

**APPENDIX 28**  
**FISHERIES BASELINE REPORT**

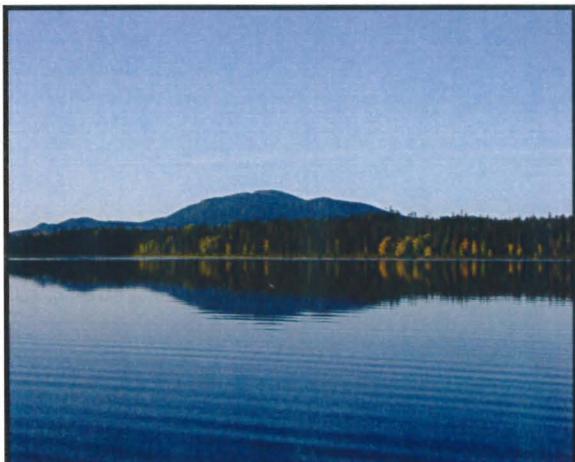
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Pacific Booker Minerals Inc.  
Morrison Copper/Gold Project  
British Columbia, Canada

# Morrison Copper/Gold Project Fisheries Baseline Report (2006 - 2008)



Prepared by:

Rescan™ Environmental Services Ltd.  
Vancouver, British Columbia

December 2008



# **Executive Summary**

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This report presents the fisheries baseline study for Pacific Booker Minerals Inc (PBM).

PBM's proposed Morrison Copper/Gold Project (the Project) is 65 km northeast of Smithers and 35 km north of the village of Granisle in north-central British Columbia. The Project is on the east side of Morrison Lake on Crown land and falls within the traditional territory of the Lake Babine Nation. Access to the Project site is by road with barge access across Babine Lake, which is 50 km south of the site. The Project is approximately 35 km north of the former Bell and Granisle copper/gold mines.

The Morrison mine will be a 30,000 tpd open pit operation with ore processed in a conventional milling plant and the copper/gold concentrate transported to the Port of Stewart for shipment to offshore smelters. Molybdenum concentrate will be trucked from the mine to a refinery location to be confirmed. The mine will produce approximately 224 Mt of tailings and 170 Mt of waste rock.

The information contained in this baseline is intended to support a full environmental and socio-economic impact assessment of the Project.

The objective of this report is to summarize the results of past fish and fish habitat baseline studies from 2006 to 2008, including baseline fish and fish habitat information for several streams, ponds, and small lakes in and near the ore zones, as well as Morrison Lake, to fill information gaps in fisheries information required for an environmental assessment.

Stream habitats were assessed in 2006 at nine locations within the Project area. Five different ponds and small lakes were assessed in 2006. Large lakes (Morrison and Tochcha lakes) and two ponds were assessed in 2008. Tochcha Lake was used as a reference site for Morrison Lake. Fish sampling occurred using a combination of gillnets, minnow traps, and electrofishing. Five shoreline areas in Morrison Lake were assessed for salmon spawning habitat in 2007 and general fish habitat in 2008.

In 2006, seven streams were sampled to determine fish presence/absence, fish community composition, and population demographics. Five streams were confirmed as fish bearing. No fish were present in streams #29000 and #50000-48010. Rainbow trout, followed by coho salmon, had the widest species distribution within the Project area streams. High fish abundance occurred in Morrison and Tahlo creeks. Coho salmon in stream #61100 are underweight compared to those found in the much larger Morrison and Tahlo creeks. All rainbow trout found in streams were in good condition.

In 2006, fish absence was confirmed in Booker Lake, Ore Pond, and three ponds (Pond X, 00302-BABL, 00309-BABL). In 2008, fish absence was confirmed in two ponds (Pond W and Pond X). In Morrison and Tochcha lakes, lake trout were the most widely distributed and abundant large-bodied species captured. Lake trout similarity in the two lakes suggests this species

## ***Executive Summary***

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may be useful for long term monitoring within Morrison Lake and between the two systems. The small-bodied fish community in Morrison Lake was dominated by northern pikeminnow, prickly sculpin, and redside shiner.

Salmon spawning surveys conducted in 2007 identified spawning sockeye salmon in Morrison Creek, 200 m downstream of Morrison Lake. These observations corroborate those of previous reports showing sockeye salmon spawning in Morrison Creek, and expand the range of sockeye salmon to the upper reaches of Morrison Creek. Sockeye salmon spawning along the Morrison Lake shoreline at Site B also was corroborated. The first record of coho salmon spawning at Site B occurred in the 2007 study. Coho salmon were not observed spawning in the upper reaches of Morrison Creek.

Fish habitat assessments of streams within the Morrison Project area were conducted in 2006 by recording stream temperature, pH, conductivity, channel width, depth, gradient, and substrate. Stream #29000 (downstream of Booker Lake and Ore Pond) has a barrier to fish passage in the form of a bedrock falls. This 5 m barrier limits fish access to the lower 80 m of this reach.

Fish habitat assessments of Morrison Lake and stream inlets/outlets were conducted in 2008. Sites A and D provide poor salmon spawning habitat, but good rearing habitat for small-bodied fish species. Sites B and C provide good salmon spawning and rearing habitat.

# Acknowledgements

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Glenn Wagner (Ph.D., R.P.Bio.) was the principal author of the report. The report was reviewed by Chris Burns (B.Sc., R.P.Bio.) and François Landry (M.Sc., R.P.Bio.). Glenn Wagner was the principal investigator, with the 2006 field collection of fish and fish habitat information performed by SKR Consulting Ltd., and by Laura Nendick of Rescan Environmental Services Ltd. Members of the Lake Babine Nation Fisheries unit were invaluable, including director Bill Spenst. As well, field assistance was provided by Mike Tudball, Victor Alec from the community of Tachet Landing, and by Joyce Williams from the community of Burns Lake. Report production was coordinated by Joanna Lerner and Sarah Webb (M.A.).

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# Morrison Copper/Gold Project

## Fisheries Baseline Report

### (2006-2008)

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# Abbreviations

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<b>ANOVA</b>	Analysis of Variance
<b>CPUE</b>	Catch-per-unit-effort
<b>EF</b>	Electrofishing
<b>EIA</b>	Environmental Impact Assessment
<b>FL</b>	Fork Length
<b>GN</b>	Gillnetting
<b>GPS</b>	Global Positioning System
<b>MT</b>	Minnow Trapping
<b>PBM</b>	Pacific Booker Minerals Inc.
<b>pH</b>	Dimensionless measure of the acidity or basicity of a solution.
<b>QA/QC</b>	Quality Assurance/Quality Control
<b>Rescan</b>	Rescan Environmental Services Ltd.
<b>RISC</b>	Resources Information Standards Committee
<b>SE</b>	Standard Error of the Mean
<b>SKR</b>	SKR Consultants Ltd.
<b>UTM</b>	Universal Transverse Mercator (map projection system for global mapping)

# 1. Introduction

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## 1.1 Background

PBM's proposed Morrison Copper/Gold Project (the Project) is 65 km northeast of Smithers and 35 km north of the village of Granisle in north-central British Columbia. The Project is on the east side of Morrison Lake on Crown land and falls within the traditional territory of the Lake Babine Nation. Access to the Project site is by road with barge access across Babine Lake, which is 50 km south of the site. The Project is approximately 35 km north of the former Bell and Granisle copper/gold mines.

The Morrison mine will be a 30,000 tpd open pit operation with ore processed in a conventional milling plant and the copper/gold concentrate transported to the Port of Stewart for shipment to offshore smelters. Molybdenum concentrate will be trucked from the mine to a refinery location to be confirmed. The mine will produce approximately 224 Mt of tailings and 170 Mt of waste rock.

This report presents the results from fisheries baseline studies performed by Rescan Environmental Services Ltd. (Rescan) in the summer of 2006 and 2008, and by SKR Consultants Ltd., Smithers, B.C. (SKR) in 2006. As well, a salmon spawning survey was performed by Rescan in the fall of 2007. This information will be used to finalize documentation of fish and fish habitat distribution in the Morrison Project area. In conjunction with a historical data summary (Bustard, 2004) and baseline report performed by Bustard (2005), this data set will complete the fisheries component required for the Environmental Impact Assessment (EIA) of the Morrison Project.

The majority of streams, ponds and small lakes located on the eastern shore of Morrison Lake are shallow and some may freeze to the bottom during the winter. As well, many temporary and permanent barriers to upstream fish migration exist in the form of beaver dams and < 2 m waterfalls. Thus, few of these water bodies are fish-bearing, and these few are populated by resident populations of rainbow trout (*Oncorhynchus mykiss*) (Bustard, 2004; Bustard 2005). Morrison Lake itself, however, contains a full assemblage of northern fish species. At different times of the year, this community includes rainbow trout, cutthroat trout (*Oncorhynchus clarkii clarkii*), kokanee (*Oncorhynchus nerka*), sockeye salmon (*Oncorhynchus nerka*), coho salmon (*Oncorhynchus kisutch*), chinook salmon (*Oncorhynchus tshawytscha*), lake trout (*Salvelinus namaycush*), lake whitefish (*Coregonus clupeoformis*), mountain whitefish (*Prosopium williamsoni*), longnose sucker (*Catostomus catostomus*), largescale sucker (*Catostomus macrocheilus*), northern pikeminnow (*Ptychocheilus oregonensis*), burbot (*Lota lota*), peamouth chub (*Mylocheilus caurinus*), redside shiner (*Richardsonius balteatus*), and prickly sculpin (*Cottus asper*).

Potential spawning sites for coho, sockeye, kokanee, and lake trout were identified previously within Morrison Lake (Bustard, 2004); however, only one shoreline spawning location has been observed in use by sockeye salmon (Bustard, 2005). Therefore, a pair of spawning surveys were performed in the Fall of 2007 to corroborate these findings and determine whether other sites are being used for spawning. The majority of the high quality, or most productive, lake trout

## ***Introduction***

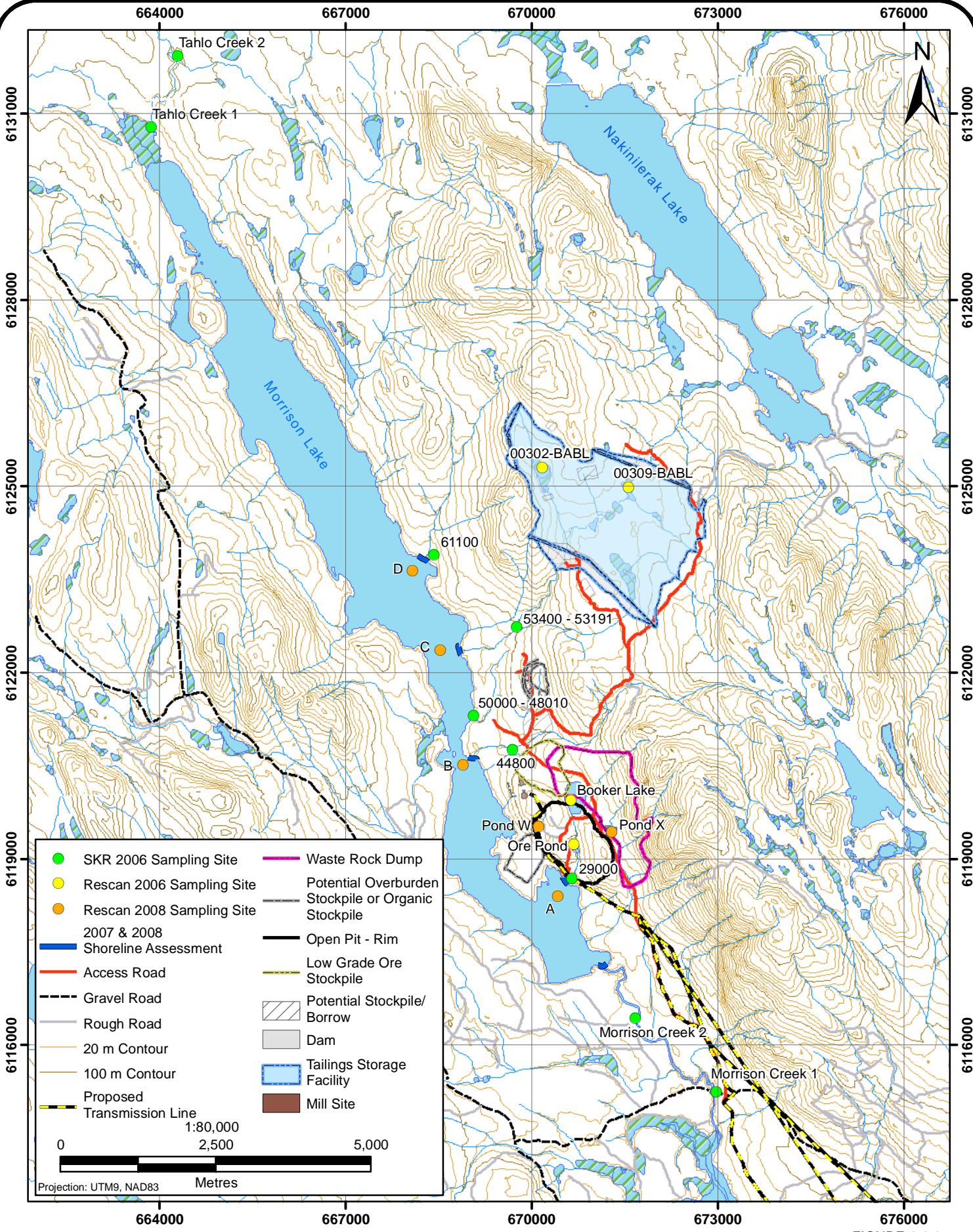
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spawning sites identified are located upstream of the influence of the mine property, in the northern basin of Morrison Lake.

Currently, only a limited survey has been performed to identify fish use of lake habitat within the area potentially affected by the mine. This survey entailed one site in each of the upper and lower basins of Morrison Lake being sampled with floating and sinking gillnets for 24 hours (Bustard, 2005). Due to this limited scope with respect to the Morrison Project, four sites near the outlets of potentially affected streams were sampled, including shoreline assessments for each (Figure 1.1-1). The majority of the streams and ponds located within the mine property have previously undergone at least two years of baseline fisheries sampling (Bustard, 2004; Bustard 2005). However, seven streams and six small lakes and ponds within the deposit and tailing areas required supplemental sampling (Figure 1.1-1).

The objectives for this fisheries baseline study of the Morrison Project are to present:

- fish and fish habitat information collected by SKR in 2006 on tributaries of Morrison Lake as well as Morrison Creek;
- findings of a fisheries assessment of stream, pond, and small lakes in the Morrison Project area performed by Rescan in 2006;
- results of two salmon spawning surveys performed on Morrison Lake and Morrison Creek in 2007; and
- data from studies conducted in 2008 to fill gaps in fisheries information required for the EIA, including:
  - fish community survey of fish communities in Morrison Lake and in two ponds within the Morrison Project area that had not been sampled; and
  - habitat survey of Morrison Lake shorelines associated with potentially affected streams.



## **2. Methods**

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### **2.1 Fish Community Assessments**

#### **2.1.1 Capture Surveys**

Three separate fish community surveys were conducted between 2006 and 2008. Two surveys occurred in the late summer of 2006. The first was an assessment of stream fish and habitats by SKR from August 25 to August 30, 2006. The second was an assessment of stream, pond, and small lakes performed by Rescan from September 18 to 22, 2006. A third fish community survey was conducted in 2008, this time focussing on the fish communities of Morrison Lake as well as two adjacent ponds. For each fish survey, streams were assessed by electrofishing, shallow ponds by using minnow traps, and small lakes and Morrison Lake by using a combination of gillnets and minnow traps along the shoreline.

##### **2.1.1.1 2006 SKR Stream Survey**

A fish survey was performed by SKR from August 25 to August 30, 2006. This survey was conducted to determine the fish-bearing status of the streams within the Morrison Project area. One-pass electrofishing was performed at nine stream sites while walking a minimum 100 m section of each stream in order to identify the presence of fish and determine if the sites were classified as streams, non-classified drainages, or no visible channel present. (Table 2.1-1). Electrofishing was performed using a Smith-Root backpack unit while walking upstream in each stream section and sampling different habitat types. These habitats included glides, riffles, cascades, and pools. Each fish captured was identified to species and measured to fork length. Sites were fished for a minimum of 310 seconds.

##### **2.1.1.2 2006 Rescan Pond and Lake Survey**

Gillnets and minnow traps were set in five small lake and pond sites in Fall 2006 to determine the fish presence status of these water bodies (Table 2.1-1). This fish survey was performed by Rescan from September 19 to September 21, 2006. Gillnetting was performed by varying the location and depths of each set in order to sample different habitat types. Sinking gillnets consisted of six panels, each with a different mesh size, from 2.5 to 8.9 cm (equal to half inch increments). Each panel measured 15.2 m long by 2.4 m high and was randomized in series according to RIC (1997) standards. This type of net provides an indexing approach to sampling because many species of fish at different stages of life history can be captured. The locations of the two ends of each net were recorded with a hand-held GPS unit, and the depths were recorded with a depth sounder. Minnow traps were set overnight. Any fish captured in gillnets or minnow traps were identified, measured to fork length, and weighed.

##### **2.1.1.3 2008 Rescan Morrison Lake and Pond Survey**

Four sites were gillnetted in Morrison Lake (Table 2.1-1) from June 24 to July 5, 2008. Each site is associated with an inlet stream on the eastern side of Morrison Lake. Sites A to C are located near streams #29000, #44800, and #53400 within the potential area of affect of the

**Table 2.1-1**  
**Morrison Copper/Gold Project 2006 and 2008 Fisheries Sampling Locations**

Stream Site	Source	Type	UTM Zone	UTM Easting	UTM Northing	Site Length	Fish Capture Method	Fish Species	Potential Mine Influence
29000	SKR 2006	Stream	9	670652	6118685	100 m	EF	NFC	Yes
44800	SKR 2006	Stream	9	669692	6120766	100 m	EF	RB	Yes
50000 - 48010	SKR 2006	Stream	9	669065	6121312	100 m	EF	NFC	Yes
53400 - 53191	SKR 2006	Stream	9	669757	6122734	100 m	EF	RB	Yes
61100	SKR 2006	Stream	9	668424	6123900	100 m	EF	CO	No
								CAS, CO, LKC, LNC, NSC, PCC, RB	
Morrison Creek 1	SKR 2006	Stream	9	672985	6115253	100 m	EF	CAS, CO, LNC, MW, NSC, RB, RSC, SK	No
Morrison Creek 2	SKR 2006	Stream	9	671850	6116150	100 m	EF	CAS, CO, KO, LNC, RB, RSC	No
Tahlo Creek 1	SKR 2006	Stream	9	663868	6130787	100 m	EF	CAS, CO, LNC, LSU, NSC, RB, RSC	No
Tahlo Creek 2	SKR 2006	Stream	9	664296	6131931	100 m	EF		
Pond X	Rescan 2006	Lake/Pond	9	671287	6119420	NA	GN, MT	NFC	Yes
Ore Pond	Rescan 2006	Lake/Pond	9	670689	6119241	NA	GN, MT	NFC	Yes
Booker Lake	Rescan 2006	Lake/Pond	9	670643	6119951	NA	GN, MT	NFC	Yes
00309-BABL	Rescan 2006	Lake/Pond	9	671568	6124987	NA	GN, MT	NFC	Yes
00302-BABL	Rescan 2006	Lake/Pond	9	670122	6125246	NA	GN, MT	NFC	Yes
Pond W	Rescan 2008	Lake/Pond	9	670122	6119522	NA	MT	NFC	Yes
Pond X	Rescan 2008	Lake/Pond	9	671299	6119434	NA	MT	NFC	Yes
Morrison Lake Site A	Rescan 2008	Lake/Pond	9	670429	6118408	NA	GN, MT	CAS, LT, NSC, RSC	Yes
Morrison Lake Site B	Rescan 2008	Lake/Pond	9	668894	6120517	NA	GN, MT	CAS, CSU, LT, LSU, LW, NSC, RSC	Yes
Morrison Lake Site C	Rescan 2008	Lake/Pond	9	668527	6122366	NA	GN, MT	CAS, LT, NSC, RSC	Yes
Morrison Lake Site D	Rescan 2008	Lake/Pond	9	668164	6123640	NA	GN, MT	CAS, CSU, LT, NSC, RSC	No
Morrison Lake Site A	Rescan 2008	Lake/Pond	9	670541	6118635	100 m	SA	NA	Yes
Morrison Lake Site B	Rescan 2008	Lake/Pond	9	669052	6120614	100 m	SA	NA	Yes
Morrison Lake Site C	Rescan 2008	Lake/Pond	9	668839	6122364	100 m	SA	NA	Yes
Morrison Lake Site D	Rescan 2008	Lake/Pond	9	668164	6123640	100 m	SA	NA	No
Tocha Lake Reference	Rescan 2008	Lake/Pond	10	309735	6098431	NA	GN, MT	LT, LW, RB	No

NA = not applicable

CAS = prickly sculpin

LSU = longnose sucker

PCC = peamouth chub

NFC = no fish caught

CO = coho salmon

LT = lake trout

RB = rainbow trout

EF = electrofishing

CSU = largescale sucker

LW = lake whitefish

RSC = redside shiner

GN = gillnet

KO = kokanee

MW = mountain whitefish

SK = sockeye salmon

MT = minnow trap

LKC = lake chub

NSC = northern pikeminnow

SA = shoreline assessment

## **Methods**

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Morrison Project. Site D is associated with the most northern stream #61100, located outside of potential Morrison Project influence.

Gillnetting in Morrison Lake was performed in and around each site by varying the location and depths of each set in order to fish different habitat types. Sinking gillnets consisted of six panels, each with a different mesh size, from 2.5 to 8.9 cm (equal to half inch increments). Each panel was randomized in series according to RIC (1997) standards. At the end of each net, locations and depths were recorded using a GPS unit and depth sounder respectively. This type of net provides an indexing approach to sampling because many species of fish at different stages of life history can be captured. Each fish captured in gillnets was measured to fork length and weighed.

At the nearest shoreline to each site, a series of minnow traps was set in order to capture early life stages of large-bodied fish as well as small-bodied species. The locations of each gillnet set and associated minnow traps are presented in Figures 2.1-1 to 2.1-4. Minnow traps were not set in Tochcha Lake, because the gillnet sets (performed using the same methods as in Morrison Lake) were not associated with particular inlet streams that could be affected by the Morrison Project. Tochcha Lake, located in a separate watershed southeast of Morrison Lake, served as a reference site outside the influence of the Morrison Project area (see Figure 2.1-5).

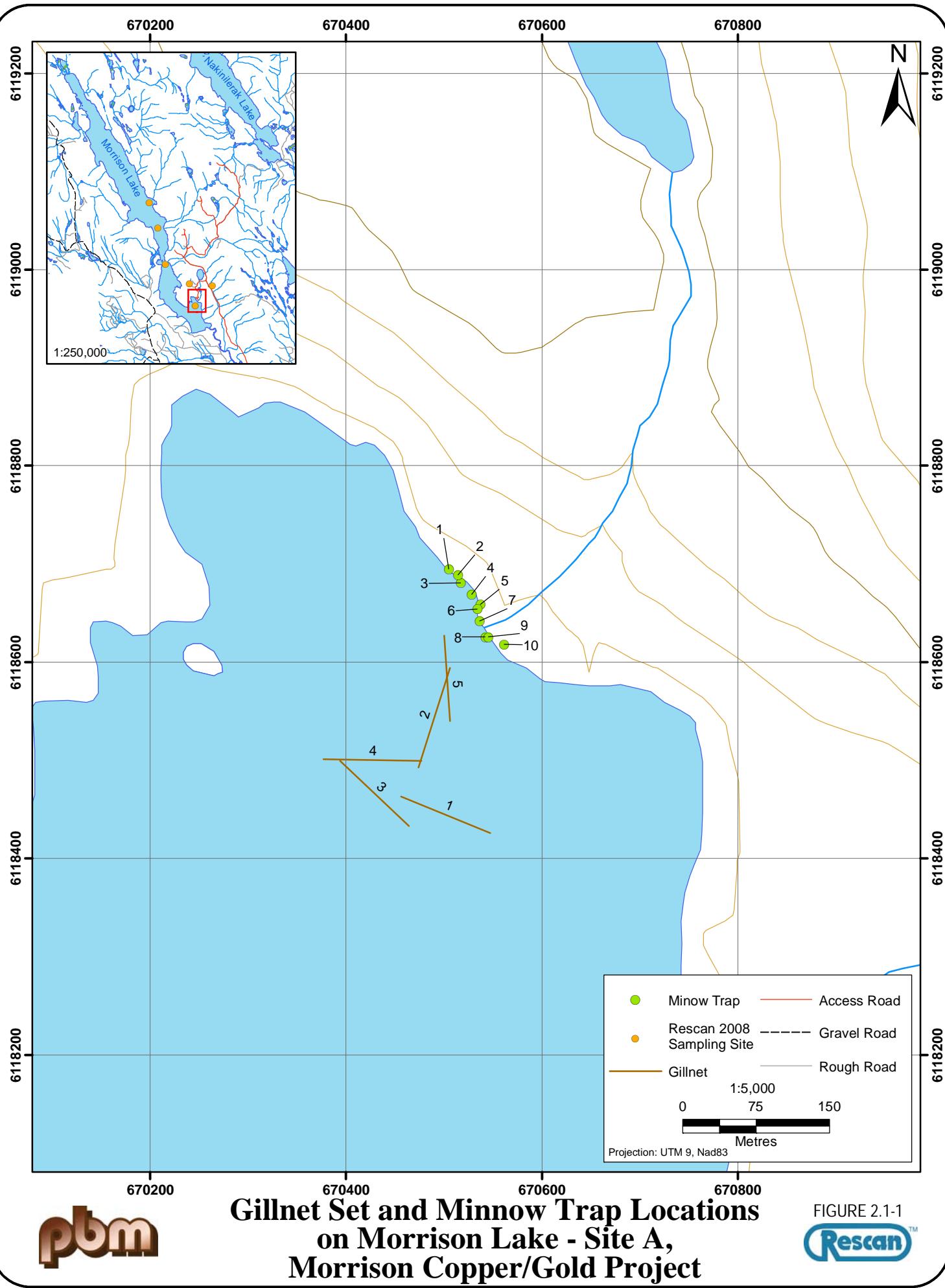
For the small ponds (Pond X and Pond W), only minnow traps were set for fish capture because of their small surface area and shallow water depth (Figures 2.1-6 and 2.1-7). Each fish captured in minnow traps was identified to species and its fork length measured.

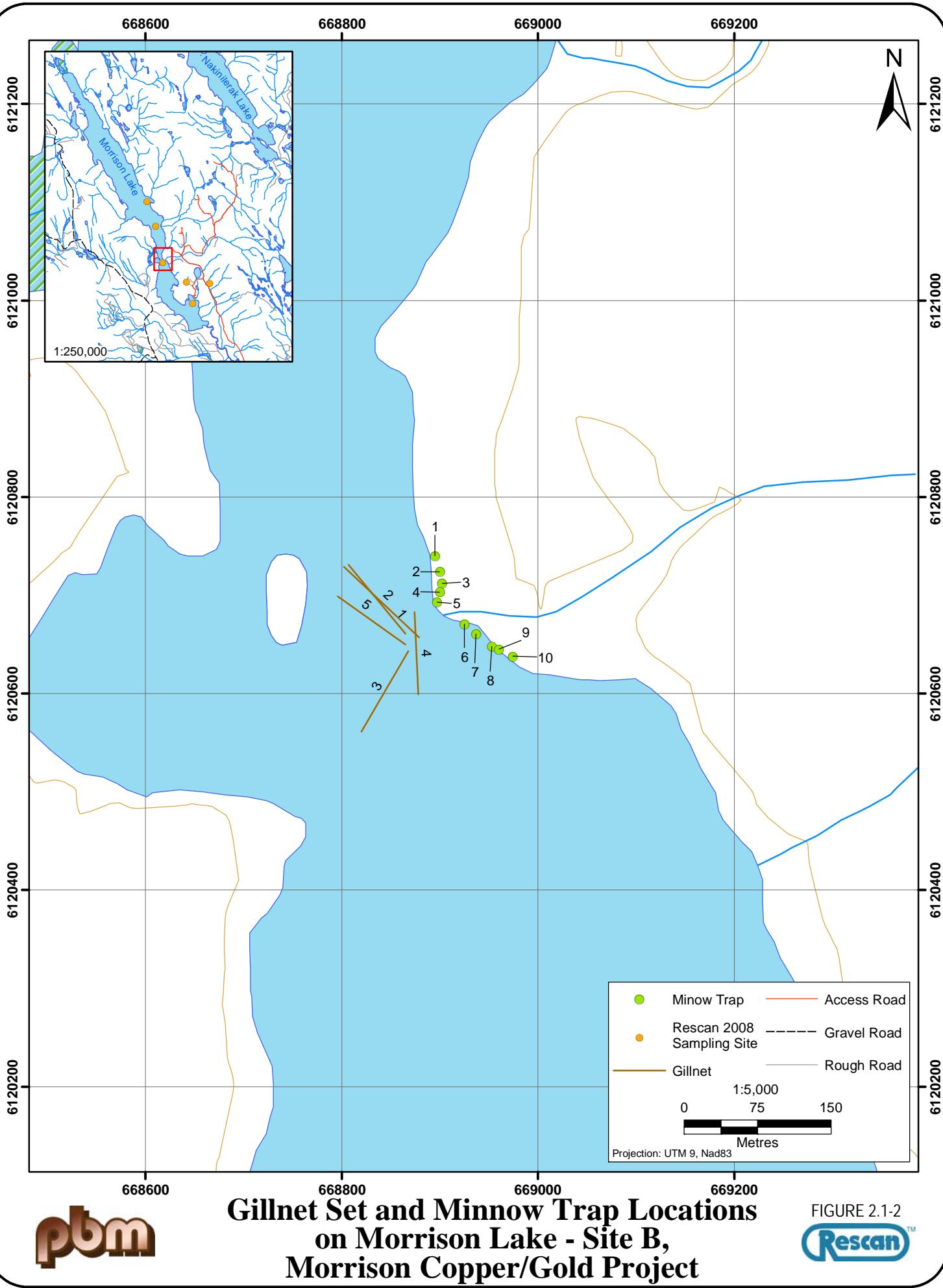
### **2.1.2 2007 Fall Spawning Survey**

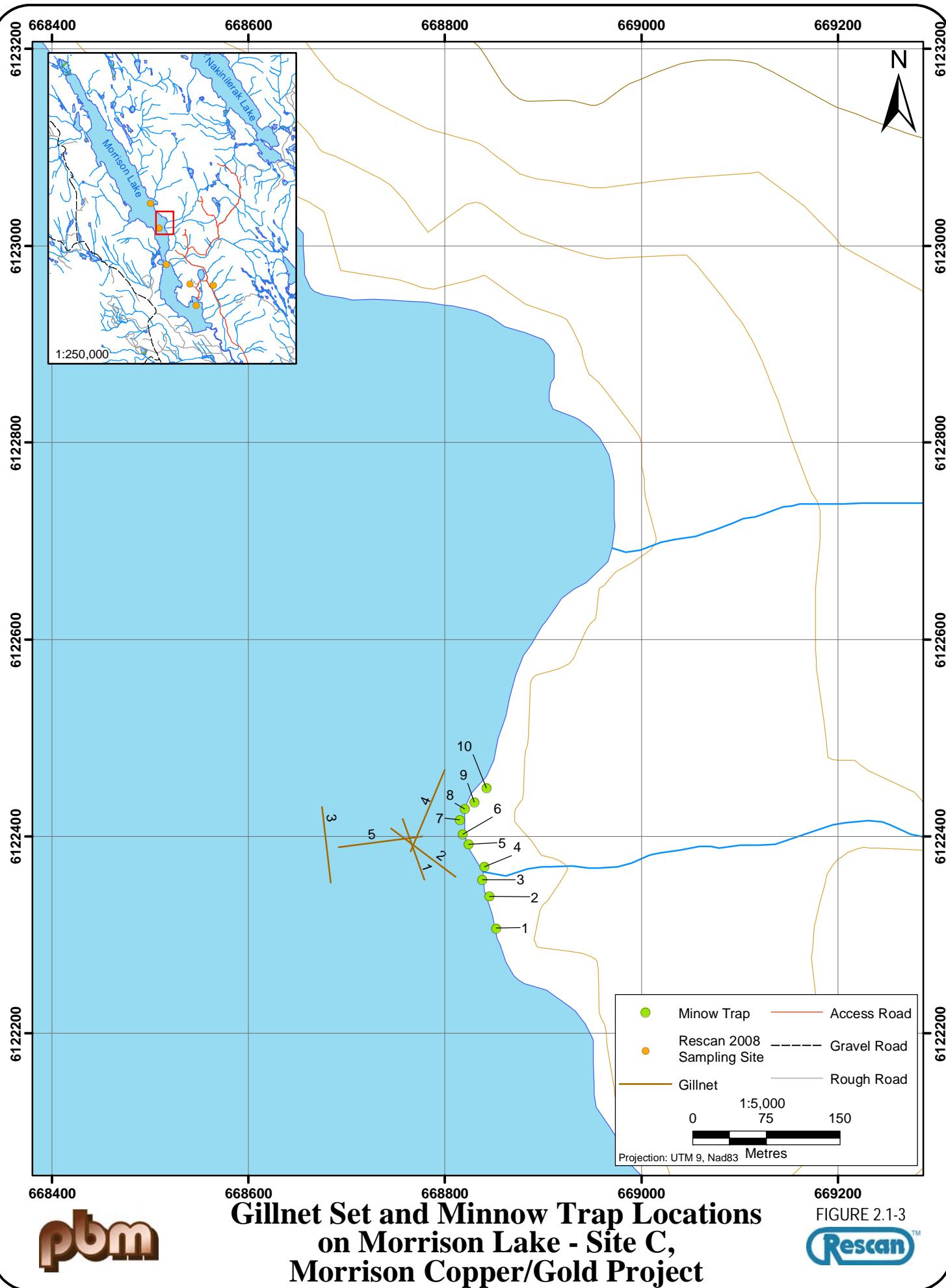
In Fall 2007, two separate surveys were performed on Morrison Lake to assess the spawning activities of sockeye salmon and coho salmon. The first survey from September 25 to 26, 2007 was intended to focus on the earlier-spawning sockeye salmon. The purpose of this survey was to determine whether sockeye salmon were repeatedly using the same spawning locations.

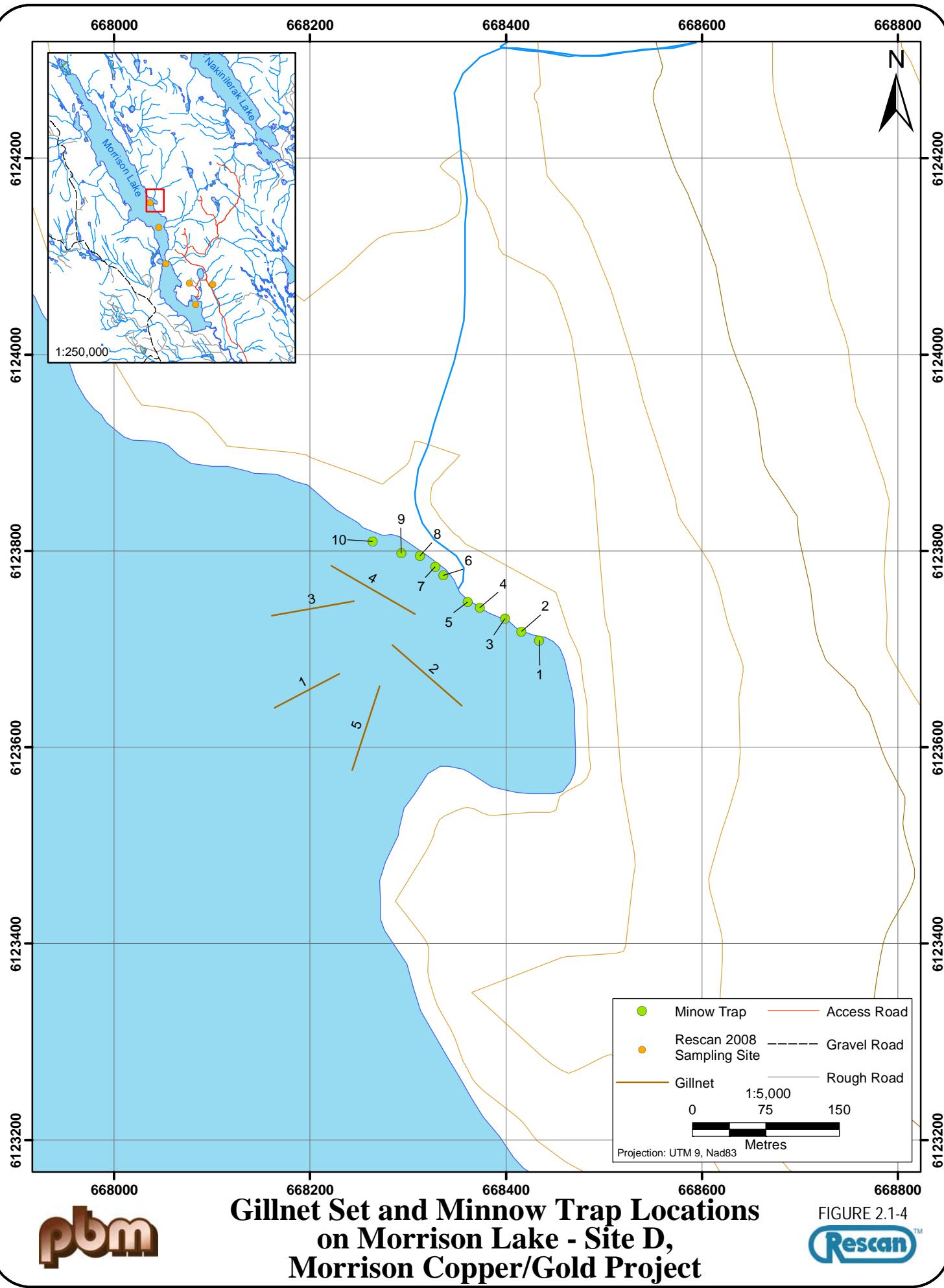
The second survey from October 11 to 12, 2007 was intended to detect whether later-spawning coho salmon also spawn within Morrison Lake. An earlier study by Bustard (2005) had observed coho salmon spawning along with sockeye salmon in Morrison Creek and Tahlo Creek. However, no coho salmon had been observed spawning along any shoreline sites within Morrison Lake, including the shoreline at stream #44800 where sockeye salmon were observed spawning.

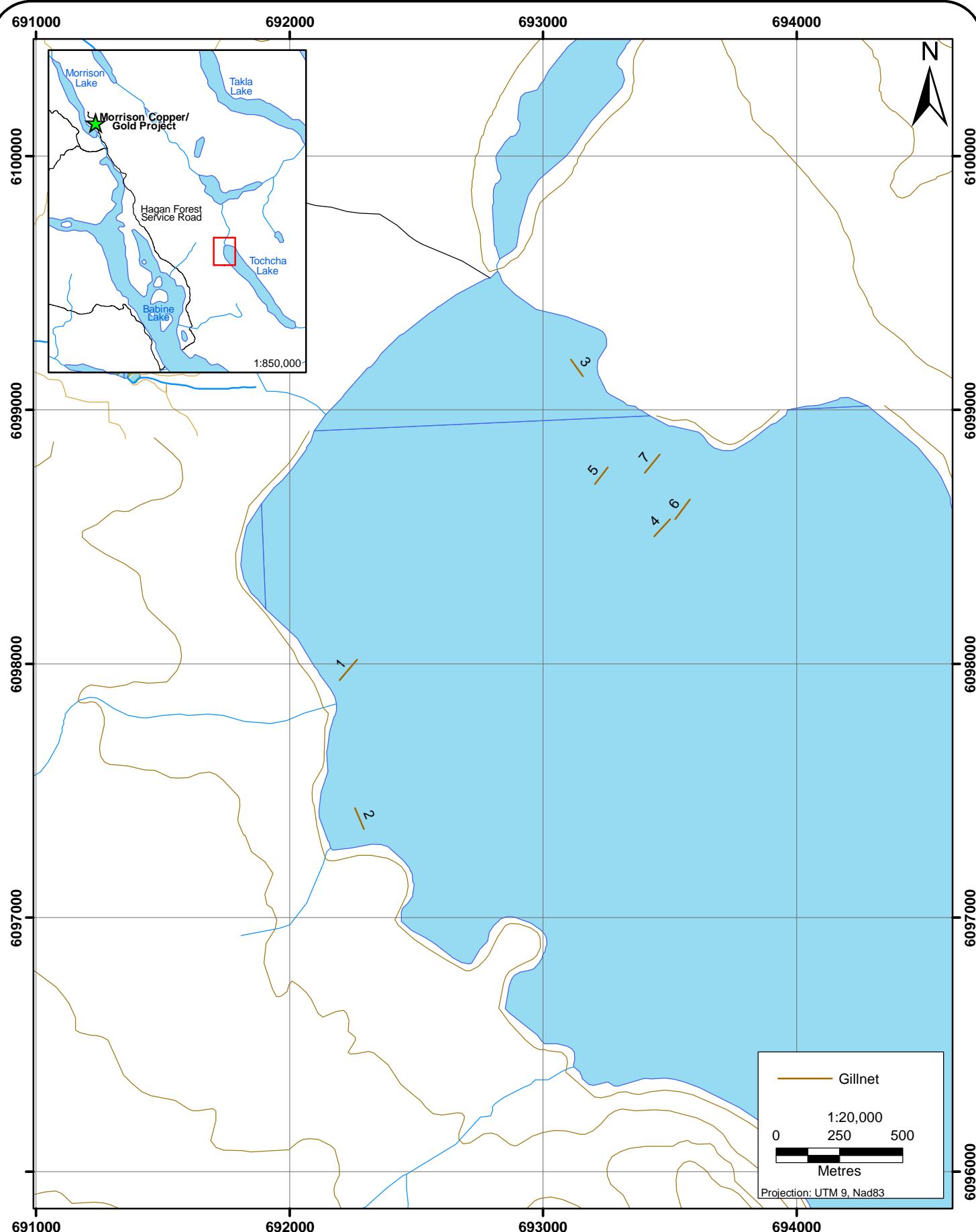
These visual surveys were performed at sites previously assessed by Bustard (2005) and involved walking streams, boating along shorelines, and snorkelling to obtain proper fish identification. Underwater photographs were taken to aid in fish identification. The streams assessed, and their associated shoreline Sites A to D, included #29000, #44800, #53400, #61100 and Morrison Creek (Figure 1.1-1). Fish species were identified at each site and the numbers of fish and spawning activities recorded.





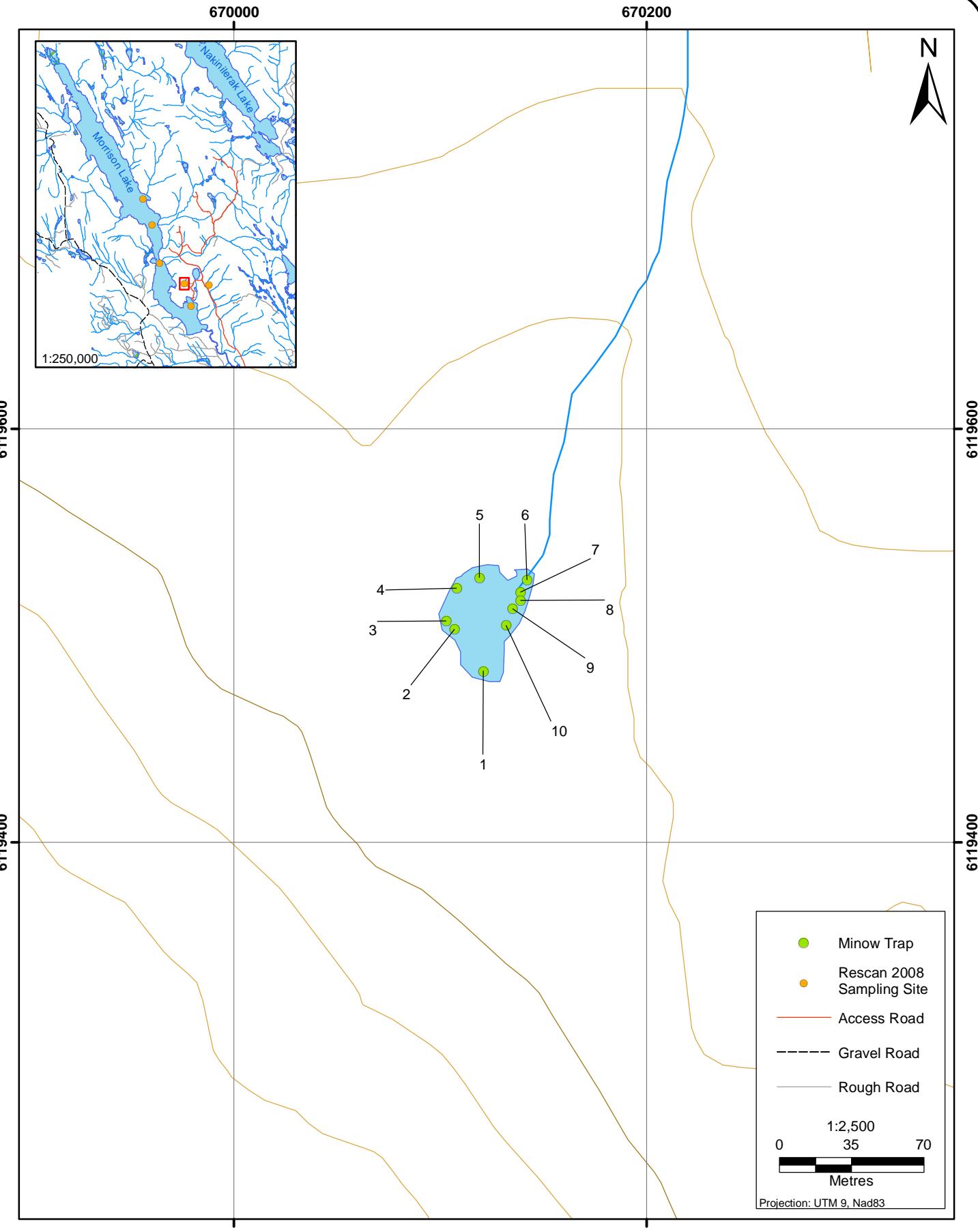




**pbm**

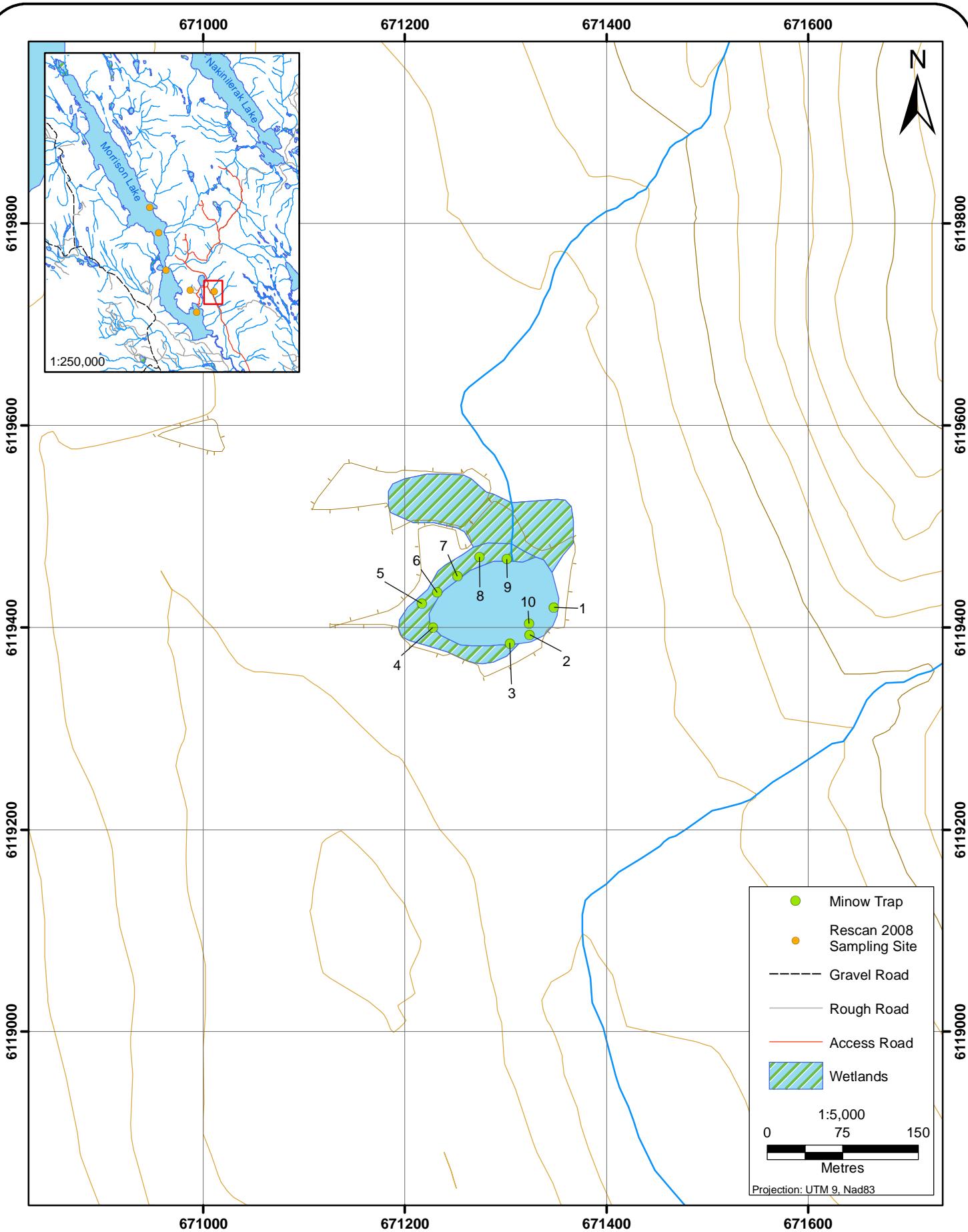
**Gillnet Set Locations on Tochcha Lake -  
Reference Lake Southeast of the  
Morrison Copper/Gold Project Area**

FIGURE 2.1-5  
**Rescan**™

**pbm**

## Minnow Trap Locations on Pond W in the Morrison Copper/Gold Project Area

FIGURE 2.1-6  
**Rescan**™

**pbm**

## Minnow Trap Locations on Pond X in the Morrison Copper/Gold Project Area

FIGURE 2.1-7  
**Rescan**™

## **2.2 Fish Habitat Assessments**

Fish habitat is defined as those environmental components required either directly or indirectly by fish to carry out their life processes. These components include spawning and rearing areas, food production areas, migration routes and over-wintering areas. It is important to include all four areas when performing fish habitat surveys.

### **2.2.1 Stream Habitat**

Basic fish habitat information for the stream sites, such as the depth, width, substrate composition and percent cover, was collected at nine stream sites in 2006. This survey was performed by SKR from August 25 to August 30, 2006. Fish habitat assessment techniques used followed the standard Reconnaissance (1:20,000) Fish and Fish Habitat Inventory used in British Columbia (RISC, 2001). For each stream, the crew started at a habitat unit and moved upstream, surveying each habitat type until 100 m was reached. GPS coordinates (UTMs) were taken at the upstream and downstream ends of the survey distance.

Stream gradient was measured to the nearest 0.5% with a clinometer, and depths and widths were measured with a metre stick to the nearest 5 cm and 10 cm, respectively. Bankfull width was measured from the top of the stream banks (*i.e.*, maximum freshet conditions) and wetted width at the current water level of the stream. Stream depth was measured using the same two methods. Water temperature (to the nearest 0.1°C), pH (to the nearest 0.1 logarithmic unit) and conductivity (to the nearest 1 µS/cm) were measured once along the survey distance using electronic meters. Habitat variables such as substrate, cover, and bank stability were recorded.

### **2.2.2 Morrison Lake Shoreline Habitat**

The shoreline habitat of Morrison Lake was assessed in 2007 and 2008 at the mouths of three streams within the Morrison Project footprint (#29000, #44800 and #53400), at a control site (#61100) located further north, and at the Morrison Lake outlet into Morrison Creek (Figure 1.1-1). Sites were selected to determine the type of substrates being used by spawning salmon, and as monitoring sites for any potential downstream impacts from the proposed mine.

Shoreline fish habitat assessments were conducted over 100 m sections, with the stream outlet bisecting the section. These assessments were performed by walking the shoreline and delineating the boundaries between different habitat zones in field notes. Surveys in 2007 focussed on dominant and sub-dominant substrate types. A more detailed survey occurred in 2008, with the substrate of each zone recorded as a percent of surface area covered by a type of substrate (*e.g.*, 50% boulder and 50% sand/silt). Substrate types were defined by their average particle diameter: sand/silt (< 2 mm diameter), gravel (2 to 64 mm), cobble (64 to 256 mm), boulder (256 to 4,000 mm) and bedrock (> 4,000 mm). Any emergent or submergent vegetation that may act as fish cover also was recorded.

### **2.2.3 Data Analysis**

Variables used to help assess the fish community included length and weight measurements, and fish species presence. Condition factors, length-frequency distributions, and catch-per-unit-effort (CPUE) also were calculated to estimate fish population characteristics.

Condition factor and weight-length regressions are used as indicators of relative fish health. The relative condition factor was calculated for all large-bodied fish captured using gillnets in Morrison Lake. The following formula (Ricker, 1975) was used to calculate condition factor:

$$(1) \quad \text{Condition Factor} = \text{weight (g)} \times 10^5 / \text{length}^3 (\text{mm})$$

CPUE is used as an estimate of fish abundance within lakes, ponds and streams. A key requirement for this comparison method is the standardization of sampling equipment (*e.g.*, mesh size, trap type, and bait) and technique (*e.g.*, random habitat sampling) used at each sampling location. CPUE is defined as the number of fish captured per sampling device during a given unit of time:

$$(2) \quad \text{CPUE} = \text{number of fish caught per minnow trap} / 24 \text{ hrs}$$

$$(3) \quad \text{CPUE} = \text{number of fish caught by gillnets} / 100 \text{ m}^2 \text{ of gillnet} / \text{hr}$$

$$(4) \quad \text{CPUE} = \text{number of fish caught electrofishing} / 100 \text{ s}$$

Statistical analysis was required to compare pond and lake fish communities as well as stream fish communities. Analyses included analysis of variance (ANOVA) that has been reported along with the sample size (n) and P-value (*i.e.*, test of the null hypothesis distribution).

### **2.2.4 Quality Assurance/Quality Control (QA/QC)**

The transcriptions of all field notes were checked visually in order to identify any errors. As well, data was plotted in order to identify any outliers and these were checked for transcription errors.

### **3. Results and Discussion**

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#### **3.1 Fish Community Assessments**

##### **3.1.1 SKR 2006 Stream Survey**

###### **3.1.1.1 Community Composition and Catch-per-unit-effort**

A summary of the number and species of fish captured and the combined CPUE are presented for the nine stream sites electrofished in 2006 (Table 3.1-1). Details of the individual fish captured at each site are presented in Appendix 3.1-1. The CPUE for individual fish species are presented in Appendix 3.1-2.

The CPUE for the seven fish-bearing streams surveyed ranged from 2.28 to 6.69 fish/100 s with no relationship between the size of stream and its relative fish abundance. However, stream size was directly related to fish species richness, with up to seven fish species present within each of the larger streams (Morrison Creek and Tahlo Creek). The fish species common to both of these streams included coho salmon, rainbow trout, longnose sucker, northern pikeminnow, redside shiner, and prickly sculpin. In comparison, only one fish species was present in the three remaining fish-bearing streams, either coho salmon or rainbow trout.

**Table 3.1-1**  
**SKR 2006 Morrison Copper/Gold Project**  
**Single-Pass Electrofishing Catch-Per-Unit-Effort (CPUE)**

Stream Site	Easting	Northing	# Fish	Fish Species	Combined CPUE (# fish/100 s)
Morrison Creek 1	672985	6115253	43	CO,RB,CAS, LNC, NSC, PCC	2.45
Morrison Creek 2	671850	6116150	41	CO,RB,SK, CAS, LNC, NSC, RSC	2.28
29000	670652	6118685	0	NFC	0.00
44800	669692	6120766	29	RB	2.62
50000-48010	669065	6121312	0	NFC	0.00
53400-53191	669757	6122734	29	RB	5.18
61100	668424	6123900	19	CO	6.13
Tahlo Creek 1	663868	6130787	51	CO, KO, RB, CAS, LNC, NSC, RSC	3.62
Tahlo Creek 2	664296	6131931	83	CO, RB, CAS, LNC, LSU, NSC,RSC	6.69

NFC = no fish caught      RB = rainbow trout      NSC = northern pikeminnow  
CO = coho salmon      CAS = prickly sculpin      RSC = redside shiner  
KO = kokanee      LNC = longnose dace  
SK = sockeye salmon      LSU = longnose sucker

### **3.1.1.2 Fish Size and Condition Factor**

Coho salmon and rainbow trout are important sports fish and were the two most prevalent fish species amongst the streams surveyed. Lengths, weights, and condition factors of coho salmon are presented in Figure 3.1-1 and rainbow trout are presented in Figure 3.1-2. Details of individual coho salmon and rainbow trout lengths, weights, and condition factors are presented in Appendix 3.1-3.

Coho salmon ranged in average length from 41 mm to 84 mm and weighed an average of 0.7 g to 6.0 g at the five stream locations where they were captured. The lengths ( $F [4,289] = 92.08, P < 0.001$ ), weights ( $F [4,286] = 68.90, P < 0.001$ ), and condition factors ( $F [4,286] = 62.02, P < 0.001$ ) of coho salmon located in stream #61100 were significantly lower than those captured in Morrison and Tahlo Creeks. This reduction in fish size and condition is most likely due to stream #61100 being only a second order stream, and the smallest fish-bearing stream surveyed (wetted width of 0.73 m) (see Section 3.2). In comparison, the other four sites were on 5<sup>th</sup> order streams, Morrison Creek having an average wetted width of 10.2 m and Tahlo Creek an average wetted width of 3.7 m. In general, smaller streams, particularly structurally complex ones, usually are preferred by early life-history stages of fish (Rosenfeld *et al.*, 2000). This preference may be due to relatively more available edge habitat, and more hydraulically benign spawning, rearing, and overwintering habitats than larger streams.

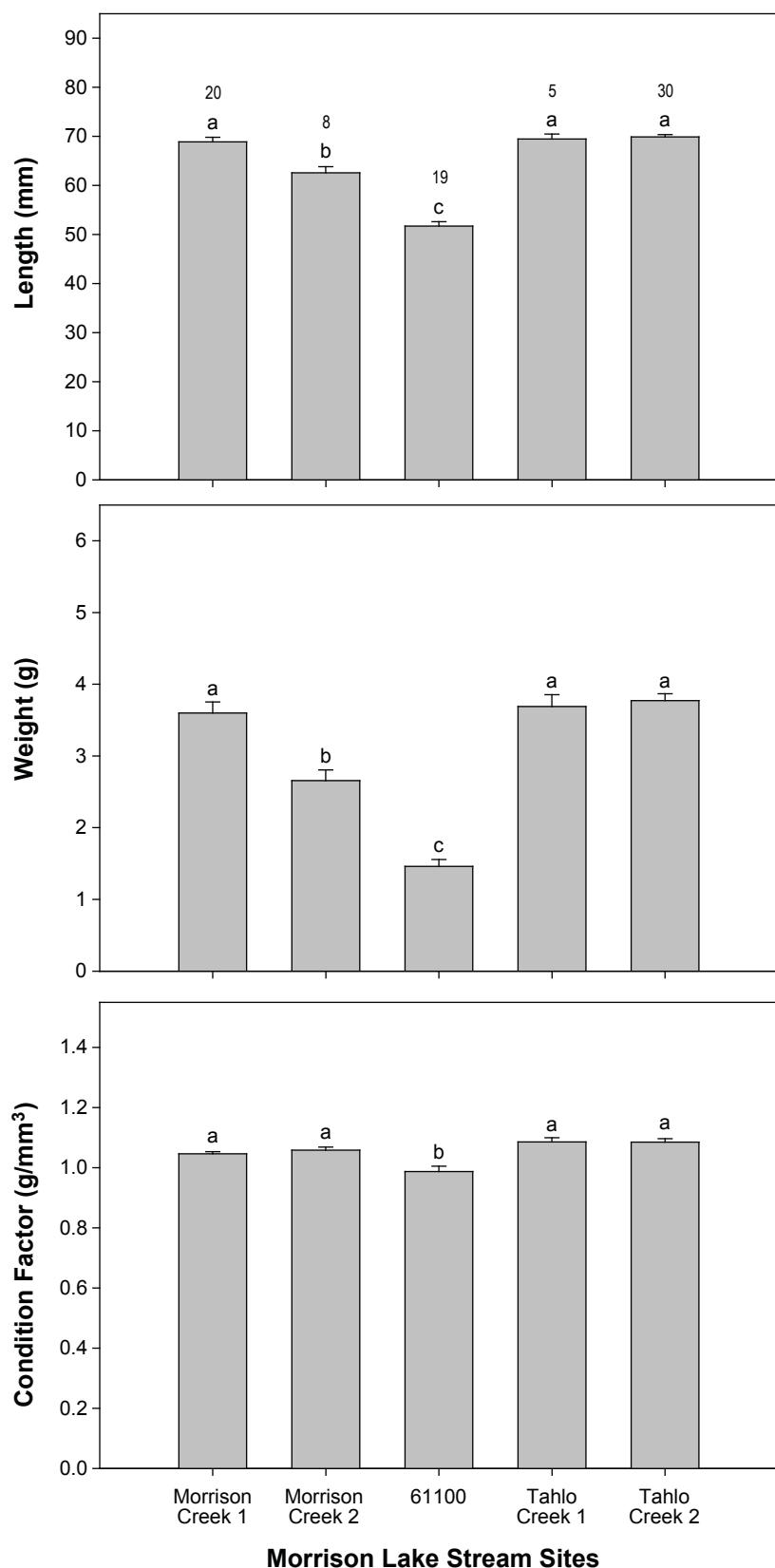
Rainbow trout ranged in average length from 38 mm to 126 mm and weighed an average of 0.7 g to 19.4 g at the six streams in which they were captured. Although significant differences occurred between sites for the lengths ( $F [5,222] = 81.46, P < 0.001$ ) and weights ( $F [5,219] = 1578.58, P < 0.001$ ) of rainbow trout, condition factors ( $F [5,219] = 2.04, P = 0.074$ ) were not affected. Similar to coho salmon, the largest rainbow trout were found in the two largest streams, Morrison Creek and Tahlo Creek. However, the lack of differences in condition factors between the sites indicate that productivity in the 3<sup>rd</sup> order stream #44800 and the 2<sup>nd</sup> order stream #53400-53191 is adequate for the health of rainbow trout.

### **3.1.2 Rescan 2006 Pond and Lake Survey**

Overnight gillnet and minnow trap sets at each of five small lakes and ponds (Table 2.1-1) resulted in no fish captured. The absence of fish confirmed the results of previous studies (Bustard, 2005) that found Booker Lake, Ore Pond, and three ponds (Pond X, 00302-BABL, and 00309-BABL) to be non-fish-bearing.

### **3.1.3 Rescan 2008 Pond and Lake Survey**

A summary of the sampling dates, the number of fish captured, type of fish species, and combined CPUE are presented for gillnets and minnow traps for the four lakes and two ponds in Table 3.1-2. Details of the individual set locations are presented in appendices for gillnets (Appendix 3.1-4) and minnow traps (Appendix 3.1-5). Other appendices contain fish species capture information for gillnets (Appendix 3.1-6) and for minnow traps (Appendix 3.1-7).



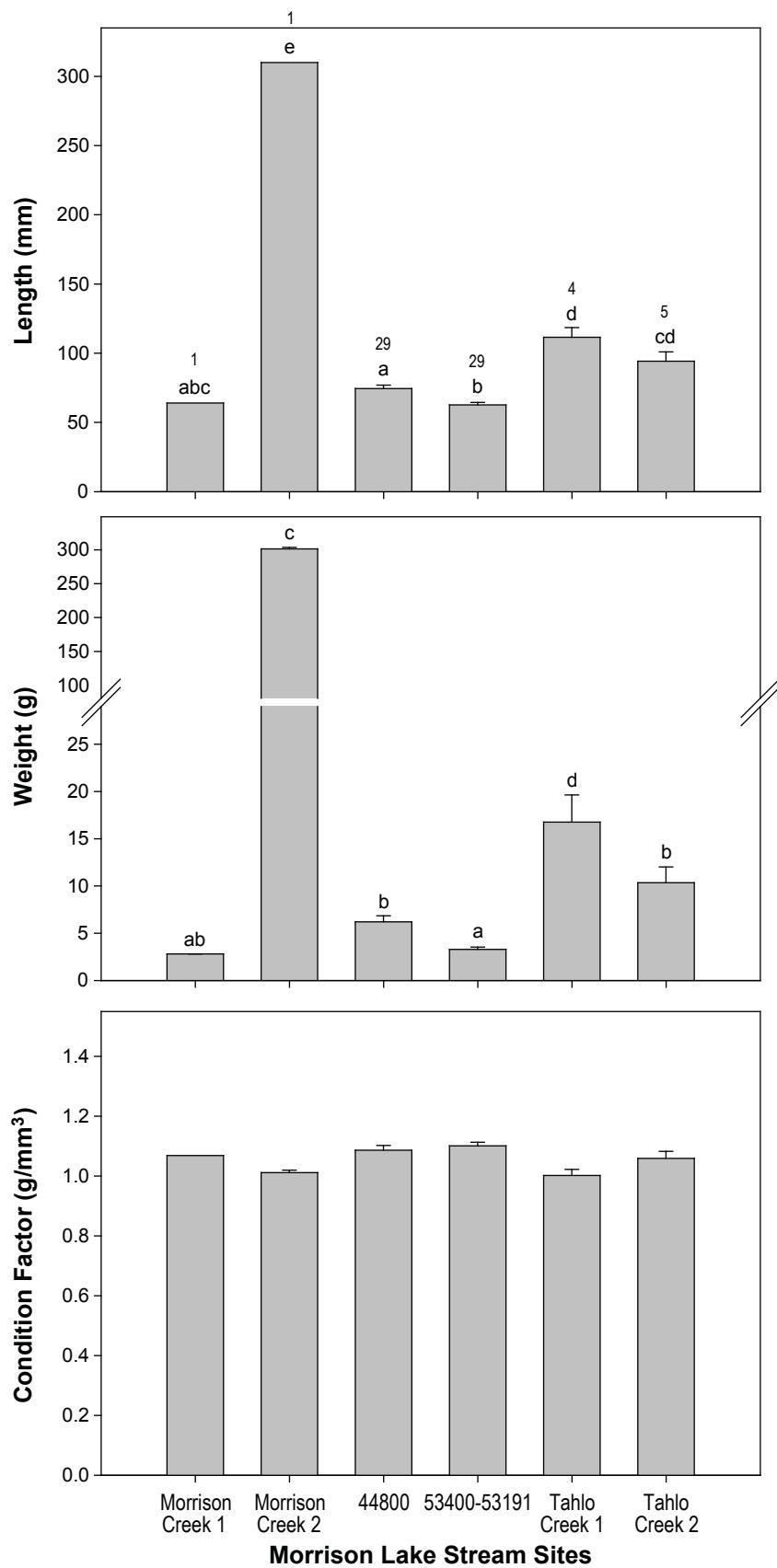
#### Morrison Lake Stream Sites

Note: Dissimilar letters indicate significant ( $P < 0.05$ ) differences between stream sites.  
Numbers above bars indicate sample size.

### Coho Salmon Length, Weight, and Condition Factor at Five Stream Sites on Morrison Lake, Morrison Copper/Gold Project

**pbm**

FIGURE 3.1-1  
**Rescan**™



Note: Dissimilar letters indicate significant ( $P < 0.05$ ) differences between stream sites.  
Numbers above bars indicate sample size.

## Rainbow Trout Length, Weight, and Condition Factor at Five Stream Sites on Morrison Lake, Morrison Copper/Gold Project

**pbm**

FIGURE 3.1-2  
**Rescan**™

**Table 3.1-2**  
**2008 Fish Community Catch Information for Morrison Lake and Tochcha Lake,**  
**Morrison Copper/Gold Project**

Location	Date	Gillnets			Combined CPUE (# fish/100m <sup>2</sup> /hr)	Minnow Traps				Combined CPUE (# fish/trap/24hr)
		# Sets	# Fish	Fish Species		Date Set	# Traps	# Fish	Fish Species	
Site A	24-Jun-08	5	3	LT	0.32	26-Jun-08	10	43	CAS, NSC, RSC	4.59
Site B	26-Jun-08	5	17	LT, LW, CSU	1.50	26-Jun-08	10	54	CAS, NSC, RSC	5.76
Site C	28-Jun-08	5	1	LT	0.09	27-Jun-08	10	49	CAS, NSC, RSC	5.23
Site D	3-Jul-08	5	3	LT, LW	0.27	3-Jul-08	10	53	CAS,CSU,NSC,RSC	5.65
Tochcha	4-Jul-08	7	20	LT, LW, RB	1.27	NA	NA	NA	NA	NA
Pond W	NA	NA	NA	NA	NA	24-Jun-08	10	0	none	0.00
Pond X	NA	NA	NA	NA	NA	24-Jun-08	10	0	none	0.00

NA = gillnets or minnow traps not set

LSU = longnose sucker

LT = lake trout

LW = lake whitefish

RB = rainbow trout

CAS = prickly sculpin

CSU = largescale sucker

NSC = northern pikeminnow

RSC = redside shiner

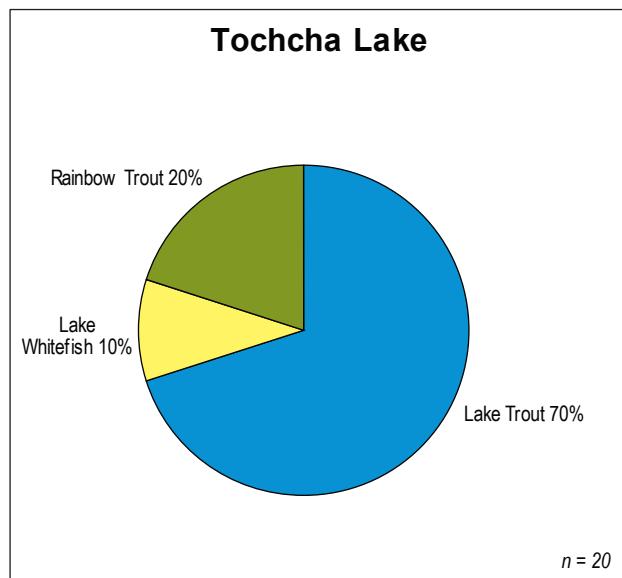
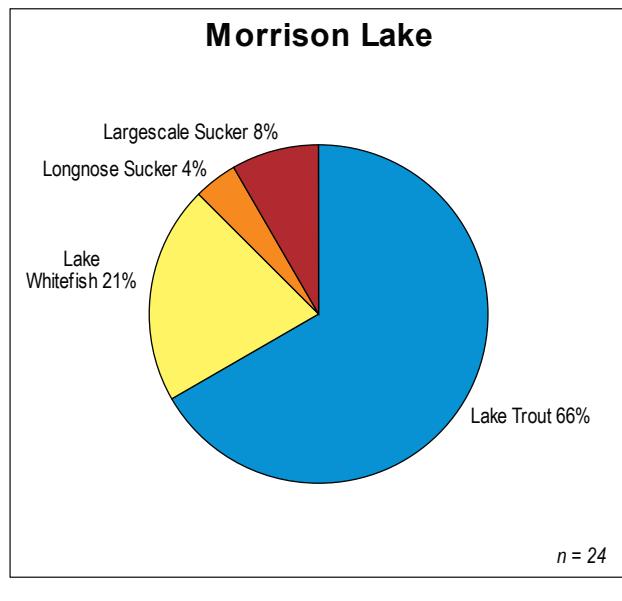
### **3.1.3.1 Gillnetting**

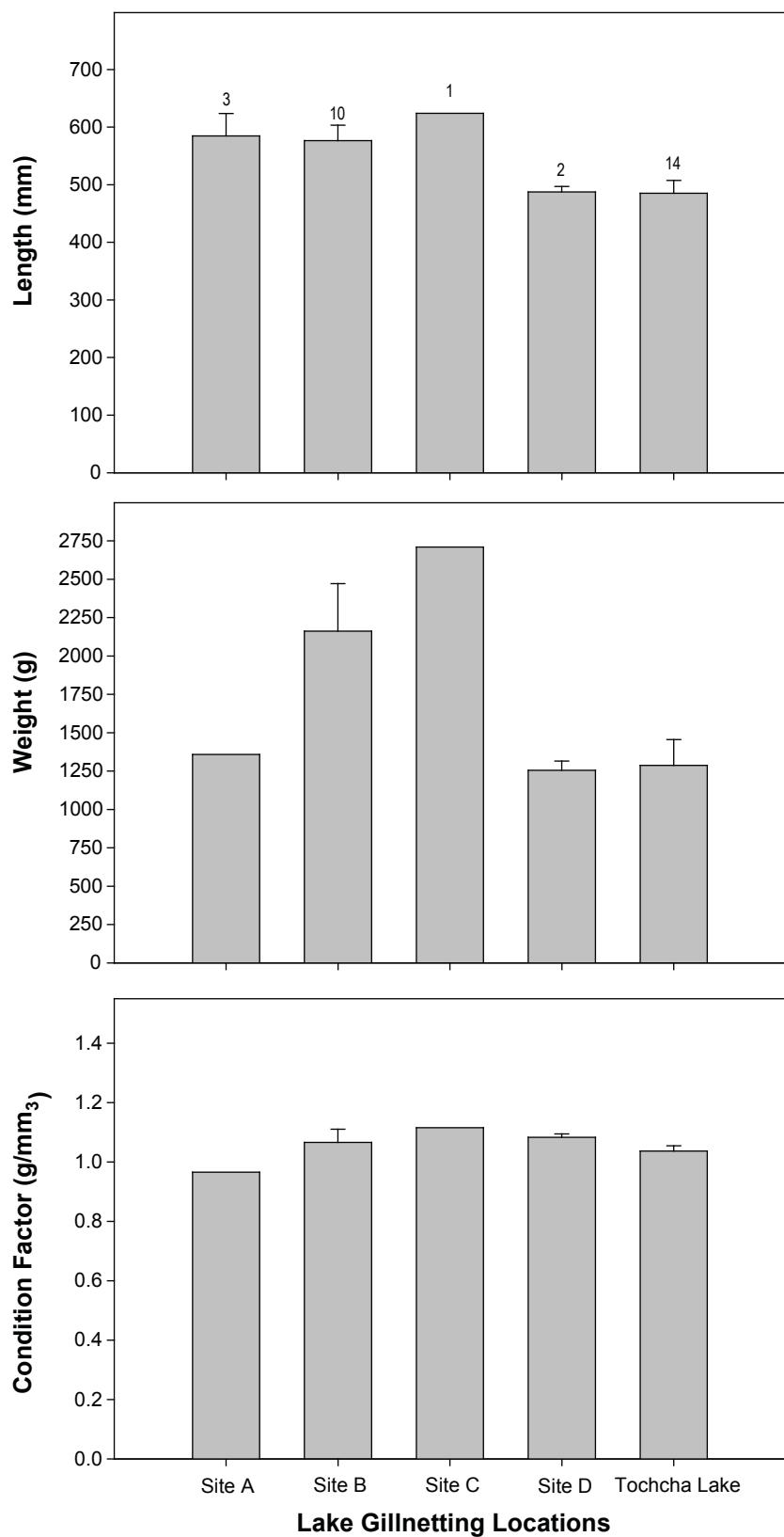
Of the four locations gillnetted on Morrison Lake, only Site B (Figure 1.1-1), located near the mouth of stream #44800, had a combined CPUE above 1.30 fish/100 m<sup>2</sup> of gillnet/hr. The CPUE for Site B (1.50) was similar to that of the Morrison Lake reference site, Tochcha Lake (1.27). Site B is located in the same area that is used by sockeye salmon and coho salmon during fall spawning activities (see Section 3.1.2) whereas the other three sites with low CPUE values are not associated with salmon spawning activities.

Lake trout (Plate 3.1-1) are important sports fish in the Babine Lake Watershed, into which Morrison Lake drains. This large-bodied fish species was the most prevalent captured using gillnets in Morrison Lake (67% of total fish caught; 442 to 675 mm, 910 to 3,668 g) and in Tochcha Lake (70% of total fish caught; 337 to 608 mm, 389 to 2,544 g) (Figure 3.1-3). Of those captured that were lethally sampled in both lakes, 50% were males and approximately 50% were sexually mature (Appendix 3.1-6). Average lengths, weights, and condition factors of lake trout captured at the four Morrison Lake sites and in Tochcha Lake are presented in Figure 3.1-4. No significant differences occurred in length ( $F [4,25] = 2.72, P = 0.052$ ), weight ( $F [4,23] = 2.49, P = 0.071$ ), or condition factor ( $F [4,23] = 0.44, P = 0.781$ ) between any of the five sampling sites. The lack of differences between the sites indicates lake trout are comparable for long-term monitoring within Morrison Lake and between the two systems.



**Plate 3.1-1. Lake trout (675 mm Fork Length) captured at Site B.**





Note: Numbers above bars indicate sample size.

**Lake Trout Length, Weight, and Condition Factor at Morrison Lake and Tochcha Lake Reference Site, Morrison Copper/Gold Project**

**pbm**

FIGURE 3.1-4

**Rescan**™

## **Results and Discussion**

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The other three fish species captured in Morrison Lake using gillnets were lake whitefish (21% of total fish caught; Plate 3.1-2), largescale suckers (8% of total fish caught; Plate 3.1-3) and longnose suckers (4% of total fish caught; Plate 3.1-4). Lake whitefish (10% of total fish caught) also were captured in Tochcha Lake. Rainbow trout were captured using gillnets only in Tochcha Lake (20% of total fish caught), although this species was angled at Site B of Morrison Lake for a previous Rescan study.

### **3.1.3.2 Minnow Trapping**

Although varying in their distribution, a total of five fish species were captured along the four shorelines associated with the gillnetting sites and stream inlets to Morrison Lake (Figure 3.1-5). Northern pikeminnow (Plate 3.1-5; 42% of total fish captured) and prickly sculpin (Plate 3.1-6; 32% of total fish captured) were captured at all four sites. The number of redside shiner (Plate 3.1-7; 23% of total fish captured) captured was lowest at Site D, the only site at which largescale sucker (Plate 3.1-8; 2.5% of total fish captured) and burbot (Plate 3.1-9; 0.5% of total fish captured) were captured. Northern pikeminnow, prickly sculpin, and redside shiner alternated as the most abundant species at each site. A large number of redside shiners were observed to be sexually mature (Plate 3.1-10).

The lengths of northern pikeminnow, prickly sculpin, and redside shiner are compared in Figure 3.1-6. These three fish species were located at all four lake sites. The average fork lengths (FL) of northern pikeminnow captured at Site A (mean = 117 mm; range from 82 to 190 mm) were significantly longer than at Site D (mean = 102 mm; range from 71 to 154 mm) ( $F [3,81] = 5.45$ ,  $P = 0.002$ ). Initial ANOVA testing showed a significant difference also occurred in prickly sculpin FL between sites ( $F [3,62] = 2.87$ ,  $P = 0.044$ ). However, a post-hoc Tukey's test showed a Type I statistical error had occurred, and sculpins at Site A (mean = 83 mm; range from 69 to 97 mm) were not in fact significantly longer ( $P = 0.098$ ) than those at Site C (mean = 71 mm; range from 50 to 115 mm). Redside shiner FL did not differ ( $F [3,43] = 0.71$ ,  $P = 0.552$ ) at the four lake sites.

### **3.1.4 2007 Fall Spawning Survey**

Information from two salmon spawning surveys conducted in Fall 2007 within Morrison Creek and at four sites along the Morrison Lake shoreline (Figure 1.1-1) is presented in Table 3.1-3. These two surveys were performed to corroborate previous findings (Bustard, 2004; 2005) of spawning sockeye salmon and coho salmon in Morrison Creek and sockeye salmon spawning along one shoreline within Morrison Lake (Site B at stream #44800). As well, the surveys examined two other potential shoreline spawning sites within the Morrison Project area (Site A at stream #29000 and Site C at stream #53400) and a third immediately north (Site D at stream #61100).

#### **3.1.4.1 Morrison Creek**

During the first survey from 25 to 26 September, 2007, spawning sockeye salmon were identified from the mouth of Morrison Creek, downstream at least 200 m (Plate 3.1-11). Between 30 and 50 sockeye salmon were observed at the outlet of Morrison Lake where water flows into Morrison Creek. Within Morrison Creek, more than 20 sockeye salmon were observed holding position before the first set of rapids. Between the first and second set of rapids (approximately

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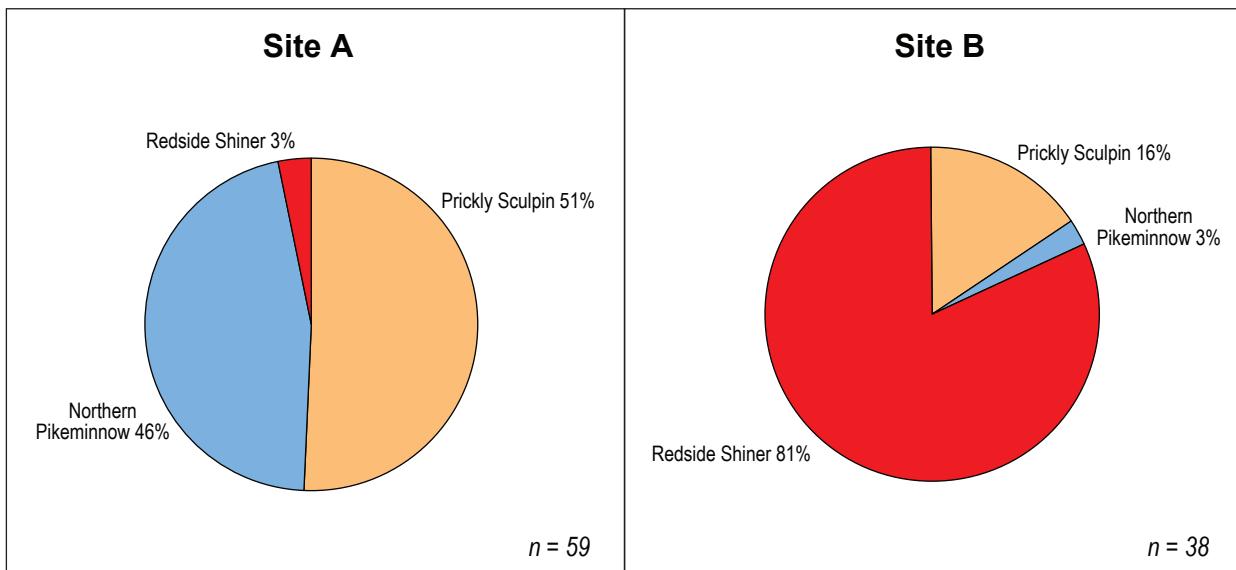
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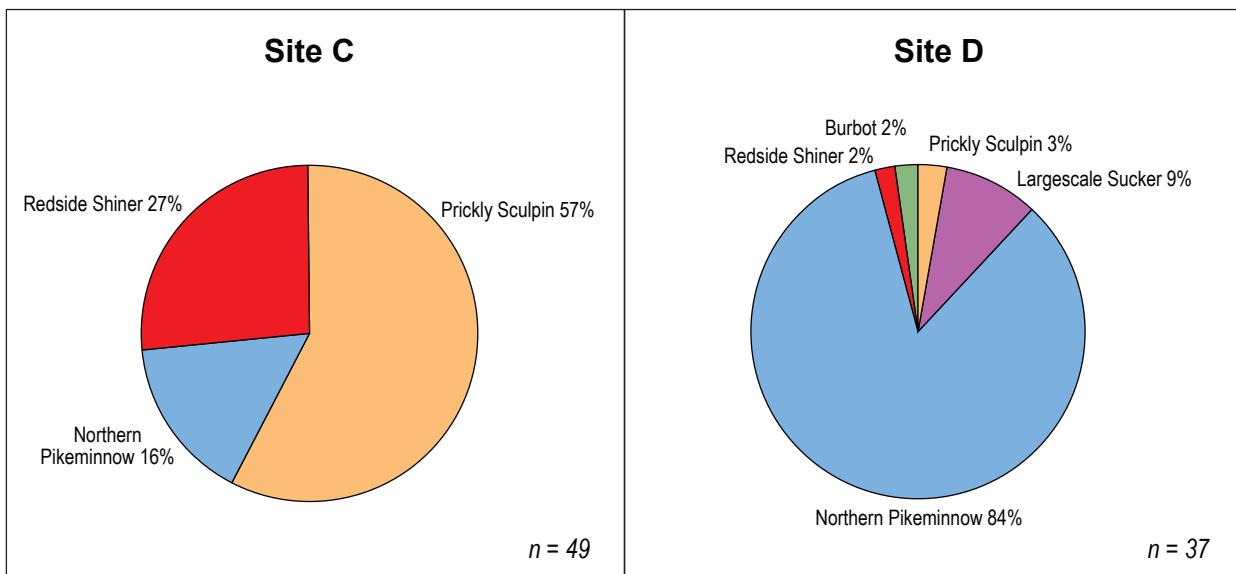
**Plate 3.1-2. Lake whitefish (308 mm FL) captured at Site B.**



**Plate 3.1-3. Largescale sucker (352 mm FL) captured at Site B.**



Prickly Sculpin
Northern Pikeminnow
Redside Shiner
Largescale Sucker
Burbot



**Relative Distributions of Fish Captured  
in Minnow Traps along Shore Sites of  
Morrison Lake, Morrison Copper/Gold Project**



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**Plate 3.1-4. Longnose sucker (453 mm) captured at Site B.**



**Plate 3.1-5. Northern pikeminnow (153 mm FL) captured at Site A.**

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**Plate 3.1-6. Prickly sculpin (85 mm FL) captured at Site A.**



**Plate 3.1-7. Redside shiner (84 mm) captured at Site B.**

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**Plate 3.1-8. Largescale sucker (119 mm) captured at Site D.**



**Plate 3.1-9. Burbot (154 mm) captured at Site D.**

## **Results and Discussion**

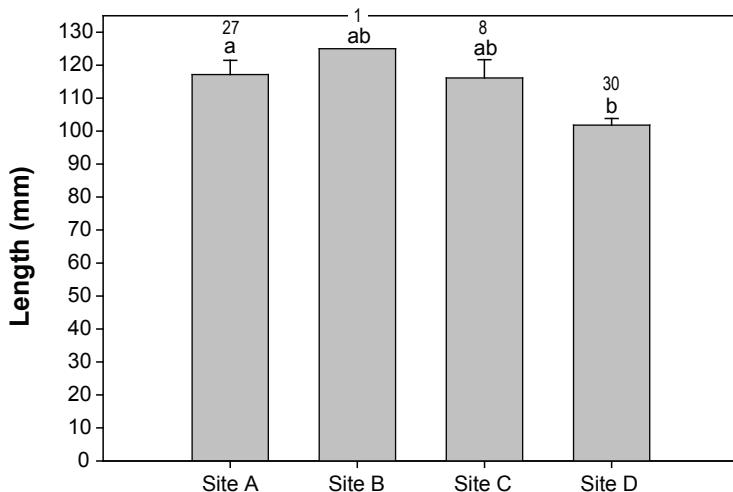
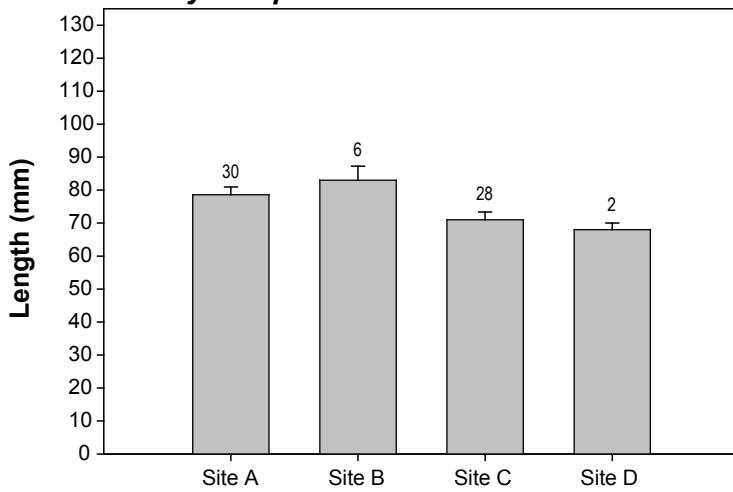
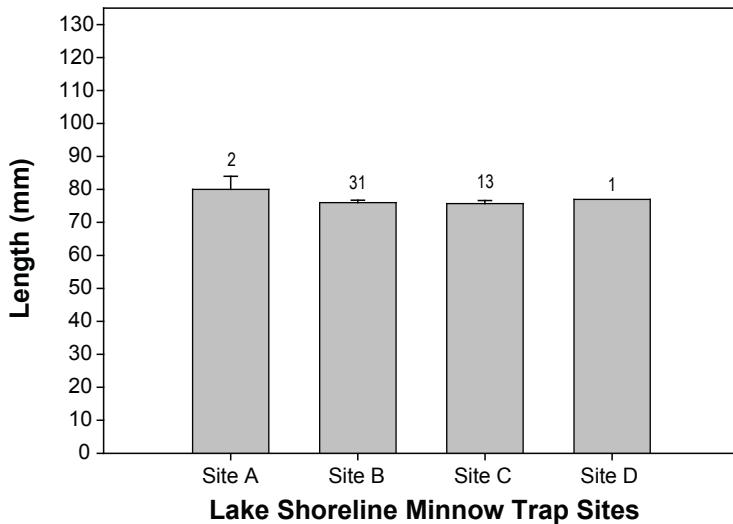
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**Plate 3.1-10. Gravid female redside shiner captured at Site C. Expelled eggs visible on fingers.**



**Plate 3.1-11. Shoal of sockeye salmon spawning at the Morrison Lake outlet into Morrison Creek.**

***Northern Pikeminnow******Prickly Sculpin******Redside Shiner*****Lake Shoreline Minnow Trap Sites**

Note: Dissimilar letters indicate statistically significant ( $P<0.05$ ) difference.  
Numbers above bars indicate sample size.

**Lengths of Fish Captured in Minnow Traps along Shore Sites of Morrison Lake, Morrison Copper/Gold Project**

**Table 3.1-3**  
**2007 Spawning Survey of Morrison Lake Shorelines and Creeks,**  
**Morrison Copper/Gold Project**

Shoreline Location	September 25 to 26 Spawning Observations	October 11 to 12 Spawning Observations	Habitat Observations
Site A	none	none	80% filamentous algae cover
Site B	30 to 50 sockeye salmon spawning along shoreline, 7 rainbow trout observed feeding on eggs	14 sockeye salmon, 2 coho salmon spawning along shoreline, 8 rainbow trout observed feeding on eggs	gradual sloping gravels south of creek mouth
Site C	none	none	good potential spawning gravels extending 5 to 15 m into lake
Site D	none	none	few gravels extending only 1 m from shore
Morrison Creek Shoreline	shoal of 30+ sockeye salmon travelling into lake	no fish observed at mouth	mostly large boulders and cobble with little spawning habitat
<b>Stream Site</b>			
29000	none	none	5 cm water depth, SWD obstruction at mouth
44800	none	none	good spawning gravels, but no evidence of spawning redds, 5 to 15 cm water depth
53400	none	none	poor spawning habitat, 10 cm water depth, SWD obstruction at mouth
61100	none	none	5 cm water depth, gravels packed with sand
Morrison Creek (200 m survey from mouth)	50+ sockeye salmon in first 20 m past lake outlet and continuously downstream 200 m	only 6 sockeye salmon observed in first 100 m downstream, 5 dead, no coho salmon observed	30 cm average water depth, many large boulders providing fish habitat

na = not applicable

SWD = small woody debris

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15 m distance) were another 50+ sockeye salmon, also holding position in the flowing water. Downstream of this point, sockeye salmon were found continuously to the end of the survey (200 m downstream) with the exception of fast-flowing rapid sections. These observations not only corroborate those of other studies (Bustard, 2004; 2005) that reported sockeye salmon spawn in the lower reaches of Morrison Creek, but further expand their range upstream to Morrison Lake.

During the second survey from 11 to 12 October, 2007 only six sockeye salmon were observed within the first 100 m of Morrison Creek, travelling downstream from Morrison Lake. This reduction in fish numbers compared with the September 2007 survey was expected because mid-October is the typical end of the sockeye salmon migration in this area (Bustard, 2005). No coho salmon were observed within the first 100 m of Morrison Creek. This observation corroborates the results of previous studies that have reported coho salmon spawn in the lower reaches of Morrison Creek (Bustard, 2004; 2005).

### **3.1.4.2 Morrison Lake**

During the two days of the September 2007 survey, between 30 and 50 sockeye salmon were observed spawning at Site B of Morrison Lake, along the shoreline immediately south of stream #44800 (Plate 3.1-12). This shallow beach area consists primarily of gravel substrate (Table 3.1-3) where fish displayed spawning behaviours such as females digging redds (*i.e.*, nest or depression in gravel for depositing eggs), male-male aggression, and male-female pairing. Also at this location, seven rainbow trout (approximately 200 to 400 mm in length) were observed feeding on salmon eggs (Plate 3.1-13).

These observations corroborate those of Bustard (2005) who found sockeye salmon use this shoreline at Site B for spawning activities. None of the three other shorelines showed any evidence of salmon spawning activities (Table 3.1-3).

The second survey from October 11 to 12, 2007 was intended to detect whether coho salmon also spawn within Morrison Lake. An earlier study by Bustard (2005) reported coho salmon spawning along with sockeye salmon in Morrison Creek and Tahlo Creek. However, they did not observe coho salmon spawning along any shoreline sites within Morrison Lake, including the shoreline at Site B where sockeye salmon have been observed spawning.

For the present study, far fewer sockeye salmon were observed spawning at Site B of Morrison Lake during the October 2007 survey. Only 14 fish were counted along the shoreline, south of stream #44800. However, two coho salmon were observed spawning at the same location. This is the first time coho salmon have been observed spawning along any shoreline within Morrison Lake (Bustard, 2005). Similar to the September 2007 survey, eight rainbow trout were observed feeding on salmon eggs.

## ***Results and Discussion***

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**Plate 3.1-12. Sockeye salmon spawning along Site B shoreline at mouth of stream #44800.**



**Plate 3.1-13. Rainbow trout (foreground) feeding on sockeye salmon eggs at Site B shoreline.**

### **3.2 Fish Habitat Assessments**

#### **3.2.1 SKR 2006 Stream Habitat**

Appendix 3.2-1 contains all the habitat information collected using RISC (2001) standards for each of the nine stream sections surveyed. This information has been summarized in Table 3.2-1.

##### **3.2.1.1 Water Temperature, pH, and Conductivity**

Water temperatures of the nine stream sections ranged from 8.0 to 19.0°C with a mean of 11.9°C. The pH of the streams ranged from 7.3 to 8.6 with an average pH of 8.0. Of the two largest streams, Morrison Creek (the outlet to Morrison Lake) had a higher average temperature (15.5°C) than Tahlo Creek (the major tributary of Morrison Lake) (10.5°C). The reverse was true for pH, although both streams were above pH 8.0, and all streams sampled were slightly basic (*i.e.*, above pH 7.0). No obvious pattern occurred between either water temperature or pH and the presence of fish.

The conductivity of streams ranged from 25 to 320 µS/cm. No obvious pattern occurred between water conductivity and fish presence. Water conductivities of the two non-fish-bearing streams (#29000 and #50000-48010), 290 and 180 µS/cm respectively, were within the range of the fish-bearing streams. These two streams previously have been shown to be non-fish-bearing (Bustard, 2005).

##### **3.2.1.2 Stream Width, Depth and Wetted Area**

Bankfull depths ranged from 0.2 to 0.9 m, and pool depth ranged from 0.1 to 0.8 m. Water depth did not correlate with the presence or absence of fish.

Channel widths ranged from 1.0 to 20.7 m and wetted width ranged from 0.2 to 12.2 m. Contrary to stream depth, a positive correlation occurred between channel width and the presence of fish, with the smallest two streams (#29000 and #50000-48010) not containing fish. These streams averaged 1.0 m in channel width compared to 8.0 m for the five streams where fish were present.

##### **3.2.1.3 Stream Gradient**

Stream gradient ranged from 0.7 to 3.3%, with an average of 1.8%. Gradients did not exceed 4.0%, therefore, no cascades occurred within the survey sections. The only correlation between stream gradient and fish presence occurred with the two non-fish-bearing streams at either end of the gradient range (#50000-48010 and #29000 respectively); however, both streams had gradients within 0.3% of fish-bearing streams.

##### **3.2.1.4 Substrate Composition**

Gravel (33%) and cobble (56%) were the most common dominant stream substrate. However, one of the non-fish-bearing streams (#50000-48010) was dominated by fines. The other stream that was not fish-bearing (#29000) had a substrate consisting of gravel and fines similar to the other small streams that did contain fish.

**Table 3.2-1**  
**SKR 2006 Morrison Copper/Gold Project Stream Habitat Information Summary**

Stream Site	Site			Average Channel Width	Average Wetted Width	Average Bankfull Depth	Average Pool Depth	Temperature		Conductivity	Dominant Substrate	Subdominant Substrate
	UTM Easting	UTM Northing	Length (m)	Average Gradient	(m)	(m)	(m)	(m)	(°C)	(µS)		
Morrison Creek 1	672920	6115150	100	1.00	20.67	12.18	0.83	0.77	13	7.8	80	cobble
Morrison Creek 2	671953	6116080	100	1.00	14.00	8.18	0.60	0.33	19	8.2	70	gravel
29000	670652	6118685	100	3.33	1.08	0.25	0.17	0.06	12	8.1	290	gravel
44800	669692	6120766	100	2.50	5.13	1.48	0.37	0.22	10	8.1	210	cobble
50000 - 48010	669065	6121312	100	0.67	0.95	0.95	0.30	NA	12	7.3	180	fines
53400 - 53191	669757	6122734	100	3.25	2.37	1.08	0.23	0.07	8	7.9	320	cobble
61100	668424	6123900	100	2.00	2.23	0.73	0.20	0.06	12	7.7	25	gravel
Tahlo Creek 1	663868	6130787	100	1.00	12.00	4.33	0.90	0.38	11	8.6	90	cobble
Tahlo Creek 2	664296	6131931	100	1.25	13.67	2.98	0.87	0.48	10	8.5	90	cobble

NA = not available

### **3.2.1.5 Barriers**

Only Stream #29000 has a barrier to fish passage in the form of a bedrock falls. This 5 m barrier limits fish access to lower 80 m of this reach and eliminates upstream overwintering habitat for fish from Morrison Lake. This waterfall is a permanent barrier and no fish were captured upstream, including within Ore Pond or Booker Lake, although seasonal use of the lower reaches is possible. In contrast, the five streams containing fish did not have any visible barriers.

### **3.2.1.6 Fish Presence Habitat Summary**

Streams that contain multiple fish species within the Morrison Project area share some similar attributes. These features include channel widths greater than 2.0 m, gradients between 1.0 to 3.2%, and substrate dominated gravel or cobble. The two non-fish-bearing streams were characterized by small channel widths, substrate containing a large proportion of fines, and low or high gradients including a barrier.

## **3.2.2 Rescan 2007 and 2008 Morrison Lake Shoreline and Creek Fish Habitat Surveys**

Two surveys were performed to characterize the shorelines associated with five creeks of Morrison Lake; four tributaries and the lake outflow (Morrison Creek). These shorelines were surveyed for two reasons: the first was to characterize potential salmon spawning habitat and the second was to acquire baseline fish habitat information for shorelines potentially influenced by changes in upstream flows associated with the mine pit and tailings dam of the Morrison Project. This fish habitat information for the five shorelines and their associated creeks has been summarized in Table 3.2-2.

### **3.2.2.1 Morrison Creek**

The pH and conductivity of water along the shoreline of Morrison Lake at its outlet into Morrison Creek was the lowest of the five locations surveyed (pH 6.8, 45 µS/cm). As well, this was the only site at which water along the shoreline and within the creek had the same values. This result was expected because no other tributaries are present within the first 200 m of Morrison Creek.

The shoreline of Morrison Lake at the outlet (Morrison Creek) is comprised of cobble and large boulders (Plate 3.2-1). This type of substrate is not conducive to salmon spawning, and sockeye salmon were viewed only transiting this area (see Section 3.1.1.4). The substrate composition changes within Morrison Creek (Plate 3.2-2), however, to a more even distribution of gravel, cobble, and boulder.

### **3.2.2.2 Morrison Lake Tributaries**

The pH of water along the shorelines of the four tributaries sampled in Morrison Lake was similar, with a range of pH 6.8 to 7.1. Within the streams, pH typically was more basic, but still below 8.0.

Conductivity of water at the four sites was higher than at the outlet of the lake (average 78 µS/cm). This elevated conductivity likely was due to the high values within their associated streams (average 117 µS/cm).

**Table 3.2-2**  
**Rescan 2007 and 2008 Morrison Lake Shoreline and Creek Habitat Surveys,**  
**Morrison Copper/Gold Project**

Shoreline Location	Substrate Type					Distance from Shore to 2 m depth (m)	Description and Cover	
	pH	Conductivity	Fines (%)	Gravel (%)	Cobble (%)	Boulder (%)		
Site A	7.0	108	40	40	20	0	9	gravels only close to shore (within 1 m) and covered with filamentous algae, 20% cover from overhanging trees
Site B	6.8	48	15	80	5	0	6	shoreline drops steeply at inlet mouth, but gradual sloping gravels on south side, no cover
Site C	7.1	62	10	60	30	0	5	gravels extend 5 to 15 m into lake and 100 m either side of inlet, 40% cover from overhanging trees
Site D	7.1	93	80	20	0	0	10	gravels extend only 1 m from shore, lily pads providing 80% shoreline cover
Morrison Creek	6.8	45	0	0	20	80	20	mostly large boulders and cobble, gentle slope into lake
<b>Stream Site</b>							<b>Depth (m)</b>	
29000	7.5	151	10	90	0	0	0.05	mostly gravel-packed substrate and low flow, 40% mixed forest cover
44800	7.0	78	10	60	30	0	0.12	strong water flow over mixed substrate, 20% mixed forest cover
53400	7.6	99	10	10	80	0	0.10	mostly cobble substrate and low flow, 50% mixed forest cover
61100	7.6	139	50	50	0	0	0.05	small gravels packed with sand and low flow, 40% mixed forest cover
Morrison Creek	6.8	45	10	30	30	30	0.30	large stream outlet of lake, cover only along banks (<10%)

SWD = small woody debris

## **Results and Discussion**

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Substrate at the Site A shoreline (Plate 3.2-3) contained less packed gravels than within stream #29000 (Plate 3.2-4), but was covered with filamentous algae. This type of habitat is poor for spawning salmon, but provides high productivity for smaller fish species (as observed in Section 3.1.1.3).

Substrate along the shoreline of Site B (Plate 3.2-5) comprised mostly gravels (80%). This type of habitat is used for spawning by adult salmon (Section 3.1.1.4) and rearing by smaller fish species (Section 3.1.1.3). The mixed substrate of stream #44800 (Plate 3.2-6) was not used by large-bodied fish, possibly due to low water levels. However, schools of small fish were observed at the mouth of the creek and a pair of common mergansers (fish-eating ducks) were observed feeding on individuals darting upstream.

Many fallen trees provide more complex habitat structure along the gravel and cobble substrate (90% of substrate) of Site C shoreline (Plate 3.2-7). Large-bodied fish were not observed in the shoreline area, but it was productive for smaller fish species (Section 3.1.1.3). Fish were not observed within stream #53400 (Plate 3.2-8). However, its cobble-dominated substrate (80%), good flows (average water depth 0.10 m), and lack of permanent barriers suggest small-bodied fish captured along the lake shoreline also may use the stream as rearing habitat.

The mostly sandy substrate (80%) found along the Site D shoreline (Plate 3.2-9) and high sand content of substrate within stream #61100 (Plate 3.2-10) indicate these sites are poor spawning areas for large-bodied fish species that typically prefer gravel substrate. However, high in-water vegetation along the shoreline (lily pads and grasses), provide productive habitat for smaller fish species (as observed in Section 3.1.1.3).

### **3.3 Summary**

In 2006, stream habitat within the Morrison Project area was sampled to determine fish presence/absence, fish community composition and population demographics. Seven streams were sampled and five streams were confirmed as fish-bearing. No fish were present in streams #29000 and #50000-48010. Rainbow trout, followed by coho salmon, had the widest species distribution within the Morrison Project area streams. Morrison Creek and Tahlo Creek had the highest species richness (seven species) compared to other streams assessed.

Morrison Creek and Tahlo Creek had the highest combined fish abundance, and the highest number of fish species present. Mean coho salmon length, weight and condition in stream #61100 were significantly lower than in Morrison and Tahlo creeks. Differences in stream order and productivity between these streams are likely causes of the poorer condition of coho salmon. Mean rainbow trout length and weight were significantly different between stream sites. Generally, longer and heavier rainbow trout were present in the two largest streams, Morrison Creek and Tahlo Creek; however, there were no significant differences in rainbow trout condition between stream sites and condition factors  $> 1.0$  suggest rainbow trout in all streams are in good condition.

Pond and lake fisheries surveys using gillnets and minnow traps, in 2006, confirmed fish absence in Booker Lake, Ore Pond, and three ponds (Pond X, 00302-BABL, 00309-BABL). In 2008,

## ***Results and Discussion***

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**Plate 3.2-1. Outlet of Morrison Lake into Morrison Creek.**



**Plate 3.2-2. First rapids section of Morrison Creek within 30 m of Morrison Lake outlet.**

## **Results and Discussion**

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**Plate 3.2-3. Site A shoreline at the mouth of stream #29000.**



**Plate 3.2-4. Stream #29000 approximately 15m upstream of Site A shoreline.**

## **Results and Discussion**

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**Plate 3.2-5. Site B shoreline immediately south of stream #44800 where sockeye salmon and coho salmon spawn.**



**Plate 3.2-6. Stream #44800 approximately 20 m upstream of Site B shoreline.**

## **Results and Discussion**

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**Plate 3.2-7. Site C shoreline immediately north of stream #53400.**



**Plate 3.2-8. Stream #53400 approximately 10 m upstream of Site C shoreline.**

## **Results and Discussion**

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**Plate 3.2-9. Site D shoreline at the mouth of stream #61100.**



**Plate 3.2-10. Stream #61100 approximately 10 m upstream of Site D shoreline.**

## **Results and Discussion**

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two ponds (Pond W and X), Morrison Lake and Tochcha Lake were sampled with gillnets and minnow traps. No fish were present in the ponds. Lake trout were the most widely distributed and abundant large bodied species caught at Morrison Lake. Lake trout length, weight and condition were not significantly different between Morrison Lake sites, or between Morrison Lake and Tochcha Lake. The lack of differences between the sites indicates that lake trout are comparable for long-term monitoring within Morrison Lake and between the two systems. Small-bodied fish community in Morrison Lake was dominated by northern pikeminnow, prickly sculpin and redside shiner.

Morrison Lake salmon spawning surveys conducted in late September and early October 2007 identified spawning sockeye salmon in Morrison Creek, 200 m downstream of Morrison Lake. These observations not only corroborate those of previous studies that sockeye salmon spawn in Morrison Creek, but further expand their range to the upper reaches of Morrison Creek. Sockeye salmon also were identified spawning along the Morrison Lake shoreline at Site B. These observations corroborate those of previous studies that sockeye salmon use this shoreline at Site B for spawning activities. Coho salmon were observed spawning at Site B in the early October 2007 survey. This is the first record of coho salmon observed spawning along any shoreline within Morrison Lake. Coho salmon were not observed spawning in the upper reaches of Morrison Creek.

Fish habitat assessments of streams within the Morrison Project area were conducted in 2006. Stream temperature, pH and conductivity varied between streams. Bankfull depths ranged from 0.17 to 0.90 m, and pool depth ranged from 0.06 to 0.77 m. Channel widths ranged from 0.95 to 20.67 m and wetted width ranged from 0.25 to 12.18 m. A positive correlation occurred between channel width and the presence of fish, with the smallest two streams (#29000 and #50000-48010) not containing fish. Stream gradient ranged from 0.67 to 3.33%, with an average of 1.8%. Gravel (33%) and cobble (56%) were the most common dominant stream substrate. Stream #29000 has a barrier to fish passage in the form of a 5 m bedrock falls. This barrier limits fish access to the lower 80 m of this reach and eliminates upstream overwintering habitat for fish from Morrison Lake, including Ore Pond and Booker Lake.

Fish habitat assessments of Morrison Lake and stream inlets/outlets were conducted in 2008. The shoreline of Morrison Lake at the outlet (Morrison Creek) is comprised of cobble and large boulders. The substrate composition within Morrison Creek is an even distribution of gravel, cobble, and boulder; thus provides good spawning habitat for salmon species. Substrate at the Site A shoreline provides poor salmon spawning habitat and good rearing habitat because of embedded gravels and the presence of filamentous algae. Substrate along the shoreline of Site B was comprised primarily of gravels (80%). This was confirmed as spawning habitat by adult sockeye and coho salmon and rearing by smaller fish species. Fallen trees provide complex habitat structure along the gravel and cobble substrate (90% of substrate) of Site C shoreline. This site could be utilized for salmonid spawning and is a productive rearing habitat. Cobble-dominated substrate (80%), sufficient flows and lack of permanent barriers in the stream (#53400) associated with Site C, provides good rearing habitat. The dominant sandy substrate (80%) found along the Site D shoreline and within stream #61100 indicate this site provides poor spawning habitat. However, shoreline vegetation provides rearing habitat for smaller fish species.

## References

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**APPENDIX 3.1-1**  
**SKR 2006 MORRISON COPPER/GOLD PROJECT**  
**INDIVIDUAL FISH INFORMATION**

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## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-00000-00000-0000-000-000-000-000-000-000-000-000-000-000

Reac  
20

ILP Map #  
093M 019

ILP #  
?

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-00000-00000-0000-0000-000-000-000-000-000-000

Reach #  
2.0

**ILP Map #**  
**093M.019**

ILP #  
2

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								Str/Smpl#	/Age					
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1	EF	1	1	CAS	64	3.2	U	U						
1	EF	1	1	CAS	64	3.2	U	U						
1	EF	1	1	CAS	64	3.2	U	U						
1	EF	1	1	CAS	76	5.3	U	U						
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1	EF	1	1	CAS	64	3.0	U	U						
1	EF	1	1	CAS	64	3.0	U	U						
1	EF	1	1	CO	77	4.7	U	IM	SC	6				scale book 33987
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1	EF	1	1	NSC	53	1.5	U	U						
1	EF	1	1	NSC	53	1.5	U	U						
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1	EF	1	1	NSC	75	4.2	U	U						
1	EF	1	1	NSC	75	4.2	U	U						
1	EF	1	1	NSC	73	5.1	U	U						parasites? Bulging belly
1	EF	1	1	NSC	73	5.1	U	U						parasites? Bulging belly

## FDIS Fish Card

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## Watershed Code:

480-598800-00000-00000-0000-0000-000-000-000-000-000-000

Reach #  
2.0

**ILP Map #**  
**093M.019**

ILP #  
2

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
									Str/Smpl#	Age					
1	EF	1	1	NSC	73	5.1	U	U							parasites? Bulging belly
1	EF	1	1	CO	72	4.3	U	IM	SC	13					scale book 33987
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1	EF	1	1	CO	72	4.3	U	IM	SC	13					scale book 33987
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1	EF	1	1	LNC	49	1.2	U	U							
1	EF	1	1	LNC	48	1.1	U	U							damaged caudal fin
1	EF	1	1	LNC	48	1.1	U	U							damaged caudal fin
1	EF	1	1	LNC	48	1.1	U	U							damaged caudal fin
1	EF	1	1	PCC	53	1.8	U	U							
1	EF	1	1	PCC	53	1.8	U	U							
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1	EF	1	1	NSC	50	1.3	U	U							
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1	EF	1	1	PCC	53	1.7	U	U							
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Pacific Booker 2006

## Watershed Code:

480-598800-00000-00000-0000-000-000-000-000-000-000-000

Reach #  
2.0

ILP Map #  
093M.019

ILP #  
2

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
									Str/Smpl#/Age						
1	EF	1	2	CO	56	1.7	U	IM	SC	21					scale book 33987
1	EF	1	2	CO	67	3.1	U	IM	SC	22					scale book 33987
1	EF	1	2	CO	67	3.1	U	IM	SC	22					scale book 33987
1	EF	1	2	CO	67	3.1	U	IM	SC	22					scale book 33987
1	EF	1	2	RB	64	2.8	U	IM	SC	23					scale book 33987
1	EF	1	2	RB	64	2.8	U	IM	SC	23					scale book 33987
1	EF	1	2	RB	64	2.8	U	IM	SC	23					scale book 33987
1	EF	1	2	CAS	65	3.2	U	U							
1	EF	1	2	CAS	65	3.2	U	U							
1	EF	1	2	CAS	65	3.2	U	U							
1	EF	1	2	PCC	64	3.1	U	U							
1	EF	1	2	PCC	64	3.1	U	U							
1	EF	1	2	PCC	64	3.1	U	U							
1	EF	1	2	CAS	64	2.9	U	U							
1	EF	1	2	CAS	64	2.9	U	U							
1	EF	1	2	CAS	64	2.9	U	U							
1	EF	1	2	NSC	72	3.6	U	U							
1	EF	1	2	NSC	72	3.6	U	U							
1	EF	1	2	NSC	72	3.6	U	U							
1	EF	1	2	NSC	73	3.6	U	U							
1	EF	1	2	NSC	73	3.6	U	U							
1	EF	1	2	NSC	73	3.6	U	U							
1	EF	1	2	NSC	52	1.4	U	U							
1	EF	1	2	NSC	52	1.4	U	U							
1	EF	1	2	NSC	52	1.4	U	U							
1	EF	1	2	PCC	61	2.5	U	U							
1	EF	1	2	PCC	61	2.5	U	U							
1	EF	1	2	PCC	61	2.5	U	U							
1	EF	1	2	NSC	48	1.1	U	U							parasites on caudal fin
1	EF	1	2	NSC	48	1.1	U	U							parasites on caudal fin
1	EF	1	2	NSC	48	1.1	U	U							parasites on caudal fin
1	EF	1	2	NSC	47	.9	U	U							
1	EF	1	2	NSC	47	.9	U	U							
1	EF	1	2	NSC	47	.9	U	U							
1	EF	1	2	NSC	92	7.8	U	U							
1	EF	1	2	NSC	92	7.8	U	U							
1	EF	1	2	NSC	92	7.8	U	U							

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-00000-00000-0000-000-000-000-000-000-000-000-000-000-000

Reac  
30

ILP Map #  
093M 019

ILP #  
3

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-00000-00000-0000-0000-000-000-000-000-000-000

Reach #  
2.0

ILP Map #  
093M.019

ILP #  
2

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
									Str/Smpl#	Age					
2	EF	1	1	NSC	48	1.2	U	U							
2	EF	1	1	NSC	48	1.2	U	U							
2	EF	1	1	NSC	75	4.3	U	U							
2	EF	1	1	NSC	75	4.3	U	U							
2	EF	1	1	NSC	75	4.3	U	U							
2	EF	1	1	NSC	76	4.9	U	U							
2	EF	1	1	NSC	76	4.9	U	U							
2	EF	1	1	NSC	76	4.9	U	U							
2	EF	1	1	NSC	76	4.9	U	U							
2	EF	1	1	NSC	76	4.7	U	U							
2	EF	1	1	NSC	76	4.7	U	U							
2	EF	1	1	NSC	76	4.7	U	U							
2	EF	1	1	NSC	44	.9	U	U							
2	EF	1	1	NSC	44	.9	U	U							
2	EF	1	1	NSC	44	.9	U	U							
2	EF	1	1	CAS	79	5.5	U	U							
2	EF	1	1	CAS	79	5.5	U	U							
2	EF	1	1	CAS	79	5.5	U	U							
2	EF	1	1	NSC	59	2.1	U	U							
2	EF	1	1	NSC	59	2.1	U	U							
2	EF	1	1	NSC	59	2.1	U	U							
2	EF	1	1	NSC	78	4.3	U	U							
2	EF	1	1	NSC	78	4.3	U	U							
2	EF	1	1	NSC	78	4.3	U	U							
2	EF	1	1	NSC	62	2.6	U	U							
2	EF	1	1	NSC	62	2.6	U	U							
2	EF	1	1	NSC	62	2.6	U	U							
2	EF	1	1	NSC	71	3.5	U	U							
2	EF	1	1	NSC	71	3.5	U	U							
2	EF	1	1	NSC	71	3.5	U	U							
2	EF	1	1	NSC	78	4.4	U	U							
2	EF	1	1	NSC	78	4.4	U	U							
2	EF	1	1	NSC	78	4.4	U	U							
2	EF	1	1	NSC	71	3.7	U	U							
2	EF	1	1	NSC	71	3.7	U	U							
2	EF	1	1	NSC	71	3.7	U	U							
2	EF	1	1	CAS	111	17.1	U	U							
2	EF	1	1	CAS	111	17.1	U	U							
2	EF	1	1	CAS	111	17.1	U	U							
2	EF	1	1	CAS	84	7.3	U	U							
2	EF	1	1	CAS	84	7.3	U	U							
2	EF	1	1	CAS	84	7.3	U	U							
2	EF	1	1	CO	56	1.9	U	IM	SC	16					Scale Book 33985
2	EF	1	1	CO	56	1.9	U	IM	SC	16					Scale Book 33985
2	EF	1	1	CO	56	1.9	U	IM	SC	16					Scale Book 33985
2	EF	1	1	CO	65	3.0	U	IM	SC	17					Scale Book 33985
2	EF	1	1	CO	65	3.0	U	IM	SC	17					Scale Book 33985
2	EF	1	1	CO	65	3.0	U	IM	SC	17					Scale Book 33985
2	EF	1	1	NSC	104	8.9	U	U							
2	EF	1	1	NSC	104	8.9	U	U							
2	EF	1	1	NSC	104	8.9	U	U							
2	EF	1	1	NSC	84	6.2	U	U							
2	EF	1	1	NSC	84	6.2	U	U							
2	EF	1	1	NSC	84	6.2	U	U							
2	EF	1	1	NSC	82	5.6	U	U							
2	EF	1	1	NSC	82	5.6	U	U							
2	EF	1	1	NSC	82	5.6	U	U							
2	EF	1	1	NSC	82	6.2	U	U							
2	EF	1	1	NSC	82	6.2	U	U							
2	EF	1	1	NSC	82	6.2	U	U							

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-00000-00000-0000-000-000-000-000-000-000-000-000

### Reach #

ILP Map #

ILP #

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
									Str	Smpl#					
2	EF	1	1	NSC	82	6.2	U	U							
2	EF	1	1	NSC	82	6.2	U	U							
2	EF	1	1	NSC	78	4.7	U	U							
2	EF	1	1	NSC	78	4.7	U	U							
2	EF	1	1	NSC	78	4.7	U	U							
2	EF	1	1	CAS	96	10.5	U	U							
2	EF	1	1	CAS	96	10.5	U	U							
2	EF	1	1	CAS	96	10.5	U	U							
2	EF	1	1	CAS	85	7.6	U	U							
2	EF	1	1	CAS	85	7.6	U	U							
2	EF	1	1	CAS	85	7.6	U	U							
2	EF	1	1	CO	63	2.4	U	IM	SC	18					Scale Book 33985
2	EF	1	1	CO	63	2.4	U	IM	SC	18					Scale Book 33985
2	EF	1	1	CO	63	2.4	U	IM	SC	18					Scale Book 33985
2	EF	1	1	CO	55	1.8	U	IM	SC	19					Scale Book 33985
2	EF	1	1	CO	55	1.8	U	IM	SC	19					Scale Book 33985
2	EF	1	1	CO	55	1.8	U	IM	SC	19					Scale Book 33985
2	EF	1	1	NSC	78	3.3	U	U							
2	EF	1	1	NSC	78	3.3	U	U							
2	EF	1	1	NSC	78	3.3	U	U							
2	EF	1	1	NSC	38	.5	U	U							
2	EF	1	1	NSC	38	.5	U	U							
2	EF	1	1	NSC	38	.5	U	U							
2	EF	1	1	NSC	60	2.4	U	U							
2	EF	1	1	NSC	60	2.4	U	U							
2	EF	1	1	NSC	60	2.4	U	U							
2	EF	1	1	NSC	60	2.4	U	U							
2	EF	1	1	NSC	82	5.3	U	U							
2	EF	1	1	NSC	82	5.3	U	U							
2	EF	1	1	NSC	82	5.3	U	U							
2	EF	1	1	CO	66	2.9	U	IM	SC	20					Scale Book 33985
2	EF	1	1	CO	66	2.9	U	IM	SC	20					Scale Book 33985
2	EF	1	1	CO	66	2.9	U	IM	SC	20					Scale Book 33985
2	EF	1	1	CO	66	3.0	U	IM	SC	21					Scale Book 33985
2	EF	1	1	CO	66	3.0	U	IM	SC	21					Scale Book 33985
2	EF	1	1	CO	66	3.0	U	IM	SC	21					Scale Book 33985
2	EF	1	1	NSC	44	1.0	U	U							
2	EF	1	1	NSC	44	1.0	U	U							
2	EF	1	1	NSC	44	1.0	U	U							
2	EF	1	1	RSC	52	1.4	U	U							
2	EF	1	1	RSC	52	1.4	U	U							
2	EF	1	1	RSC	52	1.4	U	U							
2	EF	1	1	RSC	56	1.6	U	U							
2	EF	1	1	RSC	56	1.6	U	U							
2	EF	1	1	RSC	56	1.6	U	U							
2	EF	1	1	LNC	39	.7	U	U							
2	EF	1	1	LNC	39	.7	U	U							
2	EF	1	1	LNC	39	.7	U	U							
2	EF	1	1	CAS	61	2.9	U	U							
2	EF	1	1	CAS	61	2.9	U	U							
2	EF	1	1	CAS	61	2.9	U	U							
2	EF	1	1	CO	52	1.6	U	IM	SC	22					Scale Book 33985
2	EF	1	1	CO	52	1.6	U	IM	SC	22					Scale Book 33985
2	EF	1	1	CO	52	1.6	U	IM	SC	22					Scale Book 33985
2	EF	1	1	CO	68	3.2	U	IM	SC	23					Scale Book 33985
2	EF	1	1	CO	68	3.2	U	IM	SC	23					Scale Book 33985
2	EF	1	1	CO	68	3.2	U	IM	SC	23					Scale Book 33985
2	EF	1	1	NSC	68	3.3	U	U							

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-00000-00000-0000-0000-000-000-000-000-000-000

Reach #  
2.0

ILP Map #  
093M.019

ILP #  
2

## FDIS Fish Card

Pacific Booker 2006

WATER BODY														
Gazetted Name:														
Project Code: 480-000000-00000-00000-0000-000-000-000-000-000-000-000-000-														
WS Code: 480-598800-29000-00000-00000-0000-000-000-000-000-000-000-000-000														
Waterbody ID:				ILP Map #: 093M.029				ILP #:		1332	Reach #:			
Project ID: 5271								Lake/Stream:		S	Lake From Date:			
Fish Permit #:			06-23174		Date:		2006/08/28		To:		2006/08/28			
Agency:			C141		Crew:			RS/GB		Resample:				
S I T E / M E T H O D														
Site#	NID Map		NID #		UTM:Zone/East/North/Mthd		MTD/NO	Temp	Cond	Turbid	Comment			
3	093M.029		2001		9	670652	6118685	GP3	EF	1	12	290	C	excellent visibility
A. G E A R S E T T I N G S														
Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment						
3	EF	1	1	2006/08/28	16:45	2006/08/28	17:50							
C. E L E C T R O F I S H E R S P E C I F I C A T I O N S														
Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model		
3	EF	1	1	O	690	110.0	1.0	400	6	60	SR	12B		
F I S H S U M M A R Y														
Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	FishAct	Comment				
3	EF	1	1	NFC			0							

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-44800-00000-0000-0000-000-000-000-000-000-000

Reac  
10

ILP Map #  
093M 039

ILP #  
1242

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-44800-00000-0000-000-000-000-000-000-000-000

Reach #  
1.0

ILP Map #  
093M.029

ILP #  
1242

Site#	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment					
								Str/Smpl#/Age											
								Str	Smpl#										
6	EF	1	1	RB	71	4.3	U	IM	SC	31				Scale Book 33986					
6	EF	1	1	RB	112	14.5	U	IM	SC	32				Scale Book 33986					
6	EF	1	1	RB	112	14.5	U	IM	SC	32				Scale Book 33986					
6	EF	1	1	RB	112	14.5	U	IM	SC	32				Scale Book 33986					
6	EF	1	1	RB	97	9.7	U	IM	SC	33				Scale Book 33986					
6	EF	1	1	RB	97	9.7	U	IM	SC	33				Scale Book 33986					
6	EF	1	1	RB	97	9.7	U	IM	SC	33				Scale Book 33986					
6	EF	1	1	RB	75	4.7	U	IM	SC	34				Scale Book 33986					
6	EF	1	1	RB	75	4.7	U	IM	SC	34				Scale Book 33986					
6	EF	1	1	RB	75	4.7	U	IM	SC	34				Scale Book 33986					
6	EF	1	1	RB	78	5.6	U	IM	SC	35				Scale Book 33986					
6	EF	1	1	RB	78	5.6	U	IM	SC	35				Scale Book 33986					
6	EF	1	1	RB	78	5.6	U	IM	SC	35				Scale Book 33986					
6	EF	1	1	RB	76	4.8	U	IM	SC	36				Scale Book 33986					
6	EF	1	1	RB	76	4.8	U	IM	SC	36				Scale Book 33986					
6	EF	1	1	RB	76	4.8	U	IM	SC	36				Scale Book 33986					
6	EF	1	1	RB	82	4.9	U	IM	SC	37				Scale Book 33986					
6	EF	1	1	RB	82	4.9	U	IM	SC	37				Scale Book 33986					
6	EF	1	1	RB	82	4.9	U	IM	SC	37				Scale Book 33986					
6	EF	1	1	RB	72	4.1	U	IM	SC	38				Scale Book 33986					
6	EF	1	1	RB	72	4.1	U	IM	SC	38				Scale Book 33986					
6	EF	1	1	RB	72	4.1	U	IM	SC	38				Scale Book 33986					
6	EF	1	1	RB	83	6.4	U	IM	SC	39				Scale Book 33986					
6	EF	1	1	RB	83	6.4	U	IM	SC	39				Scale Book 33986					
6	EF	1	1	RB	83	6.4	U	IM	SC	39				Scale Book 33986					
6	EF	1	1	RB	75		U	IM	SC	40				Scale Book 33986					
6	EF	1	1	RB	75		U	IM	SC	40				Scale Book 33986					
6	EF	1	1	RB	75		U	IM	SC	40				Scale Book 33986					
6	EF	1	1	RB	74	4.5	U	IM	SC	41				Scale Book 33986					
6	EF	1	1	RB	74	4.5	U	IM	SC	41				Scale Book 33986					
6	EF	1	1	RB	74	4.5	U	IM	SC	41				Scale Book 33986					
6	EF	1	1	RB	68	3.1	U	IM	SC	42				Scale Book 33986					
6	EF	1	1	RB	68	3.1	U	IM	SC	42				Scale Book 33986					
6	EF	1	1	RB	68	3.1	U	IM	SC	42				Scale Book 33986					
6	EF	1	1	RB	68	3.1	U	IM	SC	42				Scale Book 33986					
6	EF	1	1	RB	79	5.3	U	IM	SC	43				Scale Book 33986					
6	EF	1	1	RB	79	5.3	U	IM	SC	43				Scale Book 33986					
6	EF	1	1	RB	79	5.3	U	IM	SC	43				Scale Book 33986					
6	EF	1	1	RB	42	.7	U	IM											
6	EF	1	1	RB	42	.7	U	IM											
6	EF	1	1	RB	42	.7	U	IM											
6	EF	1	1	RB	40	.4	U	IM											
6	EF	1	1	RB	40	.4	U	IM											
6	EF	1	1	RB	40	.4	U	IM											
6	EF	1	1	RB	38	.5	U	IM											
6	EF	1	1	RB	38	.5	U	IM											
6	EF	1	1	RB	38	.5	U	IM											
6	EF	1	1	RB	38	.5	U	IM											
6	EF	1	1	RB	39	.6	U	IM											
6	EF	1	1	RB	39	.6	U	IM											
6	EF	1	1	RB	39	.6	U	IM											
6	EF	1	1	RB	39	.6	U	IM											
6	EF	1	1	RB	73	3.5	U	IM	SC	44				Scale Book 33986					
6	EF	1	1	RB	73	3.5	U	IM	SC	44				Scale Book 33986					
6	EF	1	1	RB	73	3.5	U	IM	SC	44				Scale Book 33986					
6	EF	1	1	RB	71	3.3	U	IM	SC	45				Scale Book 33986; skinny					
6	EF	1	1	RB	71	3.3	U	IM	SC	45				Scale Book 33986; skinny					
6	EF	1	1	RB	71	3.3	U	IM	SC	45				Scale Book 33986; skinny					
6	EF	1	1	RB	66	3.1	U	IM	SC	46				Scale Book 33986					
6	EF	1	1	RB	66	3.1	U	IM	SC	46				Scale Book 33986					

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-44800-00000-0000-0000-000-000-000-000-000-000

Reach #  
1.0

**ILP Map #**  
**093M.029**

ILP #  
1242

# FDIS Fish Card

Pacific Booker 2006

Watershed Code:	480-598800-48010-00000-0000-0000-000-000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #
		1.0	093M.029	1240

WATERBODY												
Gazetted Name:	Local: Stream #50000-48010											
Project Code:	480-000000-00000-00000-0000-0000-000-000-000-000-000-000-000-000											
WS Code:	480-598800-48010-00000-0000-0000-000-000-000-000-000-000-000-000-000											
Waterbody ID:				ILP Map #: 093M.029			ILP #: 1240			Reach #: 1 -		
Project ID:	5271						Lake/Stream: S			Lake From Date:		
Fish Permit #:	06-23174		Date:	2006/08/28		To:	2006/08/28		Agency:	C141		
									Crew:	RS/GB		
									Resample:	<input type="checkbox"/>		
SITE / METHOD												
Site#	NID Map	NID #	UTM:Zone/East/North/Mthd			MTD/NO	Temp	Cond	Turbid	Comment		
7	093M.029	2013	9	669065	6121312	GP3	EF	1	12	180 C good visibility		
A. GEAR SETTINGS												
Site#	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment					
7	EF	1	1	2006/08/28	16:10	2006/08/28	16:30					
C. ELECTROFISHER SPECIFICATIONS												
Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
7	EF	1	1	O	511	120.0	1.0	400	6	60	SR	12B
FISH SUMMARY												
Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	FishAct	Comment		
7	EF	1	1	NFC			0					
COMMENTS												
Section	Comments											
FISH PRESENCE	no fish captured or observed in lower 120 meters upstream of 1 meter soft barrier falls											
FISH PRESENCE	no fish captured or observed in lower 120 meters upstream of 1 meter soft barrier falls											
FISH PRESENCE	no fish captured or observed in lower 120 meters upstream of 1 meter soft barrier falls											

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-53191-00000-0000-0000-000-000-000-000-000-000-000-000-000-000

Reac  
20

ILP Map #  
093M 029

ILP #  
1231

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-53191-00000-0000-0000-000-000-000-000-000-000

### Reach #

ILP Map #

ILP #

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
									Str/Smpl#	/Age					
9	EF	1	1	RB	45	1.0	U	IM							
9	EF	1	1	RB	45	1.0	U	IM							
9	EF	1	1	RB	76	4.1	U	IM	SC	15					Scale Book 33986
9	EF	1	1	RB	76	4.1	U	IM	SC	15					Scale Book 33986
9	EF	1	1	RB	76	4.1	U	IM	SC	15					Scale Book 33986
9	EF	1	1	RB	83	6.4	U	IM	SC	16					Scale Book 33986
9	EF	1	1	RB	83	6.4	U	IM	SC	16					Scale Book 33986
9	EF	1	1	RB	83	6.4	U	IM	SC	16					Scale Book 33986
9	EF	1	1	RB	83	5.8	U	IM	SC	17					Scale Book 33986
9	EF	1	1	RB	83	5.8	U	IM	SC	17					Scale Book 33986
9	EF	1	1	RB	83	5.8	U	IM	SC	17					Scale Book 33986
9	EF	1	1	RB	75	4.1	U	IM	SC	18					Scale Book 33986
9	EF	1	1	RB	75	4.1	U	IM	SC	18					Scale Book 33986
9	EF	1	1	RB	75	4.1	U	IM	SC	18					Scale Book 33986
9	EF	1	1	RB	43	1.0	U	IM							
9	EF	1	1	RB	43	1.0	U	IM							
9	EF	1	1	RB	43	1.0	U	IM							
9	EF	1	1	RB	38	.6	U	IM							
9	EF	1	1	RB	38	.6	U	IM							
9	EF	1	1	RB	38	.6	U	IM							
9	EF	1	1	RB	46	1.1	U	IM							
9	EF	1	1	RB	46	1.1	U	IM							
9	EF	1	1	RB	46	1.1	U	IM							
9	EF	1	1	RB	66	3.4	U	IM	SC	19					Scale Book 33986
9	EF	1	1	RB	66	3.4	U	IM	SC	19					Scale Book 33986
9	EF	1	1	RB	66	3.4	U	IM	SC	19					Scale Book 33986
9	EF	1	1	RB	66	3.1	U	IM	SC	20					Scale Book 33986
9	EF	1	1	RB	66	3.1	U	IM	SC	20					Scale Book 33986
9	EF	1	1	RB	66	3.1	U	IM	SC	20					Scale Book 33986
9	EF	1	1	RB	72	3.4	U	IM	SC	21					Scale Book 33986
9	EF	1	1	RB	72	3.4	U	IM	SC	21					Scale Book 33986
9	EF	1	1	RB	72	3.4	U	IM	SC	21					Scale Book 33986
9	EF	1	1	RB	44	1.0	U	IM							
9	EF	1	1	RB	44	1.0	U	IM							
9	EF	1	1	RB	44	1.0	U	IM							
9	EF	1	1	RB	43	1.0	U	IM							
9	EF	1	1	RB	43	1.0	U	IM							
9	EF	1	1	RB	43	1.0	U	IM							
9	EF	1	1	RB	43	1.0	U	IM							
9	EF	1	1	RB	43	.9	U	IM							
9	EF	1	1	RB	43	.9	U	IM							
9	EF	1	1	RB	43	.9	U	IM							
9	EF	1	1	RB	45	.9	U	IM							
9	EF	1	1	RB	45	.9	U	IM							
9	EF	1	1	RB	45	.9	U	IM							
9	EF	1	1	RB	46	1.1	U	IM							
9	EF	1	1	RB	46	1.1	U	IM							
9	EF	1	1	RB	46	1.1	U	IM							
9	EF	1	1	RB	41	.7	U	IM							
9	EF	1	1	RB	41	.7	U	IM							
9	EF	1	1	RB	41	.7	U	IM							
9	EF	1	1	RB	42	.7	U	IM							
9	EF	1	1	RB	42	.7	U	IM							
9	EF	1	1	RB	42	.7	U	IM							
9	EF	1	1	RB	44	1.0	U	IM							
9	EF	1	1	RB	44	1.0	U	IM							
9	EF	1	1	RB	44	1.0	U	IM							
9	EF	1	2	RB	68	3.1	U	IM	SC	5					Scale Book 33986

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-53191-00000-0000-000-000-000-000-000-000-000

### Reach #

### ILP Map #

ILP #

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-61100-00000-0000-000-000-000-000-000-000-000-000-000-000-000

1.1

ILP Map #  
093M 029

ILP #  
1224

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-61100-00000-0000-000-000-000-000-000-000-000-000-000-000-000

Reach #  
1.1

ILP Map #  
093M.029

ILP #  
1224

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
									Str	Smpl#					
16	EF	1	3	CO	50	1.3	U	IM							
16	EF	1	3	CO	48	1.2	U	IM							
16	EF	1	3	CO	48	1.2	U	IM							
16	EF	1	3	CO	48	1.2	U	IM							
16	EF	1	3	CO	47	1.1	U	IM							
16	EF	1	3	CO	47	1.1	U	IM							
16	EF	1	3	CO	47	1.1	U	IM							
16	EF	1	3	CO	55	1.7	U	IM							
16	EF	1	3	CO	55	1.7	U	IM							
16	EF	1	3	CO	49	1.2	U	IM							
16	EF	1	3	CO	49	1.2	U	IM							
16	EF	1	3	CO	49	1.2	U	IM							
16	EF	1	3	CO	51	1.2	U	IM							
16	EF	1	3	CO	51	1.2	U	IM							
16	EF	1	3	CO	51	1.2	U	IM							
16	EF	1	3	CO	44	.9	U	IM							
16	EF	1	3	CO	44	.9	U	IM							
16	EF	1	3	CO	44	.9	U	IM							
16	EF	1	3	CO	51	.7	U	IM							
16	EF	1	3	CO	51	.7	U	IM							
16	EF	1	3	CO	51	.7	U	IM							
16	EF	1	3	CO	55	1.5	U	IM							
16	EF	1	3	CO	55	1.5	U	IM							
16	EF	1	3	CO	55	1.5	U	IM							
16	EF	1	3	CO	50	1.0	U	IM							
16	EF	1	3	CO	50	1.0	U	IM							
16	EF	1	3	CO	50	1.0	U	IM							
16	EF	1	3	CO	46	1.0	U	IM							
16	EF	1	3	CO	46	1.0	U	IM							
16	EF	1	3	CO	46	1.0	U	IM							

## **COMMENTS**

Section	Comments
GENERAL	total wetted area was 12 square meters in double pass site (passes 1 and 2); third pass was conducted in a small isolated pool with a root wad for species id.
GENERAL	total wetted area was 12 square meters in double pass site (passes 1 and 2); third pass was conducted in a small isolated pool with a root wad for species id.
GENERAL	total wetted area was 12 square meters in double pass site (passes 1 and 2); third pass was conducted in a small isolated pool with a root wad for species id.
GENERAL	pool sampled for species id was located about 60 m upstream of Morrison Lake. Juveniles were observed in the pool prior to sampling
GENERAL	pool sampled for species id was located about 60 m upstream of Morrison Lake. Juveniles were observed in the pool prior to sampling
GENERAL	pool sampled for species id was located about 60 m upstream of Morrison Lake. Juveniles were observed in the pool prior to sampling
PERCENT HABITAT SHOCKED	just a few wetted pools and glide (average depth 10 cm) were sampled in the enclosed double pass site
PERCENT HABITAT SHOCKED	just a few wetted pools and glide (average depth 10 cm) were sampled in the enclosed double pass site
PERCENT HABITAT SHOCKED	just a few wetted pools and glide (average depth 10 cm) were sampled in the enclosed double pass site

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-99100-00000-0000-0000-000-000-000-000-000-000

10

ILP Map #  
093M 038

ILP #  
1

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-99100-00000-0000-0000-000-000-000-000-000-000

Reach #  
1.0

ILP Map #  
093M.028

ILP #  
1

Site#	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment	
								Str/Smpl#	/Age						
19	EF	1	3	LNC	.22	.2	U	U							
19	EF	1	3	LNC	.22	.2	U	U							
19	EF	1	3	LNC	.19	.2	U	U							
19	EF	1	3	LNC	.19	.2	U	U							
19	EF	1	3	LNC	.19	.2	U	U							
19	EF	1	3	LNC	.26	.2	U	U							
19	EF	1	3	LNC	.26	.2	U	U							
19	EF	1	3	LNC	.26	.2	U	U							
19	EF	1	3	LNC	.26	.2	U	U							
19	EF	1	3	LNC	.26	.2	U	U							
19	EF	1	3	LNC	.16	.2	U	U							
19	EF	1	3	LNC	.16	.2	U	U							
19	EF	1	3	LNC	.16	.2	U	U							
19	EF	1	1	KO	247	110.0	F	ST	SC	2			1	819	Scale Book 33951; also took photo 820 of this fish
19	EF	1	1	KO	247	110.0	F	ST	SC	2			1	819	Scale Book 33951; also took photo 820 of this fish
19	EF	1	1	KO	247	110.0	F	ST	SC	2			1	819	Scale Book 33951; also took photo 820 of this fish
19	EF	1	1	KO	272	152.0	M	ST	SC	3			1	821	Scale Book 33951
19	EF	1	1	KO	272	152.0	M	ST	SC	3			1	821	Scale Book 33951
19	EF	1	1	KO	272	152.0	M	ST	SC	3			1	821	Scale Book 33951
19	EF	1	1	RB	154	40.7	U	IM	SC	4					Scale Book 33951
19	EF	1	1	RB	154	40.7	U	IM	SC	4					Scale Book 33951
19	EF	1	1	RB	154	40.7	U	IM	SC	4					Scale Book 33951
19	EF	1	1	RB	118	16.1	U	IM	SC	5					Scale Book 33951
19	EF	1	1	RB	118	16.1	U	IM	SC	5					Scale Book 33951
19	EF	1	1	RB	118	16.1	U	IM	SC	5					Scale Book 33951
19	EF	1	1	RB	121	17.2	U	IM	SC	6					Scale Book 33951
19	EF	1	1	RB	121	17.2	U	IM	SC	6					Scale Book 33951
19	EF	1	1	RB	121	17.2	U	IM	SC	6					Scale Book 33951
19	EF	1	1	CO	71	4.5	U	IM	SC	8					Scale Book 33951
19	EF	1	1	CO	71	4.5	U	IM	SC	8					Scale Book 33951
19	EF	1	1	CO	71	4.5	U	IM	SC	8					Scale Book 33951
19	EF	1	1	CO	69	3.4	U	IM	SC	7					Scale Book 33951
19	EF	1	1	CO	69	3.4	U	IM	SC	7					Scale Book 33951
19	EF	1	1	CO	69	3.4	U	IM	SC	7					Scale Book 33951
19	EF	1	1	RB	57	2.0	U	IM	SC	9					Scale Book 33951
19	EF	1	1	RB	57	2.0	U	IM	SC	9					Scale Book 33951
19	EF	1	1	RB	57	2.0	U	IM	SC	9					Scale Book 33951
19	EF	1	1	CO	69	3.6	U	IM	SC	10					Scale Book 33951
19	EF	1	1	CO	69	3.6	U	IM	SC	10					Scale Book 33951
19	EF	1	1	CO	69	3.6	U	IM	SC	10					Scale Book 33951
19	EF	1	1	CO	63	2.9	U	IM	SC	11					Scale Book 33951
19	EF	1	1	CO	63	2.9	U	IM	SC	11					Scale Book 33951
19	EF	1	1	CO	63	2.9	U	IM	SC	11					Scale Book 33951
19	EF	1	1	LNC	2	.2	U	U							
19	EF	1	1	LNC	2	.2	U	U							
19	EF	1	1	LNC	2	.2	U	U							
19	EF	1	1	CO	65	2.8	U	IM	SC	12					Scale Book 33951
19	EF	1	1	CO	65	2.8	U	IM	SC	12					Scale Book 33951
19	EF	1	1	CO	65	2.8	U	IM	SC	12					Scale Book 33951
19	EF	1	1	CAS	92	8.9	U	U							
19	EF	1	1	CAS	92	8.9	U	U							
19	EF	1	1	CAS	92	8.9	U	U							
19	EF	1	1	CAS	93	9.7	U	U							
19	EF	1	1	CAS	93	9.7	U	U							

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-99100-00000-0000-0000-000-000-000-000-000-000

Reach #  
1.0

ILP Map #  
093M.028

ILP #  
1

Site#	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
								Str/Smpl#	/Age					
19	EF	1	1	CAS	93	9.7	U	U						
19	EF	1	1	NSC	74	4.9	U	U						fat - parasites?
19	EF	1	1	NSC	74	4.9	U	U						fat - parasites?
19	EF	1	1	NSC	74	4.9	U	U						fat - parasites?
19	EF	1	1	CAS	76	4.8	U	U						
19	EF	1	1	CAS	76	4.8	U	U						
19	EF	1	1	CAS	76	4.8	U	U						
19	EF	1	1	CAS	92	11.7	U	U						
19	EF	1	1	CAS	92	11.7	U	U						
19	EF	1	1	CAS	74	4.0	U	U						
19	EF	1	1	CAS	74	4.0	U	U						
19	EF	1	1	CAS	74	4.0	U	U						
19	EF	1	1	CAS	92	10.8	U	U						
19	EF	1	1	CAS	92	10.8	U	U						
19	EF	1	1	CAS	92	10.8	U	U						
19	EF	1	1	CAS	120	19.0	U	U						
19	EF	1	1	CAS	120	19.0	U	U						
19	EF	1	1	CAS	120	19.0	U	U						
19	EF	1	1	CAS	92	9.7	U	U						
19	EF	1	1	CAS	92	9.7	U	U						
19	EF	1	1	CAS	92	9.7	U	U						
19	EF	1	1	CAS	82	6.9	U	U						
19	EF	1	1	CAS	82	6.9	U	U						
19	EF	1	1	CAS	82	6.9	U	U						
19	EF	1	1	CAS	80	5.8	U	U						
19	EF	1	1	CAS	80	5.8	U	U						
19	EF	1	1	CAS	80	5.8	U	U						
19	EF	1	1	CAS	66	2.9	U	U						
19	EF	1	1	CAS	66	2.9	U	U						
19	EF	1	1	CAS	66	2.9	U	U						
19	EF	1	1	CAS	87	7.4	U	U						
19	EF	1	1	CAS	87	7.4	U	U						
19	EF	1	1	CAS	87	7.4	U	U						
19	EF	1	1	CAS	71	3.5	U	U						
19	EF	1	1	CAS	71	3.5	U	U						
19	EF	1	1	CAS	71	3.5	U	U						
19	EF	1	1	CAS	55	1.4	U	U						
19	EF	1	1	CAS	55	1.4	U	U						
19	EF	1	1	CAS	55	1.4	U	U						
19	EF	1	1	CAS	69	3.5	U	U						
19	EF	1	1	CAS	69	3.5	U	U						
19	EF	1	1	CAS	69	3.5	U	U						
19	EF	1	1	CAS	69	3.5	U	U						
19	EF	1	1	CAS	90	8.1	U	U						
19	EF	1	1	CAS	90	8.1	U	U						
19	EF	1	1	CAS	90	8.1	U	U						
19	EF	1	1	CAS	68	2.7	U	U						
19	EF	1	1	CAS	68	2.7	U	U						
19	EF	1	1	CAS	68	2.7	U	U						
19	EF	1	1	CAS	75	4.1	U	U						
19	EF	1	1	CAS	75	4.1	U	U						
19	EF	1	1	CAS	75	4.1	U	U						
19	EF	1	1	CAS	84	5.9	U	U						
19	EF	1	1	CAS	84	5.9	U	U						
19	EF	1	1	CAS	84	5.9	U	U						
19	EF	1	1	CAS	71	3.8	U	U						
19	EF	1	1	CAS	71	3.8	U	U						

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-99100-00000-0000-0000-000-000-000-000-000-000

Reach #  
1.0

ILP Map #  
093M.028

ILP #  
1

Site#	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
								Str/Smpl#	/Age					
19	EF	1	1	CAS	71	3.8	U	U						
19	EF	1	1	CAS	74	3.9	U	U						
19	EF	1	1	CAS	74	3.9	U	U						
19	EF	1	1	CAS	74	3.9	U	U						
19	EF	1	1	CAS	59	2.0	U	U						
19	EF	1	1	CAS	59	2.0	U	U						
19	EF	1	1	CAS	59	2.0	U	U						
19	EF	1	1	CAS	81	6.0	U	U						
19	EF	1	1	CAS	81	6.0	U	U						
19	EF	1	1	CAS	85	6.8	U	U						
19	EF	1	1	CAS	85	6.8	U	U						
19	EF	1	1	CAS	85	6.8	U	U						
19	EF	1	1	RSC	62	2.8	U	U						
19	EF	1	1	RSC	62	2.8	U	U						
19	EF	1	1	RSC	62	2.8	U	U						
19	EF	1	1	RSC	76	5.4	U	U						
19	EF	1	1	RSC	76	5.4	U	U						
19	EF	1	1	RSC	76	5.4	U	U						
19	EF	1	1	LNC	31	.5	U	U						
19	EF	1	1	LNC	31	.5	U	U						
19	EF	1	1	LNC	31	.5	U	U						
19	EF	1	1	LNC	24	.2	U	U						
19	EF	1	1	LNC	24	.2	U	U						
19	EF	1	1	LNC	24	.2	U	U						
19	EF	1	1	LNC	23	.2	U	U						
19	EF	1	1	LNC	23	.2	U	U						
19	EF	1	1	LNC	23	.2	U	U						
19	EF	1	1	CAS	60	2.4	U	U						
19	EF	1	1	CAS	60	2.4	U	U						
19	EF	1	1	CAS	60	2.4	U	U						
19	EF	1	1	LNC	29	.2	U	U						
19	EF	1	1	LNC	29	.2	U	U						
19	EF	1	1	LNC	29	.2	U	U						
19	EF	1	1	LNC	29	.2	U	U						
19	EF	1	1	CAS	69	3.8	U	U						
19	EF	1	1	CAS	69	3.8	U	U						
19	EF	1	1	CAS	69	3.8	U	U						
19	EF	1	1	CAS	69	3.8	U	U						
19	EF	1	1	CAS	79	5.7	U	U						
19	EF	1	1	CAS	79	5.7	U	U						
19	EF	1	1	CAS	79	5.7	U	U						
19	EF	1	1	CAS	59	2.1	U	U						
19	EF	1	1	CAS	59	2.1	U	U						
19	EF	1	1	CAS	59	2.1	U	U						
19	EF	1	1	CAS	84	6.8	U	U						
19	EF	1	1	CAS	84	6.8	U	U						
19	EF	1	1	CAS	84	6.8	U	U						
19	EF	1	1	CAS	84	6.8	U	U						
19	EF	1	1	CAS	68	2.9	U	U						
19	EF	1	1	CAS	68	2.9	U	U						
19	EF	1	1	CAS	68	2.9	U	U						
19	EF	1	1	CAS	68	2.9	U	U						
19	EF	1	1	CAS	58	1.8	U	U						
19	EF	1	1	CAS	58	1.8	U	U						
19	EF	1	1	CAS	58	1.8	U	U						
19	EF	1	1	CAS	71	3.9	U	U						
19	EF	1	1	CAS	71	3.9	U	U						
19	EF	1	1	CAS	71	3.9	U	U						
19	EF	1	2	CAS	100	12.3	U	U						
19	EF	1	2	CAS	100	12.3	U	U						

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-99100-00000-0000-000-000-000-000-000-000-000-000-000-000-000

Reach #

ILP Map #  
093M.028

ILP #  
1

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
									Str/Smpl#	Age/Age					
19	EF	1	2	CAS	100	12.3	U	U							
19	EF	1	2	CAS	71	3.9	U	U							
19	EF	1	2	CAS	71	3.9	U	U							
19	EF	1	2	CAS	71	3.9	U	U							
19	EF	1	2	CAS	80	5.9	U	U							
19	EF	1	2	CAS	80	5.9	U	U							
19	EF	1	2	CAS	80	5.9	U	U							
19	EF	1	2	CAS	84	7.8	U	U							
19	EF	1	2	CAS	84	7.8	U	U							
19	EF	1	2	CAS	84	7.8	U	U							
19	EF	1	2	CO	79	5.2	U	IM	SC	13					Scale Book 33951
19	EF	1	2	CO	79	5.2	U	IM	SC	13					Scale Book 33951
19	EF	1	2	CO	79	5.2	U	IM	SC	13					Scale Book 33951
19	EF	1	2	CO	64	2.8	U	IM	SC	14					Scale Book 33951
19	EF	1	2	CO	64	2.8	U	IM	SC	14					Scale Book 33951
19	EF	1	2	CO	64	2.8	U	IM	SC	14					Scale Book 33951
19	EF	1	2	CAS	75	4.4	U	U							
19	EF	1	2	CAS	75	4.4	U	U							
19	EF	1	2	CAS	75	4.4	U	U							
19	EF	1	2	RB	108	10.8	U	IM	SC	15					Scale Book 33951
19	EF	1	2	RB	108	10.8	U	IM	SC	15					Scale Book 33951
19	EF	1	2	RB	108	10.8	U	IM	SC	15					Scale Book 33951
19	EF	1	2	CO	68	3.3	U	IM	SC	16					Scale Book 33951
19	EF	1	2	CO	68	3.3	U	IM	SC	16					Scale Book 33951
19	EF	1	2	CO	68	3.3	U	IM	SC	16					Scale Book 33951
19	EF	1	2	CO	77	4.7	U	IM	SC	17					Scale Book 33951
19	EF	1	2	CO	77	4.7	U	IM	SC	17					Scale Book 33951
19	EF	1	2	CO	77	4.7	U	IM	SC	17					Scale Book 33951
19	EF	1	2	CAS	78	5.4	U	U							
19	EF	1	2	CAS	78	5.4	U	U							
19	EF	1	2	CAS	78	5.4	U	U							
19	EF	1	2	CAS	94	9.6	U	U							
19	EF	1	2	CAS	94	9.6	U	U							
19	EF	1	2	CAS	94	9.6	U	U							
19	EF	1	2	CAS	59	1.9	U	U							
19	EF	1	2	CAS	59	1.9	U	U							
19	EF	1	2	CAS	59	1.9	U	U							
19	EF	1	2	LNC	58	1.8	U	U							
19	EF	1	2	LNC	58	1.8	U	U							
19	EF	1	2	LNC	58	1.8	U	U							
19	EF	1	2	LNC	29	.3	U	U							
19	EF	1	2	LNC	29	.3	U	U							
19	EF	1	2	LNC	29	.3	U	U							
19	EF	1	2	LNC	27	.3	U	U							
19	EF	1	2	LNC	27	.3	U	U							
19	EF	1	2	LNC	27	.3	U	U							

## COMMENTS

Section	Comments
SITE DESCRIPTION	enclosed site was very representative of the entire reach.
SITE DESCRIPTION	enclosed site was very representative of the entire reach.
SITE DESCRIPTION	enclosed site was very representative of the entire reach.
PERCENT HABITAT SHOCKED	no LWD pools were in the site sampled and CO densities appeared higher at the one large debris jam just downstream of the site sampled
PERCENT HABITAT SHOCKED	no LWD pools were in the site sampled and CO densities appeared higher at the one large debris jam just downstream of the site sampled
PERCENT HABITAT SHOCKED	no LWD pools were in the site sampled and CO densities appeared higher at the one large debris jam just downstream of the site sampled

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-99100-00000-0000-000-000-000-000-000-000-000-000-000-000-000

Reac  
20

ILP Map #  
093M 028

ILP #  
1

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-99100-00000-0000-000-000-000-000-000-000-000-000-000-000-000

### Reach #

ILP Map #

ILP #

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
									Str/Smpl#	/Age					
20	EF	1	1	CO	70	3.3	U	IM	SC	2					scale book 33985
20	EF	1	1	CO	70	3.3	U	IM	SC	2					scale book 33985
20	EF	1	1	NSC	58	1.7	U	U							
20	EF	1	1	NSC	58	1.7	U	U							
20	EF	1	1	NSC	58	1.7	U	U							
20	EF	1	1	CAS	72	3.8	U	U							
20	EF	1	1	CAS	72	3.8	U	U							
20	EF	1	1	CAS	72	3.8	U	U							
20	EF	1	1	LNC	76	4.1	U	U							
20	EF	1	1	LNC	76	4.1	U	U							
20	EF	1	1	LNC	76	4.1	U	U							
20	EF	1	1	CO	66	2.4	U	IM	SC	3					scale book 33985
20	EF	1	1	CO	66	2.4	U	IM	SC	3					scale book 33985
20	EF	1	1	CO	66	2.4	U	IM	SC	3					scale book 33985
20	EF	1	1	CO	61	2.2	U	IM	SC	4					scale book 33985
20	EF	1	1	CO	61	2.2	U	IM	SC	4					scale book 33985
20	EF	1	1	CO	61	2.2	U	IM	SC	4					scale book 33985
20	EF	1	1	CO	67	2.5	U	IM	SC	5					scale book 33985
20	EF	1	1	CO	67	2.5	U	IM	SC	5					scale book 33985
20	EF	1	1	CO	67	2.5	U	IM	SC	5					scale book 33985
20	EF	1	1	CO	64	2.7	U	IM	SC	6					scale book 33985
20	EF	1	1	CO	64	2.7	U	IM	SC	6					scale book 33985
20	EF	1	1	CO	64	2.7	U	IM	SC	6					scale book 33985
20	EF	1	1	LNC	54		U	U							
20	EF	1	1	LNC	54		U	U							
20	EF	1	1	LNC	54		U	U							
20	EF	1	1	LNC	57	2.0	U	U							
20	EF	1	1	LNC	57	2.0	U	U							
20	EF	1	1	LNC	57	2.0	U	U							
20	EF	1	1	NSC	84	6.7	U	U							
20	EF	1	1	NSC	84	6.7	U	U							
20	EF	1	1	NSC	84	6.7	U	U							
20	EF	1	1	CO	71	3.3	U	IM							
20	EF	1	1	CO	71	3.3	U	IM							
20	EF	1	1	CO	71	3.3	U	IM							
20	EF	1	1	LNC	58	2.3	U	U							
20	EF	1	1	LNC	58	2.3	U	U							
20	EF	1	1	LNC	58	2.3	U	U							
20	EF	1	1	RSC	62	2.5	U	U							
20	EF	1	1	RSC	62	2.5	U	U							
20	EF	1	1	RSC	62	2.5	U	U							
20	EF	1	1	LNC	74	4.7	U	U							
20	EF	1	1	LNC	74	4.7	U	U							
20	EF	1	1	LNC	74	4.7	U	U							
20	EF	1	1	LNC	29		U	U							
20	EF	1	1	LNC	29		U	U							
20	EF	1	1	LNC	29		U	U							
20	EF	1	1	LNC	59	2.7	U	U							
20	EF	1	1	LNC	59	2.7	U	U							
20	EF	1	1	LNC	59	2.7	U	U							
20	EF	1	1	LNC	95	7.4	U	U							
20	EF	1	1	LNC	95	7.4	U	U							
20	EF	1	1	LNC	95	7.4	U	U							
20	EF	1	1	CAS	84	6.2	U	U							
20	EF	1	1	CAS	84	6.2	U	U							
20	EF	1	1	CAS	84	6.2	U	U							
20	EF	1	1	LNC	64	2.5	U	U							

# FDIS Fish Card

Pacific Booker 2006

Watershed Code:

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Reach #  
2.0

ILP Map #  
093M.028

ILP #  
1

INDIVIDUAL FISH DATA														
Site#	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
								Str/Smpl#	/Age					
20	EF	1	1	LNC	64	2.5	U	U						
20	EF	1	1	LNC	64	2.5	U	U						
20	EF	1	1	LNC	98	9.1	U	U						
20	EF	1	1	LNC	98	9.1	U	U						
20	EF	1	1	LNC	98	9.1	U	U						
20	EF	1	1	LNC	62	2.2	U	U						
20	EF	1	1	LNC	62	2.2	U	U						
20	EF	1	1	LNC	62	2.2	U	U						
20	EF	1	1	LNC	34		U	U						
20	EF	1	1	LNC	34		U	U						
20	EF	1	1	LNC	34		U	U						
20	EF	1	1	LNC	32		U	U						
20	EF	1	1	LNC	32		U	U						
20	EF	1	1	LNC	32		U	U						
20	EF	1	1	LNC	33		U	U						
20	EF	1	1	LNC	33		U	U						
20	EF	1	1	LNC	33		U	U						
20	EF	1	1	LNC	33		U	U						
20	EF	1	1	LNC	28		U	U						
20	EF	1	1	LNC	28		U	U						
20	EF	1	1	LNC	28		U	U						
20	EF	1	1	LNC	28		U	U						
20	EF	1	1	LNC	28		U	U						
20	EF	1	1	LNC	28		U	U						
20	EF	1	1	LNC	31		U	U						
20	EF	1	1	LNC	31		U	U						
20	EF	1	1	LNC	31		U	U						
20	EF	1	1	LNC	34		U	U						
20	EF	1	1	LNC	34		U	U						
20	EF	1	1	LNC	34		U	U						
20	EF	1	1	LNC	34		U	U						
20	EF	1	1	CO	74	4.7	U	IM						no scales collected
20	EF	1	1	CO	74	4.7	U	IM						no scales collected
20	EF	1	1	CO	74	4.7	U	IM						no scales collected
20	EF	1	1	CO	77	4.9	U	IM	SC	7				scale book 33985
20	EF	1	1	CO	77	4.9	U	IM	SC	7				scale book 33985
20	EF	1	1	CO	77	4.9	U	IM	SC	7				scale book 33985
20	EF	1	1	LNC	48	1.0	U	U						
20	EF	1	1	LNC	48	1.0	U	U						
20	EF	1	1	LNC	48	1.0	U	U						
20	EF	1	1	CO	62	2.5	U	IM	SC	42				scale book 33951
20	EF	1	1	CO	62	2.5	U	IM	SC	42				scale book 33951
20	EF	1	1	CO	62	2.5	U	IM	SC	42				scale book 33951
20	EF	1	1	CO	69	3.0	U	IM	SC	43				scale book 33951
20	EF	1	1	CO	69	3.0	U	IM	SC	43				scale book 33951
20	EF	1	1	CO	69	3.0	U	IM	SC	43				scale book 33951
20	EF	1	1	CO	75	5.9	U	IM	SC	44				scale book 33951
20	EF	1	1	CO	75	5.9	U	IM	SC	44				scale book 33951
20	EF	1	1	CO	75	5.9	U	IM	SC	44				scale book 33951
20	EF	1	1	CO	65	3.3	U	IM	SC	45				scale book 33951
20	EF	1	1	CO	65	3.3	U	IM	SC	45				scale book 33951
20	EF	1	1	CO	65	3.3	U	IM	SC	45				scale book 33951
20	EF	1	1	CO	69	3.7	U	IM	SC	46				scale book 33951
20	EF	1	1	CO	69	3.7	U	IM	SC	46				scale book 33951
20	EF	1	1	CO	69	3.7	U	IM	SC	46				scale book 33951
20	EF	1	1	CO	84	6.0	U	IM	SC	47				scale book 33951

## FDIS Fish Card

Pacific Booker 2006

Watershed Code:

480-598800-99100-00000-0000-0000-000-000-000-000-000-000-000-000-000

Reach #  
2.0ILP Map #  
093M.028ILP #  
1

Site#	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
								Str/Smpl#	/Age					
20	EF	1	1	CO	84	6.0	U	IM	SC	47				scale book 33951
20	EF	1	1	CO	84	6.0	U	IM	SC	47				scale book 33951
20	EF	1	1	CO	65	3.0	U	IM	SC	48				scale book 33951
20	EF	1	1	CO	65	3.0	U	IM	SC	48				scale book 33951
20	EF	1	1	CO	65	3.0	U	IM	SC	48				scale book 33951
20	EF	1	1	CO	63	3.3	U	IM	SC	49				scale book 33951
20	EF	1	1	CO	63	3.3	U	IM	SC	49				scale book 33951
20	EF	1	1	CO	63	3.3	U	IM	SC	49				scale book 33951
20	EF	1	1	CAS	90	9.2	U	U						
20	EF	1	1	CAS	90	9.2	U	U						
20	EF	1	1	CAS	90	9.2	U	U						
20	EF	1	1	CO	74	3.9	U	IM	SC	50				scale book 33951
20	EF	1	1	CO	74	3.9	U	IM	SC	50				scale book 33951
20	EF	1	1	CO	74	3.9	U	IM	SC	50				scale book 33951
20	EF	1	1	CAS	85	7.0	U	U						
20	EF	1	1	CAS	85	7.0	U	U						
20	EF	1	1	CAS	85	7.0	U	U						
20	EF	1	1	CAS	102	13.2	U	U						
20	EF	1	1	CAS	102	13.2	U	U						
20	EF	1	1	CAS	102	13.2	U	U						
20	EF	1	1	CAS	88	8.6	U	U						
20	EF	1	1	CAS	88	8.6	U	U						
20	EF	1	1	CAS	88	8.6	U	U						
20	EF	1	1	LNC	99	8.4	U	U						
20	EF	1	1	LNC	99	8.4	U	U						
20	EF	1	1	LNC	99	8.4	U	U						
20	EF	1	1	CAS	74		U	U						
20	EF	1	1	CAS	74		U	U						
20	EF	1	1	CAS	74		U	U						
20	EF	1	1	CAS	74		U	U						
20	EF	1	1	CAS	91	7.3	U	U						
20	EF	1	1	CAS	91	7.3	U	U						
20	EF	1	1	CAS	91	7.3	U	U						
20	EF	1	1	LNC	61	2.2	U	U						
20	EF	1	1	LNC	61	2.2	U	U						
20	EF	1	1	LNC	61	2.2	U	U						
20	EF	1	1	CAS	105		U	U						
20	EF	1	1	CAS	105		U	U						
20	EF	1	1	CAS	105		U	U						
20	EF	1	1	CAS	83	5.1	U	U						
20	EF	1	1	CAS	83	5.1	U	U						
20	EF	1	1	CAS	83	5.1	U	U						
20	EF	1	1	CAS	105	5.7	U	U						
20	EF	1	1	CAS	105	5.7	U	U						
20	EF	1	1	CAS	105	5.7	U	U						
20	EF	1	1	CAS	96	9.2	U	U						
20	EF	1	1	CAS	96	9.2	U	U						
20	EF	1	1	CAS	96	9.2	U	U						
20	EF	1	1	CAS	84	7.5	U	U						
20	EF	1	1	CAS	84	7.5	U	U						
20	EF	1	1	CAS	84	7.5	U	U						
20	EF	1	2	CAS	75	5.1	U	U						
20	EF	1	2	CAS	75	5.1	U	U						
20	EF	1	2	LNC	56	2.0	U	U						
20	EF	1	2	LNC	56	2.0	U	U						
20	EF	1	2	LNC	56	2.0	U	U						
20	EF	1	2	LNC	61	2.7	U	U						

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-99100-00000-0000-0000-000-000-000-000-000-000

### Reach #

ILP Map #  
093M.028

ILP #  
1

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
									Str/Smpl#	/Age					
20	EF	1	2	LNC	61	2.7	U	U							
20	EF	1	2	LNC	61	2.7	U	U							
20	EF	1	2	NSC	51	1.3	U	U							
20	EF	1	2	NSC	51	1.3	U	U							
20	EF	1	2	NSC	51	1.3	U	U							
20	EF	1	2	LSU	55	2.8	U	U							
20	EF	1	2	LSU	55	2.8	U	U							
20	EF	1	2	LSU	55	2.8	U	U							
20	EF	1	2	CO	79	5.8	U	IM	SC	18					scale book 33951
20	EF	1	2	CO	79	5.8	U	IM	SC	18					scale book 33951
20	EF	1	2	CO	79	5.8	U	IM	SC	18					scale book 33951
20	EF	1	2	CO	73	5.0	U	IM	SC	19					scale book 33951
20	EF	1	2	CO	73	5.0	U	IM	SC	19					scale book 33951
20	EF	1	2	CO	73	5.0	U	IM	SC	19					scale book 33951
20	EF	1	2	CO	70	3.9	U	IM	SC	20					scale book 33951
20	EF	1	2	CO	70	3.9	U	IM	SC	20					scale book 33951
20	EF	1	2	CO	70	3.9	U	IM	SC	20					scale book 33951
20	EF	1	2	LNC	57	2.0	U	U							
20	EF	1	2	LNC	57	2.0	U	U							
20	EF	1	2	LNC	57	2.0	U	U							
20	EF	1	2	LNC	55	1.8	U	U							
20	EF	1	2	LNC	55	1.8	U	U							
20	EF	1	2	LNC	55	1.8	U	U							
20	EF	1	3	LNC	32	.5	U	U							
20	EF	1	3	LNC	32	.5	U	U							
20	EF	1	3	CAS	129	27.2	U	U							
20	EF	1	3	CAS	129	27.2	U	U							
20	EF	1	3	CAS	129	27.2	U	U							
20	EF	1	3	LNC	72	4.9	U	U							
20	EF	1	3	LNC	72	4.9	U	U							
20	EF	1	3	LNC	72	4.9	U	U							
20	EF	1	3	LNC	78	5.3	U	U							
20	EF	1	3	LNC	78	5.3	U	U							
20	EF	1	3	LNC	78	5.3	U	U							
20	EF	1	3	LNC	58	2.1	U	U							
20	EF	1	3	LNC	58	2.1	U	U							
20	EF	1	3	LNC	58	2.1	U	U							
20	EF	1	3	LNC	58	2.1	U	U							
20	EF	1	3	CO	63	3.0	U	IM	SC	21					scale book 33951
20	EF	1	3	CO	63	3.0	U	IM	SC	21					scale book 33951
20	EF	1	3	CO	63	3.0	U	IM	SC	21					scale book 33951
20	EF	1	3	CO	70	3.6	U	IM	SC	22					scale book 33951
20	EF	1	3	CO	70	3.6	U	IM	SC	22					scale book 33951
20	EF	1	3	CO	70	3.6	U	IM	SC	22					scale book 33951
20	EF	1	3	NSC	47	1.3	U	U							
20	EF	1	3	NSC	47	1.3	U	U							
20	EF	1	3	NSC	47	1.3	U	U							
20	EF	1	3	CO	64	2.9	U	IM	SC	23					scale book 33951
20	EF	1	3	CO	64	2.9	U	IM	SC	23					scale book 33951
20	EF	1	3	CO	64	2.9	U	IM	SC	23					scale book 33951
20	EF	1	3	CO	74	4.2	U	IM	SC	24					scale book 33951
20	EF	1	3	CO	74	4.2	U	IM	SC	24					scale book 33951
20	EF	1	3	CO	74	4.2	U	IM	SC	24					scale book 33951
20	EF	1	3	CO	74	4.2	U	IM	SC	24					scale book 33951
20	EF	1	1	RB	78	4.7	U	IM	SC	25					scale book 33951
20	EF	1	1	RB	78	4.7	U	IM	SC	25					scale book 33951
20	EF	1	1	RB	78	4.7	U	IM	SC	25					scale book 33951
20	EF	1	1	CO	70	3.5	U	IM	SC	26					scale book 33951

## FDIS Fish Card

Pacific Booker 2006

## Watershed Code:

480-598800-99100-00000-0000-000-000-000-000-000-000-000-000

### Reach #

ILP Map #

ILP #

Site#	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age		Vch#	Genetic	Roll #	Frame#	Comment
								Str/Smpl#	/Age					
20	EF	1	1	CO	70	3.5	U	IM	SC	26				scale book 33951
20	EF	1	1	CO	70	3.5	U	IM	SC	26				scale book 33951
20	EF	1	1	RB	54	1.9	U	IM	SC	27				scale book 33951
20	EF	1	1	RB	54	1.9	U	IM	SC	27				scale book 33951
20	EF	1	1	RB	54	1.9	U	IM	SC	27				scale book 33951
20	EF	1	1	CO	71	4.4	U	IM	SC	28				scale book 33951
20	EF	1	1	CO	71	4.4	U	IM	SC	28				scale book 33951
20	EF	1	1	CO	71	4.4	U	IM	SC	28				scale book 33951
20	EF	1	1	RB	108	13.9	U	IM	SC	29				scale book 33951
20	EF	1	1	RB	108	13.9	U	IM	SC	29				scale book 33951
20	EF	1	1	RB	108	13.9	U	IM	SC	29				scale book 33951
20	EF	1	1	RB	105	11.9	U	IM	SC	30				scale book 33951
20	EF	1	1	RB	105	11.9	U	IM	SC	30				scale book 33951
20	EF	1	1	RB	105	11.9	U	IM	SC	30				scale book 33951
20	EF	1	1	NSC	53	1.5	U	U						
20	EF	1	1	NSC	53	1.5	U	U						
20	EF	1	1	NSC	53	1.5	U	U						
20	EF	1	1	CO	71	3.9	U	IM	SC	31				scale book 33951
20	EF	1	1	CO	71	3.9	U	IM	SC	31				scale book 33951
20	EF	1	1	CO	71	3.9	U	IM	SC	31				scale book 33951
20	EF	1	1	CO	70	3.7	U	IM	SC	32				scale book 33951
20	EF	1	1	CO	70	3.7	U	IM	SC	32				scale book 33951
20	EF	1	1	CO	70	3.7	U	IM	SC	32				scale book 33951
20	EF	1	1	CO	68	3.5	U	IM	SC	33				scale book 33951
20	EF	1	1	CO	68	3.5	U	IM	SC	33				scale book 33951
20	EF	1	1	CO	68	3.5	U	IM	SC	33				scale book 33951
20	EF	1	1	CO	70	3.8	U	IM	SC	34				scale book 33951
20	EF	1	1	CO	70	3.8	U	IM	SC	34				scale book 33951
20	EF	1	1	CO	70	3.8	U	IM	SC	34				scale book 33951
20	EF	1	1	CO	74	4.6	U	IM	SC	35				scale book 33951
20	EF	1	1	CO	74	4.6	U	IM	SC	35				scale book 33951
20	EF	1	1	CO	74	4.6	U	IM	SC	35				scale book 33951
20	EF	1	1	CO	79	6.0	U	IM	SC	36				scale book 33951
20	EF	1	1	CO	79	6.0	U	IM	SC	36				scale book 33951
20	EF	1	1	CO	79	6.0	U	IM	SC	36				scale book 33951
20	EF	1	1	CO	68	3.2	U	IM	SC	37				scale book 33951
20	EF	1	1	CO	68	3.2	U	IM	SC	37				scale book 33951
20	EF	1	1	CO	68	3.2	U	IM	SC	37				scale book 33951
20	EF	1	1	CO	126	19.3	U	IM	SC	38				scale book 33951
20	EF	1	1	RB	126	19.3	U	IM	SC	38				scale book 33951
20	EF	1	1	RB	126	19.3	U	IM	SC	38				scale book 33951
20	EF	1	1	RB	126	19.3	U	IM	SC	38				scale book 33951
20	EF	1	1	LSU	101	10.4	U	U						
20	EF	1	1	LSU	101	10.4	U	U						
20	EF	1	1	LSU	101	10.4	U	U						
20	EF	1	1	CO	70	3.8	U	IM	SC	39				scale book 33951
20	EF	1	1	CO	70	3.8	U	IM	SC	39				scale book 33951
20	EF	1	1	CO	70	3.8	U	IM	SC	39				scale book 33951
20	EF	1	1	CO	71	3.8	U	IM	SC	40				scale book 33951
20	EF	1	1	CO	71	3.8	U	IM	SC	40				scale book 33951
20	EF	1	1	CO	71	3.8	U	IM	SC	40				scale book 33951
20	EF	1	1	CO	63	2.7	U	IM	SC	41				scale book 33951
20	EF	1	1	CO	63	2.7	U	IM	SC	41				scale book 33951
20	EF	1	1	CO	63	2.7	U	IM	SC	41				scale book 33951

# FDIS Fish Card

Pacific Booker 2006

Watershed Code:

480-598800-99100-00000-0000-0000-000-000-000-000-000-000-000-000-000

Reach #  
2.0

ILP Map #  
093M.028

ILP #  
1

C O M M E N T S	
Section	Comments
PERCENT HABITAT SHOCKED	upper 11 m of site was riffle habitat
PERCENT HABITAT SHOCKED	upper 11 m of site was riffle habitat

**APPENDIX 3.1-2**  
**SKR 2006 MORRISON COPPER/GOLD PROJECT**  
**SINGLE-PASS ELECTROFISHING CATCH-PER-UNIT-EFFORT**

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**Appendix 3.1-2**  
**SKR 2006 Morrison Copper/Gold Project**  
**Single-Pass Electrofishing Summary**

Site Name	Site ID	Species	Total Fish	Effort (s)	Species CPUE (# fish/100 s)	Total CPUE (# fish/100 s)
29000	3	NFC	0	690	0.00	0.00
44800	6	RB	29	1,107	2.62	2.62
61100	16	CO	19	310	6.13	6.13
50000 - 48010	7	NFC	0	511	0.00	0.00
53400 - 53191	9	RB	29	560	5.18	5.18
Morrison Creek 1	1	CAS	8	1,756	0.46	2.45
Morrison Creek 1	1	CO	20	1,756	1.14	
Morrison Creek 1	1	LNC	6	1,756	0.34	
Morrison Creek 1	1	NSC	5	1,756	0.28	
Morrison Creek 1	1	PCC	3	1,756	0.17	
Morrison Creek 1	1	RB	1	1,756	0.06	
Morrison Creek 2	2	CAS	6	1,801	0.33	2.28
Morrison Creek 2	2	CO	8	1,801	0.44	
Morrison Creek 2	2	LNC	1	1,801	0.06	
Morrison Creek 2	2	NSC	22	1,801	1.22	
Morrison Creek 2	2	RB	1	1,801	0.06	
Morrison Creek 2	2	RSC	2	1,801	0.11	
Morrison Creek 2	2	SK	1	1,801	0.06	
Tahlo Creek 1	19	CAS	32	1,407	2.27	3.62
Tahlo Creek 1	19	CO	5	1,407	0.36	
Tahlo Creek 1	19	KO	2	1,407	0.14	
Tahlo Creek 1	19	LNC	5	1,407	0.36	
Tahlo Creek 1	19	NSC	1	1,407	0.07	
Tahlo Creek 1	19	RB	4	1,407	0.28	
Tahlo Creek 1	19	RSC	2	1,407	0.14	
Tahlo Creek 2	20	CAS	13	1,180	1.10	6.69
Tahlo Creek 2	20	CO	30	1,180	2.54	
Tahlo Creek 2	20	LNC	25	1,180	2.12	
Tahlo Creek 2	20	LSU	1	1,180	0.08	
Tahlo Creek 2	20	NSC	4	1,180	0.34	
Tahlo Creek 2	20	RB	5	1,180	0.42	
Tahlo Creek 2	20	RSC	1	1,180	0.08	

NFC = no fish caught      LNC = longnose dace      PCC = peamouth chub

CAS = prickly sculpin      LSU - longnose sucker      RB = rainbow trout

CO = coho salmon      LT = lake trout      RSC = redside shiner

CSU - largescale sucker      LW = lake whitefish      SK = sockeye salmon

KO = kokanee      NSC = northern pikeminnow

**APPENDIX 3.1-3**

**SKR 2006 MORRISON COPPER/GOLD PROJECT**

**SINGLE-PASS ELECTROFISHING FISH SPECIES LENGTHS,**

**WEIGHTS, AND CONDITION FACTOR**

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**Appendix 3.1-3**  
**SKR 2006 Morrison Copper/Gold Project**  
**Single-Pass Electrofishing Fish Species Lengths,**  
**Weights, and Condition Factor**

<b>Site Name</b>	<b>Species</b>	<b>Length (mm)</b>	<b>Weight (g)</b>	<b>Condition Factor (gx10<sup>5</sup>/mm<sup>3</sup>)</b>
44800	RB	38	0.7	1.28
44800	RB	38	0.5	0.91
44800	RB	39	0.7	1.18
44800	RB	39	0.6	1.01
44800	RB	40	0.4	0.63
44800	RB	42	0.7	0.94
44800	RB	66	3.1	1.08
44800	RB	68	3.1	0.99
44800	RB	70	3.7	1.08
44800	RB	71	4.3	1.20
44800	RB	71	3.3	0.92
44800	RB	72	4.1	1.10
44800	RB	73	3.5	0.90
44800	RB	74	4.5	1.11
44800	RB	75	4.7	1.11
44800	RB	75	NA	NA
44800	RB	76	4.8	1.09
44800	RB	78	5.6	1.18
44800	RB	79	5.3	1.07
44800	RB	82	4.9	0.89
44800	RB	83	6.4	1.12
44800	RB	92	10.7	1.37
44800	RB	97	9.7	1.06
44800	RB	98	10	1.06
44800	RB	103	13.8	1.26
44800	RB	108	13.7	1.09
44800	RB	112	14.5	1.03
44800	RB	113	18.5	1.28
44800	RB	139	28.6	1.06
61100	CO	41	0.7	1.02
61100	CO	42	0.7	0.94
61100	CO	44	0.9	1.06
61100	CO	46	1	1.03
61100	CO	47	1.1	1.06
61100	CO	47	1.1	1.06
61100	CO	48	1.2	1.09
61100	CO	49	1.2	1.02
61100	CO	50	1.2	0.96
61100	CO	50	1.3	1.04
61100	CO	50	1	0.80
61100	CO	51	1.2	0.90
61100	CO	51	0.7	0.53
61100	CO	54	1.7	1.08

(continued)

**Appendix 3.1-3**  
**SKR 2006 Morrison Copper/Gold Project**  
**Single-Pass Electrofishing Fish Species Lengths,**  
**Weights, and Condition Factor (continued)**

<b>Site Name</b>	<b>Species</b>	<b>Length (mm)</b>	<b>Weight (g)</b>	<b>Condition Factor (gx10<sup>5</sup>/mm<sup>3</sup>)</b>
61100	CO	55	1.7	1.02
61100	CO	55	1.5	0.90
61100	CO	59	2.1	1.02
61100	CO	63	2.4	0.96
61100	CO	66	3.1	1.08
53400 - 53191	RB	38	0.6	1.09
53400 - 53191	RB	41	0.7	1.02
53400 - 53191	RB	42	0.7	0.94
53400 - 53191	RB	43	1	1.26
53400 - 53191	RB	43	1	1.26
53400 - 53191	RB	43	0.9	1.13
53400 - 53191	RB	44	1	1.17
53400 - 53191	RB	44	1	1.17
53400 - 53191	RB	45	1	1.10
53400 - 53191	RB	45	0.9	0.99
53400 - 53191	RB	46	1.1	1.13
53400 - 53191	RB	46	1.1	1.13
53400 - 53191	RB	65	3.2	1.17
53400 - 53191	RB	66	3.4	1.18
53400 - 53191	RB	66	3.1	1.08
53400 - 53191	RB	69	3.8	1.16
53400 - 53191	RB	72	3.4	0.91
53400 - 53191	RB	73	4.4	1.13
53400 - 53191	RB	74	4.5	1.11
53400 - 53191	RB	75	4.1	0.97
53400 - 53191	RB	76	4.9	1.12
53400 - 53191	RB	76	4.1	0.93
53400 - 53191	RB	79	4.2	0.85
53400 - 53191	RB	79	6	1.22
53400 - 53191	RB	83	7.1	1.24
53400 - 53191	RB	83	6.4	1.12
53400 - 53191	RB	83	5.8	1.01
53400 - 53191	RB	85	7.1	1.16
53400 - 53191	RB	89	9.1	1.29
Morrison Creek 1	CAS	59	2.9	1.41
Morrison Creek 1	CAS	62	2.6	1.09
Morrison Creek 1	CAS	63	2.9	1.16
Morrison Creek 1	CAS	64	3.2	1.22
Morrison Creek 1	CAS	64	3	1.14
Morrison Creek 1	CAS	76	5.3	1.21
Morrison Creek 1	CAS	85	8.2	1.34
Morrison Creek 1	CAS	87	7.2	1.09
Morrison Creek 1	CO	54	1.8	1.14

(continued)

**Appendix 3.1-3**  
**SKR 2006 Morrison Copper/Gold Project**  
**Single-Pass Electrofishing Fish Species Lengths,**  
**Weights, and Condition Factor (continued)**

<b>Site Name</b>	<b>Species</b>	<b>Length (mm)</b>	<b>Weight (g)</b>	<b>Condition Factor (gx10<sup>5</sup>/mm<sup>3</sup>)</b>
Morrison Creek 1	CO	55	1.6	0.96
Morrison Creek 1	CO	58	2.1	1.08
Morrison Creek 1	CO	64	NA	NA
Morrison Creek 1	CO	65	2.7	0.98
Morrison Creek 1	CO	66	2.7	0.94
Morrison Creek 1	CO	67	3.2	1.06
Morrison Creek 1	CO	68	3.3	1.05
Morrison Creek 1	CO	68	3.1	0.99
Morrison Creek 1	CO	70	3.5	1.02
Morrison Creek 1	CO	71	3.8	1.06
Morrison Creek 1	CO	71	3.9	1.09
Morrison Creek 1	CO	72	4.3	1.15
Morrison Creek 1	CO	72	3.9	1.04
Morrison Creek 1	CO	73	4.1	1.05
Morrison Creek 1	CO	76	4.5	1.03
Morrison Creek 1	CO	77	4.7	1.03
Morrison Creek 1	CO	78	5	1.05
Morrison Creek 1	CO	81	5.8	1.09
Morrison Creek 1	CO	83	6.4	1.12
Morrison Creek 1	LNC	46	1	1.03
Morrison Creek 1	LNC	46	1.1	1.13
Morrison Creek 1	LNC	48	1.2	1.09
Morrison Creek 1	LNC	48	1.1	0.99
Morrison Creek 1	LNC	49	1.2	1.02
Morrison Creek 1	LNC	68	3.6	1.14
Morrison Creek 1	NSC	50	1.3	1.04
Morrison Creek 1	NSC	53	1.5	1.01
Morrison Creek 1	NSC	73	5.1	1.31
Morrison Creek 1	NSC	75	4.2	1.00
Morrison Creek 1	NSC	79	4.8	0.97
Morrison Creek 1	PCC	48	1.3	1.18
Morrison Creek 1	PCC	53	1.8	1.21
Morrison Creek 1	PCC	53	1.7	1.14
Morrison Creek 1	RB	64	2.8	1.07
Morrison Creek 2	CAS	61	2.9	1.28
Morrison Creek 2	CAS	79	5.5	1.12
Morrison Creek 2	CAS	84	7.3	1.23
Morrison Creek 2	CAS	85	7.6	1.24
Morrison Creek 2	CAS	96	10.5	1.19
Morrison Creek 2	CAS	111	17.1	1.25
Morrison Creek 2	CO	52	1.6	1.14
Morrison Creek 2	CO	55	1.8	1.08
Morrison Creek 2	CO	56	1.9	1.08

(continued)

**Appendix 3.1-3**  
**SKR 2006 Morrison Copper/Gold Project**  
**Single-Pass Electrofishing Fish Species Lengths,**  
**Weights, and Condition Factor (continued)**

<b>Site Name</b>	<b>Species</b>	<b>Length (mm)</b>	<b>Weight (g)</b>	<b>Condition Factor (gx10<sup>5</sup>/mm<sup>3</sup>)</b>
Morrison Creek 2	CO	63	2.4	0.96
Morrison Creek 2	CO	65	3	1.09
Morrison Creek 2	CO	66	2.9	1.01
Morrison Creek 2	CO	66	3	1.04
Morrison Creek 2	CO	68	3.2	1.02
Morrison Creek 2	LNC	39	0.7	1.18
Morrison Creek 2	NSC	38	0.5	0.91
Morrison Creek 2	NSC	44	0.9	1.06
Morrison Creek 2	NSC	44	1	1.17
Morrison Creek 2	NSC	48	1.2	1.09
Morrison Creek 2	NSC	59	2.1	1.02
Morrison Creek 2	NSC	60	2.4	1.11
Morrison Creek 2	NSC	62	2.6	1.09
Morrison Creek 2	NSC	68	3.3	1.05
Morrison Creek 2	NSC	71	3.5	0.98
Morrison Creek 2	NSC	71	3.7	1.03
Morrison Creek 2	NSC	75	4.3	1.02
Morrison Creek 2	NSC	76	4.9	1.12
Morrison Creek 2	NSC	76	4.7	1.07
Morrison Creek 2	NSC	78	4.3	0.91
Morrison Creek 2	NSC	78	4.4	0.93
Morrison Creek 2	NSC	78	4.7	0.99
Morrison Creek 2	NSC	78	3.3	0.70
Morrison Creek 2	NSC	82	5.6	1.02
Morrison Creek 2	NSC	82	6.2	1.12
Morrison Creek 2	NSC	82	5.3	0.96
Morrison Creek 2	NSC	84	6.2	1.05
Morrison Creek 2	NSC	104	8.9	0.79
Morrison Creek 2	RB	310	NA	NA
Morrison Creek 2	RSC	52	1.4	1.00
Morrison Creek 2	RSC	56	1.6	0.91
Morrison Creek 2	SK	580	NA	NA
Tahlo Creek 1	CAS	55	1.4	0.84
Tahlo Creek 1	CAS	58	1.8	0.92
Tahlo Creek 1	CAS	59	2	0.97
Tahlo Creek 1	CAS	59	2.1	1.02
Tahlo Creek 1	CAS	60	2.4	1.11
Tahlo Creek 1	CAS	66	2.9	1.01
Tahlo Creek 1	CAS	68	2.7	0.86
Tahlo Creek 1	CAS	68	2.9	0.92
Tahlo Creek 1	CAS	69	3.5	1.07
Tahlo Creek 1	CAS	69	3.8	1.16
Tahlo Creek 1	CAS	71	3.5	0.98

(continued)

**Appendix 3.1-3**  
**SKR 2006 Morrison Copper/Gold Project**  
**Single-Pass Electrofishing Fish Species Lengths,**  
**Weights, and Condition Factor (continued)**

<b>Site Name</b>	<b>Species</b>	<b>Length (mm)</b>	<b>Weight (g)</b>	<b>Condition Factor (gx10<sup>5</sup>/mm<sup>3</sup>)</b>
Tahlo Creek 1	CAS	71	3.8	1.06
Tahlo Creek 1	CAS	71	3.9	1.09
Tahlo Creek 1	CAS	74	4	0.99
Tahlo Creek 1	CAS	74	3.9	0.96
Tahlo Creek 1	CAS	75	4.1	0.97
Tahlo Creek 1	CAS	76	4.8	1.09
Tahlo Creek 1	CAS	79	5.7	1.16
Tahlo Creek 1	CAS	80	5.8	1.13
Tahlo Creek 1	CAS	81	6	1.13
Tahlo Creek 1	CAS	82	6.9	1.25
Tahlo Creek 1	CAS	84	5.9	1.00
Tahlo Creek 1	CAS	84	6.8	1.15
Tahlo Creek 1	CAS	85	6.8	1.11
Tahlo Creek 1	CAS	87	7.4	1.12
Tahlo Creek 1	CAS	90	8.1	1.11
Tahlo Creek 1	CAS	92	8.9	1.14
Tahlo Creek 1	CAS	92	11.7	1.50
Tahlo Creek 1	CAS	92	10.8	1.39
Tahlo Creek 1	CAS	92	9.7	1.25
Tahlo Creek 1	CAS	93	9.7	1.21
Tahlo Creek 1	CAS	120	19	1.10
Tahlo Creek 1	CO	63	2.9	1.16
Tahlo Creek 1	CO	65	2.8	1.02
Tahlo Creek 1	CO	69	3.4	1.03
Tahlo Creek 1	CO	69	3.6	1.10
Tahlo Creek 1	CO	71	4.5	1.26
Tahlo Creek 1	KO	247	110	0.73
Tahlo Creek 1	KO	272	152	0.76
Tahlo Creek 1	LNC	2	0.2	2500.00
Tahlo Creek 1	LNC	23	0.2	1.64
Tahlo Creek 1	LNC	24	0.2	1.45
Tahlo Creek 1	LNC	29	0.2	0.82
Tahlo Creek 1	LNC	31	0.5	1.68
Tahlo Creek 1	NSC	74	4.9	1.21
Tahlo Creek 1	RB	57	2	1.08
Tahlo Creek 1	RB	118	16.1	0.98
Tahlo Creek 1	RB	121	17.2	0.97
Tahlo Creek 1	RB	154	40.7	1.11
Tahlo Creek 1	RSC	62	2.8	1.17
Tahlo Creek 1	RSC	76	5.4	1.23
Tahlo Creek 2	CAS	72	3.8	1.02
Tahlo Creek 2	CAS	74	NA	NA
Tahlo Creek 2	CAS	75	4.7	1.11

(continued)

**Appendix 3.1-3**  
**SKR 2006 Morrison Copper/Gold Project**  
**Single-Pass Electrofishing Fish Species Lengths,**  
**Weights, and Condition Factor (continued)**

<b>Site Name</b>	<b>Species</b>	<b>Length (mm)</b>	<b>Weight (g)</b>	<b>Condition Factor (gx10<sup>5</sup>/mm<sup>3</sup>)</b>
Tahlo Creek 2	CAS	83	5.1	0.89
Tahlo Creek 2	CAS	84	6.2	1.05
Tahlo Creek 2	CAS	84	7.5	1.27
Tahlo Creek 2	CAS	85	7	1.14
Tahlo Creek 2	CAS	88	8.6	1.26
Tahlo Creek 2	CAS	90	9.2	1.26
Tahlo Creek 2	CAS	96	9.2	1.04
Tahlo Creek 2	CAS	102	13.2	1.24
Tahlo Creek 2	CAS	105	NA	NA
Tahlo Creek 2	CAS	105	5.7	0.49
Tahlo Creek 2	CO	61	2.2	0.97
Tahlo Creek 2	CO	62	2.5	1.05
Tahlo Creek 2	CO	63	3.3	1.32
Tahlo Creek 2	CO	63	2.7	1.08
Tahlo Creek 2	CO	64	2.7	1.03
Tahlo Creek 2	CO	65	3.3	1.20
Tahlo Creek 2	CO	65	3	1.09
Tahlo Creek 2	CO	66	2.4	0.83
Tahlo Creek 2	CO	67	2.5	0.83
Tahlo Creek 2	CO	68	3.5	1.11
Tahlo Creek 2	CO	68	3.2	1.02
Tahlo Creek 2	CO	69	3	0.91
Tahlo Creek 2	CO	69	3.7	1.13
Tahlo Creek 2	CO	70	3.3	0.96
Tahlo Creek 2	CO	70	3.5	1.02
Tahlo Creek 2	CO	70	3.7	1.08
Tahlo Creek 2	CO	70	3.8	1.11
Tahlo Creek 2	CO	70	3.8	1.11
Tahlo Creek 2	CO	71	3.7	1.03
Tahlo Creek 2	CO	71	3.3	0.92
Tahlo Creek 2	CO	71	4.4	1.23
Tahlo Creek 2	CO	71	3.9	1.09
Tahlo Creek 2	CO	71	3.8	1.06
Tahlo Creek 2	CO	74	4.7	1.16
Tahlo Creek 2	CO	74	3.9	0.96
Tahlo Creek 2	CO	74	4.6	1.14
Tahlo Creek 2	CO	75	5.9	1.40
Tahlo Creek 2	CO	77	4.9	1.07
Tahlo Creek 2	CO	79	6	1.22
Tahlo Creek 2	CO	84	6	1.01
Tahlo Creek 2	LNC	28	NA	NA
Tahlo Creek 2	LNC	28	NA	NA
Tahlo Creek 2	LNC	29	NA	NA

(continued)

**Appendix 3.1-3**  
**SKR 2006 Morrison Copper/Gold Project**  
**Single-Pass Electrofishing Fish Species Lengths,**  
**Weights, and Condition Factor (completed)**

<b>Site Name</b>	<b>Species</b>	<b>Length (mm)</b>	<b>Weight (g)</b>	<b>Condition Factor (gx10<sup>5</sup>/mm<sup>3</sup>)</b>
Tahlo Creek 2	LNC	31	NA	NA
Tahlo Creek 2	LNC	32	NA	NA
Tahlo Creek 2	LNC	33	NA	NA
Tahlo Creek 2	LNC	34	NA	NA
Tahlo Creek 2	LNC	34	NA	NA
Tahlo Creek 2	LNC	48	1	0.90
Tahlo Creek 2	LNC	54	NA	NA
Tahlo Creek 2	LNC	57	2	1.08
Tahlo Creek 2	LNC	58	2.1	1.08
Tahlo Creek 2	LNC	58	2.3	1.18
Tahlo Creek 2	LNC	59	2.7	1.31
Tahlo Creek 2	LNC	60	2	0.93
Tahlo Creek 2	LNC	61	2.2	0.97
Tahlo Creek 2	LNC	62	2.5	1.05
Tahlo Creek 2	LNC	62	2.2	0.92
Tahlo Creek 2	LNC	64	2.5	0.95
Tahlo Creek 2	LNC	74	4.7	1.16
Tahlo Creek 2	LNC	76	4.1	0.93
Tahlo Creek 2	LNC	91	7.3	0.97
Tahlo Creek 2	LNC	95	7.4	0.86
Tahlo Creek 2	LNC	98	9.1	0.97
Tahlo Creek 2	LNC	99	8.4	0.87
Tahlo Creek 2	LSU	101	10.4	1.01
Tahlo Creek 2	NSC	42	NA	NA
Tahlo Creek 2	NSC	53	1.5	1.01
Tahlo Creek 2	NSC	58	1.7	0.87
Tahlo Creek 2	NSC	84	6.7	1.13
Tahlo Creek 2	RB	54	1.9	1.21
Tahlo Creek 2	RB	78	4.7	0.99
Tahlo Creek 2	RB	105	11.9	1.03
Tahlo Creek 2	RB	108	13.9	1.10
Tahlo Creek 2	RB	126	19.3	0.96
Tahlo Creek 2	RSC	62	2.5	1.05

NA = not available

CAS = prickly sculpin

CO = coho salmon

CSU - largescale sucker

KO = kokanee

LNC = longnose dace

LSU - longnose sucker

LT = lake trout

LW = lake whitefish

NSC = northern pikeminnow

PCC = peamouth chub

RB = rainbow trout

RSC = redside shiner

SK = sockeye salmon

**APPENDIX 3.1-4**  
**GILLNET SET DATA FOR**  
**MORRISON COPPER/GOLD PROJECT, 2008**

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**Appendix 3.1-4**  
**Gillnet Set Data for Morrison Copper/Gold Project, 2008**

Location	Date	Net #	Set Time	Pull Time	Easting 1	Northing 1	Depth		Depth		Fish Captured
							(m)	Easting 2	Northing 2	(m)	
Site A	24-Jun-08	1	1:30 PM	2:15 PM	670547	6118426	17.7	670456	6118463	12.2	No fish
Site A	24-Jun-08	2	2:35 PM	3:20 PM	670506	6118594	8.5	670474	6118493	10.7	No fish
Site A	26-Jun-08	3	11:20 AM	12:20 PM	670394	6118499	8.5	670464	6118433	9.8	1 LT
Site A	26-Jun-08	4	12:55 PM	1:55 PM	670477	6118499	10.7	670377	6118501	7.9	No fish
Site A	27-Jun-08	5	3:00 PM	3:45 PM	670500	6118627	7.6	670506	6118540	10.7	2 LT
Site B	26-Jun-08	1	2:15 PM	3:15 PM	668865	6120661	22.9	668807	6120731	20.7	6 LT
Site B	27-Jun-08	2	9:40 AM	10:50 AM	668802	6120729	12.8	668879	6120657	14.0	1 LT 1 LW
Site B	27-Jun-08	3	11:15 AM	12:15 PM	668868	6120643	14.0	668820	6120561	11.9	1 LW 1 LSU
Site B	27-Jun-08	4	12:25 PM	1:25 PM	668874	6120683	12.2	668878	6120599	14.6	2 LW 1 LT 1 LSU
Site B	27-Jun-08	5	1:40 PM	2:40 PM	668796	6120699	10.4	668865	6120650	13.7	2 LT 1 LW
Site C	28-Jun-08	1	8:35 AM	9:35 AM	668757	6122418	35.1	668779	6122356	32.9	No fish
Site C	28-Jun-08	2	9:45 AM	10:45 AM	668745	6122408	34.4	668811	6122359	10.7	No fish
Site C	28-Jun-08	3	10:55 AM	11:55 AM	668675	6122430	41.5	668684	6122353	38.1	No fish
Site C	28-Jun-08	4	12:05 PM	1:05 PM	668800	6122468	15.2	668765	6122385	32.9	1 LT
Site C	28-Jun-08	5	1:20 PM	2:20 PM	668692	6122389	36.6	668777	6122400	27.4	No fish
Site D	3-Jul-08	1	12:50 PM	1:50 PM	668164	6123640	37.8	668230	6123675	25.0	No fish caught
Site D	4-Jul-08	2	8:50 AM	9:50 AM	668284	6123704	5.5	668355	6123642	7.3	1 LT
Site D	4-Jul-08	3	10:05 AM	11:05 AM	668161	6123734	24.7	668245	6123749	15.2	No fish
Site D	4-Jul-08	4	11:10 AM	12:10 PM	668222	6123785	16.8	668307	6123736	7.3	1 LW
Site D	4-Jul-08	5	12:20 PM	1:20 PM	668243	6123577	19.8	668271	6123662	6.7	1 LT
Tochcha	29-Jun-08	1	8:00 AM	9:00 AM	308436	6097986	9.1	308360	6097911	2.4	2 LW 1 RB
Tochcha	29-Jun-08	2	8:55 AM	9:55 AM	308127	6097194	6.1	308156	6097108	9.8	No fish
Tochcha	29-Jun-08	3	9:35 AM	10:35 AM	309379	6099092	3.0	309421	6099023	2.7	3 RB 2 LT
Tochcha	29-Jun-08	4	10:15 AM	11:15 AM	309646	6098371	27.4	309714	6098433	18.3	1 LT
Tochcha	29-Jun-08	5	11:10 AM	12:30 PM	309431	6098594	16.8	309487	6098656	13.4	2 LT
Tochcha	29-Jun-08	6	11:30 AM	12:50 PM	309799	6098502	8.5	309735	6098431	13.7	7 LT
Tochcha	29-Jun-08	7	12:45 PM	1:15 PM	309631	6098621	18.3	309696	6098689	12.2	2 LT

LSU = longnose sucker

LW = lake whitefish

LT = lake trout

RB = rainbow trout

**APPENDIX 3.1-5**  
**MINNOW TRAP SET DATA FOR**  
**MORRISON COPPER/GOLD PROJECT, 2008**

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**Appendix 3.1-5**  
**Minnow Trap Set Data for Morrison Copper/Gold Project, 2008**

Location	Minnow			Depth (m)	Pulled Date	Time	Time Set (hrs)	Location	
	Trap #	Set Date	Time					Easting	Northing
Site A	1	26-Jun-08	11:30 AM	0.5	27-Jun-08	9:00 AM	22.5	670517	6118681
Site A	2	26-Jun-08	11:30 AM	0.8	27-Jun-08	9:00 AM	22.5	670514	6118689
Site A	3	26-Jun-08	11:30 AM	0.6	27-Jun-08	9:00 AM	22.5	670505	6118695
Site A	4	26-Jun-08	11:30 AM	0.4	27-Jun-08	9:00 AM	22.5	670528	6118669
Site A	5	26-Jun-08	11:30 AM	0.2	27-Jun-08	9:00 AM	22.5	670537	6118659
Site A	6	26-Jun-08	11:30 AM	0.3	27-Jun-08	9:00 AM	22.5	670534	6118654
Site A	7	26-Jun-08	11:30 AM	0.4	27-Jun-08	9:00 AM	22.5	670536	6118642
Site A	8	26-Jun-08	11:30 AM	0.7	27-Jun-08	9:00 AM	22.5	670542	6118626
Site A	9	26-Jun-08	11:30 AM	0.5	27-Jun-08	9:00 AM	22.5	670545	6118626
Site A	10	26-Jun-08	11:30 AM	0.3	27-Jun-08	9:00 AM	22.5	670561	6118618
Site B	1	26-Jun-08	12:30 PM	0.9	27-Jun-08	10:00 AM	21.5	668895	612074
Site B	2	26-Jun-08	12:30 PM	0.3	27-Jun-08	10:00 AM	21.5	668900	6120724
Site B	3	26-Jun-08	12:30 PM	0.4	27-Jun-08	10:00 AM	21.5	668902	6120712
Site B	4	26-Jun-08	12:30 PM	0.3	27-Jun-08	10:00 AM	21.5	668900	6120703
Site B	5	26-Jun-08	12:30 PM	0.2	27-Jun-08	10:00 AM	21.5	668897	6120693
Site B	6	26-Jun-08	12:30 PM	0.6	27-Jun-08	10:00 AM	21.5	668925	6120671
Site B	7	26-Jun-08	12:30 PM	0.2	27-Jun-08	10:00 AM	21.5	668937	6120661
Site B	8	26-Jun-08	12:30 PM	0.2	27-Jun-08	10:00 AM	21.5	668953	6120648
Site B	9	26-Jun-08	12:30 PM	0.5	27-Jun-08	10:00 AM	21.5	668960	6120645
Site B	10	26-Jun-08	12:30 PM	0.3	27-Jun-08	10:00 AM	21.5	668974	6120638
Site C	1	27-Jun-08	10:00 AM	0.4	28-Jun-08	9:00 AM	23	668852	6122307
Site C	2	27-Jun-08	10:00 AM	0.3	28-Jun-08	9:00 AM	23	668845	6122339
Site C	3	27-Jun-08	10:00 AM	0.5	28-Jun-08	9:00 AM	23	668838	6122956
Site C	4	27-Jun-08	10:00 AM	0.3	28-Jun-08	9:00 AM	23	668840	6122369
Site C	5	27-Jun-08	10:00 AM	0.2	28-Jun-08	9:00 AM	23	668824	6122392
Site C	6	27-Jun-08	10:00 AM	0.3	28-Jun-08	9:00 AM	23	668818	6122402
Site C	7	27-Jun-08	10:00 AM	0.3	28-Jun-08	9:00 AM	23	668815	6122417
Site C	8	27-Jun-08	10:00 AM	0.4	28-Jun-08	9:00 AM	23	668820	6122428
Site C	9	27-Jun-08	10:00 AM	0.4	28-Jun-08	9:00 AM	23	668830	6122435
Site C	10	27-Jun-08	10:00 AM	0.2	28-Jun-08	9:00 AM	23	668842	6122449
Site D	1	3-Jul-08	1:15 PM	0.5	4-Jul-08	9:15 AM	20	668434	6123709
Site D	2	3-Jul-08	1:15 PM	0.5	4-Jul-08	9:15 AM	20	668416	6123718
Site D	3	3-Jul-08	1:15 PM	0.4	4-Jul-08	9:15 AM	20	668399	6123731
Site D	4	3-Jul-08	1:15 PM	0.3	4-Jul-08	9:15 AM	20	668373	6123742
Site D	5	3-Jul-08	1:15 PM	0.3	4-Jul-08	9:15 AM	20	668361	6123748
Site D	6	3-Jul-08	1:15 PM	0.2	4-Jul-08	9:15 AM	20	668336	6123775
Site D	7	3-Jul-08	1:15 PM	0.3	4-Jul-08	9:15 AM	20	668328	6123784
Site D	8	3-Jul-08	1:15 PM	0.3	4-Jul-08	9:15 AM	20	668312	6123795
Site D	9	3-Jul-08	1:15 PM	0.5	4-Jul-08	9:15 AM	20	668293	6123798
Site D	10	3-Jul-08	1:15 PM	0.4	4-Jul-08	9:15 AM	20	668264	6123810
POND W	1	24-Jun-08	10:30 AM	0.3	26-Jun-08	10:30 AM	48	670121	6119483
POND W	2	24-Jun-08	10:30 AM	0.3	26-Jun-08	10:30 AM	48	670107	6119503
POND W	3	24-Jun-08	10:30 AM	0.3	26-Jun-08	10:30 AM	48	670103	6119507
POND W	4	24-Jun-08	10:30 AM	0.3	26-Jun-08	10:30 AM	48	670108	6119523
POND W	5	24-Jun-08	10:30 AM	0.3	26-Jun-08	10:30 AM	48	670119	6119528
POND W	6	24-Jun-08	10:30 AM	0.3	26-Jun-08	10:30 AM	48	670142	6119527
POND W	7	24-Jun-08	10:30 AM	0.3	26-Jun-08	10:30 AM	48	670139	6119521
POND W	8	24-Jun-08	10:30 AM	0.3	26-Jun-08	10:30 AM	48	670139	6119517
POND W	9	24-Jun-08	10:30 AM	0.3	26-Jun-08	10:30 AM	48	670135	6119513
POND W	10	24-Jun-08	10:30 AM	0.3	26-Jun-08	10:30 AM	48	670132	6119505
POND X	1	24-Jun-08	9:00 AM	0.3	26-Jun-08	9:00 AM	48	671348	6119420
POND X	2	24-Jun-08	9:00 AM	0.3	26-Jun-08	9:00 AM	48	671324	6119393
POND X	3	24-Jun-08	9:00 AM	0.3	26-Jun-08	9:00 AM	48	671304	6119385
POND X	4	24-Jun-08	9:00 AM	0.3	26-Jun-08	9:00 AM	48	671228	6119400
POND X	5	24-Jun-08	9:00 AM	0.3	26-Jun-08	9:00 AM	48	671217	6119424
POND X	6	24-Jun-08	9:00 AM	0.3	26-Jun-08	9:00 AM	48	671232	6119435
POND X	7	24-Jun-08	9:00 AM	0.3	26-Jun-08	9:00 AM	48	671252	6119451
POND X	8	24-Jun-08	9:00 AM	0.3	26-Jun-08	9:00 AM	48	671274	6119470
POND X	9	24-Jun-08	9:00 AM	0.3	26-Jun-08	9:00 AM	48	671301	6119468
POND X	10	24-Jun-08	9:00 AM	0.3	26-Jun-08	9:00 AM	48	671323	6119404

**APPENDIX 3.1-6**  
**GILLNET FISH CAPTURE DATA FOR**  
**MORRISON COPPER/GOLD PROJECT, 2008**

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**Appendix 3.1-6**  
**Gillnet Fish Capture Data for Morrison Copper/Gold Project, 2008**

Date	Location	Net #	Set Time	Pull Time	Sample #	Species	Fork Length (mm)	Weight (g)	Condition Factor	Mortality (Y/N)	Sex	Reproductive Status
26-Jun-08	Site A	3	11:20 AM	12:20 PM	1	LT	520	1358	0.97	Y	F	IM
27-Jun-08	Site A	5	3:00 PM	3:45 PM	15	LT	579	na		N	NA	NA
27-Jun-08	Site A	5	3:00 PM	3:45 PM	16	LT	655	na		N	NA	NA
26-Jun-08	Site B	1	2:15 PM	3:15 PM	2	LT	650	2150	0.78	Y	F	M
26-Jun-08	Site B	1	2:15 PM	3:15 PM	3	LT	663	3120	1.07	Y	F	M
26-Jun-08	Site B	1	2:15 PM	3:15 PM	4	LT	565	1768	0.98	Y	M	M
26-Jun-08	Site B	1	2:15 PM	3:15 PM	5	LT	557	1772	1.03	Y	M	M
26-Jun-08	Site B	1	2:15 PM	3:15 PM	6	LT	466	1256	1.24	Y	M	IM
26-Jun-08	Site B	1	2:15 PM	3:15 PM	7	LT	442	910	1.05	Y	M	IM
27-Jun-08	Site B	2	9:40 AM	10:50 AM	1	LW	279	252	1.16	Y	F	IM
27-Jun-08	Site B	2	9:40 AM	10:50 AM	8	LT	580	1988	1.02	Y	F	IM
27-Jun-08	Site B	3	11:15 AM	12:15 PM	2	LW	308	310	1.06	N	NA	NA
27-Jun-08	Site B	3	11:15 AM	12:15 PM	1	CSU	352	508	1.16	N	NA	NA
27-Jun-08	Site B	4	12:25 PM	1:25 PM	3	LW	313	345	1.13	N	NA	NA
27-Jun-08	Site B	4	12:25 PM	1:25 PM	2	CSU	212	112	1.18	N	NA	NA
27-Jun-08	Site B	4	12:25 PM	1:25 PM	3	LSU	453	1187	1.28	N	NA	NA
27-Jun-08	Site B	4	12:25 PM	1:25 PM	9	LT	675	3668	1.19	Y	F	M
27-Jun-08	Site B	5	1:40 PM	2:40 PM	4	LW	322	346	1.04	N	NA	NA
27-Jun-08	Site B	5	1:40 PM	2:40 PM	10	LT	510	1364	1.03	Y	M	M
27-Jun-08	Site B	5	1:40 PM	2:40 PM	11	LT	659	3615	1.26	N	NA	NA
28-Jun-08	Site C	4	12:05 PM	1:05 PM	12	LT	624	2710	1.12	N	NA	NA
4-Jul-08	Site D	2	8:50 AM	9:50 AM	13	LT	478	1195	1.09	Y	M	IM
4-Jul-08	Site D	4	11:10 AM	12:10 PM	5	LW	300	303	1.12	Y	F	IM
4-Jul-08	Site D	5	12:20 PM	1:20 PM	14	LT	497	1315	1.07	N	NA	NA
29-Jun-08	Tochcha	1	8:00 AM	9:00 AM	1	LW	275	na		N	NA	NA
29-Jun-08	Tochcha	1	8:00 AM	9:00 AM	2	LW	367	na		N	NA	NA
29-Jun-08	Tochcha	1	8:00 AM	9:00 AM	1	RB	305	248	0.87	N	NA	NA
29-Jun-08	Tochcha	3	9:35 AM	10:35 AM	2	RB	270	198	1.01	N	NA	NA
29-Jun-08	Tochcha	3	9:35 AM	10:35 AM	3	RB	257	166	0.98	N	NA	NA
29-Jun-08	Tochcha	3	9:35 AM	10:35 AM	4	RB	242	141	0.99	N	NA	NA
29-Jun-08	Tochcha	3	9:35 AM	10:35 AM	1	LT	398	627	0.99	N	F	IM
29-Jun-08	Tochcha	3	9:35 AM	10:35 AM	2	LT	580	1978	1.01	N	F	M
29-Jun-08	Tochcha	4	10:15 AM	11:15 AM	3	LT	568	1730	0.94	N	M	M
29-Jun-08	Tochcha	5	11:10 AM	12:30 PM	4	LT	470	1085	1.05	N	M	IM
29-Jun-08	Tochcha	5	11:10 AM	12:30 PM	5	LT	374	506	0.97	N	M	IM
29-Jun-08	Tochcha	6	11:30 AM	12:50 PM	6	LT	483	1148	1.02	N	F	IM
29-Jun-08	Tochcha	6	11:30 AM	12:50 PM	7	LT	337	389	1.02	N	na	IM
29-Jun-08	Tochcha	6	11:30 AM	12:50 PM	8	LT	394	677	1.11	N	F	IM
29-Jun-08	Tochcha	6	11:30 AM	12:50 PM	9	LT	514	1489	1.10	N	M	M
29-Jun-08	Tochcha	6	11:30 AM	12:50 PM	10	LT	515	1575	1.15	N	F	M
29-Jun-08	Tochcha	6	11:30 AM	12:50 PM	11	LT	562	1888	1.06	N	F	M
29-Jun-08	Tochcha	6	11:30 AM	12:50 PM	12	LT	608	2544	1.13	N	M	M
29-Jun-08	Tochcha	7	12:45 PM	1:15 PM	13	LT	475	1008	0.94	N	NA	NA
29-Jun-08	Tochcha	7	12:45 PM	1:15 PM	14	LT	514	1380	1.02	N	NA	NA

NA = not available.

LT = lake trout

IM = immature

LW = lake whitefish

M = mature

RB = rainbow trout

LSU - longnose sucker

CSU - laregescale sucker

**APPENDIX 3.1-7**  
**MINNOW TRAP FISH CAPTURE DATA FOR**  
**MORRISON COPPER/GOLD PROJECT, 2008**

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**Appendix 3.1-7**  
**Minnow Trap Fish Capture Data for**  
**Morrison Copper/Gold Project, 2008**

Date	Location	Trap #	Species	Fork Length (mm)	Mortality (Y/N)
27-Jun-08	Site A	1	CAS	84	N
27-Jun-08	Site A	1	CAS	75	N
27-Jun-08	Site A	1	NSC	97	N
27-Jun-08	Site A	1	NSC	126	N
27-Jun-08	Site A	1	NSC	128	N
27-Jun-08	Site A	1	NSC	129	N
27-Jun-08	Site A	1	NSC	101	N
27-Jun-08	Site A	1	NSC	104	N
27-Jun-08	Site A	2	NSC	115	N
27-Jun-08	Site A	2	NSC	111	N
27-Jun-08	Site A	2	NSC	126	N
27-Jun-08	Site A	2	NSC	103	N
27-Jun-08	Site A	2	NSC	153	N
27-Jun-08	Site A	3	CAS	86	N
27-Jun-08	Site A	3	CAS	65	N
27-Jun-08	Site A	3	CAS	67	N
27-Jun-08	Site A	3	CAS	68	N
27-Jun-08	Site A	3	CAS	86	N
27-Jun-08	Site A	3	CAS	64	N
27-Jun-08	Site A	3	CAS	71	N
27-Jun-08	Site A	3	CAS	95	N
27-Jun-08	Site A	3	CAS	76	N
27-Jun-08	Site A	3	CAS	72	N
27-Jun-08	Site A	3	CAS	72	N
27-Jun-08	Site A	3	CAS	60	N
27-Jun-08	Site A	3	CAS	54	N
27-Jun-08	Site A	3	NSC	124	N
27-Jun-08	Site A	3	NSC	153	N
27-Jun-08	Site A	3	NSC	99	N
27-Jun-08	Site A	4	CAS	59	N
27-Jun-08	Site A	4	RSC	84	N
27-Jun-08	Site A	5	CAS	77	N
27-Jun-08	Site A	5	NSC	131	N
27-Jun-08	Site A	5	NSC	82	N
27-Jun-08	Site A	6	CAS	109	N
27-Jun-08	Site A	6	CAS	81	N
27-Jun-08	Site A	7	NSC	109	N
27-Jun-08	Site A	7	NSC	97	N
27-Jun-08	Site A	7	NSC	124	N
27-Jun-08	Site A	7	NSC	110	N
27-Jun-08	Site A	7	NSC	104	N
27-Jun-08	Site A	7	NSC	110	N
27-Jun-08	Site A	7	NSC	106	N
27-Jun-08	Site A	7	NSC	95	N
27-Jun-08	Site A	7	RSC	76	N
27-Jun-08	Site A	8	CAS	100	N
27-Jun-08	Site A	8	CAS	102	N
27-Jun-08	Site A	8	CAS	87	N
27-Jun-08	Site A	8	CAS	86	N
27-Jun-08	Site A	8	CAS	81	N
27-Jun-08	Site A	8	CAS	75	N

(continued)

**Appendix 3.1-7**  
**Minnow Trap Fish Capture Data for**  
**Morrison Copper/Gold Project, 2008 (continued)**

Date	Location	Trap #	Species	Fork Length (mm)	Mortality (Y/N)
27-Jun-08	Site A	8	NSC	104	N
27-Jun-08	Site A	9	CAS	85	N
27-Jun-08	Site A	9	CAS	82	N
27-Jun-08	Site A	9	CAS	83	N
27-Jun-08	Site A	9	CAS	74	N
27-Jun-08	Site A	9	NSC	132	N
27-Jun-08	Site A	10	CAS	82	N
27-Jun-08	Site A	10	NSC	190	N
27-Jun-08	Site B	6	CAS	92	N
27-Jun-08	Site B	6	CAS	80	N
27-Jun-08	Site B	6	CAS	75	N
27-Jun-08	Site B	6	RSC	75	N
27-Jun-08	Site B	6	RSC	75	N
27-Jun-08	Site B	6	RSC	72	N
27-Jun-08	Site B	6	RSC	81	N
27-Jun-08	Site B	6	RSC	80	N
27-Jun-08	Site B	6	RSC	84	N
27-Jun-08	Site B	6	RSC	82	N
27-Jun-08	Site B	6	RSC	75	N
27-Jun-08	Site B	6	RSC	78	N
27-Jun-08	Site B	6	RSC	75	N
27-Jun-08	Site B	6	RSC	74	N
27-Jun-08	Site B	6	RSC	76	N
27-Jun-08	Site B	6	RSC	75	N
27-Jun-08	Site B	6	RSC	75	N
27-Jun-08	Site B	6	RSC	84	N
27-Jun-08	Site B	6	RSC	78	N
27-Jun-08	Site B	6	RSC	69	N
27-Jun-08	Site B	6	RSC	78	N
27-Jun-08	Site B	6	RSC	73	N
27-Jun-08	Site B	6	RSC	74	N
27-Jun-08	Site B	6	RSC	75	N
27-Jun-08	Site B	6	RSC	77	N
27-Jun-08	Site B	6	RSC	74	N
27-Jun-08	Site B	6	RSC	72	N
27-Jun-08	Site B	6	RSC	73	N
27-Jun-08	Site B	6	RSC	84	N
27-Jun-08	Site B	6	RSC	73	N
27-Jun-08	Site B	6	RSC	78	N
27-Jun-08	Site B	6	RSC	66	N
27-Jun-08	Site B	6	RSC	75	N
27-Jun-08	Site B	7	CAS	97	N
27-Jun-08	Site B	8	CAS	85	N
27-Jun-08	Site B	8	CAS	69	N
27-Jun-08	Site B	9	NSC	125	N
27-Jun-08	Site B	9	RSC	76	N
28-Jun-08	Site C	2	CAS	86	N
28-Jun-08	Site C	2	CAS	68	N
28-Jun-08	Site C	2	NSC	108	N
28-Jun-08	Site C	3	NSC	109	N
28-Jun-08	Site C	4	CAS	75	N

(continued)

**Appendix 3.1-7**  
**Minnow Trap Fish Capture Data for**  
**Morrison Copper/Gold Project, 2008 (continued)**

Date	Location	Trap #	Species	Fork Length (mm)	Mortality (Y/N)
28-Jun-08	Site C	4	CAS	67	N
28-Jun-08	Site C	4	CAS	60	N
28-Jun-08	Site C	4	CAS	64	N
28-Jun-08	Site C	4	NSC	105	N
28-Jun-08	Site C	5	NSC	117	N
28-Jun-08	Site C	5	NSC	106	N
28-Jun-08	Site C	6	CAS	69	N
28-Jun-08	Site C	6	CAS	64	N
28-Jun-08	Site C	6	CAS	57	N
28-Jun-08	Site C	6	CAS	65	N
28-Jun-08	Site C	6	CAS	61	N
28-Jun-08	Site C	6	CAS	50	N
28-Jun-08	Site C	6	CAS	79	N
28-Jun-08	Site C	6	NSC	146	N
28-Jun-08	Site C	6	RSC	76	N
28-Jun-08	Site C	6	RSC	71	N
28-Jun-08	Site C	6	RSC	82	N
28-Jun-08	Site C	6	RSC	75	N
28-Jun-08	Site C	6	RSC	74	N
28-Jun-08	Site C	6	RSC	75	N
28-Jun-08	Site C	6	RSC	81	N
28-Jun-08	Site C	6	RSC	74	N
28-Jun-08	Site C	7	CAS	75	N
28-Jun-08	Site C	7	CAS	70	N
28-Jun-08	Site C	7	CAS	71	N
28-Jun-08	Site C	7	NSC	104	N
28-Jun-08	Site C	7	RSC	80	N
28-Jun-08	Site C	7	RSC	76	N
28-Jun-08	Site C	7	RSC	74	N
28-Jun-08	Site C	7	RSC	74	N
28-Jun-08	Site C	8	CAS	64	N
28-Jun-08	Site C	8	CAS	66	N
28-Jun-08	Site C	8	CAS	63	N
28-Jun-08	Site C	8	CAS	79	N
28-Jun-08	Site C	8	RSC	72	N
28-Jun-08	Site C	9	CAS	115	N
28-Jun-08	Site C	9	CAS	78	N
28-Jun-08	Site C	9	CAS	68	N
28-Jun-08	Site C	9	CAS	75	N
28-Jun-08	Site C	10	CAS	89	N
28-Jun-08	Site C	10	CAS	82	N
28-Jun-08	Site C	10	CAS	67	N
28-Jun-08	Site C	10	CAS	61	N
28-Jun-08	Site C	10	NSC	134	N
4-Jul-08	Site D	1	CAS	66	N
4-Jul-08	Site D	1	NSC	104	N
4-Jul-08	Site D	1	NSC	103	N
4-Jul-08	Site D	1	NSC	102	N
4-Jul-08	Site D	1	NSC	112	N
4-Jul-08	Site D	1	NSC	122	N
4-Jul-08	Site D	1	NSC	114	N

(continued)

**Appendix 3.1-7**  
**Minnow Trap Fish Capture Data for**  
**Morrison Copper/Gold Project, 2008 (completed)**

Date	Location	Trap #	Species	Fork Length (mm)	Mortality (Y/N)
4-Jul-08	Site D	1	NSC	118	N
4-Jul-08	Site D	1	NSC	110	N
4-Jul-08	Site D	1	NSC	112	N
4-Jul-08	Site D	2	NSC	104	N
4-Jul-08	Site D	2	NSC	105	N
4-Jul-08	Site D	2	NSC	106	N
4-Jul-08	Site D	2	NSC	71	N
4-Jul-08	Site D	3	NSC	91	N
4-Jul-08	Site D	4	NSC	104	N
4-Jul-08	Site D	4	NSC	135	N
4-Jul-08	Site D	4	NSC	101	N
4-Jul-08	Site D	4	NSC	94	N
4-Jul-08	Site D	5	CAS	70	N
4-Jul-08	Site D	5	CSU	119	N
4-Jul-08	Site D	5	CSU	116	N
4-Jul-08	Site D	5	CSU	117	N
4-Jul-08	Site D	5	NSC	106	N
4-Jul-08	Site D	5	NSC	117	N
4-Jul-08	Site D	5	NSC	114	N
4-Jul-08	Site D	5	NSC	110	N
4-Jul-08	Site D	5	NSC	95	N
4-Jul-08	Site D	5	NSC	105	N
4-Jul-08	Site D	5	NSC	102	N
4-Jul-08	Site D	5	NSC	104	N
4-Jul-08	Site D	5	NSC	100	N
4-Jul-08	Site D	5	NSC	111	N
4-Jul-08	Site D	5	NSC	92	N
4-Jul-08	Site D	5	NSC	98	N
4-Jul-08	Site D	6	CSU	68	N
4-Jul-08	Site D	7	NSC	104	N
4-Jul-08	Site D	8	CSU	75	N
4-Jul-08	Site D	8	NSC	99	N
4-Jul-08	Site D	8	NSC	103	N
4-Jul-08	Site D	8	NSC	103	N
4-Jul-08	Site D	8	NSC	112	N
4-Jul-08	Site D	8	NSC	87	N
4-Jul-08	Site D	8	NSC	97	N
4-Jul-08	Site D	8	NSC	100	N
4-Jul-08	Site D	8	NSC	98	N
4-Jul-08	Site D	8	NSC	98	N
4-Jul-08	Site D	8	NSC	84	N
4-Jul-08	Site D	8	NSC	87	N
4-Jul-08	Site D	8	NSC	154	N
4-Jul-08	Site D	8	NSC	81	N
4-Jul-08	Site D	8	NSC	87	N
4-Jul-08	Site D	8	NSC	77	N
4-Jul-08	Site D	9	NSC	87	N
4-Jul-08	Site D	10	BURB	154	N
4-Jul-08	Site D	10	NSC	81	N
4-Jul-08	Site D	10	NSC	87	N
4-Jul-08	Site D	10	RSC	77	N

BURB = burbot

NSC = northern pikeminnow

CAS = prickly sculpin

RSC = redeye shiner

CSU - largescale sucker

**APPENDIX 3.2-1**

**SKR 2006 MORRISON COPPER/GOLD PROJECT**

**STREAM HABITAT INFORMATION**

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# FDIS Site Card

Watershed Code: 480-598800-00000-00000-0000-000-000-000-000-000-000-000

Reach #	ILP Map #	ILP #	Site
2.0	093M.019	2	1

PHOTOS						
Photo		Foc Lg	Dir	Comments		
R:	1	F:	897	STD	U	about 200 meters downstream of Hagen FSR bridge
R:	1	F:	898	STD	D	about 200 meters downstream of Hagen FSR bridge
R:	1	F:	899	STD	U	about 200 meters downstream of Hagen FSR bridge
R:	1	F:	900	STD	U	about 200 meters downstream of Hagen FSR bridge
R:	1	F:	901	STD	X	about 200 meters downstream of Hagen FSR bridge

COMMENTS	
Section	Comments
CHANNEL	an LWD jam was observed about 200 meters downstream of the bridge
FISH PRESENCE	about 80 SK, 40 KO, a few RB and several MW (mostly adults) observed under the bridge
SITE LOCATION	about 200 meters downstream of Hagen FSR bridge
CHANNEL	an LWD jam was observed about 200 meters downstream of the bridge
FISH PRESENCE	about 80 SK, 40 KO, a few RB and several MW (mostly adults) observed under the bridge
SITE LOCATION	about 200 meters downstream of Hagen FSR bridge
CHANNEL	an LWD jam was observed about 200 meters downstream of the bridge
FISH PRESENCE	about 80 SK, 40 KO, a few RB and several MW (mostly adults) observed under the bridge
SITE LOCATION	about 200 meters downstream of Hagen FSR bridge

# FDIS Site Card

Reach #	ILP Map #	ILP #	Site
Watershed Code: 480-598800-00000-00000-0000-0000-000-000-000-000-000-000-000	2.0	093M.019	2

PROJECT																																																																									
Project Name: Babine and Tochcha Stream Name (gaz.): BABINE RIVER Project Watershed Code: 480-000000-00000-00000-0000-000-000-000-000-000-000-000 Project Code: 5271																																																																									
WATERSHED																																																																									
Gazetted Name: MORRISON CREEK Watershed Code: 480-598800-00000-00000-0000-0000-000-000-000-000-000-000-000 ILP Map #: 093M.019      ILP #: 2      NID Map #: 093M.019 Field UTM (Z.E.N): 9.671953.6116080      Method: GP3 GIS UTM (Z.E.N): 9.671953.6116080						Local Name: MORRISON 2 NID #: 2029      Reach #: 2.0      Site #: 2 Site Lg: 100      Method: HC      Access: H Ref. Name: Date: 2006/08/25      Time: 17:00      Agency: C141      Crew: RS/RS      Fish Crd?: <input checked="" type="checkbox"/> Incomplete: <input type="checkbox"/>																																																																			
CHANNEL																																																																									
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <tr> <th>Mtd</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>Avg</th></tr> <tr> <td>Channel Width (m):</td><td>MS</td><td>14.00</td><td>16.00</td><td>13.00</td><td>12.00</td><td>15.00</td><td>14.00</td><td></td><td></td><td></td><td>14.00</td></tr> <tr> <td>Wetted Width (m):</td><td>MS</td><td>8.20</td><td>7.50</td><td>7.30</td><td>8.40</td><td>8.80</td><td>8.90</td><td></td><td></td><td></td><td>8.18</td></tr> <tr> <td>Pool Depth (m):</td><td>MS</td><td>0.30</td><td>0.20</td><td>0.30</td><td>0.50</td><td>0.40</td><td>0.30</td><td></td><td></td><td></td><td>0.33</td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <tr> <td></td><td>Gadient %</td><td>Mtd</td><td>Avg</td></tr> <tr> <td>Method I:</td><td>1.0</td><td>1.0</td><td>C</td><td>1.00</td></tr> <tr> <td>Method II:</td><td></td><td></td><td>C</td><td></td></tr> </table> <div style="display: flex; justify-content: space-between;"> <span>No Vis.Ch.: <input type="checkbox"/></span> <span>Intermittent: <input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between;"> <span>Dw: <input type="checkbox"/></span> <span>Tribs.: <input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between;"> <span>Wb Depth: .5 .6 .7</span> <span>Avg: 0.60</span> <span>Method: MS</span> <span>Stage: L <input type="checkbox"/> M <input checked="" type="checkbox"/> H <input type="checkbox"/></span> </div>												Mtd	width	width	width	width	width	width	width	width	width	width	Avg	Channel Width (m):	MS	14.00	16.00	13.00	12.00	15.00	14.00				14.00	Wetted Width (m):	MS	8.20	7.50	7.30	8.40	8.80	8.90				8.18	Pool Depth (m):	MS	0.30	0.20	0.30	0.50	0.40	0.30				0.33		Gadient %	Mtd	Avg	Method I:	1.0	1.0	C	1.00	Method II:			C	
Mtd	width	width	width	width	width	width	width	width	width	width	Avg																																																														
Channel Width (m):	MS	14.00	16.00	13.00	12.00	15.00	14.00				14.00																																																														
Wetted Width (m):	MS	8.20	7.50	7.30	8.40	8.80	8.90				8.18																																																														
Pool Depth (m):	MS	0.30	0.20	0.30	0.50	0.40	0.30				0.33																																																														
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COVER      Total: M <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td>Type:</td><td>SWD</td><td>LWD</td><td>B</td><td>U</td><td>DP</td><td>OV</td><td>IV</td></tr> <tr> <td>Amount:</td><td>D</td><td>S</td><td>T</td><td>T</td><td>N</td><td>S</td><td>T</td></tr> <tr> <td>Loc: P/S/O:</td><td><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></td><td><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></td></tr> </table>												Type:	SWD	LWD	B	U	DP	OV	IV	Amount:	D	S	T	T	N	S	T	Loc: P/S/O:	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																																												
Type:	SWD	LWD	B	U	DP	OV	IV																																																																		
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CROWN CLOSURE      1 1-20% <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td>INSTREAM VEG:</td><td>N <input type="checkbox"/></td><td>A <input checked="" type="checkbox"/></td><td>M <input type="checkbox"/></td><td>V <input type="checkbox"/></td></tr> </table>												INSTREAM VEG:	N <input type="checkbox"/>	A <input checked="" type="checkbox"/>	M <input type="checkbox"/>	V <input type="checkbox"/>																																																									
INSTREAM VEG:	N <input type="checkbox"/>	A <input checked="" type="checkbox"/>	M <input type="checkbox"/>	V <input type="checkbox"/>																																																																					
LWD: F      DIST: E <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td>LB SHP: S</td><td>RB SHP: S</td></tr> <tr> <td>Texture: F <input checked="" type="checkbox"/> G <input checked="" type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/></td><td>Texture: F <input checked="" type="checkbox"/> G <input type="checkbox"/> C <input type="checkbox"/> B <input checked="" type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/></td></tr> <tr> <td>RIP: M</td><td>RIP: C</td></tr> <tr> <td>STG: YF</td><td>STG: MF</td></tr> </table>												LB SHP: S	RB SHP: S	Texture: F <input checked="" type="checkbox"/> G <input checked="" type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/>	Texture: F <input checked="" type="checkbox"/> G <input type="checkbox"/> C <input type="checkbox"/> B <input checked="" type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/>	RIP: M	RIP: C	STG: YF	STG: MF																																																						
LB SHP: S	RB SHP: S																																																																								
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RIP: M	RIP: C																																																																								
STG: YF	STG: MF																																																																								
WATER																																																																									
EMS: Temp: 19      Method: T3 pH: 8.2      Method: FD Flood Signs: none observed      Method: GE						Req #: Cond.: 70      Method: S4 Turb.: T <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> C <input checked="" type="checkbox"/> Method: GE																																																																			
MORPHOLOGY																																																																									
Bed Material: Dominant: G D95: 6.00      D (cm): 5.00				Subdom: F Morph: RP				DISTURBANCE INDICATORS <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td>O1</td><td>B1</td><td>B2</td><td>B3</td><td>D1</td><td>D2</td><td>D3</td></tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr> <td>C1</td><td>C2</td><td>C3</td><td>C4</td><td>C5</td><td>S1</td><td>S2</td><td>S3</td><td>S4</td><td>S5</td></tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> </table>				O1	B1	B2	B3	D1	D2	D3	<input type="checkbox"/>	C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	<input type="checkbox"/>																																											
O1	B1	B2	B3	D1	D2	D3																																																																			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																			
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																																																																
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Bars: N <input type="checkbox"/> SIDE <input checked="" type="checkbox"/> DIAG <input checked="" type="checkbox"/> MID <input checked="" type="checkbox"/> SPAN <input type="checkbox"/> BR <input type="checkbox"/>																																																																									
HABITAT QUALITY																																																																									
Name		Comments																																																																							
Spawning Habitat		excellent gravels - one pair of KO observed at site and about 70 SK in the reach at time of survey																																																																							
Rearing Habitat		may be poor in summer due to warm temperature in mainstem																																																																							
OverWinter Habitat		appears good due to some good pools with likely good discharge in winter																																																																							
PHOTOS																																																																									
Photo		Foc Lg		Dir		Comments																																																																			
R: 1	F: 827	STD		X		adult RB (see fish card)																																																																			
R: 1	F: 828	STD		X		adult RB (see fish card)																																																																			
R: 1	F: 829	STD		X		adult SK (see fish card)																																																																			

# FDIS Site Card

Watershed Code: 480-598800-00000-00000-0000-000-000-000-000-000-000-000-000

Reach #	ILP Map #	ILP #	Site
2.0	093M.019	2	2

PHOTOS						
Photo		Foc Lg	Dir	Comments		
R:	1	F:	830	STD	D	about 1.5 km downstream from Morrison Lake
R:	1	F:	831	STD	U	about 1.5 km downstream from Morrison Lake
R:	1	F:	832	STD	U	about 1.5 km downstream from Morrison Lake
R:	1	F:	833	STD	U	about 1.5 km downstream from Morrison Lake
R:	1	F:	834	STD	U	about 1.5 km downstream from Morrison Lake
R:	1	F:	835	STD	X	about 1.5 km downstream from Morrison Lake
R:	1	F:	836	STD	D	about 1.5 km downstream from Morrison Lake
R:	1	F:	837	STD	U	about 1.5 km downstream from Morrison Lake
R:	1	F:	838	STD	D	about 1.5 km downstream from Morrison Lake

COMMENTS	
Section	Comments
FISH PRESENCE	diversity of species (see fish card) captured in density estimate site about 100 meters upstream of this site in a large (40% discharge) secondary channel
SURVEY DESCRIPTION	flew over the entire length of the creek and observed about 70 SK
SITE LOCATION	about 1.5 km downstream from Morrison Lake
FISH PRESENCE	diversity of species (see fish card) captured in density estimate site about 100 meters upstream of this site in a large (40% discharge) secondary channel
SURVEY DESCRIPTION	flew over the entire length of the creek and observed about 70 SK
SITE LOCATION	about 1.5 km downstream from Morrison Lake
FISH PRESENCE	diversity of species (see fish card) captured in density estimate site about 100 meters upstream of this site in a large (40% discharge) secondary channel
SURVEY DESCRIPTION	flew over the entire length of the creek and observed about 70 SK
SITE LOCATION	about 1.5 km downstream from Morrison Lake

# FDIS Site Card

												Reach #	ILP Map #	ILP #	Site																																																											
Watershed Code: 480-598800-29000-00000-0000-0000-000-000-000-000-000-000-000-000-000-000-000-000-000-000-000												1.0	093M.029	1332	3																																																											
<b>PROJECT</b>																																																																										
Project Name: Babine and Tochcha Stream Name (gaz.): BABINE RIVER Project Watershed Code: 480-000000-00000-00000-0000-000-000-000-000-000-000-000-000-000-000-000-000-000-000												Project Code: 5271																																																														
<b>WATERSHED</b>																																																																										
Gazetted Name: Watershed Code: 480-598800-29000-00000-0000-0000-000-000-000-000-000-000-000-000-000-000-000-000-000-000												Local Name: STREAM #29000																																																														
ILP Map#: 093M.029				ILP #: 1332				NID Map #: 093M.019				NID #: 2001	Reach #:	1.0	Site #: 3																																																											
Field UTM (Z.E.N): 9.670652.6118685				Method: GP3								Site Lg: 100	Method: HC	Access: B																																																												
GIS UTM (Z.E.N): 9.670652.6118685												Ref. Name:																																																														
Date: 2006/08/28				Time: 17:50				Agency: C141				Crew: RS/GB	Fish Crd?: <input checked="" type="checkbox"/>	Incomplete: <input type="checkbox"/>																																																												
<b>CHANNEL</b>																																																																										
<table border="1"> <tr><th>Mtd</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>Avg</th></tr> <tr><td>Channel Width (m):</td><td>MS</td><td>1.10</td><td>1.30</td><td>1.20</td><td>1.00</td><td>0.80</td><td>1.10</td><td></td><td></td><td></td><td>1.08</td></tr> <tr><td>Wetted Width (m):</td><td>MS</td><td>0.40</td><td>0.50</td><td>0.10</td><td>0.00</td><td>0.00</td><td>0.50</td><td></td><td></td><td></td><td>0.25</td></tr> <tr><td>Pool Depth (m):</td><td>MS</td><td>0.15</td><td>0.02</td><td>0.04</td><td>0.05</td><td>0.04</td><td>0.04</td><td></td><td></td><td></td><td>0.06</td></tr> </table>												Mtd	width	width	width	width	width	width	width	width	width	width	Avg	Channel Width (m):	MS	1.10	1.30	1.20	1.00	0.80	1.10				1.08	Wetted Width (m):	MS	0.40	0.50	0.10	0.00	0.00	0.50				0.25	Pool Depth (m):	MS	0.15	0.02	0.04	0.05	0.04	0.04				0.06	<table border="1"> <tr><th>Gadient %</th><th>Mtd</th><th>Avg</th></tr> <tr><td>Method I:</td><td>2.0</td><td>5.0</td></tr> <tr><td>Method II:</td><td>3.0</td><td>C</td></tr> <tr><td></td><td></td><td>3.33</td></tr> </table>			Gadient %	Mtd	Avg	Method I:	2.0	5.0	Method II:	3.0	C			3.33
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												RIP: D																																																														
												STG: MF																																																														
<b>WATER</b>																																																																										
EMS:												Req #:																																																														
Temp: 12						Method: T3	Cond.: 290			Method: S4																																																																
pH: 8.1						Method: FD																																																																				
Flood Signs: none observed						Method: GE	Turb.: T <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> C <input checked="" type="checkbox"/>			Method: GE																																																																
<b>MORPHOLOGY</b>																																																																										
Bed Material: Dominant: G D95: 2.00 D (cm): 2.00												Subdom: F Morph: RP	DISTURBANCE INDICATORS			O1	B1	B2	B3	D1	D2	D3																																																				
													<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																							
Pattern: SI Islands: N Coupling: PC Confinement: OC FSZ: <input type="checkbox"/>													C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																																																				
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093M.019												2003	F	5.0	GE			R: 1	F: 856	L:	#:	9.670613.6118721																																																				
Comments: bedrock falls (lower drop over bedrock is 5 m)																																																																										
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Comments: bedrock falls (lower drop over bedrock is 5 m)																																																																										

# FDIS Site Card

Watershed Code: 480-598800-29000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093M.029	1332	3

FEATURES														
NID Map	NID	Type	Hgt	Method	Lg	Method	Photo			AirPhoto		UTM (Z/E/N)	Method	
093M.019	2003	F	5.0	GE			R:	1	F:	856	L:	#:	9.670613.6118721	
Comments: bedrock falls (lower drop over bedrock is 5 m)														
HABITAT QUALITY														
Name				Comments										
Spawning Habitat				some good gravel substrate observed but few pools or glides										
Rearing Habitat				only shallow pools and riffles observed at time of survey										
OverWinter Habitat				potential overwintering habitat in pool at base of falls										
PHOTOS														
Photo			Foc Lg		Dir		Comments							
R:	1	F:	856	STD		U	5 m bedrock falls							
R:	1	F:	858	STD		U	about 80 m upstream of Morrison Lake and about 30 m downstream of falls							
R:	1	F:	859	STD		D	about 80 m upstream of Morrison Lake and about 30 m downstream of falls							
COMMENTS														
Section				Comments										
FISH PRESENCE				suspect some seasonal fish use in this reach										
SITE DESCPICTION				lower 28 m of this reach was dry at time of survey										
SURVEY LOCATION				surveyed entire reach up to the falls										
SITE LOCATION				about 80 m upstream of Morrison Lake and about 30 m downstream of falls										
FISH PRESENCE				suspect some seasonal fish use in this reach										
SITE DESCPICTION				lower 28 m of this reach was dry at time of survey										
SURVEY LOCATION				surveyed entire reach up to the falls										
SITE LOCATION				about 80 m upstream of Morrison Lake and about 30 m downstream of falls										
FISH PRESENCE				suspect some seasonal fish use in this reach										
SITE DESCPICTION				lower 28 m of this reach was dry at time of survey										
SURVEY LOCATION				surveyed entire reach up to the falls										
SITE LOCATION				about 80 m upstream of Morrison Lake and about 30 m downstream of falls										

# FDIS Site Card

				Reach #	ILP Map #	ILP #	Site																																																																
Watershed Code: 480-598800-44800-00000-0000-0000-000-000-000-000-000-000				1.0	093M.029	1242	6																																																																
<b>PROJECT</b>																																																																							
Project Name: Babine and Tochcha Stream Name (gaz.): BABINE RIVER Project Watershed Code: 480-000000-00000-00000-0000-000-000-000-000-000-000				Project Code: 5271																																																																			
<b>WATERSHED</b>																																																																							
Gazetted Name: Watershed Code: 480-598800-44800-00000-0000-0000-000-000-000-000-000-000 ILP Map#: 093M.029      ILP #: 1242      NID Map #: 093M.019				Local Name: STREAM #44800 NID #: 2005      Reach #: 1.0      Site #: 6 Field UTM (Z.E.N): 9.669692.6120766      Method: GP3      Site Lg: 100      Method: HC      Access: V4 GIS UTM (Z.E.N): 9.669692.6120766      Ref. Name: Date: 2006/08/29      Time: 18:30      Agency: C141      Crew: RS/GB      Fish Crd?: <input checked="" type="checkbox"/> Incomplete: <input type="checkbox"/>																																																																			
<b>CHANNEL</b>																																																																							
<table border="1"> <thead> <tr> <th>Mtd</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>width</th><th>Avg</th> </tr> </thead> <tbody> <tr> <td>Channel Width (m):</td><td>MS</td><td>4.40</td><td>5.00</td><td>6.20</td><td>6.00</td><td>5.20</td><td>4.00</td><td></td><td></td><td></td><td>5.13</td> </tr> <tr> <td>Wetted Width (m):</td><td>MS</td><td>1.80</td><td>1.20</td><td>1.30</td><td>1.20</td><td>2.00</td><td>1.40</td><td></td><td></td><td></td><td>1.48</td> </tr> <tr> <td>Pool Depth (m):</td><td>MS</td><td>0.28</td><td>0.20</td><td>0.25</td><td>0.24</td><td>0.20</td><td>0.15</td><td></td><td></td><td></td><td>0.22</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th></th><th>Gadient %</th><th>Mtd</th><th>Avg</th> </tr> </thead> <tbody> <tr> <td>Method I:</td><td>3.0</td><td>2.0</td><td>C 2.50</td> </tr> <tr> <td>Method II:</td><td></td><td></td><td>C</td> </tr> </tbody> </table> No Vis.Ch.: <input type="checkbox"/> Intermittent: <input type="checkbox"/> Dw: <input type="checkbox"/> Tribs.: <input type="checkbox"/>												Mtd	width	width	width	width	width	width	width	width	width	width	Avg	Channel Width (m):	MS	4.40	5.00	6.20	6.00	5.20	4.00				5.13	Wetted Width (m):	MS	1.80	1.20	1.30	1.20	2.00	1.40				1.48	Pool Depth (m):	MS	0.28	0.20	0.25	0.24	0.20	0.15				0.22		Gadient %	Mtd	Avg	Method I:	3.0	2.0	C 2.50	Method II:			C
Mtd	width	width	width	width	width	width	width	width	width	width	Avg																																																												
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Method II:			C																																																																				
Wb Depth: .4    .3    .4    Avg: 0.37    Method: MS    Stage: L <input checked="" type="checkbox"/> M <input type="checkbox"/> H <input type="checkbox"/>																																																																							
<b>COVER</b> <table border="1"> <thead> <tr> <th>Type:</th><th>SWD</th><th>LWD</th><th>B</th><th>U</th><th>DP</th><th>OV</th><th>IV</th> </tr> </thead> <tbody> <tr> <td>Amount:</td><td>S</td><td>D</td><td>S</td><td>T</td><td>N</td><td>S</td><td>N</td> </tr> <tr> <td>Loc: P/S/O:</td><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td> </tr> </tbody> </table>								Type:	SWD	LWD	B	U	DP	OV	IV	Amount:	S	D	S	T	N	S	N	Loc: P/S/O:	<input checked="" type="checkbox"/>	<b>CROWN CLOSURE</b> 1      1-20% <b>INSTREAM VEG:</b> N <input checked="" type="checkbox"/> A <input type="checkbox"/> M <input type="checkbox"/> V <input type="checkbox"/>																																													
Type:	SWD	LWD	B	U	DP	OV	IV																																																																
Amount:	S	D	S	T	N	S	N																																																																
Loc: P/S/O:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																																																																
LWD: F      DIST: E LB SHP: U Texture: F <input checked="" type="checkbox"/> G <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/> RIP: C STG: MF				RB SHP: S Texture: F <input checked="" type="checkbox"/> G <input checked="" type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/> RIP: M STG: MF																																																																			
<b>WATER</b>																																																																							
EMS: Temp: 10      Method: T3 pH: 8.1      Method: FD Flood Signs: none observed      Method: GE				Req #: Cond.: 210      Method: S4 Turb.: T <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> C <input checked="" type="checkbox"/> Method: GE																																																																			
<b>MORPHOLOGY</b>																																																																							
Bed Material: Dominant: C D95: 12.0      D (cm): 5.00 Pattern: SI Islands: N Coupling: DC Confinement: OC FSZ: <input type="checkbox"/>				Subdom: G Morph: RP DISTURBANCE INDICATORS O1    B1    B2    B3    D1    D2    D3 C1    C2    C3    C4    C5    S1    S2    S3    S4    S5 Bars: N <input type="checkbox"/> SIDE <input checked="" type="checkbox"/> DIAG <input checked="" type="checkbox"/> MID <input type="checkbox"/> SPAN <input type="checkbox"/> BR <input type="checkbox"/>																																																																			
<b>HABITAT QUALITY</b>																																																																							
Name		Comments																																																																					
Spawning Habitat		some good gravel areas with interstitial space between cobbles																																																																					
Rearing Habitat		lot of good cover																																																																					
OverWinter Habitat		no good deep pools but undercut banks and interstitial spaces appear to support juveniles (2 or 3 age classes of RB captured)																																																																					
<b>PHOTOS</b>																																																																							
Photo		Foc Lg	Dir	Comments																																																																			
R: 1	F: 882	STD	D	about 200 m downstream of Booker Road																																																																			
R: 1	F: 883	STD	U	about 200 m downstream of Booker Road																																																																			
R: 1	F: 884	STD	D	about 200 m downstream of Booker Road																																																																			

# FDIS Site Card

Watershed Code: 480-598800-44800-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093M.029	1242	6

PHOTOS						
Photo		Foc Lg	Dir	Comments		
R:	1	F:	885	STD	U	about 200 m downstream of Booker Road
R:	1	F:	886	STD	U	about 200 m downstream of Booker Road
R:	1	F:	887	STD	D	about 200 m downstream of Booker Road

COMMENTS	
Section	Comments
FISH PRESENCE	no CO captured during this sampling event, but CO recorded present in past studies
SITE LOCATION	about 200 m downstream of Booker Road and ~ 900 m upstream of Morrison Lake
FISH PRESENCE	no CO captured during this sampling event, but CO recorded present in past studies
SITE LOCATION	about 200 m downstream of Booker Road and ~ 900 m upstream of Morrison Lake
FISH PRESENCE	no CO captured during this sampling event, but CO recorded present in past studies
SITE LOCATION	about 200 m downstream of Booker Road and ~ 900 m upstream of Morrison Lake



# FDIS Site Card

Reach #	ILP Map #	ILP #	Site
Watershed Code: 480-598800-48010-00000-0000-000-000-000-000-000-000-000-000	1.0	093M.029	1240
			7

C O M M E N T S	
Section	Comments
FISH PRESENCE	some good potential summer rearing habitat for fish, but 1 m soft barrier limits fish access to lower 10 m of this reach
SURVEY DESCRIPTION	surveyed lower 120 m
SITE LOCATION	about 100 m upstream of Morrison Lake
FISH PRESENCE	some good potential summer rearing habitat for fish, but 1 m soft barrier limits fish access to lower 10 m of this reach
SURVEY DESCRIPTION	surveyed lower 120 m
SITE LOCATION	about 100 m upstream of Morrison Lake
FISH PRESENCE	some good potential summer rearing habitat for fish, but 1 m soft barrier limits fish access to lower 10 m of this reach
SURVEY DESCRIPTION	surveyed lower 120 m
SITE LOCATION	about 100 m upstream of Morrison Lake



# FDIS Site Card

Watershed Code: 480-598800-53191-00000-0000-0000-000-000-000-000-000-000

Reach #	ILP Map #	ILP #	Site
2.0	093M.029	1231	9

PHOTOS				
Photo		Foc Lg	Dir	Comments
R:	1	F.	865	STD D looking at Dave Bustards ribbon (pink ribbon lower)

COMMENTS	
Section	Comments
FISH PRESENCE	no adult RB observed and no suitable habitat for resident populations suggested in historical sampling (Bustard 2002)
SURVEY DESCRIPTION	surveyed lower 200 m of reach
SITE LOCATION	about 50 m upstream of confluence with tributary - 12700
FISH PRESENCE	no adult RB observed and no suitable habitat for resident populations suggested in historical sampling (Bustard 2002)
SURVEY DESCRIPTION	surveyed lower 200 m of reach
SITE LOCATION	about 50 m upstream of confluence with tributary - 12700
FISH PRESENCE	no adult RB observed and no suitable habitat for resident populations suggested in historical sampling (Bustard 2002)
SURVEY DESCRIPTION	surveyed lower 200 m of reach
SITE LOCATION	about 50 m upstream of confluence with tributary - 12700



# FDIS Site Card

Reach #	ILP Map #	ILP #	Site
Watershed Code: 480-598800-61100-00000-0000-0000-000-000-000-000-000-000-000	1.1	093M.029	1224
			16

PHOTOS				
Photo		Foc Lg	Dir	Comments
R:	1	F:	848	STD D about 150 m upstream of inlet to Morrison Lake
R:	1	F:	849	STD U site 1a - small pool with LWD about 60 m upstream of Morrison Lake

COMMENTS	
Section	Comments
SURVEY DESCRIPTION	upper 300 m of this reach were dried up to the base of the bedrock cascade where there was a pool (no fish observed)
FISH PRESENCE	last fish was captured about 180 m upstream of Morrison Lake (stranded)
SURVEY DESCRIPTION	only four pools in lower 70 m and 25 square meters of wetted area where about 65 coho were observed stranded
SURVEY LOCATION	surveyed entire reach
SITE LOCATION	about 150 m upstream of inlet to Morrison Lake
SURVEY DESCRIPTION	upper 300 m of this reach were dried up to the base of the bedrock cascade where there was a pool (no fish observed)
FISH PRESENCE	last fish was captured about 180 m upstream of Morrison Lake (stranded)
SURVEY DESCRIPTION	only four pools in lower 70 m and 25 square meters of wetted area where about 65 coho were observed stranded
SURVEY LOCATION	surveyed entire reach
SITE LOCATION	about 150 m upstream of inlet to Morrison Lake
SURVEY DESCRIPTION	upper 300 m of this reach were dried up to the base of the bedrock cascade where there was a pool (no fish observed)
FISH PRESENCE	last fish was captured about 180 m upstream of Morrison Lake (stranded)
SURVEY DESCRIPTION	only four pools in lower 70 m and 25 square meters of wetted area where about 65 coho were observed stranded
SURVEY LOCATION	surveyed entire reach
SITE LOCATION	about 150 m upstream of inlet to Morrison Lake



# FDIS Site Card

Watershed Code: 480-598800-99100-00000-0000-0000-000-000-000-000-000-000

Reach #	ILP Map #	ILP #	Site
1.0	093M.028	1	19

PHOTOS						
Photo		Foc Lg	Dir	Comments		
R:	1	F:	817	STD	D	about 500 meters upstream of Morrison Lake
R:	1	F:	818	STD	D	about 500 meters upstream of Morrison Lake
R:	1	F:	819	STD	X	adult KO (see fish card)
R:	1	F:	820	STD	X	adult KO (see fish card)
R:	1	F:	821	STD	X	adult KO (see fish card)

COMMENTS	
Section	Comments
SITE LOCATION	about 500 meters upstream of Morrison Lake
CHANNEL	LWD jam noted just downstream of site
SITE DESCPICTION	very low flow at time of survey with difficult fish passage through very shallow riffles
SITE LOCATION	about 500 meters upstream of Morrison Lake
CHANNEL	LWD jam noted just downstream of site
SITE DESCPICTION	very low flow at time of survey with difficult fish passage through very shallow riffles
SITE LOCATION	about 500 meters upstream of Morrison Lake
CHANNEL	LWD jam noted just downstream of site
SITE DESCPICTION	very low flow at time of survey with difficult fish passage through very shallow riffles



# FDIS Site Card

Watershed Code: 480-598800-99100-00000-0000-0000-000-000-000-000-000-000

Reach #	ILP Map #	ILP #	Site
2.0	093M.028	1	20

PHOTOS						
Photo		Foc Lg	Dir	Comments		
R:	1	F:	825	STD	D	about 150 meters upstream of trib (SKR ILP 10461) and 1.9 km upstream of Morrison Lake
R:	1	F:	826	STD	D	upper stopnet at triple pass site
COMMENTS						
Section		Comments				
SURVEY DESCRIPTION		flew over entire reach and observed about 65 KO (3 schools) and only 1 SK (location where one SK was observed had 5 SK during ground survey)				
SITE LOCATION		at same UTM located ss Bustard 2000-2002, but 900 meters downstream (instead of 200 meters upstream) of Guitar Creek				
SITE LOCATION		about 150 meters upstream of trib (SKR ILP 10461) and 1.9 km upstream of Morrison Lake				
SURVEY DESCRIPTION		flew over entire reach and observed about 65 KO (3 schools) and only 1 SK (location where one SK was observed had 5 SK during ground survey)				
SITE LOCATION		at same UTM located ss Bustard 2000-2002, but 900 meters downstream (instead of 200 meters upstream) of Guitar Creek				
SITE LOCATION		about 150 meters upstream of trib (SKR ILP 10461) and 1.9 km upstream of Morrison Lake				
SURVEY DESCRIPTION		flew over entire reach and observed about 65 KO (3 schools) and only 1 SK (location where one SK was observed had 5 SK during ground survey)				
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