

**Enumeration of Adult Steelhead  
in the  
Upper Sustut River, 2001**

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Fisheries Branch  
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Skeena Fisheries Report SK 130

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## Abstract

The upper Sustut River steelhead (*Oncorhynchus mykiss*) population was enumerated from July 27 to September 30, 2001, using a floating PVC fence. The first steelhead migrated past the fence on August 15 and by September 30, a total of 756 steelhead had been released upstream. This value was defined as the upper Sustut River steelhead index for 2001. An additional 42 steelhead were observed downstream of the fence on September 30 making the estimated spawning escapement to the upper Sustut River 798 steelhead. The population index for 2001 was the second highest on record while the spawning escapement was 77 percent of the estimated carrying capacity (1036) for the upper Sustut system (Tautz *et al.* 1992). Between July 27 and September 30, a total of 1639 chinook salmon (*O. tshawytscha*), 1257 sockeye salmon (*O. nerka*), 9 coho salmon (*O. kisutch*), 30 bull trout (*Salvelinus confluentus*), 0 resident rainbow trout (*O. mykiss*) and 24 Rocky Mountain whitefish (*Prosopium williamsoni*) were counted passing upstream of the fence.

Eighteen steelhead tagged at the upper Sustut River fence in 1999 were recaptured in 2001 indicating that a minimum of 2.5 percent of the 1999 run returned as potential repeat spawners. While the percentage of repeat spawners was above the long-term average (1.4%), the growth between spawning events (6.5 cm) was below the average (7.5 cm). Three steelhead tagged at the fence in 1998 were recaptured in 2001 indicating that a minimum of 0.2 percent of the 1998 run returned as potential repeat spawners.

Age analysis from scales revealed that all the adult steelhead had at least two marine annuli, and repeat spawners made up 6.1 percent of the sample. The most prevalent age was 4.3+ (46.9%) followed by 4.2+ (24.5%). The majority of the steelhead spent four years in freshwater (86.6%), while 6.7% had a three-year freshwater age, and 6.7 percent had a five-year freshwater age.

The ratio of female to male steelhead was 1.63:1. The average fork length of males and females was 86.4 and 77.1 cm, respectively. A total of 12.8 percent of all steelhead handled at the fence exhibited gillnet marks. This falls in the middle portion of historical values, which have ranged from 2 to 23 percent and averaged 11.7 percent. Female steelhead exhibited a higher gillnet mark rate than males (14.5 and 10.1 percent, respectively). Further, gillnet marked males and females were significantly smaller than those without gillnet marks.

With the addition of the 2001 data point, the upper Sustut steelhead population index was no longer correlated with the cumulative Tyee test fishery index to August 10.

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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; Diewert 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 2001 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 2001, 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,
7. to examine the effect of adding the 2001 data to the regression relationship between the upper Sustut River steelhead index and the cumulative Tyee test fishery index, and
8. to further assess the selectivity of angling as a sampling method for steelhead.

## 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<sup>2</sup> 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*)<sup>1</sup>. 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 27 and September 30. On September 17, 2000, 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 cable was replaced during fence installation in 2001. Also, a new aluminum trap box was fabricated to replace the aging wooden structure, which had been in use for several years.

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 during a visual survey on September 30 by two streamside observers using polarized sunglasses. 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 equal 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

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<sup>1</sup> 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.

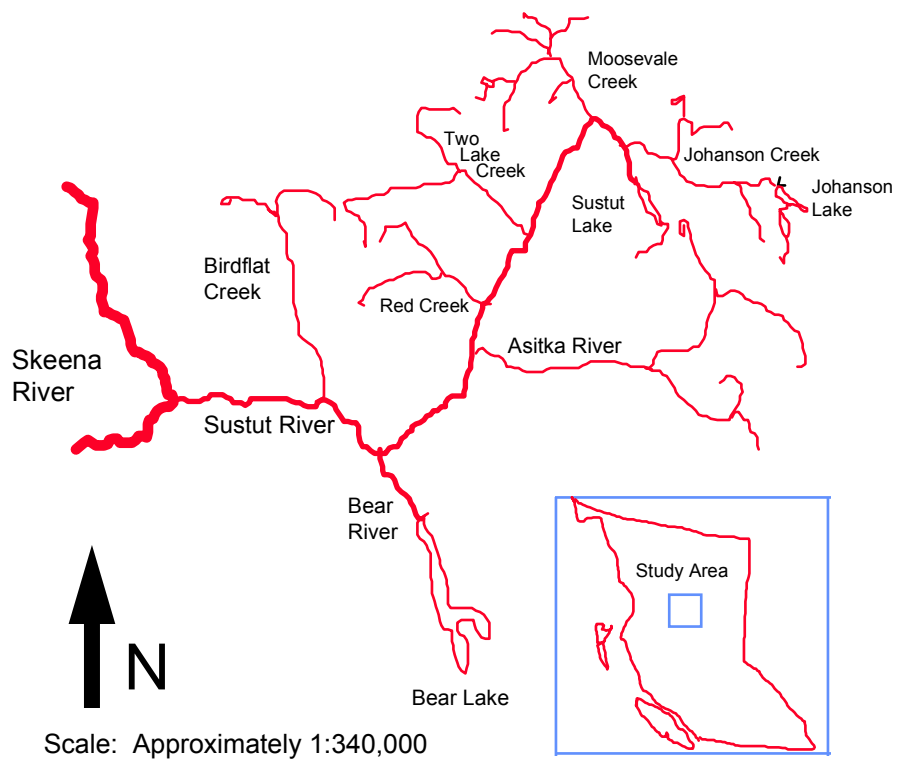


Figure 1. The Sustut River and major tributaries (from Saimoto 1995).

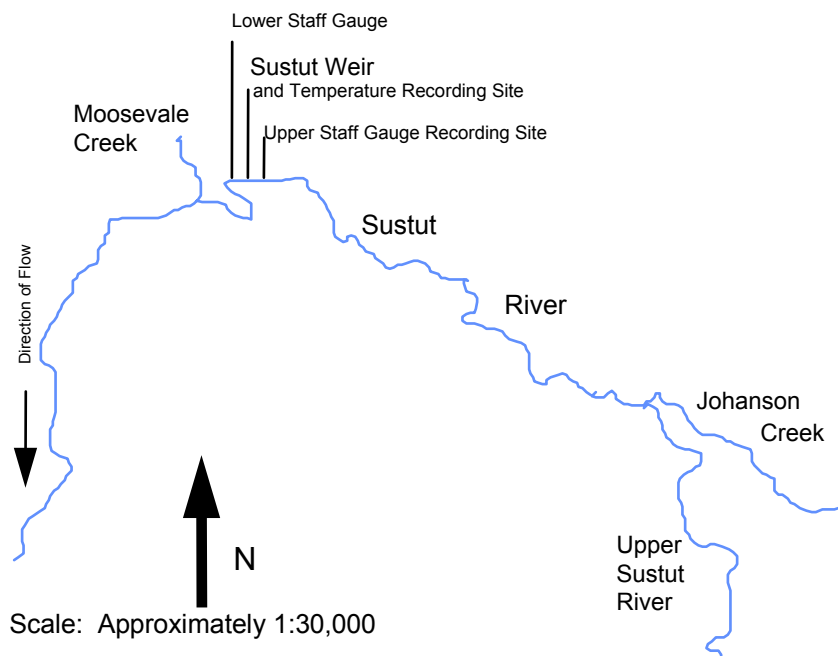


Figure 2. Detailed map of the study area (adapted from Saimoto 1995).

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.

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 sessions were limited 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 2001 (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 immediately below the dorsal fin with yellow, 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 were recorded for each fish. 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. All other species of fish encountered at the fence were enumerated and sub-sampled for genetic stock identification and aging.

### ***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 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. 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. using

an Evazote (blue camping foam) lined measuring tray. The nose-fork lengths of male and female steelhead were compared graphically using length frequency histograms and statistically using Student's t-test (Zar 1984).

### **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 2001 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.

### **3.8 Steelhead Angling Selectivity**

Steelhead were angled from a section of the river downstream of the enumeration fence. Angling techniques were identical to those utilized in stock assessment studies carried out by Ministry of Environment, Fisheries Branch, staff (e.g. Parken and Atagi 1998). All steelhead were captured using roe on barbed hooks. Fish were landed and placed in a V shaped, foam lined tagging tray with a metre stick recessed in one side. Sex, nose-fork length to the nearest 0.5 cm, gillnet marks, hooking location, scars and the general condition of each fish were recorded. A white, uniquely numbered t-bar anchor tag was applied to the right side below the dorsal fin before release and the release condition noted (1=swam away quickly, 2=swam away slowly, 3=required ventilation).

The nose-fork lengths of male and female steelhead in the fence and angled samples were compared graphically using length-frequency histograms and statistically using Student's t-test. Also, the sex ratio of the fence and angled samples were compared statistically using chi-square tests.

Post angling behavior was assessed by comparing the number of days between angling capture and arrival at the fence for males and females using Student's t-test. Also, to assess the effect of size on post angling behavior, the lengths of angled steelhead that arrived at the fence were compared to those that did not migrate past the fence using Student's test.

## **4.0 Results**

### **4.1 Steelhead Enumeration**

Between August 15 and September 30, 756 steelhead migrated through the upper Sustut River fence (fence tagged recaptures removed) (Appendix Tables 2, 6). This value was defined as the upper Sustut River steelhead index for 2001 (Table 1). An additional 42 steelhead were observed between the fence and the Moosevale Creek confluence pool on September 30. Assuming no additional migration from downstream of Moosevale Creek after the visual survey was completed, the estimated spawning escapement for the 2001 upper Sustut River steelhead run was 798 fish.

The first steelhead migrated through the fence on August 15 and by September 16, 50% of the run had passed (Figure 4; Table 1). In order to provide a historical context for the 2001 data, the annual dates of 50% migration along with the corresponding total index values are presented in Table 1 for the years 1994 to 2001. 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 1.9% (14 steelhead) (Appendix Table 1). The majority of these fish exhibited severe head fungus that may be partially attributed to the new net pen.

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

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
2001	Sep-16		756
<hr/>			
Earliest 50% Date	Aug-29	Minimum Index	377
Latest 50% Date	Sep-17	Maximum Index	1064
		Mean Index	637

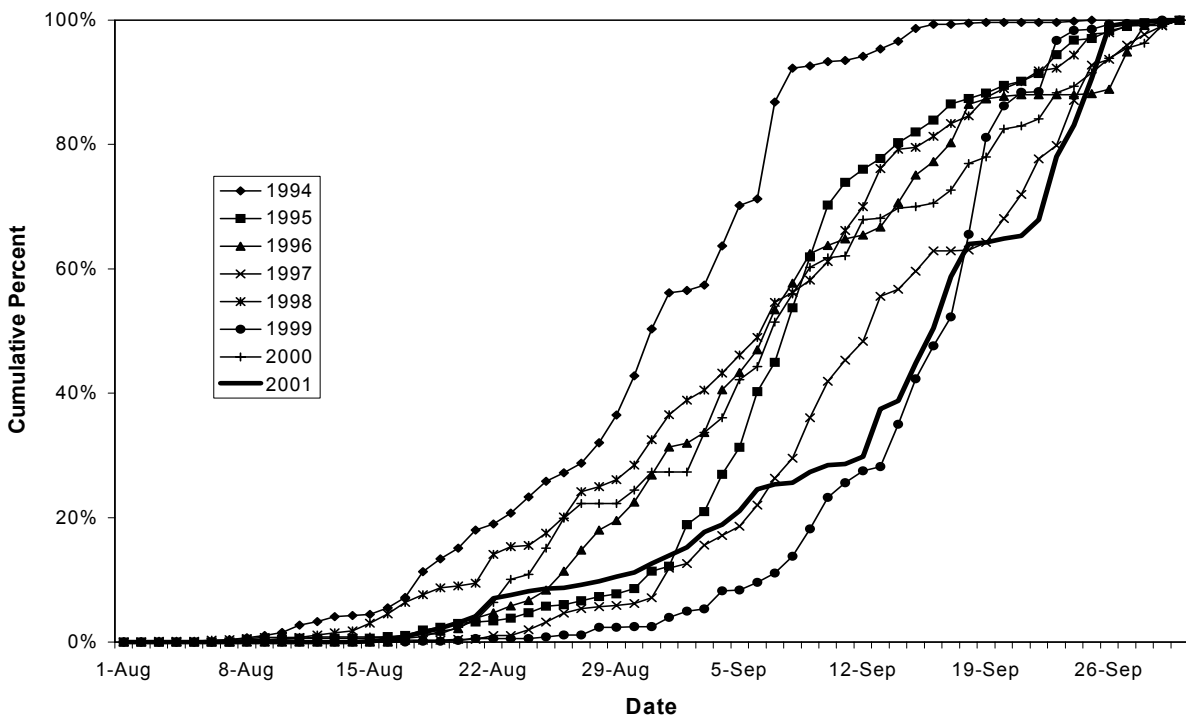


Figure 4. Daily cumulative percentage of upper Sustut steelhead migrating past the fence for the years 1994 to 2001.

Between July 27 and September 30, 1639 chinook salmon, 1257 sockeye salmon, 9 coho salmon, 30 bull trout, 0 resident rainbow trout and 24 Rocky Mountain whitefish migrated through the fence (Appendix Tables 2, 3).

#### 4.2 Steelhead Recaptures

Eighteen steelhead (14 female, 4 male) tagged at the Sustut River fence in 1999 were recaptured in 2001 (Table 2). Growth from the date of initial tagging to the date of recapture ranged from 1.2 to 11.6 cm and averaged 6.5

Table 2. Steelhead recaptures not tagged at the Sustut River fence in 2001.

Recapture Data					Tagging Data			
Date	Sex	Nose-Fork Length	Tag Colour	Tag Number	Date	Location	Sex	Nose-Fork Length
Aug-29-01	M	90.0	White	07869	Sep-12-98	Sustut Fence	F	73.8
Aug 31-01	M	82.0	Green	16763	Jul-26-01	Tyee Test Fishery		
Sep-13-01	F	88.0	Yellow	13487	Sep-19-99	Sustut Fence	M	84.0
Sep-16-01	F	78.0	Yellow	13054	Sep-04-99	Sustut Fence	F	72.0
Sep-17-01	F	87.0	Yellow	13546	Sep-19-99	Sustut Fence	F	75.4
Sep-17-01	M	83.5	Green	16656	Jul-28-01	Tyee Test Fishery		
Sep-17-01	F	81.0	Yellow	13636	Sep-21-99	Sustut Fence	F	70.2
Sep-17-01	F	82.0	Yellow	13425	Sep-18-99	Sustut Fence	F	74.0
Sep-18-01	F	79.5	Yellow	13274	Sep-15-99	Sustut Fence	F	74.2
Sep-22-01	F	81.5	Yellow	13221	Sep-14-99	Sustut Fence	F	76.8
Sep-23-01	M	91.0	Green	16747	Aug-06-01	Tyee Test Fishery		
Sep-23-01	M	76.5	Yellow	13355	Sep-17-99	Sustut Fence	F	68.8
Sep-23-01	F	85.0	White & Red	07950	Sep-13-98	Sustut Fence	M	80.3
Sep-23-01	F	84.5	Yellow	13381	Sep-17-99	Sustut Fence	F	76.2
Sep-24-01	M	78.0	Yellow	13644	Sep-23-99	Sustut Fence	M	76.8
Sep-24-01	F	83.0	Yellow	13073	Sep-07-99	Sustut Fence	F	76.5
Sep-25-01	M	93.5	Yellow	13692	Sep-23-99	Sustut Fence	F	88.2
Sep-25-01	F	85.0	Yellow	13430	Sep-18-99	Sustut Fence	F	75.9
Sep-25-01	M	83.0	Yellow	13316	Sep-16-99	Sustut Fence	M	76.0
Sep-25-01	M	92.0	White	07981	Sep-14-98	Sustut Fence	F	76.5
Sep-25-01	F	73.0	Green	16712	Jul-27-01	Tyee Test Fishery		
Sep-26-01	M	85.0	White & Red	N05964		Unknown		
Sep-26-01	F	86.5	Yellow	13320	Sep-16-99	Sustut Fence	F	82.5
Sep-26-01	F	72.0	Yellow	13687	Sep-23-99	Sustut Fence	F	66.0
Sep-26-01	F	81.0	Yellow	13462	Sep-18-99	Sustut Fence	F	74.2
Sep-27-01	F	81.0	Green	16793	Jul-28-01	Tyee Test Fishery		
Sep-28-01	F	82.0	Yellow	13408	Sep-18-99	Sustut Fence	F	76.8

cm. The timing of arrival at the fence for these fish was later in 2001 than in 1999 by an average of 5 days. Three steelhead tagged at the Sustut River fence in 1998 were recaptured in 2001 (Table 2). Growth from the date of initial tagging to the date of recapture ranged from 4.7 cm to 16.2 cm and averaged 12.1 cm. The timing of arrival at the fence for these fish was later in 2001 than in 1998 by an average of 3 days.

A total of 731 steelhead were tagged at the fence in 1999. The 18 fish recaptured in 2001 indicate that a minimum of 2.5% of the 1999 run returned as potential repeat spawners in 2001. A total of 1064 steelhead were tagged at the



fence in 1998. The 3 fish recaptured in 2001 indicate that a minimum of 0.3% of the 1998 run returned as potential repeat spawners in 2001.

### 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). While temperature fluctuation appeared to coincide with increased migration, statistical analysis indicated that neither water temperature nor river level was significantly correlated with steelhead movement past the fence ( $r$  values: temperature = 0.2448, level=0.0601;  $p=0.05$ ).

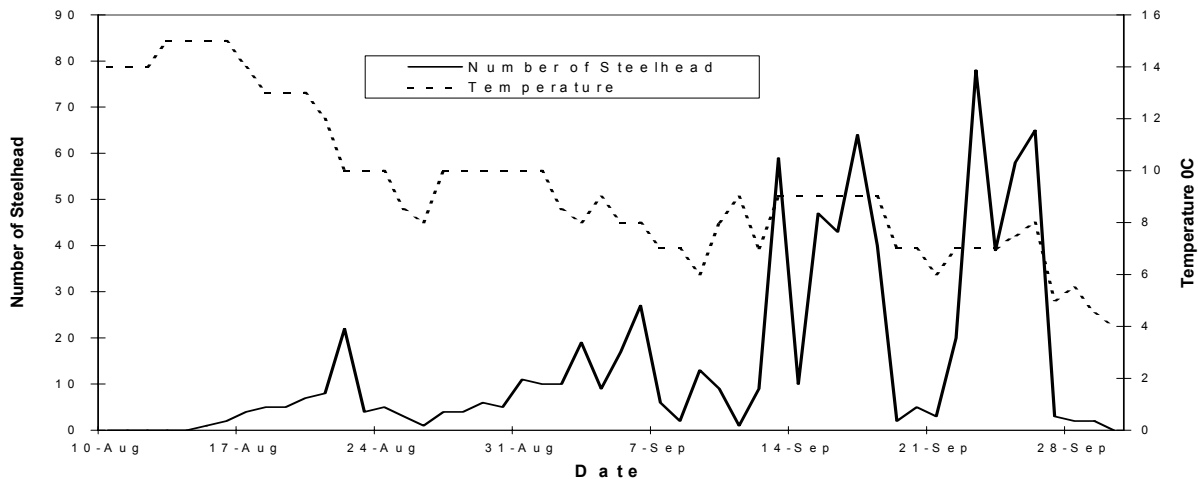


Figure 5. Daily maximum water temperatures and the number of steelhead migrating past the fence.

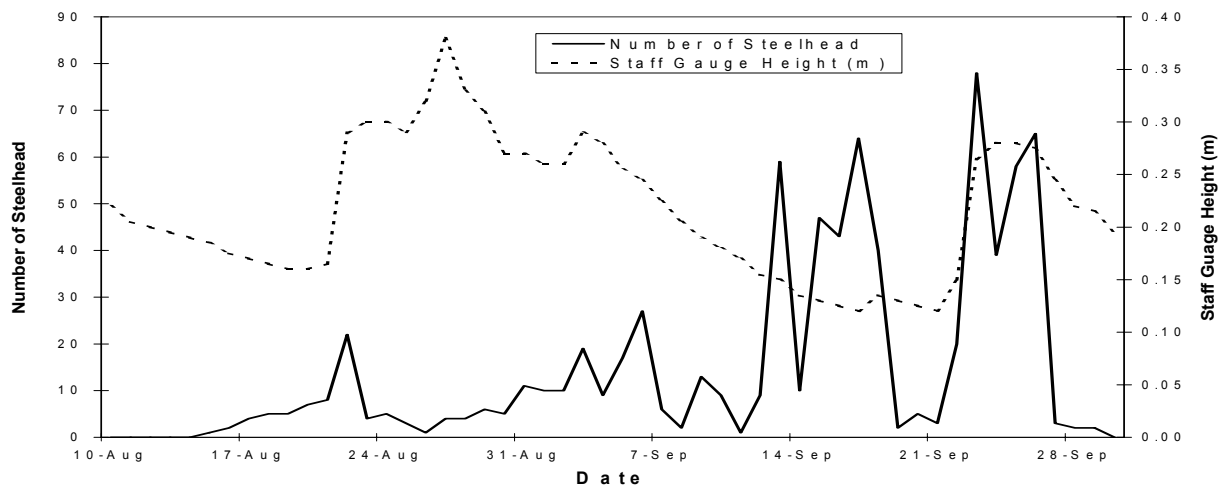


Figure 6. Daily staff gauge height and the number of steelhead migrating past the fence.

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.

### 4.4 Steelhead Length Distributions by Sex

Of the 756 steelhead handled at the fence, 288 (38.1 %) were males and 468 (61.9 %) were females making the ratio of female to male steelhead 1.62:1. The mean nose-fork lengths of male and female steelhead were 86.4 and 77.1 cm, respectively. The percent of the total number of steelhead measured at the fence was plotted by 2 cm increments of nose-fork length for each sex (Figure 7). Statistical analysis revealed that male steelhead were significantly larger than female steelhead (Students t-test:  $t = 21.8633$ ;  $p < 0.05$ ).

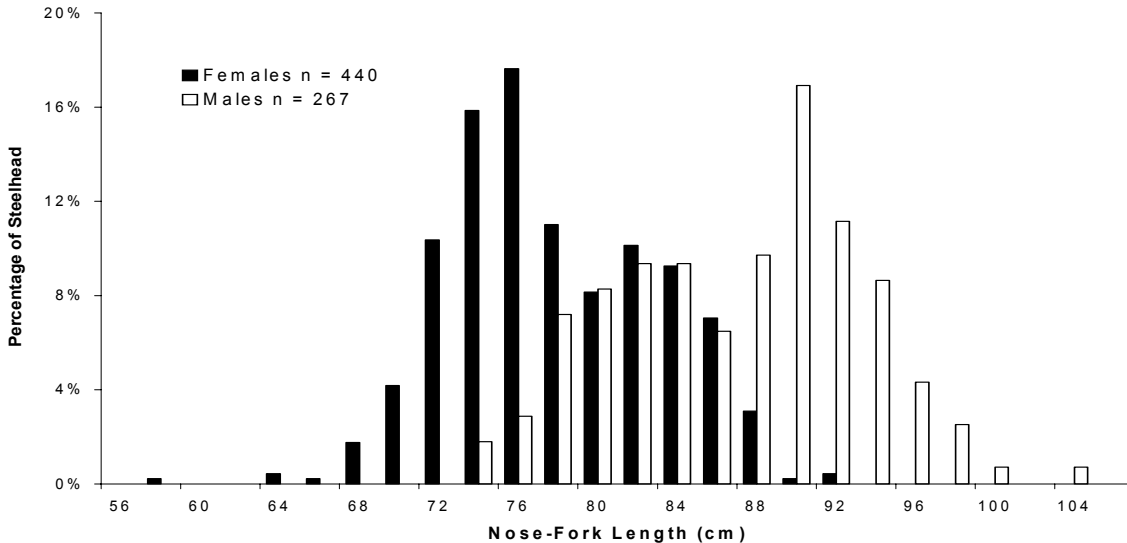


Figure 7. Percentage of male and female steelhead by 2 cm categories of nose-fork length.

#### 4.5 Steelhead Gillnet Marks

Gillnet marks were present on 12.6 % 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 at zero until August 30<sup>th</sup> and then increased as the program progressed. This trend became more evident when the percent of gillnet marked steelhead was pooled and plotted by statistical week (statistical week definitions are outlined in Appendix Table 5) (Figure 9). Weekly gillnet mark rates ranged from a low of 0% in statistical weeks 8-2 and 8-3 to a high of 20.2% in statistical week 9-4.

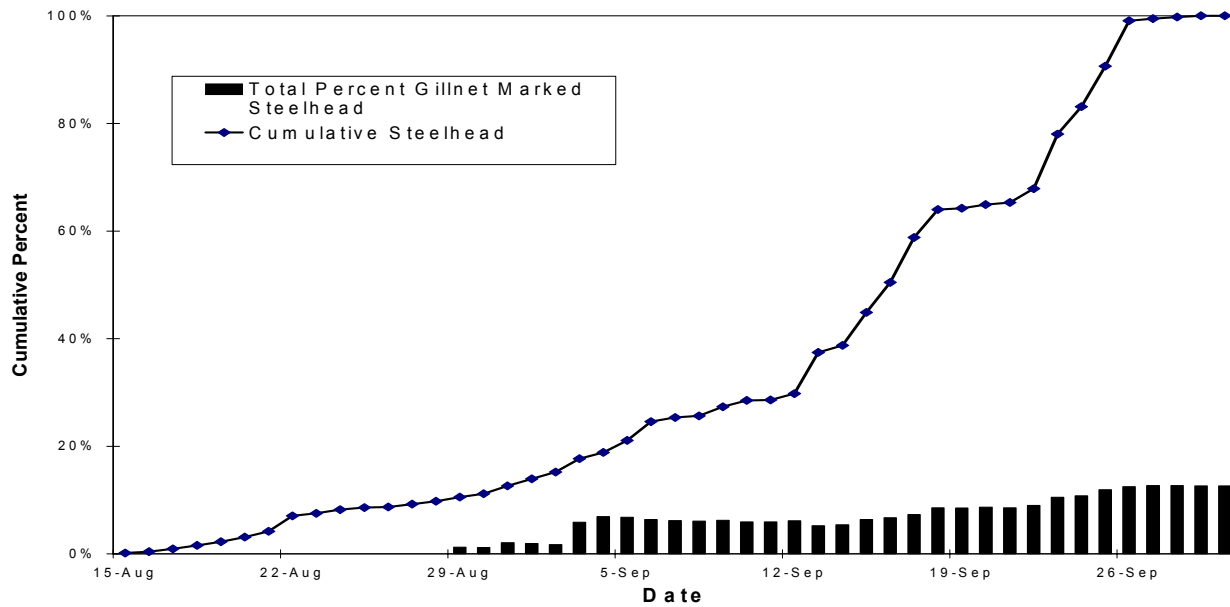


Figure 8. Daily cumulative total gillnet marked steelhead and daily cumulative total steelhead.

A total of 10.1 % of male steelhead and 14.5 % 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) but slightly lower than 2000 values (10.6 and 16.2%, for males and females, respectively; Diewert 2000). Gillnet marked males were significantly smaller than unmarked males (mean = 83.5 cm and 86.7 cm, respectively; Student's t-test:  $t=2.7003$ ,  $p>0.05$ ). The same was true for net marked and unmarked females (mean = 75.3 cm and 77.4 cm, respectively; Student's t-test:  $t=3.0647$ ,  $p>0.05$ ).

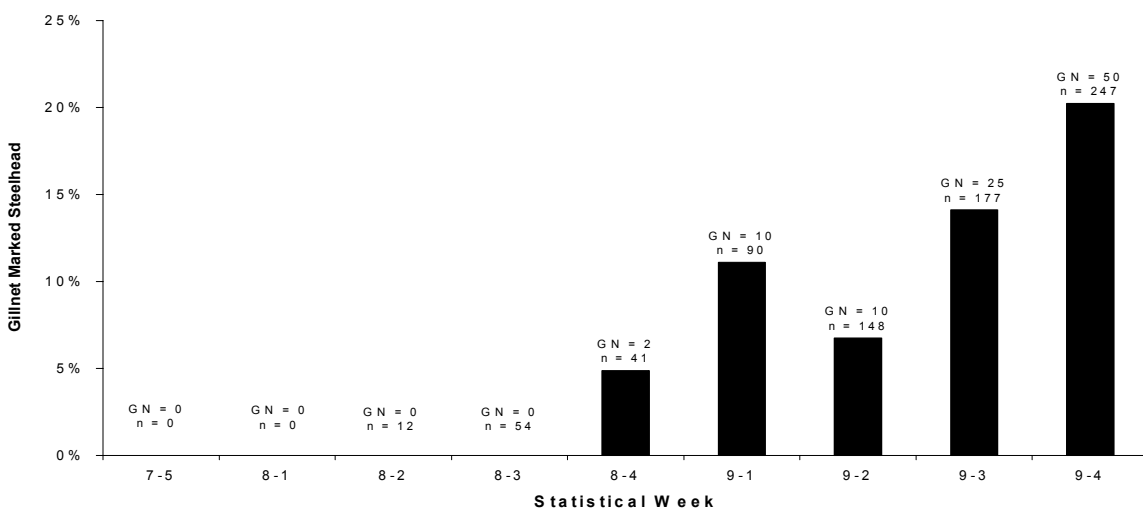


Figure 9. Percent of steelhead with gillnet marks by statistical week. GN = the number of gillnet marked steelhead and n = the total number of steelhead handled each week.

#### 4.6 Male and Female Steelhead Run Timing

The first male steelhead passed through the fence on August 15 while the first female steelhead arrived the following day (August 16). The median migration date for males and females was September 16. The plot of daily cumulative percentage of fish arriving at the fence for both sexes reveals a similar pattern for males and females (Figure 10). Also, when time series histograms were compared, there was no significant difference in the timing of migration past the fence for males and females (Students t-test:  $t=1.7517$ ,  $p<0.05$ ).

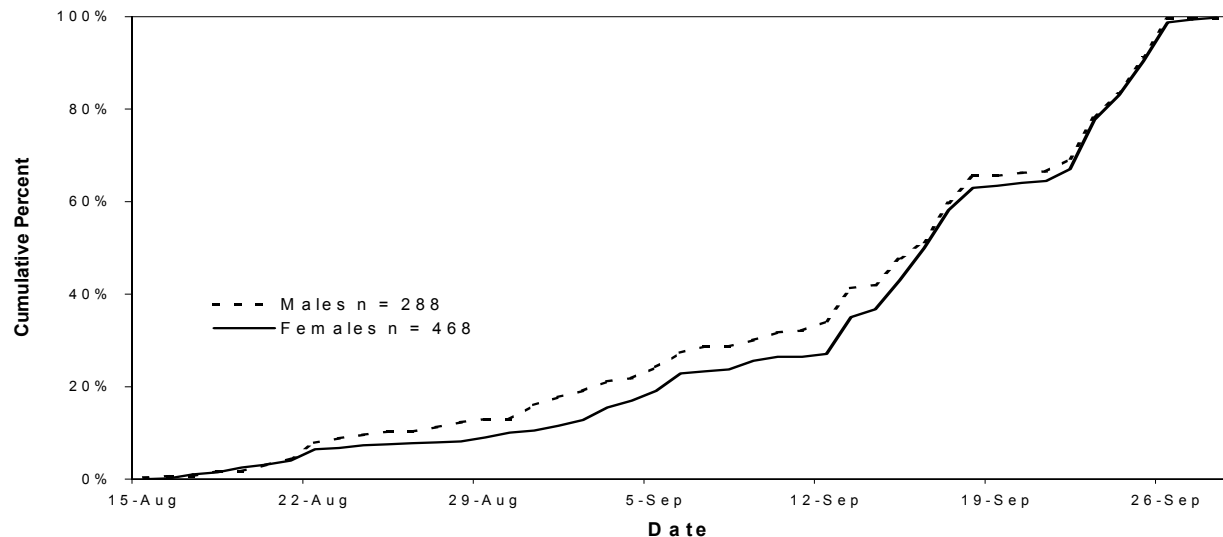


Figure 10. Daily cumulative percent of male and female steelhead.

#### 4.7 Upper Sustut River and Tye Test Fishery Indices

The 2001 upper Sustut steelhead population index and the cumulative Tye test fishery index to August 10 were added to the historical regression relationship between these two values (Figure 11). With the addition of the new data point, the regression relationship was no longer statistically significant (ANOVA:  $F=4.229$ ,  $p=.0699$ ). As a result of the increased variability in the data ( $r^2$  decreased from 0.3954 to 0.3197) the Tye index can no longer be used as a predictor of upper Sustut steelhead abundance.

#### 4.8 Steelhead Angling Selectivity

Between August 21 and September 14 a total of 16 steelhead were angled from a 1 km section of the upper Sustut River immediately downstream of the fence. One of these fish had been tagged at the fence (female, tag number 35188) on August 8 and subsequently overshot the fence remaining downstream

for the duration of the project. Ten of the angled steelhead (62.5%) were females and six (37.5%) were males (Appendix Table 8a). There was no

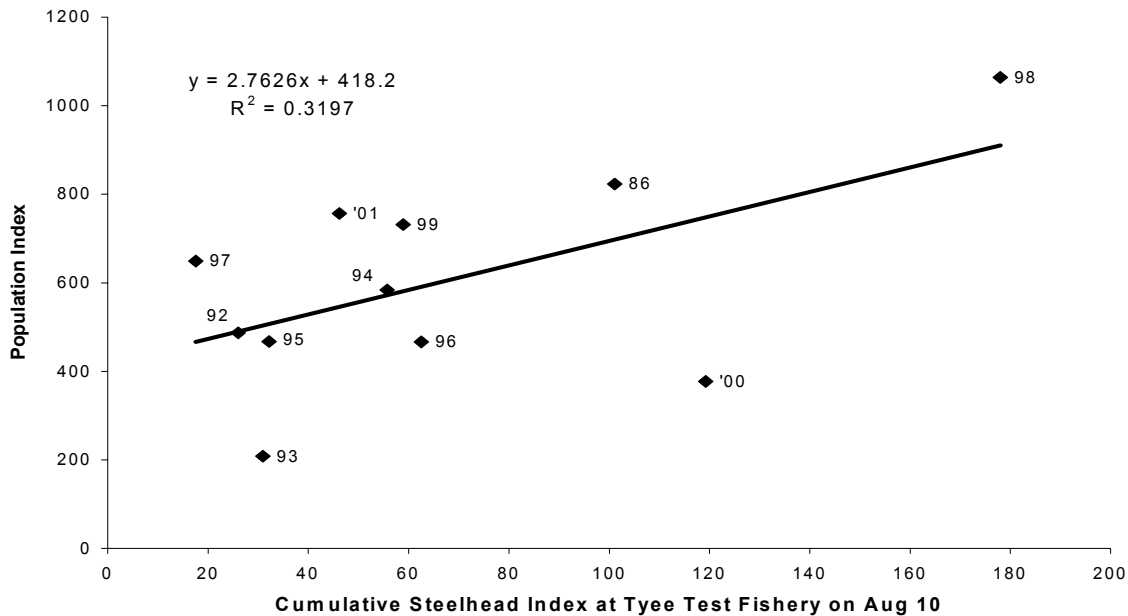


Figure 11. Linear relationship between the upper Sustut River steelhead population index and the cumulative steelhead index at the Tyee test fishery on August 10.

statistically significant difference between the sex ratio of the angled steelhead sample and the fence population (chi-square=0.0024,  $p=0.05$ ).

The nose-fork lengths of male steelhead in the angled sample ranged from 82.5 to 95.5 cm and averaged 86.8 cm. The nose-fork lengths of females in the angling sample ranged from 71.0 to 91.0 cm and averaged 78.0 cm (Appendix Table 8a). It was not possible to statistically compare the lengths of the angled sample and fence population due to the small size of the angled group.

The release condition of each angled fish was recorded after all sampling was complete. Of the 16 steelhead captured by angling, 13 (81.3%) swam away quickly on release (release condition 1), while three (18.7%) swam away slowly (release condition 2). No fish required ventilation at release.

Between September 6 and September 23 a total of 8 angled steelhead were recaptured at the fence. The recapture sample was made up of 3 males and 5 females representing 50.0 % of both angled males and females (Appendix Table 8b). Time between capture by angling and arrival at the fence ranged from 3 to 11 days for males and from 3 to 13 days for females. Average elapsed times were 7.0 days for males and 8.2 days for females (Appendix Table 8b) and were not statistically different (Students t-test:  $t=0.3757$ ,  $p<0.05$ ).

#### 4.9 Steelhead Ages

The scales collected from the Sustut River were in excellent condition. As with the sample collected from Sustut River in 2000, all the adult steelhead exhibited at least two marine annuli, and repeat spawners made up 6.1% of the sample. The most prevalent age was 4.3+ (46.9%) followed by 4.2+ (24.5%) (Appendix Table 14a). The majority of the steelhead spent four years in freshwater (86.6%), while 6.7% had a three-year freshwater age, and 6.7% had a five-year freshwater age (Appendix Table 14b).

#### 5.0 Discussion

The upper Sustut River steelhead population index for 2001 was 756 fish. This value is the second highest on record and almost 20% above the long term average (Table 1). One factor that may have influenced this result is the timing of steelhead arrival in the Skeena River. While commercial fisheries were once again extremely intense in the early portion of the fishing season the return timing of upper Sustut steelhead was later than normal. The date of 50% migration in 2001 was 9 days later than 2000 and was the second latest date on record (Table 1). One likely result of this deviation in migration timing may have been a lower than normal commercial fishery interception of the early Skeena steelhead stock complex including the upper Sustut population. With fewer fish captured incidentally in sockeye net fisheries, a greater number would successfully escape to spawning areas such as the upper Sustut River.

Favourable environmental conditions may also have impacted survival and total production. This is supported by the fact that 2001 saw the highest rate of potential repeat spawners on record (2001 = 2.5%; long term average = 1.3%) as well as the largest average nose-fork lengths for both males and females migrating past the fence (Parken *et al.* 1997; Williamson 1998, 1999a, 2000; Diewert 2000).

The mortality rate for steelhead handled at the fence in 2001 was 1.9% which was in the middle of the historical range (0 – 4.3%; Williamson 2000) but higher than those reported since 1997. 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). While these modifications were implemented again in 2001, a new aluminum trap box was installed to replace the worn out plywood structure. It is likely that this new component contributed to elevated steelhead mortalities as a higher than average number of fish exhibited head abrasions and most of the mortalities were severely fungused in the head area. This may have resulted from fish rubbing their snouts on abrasive areas of the new trap.

Reports from previous years indicated that water temperature and river height influenced steelhead movement (Siamoto 1995; Parken and Morten 1996). Results from this year's study indicated that while environmental variables may partially influence steelhead migration past the fence, these factors were not significantly correlated with fish movement.

In 2001, 61.9 % of steelhead were female and 38.1 % were male yielding a ratio of 1.63:1 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; Diewert 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 larger size and in some cases, secondary sexual characteristics, may make them more susceptible to this gear type.

A total of 12.8 % of all steelhead encountered at the fence exhibited gill net marks. This falls in the middle portion of historical values which have ranged from 2 to 23 % and averaged 11.7 % (Parken *et al.* 1997; Williamson 1998, 1999a, 2000; Diewert 2000). Female steelhead exhibited a higher gillnet mark rate than males (14.5 and 10.1 %, respectively). Further, gillnet marked males and females were significantly smaller than unmarked fish. This likely indicates that smaller fish (and therefore females) escape capture more often than larger fish due to the size selective nature of gillnets (Ricker 1975). The cumulative gillnet mark rate remained at zero to the end of August and then increased as the program progressed. This trend became more evident when the percent of gillnet marked steelhead was pooled and plotted by statistical week and may reflect the pattern of fishery openings, including in-river IFF and ESSR fisheries, which can result in different timing components of the run encountering more or fewer gillnets.

With the addition of the 2001 data point, the upper Sustut River steelhead population index was no longer significantly correlated with the cumulative Tyee test fishery index to August 10. As a result, the new data set no longer functions as a predictive relationship. This may be the result of recent adjustments made to commercial, IFF and ESSR fishing plans. Recent fisheries have been re-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 coincides 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. Also, using the August 10 date as the Tyee test fishery index value may not adequately reflect the inter annual variation in early Skeena steelhead run timing. In years when early Skeena steelhead arrive later, the

cumulative Tyee index to August 10 may not include a significant portion of the run.

The sex ratio of the 16 steelhead captured in the angling survey was not statistically different from the sex ratio of the fence population. This result suggests that angling was not selective for males or females. However, as the angled sample was very small, this result should be viewed with caution.

A total of 50 % of the steelhead captured in the angling study migrated past the fence. This result suggests that angling placed a significant stress on captured fish. While the same proportion of angled males and females migrated upstream before the fence was removed and the average elapsed time between angling capture and fence arrival was similar for both sexes, sample sizes were extremely small. A past study revealed that females took longer to reach the fence and had a lower rate of successful migration past the fence indicating that angling may be more stressful for females (Diewert 2001). Future studies should continue to monitor post-angling behavior and make every effort to minimize stress while addressing sample size and other study design issues.

## 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 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. With the addition of recent data the relationship is no longer statistically significant and therefore the cumulative Tyee test fishery index to August 10 can not be used to predict upper Sustut steelhead abundance. It is recommended that the data be re-examined to determine if additional factors (such as migration timing) could be included in the relationship to produce a new predictive model.
4. Fence modifications implemented in 1998 and described in Williamson (1999b), should continue to be utilized. It is also recommended that efforts be made to ensure that the new trap box is as fish friendly as possible by padding or smoothing off any areas of the structure that may cause abrasions to holding fish.



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. If the angling selectivity study continues, it is recommended that the size of the angled sample be increased and that sampling be carried out proportionally throughout the duration of the run based on the migration rate past the fence.

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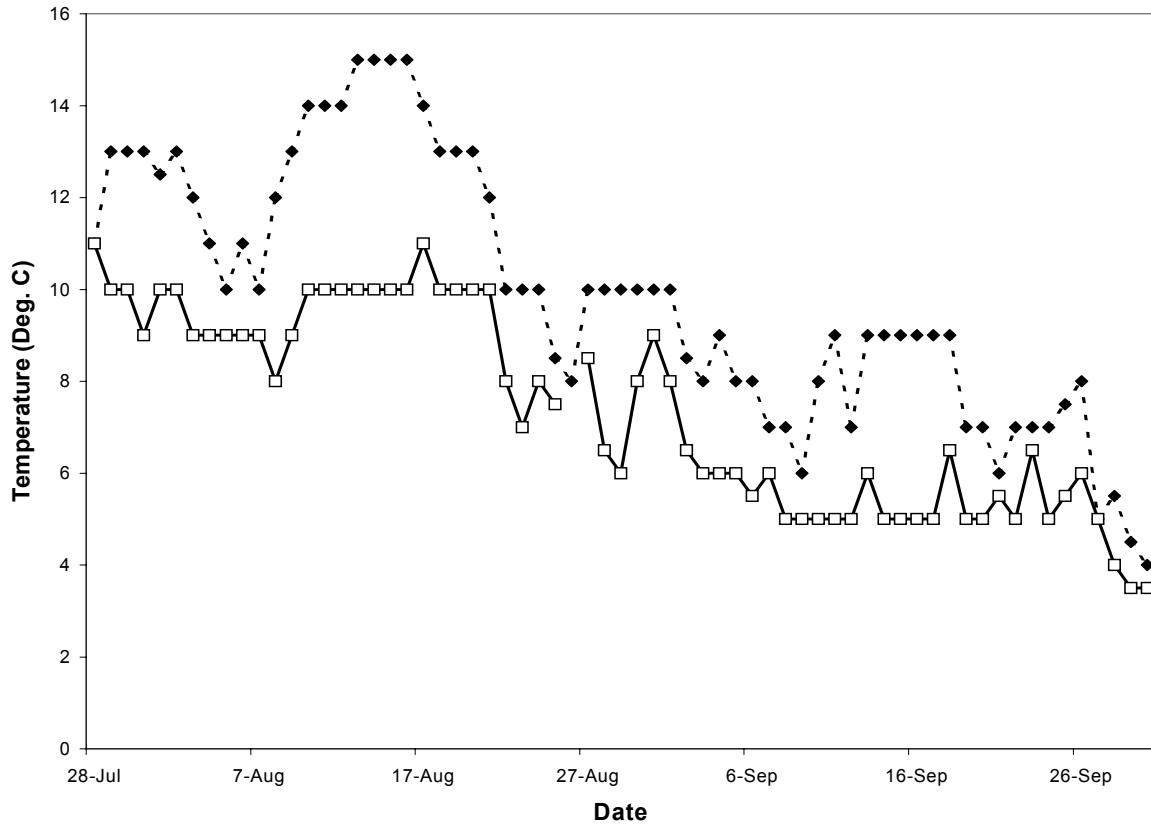
This project was funded by BC Environment's Habitat Conservation Trust Fund and was developed by personnel of BC Environment. The Habitat Conservation Trust Fund was created by an act of the legislature to preserve, restore and enhance key areas of habitat for fish and wildlife throughout British Columbia. Hunters, anglers, trappers and guides contribute to HCTF enhancement projects through license surcharges. Tax deductible donations to assist in the work of HCTF are welcome.

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## Appendix Figures



Appendix Figure 1. Daily minimum and maximum temperatures at the Sustut River fence, July 28 to September 30, 2001.

## Appendix Tables

Appendix Table 1. Steelhead handling mortalities, 2001.

Date	Tag		Date Tagged	Sex	Picture #	NF Ln (mm)	Comments
	Colour	#					
29-Aug	Yellow	35019	20-Aug	M			UC punch torn through tail; poor floy tag
29-Aug	Yellow	35040	22-Aug	F			UC punch torn through tail; poor floy tag
3-Sep				F	MB 13-14	875	wt. 6.8 kg
3-Sep	Yellow	35054	22-Aug	M		915	wt. 7.0 kg
5-Sep	Yellow	35005	17-Aug	F	R1: 1-2	840	tail deformed; severe head fungus
8-Sep	Yellow	35027	21-Aug	M	R1: 3-6	905	tail erosion; severe fungus head/tag area
9-Sep	Yellow	35066	25-Aug	F	R1: 7-10	845	severe head fungus; tail deformed
9-Sep		none		F	R1: 11-14	875	severe head fungus
10-Sep	Yellow	35196	9-Sep	F	R1: 15-17		no marks
16-Sep		lost		F	R1: 18		still on fence; released d/s
21-Sep	Yellow	35126	3-Sep	M	R2: 1-4	900	severe fungus head, adipose, dorsal
30-Sep	Yellow	35088	31-Aug	M	R2: 7-9	905	head fungus
1-Oct	Yellow	35097	1-Sep	M		920	head fungus
1-Oct	Yellow	35485	22-Sep	F		820	stranded overnight

Appendix Table 2. Daily and cumulative totals of steelhead, rainbow trout, bull trout and Rocky Mountain whitefish migrating past the Sustut River fence, 2001.

Date	Steelhead		Rainbow Trout		Bull Trout		Whitefish	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
27-Jul-01	0	0	0	0	0	0	0	0
28-Jul-01	0	0	0	0	1	1	0	0
29-Jul-01	0	0	0	0	0	1	2	2
30-Jul-01	0	0	0	0	0	1	1	3
31-Jul-01	0	0	0	0	0	1	0	3
01-Aug-01	0	0	0	0	1	2	0	3
02-Aug-01	0	0	0	0	0	2	1	4
03-Aug-01	0	0	0	0	1	3	0	4
04-Aug-01	0	0	0	0	0	3	0	4
05-Aug-01	0	0	0	0	0	3	0	4
06-Aug-01	0	0	0	0	1	4	0	4
07-Aug-01	0	0	0	0	0	4	0	4
08-Aug-01	0	0	0	0	0	4	0	4
09-Aug-01	0	0	0	0	1	5	0	4
10-Aug-01	0	0	0	0	0	5	0	4
11-Aug-01	0	0	0	0	0	5	0	4
12-Aug-01	0	0	0	0	0	5	0	4
13-Aug-01	0	0	0	0	0	5	0	4
14-Aug-01	0	0	0	0	0	5	0	4

Appendix Table 2. (Continued)

Date	Steelhead		Rainbow Trout		Bull Trout		Whitefish	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
15-Aug-01	1	1	0	0	0	5	0	4
16-Aug-01	2	3	0	0	0	5	1	5
17-Aug-01	4	7	0	0	0	5	0	5
18-Aug-01	5	12	0	0	1	6	4	9
19-Aug-01	5	17	0	0	1	7	4	13
20-Aug-01	7	24	0	0	0	7	2	15
21-Aug-01	8	32	0	0	1	8	0	15
22-Aug-01	22	54	0	0	1	9	2	17
23-Aug-01	4	58	0	0	0	9	2	19
24-Aug-01	5	63	0	0	0	9	0	19
25-Aug-01	3	66	0	0	0	9	0	19
26-Aug-01	1	67	0	0	0	9	1	20
27-Aug-01	4	71	0	0	0	9	1	21
28-Aug-01	4	75	0	0	0	9	0	21
29-Aug-01	6	81	0	0	0	9	0	21
30-Aug-01	5	86	0	0	0	9	0	21
31-Aug-01	11	97	0	0	0	9	0	21
01-Sep-01	10	107	0	0	1	10	1	22
02-Sep-01	10	117	0	0	0	10	0	22
03-Sep-01	19	136	0	0	1	11	0	22
04-Sep-01	9	145	0	0	0	11	0	22
05-Sep-01	17	162	0	0	1	12	0	22
06-Sep-01	27	189	0	0	1	13	0	22
07-Sep-01	6	195	0	0	0	13	0	22
08-Sep-01	2	197	0	0	2	15	0	22
09-Sep-01	13	210	0	0	0	15	0	22
10-Sep-01	9	219	0	0	0	15	0	22
11-Sep-01	1	220	0	0	0	15	1	23
12-Sep-01	9	229	0	0	1	16	0	23
13-Sep-01	59	288	0	0	1	17	0	23
14-Sep-01	10	298	0	0	0	17	0	23
15-Sep-01	47	345	0	0	3	20	0	23
16-Sep-01	43	388	0	0	0	20	1	24
17-Sep-01	64	452	0	0	1	21	0	24
18-Sep-01	40	492	0	0	2	23	0	24
19-Sep-01	2	494	0	0	1	24	0	24
20-Sep-01	5	499	0	0	0	24	0	24
21-Sep-01	3	502	0	0	0	24	0	24
22-Sep-01	20	522	0	0	0	24	0	24
23-Sep-01	78	600	0	0	2	26	0	24
24-Sep-01	39	639	0	0	2	28	0	24
25-Sep-01	58	697	0	0	0	28	0	24
26-Sep-01	65	762	0	0	2	30	0	24
27-Sep-01	3	765	0	0	0	30	0	24
28-Sep-01	2	767	0	0	0	30	0	24
29-Sep-01	2	769	0	0	0	30	0	24
30-Sep-01	0	769	0	0	0	30	0	24
01-Oct-01	0	769	0	0	0	30	0	24

Note: steelhead fence recaptures included.

Appendix Table 3. Daily and cumulative totals of chinook, sockeye and coho salmon migrating past the Sustut River fence, 2001.

Date	Chinook		Sockeye		Coho	
	Daily	Cum.	Daily	Cum.	Daily	Cum.
27-Jul-01	4	4	0	0	0	0
28-Jul-01	4	8	0	0	0	0
29-Jul-01	2	10	0	0	0	0
30-Jul-01	6	16	0	0	0	0
31-Jul-01	23	39	0	0	0	0
01-Aug-01	23	62	0	0	0	0
02-Aug-01	56	118	0	0	0	0
03-Aug-01	154	272	0	0	0	0
04-Aug-01	223	495	0	0	0	0
05-Aug-01	157	652	0	0	0	0
06-Aug-01	225	877	0	0	0	0
07-Aug-01	124	1001	0	0	0	0
08-Aug-01	60	1061	0	0	0	0
09-Aug-01	131	1192	2	2	0	0
10-Aug-01	114	1306	3	5	0	0
11-Aug-01	126	1432	20	25	0	0
12-Aug-01	73	1505	32	57	0	0
13-Aug-01	33	1538	26	83	0	0
14-Aug-01	35	1573	99	182	0	0
15-Aug-01	23	1596	177	359	0	0
16-Aug-01	12	1608	84	443	0	0
17-Aug-01	10	1618	173	616	0	0
18-Aug-01	5	1623	150	766	0	0
19-Aug-01	4	1627	131	897	0	0
20-Aug-01	3	1630	117	1014	0	0
21-Aug-01	2	1632	37	1051	0	0
22-Aug-01	1	1633	76	1127	0	0
23-Aug-01	0	1633	47	1174	0	0
24-Aug-01	2	1635	21	1195	0	0
25-Aug-01	1	1636	6	1201	0	0
26-Aug-01	0	1636	0	1201	0	0
27-Aug-01	0	1636	23	1224	0	0
28-Aug-01	0	1636	3	1227	0	0
29-Aug-01	0	1636	1	1228	0	0
30-Aug-01	0	1636	1	1229	0	0
31-Aug-01	1	1637	1	1230	0	0
01-Sep-01	1	1638	0	1230	0	0
02-Sep-01	0	1638	1	1231	0	0
03-Sep-01	0	1638	1	1232	0	0
04-Sep-01	0	1638	1	1233	0	0
05-Sep-01	0	1638	0	1233	0	0
06-Sep-01	0	1638	5	1238	0	0
07-Sep-01	0	1638	0	1238	0	0
08-Sep-01	0	1638	1	1239	0	0
09-Sep-01	0	1638	0	1239	0	0
10-Sep-01	0	1638	1	1240	0	0
11-Sep-01	1	1639	0	1240	0	0
12-Sep-01	0	1639	0	1240	0	0

Appendix Table 3. (Continued)

Date	Chinook		Sockeye		Coho	
	Daily	Cum.	Daily	Cum.	Daily	Cum.
13-Sep-01	0	1639	0	1240	0	0
14-Sep-01	0	1639	0	1240	0	0
15-Sep-01	0	1639	0	1240	1	1
16-Sep-01	0	1639	0	1240	0	1
17-Sep-01	0	1639	0	1240	0	1
18-Sep-01	0	1639	0	1240	0	1
19-Sep-01	0	1639	1	1241	0	1
20-Sep-01	0	1639	0	1241	0	1
21-Sep-01	0	1639	6	1247	1	2
22-Sep-01	0	1639	5	1252	1	3
23-Sep-01	0	1639	2	1254	4	7
24-Sep-01	0	1639	1	1255	2	9
25-Sep-01	0	1639	1	1256	0	9
26-Sep-01	0	1639	0	1256	0	9
27-Sep-01	0	1639	0	1256	0	9
28-Sep-01	0	1639	0	1256	0	9
29-Sep-01	0	1639	1	1257	0	9
30-Sep-01	0	1639	0	1257	0	9
01-Oct-01	0	1639	0	1257	0	9

Appendix Table 4. Daily river level, air and water temperatures and weather conditions for the upper Sustut River, 2001.

Date	Time	Water Level	Temperature ( $^{\circ}\text{C}$ )				Weather
			Water		Air		
			Max	Min	Max	Min	
24-Jul	1800	0.340					Sunny w/ cloudy periods
25-Jul	0830	0.300					Sunny w/ cloudy periods
26-Jul	0900	0.310					Warm and sunny
26-Jul	2000	0.300					
27-Jul	0830	0.295					Overcast w/ light rain
27-Jul	2000	0.320					
28-Jul	0900	0.335					Overcast & mild, thunder showers
28-Jul	2135	0.320	11.0	11.0	20.0	7.0	in the afternoon
29-Jul	0940	0.330					Fog am, clearing to sunny and
29-Jul	2030	0.305	13.0	10.0	22.0	4.0	windy
30-Jul	1045	0.290					Sunny and warm
30-Jul	2040	0.300	13.0	10.0	24.0	2.0	
31-Jul	0915	0.290					High overcast with sunny periods
31-Jul	2015	0.280	13.0	9.0	20.0	-2.0	
1-Aug	0730	0.270					High overcast
1-Aug	1955	0.270	12.5	10.0	20.0	6.0	
2-Aug	0840	0.285					Overcast & raining am; clearing
2-Aug	2040	0.290	13.0	10.0	20.0	6.5	with sunny periods pm



Appendix Table 4. (Continued)

Date	Time	Water Level	Temperature (°C)				Weather
			Water		Air		
			Max	Min	Max	Min	
3-Aug	0845	0.300					Sunny with cloudy periods
3-Aug	2045	0.285	12.0	9.0	19.0	3.0	
4-Aug	0940	0.275					Overcast and rain am; overcast
4-Aug	2050	0.270	11.0	9.0	14.0	6.0	with showers pm
5-Aug	0905	0.290					Overcast & rain am; overcast w/
5-Aug	2010	0.290	10.0	9.0	16.0	4.0	sunny periods pm
6-Aug	0930	0.285					Overcast am; sunny w/ cloudy
6-Aug	1950	0.275	11.0	9.0	17.0	5.0	periods pm
7-Aug	0955	0.270					Overcast and mild am; overcast
7-Aug	2030	0.265	10.0	9.0	18.0	7.0	w. sunny periods pm
8-Aug	0905	0.255					Sunny and clear
8-Aug	2030	0.240	12.0	8.0	24.0	-2.0	
9-Aug	0850	0.240					Sunny and clear
9-Aug	2010	0.230	13.0	9.0	28.0	-1.0	Very hazy; smoky
10-Aug	0930	0.225					Sunshine; clear skies
10-Aug	1900	0.220	14.0	10.0	28.0	0.0	Smoky
11-Aug	1000	0.220					Sunny with cloudy periods
11-Aug	2000	0.205	14.0	10.0	26.0	-2.0	
12-Aug	0930	0.195					Sunny; clear skies; clouding over
12-Aug	2025	0.200	14.0	10.0	30.0	-1.0	in the afternoon
13-Aug	1030	0.200					Sunny and hot
13-Aug	1945	0.195	15.0	10.0	29.0	0.0	
14-Aug	0830	0.195					Sunny and clear
14-Aug	2030	0.190	15.0	10.0	33.0	0.0	
15-Aug	0830	0.190					Sunny and clear
15-Aug	2030	0.185	15.0	10.0	29.0	-2.0	
16-Aug	0830	0.180					Sunshine; clear skies
16-Aug	1840	0.175	15.0	10.0	29.0	-2.0	
17-Aug	0830	0.170					Cloudy and mild
17-Aug	1940	0.170	14.0	11.0	22.0	10.0	Cloudy with sunny periods
18-Aug	0900	0.170					Cloudy with sunny periods
18-Aug	1940	0.165	13.0	10.0	18.0	2.0	Cloudy with showers
19-Aug	0930	0.165					Overcast/showers
19-Aug	1845	0.160	13.0	10.0	20.0	4.0	
20-Aug	0930	0.160					Cloudy with sunny periods
20-Aug	1900	0.160	13.0	10.0	15.0	5.0	
21-Aug	0800	0.160					Overcast with light rain
21-Aug	2010	0.165	12.0	10.0	14.0	5.0	Rain in pm
22-Aug	0900	0.230					Overcast and rain
22-Aug	1930	0.290	10.0	8.0	16.0	5.0	Thunder, lightning and rain
23-Aug	0830	0.335					Fog, mist, cloudy with sunny
23-Aug	1950	0.300	10.0	7.0	15.0	-1.0	periods, strong wind
24-Aug	0915	0.310					Rain showers, clearing late
24-Aug	1940	0.300	10.0	8.0	16.0	3.0	evening
25-Aug	0830	0.290					Fog, showers, windy in am;
25-Aug	1755	0.290	8.5	7.5	18.0	3.0	clearing with high cloud, calm
26-Aug	0730	0.300					Rain showers
26-Aug	1900	0.320	8.0		14.0	7.5	Rain

Appendix Table 4. (Continued)

Date	Time	Water Level	Temperature (°C)				Weather
			Water		Air		
			Max	Min	Max	Min	
27-Aug	0930	0.380					Showers in am; warm, clear and cooling in pm
27-Aug	1830	0.380	10.0	8.5	19.5	3.0	Cloudy with sunny periods
28-Aug	0730	0.350					Mostly sunny
28-Aug	1920	0.330	10.0	6.5	19.0	-3.0	Sunny in am; sunny with clouds in the afternoon
29-Aug	0730	0.320					Sunny, clear
29-Aug	2015	0.310	10.0	6.0	20.0	-3.5	Overcast with rain
30-Aug	0730	0.270					Showers; fog clearing in pm
30-Aug	2030	0.270	10.0	8.0	19.0	-0.5	Cloudy with showers all day
31-Aug	0730	0.270					Cloudy with showers and sun
31-Aug	2000	0.270	10.0	9.0	17.5	-0.5	Rain in pm; cool
1-Sep	0700	0.260					Cloudy and cool, light showers
1-Sep	2015	0.260	10.0	8.0	12.0	3.0	Cloudy with sunny periods
2-Sep	0710	0.260					Overcast, cool with light rain
2-Sep	1800	0.260	8.5	6.5	10.0	2.0	Cloudy and cool am; sunny periods pm
3-Sep	0800	0.280					Clear with frost am; clouding over in pm
3-Sep	2010	0.290	8.0	6.0	10.0	2.0	Cloudy with sunny periods
4-Sep	0930	0.290					Overcast, cool with light rain
4-Sep	1930	0.280	9.0	6.0	13.5	3.0	Cloudy and cool am; sunny periods pm
5-Sep	0930	0.260					Clear with frost am; clouding over in pm
5-Sep	1950	0.255	8.0	6.0	8.0	0.0	Cloudy with sunny periods
6-Sep	0830	0.245					Cloudy with sunny periods
6-Sep	1930	0.245	8.0	5.5	13.0	2.0	Cloudy with sunny periods
7-Sep	0800	0.230					Cloudy with sunny periods
7-Sep	1950	0.225	7.0	6.0	11.0	-4.0	Cloudy with sunny periods
8-Sep	0830	0.215					Cloudy with sunny periods
8-Sep	1950	0.205	7.0	5.0	12.0	3.5	Cloudy with sunny periods
9-Sep	0800	0.200					Sunny and clear
9-Sep	2000	0.190	6.0	5.0	12.0	-4.0	Cloudy with sunny periods
10-Sep	0700	0.180					Cloudy with sunny periods
10-Sep	2000	0.180	8.0	5.0	14.0	-2.0	Cloudy with sunny periods
11-Sep	0715	0.180					Clear in am
11-Sep	1910	0.170	9.0	5.0	12.5	-4.0	Cloudy in pm
12-Sep	0925	0.160					Overcast
12-Sep	1920	0.155	7.0	5.0	11.5	0.0	Overcast
13-Sep	0830	0.150					Sunny and clear
13-Sep	2030	0.150	9.0	6.0	21.0	0.0	Sunny and clear
14-Sep	0800	0.145					Sunny and clear
14-Sep	1945	0.135	9.0	5.0	27.5	-5.0	Sunny and clear
15-Sep	0830	0.130					Sunny and clear
15-Sep	1900	0.130	9.0	5.0	28.0	-5.0	Sunny and clear
16-Sep	0730	0.125					Sunny and clear
16-Sep	1930	0.125	9.0	5.0	28.5	-5.0	Sunny and clear
17-Sep	0800	0.120					Clear in am
17-Sep	1920	0.120	9.0	5.0	20.0	-4.0	Cloudy in pm
18-Sep	0830	0.120					Overcast and showers
18-Sep	1910	0.135	9.0	6.5	10.0	2.0	Overcast and showers
19-Sep	0730	0.130					Cloudy with showers
19-Sep	1900	0.130	7.0	5.0	14.0	0.0	Cloudy with showers

Appendix Table 4. (Continued)

Date	Time	Water Level	Temperature ( $^{\circ}\text{C}$ )				Weather
			Water		Air		
			Max	Min	Max	Min	
20-Sep	0800	0.130					Cloudy with sunny periods
20-Sep	1915	0.125	7.0	5.0	12.5	-1.0	
21-Sep	0930	0.120					Overcast and showers
21-Sep	1900	0.120	6.0	5.5	9.0	2.0	
22-Sep	0730	0.130					Overcast and rain
22-Sep	1930	0.150	7.0	5.0	11.0	5.0	
23-Sep	0800	0.170					Overcast and rain
23-Sep	1830	0.265	7.0	6.5	13.0	5.0	
24-Sep	0715	0.290					Overcast am
24-Sep	1915	0.280	7.0	5.0	8.0	-2.0	Light rain pm
25-Sep	0830	0.295					Overcast and mild; a few
25-Sep	1845	0.280	7.5	5.5	15.0	4.0	showers
26-Sep	0900	0.270					Overcast and showers
26-Sep	1845	0.275	8.0	6.0	8.0	4.0	
27-Sep	0830	0.255					Cloudy with sunny periods
27-Sep	1915	0.245	5.0	5.0	12.0	-4.0	
28-Sep	0800	0.225					Clear skies and frosty
28-Sep	1930	0.220	5.5	4.0	7.5	-5.5	
29-Sep	0800	0.210					Overcast and snow
29-Sep	1900	0.215	4.5	3.5	8.0	-3.0	Overcast and showers
30-Sep	0800	0.200					Overcast with snow flurries
30-Sep	1830	0.195	4.0	3.5	8.0	1.0	

Appendix Table 5. Statistical week definitions for 2001.

Statistical Week	Calendar Week
7-5	July 29 to August 4
8-1	August 5 to 11
8-2	August 12 to 18
8-3	August 19 to 25
8-4	August 26 to September 1
9-1	September 2 to 8
9-2	September 9 to 15
9-3	September 16 to 22
9-4	September 23 to 29

Appendix Table 6. Steelhead tagging and sampling data from the Sustut River Fence, 2001.

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
15-Aug	1850	M	900	Yellow	35002		N	clean / no marks
16-Aug	1510	F	835	Yellow	35006	001	N	old scar right side
16-Aug	1520	M	940	Yellow	35011	002	N	clean / no marks
17-Aug	1640	F	800	Yellow	35003		N	clean / no marks
17-Aug	1640	F	825	Yellow	35004	003	N	clean / no marks
17-Aug	1640	F	845	Yellow	35005	004	N	deformed tail
17-Aug	1920	F	815	Yellow	35007	005	N	
18-Aug	0915	F		Yellow			N	escaped before tagging
18-Aug	1400	M	880	Yellow	35008		N	deformed tail
18-Aug	1730	M	895	Yellow	35009	006	N	clean / no marks
18-Aug	1730	F		Yellow			N	escaped before tagging
18-Aug	1740	M	830	Yellow	35012		N	clean / no marks
19-Aug	0945	F	815	Yellow	35013	007	N	clean / no marks
19-Aug	0945	F	770	Yellow	35014		N	old scar right side
19-Aug	1430	F	845	Yellow	35015	008	N	clean / no marks
19-Aug	1820	F	870	Yellow	35016		N	old scar both sides
19-Aug	1820	F	835	Yellow	35017		N	clean / no marks
20-Aug	0950	M	965	Yellow	35018		N	split tail
20-Aug	0950	M	900	Yellow	35019		N	scars left side
20-Aug	1545	F	755	Yellow	35020		N	scars left side
20-Aug	1840	M	825	Yellow	35021	009	N	clean / no marks
20-Aug	1840	M	970	Yellow	35022		N	clean / no marks
20-Aug	1845	F	695	Yellow	35023		N	scars both sides
20-Aug	1845	F	695	Yellow	35024		N	old scars both sides
21-Aug	1000	F	840	Yellow	35026	010	N	clean / no marks
21-Aug	1000	M	900	Yellow	35027		N	clean / no marks
21-Aug	1000	M	845	Yellow	35028		N	old scar left side
21-Aug	1000	F	840	Yellow	35029		N	old scar left side
21-Aug	1000	F	815	Yellow	35030		N	old scar left side
21-Aug	1810	M	920	Yellow	35031		N	old scars both sides
21-Aug	1810	F	750	Yellow	35032		N	bright / clean
21-Aug	2000	M	780	Yellow	35033	011	N	clean / no marks
22-Aug	0930	M	870	Yellow	35034	012	N	abrasion left maxillary
22-Aug	0930	F	735	Yellow	35035		N	old scar left side
22-Aug	1400	M	940	Yellow	35036		N	clean / no marks
22-Aug	1400	F	815	Yellow	35037		N	old scars both sides
22-Aug	1400	M	985	Yellow	35038		N	a few old scars
22-Aug	1400	M	920	Yellow	35039		N	fresh abrasion left operc.
22-Aug	1400	F	860	Yellow	35040		N	scar left side
22-Aug	1830	M	945	Yellow	35041	013	N	clean / no marks
22-Aug	1830	F	820	Yellow	35043		N	scars both sides
22-Aug	1830	F	815	Yellow	35042		N	clean / no marks
22-Aug	1830	F	750	Yellow	35044		N	old scars both sides
22-Aug	1830	F	715	Yellow	35045		N	clean / no marks
22-Aug	1830	M	795	Yellow	35046		N	clean / no marks
22-Aug	1830	F	800	Yellow	35047		N	scars right side
22-Aug	1830	M	890	Yellow	35048		N	scars left side
22-Aug	1830	F	680	Yellow	35049		N	clean / no marks

Appendix Table 6. (Continued)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
22-Aug	1830	M	880	Yellow	35050		N	clean / no marks
22-Aug	1830	M	900	Yellow	35051		N	scars both sides
22-Aug	1830	F	755	Yellow	35052		N	clean / no marks
22-Aug	1830	F	730	Yellow	35053		N	clean / no marks
22-Aug	1830	M	905	Yellow	35054		N	clean / no marks
22-Aug	1830	F	810	Yellow	35055		N	marks on nose from pen
23-Aug	1045	F	780	Yellow	35056	014	N	old scars both sides
23-Aug	1730	M	820	Yellow	35057	015	N	bad divot left side
23-Aug	1940	M	900	Yellow	35058	016	N	clean / no marks
23-Aug	1940	M	805	Yellow	35059		N	clean / no marks
24-Aug	1100	M	875	Yellow	35060	017	N	old scar right side
24-Aug	1700	F	780	Yellow	35061	018	N	old scar left side
24-Aug	1700	M	885	Yellow	35062	019	N	scars both sides
24-Aug	1700	F	790	Yellow	35063	020	N	scar left side
24-Aug	1700	F	795	Yellow	35064	021	N	clean / no marks
25-Aug	1700	F	815	Yellow	35065	022	N	clean / no marks
25-Aug	1700	M	850	Yellow	35066	023	N	old caudal scar / new head scar
25-Aug	1700	M	920	Yellow	35067	024	N	clean / no marks
26-Aug	1900	F	740	Yellow	35068	025	N	minor seal scars both sides
27-Aug	1120	M	865	Yellow	35034		N	RECAPTURE
27-Aug	1805	M	795	Yellow	35069	026	N	clean / no marks
27-Aug	1805	M	955	Yellow	35070	027	N	split caudal / dorsal rub
27-Aug	1805	M	900	Yellow	35071	028	N	clean / no marks
27-Aug	1805	F	725	Yellow	35072		N	old pred. scar
28-Aug	1135	M	940	Yellow	35073		N	split dorsal & caud. / old pred scar
28-Aug	1135	M	900	Yellow	35074	029	N	clean / no marks
28-Aug	1920	M					N	stressed; passed u/s; clean
28-Aug	1920	F					N	stressed; passed u/s; clean
29-Aug	1005	M	885	Yellow	35075		N	some fungus; pelvic scar
29-Aug	1005	F	725	Yellow	35076		N	minor head wound; seal scar
29-Aug	1955	M	900	White	07869	031	Y	RECAPTURE
29-Aug	2000	F	810	Yellow	35077		N	some scale loss
29-Aug	2002	F	710	Yellow	35078		N	split dorsal
29-Aug	2008	F	760	Yellow	35079		N	old pred scar; caudal rub
30-Aug	0730	F	640	Yellow	35080		N	old pred. scar
30-Aug	0730	F	760	Yellow	35081		N	minor head abrasion
30-Aug	1125	F	760	Yellow	35087		N	minor head wound
30-Aug	1620	F	715	Yellow	35082	032	N	pred scars
30-Aug	1825	F	735	Yellow	35083	033	N	upper caudal missing
31-Aug	1135	M	895	Yellow	35084	034	N	split dorsal and caudal
31-Aug	1135	M	820	Green	16763		Y	RECAPTURE
31-Aug	2000	M	890	Yellow	35086		N	old pred. scar
31-Aug	2000	M	835	Yellow	35085		N	clean / no marks
31-Aug	2000	M					N	stressed; passed u/s; clean
31-Aug	2000	F	740	Yellow	35053		N	caud. abrasion; adipose fungus
31-Aug	2000	M	905	Yellow	35088		N	small dorsal abrasion

Appendix Table 6. (Continued)

Date	Time	Sex	NF Lngth (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
31-Aug	2000	M	940	Yellow	35089		N	clean / no marks
31-Aug	2000	M					N	stressed; passed u/s; clean
31-Aug	2000	F	855	Yellow	35090		N	minor head abrasion
31-Aug	2000	M	885	Yellow	35091		N	minor head abrasion
1-Sep	1240	M	930	Yellow	35092	035	N	clean / no marks
1-Sep	1240	F	855	Yellow	35093		N	released d/s; split caud; abrasions
1-Sep	1555	F	710	Yellow	35094		N	head wound with fungus
1-Sep	1555	M	875	Yellow	35095		N	adipose torn; head wound
1-Sep	1945	F	740	Yellow	35096		N	minor head abrasion
1-Sep	1945	M	920	Yellow	35097		N	clean / no marks
1-Sep	1945	F	730	Yellow	35098		N	minor head abrasion
1-Sep	1945	M	890	Yellow	35099		N	clean / no marks
1-Sep	1945	M	965	Yellow	35101		N	minor head abrasion
1-Sep	1945	F	810	Yellow	35102	036	N	minor head abrasion
2-Sep	1730	M	820	Yellow	35103	037	N	caudal abrasion
2-Sep	1730	F	725	Yellow	35104	038	N	operc. abrasion
2-Sep	1730	F	780	Yellow	35105	039	N	minor head abrasion
2-Sep	1730	F	850	Yellow	35106	040	N	dorsal abrasion
2-Sep	1730	M	895	Yellow	35107	041	N	torn l. operc; minor head abr.
2-Sep	1730	F	725	Yellow	35108	042	N	split dorsal; head abrasion
2-Sep	1730	M	910	Yellow	35109	043	N	clean / no marks
2-Sep	1730	M	925	Yellow	35110	044	N	nose abrasion
2-Sep	1730	F	780	Yellow	35111	045	N	clean / no marks
2-Sep	1730	F	820	Yellow	35112	046	N	split dor; minor head and dor. abrs.
3-Sep	1636	F	755	Yellow	35113		N	dorsal rub
3-Sep	1636	F	670	Yellow	35114		Y	
3-Sep	1636	F	760	Yellow	35115		N	pred scars both sides
3-Sep	1636	F	830	Yellow	35116		N	peduncle scar
3-Sep	1636	F	725	Yellow	35117		N	clean / no marks
3-Sep	1636	M	825	Yellow	35118		Y	left pectoral fin tears
3-Sep	1636	F	870	Yellow	35119		N	hook scar; up. caud clip; dor. rub
3-Sep	1636	F	830	Yellow	35120		N	old pred scar; minor head abr.
3-Sep	1636	F	780	Yellow	35121		Y	
3-Sep	1636	F	820	Yellow	35122		N	old pred scar; missing part r. pec.
3-Sep	1636	F	835	Yellow	35123		N	split dorsal and pectoral
3-Sep	1636	F	735	Yellow	35124		N	pred scar; head wound
3-Sep	1636	M	885	Yellow	35125		N	left operc. scar
3-Sep	1636	M	905	Yellow	35126		N	clean / no marks
3-Sep	1636	M	900	Yellow	35127		N	minor head abrasion
3-Sep	1636	F	725	Yellow	35128		Y	split caud; part of adipose missing
3-Sep	1636	M	810	Yellow	35129		Y	old head wounds
3-Sep	1636	M	775	Yellow	35130		Y	top of tail missing
3-Sep	1636	F	715	Yellow	35131		N	pred scars

Appendix Table 6. (Continued)

Date	Time	Sex	NF Lngth (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
4-Sep	1250	F	825	Yellow	35132	047	N	clean / no marks
4-Sep	1645	F	845	Yellow	35133	048	Y	clean / no marks
4-Sep	1645	F	640	Yellow	35134	049	N	pred scars left side
4-Sep	1645	F	670	Yellow	35135	050	N	clean / no marks
4-Sep	1645	F	845	Yellow	35136		N	clean / no marks
4-Sep	1645	F	740	Yellow	35137		N	pred scars left side
4-Sep	1645	F	830	Yellow	35138		N	scars on left operc.
4-Sep	1645	M	880	Yellow	35139		N	scars left side; nose abrasion
4-Sep	1645	M	910	Yellow	35140		Y	scars left side
5-Sep	1230	F	725	Yellow	35141		Y	fresh head abr; pred scar L. side
5-Sep	1230	F	810	Yellow	35030		N	RECAPTURE
5-Sep	1710	M	820	Yellow	35142	051	N	clean / no marks
5-Sep	1710	F	730	Yellow	35143	052	N	clean / no marks
5-Sep	1710	F	725	Yellow	35144	053	N	pred scar left side
5-Sep	1710	M	950	Yellow	35145	054	N	clean / no marks
5-Sep	1710	M	780	Yellow	35146	055	N	clean / no marks
5-Sep	1710	M	940	Yellow	35147	056	N	clean / no marks
5-Sep	1710	F	860	Yellow	35148		N	pred scar r. side; pen abrasion
5-Sep	1710	M	930	Yellow	35149		N	scar r. side; deformed tail
5-Sep	1710	F	750	Yellow	35150		N	scar right side
5-Sep	1710	M	835	Yellow	35151	057	N	clean / no marks
5-Sep	1710	F	735	Yellow	35152	058	N	clean / no marks
5-Sep	1710	F	855	Yellow	35153		N	clean / no marks
5-Sep	1710	F	750	Yellow	35154		N	pred scar left side
5-Sep	1710	M	895	Yellow	35155		N	fresh pen abrasion - nose
5-Sep	1710	F						jumped out of tray; rel untagged
6-Sep	1730	M	800	Yellow	35156	059	N	old scars left side
6-Sep	1730	F	745	Yellow	35157	060	N	old scars both sides
6-Sep	1730	F	825	Yellow	35158	061	N	clean / no marks
6-Sep	1730	F	845	Yellow	35159	062	N	scar left side
6-Sep	1730	M	940	Yellow	35160	063	N	very heavy; large girth; clean
6-Sep	1730	M	1030	Yellow	35161	064	N	scar l. side; possibly 30 lb.
6-Sep	1730	F	840	Yellow	35162		N	head abrasion (pen)
6-Sep	1730	F	860	Yellow	35163		N	clean / no marks
6-Sep	1730	M	960	Yellow	35164		N	clean / no marks
6-Sep	1730	F	755	Yellow	35165		N	clean / no marks
6-Sep	1730	F	815	Yellow	35166		N	head abrasions; split tail
6-Sep	1730	M	875	Yellow	35167		N	scar left side
6-Sep	1730	M	895	Yellow	35168		N	pen abrasion on nose
6-Sep	1730	F	735	Yellow	35169		N	clean / no marks
6-Sep	1730	M	925	Yellow	35170		N	nose scar
6-Sep	1730	F	850	Yellow	35171		N	pred scar right side
6-Sep	1730	F	850	Yellow	35172		N	large pred scar left side
6-Sep	1730	F	745	Yellow	35173		N	clean / no marks
6-Sep	1730	F	755	Yellow	35174		N	pen abrasion left side
6-Sep	1730	F	750	Yellow	35175		N	scar left side
6-Sep	1730	F	720	Yellow	35176		N	fresh head abrasion

Appendix Table 6. (Continued)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
6-Sep	1730	F	835	Yellow	35177		N	split caudal; old scar right side
6-Sep	1730	M	880	Yellow	35178		N	clean / no marks
6-Sep	1730	F	690	Yellow	35179		N	nose abrasion; scar left side
6-Sep	1730	F	730	White	15507		N	RECAPTURE
6-Sep	1730	M	825	Yellow	35180		N	clean / no marks
6-Sep	1730	F	750	Yellow	35181		Y	scar right side; split tail
7-Sep	0930	M	800	Yellow	35182	065	N	small nose scar
7-Sep	0930	F	670	Yellow	35183	066	N	parasites; scar l.s.; nose abrasion
7-Sep	1730	M	930	Yellow	35184	067	N	left maxillary abrasion
7-Sep	1730	M	900	Yellow	35185	068	N	clean / no marks
7-Sep	1730	M	915	Yellow	35186	069	N	fresh nose abrasion
7-Sep	1730	F	685	Yellow	35187	070	N	scar l. side; very slender
8-Sep	0910	F	750	Yellow	35188	071	N	small scar left operc.
8-Sep	1945	F	875	Yellow	35189	072	N	abrasion both operc; scar l.s.
9-Sep	0920	F	845	Yellow	35190	073	N	pred scar left side
9-Sep	0920	F	710	Yellow	35191	074	N	small head abrasion
9-Sep	0920	F	785	Yellow	35192	075	N	scar left side
9-Sep	0920	M	930	Yellow	35193		N	clean / no marks
9-Sep	0920	M		Yellow	35194		N	no length taken
9-Sep	1720	F	865	Yellow	35195	076	N	pred scar left side; adipose abrasion
9-Sep	1720	F	780	Yellow	35196	077	N	clean / no marks
9-Sep	1720	M	900	Yellow	35197	078	N	pred scar r.s.; split dorsal
9-Sep	1720	F	725	Yellow	35198	079	N	clean / no marks
9-Sep	1720	F	680	Yellow	35199		N	small head abrasion
9-Sep	1720	F	835	Yellow	35120		N	RECAPTURE
9-Sep	1720	M	800	Yellow	35200		N	clean / no marks
9-Sep	1720	F	755	Yellow	35201		N	scar left side
10-Sep	0930	M	855	Yellow	35202	080	N	clean / no marks
10-Sep	0930	M	795	Yellow	35203	081	N	clean / no marks
10-Sep	0930	F	790	Yellow	35204		N	pred scars both sides
10-Sep	1710	M	735	Yellow	35205	082	N	pred scars both sides
10-Sep	1710	M	915	Yellow	35206	083	N	large pred scar left side
10-Sep	1710	F	755	Yellow	35207	084	N	old scar right side
10-Sep	1710	M	895	Yellow	35208	085	N	pred scar right side
10-Sep	1710	F	780	Yellow	35209		N	small scars both sides
10-Sep	1710	F	775	Yellow	35210		N	split tail; dorsal and pect. eroded
11-Sep	1910	M	795	Yellow	35211		N	old scar left side
12-Sep	1115	F	830	Yellow	35212	086	N	pred scar both sides; head abrasion
12-Sep	1655	M	905	Yellow	35213	087	N	fresh nose abrasion
12-Sep	1655	F	710	Yellow	35214	088	N	scar right side
12-Sep	1655	M	800	Yellow	35215	089	N	split caudal
12-Sep	1655	M	805	Yellow	35216		N	clean / no marks
12-Sep	1655	M						hit head during netting; rel untagged



Appendix Table 6. (Continued)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
12-Sep	1910	F	810	Yellow	35218		Y	scars both sides; split l. pect.
12-Sep	1910	M	960	Yellow	35217		N	dorsal ray missing; nose abrasion
12-Sep	1910	M	890	Yellow	35219		N	split dorsal
13-Sep	1330	F	740	Yellow	35220	090	N	small head abrasion
13-Sep	1330	M	900	Yellow	35221	091	N	split dor; head abrasion; scar left side
13-Sep	1820	F	845	Yellow	35222		N	clean / no marks
13-Sep	1820	F	780	Yellow	35223		N	
13-Sep	1820	F	750	Yellow	35224		N	scars both sides
13-Sep	1820	M	900	Yellow	35225		N	torn l. operc; abrasions
13-Sep	1820	F	770	White	15512		N	RECAPTURE
13-Sep	1820	F	880	Yellow	35226		N	top of caudal missing
13-Sep	1820	F	820	Yellow	35227		N	
13-Sep	1820	M	860	Yellow	35228		N	dorsal scar
13-Sep	1820	F	760	Yellow	35229		N	split dorsal; upper caudal missing
13-Sep	1820	F	870	Yellow	35230		N	bad head abrasions
13-Sep	1820	F	880	Yellow	13487		N	RECAPTURE
13-Sep	1820	M	930	Yellow	35231		N	fresh head abrasion
13-Sep	1820	F	785	Yellow	35232		N	split dorsal
13-Sep	1820	F	830	Yellow	35233		N	fresh head abrasion
13-Sep	1820	M	915	Yellow	35234		N	split caudal
13-Sep	1820	F	770	White	15506		N	RECAPTURE
13-Sep	1820	M	755	Yellow	35235		N	clean / no marks
13-Sep	1820	M	845	Yellow	35236		N	scar right side
13-Sep	1820	M	895	Yellow	35237		N	scar right operculum
13-Sep	1820	M	930	Yellow	35238		N	clean / no marks
13-Sep	1820	F	815	Yellow	35239		N	head abrasions
13-Sep	1820	F	870	Yellow	35240		N	bad scar l.s.; deformed dorsal
13-Sep	1820	M	955	White	15508		N	RECAPTURE
13-Sep	1820	M	880	Yellow	35241		N	clean / no marks
13-Sep	1820	F	745	Yellow	35242		N	split dorsal
13-Sep	1820	M	780	Yellow	35243		N	clean / no marks
13-Sep	1820	M	855	Yellow	35244		N	clean / no marks
13-Sep	1820	F	770	Yellow	35245		N	caudal erosion; nose abrasion
13-Sep	1820	F	770	Yellow	35246		N	clean / no marks
13-Sep	1820	F	780	Yellow	35247		N	scar right side
13-Sep	1820	M	845	Yellow	35248		N	clean / no marks
13-Sep	1820	F	770	Yellow	35249		N	split tail and dorsal
13-Sep	1820	F	800	Yellow	35250		N	dorsal scar
13-Sep	1820	M	940	Yellow	35251		N	pred scars both sides
13-Sep	1820	F	770	Yellow	35252		Y	clean / no marks
13-Sep	1820	F	785	Yellow	35253		N	scar left side
13-Sep	1820	F	710	Yellow	35254		N	head abrasions
13-Sep	1820	F	815	Yellow	35255		N	lower jaw abrasion
13-Sep	1820	F	795	Yellow	35256		N	head abrasions
13-Sep	1820	F	830	Yellow	35257		N	clean / no marks
13-Sep	1820	M	915	Yellow	35258		N	clean / no marks

Appendix Table 6. (Continued)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
13-Sep	1820	F	770	Yellow	35259		N	3 dorsal rays missing; split caudal
13-Sep	1820	M	970	Yellow	35260		N	nose abrasion
13-Sep	1820	M	795	Yellow	35261		N	clean / no marks
13-Sep	1820	F	760	Yellow	35262		N	clean / no marks
13-Sep	1820	F	845	Yellow	35263		N	head abrasions
13-Sep	1820	F	760	Yellow	35264		N	clean / no marks
13-Sep	1820	M	820	Yellow	35265		N	clean / no marks
13-Sep	1820	M	775	Yellow	35266		N	
13-Sep	1820	F	720	Yellow	35267		N	
13-Sep	1820	F	855	Yellow	35268		N	head abrasions
13-Sep	1820	F	730	Yellow	35269		N	
13-Sep	1820	F	825	Yellow	35270		N	abrasions on back
13-Sep	1820	F	740	Yellow	35271		N	
13-Sep	1820	F	790	Yellow	35272		N	
13-Sep	1820	F	710	Yellow	35273		N	
13-Sep	1820	M					N	jumped out of net u/s
14-Sep	1030	F	730	Yellow	35274	092	N	clean / no marks
14-Sep	1755	F	850	Yellow	35275	093	N	clean / no marks
14-Sep	1755	F	750	Yellow	35276	094	N	head abrasions
14-Sep	1755	F	915	Yellow	35277	095	N	lump and scar left side
14-Sep	1755	M	870	Yellow	35278	096	N	lower jaw abrasion; scar left side
14-Sep	1755	F	720	Yellow	35279	097	N	scar left side
14-Sep	1755	F	740	Yellow	35280		N	clean / no marks
14-Sep	1755	F	755	Yellow	35281		N	clean / no marks
14-Sep	1755	M	880	Yellow	35282		N	clean / no marks
14-Sep	1755	F	775	Yellow	35283		Y	split dorsal
15-Sep	1330	F	775	Yellow	35284	098	N	split dorsal; scar left side
15-Sep	1330	M	740	Yellow	35285	099	N	many head abrasions
15-Sep	1330	M	865	Yellow	35286	100	N	clean / no marks
15-Sep	1330	M	910	Yellow	35287	101	Y	split tail
15-Sep	1330	F	780	Yellow	35288		N	scars both sides
15-Sep	1330	F	795	Yellow	35289		N	split dorsal; scar right side
15-Sep	1330	M	790	Yellow	35290		N	scar right side
15-Sep	1330	F	690	Yellow	35291		N	clean / no marks
15-Sep	1330	M	815	Yellow	35292		N	clean / no marks
15-Sep	1330	F	830	Yellow	35293		N	deformed dorsal and caudal
15-Sep	1330	M	850	Yellow	35294		Y	split dorsal
15-Sep	1330	F	805	Yellow	35295		N	split dorsal; scar right side
15-Sep	1330	F	735	Yellow	35296		Y	scars both sides
15-Sep	1330	F	795	Yellow	35297		N	scar right side
15-Sep	1330	M	855	Yellow	35298		N	scars both sides
15-Sep	1330	F	755	Yellow	35299		Y	clean / no marks
15-Sep	1330	F					N	escaped untagged
15-Sep	1730	F	690	Yellow	35300		N	head abrasions
15-Sep	1730	M	910	Yellow	35301		N	split caudal; head abrasion
15-Sep	1730	F	680	Yellow	35302		N	clean / no marks

Appendix Table 6. (Continued)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
15-Sep	1730	F	830	Yellow	35303		N	slip and eroded caudal
15-Sep	1730	F	710	Yellow	35304		N	split dorsal
15-Sep	1730	F	730	Yellow	35305		N	clean / no marks
15-Sep	1730	F	745	Yellow	35306		N	abrasions on both operculum
15-Sep	1730	F	830	Yellow	35307		N	clean / no marks
15-Sep	1730	M	825	Yellow	35308		N	clean / no marks
15-Sep	1730	F		White	15509		Y	RECAPTURE
15-Sep	1730	F	735	Yellow	35309		N	scar left side
15-Sep	1730	M	900	Yellow	35310		N	split pectoral; scar left side
15-Sep	1730	F	815	Yellow	35311		N	clean / no marks
15-Sep	1730	F	795	Yellow	35312		N	clean / no marks
15-Sep	1730	F	790	Yellow	35313		N	clean / no marks
15-Sep	1730	F	790	Yellow	35314		N	old scar left side
15-Sep	1730	F	750	Yellow	35315		N	clean / no marks
15-Sep	1730	M	810	Yellow	35316		N	clean / no marks
15-Sep	1730	F	735	Yellow	35317		N	split dorsal
15-Sep	1730	M	820	Yellow	35318		N	clean / no marks
15-Sep	1730	M	830	Yellow	35319		N	clean / no marks
15-Sep	1730	F	870	Yellow	35320		N	split caudal
15-Sep	1730	M	740	Yellow	35321		N	clean / no marks
15-Sep	1730	M	780	Yellow	35322		Y	scar right side
15-Sep	1730	F	770	Yellow	35323		N	clean / no marks
15-Sep	1730	F	750	Yellow	35324		N	clean / no marks
15-Sep	1730	M	825	Yellow	35325		N	clean / no marks
15-Sep	1730	F	750	Yellow	35326		N	scar left side
15-Sep	1730	F	650	Yellow	35327		N	scar right side
15-Sep	1730	M	780	Yellow	35328		N	clean / no marks
16-Sep	1015	F	760	Yellow	35329		N	clean / no marks
16-Sep	1015	F	735	Yellow	35330		N	split dorsal
16-Sep	1015	M	915	Yellow	35331		N	clean / no marks
16-Sep	1015	F	750	Yellow	35332		N	clean / no marks
16-Sep	1510	F	720	Yellow	35333		N	head abrasions
16-Sep	1510	F	720	Yellow	35334		N	clean / no marks
16-Sep	1510	F	810	Yellow	35335		N	split dorsal; head abrasion
16-Sep	1510	F	865	Yellow	35336		N	split caudal; head abrasion
16-Sep	1510	M	800	Yellow	35337		N	clean / no marks
16-Sep	1510	F	720	Yellow	35338		N	head abrasions
16-Sep	1510	F	745	Yellow	35339		N	clean / no marks
16-Sep	1510	F	790	Yellow	35340		N	clean / no marks
16-Sep	1510	F	710	Yellow	35341		N	clean / no marks
16-Sep	1510	F	740	Yellow	35342		N	clean / no marks
16-Sep	1510	F	760	Yellow	35343		N	scar both sides
16-Sep	1510	F	790	Yellow	35344		N	clean / no marks
16-Sep	1510	F	715	Yellow	35345		Y	head abrasions
16-Sep	1510	M	980	Yellow	35346		N	clean / no marks
16-Sep	1510	F	800	Yellow	35347		N	clean / no marks
16-Sep	1510	F	740	Yellow	35348		N	clean / no marks
16-Sep	1510	F	850	Yellow	35349		N	clean / no marks
16-Sep	1510	F	750	Yellow	35350		N	split dorsal; head abrasion

Appendix Table 6. (Continued)

Date	Time	Sex	NF Lngth (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
16-Sep	1510	F	745	Yellow	35351		N	split r. pectoral
16-Sep	1510	F	725	Yellow	35352		N	clean / no marks
16-Sep	1510	M	885	Yellow	35353		N	clean / no marks
16-Sep	1510	F	700	Yellow	35354		Y	clean / no marks
16-Sep	1510	M					N	escaped untagged
16-Sep	1945	F	715	Yellow	35355		N	split dorsal, caudal, anal
16-Sep	1945	M	970	Yellow	35356		N	clean / no marks
16-Sep	1945	M	825	Yellow	35357		Y	clean / no marks
16-Sep	1945	F	840	Yellow	35358		N	lower caudal erosion
16-Sep	1945	F	710	Yellow	35359		N	clean / no marks
16-Sep	1945	M	920	Yellow	35360		N	scar right side
16-Sep	1945	M	810	Yellow	35361		N	clean / no marks
16-Sep	1945	F	750	Yellow	35362		N	clean / no marks
16-Sep	1945	F	780	Yellow	13054		Y	RECAPTURE
16-Sep	1945	F	805	Yellow	35363		N	scar left side
16-Sep	1945	F	735	Yellow	35364		N	clean / no marks
16-Sep	1945	F	820	Yellow	35365		N	abrasion right operc.
16-Sep	1945	F	755	Yellow	35366		N	clean / no marks
16-Sep	1945	F	795	Yellow	35367		N	scars both sides
16-Sep	1945	M	835	Yellow	35368		N	clean / no marks
16-Sep	1945	F						escaped untagged
17-Sep	1400	F	700	Yellow	35369		N	dorsal erosion
17-Sep	1400	F	770	Yellow	35370		N	clean / no marks
17-Sep	1400	F	820	Yellow	35371		N	left side scar; head abrasion
17-Sep	1400	F	825	Yellow	35372		Y	split dorsal
17-Sep	1400	M	870	Yellow	35373		N	split dorsal; scar left side
17-Sep	1400	M	765	Yellow	35374		N	nose abrasion
17-Sep	1400	M		White	15515		N	RECAPTURE
17-Sep	1400	F		Yellow	35093		N	RECAPTURE
17-Sep	1400	F	725	Yellow	35375		N	abrasions both sides
17-Sep	1400	F	735	Yellow	35376		N	head abrasions
17-Sep	1400	M	800	Yellow	35377		N	nose abrasion
17-Sep	1400	F	815	Yellow	35378		N	clean / no marks
17-Sep	1400	F	770	Yellow	35379		N	head abrasions
17-Sep	1400	F	830	Yellow	35380		N	right operc. abrasion
17-Sep	1400	F	800	Yellow	35381		N	peduncle scar
17-Sep	1400	F	755	Yellow	35382		N	scars both sides
17-Sep	1400	F	730	Yellow	35383		N	head abrasions
17-Sep	1400	F	810	Yellow	35384		N	clean / no marks
17-Sep	1400	F	835	Yellow	35385		N	head abrasions
17-Sep	1400	F	805	Yellow	35386		N	caudal abrasion; split pec. and dorsal
17-Sep	1400	F	760	Yellow	35387		N	scar left side
17-Sep	1400	M	835	Yellow	35388		N	split dorsal; abrasions
17-Sep	1400	M	860	Yellow	35389		N	eroded caudal; nose abrasion
17-Sep	1400	F	710	Yellow	35390		N	bad head abrasion
17-Sep	1400	M	790	Yellow	35391		N	clean / no marks
17-Sep	1400	M	820	Yellow	35392		N	head abrasions

Appendix Table 6. (Continued)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
17-Sep	1400	M	870	Yellow	35393		N	split dorsal; caudal bruise; head abr
17-Sep	1400	F	845	Yellow	35394		N	l. operc. abrasion; scars both sides
17-Sep	1400	F	815	Yellow	35395		N	BTS
17-Sep	1400	M	910	Yellow	35396		N	nose abrasion
17-Sep	1400	F	870	Yellow	35397		N	left side scar; head abrasion
17-Sep	1650	F	745	Yellow	35398		N	split caudal
17-Sep	1650	F	850	Yellow	35399		N	4 anal fin rays missing
17-Sep	1650	M	945	Yellow	35400		N	clean / no marks
17-Sep	1650	M	750	Yellow	35401		N	clean / no marks
17-Sep	1650	M	850	Yellow	35402		N	clean / no marks
17-Sep	1650	F	770	Yellow	35403		Y	split left pectoral and caudal
17-Sep	1650	M		Yellow	35361		N	RECAPTURE
17-Sep	1650	M		White	15513		N	RECAPTURE
17-Sep	1650	F	870	Yellow	13546		N	RECAPTURE
17-Sep	1650	F	835	Yellow	35404		N	clean / no marks
17-Sep	1650	F	760	Yellow	35405		Y	split dorsal and caud; scars
17-Sep	1650	F	800	Yellow	35406		N	clean / no marks
17-Sep	1650	M	835	Green	16656		N	RECAPTURE
17-Sep	1650	M	985	Yellow	35407		N	hole in left operculum
17-Sep	1650	F	730	Yellow	35408		N	fungus on nose
17-Sep	1650	F	760	Yellow	35409		N	left side scar; nose abrasion
17-Sep	1650	F	725	Yellow	35410		N	scar left side
17-Sep	1650	M	830	Yellow	35411		N	clean / no marks
17-Sep	1650	M	875	Yellow	35412		N	caudal bruise
17-Sep	1650	F	860	Yellow	35413		N	split caudal
17-Sep	1650	M	800	Yellow	35414		N	clean / no marks
17-Sep	1650	F	700	Yellow	35415		N	split dorsal; scar right side
17-Sep	1900	M	900	Yellow	35416		N	split dorsal and caudal
17-Sep	1900	M	875	Yellow	35417		N	split caudal
17-Sep	1900	M	880	Yellow	35418		N	split dorsal
17-Sep	1900	F	820	Yellow	35419		N	clean / no marks
17-Sep	1900	M	825	Yellow	35420		Y	split dorsal and caudal
17-Sep	1900	M	760	Yellow	35421		N	split anal fin
17-Sep	1900	F	745	Yellow	35422		Y	split anal , dorsal, caudal
17-Sep	1900	F	750	Yellow	35423		Y	bad gn mark
17-Sep	1900	F	810	Yellow	13636		N	RECAPTURE
17-Sep	1900	F	680	Yellow	35424		Y	
17-Sep	1900	F	820	Yellow	13425		N	RECAPTURE
18-Sep	1045	F	735	Yellow	35425		N	split dorsal; head abrasion
18-Sep	1045	M	1030	Yellow	35426		N	upper caudal erosion
18-Sep	1045	M	840	Yellow	35427		N	damaged dorsal; scar r.s; head abrasion
18-Sep	1045	F	740	Yellow	35428		N	damaged r. max; scar r.s; split fins
18-Sep	1045	M	810	Yellow	35429		N	clean / no marks
18-Sep	1045	F	790	Yellow	35430		N	clean / no marks

Appendix Table 6. (Continued)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
18-Sep	1045	M	850	Yellow	35431		N	clean / no marks
18-Sep	1045	M	865	Yellow	35432		N	clean / no marks
18-Sep	1045	M	895	Yellow	35433		Y	scar right side
18-Sep	1045	M	815	Yellow	35434		Y	split tail
18-Sep	1045	M	910	Yellow	35435		N	split tail
18-Sep	1045	F	690	Yellow	35436		Y	split dorsal
18-Sep	1045	F	780	Yellow	35437		Y	split dorsal and caudal
18-Sep	1045	M	770	Yellow	35438		Y	split dorsal
18-Sep	1045	F	770	Yellow	35439		Y	scar left side
18-Sep	1045	F	730	Yellow	35440		Y	serious gn scar
18-Sep	1045	M	895	Yellow	35441		N	head abrasion
18-Sep	1045	M	900	Yellow	35442		N	clean / no marks
18-Sep	1045	M	875	Yellow	35443		N	deformed dorsal
18-Sep	1730	M	870	Yellow	35444		N	split tail
18-Sep	1730	M	790	Yellow	35445		N	damaged right operc.
18-Sep	1730	F	890	Yellow	35446		N	bruise r.s.; scar l.s.; split dorsal
18-Sep	1730	F	770	Yellow	35447		N	split dorsal
18-Sep	1730	M	945	Yellow	35448		N	clean / no marks
18-Sep	1730	F	770	Yellow	35449		N	clean / no marks
18-Sep	1730	F	795	Yellow	13274		N	RECAPTURE
18-Sep	1730	F						released u/s untagged
18-Sep	1730	F	775	Yellow	35450		Y	clean / no marks
18-Sep	1730	F	725	Yellow	35451		N	clean / no marks
18-Sep	1730	F	790	Yellow	35452		N	scar left side
18-Sep	1730	F	760	Yellow	35453		N	clean / no marks
18-Sep	1730	F	725	Yellow	35454		N	scars both sides
18-Sep	1730	M		Yellow	35026		N	RECAPTURE
18-Sep	1730	M	780	Yellow	35455		N	clean / no marks
18-Sep	1730	F	760	Yellow	35456		N	clean / no marks
18-Sep	1730	F	820	Yellow	35457		Y	numerous gn scars
18-Sep	1730	F	710	Yellow	35458		N	scars both sides; head abrasions
18-Sep	1730	F	745	Yellow	35459		N	split dorsal
18-Sep	1730	F	740	Yellow	35460		N	scar left side
18-Sep	1730	F		Yellow	35212		N	RECAPTURE
19-Sep	1900	F	750	Yellow	35461		N	scar left side
19-Sep	1900	F	760	Yellow	35462		N	clean / no marks
20-Sep	1900	F	710	Yellow	35463		N	head abrasion
20-Sep	1900	F	720	Yellow	35464		Y	head abrasion
20-Sep	1900	M	805	Yellow	35465		N	tail bruise; scar left side
20-Sep	1900	F	830	Yellow	35466		N	clean / no marks
20-Sep	1900	M	800	Yellow	35467		N	clean / no marks
21-Sep	1835	F	710	Yellow	35468		N	clean / no marks
21-Sep	1835	F	800	Yellow	35469		N	scars both sides; head abrasions
21-Sep	1835	M	935	Yellow	35470		N	clean / no marks
22-Sep	1830	M	760	Yellow	35471		N	clean / no marks
22-Sep	1830	M	930	Yellow	35472		N	right side scar; head abrasion
22-Sep	1830	M	835	Yellow	35473		Y	clean / no marks

Appendix Table 6. (Continued)

Date	Time	Sex	NF Lngth (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
22-Sep	1830	F	725	Yellow	35474		Y	head abrasion
22-Sep	1830	F	765	Yellow	35475		N	scar right side
22-Sep	1830	M	920	Yellow	35476		N	minor head abrasion
22-Sep	1830	F	815	Yellow	13221		Y	RECAPTURE
22-Sep	1830	M	895	Yellow	35477		N	clean / no marks
22-Sep	1830	F	780	Yellow	35478		Y	split anal fin
22-Sep	1830	M	810	Yellow	35479		N	clean / no marks
22-Sep	1830	F	820	Yellow	35480		N	split anal fin
22-Sep	1830	F	725	Yellow	35481		N	clean / no marks
22-Sep	1830	M	955	Yellow	35482		N	split anal and caudal fin
22-Sep	1830	M	875	Yellow	35483		N	clean / no marks
22-Sep	1830	F	805	Yellow	35484		N	bad pred scar left side
22-Sep	1830	F	820	Yellow	35485		N	deformed caudal; head abrasions
22-Sep	1830	F	745	Yellow	35486		N	head abrasion
22-Sep	1830	F	785	Yellow	35487		N	clean / no marks
22-Sep	1830	F	795	Yellow	35488		N	deformed tail; scar left side
22-Sep	1830	F						escaped u/s untagged
23-Sep	1430	F	765	Yellow	35489		N	clean / no marks
23-Sep	1430	M	840	Yellow	35490		N	clean / no marks
23-Sep	1430	F	695	Yellow	35491		N	deformed caudal; damaged dorsal
23-Sep	1430	F	770	Yellow	35492		N	
23-Sep	1430	M	780	Yellow	35493		Y	bad scar left side; split dorsal
23-Sep	1430	F	725	Yellow	35494		N	clean / no marks
23-Sep	1430	F	825	Yellow	35495		Y	
23-Sep	1430	F	690	Yellow	35496		N	clean / no marks
23-Sep	1430	F	750	Yellow	35497		N	clean / no marks
23-Sep	1430	F	825	Yellow	35498		N	
23-Sep	1430	F	735	Yellow	35499		N	deformed caudal
23-Sep	1430	F	730	Yellow	35500		N	clean / no marks
23-Sep	1430	M	765	Yellow	13355		N	RECAPTURE
23-Sep	1430	F	765	Yellow	35501		N	old head scar
23-Sep	1430	F	725	Yellow	35502		Y	scar right side
23-Sep	1430	F	740	Yellow	35503		N	clean / no marks
23-Sep	1430	F	825	Yellow	35504		N	clean / no marks
23-Sep	1430	M	835	Yellow	35505		N	right side scar; head abrasion
23-Sep	1430	F	780	Yellow	35506		Y	
23-Sep	1430	F	880	Yellow	35507		N	split dorsal; nose abrasion
23-Sep	1430	M	845	Yellow	35508		N	clean / no marks
23-Sep	1430	M	790	Yellow	35509		N	split caudal and dorsal
23-Sep	1430	F	830	Yellow	35510		N	split dorsal
23-Sep	1430	F		Yellow	35254		N	RECAPTURE
23-Sep	1430	F	745	Yellow	35511		N	split r. pectoral and dorsal
23-Sep	1430	F	850	Yellow	35512		N	scar right side
23-Sep	1430	F		White	15514		N	RECAPTURE
23-Sep	1430	F	765	Yellow	35513		Y	split tail and dorsal
23-Sep	1430	F	770	Yellow	35514		N	clean / no marks
23-Sep	1430	F	850	Yellow	35515		N	clean / no marks

Appendix Table 6. (Continued)

Date	Time	Sex	NF Lngth (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
23-Sep	1430	M	810	Yellow	35516		N	clean / no marks
23-Sep	1430	M	890	Yellow	35517		N	clean / no marks
23-Sep	1430	M	900	Yellow	35518		N	r. operc. tear; split dorsal
23-Sep	1430	M	845	Yellow	35519		N	clean / no marks
23-Sep	1430	F	825	Yellow	35520		N	scar right side
23-Sep	1430	M	870	Yellow	35521		N	split dorsal; scar right side
23-Sep	1430	M	850	Yellow	35522		N	clean / no marks
23-Sep	1430	F	715	Yellow	35523		N	split dorsal
23-Sep	1430	M	800	Yellow	35524		N	deformed tail
23-Sep	1430	F	680	Yellow	35525		Y	
23-Sep	1430	M	910	Green	16747		Y	RECAPTURE
23-Sep	1430	F	720	Yellow	35526		Y	scar right side
23-Sep	1430	F	850	Yellow	35527		N	clean / no marks
23-Sep	1430	F	710	Yellow	35528		Y	lower caudal erosion
23-Sep	1430	F	705	Yellow	35529		N	clean / no marks
23-Sep	1430	M	790	Yellow	35530		N	split dorsal
23-Sep	1430	M	890	Yellow	35531		Y	split dorsal and caudal
23-Sep	1430	M	805	Yellow	35532		N	clean / no marks
23-Sep	1430	F	840	Yellow	35533		N	clean / no marks
23-Sep	1430	M	860	Yellow	35534		Y	scar left side
23-Sep	1430	F	805	Yellow	35535		N	clean / no marks
23-Sep	1430	M	800	Yellow	35536		N	clean / no marks
23-Sep	1430	F	770	Yellow	35537		Y	split dorsal
23-Sep	1430	F	710	Yellow	35538		N	scars both sides
23-Sep	1430	M	810	Yellow	35539		N	clean / no marks
23-Sep	1430	F	735	Yellow	35540		Y	head abrasions
23-Sep	1430	M	805	Yellow	35541		N	nose abrasion
23-Sep	1430	F	760	Yellow	35542		N	scars both sides
23-Sep	1430	F	810	Yellow	35543		N	head abrasions
23-Sep	1430	M	765	Yellow	35544		N	clean / no marks
23-Sep	1430	M	905	Yellow	35545		N	clean / no marks
23-Sep	1430	M	775	Yellow	35546		N	head abrasions
23-Sep	1430	F	850	White & Red	07950		N	RECAPTURE
23-Sep	1430	F	845	Yellow	13381		N	RECAPTURE
23-Sep	1430	M	820	Yellow	35547		Y	scar left side
23-Sep	1430	F	745	Yellow	35548		N	split dorsal
23-Sep	1430	M	930	Yellow	35549		N	head abrasions
23-Sep	1430	F	830	Yellow	35550		N	clean / no marks
23-Sep	1430	F	700	Yellow	35551		N	clean / no marks
23-Sep	1430	F	730	Yellow	35552		N	severe head abrasions
23-Sep	1430	F	720	Yellow	35553		N	damaged left operc
23-Sep	1430	F	770	Yellow	35554		Y	BTS
23-Sep	1430	F	730	Yellow	35555		Y	head abrasions
23-Sep	1430	F	710	Yellow	35556		N	scars right side
23-Sep	1430	F	745	Yellow	35557		N	scars left side
23-Sep	1430	F					N	escaped u/s untagged
23-Sep	1430	F					N	escaped u/s untagged
23-Sep	1430	M					N	escaped u/s untagged



Appendix Table 6. (Continued)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
24-Sep	1450	F	760	Yellow	35559		N	head abrasions
24-Sep	1450	F	685	Yellow	35560		N	split dorsal
24-Sep	1450	M	820	Yellow	35561		N	clean / no marks
24-Sep	1450	M	825	Yellow	35562		N	clean / no marks
24-Sep	1450	M	950	Yellow	35563		Y	caudal erosion; scars both sides
24-Sep	1450	F	780	Yellow	35564		N	split dorsal; scars both sides
24-Sep	1450	F	805	Yellow	35565		N	split dorsal
24-Sep	1450	M		Yellow	35388		N	RECAPTURE
24-Sep	1450	M	775	Yellow	35566		N	head abrasions
24-Sep	1450	F	780	Yellow	35567		N	split tail; head abrasion; l & r scars
24-Sep	1450	M	890	Yellow	35568		N	lump l & r sides
24-Sep	1450	F	760	Yellow	35569		N	scars both sides
24-Sep	1450	F	730	Yellow	35570		N	split dorsal
24-Sep	1450	M	780	Yellow	13644		N	RECAPTURE
24-Sep	1450	F	800	Yellow	35571		N	scar on the head
24-Sep	1450	M	820	Yellow	35572		N	deformed r. pelvic
24-Sep	1450	F	755	Yellow	35573		Y	scars both sides
24-Sep	1450	F		Yellow	35220		N	RECAPTURE
24-Sep	1450	M	805	Yellow	35574		N	nose abrasion
24-Sep	1830	M	940	Yellow	35576		N	fungus; head abrasions
24-Sep	1830	F	740	Yellow	35577		Y	split dorsal
24-Sep	1830	F	760	Yellow	35578		N	head abrasions
24-Sep	1830	M	880	Yellow	35579		N	clean / no marks
24-Sep	1830	F	720	Yellow	35580		N	clean / no marks
24-Sep	1830	F	580	Yellow	35581		N	very small
24-Sep	1830	M	825	Yellow	35582		N	clean / no marks
24-Sep	1830	F	750	Yellow	35583		Y	
24-Sep	1830	M	760	Yellow	35584		N	caudal erosion
24-Sep	1830	F	795	Yellow	35585		N	damaged right maxillary
24-Sep	1830	F	850	Yellow	35586		N	clean / no marks
24-Sep	1830	F	780	Yellow	35587		Y	
24-Sep	1830	F	730	Yellow	35588		N	scar on back
24-Sep	1830	F	830	Yellow	13073		N	RECAPTURE
24-Sep	1830	F	815	Yellow	35589		N	missing adipose; scar
24-Sep	1830	F	735	Yellow	35590		N	clean / no marks
24-Sep	1830	F	755	Yellow	35591		N	clean / no marks
24-Sep	1830	M	895	Yellow	35592		N	bad head abrasion; fungus
24-Sep	1830	F	710	Yellow	35593		Y	
24-Sep	1830	F					N	escaped u/s untagged
25-Sep	1120	M	825	Yellow	35594		Y	split tail; head abrasion
25-Sep	1120	F	820	Yellow	35595		N	clean / no marks
25-Sep	1120	F	830	Yellow	35596		Y	
25-Sep	1120	F	700	Yellow	35597		Y	scar left side
25-Sep	1120	F	835	Yellow	35598		N	split dorsal; scar left side
25-Sep	1120	M	870	Yellow	35599		Y	
25-Sep	1120	F	725	Yellow	35600		N	pred scar right side
25-Sep	1120	M	935	Yellow	13692		N	RECAPTURE

Appendix Table 6. (Continued)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
25-Sep	1120	M	895	Yellow	35601		N	clean / no marks
25-Sep	1120	F	765	Yellow	35602		N	scars both sides
25-Sep	1120	F	760	Yellow	35603		Y	split dorsal
25-Sep	1120	F	720	Yellow	35604		N	clean / no marks
25-Sep	1120	F	800	Yellow	35605		N	split dorsal
25-Sep	1120	F	840	Yellow	35606		N	split dorsal and caudal
25-Sep	1120	F	760	Yellow	35607		N	clean / no marks
25-Sep	1120	M	780	Yellow	35608		Y	
25-Sep	1120	F	850	Yellow	13430		N	RECAPTURE
25-Sep	1120	F	725	Yellow	35609		N	l & r scars; head abrasion
25-Sep	1120	M	895	Yellow	35610		N	r. operc & head abrasions
25-Sep	1120	F	715	Yellow	35611		N	clean / no marks
25-Sep	1120	M	830	Yellow	13316		Y	RECAPTURE
25-Sep	1120	F	745	Yellow	35612		Y	
25-Sep	1120	F	850	Yellow	35613		N	head abrasions
25-Sep	1120	M					N	escaped u/s untagged
25-Sep	1730	F					N	escaped u/s untagged
25-Sep	1730	M	920	White	07981		N	RECAPTURE
25-Sep	1730	F	745	Yellow	35614		N	head abrasions
25-Sep	1730	M	795	Yellow	35615		N	clean / no marks
25-Sep	1730	F	740	Yellow	35616		Y	split tail; head abrasion
25-Sep	1730	F	750	Yellow	35617		N	clean / no marks
25-Sep	1730	M	835	Yellow	35618		N	clean / no marks
25-Sep	1730	M	880	Yellow	35619		N	clean / no marks
25-Sep	1730	F	765	Yellow	35620		N	clean / no marks
25-Sep	1730	F	725	Yellow	35621		N	left side scar; head abrasion
25-Sep	1730	F	775	Yellow	35622		Y	scar on back
25-Sep	1730	M	905	Yellow	35623		N	dark / clean
25-Sep	1730	F	760	Yellow	35624		Y	split dorsal and caudal
25-Sep	1730	M	915	Yellow	35625		N	scars on head
25-Sep	1730	M	925	Yellow	35626		N	scars on tail
25-Sep	1730	M	765	Yellow	35627		N	clean / no marks
25-Sep	1730	M	920	Yellow	35628		N	clean / no marks
25-Sep	1730	F	740	Yellow	35629		N	scars both sides
25-Sep	1730	F	720	Yellow	35630		Y	scars left side
25-Sep	1730	F		Yellow	35291		N	RECAPTURE
25-Sep	1730	M	915	Yellow	35631		N	damaged dorsal
25-Sep	1730	M	730	Yellow	35632		N	scar left side
25-Sep	1730	M	910	Yellow	35633		N	clean / no marks
25-Sep	1730	M	850	Yellow	35634		N	clean / no marks
25-Sep	1730	F	750	Yellow	35635		N	head abrasions
25-Sep	1730	F	825	Yellow	35636		N	head abrasions
25-Sep	1730	F	730	Green	16712		Y	RECAPTURE
25-Sep	1730	M	945	Yellow	35637		N	head abrasions
25-Sep	1730	F	745	Yellow	35638		N	clean / no marks
25-Sep	1730	F	720	Yellow	35639		N	split dorsal
25-Sep	1730	F	740	Yellow	35640		Y	split dorsal
25-Sep	1730	M	930	Yellow	35641		N	clean / no marks
25-Sep	1730	F	700	Yellow	35642		N	scars both sides

Appendix Table 6. (Continued)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
25-Sep	1730	F	790	Yellow	35643		N	clean / no marks
26-Sep	1030	F	905	Yellow	35644		N	clean / no marks
26-Sep	1030	F	705	Yellow	35645		N	clean / no marks
26-Sep	1030	F	840	Yellow	35646		N	upper caudal abrasion
26-Sep	1030	F	800	Yellow	35647		N	split dorsal; nose abrasion
26-Sep	1030	F	750	Yellow	35648		N	split dorsal
26-Sep	1030	F	700	Yellow	35649		N	damaged right maxillary
26-Sep	1030	F		Yellow	35340		N	RECAPTURE
26-Sep	1030	F	790	Yellow	35650		N	clean / no marks
26-Sep	1030	M	890	Yellow	35651		N	clean / no marks
26-Sep	1030	F	690	Yellow	35652		N	clean / no marks
26-Sep	1030	M	900	Yellow	35653		N	clean / no marks
26-Sep	1030	M	850	White & Red	N05964		Y	RECAPTURE
26-Sep	1030	F	825	Yellow	35654		N	
26-Sep	1030	M	935	Yellow	35655		N	nose abrasion
26-Sep	1030	M	825	Yellow	35656		N	clean / no marks
26-Sep	1030	F	720	Yellow	35657		Y	
26-Sep	1030	F	760	Yellow	35658		N	bad head scar
26-Sep	1030	F	760	Yellow	35659		N	clean / no marks
26-Sep	1030	M	795	Yellow	35660		N	clean / no marks
26-Sep	1730	M	875	Yellow	35661		N	nose abrasion
26-Sep	1730	M	745	Yellow	35662		Y	scars both sides
26-Sep	1730	F	845	Yellow	35663		Y	
26-Sep	1730	M	755	Yellow	35664		Y	gn scars
26-Sep	1730	M	890	Yellow	35665		N	eroded caudal; nose abrasion
26-Sep	1730	M	885	Yellow	35666		N	split tail
26-Sep	1730	M	750	Yellow	35667		N	groove in nose
26-Sep	1730	M	890	Yellow	35668		N	clean / no marks
26-Sep	1730	F	725	Yellow	35669		N	pred scar right side
26-Sep	1730	F	745	Yellow	35670		Y	deformed tail
26-Sep	1730	M	780	Yellow	35671		N	clean / no marks
26-Sep	1730	M	940	Yellow	35672		N	wound on head
26-Sep	1730	F	865	Yellow	13320		N	RECAPTURE
26-Sep	1730	M	800	Yellow	35673		N	clean / no marks
26-Sep	1730	M	875	Yellow	35674		N	upper caudal missing
26-Sep	1730	F	720	Yellow	35675		N	head abrasions
26-Sep	1730	F	820	Yellow	35676		N	blind right eye
26-Sep	1730	F	750	Yellow	35677		Y	split dorsal
26-Sep	1730	M	905	Yellow	35678		N	split dorsal
26-Sep	1730	F	750	Yellow	35679		N	split anal and dorsal
26-Sep	1730	M	810	Yellow	35680		Y	head abrasions
26-Sep	1730	F	800	Yellow	35681		N	head abrasions
26-Sep	1730	M	920	Yellow	35682		N	split caudal
26-Sep	1730	F	760	Yellow	35683		N	clean / no marks
26-Sep	1730	M	830	Yellow	35684		N	split dorsal
26-Sep	1730	F	785	Yellow	35685		N	scars both sides
26-Sep	1730	F	815	Yellow	35686		N	head abrasions
26-Sep	1730	F	770	Yellow	35687		N	scars both sides

Appendix Table 6. (Concluded)

Date	Time	Sex	NF Length (mm)	Tag		DNA/Scale Sample	Gillnet Marks	Comments
				Colour	#			
26-Sep	1730	M	950	Yellow	35688		N	hook mark
26-Sep	1730	F	690	Yellow	35689		N	scar right side
26-Sep	1730	F	720	Yellow	13687		Y	RECAPTURE
26-Sep	1730	F	740	Yellow	35690		N	clean / no marks
26-Sep	1730	F	720	Yellow	35691		N	head abrasions
26-Sep	1730	F	740	Yellow	35692		Y	
26-Sep	1730	F	715	Yellow	35693		Y	
26-Sep	1730	F	715	Yellow	35694		N	2 gashes on head
26-Sep	1730	F	810	Yellow	13462		N	RECAPTURE
26-Sep	1730	F	780	Yellow	35695		N	split dorsal
26-Sep	1730	F	800	Yellow	35696		Y	
26-Sep	1730	M	730	Yellow	35697		N	clean / no marks
26-Sep	1730	M	970	Yellow	35698		N	clean / no marks
26-Sep	1730	M		Yellow	35228		N	RECAPTURE
26-Sep	1730	F	705	Yellow	35699		N	clean / no marks
26-Sep	1730	F	830	Yellow	35700		N	clean / no marks
26-Sep	1730	F	840	Yellow	35701		N	clean / no marks
26-Sep	1730	F	720	Yellow	35702		N	clean / no marks
27-Sep	1500	F	760	Yellow	35703		Y	clean / no marks
27-Sep	1750	F	810	Green	16793		Y	RECAPTURE
27-Sep	1915	F	765	Yellow	35704		N	split dorsal
28-Sep	1030	F	740	Yellow	35705		N	clean / no marks
28-Sep	1030	F	820	Yellow	13408		N	RECAPTURE
29-Sep	1030	F	805	Yellow	35706		N	scars both sides; split dorsal
29-Sep	1900	M	775	Yellow	35707		N	clean / no marks

Appendix Table 7. Sampling data collected from all bull trout at the Sustut River fence, 2001.

Date	Time	Location	Sex	Nose-Fork Length (cm)	Pic. #	Comments
28-Jul-01	0915	Sustut Fence	M	43.0		Released u/s
01-Aug-01	1320	Sustut Fence	M	44.0		Released u/s
03-Aug-01	0930	Sustut Fence	M	46.5		Released u/s
21-Aug-01	1800	Sustut Fence	F	42.5		Released u/s
22-Aug-01	1435	Sustut Fence	M	52.5		Released u/s
03-Sep-01	1636	Sustut Fence	M			Released u/s
06-Sep-01	1730	Sustut Fence	M	60.0		Released u/s
08-Sep-01	0910	Sustut Fence	M	51.5		Released u/s
08-Sep-01	1720	Sustut Fence	M	50.5		Released u/s
12-Sep-01	1115	Sustut Fence	M	59.0		Released u/s
13-Sep-01	1330	Sustut Fence	M	49.5		Released u/s
15-Sep-01	1730	Sustut Fence	?			Released u/s
15-Sep-01	1730	Sustut Fence	?	52.5		Released u/s
15-Sep-01	1730	Sustut Fence	M	41.5		Released u/s
17-Sep-01	1650	Sustut Fence				Released u/s; small fish
18-Sep-01	1045	Sustut Fence	M	56.5		Released u/s
18-Sep-01	1045	Sustut Fence	F	45.0		Released u/s; nice fish
19-Sep-01	1900	Sustut Fence	M	63.5		Released u/s
23-Sep-01	1430	Sustut Fence	?	48.5		Released u/s
23-Sep-01	1430	Sustut Fence	?			Released u/s
24-Sep-01	1450	Sustut Fence	M	55.0		Released u/s
24-Sep-01	1830	Sustut Fence	?	47.0		Released u/s
26-Sep-01	1030	Sustut Fence	M	59.0		Released u/s
26-Sep-01	1030	Sustut Fence	M	64.0		Released u/s
29-Sep-01	1030	Sustut Fence	M	70.0	R2: 5-6	Found dead on fence; head and body fungus

Appendix Table 8a. Data from all steelhead captured during the angling selectivity study, 2001.

Date	Time	Sex	NF Ln (cm)	Tag		Hooking Location	<sup>1</sup> Rel Cond	Comments
				Colour	Number			
21-Aug	1100	M	88.0	White	15501		2	clean
22-Aug	1625	F	83.5	White	15502		1	clean
23-Aug	1140	M	82.5	White	15503		2	gillnet marks, old scars
23-Aug	1235	F	77.5	White	15504		1	clean
24-Aug	1215	M	83.5	White	15505		1	old scar right side
31-Aug	1235	F	77.0	White	15506	upper left jaw	1	old pred scars
2-Sep	1205	F	75.0	White	15507	above left eye	1	split caudal
2-Sep	1220	M	95.5	White	15508	upper left jaw	1	clean
3-Sep	1155	F	77.0	White	15509	roof of mouth	1	gillnet marks
3-Sep	1155	F	78.5	White	15510	left eye	1	
10-Sep	1150	F	71.0	White	15511	lower left jaw	1	gillnet marks
10-Sep	1200	F	77.0	White	15512	upper left max	1	pred scar left side
10-Sep	1250	M	83.0	White	15513	upper left max	2	clean
14-Sep	1100	F		Yellow	35188	lower jaw	1	recapture from fence tagging
14-Sep	1110	F	72.5	White	15514	roof of mouth	1	scar between pectoral fins
14-Sep	1130	M	88.0	White	15515	lower left max	1	clean

<sup>1</sup> Release condition codes: 1=swam away quickly; 2=swam away slowly; 3=required ventilation.

Appendix Table 8b. Data collected from angled steelhead recaptured at the Sustut River fence, 2001.

Date	Time	Sex	Nose-Fork Length (cm)	Tag		Date Tagged	Days to Fence
				Colour	Number		
6-Sep	1730	F	73.0	White	15507	02-Sep-01	4
13-Sep	1820	F	77.0	White	15506	31-Aug-01	13
13-Sep	1820	M	95.5	White	15508	02-Sep-01	11
13-Sep	1820	F	77.0	White	15512	10-Sep-01	3
15-Sep	1730	F		White	15509	03-Sep-01	12
17-Sep	1650	M		White	15513	10-Sep-01	7
17-Sep	1400	M		White	15515	14-Sep-01	3
23-Sep	1430	F		White	15514	14-Sep-01	9

Appendix Table 9. Data from chinook salmon sampled at the Sustut River fence, 2001.

Date	Time	Sex	Length (cm)		Scale Bk. Position	Scale Book #	DNA	Comments
			Nose-Fork	P.O.H.				
29-Jul	0940	M	96	76	1 - 41	40451	Vial # 1	
29-Jul	1550	M	87	69	2 - 42	40451	Y	
30-Jul	1405	M	87	71	3 - 43	40451	Y	
30-Jul	2000	M	87	71	4 - 44	40451	Y	
30-Jul	2000	M	82	66	5 - 45	40451	Y	
30-Jul	2000	M	97	88	6 - 46	40451	Y	Caudal fin worn
30-Jul	2000	F	89	73	7 - 47	40451	Y	
31-Jul	0930	M	101	80	8 - 48	40451	Y	
31-Jul	0930	M	87	70	9 - 49	40451	Y	Scar left side
31-Jul	0930	M	102	79	10 - 50	40451	Y	ripe
31-Jul	0930	F	93	76	1 - 41	40452	Y	
31-Jul	1500	M	97	76	2 - 42	40452	Y	
31-Jul	1500	M	90	73	3 - 43	40452	Y	
1-Aug	0745	M	95	74	4 - 44	40452	Y	
1-Aug	0745	M	90	71	5 - 45	40452	Y	
1-Aug	0745	M	90	71	6 - 46	40452	Y	
1-Aug	1305	M	91	73	7 - 47	40452	Y	
1-Aug	1305	M	83	67	8 - 48	40452	Y	
1-Aug	1305	M	88	69	9 - 49	40452	Y	
1-Aug	1305	M	97	78	10 - 50	40452	Y	
1-Aug	1305	M	86	69	1 - 41	40453	Y	
1-Aug	1305	M	97	78	2 - 42	40453	Y	
1-Aug	1305	M	101	80	3 - 43	40453	Y	
1-Aug	1305	M	95	77	4 - 44	40453	Y	
1-Aug	1845	F	95	73	5 - 45	40453	Y	
1-Aug	1845	M	105	82	6 - 46	40453	Y	
1-Aug	1845	M	105	82	7 - 47	40453	Vial # 2	
1-Aug	1845	M	99	78	8 - 48	40453	N	
1-Aug	1845	F	94	72	9 - 49	40453	Y	
1-Aug	1845	M	84	68	10 - 50	40453	Y	
2-Aug	1405	M	93	73	1 - 41	40454	Y	
2-Aug	1405	F	89	72	2 - 42	40454	Y	
2-Aug	1405	F	92	74	3 - 43	40454	Y	
2-Aug	1405	M	103	83	4 - 44	40454	Y	
2-Aug	1430	M	86	68	5 - 45	40454	Y	
2-Aug	1430	M	94	74	6 - 46	40454	Y	
2-Aug	1430	M	87	70	7 - 47	40454	Y	
2-Aug	1430	M	94	75	8 - 48	40454	Y	
2-Aug	1430	M	95	75	9 - 49	40454	Y	
2-Aug	1945	M	92	74	10 - 50	40454	Y	
2-Aug	1945	M	97	76	1 - 41	40455	Y	
2-Aug	1945	M	69	56	2 - 42	40455	Y	
2-Aug	1945	F	85	68	3 - 43	40455	Y	Scar left side
2-Aug	1945	M	94	75	4 - 44	40455	Y	
2-Aug	1945	M	96	77	5 - 45	40455	Y	
2-Aug	1945	M	97	77	6 - 46	40455	Y	
2-Aug	1945	M	85	68	7 - 47	40455	Y	
2-Aug	1945	M	94	76	8 - 48	40455	Y	

Appendix Table 9. (Continued)

Date	Time	Sex	Length (cm)		Scale Bk. Position	Book #	DNA	Comments
			Nose-Fork	P.O.H.				
2-Aug	1945	M	95	76	9 - 49	40455	Y	
2-Aug	1945	M	87	70	10 - 50	40455	Y	
3-Aug	1920	M	91	72	1 - 41	40456	Y	
3-Aug	1920	F	92	75	2 - 42	40456	Y	
3-Aug	1440	M	102	79	3 - 43	40456	Vial # 3	
3-Aug	1440	M	89	72	4 - 44	40456	Y	
3-Aug	1440	M	70	55	5 - 45	40456	Y	
3-Aug	1440	M	86	68	6 - 46	40456	Y	
3-Aug	1440	M	60	48	7 - 47	40456	Y	
3-Aug	1440	M	104	82	8 - 48	40456	Y	
3-Aug	1945	M	100	79	9 - 49	40456	Y	
3-Aug	1945	F	93	77	10 - 50	40456	Y	
3-Aug	1945	M	88	72	1 - 41	40457	Y	
4-Aug	0955	F	88	72	2 - 42	40457	Y	
4-Aug	0955	M	87	69	3 - 43	40457	Y	
4-Aug	0955	M	104	81	4 - 44	40457	Y	
4-Aug	0955	M	103	82	5 - 45	40457	Y	
4-Aug	0955	M	90	71	6 - 46	40457	Y	
4-Aug	0955	F	99	81	7 - 47	40457	Y	
4-Aug	0955	M	90	70	8 - 48	40457	N	
4-Aug	0955	M	87	68	9 - 49	40457	Y	
4-Aug	0955	M	95				N	Recap operc. Punch
4-Aug	2005	M	91	72	10 - 50	40457	N	
4-Aug	2005	F	93	76	1 - 41	40458	Y	
4-Aug	2005	M	91	72	2 - 42	40458	Y	
4-Aug	2005	F	91	73	3 - 43	40458	Y	
4-Aug	2005	M	90	71	4 - 44	40458	Y	
4-Aug	2005	F	90	72	5 - 45	40458	Y	
4-Aug	2005	M	100	79	6 - 46	40458	Y	
4-Aug	2005	M	92	72	7 - 47	40458	Y	
4-Aug	2005	M	90	69	8 - 48	40458	Y	
4-Aug	2005	M	69	56	9 - 49	40458	Y	
5-Aug	1010	M	94	75	10 - 50	40458	Vial # 4	
5-Aug	1010	M	92	71	1 - 41	40459	Y	
5-Aug	1010	M	93	73	2 - 42	40459	Y	
5-Aug	1010	F	88	73	3 - 43	40459	Y	
5-Aug	1010	M	91	71	4 - 44	40459	Y	
5-Aug	1010	F	96	78	5 - 45	40459	Y	
5-Aug	1010	M	100	78	6 - 46	40459	Y	
5-Aug	1010	F	91	74	7 - 47	40459	Y	
5-Aug	1010	F	95	77	8 - 48	40459	Y	
5-Aug	1010	F	87	72	9 - 49	40459	Y	
5-Aug	1010	M	82	65	10 - 50	40459	Y	
5-Aug	1010	F	92	76	1 - 41	40460	Y	
5-Aug	1505	F	92	75	2 - 42	40460	Y	
5-Aug	1505	F	92	75	3 - 43	40460	Y	
5-Aug	1505	M	90	72	4 - 44	40460	Y	
5-Aug	1505	F	90	74	5 - 45	40460	Y	
5-Aug	1505	F	89	71	6 - 46	40460	Y	



Appendix Table 9. (Continued)

Date	Time	Sex	Length (cm)		Scale Bk. Position	Scale Book #	DNA	Comments
			Nose-Fork	P.O.H.				
5-Aug	1505	F	92	75	7 - 47	40460	Y	
5-Aug	1505	M	88	69	8 - 48	40460	Y	
5-Aug	1505	M	95	74	9 - 49	40460	Y	
5-Aug	1505	F	86	71	10 - 50	40460	Y	
5-Aug	1505	M	79	64	1 - 41	40461	Y	
5-Aug	1505	M	92	74	2 - 42	40461	Y	
6-Aug	0945	M	94	74	3 - 43	40461	Y	
6-Aug	0945	M	105	83	4 - 44	40461	Y	
6-Aug	0945	M	81	65	5 - 45	40461	Vial # 5	
6-Aug	0945	F	90	75	6 - 46	40461	Y	
6-Aug	0945	M	86	67	7 - 47	40461	Y	
6-Aug	0945	F	90	73	8 - 48	40461	Y	
6-Aug	0945	M	63	51	9 - 49	40461	Y	
6-Aug	0945	M	97	76	10 - 50	40461	Y	
6-Aug	0945	M	86	68	1 - 41	40462	Y	
6-Aug	0945	M	96	75	2 - 42	40462	Y	
6-Aug	0945	F	98	79	3 - 43	40462	Y	Only 3 scales, jumped ship
6-Aug	0945	M	86	69	4 - 44	40462	Y	
6-Aug	0945	F	100	82	5 - 45	40462	Y	
6-Aug	0945	M	95	76	6 - 46	40462	Y	
6-Aug	0945	M	94	75	7 - 47	40462	Y	
6-Aug	0945	M	94	75	8 - 48	40462	Y	
6-Aug	0945	F	88	73	9 - 49	40462	Y	
6-Aug	0945	F	85	67	10 - 50	40462	Y	
6-Aug	0945	M	68	54	1 - 41	40463	Y	
7-Aug	0955	F	94	77	2 - 42	40463	Y	
7-Aug	0955	M	98	78	3 - 43	40463	Y	
7-Aug	0955	F	97	78	4 - 44	40463	Y	
7-Aug	0955	F	91	74	5 - 45	40463	Y	
7-Aug	0955	F	89	71	6 - 46	40463	Y	
7-Aug	0955	M	92	74	7 - 47	40463	Y	
7-Aug	0955	F					N	Released ripe
7-Aug	0955	F	89	73	8 - 48	40463	Y	
7-Aug	0955	M	105	83	9 - 49	40463	Y	
7-Aug	0955	F	103				N	Jumped ship
7-Aug	1945	F	90	74	10 - 50	40463	Vial # 6	
7-Aug	1945	M	97	77	1 - 41	40464	Y	
7-Aug	1945	F	90	74	2 - 42	40464	Y	
7-Aug	1945	F	88	72	3 - 43	40464	Y	
7-Aug	1945	M	102	80	4 - 44	40464	Y	Fungus poor shape
7-Aug	1945	F	84	69	5 - 45	40464	Y	
7-Aug	1945	F	84	69	6 - 46	40464	Y	
7-Aug	1945	F	88	73	7 - 47	40464	Y	
7-Aug	1945	F	88	71	8 - 48	40464	Y	
7-Aug	1945	F	92	73	9 - 49	40464	Y	
7-Aug	1945	M	61	49	10 - 50	40464	Y	
8-Aug	1045	F	89	73	1 - 41	40465	Y	
8-Aug	1045	M	99	79	2 - 42	40465	Y	
8-Aug	1045	M	98	78	3 - 43	40465	Y	

Appendix Table 9. (Continued)

Date	Time	Sex	Length (cm)		Scale Bk. Position	Scale Book #	DNA	Comments
			Nose-Fork	P.O.H.				
8-Aug	1045	F	86	70	4 - 44	40465	Y	
8-Aug	1045	F	92	76	5 - 45	40465	Y	
8-Aug	1045	M	82	65	6 - 46	40465	Y	
8-Aug	1045	F	92	76	7 - 47	40465	Y	
8-Aug	1045	F	84	70	8 - 48	40465	Y	
8-Aug	1045	M	93	73	9 - 49	40465	Y	
8-Aug	1940	F	99	82	10 - 50	40465	Y	
8-Aug	1940	F	89	73	1 - 41	40466	Y	
8-Aug	1940	F	88	73	2 - 42	40466	Y	
8-Aug	1940	M	72	57	3 - 43	40466	Y	
8-Aug	1940	F	92	75	4 - 44	40466	Y	
8-Aug	1940	F	91	73	5 - 45	40466	Y	Vial # 7
8-Aug	1940	F	103	83	6 - 46	40466	Y	
8-Aug	1940	M	101	80	7 - 47	40466	Y	
8-Aug	1940	M	100	79	8 - 48	40466	Y	
8-Aug	1940	M	85	68	9 - 49	40466	Y	
8-Aug	1940	M	97	77	10 - 50	40466	Y	
9-Aug	1015	M	70	56	1 - 41	40467	Y	
9-Aug	1015	F	89	72	2 - 42	40467	Y	
9-Aug	1015	F	91	75	3 - 43	40467	Y	
9-Aug	1015	F	87	72	4 - 44	40467	Y	
9-Aug	1015	F	91	74	5 - 45	40467	Y	3 Operc. Punch
9-Aug	1015	F	90	73	6 - 46	40467	Y	
9-Aug	1015	F	89	73	7 - 47	40467	Y	
9-Aug	1015	M	100	89	8 - 48	40467	Y	
9-Aug	1015	M	98	78	9 - 49	40467	Y	
9-Aug	1015	F	98	77	10 - 50	40467	Y	
9-Aug	1015	F	88	72	1 - 41	40468	Y	
10-Aug	0945	M	84	68	2 - 42	40468	Y	
10-Aug	0945	F	86	70	3 - 43	40468	Y	
10-Aug	0945	F	85	69	4 - 44	40468	Y	
10-Aug	0945	F	90	75	5 - 45	40468	Y	
10-Aug	0945	M	70	56	6 - 46	40468	Y	
10-Aug	0945	M	98	79			Y	
10-Aug	0945	M	85	68	7 - 47	40468	Y	
10-Aug	0945	F	83	68	8 - 48	40468	Y	
10-Aug	0945	M	62	51	9 - 49	40468	Y	Vial # 8
11-Aug	1000	F	87	71	10 - 50	40468	Y	
11-Aug	1000	M	86	79	1 - 41	40469	Y	
11-Aug	1000	F	103	85	2 - 42	40469	Y	
11-Aug	1000	F	91	76	3 - 43	40469	Y	
11-Aug	1000	F	87	73	4 - 44	40469	Y	
11-Aug	1000	F	93	77	5 - 45	40469	Y	
11-Aug	1000	F	89	72	6 - 46	40469	Y	
11-Aug	1000	M	90	77	7 - 47	40469	Y	
11-Aug	1000	F	86	70	8 - 48	40469	Y	
11-Aug	1000	F	87	71	9 - 49	40469	Y	
11-Aug	1000	F	83	69	10 - 50	40469	Y	
11-Aug	1600	M	91	73	1 - 41	40470	Y	

Appendix Table 9. (Concluded)

Date	Time	Sex	Length (cm)		Scale Bk. Position	Scale Book #	DNA	Comments
			Nose-Fork	P.O.H.				
11-Aug	1600	F	88	74	2 - 42	40470	Y	
11-Aug	1600	M	95	77	3 - 43	40470	Y	
11-Aug	1600	M	86	69	4 - 44	40470	Y	
11-Aug	1600	F	89	73	5 - 45	40470	Y	
11-Aug	1600	F	90	74	6 - 46	40470	Y	
11-Aug	1600	M	57	46	7 - 47	40470	Y	
12-Aug	0903	F	95	76	8 - 48	40470	Y	
12-Aug	0903	F	85	71	9 - 49	40470	Y	
12-Aug	0903	M	65	52	10 - 50	40470	Y	
12-Aug	0903	M	67	53			Y	
12-Aug	0903	F	84	69			Y	
12-Aug	0903	M	94	74			Y	

Appendix Table 10. Sampling data from all chinook carcasses recovered from the Sustut River fence, 2001.

Date	Time	Sex	Length (cm)		Operc. Clip	Comments
			Nose-Fork	P.O.H.		
03-Aug-01	1510	F	92.0	74.0	Y	partially spawned
03-Aug-01	2045	M	87.0		Y	spent
05-Aug-01	1010	F	90.0	76.0	Y	unspawned
08-Aug-01	1040	M	98.0	78.0	Y	spent
08-Aug-01	2020	M	95.0	76.0	Y	spent
09-Aug-01	2013	M		80.0	N	spent
10-Aug-01	1055	M	102.0	81.0	N	spent
10-Aug-01	1850	M	101.0	81.0	N	spent
10-Aug-01	1850	F	89.0	73.0	N	spent
10-Aug-01	1850	M	99.0	80.0	N	spent
11-Aug-01	1055	M	103.0	83.0	N	spent
11-Aug-01	1055	M	88.0	72.0	Y	spent
11-Aug-01	1055	M	94.0	74.0	Y	spent
11-Aug-01	1630	F	85.0	69.0	N	spent
11-Aug-01	1630	F	88.0	72.0	N	spent
11-Aug-01	1940	M	92.0	72.0	N	spent
11-Aug-01	1940	M	89.0	69.0	N	spent
11-Aug-01	1940	F	89.0	75.0	Y	spent
11-Aug-01	1940	F	88.0	73.0	N	spent
12-Aug-01	0955	M	86.0	69.0	N	spent
12-Aug-01	0955	F	87.0	71.0	N	spent
12-Aug-01	0955	M	101.0	80.0	N	spent
12-Aug-01	2010	F	87.0	70.0	Y	spent
12-Aug-01	2010	M	95.0	76.0	N	spent
12-Aug-01	2010	F	91.0	73.0	N	spent
12-Aug-01	2010	M	95.0	77.0	N	spent
12-Aug-01	2010	F	87.0	71.0	Y	spent

Appendix Table 10. (Continued)

Date	Time	Sex	Length (cm)		Clip	Comments
			Nose-Fork	P.O.H.		
12-Aug-01	2010	M	68.0	55.0	N	spent
12-Aug-01	2010	F	95.0	76.0	N	spent
12-Aug-01	2010	M	90.0	72.0	N	spent
12-Aug-01	2010	M	93.0	74.0	N	spent
12-Aug-01	2010	F	90.0	74.0	Y	spent
13-Aug-01	1930	F	88.0	72.0	N	Unspawned, died in pen
13-Aug-01	1930	M	112.0	92.0	N	Very large
13-Aug-01	1930	M	89.0	73.0	N	spent
13-Aug-01	1930	M	87.0	72.0	N	spent
13-Aug-01	1930	F	88.0	73.0	N	spent
13-Aug-01	1930	F	96.0	78.0	N	spent
13-Aug-01	1930	M	97.0	81.0	N	spent
13-Aug-01	1930	F	95.0	79.0	N	spent
13-Aug-01	1930	M	87.0	70.0	N	spent
13-Aug-01	1930	F	96.0	78.0	N	spent
13-Aug-01	1930	F	93.0	78.0	N	spent
13-Aug-01	1930	M	69.0	58.0	N	spent
13-Aug-01	1930	M	96.0	79.0	N	spent
14-Aug-01	1500	M	98.0	80.0	N	spent
14-Aug-01	1500	F	87.0	71.0	N	spent
14-Aug-01	1500	M	89.0	72.0	N	spent
14-Aug-01	1500	M	102.0	83.0	Y	spent
14-Aug-01	1500	M	86.0	71.0	Y	spent
14-Aug-01	1500	F	82.0	67.0	Y	spent
15-Aug-01	1600	M	101.0	83.0	N	spent
15-Aug-01	1600	M	93.0	74.0	N	spent
15-Aug-01	1600	M	98.0	79.0	N	spent
15-Aug-01	1600	M	106.0	88.0	N	spent
15-Aug-01	1600	M	100.0	83.0	N	spent
15-Aug-01	1600	M	93.0	76.0	N	spent
15-Aug-01	1600	F	87.0	72.0	N	spent
15-Aug-01	1600	F	89.0	75.0	N	spent
15-Aug-01	1600	F	86.0	72.0	N	spent
15-Aug-01	1600	F	99.0	83.0	N	spent
15-Aug-01	1600	M	94.0	76.0	N	spent
15-Aug-01	1600	M	95.0	78.0	Y	spent
15-Aug-01	1600	M	91.0	74.0	Y	spent
15-Aug-01	1600	M	90.0	75.0	N	spent
15-Aug-01	1600	F	74.0	62.0	N	spent
15-Aug-01	1600	M	89.0	73.0	N	spent
15-Aug-01	1600	M	100.0	81.0	N	spent
16-Aug-01	0900	M	90.0	75.0	N	spent
16-Aug-01	0900	F	92.0	76.0	N	spent
16-Aug-01	0900	M	99.0	81.0	N	spent
16-Aug-01	0900	M	97.0	79.0	N	spent
16-Aug-01	0900	M	77.0	64.0	N	spent
16-Aug-01	0900	F	96.0	79.0	N	spent
16-Aug-01	0900	M	83.0	68.0	N	spent
16-Aug-01	0900	F	86.0	71.0	Y	spent

Appendix Table 10. (Continued)

Date	Time	Sex	Length (cm)		Clip	Comments
			Nose-Fork	P.O.H.		
16-Aug-01	0900	M	96.0	77.0	N	spent
16-Aug-01	0900	M	93.0	76.0	N	spent
16-Aug-01	0900	F	93.0	77.0	N	spent
16-Aug-01	0900	M	68.0	57.0	N	spent
16-Aug-01	0900	M	85.0	68.0	N	spent
16-Aug-01	0900	F	70.0	66.0	N	spent
16-Aug-01	0900	M	102.0	83.0	N	spent
16-Aug-01	0900	M	98.0	79.0	N	spent
16-Aug-01	0900	F	94.0	79.0	N	spent
16-Aug-01	0900	M	65.0	54.0	N	spent
16-Aug-01	0900	M	93.0	76.0	N	spent
16-Aug-01	1820	M	90.0	73.0	N	spent
16-Aug-01	1820	M	62.0	51.0	N	spent
16-Aug-01	1820	M	89.0	72.0	N	spent
16-Aug-01	1820	F	87.0	73.0	Y	spent
16-Aug-01	1820	F	74.0	59.0	N	spent
16-Aug-01	1820	M	86.0	69.0	N	spent
16-Aug-01	1820	M	105.0	86.0	N	spent
16-Aug-01	1820	M	100.0	81.0	N	spent
16-Aug-01	1820	M	94.0	76.0	N	spent
16-Aug-01	1820	M	92.0	74.0	N	spent
16-Aug-01	1820	M	64.0	52.0	N	spent
16-Aug-01	1820	M	99.0	80.0	N	spent
16-Aug-01	1820	M	91.0	72.0	N	spent
16-Aug-01	1820	F	87.0	70.0	N	spent
16-Aug-01	1820	M	106.0	84.0	Y	furry
16-Aug-01	1820	M	97.0	78.0	N	spent
17-Aug-01	1230	M	97.0	79.0	N	spent
17-Aug-01	1230	M	65.0	52.0	N	spent
17-Aug-01	1230	M	105.0	84.0	N	spent
17-Aug-01	1230	F	91.0	75.0	N	spent
17-Aug-01	1230	M	95.0	77.0	N	spent
17-Aug-01	1230	M	94.0	78.0	N	spent
17-Aug-01	1230	M	83.0	66.0	N	spent
17-Aug-01	1230	M	91.0	74.0	N	spent
17-Aug-01	1230	M	103.0	82.0	N	spent
17-Aug-01	1230	F	89.0	74.0	N	spent
17-Aug-01	1230	M	93.0	74.0	N	spent
17-Aug-01	1230	F	88.0	74.0	N	spent
17-Aug-01	1230	M	109.0	88.0	N	spent
17-Aug-01	1230	M	64.0	53.0	N	spent
17-Aug-01	1230	M	90.0	73.0	N	spent
17-Aug-01	1230	F	86.0	71.0	N	spent
17-Aug-01	1930	F			N	spent
17-Aug-01	1930	M			N	spent
17-Aug-01	1930	F			N	spent
17-Aug-01	1930	M			N	spent
17-Aug-01	1930	M			N	spent
17-Aug-01	1930	M			N	spent

Appendix Table 10. (Continued)

Date	Time	Sex	Length (cm)		Clip	Comments
			Nose-Fork	P.O.H.		
17-Aug-01	1930	F			N	spent
17-Aug-01	1930	M			Y	spent
17-Aug-01	1930	M			N	spent
17-Aug-01	1930	M			Y	spent
17-Aug-01	1930	M			N	spent
17-Aug-01	1930	M			N	spent
17-Aug-01	1930	F			N	spent
17-Aug-01	1930	M			N	spent
17-Aug-01	1930	F			N	spent
17-Aug-01	1930	M			N	spent
17-Aug-01	1930	M			N	spent
18-Aug-01	1015	M			Y	spent
18-Aug-01	1015	F			N	spent
18-Aug-01	1015	F			N	spent
18-Aug-01	1015	F			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	F			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	F			N	spent
18-Aug-01	1015	M			N	spent
18-Aug-01	1015	F			N	spent
18-Aug-01	1930	F			N	spent
18-Aug-01	1930	F			N	spent
18-Aug-01	1930	F			N	spent
18-Aug-01	1930	F			N	spent
18-Aug-01	1930	M			N	spent
18-Aug-01	1930	M			N	spent
18-Aug-01	1930	F			N	spent
18-Aug-01	1930	F			N	spent
18-Aug-01	1930	M			N	spent
18-Aug-01	1930	M			N	spent
18-Aug-01	1930	F			N	spent
18-Aug-01	1930	F			N	spent
19-Aug-01	1050	M			N	spent
19-Aug-01	1050	F			N	spent
19-Aug-01	1050	M			N	spent
19-Aug-01	1050	M			N	spent
19-Aug-01	1050	M			N	spent
19-Aug-01	1050	M			N	spent

Appendix Table 10. (Continued)

Date	Time	Sex	Length (cm)		Clip	Comments
			Nose-Fork	P.O.H.		
19-Aug-01	1050	M			N	spent
19-Aug-01	1050	M			N	spent
19-Aug-01	1050	M			N	spent
19-Aug-01	1050	F			N	spent
19-Aug-01	1050	M			N	spent
19-Aug-01	1050	F			N	spent
19-Aug-01	1050	M			N	spent
19-Aug-01	1050	F			N	spent
19-Aug-01	1050	M			N	spent
19-Aug-01	1830	F			N	spent
19-Aug-01	1830	M			N	spent
19-Aug-01	1830	M			N	spent
19-Aug-01	1830	M			N	spent
19-Aug-01	1830	F			N	spent
19-Aug-01	1830	M			N	spent
19-Aug-01	1830	F			N	spent
19-Aug-01	1830	M			N	spent
19-Aug-01	1830	M			N	spent
19-Aug-01	1830	F			N	spent
19-Aug-01	1830	M			N	spent
19-Aug-01	1830	M			N	spent
19-Aug-01	1830	F			N	spent
19-Aug-01	1830	M			N	spent
19-Aug-01	1830	F			N	spent
19-Aug-01	1830	M			N	spent
20-Aug-01	1020	M			N	spent
20-Aug-01	1020	F			N	spent
20-Aug-01	1020	M			N	spent
20-Aug-01	1020	M			N	spent
20-Aug-01	1020	F			N	spent
20-Aug-01	1020	M			N	spent
20-Aug-01	1020	M			N	spent
20-Aug-01	1020	M			N	spent
20-Aug-01	1020	F			N	spent
20-Aug-01	1020	M			N	spent
20-Aug-01	1020	F			N	spent
20-Aug-01	1020	F			N	spent
20-Aug-01	1900	M			N	spent
20-Aug-01	1900	F			N	spent
20-Aug-01	1900	M			Y	spent
20-Aug-01	1900	M			N	spent
20-Aug-01	1900	F			N	spent
20-Aug-01	1900	F			N	spent
20-Aug-01	1900	F			N	spent
20-Aug-01	1900	F			N	spent
20-Aug-01	1900	F			N	spent
21-Aug-01	1020	F			N	spent
21-Aug-01	1020	M			N	spent
21-Aug-01	1020	M			N	spent
21-Aug-01	1020	F			N	spent
21-Aug-01	1020	M			N	spent

Appendix Table 10. (Continued)

Date	Time	Sex	Length (cm)		Clip	Comments
			Nose-Fork	P.O.H.		
21-Aug-01	1020	F			N	spent
21-Aug-01	1020	M			Y	spent
21-Aug-01	1020	F			N	spent
21-Aug-01	1020	F			N	spent
21-Aug-01	1020	M			N	spent
21-Aug-01	1020	M			N	spent
21-Aug-01	1020	M			N	spent
21-Aug-01	1020	M	40.0	32.0	N	Died in pen
21-Aug-01	1800	F			N	spent
21-Aug-01	1800	M			Y	spent
21-Aug-01	1800	M			N	spent
22-Aug-01	1000	F			N	spent
22-Aug-01	1000	M			N	spent
22-Aug-01	1000	F			N	spent
22-Aug-01	1000	M			N	spent
22-Aug-01	1000	M			N	spent
22-Aug-01	1000	M			N	spent
22-Aug-01	1000	F			N	spent
22-Aug-01	1000	M			N	spent
22-Aug-01	1000	M			N	spent
22-Aug-01	1000	F			N	spent
22-Aug-01	1000	M			N	spent
22-Aug-01	1000	F			Y	spent
22-Aug-01	1000	F			N	spent
22-Aug-01	1000	M			N	spent
22-Aug-01	1000	M			N	spent
22-Aug-01	1000	M			N	spent
22-Aug-01	1920	M			Y	spent
22-Aug-01	1920	F			N	spent
22-Aug-01	1920	F			N	spent
22-Aug-01	1920	M			N	spent
22-Aug-01	1920	M			N	spent
22-Aug-01	1920	F			N	spent
22-Aug-01	1920	F			N	spent
22-Aug-01	1920	M			Y	spent
22-Aug-01	1920	M			N	spent
22-Aug-01	1920	F			N	spent
22-Aug-01	1920	F			N	spent
22-Aug-01	1920	M			N	spent
22-Aug-01	1920	F			N	spent
22-Aug-01	1920	F			N	spent
22-Aug-01	1920	M			N	spent
23-Aug-01	1030	M			N	spent; very furry
23-Aug-01	1030	M			N	spent
23-Aug-01	1030	F			N	spent
23-Aug-01	1030	M			N	spent
23-Aug-01	1030	M			N	spent
23-Aug-01	1030	F			N	spent
23-Aug-01	1030	F			N	spent
23-Aug-01	1030	M			N	spent
23-Aug-01	1030	M			N	spent



Appendix Table 10. (Continued)

Date	Time	Sex	Length (cm)		Clip	Comments
			Nose-Fork	P.O.H.		
23-Aug-01	1030	F			Y	spent
23-Aug-01	1030	M			N	spent
23-Aug-01	1030	F			N	spent
23-Aug-01	1030	M			N	spent
23-Aug-01	1945	F			N	spent
23-Aug-01	1945	M			N	spent
23-Aug-01	1945	M			N	spent
23-Aug-01	1945	M			N	spent
24-Aug-01	1110	M			N	spent
24-Aug-01	1110	M			N	spent
24-Aug-01	1110	F			N	spent
25-Aug-01	1740	M			N	spent; jack
25-Aug-01	1740	M			N	spent
25-Aug-01	1740	M			N	spent
25-Aug-01	1740	M			N	spent
25-Aug-01	1740	M			N	spent
25-Aug-01	1740	F			Y	spent
25-Aug-01	1740	F			N	spent
25-Aug-01	1740	F			N	spent
25-Aug-01	1740	M			N	spent
25-Aug-01	1740	M			N	spent
25-Aug-01	1740	M			N	spent
25-Aug-01	1740	F			N	spent
25-Aug-01	1740	F			N	spent
25-Aug-01	1740	M			N	spent
25-Aug-01	1740	M			N	spent
25-Aug-01	1740	M			N	spent
25-Aug-01	1740	F			N	spent
26-Aug-01	1700	M			N	removed by Ft. Ware band
26-Aug-01	1700	M			N	spent
26-Aug-01	1900	F			UNK	part of operc. missing
26-Aug-01	1900	M			N	spent
26-Aug-01	1900	M			N	spent
26-Aug-01	1900	F			N	spent
26-Aug-01	1900	M			N	spent
26-Aug-01	1900	M			N	spent
26-Aug-01	1900	F			N	spent
26-Aug-01	1900	M			N	spent
27-Aug-01	1135	M			N	spent
27-Aug-01	1135	F			N	spent
27-Aug-01	1135	F			N	spent
27-Aug-01	1135	M			N	spent
27-Aug-01	1135	F			N	spent
27-Aug-01	1135	F			N	spent
27-Aug-01	1135	M			N	spent
27-Aug-01	1750	F			UNK	spent
27-Aug-01	1750	F			N	spent
27-Aug-01	1750	M			N	spent
27-Aug-01	1750	F			N	spent
27-Aug-01	1750	F			UNK	spent
27-Aug-01	1750	F			N	spent
27-Aug-01	1750	M			N	spent
28-Aug-01	1130	F			N	spent
28-Aug-01	1130	F			N	spent

Appendix Table 10. (Concluded)

Date	Time	Sex	Length (cm)		Clip	Comments
			Nose-Fork	P.O.H.		
28-Aug-01	1130	M			N	spent
28-Aug-01	1130	F			N	spent
28-Aug-01	1130	M			N	spent
28-Aug-01	1130	M			N	spent
28-Aug-01	1145	M			N	spent
28-Aug-01	1400	M			N	spent
30-Aug-01	1125	M			N	spent
30-Aug-01	1125	M			N	spent
02-Sep-01	1730	M			N	spent
02-Sep-01	1730	F			N	spent
15-Sep-01	1930	F			UNK	very furry; 1/2 missing

Appendix Table 11. Data from sockeye salmon sampled at the Sustut River fence, 2001.

Date	Time	Sex	Length (cm)		Scale Bk.	Scale	DNA	Comments
			Nose-Fork	P.O.H.	Position	Book #		
11-Aug	1000	M	70	57	1 - 41	40471	Vial # 1	
11-Aug	1000	M	70	56	2 - 42	40471	Y	
13-Aug	1510	M	70	56	3 - 43	40471	Y	
13-Aug	1510	F	67	54	4 - 44	40471	Y	
13-Aug	1510	F	66	53	5 - 45	40471	Y	
13-Aug	1510	M	69	56	6 - 46	40471	Y	
13-Aug	1510	M	66	54	7 - 47	40471	Y	
13-Aug	1510	M	66	53	8 - 48	40471	Y	
14-Aug	1340	M	67	54	9 - 49	40471	Y	
14-Aug	1340	M	69	55	10 - 50	40471	Y	
14-Aug	1340	F	65	53	1 - 41	40472	Y	
14-Aug	1340	M	70	56	2 - 42	40472	Y	
14-Aug	1340	M	75	58	3 - 43	40472	Y	
14-Aug	1340	F	64	51	4 - 44	40472	Y	
14-Aug	1340	M	67	53	5 - 45	40472	Y	
14-Aug	1340	M	73	59	6 - 46	40472	Y	
14-Aug	1340	F	65	52	7 - 47	40472	Y	
14-Aug	1340	M	70	57	8 - 48	40472	Y	
14-Aug	1340	M	65	53	9 - 49	40472	Y	
14-Aug	1340	F	72	57	10 - 50	40472	Y	
14-Aug	1340	M	67	54	1 - 41	40473	Y	
14-Aug	1340	F	68	55	2 - 42	40473	Y	
15-Aug	1115	M	70	54	3 - 43	40473	Y	
15-Aug	1115	F	65	52	4 - 44	40473	Y	
15-Aug	1115	F	67	53	5 - 45	40473	Y	
15-Aug	1115	M	70	55	6 - 46	40473	Vial # 2	
15-Aug	1500	F	66	53	7 - 47	40473	Y	
15-Aug	1500	M	72	56	8 - 48	40473	Y	
15-Aug	1500	F	66	53	9 - 49	40473	Y	

Appendix Table 11. (Continued)

Date	Time	Sex	Length (cm)		Position	Book #	DNA	Comments
			Nose-Fork	P.O.H.				
15-Aug	1500	M	70	54	10 - 50	40473	Y	
15-Aug	1500	F	66	52	1 - 41	40474	Y	
15-Aug	1500	F	66	53	2 - 42	40474	Y	
15-Aug	1500	M	70	55	3 - 43	40474	Y	
15-Aug	1500	M	69	55	4 - 44	40474	Y	
15-Aug	1500	F	58	47	5 - 45	40474	Y	
15-Aug	1500	F	68	56	6 - 46	40474	Y	
15-Aug	1500	M	70	55	7 - 47	40474	Y	
15-Aug	1500	M	70	55	8 - 48	40474	Y	
15-Aug	1500	F	67	54	9 - 49	40474	Y	
15-Aug	1500	M	65	51	10 - 50	40474	Y	
15-Aug	1500	M	67	53	1 - 41	40475	Y	
16-Aug	0900	M	70	56	2 - 42	40475	Y	
16-Aug	0900	M	69	53	3 - 43	40475	Y	
16-Aug	0900	F	62	49	4 - 44	40475	Y	
16-Aug	0900	F	66	54	5 - 45	40475	Y	
16-Aug	0900	M	71	57	6 - 46	40475	Y	
16-Aug	0900	F	56	44	7 - 47	40475	Y	
16-Aug	1510	M	68	54	8 - 48	40475	Y	
16-Aug	1510	F	66	53	9 - 49	40475	Y	
16-Aug	1510	M	67	55	10 - 50	40475	Y	
16-Aug	1510	M	71	56	1 - 41	40480	Vial # 3	
16-Aug	1510	F	64	52	2 - 42	40480	Y	
17-Aug	1115	M	69	55	3 - 43	40480	Y	
17-Aug	1115	M	64	51	4 - 44	40480	Y	
17-Aug	1115	M	67	53	5 - 45	40480	Y	
17-Aug	1115	M	69	54	6 - 46	40480	Y	
17-Aug	1115	M	70	56	7 - 47	40480	Y	
17-Aug	1115	F	60	48	8 - 48	40480	Y	
17-Aug	1115	F	64	51	9 - 49	40480	Y	
17-Aug	1115	M	71	56	10 - 50	40480	Y	
17-Aug	1115	F	63	51	1 - 41	40476	Y	
17-Aug	1115	M	67	55	2 - 42	40476	Y	
17-Aug	1115	M	67	54	3 - 43	40476	Y	
17-Aug	1115	F	66	52	4 - 44	40476	Y	
17-Aug	1115	F	63	50	5 - 45	40476	Y	
17-Aug	1115	F	64	51	6 - 46	40476	Y	
17-Aug	1115	F	65	53	7 - 47	40476	Y	
17-Aug	1115	M	67	54	8 - 48	40476	Y	
17-Aug	1115	M	68	54	9 - 49	40476	Y	
17-Aug	1115	M	72	56	10 - 50	40476	Y	
18-Aug	0915	F	67	53	1 - 41	40477	Y	
18-Aug	0915	M	69	55	2 - 42	40477	Y	
18-Aug	0915	M	71	55	3 - 43	40477	Y	
18-Aug	0915	F	67	53	4 - 44	40477	Y	
18-Aug	0915	F	67	53	5 - 45	40477	Y	
18-Aug	0915	F	66	53	6 - 46	40477	Vial # 4	
18-Aug	0915	M	72	56	7 - 47	40477	Y	
18-Aug	0915	M	71	56	8 - 48	40477	Y	

Appendix Table 11. (Continued)

Date	Time	Sex	Length (cm)		Position	Book #	DNA	Comments
			Nose-Fork	P.O.H.				
18-Aug	0915	F	64	51	9 - 49	40477	Y	
18-Aug	0915	F	67	53	10 - 50	40477	Y	
18-Aug	0915	F	65	52	1 - 41	40478	Y	
18-Aug	0915	F	67	54	2 - 42	40478	Y	
18-Aug	0915	M	70	54	3 - 43	40478	Y	
19-Aug	1000	M	69	57	4 - 44	40478	Y	
19-Aug	1000	F	56	46	5 - 45	40478	Y	Parasites on sides of fish (lesions)
19-Aug	1000	F	60	49	6 - 46	40478	Y	
19-Aug	1000	M	72	57	7 - 47	40478	Y	
19-Aug	1000	F	58	47	8 - 48	40478	Y	
19-Aug	1000	M	68	55	9 - 49	40478	Y	
19-Aug	1000	M	69	54	10 - 50	40478	Y	
19-Aug	1000	F	65	53	1 - 41	40479	Y	
19-Aug	1000	F	65	52	2 - 42	40479	Y	
19-Aug	1000	M	69	56	3 - 43	40479	Y	
20-Aug	0955	F	64	52	4 - 44	40479	Y	
20-Aug	0955	F	65	53	5 - 45	40479	Y	
20-Aug	0955	M	63	52	6 - 46	40479	Y	
20-Aug	0955	M	68	54	7 - 47	40479	Y	
20-Aug	0955	M	70	56	8 - 48	40479	Y	
20-Aug	0955	M	71	56	9 - 49	40479	Y	
20-Aug	0955	M	68	54	10 - 50	40479	Y	

Appendix Table 12. Sampling data from all sockeye carcasses recovered from the Sustut River fence, 2001.

Date	Time	Sex	Length (cm)		Comments
			Nose-Fork	P.O.H.	
22-Aug-01	1920	F	65.0	35.0	died in pen unspawned
23-Aug-01	1955	M	72.0	58.0	unspawned; large dorsal abrasion
31-Aug-01	1130	F			spent
01-Sep-01		M			
02-Sep-01		F			
04-Sep-01	1320	M	65.0	53.5	fungus and large dorsal abrasion
05-Sep-01	1230	M	70.0	56.5	spent
06-Sep-01	1930	M	65.0	54.0	spent
07-Sep-01	0930	M			fungus on head; spent
07-Sep-01	1950	M	62.5		spent
08-Sep-01	0930	F			spent
08-Sep-01	1945	F			spent
10-Sep-01	0945	M			spent
10-Sep-01	0945	M			spent
11-Sep-01	1910	M			spent
11-Sep-01	1910	F			spent
16-Sep-01	1730	M	65.0		spent
26-Sep-01	1900	M			spent

Appendix Table 13. Sampling data from all coho migrating past the Sustut River fence, 2001.

Date	Sex	Length (cm)		Scale Bk.	Scale Bk.	DNA	Comments
		Nose-Fork	P.O.H.	Position	Number		
15-Sep-01	M	71.5	56.5	1-41	40481	Vial #1	Good shape
21-Sep-01	M	64.0	48.5	2-42	40481	Vial #1	Abrasion left operc.
22-Sep-01	M	70.5	54.5	3-43	40481	Vial #1	Head abrasion
23-Sep-01	M	47.0				Vial #1	Jack; clean
23-Sep-01	F	68.5	65.0	4-44	40481	Vial #1	Clean
23-Sep-01	M	73.0	65.0	5-45	40481	Vial #1	Clean
23-Sep-01	F	62.0	48.0	6-46	40481	Vial #1	Clean
24-Sep-01	F	65.0	52.0	7-47	40481	Vial #1	Dorsal abrasion
24-Sep-01	M	66.0	51.0	8-48	40481	Vial #1	Scars and abrasions

Appendix Table 14a. Ages of steelhead sampled at the Sustut River fence, 2001, sorted by total marine age. Includes scales with regeneration for marine age.

Age	n	%	Total by Marine Age	
			n	%
3.2+	3	3.1%		
4.2+	24	24.5%		
5.2+	4	4.1%		
R.2+	4	4.1%	35	35.7%
3.3+	2	2.0%		
4.3+	46	46.9%		
5.3+	2	2.0%		
R.3+	5	5.1%	55	56.1%
4.4+	2	2.0%	2	2.0%
3.2S1+	1	1.0%		
4.2S1+	5	5.1%	6	6.1%
R.R+	2			
	98	100.0%	98	100.0%

Note: the R.R+ scale is not included in above percentages as it was not readable.

Appendix Table 14b. Ages of steelhead sampled at the Sustut River fence, 2001, sorted by total freshwater age. Excludes scales with regeneration for freshwater age.

Age	n	%	Total by Freshwater Age	
			n	%
3.2+	3	3.4%		
3.3+	2	2.2%		
3.2S1+	1	1.1%	6	6.7%
4.2+	24	27.0%		
4.3+	46	51.7%		
4.4+	2	2.2%		
4.2S1+	5	5.6%	77	86.5%
5.2+	4	4.5%		
5.3+	2	2.2%	6	6.7%
	89	100.0%	89	100.0%

Note: regenerated scales are not included in the above calculations