,856	47,733	7,311	58,329	1265
13-Jul	39,428	12,265	143,772	315,069	23	213,705	260,174	7,495	50,515	9,337	60,689	1524
14-Jul	42,550	16,510	143,777	330,354	79	217,106	269,748	7,966	51,971	10,545	61,387	1680
15-Jul	46,046	19,384	143,783	345,473	135	219,354	279,962	9,010	55,225	12,695	62,942	1830
16-Jul	49,000	20,028	143,785	368,228	201	228,168	288,006	16,704	58,909	14,864	63,812	2312
17-Jul	50,801	21,094	143,789	400,054	250	231,798	293,082	23,330	60,645	20,811	64,678	2675
18-Jul	52,079	22,192		417,711	407	236,487	299,382	30,418	63,091	24,869	65,548	3038
19-Jul	52,303	23,205		426,787	753		306,986	40,383	64,592	27,821	66,414	3401
20-Jul	52,512	24,323		438,645	1,350		314,103	50,923	65,606	30,239	67,120	3636
21-Jul	52,956	25,265		440,167	1,591		319,901	64,899	66,518	31,854	67,826	3857
22-Jul	53,409	25,976		444,602	1,917		324,945	69,649	67,170	33,469	68,532	4118
23-Jul	53,965	26,542		449,037	2,179		329,293	81,922	67,452	35,084	68,834	4327
24-Jul	54,320			451,423	2,439		331,905	86,914	67,856	36,699	68,938	6308
25-Jul	54,545			453,398	2,701		332,539	90,522	68,298	38,314	69,212	7753
26-Jul	54,710			455,204	2,924			93,504	68,853	38,656	69,232	9347
27-Jul	54,763			456,875	3,159			95,959	69,427	39,372	69,302	9913
28-Jul	54,934			458,387	3,301			98,363	69,811	40,152	69,392	11652
29-Jul					3,431			102,706	70,485	40,728	69,562	13146
30-Jul					3,534			108,868	71,005	41,258	69,698	14567
31-Jul					3,627			111,202	71,530	42,094	69,694	15516
1-Aug					3,704			113,718	72,141	42,745	69,696	17021
2-Aug					3,783			116,490	72,604	43,422	69,696	17846
3-Aug					3,940			119,332	72,792	44,189	69,696	19526
4-Aug					4,009			121,892	72,974	44,767	69,698	20034
5-Aug					4,052			123,171	73,156	45,363	69,700	20653
6-Aug					4,112			124,229	73,338	45,767	69,700	21236
7-Aug					4,135			124,735	73,520	46,501	69,702	21977
8-Aug					4,158			125,431	73,713	47,012	69,703	22552
9-Aug					4,228			126,142	73,847	47,390	69,703	23251
10-Aug					4,269			126,787	73,973	47,594	69,703	23668
11-Aug					4,284			127,351	74,045	47,823	69,703	24085
12-Aug					4,295			127,774	74,045	48,020	69,703	24351
13-Aug					4,322			127,946		48,173		24426
14-Aug					4,322			127,989		48,330		24487
15-Aug					4,330			128,032		48,491		24541
16-Aug					4,334			128,075		48,600		24594
17-Aug					4,337			128,118		48,695		24647
18-Aug					4,337			128,161		48,786		24695
19-Aug					4,344			128,204		48,835		24723
20-Aug					4,351			128,146		48,886		24727
21-Aug					4,351			128,000		48,915		24733
22-Aug					4,349			127,968		48,941		24737
23-Aug					4,350			127,964		48,959		24737
24-Aug					4,354			127,944		48,973		24737
25-Aug					4,355			127,930		48,983		24737
26-Aug					4,356			127,926		48,993		24737
27-Aug					4,357					48,993		24737
28-Aug					4,358					48,993		24737
29-Aug					4,359					48,993		24737
30-Aug					4,360					48,993		24737
31-Aug					4,360					48,993		24737

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

Appendix Table 3. Daily cumulative chinook salmon escapement past the North River counting tower, Norton Sound, 1972-1974, 1984-1986 and 1996-2001.

Date	1972	1973	1974	1984	1985	1986	1996	1997	1998*	1999	2000	2001
15-Jun									0			
16-Jun							8	2	0			
17-Jun							6	5	2		0	
18-Jun							4	25	4		2	
19-Jun							0	25	7		2	
20-Jun							0	25	11		14	
21-Jun							-6	27	15		18	
22-Jun							-9	31	22		22	
23-Jun							-9	45	44		30	
24-Jun							-5	70	64		32	
25-Jun			0	0		0	-9	150	90		44	
26-Jun			0	0		2	-12	251	116		46	
27-Jun			1	0	0	2	-13	367	127		52	
28-Jun			3	0	0	2	-14	693	132		50	
29-Jun		1	6	55	0	8	-14	1,091	140		74	
30-Jun		1	42	101	0	42	-12	1,730	140	6	152	
1-Jul		1	48	513	0	116	-2	2,118	160	14	208	
2-Jul		6	53	642	0	158	6	2,288	172	17	258	
3-Jul		10	88	745	0	198	44	2,543	177	19	328	
4-Jul		16	125	984	0	326	145	2,756	190	19	368	
5-Jul		19	151	1,038	1	338	306	2,969	203	19	392	10
6-Jul		2	173	1,207	35	438	416	3,150	215	19	432	75
7-Jul	11	22	184	1,274	34	609	528	3,220	303	21	514	174
8-Jul	15	26	191	1,341	34	731	606	3,304	359	27	566	280
9-Jul	30	33	191	1,367	34	827	652	3,324	430	57	794	380
10-Jul	50	43	192	1,418	34	953	708	3,358	510	92	822	404
11-Jul	126	71	192	1,648	32	1,167	738	3,379	769	144	830	446
12-Jul	172	82	192	1,957	33	1,230	793	3,416	1,011	192	838	506
13-Jul	194	83	193	2,126	39	1,294	869	3,460	1,061	216	854	603
14-Jul	245	87	196	2,242	71	1,364	927	3,508	1,133	272	854	675
15-Jul	309	94	196	2,358	126	1,446	1,005	3,584	1,193	308	899	711
16-Jul	376	97	196	2,481	213	1,518	1,033	3,690	1,285	362	922	842
17-Jul	406	119	196	2,602	260	1,557	1,059	3,830	1,399	485	945	934
18-Jul	458	150		2,674	314	1,613	1,077	3,879	1,455	570	968	1026
19-Jul	466	150		2,706	366		1,113	3,939	1,494	630	991	1118
20-Jul	475	216		2,784	563		1,153	3,998	1,576	1054	1017	1171
21-Jul	492	231		2,803	635		1,179	4,048	1,668	1275	1040	1200
22-Jul	508	262		2,825	748		1,187	4,078	1,758	1496	1063	1211
23-Jul	521	298		2,847	824		1,193	4,116	1,864	1717	1076	1211
24-Jul	535			2,845	958		1,197	4,131	1,907	1938	1078	1233
25-Jul	544			2,840	1,093		1,197	4,150	1,946	2159	1085	1247
26-Jul	551			2,844	1,168			4,158	1,989	2175	1077	1257
27-Jul	556			2,848	1,213			4,160	2,009	2195	1063	1265
28-Jul	561			2,844	1,266			4,169	2,011	2215	1065	1280
29-Jul					1,300			4,180	2,025	2237	1065	1303
30-Jul					1,322			4,186	2,037	2239	1065	1330
31-Jul					1,328			4,186	2,051	2244	1055	1337
1-Aug					1,341			4,186	2,061	2249	1046	1337
2-Aug					1,356			4,185	2,068	2253	1044	1337
3-Aug					1,366			4,185	2,074	2256	1044	1337
4-Aug					1,381			4,185	2,079	2258	1044	1337
5-Aug					1,382			4,185	2,084	2260	1044	1337
6-Aug					1,392			4,185	2,089	2264	1044	1337
7-Aug					1,397			4,185	2,094	2264	1044	1337
8-Aug					1,414			4,185	2,096	2264	1044	1337
9-Aug					1,418			4,185	2,094	2264	1044	1337
10-Aug					1,423			4,185	2,096	2262	1044	1337
11-Aug					1,427			4,185	2,100	2260	1044	1337
12-Aug					1,429			4,185	2,100	2262	1046	1337
13-Aug					1,429			4,185		2260		1337
14-Aug					1,432			4,185		2259		1337
15-Aug					1,428			4,185		2259		1337
16-Aug					1,428			4,185		2255		1337
17-Aug					1,425			4,185		2255		1337
18-Aug					1,424			4,185		2255		1337
19-Aug					1,424			4,185		2255		1337
20-Aug					1,425			4,185		2257		1337
21-Aug					1,426			4,185		2258		1337
22-Aug										2259		1337
23-Aug										2260		1337
24-Aug										2261		1337
25-Aug										2262		1337
26-Aug										2263		1337
27-Aug										2263		1337
28-Aug										2263		1337
29-Aug										2263		1337
30-Aug										2263		1337
31-Aug										2263		1337

* 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 1996-2001.

Date	1985	1996	1997	1998	1999	2000	Avg.85-00	2001
5-Jul	0	0	0	0	0	0	0	0
6-Jul	0	0	0	0	0	0	0	0
7-Jul	0	0	0	0	0	0	0	0
8-Jul	0	0	0	0	0	0	0	0
9-Jul	0	6	0	0	0	0	1	0
10-Jul	0	8	0	0	0	0	1	0
11-Jul	0	8	0	0	0	16	4	0
12-Jul	0	12	0	0	0	20	5	0
13-Jul	0	29	0	0	0	20	8	0
14-Jul	0	41	0	0	0	20	10	0
15-Jul	0	53	0	0	0	36	15	0
16-Jul	0	73	3	0	0	69	24	0
17-Jul	0	103	9	0	0	102	36	0
18-Jul	0	149	18	0	0	135	50	0
19-Jul	0	279	35	0	0	168	80	0
20-Jul	0	441	54	0	1	201	116	0
21-Jul	0	593	80	20	3	234	155	0
22-Jul	0	681	100	56	5	267	185	0
23-Jul	0	997	140	110	7	304	260	0
24-Jul	0	1,175	158	152	9	468	327	41
25-Jul	0	1,229	192	180	11	724	389	82
26-Jul	0		214	232	15	820	256	204
27-Jul	0		246	302	67	864	296	354
28-Jul	0		301	400	97	1090	378	730
29-Jul	8		395	500	181	1422	501	1068
30-Jul	31		569	600	235	1882	663	1388
31-Jul	57		725	726	323	2089	784	1474
1-Aug	97		991	852	438	2357	947	1583
2-Aug	140		1,181	1,149	579	2502	1,110	1714
3-Aug	193		1,338	1,381	748	2850	1,302	1958
4-Aug	216		1,448	1,613	891	3436	1,521	2108
5-Aug	265		1,527	1,845	1164	3974	1,755	2351
6-Aug	319		1,640	2,077	1282	4699	2,003	2612
7-Aug	374		1,738	2,309	1470	5559	2,290	2819
8-Aug	419		1,858	2,555	1608	5930	2,474	3062
9-Aug	500		2,192	2,817	1728	5938	2,635	5169
10-Aug	536		2,532	3,163	1856	6561	2,930	6405
11-Aug	645		2,865	3,361	1986	6897	3,151	7641
12-Aug	686		3,209	3,361	2174	6961	3,278	8206
13-Aug	725		3,499		2304		2,176	8609
14-Aug	781		3,694		2433		2,303	8983
15-Aug	988		3,889		2561		2,479	9294
16-Aug	1,117		4,084		2781		2,661	9602
17-Aug	1,211		4,279		2893		2,794	9910
18-Aug	1,272		4,474		2973		2,906	10128
19-Aug	1,345		4,669		3068		3,027	10273
20-Aug	1,409		4,860		3325		3,198	10440
21-Aug	1,507		5,026		3519		3,351	10778
22-Aug	1,568		5,208		3721		3,499	10885
23-Aug	1,631		5,404		3920		3,652	11028
24-Aug	1,688		5,629		4087		3,801	11189
25-Aug	1,759		5,758		4284		3,934	11291
26-Aug	1,816		5,768		4447		4,010	11463
27-Aug	1,872				4567		3,220	11555
28-Aug	1,920				4643		3,282	11702
29-Aug	1,966				4719		3,343	11747
30-Aug	2,010				4780		3,395	11784
31-Aug	2,045				4792		3,419	11833
1-Sep								11891
2-Sep								11974
3-Sep								12061
4-Sep								12120
5-Sep								12154
6-Sep								12188
7-Sep								12222
8-Sep								12256
9-Sep								12290
10-Sep								12315
11-Sep								12325
12-Sep								12337
13-Sep								12355
14-Sep								12375
15-Sep								12383