ALOUETTE RIVER COHO ENHANCEMENT FEASIBILITY STUDY 2003/2004

Project # 03.A1.04

"Alouette River Access Study "

FINAL REPORT

March 31, 2004

Produced by:
Caresse Selk, Environmental Technician
Alouette River Management Society

Additional Contributors:
Maho Hayashi
Jean Jang

Table of Contents

Table of Tables and Figures

Executive Summary

The purpose of this project was to investigate non-accessible, off-channel salmonid rearing habitats in tributaries and ponds adjacent to the South Alouette River. A second purpose was to examine the possibility of mitigating these sites to facilitate access to productive juvenile coho habitats. The resulting data from this study has facilitated prioritization of identified barriers for future removal and identified opportunities for the enhancement of juvenile coho production.

The tributaries examined included Dogwood, T10/T11, McKinney, Millionaire, Clayton Channel, North Millionaire, Laity, Cordin, Hennipen and Latimer Creeks. These creeks are all tributaries to the South Alouette River and had been identified to contain possible fish barriers.

After field reconnaissance and data collection, the following surveyed sites contained barriers to juvenile salmonid migration; Dogwood, McKinney, Laity, Latimer, and T10/11 Creeks. Other sites examined were proven to not contain barriers at the time of survey and additional sites were identified where barriers had been breached or removed.

1.0 Introduction

1.1 Purpose

The purpose of this project was to investigate non-accessible, off-channel rearing habitats in tributaries and ponds adjacent to the South Alouette River and assess the feasibility of removing potential migration barriers to these habitats. The resulting data has allowed us to prioritise fish migration barriers for future removal and identify opportunities for the enhancement of juvenile coho over wintering refugias with a long-term goal of increasing coho smolt production within the Alouette River system.

This report ranks potential aquatic restoration projects within the Alouette watershed and will be valuable in future decision making processes. The report will allow ARMS and BC Hydro Bridge Coastal Fish and Wildlife Restoration Program to systematically and effectively prioritise future watershed enhancement projects, which will generate greater resource benefits per expenditure in both the short and long-term. This report also attempts to address the historical access by fish upstream of the identified sites and the impacts to fish downstream of the site.

1.2 Background

In southern BC, coho salmon (*Oncorhynchus kisutch*) typically rear for one year, prior to migrating to the sea (Slaney and Zaldokas, 1997) and rely heavily on off-channel overwintering refugia. Biologists from the Department of Fisheries and Oceans identified a lack of off-channel rearing habitat as a potential cause of low juvenile coho survival within the Alouette River system (Foy, Personal Communication, 2002).

Bradford et al found that only stream length and to a lesser extent latitude are useful in predicting mean smolt abundance. Coastal systems have an average coho production of 1476 smolts/km (Bradford et al, 1997) with the Alouette producing an estimated average of only 330 – 645 smolts/km. Average production/km for the Alouette was calculated by dividing current population estimates by the length of juvenile accessible habitat (approximately 31 km in mainstem and tributaries from Alouette dam to rotary screw trap at 216th). The coho smolt out-migration estimates (Cope, 2001) and calculated average production for the Alouette River can be seen in Table 1.

Table 1. *Out-migration and average production estimates for South Alouette River coho (1998-2001)*

Year	Population Estimate	95% Confidence Interval	Average production/km
1998	16,200	11,100 – 26,000	523
1999	10,238	8,407 – 13,089	330
2000	20,003	16,125 – 28,543	645
2001	13,789	11,191 – 17,429	445

Natural and anthropogenic barriers can effectively reduce the accessible length of stream habitat available for coho and other salmonids and impede migration to off-channel and overwintering refugia. Removal of either natural or anthropogenic barriers can increase a tributaries available rearing habitat for salmonids. If lack of rearing habitat is the limiting factor for production of a species, then typically an improvement in juvenile survival should be observed overtime if migration access is restored to these

habitats. However, ecosystems are inherently complex and many factors contribute to the successful survival of a species.

Four common types of naturally occurring migration barriers include: falls and inclines; rock slides; log/debris jams; and beaver dams (Adams and White, 1990). Anthropogenic barriers can include fishways, culverts, dams, water diversions, collapsed structures, pumps, debris piles, etc.

Log and debris jams are very common in Pacific coast streams, but only a small percentage constitute total migration barriers or cause significant degradation of habitat. The net benefit of debris removal must be carefully assessed as instream debris may contribute significantly to total instream cover. Ponds created behind beaver dams provide excellent summer and winter rearing habitat for juvenile salmonids. The benefit of removing beaver dams must also be carefully assessed and weighed against potential loss of rearing habitat. (Adams and White, 1990)

Any obstruction should be removed or altered only if it is proven to impede salmonid migration or deny access to potentially productive habitat (Slaney and Zaldokas, 1997 and Adams and White, 1990). All obstructions should be assessed by experienced biologists or technicians to ensure that a passage problem truly exists and that removal or enhancement will have the desired hydrological and biological benefits (Adams and White, 1990).

2.0 Study Area

2.1 Alouette River Watershed

The Alouette River watershed is a relatively small system that arises in the Coastal Mountains approximately 50 km northeast of Vancouver, BC. The upper watershed flows into an impounded reservoir known as Alouette Lake. At the reservoir outlet the South Alouette River flows for 21 km before entering Pitt River near Pitt Meadows, BC and the Pitt River, in turn, flows south into the Fraser River. Alouette Reservoir was formed in 1925 when a low-level 21 m dam was constructed on the outlet of what were then two lakes called 'Lillooet Lakes" (Bengeyfield et al. 2001). The outlet dam was modernized in 1984 by BC Hydro and further improved in 1993 when the spillway was reconstructed.

An important feature of the Alouette Reservoir from a fish perspective is that it supports a diverse range of fish: wild and stocked cutthroat and rainbow trout, kokanee, lake trout, bull trout as well as non-sport species such as redsided shiners, peamouth chub, suckers and northern pike minnows. The lower Alouette River and its tributaries support anadromous runs of coho, steelhead, pink, chinook and chum salmon.

In 1926, the Alouette River was impounded for hydro-electric power. Virtually all of the flows at the point of diversion were re-directed out of the watershed and into the Stave Reservoir. The salmonid species that had previously spawned upstream of the dam were completely blocked and sockeye and chinook salmon were extirpated from the river. The flows downstream of the dam were drastically decreased with severe impacts on the coho, chum, pink and steelhead populations.

Historical fish presence data prior to the construction of the dam was researched for the individual tributaries of the South Alouette River. The only existing data accessible for that time period was for the main stem of the Alouette and Gold Creek.

2.2 Specific Site Descriptions

The sites investigated during this study are all within tributaries to the South Alouette River and the footprint area impacted by the Alouette Dam. These tributaries included Dogwood, T10/T11, McKinney, Laity, Latimer, Cordin, Balabanian, Millionaire, Clayton Channel, Beaver Pond and Hennipen Creeks. A total of 18 sites were identified to have possible migration barriers to juvenile coho and other salmonid species. Northing and Eastings, where available, are included in the site descriptions in **Appendix G, H** and **I**. Maps have been included for all surveyed sites in **Appendix D** with the exception of T10/11and the culvert and beaver box at the Beaver Pond. Accurate GIS mapping data was not available for most sites outside of the municipal boundaries including these two sites.

3.0 Methods

3.1 Site Selection

Sites containing potential migration barriers were selected by examining and querying existing Geographical Informational System (GIS) and habitat inventory data collected during the District of Maple Ridge GPS Stream Mapping and Inventory Project (Stott, 2001 and 2002).

Queries were performed on the data to identify potential in-stream barriers to juvenile salmonid migration. The sites identified were then further narrowed to only tributaries that contained existing or potential coho off-channel and rearing habitats. Barrier sites that were within 200 m of the headwaters of the selected tributaries were eliminated from this study because of the limited length of upstream habitat that would be gained from restoration or enhancement activities.

A downstream check was also conducted prior to surveying the barriers to determine that the habitat preceding the barrier was physically accessible to anadromous salmonids and that a significant quantity of salmonid habitat exists downstream. For resident salmonids, a significant habitat reach must be at least 200 meters in length, have a gradient <20% and be free of other barriers (Washington Department of Fish & Wildlife, 2000). If there was no anadromous salmonid access or significant salmonid habitat below the barrier, then the site was disregarded and no further evaluation was conducted.

A total of 18 sites containing potential barriers were initially selected for further evaluation and field studies during this study. Of those 18 sites, 4 were identified in the initial field reconnaissance to contain barriers that had either washed out during high flows or had been manually removed prior to this study. These 4 sites were assessed by ARMS field technicians to be accessible to juvenile salmonids and further studies and sampling were not performed.

One additional site identified on Hennipen Creek was not surveyed as it was brought to ARMS attention that the North Fraser Salmon Assistance Program had addressed the culvert barrier in a current BC Hydro Bridge Coastal Fish and Wildlife Restoration Program application.

Labelling of the selected sites was kept consistent with the system utilized by the District of Maple Ridge GPS Stream Mapping and Inventory Project. The labelling system was used for the specific site descriptors in this report. Consistency will allow the District of Maple Ridge and BC Hydro Bridge Coastal Fish and Wildlife Restoration Program to easily update their existing information repositories as inventories are performed and sites are enhanced over time.

Landowners were approached and consulted at each site containing a barrier. An information letter was distributed to each landowner (**see Appendix C**) and address and phone number was gathered from each owner and property information was obtained from the District of Maple Ridge. Landowners were generally receptive to future enhancement work on their property and will be contacted again prior to future BC Hydro Bridge Coastal Fish and Wildlife Restoration Program applications. Letters of support were not solicited at this time, as ARMS did not submit a BC Hydro Bridge Coastal Fish and Wildlife Restoration Program proposal for any of the described projects for the 2003/2004 funding deadline. Support letters will be submitted by ARMS for any subsequent applications pertaining to the sites described in this report.

3.2 Stream Survey Methods

The methodology for the barrier assessment was largely based on Washington Department of Fish and Wildlife's "Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization

Manual". Some modifications to these methods were made to remain within the time and budget constraints of this project.

Each barrier was surveyed and classified as a natural obstruction, anthropogenic dam or culvert. Sites were surveyed for the upstream and downstream riparian extent, water temperature, channel width, wetted width, stream depth, velocity, culvert jump height and gradient. Accessibility to the site and weather conditions were also noted.

For anthropogenic dams, the height, width, span and composition were recorded. Dismantling options, water surface difference and primary purpose of the dam were assessed and noted. While surveying natural obstructions, height, width, composition, and dismantling options were recorded. At culvert survey sites, composition, rise, slope, shape, span, and length were recorded.

UTM coordinates collected during the District of Maple Ridge GPS Stream Mapping and Inventory Project were utilized for each site surveyed during our study. This data was previously collected using GPS equipment configured to meet or exceed the Provincial RIC GPS inventory standards. The accuracy of the GPS data was designed to consistently be within a 1-5m range of accuracy with a 95% confidence limit. In open areas, the GPS accuracy is typically within a 1 m standard of accuracy (Stott, 2001). UTM data was not available at a few of the selected sites.

3.3 Fish Sampling Methods

At each site, a total of six gee-traps were set. Three traps were placed upstream of the suspected barrier and three downstream. For the purpose of identification in this report, trap numbers 1-3 represent traps located upstream of the barrier and 4-6 represents traps located downstream. The gee-traps were baited and each trap was installed in the creek for approximately 24 hours. All sites were trapped at least twice with the exception of site NO 239 on McKenney Creek, which was only trapped once. If coho salmon were not captured upstream of the suspected barrier after the second trapping session, then the site was trapped a third time. The only site that was trapped four times was CUL-1 on Laity Creek.

Captured fish were anaesthetized with a clove oil dilution to enable accurate identification and measurement (**Figure 1**). The fish were then recovered in fresh water before being returned to the creek.

Figure 1. Measurement of a juvenile coho.

4.0 Results and Discussion

The following 6 sites were sampled and found to contain no juvenile coho salmon upstream of the barrier. These sites were then considered to be probable barriers to the migration of juvenile salmonids. In some locations, only a few coho were trapped downstream of the barrier. In those situations, it is possible that there is another factor leading to low coho occupancy and the absence of coho above the barrier could be indicative of a further problem.

Coho were used as the indicator species in this study because in southern BC, they rear for approximately one year in side channel, pond and tributary habitats. Juvenile coho should be present in coastal tributaries throughout the summer months surveyed in this study. Cutthroat trout were found at some sites upstream of barriers. The presence or absence of cutthroat trout was not used as an indicator, as this species can have resident populations.

4.1 Confirmed Barrier Sites

4.1.1 Dogwood Creek (SI 170)

Barrier Description and Location

This site is off of Dogwood Ave. (**Figure 14**) and contains a man-made dam with a small downstream pond (**Figure 20 and 21**). The dam is approximately 0.5 m in height and 5m across. The dam material consists of large cobble, mud, and woody debris. Several large trees have also been cut and piled onto the dam. Water is strained through the dam. There are also old fragmented pieces of a cement culvert at this site.

Fish Inventory

Juvenile coho were trapped in the three downstream trapping locations represented by trap number 4,5, and 6 in **Figure 2**. Only crayfish and cutthroat trout were trapped in the three upstream trapping locations represented by trap numbers 1,2 and 3 in **Figure 2**.

Habitat Values

Although there is no gravel and cobble within the stream channel, the riparian vegetation on both banks is well established. The streambed upstream and downstream of the dam is in-filled with silt deposits. There is over 980 m of potential upstream habitat if the barrier was removed. At the end of June the creek was only 0.3m deep, but there are many pools and ponds along Dogwood Creek. Consultation with the landowners revealed that summer flows are generally low and fish are sustained in isolated pools.

Accessibility

This site is vehicle accessible through private property. The barrier can be accessed on foot and is approximately 30m from the driveway. The dam could be removed by hand tools.

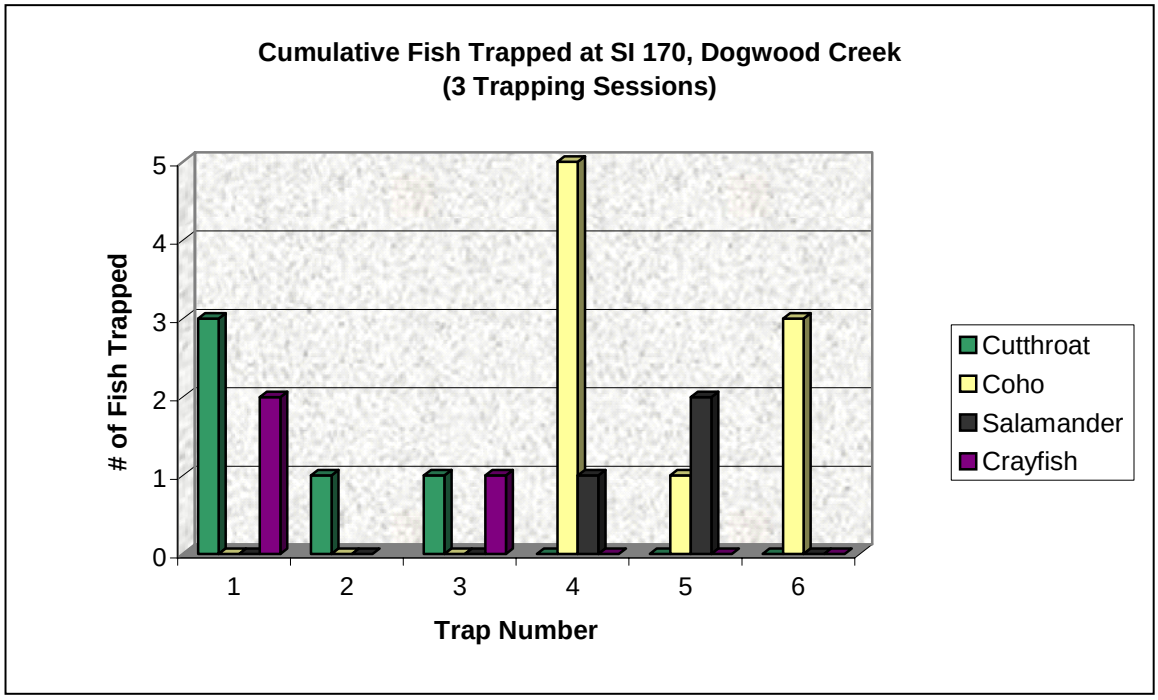

Figure 2. Fish Inventory Results for Dogwood Creek – Site SI 170.

4.1.2 McKinney Creek (SI 210)

Barrier Description

This site is downstream of 209th and Westview Park and is on private property (**Figure 15**). It contains a fragmented cement culvert (**Figure 22**). The culvert had collapsed and is no longer functional and water currently flows beneath the culvert.

Fish Inventory

Only one juvenile coho was trapped in the three downstream trapping locations represented by trap numbers 4, 5and 6 in **Figure 3**. Cutthroat trout were trapped both upstream and downstream of the barrier.

Habitat Values

The creek runs through a green belt with 5 m of riparian vegetation on the right bank and up to 8 m on the left bank. The stream substrate consists of gravel and some silt. There are small pools and undercut banks along most of the creek in this section as well as woody debris. There is approximately 225m of potential habitat if this barrier was removed.

Accessibility

This site is accessible through a private backyard located at 20884 Wicklund Ave. The barrier site is located approximately 20m upstream from this address. This site is accessible on foot by walking down a treed embankment. The barrier would need to be removed by hand tools as machine access would be very difficult.

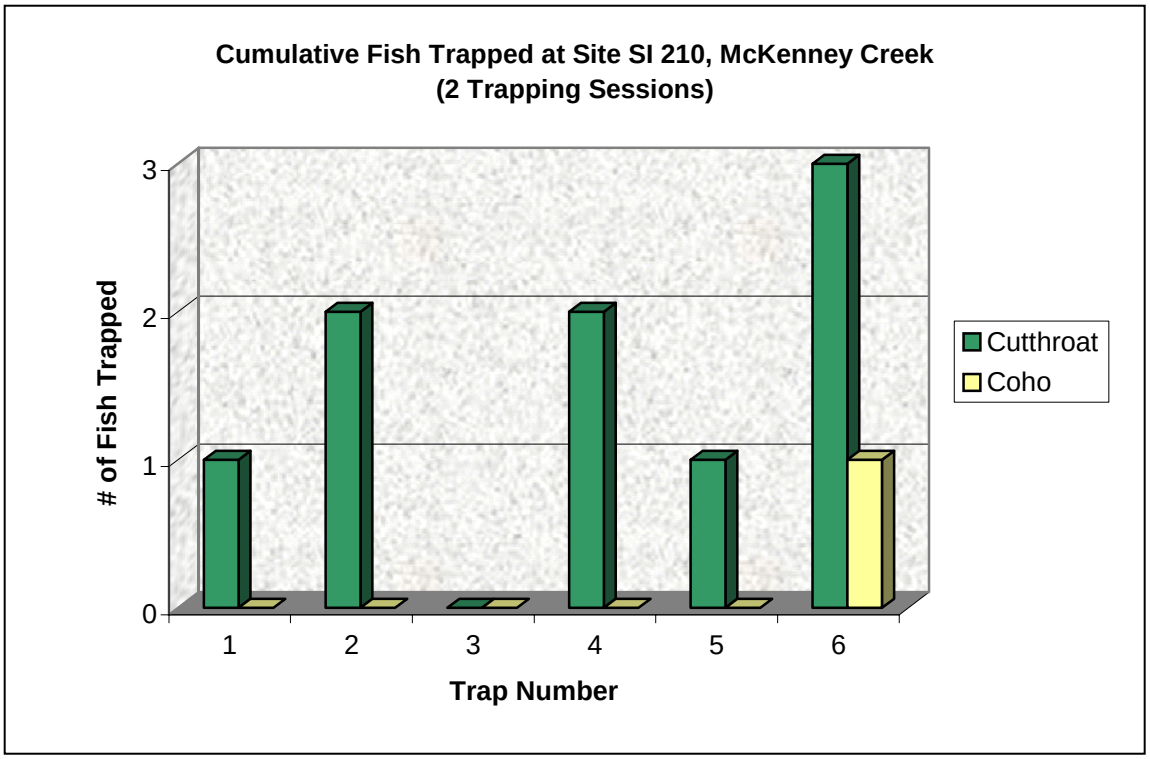

Figure 3. Fish Inventory Results for McKinney Creek - Site SI 210.

4.1.3 Laity Creek (SI 129)

Barrier Description

This site is at a road culvert under 128th Ave just west of Laity St (**Figure 16**). The culvert structure and form is passable for fish, but there is a secured wooden board located on the downstream end of the culvert (**Figure 23**). The board is approximately 0.3m high and 2.4m wide. The gradient of the culvert is estimated to be >3%. During higher flows this obstruction may be fish accessible, but during the drier months, coho are prevented from accessing upstream habitat. At the time of this study, trapping from May through July resulted in no coho trapped upstream of the barrier.

Fish Inventory

Juvenile coho were trapped in one of the downstream trap locations, represented by trap numbers 4,5, and 6 in **Figure 4**. Juvenile coho were not trapped upstream of the culvert, but sculpin and stickleback were.

Habitat Values

There is over 800 m of upstream habitat from this barrier site. The riparian vegetation directly upstream of the culvert is mostly tall grass with occasional trees. Further upstream of the barrier, the right bank of the creek follows 128th Ave. with adjacent farmland and shrubs on the left bank. At the junction of Exeter Avenue and Carlton Street, there is mature deciduous and coniferous vegetation on both banks. There is approximately 6m of riparian vegetation on both sides of the creek from Thorton Ave. to Douglas Ave. Downstream of the culvert, the creek's riparian vegetation consists primarily of grasses.

Accessibility

This site is easily accessed by vehicle via 128th Ave. There is a small parking lot adjacent to the culvert and the site can be reached by foot or machine.

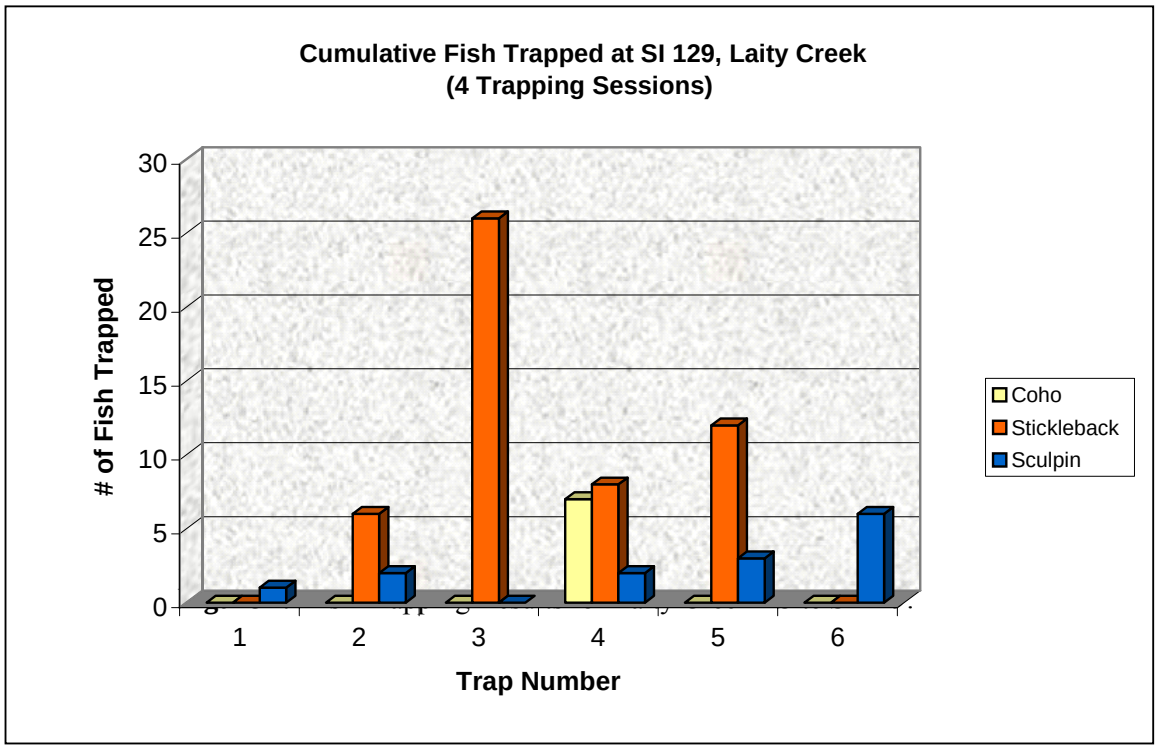

Figure 4. Fish Inventory Results for Laity Creek - Site SI 129.

4.1.4 T10/11 Creeks (HR SI 3)

Barrier Description

This site is located at T10/T11 creeks adjacent to the BC Hydro access road along the South Alouette River. At this site, there is a tree root system and several boulders that are within the creek and creating a small falls (**Figure 24**). The falls is approximately 0.4 m high and 1.95 m wide.

Fish Inventory

After three trapping efforts, substantial numbers of juvenile coho were trapped in two of the downstream trapping locations represented by trap numbers 4, 5, and 6 in **Figure 5**. Juvenile coho were not trapped upstream of the culvert, but a total of 6 cutthroat trout were trapped in the three upstream trap sites (**Figure 5**).

Habitat Values

The riparian vegetation on both banks of the stream is extensive and consists of mature second-growth forest. The streambed's substrate consists primarily of gravel and cobble. From the upstream fish ladder at site T10/T11 - HR CU 2 there is over 500 m of potential upstream habitat in T10 and T11.

Accessibility

This site is approximately 150m from the BC Hydro Rd and can be accessed by a small foot trail. The trail is not suitable for machine accessibility.

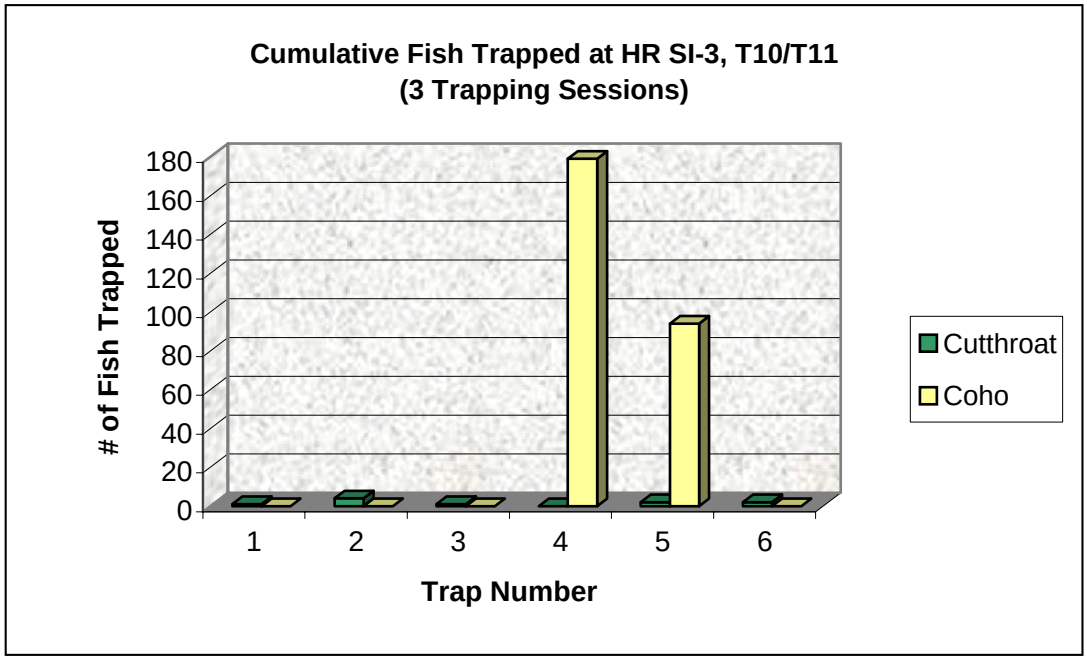

Figure 5. Fish Inventory Results for T10/T11 - Site HR SI-3

4.1.5 T10/T11 Creeks Fish Ladder (HR CU 2)

Barrier Description

The T10/T11 fish ladder is located directly off the BC Hydro Rd. adjacent to the South Alouette River. The ladder was designed to accommodate passage of adult salmonids, but the steps may be impeding juvenile salmonid access. The T10/11 (HR SI 3) barrier is located downstream of this site making it difficult to prove whether the fish ladder is also a barrier until the downstream barrier is eliminated.

Fish Inventory

Coho were not trapped at this site, but cutthroat trout were trapped both upstream and downstream of the fish ladder. The majority of the cutthroat trout were trapped downstream of the fish ladder in trap numbers 4,5 and 6 in **Figure 6**.

Habitat Values

There is substantial riparian vegetation both upstream and downstream from the fish ladder. The vegetation was cleared adjacent to the fish ladder during its installation, but is starting to re-establish itself. The Alouette River Management Society has also planted native vegetation around the fish ladder. The substrate downstream from this site consists primarily of gravel.

Accessibility

This site can be easily accessed by the gravel BC Hydro access road adjacent to the Alouette River. The fish ladder can be accessed by foot or machine from the access road.

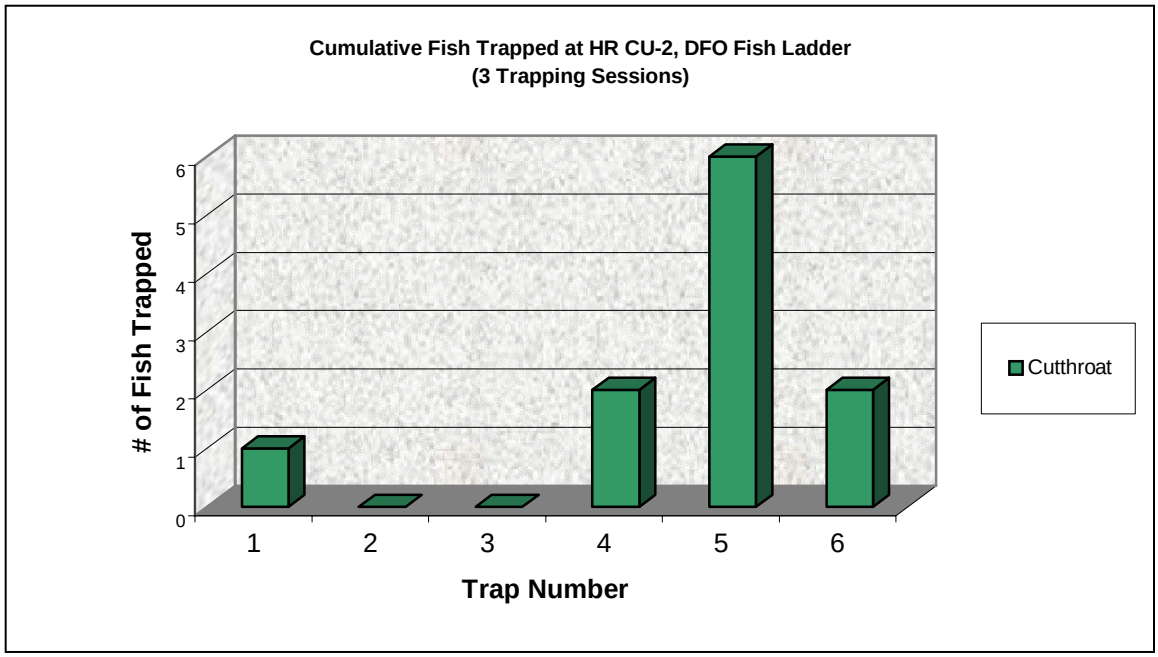

Figure 6. Fish Inventory Results for T10/11 - Site HR CU-2

4.1.6 Latimer Creek (SI 175)

Barrier Description

This site is located North of Dewdney Trunk Road off of 240th St on Latimer Creek (**Figure 17**). This site contains a large collapsed culvert and dam (**Figures 25, 26 and 27**). Water currently flows underneath the existing culvert and there is a foot trail that crosses the creek above the culvert and dam. The downstream jump height of the culvert is 0.75m high. Upstream of the culvert, there is a shallow pond that had an average depth of 0.5 m in May and 0.3 m in June.

Fish Inventory

Coho and cutthroat trout were trapped at the three downstream trapping locations represented by trap numbers 4, 5, and 6 in **Figure 7**. There were no fish trapped upstream of the barrier, but both tadpoles and salamanders were trapped in the upstream pond.

Habitat Values

Downstream of the culvert, the riparian vegetation is 5-15m wide on each bank. The substrate consists primarily of gravel and cobble. Latimer Creek has the potential of over 900m of upstream wetted habitat, above the culvert barrier. There are substantial intact riparian zones with mature trees and a high amount of instream woody debris. Latimer Creek's headwaters emerge as ground water approximately 145m east of 244 St. In late June the upstream section was considered well-wetted.

Accessibility

This site can be accessed by a foot trail that begins at the Cheshire Park Stables driveway. The barrier is located on the trail approximately 20 m east of the trail head. Machine access would be challenging at this site due to the steep embankments.

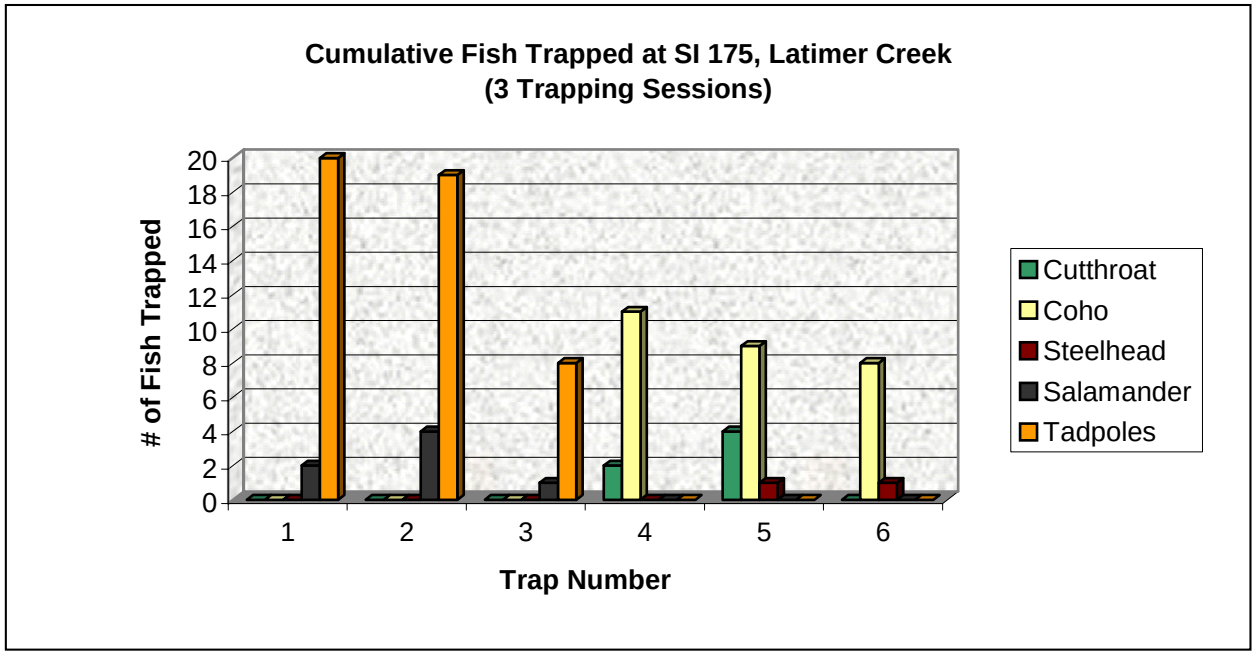

Figure 7. Fish Inventory Results for Latimer Creek – Site SI 175.

4.2 Sites Surveyed with Barriers Not Proven

The following sites had been identified to contain potential barriers to fish access. Each site has been surveyed and all are considered to be accessible to anadromous juvenile salmonids. However, some of these sites may be difficult for juvenile salmon to access or may only be accessible during higher flows or rain events.

4.2.1 Cordin and Millionaire Creek Confluence (CUC-1)

Cordin Creek enters a pond at its confluence with Millionaire Creek (**Figure 18**). Water is diverted from Cordin Creek into the pond (**Figure 28**) and is then culverted until it enters Millionaire. There are two culverts that drain into Millionaire Creek, one which was submerged and the other which was suspended above the waterline. The dimensions of the pond are 14m x 35m. Upstream, the pond is surrounded by grass and shrubs. Downstream vegetation is 5-15m on the right bank and 1-5m on the left bank. Upstream of the pond it is designed so that it is optional to allow water from Cordin to enter. The same option is set up downstream of the pond allowing drainage into Millionaire Creek. Upstream of the pond, Cordin Creek was completely dry by the end of June.

Juvenile coho were trapped both upstream and downstream of the culverts and pond (**Figure 8**), indicating that this site is accessible to fish. Considerably more coho were trapped at the downstream trapping locations indicated by trap numbers 4, 5 and 6 in **Figure 8**. This may indicate that some juvenile

salmonids have difficulty navigating above the culverts. Modifications to the culverts may facilitate access to all juvenile salmonids.

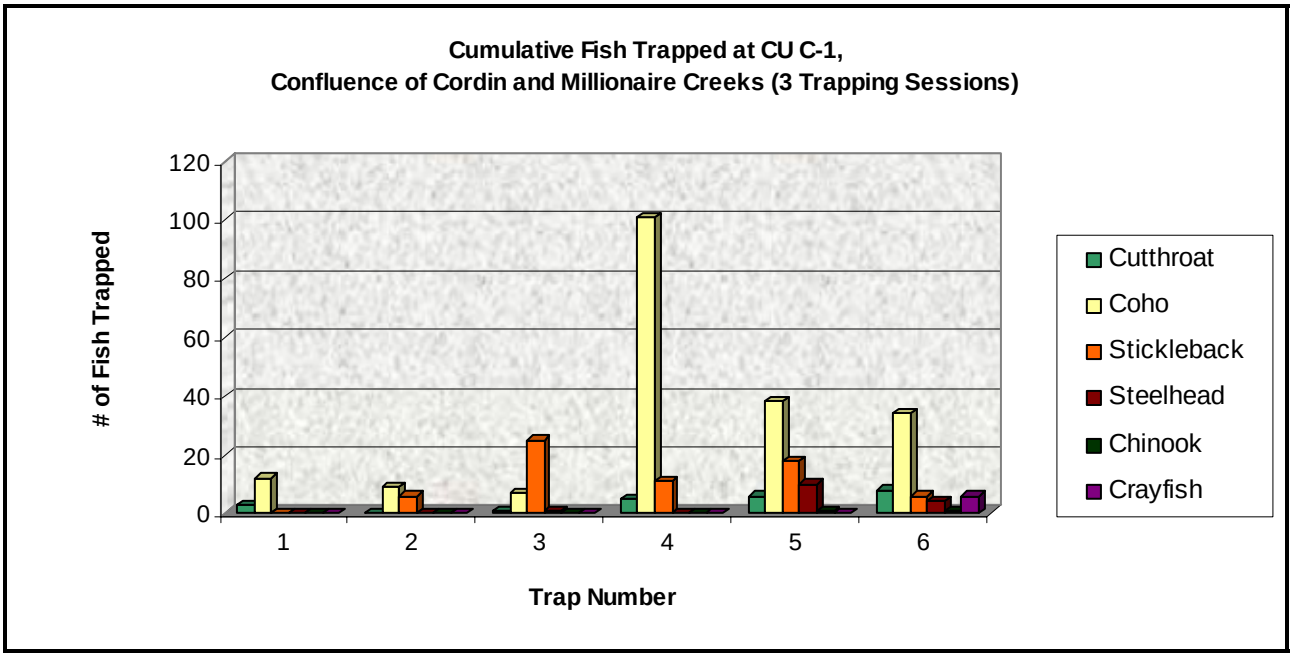

Figure 8. Fish Inventory Results for Cordin/Millionaire Creeks – Site CU C-1.

4.2.2 Dogwood Creek (CU 346)

This identified potential barrier on Dogwood Creek (**Figure 14**) is a wooden culvert. The top of the culvert has decayed (**Figure 29**), but the rest is intact and fish can access upstream habitat via the culvert. Juvenile coho were trapped in all three upstream trap locations represented by trap numbers 1,2 and 3 and all three downstream trap locations represented by numbers 4,5 and 6 (**Figure 9**). Again, more coho were found at the three downstream trap locations. The creek was intermittently dry when surveyed on July 2, 2003.

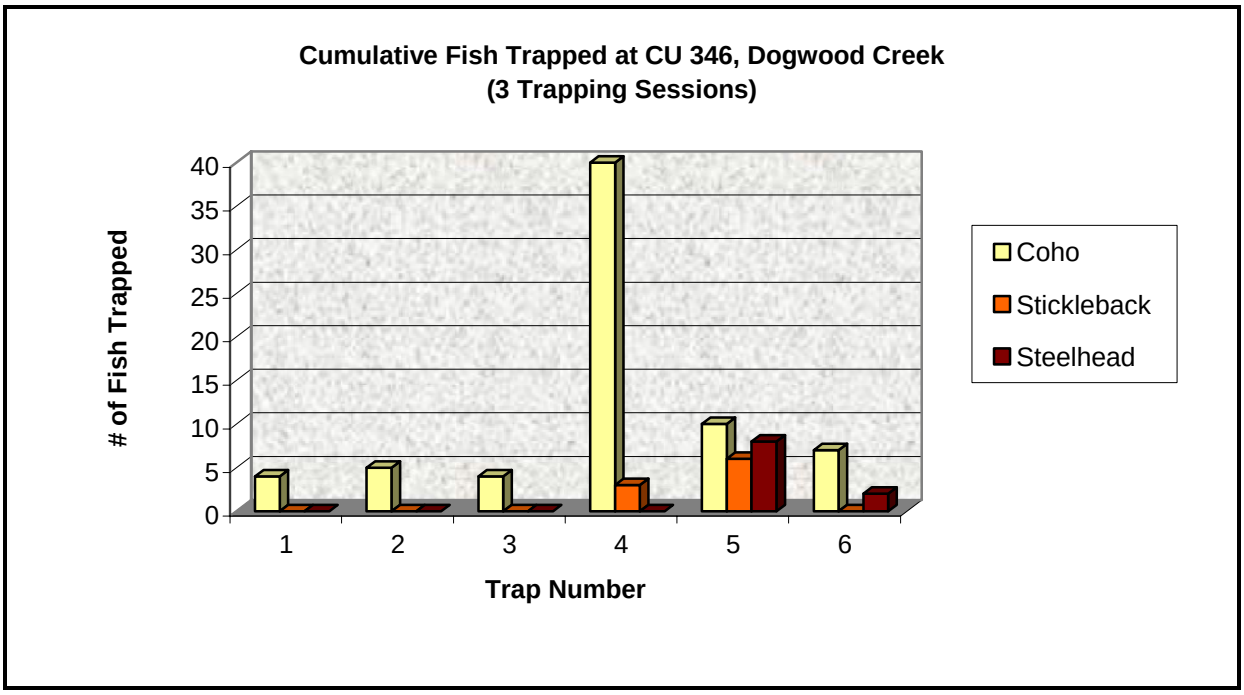

Figure 9. Fish Inventory Results for Dogwood Creek – Site CU 346

4.2.3 Latimer Creek (CU 382)

At this site, there is an aluminium culvert that runs under 240th Street (**Figure 17**). There is a jump to the culvert on the downstream end (**Figure 30**). The culvert has a rise of 1.23m and is 9m long. There is a plunge pool 0.5m deep on the downstream side. Coho were trapped at all three trap sites upstream of the culvert and all three trap sites downstream of the culvert (**Figure 10**) indicating that this culvert is navigable for juvenile salmonids. However, considerably more coho were trapped downstream of the culvert indicating that this culvert may only be accessible during high flows or to stronger juveniles. The riparian vegetation on the upstream and downstream banks is 5-15m wide and the stream substrate consists of small and large gravel.

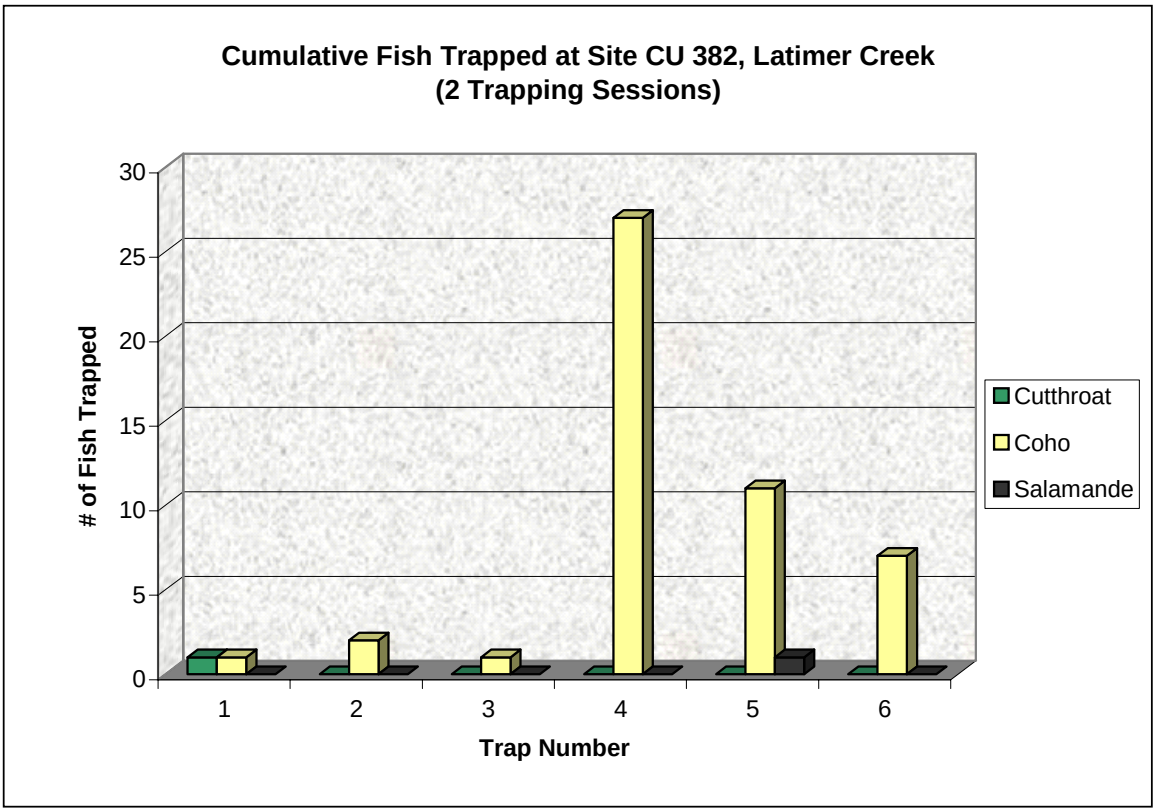

Figure 10. Fish Inventory Results for Latimer Creek – Site CU 382.

4.2.4 Balabanian Creek (NO 118)

There is a woody debris pile (**Figure 31**) located at this site on Balabanian Creek (**Figure 19**). Coho were trapped at all three upstream locations and all three downstream locations (**Figure 11**) indicating that this debris pile is passable for juvenile coho salmon. On both the upstream and downstream banks of the creek there is 5-15m of riparian vegetation. The stream substrate consists of primarily small gravel and sand.

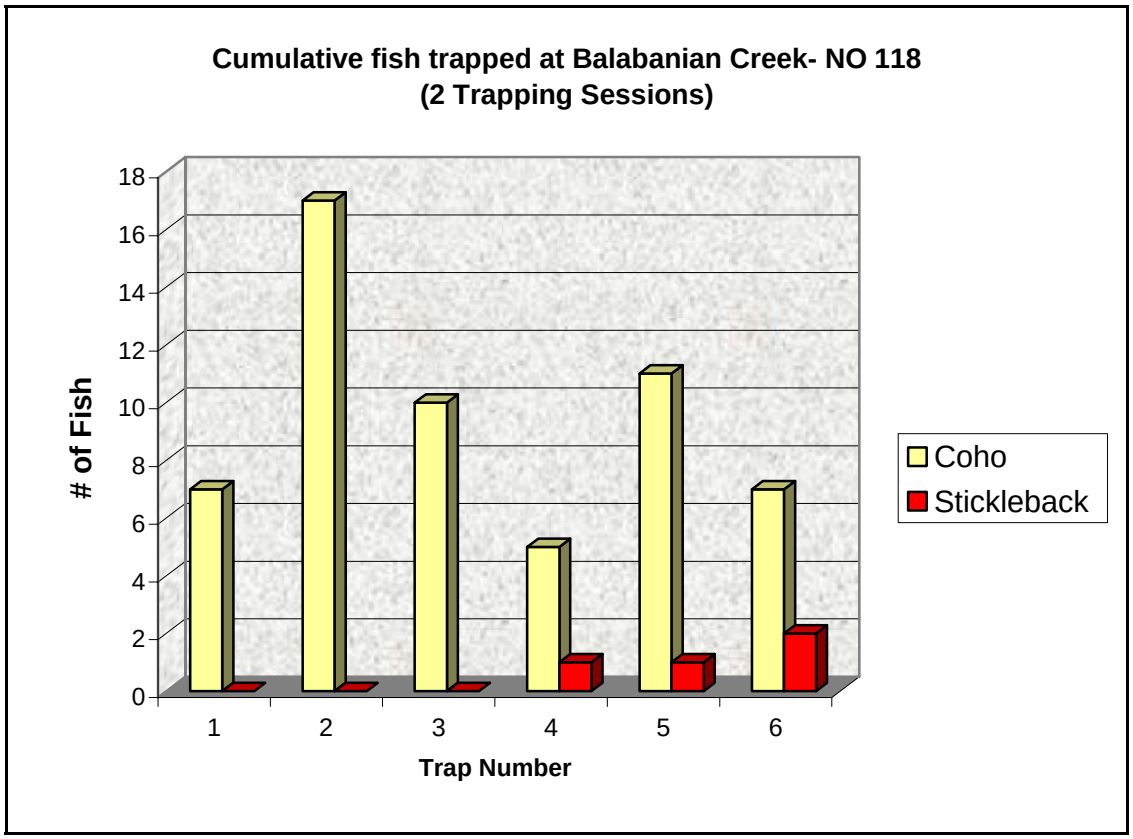

Figure 11. Fish Inventory Results for Balabanian Creek – Site NO 118.

4.2.5 McKinney Creek (NO 240)

At this site, directly downstream of 209 St (**Figure 15**), there is a small debris pile consisting of large and small woody debris (**Figure 32**). Two individual trapping efforts showed no fish presence either upstream or downstream of the debris pile. These results do not necessarily indicate a barrier due to the downstream culvert obstruction at site SI 210. Downstream of the debris pile, both bank are covered with the invasive plant species Ivy and Lamium. The substrate of the stream consists of gravel, sand and silts.

4.2.6 McKinney Creek (NO 239)

At this site there is an instream small woody debris pile (**Figure 33**). This site is downstream of sites NO 240 and SI 210 (**Figure 15**) and is accessible through a private backyard located at 20884 Wicklund Ave. The single trapping session found juvenile coho both upstream and downstream of the debris pile (**Figure 12**). The woody debris pile is not considered a barrier to the movement of juvenile salmonids at this time.

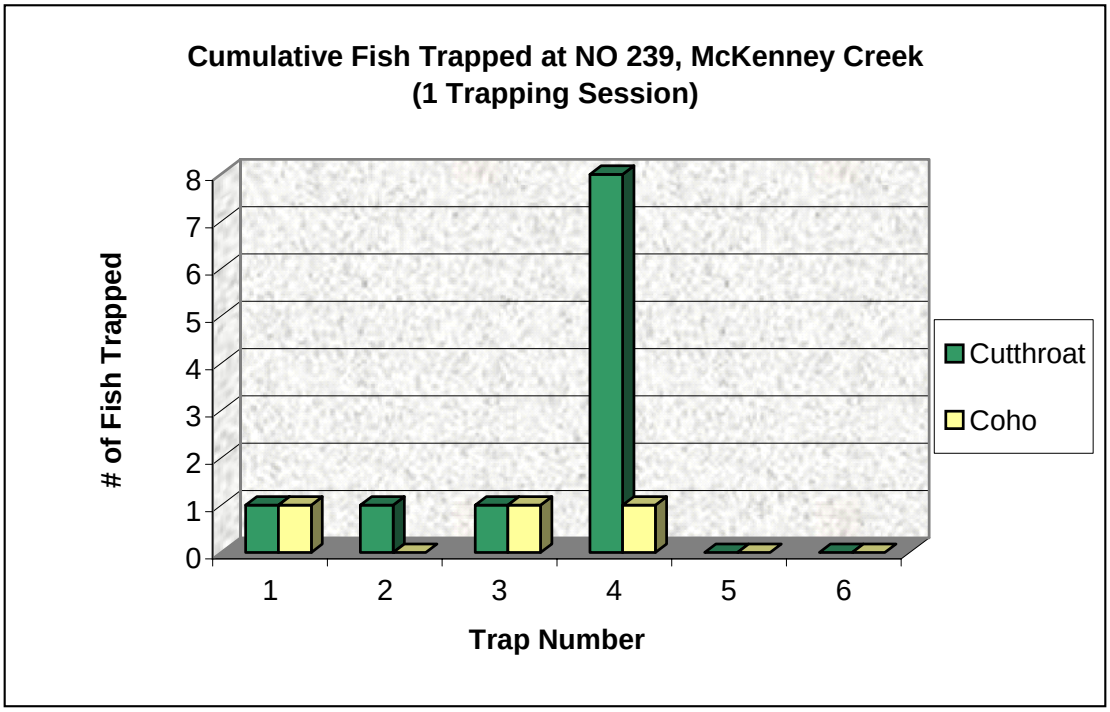

Figure 12. Fish Inventory Results for McKinney Creek – Site NO 239.

4.2.7 Beaver Pond and Creek adjacent to BC Hydro Road (HR CU1)

This unnamed creek contains a culvert with an attached beaver deterrent box (**Figure 34**). The culvert runs underneath the BC Hydro access road adjacent to the Alouette River. The location is approximately half way between the start of the hydro road and the dam. The beaver deterrent box is located in a small pond to the east of the access road. Fish access the culvert by swimming beneath the grated bottom of the beaver box. Silt and debris have partially in filled the bottom of the box. Juvenile coho were trapped at the upstream trap locations represented by trap numbers 1,2,3 and the downstream trap locations represented by trap numbers 4,5 and 6 (**Figure 13**). The upstream habitat contains a large pond enhanced with large woody debris. This pond is considered to be ideal refugia for juvenile coho. The culvert and beaver box are not considered to impede the movement of juvenile salmonids at this time.

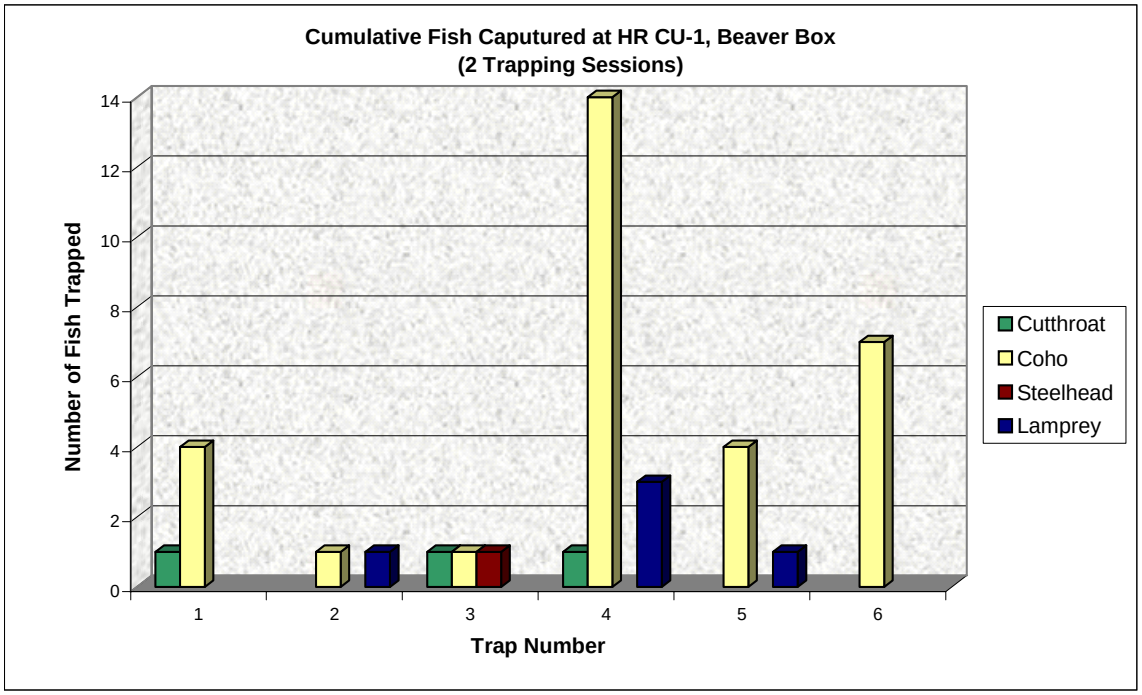

Figure 13. Fish Inventory Results for Beaver Box – Site HR CU-1.

4.3 Sites Not Surveyed

The following four sites had been identified to contain potential barriers. Initial investigation and field reconnaissance showed that the barriers were no longer present or were being addressed. No further surveys were performed at these sites.

4.3.1 Hennipen Creek (NO 11)

This site is off of Fern Crescent, immediately downstream of the driveway leading to the Atlantis Meditation Center just north of 129 Ave. A 2 meter obstruction of woody debris had previously been identified at this site through the District of Maple Ridge's GPS mapping project. There was evidence that obstruction had washed out and all that remained was some small woody debris and leaves. This site is considered to be fully accessible to juvenile salmonids.

4.3.2 Hennipen Creek (No identification number available)

A culvert barrier had been identified at this site on Hennipen Creek, just south of Fern Crescent. ARMS was contacted and informed that the barrier had been investigated and addressed by the North Fraser Salmon Assistance Program within another 2003 BC Hydro Bridge Coastal Fish and Wildlife Restoration Program application. ARMS did not conduct any studies at this site.

4.3.3 Laity Creek (NO 146)

This site on Laity Creek had been identified in the District of Maple Ridge's GPS mapping project to contain an instream beaver dam that was 0.5 m high. Field reconnaissance showed that the beaver dam had washed out or been breached. This site is currently considered passable by juvenile salmonids and no further surveys were performed.

4.3.4 Clayton Channel – BC Hydro Road (No identification number available)

Clayton Channel crosses the BC Hydro access road adjacent to the Alouette River and flows south west before joining the river. Woody debris piles had previously been identified instream causing a possible obstruction. Field reconnaissance found no obstructions at this section of the creek.

4.3.5 Millionaire Creek (NO 6)

This site is located approximately 29m upstream of the confluence of Millionaire and Cordin Creek. A woody debris pile had previously been identified at this site in the District of Maple Ridge's GPS mapping project. Field reconnaissance found no obstructions at this section of the creek, although there were woody remnants of what could have been an obstruction. This site is considered passable by juveniles and adult salmon.

5.0 Recommendations

ARMS technician met on-site with Matt Foy (DFO) at each of the proven barriers to review recommendations for future enhancement and restoration work. The sites at T10/11 – HR SI3 and Laity Creek were given highest priority for barrier removal and were recommended for immediate restoration and enhancement. Latimer and Dogwood were also recommended for enhancement and barrier removal, but with additional consultation and planning with DFO, the District of Maple Ridge and adjacent landowners. The McKenney Creek site was ranked as a lower priority for enhancement.

All sites where the potential barriers were considered to be accessible to juvenile salmonids are not recommended for future restoration at this time. However, it would be beneficial to monitor some of these sites over time as additional debris can accumulate at existing woody debris piles, old culverts may further deteriorate and beavers may rebuild dams. Some of these sites could pose to be barriers in the future.

T10/T11 (HR SI 3)

The Alouette River Management Society with support from the DFO recommends timely barrier removal and enhancement at the T10/T11 site. Matt Foy has recommended a site prescription that includes placement of one load of in-channel gravel and a small diversion around the barrier with a series of two or three hand-built pools to facilitate both adult and juvenile access. The DFO has offered to complete this project under their 2004 operating budget.

This site is given high priority for removal. Modifications to the existing channel could be done by hand and either a series of small plunge pools or a small diversion could be constructed to address the barrier.

Latimer Creek (SI 175)

ARMS with support from the DFO recommends that this site be considered as a future enhancement project with the BC Hydro Bridge Coastal Fish and Wildlife Restoration Program or as a District compensation project. The scale of this project would be substantial with potential access and engineering challenges. The optimal design will allow retention of the upstream pond as well as facilitate stream crossing for the landowners.

This site is given high priority for removal granted that the integrity of the upstream pond be conserved and maintained as amphibian habitat. Native tadpoles and salamanders were consistently trapped and observed in this pond and dialogue with the landowners indicated that this barrier had been present for many years and the pond was well established. A culvert design that maintained the integrity of the pond while providing juvenile salmonid accessibility would be the recommended prescription at this site. The design would also have to maintain the current pedestrian crossing over the creek. The high quality upstream habitat would provide ideal habitat for juvenile coho salmon.

Laity Creek (SI 129)

ARMS with recommendation from the DFO proposes that this site be prioritized for immediate attention due to the structural instability and potential liability of the existing culvert and supports. This site is on municipal property and would be best addressed by the municipal engineering crew and environmental staff. ARMS has contacted the District of Maple Ridge with their findings and will be partnering with the District to design a new fish friendly passage under 128th Street. Plans are underway to complete this project in 2004.

This site is given high priority for removal. The District of Maple Ridge owns this property and is receptive in partnering with ARMS to remove this barrier. This would be a cost effective project as access to the site is favourable and the board could be removed by hand or notched with a chainsaw to allow juvenile salmonid migration. There is significant upstream habitat for juvenile coho and previous water quality testing in Laity Creek has revealed healthy stream parameters (pH, temperature, dissolved oxygen, turbidity and discharge) and high benthic invertebrate counts for salmonids (Walsh and Krzesinka, 1998).

Dogwood Creek (SI 170)

This site would provide access to upstream habitat if the barrier were removed, but a series of small dams and ponds upstream of the barrier may prevent full access of the available habitat. At least one of the larger upstream ponds contains populations of Bull Frogs, which are voracious predators. Many sections of this creek contain large silt deposits and most of the gravel or cobble substrate has been buried. The absence of substantial summer flows is also a factor to consider if future restoration projects were to be considered. This dam is not given high priority for dismantling at this time, but future upstream habitat improvements could improve this viability of this habitat for juvenile salmonids.

ARMS with support from the DFO recommends that this site be closer examined in the future and a comprehensive prescription be developed. This creek has extensive urban impacts including: invasive plant and animal species, loss of riparian vegetation, infilling of silt in ponds and channels, anthropogenic dams, collapsed bridges, etc. A community awareness campaign and a series of enhancement projects throughout the neighbourhood including riparian planting, dam removal, invasive species removal, signage and pond/channel excavation is recommended for Dogwood Creek.

McKenney Creek (SI 210)

This barrier was not given high priority for removal due to limited upstream habitat (approximately 225m) and potential liability concerns. There is a large black cottonwood tree at this site with a substantial root system around the fragmented culvert. Removal of the culvert barrier may disturb the tree's root system and contribute to instability. Matt Foy recommended consultation with an arborist prior to future work at this site to ensure tree stability and reduce any potential for property damage.

6.0 Acknowledgements

Many people participated in one way or another in the completion of this study. First, we would like to thank Jean Jang and Maho Hayashi for their dedication and hard work as the field technicians for this study. We thank the BC Hydro Bridge Coastal Fish and Wildlife Restoration Program for recognizing the importance and supporting the study.

We would like to thank Matt Foy (FOC) for his site specific recommendations and for his assistance in assessing and prioritizing each site. We would especially like to thank Jim Sheehan of the District of Maple Ridge for his assistance in providing property boundary maps and landowner contact information. We would also like to thank the District of Maple Ridge for providing us with GIS data, maps and coordinates for the specific survey sites. Thanks also to Scott Cope at Westslope Fishery for providing assistance to the contract technicians during the fish inventory.

7.0 References

Adams, M.A. and I.W. Whyte. 1990. Fish Habitat Enhancement: A Manual for Freshwater, Estuarine and Marine Habitats. Department of Fisheries and Oceans Canada. DFO 4474. 330 p.

Bengeyfield, W., D. Hay, S. Joyce and J. Greenbank. 2001. Evaluation of Restoring Historic Passage for Anadromous Fish at BC Hydro Facilities. Contract report prepared for Power Supply Environmental BC Hydro, Burnaby, BC.

Bradford, M.J, G.C. Taylor and J.A. Allen. 1997. Empirical Review of Coho Salmon Smolt Abundance and the Prediction of Smolt Production at the Regional Level. Transactions of the American Fisheries Society. 126:49-64.

Cope, S. 2001. Alouette River Salmonid Smolt Migration Enumeration: 2001 Data Report. Contract Report for Alouette River Management Committee and BC Hydro Power Facilities.

Foy, M. 2002. Personal Communication. Department of Fisheries and Oceans Canada.

Slaney P. A. and D. Zaldokas. 1997. Fish Habitat Rehabilitation Procedures Watershed Restoration Technical Circular No. 9. Watershed Restoration Program. Ministry of Environment, Lands and Parks and Ministry of Forests, BC Government.

Stott, R. 2001. District of Maple Ridge GPS Stream Mapping and Inventory Final Report. Phase One: Silver Valley and Albion Area. Contract report prepared for District of Maple Ridge, Alouette River Management Society and Kanaka Education and Environmental Partnership Society.

Stott, R. 2002. District of Maple Ridge GPS Stream Mapping and Inventory Final Report. Phase Two: Alouette, Kanaka and Thornhill Watersheds. Contract report prepared for District of Maple Ridge, Alouette River Management Society and Kanaka Education and Environmental Partnership Society.

Walsh, H. and L. Krzesinska. 1998. Water Quality, Flow and Invertebrate Study of the Alouette River Watershed. Contract report prepared for Alouette River Management Society.

Washington Department of Fish & Wildlife, Habitat Program, Environmental Restoration Division. Salmonid Screening, Habitat Enhancement, and Restoration (SSHEAR) Section. 2000. Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual.

Appendix A Financial Statement

ALOUETTE RIVER MANAGEMENT SOCIETY

24959 Alouette Road, Allco Park
Maple Ridge, BC V4R lR8
Telephone: 604.467.6401
Fax: 604.467.6478
Email: arms@telus.net

BC Hydro Bridge Coastal Fish and Wildlife Restoration Program
Project 03.Al.04 Coho Enhancement and Awareness Project

Statement of Income and Expense as at March 29, 2004

Income:		**$11,300.00**
Expense:		
Camera	$ 65.07	
Mileage	568.40	
Permit	25.00	
Project Expense	161.08	
Report Preparation	141.62	
Technicians	9808.00	
Telephone	100.00	
Waders	419.60	**$11,288.77**

Appendix B Confirmation of BC Hydro Bridge Coastal Fish and Wildlife Restoration Program Recognition

BC Hydro Bridge Coastal Fish and Wildlife Restoration Program was given recognition for funding this project through the ARMS website and newsletters. The ARMS website can be viewed at **www.alouetteriver.org.** An excerpt from one of the ARMS newsletters has been enclosed.

Appendix C Landowner Letter

ALOUETTE RIVER MANAGEMENT SOCIETY

PO Box 21117, Ridge Post Office
Maple Ridge, BC
V2X 1P7
www.alouetteriver.org

Telephone: 604-467-6401 Fax: 604-467-6478 E-mail: arms@telus.net

---

Dear Landowner

We are participating in a research project to identify potential barriers preventing fish access to valuable salmon or trout habitat. With your permission, we may need to access your property to reach our research site or your property may have been identified in the past as containing on of these barriers. Barriers can include culverts, man-made dams, beaver dams, logjams, waterfalls etc.

Our research may involve setting up several small fish traps on or near your property and then checking the traps and releasing any fish the following day. It is important that these traps remain undisturbed.

Barriers that are researched in our study may be chosen in the future for fish habitat enhancement work. We would like to know if you are receptive to this type of project occurring on your property and if we could contact you in the future. Future projects will be chosen, subject to funding, only if they are deemed cost effective and feasible. Landowner cooperation and quality of habitat will also be key determining factors in choosing future projects.

If you have any questions or concerns, please contact:

Caresse Selk
Alouette River Management Society
(604) 467-6401
caresse@shaw.ca

Appendix D Site Maps

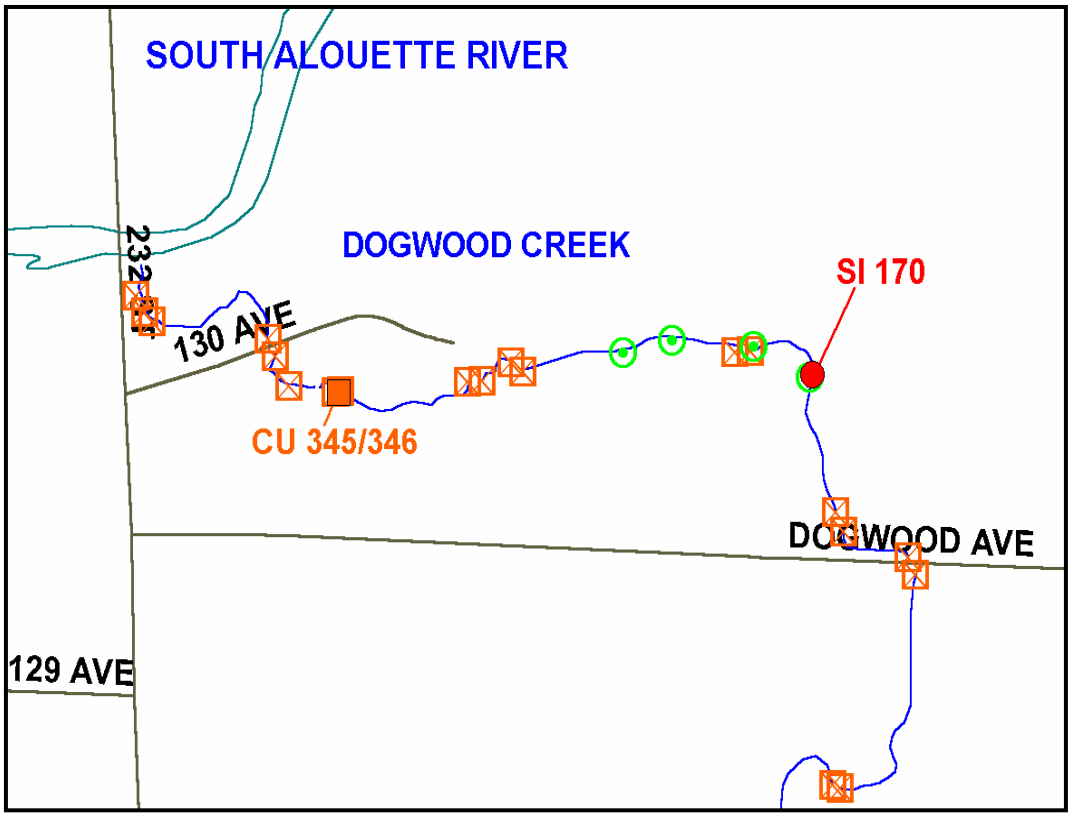

Figure 14. Dogwood Creek Survey Sites CU 346 and SI 170.

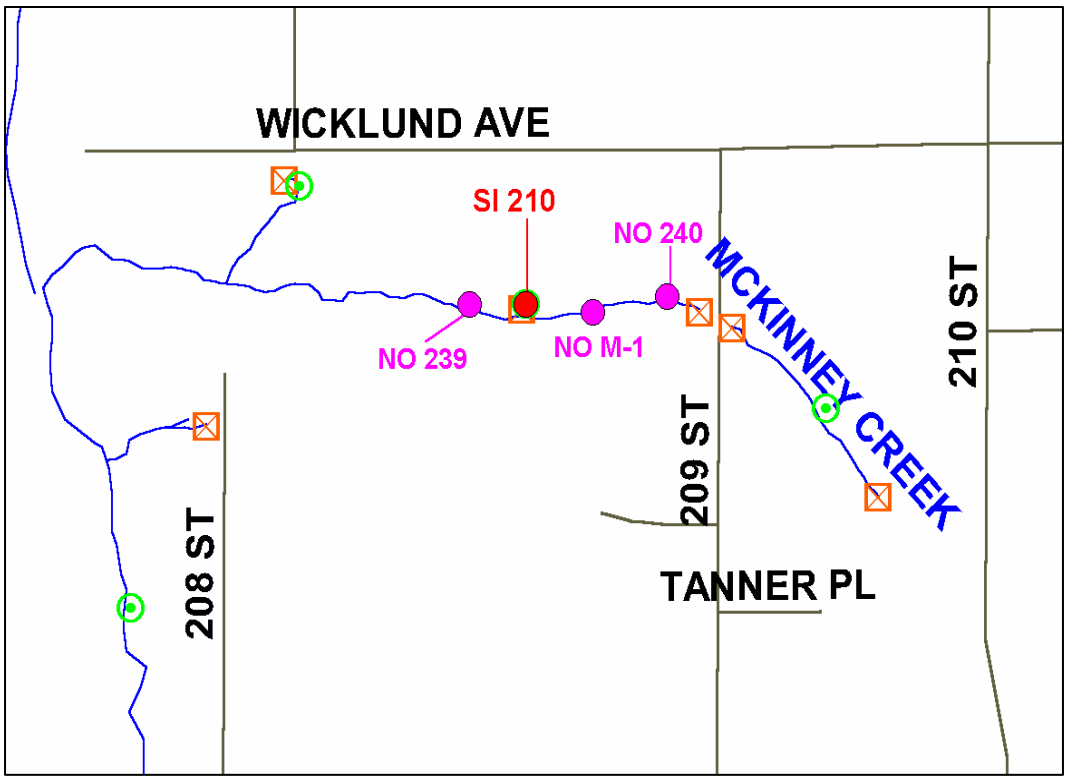

Figure 15. McKinney Creek Survey Sites NO 239, SI 210 and NO 240.

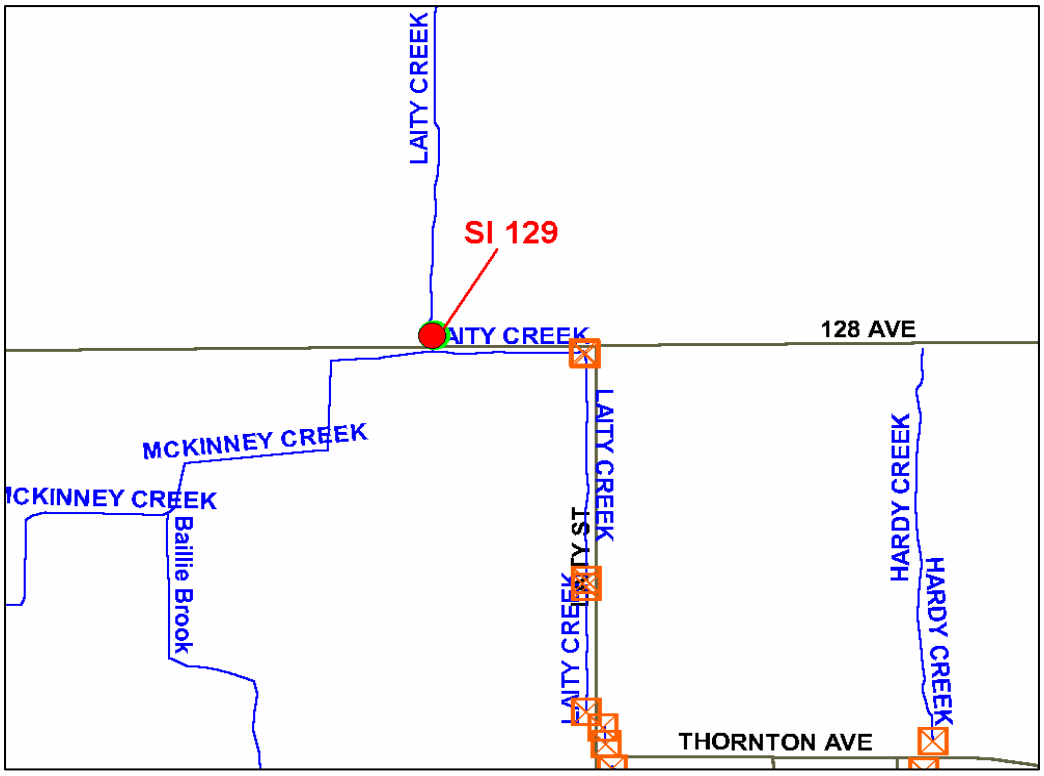

Figure 16. Laity Creek Survey Site SI 129.

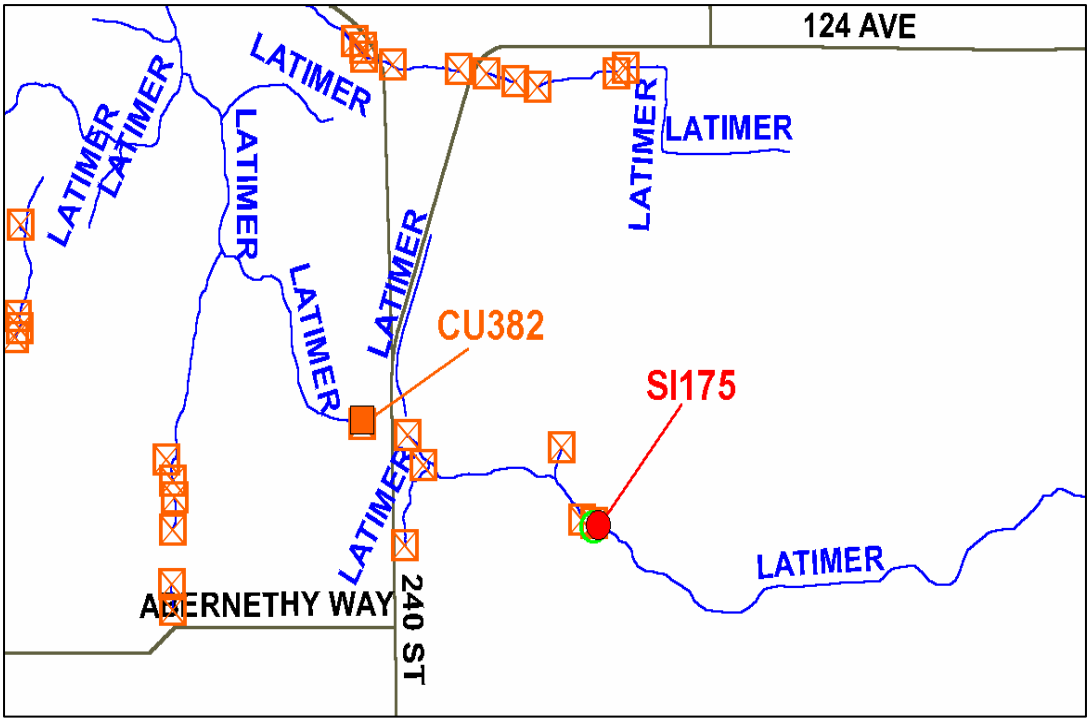

Figure 17. Latimer Creek Survey Site CU 382 and SI 175.

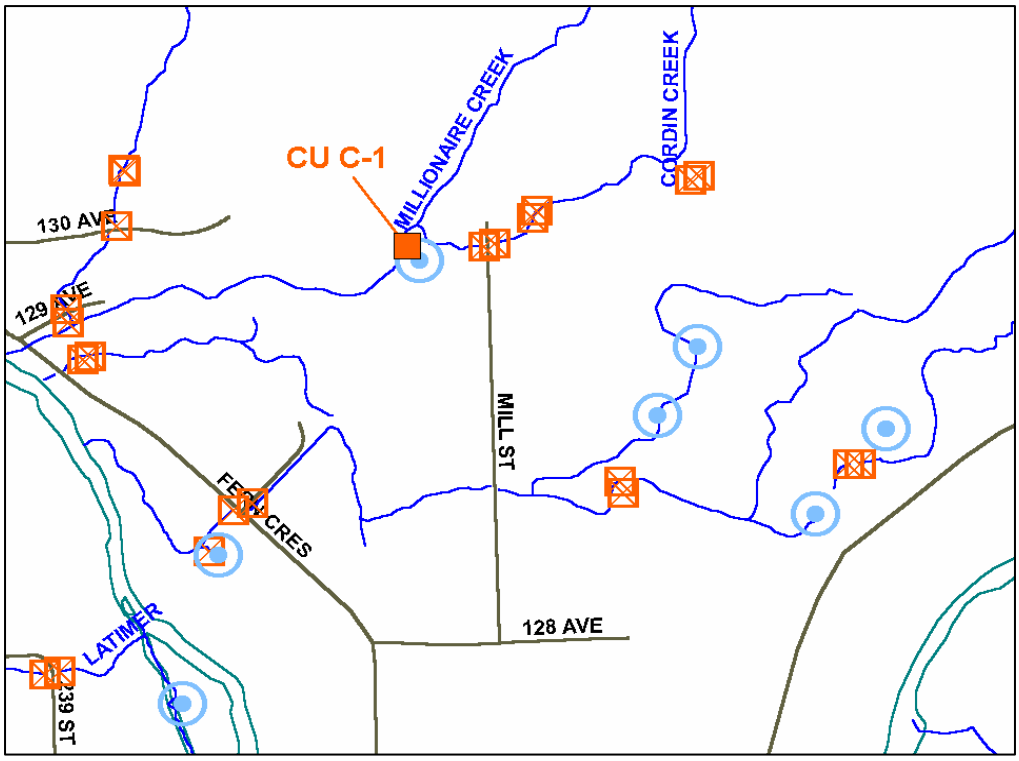

Figure 18. Cordin Creek and Millionaire Creek Survey Site CU C-1.

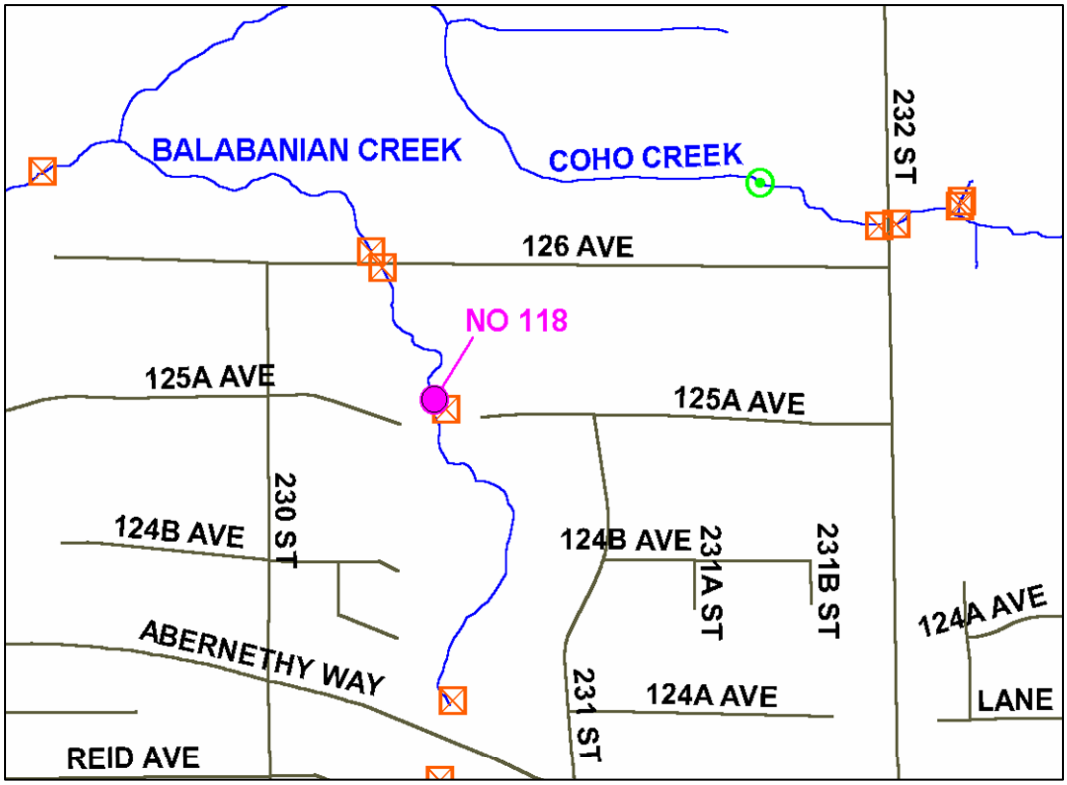

Figure 19. Balabanian Creek Survey Site NO 118.

Appendix E Site Photos

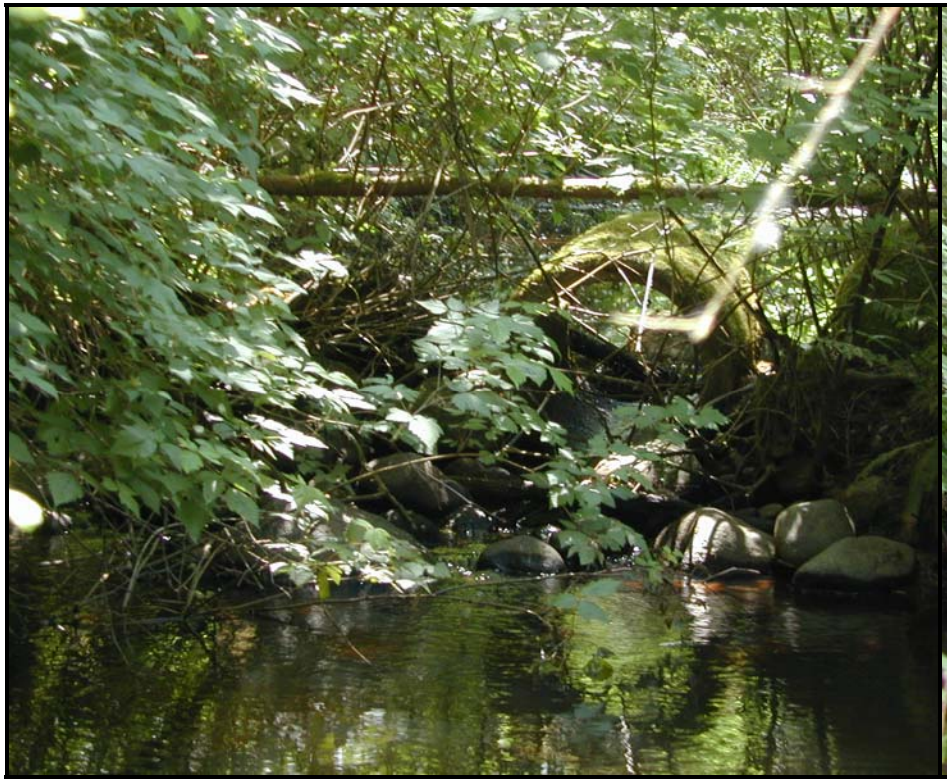

Figure 20. Dam and culvert at site SI 170 on Dogwood Creek.

Figure 21. Dam and culvert at site SI 170 on Dogwood Creek.

Figure 22. Fragmented instream culvert at site SI 210 on McKinney Creek.

Figure 23. Culvert at site SI 129 on Laity Creek.

Figure 24. Small falls and tree roots at T10/T11 site HR SI3.

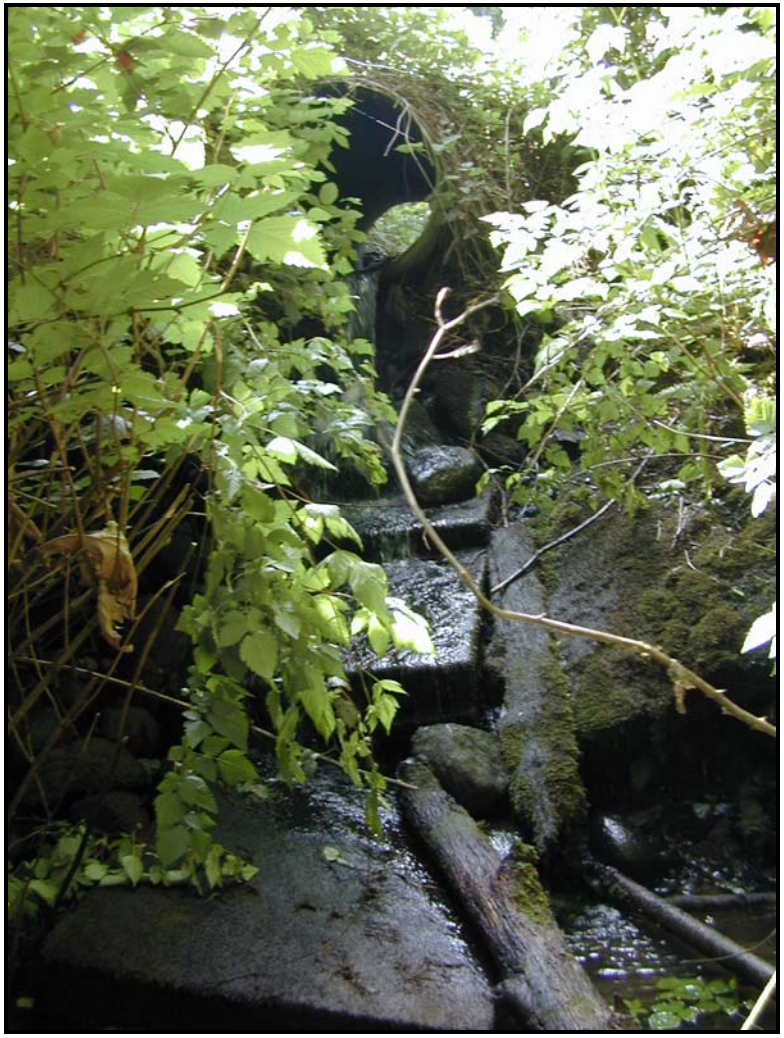

Figure 25. Downstream view of culvert at site SI 175 on Latimer Creek.

Figure 26. Upstream view of culvert at site SI 175 on Latimer Creek.

Figure 27. Upstream pond at site SI 175 on Latimer Creek.

Figure 28. Pond at site CUC-1 at the Millionaire and Cordin Creek confluence.

Figure 29. Decayed culvert at site CU 346 on Dogwood Creek.

Figure 30. Downstream end of culvert at site CU 382 on Latimer Creek.

Figure 31. Woody debris at site NO 118 on Balabanian Creek.

Figure 32. Woody debris and garbage at site NO 240 on McKinney Creek.

Figure 33. Woody debris at site NO 239 on McKinney Creek.

Figure 34. Beaver box and culvert at site HR CU1.

Appendix F Fish Inventory Data

Fish Inventory Data

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
Balabanian Creek	NO118	June 2/03	1/4"	1	CO	70
Balabanian Creek	NO118	June 2/03	1/4"	1	CO	59
Balabanian Creek	NO118	June 2/03	1/4"	1	CO	79
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	54
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	57
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	60
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	57
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	72
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	79
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	54
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	57
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	69
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	47
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	52
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	47
Balabanian Creek	NO118	June 2/03	1/8"	2	CO	49
Balabanian Creek	NO118	June 2/03	1/4"	3	CO	64
Balabanian Creek	NO118	June 2/03	1/4"	3	CO	64
Balabanian Creek	NO118	June 2/03	1/4"	3	CO	55
Balabanian Creek	NO118	June 2/03	1/4"	3	CO	55
Balabanian Creek	NO118	June 2/03	1/4"	4	CO	64
Balabanian Creek	NO118	June 2/03	1/4"	4	CO	64
Balabanian Creek	NO118	June 2/03	1/4"	4	SK	50
Balabanian Creek	NO118	June 2/03	1/4"	4	CO	54
Balabanian Creek	NO118	June 2/03	1/4"	4	CO	60
Balabanian Creek	NO118	June 2/03	1/4"	5	CO	63
Balabanian Creek	NO118	June 2/03	1/4"	5	CO	54
Balabanian Creek	NO118	June 2/03	1/4"	5	CO	58
Balabanian Creek	NO118	June 2/03	1/4"	5	CO	50
Balabanian Creek	NO118	June 2/03	1/4"	5	CO	68
Balabanian Creek	NO118	June 2/03	1/4"	5	CO	51
Balabanian Creek	NO118	June 2/03	1/4"	5	CO	53
Balabanian Creek	NO118	June 2/03	1/4"	5	CO	53
Balabanian Creek	NO118	June 2/03	1/8"	6	CO	45
Balabanian Creek	NO118	June 17/03	1/4"	1	CO	47
Balabanian Creek	NO118	June 17/03	1/4"	1	CO	52
Balabanian Creek	NO118	June 17/03	1/4"	1	CO	45
Balabanian Creek	NO118	June 17/03	1/4"	1	CO	69
Balabanian Creek	NO118	June 17/03	1/8"	2	CO	52
Balabanian Creek	NO118	June 17/03	1/8"	2	CO	49
Balabanian Creek	NO118	June 17/03	1/8"	2	CO	59
Balabanian Creek	NO118	June 17/03	1/8"	2	CO	68
Balabanian Creek	NO118	June 17/03	1/4"	3	CO	52
Balabanian Creek	NO118	June 17/03	1/4"	3	CO	55
Balabanian Creek	NO118	June 17/03	1/4"	3	CO	44
Balabanian Creek	NO118	June 17/03	1/4"	3	CO	52
Balabanian Creek	NO118	June 17/03	1/4"	3	CO	54
Balabanian Creek	NO118	June 17/03	1/4"	3	CO	54
Balabanian Creek	NO118	June 17/03	1/8"	4	CO	68
Balabanian Creek	NO118	June 17/03	1/4"	5	CO	53
Balabanian Creek	NO118	June 17/03	1/4"	5	CO	74
Balabanian Creek	NO118	June 17/03	1/4"	5	SK	53
Balabanian Creek	NO118	June 17/03	1/4"	5	CO	62
Balabanian Creek	NO118	June 17/03	1/4"	6	CO	69
Balabanian Creek	NO118	June 17/03	1/4"	6	CO	44

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
Balabanian Creek	NO118	June 17/03	1/4"	6	CO	68
Balabanian Creek	NO118	June 17/03	1/4"	6	SK	72
Balabanian Creek	NO118	June 17/03	1/4"	6	SK	42
Balabanian Creek	NO118	June 17/03	1/4"	6	CO	64
Balabanian Creek	NO118	June 17/03	1/4"	6	CO	56
Balabanian Creek	NO118	June 17/03	1/4"	6	CO	47
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	1	0	0
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	2	0	0
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/8"	3	0	0
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/8"	4	0	0
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	5	Cray	0
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	5	CT	99
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	5	ST	88
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	6	CT	78
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	6	CT	68
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	6	CT	85
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	6	CO	69
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	6	CT	110
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	6	CO	58
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	6	Cray	0
Cordin and Millionaire Creeks	CU C-1	June 9/03	1/4"	6	CO	46
Cordin and Millionaire Creeks	CU C-1	June 10/03		1	CO	49
Cordin and Millionaire Creeks	CU C-1	June 10/03		1	CO	54
Cordin and Millionaire Creeks	CU C-1	June 10/03		1	CO	68
Cordin and Millionaire Creeks	CU C-1	June 10/03		1	Tad	0
Cordin and Millionaire Creeks	CU C-1	June 10/03		1	Tad	0
Cordin and Millionaire Creeks	CU C-1	June 10/03		1	Tad	0
Cordin and Millionaire Creeks	CU C-1	June 10/03		1	Tad	0
Cordin and Millionaire Creeks	CU C-1	June 10/03		1	Tad	0
Cordin and Millionaire Creeks	CU C-1	June 10/03		2	0	0
Cordin and Millionaire Creeks	CU C-1	June 10/03		3	CO	72
Cordin and Millionaire Creeks	CU C-1	June 10/03		4	CO	54
Cordin and Millionaire Creeks	CU C-1	June 10/03		4	CO	62
Cordin and Millionaire Creeks	CU C-1	June 10/03		5	CO	50
Cordin and Millionaire Creeks	CU C-1	June 10/03		5	CO	48
Cordin and Millionaire Creeks	CU C-1	June 10/03		5	CO	42
Cordin and Millionaire Creeks	CU C-1	June 10/03		5	CO	52
Cordin and Millionaire Creeks	CU C-1	June 10/03		6	CO	50
Cordin and Millionaire Creeks	CU C-1	June 10/03		6	CT	84
Cordin and Millionaire Creeks	CU C-1	June 10/03		6	ST	110
Dogwood Creek	SI 170	June 2/03	1/4"	1	0	0
Dogwood Creek	SI 170	June 2/03	1/8"	2	0	0
Dogwood Creek	SI 170	June 2/03	1/4"	3	0	0
Dogwood Creek	SI 170	June 2/03	1/4"	4	CO	55
Dogwood Creek	SI 170	June 2/03	1/4"		CO	58
Dogwood Creek	SI 170	June 2/03	1/4"		CO	57
Dogwood Creek	SI 170	June 2/03	1/8"	5	0	0
Dogwood Creek	SI 170	June 2/03	1/4"	6	0	0
Dogwood Creek	SI 170	June 23/03	1/8"	1	CT	62
Dogwood Creek	SI 170	June 23/03	1/8"	1	CT	64
Dogwood Creek	SI 170	June 23/03	1/8"	1	CT	45
Dogwood Creek	SI 170	June 23/03	1/4"	2	0	0
Dogwood Creek	SI 170	June 23/03	1/4"	3	0	0
Dogwood Creek	SI 170	June 23/03	1/4"	4	CO	74
Dogwood Creek	SI 170	June 23/03	1/4"	4	CO	64
Dogwood Creek	SI 170	June 23/03	1/4"	4	CO	57
Dogwood Creek	SI 170	June 23/03	1/4"	4	CO	77

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
Dogwood Creek	SI 170	June 23/03	1/4"	5	CO	79
Dogwood Creek	SI 170	June 23/03	1/8"	6	CO	62
Dogwood Creek	SI 170	July 2/03	1/4"	1	Cray(2)	0
Dogwood Creek	SI 170	July 2/03	1/8"	2	CT	68
Dogwood Creek	SI 170	July 2/03	1/4"	3	Cray(1)	0
Dogwood Creek	SI 170	July 2/03	1/4"	3	CT	67
Dogwood Creek	SI 170	July 2/03	1/4"	4	SAL	100
Dogwood Creek	SI 170	July 2/03	1/8"	5	SAL	80
Dogwood Creek	SI 170	July 2/03	1/4"	5	SAL	103
Dogwood Creek	CU 346	June 2/03	1/4"	1	CO	56
Dogwood Creek	CU 346	June 2/03	1/4"	1	CO	50
Dogwood Creek	CU 346	June 2/03	1/4"	1	CO	57
Dogwood Creek	CU 346	June 2/03	1/4"	1	CO	54
Dogwood Creek	CU 346	June 2/03	1/8"	2	CO	52
Dogwood Creek	CU 346	June 2/03	1/8"	2	CO	55
Dogwood Creek	CU 346	June 2/03	1/8"	2	CO	45
Dogwood Creek	CU 346	June 2/03	1/8"	2	CO	47
Dogwood Creek	CU 346	June 2/03	1/4"	3	CO	59
Dogwood Creek	CU 346	June 2/03	1/4"	3	CO	45
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	46
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	57
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	54
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	47
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	47
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	47
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	47
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	45
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	48
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	54
Dogwood Creek	CU 346	June 2/03	1/4"	4	SK	49
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	51
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	45
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	48
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	59
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	53
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	41
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	52
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	47
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	47
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	52
Dogwood Creek	CU 346	June 2/03	1/4"	4	SK	53
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	53
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	46
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	46
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	55
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	63
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	52
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	54
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	53
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	46
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	48
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	46
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	49
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	46
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	43
Dogwood Creek	CU 346	June 2/03	1/4"	4	SK	43
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	49

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	45
Dogwood Creek	CU 346	June 2/03	1/4"	4	CO	45
Dogwood Creek	CU 346	June 2/03	1/4"	4	Cray	0
Dogwood Creek	CU 346	June 2/03	1/4"	5	CO	45
Dogwood Creek	CU 346	June 2/03	1/4"	5	SK	55
Dogwood Creek	CU 346	June 2/03	1/4"	5	CO	44
Dogwood Creek	CU 346	June 2/03	1/4"	5	SK	44
Dogwood Creek	CU 346	June 2/03	1/4"	5	SK	50
Dogwood Creek	CU 346	June 2/03	1/4"	5	SK	51
Dogwood Creek	CU 346	June 2/03	1/4"	5	SK	44
Dogwood Creek	CU 346	June 2/03	1/4"	5	CO	44
Dogwood Creek	CU 346	June 2/03	1/4"	5	SK	45
Dogwood Creek	CU 346	June 2/03	1/4"	5	CO	50
Dogwood Creek	CU 346	June 2/03	1/4"	5	CO	52
Dogwood Creek	CU 346	June 2/03	1/4"	5	CO	45
Dogwood Creek	CU 346	June 2/03	1/4"	5	CO	47
Dogwood Creek	CU 346	June 2/03	1/4"	5	CO	45
Dogwood Creek	CU 346	June 2/03	1/8"	6	CO	48
Dogwood Creek	CU 346	June 2/03	1/8"	6	CO	53
Dogwood Creek	CU 346	June 2/03	1/8"	6	CO	46
Dogwood Creek	CU 346	June 2/03	1/8"	6	CO	49
Dogwood Creek	CU 346	June 17/03	1/4"	1	0	0
Dogwood Creek	CU 346	June 17/03	1/8"	2	CO	53
Dogwood Creek	CU 346	June 17/03	1/4"	3	CO	54
Dogwood Creek	CU 346	June 17/03	1/4"	3	CO	53
Dogwood Creek	CU 346	June 17/03	1/4"	4	Cray	0
Dogwood Creek	CU 346	June 17/03	1/4"	4	CO	48
Dogwood Creek	CU 346	June 17/03	1/4"	4	CO	56
Dogwood Creek	CU 346	June 17/03	1/4"	4	CO	55
Dogwood Creek	CU 346	June 17/03	1/4"	5	CO	59
Dogwood Creek	CU 346	June 17/03	1/4"	5	ST	52
Dogwood Creek	CU 346	June 17/03	1/4"	5	ST	47
Dogwood Creek	CU 346	June 17/03	1/4"	5	ST	46
Dogwood Creek	CU 346	June 17/03	1/4"	5	CO	60
Dogwood Creek	CU 346	June 17/03	1/4"	5	ST	50
Dogwood Creek	CU 346	June 17/03	1/4"	5	ST	45
Dogwood Creek	CU 346	June 17/03	1/4"	5	ST	48
Dogwood Creek	CU 346	June 17/03	1/4"	5	ST	55
Dogwood Creek	CU 346	June 17/03	1/4"	5	ST	44
Dogwood Creek	CU 346	June 17/03	1/8"	6	ST	48
Dogwood Creek	CU 346	June 17/03	1/8"	6	ST	51
Dogwood Creek	CU 346	June 17/03	1/8"	6	CO	64
Dogwood Creek	CU 346	June 17/03	1/8"	6	CO	54
Dogwood Creek	CU 346	June 17/03	1/8"	6	CO	44
Laity Creek	SI 129	June 4/03	1/4"	1	0	0
Laity Creek	SI 129	June 4/03	1/8"	2	SK	43
Laity Creek	SI 129	June 4/03	1/4"	3	SK	40
Laity Creek	SI 129	June 4/03	1/4"	3	SK	70
Laity Creek	SI 129	June 4/03	1/4"	3	SK	60
Laity Creek	SI 129	June 4/03	1/4"	3	SK	68
Laity Creek	SI 129	June 4/03	1/4"	3	SK	43
Laity Creek	SI 129	June 4/03	1/4"	3	SK	49
Laity Creek	SI 129	June 4/03	1/4"	3	SK	52
Laity Creek	SI 129	June 4/03	1/4"	3	SK	39
Laity Creek	SI 129	June 4/03	1/4"	3	SK	47
Laity Creek	SI 129	June 4/03	1/4"	3	SK	44
Laity Creek	SI 129	June 4/03	1/4"	3	SK	46
Laity Creek	SI 129	June 4/03	1/4"	3	SK	42

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
Laity Creek	SI 129	June 4/03	1/4"	4	SK	62
Laity Creek	SI 129	June 4/03	1/4"	4	CO	57
Laity Creek	SI 129	June 4/03	1/8"	5	SK	65
Laity Creek	SI 129	June 4/03	1/8"	5	SK	66
Laity Creek	SI 129	June 4/03	1/8"	5	SK	64
Laity Creek	SI 129	June 4/03	1/8"	5	SK	70
Laity Creek	SI 129	June 4/03	1/8"	5	SK	69
Laity Creek	SI 129	June 4/03	1/8"	5	SK	67
Laity Creek	SI 129	June 4/03	1/8"	5	SK	65
Laity Creek	SI 129	June 4/03	1/8"	5	S	106
Laity Creek	SI 129	June 4/03	1/8"	5	SK	53
Laity Creek	SI 129	June 4/03	1/4"	6	SK	67
Laity Creek	SI 129	June 4/03	1/4"	6	SK	69
Laity Creek	SI 129	June 4/03	1/4"	6	SK	52
Laity Creek	SI 129	June 4/03	1/4"	6	SK	59
Laity Creek	SI 129	June 17/03	1/8"	1	0	0
Laity Creek	SI 129	June 17/03	1/4"	2	SC	105
Laity Creek	SI 129	June 17/03	1/4"	2	SC	150
Laity Creek	SI 129	June 17/03	1/4"	2	SK	44
Laity Creek	SI 129	June 17/03	1/4"	2	SK	48
Laity Creek	SI 129	June 17/03	1/4"	2	SK	52
Laity Creek	SI 129	June 17/03	1/4"	2	SK	38
Laity Creek	SI 129	June 17/03	1/4"	2	SK	42
Laity Creek	SI 129	June 17/03	1/8"	3	SK	32
Laity Creek	SI 129	June 17/03	1/4"	4	S	124
Laity Creek	SI 129	June 17/03	1/4"	4	SK	162
Laity Creek	SI 129	June 17/03	1/4"	4	SK	156
Laity Creek	SI 129	June 17/03	1/4"	5	S	158
Laity Creek	SI 129	June 17/03	1/4"	5	SK	60
Laity Creek	SI 129	June 17/03	1/8"	6	SK	66
Laity Creek	SI 129	June 25/03	1/8"	1	0	0
Laity Creek	SI 129	June 25/03	1/4"	2	0	0
Laity Creek	SI 129	June 25/03	1/4"	3	SK	49
Laity Creek	SI 129	June 25/03	1/4"	3	SK	48
Laity Creek	SI 129	June 25/03	1/4"	3	SK	38
Laity Creek	SI 129	June 25/03	1/4"	3	SK	46
Laity Creek	SI 129	June 25/03	1/4"	3	SK	43
Laity Creek	SI 129	June 25/03	1/4"	3	SK	42
Laity Creek	SI 129	June 25/03	1/4"	3	SK	59
Laity Creek	SI 129	June 25/03	1/4"	3	SK	41
Laity Creek	SI 129	June 25/03	1/4"	3	SK	39
Laity Creek	SI 129	June 25/03	1/8"	4	CO	70
Laity Creek	SI 129	June 25/03	1/8"	4	CO	54
Laity Creek	SI 129	June 25/03	1/8"	4	CO	80
Laity Creek	SI 129	June 25/03	1/8"	4	CO	74
Laity Creek	SI 129	June 25/03	1/8"	4	CO	65
Laity Creek	SI 129	June 25/03	1/8"	4	CO	63
Laity Creek	SI 129	June 25/03	1/8"	4	SK	64
Laity Creek	SI 129	June 25/03	1/8"	4	S	72
Laity Creek	SI 129	June 25/03	1/8"	4	SK	64
Laity Creek	SI 129	June 25/03	1/8"	4	SK	51
Laity Creek	SI 129	June 25/03	1/8"	4	SK	64
Laity Creek	SI 129	June 25/03	1/8"	4	SK	60
Laity Creek	SI 129	June 25/03	1/4"	5	SC	120
Laity Creek	SI 129	June 25/03	1/4"	5	SK	63
Laity Creek	SI 129	June 25/03	1/4"	5	SK	51
Laity Creek	SI 129	June 25/03	1/4"	6	SK	64
Laity Creek	SI 129	July 2/03	1/8"	1	S	94

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
Laity Creek	SI 129	July 2/03	1/4"	2	0	0
Laity Creek	SI 129	July 2/03	1/4"	3	SK	49
Laity Creek	SI 129	July 2/03	1/4"	3	SK	43
Laity Creek	SI 129	July 2/03	1/4"	3	SK	36
Laity Creek	SI 129	July 2/03	1/4"	4	0	0
Laity Creek	SI 129	July 2/03	1/4"	5	SK	70
Laity Creek	SI 129	July 2/03	1/8"	6	0	0
Latimer Creek	SI 175	May 26/03	Unknown	1	SAL	121
Latimer Creek	SI 175	May 26/03	Unknown	2	SAL	95
Latimer Creek	SI 175	May 26/03	Unknown	3	0	0
Latimer Creek	SI 175	May 26/03	Unknown	4	0	0
Latimer Creek	SI 175	May 26/03	Unknown	5	CT	88
Latimer Creek	SI 175	May 26/03	Unknown	5	ST	95
Latimer Creek	SI 175	May 26/03	Unknown	5	CO	54
Latimer Creek	SI 175	May 26/03	Unknown	6	0	0
Latimer Creek	SI 175	June 19/03	1/8"	1	5 Tad	0
Latimer Creek	SI 175	June 19/03	1/4"	2	9 Tad	0
Latimer Creek	SI 175	June 19/03	1/4"	3	8 Tad	0
Latimer Creek	SI 175	June 19/03	1/8"	4	CO	54
Latimer Creek	SI 175	June 19/03	1/8"	4	CO	50
Latimer Creek	SI 175	June 19/03	1/8"	4	CT	126
Latimer Creek	SI 175	June 19/03	1/8"	4	CT	99
Latimer Creek	SI 175	June 19/03	1/8"	4	CO	52
Latimer Creek	SI 175	June 19/03	1/8"	4	CO	54
Latimer Creek	SI 175	June 19/03	1/8"	4	CO	56
Latimer Creek	SI 175	June 19/03	1/8"	4	CO	64
Latimer Creek	SI 175	June 19/03	1/8"	4	CO	52
Latimer Creek	SI 175	June 19/03	1/8"	4	CO	54
Latimer Creek	SI 175	June 19/03	1/4"	5	CT	119
Latimer Creek	SI 175	June 19/04	1/4"	6	CO	63
Latimer Creek	SI 175	June 24/03	1/8"	1	SAL	120
Latimer Creek	SI 175	June 24/03	1/8"	1	15 Tad	0
Latimer Creek	SI 175	June 24/03	1/4"	2	SAL	110
Latimer Creek	SI 175	June 24/03	1/4"	2	SAL	87
Latimer Creek	SI 175	June 24/03	1/4"	2	SAL	110
Latimer Creek	SI 175	June 24/03	1/4"	2	10 Tad	0
Latimer Creek	SI 175	June 24/03	1/4"	3	SAL	110
Latimer Creek	SI 175	June 24/03	1/4"	4	CO	55
Latimer Creek	SI 175	June 24/03	1/4"	4	CO	57
Latimer Creek	SI 175	June 24/03	1/4"	4	CO	58
Latimer Creek	SI 175	June 24/03	1/4"	5	CO	61
Latimer Creek	SI 175	June 24/03	1/4"	5	CO	59
Latimer Creek	SI 175	June 24/03	1/4"	5	CO	79
Latimer Creek	SI 175	June 24/03	1/4"	5	CT	99
Latimer Creek	SI 175	June 24/03	1/4"	5	CO	57
Latimer Creek	SI 175	June 24/03	1/4"	5	CO	61
Latimer Creek	SI 175	June 24/03	1/4"	5	CO	54
Latimer Creek	SI 175	June 24/03	1/4"	5	CO	62
Latimer Creek	SI 175	June 24/03	1/4"	5	CT	55
Latimer Creek	SI 175	June 24/03	1/4"	5	CO	91
Latimer Creek	SI 175	June 24/03	1/8"	6	CO	66
Latimer Creek	SI 175	June 24/03	1/8"	6	CO	54
Latimer Creek	SI 175	June 24/03	1/8"	6	CO	52
Latimer Creek	SI 175	June 24/03	1/8"	6	CO	59
Latimer Creek	SI 175	June 24/03	1/8"	6	CO	54
Latimer Creek	SI 175	June 24/03	1/8"	6	CO	48
Latimer Creek	SI 175	June 24/03	1/8"	6	CO	55
Latimer Creek	SI 175	June 24/03	1/8"	6	ST	120

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
Latimer Creek	CU 382	May 26/03	1/4"	1	CT	125
Latimer Creek	CU 382	May 26/03	1/4"	1	CO	54
Latimer Creek	CU 382	May 26/03	1/8"	2	CO	60
Latimer Creek	CU 382	May 26/03	1/8"	2	CO	56
Latimer Creek	CU 382	May 26/03	1/8"	2	CO	62
Latimer Creek	CU 382	May 26/03	1/4"	3	CO	56
Latimer Creek	CU 382	May 26/03	1/4"	4	CO	46
Latimer Creek	CU 382	May 26/03	1/4"	4	CO	41
Latimer Creek	CU 382	May 26/03	1/4"	4	CO	45
Latimer Creek	CU 382	May 26/03	1/4"	4	CO	52
Latimer Creek	CU 382	May 26/03	1/4"	4	CO	43
Latimer Creek	CU 382	May 26/03	1/4"	5	SAL	90
Latimer Creek	CU 382	May 26/03	1/4"	5	CO	49
Latimer Creek	CU 382	May 26/03	1/8"	6	CO	44
Latimer Creek	CU 382	June 19/05	1/4"	1	0	0
Latimer Creek	CU 382	June 19/05	1/8"	2	0	0
Latimer Creek	CU 382	June 19/05	1/4"	3	0	0
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	59
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	64
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	52
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	46
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	65
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	57
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	55
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	59
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	52
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	50
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	60
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	47
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	49
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	60
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	58
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	65
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	59
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	58
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	42
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	46
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	69
Latimer Creek	CU 382	June 19/05	1/4"	4	CO	55
Latimer Creek	CU 382	June 19/05	1/8"	5	CO	57
Latimer Creek	CU 382	June 19/05	1/8"	5	CO	54
Latimer Creek	CU 382	June 19/05	1/8"	5	CO	64
Latimer Creek	CU 382	June 19/05	1/8"	5	CO	49
Latimer Creek	CU 382	June 19/05	1/8"	5	CO	64
Latimer Creek	CU 382	June 19/05	1/8"	5	CO	57
Latimer Creek	CU 382	June 19/05	1/8"	5	CO	54
Latimer Creek	CU 382	June 19/05	1/8"	5	CO	49
Latimer Creek	CU 382	June 19/05	1/8"	5	CO	42
Latimer Creek	CU 382	June 19/05	1/8"	5	CO	62
Latimer Creek	CU 382	June 19/05	1/4"	6	CO	69
Latimer Creek	CU 382	June 19/05	1/4"	6	CO	47
Latimer Creek	CU 382	June 19/05	1/4"	6	CO	54
Latimer Creek	CU 382	June 19/05	1/4"	6	CO	46
Latimer Creek	CU 382	June 19/05	1/4"	6	CO	48
Latimer Creek	CU 382	June 19/05	1/4"	6	CO	47
McKinney Creek	NO239	June 23/03	1/8"	1	CT	54
McKinney Creek	NO239	June 23/03	1/4"	1	CO	64
McKinney Creek	NO239	June 23/03	1/4"	2	CT	56

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
McKinney Creek	NO239	June 23/03	1/4"	3	CT	52
McKinney Creek	NO239	June 23/03	1/4"	3	CO	65
McKinney Creek	NO239	June 23/03	1/4"	4	CO	66
McKinney Creek	NO239	June 23/03	1/4"	4	CT	59
McKinney Creek	NO239	June 23/03	1/4"	4	CT	105
McKinney Creek	NO239	June 23/03	1/4"	4	CT	106
McKinney Creek	NO239	June 23/03	1/4"	4	CT	127
McKinney Creek	NO239	June 23/03	1/4"	4	CT	56
McKinney Creek	NO239	June 23/03	1/4"	4	CT	62
McKinney Creek	NO239	June 23/03	1/4"	4	CT	56
McKinney Creek	NO239	June 23/03	1/4"	4	CT	47
McKinney Creek	NO239	June 23/03	1/8"	5	0	0
McKinney Creek	NO239	June 23/03	1/4"	6	0	0
McKinney Creek	SI 210	July 2/03	1/8"	1	0	0
McKinney Creek	SI 210	July 2/03	1/4"	2	0	0
McKinney Creek	SI 210	July 2/03	1/4"	3	0	0
McKinney Creek	SI 210	July 2/03	1/4"	4	0	0
McKinney Creek	SI 210	July 2/03	1/4"	5	CT	46
McKinney Creek	SI 210	July 2/03	1/8"	6	CO	66
McKinney Creek	SI 210	July 2/03	1/8"	6	CT	51
McKinney Creek	SI 210	June 23/03	1/8"	1	CT	140
McKinney Creek	SI 210	June 23/03	1/4"	2	CT	129
McKinney Creek	SI 210	June 23/03	1/4"	2	CT	105
McKinney Creek	SI 210	June 23/03	1/4"	3	0	0
McKinney Creek	SI 210	June 23/03	1/4"	4	CT	59
McKinney Creek	SI 210	June 23/03	1/4"	4	CT	44
McKinney Creek	SI 210	June 23/03	1/4"	5	0	0
McKinney Creek	SI 210	June 23/03	1/8"	6	CT	64
McKinney Creek	SI 210	June 23/03	1/8"	6	CT	64
McKinney Creek	NO240	June 3/03	1/8"	1	0	0
McKinney Creek	NO240	June 3/03	1/4"	2	0	0
McKinney Creek	NO240	June 3/03	1/4"	3	0	0
McKinney Creek	NO240	June 3/03	1/8"	4	0	0
McKinney Creek	NO240	June 3/03	1/4"	5	0	0
McKinney Creek	NO240	June 3/03	1/4"	6	0	0
McKinney Creek	NO240	June 10/03	1/8"	1	0	0
McKinney Creek	NO240	June 10/03	1/4"	2	0	0
McKinney Creek	NO240	June 10/03	1/4"	3	0	0
McKinney Creek	NO240	June 10/03	1/8"	4	0	0
McKinney Creek	NO240	June 10/03	1/4"	5	0	0
McKinney Creek	NO240	June 10/03	1/4"	6	0	0
T10/T11 Creeks	HR SI3	May 27/03	1/8"	1	CT	76
T10/T11 Creeks	HR SI3	May 27/03	1/4"	2	CT	69
T10/T11 Creeks	HR SI3	May 27/03	1/4"	2	CT	69
T10/T11 Creeks	HR SI3	May 27/03	1/4"	3	0	0
T10/T11 Creeks	HR SI3	May 27/03	1/8"	4	CO	37
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	45
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	45
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	47
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	ST	70
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	40
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	40
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CT	55
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	44
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CT	74
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	47
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	54
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	56

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	47
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	44
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	47
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	50
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	44
T10/T11 Creeks	HR SI3	May 27/03	1/8"	5	CO	46
T10/T11 Creeks	HR SI3	May 27/03	1/4"	6	CT	64
T10/T11 Creeks	HR SI3	May 27/03	1/4"	6	CT	64
T10/T11 Creeks	HR SI3	May 27/03	1/4"	6	CO	44
T10/T11 Creeks	HR SI3	May 27/03	1/4"	6	CO	48
T10/T11 Creeks	HR SI3	May 27/03	1/4"	6	CO	52
T10/T11 Creeks	HR SI3	May 27/03	1/4"	6	CO	64
T10/T11 Creeks	HR SI3	May 27/03	1/4"	6	CO	43
T10/T11 Creeks	HR SI3	May 27/03	1/4"	6	CO	48
T10/T11 Creeks	HR SI3	May 27/03	1/4"	6	CO	42
T10/T11 Creeks	HR SI3	June 18/03	1/4"	1	0	0
T10/T11 Creeks	HR SI3	June 18/03	1/4"	2	CT	70
T10/T11 Creeks	HR SI3	June 18/03	1/8"	3	0	0
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	55
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	6
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	55
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	62
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	60
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	66
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	48
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	68
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	65
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	53
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	60
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	44
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	74
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	44
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	45
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	59
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	46
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	65
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	66
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	74

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	49
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	59
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	55
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	59
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	44
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	53
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	46
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	50
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	62
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	45
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	4	CO	44
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	51
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	68
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	48
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	43
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	49
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	60
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	60
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	48
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	49
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	69
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	59
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	55
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	49
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	48
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	59
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	55
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	49
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	67
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	55
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	62
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	66

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	70
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	60
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	70
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	70
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	60
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	50
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	70
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	70
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	65
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	40
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	55
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	48
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	46
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	59
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	46
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	49
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	49
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/4"	5	CO	48
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	44
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	65
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	45
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	48
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	43
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	50
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	61
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	52
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	58
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	62
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	74
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	59
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	59
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	50
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	50
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	60
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	52
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	50
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	51

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	56
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	55
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	59
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	57
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	49
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	64
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	57
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	59
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	50
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	55
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	54
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	60
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	57
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	52
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	55
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	48
T10/T11 Creeks	HR SI3	June 18/03	1/8"	6	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	1	0	0
T10/T11 Creeks	HR SI3	June 26/03	1/8"	2	CT	71
T10/T11 Creeks	HR SI3	June 26/03	1/4"	3	CT	91
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	65
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	63
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	66
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	61
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	55
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	57
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	60
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	63
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	70
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	70
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	55
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	60
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	60

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	67
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	43
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	74
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	48
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	68
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	61
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	61
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	63
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	61
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	61
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	53
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	61
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	57
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	46
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	53
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	53
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	57
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	55
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	57
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	60
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	49

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	68
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	53
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	?	36
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	60
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	63
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	48
T10/T11 Creeks	HR SI3	June 26/03	1/8"	4	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	67
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	42
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	48
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	61
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	42
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	66
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	42
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	47
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	65
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	46
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	63
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	42
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	63
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	53
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	74
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	57

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	57
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	67
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	66
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	48
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	71
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	74
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	42
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	78
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	74
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	38
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	48
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	74
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	70
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	69
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	42
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	72
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	70

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	72
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	66
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	66
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	53
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	64
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	48
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	47
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	42
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	42
T10/T11 Creeks	HR SI3	June 26/03	1/4"	5	CO	61
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	51
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	57
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	55
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	57
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	51
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	70
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	51
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	53
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	53
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	53
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	56
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	59
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	57
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	50
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	58

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	61
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	62
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	54
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	42
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	58
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	46
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	49
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	52
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	43
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	44
T10/T11 Creeks	HR SI3	June 26/03	1/4"	6	CO	43
T10/T11 Creeks	HR CU-2	May 20/03	1/4"	1	0	0
T10/T11 Creeks	HR CU-2	May 20/03	1/4"	2	0	0
T10/T11 Creeks	HR CU-2	May 20/03	1/8"	3	0	0
T10/T11 Creeks	HR CU-2	May 20/03	1/8"	4	0	0
T10/T11 Creeks	HR CU-2	May 20/03	1/4"	5	CT	73
T10/T11 Creeks	HR CU-2	May 20/03	1/4"	5	CT	68
T10/T11 Creeks	HR CU-2	May 20/03	1/4"	5	CT	85
T10/T11 Creeks	HR CU-2	May 20/03	1/4"	6	0	0
T10/T11 Creeks	HR CU-2	June 18/03	1/4"	1	0	0
T10/T11 Creeks	HR CU-2	June 18/03	1/4"	2	0	0
T10/T11 Creeks	HR CU-2	June 18/03	1/8"	3	0	0
T10/T11 Creeks	HR CU-2	June 18/03	1/4"	4	CT	130
T10/T11 Creeks	HR CU-2	June 18/03	1/4"	4	CT	129
T10/T11 Creeks	HR CU-2	June 18/03	1/4"	5	CT	105
T10/T11 Creeks	HR CU-2	June 18/03	1/4"	5	CT	76
T10/T11 Creeks	HR CU-2	June 18/03	1/8"	6	0	0
T10/T11 Creeks	HR CU-2	June 26/03	1/4"	1	CT	78
T10/T11 Creeks	HR CU-2	June 26/03	1/8"	2	0	0
T10/T11 Creeks	HR CU-2	June 26/03	1/4"	3	0	0
T10/T11 Creeks	HR CU-2	June 26/03	1/8"	4	0	0
T10/T11 Creeks	HR CU-2	June 26/03	1/8"	5	CT	78
T10/T11 Creeks	HR CU-2	June 26/03	1/4"	6	CT	87
T10/T11 Creeks	HR CU-2	June 26/03	1/4"	6	CT	70
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 21/03	1/4"	1	CT	150
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 21/03	1/4"	1	CO	63
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 21/03	1/4"	1	CO	63
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 21/03	1/4"	2	0	0
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/8"	3	CT	117
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/8"	3	CO	38
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/8"	3	L	0
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	L	0
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	L	0
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	L	0
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	M Coho	37
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CT	75
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	35
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	44
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	40
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	30
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	35
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	33

Creek Name	Site #	Traps Set	Mesh Size	Trap #	Species	Length (mm)
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	30
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	30
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	34
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	34
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	35
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	M	Unknown
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	M	Unknown
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	4	CO	30
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/4"	5	CO	44
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/8"	6	CH	67
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/8"	6	CO	32
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/8"	6	CO	50
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/8"	6	CO	34
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/8"	6	CO	34
Beaver Box and Creek (Hydro Rd)	HR CU-1	May 27/03	1/8"	6	CO	35
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	1	CO	48
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	1	CO	48
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	2	CO	63
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/8"	3	ST	86
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	4	CO	58
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	4	CO	68
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	5	CO	47
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	5	CO	54
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	5	CO	47
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	5	L	0
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	6	CO	64
Beaver Box and Creek (Hydro Rd)	HR CU-1	June 18/03	1/4"	6	CO	32

Appendix G Culvert Field Data

CULVERT FIELD DATA	
Location (name/details)	Beaver Box and creek (Hydro Road)
Site #	HR CU-1
Date	May 22/03
Weather	Rain
Northing	N/A
Easting	N/A
Site Access	Easy by vehicle
Barrier Photo #	Disk 2 -34, 35, 36
Water Temperature (Celsius)	13.5
Upstream Riparian Assessment	
Photo #	Disk 2 -1
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	9.0
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	1.45
Wetted Width (meters)	1.20
Stream Depth (meters)	0.05
Velocity (m/second)	3
Additional Comments:	
Downstream Riparian Assessment	
Photo #	Disk 2 -34, 35, 36
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	Culverted
Habitat Condition (good, fair, poor, none)	Fair
Channel Width (meters)	1.95
Wetted Width (meters)	1.55
Stream Depth (meters)	0.30
Velocity (m/second)	Culverted
Additional Comments:	
Culvert Assessment	
Composition	Metal
Downstream jump height (meters)	0.00
Shape	Round
Rise (meters)	0.91
% Slope	1.0
Length (meters)	20.0
Downstream Plunge Pool Depth (meters)	0.45
Additional Comments	Cobble in culvert

CULVERT FIELD DATA	
Location (name/details)	Latimer Creek upstream of 240th
Site #	SI 175
Date	May 26/03
Weather	Sunny
Northing	5,454,551.5
Easting	532,676.1
Site Access	Vehicle and foot access from driveway
Barrier Photo #	Disk 1-10, 11
Water Temperature (Celsius)	12.5
Upstream Riparian Assessment	
Photo #	Disk 2-47, 48, 49, 50
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	>15m
% Gradient over 10 meters	5.0
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	8.00
Wetted Width (meters)	7.00
Stream Depth (meters)	0.50
Velocity (m/second)	0
Additional Comments:	Culvert has collapsed
Downstream Riparian Assessment	
Photo #	Disk 2-44, 45, 46
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	>15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	>15m
% Gradient over 10 meters	12
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	2.80
Wetted Width (meters)	2.50
Stream Depth (meters)	0.10
Velocity (m/second)	0.20
Additional Comments:	
Culvert Assessment	
Composition	Metal
Downstream jump height (meters)	2.00
Shape	Round
Rise (meters)	0.75
% Slope	1.00
Length (meters)	3.00
Downstream Plunge Pool Depth (meters)	0.25
Additional Comments	

CULVERT FIELD DATA	
Location (name/details)	Latimer Creek culvert at 240th
Site #	CU 382
Date	May 26/03
Weather	Sunny
Northing	5,454,605.5
Easting	532,526.8
Site Access	Walk down steep slope 10m from road
Barrier Photo #	Disk 2-37, 38, 39 (above barrier)
Water Temperature (Celsius)	13.5
Upstream Riparian Assessment	
Photo #	Disk 1-34, 36
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
% Gradient over 10 meters	3.0
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	2.55
Wetted Width (meters)	2.50
Stream Depth (meters)	0.18
Velocity (m/second)	26
Additional Comments:	
Downstream Riparian Assessment	
Photo #	Disk 1- 37, 38, Disk 2- 40, 41, 42, 43
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	>15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
% Gradient over 10 meters	7
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	5.60
Wetted Width (meters)	2.00
Stream Depth (meters)	1.00
Velocity (m/second)	10
Additional Comments:	Accumulation of yard waste on left bank.
Culvert Assessment	
Composition	Metal
Downstream jump height (meters)	0.37
Shape	Round
Rise (meters)	1.23
% Slope	2.0
Length (meters)	9.0
Downstream Plunge Pool Depth (meters)	0.45
Additional Comments	Passable debris pile 5m downstream of the culvert

CULVERT FIELD DATA	
Location (name/details)	Dogwood Creek at 130th Ave
Site #	CU 346
Date	June 3/03
Weather	Sunny
Northing	5,456,010.3
Easting	531,038.2
Site Access	Vehicle then 20m walk from 130th
Barrier Photo #	Disk 2 -10
Water Temperature (Celsius)	15.5
Upstream Riparian Assessment	
Photo #	Disk 2 - 9
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
% Gradient over 10 meters	1.0
Habitat Condition (good, fair, poor, none)	Fair
Channel Width (meters)	1.70
Wetted Width (meters)	1.60
Stream Depth (meters)	0.88
Velocity (m/second)	
Additional Comments:	Creek dry on July 2/03
Downstream Riparian Assessment	
Photo #	Disk 2- 11, 12
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	2
Habitat Condition (good, fair, poor, none)	Fair
Channel Width (meters)	1.50
Wetted Width (meters)	1.30
Stream Depth (meters)	0.40
Velocity (m/second)	
Additional Comments:	Some cover at plunge pool
Culvert Assessment	
Composition	Wood
Downstream jump height (meters)	0.03
Shape	Round
Rise (meters)	0.41
% Slope	1.0
Length (meters)	4.4
Downstream Plunge Pool Depth (meters)	0.30
Additional Comments	Grass growing instream

CULVERT FIELD DATA	
Location (name/details)	Laity Creek culvert at 128th Ave
Site #	SI 129
Date	June 5/03
Weather	Sunny
Northing	5,455,612.3
Easting	526,991.5
Site Access	Vehicle access
Barrier Photo #	Disk 2- 81, 82, 83, 84
Water Temperature (Celsius)	15.0
Upstream Riparian Assessment	
Photo #	Disk 2- 87, 88, 89
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	<1m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	4.0
Habitat Condition (good, fair, poor, none)	Fair
Channel Width (meters)	3.80
Wetted Width (meters)	2.20
Stream Depth (meters)	1.50
Velocity (m/second)	11
Additional Comments:	Cobbles and boulders before culvert
Downstream Riparian Assessment	
Photo #	Disk 2- 90,91
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	4
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	2.00
Wetted Width (meters)	1.50
Stream Depth (meters)	0.50
Velocity (m/second)	6
Additional Comments:	Undercut bank
Culvert Assessment	
Composition	Steel
Downstream jump height (meters)	0.00
Shape	Round
Rise (meters)	1.9
% Slope	
Length (meters)	15.9
Downstream Plunge Pool Depth (meters)	
Additional Comments	Board approx. 0.3m wide and 2.4 m long attached to downstream end of culvert. Probable obstruction. Upstream portion of culvert has cobble substrate.

CULVERT FIELD DATA	
Location (name/details)	Cordin Creek/Millionaire confluence
Site #	CU C-1
Date	June 10/03
Weather	Overcast
Northing	5,455,994.9
Easting	532,579.5
Site Access	Vehicle access through private property
Barrier Photo #	Disk 2- 26, 27, 28, 29
Water Temperature (Celsius)	14.0 but 22.0 on July 5/03
Upstream Riparian Assessment	
Photo #	Disk 2 -30
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	0.0
Habitat Condition (good, fair, poor, none)	Fair
Channel Width (meters)	Pond dimensions 14 x 35.3
Wetted Width (meters)	See channel width
Stream Depth (meters)	1.37
Velocity (m/second)	0
Additional Comments:	
Downstream Riparian Assessment	
Photo #	Disk 2- 31
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-15m
% Gradient over 10 meters	6
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	2.30
Wetted Width (meters)	2.62
Stream Depth (meters)	0.23
Velocity (m/second)	0.25
Additional Comments:	1.8m length from culvert to stream
Culvert Assessment	
Composition	Cement
Downstream jump height (meters)	0.96
Shape	Round
Rise (meters)	0.25
% Slope	
Length (meters)	7.8
Downstream Plunge Pool Depth (meters)	0.00
Additional Comments	Owner discussed diverting Cordin directly into Millionaire Creek

CULVERT FIELD DATA	
Location (name/details)	McKenney Creek culvert at 20884 Wicklund Ave
Site #	SI 210
Date	June 24/03
Weather	Sunny
Northing	5,454,230.5
Easting	526,318.5
Site Access	Foot access from property
Barrier Photo #	Disk 2-51, 52, 53, 64, 65, 66, 68
Water Temperature (Celsius)	14.5
Upstream Riparian Assessment	
Photo #	Disk 2- 67
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
% Gradient over 10 meters	14.0
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	1.25
Wetted Width (meters)	0.90
Stream Depth (meters)	0.03
Velocity (m/second)	17
Additional Comments:	Pool upstream of culvert
Downstream Riparian Assessment	
Photo #	Disk 2- 69
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	2
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	2.90
Wetted Width (meters)	2.10
Stream Depth (meters)	0.20
Velocity (m/second)	25
Additional Comments:	Lamium on right bank. Yard waste on left bank.
Culvert Assessment	
Composition	Cement
Downstream jump height (meters)	0.00
Shape	Round, but fragmented
Rise (meters)	0.72
% Slope	N/A
Length (meters)	5.8
Downstream Plunge Pool Depth (meters)	0.00
Additional Comments	Woody debris accumulating at culvert

Appendix H Natural Obstruction Data

NATURAL OBSTRUCTION FIELD DATA	
Location (name/details)	McKinney Creek (downstream of 209th)
Site #	NO239
Date	June 24/03
Weather	Sunny
Northing	5,454,233.3
Easting	526,291.0
Site Access	By foot downstream from address 20884 Wicklund
Barrier Photo #	Disk 2- 54, 55, 60
Water Temperature (Celsius)	14.0
Upstream Riparian Assessment	
Photo #	Disk 2- 61, 62
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
% Gradient over 10 meters	2.0
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	2.90
Wetted Width (meters)	2.10
Stream Depth (meters)	0.20
Velocity (m/second)	5
Additional Comments:	
Downstream Riparian Assessment	
Photo #	Disk 2- 63
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
% Gradient over 10 meters	0.5
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	2.10
Wetted Width (meters)	1.9
Stream Depth (meters)	0.04
Velocity (m/second)	5
Additional Comments:	Lamium on right bank. Both banks undercut. Gravel and sand substrate.
Obstruction Assessment	
Composition	Woody debris
Water Surface Difference (meters)	0.25
Width (meters)	0.75
Height (meters)	0.3
% Span	100
Dismantling Options	Hand tools

NATURAL OBSTRUCTION FIELD DATA	
Location (name/details)	McKinney Creek downstream from 209 St.
Site #	NO240
Date	June 4/03
Weather	Sunny
Northing	5,454,236.0
Easting	526,388.5
Site Access	Vehicle to 209th, then by foot
Barrier Photo #	Disk 2- 20
Water Temperature (Celsius)	14.0
Upstream Riparian Assessment	
Photo #	Disk 2- 22
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	0.5
Habitat Condition (good, fair, poor, none)	Poor
Channel Width (meters)	2.80
Wetted Width (meters)	1.80
Stream Depth (meters)	0.95
Velocity (m/second)	7
Additional Comments:	Very low water flows
Downstream Riparian Assessment	
Photo #	Disk 2- 21
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	2
Habitat Condition (good, fair, poor, none)	Poor
Channel Width (meters)	2.50
Wetted Width (meters)	1.60
Stream Depth (meters)	0.05
Velocity (m/second)	13
Additional Comments:	
Obstruction Assessment	
Composition	Woody debris and mud
Water Surface Difference (meters)	0.44
Width (meters)	1.50
Height (meters)	0.68
% Span	100
Dismantling Options	By hand
Additional Comments	Ivy and lamium on both banks

NATURAL OBSTRUCTION FIELD DATA	
Location (name/details)	Balabanian Creek, behind cul-de-sac at 125A Ave
Site #	NO118
Date	June 3/03
Weather	Sunny
Northing	5,455,053.9
Easting	530,630.5
Site Access	Vehicle then by foot
Barrier Photo #	Disk 2- 16, 57
Water Temperature (Celsius)	14.0
Upstream Riparian Assessment	
Photo #	Disk 2- 18
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
% Gradient over 10 meters	2
Habitat Condition (good, fair, poor, none)	Fair
Channel Width (meters)	2.30
Wetted Width (meters)	1.00
Stream Depth (meters)	0.10
Velocity (m/second)	
Additional Comments:	Silty substrate, pool habitat
Downstream Riparian Assessment	
Photo #	Disk 2- 17
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
% Gradient over 10 meters	3
Habitat Condition (good, fair, poor, none)	Fair
Channel Width (meters)	2.50
Wetted Width (meters)	2.30
Stream Depth (meters)	0.20
Velocity (m/second)	
Additional Comments:	Plunge pool
Obstruction Assessment	
Composition	Woody debris
Water Surface Difference (meters)	0.3
Width (meters)	2.00
Height (meters)	0.5
% Span	100
Dismantling Options	By hand
Additional Comments	Garbage (oil cans etc.)

NATURAL OBSTRUCTION FIELD DATA	
Location (name/details)	Dogwood Creek at 23385 Dogwood St.
Site #	SI 170
Date	June 3/03
Weather	Sunny
Northing	5,456,015.8
Easting	531,310.5
Site Access	Car to driveway, then on foot
Barrier Photo #	Disk 2- 57, 76, 77
Water Temperature (Celsius)	18.5 or 15
Upstream Riparian Assessment	
Photo #	Disk 2- 74, 75
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
% Gradient over 10 meters	0
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	2.00
Wetted Width (meters)	1.90
Stream Depth (meters)	0.17
Velocity (m/second)	25
Additional Comments:	Upstream has very silty substrate
Downstream Riparian Assessment	
Photo #	Disk 2- 14, 15
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	5-15m
% Gradient over 10 meters	0
Habitat Condition (good, fair, poor, none)	Fair
Channel Width (meters)	7.00
Wetted Width (meters)	5.00
Stream Depth (meters)	0.05
Velocity (m/second)	0
Additional Comments:	
Obstruction Assessment	
Composition	Rock and woody debris dam
Water Surface Difference (meters)	0.6
Width (meters)	5.00
Height (meters)	0.5
% Span	100
Dismantling Options	Hand tools
Additional Comments	No gravel or cobble substrate, very silty. Water is strained through dam

NATURAL OBSTRUCTION FIELD DATA	
Location (name/details)	T10/T11 small falls, 50m downstream from fish ladder
Site #	HR SI3
Date	May 28/03
Weather	Overcast
Northing	
Easting	
Site Access	Vehicle and then foot path
Barrier Photo #	Disk 2- 8, 96 ,97
Water Temperature (Celsius)	13.0
Upstream Riparian Assessment	
Photo #	Disk 2- 6
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	>15m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	>15m
% Gradient over 10 meters	7
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	3.90
Wetted Width (meters)	2.20
Stream Depth (meters)	0.22
Velocity (m/second)	4
Additional Comments:	
Downstream Riparian Assessment	
Photo #	Disk 2- 7
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	>15
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	>15
% Gradient over 10 meters	4
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	6.60
Wetted Width (meters)	4.60
Stream Depth (meters)	0.10
Velocity (m/second)	5
Additional Comments:	
Obstruction Assessment	
Composition	Rock, root
Water Surface Difference (meters)	0.40
Width (meters)	1.95
Height (meters)	0.94
% Span	100
Dismantling Options	Handtools
Additional Comments	0.44 m plunge pool

Appendix I Anthropogenic Obstruction Data

ANTHROPOGENIC DAM FIELD DATA	
Location (name/details)	DFO Fish ladder T10/T11
Site #	HR CU-2
Date	May 21/03
Weather	Overcast
Northing	Unavailable
Easting	Unavailable
Site Access	Vehicle directly off BC Hydro rd
Barrier Photo #	Disk 1- 20, 22
Fish Photo #	Disk 1- 23
Water Temperature (Celsius)	11.5
Upstream Riparian Assessment	
Photo #	1-20,22
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	< 1m
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	2.5
Habitat Condition (good, fair, poor, none)	Fair
Channel Width (meters)	2.50
Wetted Width (meters)	1.00
Stream Depth (meters)	0.02
Velocity (m/second)	45
Additional Comments:	
Downstream Riparian Assessment	
Photo #	1-21,
Right Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	<1
Left Bank Riparian Extent (<1m, 1-5m, 5-15m, >15m)	1-5m
% Gradient over 10 meters	7
Habitat Condition (good, fair, poor, none)	Good
Channel Width (meters)	2
Wetted Width (meters)	1.8
Stream Depth (meters)	0.1
Velocity (m/second)	10
Jump Height (meters)	0.4
Additional Comments:	
Dam Assessment	
Height (meters)	1.2
Width (meters)	1.3
% Span of Channel	100
Dam compostion	Wood
Dismantling Options	Height of individual steps could be altered
Water Surface Difference (meters)	0.4
Primary Purpose of Dam	Fish passage