Enumeration of Adult Steelhead

in the

Upper Sustut River, 2000

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Ministry of Environment, Lands and Parks
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Abstract

The upper Sustut River steelhead (*Oncorhynchus mykiss*) population was enumerated from July 31 to September 30, 2000, using a floating PVC fence. The first steelhead migrated past the fence on August 8 and by September 30, a total of 377 steelhead had been tagged and released upstream. This value was defined as the upper Sustut River steelhead index for 2000. An additional 85 steelhead were observed downstream of the fence on September 28. Between this final visual survey and the last day of fence operation on September 30, 14 steelhead migrated past the fence making the estimated spawning escapement for upper Sustut steelhead 448 fish. The population index for 2000 was the lowest on record and only slightly more than half of the long term average while the spawning escapement was 43 percent of the estimated carrying capacity (1036) for the upper Sustut system (Tautz *et al*. 1992). Between July 31 and September 30, a total of 896 chinook salmon (*O. tshawytscha*), 476 sockeye salmon (*O. nerka*), 12 coho salmon (*O. kisutch*), 11 bull trout (*Salvelinus confluentus*), 2 resident rainbow trout (*O. mykiss*) and 15 Rocky Mountain whitefish (*Prosopium williamsoni*) were counted passing upstream of the fence.

Four steelhead tagged at the upper Sustut River fence in 1998 were recaptured in 2000 indicating that a minimum of 0.4 percent of the 1998 run returned as potential repeat spawners. Both the percentage of repeat spawners and the growth between spawning events (6.3 cm) were less than the long term average (1.3% and 7.7 cm, respectively).

The ratio of female to male steelhead was 1.64:1. The average fork length of males and females was 82.7 cm and 74.1 cm, respectively. A total of 14.1 percent of all steelhead handled at the fence exhibited gillnet marks. The cumulative gillnet mark rate remained stable during the run but when pooled by week greater variability was evident with peaks occurring during statistical weeks 8-3 and 9-2. Females showed a higher gillnet mark rate (16.2%) than males (10.6%).

The upper Sustut steelhead population index continued to be positively correlated with the cumulative Tyee test fishery index to August 10. However, the inclusion of the 2000 data point resulted in much greater spread in the data and reduced the reliability of the predictive relationship.

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1.0 Introduction

The upper Sustut River steelhead (*Oncorhynchus mykiss*) stock has been used as an index population for early run summer steelhead in the Skeena Region since 1986 (Spence *et al*. 1990; Bustard 1993; Saimoto 1994; Saimoto 1995; Parken and Morten 1996; Parken *et al.* 1997; Williamson 1998, 1999a, 1999b, 2000). Early run steelhead stocks are of special concern for fisheries managers as their migration timing coincides with intense commercial fisheries for sockeye (*O. nerka*) and pink (*O. gorbuscha*) salmon where they are often captured incidentally (Ward *et al.* 1993; Cox-Rogers 1994). The resulting impact on the spawning populations can be significant and potentially detrimental to the long term viability of these important stocks. Annual enumeration of the upper Sustut River steelhead stock provides yearly population index values and time series data that demonstrate trends in the abundance of all early run Skeena steelhead.

The objectives of the 2000 enumeration program were:

1. to index the upper Sustut River steelhead population,
2. to determine the number of previously tagged steelhead, by sex, that returned in 2000, and to calculate the growth rate for these repeat spawners,
3. to examine the sex ratio and size distribution of steelhead throughout the run,
4. to examine the effect of water height and temperature on steelhead migration,
5. to examine the number of gillnet marked steelhead and the distribution of gillnet marked fish throughout the run,
6. to examine the relative run timing of male and female steelhead, and
7. to examine the effect of adding the 2000 data to the regression relationship between the upper Sustut River steelhead index and the cumulative Tyee test fishery index.

2.0 Study Area

The Sustut River is located in north central British Columbia and is a tributary to the upper Skeena River (Figure 1). Originating in the Omenica Mountains approximately 220 km north of Smithers, B.C., the Sustut River flows for 8 km northwest from Sustut and Mud lakes where it joins Johanson Creek near the main spawning area for upper Sustut steelhead (Bustard 1993). The river then flows 3 km west to its confluence with Moosevale Creek before turning southwest for approximately 100 km and flowing into the Skeena River. The Sustut River drains approximately 3,574 km^2 and has seven main tributaries:

Birdflat Creek, Bear River, Asitka River, Red Creek, Two Lake Creek, Moosevale Creek and Johanson Creek. Fish species known to inhabit the upper Sustut River include steelhead, chinook salmon (*O. tshawytscha*), sockeye salmon, coho salmon (*O. kisutch*), bull trout (*Salvelinus confluentus*), Dolly Varden char (*S. malma*), Rocky Mountain whitefish (*Prosopium williamsoni*), Bustard 1993; Saimoto 1994; Saimoto 1995) and burbot (*Lota lota*)[1]. The physical area that defines the upper Sustut River steelhead population is the Sustut River upstream of the Moosevale Creek confluence including Johanson Creek and Sustut and Johanson lakes (Spence *et al*. 1990, Figure 1). The physical area that defines the lower Sustut River steelhead population is the Sustut River downstream of the Bear River confluence, including Bear River and Bear Lake (Spence *et al*. 1990; Figure 1).

3.0 Methods

3.1 Steelhead Enumeration

A floating fish counting fence constructed from 3.8 cm PVC pipe was placed in the Sustut River, 500 m upstream of the confluence with Moosevale Creek and 70 km upstream of the confluence with the Bear River (Figures 2, 3). The fence was operated between July 31 and September 30. On September 17, a breach in the fence occurred when extremely high flows and heavy debris load resulted in the cable that secured the fence to the stream bed giving way. The opening in the fence was repaired within 3 hours. No fish were observed in the vicinity of the breach during repairs and it was assumed that no fish moved past the fence without being enumerated.

The total count of steelhead migrating past the fence has been defined as the upper Sustut River steelhead index. Fish holding between the fence and the Moosevale Creek confluence pool were counted in a visual survey on September 28 by two streamside observers using polarized sunglasses. The count was conducted midday with the sun shining on the river from directly overhead. The sum of the upper Sustut River steelhead index and the visual survey count of the section of the river immediately downstream of the fence was defined as the total escapement for the upper Sustut River steelhead population.

The fence was inspected daily for debris accumulation and openings passable to fish. Debris was removed and repairs made as necessary. The fence trap box was checked in the morning and evening during low levels of fish migration and was checked more frequently during heavier migration. It was observed that the handling of fish would often halt or delay migration for considerable periods. Therefore, counting and tagging was limited to 1-3

[1] In August, 1999 a single juvenile burbot (<10 cm fork-length) was found in a beaver impoundment by Ministry Staff on the Sustut River approximately 800 meters upstream of its confluence with Johanson Creek.

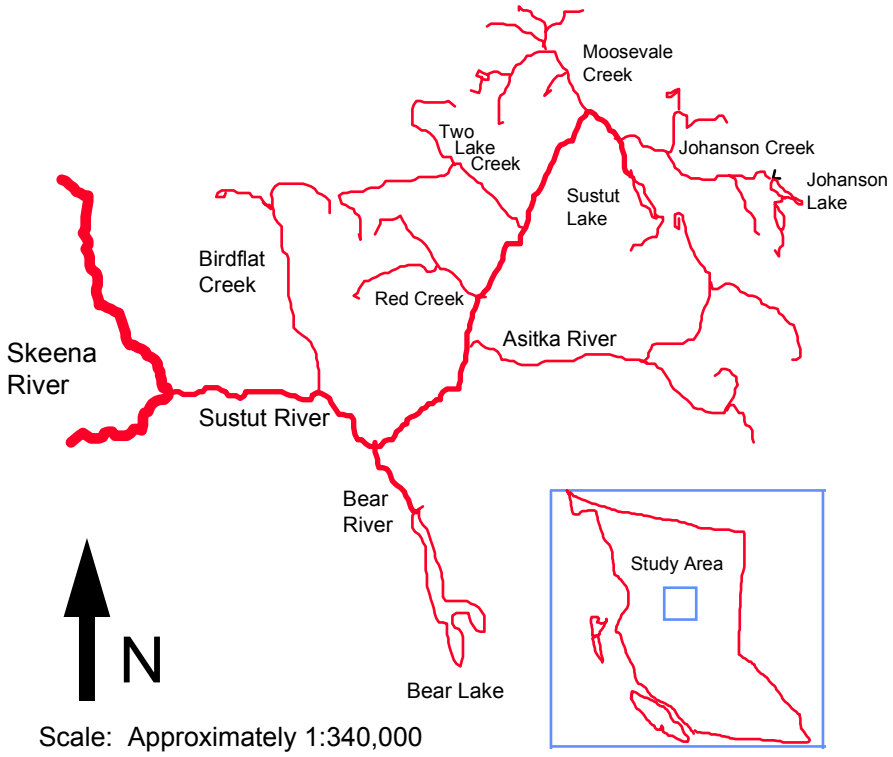

Figure 1. The Sustut River and major tributaries (from Saimoto 1995).

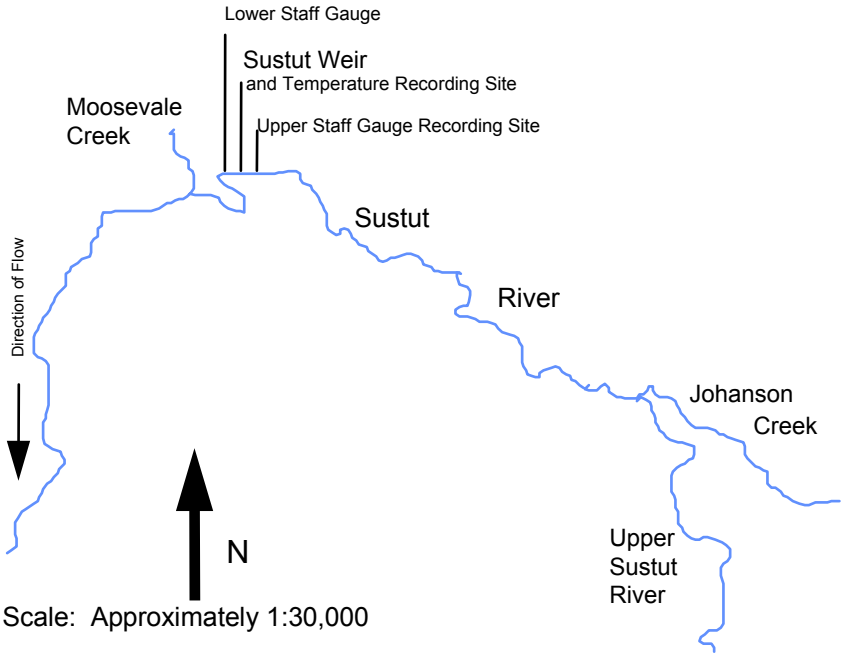

Figure 2. Detailed map of the study area (adapted from Saimoto 1995).

a

b

Figure 3. Aerial photograph of the steelhead enumeration fence looking downstream 1998(a) and photograph of the fence from the trail on the right bank (b) of the Sustut River, 1999.

sessions in the evening hours to avoid delaying fish migration. Past fence modifications implemented to reduce stress and mortality caused by the original fence design and handling procedures, were used again in 2000 (Williamson 1999b).

Experienced personnel, using the visual characteristics described in Scott and Crossman (1973) and McPhail and Carveth (1994), identified all fish passing the fence to species. All steelhead were tagged on the right side below the dorsal fin with white uniquely numbered t-bar anchor tags and measured for nose fork length to the nearest 0.5 cm. Sex, gillnet marks, scars, wounds and general condition of each fish was recorded (Appendix Table 6). Adipose tissue was collected from 100 steelhead to aid in stock identification and molecular genetic comparisons between upper and lower Sustut steelhead and resident rainbow trout populations. A sample of 5 scales, taken mid-laterally between the dorsal and anal fins, was collected from the same 100 steelhead to determine the age structure of the population. All fish mortalities resulting from fence operation or handling by personnel as well as post spawn carcasses were examined and sampled (Appendix Tables 1, 7, 10, 12). All other species of fish encountered at the fence were enumerated and sub-sampled for genetic stock identification and age determination (Appendix Tables 7, 8, 9, 11, 13).

3.2 Steelhead Recaptures

Sex, fork length and the presence of gillnet marks or predator scars were recorded for previously tagged steelhead (identified by tag presence, or unhealed scar in the tag position). Tag colour and number were recorded and compared to the Ministry of Environment, Lands and Parks, Skeena Region, TAGS database to determine original tagging location and date. Fork lengths of recaptured fish were compared between tagging periods to determine growth rates.

3.3 Steelhead Migration and Physical Data

Stream temperatures were recorded hourly at the fence by an electronic data logger (Onset Optic Stow Away Temp) and once daily by personnel using a Brannon minimum-maximum thermometer. Water levels were recorded in the morning and the evening using an instream staff-gauge. Air temperature and weather conditions were also recorded daily (Appendix Table 4). Maximum daily water temperature and level were examined against steelhead migration by graphical and statistical methods to determine if these physical factors influenced migration patterns.

3.4 Steelhead Length Distributions

Steelhead nose fork lengths were measured to the nearest 0.5 cm. with an Evazote (blue camping foam) lined measuring tray. The fork-lengths of male and female steelhead were compared graphically using length-frequency histograms and statistically using Student's t-test.

3.5 Steelhead Gillnet Marks

The presence of gillnet marks was recorded for all steelhead. The cumulative daily percentage of steelhead with gillnet marks was compared with the cumulative total number of steelhead for the duration of the run. The mean nose fork lengths of gillnet marked and unmarked steelhead were compared for each sex (Students t-test). Temporal trends in the gillnet mark rate were examined by pooling and plotting the percent of gill net marked steelhead by week.

3.6 Male and Female Steelhead Run Timing

The run timing of male and female steelhead was examined by plotting cumulative percent male and female steelhead by date over the duration of fence operation. Further, time series histograms of male and female migration timing were plotted and compared using Student's t-test. The date of first arrival and mean migration date passed the fence for male and female steelhead was also compared.

3.7 Upper Sustut River and Tyee Test Fishery Indices

The cumulative steelhead index at the Tyee test fishery has been used to indicate the relative abundance of steelhead and salmon migrating into the Skeena River (Cox-Rogers and Jantz 1993; Ward *et al*. 1993; Cox-Rogers 1994; Koski *et al*. 1995; Labelle *et al*. 1995). The cumulative steelhead index to August 10 is considered to indicate the relative abundance of early run Skeena River steelhead (upper Sustut River steelhead). This date was chosen as it was the last date that tagged upper Sustut River steelhead were observed in the Tyee test fishery (Parken *et al.* 1997).

In 1996, the relative abundance of upper Sustut River steelhead was standardized into a population index to reduce the variability resulting from the different enumeration methods (Parken *et al.* 1997). This index was defined as the total number of steelhead counted through the upper Sustut River fence to September 30. Parken *et al.* (1997) found that the August 10 cumulative Tyee steelhead index correlated positively with and was a significant predictor of the Upper Sustut steelhead index. This year, the 2000 data point was added to the regression analysis to determine if the August 10 Tyee test fishery index continued to be a significant predictor of the upper Sustut Steelhead population index.

4.0 Results

4.1 Steelhead Enumeration

Between August 8 and September 30, 377 steelhead migrated through the upper Sustut River fence (Appendix Tables 2, 6). This value was defined as the upper Sustut River steelhead index for 2000 (Table 1). An additional 85 steelhead were observed between the fence and the Moosevale Creek confluence pool on September 28. Between the final visual survey and the last fence count on September 30, 14 steelhead migrated past the fence. Assuming no additional migration from downstream of Moosevale Creek after the visual survey was completed, the estimated spawning escapement for the 2000 upper Sustut River steelhead run was 448 fish.

The first steelhead migrated through the fence on August 8 and by September 7, 50% of the run had passed (Figure 4; Table 1). The annual dates of 50% migration along with the corresponding total index values are presented in Table 1 for the years 1994 to 2000 in order to provide a historical context for the 2000 data. Information prior to 1994 was not included due to variability in enumeration methodology that existed during this period.

The observed handling mortality at the fence was 0.5% (2 steelhead) (Appendix Table 1). The first mortality occurred on September 3. This fish was seen in the vicinity of the fence for several days prior to death and was rescued from the panels several times. A severe head wound with extensive fungus was evident on the carcass. No such wound was observed during tagging and it was assumed that it developed after release upstream of the fence. The second fish was found stranded on the fence late on the evening of September 27. Numerous attempts at revival were unsuccessful. No major wounds were evident on the carcass.

Between July 31 and September 30, 896 chinook salmon, 476 sockeye salmon, 12 coho salmon, 11 bull trout, 2 resident rainbow trout and 15 Rocky Mountain whitefish migrated through the fence (Appendix Tables 2, 3).

4.2 Steelhead Recaptures

Four steelhead (3 female, 1 male) tagged at the Sustut River fence in 1998 were recaptured in 2000 (Table 2). Three of these fish were handled at the fence while one was encountered at the Moosevale Creek confluence pool during a study on angling selectivity. Growth from the date of initial tagging to the date of recapture ranged from 4.8 to 7.8 cm and averaged 6.3 cm. The timing of arrival at the fence for these fish was later in 2000 than in 1998 by an

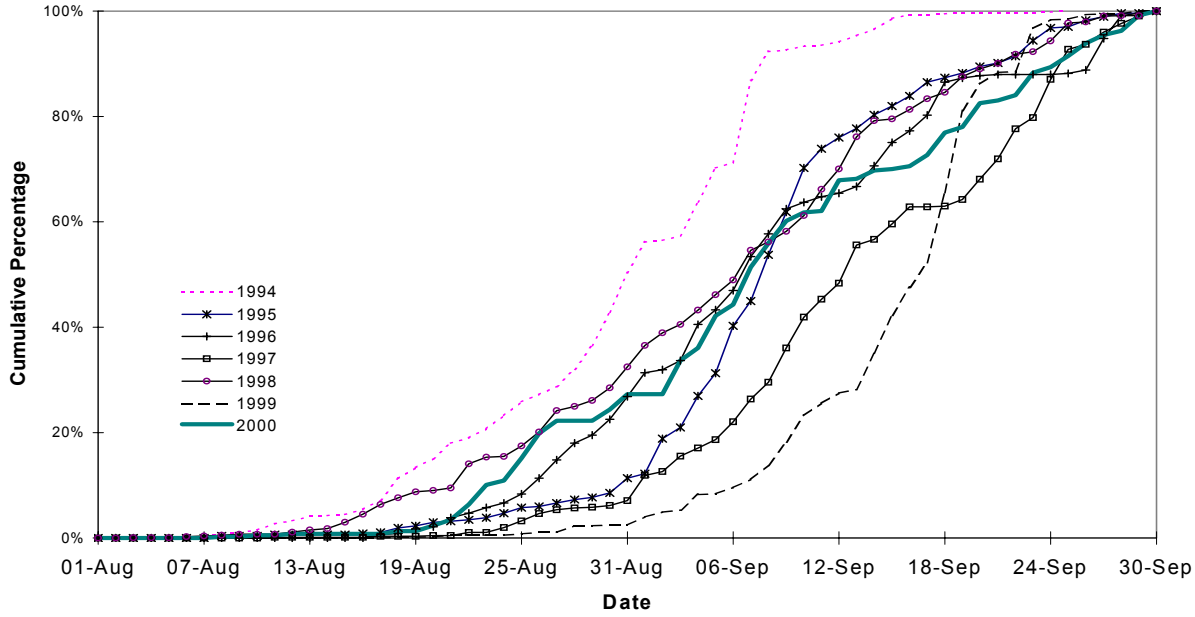

Figure 4. Daily cumulative percentage of upper Sustut steelhead migrating past the fence for . the years 1994 to 2000.

Table 1. Dates when 50% of steelhead migrated through the fence and the total index by year.

Year	Date of 50% Migration		Total Index
1994	Aug-29		584
1995	Sep-08		467
1996	Sep-07		466
1997	Sep-13		649
1998	Sep-07		1064
1999	Sep-17		731
2000	Sep-07		377
Earliest 50% Date	Aug-29	Minimum Index	377
Latest 50% Date	Sep-17	Maximum Index	1064
		Mean Index	620

average of 4 days. The last fish listed in Table 2 was originally tagged on July 26, 1998 at the Tyee test fishery. It was later recaptured at the Sustut fence on September 25, 1998 where it was retagged with orange 11141.

A total of 1064 steelhead were tagged at the fence in 1998. The 4 fish recaptured in 2000 indicate that a minimum of 0.4% of the 1998 run returned as potential repeat spawners in 2000.

4.3 Steelhead Migration and Physical Data

Maximum daily water temperature and staff gauge height were plotted with steelhead migration through the fence (Figures 5, 6). Temperature fluctuation appeared to coincide with increased migration through the fence. However, while correlation analysis indicated that water temperature was more strongly correlated with the steelhead migration through the fence than water level, date was the strongest correlate of the three variables (r values: temperature = 0.3996, level=0.2982, date = 0.4226; all correlations statistically significant at p=0.05).

Table 2. Steelhead tagged in 1998 and recaptured at the Sustut River fence in 2000.

Recapture Data					Tagging Data			
Date	Sex	Nose-Fork Length (cm)	Tag Colour	Tag Number	Date	Location	Sex	Nose-Fork Length (cm)
[1] Aug-31-00	f	77.0	Orange	10667	Aug-22-98	Sustut Fence	f	71.3
Sep-19-00	f	77.5	Orange	11006	Sep-19-98	Sustut Fence	m	69.7
Sep-20-00	m	87.0	White	7893	Sep-12-98	Sustut Fence	m	80.0
Sep-23-00	f	78.5	Orange	11141	Sep-25-98	Sustut Fence	f	73.7

[1] Fish was captured as part of an angling study at the Moosevale confluence pool.

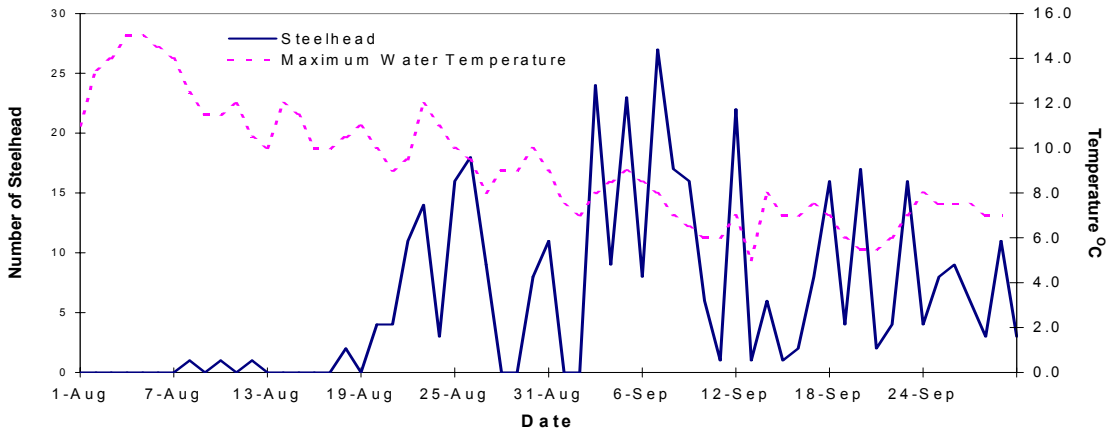

Figure 5. Daily maximum water temperatures and the number of steelhead migrating past the fence.

All environmental data along with a description of daily weather conditions are presented in Appendix Table 4. Daily minimum and maximum water temperatures are shown graphically in Appendix Figure 1.

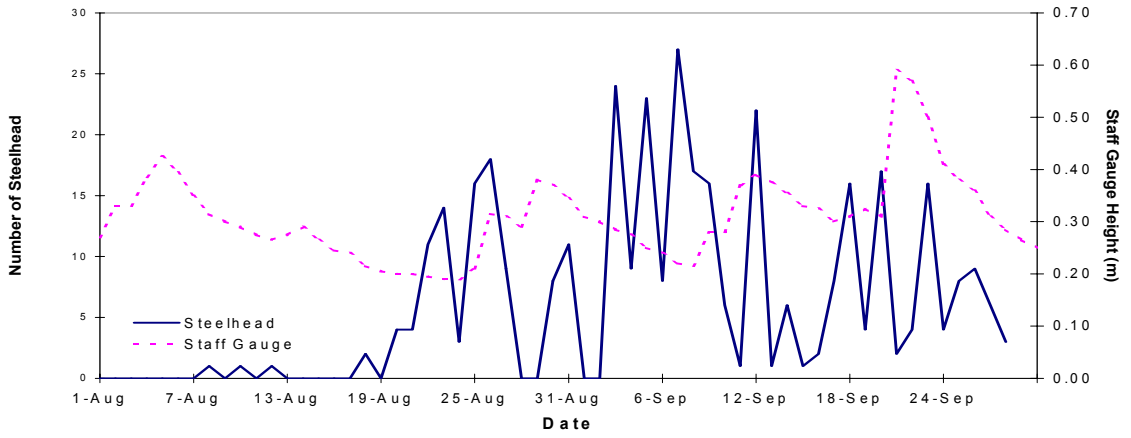

Figure 6. Daily staff gauge height and the number of steelhead migrating past the fence.

4.4 Steelhead Length Distributions by Sex

Of the 377 steelhead handled at the fence, 142 (37.7 percent) were males and 235 (62.3 percent) were females making the ratio of female to male steelhead 1.64:1. The mean nose fork lengths of male and female steelhead were 82.7 cm and 74.1 cm, respectively. The percent of the total number of steelhead measured at the fence was plotted by 2 cm increments for each sex (Figure 7). Statistical analysis revealed that male steelhead were significantly larger than female steelhead (Students t-test: $t = 15.80$; $p < 0.05$).

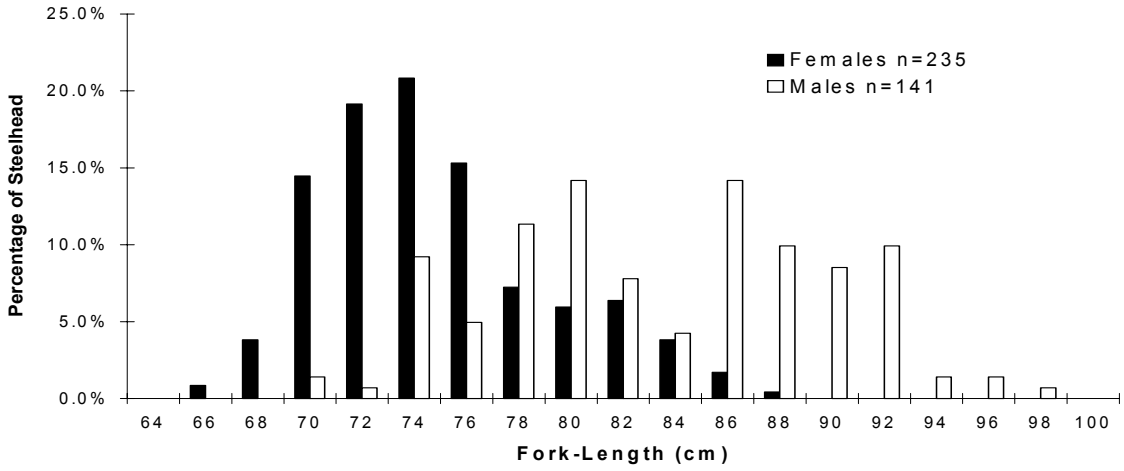

Figure 7. Percentage of male and female steelhead by 2 cm categories of fork-length (note: 1 male escaped before being measured).

4.5 Steelhead Gillnet Marks

Gillnet marks were present on 14.1 percent of all steelhead that migrated past the fence. The daily cumulative percentage of gillnet marked steelhead was plotted by date along with cumulative total steelhead (Figure 8). This figure indicates that cumulative gillnet marks remained relatively steady for the duration of the enumeration period. However, when the percent of gillnet marked steelhead was pooled and plotted by statistical week (statistical week definitions are outlined in Appendix Table 5) greater variation in the temporal pattern became apparent (Figure 9). Weekly gillnet mark rates ranged from a low of 6.6% in statistical week 8-4 to a high of 28.2% in statistical week 9-2. No clear temporal trend was evident in the data.

A total of 10.6 percent of male steelhead and 16.2 percent of female steelhead examined at the fence exhibited gillnet marks. These values are higher than those reported for males and females in 1999 (6.1 and 9.9, respectively; Williamson 2000). There was no significant size difference between gillnet marked and unmarked males (mean = 83.2 cm and 82.7 cm, respectively; Students t-test: $t=0.3151$, $p>0.05$). The same was true for net marked and unmarked females (mean = 73.4 cm and 74.3 cm, respectively; Students t-test: $t=1.0741$, $p>0.05$).

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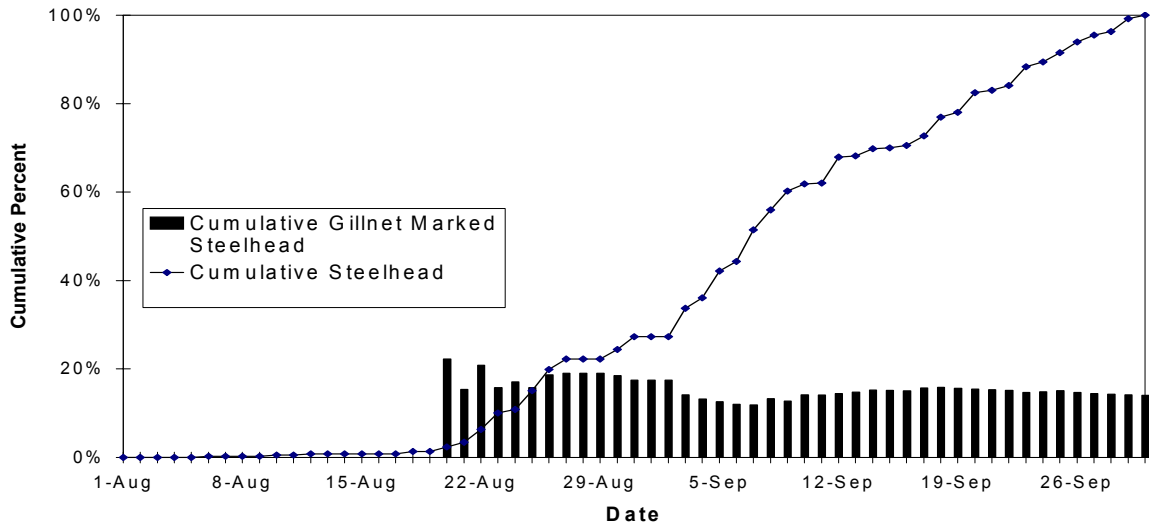

Figure 8. Daily cumulative total gillnet marked steelhead and daily cumulative total steelhead.

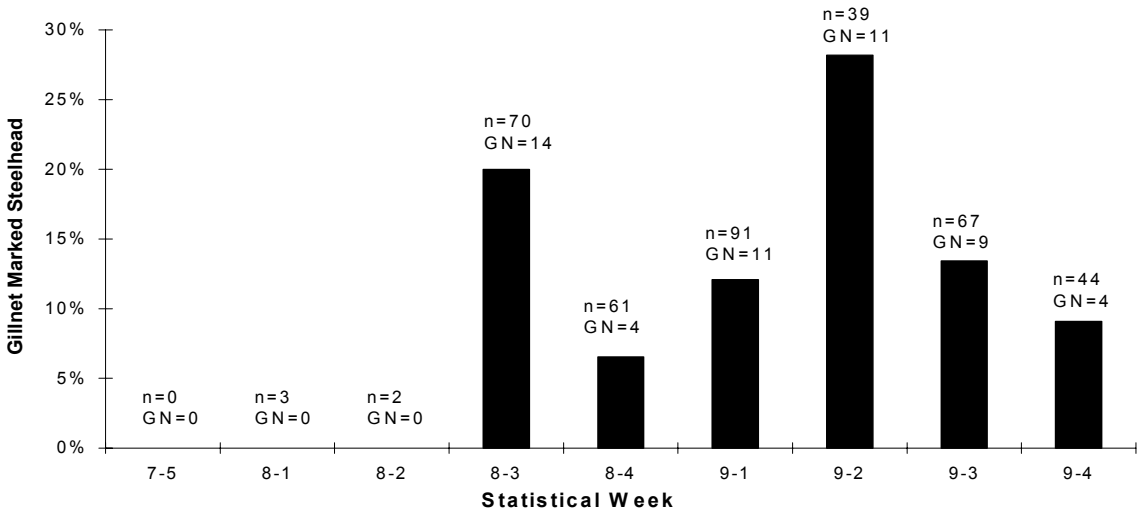

Figure 9. Percent of steelhead with gillnet marks by statistical week. GN = the number of gillnet marked steelhead and n = the total number of steelhead handled each week.

4.6 Male and Female Steelhead Run Timing

The first female steelhead passed through the fence on August 8 while the first male steelhead did not arrive until August 18. Median migration dates were September 7 and September 9 for females and males, respectively. The plot of daily cumulative percentage of fish arriving at the fence for both sexes reveals a slightly different pattern for males and females. Male steelhead exhibit a consistent arrival pattern while females arrived earlier and showed a steeper increase in the mid to late portion of the run (Figure 10). Further, when time series histograms were compared, there was a significant difference in the timing of migration past the fence for males and females (Students t-test: $t=2.1268$, $p<0.05$).

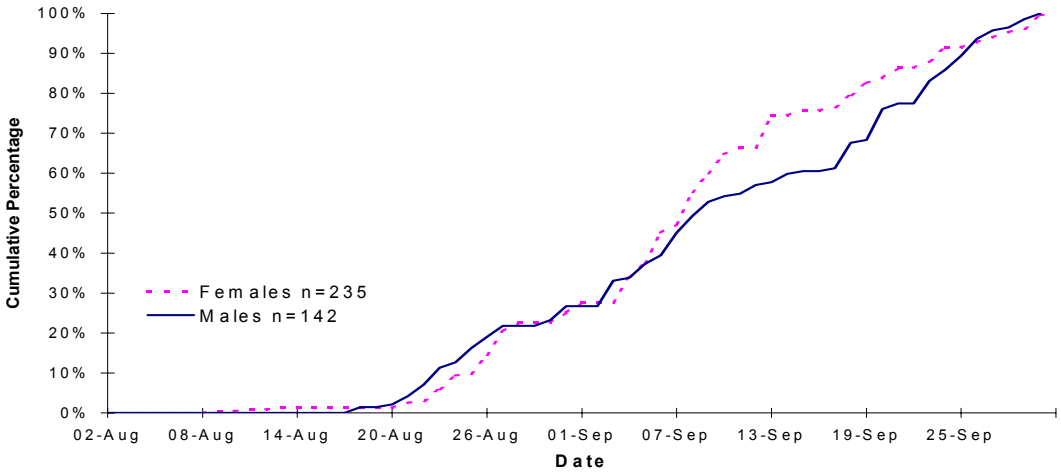

Figure 10. Daily cumulative percent of male and female steelhead.

4.7 Upper Sustut River and Tyee Test Fishery Indices

The 2000 upper Sustut steelhead population index and the cumulative Tyee test fishery index to August 10 were added to the historical regression relationship between these two values (Figure 11). While the regression relationship remained statistically significant with the addition of the new point, (ANOVA: F=5.23, p=.05) there was much greater spread in the data. The updated regression relationship was not as tight as it was before the 2000 data was added (r^2 decreased from 0.6695 to 0.3954) and therefore less weight can be placed on it's predictive value.

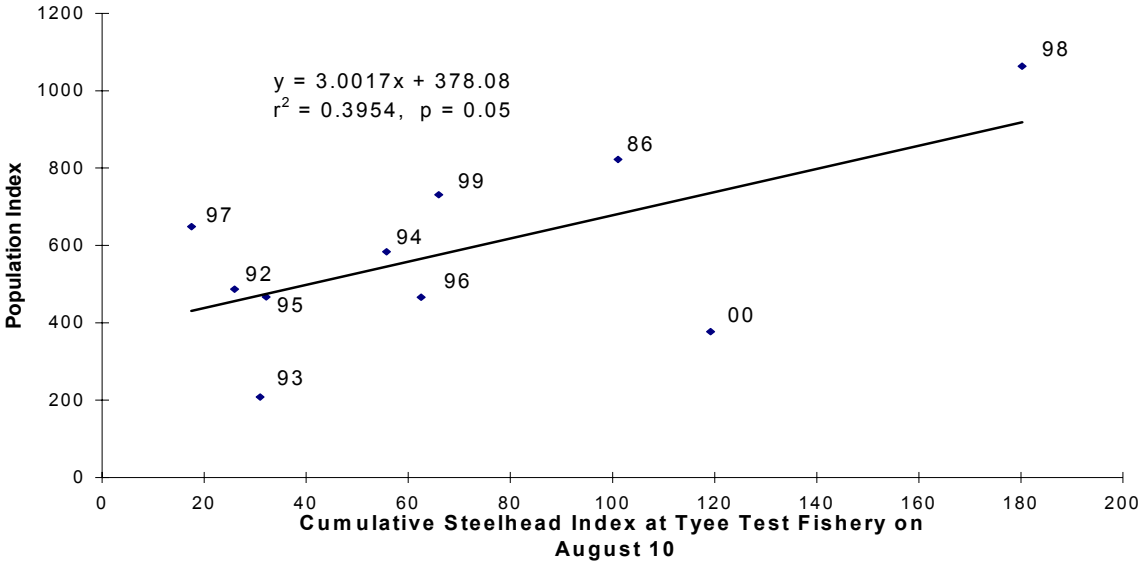

Figure 11. Linear relationship between the upper Sustut River steelhead population index and the cumulative steelhead index at Tyee test fishery on August 10.

5.0 Discussion

The upper Sustut River steelhead population index for 2000 was 377 fish. This value is the lowest on record and only slightly more than half of the 1994-99 average (Table 1). There are several factors that may have influenced this result. First, due to a large return of sockeye to the Skeena system, commercial fisheries were intense in the early portion of the fishing season. This change to the fishing plan was implemented in an attempt to minimize interceptions of coho and to reduce impacts on the peak of the Skeena steelhead return. It is likely that one of the results of this intense, front loaded fishery was a higher than normal interception of the early Skeena steelhead stock complex including the upper Sustut population. Secondly, it is possible that less favourable environmental conditions impacted survival and total production. This is supported by the fact

that 2000 saw the lowest rate of potential repeat spawners on record (2000 = 0.4%; long term average = 1.3%) as well as the lowest growth between spawning events for these fish (2000 = 6.3 cm; long term average = 7.7 cm). Finally, if run timing was delayed in 2000 then the index may be biased low. However, despite the fact that repeat spawners from 1998 arrived at the fence an average of 4 days later in 2000, the 50% migration dates were the same in both years. Further, the 50% migration date for 2000 fell in the early portion of the historical range (Table 1). Also, visual surveys of the area several kilometres downstream of the fence did not reveal a large number of holding fish.

The mortality rate for steelhead handled at the fence in 2000 was 0.5% which was in the low end of the range reported for previous years (0 – 4.3%; Williamson 2000). Mortality rates have remained low since 1998 when personnel modified the fence by adding a covered recovery area for released steelhead and a low head baffle to reduce strandings on the fence at low water levels (Williamson, 1999b). Also, water temperatures remained below those considered stressful for steelhead throughout the duration of fence operations.

Reports from previous years fence operations indicated that water temperature and river height influenced steelhead movement (Siamoto 1995; Parken and Morten 1996). Results from this year's study indicate that while environmental variables may partially influence steelhead migration past the fence, these factors are overwhelmed by the effect of the temporal component. In 2000, it appears that steelhead moved upstream quite steadily as the season progressed and did not pulse through the fence in correlation with notable environmental events.

In 2000, 62.3 percent of steelhead were female and 37.7 percent were male yielding a ratio of 1.64:1 females to males. The skewed sex ratio in favour of females is similar to that found in previous years (Parken *et al.* 1997; Williamson 1998, 1999a, 2000). Parken *et al.* postulated that this may have resulted from disproportionate sampling throughout the run during early studies. However, since 1995 all steelhead have been identified to sex and therefore the reported sex ratios accurately reflect those of the population. Hooton has indicated (personal communication in Parken *et al.* 1997) that past research found males dominant in the beginning of the run and females dominant near the end of the run. This has not been the case in the upper Sustut during the past several years when females dominated throughout the run. It may be that gillnet fisheries targeting other species have selectively harvested male steelhead as their size and secondary sexual characteristics likely make them more susceptible to this gear type.

The average length of male (82.7 cm) and female (74.1 cm) steelhead was similar to the long term average (male = 82.4 cm; female = 74.1 cm; Parken *et al*. 1977, Williamson 1998, 1999a, 2000). As in past years, males were significantly larger than females.

A total of 14.1 percent of all steelhead encountered at the fence exhibited gill net marks. This falls in the middle portion of historical values which range

from 2 to 23 percent and average 11.7 percent (Parken *et al*. 1997; Williamson 1998, 1999a, 2000). Female steelhead exhibited a higher gillnet mark rate than males (16.2 and 10.6 percent, respectively). This may indicate that either gillnet encounter rates are different for males and females (likely due to differences in run timing) or that females escape capture more often than males. The cumulative gillnet make rate remained relatively stable throughout the duration of the run. However, when pooled and plotted by week, the temporal pattern exhibited more variability with statistical weeks 8-3 and 9-2 showing higher gillnet mark rates. This may be a reflection of the pattern of fishery openings which can result in different timing components of the run encountering more or fewer gillnets. Further, there were extensive IFF and ESSR in-river fisheries in 2000 that may have contributed to the pattern of gillnet marks observed.

The upper Sustut River steelhead population index continued to be positively correlated with the cumulative Tyee test fishery index to August 10. However, the inclusion of the 2000 data point resulted in much greater spread in the data as indicated by a lower r^2 value. As a result, the new data set has reduced the reliability of the predictive relationship. This may be the result of recent adjustments made to commercial, IFF and ESSR fishing plans. The 2000 fisheries were designed to target large Skeena sockeye returns while minimizing the impact on coho and the peak of the steelhead return. The resulting intensified effort during the early portion of the fishery coincided with the return migration of early summer run steelhead including the upper Sustut stock. This change in the intensity and timing of the fisheries has introduced additional variability into the regression relationship. Further data needs to be added to the regression to determine the continued usefulness of the Tyee index as a predictor of the upper Sustut River steelhead index.

6.0 Recommendations

1. Enumeration of the upper Sustut River steelhead population should continue to be carried out annually. The valuable time series of data that results from this project provides fisheries managers with information on abundance trends for all early run Skeena steelhead populations. Sampling methods should continue as recommended by Parken and Morten (1996), thus maintaining the reliability of comparisons across years.

2. Efforts to visually enumerate steelhead below the fence prior to fence removal should continue. These counts provide the basis for estimating total escapement to the upper Sustut River. The survey should take place at the first opportunity during the last week of fence operation. If favourable conditions persist, then a later survey should be undertaken as close to the date of fence removal as possible.

3. The relationship between the upper Sustut River steelhead population index and the Tyee test fishery index should continue to be investigated as additional data points are added annually.

4. Fence modifications implemented in 1998 and described in Williamson (1999b), should continue to be utilized as they have resulted in reduced handling mortalities in all subsequent years.

5. The placing of numerous sand bags along the bank has temporarily halted erosion at the fence site on river right. Planting willow branches in the streamside soil has encouraged the growth of riparian vegetation. However, these are temporary measures at best and further steps should be taken to stabilize this bank before the suitability of the present fence location is compromised. Also, stream bed erosion has occurred downstream of the fence sill. This scour trough continues to deepen each year. It is recommended that the effected area of the stream bed be filled and protected from further erosion with a suitable material.

6. During fence operation in 2000, the cable securing the fence to the stream bed snapped during high water. It is recommended this be replaced with a heavier gauge stainless steel cable. Also, the wooden trap box used for the past several years at the fence is in poor shape and it is recommended that it be replaced with an aluminum structure which would be easier to handle and last much longer.

7.0 Acknowledgments

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8.0 Literature Cited

Bustard, D. 1993. Adult steelhead studies in the upper Sustut River 1992. Unpublished manuscript prepared for British Columbia Ministry of Environment, Lands and Parks, Smithers, B.C.

Cox-Rogers, S. 1994. Description of daily simulation model for the Area 4 (Skeena) commercial gillnet fishery. Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 2256.

Cox-Rogers, S. and L. Jantz. 1993. Recent trends in the catchability of sockeye salmon in the Skeena River gillnet test fishery and impacts on escapement estimation. Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 2219.

Koski, W.R., R.F. Alexander, and K.K. English. 1995. Distribution, timing, fate and numbers of coho salmon and steelhead returning to the Skeena watershed in 1994. Report by LGL Limited, Sidney, B.C., for Fisheries Branch, British Columbia Ministry of Environment, Lands and Parks, Victoria, B.C.

Labelle, M., S. Pollard, R. Frith and K. English. 1995. Skeena River steelhead stock-assessment program: 1994 catch and escapement monitoring plan. British Columbia Ministry of Environment, Lands and Parks. Fisheries Branch. Fisheries Progress Report No. 44.

McPhail, J.D. and R. Carveth. 1994. Field key the freshwater fishes of British Columbia. British Columbia Resource Inventory Committee Publication #44.

Parken, C.K. and K.L. Morten. 1996. Enumeration of adult steelhead in the upper Sustut River 1995. British Columbia Ministry of Environment, Lands and Parks. Fisheries Branch. Skeena Fisheries Report SK#95.

Parken, C.K., K.L. Morten, and D.Y. Atagi. 1997. Review of the escapement of adult steelhead to the upper Sustut River 1986, 1992-1996. British Columbia Ministry of Environment, Lands and Parks. Fisheries Branch. Skeena Fisheries Report SK#107.

Saimoto, R.S. 1994. Enumeration of adult steelhead in the upper Sustut River 1993. British Columbia Ministry of Environment, Lands and Parks. Smithers, B.C., Skeena Fisheries Report SK#87.

Saimoto, R.K. 1995. Enumeration of adult steelhead in the upper Sustut River 1994. Unpublished Manuscript prepared for British Columbia Ministry of Environment, Lands and Parks. Smithers, B.C.

Spence, C.R., M.C. Beere and M.J. Lough. 1990. Sustut River steelhead investigations 1986. British Columbia Ministry of Environment, Lands and Parks. Smithers, B.C., Skeena Fisheries Report SK#64.

Scott, W.B. and E.J. Crossman. 1973. Freshwater fishes of Canada. Fisheries Research Board of Canada, Bulletin No. 184, Ottawa, Ontario.

Tautz, A.F., B.R. Ward and R.A. Ptolemy. 1992. Steelhead trout productivity and stream carrying capacity for rivers of the Skeena drainage. PSARC Working Papers S92 – 6 and 8.

Ward, B.R., A.F. Tautz, S. Cox-Rogers and R.S. Hooton. 1993. Migration timing and harvest rates of the steelhead trout populations of the Skeena River system. PSARC Working Paper S93-06.

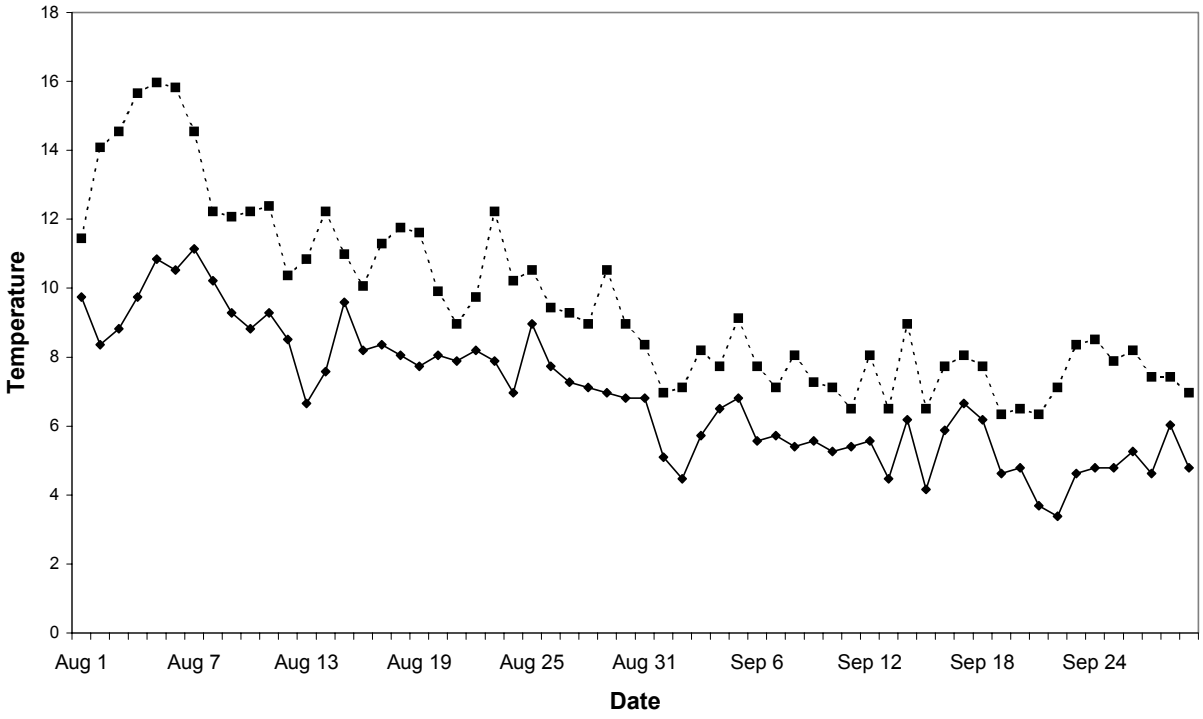
Williamson, C.J. 1998. Enumeration of Adult Steelhead in the Upper Sustut River 1997. British Columbia Ministry of Environment, Lands and Parks. Fisheries Branch. Skeena Fisheries Report SK #112.

Williamson, C.J. 1999a. Enumeration of Adult Steelhead in the Upper Sustut River 1998. British Columbia Ministry of Environment, Lands and Parks. Fisheries Branch. Skeena Fisheries Report SK #120.

Williamson, C.J. 1999b. Enumeration of Adult Steelhead in the Upper Sustut River 1998. Appendix Report 1: Fence Modifications. British Columbia Ministry of Environment, Lands and Parks. Fisheries Branch. Skeena Fisheries Report SK #121.

Williamson, C.J. 2000. Enumeration of Adult Steelhead in the Upper Sustut River 1999. British Columbia Ministry of Environment, Lands and Parks. Fisheries Branch. Skeena Fisheries Report SK #126

Appendix Figures



Appendix Figure 1. Daily minimum and maximum temperatures at Sustut Fence, August 1 to September 30, 2000.

Appendix Tables

Appendix Table 1. Steelhead handling mortalities 2000.

Date	Tag Colour	Tag Number	Date Tagged	Sex	Picture#	Comments
03-Sep-00	White	14004	10-Aug-00	f	R1-13	Much fungus observed; 2 days on fence before death; DNA/Sc # 17
27-Sep-00	Orange	C08021	07-Sep-00	f	R5-20	Found stranded on fence @ 19:15; attempted to revive until 20:00 - no luck

Appendix Table 2. Daily and cumulative totals of steelhead, rainbow trout, bull trout and rocky mountain whitefish migrating past the. Sustut fence.

Date	Steelhead		Rainbow Trout		Bull Trout		Whitefish	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
31-Jul-00	0	0	1	1	0	0	0	0
01-Aug-00	0	0	0	1	0	0	0	0
02-Aug-00	0	0	0	1	0	0	0	0
03-Aug-00	0	0	0	1	0	0	0	0
04-Aug-00	0	0	0	1	0	0	0	0
05-Aug-00	0	0	0	1	0	0	2	2
06-Aug-00	0	0	0	1	0	0	0	2
07-Aug-00	0	0	0	1	0	0	0	2
08-Aug-00	1	1	0	1	0	0	0	2
09-Aug-00	0	1	0	1	0	0	0	2
10-Aug-00	1	2	0	1	0	0	0	2
11-Aug-00	0	2	0	1	0	0	0	2
12-Aug-00	1	3	0	1	0	0	0	2
13-Aug-00	0	3	0	1	0	0	2	4
14-Aug-00	0	3	0	1	0	0	0	4
15-Aug-00	0	3	0	1	0	0	0	4
16-Aug-00	0	3	0	1	0	0	0	4
17-Aug-00	0	3	0	1	0	0	0	4
18-Aug-00	2	5	0	1	0	0	0	4
19-Aug-00	0	5	0	1	0	0	0	4
20-Aug-00	4	9	0	1	0	0	0	4
21-Aug-00	4	13	0	1	1	1	0	4
22-Aug-00	11	24	0	1	1	2	1	5
23-Aug-00	14	38	0	1	0	2	1	6
24-Aug-00	3	41	0	1	0	2	1	7
25-Aug-00	16	57	0	1	0	2	1	8
26-Aug-00	18	75	0	1	0	2	0	8
27-Aug-00	9	84	0	1	0	2	0	8
28-Aug-00	0	84	0	1	0	2	2	10
29-Aug-00	0	84	0	1	0	2	2	12
30-Aug-00	8	92	0	1	0	2	1	13

Date	Steelhead		Rainbow Trout		Bull Trout		Whitefish	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
31-Aug-00	11	103	0	1	0	2	0	13
01-Sep-00	0	103	0	1	0	2	0	13
02-Sep-00	0	103	0	1	0	2	0	13
03-Sep-00	24	127	0	1	0	2	0	13
04-Sep-00	9	136	0	1	0	2	0	13
05-Sep-00	23	159	0	1	2	4	0	13
06-Sep-00	8	167	0	1	2	6	0	13
07-Sep-00	27	194	0	1	0	6	0	13
08-Sep-00	17	211	0	1	1	7	1	14
09-Sep-00	16	227	0	1	0	7	0	14
10-Sep-00	6	233	0	1	0	7	0	14
11-Sep-00	1	234	0	1	0	7	0	14
12-Sep-00	22	256	0	1	0	7	0	14
13-Sep-00	1	257	0	1	0	7	0	14
14-Sep-00	6	263	0	1	0	7	0	14
15-Sep-00	1	264	0	1	1	8	0	14
16-Sep-00	2	266	0	1	0	8	0	14
17-Sep-00	8	274	0	1	0	8	0	14
18-Sep-00	16	290	0	1	1	9	1	15
19-Sep-00	4	294	0	1	0	9	0	15
20-Sep-00	17	311	0	1	0	9	0	15
21-Sep-00	2	313	0	1	0	9	0	15
22-Sep-00	4	317	0	1	0	9	0	15
23-Sep-00	16	333	0	1	0	9	0	15
24-Sep-00	4	337	1	2	0	9	0	15
25-Sep-00	8	345	0	2	0	9	0	15
26-Sep-00	9	354	0	2	0	9	0	15
27-Sep-00	6	360	0	2	2	11	0	15
28-Sep-00	3	363	0	2	0	11	0	15
29-Sep-00	11	374	0	2	0	11	0	15
30-Sep-00	3	377	0	2	0	11	0	15

Appendix Table 3. Daily and cumulative totals of chinook, sockeye and coho salmon. migrating upstream through the Sustut fence.

	Chinook		Sockeye		Coho	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.
30-Jul-00	0	0	0	0	0	0
31-Jul-00	5	5	0	0	0	0
01-Aug-00	5	10	0	0	0	0
02-Aug-00	10	20	0	0	0	0
03-Aug-00	9	29	0	0	0	0
04-Aug-00	34	63	0	0	0	0
05-Aug-00	17	80	1	1	0	0
06-Aug-00	89	169	1	2	0	0
07-Aug-00	168	337	4	6	0	0
08-Aug-00	185	522	4	10	0	0
09-Aug-00	193	715	8	18	0	0
10-Aug-00	25	740	13	31	0	0
11-Aug-00	36	776	14	45	0	0
12-Aug-00	16	792	2	47	0	0
13-Aug-00	32	824	28	75	0	0
14-Aug-00	12	836	13	88	0	0
15-Aug-00	15	851	4	92	0	0
16-Aug-00	4	855	4	96	0	0
17-Aug-00	10	865	34	130	1	1
18-Aug-00	5	870	38	168	1	2
19-Aug-00	8	878	33	201	0	2
20-Aug-00	6	884	43	244	0	2
21-Aug-00	2	886	47	291	0	2
22-Aug-00	4	890	48	339	0	2
23-Aug-00	4	894	34	373	1	3
24-Aug-00	0	894	4	377	0	3
25-Aug-00	1	895	8	385	1	4
26-Aug-00	0	895	9	394	1	5
27-Aug-00	0	895	7	401	0	5
28-Aug-00	0	895	0	401	0	5
29-Aug-00	0	895	1	402	0	5
30-Aug-00	0	895	4	406	0	5
31-Aug-00	0	895	2	408	0	5
01-Sep-00	0	895	0	408	0	5
02-Sep-00	0	895	0	408	0	5
03-Sep-00	0	895	1	409	0	5
04-Sep-00	1	896	7	416	0	5
05-Sep-00	0	896	29	445	0	5
06-Sep-00	0	896	4	449	0	5
07-Sep-00	0	896	13	462	2	7
08-Sep-00	0	896	3	465	2	9
09-Sep-00	0	896	0	465	1	10
10-Sep-00	0	896	1	466	0	10
11-Sep-00	0	896	0	466	0	10
12-Sep-00	0	896	2	468	1	11
13-Sep-00	0	896	0	468	0	11
14-Sep-00	0	896	1	469	0	11
15-Sep-00	0	896	0	469	0	11
16-Sep-00	0	896	4	473	0	11

Date	Chinook		Sockeye		Coho	
	Daily	Cum.	Daily	Cum.	Daily	Cum.
17-Sep-00	0	896	3	476	1	12
18-Sep-00	0	896	0	476	0	12
19-Sep-00	0	896	0	476	0	12
20-Sep-00	0	896	0	476	0	12
21-Sep-00	0	896	0	476	0	12
22-Sep-00	0	896	0	476	0	12
23-Sep-00	0	896	0	476	0	12
24-Sep-00	0	896	0	476	0	12
25-Sep-00	0	896	0	476	0	12
26-Sep-00	0	896	0	476	0	12
27-Sep-00	0	896	0	476	0	12
28-Sep-00	0	896	0	476	0	12
29-Sep-00	0	896	0	476	0	12
30-Sep-00	0	896	0	476	0	12

Appendix Table 4. Daily staff gauge height, air and water temperatures and weather conditions for the upper Sustut River.

Date	Staff Gauge Height (m)		Temperature ^{O}C				Weather
			Water		Air		
	Time	Level	Max	Min	Max	Min	
28-Jul-00							cloud and rain; instantaneous temperature 11.0
	20:30	0.270					
29-Jul-00							scattered cloud, sunny breaks, showers; instantaneous temperature 11.5
	22:00	0.330					
30-Jul-00							mainly overcast, showers, sunny breaks; instantaneous temperature 12.0
	22:00	0.330					
31-Jul-00	9:30	0.330					scattered cloud with sun a.m.; heavy cloud and showers p.m.
	22:00	0.385	12.0	9.5	23.0	3.0	
01-Aug-00	9:30	0.425					heavy cloud a.m.; scattered cloud with sunny periods p.m.; mainly clear late evening.
	22:00	0.405	11.0	10.0	21.0	2.0	
02-Aug-00	9:00	0.395					scattered cloud with sunny periods
	22:00	0.355	13.5	9.0	24.0	0.5	
03-Aug-00	8:45	0.350					mainly clear and sunny
	22:00	0.325	14.0	9.5	28.0	0.0	
04-Aug-00	8:50	0.315					mainly clear skies and sunny all day
	22:00	0.295	15.0	10.0	30.0	2.0	
05-Aug-00	9:00	0.300					clear and sunny a.m.; scattered cloud aft.; overcast late p.m.
	22:00	0.290	15.0	11.0	28.0	3.0	
06-Aug-00	9:00	0.290					sunny and clear a.m.; overcast p.m.
	21:45	0.280	14.5	11.0	27.0	3.0	
07-Aug-00	8:30	0.275					scattered cloud a.m.; overcast and showers aft.; heavy rain late p.m.
	22:00	0.270	14.0	11.0	20.0	4.0	

Date	Staff Gauge Height (m) Time	Level	Temperature °C Water Max	Min	Air Max	Min	Weather
08-Aug-00	9:20	0.265					overcast with periodic showers a.m. and aft; heavy rain late p.m.
	21:30	0.265	12.5	10.5	15.0	5.0	
09-Aug-00	9:30	0.275					overcast and rain
	21:30	0.275	11.5	10.5	13.0	5.0	
10-Aug-00	9:20	0.290					mainly overcast with periodic showers and occasionally sunny period
	21:30	0.275	11.5	10.0	16.0	4.0	
11-Aug-00	9:40	0.265					overcast, showers, sunny breaks
	21:40	0.255	12.0	10.0	17.0	5.0	
12-Aug-00	9:40	0.245					overcast and showers
	20:30	0.240	10.5	10.0	15.0	-3.0	
13-Aug-00	9:45	0.240					sunny a.m.; scattered cloud p.m.
	21:20	0.230	10.0	6.5	15.0	n/r	
14-Aug-00	10:20	0.215					scattered cloud with sunny periods
	21:15	0.210	12.0	7.5	17.0	7.0	
15-Aug-00	10:20	0.205					overcast with periodic light showers
	21:20	0.200	11.5	10.0	14.0	4.0	
16-Aug-00	9:15	0.200					overcast with periodic light showers
	21:15	0.200	10.0	9.0	14.0	4.0	
17-Aug-00	11:05	0.200					overcast with extended sunny breaks
	21:20	0.195	10.0	9.0	21.0	5.5	
18-Aug-00	9:40	0.195					overcast with sunny breaks in the p.m.
	21:20	0.190	10.5	9.0	15.0	4.0	
19-Aug-00	10:15	0.190					overcast, showers, sunny breaks
	20:40	0.190	11.0	8.5	15.5	0.0	
20-Aug-00	9:00	0.190					heavy overcast, rain all day
	20:30	0.190	10.0	8.5	10.0	2.0	
21-Aug-00	9:00	0.210					rain all day
	20:30	0.250	9.0	8.5	10.0	6.0	
22-Aug-00	9:30	0.305					overcast with showers a.m.; clearing by late p.m.
	20:30	0.315	9.5	9.0	17.5	7.5	
23-Aug-00	9:30	0.310					scattered cloud with sunny periods
	20:30	0.305	12.0	8.5	18.5	5.0	
24-Aug-00	9:30	0.290					overcast with rain in p.m.
	20:20	0.285	11.0	7.0	17.0	-2.0	
25-Aug-00	8:50	0.320					overcast with periodic showers
	20:30	0.380	10.0	9.5	15.0	5.0	
26-Aug-00	9:45	0.370					overcast with periodic showers
	20:15	0.355	9.5	8.5	11.0	4.0	
27-Aug-00	9:45	0.345					scattered cloud; clearing in p.m.
	20:30	0.325	8.0	6.0	14.0	2.0	
28-Aug-00	9:45	0.310					showers with odd clear patch
	20:05	0.310	9.0	7.0	10.5	2.5	
29-Aug-00	11:00	0.300					sun and cloud; high pressure; some showers early
	20:45	0.280	9.0	7.0	15.0	-0.5	
30-Aug-00	9:45	0.270					rain all day
	21:15	0.285	10.0	6.5	14.0	-0.5	
31-Aug-00	9:35	0.275					showers and high overcast
	20:00	0.260	9.0	6.5	11.0	2.0	
01-Sep-00	8:30	0.250					snow, sleet, showers
	20:15	0.245	7.5	5.0	7.5	-2.5	

Date	Staff Gauge Height (m) Time	Level	Temperature ^{O}C Water Max	Min	Air Max	Min	Weather
02-Sep-00	8:30	0.240					high overcast, cool
	19:55	0.235	7.0	5.0	10.0	-1.0	
03-Sep-00	7:20	0.210					scattered cloud with rain showers
	19:30	0.220	8.0	5.5	14.0	0.5	
04-Sep-00	7:30	0.215					rain showers, cloudy in p.m.
	19:25	0.215	8.5	6.5	10.0	3.5	
05-Sep-00	8:00	0.250					sunny periods
	20:00	0.280	9.0	6.0	15.0	-2.0	
06-Sep-00	8:30	0.280					overcast, rain in p.m.
	19:30	0.270	8.5	5.5	12.0	0.0	
07-Sep-00	8:30	0.310					snow overnight, rain in a.m.
		0.370	8.0	5.0	13.0	0.0	
08-Sep-00	8:00	0.390					rain; snow level low
	20:00	0.380	7.0	5.0			
09-Sep-00	9:30	0.375					80% cloud cover; periodic sunny breaks and showers
	20:05	0.370	6.5	5.5	9.5	0.5	
10-Sep-00	8:30	0.355					overcast; rain late p.m.
	20:00	0.340	6.0	5.0	8.0	-1.0	
11-Sep-00	10:20	0.325					overcast; rain
	19:55	0.330	6.0	5.5	9.5	0.5	
12-Sep-00	9:00	0.325					scattered cloud with sunny periods
	20:00	0.315	7.0	5.5	11.0	0.0	
13-Sep-00	10:15	0.300					overcast with periodic showers
	20:00	0.300	5.0	4.0	9.0	-4.0	
14-Sep-00	9:30	0.300					overcast and rain a.m.; scattered cloud and sunny periods p.m.
	20:00	0.310	8.0	6.0	14.5	1.0	
15-Sep-00	8:45	0.325					clear and sunny a.m.; overcast p.m.
	19:30	0.315	7.0	5.0	16.0	-5.0	
16-Sep-00	9:55	0.310					heavy rain all day
	19:45	0.360	7.0	6.0	nr	nr	
17-Sep-00	8:45	0.550					overcast with showers
	19:45	0.590	7.5	6.5	12.0	5.0	
18-Sep-00	9:15	0.570					mainly cloudy with sunny breaks and showers
		0.540	7.0	6.0	13.0	5.0	
19-Sep-00	9:30	0.500					
	19:30	0.450	6.0	5.0	8.0	-4.0	high and light overcast
20-Sep-00	8:45	0.410					
	20:00	0.390	5.5	5.0	13.0	-1.0	scattered cloud with sunny periods
21-Sep-00	9:00	0.380					
	20:00	0.370	5.5	4.5	10.0	-6.0	clear skies and sunny
22-Sep-00	9:00	0.360					
	19:30	0.330	6.0	5.0	18.0	-6.0	clear skies and sunny
23-Sep-00	9:45	0.310					
	19:30	0.300	7.0	5.0	22.0	-2.5	clear skies and sunny
24-Sep-00	10:00	0.285					
	18:00	0.280	8.0	5.0	21.0	-3.5	clear and sunny
25-Sep-00	9:15	0.265					
	19:30	0.260	7.5	5.0	20.0	-4.0	clear and sunny

Date	Staff Gauge Height (m) Time	Level	Temperature °C Water Max	Min	Air Max	Min	Weather
26-Sep-00	9:00	0.250					
	19:30	0.245	7.5	5.5	18.0	-2.5	clear and sunny
27-Sep-00	8:30	0.235					
	18:30	0.230	7.5	5.0	18.0	-4.0	light cloud a.m.; heavy cloud p.m.
28-Sep-00	9:30	0.230					
	19:30	0.225	7.0	6.0	10.0	3.0	overcast with showers
29-Sep-00	8:30	0.250					
	18:40	0.290	7.0	6.0	10.0	0.0	overcast with showers; snow late p.m.
30-Sep-00	9:30	0.340					
					4.5	-1.0	overcast with snow showers

Appendix Table 5. Statistical week definitions for 2000.

Statistical Week	Calendar Week
7-5	Jul 30 - Aug 5
8-1	Aug 6 - 12
8-2	Aug 13 - 19
8-3	Aug 20 - 26
8-4	Aug 27 - Sep 2
9-1	Sep 3 - 9
9-2	Sep 10 - 16
9-3	Sep 17 - 23
9-4	Sep 24 - 30

Appendix Table 6. Steelhead tagging and sampling data from the Sustut fence.

Date	Time	Sex	Nose-Fork Length (cm)	Tag		DNA/ Scale Sample	Gill Net Marks	Comments
				Colour	Number			
08-Aug-00	16:00	f	70.5	White	14001	1		clean; no marks
10-Aug-00	16:30	f	81.5	White	14004	20 (as mort)		clean; no marks
12-Aug-00	17:30	f	74.5	White	14003			bright; abrasions both sides
18-Aug-00	15:15	m	86.0	White	14005			split caudal
18-Aug-00	15:15	m	74.0	White	14006			clean
20-Aug-00	16:05	f	70.0	White	14007		y	gn marks only
20-Aug-00	16:05	f	71.0	White	14008		y	abrasions; scale loss
20-Aug-00	20:30	f	69.0	White	14009			clean
20-Aug-00	20:30	m	91.5	White	14010			clean
21-Aug-00	18:45	f	72.5	White	14011	2		pred scars both sides
21-Aug-00	18:45	m	77.5	White	14012	3		no marks
21-Aug-00	18:45	m	74.0	White	14013	4		dark; no marks
21-Aug-00	18:45	m	84.0	White	14014	5		dark; no marks
22-Aug-00	9:30	m	90.0	White	14016		y	operc tear; multiple caudal splits
22-Aug-00	15:00	m	92.0	White	14017	6		split dorsal; curly adipose
22-Aug-00	15:00	m	79.0	White	14018	7		split dorsal
22-Aug-00	15:00	f	70.0	White	14019	8		bright; tag bleeder
22-Aug-00	19:40	m	85.5	White	14020			clean
22-Aug-00	19:40	f	73.5	White	14021		y	bright
22-Aug-00	19:40	f	73.0	White	14022		y	dorsal fin abrasion
22-Aug-00	19:40	f	80.5	White	14023			head abrasion
22-Aug-00	19:40	f	76.0	White	14024			bright; clean
22-Aug-00	19:40	f	80.0	White	14025			minor abrasions
22-Aug-00	19:55	f	72.0	White	14026			old operc scar right side
23-Aug-00	9:30	m	87.0	White	14027	9		no marks
23-Aug-00	9:30	f	72.0	White	14028	10		bright; split dorsal
23-Aug-00	14:00	f	75.0	White	14030			small dorsal split
23-Aug-00	18:30	f	68.5	White	14031			split left pelvic fin; lots of scale loss
23-Aug-00	18:30	f	75.5	White	14032			bright; minor scale loss
23-Aug-00	18:30	f	71.0	White	14033			bright; hook scar
23-Aug-00	18:30	f	74.5	White	14034			bright; minor scale loss
23-Aug-00	18:30	m	89.0	White	14035			no marks
23-Aug-00	18:30	f	72.0	White	14036			bright; clean
23-Aug-00	18:30	m	80.5	White	14037			large lateral scar left side
23-Aug-00	18:50	m	85.0	White	14038			dark; no marks
23-Aug-00	18:50	f	72.0	White	14039			bright; split dorsal; minor scale loss
23-Aug-00	18:50	m	76.5	White	14040		y	minor scale loss
23-Aug-00	19:00	m	84.0	White	14041			dark; split dorsal
24-Aug-00	16:40	m	83.5	White	14042		y	clean
24-Aug-00	16:40	f	80.5	White	14043			emaciated; snake-like
24-Aug-00	18:45	m	73.0	White	14044			split pelvic fins
25-Aug-00	11:30	f	73.5	White	14045	11		pred scars both sides
25-Aug-00	11:30	m	85.0	White	14047	12		tag bleeder; dark
25-Aug-00	15:35	f	76.5	White	14048		y	scale loss both sides
25-Aug-00	15:35	f	82.0	White	14049			old dorsal pred scar
25-Aug-00	15:35	f	69.5	White	14050			split dorsal and left pelvic
25-Aug-00	15:35	m	78.0	White	14051			minor scale loss

Date	Time	Sex	Nose-Fork Length (cm)	Tag Colour	Tag Number	DNA/ Scale Sample	Gill Net Marks	Comments
25-Aug-00	15:35	f	81.5	White	14052			pred scars right lateral
25-Aug-00	15:35	f	80.5	White	14053			pred scars both sides
25-Aug-00	15:35	f	75.5	White	14054			bright; clean
25-Aug-00	15:35	f	74.0	White	14055			bright; clean
25-Aug-00	15:50	f	68.0	White	14056			pred scar right lateral
25-Aug-00	18:30	m	87.0	White	14057			ripped left operculum with fungus
25-Aug-00	18:30	f	79.5	White	14058			split caudal
25-Aug-00	18:30	f	75.0	White	14059			bright; clean
25-Aug-00	18:30	m	86.0	White	14060			clean; no marks
25-Aug-00	18:50	m	82.0	White	14061		y	split dorsal
26-Aug-00	17:00	f	71.0	White	14062		y	pelvic fin abrasions
26-Aug-00	17:00	f	69.0	White	14063			bright; clean
26-Aug-00	17:00	f	73.0	White	14064		y	minor dorsal abrasions
26-Aug-00	17:00	f	69.0	White	14065		y	split caudal
26-Aug-00	17:00	m	77.0	White	14066			bright; clean *note: tag only found at Moosevale confluence Sept 30
26-Aug-00	17:15	f	69.5	White	14067			split dorsal and left pectoral
26-Aug-00	17:15	f	70.5	White	14068			head abrasion
26-Aug-00	17:15	f	70.0	White	14069			bright; clean
26-Aug-00	17:15	f	76.5	White	14070			fungus left side
26-Aug-00	17:15	m	86.0	White	14071			left pectoral abrasion
26-Aug-00	17:30	f	78.0	White	14072			abrasions both sides
26-Aug-00	17:30	m	90.5	White	14073			clean
26-Aug-00	17:30	f	73.0	White	14074			hook scar; multiple fin splits
26-Aug-00	17:30	f	74.5	White	14075			bright; clean
26-Aug-00	17:45	f	69.5	White	14076		y	severe gn scar
26-Aug-00	17:45	f	74.0	White	14077			bright; clean
26-Aug-00	17:45	f	69.0	White	14078		y	clean
26-Aug-00	19:10	m	81.5	White	14079			1/2 dorsal fin missing; multiple caudal splits
27-Aug-00	15:00	f	69.5	White	14081	13		pred scars both sides
27-Aug-00	15:00	m	78.5	White	14083			bright; clean
27-Aug-00	15:00	f	67.5	White	14084	14	y	pred scars both sides
27-Aug-00	15:00	f	69.0	White	14085	15		pred scar right side
27-Aug-00	17:30	f	80.5	White	14086		y	split caudal; nose abrasion
27-Aug-00	17:30	m	73.5	White	14087			dark; no marks
27-Aug-00	19:30	m	87.0	White	14089			red; multiple split fins; healed scar right operc
27-Aug-00	20:15	f	74.5	White	14091			right side abrasion
27-Aug-00	20:15	m	73.0	White	14092			split dorsal and caudal
30-Aug-00	14:25	f	75.5	White	14093			bright; clean
30-Aug-00	14:25	f	71.0	White	14094			minor pred scar
30-Aug-00	14:25	m	88.0	White	14095			dorsal pred scar
30-Aug-00	16:30	f	73.0	White	14096			bright;clean
30-Aug-00	17:30	f	73.5	White	14097	16		bright;clean
30-Aug-00	17:30	f	71.0	White	14098			pred scar
30-Aug-00	17:30	m	73.0	White	14099		y	
30-Aug-00	17:30	f	74.5	White	14100			pred scar
31-Aug-00	16:00	f	72.5	White	14101		y	pred scar
31-Aug-00	16:00	m	86.5	White	14102			split caudal

Date	Time	Sex	Nose-Fork Length (cm)	Tag Colour	Tag Number	DNA/ Scale Sample	Gill Net Marks	Comments
31-Aug-00	19:30	m	78.0	White	14103			bright; clean
31-Aug-00	19:30	f	73.0	White	14104			pred scar
31-Aug-00	19:30	m	74.5	White	14105			bright; clean
31-Aug-00	19:30	m	89.0	White	14106			bright; clean; passed d/s
31-Aug-00	19:30	m	80.0	White	14107			split caudal
31-Aug-00	19:30	f	72.0	White	14108			head scar (dime size)
31-Aug-00	19:30	f	71.5	White	14109			bright; clean
31-Aug-00	19:30	f	70.0	White	14110			pred scar
03-Sep-00	19:30	f	67.5	White	14111			pred scar
03-Sep-00	14:00	f	74.0	White	14112			bright; clean
03-Sep-00	14:00	f	73.0	White	14113			bright; clean
03-Sep-00	14:00	m	86.0	White	14114			head scar (dime size)
03-Sep-00	15:25	m	85.0	White	14115			dorsal fin rub
03-Sep-00	15:25	f	76.5	White	14116			bright; clean; passed d/s
03-Sep-00	15:25	m	88.0	White	14117			dorsal fin rub
03-Sep-00	15:25	m	82.0	White	14118			dorsal fin scar; head scar
03-Sep-00	15:25	f	71.0	White	14119			split dorsal; head scar
03-Sep-00	15:25	m	79.0	White	14120			head scar; passed d/s
03-Sep-00	15:25	f	71.0	White	14121			split dorsal; passed d/s
03-Sep-00	15:25	m	80.5	White	14122			pred scar
03-Sep-00	16:15	f	81.0	White	14123			hook scar; split tail
03-Sep-00	16:15	f	70.0	White	14124			pred scar
03-Sep-00	16:15	f	72.5	White	14125			bright; clean
03-Sep-00	16:15	f	74.5	White	14126			right operc scar
03-Sep-00	18:00	m	82.5	White	14127			left operc scar
03-Sep-00	18:00	f	71.5	White	14128			left operc scar
03-Sep-00	18:00	m	76.0	White	14129			bright; clean
03-Sep-00	18:00	f	75.0	White	14130			bright; clean
03-Sep-00	18:00	f	70.0	White	14131			head and operc scars
03-Sep-00	18:00	f	73.0	White	14132			bright; clean
03-Sep-00	18:00	f	70.5	White	14133			bright; clean
03-Sep-00	18:00	m	78.0	White	14134			bright; clean
03-Sep-00	18:00	f	71.0	White	14135			head scar
04-Sep-00	16:15	f	78.5	White	14136			pred scar left side
04-Sep-00	16:15	m	89.0	White	14137			bright; clean
04-Sep-00	16:15	f	74.5	White	14138			head scrapes
04-Sep-00	16:15	f	70.0	White	14139			pred scar
04-Sep-00	16:15	f	69.5	White	14140			pred scar
04-Sep-00	16:15	f	70.0	White	14141			head scrapes
04-Sep-00	16:15	f	68.0	White	14142			minor head scrape
04-Sep-00	16:15	f	75.5	White	14143			pred scar; head abrasion
04-Sep-00	16:15	f	72.0	White	14144			pred scar
05-Sep-00	10:50	m	81.0	Orange	C4508			2000 angling study recap
05-Sep-00	10:50	m	69.0	White	14146			folded tail fin
05-Sep-00	13:28	f	78.0	White	14147			head abrasion
05-Sep-00	15:20	f	79.5	White	14148			old scar
05-Sep-00	15:20	f	86.5	White	14149			old scar
05-Sep-00	15:20	f	79.0	White	14150			white nose mark
05-Sep-00	15:20	f	69.0	White	14151			clean
05-Sep-00	15:20	f	72.0	White	14152			tail split
05-Sep-00	15:20	f	73.0	White	14153			head mark

Date	Time	Sex	Nose-Fork Length (cm)	Tag Colour	Tag Number	DNA/ Scale Sample	Gill Net Marks	Comments
05-Sep-00	15:20	f	75.0	White	14154		y	white head mark
05-Sep-00	15:20	f	72.0	White	14155			old scar
05-Sep-00	15:20	m	78.0	White	14156			clean
05-Sep-00	15:20	f	69.5	White	14157		y	
05-Sep-00	15:20	f	74.5	White	14158			hook scar
05-Sep-00	15:20	f	69.5	White	14159			head scar
05-Sep-00	15:20	f	69.5	White	14160			old scar
05-Sep-00	15:20	f	72.0	White	14161			old scar
05-Sep-00	15:20	f	78.0	White	14162			clean
05-Sep-00	20:20	m	92.0	White	14163			
05-Sep-00	20:20	f	86.0	White	14164			old scar
05-Sep-00	20:20	f	72.0	White	14165			old scar
05-Sep-00	20:20	f	73.0	White	14167			clean
05-Sep-00	20:20	f	75.0	White	14168			old scar
06-Sep-00	13:30	m	81.0	White	14169			good shape
06-Sep-00	13:30	f	74.0	White	14170			old scar
06-Sep-00	13:30	f	70.0	White	14171			old scar
06-Sep-00	13:30	m	76.5	White	14172			old scar
06-Sep-00	13:30	m	90.5	White	14173			clean
06-Sep-00	13:30	f	70.5	White	14174			clean
06-Sep-00	13:30	f	72.0	White	14175			old scar; no spots
06-Sep-00	13:30	f	70.0	White	14176			old scar
07-Sep-00	15:00	m	74.0	White	14177			good
07-Sep-00	15:00	f	84.0	White	14178		y	nose scar
07-Sep-00	15:00	f	71.0	White	14179			old scar
07-Sep-00	15:00	m	78.0	White	14180			clean
07-Sep-00	15:00	f	71.0	White	14181			clean
07-Sep-00	15:00	f	70.5	White	14182			clean
07-Sep-00	15:00	m	69.5	White	14183			good
07-Sep-00	15:00	f	69.5	White	14184			good
07-Sep-00	15:00	f	74.0	White	14185			old nose scar
07-Sep-00	15:00	f	70.0	White	14186			old head scar
07-Sep-00	19:15	f	66.0	White	14187		y	
07-Sep-00	19:15	f	78.0	White	14188			nose damage
07-Sep-00	19:15	f	74.0	White	14189			nose scar
07-Sep-00	19:15	m	84.5	White	14190		y	scar left side
07-Sep-00	19:15	f	76.5	White	14191			old scars
07-Sep-00	19:15	f	73.5	White	14192			clean
07-Sep-00	19:15	m	77.0	White	14193			good
07-Sep-00	19:15	f	73.0	White	14194			good
07-Sep-00	19:15	f	70.0	White	14195			good
07-Sep-00	19:15	m	74.0	White	14196			good
07-Sep-00	19:15	f	72.0	White	14197			good
07-Sep-00	19:15	f	74.0	White	14198			good
07-Sep-00	19:15	m	79.0	White	14199			old scar
07-Sep-00	19:15	f	72.5	White	14200			good
07-Sep-00	19:15	f	72.0	White	14201			good
07-Sep-00	19:15	f	74.0	White	14202			tail damage
07-Sep-00	19:15	m	87.5	White	14203			good
08-Sep-00	17:00	m	79.5	White	14204			hook scar; multiple head wounds
08-Sep-00	17:00	f	73.5	Orange	C08022		y	2000 angling study recap
08-Sep-00	17:00	m	85.0	White	14205			nose abrasion;anal scar

Date	Time	Sex	Nose-Fork Length (cm)	Tag Colour	Tag Number	DNA/ Scale Sample	Gill Net Marks	Comments
08-Sep-00	17:00	m	92.0	Orange	C05799			2000 angling study recap; top of tail missing
08-Sep-00	17:00	f	74.5	White	00956			recap; tag on left side
08-Sep-00	17:00	f	76.0	White	14206			dorsal fungus; multiple pred wounds
08-Sep-00	17:00	f	80.0	White	14207		y	split fins; multiple abrasions
08-Sep-00	17:00	m	88.0	White	14208			no marks
08-Sep-00	17:00	f	71.5	White	14209			minor head abrasion
08-Sep-00	17:35	f	71.0	White	14210			left pelvic split
08-Sep-00	17:35	m	75.0	White	14211			no marks
08-Sep-00	17:35	f	72.0	White	14212			no marks
08-Sep-00	17:35	f	74.5	White	14213		y	multiple fin splits
08-Sep-00	17:35	m	91.0	White	14214			split caudal; tag bleeder
08-Sep-00	17:50	f	71.0	White	14215		y	multiple fin splits
08-Sep-00	20:15	f	72.0	White	14216		y	split caudal; bright
08-Sep-00	20:15	f	nr	not	tagged			escaped u/s untagged
09-Sep-00	18:20	m	78.0	White	14217			left operc damage; split caudal
09-Sep-00	18:20	f	83.5	Orange	S00929			2000 angling study recap
09-Sep-00	18:20	f	81.0	Orange	C08023			2000 angling study recap
09-Sep-00	18:20	f	76.5	White	14218		y	multiple fin splits
09-Sep-00	18:20	m	88.5	White	14219			clean
09-Sep-00	18:20	f	73.0	White	14220			split caudal and dorsal
09-Sep-00	18:20	m	79.0	White	14221			no marks
09-Sep-00	18:20	m	75.0	White	14222			pred wound caudal
09-Sep-00	18:20	f	67.0	White	14223			bright; clean
09-Sep-00	18:20	f	75.0	White	14224			bright; clean
09-Sep-00	18:20	m	92.5	White	14225			clean
09-Sep-00	18:20	f	76.0	White	14226			bright; clean; tag bleeder
09-Sep-00	18:20	f	73.0	White	14227			minor head scrape
09-Sep-00	18:20	f	74.0	White	14228			bright; clean
09-Sep-00	18:20	f	74.5	White	14229			split dorsal; head scrape
09-Sep-00	19:00	f	73.0	White	14230			multiple fin splits and scrapes
10-Sep-00	18:30	f	70.0	White	14231		y	multiple fin splits
10-Sep-00	18:30	m	91.0	White	14232			split dorsal
10-Sep-00	18:30	f	76.5	White	14233		y	minor abrasion
10-Sep-00	18:30	f	74.5	White	14234		y	minor abrasion
10-Sep-00	18:30	m	83.5	White	14235			dark; no marks
10-Sep-00	19:00	f	78.5	White	14236		y	pred scars both sides
11-Sep-00	19:55	m	91.5	White	14237			hook scar
12-Sep-00	18:30	f	75.5	White	14238			split caudal; pred scars
12-Sep-00	18:30	m	82.5	White	14239		y	dark
12-Sep-00	18:30	f	73.0	White	14240			bright; clean
12-Sep-00	18:30	f	73.5	Orange	C04510			2000 angling study recap
12-Sep-00	18:30	f	72.5	Orange	C05794			2000 angling study recap
12-Sep-00	18:30	f	71.5	White	14241			large scar left lateral
12-Sep-00	18:30	m	88.5	White	14242			dark; no marks
12-Sep-00	18:30	f	71.5	White	14243		y	tag bleeder; multiple abrasions and fin splits
12-Sep-00	18:30	m	78.0	White	14244			no marks
12-Sep-00	18:30	f	79.0	White	14245			bright; clean

Date	Time	Sex	Nose-Fork Length (cm)	Tag Colour	Tag Number	DNA/ Scale Sample	Gill Net Marks	Comments
12-Sep-00	18:30	f	74.5	White	14246			bright; clean
12-Sep-00	18:30	f	76.0	White	14247			bright; clean
12-Sep-00	18:30	f	73.5	White	14248			bright; clean
12-Sep-00	18:30	f	69.5	White	14249			bright; clean
12-Sep-00	18:30	f	71.5	White	14250			bright; clean
12-Sep-00	18:30	f	79.5	White	14251		y	fungus wound on head; split fins
12-Sep-00	18:30	f	68.5	White	14252			piece dorsal fin missing
12-Sep-00	18:30	f	73.0	White	14253			bright; clean
12-Sep-00	18:30	f	73.0	White	14254			pred scars right side
12-Sep-00	18:30	f	76.0	White	14255		y	bright
12-Sep-00	18:30	f	74.5	White	14256			split caudal
12-Sep-00	19:15	f	72.0	White	14257			left operc damage; split pelvic
13-Sep-00	14:15	m	86.5	White	14258		y	dark
14-Sep-00	18:45	m	89.0	White	14259	18		piece dorsal fin missing; head abrasions
14-Sep-00	18:45	f	83.0	White	14260	19		minor pred scar left side
14-Sep-00	18:45	f	81.0	White	14261	20	y	multiple fin splits
14-Sep-00	18:45	m	78.0	White	14262	21		dark; no marks
14-Sep-00	18:55	m	94.5	Orange	C04514			2000 angling studyrecap; dark; no marks
14-Sep-00	19:00	f	65.0	Orange	C05790		y	2000 angling studyrecap: multiple abrasions
15-Sep-00	19:30	m	79.5	White	14263			dark; no marks
16-Sep-00	17:45	f	71.5	White	14264			split dorsal; lat pred scars
16-Sep-00	17:45	f	67.5	White	14265			tag bleeder; head abrasion
17-Sep-00	8:45	f	75.0	White	14266		y	caudal wound; multiple caudal splits
17-Sep-00	8:45	f	81.0	Orange	S00926			2000 angling study recap
17-Sep-00	8:45	f	70.5	White	14267			split dorsal & left pectoral
17-Sep-00	8:45	m	78.5	White	14268			no marks
17-Sep-00	8:45	f	68.0	White	14269		y	bright
17-Sep-00	9:10	f	72.5	Orange	C04509		y	2000 angling study recap
17-Sep-00	19:45	f	70.0	White	14270			bright; clean
17-Sep-00	19:50	f	83.5	White	14271			bright; clean
18-Sep-00	14:00	m	90.0	White	14272	22		dark; tag bleeder
18-Sep-00	14:00	m	87.5	White	14273	23		dark; nose abrasion
18-Sep-00	14:00	f	73.0	White	14274	24		old pred scar right side; hook scar
18-Sep-00	14:00	f	81.0	White	14275	25		left operc damage; pred scar right side
18-Sep-00	14:00	f	77.0	White	14276	26		multiple dorsal splits
18-Sep-00	14:22	m	86.0	White	14277	27		split left pectoral
18-Sep-00	14:22	m	89.0	White	14278		y	split caudal; hook scar; damaged dorsal fin
18-Sep-00	14:22	f	85.0	White	14279			multiple lateral abrasions
18-Sep-00	14:22	m	78.0	White	14280		y	nose abrasion; caudal damage
18-Sep-00	14:22	m	82.0	White	14281			pred scar left side
18-Sep-00	14:22	m	87.0	White	14284			split left pectoral; tag bleeder
18-Sep-00	14:30	m	75.0	White	14285			dark; no marks

Date	Time	Sex	Nose-Fork Length (cm)	Tag Colour	Tag Number	DNA/ Scale Sample	Gill Net Marks	Comments
18-Sep-00	17:20	f	72.5	White	14287		y	operc damage; multiple fin splits
18-Sep-00	17:20	f	83.5	White	14288			pred scar left side
18-Sep-00	17:30	f	77.0	White	14289			head abrasion
18-Sep-00	19:45	m	85.0	Orange	S00950			2000 angling study recap
19-Sep-00	17:20	f	83.0	White	14290			minor head and operc scrapes
19-Sep-00	17:20	m	97.0	White	14293			head abrasion
19-Sep-00	17:20	f	83.5	White	14294			minor abrasions both sides
19-Sep-00	17:35	f	77.5	Orange	11006			recap
20-Sep-00	18:10	f	81.0	White	14295	28		no marks
20-Sep-00	18:10	m	87.0	Long Wh	07893			2000 angling study recap
20-Sep-00	18:10	f	78.5	Orange	S00935			2000 angling study recap
20-Sep-00	18:10	f	72.5	Orange	S00943			2000 angling study recap
20-Sep-00	18:10	m	92.0	White	14296	29		old pred scar left side
20-Sep-00	18:10	f	82.5	White	14297	30		split dorsal; head scrapes
20-Sep-00	18:10	m	85.5	White	14298	31		nose abrasions; dark
20-Sep-00	18:10	m	85.0	White	14299	32		split anal; head & operc scrapes
20-Sep-00	18:10	m	85.0	White	14300	33		left lateral scar; head scrape
20-Sep-00	18:10	f	78.5	White	14301	34		left lateral scar; head scrape
20-Sep-00	18:55	m	79.0	White	14302	35		hook scar; dark
20-Sep-00	18:55	m	71.0	White	14303			left operc damage; pred scars both sides
20-Sep-00	18:55	m	81.0	White	14304		y	head abrasions; pred scars
20-Sep-00	18:55	m	81.5	White	14305			dorsal fin wound
20-Sep-00	18:55	m	85.5	White	14306			dark; red
20-Sep-00	18:55	f	72.0	White	14307			no marks
20-Sep-00	19:05	m	86.0	White	14308		y	split dorsal; hook scar
21-Sep-00	16:25	m	89.0	White	14309			operc damage with fungus; split dorsal; hook scar
21-Sep-00	18:15	m	90.5	White	14310			multiple head and operc scrapes
22-Sep-00	18:00	f	73.0	Orange	40656			recap (Skeena Fish Comm); pred scar left side
22-Sep-00	18:00	f	72.0	White	14311	36		tag bleeder; split dorsal; multiple head scrapes
22-Sep-00	19:30	f	81.5	White	14312	37		multiple scars and scrapes
22-Sep-00	19:30	f	79.0	White	14313	38		bright; clean
23-Sep-00	17:45	f	78.5	Orange Orange	11141	S00941	y	2000 angling study recap
23-Sep-00	17:45	m	73.0	Orange	S00946			2000 angling study recap
23-Sep-00	17:45	m	85.0	White	14315	39		multiple split fins; head and operc scrapes
23-Sep-00	17:45	f	73.0	Orange	S00945			2000 angling study recap
23-Sep-00	17:45	f	72.5	White	14316	40		abrasions left side
23-Sep-00	17:45	f	84.5	White	14318			pred scars; right eye missing
23-Sep-00	17:45	m	94.5	White	14319	41		no marks
23-Sep-00	17:45	f	76.0	White	14320	42		bright; clean
23-Sep-00	17:45	m	89.5	White	14321	43		deformed lower caudal
23-Sep-00	17:45	m	85.5	White	14322	44		nose abrasions
23-Sep-00	17:45	f	75.5	White	14323	45		multiple caudal splits; split dorsal

Date	Time	Sex	Nose-Fork Length (cm)	Tag Colour	Tag Number	DNA/ Scale Sample	Gill Net Marks	Comments
23-Sep-00	17:45	f	75.0	White	14325			split caudal
23-Sep-00	17:45	m	90.0	White	14326			lower caudal wound; multiple head and operc scrapes
23-Sep-00	17:45	f	68.0	White	14327			bright; clean
23-Sep-00	17:45	m	74.5	White	14328			red; no marks
23-Sep-00	18:25	m	79.0	White	14329			nose and head abrasions
24-Sep-00	10:00	m	91.0	Orange	C04517			2000 angling study recap; major hook scar
24-Sep-00	18:45	m	92.0	White	14330	46	y	head scrapes
24-Sep-00	18:45	m	78.5	White	14331	47		head and operc scrapes
24-Sep-00	19:00	m	80.0	White	14332	48		head scrapes
25-Sep-00	18:15	m	85.0	White	14333	49	y	dark
25-Sep-00	18:15	f	78.0	White	14334	50		tag bleeder; head and operc scrapes
25-Sep-00	18:15	m	80.0	White	14335	51		minor lateral abrasions
25-Sep-00	18:15	f	72.0	White	14336	52		minor head abrasions
25-Sep-00	18:15	m	78.5	White	14337	53	y	split dorsal
25-Sep-00	18:15	m	79.5	White	14338			hook scar with fungus; head abrasion; split caudal
25-Sep-00	18:15	f	67.5	White	14339			bright; clean
25-Sep-00	18:35	m	72.5	White	14340			head and lateral abrasions
26-Sep-00	11:25	m	88.0	White	14341			hook scar; right pelvic fin damage
26-Sep-00	11:25	m	80.0	White	14342			head scrapes
26-Sep-00	11:30	m	88.0	White	14343			minor head scrape
26-Sep-00	18:30	m	93.0	White	14344	54		head scrape; tag bleeder
26-Sep-00	18:30	f	68.5	White	14345	55		bright; clean
26-Sep-00	18:30	f	74.0	White	14346			bright; clean
26-Sep-00	18:30	m	77.5	White	14347			no marks
26-Sep-00	18:30	m	92.0	White	14349			pred scar right side
26-Sep-00	18:45	f	77.0	White	14350			split dorsal; pred scars both sides
27-Sep-00	18:00	f	73.0	White	14351			split dorsal; head scrapes
27-Sep-00	18:00	m	75.0	White	14352			clean
27-Sep-00	18:00	m	80.0	White	14353			no marks
27-Sep-00	18:00	f	79.0	Orange	S00947			2000 angling study recap
27-Sep-00	18:00	f	78.0	Orange	C08021			2000 angling study recap
27-Sep-00	18:20	m	74.0	White	14354			no marks
28-Sep-00	11:00	f	75.5	White	14355			minor pred scars both sides
28-Sep-00	11:00	m	78.5	White	14356			split left pelvic; nose abrasion
28-Sep-00	11:10	f	74.0	White	14357			split left pelvic
29-Sep-00	12:15	f	73.5	White	14358			split dorsal; lateral abrasions both sides
29-Sep-00	12:15	m	79.5	White	14359			dorsal and caudal damage with fungus; left pectoral fin missing
29-Sep-00	12:20	f	76.5	White	14360			caudal damage; head scrape
29-Sep-00	18:25	f	74.0	White	14361		y	split dorsal and caudal
29-Sep-00	18:25	m	77.5	White	14362			operc scrapes; lateral abrasions
29-Sep-00	18:25	f	70.0	White	14363			lateral abrasions

Date	Time	Sex	Nose-Fork Length (cm)	Tag Colour	Tag Number	DNA/ Scale Sample	Gill Net Marks	Comments
29-Sep-00	18:25	f	82.0	White	14364			operc damage
29-Sep-00	18:25	f	84.5	White	14365			major hook scar; split dorsal
29-Sep-00	18:25	m	74.0	White	14366			minor head abrasions
29-Sep-00	18:25	f	74.5	White	14367			dorsal scrape
29-Sep-00	18:35	f	71.0	White	14368			bright; clean
30-Sep-00	12:00	m	74.0	Orange	C04515			2000 angling study recap
30-Sep-00	12:00	f	83.0	White	14369			pred scars both sides
30-Sep-00	12:10	m	82.0	White	14370			split pectoral and pelvic fins

Appendix Table 7. Bull trout sampled at the Sustut fence.

Date	Location	Sex	Fork Length (cm)	DNA Vial #	Fin Env. #	Picture	Branch. Rays	Comments
18-Aug-00	Sustut Fence	f	66.5	1	1	R1 - 1	26	fence mort; rescued from fence Aug 17; head and gill fungus
21-Aug-00	Sustut Fence	m	58.1					u/s migrant
22-Aug-00	Sustut Fence	m	43.0					u/s migrant; dorsal fin abrasion
05-Sep-00	Sustut Fence							u/s migrant; not measured
06-Sep-00	Sustut Fence	m	56.0	2				u/s migrant
06-Sep-00	Sustut Fence	m	58.5	3				u/s migrant
08-Sep-00	Sustut Fence	m	58.5		4			u/s migrant; DNA sample in fin envelope
15-Sep-00	Sustut Fence	unk	50.5					u/s migrant
18-Sep-00	Sustut Fence	m	61.5					u/s migrant; bright orange with well developed kype
23-Sep-00	Sustut Fence	f	61.0	5	5	R5 - 19	28	fence mort; fungus on head, gills and tail
27-Sep-00	Sustut Fence	unk	47.0					u/s migrant
27-Sep-00	Sustut Fence	m	45.0					u/s migrant
28-Sep-00	Sustut Fence	f	48.5	6	6	R5 - 23	27	fence mort; gill fungus

Appendix Table 8. Rainbow trout sampled at the Sustut fence.

Date	Location	Sex	Nose-Fork Length (cm)	Comments
31-Jul-00	Sustut Fence	unk	37.2	u/s migrant; deformed lower jaw
24-Sep-00	Sustut Fence	unk	40.5	u/s migrant; no marks

Appendix Table 9. Chinook salmon tagging and sampling data from the Sustut fence.

Date	Time	Sex	Length		Spaghetti Tag Number	Sc. Bk. Pos.	Sc. Bk. Num.	Sec Mark	Rel. Cond.	DNA Vial	Comments
			Nose-Fork (cm)	P.O.H. (cm)							
31-Jul-00	15:30	f	90.5	73.0	536	1-41	4893	adc	1	Jul31-Aug6	
31-Jul-00	15:45	m	88.5	69.0	537	2-42	4893	adc	1	Jul31-Aug6	
31-Jul-00	16:00	f	90.0	72.5	538	3-43	4893	adc	1	Jul31-Aug6	
31-Jul-00	16:15	m	79.5	64.0	539	4-44	4893	adc	1	Jul31-Aug6	milting
01-Aug-00	18:23	m	111.0	92.5	540			1R	1		
02-Aug-00	19:00	m	81.0	67.5	541			1R	1		
02-Aug-00	19:05	m	78.0	63.0	542			1R	1		
03-Aug-00	11:45	m	82.5	66.0	543			1R	1		
03-Aug-00	17:45	m	86.5	70.5	544			1R	1		
03-Aug-00	17:45	f	97.5	80.5	545			2R	1		
03-Aug-00	17:45	m	98.0	85.0	546			1R	1		
03-Aug-00	20:00	m	84.0	68.0	547			1R	1		
03-Aug-00	20:00	m	89.5	71.5	548			1R	1		
04-Aug-00	12:00	m	79.5	65.5	549	5-45	4893	1R	1	Jul31-Aug6	milting
04-Aug-00	12:00	m	88.5	72.0	550			1R	2		milting
04-Aug-00	12:00	m	80.0	64.0	551	6-46	4893	1R	1	Jul31-Aug6	milting
04-Aug-00	12:30	m	76.5	60.5	552	7-47	4893	1R	1	Jul31-Aug6	milting
04-Aug-00	17:50	m	106.0	83.0	553			1R	2		milting
04-Aug-00	17:50	m	69.5	55.0	554			1R	1		milting
04-Aug-00	17:50	m	68.0	53.0	555			1R	1		milting
04-Aug-00	17:50	m	70.0	55.5	556			1R	1		milting
04-Aug-00	16:30	m	69.0	55.0	557			1R	1		milting
04-Aug-00	20:45	f	89.0	74.0	561			2R	1		dropped eggs
04-Aug-00	20:45	m	77.5	62.0	560			1R	1		
05-Aug-00	10:00	m	76.5	59.0	562	8-48	4893	1R	1	Jul31-Aug6	
05-Aug-00	11:30	m	81.5	64.0	563	9-49	4893	1R	1	Jul31-Aug6	
05-Aug-00	12:30	m	68.5	55.0	564			1R	1		
05-Aug-00	16:30	m	92.5	74.0	565			1R	1		
05-Aug-00	16:30	m	94.0	71.0	566			1R	1		
05-Aug-00	16:30	f	93.0	77.0	567			2R	1		
05-Aug-00	16:30	m	66.5	53.5	568			1R	1		
05-Aug-00	16:40	m	70.0	56.5	569			1R	1		
05-Aug-00	18:50	m	69.0	56.0	570			1R	1		
05-Aug-00	18:50	m	74.5	58.5	571			1R	1		
05-Aug-00	18:50	m	80.0	63.5	572			1R	1		
05-Aug-00	19:20	m	73.0	58.0	573			1R	1		

Date	Time	Sex	Length Nose-Fork (cm)	Length P.O.H. (cm)	Spaghetti Tag Number	Sc. Bk. Pos.	Sc. Bk. Num.	Sec Mark	Rel. Cond.	DNA Vial	Comments
05-Aug-00	21:00	m	71.0	57.0	574			1R	1		
05-Aug-00	21:00	m	74.5	60.5	575			1R	1		
06-Aug-00	8:35	m	99.5	80.5	576			1R	1		
06-Aug-00	8:35	f	96.5	77.5	577			2R	1		
06-Aug-00	8:35	f	94.0	77.0	578			2R	1		
06-Aug-00	8:35	m	105.0	81.0	580			1R	1		
06-Aug-00	8:55	m	74.5	61.5	579			1R	1		
06-Aug-00	12:15	m	73.0	60.0	581	10-50	4893	1R	1	Jul31-Aug6	
06-Aug-00	12:15	m	75.0	60.0	582			1R	1		
06-Aug-00	12:15	m	71.0	58.0	583			1R	1		
06-Aug-00	12:15	m	72.5	59.5	584			1R	1		
06-Aug-00	12:30	m	74.5	60.0	585			1R	1		
06-Aug-00	14:00	m	73.5	58.0	586			1R	1		
06-Aug-00	15:30	m	67.5	54.5	587	1-41	4895	1R	1	Jul31-Aug6	
06-Aug-00	15:30	m	62.5	51.0	589	2-42	4895	1R	1	Jul31-Aug6	
06-Aug-00	15:45	m	74.0	69.0	590			1R	1		
06-Aug-00	17:00	f	93.5	78.0	591			2R	1		
06-Aug-00	17:00	m	81.0	62.5	592			1R	1		
06-Aug-00	17:00	f	98.5	82.0	593			2R	1		
06-Aug-00	17:00	m	76.0	62.0	594			1R	1		
06-Aug-00	17:17	m	70.0	56.5	595			1R	1		
06-Aug-00	18:40	m	91.0	74.5	596			1R	1		
06-Aug-00	18:40	m	97.5	78.0	597			1R	1		
06-Aug-00	18:40	m	71.5	56.0	598			1R	1		
06-Aug-00	18:40	m	77.0	62.5	599			1R	1		
06-Aug-00	18:40	f	96.0	78.0	600			2R	1		
06-Aug-00	18:40	m	70.5	57.5	601			1R	1		
06-Aug-00	18:40	m	73.5	60.0	602			1R	1		
06-Aug-00	18:40	m	76.0	63.5	603			1R	1		
06-Aug-00	18:40	m	66.5	52.5	604			1R	1		
06-Aug-00	18:40	m	68.0	53.5	605			1R	1		
06-Aug-00	19:15	m	71.0	56.5	606			1R	1		
06-Aug-00	20:15	m	77.5	60.5	607			1R	1		
06-Aug-00	20:15	m	95.0	79.0	609			1R	1		
06-Aug-00	20:15	m	97.0	78.5	610			1R	1		
06-Aug-00	20:15	m	73.5	58.0	611			1R	1		
06-Aug-00	20:15	f	86.5	72.0	612			2R	1		
06-Aug-00	20:15	m	76.5	65.0	613			1R	1		
06-Aug-00	20:15	m	70.0	56.0	614			1R	1		
06-Aug-00	20:15	m	nr	53.0	615			1R	1		
06-Aug-00	20:15	m	73.0	59.0	616			1R	1		
06-Aug-00	20:15	f	89.0	72.0	618			2R	1		hook scar
06-Aug-00	20:15	m	70.5	64.5	619			1R	1		
06-Aug-00	20:15	m	66.5	53.5	620			1R	1		
06-Aug-00	20:15	m	70.5	57.5	621			1R	1		
06-Aug-00	20:15	m	72.5	59.5	622			1R	1		
06-Aug-00	20:15	m	69.5	55.5	623			1R	1		
06-Aug-00	21:05	m	73.5	58.0	624			1R	1		
07-Aug-00	8:30	f	96.0	77.5	625	3-43	4895	2R	1	Aug 7-13	
07-Aug-00	8:30	f	89.0	71.5	626	4-44	4895	2R	1	Aug 7-13	
07-Aug-00	8:30	f	92.0	74.5	627			2R	1		
07-Aug-00	8:30	f	86.5	69.0	628			2R	1		

Date	Time	Sex	Length Nose-Fork (cm)	Length P.O.H. (cm)	Spaghetti Tag Number	Sc. Bk. Pos.	Sc. Bk. Num.	Sec Mark	Rel. Cond.	DNA Vial	Comments
07-Aug-00	8:30	f	96.0	77.5	629			2R	1		
07-Aug-00	8:30	m	71.5	58.5	630	5-45	4895	1R	1	Aug 7-13	
07-Aug-00	8:30	m	93.5	74.0	631	6-46	4895	1R	1	Aug 7-13	
07-Aug-00	8:30	f	93.0	75.5	632			2R	1		
07-Aug-00	8:30	f	92.0	76.0	633			2R	1		
07-Aug-00	9:30	m	85.0	67.0	634	7-47	4895	1R	1	Aug 7-13	
07-Aug-00	9:30	m	98.0	77.5	635	8-48	4895	1R	1	Aug 7-13	
07-Aug-00	9:30	m	75.0	59.5	636	9-49	4895	1R	1	Aug 7-13	
07-Aug-00	9:30	m	77.0	61.0	637	10-50	4895	1R	1	Aug 7-13	
07-Aug-00	9:30	m	73.0	57.0	638			1R	1		
07-Aug-00	9:30	m	68.0	54.0	639			1R	1		
07-Aug-00	10:00	m	70.0	56.0	640			1R	1		
07-Aug-00	10:00	m	80.0	64.0	641			1R	1		
07-Aug-00	10:00	m	79.0	63.5	642			1R	1		
07-Aug-00	10:00	m	78.5	63.5	643			1R	1		
07-Aug-00	10:00	m	79.5	64.0	644			1R	1		
07-Aug-00	10:00	f	87.5	72.0	645			2R	1		
07-Aug-00	10:00	m	80.5	62.5	646			1R	1		
07-Aug-00	10:00	m	73.0	59.0	648			1R	1		
07-Aug-00	10:00	m	66.0	53.0	647			1R	1		
07-Aug-00	10:00	m	74.0	59.5	649			1R	1		
07-Aug-00	10:30	m	74.5	59.5	650			1R	1		
07-Aug-00	13:00	f	91.0	73.0	651			2R	1		
07-Aug-00	13:00	m	94.5	74.0	652			1R	1		
07-Aug-00	13:00	m	77.0	60.5	653			1R	1		
07-Aug-00	13:00	m	68.0	55.0	654			1R	1		
07-Aug-00	13:00	m	69.0	55.0	655			1R	1		
07-Aug-00	13:00	m	79.5	64.0	656			1R	1		
07-Aug-00	13:30	m	65.0	51.5	657			1R	1		
07-Aug-00	13:30	m	73.5	58.0	658			1R	1		
07-Aug-00	13:30	m	74.0	59.0	659			1R	1		
07-Aug-00	13:30	m	96.5	78.0	660			1R	1		
07-Aug-00	13:30	m	73.5	59.0	661			1R	1		
07-Aug-00	13:45	m	68.0	54.0	662			1R	1		
07-Aug-00	15:15	m	61.0	47.0	663	1-41	70763	1R	1	Aug 7-13	
07-Aug-00	15:15	f	79.0	65.0	664	2-42	70763	2R	1	Aug 7-13	
07-Aug-00	15:15	f	91.0	75.5	665			2R	1		
07-Aug-00	15:15	m	77.0	61.5	666			1R	1		
07-Aug-00	15:15	m	71.0	57.0	667	3-43	70763	1R	1	Aug 7-13	
07-Aug-00	15:15	m	72.5	56.5	668	4-44	70763	1R	1	Aug 7-13	
07-Aug-00	15:15	m	78.0	63.0	669	5-45	70763	1R	1	Aug 7-13	
07-Aug-00	15:15	m	92.5	72.0	670	6-46	70763	1R	1	Aug 7-13	
07-Aug-00	15:15	m	83.0	66.0	671	7-47	70763	1R	1	Aug 7-13	
07-Aug-00	15:15	f	93.0	74.0	672			2R	1		
07-Aug-00	15:15	m	88.0	70.0	673	8-48	70763	1R	1	Aug 7-13	
07-Aug-00	15:15	m	79.0	61.5	674	9-49	70763	1R	1	Aug 7-13	
07-Aug-00	16:15	m	68.5	53.5	675	10-50	70763	1R	1	Aug 7-13	
07-Aug-00	16:15	m	82.5	66.5	676			1R	1		
07-Aug-00	16:15	m	81.5	63.0	677			1R	1		
07-Aug-00	16:15	m	76.5	61.0	678			1R	1		
07-Aug-00	16:15	m	71.0	56.5	679			1R	1		
07-Aug-00	16:15	m	75.0	60.5	680			1R	1		

Date	Time	Sex	Length Nose-Fork (cm)	Length P.O.H. (cm)	Spaghetti Tag Number	Sc. Bk. Pos.	Sc. Bk. Num.	Sec Mark	Rel. Cond.	DNA Vial	Comments
07-Aug-00	16:15	m	69.5	54.0	681			1R	1		
07-Aug-00	16:15	m	69.0	54.5	682			1R	1		
07-Aug-00	16:15	m	76.0	60.0	683			1R	1		
07-Aug-00	16:15	m	75.0	59.0	684			1R	1		
07-Aug-00	16:15	m	70.5	55.5	685			1R	1		
07-Aug-00	16:15	m	72.5	58.0	686			1R	1		
07-Aug-00	17:00	m	78.0	61.5	687			1R	1		lateral tumor
07-Aug-00	18:30	m	69.0	54.5	688			1R	1		
07-Aug-00	18:30	m	65.5	52.0	689			1R	1		
07-Aug-00	18:30	m	82.0	65.0	690			1R	1		
07-Aug-00	18:30	f	90.0	72.5	691			2R	1		
07-Aug-00	18:30	m	81.5	64.0	692			1R	1		
07-Aug-00	19:00	f	82.0	68.0	693			2R	1		
07-Aug-00	19:00	f	98.0	80.0	694			2R	1		
07-Aug-00	19:00	m	89.0	71.0	695			1R	1		
07-Aug-00	19:00	f	85.5	70.5	696			2R	1		blood expelled with about 20 eggs
07-Aug-00	19:00	m	70.0	55.5	697			1R	1		
07-Aug-00	19:00	m	71.5	56.5	700			1R	1		
07-Aug-00	19:00	m	nr	nr	701			1R	1		
07-Aug-00	19:00	m	73.5	58.5	702			1R	1		
07-Aug-00	19:00	f	90.0	75.0	704			2R	1		
07-Aug-00	19:00	f	86.0	71.0	705			2R	1		
07-Aug-00	19:00	f	91.5	76.5	706			2R	1		
07-Aug-00	19:30	m	74.5	59.5	707			1R	1		
07-Aug-00	21:00	m	81.0	65.0	708			1R	1		
07-Aug-00	21:00	m	73.5	60.0	709			1R	1		
07-Aug-00	21:00	m	76.0	60.0	710			1R	1		
07-Aug-00	21:00	m	72.5	58.5	711			1R	1		
07-Aug-00	21:00	m	65.0	51.5	712			1R	1		
07-Aug-00	21:15	m	82.5	64.0	713			1R	1		
07-Aug-00	21:15	f	89.0	74.0	714			2R	1		
07-Aug-00	21:15	f	84.0	68.5	715			2R	1		
07-Aug-00	21:15	m	81.0	65.5	716			1R	1		
07-Aug-00	21:25	m	76.5	60.0	717			1R	1		
08-Aug-00	9:20	f	88.0	70.5	718	1-41	70766	2R	1	Aug 7-13	
08-Aug-00	9:20	f	95.0	76.5	719	2-42	70766	2R	1	Aug 7-13	
08-Aug-00	9:20	m	85.0	67.5	720	3-43	70766	1R	1	Aug 7-13	
08-Aug-00	9:20	f	98.0	79.5	721	4-44	70766	2R	1	Aug 7-13	
08-Aug-00	9:50	m	72.5	56.5	722	5-45	70766	1R	1	Aug 7-13	
08-Aug-00	11:30	m	72.0	57.5	723	6-46	70766	1R	1	Aug 7-13	
08-Aug-00	11:30	m	73.0	57.5	724	7-47	70766	1R	1	Aug 7-13	
08-Aug-00	11:30	m	70.0	55.5	725	8-48	70766	1R	1	Aug 7-13	
08-Aug-00	11:45	f	91.0	73.5	726	9-49	70766	2R	1	Aug 7-13	
08-Aug-00	13:40	m	76.0	59.5	727	10-50	70766	1R	1	Aug 7-13	
08-Aug-00	13:40	f	95.5	77.5	728			2R	1		
08-Aug-00	13:40	m	73.0	58.0	729			1R	1		
08-Aug-00	13:40	m	72.5	56.5	730			1R	1		
08-Aug-00	13:40	m	74.5	58.0	731			1R	1		
08-Aug-00	13:40	m	69.0	53.5	732			1R	1		

Date	Time	Sex	Length Nose-Fork (cm)	Length P.O.H. (cm)	Spaghetti Tag Number	Sc. Bk. Pos.	Sc. Bk. Num.	Sec Mark	Rel. Cond.	DNA Vial	Comments
08-Aug-00	13:40	m	86.5	67.5	733			1R	1		
08-Aug-00	14:05	m	106.0	82.0	734			1R	1		
08-Aug-00	14:05	m	75.0	59.0	735			1R	1		
08-Aug-00	14:05	m	70.0	53.5	736			1R	1		
08-Aug-00	14:05	f	94.0	77.5	737			2R	1		egg drop; rough shape
08-Aug-00	14:05	m	81.0	63.0	738			1R	1		
08-Aug-00	14:05	m	70.5	55.5	739			1R	1		
08-Aug-00	14:20	f	94.0	76.0	740			2R	1		pred scar
08-Aug-00	16:00	m	69.5	54.5	741			1R	1		
08-Aug-00	16:00	m	80.5	62.5	742			1R	1		
08-Aug-00	16:00	m	76.0	61.0	743			1R	1		
08-Aug-00	16:00	m	80.5	64.5	744			1R	1		
08-Aug-00	16:00	f	97.0	78.5	745			2R	1		
08-Aug-00	16:00	m	79.0	61.5	746			1R	1		
08-Aug-00	16:00	m	72.0	56.5	747			1R	1		
08-Aug-00	16:00	f	87.0	70.5	748			2R	1		multiple tumors
08-Aug-00	16:00	f	89.5	71.0	749			2R	1		
08-Aug-00	17:10	f	90.5	74.0	750			2R	1		
08-Aug-00	17:10	m	80.5	65.0	751			1R	1		
08-Aug-00	17:10	f	74.5	60.0	752			2R	1		
08-Aug-00	17:10	m	77.5	61.0	753			1R	1		
08-Aug-00	17:10	f	86.0	70.0	755			2R	1		pred scar
08-Aug-00	17:10	m	90.0	70.5	756			1R	1		
08-Aug-00	17:10	m	75.0	59.0	757			1R	1		
08-Aug-00	17:10	m	66.5	53.5	758			1R	1		
08-Aug-00	17:10	m	99.0	76.5	759			1R	1		
08-Aug-00	17:35	m	67.5	53.0	760			1R	1		
08-Aug-00	18:45	m	73.0	59.5	761			1R	1		
08-Aug-00	18:45	m	75.0	59.0	762			1R	1		
08-Aug-00	18:45	f	91.0	74.0	763			2R	1		
08-Aug-00	18:45	m	75.0	58.5	764			1R	1		
08-Aug-00	18:45	f	89.5	73.0	765			2R	1		
08-Aug-00	18:45	m	81.5	63.5	766			1R	1		
08-Aug-00	18:45	f	84.5	66.5	767			2R	1		
08-Aug-00	19:20	m	85.5	66.5	768			1R	1		
08-Aug-00	19:20	m	74.5	58.0	769			1R	1		
08-Aug-00	19:20	f	95.0	77.5	770			2R	1		
08-Aug-00	19:20	m	79.0	61.0	771			1R	1		
08-Aug-00	19:30	m	71.0	56.0	772			1R	1		
09-Aug-00	19:50	m	81.5	64.5	773	1-41	70764	1R	1	Aug 7-13	
09-Aug-00	19:50	m	74.0	60.5	774	2-42	70764	1R	1	Aug 7-13	
09-Aug-00	19:50	f	101.0	83.5	775	3-43	70764	2R	1	Aug 7-13	
09-Aug-00	19:50	f	93.0	77.5	776	4-44	70764	2R	1	Aug 7-13	
09-Aug-00	10:10	f	90.5	74.0	777	5-45	70764	2R	1	Aug 7-13	
09-Aug-00	13:20	m	72.0	60.0	778	6-46	70764	1R	1	Aug 7-13	
09-Aug-00	13:20	m	102.0	81.5	779	7-47	70764	1R	1	Aug 7-13	
09-Aug-00	13:20	m	69.5	57.0	780	8-48	70764	1R	1	Aug 7-13	
09-Aug-00	13:20	m	76.5	62.0	781	9-49	70764	1R	1	Aug 7-13	
09-Aug-00	13:40	m	72.5	59.0	782	10-50	70764	1R	1	Aug 7-13	
09-Aug-00	15:45	m	91.5	74.0	783	1-41	70765	1R	1	Aug 7-13	

Date	Time	Sex	Length Nose-Fork (cm)	Length P.O.H. (cm)	Spaghetti Tag Number	Sc. Bk. Pos.	Sc. Bk. Num.	Sec Mark	Rel. Cond.	DNA Vial	Comments
09-Aug-00	15:45	f	89.0	74.0	784	2-42	70765	2R	1	Aug 7-13	
09-Aug-00	15:45	f	89.0	73.0	785	3-43	70765	2R	1	Aug 7-13	
09-Aug-00	15:45	m	74.5	59.0	786	4-44	70765	1R	1	Aug 7-13	
09-Aug-00	16:15	m	73.0	59.0	787	5-45	70765	1R	1	Aug 7-13	
09-Aug-00	17:20	m	71.0	57.5	789	6-46	70765	1R	1	Aug 7-13	
09-Aug-00	17:20	f	83.5	69.0	790	7-47	70765	2R	1	Aug 7-13	
09-Aug-00	17:20	f	96.5	80.0	791	8-48	70765	2R	1	Aug 7-13	
09-Aug-00	17:20	m	60.0	48.0	792	9-49	70765	1R	1	Aug 7-13	
09-Aug-00	17:40	f	80.5	75.0	793	10-50	70765	2R	1	Aug 7-13	
10-Aug-00	9:30	m	63.5	51.5	794			1R	1		
10-Aug-00	9:30	m	80.0	61.0	796	1-41	70767	1R	1	Aug 7-13	
10-Aug-00	16:30	f	90.0	73.0	797			2R	1		
10-Aug-00	16:30	f	90.5	74.5	798			2R	1		
10-Aug-00	16:30	m	105.0	83.0	799			1R	1		
10-Aug-00	16:30	m	72.0	57.0	800			1R	1		
10-Aug-00	16:55	f	77.0	61.5	801			2R	1		
10-Aug-00	18:50	m	67.0	52.0	802	2-42	70767	1R	1	Aug 7-13	
10-Aug-00	18:50	f	76.5	60.5	803	3-43	70767	2R	1	Aug 7-13	
10-Aug-00	18:50	f	86.0	69.5	805	4-44	70767	2R	1	Aug 7-13	
10-Aug-00	18:50	f	93.0	75.5	806	5-45	70767	2R	1	Aug 7-13	
10-Aug-00	19:15	m	97.5	76.0	807			1R	1		
11-Aug-00	9:40	f	87.0	72.5	808	6-46	70767	2R	1	Aug 7-13	
11-Aug-00	11:45	m	74.0	60.0	809	7-47	70767	1R	1	Aug 7-13	
11-Aug-00	11:45	f	93.5	77.5	810	8-48	70767	2R	1	Aug 7-13	
11-Aug-00	19:40	f	88.5	74.5	811	9-49	70767	2R	1	Aug 7-13	
11-Aug-00	19:40	m	76.0	60.0	812	10-50	70767	1R	1	Aug 7-13	
11-Aug-00	19:40	f	93.5	77.0	813	1-41	70769	2R	1	Aug 7-13	
11-Aug-00	19:40	f	76.5	62.0	814	2-42	70769	2R	1	Aug 7-13	
11-Aug-00	19:55	f	93.0	77.5	815	3-43	70769	2R	1	Aug 7-13	
12-Aug-00	10:05	m	95.5	76.0	816	4-44	70769	1R	1	Aug 7-13	
12-Aug-00	11:30	m	72.5	56.5	818	5-45	70769	1R	1	Aug 7-13	
12-Aug-00	13:45	m	95.5	74.0	819	6-46	70769	1R	1	Aug 7-13	
12-Aug-00	13:45	m	72.0	56.0	820	7-47	70769	1R	1	Aug 7-13	
12-Aug-00	13:45	m	60.5	47.5	821	8-48	70769	1R	1	Aug 7-13	
12-Aug-00	17:30	f	84.5	66.0	822			2R	1		
12-Aug-00	17:30	m	98.0	77.5	823			1R	1		
12-Aug-00	17:30	m	109.0	84.5	824			1R	1		
12-Aug-00	17:30	m	77.0	61.0	825			1R	1		
12-Aug-00	17:50	f	84.5	67.5	826			2R	1		
13-Aug-00	15:45	f	94.0	77.0	827	9-49	70769	2R	1	Aug 7-13	
13-Aug-00	15:45	m	105.0	78.5	828	10-50	70769	1R	1	Aug 7-13	
13-Aug-00	17:30	m	101.5	79.5	829	1-41	70768	1R	1	Aug 7-13	
13-Aug-00	17:30	m	79.0	63.5	830	2-42	70768	1R	1	Aug 7-13	
13-Aug-00	17:30	m	76.0	62.0	831	3-43	70768	1R	1	Aug 7-13	
13-Aug-00	17:30	f	93.0	76.5	832	4-44	70768	2R	1	Aug 7-13	
13-Aug-00	18:00	m	97.0	78.0	833	5-45	70768	1R	1	Aug 7-13	
14-Aug-00	16:40	f	83.0	67.5	834			2R	1		
14-Aug-00	16:40	m	63.5	50.5	835			1R	1		
14-Aug-00	10:20	m	66.5	53.0	836			1R	1		
15-Aug-00	10:20	f	94.5	78.0	837	6-46	70768	2R	1	Aug 14-20	
15-Aug-00	10:20	m	68.5	54.5	838	7-47	70768	1R	1	Aug 14-20	
15-Aug-00	10:30	m	92.5	73.0	839	8-48	70768	1R	1	Aug 14-20	

Date	Time	Sex	Length Nose-Fork (cm)	Length P.O.H. (cm)	Spaghetti Tag Number	Sc. Bk. Pos.	Sc. Bk. Num.	Sec Mark	Rel. Cond.	DNA Vial	Comments
15-Aug-00	16:30	m	60.0	49.0	840	9-49	70768	1R	1	Aug 14-20	
16-Aug-00	18:45	f	82.0	65.5	841	10-50	70768	2R	1	Aug 14-20	
17-Aug-00	19:15	m	73.5	60.0	842			1R	1		
17-Aug-00	19:25	m	101.5	79.5	843			1R	1		
18-Aug-00	15:15	f	89.5	72.0	844			2R	1		
18-Aug-00	17:15	m	89.5	70.0	845			1R	1		
18-Aug-00	17:15	m	86.5	67.5	846			1R	1		
19-Aug-00	17:30	m	82.0	65.5	847			1R	1		
19-Aug-00	17:30	m	73.0	58.0	848			1R	1		
19-Aug-00	17:30	m	72.5	58.0	849			1R	1		
21-Aug-00	18:45	f	83.0	67.5	850			2R	1		
22-Aug-00	12:40	m	69.0	57.0	851			1R	1		
22-Aug-00	20:30	m	95.0	76.5	852			1R	1		
23-Aug-00	17:00	f	87.5	70.0	853			2R	1		
23-Aug-00	19:00	m	71.5	56.0	854			1R	1		

Appendix Table 10. Sex, length, tag data and spawning success for all chinook salmon carcasses recovered from the Sustut fence.

Date	Time	Sex	Length Nose- Fork (cm)	Length P.O.H. (cm)	Tag Number	Secondary Mark	%Spawn	Comments
06-Aug-00	8:35	m	108.0	86.5	nt			
06-Aug-00	8:35	m	78.0	62.5	nt			
08-Aug-00	10:00	m	72.0	56.5	00554	1R		
08-Aug-00	10:00	m	100.0	80.0	nt			
08-Aug-00	21:30	m	111.5	86.0	nt			
09-Aug-00	10:10	m	104.0	81.5	nt			
10-Aug-00	21:30	f	93.0	76.5	nt		100%	
10-Aug-00	21:30	m	71.0	57.0	nt			
10-Aug-00	21:30	m	96.5	75.5	nt			
10-Aug-00	21:30	m	80.5	64.0	lost	1R		
10-Aug-00	21:30	m	90.5	70.5	nt			
11-Aug-00	9:45	m	74.5	59.0	nt			
11-Aug-00	21:40	m	106.0	84.5	nt			
12-Aug-00	10:00	f	92.0	74.0	00672	2R	100%	
12-Aug-00	10:00	m	68.0	52.0	nt			
12-Aug-00	20:30	m	68.0	55.0	nt			
12-Aug-00	20:30	m	97.0	77.0	00816	1R		
12-Aug-00	20:30	m	70.0	55.5	nt			
13-Aug-00	9:50	m	70.0	56.0	00583	1R		
13-Aug-00	9:50	m	100.0	76.5	nt			
13-Aug-00	9:50	m	74.0	57.5	nt			
13-Aug-00	9:50	m	64.0	50.5	00615	1R		
13-Aug-00	21:20	m	68.5	55.0	nt			
13-Aug-00	21:20	m	73.0	59.0	nt			
13-Aug-00	21:20	m	78.0	61.5	nt			

Date	Time	Sex	Length		Tag Number	Secondary Mark	%Spawn	Comments
			Nose- Fork (cm)	P.O.H. (cm)				
14-Aug-00	10:20	m	79.5	63.0	nt			
14-Aug-00	10:20	m	76.5	61.5	nt			
14-Aug-00	21:15	m	79.5	64.5	00644	1R		
14-Aug-00	21:15	m	76.5	62.0	lost	1R		
14-Aug-00	21:15	m	74.5	59.5	nt			
14-Aug-00	21:15	m	73.0	59.0	nt			
14-Aug-00	21:15	m	70.0	57.5	nt			
15-Aug-00	10:30	m	81.0	65.0	00541	1R		
15-Aug-00	10:30	m	65.5	52.5	00794	1R		
15-Aug-00	10:30	m	73.0	58.0	00818	1R		
15-Aug-00	10:30	m	75.5	59.5	nt			
15-Aug-00	10:30	m	102.5	89.5	nt			
15-Aug-00	10:30	m	78.5	61.0	nt			
15-Aug-00	10:30	m	73.0	59.0	nt			
15-Aug-00	10:30	m	89.0	70.0	nt			
15-Aug-00	21:20	m	73.5	61.5	nt			
15-Aug-00	21:20	m	92.0	75.5	lost	1R		
15-Aug-00	21:20	m	78.0	64.0	00687	1R		
15-Aug-00	21:20	m	95.0	78.5	nt			
15-Aug-00	21:20	m	76.5	62.0	nt			
15-Aug-00	21:20	m	74.5	62.0	nt			
15-Aug-00	21:20	m	78.5	64.0	lost	1R		
15-Aug-00	21:20	m	76.0	62.5	nt			
15-Aug-00	21:20	m	69.0	57.0	nt			
16-Aug-00	9:15	m	100.5	77.5	nt			
16-Aug-00	9:15	m	68.0	54.0	nt			
16-Aug-00	9:15	m	85.5	67.0	nt			
16-Aug-00	9:15	m	71.0	57.0	nt			
16-Aug-00	9:15	m	77.0	61.0	lost	1R		
16-Aug-00	9:15	m	73.5	57.5	nt			
16-Aug-00	9:15	m	70.0	55.5	nt			
16-Aug-00	9:15	m	72.5	57.0	00702	1R		
16-Aug-00	9:15	m	73.0	58.5	lost	1R		
16-Aug-00	21:15	m	67.5	57.0	00564	1R		
16-Aug-00	21:15	m	73.5	60.0	nt			
16-Aug-00	21:15	m	73.0	60.0	00658	1R		
16-Aug-00	21:15	m	104.5	84.5	00734	1R		
16-Aug-00	21:15	m	67.5	56.0	nt			
16-Aug-00	21:15	m	73.5	60.5	00585	1R		
16-Aug-00	21:15	m	90.0	76.0	00566	1R		
16-Aug-00	21:15	m	72.0	60.0	lost	1R		
17-Aug-00	11:15	f	90.5	73.0	nt		100%	
17-Aug-00	11:15	m	70.5	55.5	nt			
17-Aug-00	11:15	f	82.0	66.0	00841	2R	0%	
17-Aug-00	11:15	m	65.5	53.0	nt			
17-Aug-00	11:15	m	69.0	54.5	nt			
17-Aug-00	11:15	m	98.0	76.0	nt			
17-Aug-00	11:15	m	73.0	58.0	nt			
17-Aug-00	11:15	m	70.0	55.5	00838	1R		
17-Aug-00	11:15	m	73.0	58.0	nt			

Date	Time	Sex	Length		Tag Number	Secondary Mark	%Spawn	Comments
			Nose- Fork (cm)	P.O.H. (cm)				
17-Aug-00	11:15	m	67.0	54.0	00620	1R		
17-Aug-00	21:20	m	65.5	53.5	nt			
17-Aug-00	21:20	m	79.0	65.5	00560	1R		
17-Aug-00	21:20	m	94.5	77.5	00839	1R		
17-Aug-00	21:20	m	102.0	86.5	nt			
17-Aug-00	21:20	m	73.0	58.0	00574	1R		
17-Aug-00	21:20	m	95.0	78.5	nt			
17-Aug-00	21:20	m	70.5	59.0	nt			
17-Aug-00	21:20	m	76.5	60.5	00812	1R		
17-Aug-00	21:20	m	108.0	84.5	nt			
17-Aug-00	21:20	m	63.5	52.0	nt			
18-Aug-00	9:40	m	71.5	57.0	nt			
18-Aug-00	9:40	m	70.0	55.5	nt			
18-Aug-00	9:40	m	69.5	55.0	00623	1R		
18-Aug-00	9:40	m	69.5	55.0	nt			
18-Aug-00	9:40	m	78.5	62.5	nt			
18-Aug-00	9:40	m	76.5	60.0	nt			
18-Aug-00	9:40	m	66.5	53.5	00712	1R		
18-Aug-00	9:40	m	85.0	67.5	00733	1R		
18-Aug-00	9:40	m	77.5	61.5	nt			
18-Aug-00	9:40	m	94.0	74.5	nt			
18-Aug-00	9:40	m	78.5	62.0	nt			
18-Aug-00	9:40	m	73.0	58.0	00668	1R		
18-Aug-00	9:40	m	80.5	63.5	nt			
18-Aug-00	9:40	m	73.5	58.0	nt			
18-Aug-00	9:40	m	72.5	57.0	nt			
18-Aug-00	9:40	m	73.5	58.5	nt			
18-Aug-00	9:40	m	70.5	56.0	00681	1R		
18-Aug-00	21:20	m	93.5	74.0	lost	1R		
18-Aug-00	21:20	m	69.5	58.0	nt			
18-Aug-00	21:20	m	76.0	62.0	nt			
18-Aug-00	21:20	m	76.5	64.0	00637	1R		
18-Aug-00	21:20	m	87.5	72.5	00695	1R		
18-Aug-00	21:20	m	67.5	57.0	00725	1R		
18-Aug-00	21:20	m	73.0	60.0	nt			
18-Aug-00	21:20	m	73.5	60.0	lost	1R		
18-Aug-00	21:20	m	74.0	60.0	00724	1R		
18-Aug-00	21:20	m	68.5	56.0	nt			
18-Aug-00	21:20	m	76.5	62.0	00774	1R		
18-Aug-00	21:20	m	94.0	76.5	lost	1R		
18-Aug-00	21:20	m	77.0	63.5	nt			
18-Aug-00	21:20	m	73.0	57.5	00711	1R		
18-Aug-00	21:20	m	74.0	60.0	00649	1R		
18-Aug-00	21:20	f	90.0	76.0	nt		100%	
18-Aug-00	21:20	m	85.5	71.5	nt			
19-Aug-00	10:15	m	71.0	57.0	00570	1R		
19-Aug-00	10:15	m	68.0	54.0	nt			
19-Aug-00	10:15	m	71.0	55.0	nt			
19-Aug-00	10:15	m	75.5	60.0	nt			
19-Aug-00	10:15	m	79.0	62.5	nt			
19-Aug-00	10:15	m	69.5	55.0	nt			
19-Aug-00	10:15	m	75.5	59.5	lost	1R		
19-Aug-00	10:15	m	69.0	55.5	nt			

Date	Time	Sex	Length		Tag Number	Secondary Mark	%Spawn	Comments
			Nose- Fork (cm)	P.O.H. (cm)				
19-Aug-00	10:15	m	104.0	80.5	lost	1R		
19-Aug-00	10:15	m	66.0	55.5	00621	1R		
19-Aug-00	10:15	m	71.5	56.5	nt			
19-Aug-00	10:15	m	71.0	56.5	lost	1R		
19-Aug-00	20:40	m	71.0	56.5	nt			
19-Aug-00	20:40	m	73.0	57.5	nt			
19-Aug-00	20:40	m	73.5	60.5	nt			
19-Aug-00	20:40	m	78.0	61.0	00746	1R		
19-Aug-00	20:40	m	73.0	58.0	nt			
19-Aug-00	20:40	m	104.5	79.0	nt			
19-Aug-00	20:40	m	75.0	59.0	nt			
19-Aug-00	20:40	m	74.5	58.5	nt			
19-Aug-00	20:40	m	97.0	76.0	lost	1R		
19-Aug-00	20:40	m	70.0	55.5	nt			
19-Aug-00	20:40	m	77.0	60.5	nt			
19-Aug-00	20:40	m	85.0	66.5	nt			
19-Aug-00	20:40	m	72.0	57.0	nt			
19-Aug-00	20:40	m	69.5	56.5	lost	1R		
19-Aug-00	20:40	m	91.0	71.0	lost	1R		
19-Aug-00	20:40	m	84.5	68.0	nt			
19-Aug-00	20:40	m	79.5	62.5	nt			
19-Aug-00	20:40	m	72.5	57.5	nt			
19-Aug-00	20:40	m	81.5	64.5	nt			
19-Aug-00	20:40	m	97.5	74.0	nt			
20-Aug-00	11:00	m	70.0	59.5	nt			
20-Aug-00	11:00	m	71.5	59.0	00820	1R		
20-Aug-00	11:00	m	81.0	66.5	nt			
20-Aug-00	11:00	m	72.0	56.5	nt			
20-Aug-00	11:00	m	93.0	74.0	nt			
20-Aug-00	11:00	m	71.0	57.5	nt			
20-Aug-00	11:00	m	77.5	63.0	nt			
20-Aug-00	11:00	m	74.0	59.5	nt			
20-Aug-00	11:00	m	72.0	58.5	nt			
20-Aug-00	11:00	m	72.0	57.5	nt			
20-Aug-00	11:00	m	103.0	79.0	nt			
20-Aug-00	20:45	m	76.5	61.0	nt			
20-Aug-00	20:45	m	74.0	59.0	nt			
20-Aug-00	20:45	m	75.0	60.5	nt			
20-Aug-00	20:45	m	74.5	59.5	lost	1R		
20-Aug-00	20:45	m	77.0	61.5	nt			
20-Aug-00	20:45	m	67.0	54.0	nt			
20-Aug-00	20:45	f	87.0	71.0	nt		100%	
20-Aug-00	20:45	m	61.0	48.5	nt			
20-Aug-00	20:45	m	63.5	51.0	nt			
20-Aug-00	20:45	m	67.0	54.5	nt			
20-Aug-00	20:45	m	81.0	65.0	lost	1R		
20-Aug-00	20:45	m	72.5	58.5	nt			
20-Aug-00	20:45	m	93.0	74.0	nt			
20-Aug-00	20:45	m	71.5	56.0	nt			
20-Aug-00	20:45	m	71.0	56.0	00688	1R		
20-Aug-00	20:45	m	nr	nr	nt			
21-Aug-00	11:40	m	74.5	62.0	00764	1R		

Date	Time	Sex	Length		Tag Number	Secondary Mark	%Spawn	Comments
			Nose- Fork (cm)	P.O.H. (cm)				
21-Aug-00	11:40	m	77.5	62.0	00771	1R		
21-Aug-00	11:40	m	79.0	64.0	lost	1R		
21-Aug-00	11:40	m	67.5	55.0	nt			
21-Aug-00	11:40	m	73.0	59.0	nt			
21-Aug-00	11:40	m	71.5	58.0	nt			
21-Aug-00	11:40	m	70.5	56.5	nt			
21-Aug-00	11:40	m	98.0	77.0	lost	1R		
21-Aug-00	11:40	m	89.5	71.0	nt			
21-Aug-00	20:30	m	68.0	55.5	nt			
21-Aug-00	20:30	m	81.0	65.0	nt			
21-Aug-00	20:30	m	75.5	60.0	nt			
21-Aug-00	20:30	m	74.0	59.5	nt			
21-Aug-00	20:30	m	79.0	63.0	nt			
21-Aug-00	20:30	m	69.0	56.5	nt			
21-Aug-00	20:30	m	67.0	52.5	00605	1R		
21-Aug-00	20:30	m	98.0	76.5	00833	1R		
21-Aug-00	20:30	m	113.0	87.0	nt			
21-Aug-00	20:30	m	74.5	59.0	nt			
21-Aug-00	20:30	m	68.0	54.5	nt			
22-Aug-00	9:30	m	71.0	58.0	nt			
22-Aug-00	9:30	m	77.5	61.5	nt			
22-Aug-00	9:30	f	85.0	71.0	00805	2R	100%	
22-Aug-00	9:30	m	104.5	84.5	nt			
22-Aug-00	9:30	m	78.0	63.0	00642	1R		
22-Aug-00	9:30	m	68.0	54.0	lost	1R		
22-Aug-00	9:30	m	105.0	82.0	nt			
22-Aug-00	9:30	m	49.0	39.0	nt			
22-Aug-00	20:30	m	74.5	59.0	nt			
22-Aug-00	20:30	m	69.5	55.5	nt			
22-Aug-00	20:30	m	73.0	58.5	00722	1R		
22-Aug-00	20:30	m	74.0	59.0	lost	1R		
22-Aug-00	20:30	m	96.5	76.0	lost	1R		
22-Aug-00	20:30	m	80.0	63.0	nt			
22-Aug-00	20:30	m	71.5	58.0	nt			
22-Aug-00	20:30	m	67.0	53.5	nt			
22-Aug-00	20:30	m	102.0	81.0	nt			
22-Aug-00	20:30	m	71.0	57.5	nt			
22-Aug-00	20:30	m	77.0	60.5	nt			
23-Aug-00	9:30	f	91.0	75.0	nt		100%	
23-Aug-00	9:30	f	87.0	72.0	nt		100%	
23-Aug-00	9:30	m	69.0	56.0	lost	1R		
23-Aug-00	9:30	m	73.0	58.5	nt			
23-Aug-00	9:30	m	87.5	69.5	nt			
23-Aug-00	9:30	m	81.0	65.5	nt			
23-Aug-00	9:30	m	79.5	64.5	00641	1R		
23-Aug-00	20:30	m	68.0	55.0	nt			
23-Aug-00	20:30	m	72.0	58.0	00700	1R		
23-Aug-00	20:30	m	104.0	81.5	nt			
23-Aug-00	20:30	m	65.0	51.5	nt			
23-Aug-00	20:30	m	75.0	59.0	nt			
23-Aug-00	20:30	m	73.0	58.0	00848	1R		
23-Aug-00	20:30	m	99.0	77.5	nt			

Date	Time	Sex	Length		Tag Number	Secondary Mark	%Spawn	Comments
			Nose- Fork (cm)	P.O.H. (cm)				
23-Aug-00	20:30	m	74.0	57.5	nt			
23-Aug-00	20:30	m	101.0	78.5	nt			
23-Aug-00	20:30	m	81.0	64.5	nt			
23-Aug-00	20:30	m	73.0	57.0	nt			
23-Aug-00	20:30	m	101.0	78.0	lost	1R		
23-Aug-00	20:30	m	73.0	57.5	nt			
23-Aug-00	20:30	m	77.0	62.5	lost	1R		
23-Aug-00	20:30	m	74.0	59.0	00616	1R		
23-Aug-00	20:30	m	94.0	73.5	nt			
23-Aug-00	20:30	m	82.0	63.0	lost	1R		
23-Aug-00	20:30	m	92.0	72.5	00670	1R		
23-Aug-00	20:30	m	85.0	66.5	nt			
23-Aug-00	20:30	m	73.0	57.0	nt			
23-Aug-00	20:30	m	68.0	55.0	nt			
23-Aug-00	20:30	m	60.5	48.5	00663	1R		
23-Aug-00	20:30	m	66.5	52.5	nt			
23-Aug-00	20:30	m	69.5	55.5	nt			
24-Aug-00	9:30	f	81.5	68.5	nt		100%	
24-Aug-00	9:30	m	70.0	56.0	nt			
24-Aug-00	9:30	m	91.5	71.0	nt			
24-Aug-00	9:30	m	71.0	56.0	nt			
24-Aug-00	9:30	m	76.0	60.0	nt			
24-Aug-00	9:30	m	104.0	82.0	nt			
24-Aug-00	9:30	m	80.5	64.5	nt			
24-Aug-00	20:20	m	61.0	49.0	00589	1R		
24-Aug-00	20:20	m	77.5	62.0	00825	1R		
24-Aug-00	20:20	m	89.5	70.0	nt			
24-Aug-00	20:20	m	85.5	67.0	nt			
24-Aug-00	20:20	m	103.0	78.5	nt			
24-Aug-00	20:20	m	85.5	68.5	nt			
24-Aug-00	20:20	m	86.0	69.0	nt			
24-Aug-00	20:20	m	62.0	51.0	nt			
24-Aug-00	20:20	m	107.0	81.5	nt			
24-Aug-00	20:20	m	85.0	66.5	nt			
25-Aug-00	12:00	f	91.5	74.5	nt		100%	
25-Aug-00	12:00	f	84.5	70.5	nt		100%	
25-Aug-00	12:00	m	76.0	62.0	lost	1R		
25-Aug-00	12:00	m	na	na	nt			head only
25-Aug-00	12:00	m	72.0	58.0	nt			
25-Aug-00	12:00	m	77.0	62.0	nt			
25-Aug-00	12:00	m	67.0	54.0	nt			
25-Aug-00	12:00	m	82.0	66.5	nt			
25-Aug-00	12:00	m	75.5	59.0	nt			
25-Aug-00	12:00	m	81.5	65.0	nt			
25-Aug-00	12:00	m	77.0	63.0	nt			
25-Aug-00	12:00	m	73.5	60.5	00602	1R		skin sack
25-Aug-00	20:30	m	66.0	53.5	00604	1R		skin sack
25-Aug-00	20:30	m	70.0	57.5	00606	1R		
25-Aug-00	20:30	m	70.5	57.0	nt			
25-Aug-00	20:30	m	73.0	58.5	nt			
25-Aug-00	20:30	m	na	na	nt			head only
25-Aug-00	20:30	m	58.0	72.0	nt			

Date	Time	Sex	Length		Tag Number	Secondary Mark	%Spawn	Comments
			Nose- Fork (cm)	P.O.H. (cm)				
25-Aug-00	20:30	m	107.5	83.0	nt			
26-Aug-00	11:30	m	66.0	54.0	nt			
26-Aug-00	11:30	m	82.0	65.0	nt			
26-Aug-00	11:30	m	69.0	56.5	nt			
26-Aug-00	11:30	f	78.5	64.5	nt		100%	
26-Aug-00	11:30	m	71.5	57.0	nt			
26-Aug-00	20:15	m	76.0	59.5	nt			
26-Aug-00	20:15	m	67.0	52.5	00639	1R		
26-Aug-00	20:15	f	81.5	67.0	00834	2R	100%	
26-Aug-00	20:15	m	69.0	55.0	nt			
26-Aug-00	20:15	m	97.0	76.0	nt			
27-Aug-00	12:00	f	86.0	69.5	nt		100%	
27-Aug-00	12:00	m	79.0	64.0	nt			
27-Aug-00	20:30	m	72.5	57.0	nt			
27-Aug-00	20:30	m	71.0	56.5	nt			
28-Aug-00	15:05	m	71.0	56.0	nt			
28-Aug-00	15:05	m	73.0	57.5	nt			
29-Aug-00	11:00	m	84.0	66.0	00847	1R		
29-Aug-00	12:25	m	74.0	58.0	nt			
29-Aug-00	13:30	m	67.5	51.5	nt			
29-Aug-00	16:00	m	73.5	57.0	nt			
29-Aug-00	18:30	m	75.5	57.5	nt			
29-Aug-00	20:45	m	67.5	52.0	nt			
29-Aug-00	20:45	m	68.5	53.0	nt			
29-Aug-00	20:45	m	76.0	60.5	nt			
30-Aug-00	21:00	m	93.0	72.0	nt			
31-Aug-00	12:15	m	72.0	57.0	00849	1R		
01-Sep-00	20:15	m	81.0	63.0	nt			
07-Sep-00	17:00	m	82.0	68.0	nt			fur coat

Appendix Table 11. Sex, length and sampling information for all sockeye salmon sampled at the Sustut fence.

Date	Sex	Length		Scale Book Position	Scale Book Number	DNA Vial	Comments
		Nose - Fork (cm)	P.O.H. (cm)				
07-Aug-00	m	70.0	56.5	1-41	4896	Aug 7-13	
10-Aug-00	f	62.0	50.5	2-42	4896	Aug 7-13	
10-Aug-00	m	70.5	55.0	3-43	4896	Aug 7-13	
10-Aug-00	f	65.0	52.5	4-44	4896	Aug 7-13	
13-Aug-00	m	70.0	56.5	5-45	4896	Aug 7-13	
13-Aug-00	m	70.0	56.5	6-46	4896	Aug 7-13	
13-Aug-00	m	70.0	56.0	7-47	4896	Aug 7-13	
13-Aug-00	m	71.5	57.5	8-48	4896	Aug 7-13	
13-Aug-00	m	67.5	54.0	9-49	4896	Aug 7-13	
13-Aug-00	m	70.0	57.5	10-50	4896	Aug 7-13	
17-Aug-00	m	69.5	56.5	1-41	4897	Aug 14-20	
17-Aug-00	m	70.5	57.5	2-42	4897	Aug 14-20	
17-Aug-00	f	66.5	54.5	3-43	4897	Aug 14-20	
18-Aug-00	f	66.5	53.5	4-44	4897	Aug 14-20	
18-Aug-00	m	72.0	56.0	5-45	4897	Aug 14-20	
18-Aug-00	f	66.0	53.0	6-46	4897	Aug 14-20	
18-Aug-00	f	58.0	47.0	7-47	4897	Aug 14-20	
18-Aug-00	f	64.5	50.5	8-48	4897	Aug 14-20	
18-Aug-00	m	68.5	54.5	9-49	4897	Aug 14-20	
18-Aug-00	m	73.5	57.5	10-50	4897	Aug 14-20	
19-Aug-00	f	67.5	56.0	1-41	4899	Aug 14-20	
19-Aug-00	m	65.5	53.0	2-42	4899	Aug 14-20	
19-Aug-00	m	62.0	51.0	3-43	4899	Aug 14-20	
21-Aug-00	f	64.0	53.0	4-44	4899	Aug 21-27	
21-Aug-00	m	70.0	56.0	5-45	4899	Aug 21-27	
21-Aug-00	f	67.5	56.5	6-46	4899	Aug 21-27	
21-Aug-00	f	67.0	55.0	7-47	4899	Aug 21-27	
21-Aug-00	f	61.0	50.0	8-48	4899	Aug 21-27	
21-Aug-00	m	61.5	50.5	9-49	4899	Aug 21-27	
21-Aug-00	f	67.5	56.0	10-50	4899	Aug 21-27	
22-Aug-00	f	57.5	47.0	1-41	4900	Aug 21-27	
22-Aug-00	m	68.5	55.0	2-42	4900	Aug 21-27	
22-Aug-00	f	63.5	51.0	3-43	4900	Aug 21-27	
22-Aug-00	m	70.0	55.0	4-44	4900	Aug 21-27	
22-Aug-00	f	66.0	54.5	5-45	4900	Aug 21-27	
23-Aug-00	f	63.0	53.0	6-46	4900	Aug 21-27	
23-Aug-00	f	66.5	56.0	7-47	4900	Aug 21-27	
23-Aug-00	f	62.5	52.0	8-48	4900	Aug 21-27	
23-Aug-00	m	68.5	56.5	9-49	4900	Aug 21-27	
23-Aug-00	m	68.5	55.5	10-50	4900	Aug 21-27	
31-Aug-00	f	65.0	nr	10-50	8006	Aug 28- Sep 3	
31-Aug-00	m	70.0	nr	9-49	8006	Sep 4-10	
04-Sep-00	m	66.5	nr	8-48	8006	Sep 4-10	
04-Sep-00	m	66.0	nr	7-47	8006	Sep 4-10	
10-Sep-00	f	63.0	50.0	6-46	8006	Sep 4-10	

Appendix Table 12. Sex and length data for all sockeye salmon carcasses recovered from the Sustut fence.

Date	Time	Sex	Length		Comments
			Nose - Fork (cm)	P.O.H. (cm)	
13-Sep-00	14:15	f	58.0	47.0	pre-spawn mort
13-Sep-00	14:14	f	63.0	52.5	pre-spawn mort
14-Sep-00	9:30	m	70.0	55.0	
23-Sep-00	10:15	f	60.0	49.0	100% spawn
23-Sep-00	10:15	m	72.0	57.0	
23-Sep-00	10:20	m	61.0	47.5	
23-Sep-00	10:20	m	67.5	54.0	
23-Sep-00	10:30	f	57.5	45.0	100% spawn
24-Sep-00	10:00	f	65.0	52.5	pre-spawn mort
24-Sep-00	10:00	f	63.0	50.5	100% spawn
28-Sep-00	11:00	f	66.5	53.5	pre-spawn mort
28-Sep-00	11:00	f	62.0	51.0	100% spawn

Appendix Table 13. Sex, length and sampling information for all coho salmon passing the Sustut fence.

Date	Sex	Length		Scale Book Position	Scale Book Number	DNA Vial	Comments
		Nose - Fork (cm)	P.O.H. (cm)				
17-Aug-00	m	67.5	54.0	1-41	4898	Aug 14-20	
18-Aug-00	m	57.5	46.5	2-42	4898	Aug 14-20	
23-Aug-00	m	51.5	42.5	3-43	4898	Aug 21-27	
25-Aug-00	f	67.0	55.0	4-44	4898	Aug 21-27	
26-Aug-00	m	69.0	55.5	5-45	4898	Aug 21-27	
07-Sep-00	m	71.8	nr	6-46	4898	Sep 4-10	
07-Sep-00	m	62.0	nr	7-47	4898	Sep 4-10	
08-Sep-00	f	70.0	57.5	8-48	4898	Sep 4-10	
08-Sep-00	m	52.0	42.0	9-49	4898	Sep 4-10	
09-Sep-00	f	68.0	54.5	10-50	4898	Sep 4-10	
12-Sep-00	m	69.5	54.0	1-41	70770	Sep 11-17	
17-Sep-00	f	67.0	54.0	2-42	70770	Sep 11-17	Nose abrasion