Seabridge Gold Inc.

KSM PROJECT
2010 Fish and Fish Habitat Baseline Report

SEABRIDGE GOLD

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KSM PROJECT

2010 FISH AND FISH HABITAT BASELINE REPORT

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Executive Summary

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Executive Summary

The primary purpose of the 2010 KSM Fish and Fish Habitat Baseline Program was to provide baseline information on fish and fish habitat for fish habitat compensation sites within and outside of the Project study area. The secondary purpose of the 2010 KSM Fish and Fish Habitat Baseline Program was to provide baseline information on fish and fish habitat, within the Project area, that may be impacted by the proposed mine and infrastructure development. This report describes sampling procedures and results of the KSM Project Fish and Fish Habitat Baseline Program conducted in 2010.

For the realigned section of Coulter Creek Access Road, 11 stream sites were assessed, of which three were classified as fish-bearing. For the temporary glacier access road, seven stream sites were assessed, of which six were classified as fish-bearing.

Instream flow habitat assessments indicated that boulders, deep pools, and overhanging vegetation were the dominant cover types in South Teigen and North Treaty creeks. Cobble and boulders were the dominant substrate types in South Teigen Creek. Cobble and small gravel were the dominant substrate types in North Treaty Creek.

Single pass electrofishing CPUE was calculated as an index of relative abundance for Dolly Varden populations in South Teigen Creek, below the falls. No salmon species were caught, despite 10,198 s of electrofishing effort throughout the reach. Dolly Varden parr were the dominant life history stage caught.

Aerial spawner adult surveys and ground redd surveys were conducted for chinook salmon, coho salmon, steelhead and bull trout in Teigen Creek. The results of these surveys provide an indication of spawning habitat distribution and redd abundance in Teigen Creek. Aerial spawner adult surveys and ground redd surveys were conducted for numerous species within other watersheds of the project study area and outside of the project study area. The objectives of these surveys varied depending upon site-specific objectives.

Fish and fish habitat data presented support the *KSM Project: HADD fish habitat compensation plan* and *KSM Project: MMER fish habitat compensation plan*. Site-specific fish and fish habitat descriptions of proposed compensation sites are presented in these plans; therefore assessment results are simply presented as supporting information.

Acknowledgements

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Glossary and Abbreviations

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Glossary and Abbreviations

Terminology used in this document is defined where it is first used. The following list will assist readers who may choose to review only portions of the document.

BCIFM	British Columbia Instream Flow Methodology
CPUE	Catch-Per-Unit-Effort
ISF	Instream Flow
FDIS	Field Data Inventory System
FHAP	Fish Habitat Assessment Procedures
GPS	Global Positioning System
ILP	Interim Location Point
KSM	Kerr-Sulphurets-Mitchell
LWD	Large Woody Debris
MOE	Ministry of Environment
NCD	Non-Classified Drainage
NVC	No Visible Channel
RISC	Resource Information Standards Committee
SCHP	Sulphurets Creek Hydro Plant
SHIM	Sensitive Habitat Inventory Mapping
SWD	Small Woody Debris
TMF	Tailing Management Facility
TRIM	Terrain Resource Inventory Mapping
QA	Quality Assurance
QC	Quality Control
UTM	Universal Transverse Mercator

1. Introduction

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1. Introduction

1.1 PROJECT PROPONENT

The proponent for the KSM (Kerr-Sulphurets-Mitchell) Project is Seabridge Gold Inc. (Seabridge), a publicly traded junior gold company with common shares trading on the Toronto Stock Exchange in Canada and on the American Stock Exchange in the United States.

1.2 KSM PROJECT LOCATION

The KSM Project is a gold/copper project located in the mountainous terrain of northwestern British Columbia, approximately 950 km northwest of Vancouver, British Columbia, and approximately 65 km north of Stewart, British Columbia (Figure 1.2-1). The proposed Project lies approximately 20 km southwest of Barrick Gold's recently-closed Eskay Creek Mine and 30 km northeast of the Alaska border. The proposed processing plant and tailing management facility will be located about 15 km southwest of the community of Bell II on Highway 37.

1.3 KSM PROJECT DESCRIPTION

The proposed Project as defined for the purposes of this environmental baseline study will be comprised of two distinct and geographically separate areas (the Mining Area and Process Plant and Tailing Management Area; Figure 1.3-1).

The proposed Mining Area is located in the drainage basin of Sulphurets Creek, a major tributary of the Unuk River. It will be accessed by a new road, the Coulter Creek Access Road, to be constructed from the current Eskay Creek Mine road. Four deposits will be mined, the Kerr, Sulphurets, Mitchell and Iron Cap. Ore will be crushed and ground at an Ore Preparation Complex and then pumped as slurry through one of two parallel 23 km long tunnels to the Process Plant. Non-ore mined (waste) rock will be stored in engineered facilities to be located in the vicinity of the pits. Surface water that contacts disturbed areas will be collected and treated at a Water Treatment Plant.

The Process Plant and Tailing Management Facility (TMF) will be located in the headwaters of tributaries of Teigen and Treaty Creeks, which flow to the Bell-Irving River. A new road parallel to Teigen Creek will connect the Process Plant to Highway 37 about 14 km to the northeast. The Process Plant will process up to 120,000 tonnes per day of ore to produce an average of 1,200 tonnes per day of concentrate that will be transported to the port of Stewart by truck. The tailing will be pumped to the TMF, to be located in the headwaters of a southern tributary of Teigen Creek and a northern tributary of Treaty Creek.

Figure 1.2-1

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KSM PROJECT

KSM Project Location

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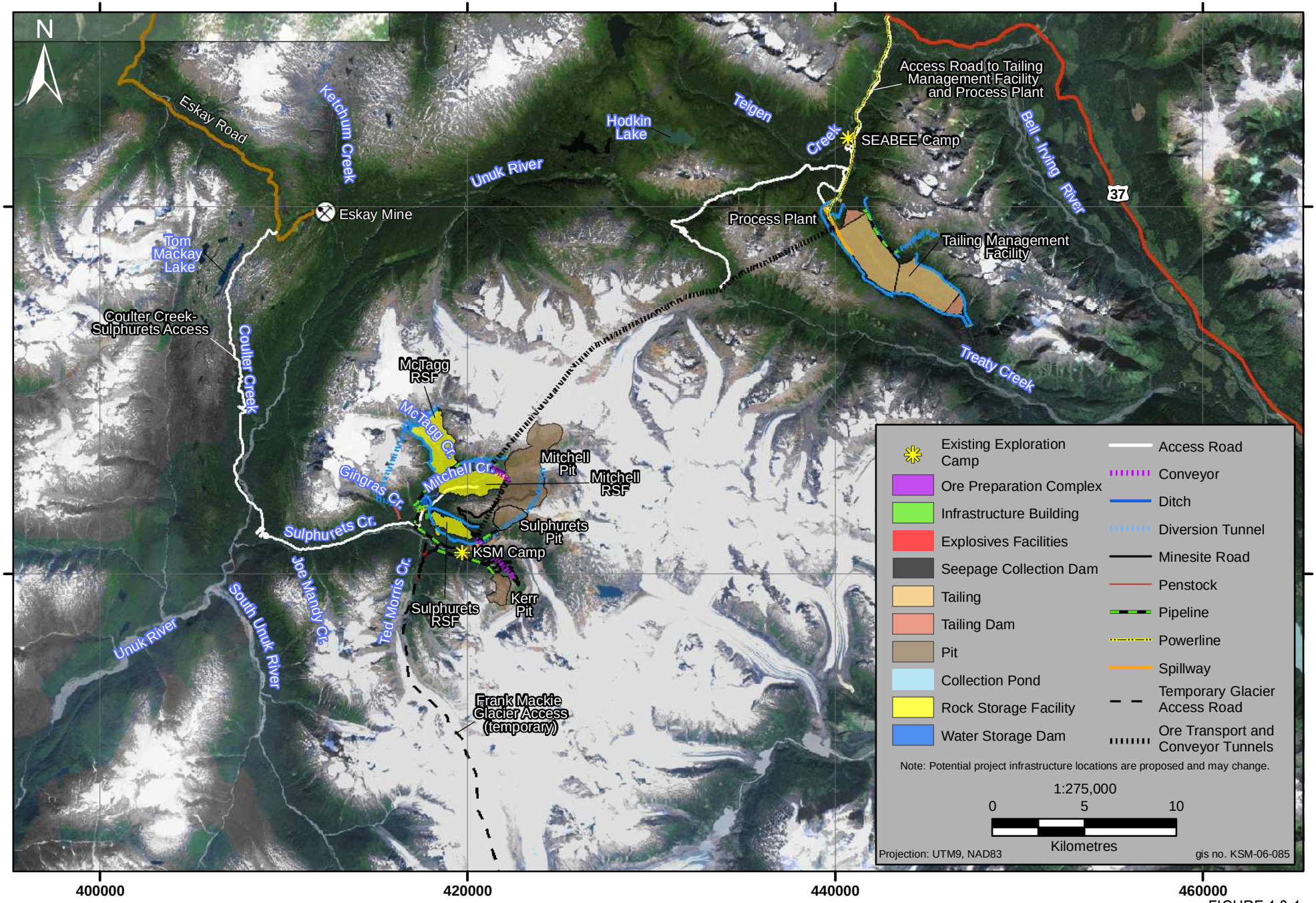

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2011 KSM Project Layout

FIGURE 1.3-1

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2. Objectives

2. Objectives

The Unuk and Bell-Irving rivers are large river systems that provide spawning migration routes for all five species of Pacific salmon and anadromous rainbow trout (known as steelhead trout), as well as habitat for resident trout (cutthroat and rainbow), resident char (Dolly Varden and bull trout) and whitefish.

The primary purpose of the 2010 KSM Fish and Fish Habitat Baseline Program was to provide baseline data on fish and fish habitat at identified fish habitat compensation sites. The secondary purpose of the 2010 KSM Fish and Fish Habitat Baseline Program was to provide baseline information on fish and fish habitat within the Project area that may be impacted by proposed mine and infrastructure development. The objectives were as follows:

Fish Habitat Compensation:

- determine fish presence, community composition, spatial distribution and barriers to fish movement for watercourses within identified fish habitat compensation sites; and
- assess the quantity and quality of fish habitat in watercourses within identified fish habitat compensation sites.

Mine and Infrastructure Development:

- determine fish presence, community composition, spatial distribution and barriers to fish movement for watercourses along proposed access roads;
- assess the quality of fish habitat in watercourses along proposed access roads;
- assess instream flow (ISF) fish habitat downstream of the tailing management facility (TMF) and Sulphurets Creek Hydro Plant (SCHP);
- assess Dolly Varden abundance in South Teigen Creek downstream of the TMF;
- determine salmon spawning habitat distribution and redd abundance in watercourses downstream of the TMF and SCHP; and
- determine bull trout and steelhead spawning habitat distribution and redd abundance in watercourses downstream of the TMF.

These objectives were achieved through field work in 2010, review of 2009 and 2010 baseline data, and review of relevant background information about fish and fish habitat distribution, abundance and habitat use within the study area.

3. Study Area

3. Study Area

The fish and fish habitat study area encompasses three major watersheds: Unuk, Bell-Irving and Bowser rivers. The study area boundaries are based upon the locations of the proposed mine and infrastructure development (Figure 3-1). Potential fish habitat compensation sites, identified in 2009 and 2010, are located within and outside of the fish and fish habitat study area. Figures 3-2 and 3-3 show the location of fish habitat compensation sites.

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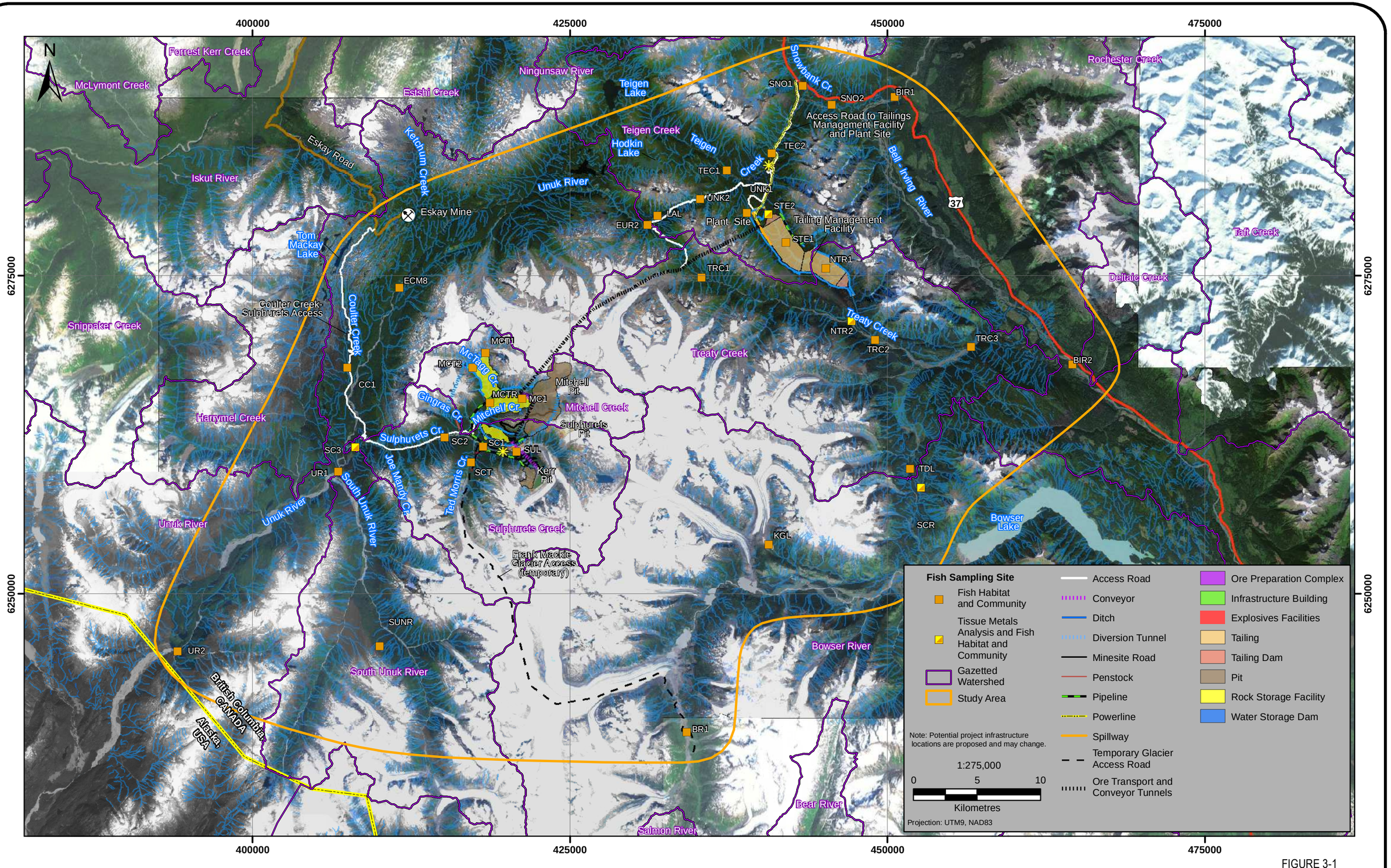

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FIGURE 3-1

KSM Fisheries Study Area, 2010

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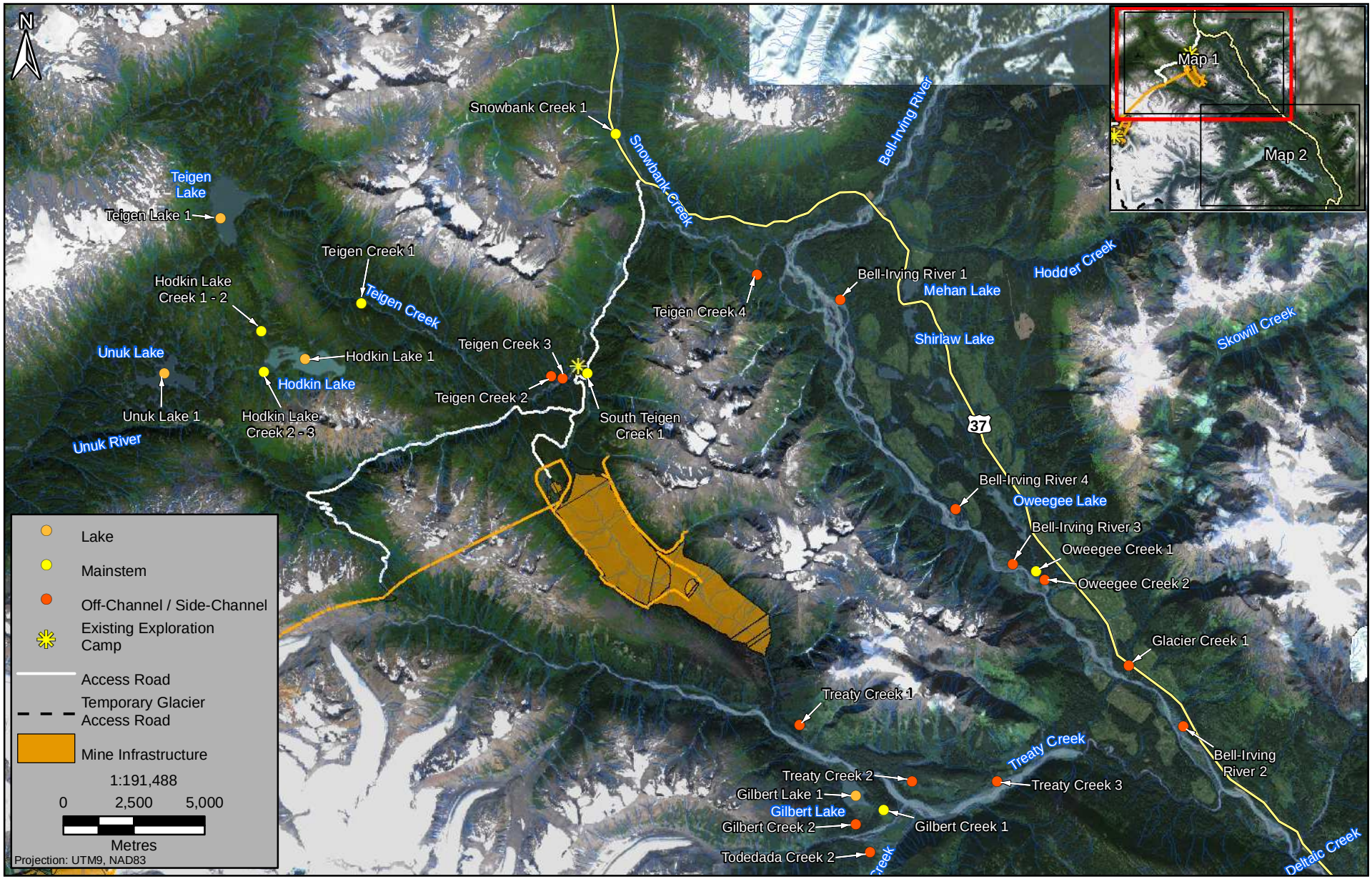

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Location of Compensation Projects - Map 1

FIGURE 3-2

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Location of Compensation Projects - Map 2

FIGURE 3-3

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4. Methods

4. Methods

4.1 FISH HABITAT COMPONENTS

Fish habitat was separated into three distinct components for the purposes of this report: streams, lakes and wetlands. Streams were defined as watercourses that flow seasonally or perennially, possess a continuous channel bed that is scoured by water and which contain observable deposits of mineral alluvium (MOF 1998). Lakes were defined as an open waterbody with depths greater than 2 m and with less than 25% of its surface area covered with wetland vegetation (RISC 1999a). Wetlands were defined as any waterbody that is classified as lentic (i.e., still water as opposed to lotic, which means flowing water) with depths less than 2 m (RISC 1999a).

Fish habitat assessment and fish sampling methodologies differed between each habitat component; therefore each component was separated for the purposes of analysis and reporting.

For the purpose of this program, assessed sites were divided into five categories: proposed access roads, ISF, Dolly Varden abundance, spawning habitat, and fish habitat compensation. The access road category included all watercourses crossed by the proposed temporary glacier access road and a realigned section of Coulter Creek Access Road. The ISF assessment included North Treaty and South Teigen creeks downstream of the TMF, and Sulphurets Creek downstream of the SCHP. The Dolly Varden abundance assessment included the lower reach of South Teigen Creek, downstream of the falls. Spawning habitat assessments included watercourses downstream of the TMF and SCHP, including watercourses within/near fish habitat compensation sites. Fish habitat compensation sites included watercourses within/near proposed sites.

4.2 ACCESS ROADS

4.2.1 Study Design

Sites along the proposed roads consisted of streams that may potentially be affected by road development. For the purpose of comparing fish and fish habitat, the streams assessed were grouped with their respective access roads.

Streams crossing the access road corridors were assessed from July 5 to 18 and from September 8 to 19, 2009. The objectives of the stream assessments were to confirm fish presence, describe fish habitat, and rank fish habitat suitability.

4.2.2 Fish Habitat

The locations of the proposed access roads were ground-truthed with a map and compass. Field crews ground-truthed the proposed access road alignments for locations of streams, non-classified drainages (NCD) and no visible channels (NVC). Stream sites were classified as “true streams” if they met the definition of a stream – a continuous, defined channel for at least 100 m (MOF 1998). Sites with partial or discontinuous channelization were categorized as NCDs. Sites where water seeped or flowed overland, or where water pooled at a potential road crossing but where no channelization was apparent, were classified as NVC. For NCDs and NVCs, photos were taken facing upstream and downstream, global positioning system (GPS) coordinates (±10 m) were obtained and sites were flagged.

For all site classifications (i.e., NVC, NCD or stream), a unique identifying site number, or Interim Locational Point (ILP), was assigned.

At each stream crossing location, streams were assessed using methods based on the *Reconnaissance 1:20,000 Fish and Fish Habitat Inventory Protocol* (RISC 2001) and the *Reconnaissance 1:20,000 Fish and Fish Habitat Inventory: Site Card Field Guide* (RISC 1999b). This protocol involved characterizing fish habitat over a 100 m-long section of stream by measuring physical attributes (e.g., channel width, gradient, temperature and water quality), characterizing cover types and substrate (dominant and subdominant cover and substrate type, cover abundance and location) and describing stream morphology. Table 4.2-1 presents a complete list of attributes measured at each stream crossing. Based on the attributes collected at the stream crossing in the field, professional expertise was used to rank habitat suitability for each fish life history stage (i.e., spawning, rearing and over-wintering) and overall habitat quality. Table 4.2-2 presents habitat suitability and overall habitat quality ranks and their corresponding criteria.

A minimum of two photographs was taken to document each site, one facing upstream from the proposed crossing and one facing downstream from the crossing. Additional photographs were taken of barriers or features. GPS coordinates were obtained and the site was flagged.

Table 4.2-1. Attributes Measured during Habitat Assessments at Stream Crossing Sites, 2010

Substrate	Physical Measurements	Habitat	Cover
Dominate type	Bankfull width (m)	Stream morphology	Total amount
Sub-dominant type	Wetted width (m)	Presence of bars	Dominant, sub-dominant and trace cover types
D (cm)	Residual pool depth (cm)	Presence of islands	Cover location
D95 (cm)	Bankfull depth (m)	Bank shape	Canopy closure (%)
Bank texture	Gradient (%)	Stream pattern	Riparian vegetation
	Temperature (ºC)	Confinement	Riparian vegetation stage
	Conductivity (µS/cm)	Hillslope coupling	
	pH (log units)	Spawning, rearing, overwintering suitability	
	Turbidity	Overall habitat quality	
		Riparian function	

D = largest stone that will move in a normal flood period (measured along the intermediate axis; cm) (RISC 2001a).
D95 = stone that is in the top 5th percentile (by size) (measured along the intermediate axis; cm) (RISC 2001a).
Turbidity was visually estimated.

Table 4.2-2. Life History Habitat Suitability and Overall Habitat Quality Criteria Assessed at Stream Crossing Sites

Rank	Criteria
Life Stage Suitability	
None	No habitat present for any life history stage
Poor	Most of the necessary physical/biological components of the habitat for this life history stage are missing or severely deficient
Fair	Some of the necessary physical/biological components of the habitat for this life history stage are present, but a key component is missing
Good	All of the necessary physical/biological components of the habitat for this life history stage are present

(continued)

Table 4.2-2. Life History Habitat Suitability and Overall Habitat Quality Criteria Assessed at Stream Crossing Sites (completed)

Rank	Criteria
Overall Habitat Quality	
None	No habitat present at crossing
Marginal	Low productive capacity
Important	Common habitat which supplies needs of fish – typically rearing/over-wintering and some potential and commonly observed spawning substrate
Critical	Rare or exceptionally productive or unusual habitat with very high habitat values which are of uncommon and/or highly valuable production

4.2.3 Fish Community

4.2.3.1 Community Composition

Streams were sampled using backpack electrofishers following RISC *Fish Collection Methods and Standards* (RISC 1997), *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures* (RISC 2001) and the *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Fish Collection Field Guide* (RISC 1999c). The primary objective of fish sampling was to confirm fish presence and the secondary objective was to determine the fish community composition (MOF 1998). Fish sampling occurred in the same locations where the habitat assessments occurred.

Electrofishing was conducted over a minimum 100 m-long stream section (50 m both upstream and downstream of each proposed crossing site); and for approximately 500 electrofishing seconds at each site. Only one electrofishing pass was made and no stop nets were used to prevent fish movement. Electrofishing in spawning areas during fish spawning activity was avoided to reduce the chance of harming fish and impacting spawning activities as required by the collection permit.

Biological information was collected on captured fish including species and length (to the nearest 1 mm). Dolly Varden and bull trout were identified to species based upon physical characteristics (e.g., branchiostegal rays) and habitat preferences. All fish were then returned live to the stream.

4.2.3.2 Stream Classification

A defensible, systematic approach was adopted to classify the fish bearing status of a stream at a road crossing. Streams were classified according to the *Forest Practices Code of British Columbia Fish-Stream Identification Guidebook* (MOF 1998). Under this procedure, streams were classified based on mean channel width (m) and fish-bearing status. A summary of stream classes is presented in Table 4.2-3. The guidebook provides criteria for classifying streams as either fish-bearing (i.e., Classes S1, S2, S3, S4) or non-fish-bearing (i.e., S5 and S6). The guidebook classifies streams as non-fish-bearing if the average gradient is greater than 20%. However, it is recognized that Dolly Varden and bull trout have the ability to move upstream in channels gradients up to 30% if adequate step pools are present (MOF 1998; McPhail 2007). Therefore, stream reaches were "confirmed" as non-fish bearing using gradient criteria alone if the average channel gradient was greater than 30%, channels were not defined, step-pool morphology is absent, pools are shallow and void of alluvial deposits (i.e., over-wintering habitat is absent), habitat was exceptionally marginal and no lakes were present in the headwaters.

Table 4.2-3. Forest Practices Code Stream Classification Width Criteria

Stream Classification	Mean Channel Width (m)	Fish Present ?
S1	> 20.0	Yes
S2	5.0 to 20.0	Yes
S3	1.5 to 5.0	Yes
S4	< 1.5	Yes
S5	> 3.0	No
S6	≤ 3.0	No

Barrier searches and assessments were conducted on streams downstream of the proposed road crossings. The presence of falls greater than 2 m high and steep cascades can restrict fish dispersal upstream and may "confirm" non-fish-bearing status to the upstream reaches if falls are permanent and adequate sampling effort is conducted. Adequate sampling effort (based upon habitat features), in connection with habitat assessments, was conducted to confirm streams as non-fish-bearing.

The rationale for changing stream classifications from "default" fish bearing to "confirmed" fish bearing included the following criteria:

- previous records showed fish present at crossing;
- fish were observed or sampled at or upstream of the crossing;
- fish were observed or sampled downstream of the crossing:
  - Terrain Resource Inventory Mapping (TRIM) map gradients demonstrated that no part of the drainage downstream of the crossing flowed through gradients greater than 30% and lack of habitat limitations discussed above; and
- fish were present downstream of a man-made obstruction (e.g., hanging culvert) and there was an absence of natural barriers upstream of the obstruction.

4.3 INSTREAM FLOW

The British Columbia Instream Flow Methodology (BCIFM) was conducted in North Treaty and South Teigen creeks downstream of the proposed TMF (Lewis et al. 2004) to determine flow data in-relationship to fish habitat data. The third instream flow sampling event was conducted from September 9 to 11. The purpose of the BCIFM is to provide a standardized approach to the collection of instream flow information in relation to fish and fish habitat. The BCIFM is complementary to other existing provincial methods and relies in part on data collection standards outlined in *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures* (RISC 2001) and *BC Watershed Restoration Protocol* (Johnston and Slaney 1996). In 2009, stratified-random transects were established based upon hydraulic habitat type (i.e., pool, riffle, glide or cascade) for fish habitat measurements with the objective of describing and quantifying habitat.

The BCIFM was conducted in Sulphurets Creek downstream of the proposed SCHP. Three ISF sampling events were conducted between September 2009 and September 2010. One transect was established downstream of the proposed SCHP because of the short reach length (500 m), presence of one cascade habitat type, and similar habitat conditions within the reach.

Depth (cm) and velocity (cm/s) data at transect verticals was collected with a Swoffer 2100 (2" propeller) velocity meter according to the BCIFM methods. Each transect's cross sectional profile in South Teigen Creek was surveyed with a standard surveyor's level and rod according to the BCIFM methods. Habitat data collected at each vertical included; bed substrate composition and cover habitat type (e.g., boulder, pool, instream vegetation, etc.).

Stream temperature data loggers were installed in South Teigen and North Treaty Creeks downstream of the TMF in August 2009. Dataloggers were wired to a steel bar staked into the stream bed. A piece of white PVC piping was used as a shield to protect the temperature loggers from direct exposure to the sun and from contact with bed load. Data loggers were deployed for a period of one year and retrieved in August 2010 to record daily fluctuations in stream temperature.

4.4 DOLLY VARDEN ABUNDANCE

Abundance of Dolly Varden life history stages was assessed within the lower reach of South Teigen Creek, downstream of the falls, in mid-September 2010. The reach was separated into 11 sites of 200 m in stream length. Non-adjacent sites were selected for sampling.

Each site was located and flagged in the field. Electrofishing was conducted within each site for 1,000 electrofishing seconds. One electrofishing pass was made, and no stop nets were used because habitat and flow conditions within lower South Teigen Creek prevent the effective use of stop nets.

Fish were captured, counted, identified to species and life history stage, and immediately released at the point of capture. Based upon 2009 fork length class distribution sampling data from Teigen and Treaty watersheds (Rescan 2010), Dolly Varden fry are 25 to 45 mm, parr are 45 to 85 mm, and sub-adults/adults are > 85 mm. All Dolly Varden were marked with an adipose clip and fork length measured (to the nearest 1 mm). Sampled sites were revisited following a period of 24 h to allow for fish recovery from the previous sampling event (Johnston et al. 2007). Fish movement into and out of sites was assumed to be negligible given the high water velocity/discharge and gradient within sites.

4.5 SPAWNING HABITAT

4.5.1 Aerial Spawning Survey

For Teigen Creek, the primary objective of the aerial spawning survey was to confirm chinook (*Oncorhynchus tshawytscha*) and coho (*O. kisutch*) salmon spawning habitat distribution throughout the watershed and focus additional ground redd surveys (Section 4.5.2). The secondary objective was to provide an index of chinook and coho salmon escapement for Teigen Creek.

For fish habitat compensation sites, the objective of the aerial spawning survey was to confirm chinook and coho salmon spawning presence and habitat distribution and focus additional ground redd surveys (Section 4.5.2).

Aerial chinook spawning surveys were conducted between August 3 and 16, 2010. Aerial coho spawning surveys were conducted between October 13 and 20, 2010. Areas selected for aerial spawning surveys varied depending upon fish habitat compensation site objectives. For the Teigen Creek aerial spawning survey, the mainstem was separated into 1 km cells (range from 0–29 km) from the mouth to Teigen Lake at the headwaters. Each flight was initiated at the mouth and terminated at Teigen Lake.

Aerial spawning survey methods followed those detailed in Johnston et al. (2007). A helicopter (Eurocopter A-Star) was used for all aerial surveys because these aircraft provide slower, more manoeuvrable counting platforms that can increase counting accuracy and precision. During aerial surveys, pilots were directed to

fly the helicopter 15 to 70 m above the river at speeds of 6 to 16 km/h. The helicopter door on the side of the observer was removed, and the helicopter was flown sideways while observations of spawning salmon were made from the open space. Salmon were counted by two observers and the results of the survey were compared between observers after the flight. Survey flights were repeated approximately 5 to 7 days apart, depending upon creek and weather conditions. The following data were collected for each aerial spawning survey: survey date, start and end Universal Transverse Mercator (UTM) coordinates, start and end time, water clarity (clear, lightly turbid, moderately turbid, turbid), weather (cloudy, partly cloudy, sunny), and precipitation (heavy rain, light rain, no rain).

4.5.2 Ground Redd Survey

For Teigen Creek, the primary objective of the ground redd survey was to confirm chinook salmon, sockeye salmon (*O. nerka*), coho salmon, and steelhead (*O. mykiss*) spawning habitat distribution throughout the watershed. The secondary objective was to provide an index of salmon (chinook, coho, sockeye) escapement for Teigen Creek.

For fish habitat compensation sites, the objective of the ground redd survey was to confirm chinook, sockeye, and coho salmon spawning presence and habitat distribution.

Areas selected for ground redd surveys varied depending upon fish habitat compensation site objectives. For Teigen Creek, the mainstem was separated into 1 km cells (range from 0–29 km) from the mouth to Teigen Lake at the headwaters. The timing of surveys varied depending upon the target species.

Ground redd survey methods followed those detailed in Johnston et al. (2007). Streams were ground-truthed with surveys conducted 5 to 7 days apart, depending upon creek and weather conditions. The following data was collected for each ground redd survey: survey date, start and end UTM, start and end time, water clarity (turbid, lightly turbid, moderately turbid, clear), weather (cloudy, partly cloudy, sunny), water and air temperature (°C), and precipitation (heavy rain, light rain, no rain). All redds were identified to species based upon physical characteristics of redds and fish presence, measured, flagged, and georeferenced. Redd longevity and observer efficiency in redd detection were estimated by tracking the condition of individual redds measured during previous surveys. Number and species of spawning fish were also counted during the survey.

4.5.3 Snorkel Redd Survey

Bull trout snorkel redd surveys were conducted within Teigen, South Teigen and North Treaty (lower reach) creeks to determine bull trout spawning habitat distribution throughout the watershed, determine timing of bull trout spawning, and provide an index of adult density.

Bull trout snorkel redd surveys were conducted between September 8 and 19, 2010.

Snorkel surveys were conducted with one swimmer accompanied by a data recorder walking along shore. The following data were collected for each snorkel survey: survey date, start and end UTM, start and end time, water clarity (turbid, lightly turbid, moderately turbid, clear), weather (cloudy, partly cloudy, sunny), water and air temperature (°C), and precipitation (heavy rain, light rain, no rain). All redds were identified to species, measured, flagged, and georeferenced. Redd longevity and observer efficiency in redd detection were estimated by tracking the condition of individual redds measured during previous surveys.

Habitat unit type (pool, riffle, run, glide) was classified for each sampled habitat and assigned a unique number. The number of observed fish (per species) was counted for each habitat unit. Fork length (mm) was visually estimated for all bull trout. Sexual maturity was recorded for bull trout. Total length

(m) and width (m), at three equally spaced intervals, was recorded for each snorkelled habitat unit. Maximum depth (m) was recorded for each snorkelled habitat unit.

Habitat units that could not be snorkelled were ground-truthed to locate bull trout redds.

4.6 FISH HABITAT COMPENSATION

4.6.1 Stream Habitat

4.6.1.1 Study Design

Stream sites were selected within fish habitat compensation sites to determine fish species utilization, species distribution, and life history stage presence and abundance. Fish habitat quality, habitat limitations, and fish habitat connectivity to mainstem creeks was assessed. Fish habitat and sampling assessments occurred between July and September 2010.

4.6.1.2 Fish Habitat

Reconnaissance Habitat Assessment

Fish habitat assessments were conducted within fish habitat compensation sites and were based on the *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures* (RISC 2001), *Reconnaissance 1:20,000 Fish and Fish Habitat Inventory: Site Card Field Guide* (RISC 1999b) and the detailed *Fish Habitat Assessment Protocol* (Johnston and Slaney 1996). Reconnaissance fish habitat assessments were conducted in accordance with the methods described in Section 4.2.2.

Detailed Habitat Assessment

Detailed fish habitat assessments (FHAP) were conducted at representative sites for selected streams (Johnston and Slaney 1996). At each site, UTM coordinates were recorded with a differential GPS unit. Temperature (°C), pH, and conductivity (µS/cm) were recorded using electronic meters.

FHAP assessments involved differentiating the stream into separate habitat units such as riffles, runs, cascades, glides and pools, and then recording an array of habitat attributes for each unit. These attributes included data on substrate composition, cover for fish and fish habitat type. A complete list of the attributes measured is presented in Table 4.6-1. Data were collected with a measuring tape, metre stick, or visual estimation. Stream habitats within these sites were separated into the following habitat units:

- pool – low velocity area with smooth, non-turbulent flow, low gradient (near 0%), and a concave bottom;
- glide – an area of smooth, non-turbulent flowing water with moderate velocity and gradient less than 4%;
- riffle – an area of turbulent, fast-flowing water with a gradient less than 4%;
- run – an area of low turbulence, fast-flowing water with a gradient less than 4%; and
- cascade – high gradient (>4%) area of turbulent, fast-flowing water.

Table 4.6-1. FHAP Attributes Assessed and Measured at Stream Sites

Habitat Type	Substrate Type	Physical Measurements	Habitat	Cover
% Pool	% Sand	Length (m)	Pool Type	% Deep Pool
% Riffle	% Gravel	Wetted Depth (m)	Pool Residual Depth (m)	% Boulder
% Glide	% Cobble	Bankfull Depth (m)	Fish Passage Barriers	% Instream Vegetation
% Cascade	% Boulder	Wetted Width (m)	Off Channel Type	% Overhanging Vegetation
% Run	% Bedrock	Bankfull Width (m)	Islands/Bars	% Undercut Bank
		Gradient (%)	Functional LWD	% LWD
		Bank Height (m)	Size Distribution	% SWD
		Temperature (°C)		
		pH		
		Conductivity (µS/cm)		

Habitat Mapping

Select streams (i.e., Gilbert Creek, Todedada Creek, East Todedada Creek, Oweegee Creek Side Channel, Teigen Creek Side Channel, Hodkin Lake Creek 1, Hodkin Lake Creek 2, Mere Creek) were ground-truthed and mapped, and habitat was assessed, through the implementation of the Sensitive Habitat Inventory Mapping (SHIM) protocol. The SHIM method is intended by the BC Ministry of Environment (MOE) to be a standard for watercourse and fish habitat mapping in British Columbia (Mason and Knight 2001). This method attempts to ensure the collection and mapping of reliable, high quality, current and spatially accurate information about fish habitats and watercourses.

Streams and wetlands were located in the field and their locations were mapped with a differential GPS unit (±1 m). Moving in an upstream direction, streams were mapped, barriers were identified and habitat assessments were conducted.

Detailed fish habitat data were collected in the field as streams and wetlands were mapped. The spatial data were tied to fish habitat data collected in the field. Habitat data collected were a combination of the *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures* (RISC 2001) and *BC Watershed Restoration Protocol* (Johnston and Slaney 1996) data. Table 4.6-2 presents the types of habitat data that were collected and mapped for each stream segment.

4.6.1.3 Fish Community

Electrofishing was conducted over a minimum 200 m-long stream section and for a total of approximately 1,000 electrofishing seconds. Only one electrofishing pass was made, and no stop nets were used to prevent fish movement.

Biological information was collected on captured fish including species, life history stage (i.e., fry, parr, adult), length (to the nearest 1 mm) and wet weight (to the nearest 0.01 g with an Ohaus 200 g scale. Aging structures (scales and pelvic fin rays) were collected from all fish greater than 90 mm in length.

Table 4.6-2. Fish Habitat Attributes Assessed and Mapped for Each Stream Segment

Locational and Physical Data	Channel Characteristics		Riparian Habitat Characteristics		Habitat Quality Characteristics	
	Attribute	**Descriptors**	**Attribute**	**Descriptors**	**Attribute**	**Descriptors**
Stream # (ILP)	Channel Morphology	Riffle-Pool	Bank Stability	Stable - Undercut	Anadromous Spawning/Resident Spawning/Rearing/Over-wintering Habitat Quality	Good
Reach #		Cascade-Pool		Stable - No Undercut		Fair
Segment #		Step-Pool		Aggrading		Poor
Wetted Width (m)		Large Channel		Eroding		None
Bankfull Width (m)	Dominant/Sub-Dominant Bed Substrate	Organics	Riparian Type	None	Overall Habitat Quality	Critical
Gradient (%)		Fines		Natural Wetland		Important
		Gravel		Shrubs		Marginal
		Cobble		Coniferous Forest	Habitat Limitation	Large Woody Debris
		Boulder		Deciduous Forest		Overhanging Vegetation
		Bedrock		Mixed Forest		Pools
	Dominant Bank Substrate	Organics	Riparian Structural Stage	Low Shrub (<2m)		Boulders
		Fines		Tall Shrub (2-10m)		High Velocity
		Gravel		Sapling (>10m)		Spawning Substrate
		Cobble		Young Forest		Undercut Banks
		Boulder		Mature Forest		Off Channels
		Bedrock		Old Growth Forest		Small Woody Debris
	Water Stage	High	Crown Closure	0		
		Moderate		1-20%		
		Low		21-40%		
	Substrate Compaction	High		41-70%		
		Moderate		71-90%		
		Low		>90%		

Age analyses were conducted by North/South Consultants of Winnipeg, MB. Fish age was assessed primarily through the use of the first two to three leading fin rays, with scales used as a secondary measurement whenever possible. Age of individual fish was estimated from fin rays or scales by counting the number of annuli (or yearly rings). In the laboratory, fin rays were cross-sectioned, each section was attached to a glass slide, and annuli were counted using a compound microscope. Scales were attached directly to plastic fiches and scale annuli were counted using a microfiche reader. A small number of structures were aged as replicate samples, using different structures where possible, and the estimate with the highest confidence was assigned to the sample.

4.6.2 Wetlands

4.6.2.1 Study Design

Wetlands were selected within fish habitat compensation sites to determine fish species utilization, species distribution, and life history stage presence and abundance. Fish habitat quality, habitat limitations, and fish habitat connectivity to mainstem creeks was assessed. Fish habitat and sampling assessments occurred between March and September 2010.

4.6.2.2 Fish Habitat

Open water wetland habitat was qualitatively described and connectivity to mainstem creeks was documented. The width and length of open water wetland habitats were measured, maximum water depth was measured, amount of cover and dominant cover type were recorded. Professional expertise was used to rank habitat suitability for each fish life history stage (i.e., spawning, rearing and overwintering) and overall habitat quality. Table 4.2-2 presents habitat suitability and overall habitat quality ranks and their corresponding criteria.

4.6.2.3 Fish Community

The fish community in each wetland was sampled using baited minnow traps. The traps consisted of two 6.3 mm galvanized metal mesh cylinders measuring 42 cm long and 23 cm in diameter with a 2 cm diameter opening and 6.5 mm mesh. The cylinders were locked together using a clip attached to a rope and buoy. Minnow traps were baited and set in deeper water habitats overnight. Fish caught were processed in a standardized manner as discussed in Section 4.6.1.3.

4.6.3 Lakes

4.6.3.1 Study Design

Lakes were selected within fish habitat compensation sites to determine fish species utilization, species distribution, and life history stage presence and abundance. Fish habitat quality, habitat limitations, and fish habitat connectivity to mainstem creeks was assessed. Fish habitat and sampling assessments occurred in July 2010.

4.6.3.2 Fish Habitat

Shoreline and littoral zone substrates were mapped and categorized, for select lakes depending upon objectives, with a GPS and an inflatable boat. Shoreline and littoral zone substrate segments were categorized by dominant and subdominant substrates present. Shoreline type was described and categorized by one of the following types: beach, low-rocky, cliff/bluff, wetland and vegetated (mixed, shrub, coniferous or deciduous). Extensive submergent and emergent vegetation beds were described and mapped with a GPS. Cover and fish habitat was described for the lake. Inlets and outlets

were located, photographed and described. Spot depth measurements (m) were obtained throughout lakes. Surface water temperature, pH and conductivity were measured.

4.6.3.3 Fish Community

Each lake was assessed using methodology based on the *Reconnaissance 1:20,000 Fish and Fish Habitat Inventory Protocol* (RISC 2001). Lakes were sampled with RISC standard sinking gillnets and baited minnow traps. A sinking gillnet net consisted of six panels, 15.2 m long and of different mesh sizes (25, 76, 51, 89, 38 and 64 mm), that were strung together in a "gang" to form a net 91.2 m long and 2.4 m deep with a surface area of 218.88 m^2. Gillnets were set randomly throughout the lake for a period of one hour to minimize fish mortality. If an unacceptable level of fish mortality occurred, then the durations of net sets were shortened. If fish were not caught with one hour net sets, then the durations of the net sets were lengthened. Minnow traps were randomly set in the littoral zone (< 2 m water depth) along the lake shoreline overnight.

Fish caught were processed in a standardized manner as discussed in Section 4.6.1.3.

4.7 DATA ANALYSIS

Data collected during the fish habitat assessment and fish sampling associated with stream habitats were transcribed from field notes into the BC MOE Field Data Inventory System (FDIS) for data storage and interpretation. Fish habitat was characterized using mean lengths, widths and depths of the attributes collected in the field.

Fish communities were characterized using mean fork length (mm), mean weight (g), mean age (years) and catch-per-unit-effort (CPUE). CPUE is an index of relative abundance that can be used to compare fish populations among different areas. This was based on the assumption that catch is proportional to fishing effort (Hubert and Fabrizio 2007). It is defined as the number of fish captured per sampling device per unit time.

For electrofishing, the CPUE was calculated from the number of fish captured per 100 seconds:

1. CPUE = number of fish caught * (100/electrofishing effort (s))

For minnow traps, CPUE was calculated from the number of fish captured per trap per day (24 h).

2. CPUE = number of fish caught per trap * (24 h/day/set time (h))

For gillnets, CPUE was calculated from the number of fish captured per 100 m^2 of net per hour. Gillnet area (m^2) was standard for all net sets, with an area of 218.88 m^2.

3. CPUE = number of fish caught per gillnet * (100/218.88)*(1/set time (h))

Estimates of adult bull trout abundance were generated from snorkel survey data. Estimates of adult abundance were obtained by dividing adult observations by the surface area of the habitat unit (i.e., fish/100 m^2). Surface area was calculated as the length of a habitat unit multiplied by its mean wetted width.

Condition is an index of the relative health of fish. It was calculated for all fish for which length and weight data were obtained, and was based on the following formula from Ricker (1975):

4. Condition = weight (g) x 10^5/length $(mm)^3$

Statistical analysis was not conducted for the fish and fish habitat data, since the objective of the report is to simply present the results of the baseline data, not a comparative analysis.

4.8 QUALITY ASSURANCE/QUALITY CONTROL

In order to ensure consistently accurate data collection, a Quality Assurance (QA) and Quality Control (QC) program was established at the onset of the field program. The program involved a practice session held in the field prior to any crew conducting stream, lake and wetland assessments to review data collection procedures. Throughout the course of the field program, a qualified and experienced Quality Assurance Biologist reviewed each completed data card daily. A QA checklist was also completed for each site. Whenever clarification was required on specific points, the card was returned to the crew leader for editing and was accepted only after the necessary changes were made. Data entry, into FDIS and other databases, subsequent to the field program provided another opportunity to ensure data consistency through application of the built-in quality assurance routine which generated a QA report for review. Comments were provided to address deficiencies and conflicts identified in the quality assurance report generated by FDIS. Data transcription quality was also verified by comparing a sub-sample of randomly selected site cards with the corresponding data entered into FDIS and into project maps. The standard for QC under the *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory Protocol* is to verify 5% of all site cards (RISC 2001).

For lake and wetland fish and fish habitat assessments, field notes were transcribed onto electronic spreadsheets in the office and all transcriptions were checked visually against the field forms and any errors corrected. The biological data were plotted to identify any outliers that may have resulted from transcription errors that occurred in the field.

5. Results

5. Results

5.1 ACCESS ROADS

All watercourses to be crossed by the proposed temporary glacier access road and a realigned section of proposed Coulter Creek Access Road were assessed. Detailed site cards and photos are located in Appendices 5.1-1 and 5.1-2. Fish-bearing stream crossing locations are shown in Figure 5.1-1 for the temporary glacier access road. Fish-bearing stream crossing sites are shown in Figure 5.1-2 for the realigned section of Coulter Creek Access Road.

For the realigned section of Coulter Creek Access Road, 11 stream sites were assessed, of which three were classified as fish-bearing. For the temporary glacier access road, seven stream sites were assessed, of which six were classified as fish-bearing. Table 5.1-1 presents a summary of each fish-bearing stream crossing. Details regarding stream classification, location, channel measurements, bed substrate, channel morphology, cover type, riparian habitat, and habitat quality are presented in this table. Channel characteristics and fish habitat cover are site-specific, and habitat quality varies between sites.

Table 5.1-1 presents a summary of fish species captured and historical fish presence information at stream sites along the proposed access roads. Low densities of fish are present in the Upper Bowser River Watershed. Only one Dolly Varden was caught in the Bowser River, at the stream crossing location, in 2 years of sampling and two site visits (Rescan 2010). Dolly Varden was present along all access roads.

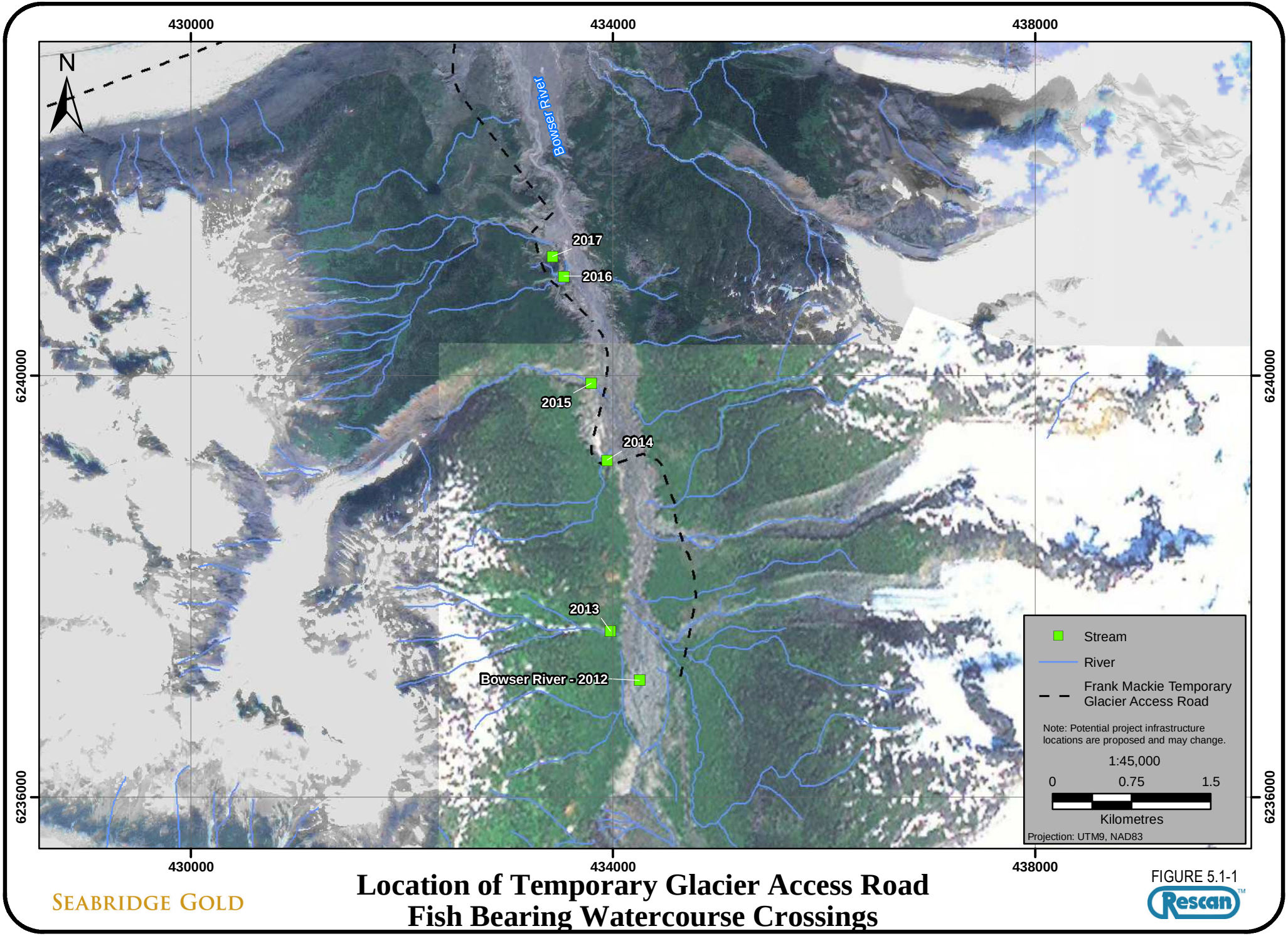
5.2 INSTREAM FLOW

5.2.1 South Teigen and North Treaty Creeks

Appendix 5.2-1 presents the cross-sectional instream flow data details for transects in South Teigen and North Treaty creeks. Twenty-two instream flow habitat transects were established in South Teigen Creek downstream of the TMF in 2009; nineteen of which were repeated in 2010 (Figure 5.2-1). Fifteen instream flow habitat transects were established in North Treaty Creek downstream of the TMF in 2009 (Figure 5.2-2). Transects were established based upon the hydraulic category of the site (i.e., pool, riffle, glide and cascade). A total of 6 pools and 13 cascades were assessed in South Teigen Creek (Table 5.2-1). A total of 5 pools, 5 riffles and 5 cascades were assessed in North Treaty Creek (Table 5.2-2).

For survey period three (September 2010), bankfull width, wetted width, mean depth, mean velocity and discharge for each transect was summarized in Table 5.2-1. Mean velocity and discharge was less in North Treaty Creek than South Teigen Creek. Table 5.2-2 shows a summary of substrate and habitat cover composition at each transect. Habitat cover composition was slightly different than the first and second sampling events in 2009 (Rescan 2010) because there was a natural discharge reduction between sampling events which changed the cover composition. Boulders, deep pools, and overhanging vegetation were the dominant cover types in South Teigen Creek. Cobble and boulders were the dominant substrate types in South Teigen Creek. Boulders, deep pools, and overhanging vegetation were the dominant cover types in North Treaty Creek. Cobble and small gravel were the dominant substrate types in North Treaty Creek.

Mean water temperature in South Teigen Creek ranged from 0.2°C in December to 8.2°C in August (Figure 5.2-3; Table 5.2-3). Mean water temperature in North Treaty Creek was ranged from 0.3°C in December to 8.9°C in August (Figure 5.2-4; Table 5.2-4).

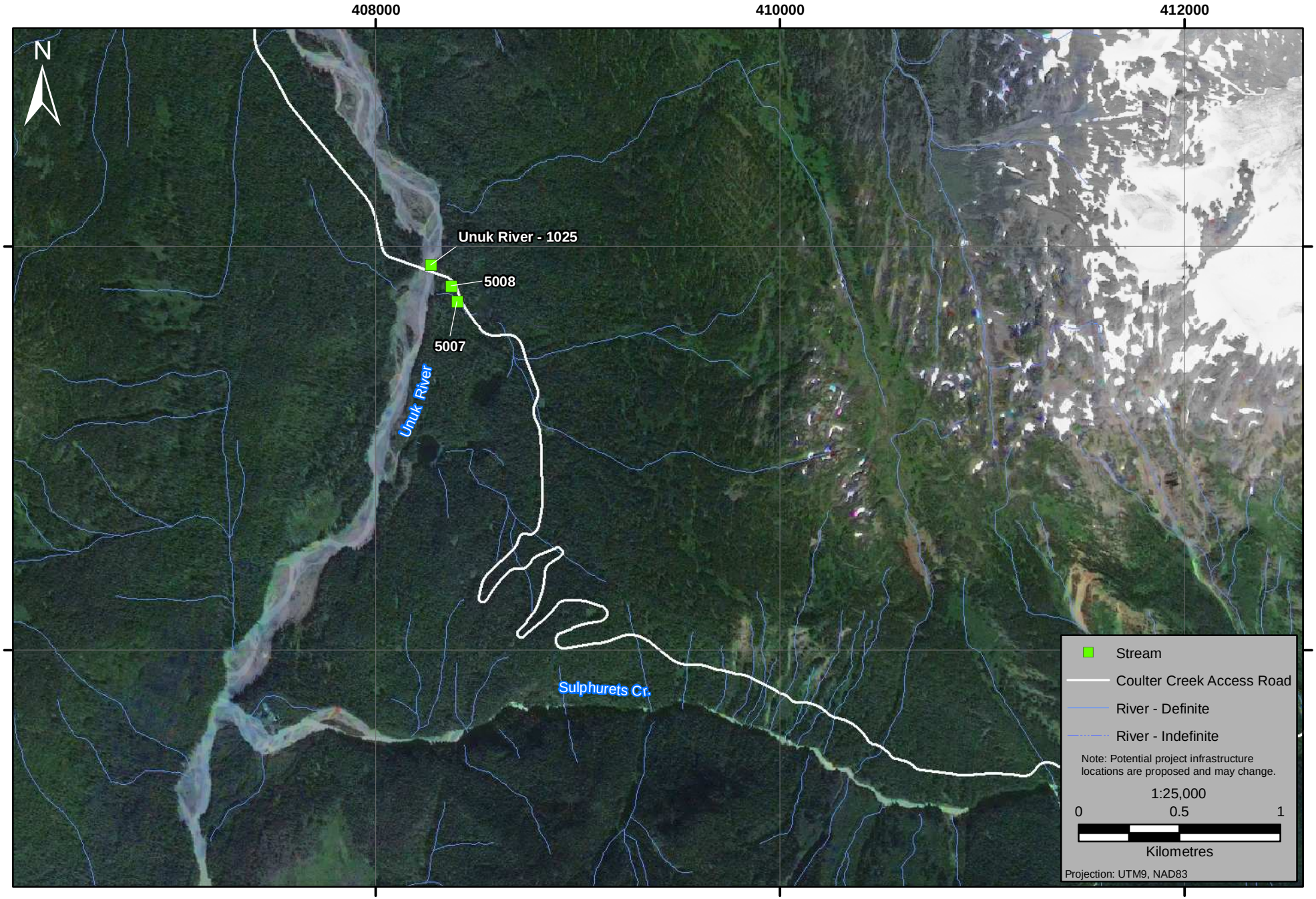


SEABRIDGE GOLD

Location of Temporary Glacier Access Road Fish Bearing Watercourse Crossings

FIGURE 5.1-1

Rescan™



SEABRIDGE GOLD

Location of Realigned Section of Coulter Creek Access Road Fish Bearing Watercourse Crossings

FIGURE 5.1-2

Rescan™

Table 5.1-1. Individual Fish-Bearing Stream Crossings, 2010

				Location		Channel Measurements				Channel Characteristics	
Road	Waterbody Name	Habitat Type	Stream Class	Easting	Northing	Mean Channel Width (m)	Mean Gradient (%)	Mean Residual Pool Depth (m)	Mean Bankfull Depth (m)	Dominant Substrate	Morphology
Temporary Glacier Access Road	2017	Stream	S1	433429	6241135	35.5	7.5	0.0	-	G	CP
	Bowser River - 2012	Stream	S1	434251	6237110	800.0	1.0	0.0	-	G	RP
	2016	Stream	S2	433537	6240947	7.3	10.0	0.2	-	G	CP
	2015	Stream	S1	433795	6239928	140.0	6.0	0.0	-	C	RP
	2014	Stream	S2	433946	6239202	17.0	3.5	0.3	-	G	RP
	2013	Stream	S2	433977	6237580	8.0	11.0	0.2	-	C	CP
Coulter Creek Access Road	Unuk River - 1025	Stream	S1	408275	6263910	71.0	1.0	-	1.9	G	RP
	5008	Stream	S4	408373	6263805	0.8	5.0	0.1	0.2	F	RP
	5007	Stream	S2	408404	6263727	9.7	1	0.2	0.4	G	RP

(continued)

Table 5.1-1. Individual Fish-Bearing Stream Crossings, 2010 (completed)

		Habitat		Habitat Quality			Fish		
Road	Waterbody Name	Dominant Cover Type	Riparian Vegetation Type	Overwintering	Rearing	Spawning	Sampled	Fish Bearing Status	Species Present
Temporary Glacier Access Road	2017	B	S	P	F	P	Yes	Default	-
	Bowser River - 2012	B	D	P	F	F	Yes	Confirmed	DV
	2016	B	S	P	F	P	No	Default	-
	2015	B	S	P	F	P	Yes	Default	-
	2014	SWD	S	P	F	F	No	Default	-
	2013	B	S	P	F	P	No	Default	-
Coulter Creek Access Road	Unuk River - 1025	LWD	C	G	G	P	Yes	Confirmed	CO, CH, SK, DV, CCT
	5008	U	C	P	G	F	No	Default	-
	5007	LWD	C	G	G	G	Yes	Confirmed	DV, CO, CCT

Riparian Vegetation Type:
D = deciduous
C = coniferous
S = shrubs
G = grass
M = mixed

Dominant Substrate:
F = fines
C = cobble
B = boulder
G = gravel

Morphology:
CP = cascade pool
RP = riffle pool
SP = step pool
LC = large channel

Habitat:
G = good
P = poor
F = fair
N = none

Dashes indicate not applicable or no data available

DV = Dolly Varden, CO = coho salmon, CCT = coastal cutthroat trout, CH = chinook salmon, SK = sockeye

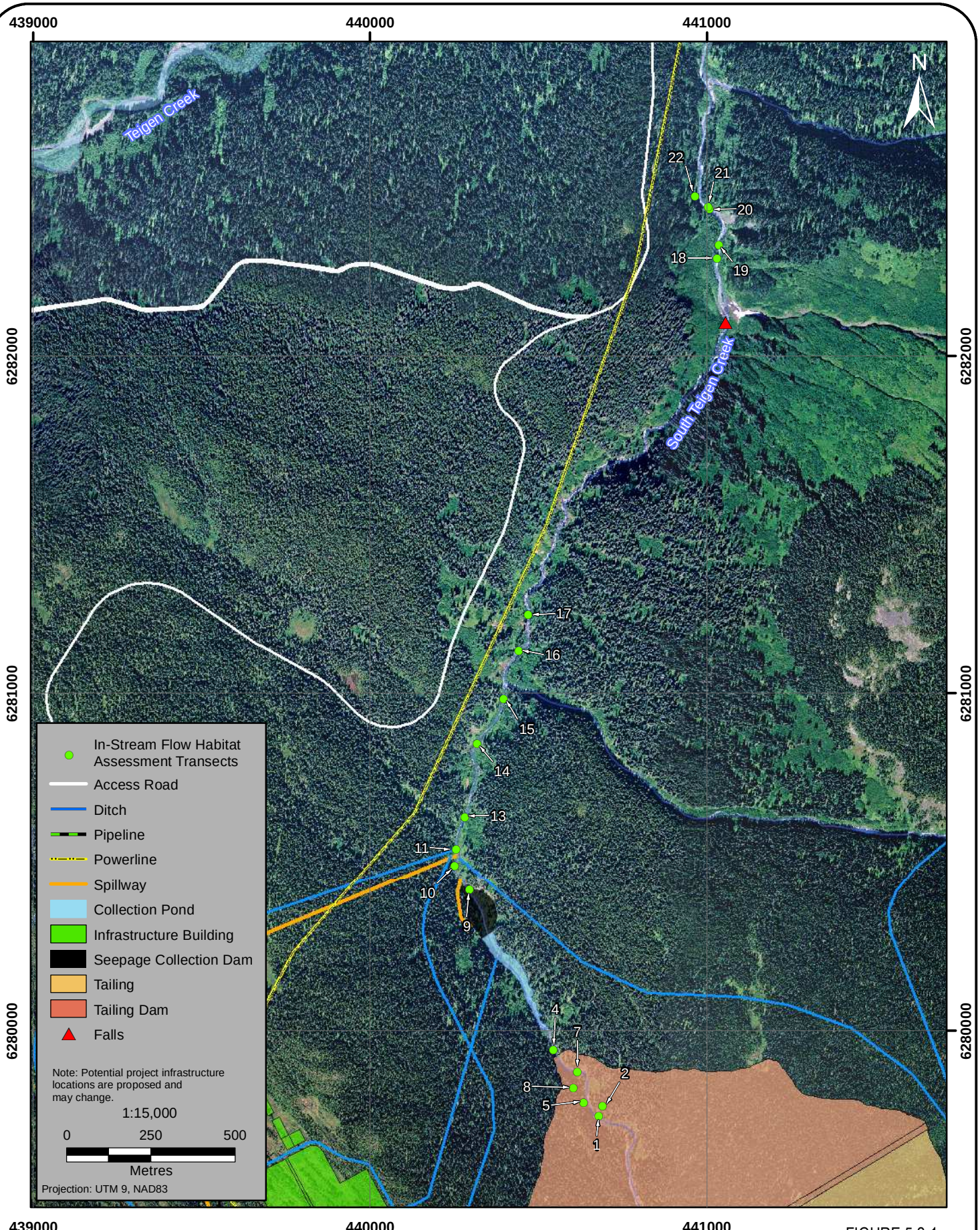


FIGURE 5.2-1

Instream Flow Habitat Assessment Transects within South Teigen Creek, 2010

SEABRIDGE GOLD

Rescan™ Engineers & Scientists

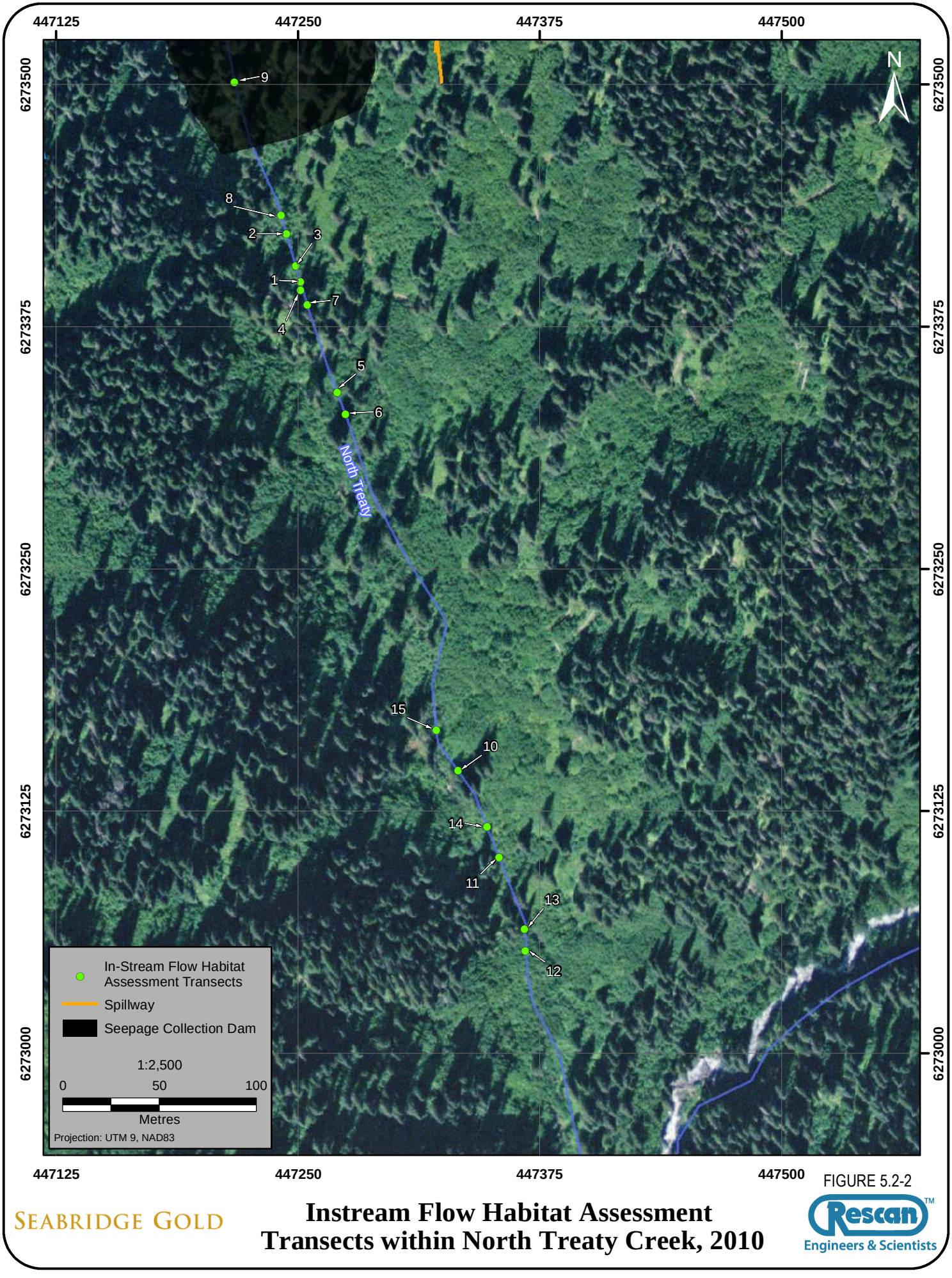


FIGURE 5.2-2

SEABRIDGE GOLD

Instream Flow Habitat Assessment Transects within North Treaty Creek, 2010

Rescan™ Engineers & Scientists

Table 5.2-1. Summary of Instream Flow Transect Data within South Teigen and North Treaty Creeks, 2010

Watershed	Transect #	Flow #	Flow Date (dd/mm/yy)	Hydraulic Unit Type	Bankfull Width (m)	Wetted Width (m)	Wetted Depth (cm)		Velocity (cm/s)		Discharge (m^3/s)
							Mean	SE	Mean	SE	
South Teigen	1	3	9-Sep-10	Pool	9.2	5.6	0.51	0.06	0.39	0.08	1.45
	2	3	9-Sep-10	Cascade	8.6	7.1	0.21	0.03	0.58	0.12	0.92
	4	3	9-Sep-10	Cascade	10.3	9.6	0.23	0.03	0.49	0.10	1.12
	5	3	9-Sep-10	Pool	12.5	10.1	0.26	0.04	0.37	0.10	0.97
	7	3	9-Sep-10	Pool	11.4	9.7	0.31	0.15	0.31	0.10	1.11
	8	3	9-Sep-10	Cascade	9.6	7.4	0.25	0.04	0.36	0.07	0.94
	9	3	10-Sep-10	Cascade	9.7	8.0	0.23	0.16	0.42	0.43	1.09
	10	3	10-Sep-10	Pool	8.3	7.2	0.52	0.06	0.19	0.04	0.94
	11	3	10-Sep-10	Cascade	9.6	7.4	0.27	0.02	0.40	0.08	0.91
	13	3	10-Sep-10	Pool	11.1	9.8	0.55	0.10	0.20	0.06	1.30
	14	3	10-Sep-10	Cascade	9.0	8.7	0.22	0.03	0.49	0.10	0.86
	15	3	10-Sep-10	Cascade	12.6	10.0	0.22	0.03	0.58	0.10	1.42
	16	3	10-Sep-10	Pool	12.9	8.6	0.39	0.09	0.18	0.05	0.89
	17	3	10-Sep-10	Cascade	14.7	9.8	0.20	0.05	0.30	0.11	1.09
	18	3	11-Sep-10	Cascade	14.4	8.8	0.24	0.04	0.38	0.09	1.02
	19	3	11-Sep-10	Cascade	10.7	9.9	0.20	0.04	0.42	0.10	1.25
	20	3	11-Sep-10	Cascade	13.0	11.5	0.22	0.03	0.39	0.07	1.16
	21	3	11-Sep-10	Cascade	20.7	17.4	0.12	0.02	0.29	0.06	1.08
	22	3	11-Sep-10	Cascade	17.4	14.6	0.15	0.03	0.42	0.10	1.22
North Treaty	1	3	12-Sep-10	Pool	5.1	4.9	0.34	0.02	0.21	0.06	0.30
	2	3	12-Sep-10	Cascade	9.2	4.1	0.10	0.02	0.32	0.08	0.23
	3	3	12-Sep-10	Riffle	7.3	5.2	0.10	0.02	0.24	0.05	0.16
	4	3	12-Sep-10	Riffle	5.7	4.1	0.16	0.02	0.24	0.04	0.17
	5	3	12-Sep-10	Pool	4.2	3.7	0.29	0.02	0.15	0.04	0.20
	6	3	12-Sep-10	Cascade	5.6	4.5	0.10	0.01	3.67	3.25	2.10
	7	3	12-Sep-10	Pool	6.5	5.5	0.26	0.03	0.18	0.05	0.29
	8	3	16-Sep-09	Riffle	6.0	3.4	0.19	0.02	0.22	0.04	0.20
	9	3	12-Sep-10	Cascade	6.7	3.8	0.10	0.01	0.36	0.08	0.15
	10	3	11-Sep-10	Cascade	6.8	5.1	0.07	0.04	0.23	0.14	0.22
	11	3	11-Sep-10	Pool	8.3	4.1	0.40	0.04	0.09	0.03	0.16
	12	3	11-Sep-10	Riffle	8.4	5.1	0.12	0.10	0.30	0.10	0.22
	13	3	11-Sep-10	Riffle	5.5	3.9	0.21	0.12	0.18	0.21	0.21
	14	3	11-Sep-10	Cascade	5.9	4.9	0.12	0.08	0.34	0.27	0.22
	15	3	11-Sep-10	Pool	7.5	4.9	0.30	0.05	0.11	0.03	0.26

Table 5.2-2. Summary of In-Stream Flow Substrate Composition and Habitat Cover within South Teigen and North Treaty Creeks, 2010

					Mean Bed Substrate Composition (%)							Cover Composition (%)[a]						
Watershed	Transect #	Flow #	Flow Date (dd/mm/yy)	Hydraulic Unit Type	Bedrock	Boulder	Large Cobble	Small Cobble	Large Gravel	Small Gravel	Fines	Boulder	Pool	Overhanging Vegetation	Instream Vegetation	Undercut Bank	Large Woody Debris	Small Woody Debris
South Teigen	1	3	9-Sep-10	Pool	100.0	58.0	52.5	0.0	0.0	47.5	60.0	72.9	93.5	-	-	-	-	-
	2	3	9-Sep-10	Cascade	50.0	46.0	64.5	0.0	20.0	0.0	0.0	38.9	-	22.2	-	-	-	-
	4	3	9-Sep-10	Cascade	50.0	50.0	76.0	58.8	25.0	0.0	0.0	42.6	-	-	-	-	-	-
	5	3	9-Sep-10	Pool	0.0	61.4	38.0	51.8	25.0	0.0	0.0	45.2	45.2	0.5	-	0.5	-	-
	7	3	9-Sep-10	Pool	0.0	79.3	30.0	65.0	46.7	52.5	30.0	80.6	32.3	29.6	-	-	18.8	-
	8	3	9-Sep-10	Cascade	0.0	0.0	66.4	44.4	0.0	30.0	20.0	-	-	11.0	11.0	-	-	-
	9	3	10-Sep-10	Cascade	0.0	45.0	33.7	52.3	0.0	20.0	0.0	84.9	-	24.1	-	-	-	-
	10	3	10-Sep-10	Pool	0.0	0.0	100.0	90.0	36.4	59.0	45.0	-	100.0	47.8	-	-	-	4.3
	11	3	10-Sep-10	Cascade	0.0	70.0	72.5	0.0	26.1	75.0	0.0	46.6	-	35.6	5.5	-	-	5.5
	13	3	10-Sep-10	Pool	0.0	52.2	87.5	14.5	0.0	40.0	47.8	48.8	76.8	36.0	-	-	-	-
	14	3	10-Sep-10	Cascade	0.0	44.4	33.7	20.0	1.9	0.0	0.0	0.7	-	0.5	-	-	-	-
	15	3	10-Sep-10	Cascade	0.0	28.0	31.0	37.0	4.0	0.0	0.0	0.6	-	-	-	-	-	-
	16	3	10-Sep-10	Pool	0.0	26.8	25.3	10.5	0.5	27.4	9.5	0.5	0.7	-	-	-	-	-
	17	3	10-Sep-10	Cascade	0.0	41.5	40.4	6.7	0.0	0.0	0.0	1.0	0.1	-	-	-	-	-
	18	3	11-Sep-10	Cascade	0.0	23.3	50.0	21.3	5.3	0.0	0.0	0.6	-	0.3	-	-	-	-
	19	3	11-Sep-10	Cascade	0.0	47.2	36.4	10.4	0.0	6.0	0.0	0.5	-	-	-	0.0	-	-
	20	3	11-Sep-10	Cascade	0.0	36.5	51.7	10.9	0.9	0.0	0.0	0.3	-	-	-	-	-	-
	21	3	11-Sep-10	Cascade	0.0	14.8	35.2	14.0	28.8	7.2	0.0	0.3	-	0.1	-	-	0.1	-
	22	3	11-Sep-10	Cascade	0.0	29.4	23.5	41.2	0.0	0.0	5.9	0.5	-	-	-	-	-	-
North Treaty	T1	3	12-Sep-10	Pool	0.0	6.8	24.5	39.5	0.0	29.1	0.0	25.6	48.8	-	-	-	-	11.6
	T2	3	12-Sep-10	Cascade	0.0	0.0	45.0	50.0	5.0	0.0	0.0	-	-	18.6	-	2.4	-	-
	T3	3	12-Sep-10	Riffle	0.0	0.0	10.3	63.7	0.0	26.0	0.0	-	-	18.7	-	-	14.0	0.4
	T4	3	12-Sep-10	Riffle	0.0	6.8	0.0	71.8	8.6	16.4	0.0	15.4	-	-	-	-	-	-
	T5	3	12-Sep-10	Pool	0.0	6.4	10.9	11.8	6.8	64.1	0.0	28.4	52.7	29.7	-	13.5	41.9	-
	T6	3	12-Sep-10	Cascade	0.0	34.5	53.6	8.2	0.0	3.6	0.0	70.4	-	66.0	-	8.2	-	-
	T7	3	12-Sep-10	Pool	0.0	10.5	22.6	13.7	1.6	51.6	0.0	10.8	68.7	-	-	-	12.7	10.8
	T8	3	16-Sep-09	Riffle	0.0	0.0	36.2	38.1	17.1	8.6	0.0	-	-	36.9	-	-	27.7	-
	T9	3	12-Sep-10	Cascade	0.0	37.5	60.0	0.0	2.5	0.0	0.0	60.5	-	47.4	-	-	7.9	-
	T10	3	11-Sep-10	Cascade	0.0	25.0	27.3	21.6	0.0	13.6	12.5	28.8	-	87.5	-	-	14.4	-
	T11	3	11-Sep-10	Pool	0.0	11.4	23.6	30.9	22.0	6.1	5.9	26.8	100.0	-	-	-	-	-
	T12	3	11-Sep-10	Riffle	0.0	56.7	0.0	42.0	54.2	27.1	70.0	31.0	-	17.2	-	-	-	10.3
	T13	3	11-Sep-10	Riffle	0.0	0.0	50.0	40.0	60.0	0.0	20.0	44.7	-	55.3	-	5.3	-	-
	T14	3	11-Sep-10	Cascade	0.0	58.9	0.0	49.1	60.0	40.0	0.0	97.9	-	97.9	-	4.2	-	4.2
	T15	3	11-Sep-10	Pool	0.0	54.0	0.0	46.0	0.0	60.0	40.0	100.0	91.4	22.6	-	-	-	-

[a] *percentage calculated from wetted width.*

Dashes indicate not present.

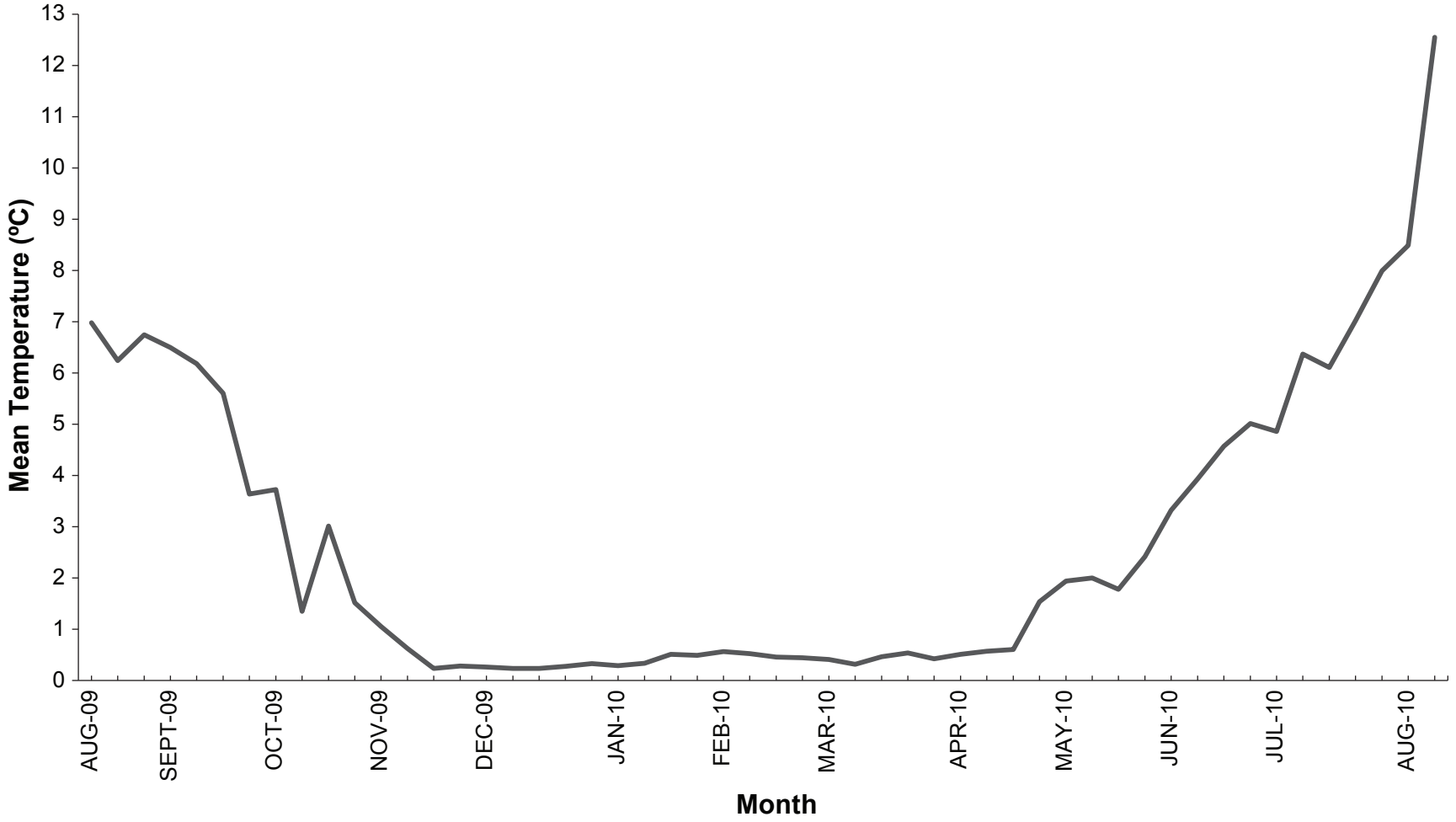


Figure 5.2-3

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Weekly Mean Temperatures for South Teigen Creek from August 2009 to August 2010

Figure 5.2-3

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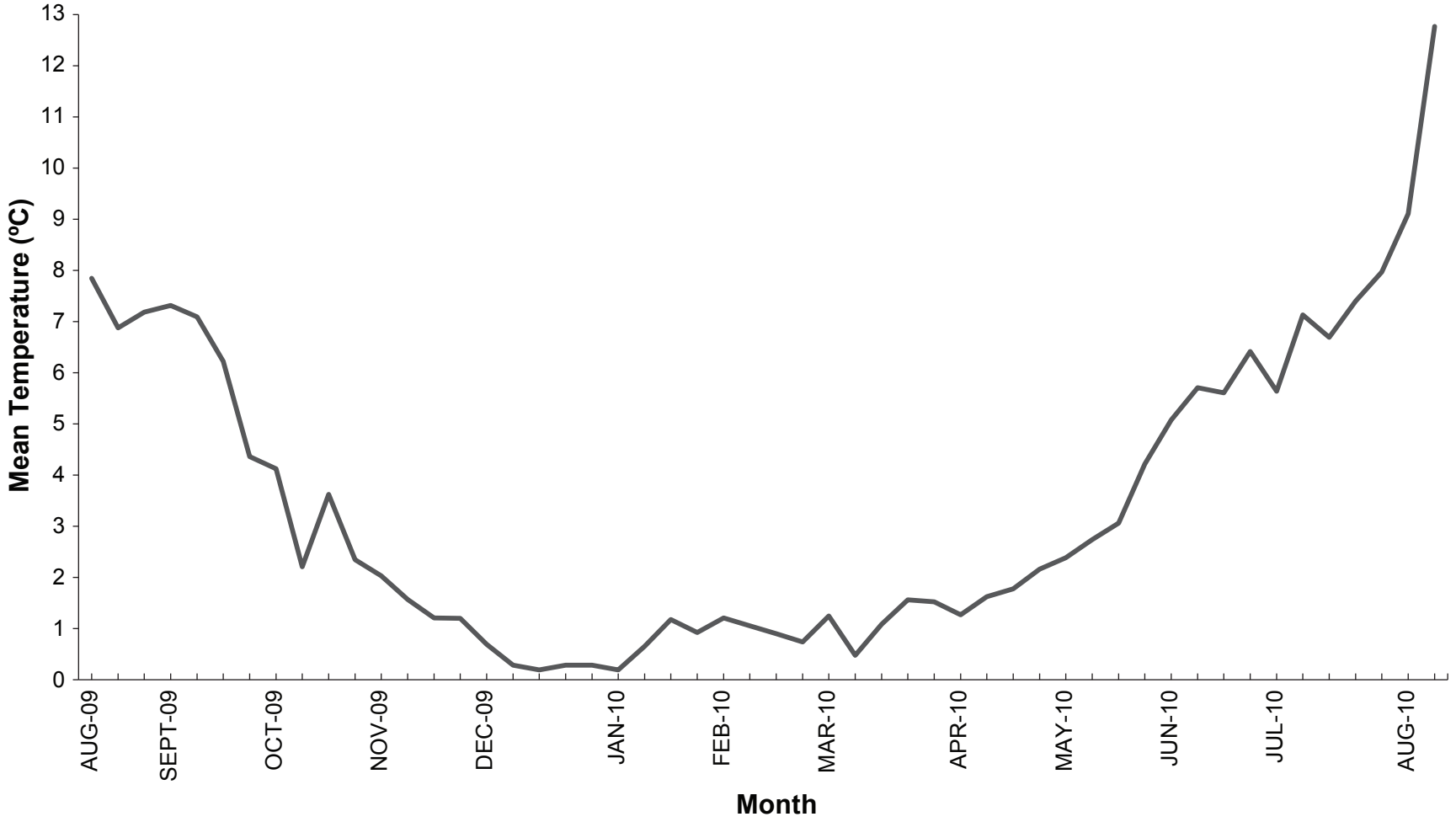

Figure 5.2-4

SEABRIDGE GOLD
KSM PROJECT

Weekly Mean Temperatures for North Treaty Creek from August 2009 to August 2010

Figure 5.2-4

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Table 5.2-3. Monthly Mean Temperatures for South Teigen Creek from August 2009 to August 2010

	2009					2010							
Attribute	**August**	**September**	**October**	**November**	**December**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**
Number of Observations	126	240	248	240	248	256	216	248	240	248	240	248	69
Mean Temperature, °C	6.64	5.90	2.49	0.54	0.26	0.41	0.49	0.41	0.74	2.10	4.33	6.71	8.16
Standard Error	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	1.75
Minimum Temperature, °C	4.42	2.94	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.34	1.76	3.58	5.55
Maximum Temperature, °C	10.26	9.18	5.35	1.66	0.45	0.67	0.67	0.78	3.37	5.86	8.38	12.40	12.50

Table 5.2-4. Monthly Mean Temperatures for North Treaty Creek from August 2009 to August 2010

	2009					2010							
Attribute	**August**	**September**	**October**	**November**	**December**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**
Number of Observations	122	240	248	240	248	248	224	248	240	248	240	248	68
Mean Temperature, °C	7.37	6.60	3.16	1.48	0.31	0.72	0.97	1.13	1.67	3.21	5.72	7.14	8.89
Standard Error	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
Minimum Temperature, °C	5.66	3.89	0.45	0.23	0.12	0.12	0.12	0.12	0.12	1.44	3.37	4.73	6.78
Maximum Temperature, °C	9.28	8.38	5.35	2.30	0.89	1.55	1.66	2.09	3.16	7.28	8.38	9.67	10.55

5.2.2 Sulphurets Creek

The BCIFM was conducted in Sulphurets Creek downstream of the proposed SCHP. One transect (SC-H1) was established downstream of the proposed SCHP because of the short reach length (500 m), presence of one cascade habitat type, and similar habitat conditions within the reach (Figure 5.2-5). Eight flow sampling events were conducted in 2010, during which substrate and habitat cover was assessed at three different flows. Bankfull width, wetted width, mean wetted depth, mean velocity and discharge are summarized in *KSM Project: 2010 Surface Water Quality Hydrology Summary Report* (Rescan 2011a). Table 5.2-5 shows a summary of substrate and habitat cover composition. Habitat cover was similar for all three sampling events because limited cover exists within the lower reach of Sulphurets Creek. Boulders was the dominant cover type in Sulphurets Creek. Cobble and boulders were the dominant substrate types in Sulphurets Creek.

5.3 DOLLY VARDEN ABUNDANCE

Appendices 5.3-1 and 5.3-2 present electrofishing effort, catch, and site locations in South Teigen Creek. Appendix 5.3-3 presents biological data for fish sampled in South Teigen Creek.

A total of five sites were sampled in South Teigen Creek downstream of the falls (Figure 5.3-1). Three of these sites were sampled twice, within 24 h, to recapture marked Dolly Varden from the first sampling event (total of eight sampling events). Capture efficiency of Dolly Varden was low within the reach because of high velocity and cobble/boulder bed substrate, which provide “escape habitat” from electrofishing influence. Only two marked Dolly Varden were recaptured from second sampling events. Therefore, population estimation methods could not be reliably used to determine Dolly Varden population abundance (Krebs 1999; Schwarz and Seber 1999). Flow and habitat conditions in South Teigen Creek prevented the effective use of stop nets at the upstream and downstream ends of sites, which can potentially violate fish movement assumptions (Peterson et al. 2003). Therefore, single pass electrofishing CPUE was calculated as an index of relative abundance.

A total of four species was caught in South Teigen Creek (Table 5.3-1). Dolly Varden was the dominant species caught (1.01 fish/100 s, SE = 0.04). No salmon species were caught, despite 10,198 s of electrofishing effort throughout the reach. Dolly Varden parr (0.56 fish/100 s, SE = 0.03) were the dominant life history stage caught (Table 5.3-2). Mean Dolly Varden fork lengths are shown in Table 5.3-3.

5.4 SPAWNING HABITAT

5.4.1 Teigen Creek

5.4.1.1 Chinook Salmon

Aerial spawner surveys have been used to monitor chinook salmon in Canada and the United States (Damborg et al. 1998; Kissner 1974, 1982; Pahlke 1997, 1998). The aerial survey technique is best suited for broad, shallow, clear-water systems with limited overhanging vegetation, undercut banks, and canopy cover (such as Teigen Creek). Aerial counts are a common method used to provide an index escapement (Neilson and Geen 1981) and determine key spawning areas/reaches within rivers.

FIGURE 5.2-5

Instream Flow Habitat Assessment Transect within Sulphurets Creek, 2010

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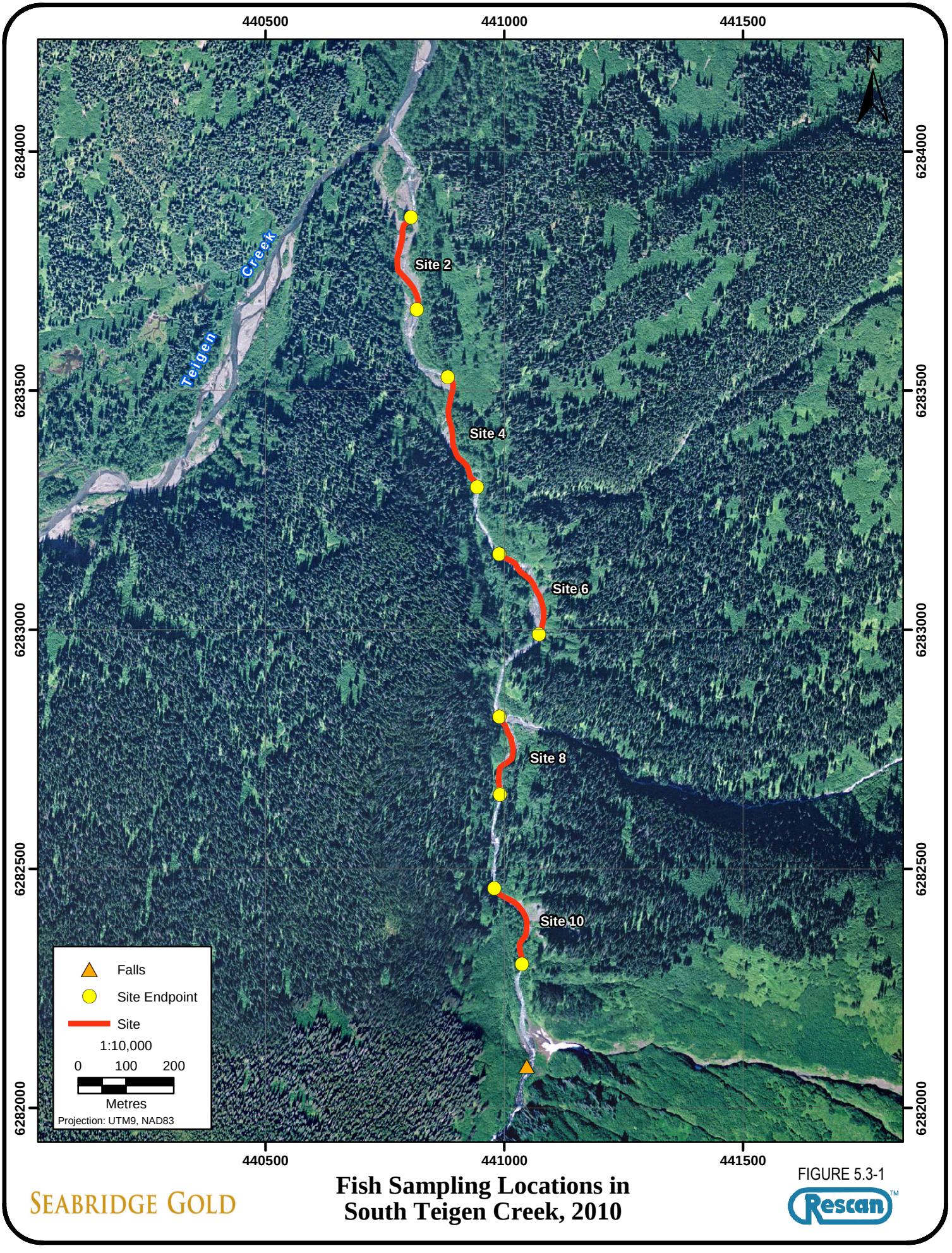
Table 5.2-5. Summary of In-Stream Flow Substrate Composition and Habitat Cover within Sulphurets Creek, 2010

				Mean Bed Substrate Composition (%)							Cover Composition (%) [a]						
Transect #	Flow #	Flow Date (dd/mm/yy)	Hydraulic Unit Type	Bedrock	Boulder	Large Cobble	Small Cobble	Large Gravel	Small Gravel	Fines	Boulder	Pool	Overhanging Vegetation	Instream Vegetation	Undercut Bank	Large Woody Debris	Small Woody Debris
1	1	28-Apr-10	Cascade	0.0	10.0	74.0	11.0	0.0	3.0	2.0	11.0	-	3.5	-	-	-	-
1	2	17-Jul-10	Cascade	0.0	10.0	76.0	11.0	0.0	2.0	1.0	11.0	-	5.5	-	-	-	-
1	3	28-Sep-10	Cascade	0.0	10.0	76.0	11.0	0.0	2.0	1.0	10.0	-	5.6	-	-	-	-

[a] percentage calculated from wetted width.

Dashes indicate not present.



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Fish Sampling Locations in South Teigen Creek, 2010

FIGURE 5.3-1

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Table 5.3-1. Summary Statistics of Electrofishing Effort and CPUE in South Teigen Creek, 2010

		Dolly Varden			Bull Trout			Mountain Whitefish			Rainbow Trout		
No. Sites	Total Effort (s)	n	Mean CPUE	SE	n	Mean CPUE	SE	n	Mean CPUE	SE	n	Mean CPUE	SE
8	10,198	101	1.01	0.04	1	0.01	0.04	1	0.01	0.02	3	0.03	0.03

CPUE = catch-per-unit-effort, fish/100 s.
SE = standard error.
n = number of fish caught.

Table 5.3-2. Summary Statistics of Electrofishing Effort and Dolly Varden Life Stage CPUE in South Teigen Creek, 2010

		Fry			Parr			Adult			Combined		
No. Sites	Total Effort (s)	n	Mean CPUE	SE	n	Mean CPUE	SE	n	Mean CPUE	SE	n	Mean CPUE	SE
8	10,198	6	0.07	0.04	55	0.56	0.03	40	0.39	0.03	101	1.01	0.04

CPUE = catch-per-unit-effort, fish/100 s.
SE = standard error.
n = number of fish caught.

Table 5.3-3. Mean Fork Length of Dolly Varden in South Teigen Creek, 2010

		Life History Stage			
Attribute	Descriptor	Fry	Parr	Adult	Combined
Fork Length (mm)	n	55	6	40	101
	Mean	42.5	55.6	116.2	79.8
	SE	1.7	0.7	4.2	3.5

SE = standard error.
n = sample size.

The Teigen Creek aerial spawning surveys were used to focus ground redd and fish count surveys, and to calibrate the various survey methods. Based upon the distribution of adult chinook observed during the aerial surveys, KM Marker 3.5 (Snowbank Creek confluence) to KM Marker 16 (upstream of West Teigen Creek confluence) was selected for ground surveys (Appendix 5.4-1). During peak chinook spawning (August 15, 2010), a total of 329 adults were observed during the aerial survey from the Snowbank Creek confluence to Teigen Lake outlet (Table 5.4-1). During peak chinook spawning (August 14 and 15, 2010), a total of 285 adults were observed during the ground fish count survey from the Snowbank Creek confluence to KM Marker 16 (Table 5.4-2; Appendix 5.4-2). The higher aerial survey chinook estimate can likely be attributed to higher fish densities resulting in an overestimation of fish abundance during aerial surveys (Eicher 1953; Irvine et al. 1992).

Table 5.4-1. Teigen Creek Aerial Fish Spawning Survey, 2010

Target Species	Survey Date (d/m/y)	No. Fish Observed	Survey Effectiveness
Chinook	4/8/2010	24	Effective
Chinook	9/8/2010	75	Effective
Chinook	15/8/2010	329	Effective
Coho	19/10/2010	5	Ineffective*

** Fish observed in tributaries of mainstem. High and turbid flow in mainstem.*

Table 5.4-2. Teigen Creek Ground Fish Spawning Survey, 2010

Target Species	Survey Date (d/m/y)	Section	No. Fish Observed	Survey Effectiveness
Chinook	4/8/2010	KM 16 to KM 10.5	6	Effective
Chinook	9/8/2010	KM 16 to KM 10.5	74	Effective
Chinook	10/8/2010	KM 10.5 to 3.5	181	Effective
Chinook	14/8/2010	KM 10.5 to 3.5	195	Effective
Chinook	15/8/2010	KM 10.5 to 3.5	90	Effective
Chinook	9/9/2010	KM 16 to KM 10.5	0	Effective
Chinook	10/9/2010	KM 10.5 to 3.5	0	Effective
Steelhead	28/4/2010	KM 14 to 10.5	0	Ineffective^
Steelhead	30/4/2010	KM 10.5 to 6	0	Ineffective^
Coho	16/10/2010	KM 10.5 to KM 3.5	4*	Effective
Coho	17/10/2010	KM 16 to KM 10.5	4*	Effective

** Fish observed in side channels and wetland outlets of floodplain.*
^ Low water temperature and low flow conditions.

During peak chinook spawning (August 14 and 15, 2010), a total of 153 individual redds was observed during the ground fish count survey from the Snowbank Creek confluence to Teigen Lake outlet (Table 5.4-3; Appendices 5.4-3 and 5.4-4). The redd survey was repeated in early September, and no additional redds were observed (September 9 and 10, 2010). Figure 5.4-1 shows the location of chinook redd densities. The majority of spawning occurs immediately upstream of the Snowbank Creek confluence and near the West Teigen Creek confluence. The results of the redd survey support previous spawning surveys results conducted in 2009 (Rescan 2010).

Table 5.4-3. Teigen Creek Redd Survey, 2010

Target Species	Survey Date (d/m/y)	Section	No. Unique Redds Observed	Survey Effectiveness
Chinook	4/8/2010	KM 16 to KM 10.5	0	Effective
Chinook	9/8/2010	KM 16 to KM 10.5	7	Effective
Chinook	10/8/2010	KM 10.5 to 3.5	34	Effective
Chinook	14/8/2010	KM 10.5 to 3.5	52	Effective
Chinook	15/8/2010	KM 16 to KM 10.5	60	Effective
Chinook	9/9/2010	KM 16 to KM 10.5	0	Effective
Chinook	10/9/2010	KM 10.5 to 3.5	0	Effective
Steelhead	28/04/2010	KM 14 to 10.5	0	Ineffective^
Steelhead	30/04/2010	KM 10.5 to 6	0	Ineffective^
Coho	16/10/2010	KM 10.5 to KM 3.5	2*	Effective
Coho	17/10/2010	KM 16 to KM 10.5	2*	Effective

** Redds observed in side channels and wetland outlets of floodplain.*
^ Low water temperature and low flow conditions.

Redd counts have been used to monitor chinook salmon in Canada and the United States (Johnson et al. 2007). As the product of reproductive adults, counts of salmon redds provide an index of population size or spawner escapement (Johnson et al. 2007). Population growth rate (e.g., the number of recruits-per-spawner) (Isaak and Thurow 2006) is derived from data sets in which estimates of escapement and recruits are available (Beland 1996). Redd counts can be used to estimate the number of female spawners in a given year by assuming one redd per female or by multiplying redd counts by a constant value to account for

multiple redds per female (Duffy 2005). Redd counts have also been used to estimate escapement by multiplying redd counts by estimates of the total number of fish (male and female) per redd (Al-Chokhachy et al. 2005; Gallagher 2005).

5.4.1.2 Coho Salmon

Coho salmon aerial surveys were not conducted in Teigen Creek due to unseasonably high flows during peak spawning (Table 5.4-1). Coho can be difficult to survey from aerial surveys as these fish are often cryptic in coloration and have the behaviour of seeking cover during spawning (Johnson et al. 2007). Peak spawning was determined from observations in other watersheds within the study area (e.g., Snowbank Creek and East Todedada Creek). During peak coho spawning (October 17 and 18, 2010), no adults were observed in the mainstem during the ground fish count and redd surveys from the Snowbank Creek confluence to KM Marker 16 (Tables 5.4-2 and 5.4-3; Appendix 5.4-2). However, coho were occasionally observed spawning in small tributaries of off-channel habitats; such as side channels (e.g., Teigen Creek Compensation Sites 2 and 3) and wetland outlets along Teigen Creek. These observations support known spawning habitat preferences for this species (McPhail 2007) and previous spawning surveys results conducted in 2009 (Rescan 2010).

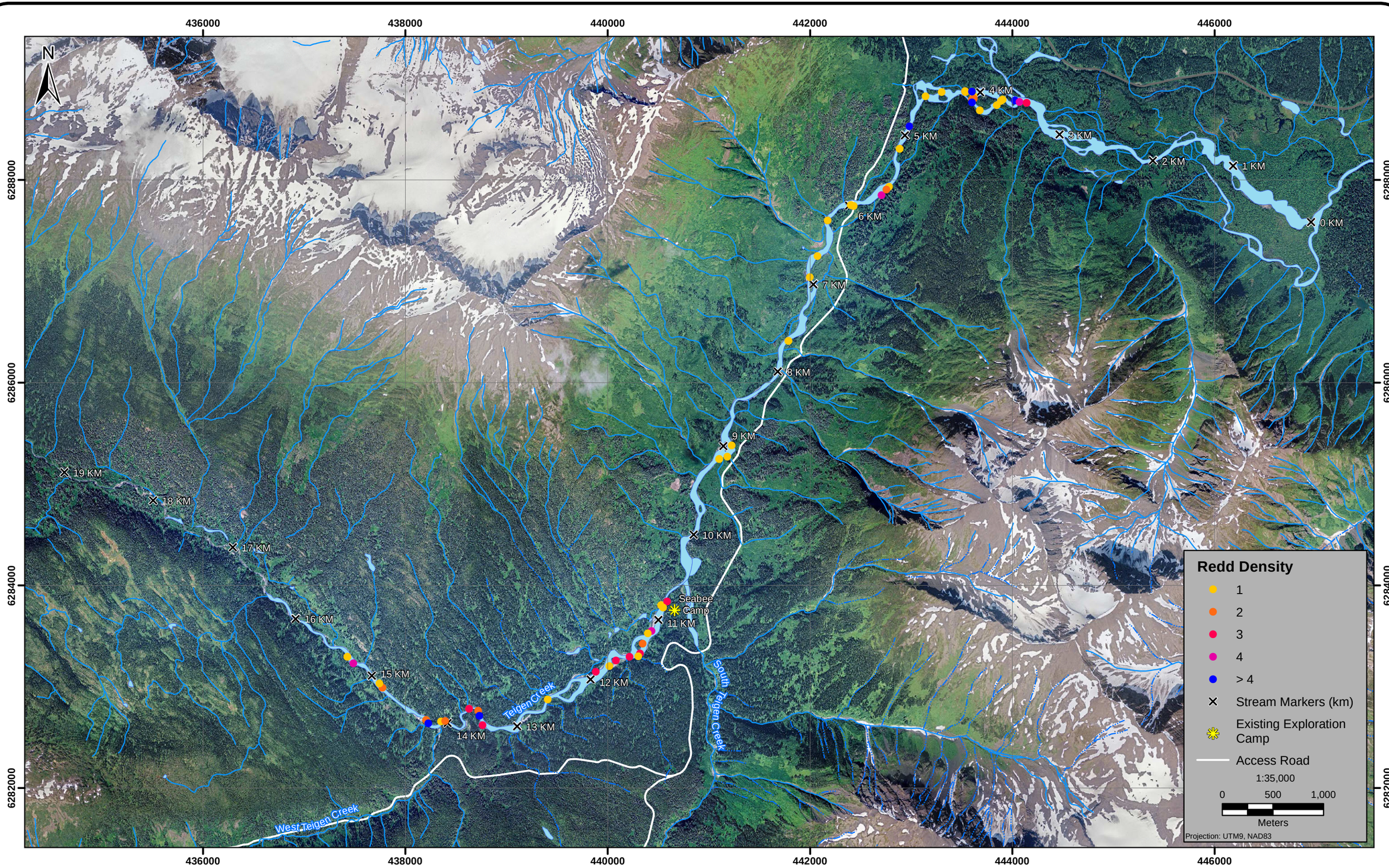
5.4.1.3 Steelhead

Steelhead redd surveys were conducted between April 26 and 29, 2010 and between KM Marker 6 and KM Marker 14 (Tables 5.4-2 and 5.4-3; Appendices 5.4-2 and 5.4-3). No redds were observed in Teigen Creek, due to low water temperatures and flow. Previous redd surveys conducted between June 5 and 7, 2009, did not detect redds due to high flow and poor water visibility (Rescan 2010). Observations of adult steelhead during snorkel surveys indicate that steelhead commence migration into Teigen Creek during mid-September. Adult steelhead over-winter and spawn in Teigen Creek, based on snorkel survey results, presence of steelhead/rainbow trout fry and parr sampled during summer and fall electrofishing surveys (Rescan 2009a and 2010), and post-spawn kelt observed in July 2010.

5.4.1.4 Bull Trout

Snorkle surveys have been used to monitor bull trout redds and adults in Canada and the United States (Budy et al. 2006; Mainstream and Diversified 2009). Redd counts typically have been used to monitor bull trout abundance and evaluate population trends (Rieman and Myers 1997). Counting redds is an attractive technique because it is relatively easy, inexpensive, and unintrusive compared to other methods of monitoring, and provides an indirect measure of adult abundance (i.e., of breeding population size). Although there can be error associated with the enumeration of bull trout redds (Bonneau and LaBar 1997; Dunham et al. 2001; Hemmingsen et al. 2001), research has shown that redd counts are strongly correlated with estimates of adult spawning population size (Dunham et al. 2001). Furthermore, unbiased estimates of adult bull trout abundance (number/site) or density (number/area) can be calculated (Thurlow et al. 2006).

Bull trout snorkel surveys were conducted between September 8 and 19, 2010. Adult Dolly Varden were not observed in Teigen Creek, only adult bull trout. A total of 29 potential redds were observed during the snorkel survey from the Snowbank Creek confluence to KM Marker 16 (Table 5.4-4; Appendix 5.4-5 and 5.4-6). Figure 5.4-2 shows the location of potential bull trout redds in Teigen Creek. No redds were observed at potential redd locations; however fish observed at these locations demonstrated signs of spawning behaviour and habitat; such as pairing adults, sexual characteristics present (e.g., kype formation and body coloration), aggressive behaviour, and suitable spawning substrate present. The timing of the bull trout snorkel survey was consistent with other spawning surveys in Northern BC (Mainstream and Diversified 2009; Bustard 2005; Rescan 2009b); however the unseasonably low and clear water conditions may have delayed spawning commencement in Teigen Creek.



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Location of Chinook Salmon Redds within Teigen Creek, 2010

FIGURE 5.4-1

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Table 5.4-4. Bull Trout Redd Snorkel Survey, 2010

Stream	Survey Date (d/m/y)	Start Location	End Location	Section	Survey No.	No. Potential Redds Observed	Survey Effectiveness
Teigen Creek	16/9/2010	Km 16.5	Downstream to km 10.5	1	2	9	Effective
Teigen Creek	17/9/2010	Km 10.5	Downstream to km 7	2	2	2	Effective
Teigen Creek	17/9/2010	Km 7	Downstream to km 3.5 (Snowbank Creek Confluence)	3	2	9	Effective
Teigen Creek	09/11/2010	Km 7	Downstream to km 3.5 (Snowbank Creek Confluence)	3	1	2	Effective
Teigen Creek	09/12/2010	Km 16.5	Downstream to km 10.5	1	1	5	Effective
Teigen Creek	15/9/2010	Km 10.5	Downstream to km 7	2	1	2	Effective
South Teigen Creek	16/9/2010	Teigen Creek Confluence	Upstream to Falls	1	1	2	Effective
North Treaty Creek	18/9/2010	Treaty Creek Confluence	Upstream to 1.5 km	1	1	0	Effective

A total of 186 habitat units (i.e., glide, pool, riffle, run) was snorkel surveyed, representing an area of 42 ha (Table 5.4-5; Appendix 5.4-7). Other habitat units were visually surveyed for redds and adult bull trout. A total of 132 adult bull trout were enumerated. A total of Mean adult bull trout density was 0.63 fish/100 m^2 of snorkelled habitat (Table 5.4-6). Riffle habitats had the lowest bull trout density of snorkelled habitat. Section 2 (KM Marker 10.5 to KM Marker 7) had the lowest bull trout density of snorkelled habitat.

A total stream length of 26 km was surveyed. Adult bull trout abundance per km was 5.08 bull trout/km.

Table 5.4-5. Teigen Creek Bull Trout Redd Snorkel Survey - Habitat Summary, 2010

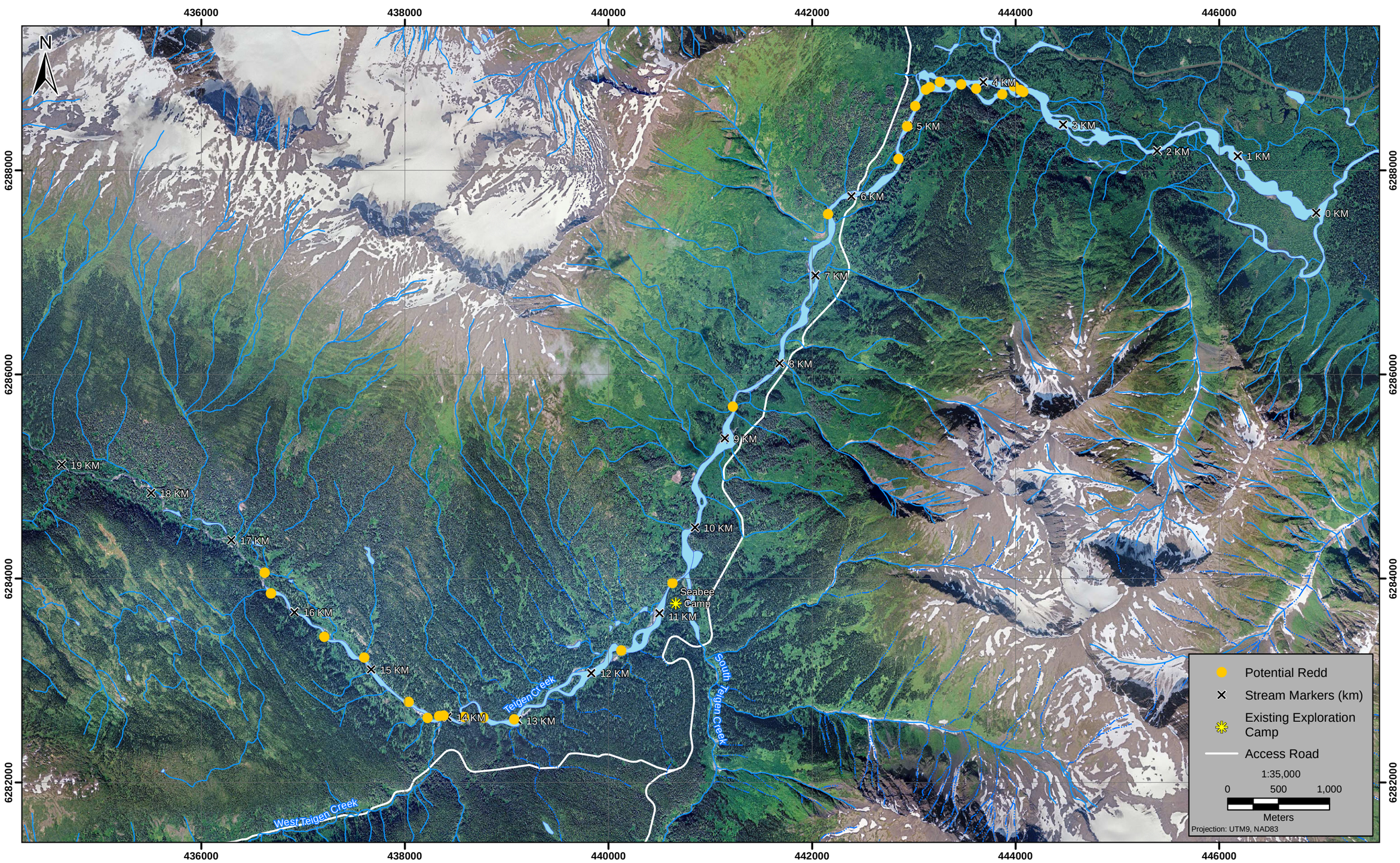
Characteristic	Habitat Unit				Total
	Glide	Pool	Riffle	Run	
No. Habitat Units Surveyed	20	91	13	62	186
Area Surveyed (m^2)	6,642	15,428	1,924	18,077	42,070
Mean Maximum Depth (m)	0.52	0.86	0.56	0.59	-

Dash indicates not applicable.

Table 5.4-6. Teigen Creek Adult Fish Density per Snorkel Sampled Area, 2010

Characteristic	Statistic	Species		
		Bull Trout	Mountain Whitefish	Rainbow Trout/ Steelhead
Surveyed Reaches Density (fish/100 m^2)				
Total	n	184	184	184
	Mean	0.63	1.82	0.05
	SE	0.17	0.42	0.02
Habitat Unit Density (fish/100 m^2)				
Glide	n	28	28	28
	Mean	0.63	1.00	0.00
	SE	0.25	0.40	-
Pool	n	86	86	86
	Mean	0.64	1.27	0.11
	SE	0.25	0.33	0.05
Riffle	n	13	13	13
	Mean	0.47	1.38	0.00
	SE	0.36	1.06	-
Run	n	57	57	57
	Mean	0.66	3.15	0.01
	SE	0.36	1.21	0.01
Section Density (fish/100 m^2)				
1	n	79	79	79
	Mean	0.80	0.59	0.05
	SE	0.28	0.21	0.04
2	n	58	58	58
	Mean	0.25	2.01	0.00
	SE	0.07	0.62	-
3	n	47	47	47
	Mean	0.82	3.63	0.12
	SE	0.45	1.38	0.07

Dashes indicate not applicable.
n = sample size of habitat units.
SE = standard error of the mean.



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Location of Potential Bull Trout Redds within Teigen Creek, 2010

FIGURE 5.4-2

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5.4.2 Other Watersheds

Aerial surveys were conducted for chinook and coho salmon in other watersheds to confirm fish spawning presence and distribution. These watersheds included: Taft Creek, Snowbank Creek, Oweegee Creek, East Todedada Creek, Todedada Creek, South Teigen Creek, and Sulphurets Creek (Table 5.4-7; Appendix 5.4-8).

Ground fish count and redd surveys were conducted for chinook, steelhead, sockeye, and coho in other watersheds to confirm fish spawning presence and distribution. These watersheds included: Taft Creek, Snowbank Creek, Gilbert Creek, Oweegee Creek, East Todedada Creek, Todedada Creek, South Teigen Creek, North Treaty Creek, Treaty Creek, and Sulphurets Creek (Table 5.4-8; Appendices 5.4-9 and 5.4-10).

During peak coho spawning (October 19, 2010), a total of 47 individual redds and 64 fish were observed during the ground fish and redd count survey in East Todedada Creek (Table 5.4-8; Appendix 5.4-9). Figure 5.4-3 shows the location of coho redds.

Snorkel surveys were conducted for bull trout in South Teigen (downstream of the falls) and Tumbling Creeks (Table 5.4-4; Appendix 5.4-5 and 5.4-6). Two potential bull trout redds were identified in South Teigen Creek, downstream of the falls.

5.5 FISH HABITAT COMPENSATION

5.5.1 Fish Habitat

The fish habitat data presented below supports the *KSM Project: HADD fish habitat compensation plan* (Rescan 2011b) and *KSM Project: MMER fish habitat compensation plan* (Rescan 2011c). A detailed discussion of wetland habitats is presented in the plans, therefore they are not presented below. Site-specific fish habitat descriptions of proposed compensation sites are presented in these plans; therefore fish habitat assessment results are simply presented as supporting information. Furthermore, fish habitat assessment methods varied depending upon site-specific objectives.

5.5.1.1 Streams

SHIM was used to characterize fish habitat within eight compensation sites. These sites included: East Todedada Creek - Sites 1 and 3, Gilbert Creek - Site 1, Hodkin Lake Creek 1 - Site 2, Hodkin Lake Creek 2 - Site 3, Mere Creek - Site 1, Oweegee Creek (Side Channel) - Site 2, Teigen Creek (Side Channel) - Site 3, and Todedada Creek - Site 1. Appendix 5.5-1 presents SHIM data for each compensation site. Appendix 5.5-2 presents FHAP data for each stream site. A total of 16.3 km of stream fish habitat was mapped and assessed between eight compensation sites.

SHIM results were then grouped into three categories:

- channel characteristics - length assessed, area assessed, bankfull width, wetted width, bankfull depth, wetted depth, residual pool depth and gradient;
- instream and riparian habitat characteristics - habitat unit ratio, habitat weighted substrate composition, habitat weighted cover composition, riparian vegetation type, riparian structural stage, riparian crown closure, channel morphology, bank stability and dominant bank substrate; and
- habitat quality characteristics - spawning habitat, rearing habitat, over-wintering habitat, and habitat limitations.

Table 5.4-7. Aerial Fish Spawning Survey, 2010

Stream Name	Target Species	Survey Date (d/m/y)	Start Location	End Location	No. Fish Observed	Survey Effectiveness
Taft Creek	Chinook	08/05/2010	Bell-Irving Confluence	Upstream to 3 km marker	0	Effective
Taft Creek	Chinook	08/08/2010	Bell-Irving Confluence	Upstream to 3 km marker	0	Effective
Taft Creek	Chinook	08/12/2010	Bell-Irving Confluence	Upstream to 3 km marker	0	Effective
Taft Creek	Chinook	15/8/2010	Bell-Irving Confluence	Upstream to 3 km marker	0	Effective
Snowbank Creek	Chinook	08/08/2010	Teigen Creek Confluence	Upstream to Redflat Creek Confluence	0	Ineffective*
Snowbank Creek	Chinook	08/07/2010	Teigen Creek Confluence	Upstream to Redflat Creek Confluence	0	Ineffective*
Snowbank Creek	Chinook	08/12/2010	Teigen Creek Confluence	Upstream to Redflat Creek Confluence	0	Ineffective*
Snowbank Creek	Chinook	15/8/2010	Teigen Creek Confluence	Upstream to Redflat Creek Confluence	0	Ineffective*
Oweegee Creek - Side Channel	Chinook	08/07/2010	Bell-Irving Confluence	Oweegee Creek Confluence	25	Effective
Oweegee Creek - Side Channel	Chinook	08/12/2010	Bell-Irving Confluence	Oweegee Creek Confluence	0	Effective
Oweegee Creek - Side Channel	Chinook	15/8/2010	Bell-Irving Confluence	Oweegee Creek Confluence	0	Effective
East Todedada Creek	Chinook	08/08/2010	Todedada Creek Confluence	Upstream to headwaters	0	Effective
East Todedada Creek	Chinook	08/12/2010	Todedada Creek Confluence	Upstream to headwaters	0	Effective
East Todedada Creek	Chinook	15/8/2010	Todedada Creek Confluence	Upstream to headwaters	0	Effective
Todedada Creek	Chinook	08/08/2010	Treaty Creek Confluence	Upstream to Todedada Lake Creek	0	Ineffective*
Todedada Creek	Chinook	08/12/2010	Treaty Creek Confluence	Upstream to Todedada Lake Creek	0	Ineffective*
Todedada Creek	Chinook	15/8/2010	Treaty Creek Confluence	Upstream to Todedada Lake Creek	0	Ineffective*
Sulphurets Creek	Chinook	13/8/2010	Unuk River Confluence	Upstream to Cascade	0	Ineffective*
South Teigen Creek	Chinook	08/04/2010	Teigen Creek Confluence	Upstream to Falls	0	Effective
South Teigen Creek	Chinook	08/09/2010	Teigen Creek Confluence	Upstream to Falls	0	Effective
South Teigen Creek	Chinook	15/8/2010	Teigen Creek Confluence	Upstream to Falls	0	Effective
Sulphurets Creek	Coho	18/10/2010	Unuk River Confluence	Upstream to Cascade	0	Effective
Todedada Creek	Coho	18/10/2010	Treaty Creek Confluence	Upstream to Todedada Lake Creek	1	Effective
Todedada Creek	Coho	19/10/2010	Treaty Creek Confluence	Upstream to Todedada Lake Creek	6^	Effective
East Todedada Creek	Coho	18/10/2010	Todedada Creek Confluence	Upstream to 1st Beaver Dam	2	Effective
East Todedada Creek	Coho	18/10/2010	1st Beaver Dam	Upstream to headwaters	21	Effective
Snowbank Creek	Coho	19/8/2010	Teigen Creek Confluence	Upstream to Redflat Creek Confluence	0	Effective
Snowbank Creek	Coho	19/8/2010	Wetland	Upstream to Headwaters	15	Effective

** High turbidity*

^ 3 redds observed

Table 5.4-8. Ground Fish Spawning Survey, 2010

Stream Name	Survey Date (d/m/y)	Target Species	Start Location	End Location	No. Redds Observed	No. Fish Observed	Survey Effectiveness
Taft Creek	08/07/2010	Chinook	Bell-Irving Confluence	Upstream 500 m from Highway 37 Crossing	0	0	Effective
Taft Creek	08/11/2010	Chinook	Bell-Irving Confluence	Upstream 500 m from Highway 37 Crossing	0	0	Effective
Snowbank Creek	08/07/2010	Chinook	Highway 37 Crossing	Redflat Creek Confluence	0	0	Effective
Gilbert Creek	08/10/2010	Chinook	Treaty Creek Confluence	300 m Upstream of 1st Beaver Dam	0	0	Effective
Gilbert Creek	13/8/2010	Chinook	Treaty Creek Confluence	300 m Upstream of 1st Beaver Dam	0	0	Effective
Oweegee Creek - Side Channel	08/06/2010	Chinook	Bell-Irving Confluence	Oweegee Creek Confluence	0	25	Effective
Oweegee Creek	08/07/2010	Chinook	Oweegee Creek Confluence	Upstream 1 km	0	0	Effective
Oweegee Creek	08/07/2010	Chinook	1.2 km	Upstream to 1.5 km	0	0	Effective
East Todedada Creek	08/08/2010	Chinook	Todedada Creek Confluence	Upstream to headwaters	0	0	Effective
East Todedada Creek	08/12/2010	Chinook	Todedada Creek Confluence	Upstream to headwaters	0	0	Effective
Todedada Creek	08/12/2010	Chinook	Treaty Creek Confluence	Upstream 2 km	0	0	Ineffective*
Todedada Creek	15/8/2010	Chinook	East Todedada Creek Confluence	Upstream 2 km	0	0	Ineffective*
Sulphurets Creek	13/8/2010	Chinook	Unuk River Confluence	Upstream to Cascade	0	0	Effective
South Teigen Creek	08/09/2010	Chinook	Teigen Creek Confluence	Upstream to Falls	0	0	Effective
South Teigen Creek	29/4/2010	Steelhead	Teigen Creek Confluence	Upstream to Falls	0	0	Effective
North Treaty Creek	29/4/2010	Steelhead	Treaty Creek Confluence	Upstream to 1.5 km	0	0	Effective
Treaty Creek	29/4/2010	Steelhead	North Treaty Creek Confluence	Downstream 2 km	0	0	Effective
Oweegee Creek	14/09/2010	Sockeye	Oweegee Creek Confluence	Upstream 1 km	0	0	Effective
Oweegee Creek - Side Channel	14/09/2010	Sockeye	Bell-Irving Confluence	Oweegee Creek Confluence	10	16	Effective
East Todedada Creek	10/09/2010	Sockeye	Todedada Creek Confluence	Upstream to headwaters	0	4	Effective
Gilbert Creek	09/09/2010	Sockeye	Treaty Creek Confluence	Gilbert Lake Outlet	0	0	Effective
East Todedada Creek	22/9/2010	Sockeye	Todedada Creek Confluence	Upstream to headwaters	1	15	Effective
Gilbert Creek	16/10/2010	Coho	Treaty Creek Confluence	Gilbert Lake Outlet	2	2	Effective
East Todedada Creek	15/10/2010	Coho	Todedada Creek Confluence	Upstream to 1st Beaver Dam	12	3	Effective
East Todedada Creek	15/10/2010	Coho	1st Beaver Dam	Upstream to headwaters	23	42	Effective
East Todedada Creek	19/10/2010	Coho	Todedada Creek Confluence	Upstream to 1st Beaver Dam	12	6	Effective
East Todedada Creek	19/10/2010	Coho	1st Beaver Dam	Upstream to headwaters	35	58	Effective
Sulphurets Creek	18/10/2010	Coho	Unuk River Confluence	Upstream to Cascade	0	0	Effective
South Teigen Creek	18/10/2010	Coho	Teigen Creek Confluence	Upstream to Falls	0	0	Effective
North Treaty Creek	18/10/2010	Coho	Treaty Creek Confluence	Upstream to 1.5 km	0	0	Effective
Teigen Creek - Side Channel	17/10/2010	Coho	Teigen Creek Side Channel Exit	Teigen Creek Side Channel Entry	2	4	Effective

** High turbidity*

Table 5.5-1 summarizes SHIM channel characteristics for fish habitat compensation sites, Table 5.5-2 summarizes SHIM instream and riparian habitat for fish habitat compensation sites, Table 5.5-3 summarizes rearing habitat quality for fish habitat compensation sites. Figures 5.5-1 to 5.5-7 show the locations of where SHIM mapping was conducted, reach breaks (labelled at start of reach break), beaver dam locations, FHAP sites, stream segments (alternating stream colours) for compensation sites.

Fish habitat was assessed for other compensation sites according to reconnaissance fish habitat assessments procedures. Table 5.5-4 summarizes channel characteristics for select fish habitat compensation sites/ streams.

5.5.1.2 Lakes

A habitat assessment and bathymetric survey was conducted for Gilbert Lake (Appendix 5.5-3). Gilbert Lake (Gilbert Lake - Site 1) is located in the Todedada Creek Watershed at an elevation of 590 m. It has a surface area of 59.3 ha with a maximum depth of 8 m. Shoreline and littoral substrates were dominated by fines (Figure 5.5-8). Shoreline vegetation was dominated by upland shrubs and coniferous trees. The percentage of littoral zone area (< 2 m water depth) was high within Gilbert Lake. Emergent vegetation was abundant along the shoreline providing cover for fish.

Bathymetry was measured for Unnamed Lake #1 (Figure 5.5-9), which is located within the Treaty Creek Watershed. The lake has a maximum depth of 10 m and surface area of 7.0 ha (Treaty Creek - Site 2). Bathymetry was measured for Unnamed Lake #2 (Figure 5.5-10), which is located within the Treaty Creek Watershed. It has a maximum depth of 9 m and surface area of 1.6 ha (2009 Treaty Creek). This compensation project was not proposed in either fish habitat compensation plans (Rescan 2011b, 2011c) due to limited biological benefits of the project.

5.5.2 Fish Community

The fish community data presented below support the *KSM Project: HADD fish habitat compensation plan* (Rescan 2011b) and *KSM Project: MMER fish habitat compensation plan* (Rescan 2011c). Fish assessment methods varied depending upon site specific objectives.

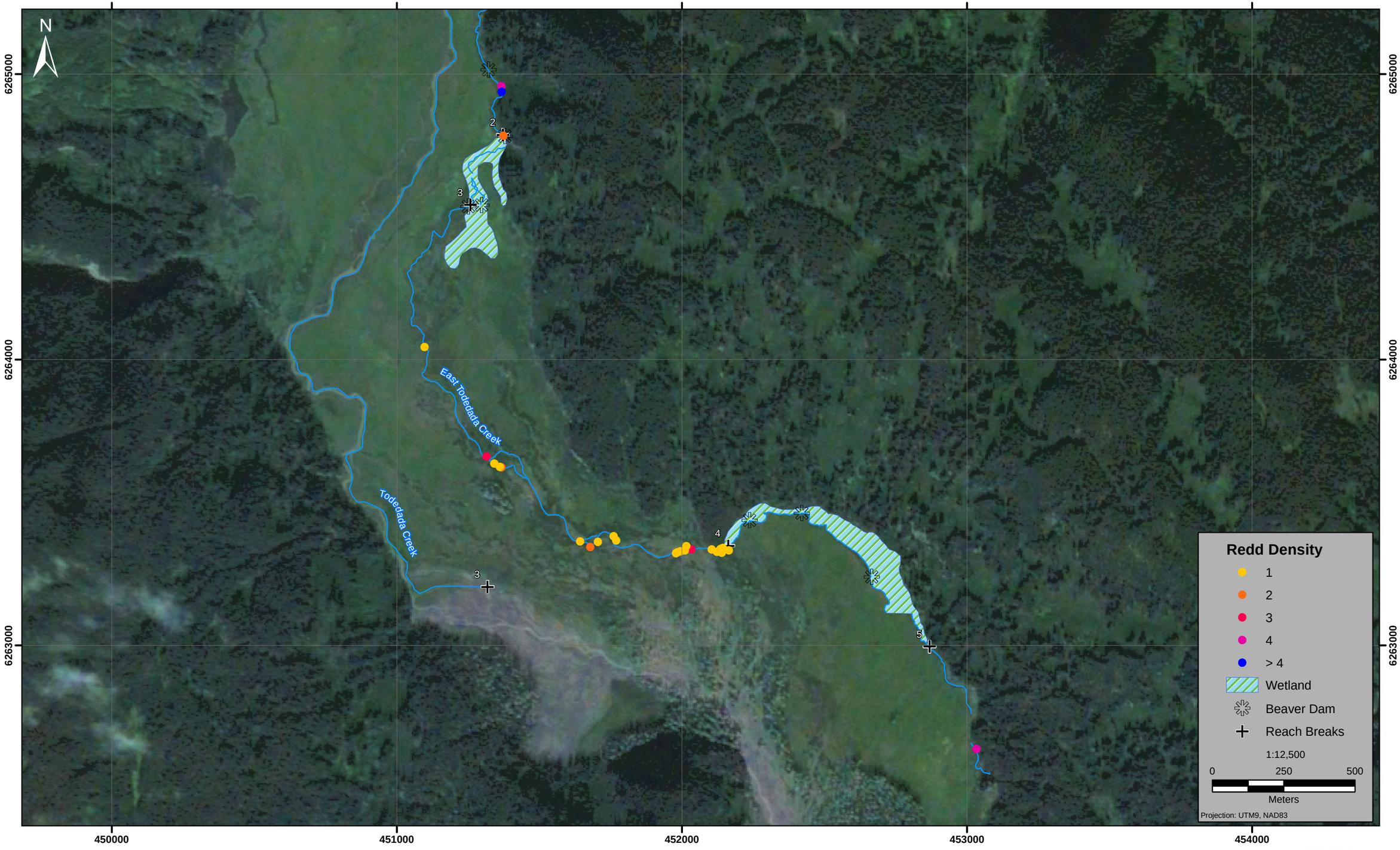
5.5.2.1 Streams

Table 5.5-5 presents the known fish species and life history stages present for all potential fish habitat compensation sites. The information presented in Table 5.5-5 was obtained from field data, baseline reports (Rescan 2009a, 2010), and references cited within baseline reports and compensation plans (Rescan 2011b, 2011c).

Appendix 5.5-4 shows all electrofishing effort and catch data for each stream and side channel site. Tables 5.5-6, 5.5-7, and 5.5-8 summarize sampling effort, catch, individual species CPUE, and individual life history stages CPUE for all stream and side channel sites.

Appendix 5.5-5 shows all minnow trap effort and catch data for side channel sites. Tables 5.5-9 and 5.5-10 summarize sampling effort, catch, individual species CPUE, and individual life history stages CPUE for all side channel sites.

Appendix 5.5-6 shows species biological data for compensation sites. Table 5.5-11 summarizes length, weight and condition data for fish species captured in stream, side channel and wetland compensation sites.



SEABRIDGE GOLD

Location of Coho Salmon Redds within East Todedada Creek, 2010

FIGURE 5.4-3

Rescan™

Table 5.5-1. Compensation Sites: SHIM Channel Characteristics

	East Todedada Creek - Sites 1 and 3				Gilbert Creek - Site 1				Hodkin Lake Creek 1 - Site 2			Hodkin Lake Creek 2 - Site 3			Mere Creek - Site 1	Oweegee Creek (Side Channel) - Site 2	Teigen Creek (Side Channel) - Site 3	Todedada Creek - Site 1		
Attribute	**1**	**3**	**5**	**All**	**1**	**2**	**3**	**All**	**1**	**2**	**All**	**1**	**2**	**All**	**1**	**1**	**1**	**1**	**2**	**All**
Stream Length Mapped (m)	985	2604	165	3754	710	711	490	1911	562	313	875	546	78	624	420	1382	633	3254	3404	6658
Bankfull Width (m)																				
Mean	9.44	7.98	-	8.71	6.36	6.58	13.40	8.78	2.59	2.59	2.59	2.20	3.27	2.73	4.33	18.33	5.40	18.17	14.00	16.08
SE	0.10	0.69	-	0.40	0.23	0.24	2.71	1.06	0.06	0.06	0.06	-	0.07	0.07	0.44	0.88	0.18	0.50	0.84	0.67
Wetted Width (m)																				
Mean	8.28	7.04	-	7.66	4.97	5.12	13.40	7.83	2.59	2.59	2.59	2.20	3.23	2.72	0.83	15.00	4.67	16.83	14.00	15.42
SE	0.24	0.64	-	0.44	0.19	0.31	2.71	1.07	0.06	0.06	0.06	-	0.08	0.08	0.17	1.15	0.31	0.56	0.84	0.70
Bankfull Depth (m)																				
Mean	1.47	0.69	-	1.08	0.77	0.63	-	0.70	0.34	0.34	0.34	0.70	0.70	0.70	0.55	1.80	0.26	1.26	1.18	1.22
SE	0.15	0.06	-	0.10	0.04	0.02	-	0.03	0.01	0.01	0.01	-	0.00	0.00	0.05	0.20	0.04	0.07	0.06	0.06
Wetted Depth (m)																				
Mean	0.41	0.32	-	0.37	0.28	0.17	-	0.23	0.12	0.12	0.12	0.28	0.30	0.29	-	-	-	0.86	0.88	0.87
SE	0.07	0.04	-	0.06	0.03	0.02	-	0.02	0.02	0.02	0.02	-	0.02	0.02	-	-	-	0.17	0.08	0.12
Residual Pool Depth (m)																				
Mean	0.91	0.41	-	0.66	0.86	-	-	0.86	-	-	-	-	-	-	0.13	1.30	0.24	-	-	-
SE	0.05	0.11	-	0.08	0.27	-	-	0.27	-	-	-	-	-	-	0.03	0.06	0.03	-	-	-
Gradient (%)																				
Mean	0.40	0.83	-	0.62	1.00	1.00	0.50	0.83	0.50	4.00	2.25	1.00	1.67	1.33	3.00	0.50	2.00	1.00	1.00	1.00
SE	0.11	0.10	-	0.10	-	-	-	-	0.14	-	0.14	-	0.19	0.19	1.00	-	-	-	-	-

SE = standard error of the mean

Dashes indicate data not available

** Reaches 2 and 4 are wetlands therefore not included in the assessment*

Table 5.5-2. Compensation Sites: SHIM Instream and Riparian Habitat Characteristics

Attribute	Descriptor	East Todedada Creek - Sites 1 and 3				Gilbert Creek - Site 1				Hodkin Lake Creek 1 - Site 2			Hodkin Lake Creek 2 - Site 3			Mere Creek - Site 1	Oweegee Creek (Side Channel) - Site 2	Teigen Creek (Side Channel) - Site 3	Todedada Creek - Site 1		
		1	3	5	All	1	2	3	All	1	2	All	1	2	All	1	1	1	1	2	All
Habitat Unit Ratio (%)	Pool	37.3	10.9	-	24.1	52.0	18.9	0.0	23.6	0.0	-	0.0	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0
	Riffle	5.2	64.2	-	34.7	48.0	38.8	0.0	28.9	100.0	-	100.0	48.6	0.0	24.3	-	-	-	28.2	6.0	17.1
	Run	13.3	0.0	-	6.6	0.0	5.2	0.0	1.7	0.0	-	0.0	0.0	5.3	2.7	-	-	-	64.9	77.5	71.2
	Glide	44.3	24.9	-	34.6	0.0	37.1	100.0	45.7	0.0	-	0.0	51.4	0.0	25.7	-	-	-	6.9	16.5	11.7
	Cascade	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	94.7	47.3	-	-	-	0.0	0.0	0.0
Habitat Weighted Substrate Composition - % by unit area	Fines	35.6	3.5	-	19.6	37.4	12.8	-	25.1	5.1	-	5.1	0.0	0.0	0.0	-	-	-	13.1	23.0	18.0
	Gravel	64.4	70.6	-	67.5	40.3	34.3	-	37.3	94.9	-	94.9	80.0	21.1	50.5	-	-	-	59.3	77.0	68.2
	Cobble	0.0	17.3	-	8.7	22.3	52.8	-	37.6	0.0	-	0.0	20.0	59.7	39.9	-	-	-	27.6	0.0	13.8
	Boulder	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.0	19.2	9.6	-	-	-	0.0	0.0	0.0
	Bedrock	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0
Habitat Weighted Cover Composition - % by unit area	Pool	32.8	9.0	-	20.9	44.0	0.0	-	22.0	0.0	-	0.0	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0
	Boulder	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.0	19.2	9.6	-	-	-	0.0	0.0	0.0
	Instream Vegetation	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0
	Overhanging Vegetation	5.6	10.4	-	8.0	24.8	26.5	-	25.6	29.7	-	29.7	100.0	9.5	54.7	-	-	-	5.6	4.1	4.9
	Undercut Bank	0.0	0.0	-	0.0	1.6	0.0	-	0.8	2.6	-	2.6	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0
	Large Woody Debris	0.0	0.0	-	0.0	15.5	4.4	-	10.0	0.0	-	0.0	0.0	4.7	2.4	-	-	-	0.1	0.0	0.0
	Small Woody Debris	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0
Riparian Vegetation Type - % by stream length	Natural Wetland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Shrubs	100.0	100.0	0.0	95.6	17.4	59.9	60.2	44.2	88.4	40.6	71.3	98.7	100.0	86.4	0.0	0.0	37.8	53.9	100.0	77.5
	Coniferous Forest	0.0	0.0	100.0	4.4		15.6	19.9	10.9	11.6	59.4	28.7	1.3	0.0	13.6	0.0	0.0	31.6	0.0	0.0	0.0
	Deciduous Forest	0.0	0.0	0.0	0.0	73.2	11.7	0.0	31.6	0.0	0.0	0.0	0.0	0.0	0.0	18.6	100.0	0.0	46.1	0.0	22.5
	Mixed Forest	0.0	0.0	0.0	0.0	9.4	12.8	19.9	13.3	0.0	0.0	0.0	0.0	0.0	0.0	81.4	0.0	30.7	0.0	0.0	0.0
Riparian Structural Stage - % by stream length	Low Shrub (<2m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Tall Shrub (2-10m)	100.0	100.0	0.0	95.6	17.4	59.9	60.2	44.2	80.6	60.1	73.3	98.7	0.0	86.4	0.0	0.0	21.0	40.3	100.0	70.8
	Sapling (>10m)	0.0	0.0	0.0	0.0	61.7	11.7	0.0	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Young Forest	0.0	0.0	0.0	0.0	11.5	12.8	19.9	14.2	19.4	0.0	12.5	1.3	0.0	1.1	100.0	100.0	42.1	28.3	0.0	13.8
	Mature Forest	0.0	0.0	100.0	4.4	9.4	15.6	19.9	14.4	0.0	39.9	14.3	0.0	100.0	12.5	0.0	0.0	36.9	31.4	0.0	15.3
	Old Growth Forest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Riparian Crown Closure - % by stream length	0%	100.0	100.0	100.0	100.0	100.0	100.0	47.1	12.1	100.0	21.1	71.8	100.0	0.0	87.5	0.0	0.0	57.8	68.6	100.0	84.7
	1-20%	0.0	0.0	0.0	0.0	0.0	0.0	52.9	87.9	0.0	78.9	28.2	0.0	100.0	12.5	0.0	100.0	32.1	31.4	0.0	15.3
	21-40%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0
	41-70%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0
	71-90%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	>90%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(continued)

Table 5.5-2. Compensation Sites: SHIM Instream and Riparian Habitat Characteristics (completed)

Attribute	Descriptor	East Todedada Creek - Sites 1 and 3				Gilbert Creek - Site 1				Hodkin Lake Creek 1 - Site 2			Hodkin Lake Creek 2 - Site 3			Mere Creek - Site 1	Oweegee Creek (Side Channel) - Site 2	Teigen Creek (Side Channel) - Site 3	Todedada Creek - Site 1		
		1	3	5	All	1	2	3	All	1	2	All	1	2	All	1	1	1	1	2	All
Channel Morphology - % by stream length	Cascade Pool	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	83.3	10.4	0.0	0.0	0.0	0.0	0.0	0.0
	Large Channel	38.9	0.0		10.2	0.0	21.8	100.0	33.8	13.0	0.0	8.3	10.3	0.0	9.0	0.0	0.0	43.4	0.0	0.0	0.0
	Riffle Pool	61.1	100.0	100.0	89.8	100.0	78.2	0.0	66.2	87.0	100.0	91.7	89.7	16.7	80.6	100.0	100.0	56.6	100.0	100.0	100.0
	Step Pool	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Substrate Compaction - % by stream length	High	0.0	10.4	100.0	5.9	5.9	57.0	4.7	24.6	100.0	100.0	100.0	0.0	100.0	12.5	18.6	0.0	90.2	73.3	0.0	35.8
	Low	94.9	44.2	0.0	64.9	89.3	35.4	91.2	69.8	0.0	0.0	0.0	100.0	0.0	87.5	24.8	100.0	0.0	0.0	0.0	0.0
	Medium	5.1	45.4	0.0	29.2	4.8	7.6	4.1	5.7	0.0	0.0	0.0	0.0	0.0	0.0	56.7	0.0	9.8	26.7	100.0	64.2
Bank Stability - % by stream length	Aggrading	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Eroding	0.0	0.9	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Stable - No Undercut	100.0	99.1	100.0	99.4	71.0	100.0	100.0	89.2	70.8	0.0	45.5	0.0	100.0	12.5	100.0		100.0	46.1	0.0	22.5
	Stable - Undercut	0.0	0.0	0.0	0.0	29.0	0.0	0.0	10.8	29.2	100.0	54.5	100.0	0.0	87.5	0.0	100.0	0.0	53.9	100.0	77.5

Dashes indicate data not available

** Reaches 2 and 4 are wetlands therefore not included in the assessment*

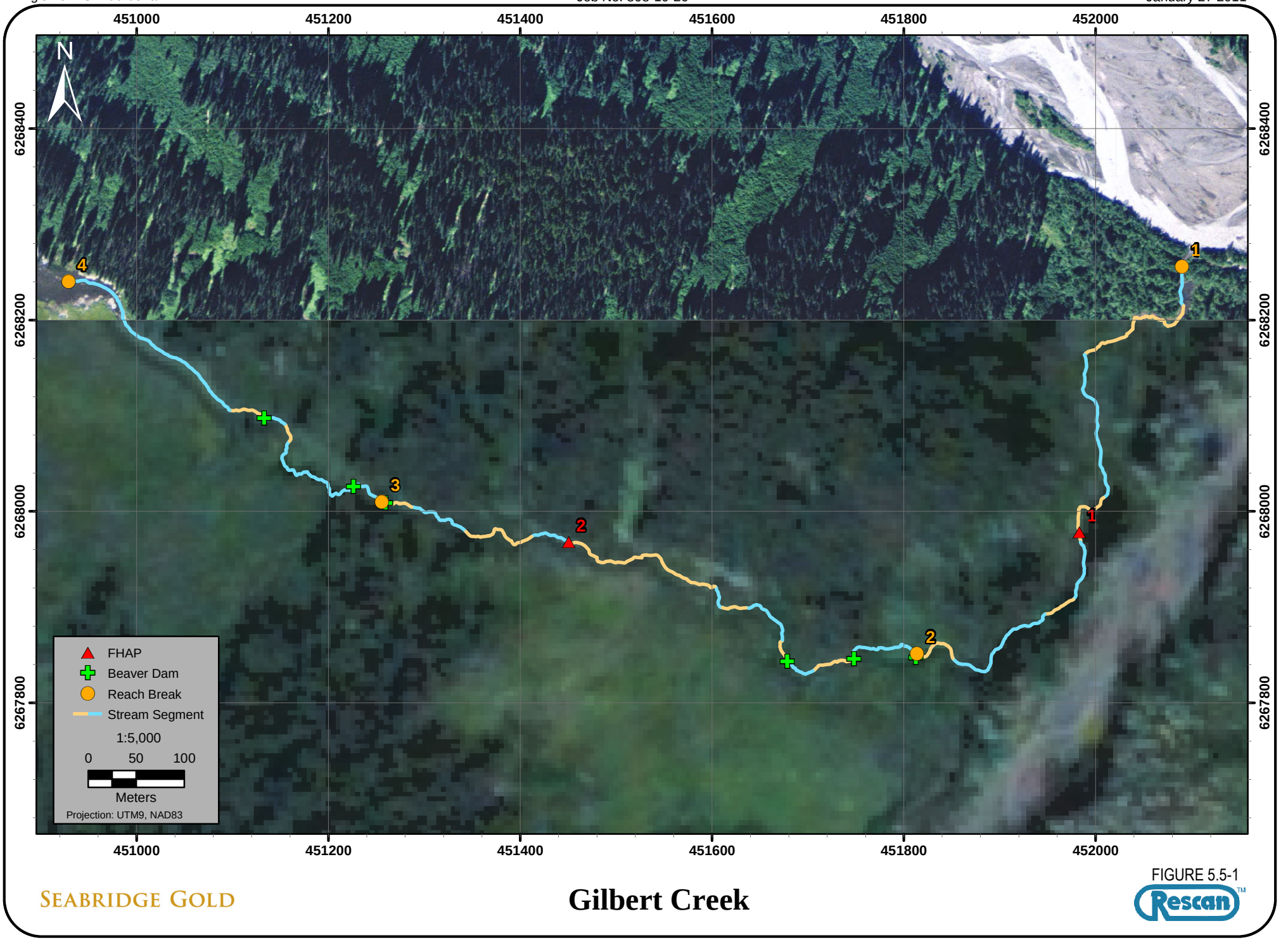
Table 5.5-3. Compensation Sites: SHIM Habitat Quality and Limitations Characteristics

Attribute	Descriptor	East Todedada Creek - Sites 1 and 3				Gilbert Creek - Site 1				Hodkin Lake Creek 1 - Site 2			Hodkin Lake Creek 2 - Site 3			Mere Creek - Site 1	Oweegee Creek (Side Channel) - Site 2	Teigen Creek (Side Channel) - Site 3	Todedada Creek - Site 1		
		1	3	5	All	1	2	3	All	1	2	All	1	2	All	1	1	1	1	2	All
Anadromous Spawning Habitat Quality - % of stream length	Fair	63.1	43.4	0.0	46.7	7.9	13.6	0.0	8.0	-	-	-	-	-	-	0.0	0.0	9.8	0.0	0.0	0.0
	Good	0.0	0.0	0.0	0.0	67.2	0.0	0.0	25.0	-	-	-	-	-	-	0.0	25.4	0.0	0.0	0.0	0.0
	None	10.9	0.9	0.0	3.5	5.9	21.8	100.0	35.9	-	-	-	-	-	-	0.0	51.2	11.4	0.0	0.0	0.0
	Poor	26.0	55.6	100.0	49.8	19.0	64.6	0.0	31.1	-	-	-	-	-	-	100.0	23.4	78.8	100.0	100.0	100.0
Resident Spawning Habitat Quality - % of stream length	Fair	0.0	0.0	100.0	4.4	80.1	69.9	0.0	55.8	0.0	0.0	0.0	63.6	0.0	55.6	0.0	0.0	0.0	0.0	0.0	0.0
	Good	0.0	0.0	0.0	0.0	0.0	4.8	0.0	1.8	0.0	0.0	0.0	7.5	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0
	None	10.9	0.9	0.0	3.5	5.9	15.3	100.0	33.5	32.9	100.0	56.9	0.0	83.3	10.4	0.0	51.2	11.4	0.0	0.0	0.0
	Poor	89.1	99.1	0.0	92.1	13.9	10.0	0.0	8.9	67.1	0.0	43.1	28.9	16.7	27.4	100.0	48.8	88.6	100.0	100.0	100.0
Rearing Habitat Quality - % of stream length	Fair	54.5	0.9	100.0	19.3	5.9	77.1	39.8	41.1	100.0	100.0	100.0	100.0	16.7	89.6	100.0	60.3	88.6	31.4	0.0	15.3
	Good	0.0	0.0	0.0	0.0	94.1	22.9	0.0	43.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.3	0.0	0.0	0.0	0.0
	None	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Poor	45.5	99.1	0.0	80.7	0.0	0.0	60.2	15.4	0.0	0.0	0.0	0.0	83.3	10.4	0.0	23.4	11.4	68.6	100.0	84.7
OverWintering Habitat Quality - % of stream length	Fair	79.4	9.4	0.0	27.3	0.0	24.8	100.0	34.9	47.7	0.0	30.6	10.3	0.0	9.0	0.0	76.6	42.2	100.0	100.0	100.0
	Good	0.0	4.7	0.0	3.3	100.0	21.8	0.0	45.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	None	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.4	0.0	0.0	0.0	0.0
	Poor	20.6	85.9	100.0	69.4	0.0	53.4	0.0	19.9	52.3	100.0	69.4	89.7	100.0	91.0	100.0	0.0	57.8	0.0	0.0	0.0
Habitat Limitation - % of stream length	LWD	100.0	100.0	100.0	100.0	0.0	69.6	100.0	51.5	100.0	100.0	100.0	100.0	100.0	100.0	0.0	100.0	100.0	68.6	100.0	84.7
	OV	66.1	50.6	0.0	52.4	0.0	0.0	47.1	12.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	100.0	100.0
	Pools	14.0	94.4	100.0	73.5	0.0	62.2	0.0	23.1	52.3	100.0	69.4	87.2	100.0	88.8	100.0	16.3	100.0	100.0	100.0	100.0
	Boulders	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-	-	-	-	0.0	100.0	100.0	100.0	100.0	100.0
	High Velocity Spawning	0.0	16.6	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.4	0.0	0.0	0.0	0.0
	Substrate	0.0	0.0	0.0	0.0	0.0	60.9	0.0	48.3	100.0	100.0	100.0	55.1	100.0	60.7	100.0	0.0	67.6	0.0	0.0	0.0
	UC Banks	100.0	99.1	100.0	99.5	0.0	57.4	0.0	21.3	0.0	0.0	0.0	32.1	0.0	28.0	100.0	0.0	0.0	0.0	0.0	0.0
	Off Channels	0.0	89.9	0.0	62.4	0.0	57.4	0.0	21.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0
	SWD	100.0	96.6	100.0	97.6	0.0	31.8	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0

Dashes indicate not applicable

** Reaches 2 and 4 are wetlands therefore not included in the assessment*

LWD = large woody debris, OV = overhanging vegetation, UC = undercut, SWD = small woody debris



SEABRIDGE GOLD

Gilbert Creek

FIGURE 5.5-1

Rescan™

Table 5.5-4. Compensation Sites: RISC Channel Characteristics

Attribute	Glacier Creek - Reach 1	Oweegee Creek - Reach 1	Snowbank Creek - Reach 1	Taft Creek - Reach 1
Bankfull Width (m)				
Mean	9.80	8.75	18.17	76.00
SE	0.37	0.67	1.42	-
Wetted Width (m)				
Mean	9.20	6.75	12.00	52.00
SE	0.58	0.33	1.53	-
Bankfull Depth (m)				
Mean	1.27	0.55	-	-
SE	0.12	0.05	-	-
Residual Pool Depth (m)				
Mean	0.38	0.57	0.00	0.00
SE	0.06	0.09	-	-
Gradient (%)				
Mean	3.00	2.50	3.50	2.00
SE	-	0.50	0.50	-

SE = standard error of the mean
Dashes indicate data not available

5.5.2.2 Wetlands

Appendix 5.5-7 shows all minnow trap effort and catch data for wetland sites. Tables 5.5-12 and 5.5-13 summarize sampling effort, catch, individual species CPUE, and individual life history stages CPUE for all side channel sites.

Appendix 5.5-6 shows species biological data for compensation sites. Table 5.5-11 summarizes length, weight and condition data for fish species captured in stream, side channel and wetland compensation sites.

5.5.2.3 Lakes

Appendix 5.5-8 shows all species biological data for each lake. Appendices 5.5-9 and 5.5-10 shows all gillnet and minnow trap effort and catch data for each lake.

Tables 5.5-14 and 5.5-15 summarize gillnet and minnow trap sampling effort, catch, individual species CPUE for all lakes. Table 5.5-16 summarizes length, weight and condition data for fish species captured at lakes sites. Table 5.5-17 summarizes age data for fish species captured at lakes sites.

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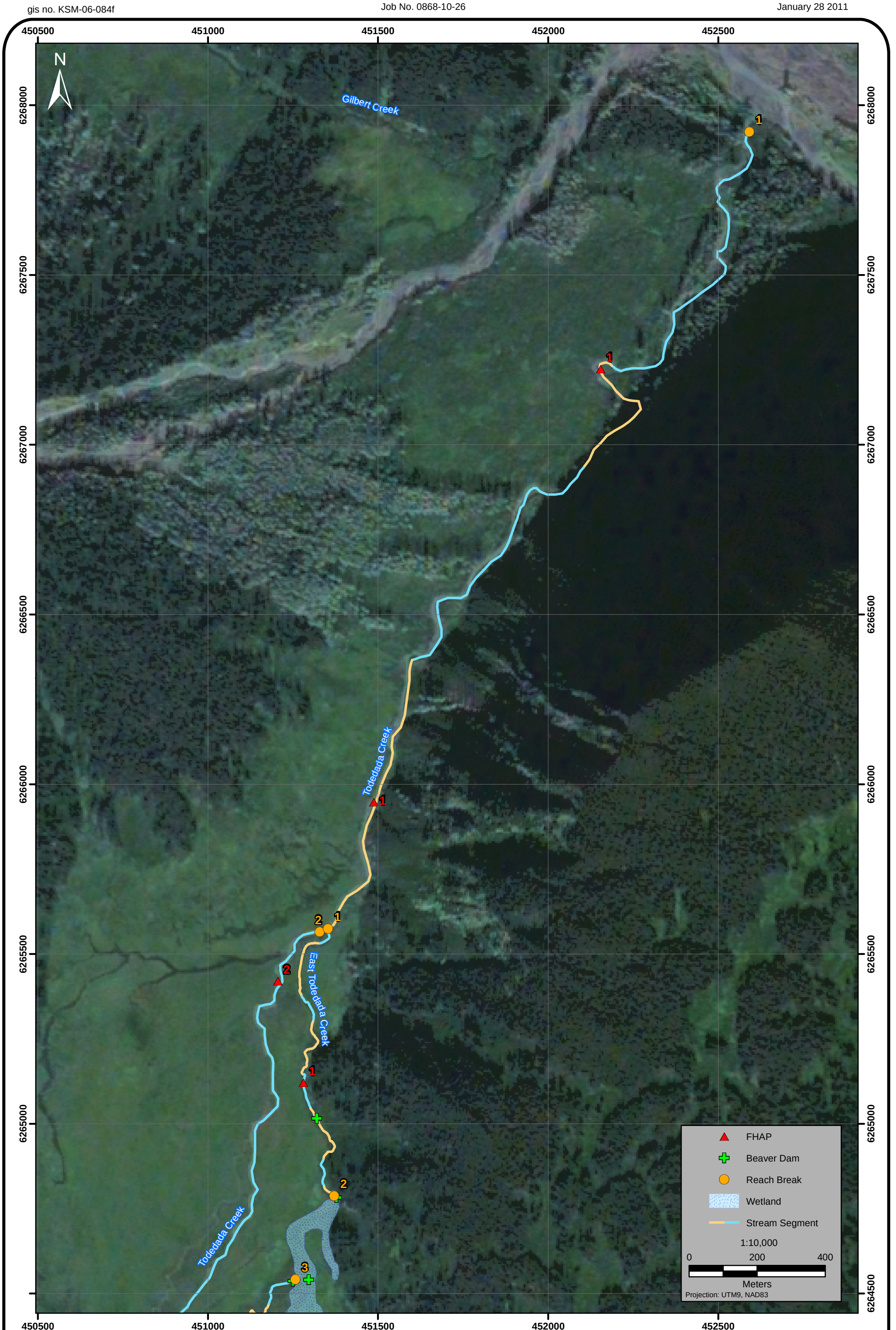

Todedada and East Todedada Creeks – Map 1

SEABRIDGE GOLD

FIGURE 5.5-2

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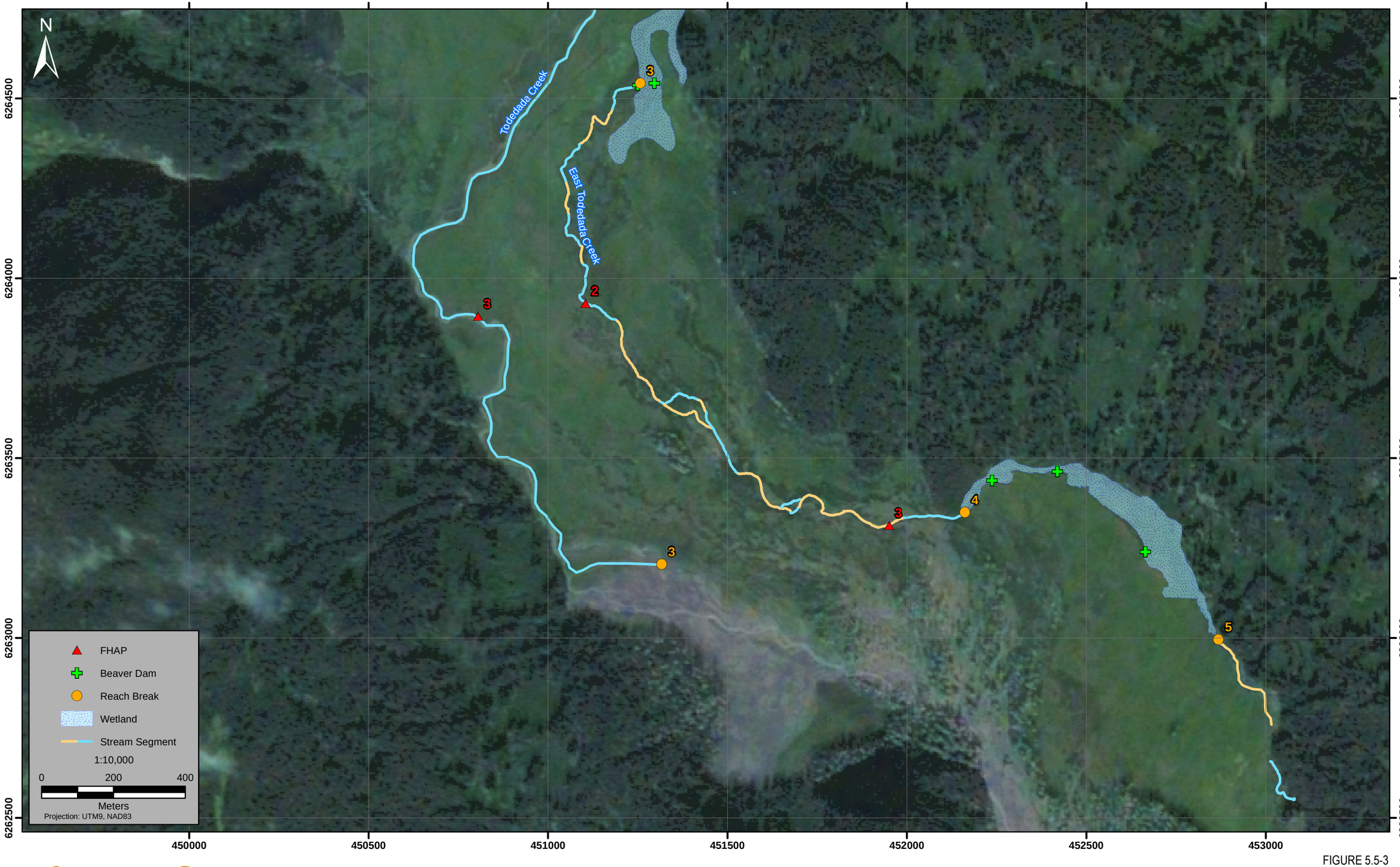


SEABRIDGE GOLD

FIGURE 5.5-3

Todedada and East Todedada Creeks – Map 2

Rescan™

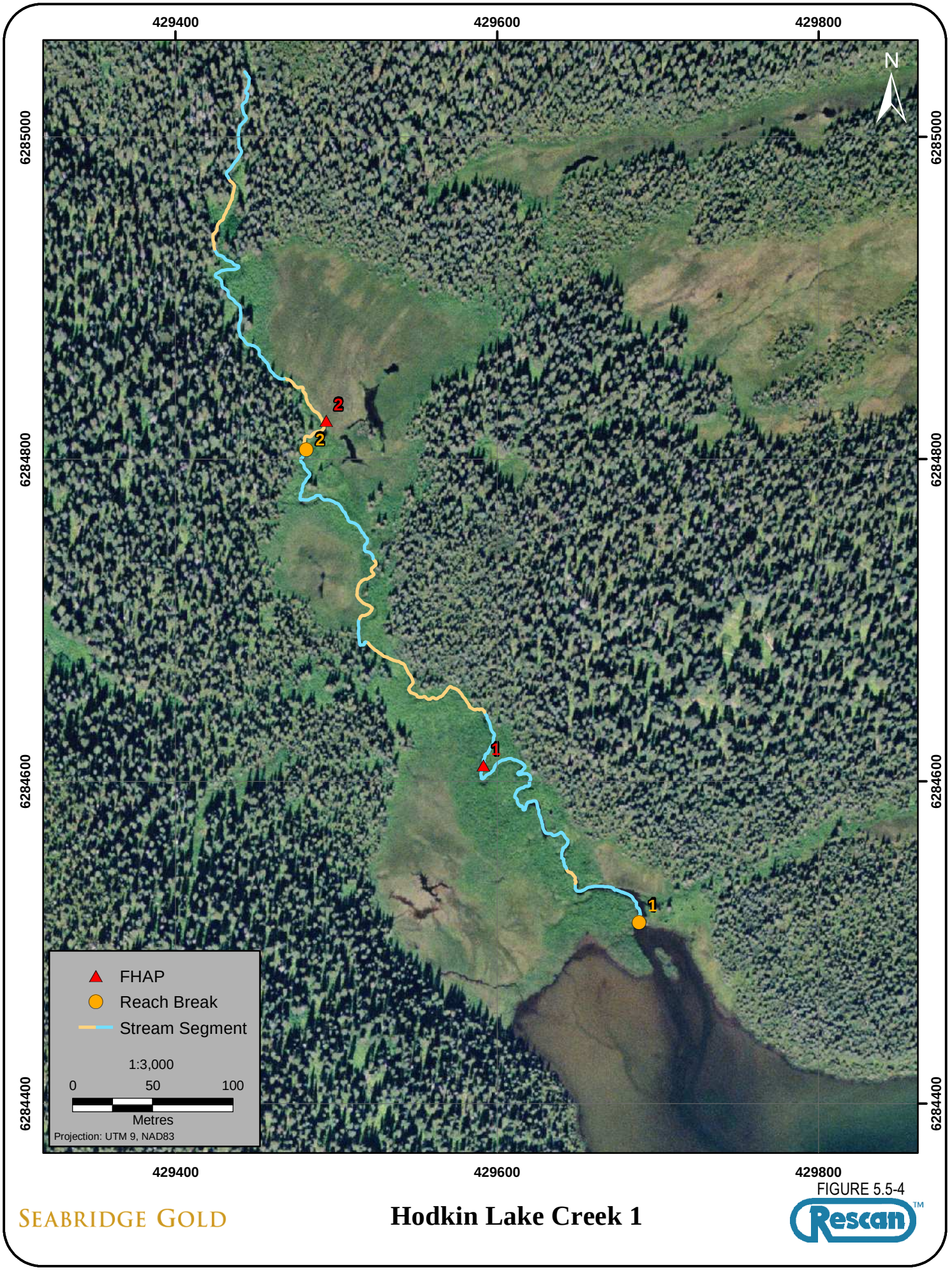
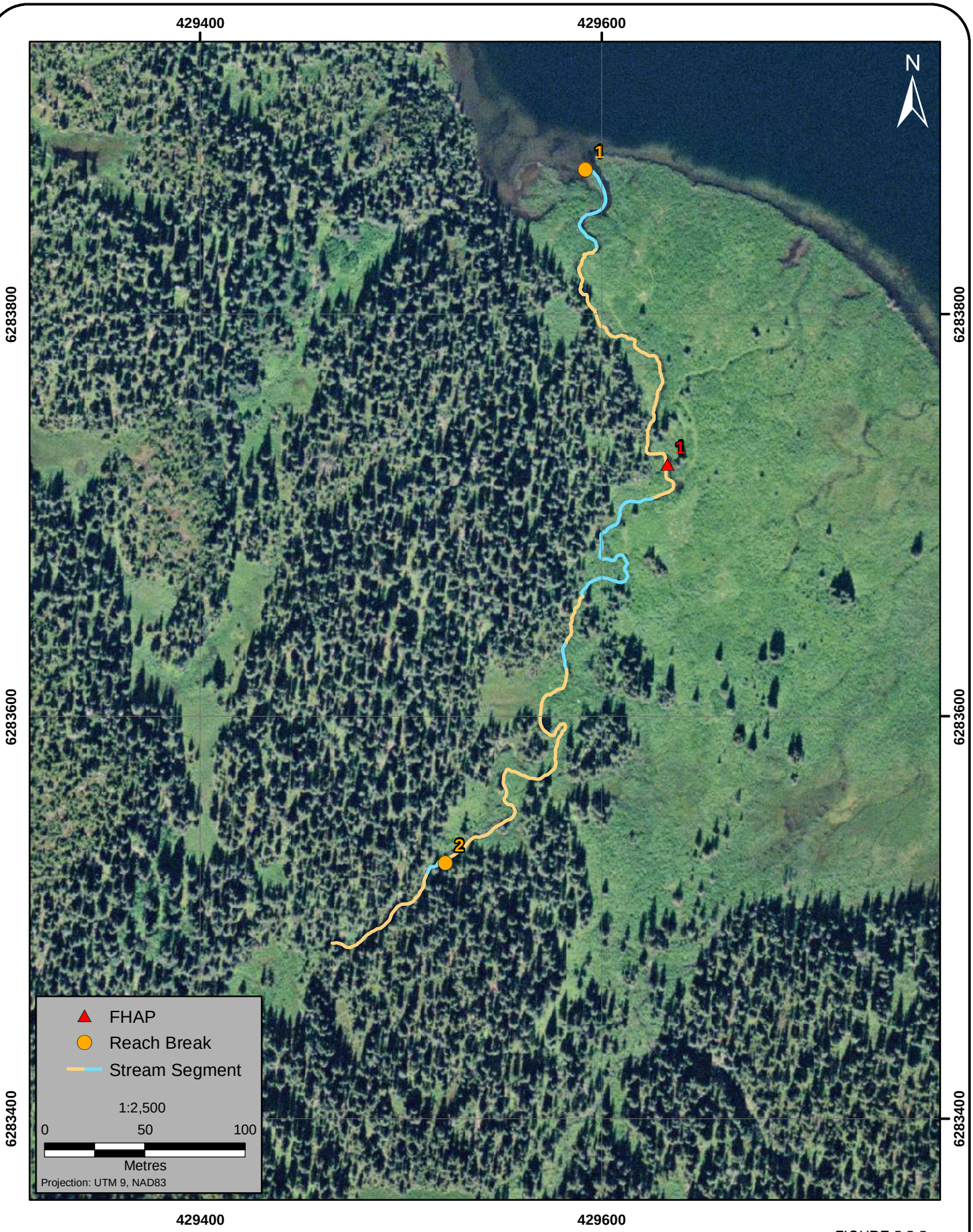


FIGURE 5.5-4

SEABRIDGE GOLD

Hodkin Lake Creek 1

Rescan™



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Hodkin Lake Creek 2

FIGURE 5.5-5

Rescan™

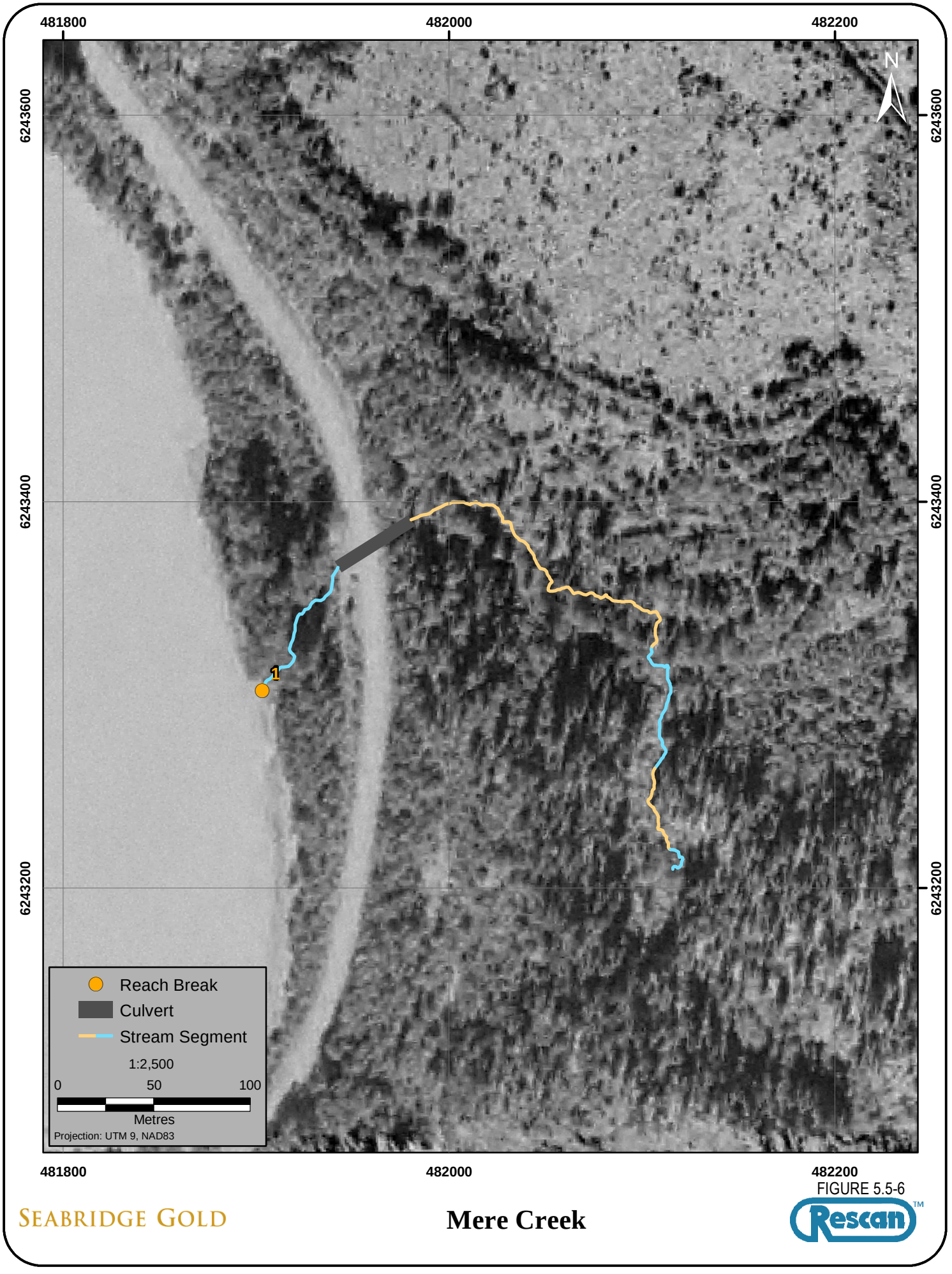
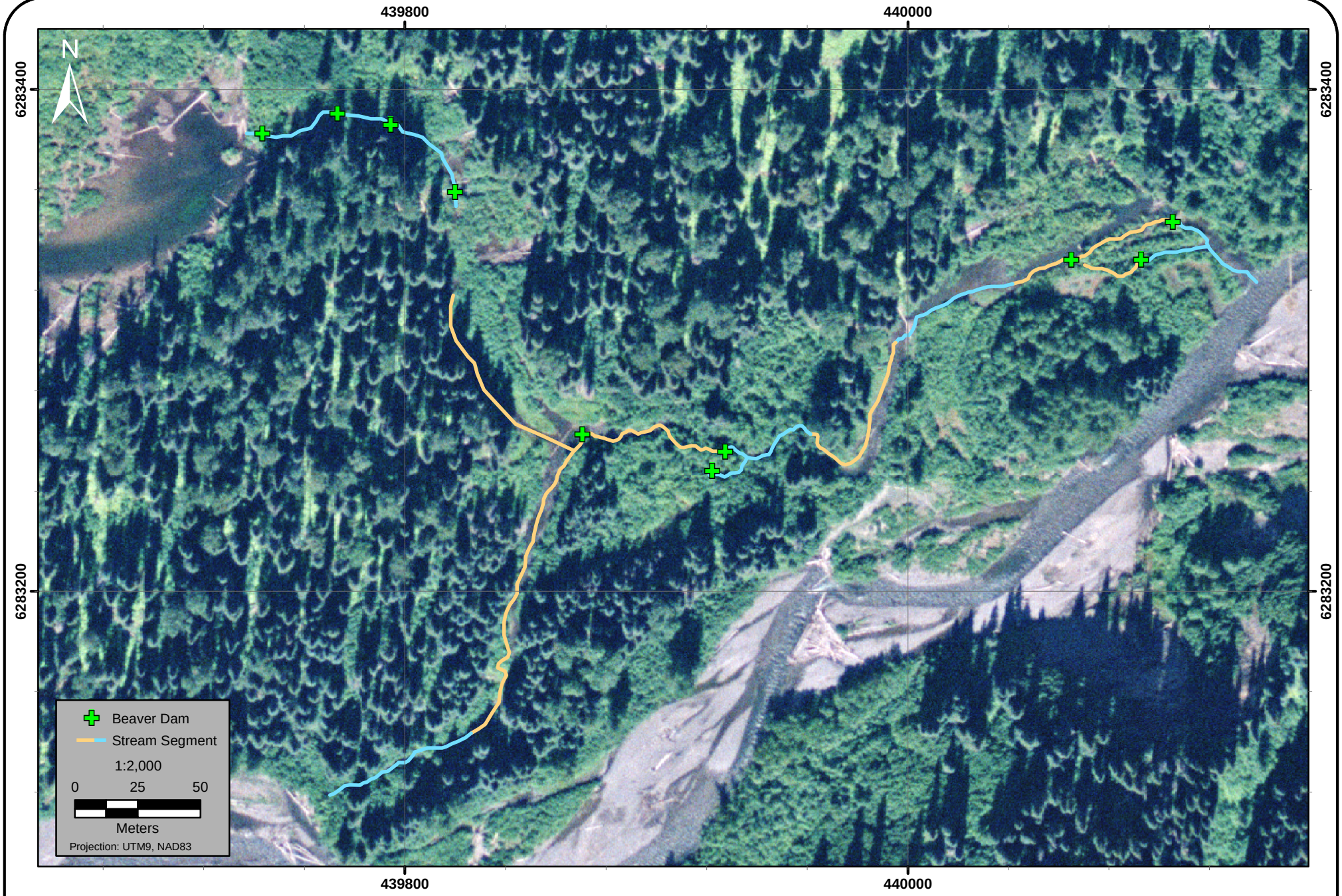


FIGURE 5.5-6

SEABRIDGE GOLD

Mere Creek

Rescan™

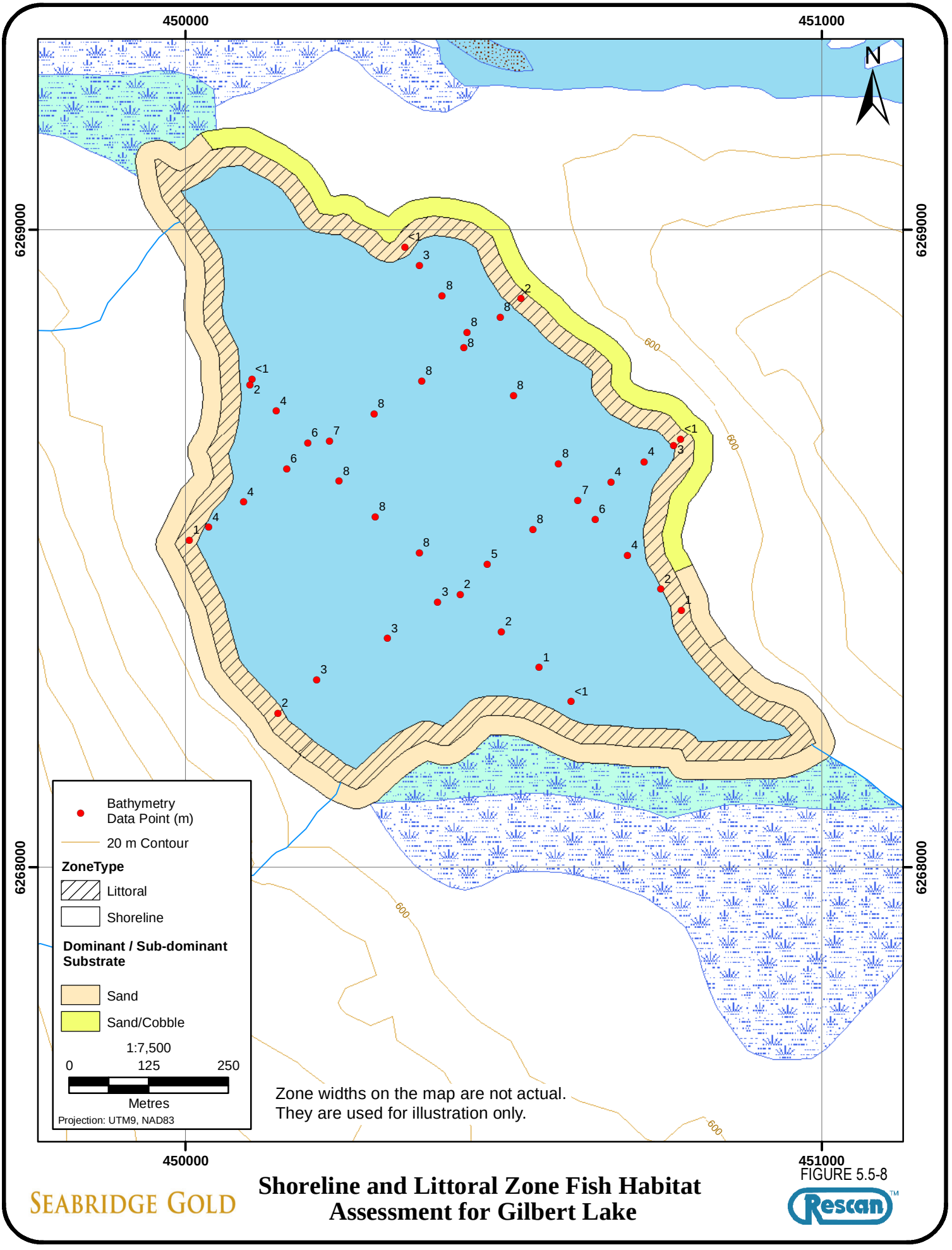


SEABRIDGE GOLD

Teigen Creek – Side Channel

FIGURE 5.5-7

Rescan™

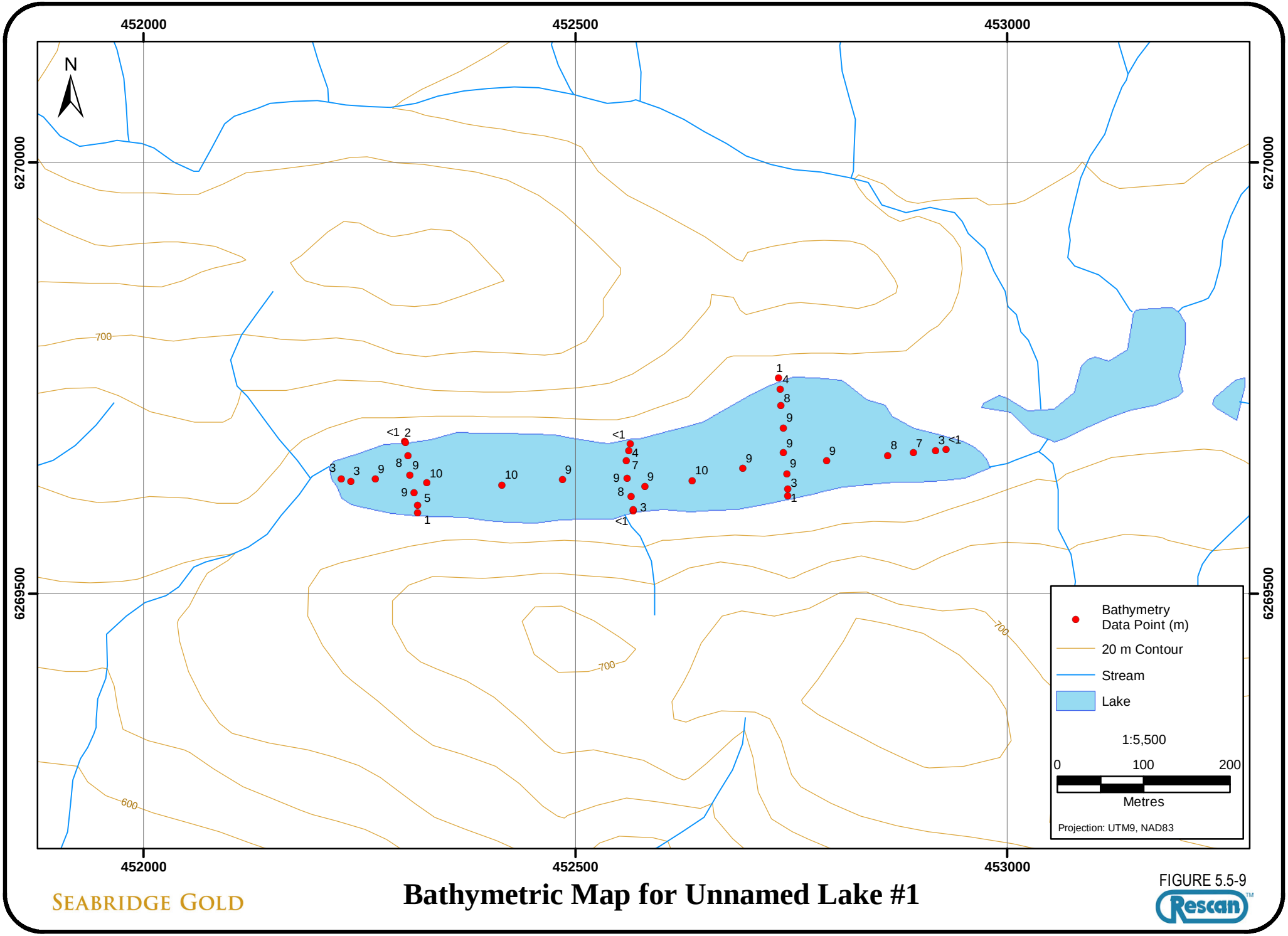


SEABRIDGE GOLD

Shoreline and Littoral Zone Fish Habitat Assessment for Gilbert Lake

FIGURE 5.5-8

Rescan™

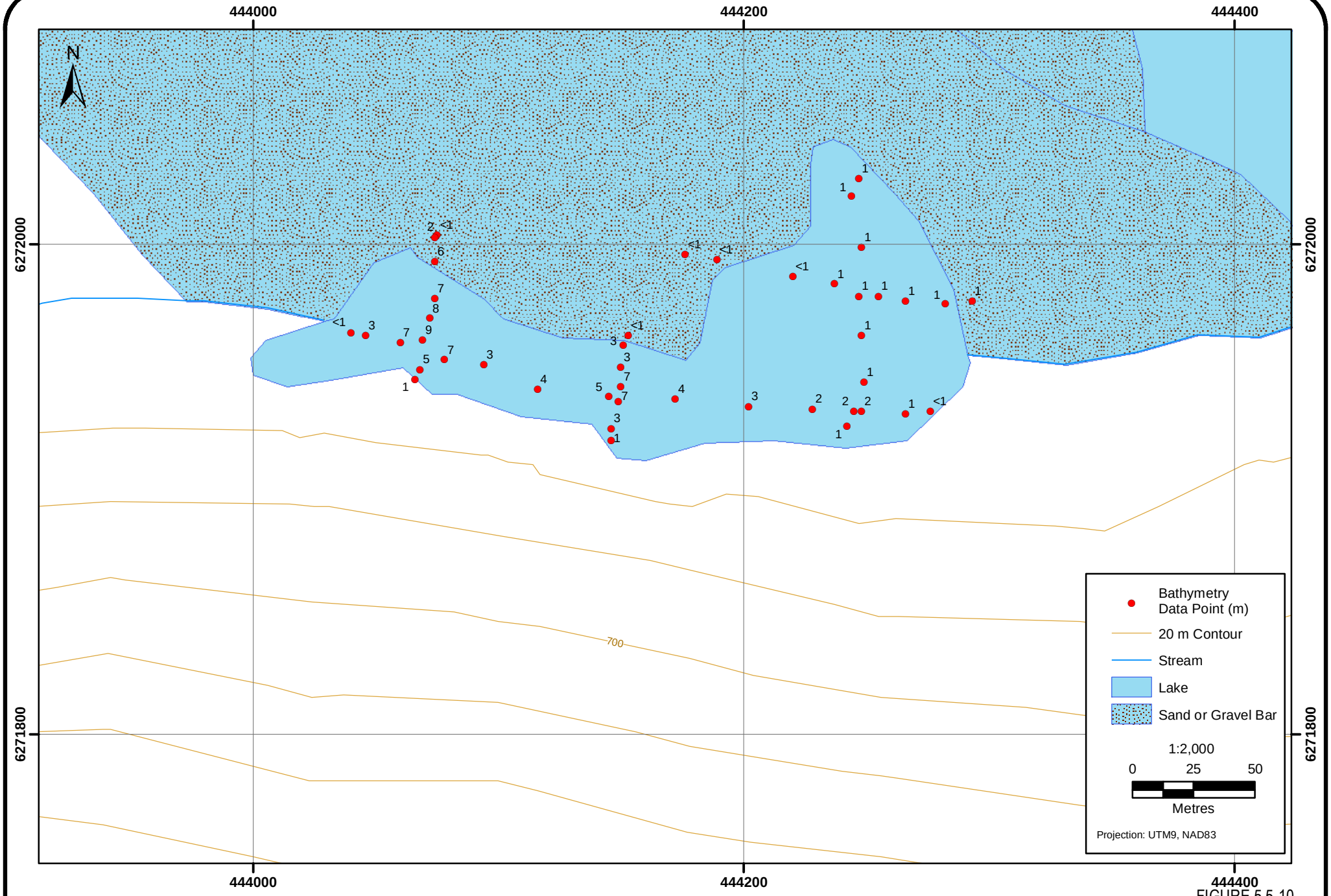


SEABRIDGE GOLD

Bathymetric Map for Unnamed Lake #1

FIGURE 5.5-9

Rescan™



SEABRIDGE GOLD

Bathymetric Map for Unnamed Lake #2

FIGURE 5.5-10

Rescan™

Table 5.5-5. Species and Life History Stages Present at Compensation Sites

					Species and Life Stage Present																				
					Dolly Varden			Bull Trout			Rainbow Trout / Steelhead			Coho Salmon				Chinook Salmon			Sockeye Salmon			Mountain Whitefish		
Watershed	Sub -Watershed	Waterbody	Waterbody Site Number	Compensation Project Type	Fry	Parr	Adult	Fry	Parr	Adult	Fry	Parr	Adult	Fry	Parr (1+)	Parr (2+)	Adult	Fry	Parr (1+)	Adult	Fry	Parr	Adult	Fry	Parr	Adult
Treaty	-	Treaty Creek	1	Off-channel pond creation			X						X													
Treaty	-	Treaty Creek	3	Off-channel pond fish passage enhancement	X	X	X																			
Treaty	-	Treaty Creek	2	Off-channel pond creation	X	X	X																			
Teigen	-	Teigen Creek	4	Off-channel pond fish passage enhancement										X	X	X		X								
Teigen	-	Teigen Creek	2	Off-channel pond creation and fish passage enhancement	X	X	X					X		X	X	X										
Treaty	Todedada	East Todedada Creek	2	Off-channel pond fish passage enhancement		X	X							X	X	X										
Bell-Irving	Glacier	Glacier Creek	1	Side channel habitat creation	0	X	X						X	X			X									
Bell-Irving	Taft	Taft Creek	1	Side channel and alove pond habitat creation	X	X	X	X	X	X	X	X	X	X	0		X	X		X				X	X	X
Bell-Irving	Taft	Taft Creek	2	Off-channel pond fish passage enhancement																						
Bell-Irving	-	Bell-Irving River	1	Off-channel pond creation and fish passage enhancement			X								X	X										
Bowser	-	Bowser River	1	Off-channel pond fish passage enhancement																						
Bowser	-	Bowser River	2	Off-channel pond fish passage enhancement			X							X												
Teigen	-	Teigen Lake	1	Littoral zone LWD enhancement	0	0	X	0	0	X	0	0	X					0		X				0	0	X
Teigen	Hodkin	Hodkin Lake	1	Littoral zone LWD enhancement	X	X	X																			
Unuk	-	Unuk Lake	1	Littoral zone LWD enhancement	X	X	X																			
Treaty	Gilbert	Gilbert Lake	1	Littoral zone LWD enhancement	0	0	X	0	0	X	0	0	X											0	0	X
Teigen	Hodkin	Hodkin Lake Creek 1	2	Stream spawning habitat creation	X	X	X																			
Teigen	Hodkin	Hodkin Lake Creek 2	3	Stream spawning habitat creation	X	X	X																			
Bowser	-	Bowser River	3	Mainstem LWD and pool enhancement	X	X	X				X	X	0	X			x									
Teigen	-	Teigen Creek	1	Mainstem pool habitat creation	X	X	X	X	X	X	X	X	X	X	X	0	X	X	0	X	0		X	X	X	X
Teigen	South Teigen	South Teigen Creek	1	Mainstem pool habitat creation	X	X	X	X	X	X		X												0	X	X
Teigen	Snowbank	Snowbank Creek	1	Mainstem pool habitat creation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0	X				0	X	X
Teigen	-	Teigen Creek	3	Side channel habitat enhancement and creation	X	X	X				0	X		X	0		X	X		X						
Treaty	Gilbert	Gilbert Creek	1	Mainstem pool habitat creation and fish passage enhancement	Z	Z	Z				X	X	0	Y	Y		Y	Y		Y				Z	Z	Z
Treaty	Todedada	East Todedada Creek	1	Mainstem LWD and pool enhancement	X	X	X							X	0		X									
Treaty	Todedada	East Todedada Creek	3	Mainstem LWD and pool enhancement	X	X	X							X	0		X				Y		Y			
Treaty	Todedada	Todedada Creek	1	Mainstem LWD, boulder and pool enhancement	X	X	X		X	0			0	X	0	0	X	0	X	0	0		X	0	0	X
Bell-Irving	Oweegee	Oweegee Creek	1	Mainstem LWD and pool enhancement	X	X	X	0	0	X	X	X	0	X	X	0	X	0		X	0		X	0	X	X
Bell-Irving	Oweegee	Oweegee Creek	2	Side channel LWD and pool						X	X	0	0	X	0	0	X	X		X	0		X	0	0	0
Bell-Irving	Mere	Mere Creek	1	Mainstem pool habitat creation	X	X	X				X	0	0	X	X		X									
Bell-Irving	-	Bell-Irving River	1	Side channel LWD and pool										X	X			X						X	X	
Bell-Irving	-	Bell-Irving River	2	Side channel LWD and pool								X		X	X			X	X							
Bell-Irving	-	Bell-Irving River	3	Side channel LWD and pool										X				X						X	X	
Bell-Irving	-	Bell-Irving River	4	Side channel LWD and pool								X						X						X		

Dashes indicate not applicable

X' indicates species and life history stage confirmed present through fieldwork or FDIS data

O' indicates species life history stage assumed to be present given site-specific habitat

Y' indicates species only present downstream of 1st beaver dam

Z' indicates species only present downstream of 1st beaver dam and within lake

Table 5.5-6. Summary Statistics of Electrofishing CPUE in Streams by Compensation Site, 2010

Watershed	Sub-Watershed	Waterbody	Polygon	Site Number	Sample Size (n)	Statistic	Combined Life Stages CPUE						
							DV	BT	RB	MW	CH	CO	All Species
Teigen	Hodkin	Hodkin Lake Creek 1	100	2	1	Mean	2.58	0.00	0.00	0.00	0.00	0.00	2.58
						SE	-	-	-	-	-	-	-
Teigen	Hodkin	Hodkin Lake Creek 2	100	3	1	Mean	5.89	0.00	0.00	0.00	0.00	0.00	5.89
						SE	-	-	-	-	-	-	-
Teigen	Snowbank	Snowbank Creek	118	1	1	Mean	0.61	0.00	1.97	0.00	3.64	0.15	6.36
						SE	-	-	-	-	-	-	-
Treaty	Gilbert	Gilbert Creek	110	1	2	Mean	0.14	0.00	3.36	0.14	2.64	1.14	7.43
						SE	0.14	-	1.50	0.14	2.64	1.14	2.57
Treaty	Todedada	East Todedada Creek	112	1 and 3	4	Mean	1.97	0.00	0.00	0.00	0.00	0.84	2.81
						SE	0.45	-	-	-	-	0.37	0.56
Treaty	Todedada	Todedada Creek	112	1	4	Mean	1.13	0.02	0.00	0.02	0.02	0.09	1.29
						SE	0.14	0.02	-	0.02	0.02	0.09	0.24
Bell-Irving	Oweegee	Oweegee Creek	126	1	2	Mean	0.00	0.00	1.73	0.00	0.00	0.40	2.13
						SE	-	-	0.36	-	-	0.15	0.51
Bell-Irving	Glacier	Glacier Creek	129	1	2	Mean	0.68	0.00	0.09	0.00	0.00	0.00	0.77
						SE	0.06	-	0.09	-	-	-	0.15
Bell-Irving	Taft	Taft Creek	130	1	3	Mean	0.28	0.42	0.05	0.05	3.76	0.22	4.77
						SE	0.18	0.36	0.05	0.05	0.81	0.22	1.17
Bell-Irving	Mere	Mere Creek	133	1	1	Mean	0.71	0.00	0.71	0.00	0.00	27.66	29.08
						SE	-	-	-	-	-	-	-
Bowser	-	Bowser River	137	2	1	Mean	1.47	0.00	0.86	0.00	0.00	0.25	2.57
						SE	-	-	-	-	-	-	-

Dashes indicate not applicable

(continued)

n = sample size

SE = standard error of the mean

Species: DV - Dolly Varden, BT - bull trout, RB - rainbow trout, CO - coho salmon, CH - chinook salmon, MW - mountain whitefish

CPUE = Catch per unit effort (fish/100 s)

Table 5.5-6. Summary Statistics of Electrofishing CPUE in Streams by Compensation Site, 2010 (completed)

		Fry Life Stage CPUE					Parr Life Stage CPUE					Adult Life Stage CPUE		
Watershed	**Sub-Watershed**	**DV**	**BT**	**RB**	**CH**	**CO**	**DV**	**BT**	**RB**	**CH**	**CO**	**DV**	**BT**	**MW**
Teigen	Hodkin	0.30	0.00	0.00	0.00	0.00	1.69	0.00	0.00	0.00	0.00	0.60	0.00	0.00
		-	-	-	-	-	-	-	-	-	-	-	-	-
Teigen	Hodkin	1.89	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		-	-	-	-	-	-	-	-	-	-	-	-	-
Teigen	Snowbank	0.00	0.00	1.21	3.64	0.15	0.30	0.00	0.76	0.00	0.00	0.30	0.00	0.00
		-	-	-	-	-	-	-	-	-	-	-	-	-
Treaty	Gilbert	0.07	0.00	1.75	2.64	1.14	0.07	0.00	1.61	0.00	0.00	0.00	0.00	0.14
		0.07	-	1.60	2.64	1.14	0.07	-	0.10	-	-	-	-	0.14
Treaty	Todedada	1.33	0.00	0.00	0.00	0.81	0.31	0.00	0.00	0.00	0.03	0.33	0.00	0.00
		0.37	-	-	-	0.35	0.13	-	-	-	0.03	0.29	-	-
Treaty	Todedada	0.26	0.00	0.00	0.00	0.09	0.75	0.02	0.00	0.02	0.00	0.12	0.00	0.02
		0.26	-	-	-	0.09	0.11	0.02	-	0.02	-	0.09	-	0.02
Bell-Irving	Oweegee	0.00	0.00	1.20	0.00	0.16	0.00	0.00	0.53	0.00	0.23	0.00	0.00	0.00
		-	-	0.45	-	0.16	-	-	0.09	-	0.02	-	-	-
Bell-Irving	Glacier	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.09	0.00	0.00	0.40	0.00	0.00
		-	-	-	-	-	0.09	-	0.09	-	-	0.15	-	-
Bell-Irving	Taft	0.11	0.21	0.00	3.76	0.22	0.03	0.15	0.00	0.00	0.00	0.14	0.11	0.05
		0.06	0.21	-	0.81	0.22	0.03	0.09	-	-	-	0.14	0.06	0.05
Bell-Irving	Mere	0.00	0.00	0.71	0.00	25.53	0.00	0.00	0.00	0.00	2.13	0.71	0.00	0.00
		-	-	-	-	-	-	-	-	-	-	-	-	-
Bowser	-	0.00	0.00	0.74	0.00	0.25	0.86	0.00	0.12	0.00	0.00	0.61	0.00	0.00
		-	-	-	-	-	-	-	-	-	-	-	-	-

Dashes indicate not applicable
n = sample size
SE = standard error of the mean
Species: DV - Dolly Varden, BT - bull trout, RB - rainbow trout, CO - coho salmon, CH - chinook salmon, MW - mountain whitefish
CPUE = Catch per unit effort (fish/100 s)

Table 5.5-7. Summary Statistics of Electrofishing CPUE in Side Channels by Compensation Site, 2010

Watershed	Polygon	Site Number	Sample Size (n)	Statistic	Combined Life Stage CPUE					Fry Life Stage CPUE			Parr Life Stage CPUE				Adult Life Stage CPUE
					RB	MW	CH	CO	All Species	RB	CH	CO	RB	MW	CH	CO	MW
Bell-Irving	126	2	1	Mean	1.34	0.00	0.00	0.18	1.52	1.34	0.00	0.18	0.00	0.00	0.00	0.00	0.00
				SE	-	-	-	-	-	-	-	-	-	-	-	-	-
Bell-Irving	124, 164, 171, 125	1 to 4	4	Mean	0.13	1.13	2.85	0.48	4.60	0.00	2.78	0.45	0.13	1.09	0.07	0.04	0.04
				SE	0.08	0.38	1.10	0.43	1.01	-	1.12	0.39	0.08	0.37	0.04	0.04	0.04
Bell-Irving	130	2	1	Mean	0.00	0.00	0.00	30.37	30.37	0.00	0.00	30.37	0.00	0.00	0.00	0.00	0.00
				SE	-	-	-	-	-	-	-	-	-	-	-	-	-
Bell-Irving	160	1	1	Mean	0.00	0.00	0.00	65.54	65.54	0.00	0.00	65.54	0.00	0.00	0.00	0.00	0.00
				SE	-	-	-	-	-	-	-	-	-	-	-	-	-

Species: RB - rainbow trout, CO - coho salmon, CH - chinook salmon, MW - mountain whitefish

CPUE = Catch per unit effort (fish/100 s)

Table 5.5-8. Summary of Electrofishing Effort and Sample Timing in Streams and Side Channels by Compensation Site, 2010

Watershed	Sub-Watershed	Waterbody	Polygon	Site Number	Sample Month	Effort (s)
Bell-Irving	Oweegee	Oweegee Creek	126	1	August	1,710
Bell-Irving	Oweegee	Oweegee Creek	126	2	August	1,118
Bell-Irving	Glacier	Glacier Creek	129	1	August	1,345
Bell-Irving	Taft	Taft Creek	130	1	August	2,564
Bell-Irving	Mere	Mere Creek	133	1	August	141
Bell-Irving	-	Bell-Irving River	124, 164, 171, 125	1 to 4	August	2,422
Bowser	-	Bowser River	137	2	August	816
Teigen	Hodkin	Hodkin Lake Creek 1	100	2	August	1,007
Teigen	Hodkin	Hodkin Lake Creek 2	100	3	August	900
Teigen	Snowbank	Snowbank Creek	118	1	August	660
Treaty	Gilbert	Gilbert Creek	110	1	August	1,626
Treaty	Todedada	East Todedada Creek	112	1 and 3	July, August, September	3,276
Treaty	Todedada	Todedada Creek	112	1	August, September	4,049

Dashes indicate not applicable

Table 5.5-9. Summary Statistics of Minnow Trap CPUE in Side Channels by Compensation Site, 2010

Watershed	Sub-Watershed	Waterbody	Polygon	Site Number	Sample Size (n)	Statistic	Combined Life Stage CPUE			Fry Life Stage CPUE		Parr Life Stage CPUE
							CH	CO	All Species	CH	CO	CO
Bell-Irving	Taft	Taft Creek	130	2	1	Mean	0.00	30.37	30.37	0.00	30.37	0.00
						SE	-	-	-	-	-	-
Bell-Irving	-	Bell-Irving River	160	1	1	Mean	0.00	65.54	65.54	0.00	65.54	0.00
						SE	-	-	-	-	-	-
Bell-Irving	-	Bell-Irving River	124, 164, 171, 125	1 to 4	18	Mean	1.04	0.38	1.42	1.04	0.08	0.30
						SE	0.46	0.38	0.78	0.46	0.08	0.30

Dashes indicate not applicable

n = sample size

SE = standard error of the mean

Species: CO - coho salmon, CH - chinook salmon

CPUE = Catch per unit effort (fish/trap/day)

Table 5.5-10. Summary of Minnow Trap Effort and Sample Timing in Side Channels by Compensation Site, 2010

Watershed	Sub-Watershed	Waterbody	Polygon	Site Number	Sample Month	Traps Set	Effort (h)
Bell-Irving	Taft	Taft Creek	130 (Side Channel)	2	August	1	25
Bell-Irving	-	Bell-Irving River	160 (Side Channel)	1	August	1	26
Bell-Irving	-	Bell-Irving River	124, 164, 171, 125	1 to 4	August	18	379

Dashes indicate not applicable

Table 5.5-11. Mean Length, Weight and Condition of Fish Captured at Compensation Sites, 2010

Watershed	Sub-Watershed	Waterbody	Polygon	Site Number	Species	Length (mm)					Weight (g)					Condition (g/mm^3)				
						n	Mean	SE	Min	Max	n	Mean	SE	Min	Max	n	Mean	SE	Min	Max
Treaty	-	Treaty Creek	107	1	Dolly Varden	5	163	6.20	140	173	3	38.3	7.53	26.5	52.3	3	0.96	0.04	0.88	1.03
					Rainbow Trout	1	125	-	125	125	1	23.5	-	23.5	23.5	1	1.20	-	1.20	1.20
Treaty	-	Treaty Creek	108	3	Dolly Varden	19	95	4.54	72	160	18	10.1	2.10	4.0	43.7	18	1.01	0.02	0.87	1.26
Teigen	-	Teigen Creek	116	4	Chinook Salmon	11	57	1.84	46	70	10	1.8	0.21	0.7	3.0	10	1.04	0.10	0.56	1.52
					Coho Salmon	19	62	5.73	35	120	19	3.7	1.06	0.5	18.0	19	1.06	0.04	0.81	1.41
Bowser	-	Bowser River	135	-	Longnose Sucker	14	121	8.05	65	172	13	21.5	3.96	3.1	57.5	13	0.95	0.02	0.78	1.13
Bell-Irving	-	Bell-Irving River	160	1	Coho Salmon	24	73	4.45	35	105	1	8.5	-	8.5	8.5	1	1.17	-	1.17	1.17
					Dolly Varden	2	113	17.50	95	130	-	-	-	-	-	-	-	-	-	-
Teigen	Hodkin	Hodkin Lake Creek 1	100	2	Dolly Varden	26	77	5.32	30	135	-	-	-	-	-	-	-	-	-	-
Teigen	Hodkin	Hodkin Lake Creek 2	100	3	Dolly Varden	53	55	2.49	25	88	-	-	-	-	-	-	-	-	-	-
Treaty	Gilbert	Gilbert Creek	110	1	Chinook Salmon	12	40	0.88	36	46	12	0.6	0.05	0.4	0.9	12	0.86	0.03	0.70	1.08
					Coho Salmon	17	55	1.90	41	65	12	2.1	0.22	1.1	3.2	12	1.01	0.03	0.84	1.17
					Dolly Varden	3	67	20.09	42	107	3	4.5	3.45	0.8	11.4	3	0.96	0.06	0.87	1.08
					Mountain Whitefish	2	130	20.00	110	150	2	22.4	10.15	12.2	32.5	2	0.94	0.02	0.92	0.96
					Rainbow Trout	42	73	4.89	33	180	41	6.9	1.79	0.4	67.3	41	1.04	0.02	0.85	1.32
Treaty	Todedada	East Todedada Creek	112	1 to 3	Coho Salmon	47	65	24.72	33	104	32	5.0	4.18	0.3	11.9	32	0.98	0.14	0.63	1.22
					Dolly Varden	69	79	5.47	28	192	50	12.7	2.13	0.3	76.4	50	0.95	0.02	0.38	1.49
Treaty	Todedada	Todedada Creek	112	1 to 2	Bull Trout	1	71	-	71	71	1	3.0	-	3.0	3.0	1	0.84	-	0.84	0.84
					Chinook Salmon	1	91	-	91	91	1	7.4	-	7.4	7.4	1	0.98	-	0.98	0.98
					Coho Salmon	4	51	2.96	46	59	-	-	-	-	-	-	-	-	-	-
					Dolly Varden	41	74	5.90	33	195	29	9.4	2.86	1.3	69.1	29	0.91	0.02	0.67	1.07
Teigen	Snowbank	Snowbank Creek	118	1	Chinook Salmon	15	53	2.40	39	82	15	1.9	0.34	0.7	6.3	15	1.13	0.03	0.87	1.38
					Coho Salmon	1	42	-	42	42	1	0.8	-	0.8	0.8	1	1.08	-	1.08	1.08
					Dolly Varden	4	85	14.17	55	113	4	8.3	3.56	1.4	16.2	4	1.03	0.06	0.84	1.12
					Rainbow Trout	13	61	9.56	30	126	7	9.5	3.50	1.5	22.8	7	1.21	0.04	1.03	1.36
Bell-Irving	Oweegee	Oweegee Creek	126	1	Coho Salmon	7	66	5.05	49	84	6	4.3	0.91	1.4	7.6	6	1.22	0.06	0.98	1.38
					Rainbow Trout	30	58	5.61	33	153	26	5.1	2.00	0.2	39.7	26	1.13	0.05	0.29	1.45
Bell-Irving	Oweegee	Oweegee Creek	126	2	Coho Salmon	2	52	3.00	49	55	2	1.3	0.05	1.2	1.3	2	0.91	0.19	0.72	1.10
					Rainbow Trout	15	40	1.49	29	48	13	0.8	0.09	0.3	1.3	13	1.19	0.05	0.94	1.56
Bell-Irving	Glacier	Glacier Creek	129	1	Dolly Varden	9	109	11.23	72	157	9	17.8	4.44	3.9	41.5	9	1.15	0.04	1.00	1.34
					Rainbow Trout	1	165	-	165	165	1	48.8	-	48.8	48.8	1	1.09	-	1.09	1.09
Bell-Irving	Taft	Taft Creek	130	1 to 2	Bull Trout	5	119	46.03	43	300	4	4.4	1.13	1.0	5.6	4	1.03	0.09	0.85	1.26
					Chinook Salmon	44	52	0.83	42	65	44	1.4	0.08	0.8	3.1	44	0.97	0.02	0.68	1.14
					Coho Salmon	20	54	1.88	40	71	20	1.6	0.19	0.6	3.6	20	0.99	0.04	0.60	1.44
					Dolly Varden	8	91	14.20	24	151	7	13.2	4.48	0.9	38.0	7	1.00	0.03	0.84	1.10
					Mountain Whitefish	1	192	-	192	192	1	87.4	-	87.4	87.4	1	1.23	-	1.23	1.23
Bell-Irving	Mere	Mere Creek	133	1	Coho Salmon	12	57	5.93	42	88	-	-	-	-	-	-	-	-	-	-
					Dolly Varden	1	125	-	125	125	-	-	-	-	-	-	-	-	-	-
Bowser	-	Bowser River	137	2	Coho Salmon	9	56	2.86	45	70	8	2.0	0.27	1.2	3.4	8	1.07	0.10	0.59	1.43
					Dolly Varden	12	78	8.58	50	118	10	6.8	2.01	1.4	16.5	10	1.08	0.09	0.83	1.76
					Rainbow Trout	4	51	13.29	30	90	4	3.0	2.50	0.3	10.5	4	1.07	0.24	0.47	1.48
Bell-Irving	-	Bell-Irving River	124, 164, 171, 125	1 to 4	Chinook Salmon	52	56	1.12	40	78	31	2.0	0.18	0.9	6.1	31	1.14	0.05	0.46	1.64
					Coho Salmon	18	68	4.77	40	105	17	4.8	1.02	1.0	13.7	16	1.14	0.07	0.43	1.56
					Mountain Whitefish	16	63	7.47	36	150	2	0.9	0.30	0.6	1.2	2	1.05	0.18	0.87	1.23
					Rainbow Trout	4	97	20.05	67	153	3	19.9	11.86	3.6	43.0	3	1.22	0.08	1.10	1.36

Dashes indicates not applicable

N = sample size

SE = standard error

Table 5.5-12. Summary Statistics of Minnow Trap CPUE in Wetlands by Compensation Site, 2010

				Site	Sample		Combined Life Stages CPUE						Fry Life Stage CPUE			Parr Life Stage CPUE			Adult Life Stage CPUE		
Watershed	Sub-Watershed	Waterbody	Polygon	Number	Size (n)	Statistic	DV	RB	LSU	CO	CH	All Species	DV	CO	CH	DV	RB	CO	DV	RB	LSU
Treaty	-	Treaty Creek	107	1	8	Mean	0.54	0.11	0.00	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.11	0.00
						SE	0.32	0.11	-	-	-	0.35	-	-	-	-	-	-	0.32	0.11	-
Treaty	-	Treaty Creek	108	3	8	Mean	1.97	0.00	0.00	0.00	0.00	1.97	0.00	0.00	0.00	0.93	0.00	0.00	1.03	0.00	0.00
						SE	1.12	-	-	-	-	1.12	-	-	-	0.53	-	-	0.60	-	-
Treaty	-	Treaty Creek	109	2	5	Mean	0.28	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00
						SE	0.28	-	-	-	-	0.28	-	-	-	-	-	-	0.28	-	-
Treaty	Todedada	East Todedada Creek	112	2	6	Mean	9.92	0.00	0.00	12.17	0.00	22.08	0.00	0.68	0.00	0.90	0.00	11.49	9.01	0.00	0.00
						SE	4.07	-	-	5.44	-	8.45	-	0.46	-	0.29	-	5.14	3.90	-	-
Treaty	Todedada	Todedada Creek	201	2	8	Mean	0.31	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.10	0.00	0.00	0.20	0.00	0.00
						SE	0.21	-	-	-	-	0.21	-	-	-	0.10	-	-	0.20	-	-
Teigen	-	Teigen Creek	116*	4	8	Mean	0.00	0.00	0.00	8.66	2.09	10.76	0.00	3.14	2.09	0.00	0.00	5.53	0.00	0.00	0.00
						SE	-	-	-	5.47	1.29	6.22	-	1.66	1.29	-	-	3.83	-	-	-
Teigen	-	Teigen Creek	101	2	3	Mean	0.00	0.31	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00
						SE	-	0.31	-	-	-	0.31	-	-	-	-	0.31	-	-	-	-
Bell-Irving	Taft	Taft Creek	130	2	10	Mean	0.23	0.00	0.00	0.00	0.00	0.23	0.11	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00
						SE	0.23	-	-	-	-	0.23	0.11	-	-	-	-	-	0.11	-	-
Bell-Irving	-	Bell-Irving River	160	1	8	Mean	0.36	0.00	0.00	1.52	0.00	1.88	0.00	0.00	0.00	0.00	0.00	1.52	0.36	0.00	0.00
						SE	0.17	-	-	0.73	-	0.79	-	-	-	-	-	0.73	0.17	-	-
Bowser	-	Bowser River	135	-	8	Mean	0.00	0.00	30.91	0.00	0.00	30.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.91
						SE	-	-	9.58	-	-	9.58	-	-	-	-	-	-	-	-	9.58
Bowser	-	Bowser River	137	2	8	Mean	0.15	0.00	0.00	1.17	0.00	1.32	0.00	1.17	0.00	0.00	0.00	0.00	0.15	0.00	0.00
						SE	0.15	-	-	0.66	-	0.64	-	0.66	-	-	-	-	0.15	-	-

Dashes indicate not applicable

CPUE = Catch per unit effort (fish/trap/day)

n = sample size

SE = standard error of the mean

Species: DV - Dolly Varden, LSU - longnose sucker, RB - rainbow trout, CO - coho salmon, CH - chinook salmon, MW - mountain whitefish

** Downstream of 1st beaver dam*

Table 5.5-13. Summary of Minnow Trap Effort and Sample Timing in Wetlands by Compensation Site, 2010

Watershed	Sub-Watershed	Waterbody	Polygon	Site Number	Sample Month	Traps Set	Effort (h)
Bell-Irving	Taft	Taft Creek	130	2	August	10	222
Bell-Irving	-	Bell-Irving River	160	1	August	8	202
Bowser	-	Bowser River	135	-	August	8	152
Bowser	-	Bowser River	137	2	August	8	164
Bowser	-	Bowser River	137	3	August	8	188
Teigen	-	Teigen Creek	116*	4	August	8	168
Teigen	-	Teigen Creek	116^	4	August	8	161
Teigen	-	Teigen Creek	101	2	March	3	78
Treaty	-	Treaty Creek	107	1	August	9	224
Treaty	-	Treaty Creek	108	3	August	9	232
Treaty	-	Treaty Creek	109	2	August	5	87
Treaty	-	Treaty Creek	104	-	March	3	75
Treaty	Todedada	East Todedada Creek	112	2	September	6	107
Treaty	Todedada	Todedada Creek	201	2	August	8	236

Dashes indicate not applicable
**Above 1st beaver dam*
^Below 1st beaver dam

Table 5.5-14. Summary Statistics of Gillnet Effort, Catch and CPUE in Lakes, 2010

Lake	No. Gillnet Sets	Total Effort (h)	Dolly Varden			Rainbow Trout			Mountain Whitefish		
			No. of Fish	Mean CPUE	SE	No. of Fish	Mean CPUE	SE	No. of Fish	Mean CPUE	SE
Unnamed Lake #1	6	20.1	9	0.45	0.13	9	0.27	0.05	0	0.00	0.00
Unnamed Lake #2	5	5.0	15	1.38	0.27	0	0.00	0.00	0	0.00	0.00
Hodkin Lake	17	18.0	11	0.27	0.02	0	0.00	0.00	0	0.00	0.00
Unuk Lake	9	-	43	-	-	0	0.00	0.00	0	0.00	0.00
Gilbert Lake	10	6.6	10	0.80	0.14	45	2.73	0.50	37	3.03	0.39

CPUE = catch-per-unit-effort, fish/100 m^2/day
SE = standard error

Table 5.5-15. Summary Statistics of Minnow Trap Effort, Catch and CPUE in Lakes, 2010

Lake	No. Minnow Trap Sets	Total Effort (h)	Dolly Varden		
			No. of Fish	Mean CPUE	SE
Unnamed Lake #1	15	265.9	0	0.00	0.00
Unnamed Lake #2	10	234.4	5	0.03	0.00
Hodkin Lake	30	684.2	0	0.00	0.00

CPUE = catch-per-unit-effort, fish/trap/day
SE = standard error

Table 5.5-16. Mean Length, Weight and Condition of Fish Captured in Lakes, 2010

		Fork Length (mm)					Weight (g)					Condition (g/mm3)				
Species	**Lake**	**N**	**Mean**	**SE**	**Min**	**Max**	**N**	**Mean**	**SE**	**Min**	**Max**	**N**	**Mean**	**SE**	**Min**	**Max**
Dolly Varden	Unnamed Lake #1	9	299.7	3.10	241	328	9	313.3	8.43	165	395	9	1.14	0.01	1.07	1.29
	Unnamed Lake #2	20	194.6	2.63	67	268	20	88.3	2.51	4	183	20	1.01	0.01	0.60	1.33
	Hodkin Lake	11	245.8	6.80	173	395	11	231.7	22.71	83	744	11	1.30	0.06	1.00	3.11
	Unuk Lake	43	173.2	0.17	124	224	43	67.1	0.17	17	129	43	1.27	0.00	0.63	2.36
	Gilbert Lake	12	223.9	6.71	105	352	12	177.3	12.74	11	464	12	1.14	0.01	0.95	1.33
Rainbow Trout	Unnamed Lake #1	9	324.8	2.91	299	370	9	409.4	9.63	293	601	9	1.19	0.01	0.94	1.36
	Gilbert Lake	47	277.4	0.83	116	374	47	231.7	1.47	16	360	47	1.06	0.00	0.47	1.38
Mountain Whitefish	Gilbert Lake	31	234.3	2.43	107	356	31	190.5	4.80	14	600	30	1.12	0.07	0.35	1.50

SE = standard error

Table 5.5-17. Mean Age of Fish Captured in Lakes, 2010

		Age (years)				
Species	**Lake**	**n**	**Mean**	**SE**	**Min**	**Max**
Dolly Varden	Unnamed Lake #1	9	2.9	0.04	2	3
	Unnamed Lake #2	10	3.1	0.07	2	5
	Hodkin Lake	11	3.0	0.07	2	5
	Unuk Lake	15	3.1	0.03	2	4
	Gilbert Lake	10	4.1	0.17	1	7
Rainbow Trout	Unnamed Lake #1	9	2.8	0.10	2	5
	Gilbert Lake	11	4.0	0.08	3	6
Mountain Whitefish	Gilbert Lake	11	5.8	0.29	3	13

SE = standard error

6. Conclusion

6. Conclusion

The fish and fish data presented in this reports support compensation projects discussed in the *KSM Project: HADD fish habitat compensation plan* and *KSM Project: MMER fish habitat compensation plan*. Site-specific fish and fish habitat descriptions of proposed compensation sites are presented in these plans; therefore assessment results are simply presented as supporting information.

Access road, instream flow, Dolly Varden abundance, and spawning survey assessments provide additional baseline data related to project development within the study area.

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Engineers and Scientists

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Appendix 5.1-1

FDIS Fish Habitat Data for Road Crossing Sites, 2010

Rescan™
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FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	10.0	104B.040	2017	1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER
Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: ROAD ASSESSMENT, SNOW ROAD
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 104B.040 ILP #: 2017 NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 150 Method: GE Access: H
GIS UTM (Z.E.N): 9.433429.6241135 Ref. Name:
Date: 2010/08/12 Time: 14:15 Agency: C660 Crew: GK/KW Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	15.00	27.00	60.00	40.00							35.50
Wetted Width (m):	MS	5.00	5.00	5.00	5.00							5.00
Pool Depth (m):	MS											0.00

	Gadient %		Mtd	Avg
Method I:	7.0	8.0	C	7.50
Method II:			C	

Wb Depth:			

Avg: 0.00 Method: MS Stage: L ☑ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: T

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	T	N	D	N	N	N	N
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
0 0%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: N DIST: NA

LB SHP: V
Texture: F ☑ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

RB SHP: V
Texture: F ☑ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: D
STG: PS

WATER

EMS:
Temp: 10 Method: T5
pH: Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 90 Method: S3
Turb.: T ☐ M ☐ L ☑ C ☐ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: B
D95: 100.0 D (cm): 60.00 Morph: CP
Pattern: SI
Islands: N
Coupling: CO
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☑	☑	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☑	☑	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☑ DIAG☐ MID☑ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
OverWinter Habitat	POOR - NO LARGE POOLS
Rearing Habitat	FAIR - SMALL POOLS AND EDDIES BEHIND BOULDERS BUT LITTLE COVER
Spawning Habitat	POOR - LARGE SUBSTRATE, MANY CASCADES

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	2017	F:	1	STD	U	W/KW FROM MOUTH
R:	2017	F:	2	STD	D	TO CONFLUENCE
R:	2017	F:	3	STD	U	FROM TOP OF SITE

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	10.0	104B.040	2017	1

COMMENTS	
Section	Comments
CHANNEL	S4 - DIRECTLY CONNECTED TO FISH BEARING RIVER
COVER	NO REAL POOLS OR WOODY DEBRIS
MORPHOLOGY	A FAST STEEP STREAM THAT CUTS THROUGH A DEEP CHANNEL UNTIL THE FINAL 75M WHERE IT CROSSES THE FLOODPLAIN.
SITE CARD	BANKFUL DEPTH NOT REALLY APPLICABLE AS THIS CREEK CUTS THROUGH GLACIAL GRAVEL DEPOSITS UP TO 25M THICK AND THEN FLOWS ACROSS A HUGE ALLUVIAL PLAIN TO MAIN STEM

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-208600-00000-00000-0000-0000-000-000-000-000-000-000	10.0			1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: BOWSER RIVER Local Name: ROAD ASSESSMENT, SNOW ROAD
Watershed Code: 560-208600-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 300 Method: GE Access: H
GIS UTM (Z.E.N): 9.434251.6237110 Ref. Name:
Date: 2010/08/12 Time: 08:30 Agency: C660 Crew: GK/KW Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	GE	800.00										800.00
Wetted Width (m):	RF	90.00	60.00									75.00
Pool Depth (m):	MS											0.00

	Gadient %		Mtd	Avg
Method I:	1.0	1.0	C	1.33
Method II:	2.0		C	

Wb Depth:			

Avg: 0.00 Method: MS Stage: L ☑ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: T

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	N	N	D	N	N	N	N
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
0 0%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: N DIST: NA

LB SHP: V
Texture: F ☑ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: D
STG: PS

RB SHP: V
Texture: F ☑ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: D
STG: PS

WATER

EMS: Req #:
Temp: 2 Method: T5 Cond.: 51 Method: S3
pH: Method: P1
Flood Signs: Method: GE Turb.: T ☑ M ☐ L ☐ C ☐ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: C
D95: 30.0 D (cm): 26.50 Morph: RP
Pattern: IM
Islands: N
Coupling: CO
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☑	☐	☐	☐	☐	☑	☐

Bars: N ☐ SIDE ☑ DIAG ☑ MID ☑ SPAN ☐ BR ☑

HABITAT QUALITY

Name	Comments
OverWinter Habitat	POOR - NO POOLS
Rearing Habitat	FAIR - SIDECHANNEL HAVE SLOW AREAS BUT LITTLE TO NO COVER
Spawning Habitat	FAIR - HIGH VELOCITY BUT SOME CHANNELS HAVE GOOD GRAVEL

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	2012	F:	1	STD	D	DOWNSTREAM BARS
R:	2012	F:	2	STD	U	UPSTREAM
R:	2012	F:	3	STD	X	ACROSS FROM ROAD

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-208600-00000-00000-0000-0000-000-000-000-000-000-000	10.0			1

COMMENTS	
Section	Comments
SITE CARD	S1 - LARGE FISH BEARING

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-208600-74100-00000-0000-0000-000-000-000-000-000-000	10.0			1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: ROAD ASSESSMENT, SNOW ROAD
Watershed Code: 560-208600-74100-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 75 Method: GE Access: H
GIS UTM (Z.E.N): 9.433129.6242575 Ref. Name:
Date: 2010/08/13 Time: 08:00 Agency: C660 Crew: GK/KW Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	10.00	6.00	7.00	7.00							7.50
Wetted Width (m):	MS	5.00	4.00	2.50	3.00							3.63
Pool Depth (m):	MS											0.00

	Gadient %		Mtd	Avg
Method I:	50.0	25.0	C	36.00
Method II:	33.0		C	

Wb Depth:	25.0		

Avg: 25.00 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: M

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	N	N	D	N	N	T	N
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☑ M ☐ V ☐

LWD: N DIST: NA

LB SHP: V
Texture: F ☑ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

RB SHP: V
Texture: F ☐ G ☑ C ☐ B ☐ R ☑ A ☐
RIP: S
STG: SHR

WATER

EMS: Req #:
Temp: 7 Method: T5 Cond.: 214 Method: S3
pH: Method: P1
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE
Flood Signs: Method: GE

MORPHOLOGY

Bed Material: Dominant: C Subdom: G
D95: 120.0 D (cm): 40.00 Morph: SP
Pattern: SI
Islands: N
Coupling: CO
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Z/E/N)	Method
		C	3.0	GE	10	GE	R: 2018 F: 1	L: #:	9.433134.6242568	GPU

Comments: CASCADE OF 50% GRADIENT

HABITAT QUALITY

Name	Comments
OverWinter Habitat	POOR - NO DEEP POOLS
Rearing Habitat	FAIR - STEEP BUT LOTS OF BOULDER COVER, SMALL POOLS AND EDDIES
Spawning Habitat	POOR - FAST, STEEP, LARGE SUBSTRATE

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 560-208600-74100-00000-0000-0000-000-000-000-000-000-000

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 2018 F: 2	STD	U	
R: 2018 F: 3	STD	D	

COMMENTS

Section	Comments
CHANNEL	S6 - 50% GRADIENT ON DOWNSTREAM END
MORPHOLOGY	CLEAR HIGH GRADIENT STREAM THROUGH INCISED GORGE, LARGE BOULDER AND COBBLE SUBSTRATE WITH MANY SMALL POOLS. 50% GRADIENT CASCADE AT CONFLUENCE IS LIKELY A FISH BARRIER TO THE NICE STEP-POOL HABITAT FARTHER UP

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 560-208600-75800-00000-0000-0000-000-000-000-000-000-000

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER
Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: ROAD ASSESSMENT, SNOW ROAD
Watershed Code: 560-208600-75800-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 80 Method: GE Access: H
GIS UTM (Z.E.N): 9.433537.6240947 Ref. Name:
Date: 2010/08/12 Time: 13:40 Agency: C660 Crew: GK/KW Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	5.00	8.00	9.00								7.33
Wetted Width (m):	MS	1.00	1.00	0.50								0.83
Pool Depth (m):	MS	0.10	0.20									0.15

	Gadient %		Mtd	Avg
Method I:	11.0	9.0	C	10.00
Method II:			C	

Wb Depth:	10.0		

Avg: 10.00 Method: GE Stage: L ☑ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: T

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	N	D	N	N	T	N
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
0 0%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: N DIST: NA

LB SHP: V
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

RB SHP: V
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: INIT

WATER

EMS:
Temp: 9 Method: T5
pH: Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 89 Method: S3
Turb.: T ☐ M ☐ L ☑ C ☐ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: NA
D95: 60.0 D (cm): 25.00 Morph: CP
Pattern: IR
Islands: N
Coupling: CO
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☑	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
OverWinter Habitat	POOR - NO POOLS
Rearing Habitat	FAIR - LITTLE COVER, WARM
Spawning Habitat	POOR - SHALLOW, SILTY, STEEP

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	2016	F:	1	STD	U	
R:	2016	F:	2	STD	D	CONFLUENCE
R:	2016	F:	3	STD	D	KW AND CONFLUENCE

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-208600-75800-00000-0000-0000-000-000-000-000-000-000	10.0			1

COMMENTS	
Section	Comments
CHANNEL	S4 - DIRECTLY CONNECTED TO FISH BEARING STREAM
MORPHOLOGY	BOTTOM 100M HAS NO COVER, 22C, 5MM DEEP WATER AND LITTLE FISHERIES POTENTIAL
WATER	MAY BE SEEPAGE FROM THE HILLSIDE, THE WATER IS WARM AND THE SUBSTRATE COVERED IN BRING ORANGE SILT
COVER	LITTLE COVER EXCEPT OCCASIONAL JAMS OF SWD

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-208600-78300-00000-0000-0000-000-000-000-000-000-000	10.0			1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: ROAD ASSESSMENT, SNOW ROAD
Watershed Code: 560-208600-78300-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.433795.6239928 Ref. Name:
Date: 2010/08/12 Time: 12:30 Agency: C660 Crew: GK/KW Fish Crd?: ☐ Incomplete: ☑

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	140.00										140.00
Wetted Width (m):	MS	11.00	7.00	12.00	15.00							11.25
Pool Depth (m):	MS											0.00

	Gadient %		Mtd	Avg
Method I:	5.0	7.0	C	6.67
Method II:	8.0		C	

Wb Depth:			

Avg: 0.00 Method: MS Stage: L ☑ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: M

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	N	N	D	N	N	N	N
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
0 0%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: N DIST: NA

LB SHP: V
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

RB SHP: V
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: N
STG:

WATER

EMS:
Temp: 4 Method: T5
pH: Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 92 Method: S3
Turb.: T ☐ M ☐ L ☑ C ☐ Method: GE

MORPHOLOGY

Bed Material: Dominant: C Subdom: G
D95: 500.0 D (cm): 500.00 Morph: RP
Pattern: SI
Islands: N
Coupling: CO
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☑	☑	☐	☑	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☑ DIAG☐ MID☑ SPAN☐ BR☐

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Z/E/N)	Method
		GE		MS		GE	R: 2015 F: 4	L: #:	9.433799.6240148	GPU

Comments: SEVERAL SEEPAGES FROM NEARBY HILL

HABITAT QUALITY

Name	Comments
OverWinter Habitat	POOR - NO DEEP POOLS
Rearing Habitat	FAIR - BRAIDS CREATE LOW VELOCITY AREAS BUT LITTLE COVER
Spawning Habitat	POOR - TOO FAST AND LARGE SUBSTRATE

FDIS Site Card

Watershed Code: 560-208600-78300-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0			1

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	2015	F:	1	STD	D	CONFLUENCE
R:	2015	F:	2	STD	U	MOUTH W/ KW
R:	2015	F:	3	STD	U	STREAM LEVEL UP WITH BANKS
R:	2015	F:	4	STD	D	SEEPAGES
R:	2015	F:	5	STD	D	SEVERAL SEEPAGES ACCUMULATING

COMMENTS

Section	Comments
CHANNEL	S4 - DIRECTLY CONNECTED TO FISH BEARING RIVER
SITE CARD	VERY HIGH AND WIDE CHANNEL BANKS MAKE CHANNEL WIDTHS DIFFICULT
MORPHOLOGY	CHANNEL BLOWN OUT INTO AN ALLUVIAL FAN (SEE PHOTOS). LOTS OF BOULDER COVER AND SLOW SECTIONS IN THE BRAIDS BUT MAIN CHANNEL VERY FAST

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 560-208600-79000-00000-0000-0000-000-000-000-000-000-000

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER
Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: ROAD ASSESSMENT, SNOW ROAD
Watershed Code: 560-208600-79000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.433946.6239202 Ref. Name:
Date: 2010/08/12 Time: 11:25 Agency: C660 Crew: GK/KW Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	24.00	20.00	11.00	10.00	20.00	17.00					17.00
Wetted Width (m):	MS	2.00	2.00	1.50	2.00	3.00	1.50					2.00
Pool Depth (m):	MS	0.40	0.20	0.20								0.27

	Gadient %		Mtd	Avg
Method I:	3.0	4.0	C	4.00
Method II:	5.0		C	

Wb Depth:	9.0		

Avg: 9.00 Method: GE Stage: L ☑ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: T

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	D	N	S	N	N	S	N
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
0 0%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: N DIST: NA

LB SHP: V
Texture: F ☑ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

RB SHP: V
Texture: F ☑ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

WATER

EMS:
Temp: 12 Method: T5
pH: Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 157 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: B
D95: 100.0 D (cm): 35.00 Morph: RP
Pattern: IR
Islands: N
Coupling: CO
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☑	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☑	☑	☐	☐	☐	☐	☑	☐

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
OverWinter Habitat	POOR - NO DEEP POOLS, WOULD FREEZE THROUGH
Rearing Habitat	FAIR - SMALL POOLS, GRAVEL, SOME SWD
Spawning Habitat	FAIR - SMALL AND SHALLOW, BUT CLEAN GRAVEL

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	2014	F:	1	STD	U	
R:	2014	F:	2	STD	D	
R:	2014	F:	3	STD	D	GRAVEL SUBSTRATE

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 560-208600-79000-00000-0000-0000-000-000-000-000-000-000

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 2014 F: 4	STD	D	CONFLUENCE

COMMENTS

Section	Comments
CHANNEL	S4 - DIRECTLY CONNECTED TO FISH BEARING RIVER
MORPHOLOGY	HEAVILY AGGRADED - FULL OF GRAVEL AND BOULDERS. CLEAN GRAVEL, LARGE CHANNEL SUGGESTS HIGH SPRING FLOW

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 560-208600-81900-00000-0000-0000-000-000-000-000-000-000

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER
Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: ROAD ASSESSMENT, SNOW ROAD
Watershed Code: 560-208600-81900-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.433977.6237580 Ref. Name:
Date: 2010/08/12 Time: 09:00 Agency: C660 Crew: GK/KW Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	13.00	7.00	6.00	7.00	8.00	7.00					8.00
Wetted Width (m):	MS	2.20	5.50	4.00	3.50	3.00	5.00					3.87
Pool Depth (m):	MS	0.20	0.20	0.30								0.23

	Gadient %		Mtd	Avg
Method I:	10.0	12.0	C	11.33
Method II:	12.0		C	

Wb Depth:			

Avg: 0.00 Method: MS Stage: L ☑ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: M

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	N	N	D	N	N	N	N
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
0 0%
INSTREAM VEG: N ☐ A ☐ M ☑ V ☐

LWD: N DIST: NA

LB SHP: V
Texture: F ☑ G ☐ C ☐ B ☑ R ☐ A ☐
RIP: S
STG: SHR

RB SHP: V
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

WATER

EMS:
Temp: 9 Method: T5
pH: Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 98 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: C Subdom: G
D95: 30.0 D (cm): 30.00 Morph: CP
Pattern: SI
Islands: N
Coupling: CO
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☑ DIAG☐ MID☑ SPAN☐ BR☐

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Z/E/N)	Method
		F	7.0	GE	1	GE	R: 2013 F: 3	L: #:	9.433863.6237593	GPU

Comments:

HABITAT QUALITY

Name	Comments
OverWinter Habitat	POOR - NO DEEP POOLS, PROBABLY FREEZES
Rearing Habitat	FAIR - FAST BUT THERE ARE A FEW POOLS
Spawning Habitat	POOR - STEEP AND SHALLOW

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-208600-81900-00000-0000-0000-000-000-000-000-000-000	10.0			1

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	2013	F:	1	STD	D	
R:	2013	F:	2	STD	U	

COMMENTS

Section	Comments
CHANNEL	S4 - DIRECTLY CONNECTED TO FISH BEARING RIVER

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000	10.0			1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: TUNNEL CROSSING
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H
GIS UTM (Z.E.N): 9.435346.6281083 Ref. Name:
Date: 2010/08/10 Time: 15:30 Agency: C660 Crew: CB Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	8.00	8.70	7.00	8.20	8.10						8.00
Wetted Width (m):	MS	7.10	8.50	6.60	8.00	7.80						7.60
Pool Depth (m):	MS	0.10	0.20	0.20	0.10							0.15

	Gadient %		Mtd	Avg
Method I:	3.0	3.0	C	3.00
Method II:			C	

Wb Depth:	.6	.7	.7

Avg: 0.67 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: T

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	S	D	N	N	T	N
Loc: P/S/O:	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: F DIST: C

LB SHP: S
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

RB SHP: S
Texture: F ☑ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

WATER

EMS:
Temp: 8 Method: T5
pH: Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 270 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: C Subdom: G
D95: 47.0 D (cm): 31.00 Morph: CP
Pattern: SI
Islands: N
Coupling: PC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☑	☐	☐	☐	☐	☐	☐	☐	☑	☐

Bars: N ☐ SIDE ☑ DIAG ☐ MID ☑ SPAN ☐ BR ☐

HABITAT QUALITY

Name	Comments
Other	OVERALL - IMPORTANT, EXTENSIVE BED SCOUR RESULTED IN POORLY DEFINED BFW
Spawning Habitat	POOR
Rearing Habitat	POOR
OverWinter Habitat	FAIR

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	1011	F:	1	STD	U	
R:	1011	F:	2	STD	D	

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 1011 F: 3	STD	X	

COMMENTS

Section	Comments
CHANNEL	FISH BEARING

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000	10.0			2

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: TUNNEL CROSSING
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 2
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H
GIS UTM (Z.E.N): 9.434469.6280889 Ref. Name:
Date: 2010/08/10 Time: 16:00 Agency: C660 Crew: CB Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	5.00	4.20	6.00	5.40	5.50						5.22
Wetted Width (m):	MS	4.80	4.00	5.70	5.00	5.20						4.94
Pool Depth (m):	MS	0.10	0.10	0.10	0.10							0.10

	Gadient %		Mtd	Avg
Method I:	4.0	4.0	C	4.00
Method II:			C	

Wb Depth:	.5	.6	.7

Avg: 0.60 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: T

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	N	N	S	N	N	D	N
Loc: P/S/O:	☐☐☐	☐☐☐	☑☐☐	☐☐☐	☐☐☐	☑☐☐	☐☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☑ M ☐ V ☐

LWD: N DIST: NA

LB SHP: S
Texture: F ☑ G ☐ C ☑ B ☐ R ☐ A ☐
RIP: S
STG: SHR

RB SHP: S
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

WATER

EMS:
Temp: 8 Method: T5
pH: Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 270 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: C Subdom: G
D95: 30.0 D (cm): 20.00 Morph: CP
Pattern: SI
Islands: N
Coupling: DC
Confinement: UN
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N ☑ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR ☐

HABITAT QUALITY

Name	Comments
Other	OVERALL - IMPORTANT
OverWinter Habitat	FAIR
Rearing Habitat	POOR
Spawning Habitat	POOR

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	1011	F:	2-1	STD	U	
R:	1011	F:	2-2	STD	D	

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000	10.0			2

PHOTOS						
Photo				Foc Lg	Dir	Comments
R:	1011	F:	2-3	STD	X	

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			3

Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER
Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: TUNNEL CROSSING
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 3
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.432902.6280179 Ref. Name:
Date: 2010/08/12 Time: 15:00 Agency: C660 Crew: CB Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	3.00	3.50	4.20	3.70							3.60
Wetted Width (m):	MS	2.50	3.00	3.50	3.20							3.05
Pool Depth (m):	MS	0.10	0.10	0.10	0.10							0.10

	Gadient %		Mtd	Avg
Method I:	1.0	1.0	C	1.00
Method II:			C	

Wb Depth:	.4	.4	.5

Avg: 0.43 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	T	N	N	N	D	N
Loc: P/S/O:	☑☐☐	☑☐☐	☐☐☐	☐☐☐	☐☐☐	☑☐☐	☐☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☑ M ☐ V ☐

LWD: F DIST: E

LB SHP: S
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

RB SHP: S
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: SHR

WATER

EMS:
Temp: 20 Method: T5
pH: Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 160 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: F
D95: 5.00 D (cm): 5.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: UN
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☑ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Other	OVERALL - IMPORTANT FISH BEARING
OverWinter Habitat	GOOD - WINTER BASEFLOW FROM LAKE
Rearing Habitat	GOOD - LOT OF COVER
Spawning Habitat	GOOD - DV SPAWN IN SECTION OF CREEK, LOTS OF GRAVEL

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	1011	F:	3-1	STD	U	
R:	1011	F:	3-2	STD	D	

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000	10.0			3

PHOTOS						
Photo				Foc Lg	Dir	Comments
R:	1011	F:	3-3	STD	X	

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000	10.0			4

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: TUNNEL CROSSING
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: 104B.070 NID #: 3052 Reach #: 10.0 Site #: 4
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): .. Ref. Name:
Date: 2010/07/10 Time: 01:00 Agency: C660 Crew: CB Fish Crd?: ☐ Incomplete: ☑

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	15.00										15.00
Wetted Width (m):	MS	14.00										14.00
Pool Depth (m):	MS											0.00

	Gadient %		Mtd	Avg
Method I:			C	0.00
Method II:			C	

Wb Depth: Avg: 0.00 Method: MS Stage: L ☐ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total:

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:							
Loc: P/S/O:	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐

CROWN CLOSURE

INSTREAM VEG: N ☐ A ☐ M ☐ V ☐

LWD: DIST:

LB SHP:
Texture: F ☐ G ☐ C ☐ B ☐ R ☐ A ☐
RIP:
STG:

RB SHP:
Texture: F ☐ G ☐ C ☐ B ☐ R ☐ A ☐
RIP:
STG:

WATER

EMS: Req #:
Temp: Method: T5 Cond.: Method: S3
pH: Method: P1
Turb.: T ☐ M ☐ L ☐ C ☐ Method: GE
Flood Signs: Method: GE

MORPHOLOGY

Bed Material: Dominant: Subdom:
D95: D (cm): Morph:
Pattern:
Islands:
Coupling:
Confinement:
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR ☐

COMMENTS

Section	Comments
CHANNEL	BANK HEIGHT = 1.8M
SITE CARD	SITE LENGTH AND TIME NOT RECORDED - DO NOT USE

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000	10.0			3053

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): BELL-IRVING RIVER Project Code: 20415
Project Watershed Code: 560-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: TUNNEL CROSSING
Watershed Code: 560-582100-45100-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 3053
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.438231.6282145 Ref. Name:
Date: 2010/07/10 Time: 15:49 Agency: C660 Crew: CB Fish Crd?: ☐ Incomplete: ☑

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	17.00										17.00
Wetted Width (m):	MS	14.00										14.00
Pool Depth (m):	MS											0.00

	Gadient %		Mtd	Avg
Method I:	5.0	4.0	C	4.50
Method II:			C	

Wb Depth:	.5		

Avg: 0.50 Method: MS Stage: L ☐ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total:

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:							
Loc: P/S/O:	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐

CROWN CLOSURE

INSTREAM VEG: N ☐ A ☐ M ☐ V ☐

LWD: DIST:

LB SHP:
Texture: F ☐ G ☐ C ☐ B ☐ R ☐ A ☐
RIP:
STG:

RB SHP:
Texture: F ☐ G ☐ C ☐ B ☐ R ☐ A ☐
RIP:
STG:

WATER

EMS: Req #:
Temp: Method: T5 Cond.: Method: S3
pH: Method: P1
Turb.: T ☐ M ☐ L ☐ C ☐ Method: GE
Flood Signs: Method: GE

MORPHOLOGY

Bed Material: Dominant: Subdom:
D95: D (cm): Morph:
Pattern:
Islands:
Coupling:
Confinement:
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Other	BANK HEIGHT 1.7M

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0	104B.048	5000	1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): ALASKA RIVERS Project Code: 20415
Project Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: ROAD ACCESS, MINE SITE COULTER CK
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 104B.048 ILP #: 5000 NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.408683.6262468 Ref. Name:
Date: 2010/09/13 Time: 10:15 Agency: C660 Crew: MS/MM Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	2.00	1.50	1.40	1.30	1.30	2.00					1.58
Wetted Width (m):	MS	0.30	0.60	6.00	1.00	1.00	1.00					1.65
Pool Depth (m):	MS	0.10	0.10	0.10	0.10	0.20	0.10					0.12

	Gadient %		Mtd	Avg
Method I:	50.0	30.0	C	40.00
Method II:			C	

Wb Depth:	.3	.3	

Avg: 0.30 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	D	S	S	N	S	S
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☑ M ☑ V ☐

LWD: A DIST: E

LB SHP: V
Texture: F ☐ G ☐ C ☐ B ☐ R ☑ A ☐
RIP: M
STG: MF

RB SHP: S
Texture: F ☐ G ☐ C ☑ B ☐ R ☐ A ☐
RIP: M
STG: MF

WATER

EMS:
Temp: 4 Method: T5
pH: 7.2 Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 101 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: C
D95: 10.0 D (cm): 5.00 Morph: SP
Pattern: ST
Islands: N
Coupling: CO
Confinement: EN
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N ☑ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR ☐

HABITAT QUALITY

Name	Comments
Other	OVERALL NO FISH HABITAT - STEEP COLD STREAM. STEP POOLS TO SHALLOW POOLS
OverWinter Habitat	POOR - STEEP, COLD, SHALLOW POOLS
Rearing Habitat	POOR - STEEP, COLD, SHALLOW POOLS
Spawning Habitat	POOR - STEEP, COLD, SHALLOW POOLS

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 5000 F: 670	STD	D	AT 50% GRADIENT
R: 5000 F: 671	STD	U	AT 50% GRADIENT

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0	104B.048	5000	1

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 5000 F: 672	STD	D	AT CROSSING
R: 5000 F: 674	STD	U	AT CROSSING

COMMENTS

Section	Comments
CHANNEL	CLASS S6
SITE CARD	CROSSING AT 9N 408709 6262424

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0	104B.058	5001	1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): ALASKA RIVERS Project Code: 20415
Project Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: ROAD ACCESS, MINE SITE COULTER CK
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 104B.058 ILP #: 5001 NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.408765.6267581 Ref. Name:
Date: 2010/09/13 Time: 11:35 Agency: C660 Crew: MS/MM Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	2.50	1.30	2.00	2.00	2.00						1.96
Wetted Width (m):	MS	1.00	1.20	1.50	1.40	1.20						1.26
Pool Depth (m):	MS	0.20	0.10	0.10	0.20	0.20						0.16

	Gadient %		Mtd	Avg
Method I:	33.0	38.0	C	35.50
Method II:			C	

Wb Depth:	.3	.3	.5

Avg: 0.37 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	D	S	S	N	S	S
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☐ M ☐ V ☐

LWD: A DIST: E

LB SHP: U
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: MF

RB SHP: U
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: S
STG: MF

WATER

EMS:
Temp: 4 Method: T5
pH: 7.0 Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 137 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: C
D95: 10.0 D (cm): 5.00 Morph: RP
Pattern: SI
Islands: O
Coupling: DC
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☑	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Z/E/N)	Method
		C	10.0	GE	10	GE	R: F:	L: #:	9.408718.6262611	GPU

Comments: 40% GRADE OVER R

HABITAT QUALITY

Name	Comments
Other	MIGRATION - POOR, LIMITED BY STEEP CASCADE OVER ROCK; OVERALL MARGINAL
OverWinter Habitat	POOR - STEEP
Rearing Habitat	GOOD - LOTS OF COVER BUT STEEP GRADIENT

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	10.0	104B.058	5001	1

HABITAT QUALITY

Name	Comments
Spawning Habitat	GOOD - GOOD SPAWNING GRAVEL AND COVER

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 5001 F: 675	STD	U	35% GRADE DOWNSTREAM OF CROSSING
R: 5001 F: 676	STD	D	35% GRADE DOWNSTREAM OF CROSSING
R: 5001 F: 677	STD	U	CASCADE OVER BEDROCK 140M DOWNSTREAM OF CROSSING
R: 5001 F: 678	STD	D	CASCADE OVER BEDROCK 140M DOWNSTREAM OF CROSSING
R: 5001 F: 679	STD	U	HABITAT DOWNSTREAM OF CROSSING - SEE FISH CARD FOR THIS SECTION
R: 5001 F: 680	STD	D	HABITAT DOWNSTREAM OF CROSSING
R: 5001 F: 681	STD	U	UPSTREAM OF CROSSING
R: 5001 F: 682	STD	D	UPSTREAM OF CROSSING

COMMENTS

Section	Comments
MORPHOLOGY	35% GRADE AT 140M DOWNSTREAM OF CROSSING 9n 408709 6262622
SITE CARD	PREVIOUS ASSESSMENT IN 2009 (KM) ALSO S6, JUST DOWNSTREAM FROM CROSSING AT PREVIOUS ROAD ALIGNMENT
CHANNEL	CLASS S6 - HIGH GRADIENT COLD STREAM, BARRIER DOWNSTREAM OF CROSSING

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0	104B.058	5002	1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): ALASKA RIVERS Project Code: 20415
Project Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: ROAD ACCESS, MINE SITE COULTER CK
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 104B.058 ILP #: 5002 NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.408820.6262803 Ref. Name:
Date: 2010/09/03 Time: 13:10 Agency: C660 Crew: MS/MM Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.70	1.00	0.80	0.70	0.70	1.00					0.82
Wetted Width (m):	MS	0.70	0.50	0.70	0.70	0.30	0.70					0.60
Pool Depth (m):	MS	0.10	0.10	0.10	0.10	0.10	0.10					0.10

	Gadient %		Mtd	Avg
Method I:	35.0	35.0	C	33.33
Method II:	30.0		C	

Wb Depth:	.2	.2	.3

Avg: 0.23 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	S	N	D	N	S	S
Loc: P/S/O:	☑☐☐	☑☐☐	☐☐☐	☑☐☐	☐☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☑ M ☑ V ☑

LWD: A DIST: E

LB SHP: U
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

RB SHP: U
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

WATER

EMS:
Temp: 5 Method: T5
pH: 7.0 Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 87 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: C
D95: 10.0 D (cm): 5.00 Morph: SP
Pattern: ST
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo				AirPhoto				UTM (Z/E/N)	Method
		C	3.0	MS	3	GE	R:	5002	F:	687	L:		#:		9.408857.6262823	GPU

Comments: FLOWING OVER ROCK

HABITAT QUALITY

Name	Comments
Other	MIGRATION - POOR - LOW FLOWS, COLD STREAM, HIGH GRADIENT
OverWinter Habitat	POOR - LOW FLOWS, COLD STREAM, HIGH GRADIENT
Rearing Habitat	FAIR - LOW FLOWS, COLD STREAM, HIGH GRADIENT

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0	104B.058	5002	1

HABITAT QUALITY

Name	Comments
Spawning Habitat	FAIR - LOW FLOWS, COLD STREAM, HIGH GRADIENT

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 5002 F: 685	STD	D	DOWNSTREAM OF CROSSING
R: 5002 F: 686	STD	U	DOWNSTREAM OF CROSSING
R: 5002 F: 687	STD	U	CASCADE OVER ROCK DOWNSTREAM OF CROSSING - SEE FEATURES
R: 5002 F: 688	STD	U	AT CROSSING
R: 5002 F: 689	STD	D	AT CROSSING

COMMENTS

Section	Comments
CHANNEL	CLASS S6 - HABITAT PRESENT BUT ACCESS TO CROSSING RESTRICTED BY GRADIENT AND CASCADE OVER ROCK

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0	104B.058	5003	1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): ALASKA RIVERS Project Code: 20415
Project Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: ROAD ACCESS, MINE SITE COULTER CK
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 104B.058 ILP #: 5003 NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.408910.6262939 Ref. Name:
Date: 2010/09/13 Time: 13:45 Agency: C660 Crew: MS/MM Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.50	0.70	0.80	1.00	0.50	0.50					0.67
Wetted Width (m):	MS	0.10	0.30	0.20	0.10	0.10	0.10					0.15
Pool Depth (m):	MS	0.00	0.00	0.00	0.00	0.00	0.00					0.00

	Gadient %		Mtd	Avg
Method I:	60.0	58.0	C	59.00
Method II:			C	

Wb Depth:	.3	.2	.3

Avg: 0.27 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☑
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	S	N	D	N	S	S
Loc: P/S/O:	☑☐☐	☑☐☐	☐☐☐	☑☐☐	☐☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☐ M ☐ V ☐

LWD: F DIST: E

LB SHP: U
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

RB SHP: U
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

WATER

EMS:
Temp: 6 Method: T5
pH: 7.2 Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 151 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: C
D95: 20.0 D (cm): 5.00 Morph: SP
Pattern: ST
Islands: N
Coupling: DC
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N ☑ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR ☐

HABITAT QUALITY

Name	Comments
Other	NO FISH HABITAT
OverWinter Habitat	POOR - TOO STEEP, LOW FLOWS
Rearing Habitat	POOR - TOO STEEP, LOW FLOWS
Spawning Habitat	POOR - NO FISH HABITAT, TOO STEEP, LOW FLOWS

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	5003	F:	690	STD	D	AT CROSSING
R:	5003	F:	691	STD	U	AT CROSSING

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	10.0	104B.058	5003	1

COMMENTS	
Section	Comments
CHANNEL	CLASS S6 - TOO SMALL AND STEEP

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0	104B.058	5005	1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): ALASKA RIVERS Project Code: 20415
Project Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: ROAD ACCESS, MINE SITE COULTER CK
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 104B.058 ILP #: 5005 NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.408777.6263395 Ref. Name:
Date: 2010/09/13 Time: 15:10 Agency: C660 Crew: MS/MM Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	6.00	10.00	151.50	10.00							44.38
Wetted Width (m):	MS											0.00
Pool Depth (m):	MS											0.00

	Gadient %		Mtd	Avg
Method I:	50.0	30.0	C	40.00
Method II:			C	

Wb Depth:			

Avg: 0.00 Method: MS Stage: L ☑ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☑
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	S	D	S	N	S	N
Loc: P/S/O:	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☐ M ☑ V ☑

LWD: A DIST: E

LB SHP: V
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

RB SHP: V
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

WATER

EMS: Req #:
Temp: Method: T5 Cond.: Method: S3
pH: Method: P1
Flood Signs: Method: GE Turb.: T ☐ M ☐ L ☐ C ☐ Method: GE

MORPHOLOGY

Bed Material: Dominant: C Subdom: B
D95: 20.0 D (cm): 10.00 Morph:
Pattern: ST
Islands: N
Coupling: DC
Confinement: UN
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N ☑ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR ☐

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Z/E/N)	Method
		FSB		MS		GE	R: 5005 F: 701	L: #:	9.408790.6263382	GPU

Comments: UPSTREAM OF CROSSING

HABITAT QUALITY

Name	Comments
Other	NO FISH HABITAT - CURRENTLY DRY (SEASONAL) CHANNEL WITH HIGH GRADIENT DOWNSTREAM, POSSIBLE FISH HABITAT SEASONALLY
Spawning Habitat	NO FISH HABITAT - DRY
Rearing Habitat	NO FISH HABITAT - DRY

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0	104B.058	5005	1

HABITAT QUALITY

Name	Comments
OverWinter Habitat	NO FISH HABITAT - DRY

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 5005 F: 699	STD	U	AT CROSSING DRY CHANNEL
R: 5005 F: 700	STD	D	AT CROSSING DRY CHANNEL
R: 5005 F: 701	STD	D	FSB
R: 5005 F: 702	STD	U	FSB

COMMENTS

Section	Comments
SITE CARD	50% GRADIENT UPSTREAM OF CROSSING 30% GRADIENT DOWNSTREAM OF CROSSING
MORPHOLOGY	MULTIPLE BRAIDS FROM HIGH SEASONAL FLUTUATIONS OF RUNOFF. ALL CHANNELS DRY CURRENTLY
CHANNEL	CLASS - S5

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0	104B.058	5008	1

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): ALASKA RIVERS Project Code: 20415
Project Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: Local Name: ROAD ACCESS, MINE SITE COULTER CK
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 104B.058 ILP #: 5008 NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.408373.6263005 Ref. Name:
Date: 2010/09/13 Time: 18:20 Agency: C660 Crew: MS/MM Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.00	0.80	1.00	0.50							0.83
Wetted Width (m):	MS	0.50	0.25	0.30	0.30							0.34
Pool Depth (m):	MS	0.10	0.10	0.10	0.10							0.10

	Gadient %		Mtd	Avg
Method I:	5.0		C	5.00
Method II:			C	

Wb Depth:	.2	.3	.2

Avg: 0.23 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	S	N	D	N	S	S
Loc: P/S/O:	☑☐☐	☑☐☐	☐☐☐	☑☐☐	☐☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☑ M ☑ V ☑

LWD: A DIST: E

LB SHP: U
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

RB SHP: S
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

WATER

EMS: Req #:
Temp: Method: T5 Cond.: Method: S3
pH: Method: P1
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE
Flood Signs: Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: G
D95: 3.00 D (cm): 2.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Other	MIGRATION - GOOD; OVERALL - MARGINAL - SMALL STREAM BUT DIRECTLY CONNECTED TO FISH BEARING STREAM
OverWinter Habitat	POOR
Rearing Habitat	GOOD
Spawning Habitat	FAIR - LIMITED GRAVEL

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	5008	F:	727	STD	NS	
R:	5008	F:	728	STD	NS	

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	10.0	104B.058	5008	1

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 5008 F: 729	STD	NS	
R: 5008 F: 730	STD	NS	

COMMENTS

Section	Comments
CHANNEL	CLASS S4 - DIRECTLY CONNECTED TO FISH BEARING STREAM

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): ALASKA RIVERS
Project Code: 20415
Project Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: ALASKA RIVERS
Local Name: ROAD ACCESS, MINE SITE COULTER CK
Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 200 Method: GE Access: H
GIS UTM (Z.E.N): 9.408275.6263910 Ref. Name:
Date: 2010/08/13 Time: 10:46 Agency: C660 Crew: CB Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	RF	74.00	71.00	69.00	70.00							71.00
Wetted Width (m):	RF	50.00	42.00	48.00	49.00							47.25
Pool Depth (m):	MS											0.00

	Gadient %		Mtd	Avg
Method I:	1.0	1.0	C	1.00
Method II:			C	

Wb Depth:	1.6	1.9	2.1

Avg: 1.87 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	D	N	N	T	T	N
Loc: P/S/O:	☑☐☐	☑☐☐	☐☐☐	☐☐☐	☑☐☐	☑☐☐	☐☐☐

CROWN CLOSURE
2 21-40%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: A DIST: E

LB SHP: S
Texture: F ☑ G ☐ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

RB SHP: V
Texture: F ☐ G ☐ C ☐ B ☐ R ☑ A ☐
RIP: C
STG: MF

WATER

EMS:
Temp: 6 Method: T5
pH: Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 90 Method: S3
Turb.: T ☑ M ☐ L ☐ C ☐ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: F
D95: 25.0 D (cm): 20.00 Morph: RP
Pattern: IR
Islands: O
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☑	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☑ DIAG☑ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
OverWinter Habitat	GOOD
Rearing Habitat	GOOD - ABUNDANT SLACK WATER AND LWD
Spawning Habitat	POOR - ALL RUN HABITAT

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	1025	F:	1	STD	U	
R:	1025	F:	2	STD	U	
R:	1025	F:	3	STD	U	

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

PHOTOS						
Photo				Foc Lg	Dir	Comments
R:	1025	F:	4	STD	D	
R:	1025	F:	5	STD	D	
R:	1025	F:	6	STD	X	
R:	1025	F:	7	STD	X	

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 960-250000-57900-00000-0000-0000-000-000-000-000-000-000

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): ALASKA RIVERS
Project Code: 20415
Project Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: ROAD ACCESS, MINE SITE COULTER CK
Watershed Code: 960-250000-57900-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.408404.6263727 Ref. Name:
Date: 2010/09/13 Time: 17:55 Agency: C660 Crew: MS/MM Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	8.00	15.00	7.00	9.00	2.00	5.00					7.67
Wetted Width (m):	MS	7.00	14.00	6.00	8.00	2.00	4.50					6.92
Pool Depth (m):	MS	0.20	0.30	0.20	0.20	0.30	0.20					0.23

	Gadient %		Mtd	Avg
Method I:	1.0	0.5	C	0.75
Method II:			C	

Wb Depth:	.5	.3	.4

Avg: 0.40 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	D	S	S	N	S	S
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☐☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☐ M ☐ V ☐

LWD: A DIST: E

LB SHP: V
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

RB SHP: U
Texture: F ☐ G ☑ C ☐ B ☐ R ☐ A ☐
RIP: C
STG: MF

WATER

EMS:
Temp: 6 Method: T3
pH: 7.5 Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 125 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: F
D95: 5.00 D (cm): 5.00 Morph: RP
Pattern: IR
Islands: O
Coupling: DC
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Other	MIGRATION - GOOD; OVERALL - IMPORTANT AT ALL STAGES OF MULTIPLE SALMONID SPECIES
OverWinter Habitat	GOOD
Rearing Habitat	GOOD
Spawning Habitat	GOOD

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	5007	F:	711	STD	D	AT CROSSING
R:	5007	F:	712	STD	U	AT CROSSING

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 960-250000-57900-00000-0000-0000-000-000-000-000-000-000

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 5007 F: 713	STD	U	OFF CHANNEL HABITAT
R: 5007 F: 714	STD	U	UPSTREAM OF CROSSING - GRADIENT INCREASES
R: 5007 F: 715	STD	D	UPSTREAM OF CROSSING - GRADIENT INCREASES
R: 5007 F: 716	STD	D	DOWNSTREAM OF CROSSING
R: 5007 F: 717	STD	U	DOWNSTREAM OF CROSSING

COMMENTS

Section	Comments
MORPHOLOGY	GRADUAL INCREASED UPSTREAM OF CROSSING AND CHANNEL WIDTH DECREASES .5% AT CROSSING 1.5% UPSTREAM OF CROSSING
CHANNEL	CLASS S7 - WIDE CHANNEL AT CROSSING

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			2

Watershed Code: 960-250000-57900-00000-0000-0000-000-000-000-000-000-000

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): ALASKA RIVERS
Project Code: 20415
Project Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: ROAD ACCESS, MINE SITE COULTER CK
Watershed Code: 960-250000-57900-00000-0000-0000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 2
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.408677.6263472 Ref. Name:
Date: 2010/09/13 Time: 13:40 Agency: C660 Crew: MS/MM Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.50	1.50	1.50	2.00	1.00	1.50					1.33
Wetted Width (m):	MS	0.50	0.20	1.00	1.50	0.70	1.10					0.83
Pool Depth (m):	MS	0.10	0.10	0.10	0.10	0.10	0.20					0.12

	Gadient %		Mtd	Avg
Method I:	50.0	1.0	C	25.50
Method II:	50.0	1.0	C	

Wb Depth:	.2	.2	.2

Avg: 0.20 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	D	S	S	N	S	S
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☐☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☑ M ☑ V ☐

LWD: A DIST: E

LB SHP: V
Texture: F ☐ G ☐ C ☐ B ☐ R ☑ A ☐
RIP: C
STG: MF

RB SHP: U
Texture: F ☐ G ☐ C ☐ B ☑ R ☐ A ☐
RIP: C
STG: MF

WATER

EMS:
Temp: 2 Method: T5
pH: 7.8 Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 168 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: C Subdom: G
D95: 30.0 D (cm): 3.00 Morph: SP
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☑ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Z/E/N)	Method
		FSB		MS		GE	R: 5006 F: 707	L: #:	9.408664.6763555	GPU

Comments: STREAM GOES SUBSURFACE

HABITAT QUALITY

Name	Comments
Other	NO FISH HABITAT - HIGH GRADIENT, COLD, THEN GOES SUBSURFACE
OverWinter Habitat	POOR - HIGH GRADIENT, COLD
Rearing Habitat	POOR - HIGH GRADIENT, COLD

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 960-250000-57900-00000-0000-0000-000-000-000-000-000-000	10.0			2

HABITAT QUALITY

Name	Comments
Spawning Habitat	POOR - HIGH GRADIENT, COLD

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 5006 F: 703	STD	U	DOWNSTREAM OF CROSSING
R: 5006 F: 704	STD	D	DOWNSTREAM OF CROSSING
R: 5006 F: 705	STD	D	UPSTREAM OF CROSSING
R: 5006 F: 706	STD	U	UPSTREAM OF CROSSING
R: 5006 F: 707	STD	U	FSB
R: 5006 F: 708	STD	D	FSB
R: 5006 F: 709	STD	D	DRY CHANNEL DOWNSTREAM OF FEATURE AND UPSTREAM OF POND
R: 5006 F: 710	STD	U	DRY CHANNEL DOWNSTREAM OF FEATURE AND UPSTREAM OF POND

COMMENTS

Section	Comments
WATER	STREAM DRY CHANNEL ENTERS POND AT 9N 408601 6263642
MORPHOLOGY	STRAIGHT MORPHOLOGY UPSTREAM OF CROSSING, DOWNSTREAM OF CROSSING GRADIENT DECREASES TO 1% (RPG MORPHOLOGY) THEN GOES SUBSURFACE
CHANNEL	CLASS S6 - HIGH GRADIENT BARRIER UPSTREAM; SUBSURFACE FLOW DOWNSTREAM; COLD

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 960-250000-57900-30500-1980-0000-000-000-000-000-000-000-000

PROJECT

Project Name: KSM 2010 Baseline
Stream Name (gaz.): ALASKA RIVERS
Project Code: 20415
Project Watershed Code: 960-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: ROAD ACCESS, MINE SITE COULTER CK
Watershed Code: 960-250000-57900-30500-1980-0000-000-000-000-000-000-000-000
ILP Map#: ILP #: NID Map #: NID #: Reach #: 10.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H
GIS UTM (Z.E.N): 9.408859.6263100 Ref. Name:
Date: 2010/09/13 Time: 14:10 Agency: C660 Crew: MS/MM Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	4.00	3.00	3.50	2.50	2.00						3.00
Wetted Width (m):	MS	2.00	2.00	1.50	2.00	2.00						1.90
Pool Depth (m):	MS	0.10	0.20	0.20	0.10	0.10						0.14

	Gadient %		Mtd	Avg
Method I:	55.0	60.0	C	57.50
Method II:			C	

Wb Depth:	.5	.5	.3

Avg: 0.43 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

Type:	SWD	LWD	B	U	DP	OV	IV
Amount:	S	D	S	S	N	S	S
Loc: P/S/O:	☑☐☐	☑☐☐	☑☐☐	☑☐☐	☐☐☐	☑☐☐	☑☐☐

CROWN CLOSURE
1 1-20%
INSTREAM VEG: N ☐ A ☐ M ☐ V ☐

LWD: A DIST: C

LB SHP: V
Texture: F ☐ G ☐ C ☐ B ☐ R ☑ A ☐
RIP: S
STG: SHR

RB SHP: S
Texture: F ☐ G ☐ C ☐ B ☐ R ☑ A ☐
RIP: S
STG: PS

WATER

EMS:
Temp: 5 Method: T5
pH: 8.0 Method: P1
Flood Signs: Method: GE

Req #:
Cond.: 122 Method: S3
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: R
D95: 50.0 D (cm): 20.00 Morph: SP
Pattern: ST
Islands: N
Coupling: DC
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☑	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Bars: N☑ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Other	OVERALL - NO FISH HABITAT
OverWinter Habitat	POOR - HIGH GRADIENT, STEP POOL OVER BEDROCK
Rearing Habitat	POOR - HIGH GRADIENT, STEP POOL OVER BEDROCK
Spawning Habitat	POOR - HIGH GRADIENT, STEP POOL OVER BEDROCK

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	5004	F:	692	STD	D	AT CROSSING
R:	5004	F:	693	STD	U	AT CROSSING

FDIS Site Card

Reach #	ILP Map #	ILP #	Site
10.0			1

Watershed Code: 960-250000-57900-30500-1980-0000-000-000-000-000-000-000

PHOTOS

Photo	Foc Lg	Dir	Comments
R: 5004 F: 694	STD	U	AT CROSSING
R: 5004 F: 695	STD	D	AT CROSSING
R: 5004 F: 696	STD	NS	CLEARED RIPARIAN
R: 5004 F: 697	STD	NS	CLEARED RIPARIAN
R: 5004 F: 698	STD	NS	CLEARED RIPARIAN

COMMENTS

Section	Comments
COVER	RECENT FELLING DONE IN RIPARIAN AREA
CHANNEL	CLASS S6 - HIGH GRADIENT UP AND DOWNSTREAM OF CROSSING

Appendix 5.1-2

Road Crossing Site Photos, 2010

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Appendix 5.1-2. Road Crossing Site Photos, 2010

Stream 1011, Site 1 – Downstream

Stream 1011, Site 1 – Upstream

Stream 1011, Site 2 – Downstream

Stream 1011, Site 2 – Upstream

Stream 1011, Site 3 – Downstream

Stream 1011, Site 3 – Upstream

Stream 1025, Site 1

Stream 1025, Site 1 – Downstream

Stream 2012, Site 1 – Downstream

Stream 2012, Site 1 – Crossing

Stream 2013, Site 1 – Upstream

Stream 2013, Site 1 – Downstream

Stream 2014, Site 1 – Downstream

Stream 2014, Site 1 – Upstream

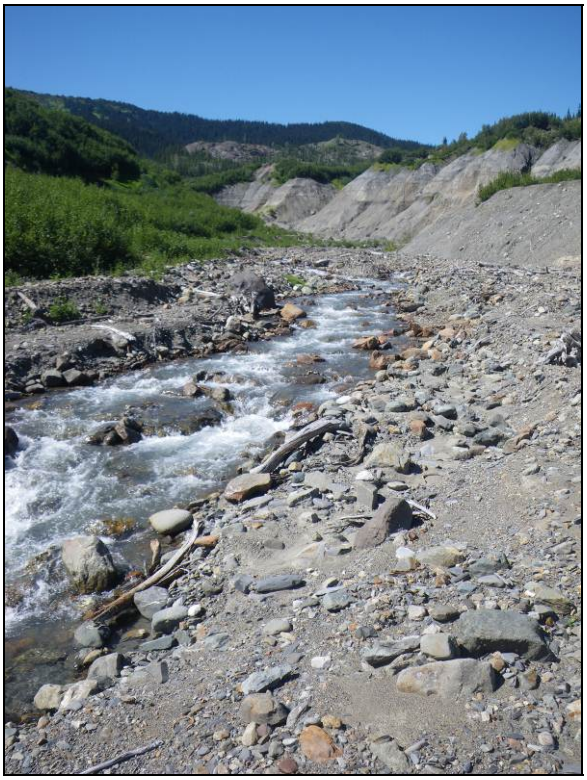
Stream 2015, Site 1 – Upstream

Stream 2015, Site 1 – Seepages

Stream 2016, Site 1 – Downstream

Stream 2016, Site 1 – Upstream

Stream 2017, Site 1 - Downstream to confluence



Stream 2017, Site 1 – Upstream

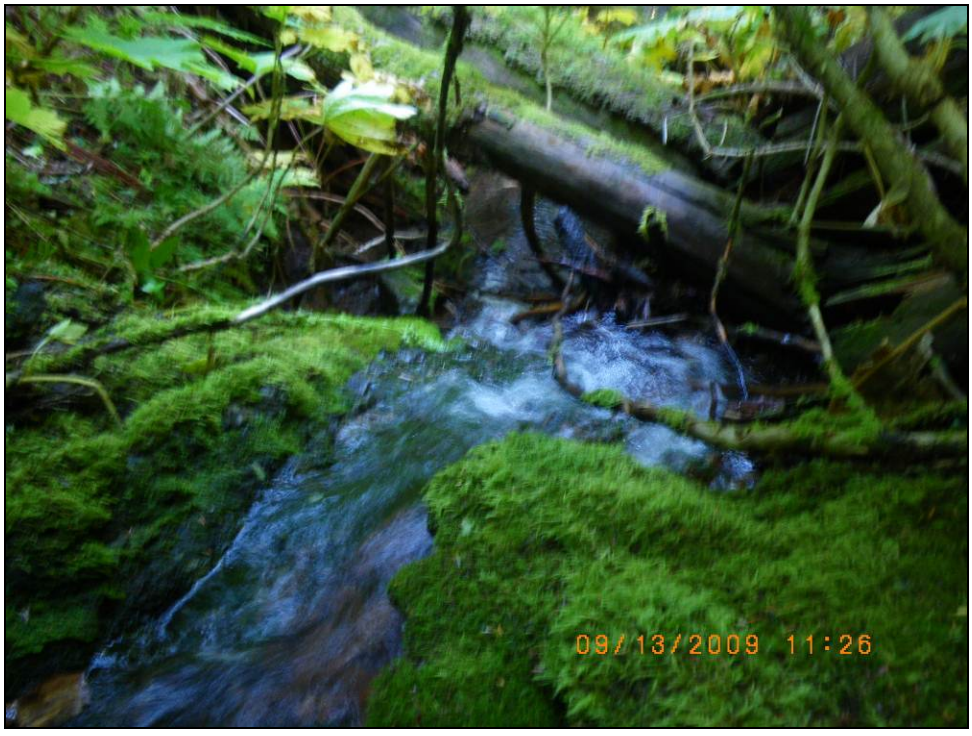
Stream 2018, Site 1 – Upstream

Stream 2018, Site 1 – Downstream

Stream 5000, Site 1 – Upstream

Stream 5000, Site 1 – Downstream

Stream 5001, Site 1 - Upstream



Stream 5001, Site 1 – Downstream

Stream 5002, Site 1 - Downstream

Stream 5002, Site 1 - Upstream

Stream 5003, Site 1 - Downstream

Stream 5003, Site 1 - Upstream

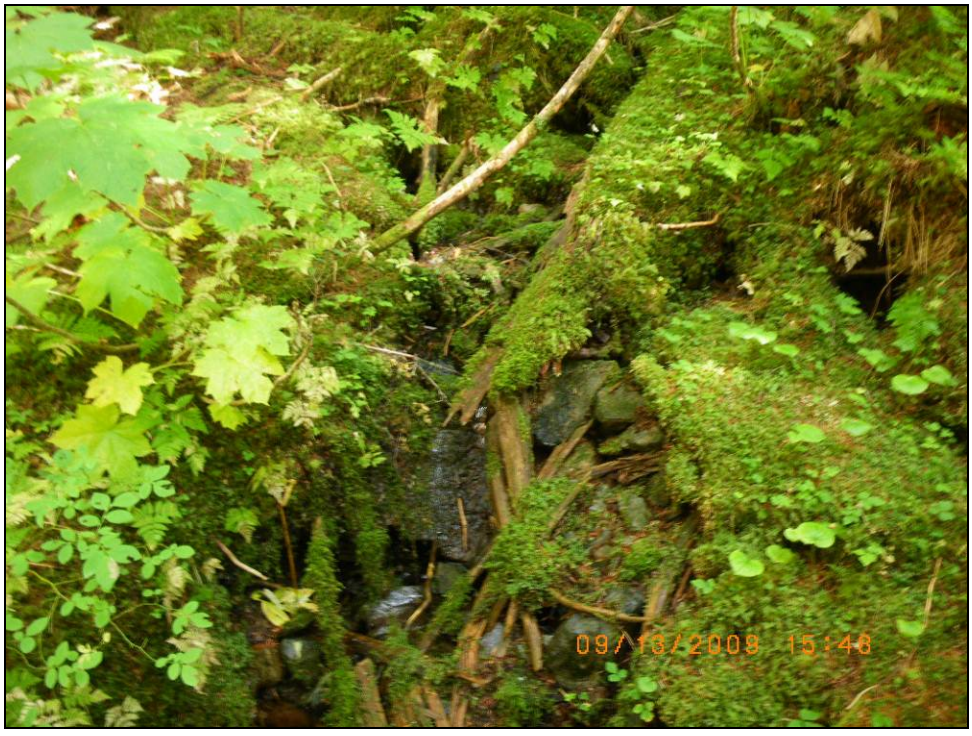
Stream 5004, Site 1 - Cleared Riparian Zone

Stream 5004, Site 1 – Downstream

Stream 5005, Site 1 - Upstream

Stream 5005, Site 1 – Downstream

Stream 5006, Site 2 - Dry Channel



Stream 5006, Site 2 – Upstream

Stream 5007, Site 1 - Downstream

Stream 5007, Site 1 – Upstream

Stream 5008, Site 1 - Upstream

Stream 5008, Site 1 - Downstream

Appendix 5.2-1
Instream Flow Data, 2010

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Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Pool	**Type**		654-RWE, LWE,
ILP	1050		**Channel Type**	CP	**Make**	Swoffer	655 - D-DU
UTM	447232	6273344	**Roughness (m)**	0.13	**Model #**	2100	656-LWE,RWE
Date	12-Sep-10		**D95 (m)**	0.65	**Prop Size**	2"	657 - U - D
Time	13:25		**Channel Slope (%)**	4.55	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	5.05			
Transect	1		**Wetted Width (m)**	4.90			
Width (m)	6.33						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE and LWE	0.80	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.30	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.50	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.90	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	2.15	-	-	0	50	0	0	0	50	0	B	0.32	0.00
	2.50	-	-	0	50	0	0	0	50	0	B	0.36	0.00
	2.70	-	-	0	50	30	0	0	20	0	B	0.00	0.00
	2.90	-	-	0	0	0	100	0	0	0	P1	0.26	0.10
	3.10	-	-	0	0	0	100	0	0	0	P1	0.32	0.82
	3.30	-	-	0	0	20	70	0	10	0	P1	0.35	1.03
	3.50	-	-	0	0	10	60	0	30	0	B	0.43	0.71
	3.80	-	-	0	0	10	60	0	30	0	P	0.40	0.11
	4.00	-	-	0	0	10	60	0	30	0	P	0.37	0.18
	4.10	-	-	0	0	20	30	0	50	0	P	0.36	0.15
	4.20	-	-	0	0	20	30	0	50	0	P	0.39	0.07
	4.30	-	-	0	0	20	30	0	50	0	B1	0.42	0.18
	4.40	-	-	0	0	20	30	0	50	0	P	0.35	0.10
	4.50	-	-	0	0	20	30	0	50	0	P	0.34	0.25
	4.60	-	-	0	0	20	40	0	40	0	P	0.41	0.50
	4.70	-	-	0	0	20	40	0	40	0	P	0.43	0.12
	4.80	-	-	0	0	20	40	0	40	0	P	0.41	0.15
	4.90	-	-	0	0	60	30	0	10	0	P	0.39	0.08
	5.00	-	-	0	0	60	30	0	10	0	P	0.40	0.11
	5.10	-	-	0	0	60	30	0	10	0	P	0.38	0.05
	5.20	-	-	0	0	60	30	0	10	0	SWD	0.37	0.01
	5.30	-	-	0	0	60	30	0	10	0	SWD	0.29	0.07
	5.60	-	-	-	-	-	-	-	-	-	SWD	0.11	0.00
RWE	5.70	-	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	6.10	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Cascade	**Type**		649-RWE,LWE
ILP	1050		**Channel Type**	CP	**Make**		650 -U,D
UTM	447265	6273391	**Roughness (m)**	0.15	**Model #**		651-LWE,RWE
Date	12-Sep-10		**D95 (m)**	0.29	**Prop Size**	2"	652-D,DU
Time	13:00		**Channel Slope (%)**	4.55	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	9.15			
Transect	2		**Wetted Width (m)**	4.10			
Width (m)	9.60						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.20	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.20	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	2.20	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	3.20	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	4.20		-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	5.10	-	-	-	-	-	-	-	-	-	-	-	-
	5.20	-	-	0	0	0	90	10	0	0	-	0.00	0.00
	5.25	-	-	0	0	0	90	10	0	0	-	0.00	0.00
	5.40	-	-	0	0	0	90	10	0	0	-	0.00	0.00
	5.55	-	-	0	0	0	90	10	0	0	-	0.01	0.00
	5.70	-	-	0	0	0	90	10	0	0	-	0.00	0.00
	5.85	-	-	0	0	0	100	0	0	0	-	0.08	0.00
	6.00	-	-	0	0	0	100	0	0	0	-	0.40	0.91
	6.15	-	-	0	0	0	100	0	0	0	-	0.19	0.62
	6.30	-	-	0	0	0	100	0	0	0	-	0.17	0.06
	6.45	-	-	0	0	0	100	0	0	0	-	0.13	0.23
	6.60	-	-	0	0	0	100	0	0	0	-	0.23	0.32
	6.90	-	-	0	0	0	100	0	0	0	-	0.11	0.31
	7.05	-	-	0	0	0	100	0	0	0	-	0.12	0.65
	7.20	-	-	0	0	0	100	0	0	0	-	0.00	0.00
	7.40	-	-	0	0	0	100	0	0	0	-	0.03	1.11
	7.60	-	-	0	0	0	100	0	0	0	-	0.14	0.46
	7.80	-	-	0	0	0	100	0	0	0	-	0.14	1.24
	8.00	-	-	0	0	0	100	0	0	0	-	0.25	0.79
	8.20	-	-	0	0	0	100	0	0	0	-	0.00	0.00
	8.40	-	-	0	0	30	70	0	0	0	-	0.10	0.41
	8.60	-	-	0	0	30	70	0	0	0	OV	0.15	0.56
	8.80	-	-	0	0	30	70	0	0	0	OV	0.03	0.05
	8.95	-	-	-	-	-	-	-	-	-	OV	0.05	0.05
	9.10	-	-	0	0	30	70	0	0	0	U	0.00	0.00
RWE	9.20	-	-	-	-	-	-	-	-	-	-	-	-
RBE	9.30	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN													

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Riffle	**Type**		645 - RWE,LWE
ILP			**Channel Type**	CP	**Make**	swoffer	646 - U,D
UTM	447239	6273366	**Roughness (m)**	0.11	**Model #**	2100	647 - LWE,RWE
Date	12-Sep-10		**D95 (m)**	0.36	**Prop Size**	2"	648 - D,U
Time	11:40		**Channel Slope (%)**	4.55	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	7.33			
Transect	3		**Wetted Width (m)**	5.15			
Width (m)	7.70						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.20	-	-	0	0	30	70	0	0	0	-	0.00	0.00
	0.70	-	-	0	0	30	70	0	0	0	-	0.00	0.00
	1.40	-	-	0	0	30	70	0	0	0	-	0.00	0.00
	2.00	-	-	0	0	30	70	0	0	0	-	0.00	0.00
LWE	2.35	-	-	0	0	30	70	0	0	0	LWD	0.00	0.00
	2.70	-	-	0	0	30	70	0	0	0	LWD	0.00	0.00
	2.90	-	-	0	0	0	0	0	100	0	LWD	0.00	0.00
	3.10	-	-	0	0	0	0	0	100	0	LWD	0.00	0.00
	3.30	-	-	0	0	10	80	0	10	0	LWD	0.00	0.00
	3.50	-	-	0	0	10	80	0	10	0	LWD	0.06	0.14
	3.70	-	-	0	0	10	80	0	10	0	-	0.09	0.05
	3.90	-	-	0	0	10	80	0	10	0	SWD	0.07	0.25
	4.10	-	-	0	0	10	80	0	10	0	-	0.00	0.00
	4.30	-	-	0	0	10	80	0	10	0	-	0.03	0.10
	4.50	-	-	0	0	10	80	0	10	0	-	0.13	0.15
	4.70	-	-	0	0	10	80	0	10	0	-	0.15	0.33
	4.90	-	-	0	0	10	80	0	10	0	-	0.16	0.14
	5.10	-	-	0	0	10	80	0	10	0	SWD	0.17	0.12
	5.30	-	-	0	0	0	60	0	40	0	-	0.20	0.18
	5.50	-	-	0	0	0	60	0	40	0	-	0.16	0.19
	5.70	-	-	0	0	0	60	0	40	0	-	0.05	0.47
	5.90	-	-	0	0	0	60	0	40	0	-	0.07	0.73
	6.10	-	-	0	0	10	50	0	40	0	-	0.09	0.80
	6.30	-	-	0	0	10	50	0	40	0	-	0.20	0.40
	6.50	-	-	0	0	10	50	0	40	0	-	0.17	0.51
	6.70	-	-	0	0	0	60	0	40	0	-	0.17	0.54
	6.90	-	-	0	0	0	60	0	40	0	-	0.18	0.52
	7.10	-	-	0	0	0	60	0	40	0	OV	0.21	0.46
	7.30	-	-	0	0	0	60	0	40	0	OV	0.20	0.05
RWE	7.50	-	-	0	0	0	60	0	40	0	OV	0.00	0.00
RBE	7.50	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Riffle	**Type**		641-LWE,RWE
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	642-U,D
UTM	447261	6273344	**Roughness (m)**	0.09	**Model #**	2100	643 - RWE, LWE
Date	12-Sep-10		**D95 (m)**	0.38	**Prop Size**	2"	644 -D,U
Time	11:10		**Channel Slope (%)**	4.55	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	5.70			
Transect	4		**Wetted Width (m)**	4.05			
Width (m)	6.25						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.20	-	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	0.70	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	0.90	-	-	0	0	0	40	20	40	0	-	0.13	0.06
	1.10	-	-	0	0	0	40	20	40	0	-	0.13	0.28
	1.30	-	-	0	0	0	80	10	10	0	-	0.15	0.31
	1.50	-	-	0	0	0	80	10	10	0	-	0.16	0.09
	1.70	-	-	0	0	0	80	10	10	0	-	0.26	0.21
	1.90	-	-	0	0	0	80	10	10	0	-	0.31	0.21
	2.10	-	-	0	0	0	80	10	10	0	-	0.20	0.13
	2.30	-	-	0	0	0	80	10	10	0	-	0.30	0.25
	2.50	-	-	0	0	0	80	10	10	0	-	0.24	0.24
	2.70	-	-	0	40	0	60	0	0	0	-	0.24	0.54
	2.90	-	-	0	50	0	60	0	10	0	B	0.13	0.77
	3.10	-	-	0	30	0	90	0	10	0	B	0.08	0.60
	3.30	-	-	0	30	0	90	0	10	0	B	0.20	0.28
	3.50	-	-	0	0	0	80	10	10	0	-	0.13	0.14
	3.70	-	-	0	0	0	80	10	10	0	-	0.15	0.31
	3.80	-	-	0	0	0	80	10	10	0	-	0.15	0.35
	3.90	-	-	0	0	0	80	10	10	0	-	0.15	0.27
	4.00	-	-	0	0	0	80	10	10	0	-	0.14	0.20
	4.10	-	-	0	0	0	80	10	10	0	-	0.17	0.09
	4.20	-	-	0	0	0	80	10	10	0	-	0.12	0.05
	4.50	-	-	0	0	0	80	10	10	0	-	0.11	0.13
	4.60	-	-	0	0	0	0	0	100	0	-	0.04	0.00
RWE	4.75	-	-	-	-	-	-	-	-	-	-	0.01	0.00
	5.00	-	-	0	0	0	0	0	100	0	OV	0.00	0.00
RBE	5.30	-	-	0	0	0	0	0	100	0	OV	0.00	0.00
PIN													

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Pool	**Type**		637-LWE,RWE
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	638-D,U
UTM	447273	6273360	**Roughness (m)**	0.12	**Model #**	2100	639-RWE,LWE
Date	12-Sep-10		**D95 (m)**	0.48	**Prop Size**	2"	640-U,D
Time	10:25		**Channel Slope (%)**	4.55	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	4.20			
Transect	5		**Wetted Width (m)**	3.65			
Width (m)	6.07						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.60	-	-	0	0	0	0	0	100	0	-	0.00	0.00
	1.15	-	-	0	0	0	0	0	100	0	-	0.00	0.00
	1.30	-	-	0	0	0	0	50	50	0	LWD, OV	0.00	0.00
LWE	1.40	-	-	-	-	-	-	-	-	-	-	-	-
	1.45	-	-	0	0	0	0	50	50	0	LWD, OV	0.02	0.00
	1.60	-	-	0	0	0	0	50	50	0	LWD, OV	0.02	0.00
	1.75	-	-	0	0	0	0	50	50	0	LWD, OV	0.10	0.00
	1.90	-	-	0	0	90	0	0	10	0	LWD, OV	0.26	0.09
	2.05	-	-	0	0	90	0	0	10	0	LWD, OV	0.24	0.04
	2.20	-	-	0	0	10	0	0	90	0	OV,P,LWD	0.41	0.13
	2.35	-	-	0	0	10	0	0	90	0	OV,P,LWD	0.41	0.47
	2.50	-	-	0	0	10	0	0	90	0	OV,P,LWD	0.36	0.65
	2.65	-	-	0	0	10	0	0	90	0	P	0.42	0.49
	2.80	-	-	0	0	10	0	0	90	0	P	0.38	0.45
	2.95	-	-	0	0	10	0	0	90	0	P	0.35	0.24
	3.10	-	-	0	20	0	0	0	80	0	P, B	0.36	0.04
	3.25	-	-	0	20	0	0	0	80	0	P, B	0.32	0.01
	3.40	-	-	0	20	0	0	0	80	0	P, B	0.30	0.03
	3.55	-	-	0	20	0	0	0	80	0	P, B	0.27	0.03
	3.70	-	-	0	20	0	0	0	80	0	P, B	0.34	0.01
	3.85	-	-	0	20	0	0	0	80	0	P, B	0.35	0.01
	4.00	-	-	0	20	0	0	0	80	0	P, B	0.37	0.04
	4.15	-	-	0	0	0	20	0	80	0	-	0.39	0.08
	4.30	-	-	0	0	0	80	0	20	0	LWD	0.27	0.04
	4.45	-	-	0	0	0	80	0	20	0	UC,LWD	0.29	0.17
	4.60	-	-	0	0	0	80	0	20	0	UC,LWD	0.30	0.22
	4.90	-	-	-	-	-	-	-	-	-	UC	0.30	0.25
	5.10	-	-	-	-	-	-	-	-	-	UC	0.10	0.05
RBE and RWE	5.15	-	-	-	-	-	-	-	-	-	-	-	-
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Cascade	**Type**		631-LWE,RWE
ILP	1030		**Channel Type**	CP	**Make**	SWOFFER	632-U,D
UTM	447293	6273351	**Roughness (m)**	0.12	**Model #**	2100	633-RWE, LWE
Date	12-Sep-10		**D95 (m)**	0.45	**Prop Size**	2"	634-D,U
Time	9:50		**Channel Slope (%)**	4.55	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	5.60			
Transect	6		**Wetted Width (m)**	4.50			
Width (m)	7.42						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	1.30	-	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	1.70	-	-	-	-	-	-	-	-	-	-	-	-
	1.90	-	-	0	0	70	30	0	0	0	OV	0.10	0.16
	2.10	-	-	0	0	70	30	0	0	0	OV	0.06	0.26
	2.30	-	-	0	0	70	30	0	0	0	OV	0.19	0.62
	2.50	-	-	0	0	70	30	0	0	0	OV	0.15	0.71
	2.70	-	-	0	0	70	30	0	0	0	OV	0.10	0.30
	2.90	-	-	0	0	70	30	0	0	0	OV	0.09	0.48
	3.10	-	-	0	50	50	0	0	0	0	OV, B	0.10	0.78
	3.30	-	-	0	50	50	0	0	0	0	OV, B	0.00	0.00
	3.50	-	-	0	50	50	0	0	0	0	OV, B	0.07	0.41
	3.70	-	-	0	50	50	0	0	0	0	OV, B	0.00	0.00
	3.90	-	-	0	50	50	0	0	0	0	OV, B	0.07	0.14
	4.10	-	-	0	50	50	0	0	0	0	OV, B	0.04	0.13
	4.30	-	-	0	50	50	0	0	0	0	OV, B	0.16	0.36
	4.50	-	-	0	40	60	0	0	0	0	B	0.17	1.04
	4.70	-	-	0	40	60	0	0	0	0	B	0.05	1.19
	4.90	-	-	0	40	60	0	0	0	0	B	0.26	1.11
	5.10	-	-	0	40	60	0	0	0	0	B	0.04	0.42
	5.30	-	-	0	60	20	0	0	20	0	B	0.11	0.66
	5.50	-	-	0	60	20	0	0	20	0	B	0.12	0.06
	5.70	-	-	0	60	20	0	0	20	0	B	0.13	72.00
	5.90	-	-	0	60	20	0	0	20	0	UC,B,OV	0.09	0.00
	6.07	-	-	0	10	90	0	0	0	0	UC,B,OV	0.00	0.00
RWE	6.20	-	-	-	-	-	-	-	-	-	-	-	-
	6.25	-	-	0	0	100	0	0	0	0	-	0.00	0.00
	6.60	-	-	0	0	100	0	0	0	0	-	0.00	0.00
RBE	7.00	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN													

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Pool	**Type**		626-LWE,RWE
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	627-D,U
UTM	447289	6273345	**Roughness (m)**	0.14	**Model #**	2100	628-RWE,LWE
Date	12-Sep-10		**D95 (m)**	0.48	**Prop Size**	2"	629-U,D
Time	9:20		**Channel Slope (%)**	4.55	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	6.45			
Transect	7		**Wetted Width (m)**	5.53			
Width (m)	9.42						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	1.00	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.40	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.70	-	-	0	0	0	0	30	70	0	LWD	0.05	0.00
LWE	1.90	-	-	-	-	-	-	-	-	-	-	-	-
	2.00	-	-	0	0	0	0	30	70	0	LWD	0.03	0.00
	2.30	-	-	0	0	0	60	0	40	0	LWD	0.04	0.00
	2.60	-	-	0	0	0	60	0	40	0	LWD	0.09	0.30
	2.90	-	-	0	0	70	30	0	0	0	-	0.19	0.28
	3.20	-	-	0	0	70	30	0	0	0	-	0.25	0.72
	3.50	-	-	0	0	70	30	0	0	0	-	0.26	0.88
	3.80	-	-	0	0	70	0	0	30	0	P	0.35	0.14
	4.10	-	-	0	0	30	0	0	70	0	P	0.31	0.04
	4.40	-	-	0	0	30	0	0	70	0	P	0.35	0.11
	4.70	-	-	0	0	30	0	0	70	0	P	0.40	0.02
	5.00	-	-	0	0	0	10	0	90	0	P	0.50	0.01
	5.30	-	-	0	0	0	10	0	90	0	P	0.46	0.11
	5.60	-	-	0	0	0	10	0	90	0	P	0.38	0.16
	5.90	-	-	0	0	0	10	0	90	0	SWD,P	0.37	0.28
	6.20	-	-	0	0	0	10	0	90	0	SWD,P	0.39	0.30
	6.50	-	-	0	50	30	0	0	20	0	B1,P	0.23	0.13
	6.80	-	-	0	50	10	0	0	40	0	B1,P	0.13	0.07
	7.10	-	-	0	50	10	0	0	40	0	P	0.25	0.04
	7.30	-	-	0	50	10	0	0	40	0	P	0.22	0.01
	7.34	-	-	-	-	-	-	-	-	-	-	0.02	0.01
RWE	7.43	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	8.00	-	-	0	100	0	0	0	0	0	-	0.00	0.00
	8.50	-	-	0	100	0	0	0	0	0	-	0.00	0.00
RBE	9.00	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN													

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Riffle	**Type**		658-RWE,LWE
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	659-D,U
UTM	447234	6273430	**Roughness (m)**	0.06	**Model #**	2100	660-LWE,RWE
Date	16-Sep-09		**D95 (m)**	0.25	**Prop Size**	2"	661-U,D
Time	15:30		**Channel Slope (%)**	4.55	**Calibration**	603	
Crew	CB		**Bankfull Width (m)**	6.01			
Transect	8		**Wetted Width (m)**	3.35			
Width (m)	7.40						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.30	-	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	0.45	-	-	-	-	-	-	-	-	-	-	-	-
	0.55	-	-	-	-	-	-	-	-	-	-	0.12	0.00
	0.70	-	-	0	0	0	40	40	20	0	OV	0.18	0.06
	0.85	-	-	0	0	0	40	40	20	0	OV	0.18	0.06
	1.00	-	-	0	0	0	40	40	20	0	OV	0.17	0.10
	1.15	-	-	0	0	0	40	40	20	0	OV	0.27	0.23
	1.30	-	-	0	0	0	40	40	20	0	OV	0.27	0.39
	1.45	-	-	0	0	0	20	60	20	0	OV	0.29	0.28
	1.60	-	-	0	0	0	60	20	20	0	-	0.29	0.42
	1.75	-	-	0	0	0	60	20	20	0	OV	0.33	0.39
	1.90	-	-	0	0	0	60	20	20	0	OV,LWD	0.26	0.34
	2.05	-	-	0	0	10	80	10	0	0	LWD	0.27	0.45
	2.20	-	-	0	0	10	80	10	0	0	LWD	0.32	0.39
	2.35	-	-	0	0	10	80	10	0	0	LWD	0.32	0.52
	2.50	-	-	0	0	10	80	10	0	0	-	0.32	0.55
	2.65	-	-	0	0	90	10	0	0	0	-	0.24	0.23
	2.80	-	-	0	0	90	10	0	0	0	LWD	0.15	0.03
	2.95	-	-	0	0	90	10	0	0	0	LWD	0.20	0.26
	3.10	-	-	0	0	90	10	0	0	0	-	0.05	0.16
	3.25	-	-	0	0	90	10	0	0	0	-	0.01	0.00
	3.40	-	-	0	0	90	10	0	0	0	-	0.01	0.00
	3.55	-	-	0	0	90	10	0	0	0	-	0.01	0.00
	3.70	-	-	0	0	90	10	0	0	0	-	0.00	0.00
RWE	3.80	-	-	-	-	-	-	-	-	-	-	-	-
	3.92	-	-	0	0	90	10	0	0	0	-	0.00	0.00
	4.40	-	-	0	0	0	0	40	60	0	-	0.00	0.00
	4.90	-	-	0	0	0	0	40	60	0	-	0.00	0.00
	5.40	-	-	0	0	0	0	40	60	0	-	0.00	0.00
	5.90	-	-	0	0	0	0	0	100	0	-	0.00	0.00
RBE	6.20	-	-	0	0	0	0	0	100	0	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Cascade	**Type**		662-RWE,LWE
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	663-U,D
UTM	447221	6273527	**Roughness (m)**	0.18	**Model #**	2100	664-LWE,RWE
Date	12-Sep-10		**D95 (m)**	0.61	**Prop Size**	2"	665-D,U
Time	14:25		**Channel Slope (%)**	4.55	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	6.70			
Transect	9		**Wetted Width (m)**	3.75			
Width (m)	7.58						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.40	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.40	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.80	-	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	2.30	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	2.50	-	-	0	0	90	0	10	0	0	OV	0.00	0.00
	2.70	-	-	0	0	90	0	10	0	0	OV	0.00	0.00
	2.90	-	-	0	0	90	0	10	0	0	OV	0.05	0.25
	3.10	-	-	0	0	90	0	10	0	0	OV	0.14	0.40
	3.30	-	-	0	0	90	0	10	0	0	OV	0.13	0.25
	3.50	-	-	0	50	50	0	0	0	0	OV	0.08	1.21
	3.70	-	-	0	50	50	0	0	0	0	B	0.09	1.10
	3.90	-	-	0	50	50	0	0	0	0	B	0.11	0.71
	4.10	-	-	0	50	50	0	0	0	0	B	0.12	0.77
	4.30	-	-	0	50	50	0	0	0	0	B	0.17	0.39
	4.50	-	-	0	50	50	0	0	0	0	B	0.15	0.60
	4.70	-	-	0	50	50	0	0	0	0	B	0.18	0.11
	4.90	-	-	0	50	50	0	0	0	0	B	0.14	0.19
	5.10	-	-	0	50	50	0	0	0	0	OV,B	0.03	0.05
	5.20	-	-	0	50	50	0	0	0	0	OV,B	0.03	0.03
	5.30	-	-	0	50	50	0	0	0	0	OV,B	0.18	0.26
	5.40	-	-	0	50	50	0	0	0	0	OV,B	0.17	0.69
	5.50	-	-	0	50	50	0	0	0	0	OV,B	0.09	0.51
	5.60	-	-	0	50	50	0	0	0	0	LWD,B	0.06	0.06
	5.80	-	-	0	50	50	0	0	0	0	LWD,B	0.08	0.01
	6.10	-	-	-	-	-	-	-	-	-	-	0.00	0.00
RWE	6.25	-	-	-	-	-	-	-	-	-	-	-	-
	6.60	-	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	7.20	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Cascade	**Type**		621-LWE,RWE
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	620-D,U
UTM	447411	6273158	**Roughness (m)**	0.15	**Model #**	2100	619-RWE,LWE
Date	11-Sep-10		**D95 (m)**	0.48	**Prop Size**	2"	618-U,D
Time	16:20		**Channel Slope (%)**	3.76	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	6.80			
Transect	10		**Wetted Width (m)**	5.10			
Width (m)	7.63						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.20	-	-	0	0	0	0	0	0	100	-	0.00	0.00
	0.80	-	-	0	0	0	0	0	0	100	-	0.00	0.00
LWE	0.90	-	-	-	-	-	-	-	-	-	-	-	-
	1.00	-	-	0	0	0	0	0	0	100	-	0.01	0.00
	1.10	-	-	0	0	0	0	0	0	100	-	0.06	0.00
	1.35	-	-	0	0	0	0	0	25	75	OV, LWD	0.13	0.00
	1.60	-	-	0	0	0	25	0	75	0	OV, LWD	0.00	0.00
	1.85	-	-	0	0	0	25	0	75	0	OV, LWD	0.04	0.52
	2.10	-	-	0	50	50	0	0	0	0	OV, B	0.06	0.14
	2.35	-	-	0	50	50	0	0	0	0	OV, B	0.08	0.35
	2.60	-	-	0	50	50	0	0	0	0	OV, B	0.18	0.23
	2.85	-	-	0	0	50	50	0	0	0	OV	0.18	0.09
	3.10	-	-	0	50	50	0	0	0	0	OV	0.18	0.50
	3.35	-	-	0	50	50	0	0	0	0	OV	0.29	0.44
	3.60	-	-	0	50	50	0	0	0	0	OV	0.25	0.46
	3.85	-	-	0	50	50	0	0	0	0	OV	0.10	1.20
	4.10	-	-	0	50	50	0	0	0	0	B	0.11	0.99
	4.35	-	-	0	50	50	0	0	0	0	B,OV	0.22	0.68
	4.60	-	-	0	50	50	0	0	0	0	B,OV	0.16	0.06
	4.85	-	-	0	50	50	0	0	0	0	OV	0.11	0.02
	5.10	-	-	0	0	0	75	0	25	0	OV	0.04	0.45
	5.35	-	-	0	0	0	75	0	25	0	OV	0.00	0.00
	5.60	-	-	0	0	0	75	0	25	0	OV	0.03	0.26
	5.85	-	-	0	0	0	75	0	25	0	OV	0.04	0.00
	5.90	-	-	0	0	0	75	0	25	0	OV	0.01	0.00
RWE	6.10	-	-	-	-	-	-	-	-	-	-	-	-
	6.15	-	-	0	0	0	30	0	70	0	-	0.00	0.00
	6.55	-	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	7.10	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Pool	**Type**		622-D,U
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	623-LWE,RWE
UTM	447344	6273100	**Roughness (m)**	0.08	**Model #**	2100	624-RWE,LWE
Date	11-Sep-10		**D95 (m)**	0.28	**Prop Size**	2"	625-U
Time	16:35		**Channel Slope (%)**	3.76	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	8.30			
Transect	11		**Wetted Width (m)**	4.10			
Width (m)	12.71						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	7.00	-	-	0	100	0	0	0	0	0	-	0.00	0.00
LWE	7.10	-	-	-	-	-	-	-	-	-	UC,B	0.00	0.00
	7.20	-	-	0	0	25	50	25	0	0	P,B	0.18	0.37
	7.40	-	-	0	0	25	50	25	0	0	P	0.69	0.28
	7.60	-	-	0	0	25	50	25	0	0	P	0.52	0.03
	7.80	-	-	0	0	25	50	25	0	0	P	0.64	0.02
	8.00	-	-	0	0	25	50	25	0	0	P	0.37	0.02
	8.20	-	-	0	0	25	50	25	0	0	P	0.48	0.04
	8.40	-	-	0	0	25	50	25	0	0	P	0.48	0.02
	8.60	-	-	0	0	25	50	25	0	0	P	0.48	0.48
	8.80	-	-	0	0	40	30	20	0	10	P	0.48	0.08
	9.00	-	-	0	0	40	30	20	0	10	P	0.53	0.14
	9.20	-	-	0	0	40	30	20	0	10	P	0.50	0.04
	9.40	-	-	0	0	40	30	20	0	10	P	0.41	0.06
	9.60	-	-	0	0	40	30	20	0	10	P	0.46	0.06
	9.80	-	-	0	0	40	30	20	0	10	P	0.45	0.06
	10.00	-	-	0	0	40	30	20	0	10	P	0.44	0.07
	10.20	-	-	0	0	40	30	20	0	10	P	0.37	0.02
	10.40	-	-	0	50	0	0	25	25	0	P, B	0.42	0.01
	10.60	-	-	0	50	0	0	25	25	0	P, B	0.34	0.08
	10.80	-	-	0	50	0	0	25	25	0	P, B	0.17	0.00
	11.00	-	-	0	50	0	0	25	25	0	P, B	0.00	0.00
RWE	11.20	-	-	0	50	0	0	25	25	0	P, B	0.00	0.00
	11.50	-	-	0	0	0	40	0	10	50	-	0.00	0.00
RBE	12.20	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Riffle	**Type**		610-LWE,RWE
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	611-D,U
UTM	447381	6273053	**Roughness (m)**	0.03	**Model #**	2100	612-RWE,LWE
Date	11-Sep-10		**D95 (m)**	0.55	**Prop Size**	2"	613-U,D
Time	15:00		**Channel Slope (%)**	3.76	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	8.40			
Transect	12		**Wetted Width (m)**	5.05			
Width (m)	10.00						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.80	-	-	-	-	-	-	-	30	70	-	0.00	0.00
	1.40	-	-	-	-	-	-	-	30	70	-	0.00	0.00
	1.80	-	-	-	-	-	-	-	30	70	-	0.00	0.00
	2.00	-	-	-	-	-	-	-	30	70	-	0.00	0.00
	2.07	-	-	-	-	-	-	-	-	-	OV	0.02	0.00
LWE	2.10	-	-	-	-	-	-	-	-	-	-	-	-
	2.20	-	-	-	-	-	10	70	20	-	OV	0.02	0.00
	2.50	-	-	-	-	-	10	70	20	-	OV	0.08	0.45
	2.80	-	-	-	-	-	50	40	10	-	SWD,OV	0.12	0.65
	3.10	-	-	-	-	-	50	40	10	-	SWD,OV	0.13	1.06
	3.40	-	-	-	-	-	50	40	10	-	-	0.04	1.11
	3.70	-	-	-	-	-	50	40	10	-	-	0.06	0.73
	4.00	-	-	-	-	-	-	50	50	-	-	0.07	0.39
	4.30	-	-	-	-	-	-	50	50	-	-	0.00	0.00
	4.60	-	-	-	-	-	-	50	50	-	-	0.00	0.00
	4.90	-	-	-	-	-	-	-	30	70	-	0.00	0.00
	5.20	-	-	-	-	-	-	-	30	70	-	0.10	0.00
	5.50	-	-	-	-	-	-	-	30	70	-	0.12	0.09
	5.80	-	-	-	-	-	-	70	30	-	-	0.22	0.29
	6.10	-	-	-	-	-	-	70	30	-	-	0.30	0.12
	6.40	-	-	-	40	-	-	60	-	-	B	0.32	0.32
	6.70	-	-	-	50	-	50	-	-	-	B	0.38	0.15
	7.00	-	-	-	50	-	50	-	-	-	B	0.25	0.18
	7.30	-	-	-	100	-	-	-	-	-	B	0.00	0.00
	7.60	-	-	-	50	-	50	-	-	-	B	0.12	0.35
	7.90	-	-	-	50	-	50	-	-	-	B	0.06	0.13
RWE	8.15	-	-	-	-	-	-	-	-	-	-	-	-
	8.20	-	-	-	50	-	50	-	-	-	B	0.01	0.00
	8.46	-	-	-	50	-	50	-	-	-	B	0.00	0.00
	8.51	-	-	-	-	-	60	-	20	20	-	0.00	0.00
	9.00	-	-	-	-	-	60	-	20	20	-	0.00	0.00
RBE	9.40	-	-	-	-	-	60	-	20	20	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Riffle	**Type**		614-RWE,LWE
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	615-D,U
UTM	447384	6273064	**Roughness (m)**	0.10	**Model #**	2100	616-LWE,RWE
Date	11-Sep-10		**D95 (m)**	0.50	**Prop Size**	2"	617-U,D
Time	16:00		**Channel Slope (%)**	3.76	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	5.50			
Transect	13		**Wetted Width (m)**	3.85			
Width (m)	6.37						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	1.40	-	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	1.50	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.55	-	-	-	-	-	-	-	-	-	OV	0.00	0.00
	1.70	-	-	-	-	-	-	-	20	80	OV	0.13	0.00
	1.90	-	-	-	-	-	-	-	20	80	OV	0.16	0.00
	2.10	-	-	-	-	-	-	-	20	80	OV	0.27	0.00
	2.30	-	-	-	-	-	-	-	20	80	OV	0.22	0.00
	2.60	-	-	-	-	-	-	-	20	80	OV	0.18	0.00
	2.80	-	-	-	-	20	60	-	20	-	OV	0.40	0.00
	3.00	-	-	-	-	20	60	-	20	-	OV	0.34	0.25
	3.20	-	-	-	-	20	60	-	20	-	OV	0.34	0.43
	3.40	-	-	-	-	20	60	-	20	-	OV	0.32	0.32
	3.60	-	-	-	-	20	60	-	20	-	OV	0.22	0.52
	3.80	-	-	-	50	50	-	-	-	-	B	0.31	0.64
	4.00	-	-	-	50	50	-	-	-	-	B	0.32	0.24
	4.20	-	-	-	50	50	-	-	-	-	B	0.24	0.09
	4.40	-	-	-	50	50	-	-	-	-	B	0.30	0.50
	4.60	-	-	-	50	50	-	-	-	-	B	0.25	0.46
	4.80	-	-	-	50	50	-	-	-	-	B	0.28	0.04
	4.90	-	-	-	50	50	-	-	-	-	B	0.28	0.02
	5.00	-	-	-	50	50	-	-	-	-	B	0.01	0.19
	5.10	-	-	-	50	50	-	-	-	-	B	0.08	0.09
	5.30	-	-	-	50	50	-	-	-	-	UC,B	0.04	0.00
RWE	5.40	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	5.60	-	-	-	50	50	-	-	-	-	B	0.00	0.00
RBE	5.80	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Cascade	**Type**		602-D,U
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	603-LWE,RWE
UTM	447335	6273134	**Roughness (m)**	0.20	**Model #**	2100	604-U,D
Date	11-Sep-10		**D95 (m)**	0.95	**Prop Size**	2"	605-RWE,LWE
Time	13:30		**Channel Slope (%)**	3.76	**Calibration**	603	
Crew	MS		**Bankfull Width (m)**	5.90			
Transect	14		**Wetted Width (m)**	4.85			
Width (m)	6.88						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.50	-	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	0.60	-	-	-	-	-	-	-	-	-	-	-	-
	0.70	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	0.80	-	-	-	-	-	100	-	-	-	OV,B	0.06	0.25
	1.00	-	-	-	-	-	100	-	-	-	OV,B	0.05	0.37
	1.20	-	-	-	-	-	100	-	-	-	OV,B	0.02	0.28
	1.40	-	-	-	60	-	40	-	-	-	OV,B	0.10	0.13
	1.60	-	-	-	60	-	40	-	-	-	OV,B	0.19	0.39
	1.80	-	-	-	60	-	40	-	-	-	OV,B	0.18	0.21
	2.00	-	-	-	60	-	40	-	-	-	OV,B	0.20	0.52
	2.20	-	-	-	60	-	40	-	-	-	OV,B	0.20	0.03
	2.40	-	-	-	60	-	40	-	-	-	OV,B	0.22	0.05
	2.60	-	-	-	60	-	40	-	-	-	OV,B	0.13	0.53
	2.80	-	-	-	60	-	40	-	-	-	OV,B	0.12	1.03
	3.00	-	-	-	60	-	40	-	-	-	OV,B	0.20	0.87
	3.20	-	-	-	30	-	70	-	-	-	OV,B	0.26	0.60
	3.40	-	-	-	30	-	70	-	-	-	OV,B	0.19	0.47
	3.60	-	-	-	30	-	70	-	-	-	OV,B	0.23	0.24
	3.80	-	-	-	70	-	30	-	-	-	OV,B	0.22	0.03
	4.00	-	-	-	70	-	30	-	-	-	OV,B	0.04	0.26
	4.20	-	-	-	70	-	30	-	-	-	OV,B	0.05	0.62
	4.40	-	-	-	70	-	30	-	-	-	SWD,OV,B	0.07	0.51
	4.60	-	-	-	70	-	30	-	-	-	OV,B	0.07	0.09
	4.80	-	-	-	70	-	30	-	-	-	OV,B	0.06	0.31
	5.00	-	-	-	70	-	30	-	-	-	OV,B	0.06	0.31
	5.20	-	-	-	-	-	-	60	40	-	OV	0.03	0.00
	5.40	-	-	-	-	-	-	60	40	-	UC,OV	0.02	0.00
RWE	5.45	-	-	-	-	-	-	60	40	-	OV	0.00	a
	6.00	-	-	-	-	-	-	-	-	100	-	0.00	0.00
RBE	6.50	-	-	-	-	-	-	-	-	100	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	North Treaty		**Hydraulic Unit Type**	Pool	**Type**		606-LWE,RWE
ILP	1050		**Channel Type**	CP	**Make**	SWOFFER	607-D,U
UTM	447323	6273157	**Roughness (m)**	0.10	**Model #**	2100	608-RWE,LWE
Date	11-Sep-10		**D95 (m)**	0.61	**Prop Size**	2"	609-U,D
Time	14:15		**Channel Slope (%)**	3.76	**Calibration**	603	
Crew	MS		**Bankfull Width (m)**	7.50			
Transect	15		**Wetted Width (m)**	4.85			
Width (m)	7.90						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.50	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	0.90	-	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.25	-	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	1.35	-	-	-	-	-	-	-	-	-	-	-	-
	1.42	-	-	-	-	-	-	-	60	40	OV, P, B	0.00	0.00
	1.60	-	-	-	50	-	50	-	-	-	OV, P, B	0.03	0.00
	1.80	-	-	-	50	-	50	-	-	-	OV, P, B	0.28	0.00
	2.00	-	-	-	50	-	50	-	-	-	OV, P, B	0.35	0.00
	2.20	-	-	-	50	-	50	-	-	-	OV, P, B	0.49	0.00
	2.40	-	-	-	50	-	50	-	-	-	OV, P, B	0.00	0.00
	2.60	-	-	-	50	-	50	-	-	-	P, B	0.00	0.00
	2.80	-	-	-	50	-	50	-	-	-	P, B	0.00	0.00
	3.00	-	-	-	50	-	50	-	-	-	P, B	0.00	0.00
	3.10	-	-	-	50	-	50	-	-	-	P, B	0.00	0.00
	3.20	-	-	-	50	-	50	-	-	-	P, B	0.70	0.16
	3.40	-	-	-	50	-	50	-	-	-	P, B	0.74	0.13
	3.60	-	-	-	50	-	50	-	-	-	P, B	0.78	0.38
	3.80	-	-	-	50	-	50	-	-	-	P, B	0.68	0.58
	4.00	-	-	-	50	-	50	-	-	-	P, B	0.57	0.16
	4.20	-	-	-	70	-	30	-	-	-	P, B	0.30	0.28
	4.40	-	-	-	70	-	30	-	-	-	P, B	0.25	0.21
	4.60	-	-	-	70	-	30	-	-	-	P, B	0.21	0.24
	4.80	-	-	-	70	-	30	-	-	-	P, B	0.25	0.16
	5.00	-	-	-	70	-	30	-	-	-	P, B	0.35	0.09
	5.20	-	-	-	70	-	30	-	-	-	P, B	0.34	0.15
	5.40	-	-	-	70	-	30	-	-	-	P, B	0.24	0.13
	5.60	-	-	-	70	-	30	-	-	-	P, B	0.21	0.05
	5.80	-	-	-	30	-	70	-	-	-	B	0.17	0.06
	6.00	-	-	-	30	-	70	-	-	-	UC,B	0.31	0.00
RWE	6.20	-	-	-	30	-	70	-	-	-	UC,B	0.50	0.00
RBE	6.40	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Pool	**Type**		523-D,U
ILP	1001		**Channel Type**	CP	**Make**	swoffer	524-LB-RWE
UTM	440679	6279748	**Roughness (m)**	0.18	**Model #**	2100	525-U,D
Date	9-Sep-10		**D95 (m)**	0.98	**Prop Size**	2"	526-RB,LWE
Time	13:50		**Channel Slope (%)**	2.60	**Calibration**	610	
Crew	MS		**Bankfull Width (m)**	9.15			
Transect	1		**Wetted Width (m)**	5.60			
Width (m)	10.66						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	0.98	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.80	1.30	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.60	1.84	-	-	-	-	-	-	-	-	-	0.00	0.00
	2.20	1.92	-	-	-	-	-	-	-	-	-	0.00	0.00
	2.65	2.05	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	2.95	2.26	-	-	-	-	-	-	-	-	-	0.00	0.00
	3.00	2.25	-	-	-	-	-	-	40	60	-	0.00	0.00
	3.30	2.30	-	-	-	-	-	-	40	60	-	0.80	0.02
	3.60	2.43	-	-	-	50	-	-	50	-	B,P	0.20	0.18
	3.90	2.50	-	-	-	50	-	-	50	-	B,P	0.25	0.20
	4.20	2.58	-	-	-	50	-	-	50	-	B,P	0.30	0.21
	4.50	2.68	-	-	50	-	-	-	50	-	B,P	0.39	0.08
	4.80	2.68	-	-	50	-	-	-	50	-	B,P	0.40	0.22
	5.10	2.73	-	-	50	-	-	-	50	-	B,P	0.52	0.14
	5.40	2.89	-	-	50	50	-	-	-	-	B,P	0.63	0.23
	5.70	2.83	-	-	50	50	-	-	-	-	B,P	0.58	0.59
	6.00	3.07	-	-	50	50	-	-	-	-	B,P	0.78	0.50
	6.30	3.09	-	-	50	50	-	-	-	-	B,P	0.87	1.14
	6.60	3.03	-	-	100	-	-	-	-	-	B,P	0.81	1.21
	6.90	2.99	-	-	100	-	-	-	-	-	B,P	0.86	1.09
	7.20	2.95	-	-	30	70	-	-	-	-	B,P	0.77	0.55
	7.50	2.79	-	100	-	-	-	-	-	-	P	0.55	0.23
	7.80	2.61	-	100	-	-	-	-	-	-	P	0.44	0.16
	8.10	2.47	-	100	-	-	-	-	-	-	P	0.24	0.27
	8.20	2.37	-	100	-	-	-	-	-	-	P	0.19	0.18
	8.30	2.28	-	100	-	-	-	-	-	-	P	0.17	0.30
RWE	8.55	2.10	-	100	-	-	-	-	-	-	P	0.00	0.00
	9.00	1.97	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	9.50	1.63	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		666-LWE,RWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	667-D,U
UTM	440723	6279723	**Roughness (m)**	0.24	**Model #**	2100	668-RWE,LWE
Date	9-Sep-10		**D95 (m)**	0.49	**Prop Size**	2"	669-U,D
Time	12:00		**Channel Slope (%)**	2.60	**Calibration**	603	
Crew	MS		**Bankfull Width (m)**	8.60			
Transect	2		**Wetted Width (m)**	7.05			
Width (m)	10.64						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	0.952	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	1.00	1.577	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.40	1.744	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.80	2.079	-	-	-	80	-	20	-	-	OV	0.00	0.00
LWE	1.90	2.103	-	-	-	80	-	20	-	-	OV	0.00	0.00
	2.30	2.06	-	-	-	80	-	20	-	-	OV	0.50	0.00
	2.70	2.139	-	-	-	80	-	20	-	-	OV	0.00	0.00
	3.10	2.186	-	-	-	80	-	20	-	-	OV	0.50	0.18
	3.50	2.191	-	-	-	80	-	20	-	-	OV	0.05	0.29
	3.90	2.256	-	-	30	70	-	-	-	-	-	0.22	0.08
	4.30	2.462	-	-	30	70	-	-	-	-	-	0.30	0.09
	4.70	2.534	-	-	30	70	-	-	-	-	B	0.34	0.88
	5.10	2.409	-	-	70	30	-	-	-	-	B	0.28	1.20
	5.50	2.183	-	-	70	30	-	-	-	-	B	0.31	0.30
	5.90	2.529	-	-	70	30	-	-	-	-	B	0.26	1.29
	6.30	2.504	-	-	40	60	-	-	-	-	B	0.20	1.32
	6.70	2.477	-	-	40	60	-	-	-	-	B	0.23	0.29
	7.10	2.372	-	-	40	60	-	-	-	-	B	0.19	0.98
	7.60	2.342	-	-	40	60	-	-	-	-	-	0.17	1.42
	7.80	2.432	-	-	-	100	-	-	-	-	-	0.23	0.99
	8.20	2.387	-	-	-	100	-	-	-	-	-	0.17	0.18
	8.60	2.258	-	50	-	50	-	-	-	-	-	0.15	0.93
	9.00	2.221	-	50	-	50	-	-	-	-	-	0.04	0.06
	9.10	2.121	-	50	-	50	-	-	-	-	-	0.00	0.00
RWE	9.40	-	-	-	-	-	-	-	-	-	-	-	-
RBE	9.80	1.848	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		542-RB,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	541-U,D
UTM	440541	6279933	**Roughness (m)**	0.14	**Model #**	2100	540-LWE,RWE
Date	9-Sep-10		**D95 (m)**	0.65	**Prop Size**	2"	539-DS,U
Time	16:50		**Channel Slope (%)**	2.60	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	10.30			
Transect	4		**Wetted Width (m)**	9.60			
Width (m)	13.40						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	1.14	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.90	1.28	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.60	1.43	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.90	1.49	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	2.00	1.64	-	-	75	-	-	25	-	-	B	0.00	0.00
	2.50	1.62	-	-	75	-	-	25	-	-	B	0.00	0.00
	3.00	1.57	-	-	75	-	-	25	-	-	B	0.00	0.00
	3.50	1.79	-	-	-	-	75	25	-	-	-	0.17	0.91
	4.00	1.76	-	-	-	-	75	25	-	-	-	0.07	0.14
	4.50	1.81	-	-	-	-	75	25	-	-	-	0.11	0.17
	5.00	1.74	-	-	25	75	-	-	-	-	-	0.10	0.97
	5.50	1.71	-	-	25	75	-	-	-	-	-	0.10	0.16
	6.00	1.89	-	-	50	50	-	-	-	-	B	0.19	0.36
	6.50	1.79	-	-	50	50	-	-	-	-	B	0.17	0.06
	7.00	1.84	-	-	-	90	10	-	-	-	-	0.18	0.15
	7.50	1.93	-	-	-	100	-	-	-	-	-	0.30	0.71
	8.00	1.89	-	-	-	100	-	-	-	-	-	0.40	0.21
	8.40	1.99	-	-	-	100	-	-	-	-	-	0.37	0.95
	8.80	2.03	-	-	-	100	-	-	-	-	-	0.27	1.43
	9.20	1.93	-	-	-	100	-	-	-	-	-	0.31	0.59
	9.60	1.97	-	-	-	100	-	-	-	-	B	0.32	1.15
	10.00	1.90	-	50	-	50	-	-	-	-	B	0.29	0.74
	10.40	2.07	-	50	-	50	-	-	-	-	B	0.46	0.79
	10.80	1.92	-	50	-	50	-	-	-	-	B	0.27	0.26
	11.20	1.75	-	50	-	50	-	-	-	-	B	0.20	0.00
	11.40	1.44	-	-	-	-	-	-	-	-	-	0.00	0.00
RWE	11.60	-	-	-	-	-	-	-	-	-	-	-	-
	11.90	1.51	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	12.30	0.85	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Pool	**Type**		530-LB-RWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	529-U,D
UTM	440635	6274786	**Roughness (m)**	0.17	**Model #**	2100	528-RB,LWE
Date	9-Sep-10		**D95 (m)**	0.63	**Prop Size**	2"	527-D,U
Time	14:00		**Channel Slope (%)**	2.60	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	12.50			
Transect	5		**Wetted Width (m)**	10.10			
Width (m)	14.12						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	1.07	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
LWE & LBE	0.85	1.55	-	-	-	-	-	-	-	-	-	0.00	0.00
	0.90	2.13	-	-	70	-	-	30	-	-	OV,U,B, P	0.00	0.00
	1.30	2.26	-	-	70	-	-	30	-	-	B, P	0.23	0.03
	1.70	2.19	-	-	50	50	-	-	-	-	B, P	0.27	0.10
	2.10	2.49	-	-	50	50	-	-	-	-	B, P	0.41	0.35
	2.50	2.50	-	-	50	50	-	-	-	-	B, P	0.54	0.12
	2.90	2.50	-	-	50	50	-	-	-	-	B, P	0.35	0.32
	3.30	2.49	-	-	100	-	-	-	-	-	B, P	0.47	0.53
	3.70	2.47	-	-	100	-	-	-	-	-	B, P	0.52	1.23
	4.10	2.45	-	-	40	40	20	-	-	-	B, P	0.44	0.34
	4.50	2.54	-	-	40	40	20	-	-	-	B, P	0.48	0.17
	4.90	2.22	-	-	40	40	20	-	-	-	B, P	0.35	0.11
	5.30	2.24	-	-	40	40	20	-	-	-	B, P	0.35	1.17
	5.90	2.27	-	-	-	30	70	-	-	-	-	0.06	0.51
	6.50	2.18	-	-	-	30	70	-	-	-	-	0.15	1.20
	7.10	2.00	-	-	-	30	70	-	-	-	-	0.14	0.43
	7.70	-	-	-	-	30	70	-	-	-	-	0.18	0.78
	8.30	2.00	-	-	-	30	70	-	-	-	-	0.13	0.01
	8.90	1.95	-	-	-	30	70	-	-	-	-	0.00	0.00
	9.50	2.21	-	-	-	30	70	-	-	-	-	0.04	0.00
	10.10	2.17	-	-	80	-	-	20	-	-	-	0.00	0.00
	10.70	2.06	-	-	80	-	-	20	-	-	-	0.00	0.00
RWE	10.95	-	-	-	-	-	-	-	-	-	-	-	-
	11.30	1.85	-	-	80	-	-	20	-	-	-	0.00	0.00
	11.90	1.94	-	-	-	-	20	-	80	-	-	0.07	0.00
	12.50	1.91	-	-	-	-	20	-	80	-	-	0.07	0.01
	12.94	1.47	-	-	-	-	-	-	-	-	-	0.00	0.00
	13.20	1.90	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	13.70	1.38	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Pool	**Type**		534-RB,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	533-US,DS
UTM	440616	6279878	**Roughness (m)**	0.18	**Model #**	2100	532-LB,RWE
Date	9-Sep-10		**D95 (m)**	0.83	**Prop Size**	2"	531-DS,US
Time	9:49		**Channel Slope (%)**	2.60	**Calibration**	603	
Crew	MS		**Bankfull Width (m)**	11.40			
Transect	7		**Wetted Width (m)**	9.65			
Width (m)	13.14						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	0.80	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.50	0.91	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	1.20	-	-	-	-	-	-	-	-	-	-	-	-
	1.25	1.26	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.50	1.85	-	-	-	-	70	-	-	30	LWD, OV	0.34	0.00
	2.00	1.86	-	-	-	-	70	-	-	30	LWD, OV	0.34	0.00
	2.50	1.79	-	-	-	-	70	-	-	30	LWD, OV	0.25	0.02
	3.00	1.96	-	-	70	30	-	-	-	-	LWD, OV	0.43	0.28
	3.50	1.60	-	-	70	30	-	-	-	-	B	0.15	0.00
	4.00	1.75	-	-	70	30	-	-	-	-	B	0.17	0.16
	4.50	1.66	-	-	50	-	-	-	50	-	B	0.19	0.36
	5.00	1.63	-	-	50	-	-	-	50	-	B	0.14	0.24
	5.50	1.74	-	-	-	-	-	50	50	-	B	0.25	0.40
	6.00	1.93	-	-	50	-	-	50	-	-	B, P	0.40	0.53
	6.50	1.98	-	-	100	-	-	-	-	-	B, P	0.62	0.42
	7.00	2.10	-	-	100	-	-	-	-	-	B, P	0.60	0.14
	7.50	2.11	-	-	100	-	-	-	-	-	B, P	0.53	0.34
	8.00	2.17	-	-	100	-	-	-	-	-	B, P	0.59	0.62
	8.50	1.97	-	-	-	-	-	40	60	-	B,P	0.56	0.71
	9.00	2.07	-	-	100	-	-	-	-	-	B	0.00	0.00
	9.50	1.28	-	-	100	-	-	-	-	-	B	0.00	0.00
	10.00	1.90	-	-	100	-	-	-	-	-	OV,B	0.29	1.07
	10.50	1.61	-	-	50	-	50	-	-	-	OV,B	0.12	0.25
RWE	10.85	-	-	-	-	-	-	-	-	-	-	-	-
	11.00	1.62	-	-	-	-	100	-	-	-	LWD	0.15	0.07
	11.50	0.97	-	-	-	-	100	-	-	-	LWD	0.10	0.08
	11.70	0.95	-	-	-	-	-	-	-	-	-	0.00	0.00
	11.82	1.29	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	12.30	0.78	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		538-LB,RWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	537-US,DS
UTM	440600	6279893	**Roughness (m)**	0.08	**Model #**	2100	536-DS,US
Date	9-Sep-10		**D95 (m)**	0.49	**Prop Size**	2"	535-RB,LWE
Time	16:00		**Channel Slope (%)**	2.60	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	9.55			
Transect	8		**Wetted Width (m)**	7.43			
Width (m)	11.05						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	1.01	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	1.00	1.26	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	1.42	1.63	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.50	1.64	-	-	-	50	50	-	-	-	OV	0.03	0.00
	1.90	1.68	-	-	-	50	50	-	-	-	IV,OV	0.12	0.00
	2.30	1.70	-	-	-	50	50	-	-	-	IV,OV	0.06	0.12
	2.70	1.65	-	-	-	-	70	-	30	-	-	0.01	0.00
	3.10	1.84	-	-	-	-	70	-	30	-	-	0.23	0.23
	3.50	1.82	-	-	-	-	70	-	30	-	-	0.24	0.24
	3.90	1.78	-	-	-	-	70	-	30	-	-	0.25	0.30
	4.30	1.95	-	-	-	-	70	-	30	-	-	0.32	0.46
	4.70	2.03	-	-	-	70	30	-	-	-	E	0.47	0.55
	5.10	2.04	-	-	-	70	30	-	-	-	-	0.47	0.86
	5.50	2.01	-	-	-	70	30	-	-	-	-	0.40	0.54
	5.90	2.03	-	-	-	70	30	-	-	-	-	0.44	0.55
	6.30	1.97	-	-	-	70	30	-	-	-	-	0.38	0.46
	6.70	2.00	-	-	-	70	30	-	-	-	-	0.41	0.93
	7.10	1.87	-	-	-	70	30	-	-	-	-	0.38	0.49
	7.50	1.78	-	-	-	70	30	-	-	-	-	0.17	0.38
	7.90	1.78	-	-	-	70	30	-	-	-	-	0.20	0.38
	8.30	1.65	-	-	-	70	30	-	-	-	-	0.00	0.00
	8.70	1.69	-	-	-	80	-	-	-	20	-	0.00	0.00
RWE	8.85	1.62	-	-	-	-	-	-	-	-	-	0.00	0.00
	9.60	1.21	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	10.10	0.96	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		543-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	544-U,D
UTM	440332	6280560	**Roughness (m)**	0.19	**Model #**	2100	545-LWE,RWE
Date	10-Sep-10		**D95 (m)**	0.45	**Prop Size**	2"	546-D,U
Time	8:30		**Channel Slope (%)**	2.85	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	9.70			
Transect	9		**Wetted Width (m)**	8.02			
Width (m)	11.32						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	1.47	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.50	1.67	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.00	1.88	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	1.18	-	-	-	-	-	-	-	-	-	-	-	-
	1.30	2.03	-	-	-	-	-	-	-	-	B,OV	0.00	0.00
	1.35	2.09	-	-	-	-	-	-	-	-	B	0.00	0.00
	1.50	2.13	-	-	-	20	60	-	20	-	B,OV	0.01	0.24
	1.90	2.13	-	-	-	20	60	-	20	-	B,OV	0.04	0.19
	2.30	2.28	-	-	-	20	60	-	20	-	OV	0.26	0.38
	2.70	2.15	-	-	-	20	60	-	20	-	OV	0.07	0.27
	3.10	2.30	-	-	-	20	60	-	20	-	OV	0.22	0.18
	3.50	2.30	-	-	-	20	60	-	20	-	B	0.27	0.14
	3.90	2.37	-	-	-	20	60	-	20	-	B	0.35	0.24
	4.30	2.37	-	-	-	20	60	-	20	-	B	0.28	0.06
	4.70	2.43	-	-	-	20	60	-	20	-	B	0.31	0.04
	5.10	2.45	-	-	-	20	60	-	20	-	B	0.37	0.54
	5.50	2.43	-	-	-	20	60	-	20	-	-	0.32	0.99
	5.90	2.36	-	-	10	80	10	-	-	-	-	0.28	1.47
	6.30	2.39	-	-	10	80	10	-	-	-	-	0.36	1.19
	6.70	2.54	-	-	40	60	-	-	-	-	B	0.39	0.53
	7.10	2.60	-	-	60	40	-	-	-	-	B	0.52	0.14
	7.50	2.57	-	-	60	40	-	-	-	-	B	0.46	0.70
	7.90	2.45	-	-	60	40	-	-	-	-	B	0.36	0.98
	8.30	2.23	-	-	60	40	-	-	-	-	B	0.10	0.82
	8.70	2.14	-	-	60	40	-	-	-	-	B	0.06	0.08
	9.15	2.07	-	-	-	-	-	-	-	-	-	0.00	0.00
RWE	9.20	2.04	-	-	-	-	-	-	-	-	-	0.00	0.00
	9.70	1.78	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	10.20	1.61	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Pool	**Type**		547-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	548-D,U
UTM	440274	6280466	**Roughness (m)**	0.05	**Model #**	2100	549-LWE,RWE
Date	10-Sep-10		**D95 (m)**	0.10	**Prop Size**	2"	550-U,D
Time	9:05		**Channel Slope (%)**	2.85	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	8.30			
Transect	10		**Wetted Width (m)**	7.15			
Width (m)	9.56						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	1.39	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	1.00	1.69	-	-	-	-	-	-	-	100	-	0.00	0.00
	1.50	1.87	-	-	-	-	-	-	-	100	-	0.00	0.00
LWE	1.80	-	-	-	-	-	-	-	-	-	-	-	-
	1.90	1.95	-	-	-	-	-	-	20	80	SWD,OV, P	0.06	0.00
	2.10	1.99	-	-	-	-	-	-	20	80	SWD,OV, P	0.07	0.00
	2.40	2.06	-	-	-	-	-	-	20	80	OV, P	0.15	0.20
	2.70	2.09	-	-	-	-	-	-	20	80	OV, P	0.17	0.00
	3.00	2.24	-	-	-	-	-	-	90	10	OV, P	0.36	0.10
	3.30	2.23	-	-	-	-	-	-	90	10	OV, P	0.36	0.04
	3.60	2.24	-	-	-	-	-	-	90	10	P, OV	0.35	0.09
	3.90	2.29	-	-	-	-	-	-	90	10	P, OV	0.42	0.16
	4.20	2.36	-	-	-	-	-	20	80	-	P, OV	0.46	0.23
	4.50	2.46	-	-	-	-	-	20	80	-	P	0.51	0.19
	4.80	2.51	-	-	-	-	-	20	80	-	P	0.64	0.20
	5.10	2.59	-	-	-	-	-	20	80	-	P	0.71	0.22
	5.40	2.61	-	-	-	-	-	20	80	-	P	0.71	0.28
	5.70	2.67	-	-	-	-	-	20	80	-	P	0.71	0.33
	6.00	2.73	-	-	-	-	-	20	80	-	P	0.80	0.45
	6.30	2.88	-	-	-	-	-	20	80	-	P	0.94	0.52
	6.60	2.87	-	-	-	-	-	20	80	-	P	0.98	0.58
	6.90	2.88	-	-	-	-	-	80	20	-	P	0.89	0.45
	7.20	2.78	-	-	-	-	-	80	20	-	P	0.78	0.14
	7.50	2.63	-	-	-	-	-	80	20	-	P	0.64	0.03
	7.80	2.41	-	-	-	-	-	80	20	-	P, OV	0.45	0.06
	8.10	2.27	-	-	-	-	90	10	-	-	P, OV	0.34	0.08
	8.40	2.18	-	-	-	-	-	-	-	-	P, OV	0.34	0.10
	8.70	2.00	-	-	-	100	-	-	-	-	-	0.07	0.00
RWE	8.95	1.93	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	9.30	1.10	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		551-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	552-D,U
UTM	440259	6280510	**Roughness (m)**	0.17	**Model #**	2100	553-LWE,RWE
Date	10-Sep-10		**D95 (m)**	0.70	**Prop Size**	2"	554-U,D
Time	16:00		**Channel Slope (%)**	2.85	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	9.60			
Transect	11		**Wetted Width (m)**	7.40			
Width (m)	11.72						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	1.06	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.90	0.21	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.40	0.97	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.80	1.19	-	-	-	-	-	-	-	-	-	0.00	0.00
	2.30	1.27	-	-	-	-	-	-	-	-	-	0.00	0.00
	2.50	1.22	-	-	-	-	-	-	-	-	-	0.00	0.00
	3.00	1.77	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	3.10	1.56	-	-	-	-	-	-	-	-	B	0.00	0.00
	3.30	1.80	-	-	70	30	-	-	-	-	B	0.24	0.43
	3.70	1.85	-	-	70	30	-	-	-	-	B	0.25	0.05
	4.10	1.82	-	-	70	30	-	-	-	-	B	0.26	0.64
	4.50	1.80	-	-	70	30	-	-	-	-	B	0.25	0.39
	4.90	1.86	-	-	-	100	-	-	-	-	-	0.36	0.70
	5.30	1.77	-	-	-	100	-	-	-	-	-	0.33	1.20
	5.70	1.91	-	-	-	100	-	-	-	-	-	0.28	0.67
	6.10	1.84	-	-	-	100	-	-	-	-	B	0.38	0.17
	6.50	1.87	-	-	-	80	-	20	-	-	B	0.36	0.28
	6.90	1.88	-	-	-	80	-	20	-	-	-	0.31	0.11
	7.30	1.87	-	-	-	80	-	20	-	-	B	0.32	0.39
	7.70	1.81	-	-	-	80	-	20	-	-	-	0.28	0.57
	8.10	1.84	-	-	-	80	-	20	-	-	OV	0.27	0.56
	8.50	1.87	-	-	-	80	-	20	-	-	OV	0.40	0.99
	8.90	1.84	-	-	-	80	-	20	-	-	B,OV	0.26	0.00
	9.30	1.69	-	-	-	80	-	20	-	-	SWD,IV,OV	0.15	0.00
	9.70	1.65	-	-	-	-	-	75	25	-	B,OV	0.20	0.25
	10.10	1.65	-	-	-	-	-	-	100	-	OV	0.11	0.13
	10.30	-	-	-	-	-	-	-	100	-	OV	0.07	0.00
RWE	10.50	1.55	-	-	-	-	-	-	-	-	OV	0.00	0.00
	11.00	1.46	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	11.20	1.35	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Pool	**Type**		557-LWE,RWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	558-U,D
UTM	440265	6280634	**Roughness (m)**	0.05	**Model #**	2100	559-RWE,LWE
Date	10-Sep-10		**D95 (m)**	1.80	**Prop Size**	2"	560-D,U
Time	10:50		**Channel Slope (%)**	2.85	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	11.10			
Transect	13		**Wetted Width (m)**	9.77			
Width (m)	12.45						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	1.20	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.70	1.43	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	1.33	1.64	-	-	-	-	-	-	-	-	B, OV, P	0.00	0.00
	1.50	2.00	-	-	60	-	-	-	40	-	B, OV, P	0.22	0.00
	1.90	2.11	-	-	60	-	-	-	40	-	B, OV, P	0.27	0.00
	2.30	2.13	-	-	60	-	-	-	40	-	B, OV, P	0.32	0.00
	2.70	1.82	-	-	60	-	-	-	40	-	B, OV, P	0.01	0.00
	3.10	1.72	-	-	60	-	-	-	40	-	B, OV, P	0.00	0.00
	3.50	2.47	-	-	60	-	-	-	40	-	B, P	0.45	0.00
	3.90	2.50	-	-	50	-	-	-	40	10	B, P	0.54	0.06
	4.30	2.09	-	-	50	-	-	-	40	10	B, P	0.30	0.04
	4.70	1.87	-	-	50	-	-	-	40	10	B, P	0.10	0.13
	5.10	2.55	-	-	50	-	-	-	40	10	B, P	0.62	0.11
	5.50	2.57	-	-	50	-	-	-	40	10	B, P	0.77	0.13
	5.90	2.59	-	-	50	-	-	-	40	10	B, P	0.84	0.23
	6.30	2.63	-	-	-	-	10	-	-	90	P	0.85	0.14
	6.70	2.67	-	-	-	-	10	-	-	90	P	0.88	0.20
	7.10	2.69	-	-	-	-	10	-	-	90	P	0.84	0.16
	7.50	2.77	-	-	-	-	10	-	-	90	P	1.01	0.02
	7.90	2.80	-	-	-	-	10	-	-	90	P	1.01	0.18
	8.30	2.77	-	-	-	-	10	-	-	90	P	0.94	0.61
	8.70	2.85	-	-	-	-	10	-	-	90	P	0.68	1.05
	9.10	2.34	-	-	50	-	25	-	-	25	P, OV, B	0.54	0.83
	9.50	2.41	-	-	50	-	25	-	-	25	P, OV, B	0.60	0.48
	9.90	2.37	-	-	50	-	25	-	-	25	P, OV, B	0.59	0.25
	10.30	2.24	-	-	25	75	-	-	-	-	OV, P, B	0.43	0.08
	10.70	1.81	-	-	-	100	-	-	-	-	-	0.17	0.00
RWE	11.10	1.76	-	-	-	-	-	-	-	-	-	0.00	0.00
	11.50	1.62	-	-	-	-	-	-	-	-	-	0.00	0.00
	11.90	1.49	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	12.30	1.25	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		562-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	563-D,U
UTM	440318	6280852	**Roughness (m)**	0.13	**Model #**	2100	564-LWE,RWE
Date	10-Sep-10		**D95 (m)**	0.55	**Prop Size**	2"	565-U,D
Time	12:00		**Channel Slope (%)**	1.53	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	9.00			
Transect	14		**Wetted Width (m)**	8.70			
Width (m)	12.20						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	2.21	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
LWE & LBE	0.50	2.41	-	-	-	-	-	-	-	-	-	0.00	0.00
	0.60	2.42	-	0	100	0	0	0	0	0	B, OV	0.00	0.00
	0.90	2.39	-	0	100	0	0	0	0	0	B, OV	0.00	0.00
	1.20	2.62	-	0	100	0	0	0	0	0	B, OV	0.00	0.00
	1.50	2.96	-	0	60	40	0	0	0	0	B, OV	0.25	0.35
	1.80	2.88	-	0	60	40	0	0	0	0	B, OV	0.17	0.54
	2.10	2.91	-	0	60	40	0	0	0	0	OV	0.31	0.95
	2.40	2.84	-	0	60	40	0	0	0	0	B, OV	0.26	0.67
	2.70	2.94	-	0	60	40	0	0	0	0	B, OV	0.29	0.58
	3.00	2.85	-	0	60	40	0	0	0	0	B	0.26	0.42
	3.30	2.99	-	0	60	40	0	0	0	0	B	0.38	0.13
	3.60	2.93	-	0	0	70	30	0	0	0	B	0.26	1.51
	3.90	3.07	-	0	0	70	30	0	0	0	B	0.37	0.60
	4.20	3.11	-	0	0	70	30	0	0	0	B	0.38	0.12
	4.50	3.14	-	0	0	70	30	0	0	0	B	0.38	0.22
	4.80	3.03	-	0	0	70	30	0	0	0	B	0.32	0.43
	5.10	3.19	-	0	0	70	30	0	0	0	B	0.40	0.41
	5.40	3.04	-	0	0	70	30	0	0	0	B	0.31	0.82
	5.70	2.88	-	0	0	70	30	0	0	0	B	0.20	1.30
	6.00	2.90	-	0	0	70	30	0	0	0	B	0.18	0.89
	6.30	2.86	-	0	60	0	40	0	0	0	IV,B, OV	0.22	0.04
	6.60	2.85	-	0	60	0	40	0	0	0	IV,B, OV	0.13	0.65
	6.90	2.72	-	0	60	0	40	0	0	0	B, OV	0.06	0.56
	7.20	2.70	-	0	60	0	30	10	0	0	-	0.00	0.00
	7.50	2.60	-	0	60	0	30	10	0	0	-	0.00	0.00
	7.90	2.67	-	0	60	0	30	10	0	0	-	0.04	0.23
	8.40	2.58	-	0	60	0	30	10	0	0	-	0.00	0.00
	8.60	2.63	-	0	60	0	30	10	0	0	-	0.06	0.31
RWE	9.20	2.56	-	0	60	0	30	10	0	0	-	0.00	0.00
	9.50	2.54	-	0	60	0	30	10	0	0	-	0.00	0.00
RBE	10.00	2.42	-	0	60	0	30	10	0	0	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		566-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	567-D,U
UTM	440404	6281038	**Roughness (m)**	0.24	**Model #**	2100	568-LWE,RWE
Date	10-Sep-10		**D95 (m)**	0.54	**Prop Size**	2"	569-U,D
Time	15:30		**Channel Slope (%)**	1.53	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	12.60			
Transect	15		**Wetted Width (m)**	9.95			
Width (m)	14.80						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	1.37	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.50	1.62	-	0	40	0	60	0	0	0	-	0.00	0.00
	1.00	2.02	-	0	40	0	60	0	0	0	-	0.00	0.00
	1.50	2.26	-	0	40	0	60	0	0	0	-	0.00	0.00
	2.00	2.54	-	0	40	0	60	0	0	0	-	0.00	0.00
LWE	2.35	-	-	-	-	-	-	-	-	-	-	-	-
	2.40	2.60	-	0	40	0	60	0	0	0	-	0.00	0.00
	3.00	2.71	-	0	40	0	60	0	0	0	-	0.07	0.03
	3.50	2.69	-	0	40	0	60	0	0	0	IV,B	0.10	0.02
	4.00	2.64	-	0	40	0	60	0	0	0	IV,B	0.00	0.00
	4.50	2.63	-	0	40	0	60	0	0	0	B	0.00	0.00
	5.00	3.00	-	0	40	40	20	0	0	0	B	0.35	1.55
	5.50	2.93	-	0	40	40	20	0	0	0	B	0.25	0.77
	6.00	2.72	-	0	40	40	20	0	0	0	B	0.19	0.66
	6.50	2.86	-	0	40	40	20	0	0	0	B	0.13	1.38
	7.00	2.97	-	0	0	0	100	0	0	0	-	0.25	0.66
	7.50	2.98	-	0	0	0	100	0	0	0	-	0.14	0.70
	8.00	2.80	-	0	40	60	0	0	0	0	B	0.30	0.45
	8.50	3.03	-	0	40	60	0	0	0	0	B	0.31	1.34
	9.00	2.75	-	0	40	60	0	0	0	0	B	0.37	0.63
	9.50	2.94	-	0	40	60	0	0	0	0	B	0.32	0.84
	10.00	3.01	-	0	40	60	0	0	0	0	B	0.38	0.86
	10.50	3.10	-	0	0	40	40	20	0	0	-	0.35	0.15
	11.00	3.03	-	0	0	40	40	20	0	0	-	0.19	0.38
	11.50	2.91	-	0	0	40	40	20	0	0	-	0.20	0.10
	12.00	2.76	-	0	0	40	40	20	0	0	-	0.07	0.00
RWE	12.30	-	-	-	-	-	-	-	-	-	-	-	-
	12.50	2.59	-	0	0	60	0	40	0	0	-	0.00	0.00
RBE	13.00	2.33	-	0	0	60	0	40	0	0	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Pool	**Type**		570-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	571-D,U
UTM	440441	6281157	**Roughness (m)**	0.11	**Model #**	2100	572-LWE,RWE
Date	10-Sep-10		**D95 (m)**	0.68	**Prop Size**	2"	573-U,D
Time	14:00		**Channel Slope (%)**	1.53	**Calibration**	603	
Crew	MS		**Bankfull Width (m)**	12.90			
Transect	16		**Wetted Width (m)**	8.60			
Width (m)	13.50						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	0.13	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	1.00	0.78	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.50	1.58	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	1.90	1.84	-	-	-	-	-	-	-	-	-	0.00	0.00
	2.50	1.91	-	0	0	0	0	0	80	20	OV,P	0.26	0.00
	3.00	2.03	-	0	0	0	0	0	80	20	SWD,P	0.24	0.02
	3.50	2.16	-	0	0	0	0	0	80	20	P,B	0.35	0.07
	4.00	2.19	-	0	50	0	0	0	50	0	P, B	0.33	0.06
	4.50	2.22	-	0	50	0	0	0	50	0	P, B	0.34	0.15
	5.00	2.28	-	0	50	0	0	0	50	0	P, B	0.38	0.21
	5.50	2.18	-	0	0	80	20	0	0	0	P	0.40	0.30
	6.00	2.46	-	0	0	80	20	0	0	0	P	0.66	0.65
	6.50	2.39	-	0	0	80	20	0	0	0	P	0.53	0.48
	7.00	2.48	-	0	0	80	20	0	0	0	P	0.78	0.64
	7.50	2.61	-	0	0	80	20	0	0	0	P	0.71	0.08
	8.00	2.58	-	0	0	80	20	0	0	0	P	0.60	0.15
	8.50	2.51	-	0	0	0	80	10	10	0	P	0.55	0.10
	9.00	2.46	-	0	40	0	0	0	30	30	P, B	0.40	0.19
	9.50	2.31	-	0	40	0	0	0	30	30	P, B	0.37	0.07
	10.00	2.27	-	0	40	0	0	0	30	30	P, B	0.37	0.01
	10.50	2.20	-	0	40	0	0	0	30	30	P, B	0.00	0.00
	11.00	1.83	-	0	100	0	0	0	0	0	B	0.00	0.00
	11.50	1.71	-	0	100	0	0	0	0	0	B	0.00	0.00
RWE	12.00	1.84	-	0	100	0	0	0	0	0	B	0.00	0.00
	12.50	1.80	-	0	0	0	0	0	0	100	-	0.00	0.00
	13.00	1.70	-	0	0	0	0	0	0	100	-	0.00	0.00
RBE	13.60	1.29	-	0	0	0	0	0	0	100	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		574-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	575-U,D
UTM	440461	6281231	**Roughness (m)**	0.26	**Model #**	2100	576-LWE,RWE
Date	10-Sep-10		**D95 (m)**	1.30	**Prop Size**	2"	577-D,U
Time	14:40		**Channel Slope (%)**	1.53	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	14.70			
Transect	17		**Wetted Width (m)**	9.80			
Width (m)	16.00						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	0.84	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	1.10	1.42	-	0	0	70	30	0	0	0	-	0.00	0.00
	1.70	1.47	-	0	0	70	30	0	0	0	-	0.00	0.00
	2.30	1.83	-	0	0	70	30	0	0	0	-	0.00	0.00
	2.90	2.05	-	0	0	70	30	0	0	0	-	0.00	0.00
	3.50	2.06	-	0	0	70	30	0	0	0	-	0.00	0.00
LWE	3.90	2.65	-	0	0	70	30	0	0	0	LWD	0.00	0.00
	4.50	2.61	-	0	90	10	0	0	0	0	P, B	0.45	0.02
	5.10	1.92	-	0	90	10	0	0	0	0	P, B	0.00	0.00
	5.70	1.90	-	0	90	10	0	0	0	0	B	0.00	0.00
	6.30	2.24	-	0	90	10	0	0	0	0	B	0.14	0.19
	6.90	2.87	-	0	40	60	0	0	0	0	P,B	0.58	1.29
	7.50	2.72	-	0	40	60	0	0	0	0	P,B	0.53	0.28
	8.10	2.47	-	0	40	60	0	0	0	0	B	0.33	1.53
	8.70	2.47	-	0	40	60	0	0	0	0	B	0.29	0.32
	9.30	2.47	-	0	40	60	0	0	0	0	B	0.35	0.57
	9.90	2.28	-	0	40	60	0	0	0	0	B	0.15	0.39
	10.50	2.27	-	0	40	60	0	0	0	0	B	0.11	0.08
	11.10	2.22	-	0	40	60	0	0	0	0	B	0.10	0.00
	11.70	2.44	-	0	40	60	0	0	0	0	B	0.14	0.13
	12.30	1.98	-	0	100	0	0	0	0	0	B	0.00	0.00
	12.90	1.65	-	0	100	0	0	0	0	0	B	0.00	0.00
	13.50	1.62	-	0	100	0	0	0	0	0	B	0.00	0.00
RWE	13.70	1.76	-	0	100	0	0	0	0	0	B	0.00	0.00
	14.30	2.00	-	0	0	90	0	0	0	10	-	0.00	0.00
	14.90	1.96	-	0	0	0	0	0	0	100	-	0.00	0.00
	15.50	1.48	-	0	0	0	0	0	0	100	-	0.00	0.00
RBE	15.60	1.08	-	0	0	0	0	0	0	100	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		581-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	582-D,U
UTM	450766	6264205	**Roughness (m)**	0.18	**Model #**	2100	583-RWE,LWE
Date	11-Sep-10		**D95 (m)**	0.40	**Prop Size**	2"	584-U,D
Time	9:25		**Channel Slope (%)**	1.46	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	14.40			
Transect	18		**Wetted Width (m)**	8.75			
Width (m)	15.60						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	1.65	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.20	1.83	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	1.20	-	-	-	-	-	-	-	-	-	-	-	-
	1.30	2.75	-	0	40	60	0	0	0	0	OV	0.00	0.00
	1.50	2.82	-	0	40	60	0	0	0	0	SWD,OV,B	0.04	0.00
	2.20	2.84	-	0	40	60	0	0	0	0	B,OV	0.04	0.24
	2.90	3.14	-	0	40	60	0	0	0	0	OV, B	0.31	0.37
	3.60	3.04	-	0	20	60	20	0	0	0	OV, B	0.27	0.82
	4.30	3.19	-	0	20	60	20	0	0	0	OV, B	0.39	0.11
	5.00	3.24	-	0	20	60	20	0	0	0	B	0.47	0.67
	5.70	3.21	-	0	20	60	20	0	0	0	B	0.45	1.00
	6.40	3.22	-	0	20	60	20	0	0	0	B	0.37	0.37
	7.00	3.18	-	0	20	60	20	0	0	0	B	0.28	0.58
	7.50	3.14	-	0	20	60	20	0	0	0	B	0.21	0.06
	8.00	2.89	-	0	20	60	20	0	0	0	B	0.17	0.06
	8.50	2.82	-	0	30	30	40	0	0	0	B	0.08	0.47
	9.00	2.86	-	0	0	0	60	40	0	0	-	0.02	0.13
	9.50	2.79	-	0	0	0	60	40	0	0	-	0.02	0.00
RWE	9.95	-	-	-	-	-	-	-	-	-	-	-	-
	10.00	2.79	-	0	0	0	60	40	0	0	-	0.00	0.00
	10.50	2.80	-	0	0	0	60	40	0	0	-	0.00	0.00
	11.00	2.75	-	0	0	0	60	40	0	0	-	0.00	0.00
	11.50	2.81	-	0	0	0	60	40	0	0	-	0.01	0.00
	11.90	2.80	-	0	0	0	60	40	0	0	-	0.00	0.00
	12.00	2.81	-	0	0	0	0	0	100	0	-	0.00	0.00
	13.70	2.67	-	0	0	0	0	0	100	0	-	0.00	0.00
RBE	14.60	2.49	-	0	0	0	0	0	100	0	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		585-LWE,RWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	586-D,U
UTM	441061	6282322	**Roughness (m)**	0.12	**Model #**	2100	587-U,D
Date	11-Sep-10		**D95 (m)**	0.30	**Prop Size**	2"	588-RWE,LWE
Time	10:05		**Channel Slope (%)**	1.46	**Calibration**	603	
Crew	MS		**Bankfull Width (m)**	10.70			
Transect	19		**Wetted Width (m)**	9.90			
Width (m)	17.70						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	0.39	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	6.00	1.01	-	-	-	-	-	-	-	-	-	0.00	0.00
	6.70	1.42	-	0	0	10	70	0	20	0	-	0.00	0.00
LWE	6.80	-	-	-	-	-	-	-	-	-	-	-	-
	6.90	1.42	-	0	0	10	70	0	20	0	B	0.05	0.00
	7.30	1.30	-	0	0	10	70	0	20	0	B	0.07	0.20
	7.70	1.33	-	0	50	40	0	0	10	0	B	0.09	0.26
	8.10	1.64	-	0	50	40	0	0	10	0	B	0.12	0.25
	8.50	1.34	-	0	50	40	0	0	10	0	B	0.08	0.04
	8.90	1.28	-	0	50	40	0	0	10	0	B	0.00	0.00
	9.30	1.35	-	0	50	40	0	0	10	0	B	0.00	0.00
	9.70	1.39	-	0	50	40	0	0	10	0	B	0.20	0.00
	10.10	1.40	-	0	50	40	0	0	10	0	B	0.04	0.10
	10.50	1.39	-	0	50	40	0	0	10	0	B	0.00	0.00
	10.90	1.48	-	0	50	40	0	0	10	0	B	0.11	0.28
	11.30	1.36	-	0	50	40	0	0	10	0	B	0.05	0.31
	11.70	1.41	-	0	50	40	0	0	10	0	B	0.10	0.19
	12.10	1.40	-	0	60	0	40	0	0	0	B	0.20	0.05
	12.50	1.56	-	0	60	0	40	0	0	0	B	0.12	0.69
	12.90	1.55	-	0	60	0	40	0	0	0	B	0.22	0.23
	13.30	1.51	-	0	30	70	0	0	0	0	B	0.10	0.84
	13.70	1.78	-	0	30	70	0	0	0	0	B	0.34	1.85
	14.10	1.92	-	0	30	70	0	0	0	0	B	0.53	1.07
	14.50	1.94	-	0	70	30	0	0	0	0	B	0.55	1.90
	14.90	2.00	-	0	70	30	0	0	0	0	B	0.19	1.18
	15.30	2.15	-	0	70	30	0	0	0	0	OV,B	0.61	0.25
	15.70	1.84	-	0	50	50	0	0	0	0	OV,SWD,B	0.45	0.26
	16.10	1.81	-	0	50	50	0	0	0	0	OV,SWD,B	0.30	0.03
	16.50	0.68	-	0	50	50	0	0	0	0	OV,SWD,B	0.24	0.11
RWE	16.70	0.54	-	0	50	50	0	0	0	0	UC, B	0.00	0.00
RBE	16.90	0.45	-	0	50	50	0	0	0	0	UC, B	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		593-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	594-D,U
UTM	440983	6282429	**Roughness (m)**	0.20	**Model #**	2100	595-LWE,RWE
Date	11-Sep-10		**D95 (m)**	0.50	**Prop Size**	2"	596-U,D
Time	11:30		**Channel Slope (%)**	1.46	**Calibration**	611	
Crew	MS		**Bankfull Width (m)**	13.00			
Transect	20		**Wetted Width (m)**	11.45			
Width (m)	14.65						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	-	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.50	-	-	0	0	80	20	0	0	0	-	0.00	0.00
	1.30	-	-	0	0	80	20	0	0	0	-	0.00	0.00
	1.70	-	-	0	0	80	20	0	0	0	-	0.00	0.00
LWE	2.00	-	-	-	-	-	-	-	-	-	-	-	-
	2.05	-	-	0	0	80	20	0	0	0	OV,B	0.00	0.00
	2.20	-	-	0	0	80	20	0	0	0	OV,B	0.01	0.00
	2.70	-	-	0	0	80	20	0	0	0	OV,B	0.17	0.01
	3.20	-	-	0	0	80	20	0	0	0	OV,B	0.25	0.55
	3.70	-	-	0	0	80	20	0	0	0	B,OV	0.28	0.60
	4.20	-	-	0	0	80	20	0	0	0	OV,B	0.27	0.04
	4.70	-	-	0	0	80	20	0	0	0	B	0.16	0.68
	5.20	-	-	0	0	80	20	0	0	0	B	0.17	0.40
	5.70	-	-	0	0	80	20	0	0	0	B	0.21	0.38
	6.20	-	-	0	0	80	20	0	0	0	B	0.29	0.81
	6.70	-	-	0	70	30	0	0	0	0	B	0.44	0.73
	7.20	-	-	0	70	30	0	0	0	0	B	0.46	0.21
	7.70	-	-	0	70	30	0	0	0	0	B	0.40	1.12
	8.20	-	-	0	70	30	0	0	0	0	B	0.12	0.97
	8.70	-	-	0	70	30	0	0	0	0	B	0.41	0.09
	9.20	-	-	0	70	30	0	0	0	0	B	0.44	0.24
	9.70	-	-	0	70	30	0	0	0	0	B	0.28	0.36
	10.20	-	-	0	0	80	0	20	0	0	B	0.26	0.46
	10.70	-	-	0	50	50	0	0	0	0	B	0.18	0.48
	11.20	-	-	0	50	50	0	0	0	0	-	0.17	0.26
	11.70	-	-	0	100	0	0	0	0	0	-	0.00	0.00
	12.20	-	-	0	100	0	0	0	0	0	-	0.00	0.00
	12.70	-	-	0	50	0	50	0	0	0	B	0.07	0.52
	13.20	-	-	-	-	-	-	-	-	-	SWD,B	0.06	0.08
RWE	13.45	-	-	-	-	-	-	-	-	-	-	-	-
	13.50	-	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	13.80	-	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		589-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	590-D,U
UTM	441006	6282436	**Roughness (m)**	0.32	**Model #**	2100	591-LWE,RWE
Date	11-Sep-10		**D95 (m)**	0.70	**Prop Size**	2"	592-U,D
Time	10:55		**Channel Slope (%)**	1.46	**Calibration**	603	
Crew	MS		**Bankfull Width (m)**	20.70			
Transect	21		**Wetted Width (m)**	17.35			
Width (m)	21.50						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	1.27	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.40	1.59	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.00	2.45	-	-	-	-	-	-	-	-	-	0.00	0.00
LWE	1.20	-	-	-	-	-	-	-	-	-	-	-	-
	1.60	2.56	-	0	40	20	0	40	0	0	B	0.00	0.00
	1.90	2.68	-	0	40	20	0	40	0	0	B	0.00	0.00
	2.50	2.71	-	0	40	20	0	40	0	0	B	0.06	0.00
	3.30	2.84	-	0	0	90	10	0	0	0	B	0.12	0.09
	4.10	2.78	-	0	0	90	10	0	0	0	B	0.09	0.27
	4.90	2.89	-	0	0	90	10	0	0	0	B	0.15	0.61
	5.70	2.86	-	0	50	50	0	0	0	0	B	0.30	0.11
	6.50	2.67	-	0	50	50	0	0	0	0	B	0.08	0.31
	7.30	2.84	-	0	50	50	0	0	0	0	B	0.19	0.76
	8.10	2.97	-	0	50	50	0	0	0	0	B	0.28	0.67
	8.90	2.90	-	0	50	50	0	0	0	0	-	0.37	0.73
	9.70	2.87	-	0	0	60	40	0	0	0	-	0.27	0.84
	10.50	2.85	-	0	0	60	40	0	0	0	B	0.24	0.65
	11.30	2.85	-	0	0	60	40	0	0	0	B	0.22	0.41
	12.10	2.57	-	0	0	60	40	0	0	0	-	0.17	0.45
	12.90	2.66	-	0	0	60	40	0	0	0	-	0.07	0.05
	13.70	2.55	-	0	0	0	0	40	60	0	-	0.00	0.00
	14.50	2.48	-	0	0	0	0	40	60	0	-	0.00	0.00
	15.30	2.46	-	0	0	0	0	40	60	0	-	0.00	0.00
	16.10	2.50	-	0	0	0	20	80	0	0	-	0.00	0.00
	16.90	2.51	-	0	0	0	20	80	0	0	-	0.03	0.13
	17.70	2.50	-	0	0	0	20	80	0	0	-	0.00	0.00
	18.50	2.50	-	0	0	0	20	80	0	0	OV	0.02	0.00
	19.30	2.60	-	0	0	0	20	80	0	0	LWD,OV	0.02	0.19
	20.20	2.18	-	0	0	0	20	80	0	0	LWD,OV	0.01	0.00
RWE	20.30	-	-	-	-	-	-	-	-	-	-	-	-
	20.60	1.76	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	21.00	1.60	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.2-1. Instream Flow Data, 2010

General			Channel		Flow Meter		Photos
Stream Name	South Teigen		**Hydraulic Unit Type**	Cascade	**Type**		597-RWE,LWE
ILP	1001		**Channel Type**	CP	**Make**	SWOFFER	599/598-D,U
UTM	440952	6282475	**Roughness (m)**	0.17	**Model #**	2100	600-LWE,RWE
Date	11-Sep-10		**D95 (m)**	0.45	**Prop Size**	2"	601-U,D
Time	12:20		**Channel Slope (%)**	1.46	**Calibration**	603	
Crew	MS		**Bankfull Width (m)**	17.40			
Transect	22		**Wetted Width (m)**	14.60			
Width (m)	13.75						

Station		Elevation Survey		Substrate (%)								Depth-Velocity	
Station	**Distance (m)**	**OBS Elev (m)**	**Elev (m)**	**R**	**B**	**LC**	**SC**	**LG**	**SG**	**F**	**Cover**	**Depth (m)**	**Velocity 0.4d (m/s)**
BM	-	2.31	-	-	-	-	-	-	-	-	-	-	-
PIN	0.00	-	-	-	-	-	-	-	-	-	-	-	-
LBE	0.60	2.48	-	-	-	-	-	-	-	-	-	0.00	0.00
	1.00	3.64	-	0	0	0	0	0	0	100	LWD	0.00	0.00
LWE	1.25	-	-	-	-	-	-	-	-	-	-	-	-
	1.80	3.78	-	0	0	0	0	0	0	100	LWD	0.04	0.00
	2.60	3.85	-	0	0	0	100	0	0	0	-	0.06	0.31
	3.40	3.88	-	0	0	0	100	0	0	0	-	0.14	0.92
	4.20	4.03	-	0	0	0	100	0	0	0	-	0.32	1.08
	5.00	3.96	-	0	0	60	40	0	0	0	-	0.19	0.98
	5.80	4.17	-	0	0	60	40	0	0	0	-	0.28	0.99
	6.60	4.10	-	0	20	0	80	0	0	0	B	0.24	0.02
	7.40	3.97	-	0	0	20	80	0	0	0	-	0.26	0.41
	8.20	3.97	-	0	0	20	80	0	0	0	-	0.33	0.38
	9.00	4.10	-	0	40	60	0	0	0	0	B	0.27	0.89
	9.80	3.90	-	0	40	60	0	0	0	0	B	0.14	0.35
	10.60	3.66	-	0	40	60	0	0	0	0	B	0.00	0.00
	11.40	3.74	-	0	40	60	0	0	0	0	B	0.12	0.39
	12.20	3.43	-	0	100	0	0	0	0	0	B	0.00	0.00
	13.00	3.52	-	0	100	0	0	0	0	0	B	0.00	0.00
	13.80	3.64	-	0	60	0	40	0	0	0	B	0.00	0.00
	14.60	3.66	-	0	60	0	40	0	0	0	B	0.06	0.00
RWE	15.00	-	-	-	-	-	-	-	-	-	-	-	-
	15.20	3.44	-	0	60	0	40	0	0	0	B	0.00	0.00
	15.90	3.40	-	-	-	-	-	-	-	-	-	0.00	0.00
	16.90	3.29	-	-	-	-	-	-	-	-	-	0.00	0.00
RBE	17.40	3.16	-	-	-	-	-	-	-	-	-	0.00	0.00
PIN	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 5.3-1

South Teigen Creek Electrofishing Effort and Catch Data, 2010

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Appendix 5.3-1. South Teigen Creek Electrofishing Effort and Catch Data, 2010

Stream	Site Name	Sample Event #	DATE	MTD	TIME IN	TIME OUT	EF SECONDS	LENGTH	WIDTH	ENCL
South Teigen Creek	Cell 6	1	13-Sep-10	EF	14:00	15:45	1470	200	13	N
South Teigen Creek	Cell 6	2	14-Sep-10	EF	13:30	15:00	1466	200	13	N
South Teigen Creek	Cell 8	1	16-Sep-10	EF	11:00	12:20	906	180	10	N
South Teigen Creek	Cell 10	1	16-Sep-10	EF	8:20	10:00	1021	200	8	N
South Teigen Creek	Cell 2	1	13-Sep-10	EF	10:45	15:00	1500	200	12	N
South Teigen Creek	Cell 2	2	14-Sep-10	EF	8:30	10:34	1416	200	12	N
South Teigen Creek	Cell 4	1	13-Sep-10	EF	11:15	13:30	1219	200	14	N
South Teigen Creek	Cell 4	2	14-Sep-10	EF	11:00	12:40	1200	200	14	N

				Species Catch				DV Life Stage Catch		
Stream	VOLTAGE	FREQ	Pulse	DV	BT	RB	MW	Fry	Parr	Adult/Sub-Adult
South Teigen Creek	320	30	12	9	0	0	0	0	5	4
South Teigen Creek	290	30	12	14	0	0	0	0	8	6
South Teigen Creek	335	30	12	6	1	0	0	0	4	2
South Teigen Creek	355	30	12	15	0	0	0	3	11	1
South Teigen Creek	280-300	30	12	8	0	1	1	0	5	3
South Teigen Creek	290	30	12	16	0	0	0	0	8	8
South Teigen Creek	295	30	12	18	0	2	0	2	8	8
South Teigen Creek	290	30	12	15	0	0	0	1	6	8

EF = electrofishing

DV = Dolly Varden

RB = rainbow trout

BT = bull trout

MW = mountain whitefish

Appendix 5.3-2

South Teigen Creek Electrofishing Site Location Data, 2010

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Appendix 5.3-2. South Teigen Creek Electrofishing Site Location Data, 2010

Stream	Site Name	Sample Event #	DATE	Start UTM Easting	Start UTM Northing	End UTM Easting	End UTM Northing	Temp (°C)	Conductivity (µs/cm)	Turb.
South Teigen Creek	Cell 6	1	13-Sep-10	440993	6283164	441066	6282992	5	UNK	M
South Teigen Creek	Cell 6	2	14-Sep-10	440993	6283164	441066	6282992	6	UNK	M
South Teigen Creek	Cell 8	1	16-Sep-10	440984	6282658	440991	6282820	4	UNK	L
South Teigen Creek	Cell 10	1	16-Sep-10	441031	6282300	440979	6282459	4	UNK	L
South Teigen Creek	Cell 2	1	13-Sep-10	440794	6283867	440812	6283670	4	UNK	M
South Teigen Creek	Cell 2	2	14-Sep-10	440794	6283867	440812	6283670	4	UNK	M
South Teigen Creek	Cell 4	1	13-Sep-10	440879	6283524	440943	6283299	5	UNK	M
South Teigen Creek	Cell 4	2	14-Sep-10	440879	6283524	440943	6283299	4	UNK	M

M = moderately turbid

L = lightly turbid

UNK = unknown

Appendix 5.3-3

South Teigen Creek Biological Fish Data, 2010

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Appendix 5.3-3 South Teigen Creek Biological Fish Data, 2010

Stream	Site Name	Sample Event #	DATE	Species	Length (mm)	Maturity	Recapture (Y or N)
South Teigen Creek	Cell 6	1	13-Sep-10	DV	160	A	N
South Teigen Creek	Cell 6	1	13-Sep-10	DV	115	A	N
South Teigen Creek	Cell 6	1	13-Sep-10	DV	55	P	N
South Teigen Creek	Cell 6	1	13-Sep-10	DV	60	P	N
South Teigen Creek	Cell 6	1	13-Sep-10	DV	60	P	N
South Teigen Creek	Cell 6	1	13-Sep-10	DV	60	P	N
South Teigen Creek	Cell 6	1	13-Sep-10	DV	110	A	N
South Teigen Creek	Cell 6	1	13-Sep-10	DV	140	A	N
South Teigen Creek	Cell 6	1	13-Sep-10	DV	50	P	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	55	P	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	110	A	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	115	A	Y
South Teigen Creek	Cell 6	2	14-Sep-10	DV	110	A	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	55	P	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	50	P	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	60	P	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	50	P	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	125	A	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	60	P	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	110	A	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	60	P	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	55	P	N
South Teigen Creek	Cell 6	2	14-Sep-10	DV	150	A	N
South Teigen Creek	Cell 8	1	16-Sep-10	DV	50	P	-
South Teigen Creek	Cell 8	1	16-Sep-10	DV	105	A	-
South Teigen Creek	Cell 8	1	16-Sep-10	DV	55	P	-
South Teigen Creek	Cell 8	1	16-Sep-10	DV	55	P	-
South Teigen Creek	Cell 8	1	16-Sep-10	DV	115	A	-
South Teigen Creek	Cell 8	1	16-Sep-10	DV	50	P	-
South Teigen Creek	Cell 8	1	16-Sep-10	BT	550	A	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	145	A	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	55	P	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	52	P	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	40	F	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	55	P	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	50	P	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	55	P	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	52	P	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	60	P	-

DV = Dolly Varden

RB = rainbow trout

BT = bull trout

MW = mountain whitefish

A = adult

F = fry

P = Parr

Appendix 5.3-3 South Teigen Creek Biological Fish Data, 2010

Stream	Site Name	Sample Event #	DATE	Species	Length (mm)	Maturity	Recapture (Y or N)
South Teigen Creek	Cell 10	1	16-Sep-10	DV	45	F	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	50	P	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	57	P	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	58	P	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	45	F	-
South Teigen Creek	Cell 10	1	16-Sep-10	DV	50	P	-
South Teigen Creek	Cell 2	1	13-Sep-10	DV	85	P	-
South Teigen Creek	Cell 2	1	13-Sep-10	RB	140	A	-
South Teigen Creek	Cell 2	1	13-Sep-10	DV	145	A	-
South Teigen Creek	Cell 2	1	13-Sep-10	DV	105	A	-
South Teigen Creek	Cell 2	1	13-Sep-10	DV	60	P	-
South Teigen Creek	Cell 2	1	13-Sep-10	DV	50	P	-
South Teigen Creek	Cell 2	1	13-Sep-10	MW	190	A	-
South Teigen Creek	Cell 2	1	13-Sep-10	DV	110	A	-
South Teigen Creek	Cell 2	1	13-Sep-10	DV	55	P	-
South Teigen Creek	Cell 2	1	13-Sep-10	DV	50	P	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	105	A	Y
South Teigen Creek	Cell 2	2	14-Sep-10	MW	130	A	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	100	A	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	120	A	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	57	P	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	55	P	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	58	P	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	110	A	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	55	P	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	115	A	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	55	P	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	55	P	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	110	A	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	60	P	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	95	A	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	60	P	-
South Teigen Creek	Cell 2	2	14-Sep-10	DV	110	A	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	105	A	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	55	P	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	45	F	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	45	F	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	60	P	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	55	P	-

DV = Dolly Varden

RB = rainbow trout

BT = bull trout

MW = mountain whitefish

A = adult

F = fry

P = Parr

Appendix 5.3-3 South Teigen Creek Biological Fish Data, 2010

Stream	Site Name	Sample Event #	DATE	Species	Length (mm)	Maturity	Recapture (Y or N)
South Teigen Creek	Cell 4	1	13-Sep-10	DV	105	A	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	55	P	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	235	A	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	90	A	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	90	A	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	50	P	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	55	P	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	100	A	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	55	P	-
South Teigen Creek	Cell 4	1	13-Sep-10	RB	130	A	-
South Teigen Creek	Cell 4	1	13-Sep-10	RB	150	A	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	100	A	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	50	P	-
South Teigen Creek	Cell 4	1	13-Sep-10	DV	90	A	-
South Teigen Creek	Cell 4	2	14-Sep-10	DV	62	P	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	35	F	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	58	P	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	55	P	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	55	P	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	105	A	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	55	P	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	48	P	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	100	A	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	90	A	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	108	A	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	105	A	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	170	A	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	110	A	N
South Teigen Creek	Cell 4	2	14-Sep-10	DV	110	A	N

DV = Dolly Varden

RB = rainbow trout

BT = bull trout

MW = mountain whitefish

A = adult

F = fry

P = Parr

Appendix 5.4-1

Aerial Fish Count Spawning Survey for Teigen Creek, 2010

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Appendix 5.4-1. Aerial Fish Count Spawning Survey for Teigen Creek, 2010

Stream Name	Survey Date (d/m/y)	Survey Start Time	Survey End Time	Water Clarity	Weather	Precipitation	Species	Cell Count 1	2	3 to 3.5	3.5 to 4	4
Teigen Creek	4/8/2010	14:00	14:30	Lightly Turbid	Partly Cloudy	No Rain	Chinook	-	-	-	15	0
Teigen Creek	9/8/2010	8:10	9:10	Moderately Turbid	Partly Cloudy	No Rain	Chinook	-	-	-	10	8
Teigen Creek	15/8/2010	13:00	14:15	Lightly Turbid	Sunny	No Rain	Chinook	-	-	-	104	61
Teigen Creek	19/10/2010	15:00	15:45	Moderately Turbid	Partly Cloudy	No Rain	Coho	-	-	-	0	0

Stream Name	Survey Date (d/m/y)	Cell Count 5	6	7	8	9	10	11	12	13	14	15
Teigen Creek	4/8/2010	5	0	0	0	0	0	0	0	0	4	0
Teigen Creek	9/8/2010	1	6	1	4	5	2	12	4	9	8	2
Teigen Creek	15/8/2010	15	17	0	4	8	17	20	9	27	12	15
Teigen Creek	19/10/2010	0	2*	0	2*	1*	0	0	0	0	0	0

Stream Name	Survey Date (d/m/y)	Cell Count 16	21	22	23	24	25	26	27	Total
Teigen Creek	4/8/2010	0	0	0	0	0	0	0	0	24
Teigen Creek	9/8/2010	1	0	1	0	1	0	0	0	75
Teigen Creek	15/8/2010	7	0	0	0	1	0	0	4	329
Teigen Creek	19/10/2010	0	0	0	0	0	0	0	0	5

** Located in tributary of mainstem*

Appendix 5.4-2

Ground-truthed Fish Count Spawning Survey for Teigen Creek, 2010

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Appendix 5.4-2. Ground-truthed Fish Count Spawning Survey for Teigen Creek, 2010

Stream Name	Survey Date (d/m/y)	Survey Start Time	Survey End Time	Water Clarity	Weather	Precipitation	Species	3.5 to 4	4	5	6	7
Teigen Creek	4/8/2010	15:00	18:30	Lightly Turbid	Partly Cloudy	No Rain	Chinook	-	-	-	-	-
Teigen Creek	9/8/2010	11:00	17:00	Lightly Turbid	Partly Cloudy	No Rain	Chinook	-	-	-	-	-
Teigen Creek	10/8/2010	10:00	17:30	Lightly Turbid	Cloudy	No Rain	Chinook	56	41	35	20	10
Teigen Creek	14/8/2010	9:45	17:00	Moderately Turbid	Sunny	No Rain	Chinook	67	60	36	15	6
Teigen Creek	15/8/2010	9:10	16:00	Lightly Turbid	Sunny	No Rain	Chinook	-	-	-	-	-
Teigen Creek	9/9/2010	8:00	15:00	Lightly Turbid	Partly Cloudy	Light Rain	Chinook	-	-	-	-	-
Teigen Creek	10/9/2010	8:00	15:00	Lightly Turbid	Cloudy	Light Rain	Chinook	0	0	0	0	0
Teigen Creek	28/04/2010	10:00	14:00	Clear	Cloudy	No Rain	Steelhead	-	-	-	-	-
Teigen Creek	30/04/2010	10:00	13:00	Clear	Cloudy	No Rain	Steelhead	-	-	-	0	0
Teigen Creek	16/10/2010	9:30	13:00	Moderately Turbid	Cloudy	Light Rain	Coho	0	0	4	0	0
Teigen Creek	17/10/2010	9:30	13:00	Moderately Turbid	Cloudy	Light Rain	Coho	-	-	-	-	-

Stream Name	Survey Date (d/m/y)	8	9	10 to 10.5	10. 5 to 11	11	12	13	14	15	16	Total
Teigen Creek	4/8/2010	-	-	-	0	2	0	2	2	0	0	6
Teigen Creek	9/8/2010	-	-	-	2	25	13	13	16	5	0	74
Teigen Creek	10/8/2010	11	8	0	-	-	-	-	-	-	-	181
Teigen Creek	14/8/2010	2	9	0	-	-	-	-	-	-	-	195
Teigen Creek	15/8/2010	-	-	-	5	31	0	29	20	3	2	90
Teigen Creek	9/9/2010	-	-	-	0	0	0	0	0	0	0	0
Teigen Creek	10/9/2010	0	0	0	-	-	-	-	-	-	-	0
Teigen Creek	28/04/2010	-	-	-	0	0	0	0	0	-	-	0
Teigen Creek	30/04/2010	0	0	0	-	-	-	-	-	-	-	0
Teigen Creek	16/10/2010	0	0	0	-	-	-	-	-	-	-	4
Teigen Creek	17/10/2010	-	-	-	0	4	0	0	0	0	0	4

Appendix 5.4-3

Ground-truthed Redd Spawning Survey for Teigen Creek, 2010

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Appendix 5.4-3. Ground-truthed Redd Spawning Survey for Teigen Creek, 2010

Stream Name	Survey Date (d/m/y)	Survey Start Time	Survey End Time	Water Clarity	Weather	Precipitation	Water Temp	Air Temp	Species	Cell Redd Count 3.5 to 4	4	5	6
Teigen Creek	4/8/2010	15:00	18:30	Lightly Turbid	Partly Cloudy	No Rain	10	15	Chinook	-	-	-	-
Teigen Creek	9/8/2010	11:00	17:00	Lightly Turbid	Partly Cloudy	No Rain	10	15	Chinook	-	-	-	-
Teigen Creek	10/8/2010	10:00	17:30	Lightly Turbid	Cloudy	No Rain	10	20	Chinook	X	X	X	X
Teigen Creek	14/8/2010	9:45	17:00	Moderately Turbid	Sunny	No Rain	12	25	Chinook	X	X	X	X
Teigen Creek	15/8/2010	9:10	16:00	Lightly Turbid	Sunny	No Rain	13	25	Chinook	-	-	-	-
Teigen Creek	9/9/2010	8:00	15:00	Lightly Turbid	Partly Cloudy	Light Rain	9	9	Chinook	-	-	-	-
Teigen Creek	10/9/2010	8:00	15:00	Lightly Turbid	Cloudy	Light Rain	9	9	Chinook	0	0	0	0
Teigen Creek	28/04/2010	10:00	14:00	Clear	Cloudy	No Rain	4	-	Steelhead	-	-	-	-
Teigen Creek	30/04/2010	10:00	13:00	Clear	Cloudy	No Rain	4	-	Steelhead	-	-	-	0
Teigen Creek	16/10/2010	9:30	13:00	Moderately Turbid	Cloudy	Light Rain	4	5	Coho	0	0	2	0
Teigen Creek	17/10/2010	9:30	13:00	Moderately Turbid	Cloudy	Light Rain	4	5	Coho	-	-	-	-

Stream Name	Survey Date (d/m/y)	Cell Redd Count 7	8	9	10 to 10.5	10. 5 to 11	11	12	13	14	15	16	Total
Teigen Creek	4/8/2010	-	-	-	-	X	X	X	X	X	X	X	0
Teigen Creek	9/8/2010	-	-	-	-	X	X	X	X	X	X	X	7
Teigen Creek	10/8/2010	X	X	X	X	-	-	-	-	-	-	-	34
Teigen Creek	14/8/2010	X	X	X	X	-	-	-	-	-	-	-	52
Teigen Creek	15/8/2010	-	-	-	-	X	X	X	X	X	X	X	60
Teigen Creek	9/9/2010	-	-	-	-	0	0	0	0	0	0	0	0
Teigen Creek	10/9/2010	0	0	0	0								0
Teigen Creek	28/04/2010	-	-	-	-	0	0	0	0	0	-	-	0
Teigen Creek	30/04/2010	0	0	0	0	-	-	-	-	-	-	-	0
Teigen Creek	16/10/2010	0	0	0	0	-	-	-	-	-	-	-	2
Teigen Creek	17/10/2010	-	-	-	-	0	2	0	0	0	0	0	2

X' indicates cell sampled, refer to Figure 5.4-1 for location of redds

Appendix 5.4-4

Ground-truthed Redd Locations for Teigen Creek, 2010

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Appendix 5.4-4. Ground-truthed Redd Locations for Teigen Creek, 2010

Waterbody	Date (d/m/y)	Species	Redd #	Redd Count	Number of Fish On Redd	Redd Age	UTM		
Teigen Creek	9/8/2010	Chinook	1	1	0	1	9 V	440528	6283803
Teigen Creek	9/8/2010	Chinook	2	1	1	1	9 V	437426	6283293
Teigen Creek	9/8/2010	Chinook	3	1	0	1	9 V	437426	6283293
Teigen Creek	9/8/2010	Chinook	4	1	2	1	9 V	437771	6282992
Teigen Creek	9/8/2010	Chinook	5	1	2	1	9 V	438205	6282673
Teigen Creek	9/8/2010	Chinook	6	1	3	1	9 V	438629	6282786
Teigen Creek	9/8/2010	Chinook	7	1	2	1	9 V	439406	6282877
Teigen Creek	10/8/2010	Chinook	8	1	3	1	9 V	441182	6285272
Teigen Creek	10/8/2010	Chinook	9	1	2	1	9 V	441226	6285383
Teigen Creek	10/8/2010	Chinook	10	1	4	1	9 V	441997	6287044
Teigen Creek	10/8/2010	Chinook	11	1	2	1	9 V	442173	6287601
Teigen Creek	10/8/2010	Chinook	12	1	3	1	9 V	442402	6287752
Teigen Creek	10/8/2010	Chinook	13	1	4	1	9 V	442432	6287747
Teigen Creek	10/8/2010	Chinook	14	1	3	1	9 V	442885	6288312
Teigen Creek	10/8/2010	Chinook	15	1	2	1	9 V	442982	6288529
Teigen Creek	10/8/2010	Chinook	21	1	3	1	9 V	443142	6288829
Teigen Creek	10/8/2010	Chinook	22	1	3	1	9 V	443300	6288867
Teigen Creek	10/8/2010	Chinook	23	1	3	1	9 V	443536	6288868
Teigen Creek	10/8/2010	Chinook	24	1	3	1	9 V	443601	6288868
Teigen Creek	10/8/2010	Chinook	25	1	0	1	9 V	443601	6288868
Teigen Creek	10/8/2010	Chinook	26	1	3	1	9 V	443902	6288793
Teigen Creek	10/8/2010	Chinook	27	1	1	1	9 V	443902	6288793
Teigen Creek	10/8/2010	Chinook	28	10	30	1	9 V	444026	6288785
Teigen Creek	10/8/2010	Chinook	29	2	1	1	9 V	444070	6288774
Teigen Creek	10/8/2010	Chinook	30	2	5	1	9 V	444141	6288761
Teigen Creek	10/8/2010	Chinook	16 - 20	5	6	1	9 V	442982	6288529
Teigen Creek	15/8/2010	Chinook	1	1	3	1	9 V	440528	6283803
Teigen Creek	15/8/2010	Chinook	1	1	0	2	9 V	440528	6283803
Teigen Creek	15/8/2010	Chinook	4	1	5	2	9 V	437771	6282992
Teigen Creek	15/8/2010	Chinook	4	2	0	1	9 V	437771	6282992
Teigen Creek	15/8/2010	Chinook	5	1	4	2	9 V	438205	6282673
Teigen Creek	15/8/2010	Chinook	5	2	0	1	9 V	438205	6282673
Teigen Creek	15/8/2010	Chinook	6	3	4	1	9 V	438629	6282786
Teigen Creek	15/8/2010	Chinook	6	1	4	2	9 V	438629	6282786
Teigen Creek	15/8/2010	Chinook	64	4	2	1	9 V	437484	6283233
Teigen Creek	15/8/2010	Chinook	65	1	3	1	9 V	437741	6283034
Teigen Creek	15/8/2010	Chinook	66	1	2	1	9 V	438352	6282659
Teigen Creek	15/8/2010	Chinook	67	2	1	1	9 V	438394	6282662
Teigen Creek	15/8/2010	Chinook	68	2	4	1	9 V	438719	6282764
Teigen Creek	15/8/2010	Chinook	76	3	4	1	9 V	438763	6282620
Teigen Creek	15/8/2010	Chinook	77	1	2	1	9 V	443677	6288687
Teigen Creek	15/8/2010	Chinook	78	3	5	1	9 V	440586	6283841
Teigen Creek	15/8/2010	Chinook	79	1	1	1	9 V	440546	6283783
Teigen Creek	15/8/2010	Chinook	80	4	4	1	9 V	440432	6283551
Teigen Creek	15/8/2010	Chinook	81	1	2	1	9 V	440396	6283526
Teigen Creek	15/8/2010	Chinook	82	2	2	1	9 V	440345	6283427
Teigen Creek	15/8/2010	Chinook	83	3	3	1	9 V	440319	6283328

Appendix 5.4-4. Ground-truthed Redd Locations for Teigen Creek, 2010

Waterbody	Date (d/m/y)	Species	Redd #	Redd Count	Number of Fish On Redd	Redd Age	UTM		
Teigen Creek	15/8/2010	Chinook	84	1	2	1	9 V	440300	6283301
Teigen Creek	15/8/2010	Chinook	85	3	1	1	9 V	440215	6283295
Teigen Creek	15/8/2010	Chinook	87	3	4	1	9 V	440080	6283257
Teigen Creek	15/8/2010	Chinook	88	1	2	1	9 V	440016	6283203
Teigen Creek	15/8/2010	Chinook	89	3	1	1	9 V	439882	6283147
Teigen Creek	15/8/2010	Chinook	120	7	5	1	9 V	438226	6282641
Teigen Creek	15/8/2010	Chinook	2-3	2	1	2	9 V	437426	6283293
Teigen Creek	15/8/2010	Chinook	69-75	6	5	1	9 V	438731	6282713
Teigen Creek	14/8/2010	Chinook	8	1	0	2	9 V	441186	6285275
Teigen Creek	14/8/2010	Chinook	9	1	0	2	9 V	441226	6285383
Teigen Creek	14/8/2010	Chinook	10	1	0	2	9 V	441997	6287044
Teigen Creek	14/8/2010	Chinook	11	1	0	2	9 V	442173	6287601
Teigen Creek	14/8/2010	Chinook	11	5	6	1	9 V	442173	6287601
Teigen Creek	14/8/2010	Chinook	12	1	2	2	9 V	442402	6287752
Teigen Creek	14/8/2010	Chinook	13	1	2	2	9 V	442432	6287747
Teigen Creek	14/8/2010	Chinook	14	1	2	2	9 V	442885	6288312
Teigen Creek	14/8/2010	Chinook	14	1	2	1	9 V	442885	6288312
Teigen Creek	14/8/2010	Chinook	21	1	8	2	9 V	443142	6288829
Teigen Creek	14/8/2010	Chinook	22	1	1	2	9 V	443300	6288867
Teigen Creek	14/8/2010	Chinook	28	10	42	2	9 V	444026	6288785
Teigen Creek	14/8/2010	Chinook	28	5	0	1	9 V	444026	6288785
Teigen Creek	14/8/2010	Chinook	29	2	7	2	9 V	444070	6288774
Teigen Creek	14/8/2010	Chinook	29	4	0	1	9 V	444070	6288774
Teigen Creek	14/8/2010	Chinook	30	2	13	2	9 V	444141	6288761
Teigen Creek	14/8/2010	Chinook	30	3	0	1	9 V	444141	6288761
Teigen Creek	14/8/2010	Chinook	31	1	0	1	9 V	441103	6285245
Teigen Creek	14/8/2010	Chinook	32	1	3	1	9 V	441103	6285245
Teigen Creek	14/8/2010	Chinook	33	1	4	1	9 V	441786	6286412
Teigen Creek	14/8/2010	Chinook	34	1	2	1	9 V	441786	6286412
Teigen Creek	14/8/2010	Chinook	35	1	6	1	9 V	442073	6287252
Teigen Creek	14/8/2010	Chinook	36	1	1	1	9 V	442173	6287601
Teigen Creek	14/8/2010	Chinook	43	1	2	1	9 V	442780	6287933
Teigen Creek	14/8/2010	Chinook	44	3	4	1	9 V	443533	6288877
Teigen Creek	14/8/2010	Chinook	44	1	0	1	9 V	443533	6288877
Teigen Creek	14/8/2010	Chinook	50	1	1	1	9 V	443616	6288831
Teigen Creek	14/8/2010	Chinook	51	2	2	1	9 V	443618	6288803
Teigen Creek	14/8/2010	Chinook	52	2	2	1	9 V	443598	6288793
Teigen Creek	14/8/2010	Chinook	60	1	1	1	9 V	443845	6288741
Teigen Creek	14/8/2010	Chinook	61	1	2	1	9 V	443885	6288779
Teigen Creek	14/8/2010	Chinook	15-20	6	20	2	9 V	442982	6288529
Teigen Creek	14/8/2010	Chinook	26-27	2	2	2	9 V	443902	6288793
Teigen Creek	14/8/2010	Chinook	37-40	4	11	1	9 V	442706	6287853
Teigen Creek	14/8/2010	Chinook	41-42	2	4	1	9 V	442754	6287909
Teigen Creek	14/8/2010	Chinook	45-49	5	7	1	9 V	443599	6288873
Teigen Creek	14/8/2010	Chinook	53-57	5	8	1	9 V	443599	6288765

Appendix 5.4-5

Snorkel Redd Spawning Survey Data for Teigen, South Teigen and North Treaty Creeks, 2010

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Appendix 5.4-5. Snorkel Redd Spawning Survey Data for Teigen, South Teigen and North Treaty Creeks, 2010

Stream Name	Survey Date (d/m/y)	Section	Survey #	Survey Start Time	Survey End Time	Start Location	End Location
Teigen Creek	16/9/2010	1	2	7:40	16:00	Km 16.5	Downstream to km 10.5
Teigen Creek	17/9/2010	2	2	9:00	16:00	Km 10.5	Downstream to km 7
Teigen Creek	17/9/2010	3	2	9:00	16:00	Km 7	Downstream to km 3.5 (Snowbank Creek Confluence)
Teigen Creek	11/9/2010	3	1	9:00	16:00	Km 7	Downstream to km 3.5 (Snowbank Creek Confluence)
Teigen Creek	12/9/2010	1	1	8:25	17:00	Km 16.5	Downstream to km 10.5
Teigen Creek	15/9/2010	2	1	8:25	17:00	Km 10.5	Downstream to km 7
South Teigen Creek	16/9/2010	1	1	9:00	12:00	Teigen Creek Confluence	Upstream to Falls
North Treaty Creek	18/9/2010	1	1	8:50	10:00	Treaty Creek Confluence	Upstream to 1.5 km

Stream Name	Survey Date (d/m/y)	Water Clarity	Weather	Precipitation	Water Temp	Air Temp	# Redds Observed
Teigen Creek	16/9/2010	Clear	Sunny	None	6	5	0
Teigen Creek	17/9/2010	Clear	Sunny	None	7	5	0
Teigen Creek	17/9/2010	Clear	Sunny	None	7	5	0
Teigen Creek	11/9/2010	Clear	Sunny	None	7	5	0
Teigen Creek	12/9/2010	Lightly Turbid	Sunny	None	7	8	0
Teigen Creek	15/9/2010	Lightly Turbid	Sunny	None	7	8	0
South Teigen Creek	16/9/2010	Lightly Turbid	Sunny	None	7	9	0
North Treaty Creek	18/9/2010	Lightly Turbid	Sunny	None	7	9	0

Appendix 5.4-6

Snorkel Bull Trout Potential Redd Locations for Teigen and South Teigen Creeks, 2010

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Appendix 5.4-6. Snorkel Bull Trout Potential Redd Locations for Teigen and South Teigen Creeks, 2010

Survey Date	Section	Survey #	Site #	Snorkel Habitat	Easting	Northing
12/9/2010	1	1	3	Pool	436622	6284057
12/9/2010	1	1	7	Pool	436684	6283852
12/9/2010	1	1	19	Run	438038	6282788
12/9/2010	1	1	21	Glide	438223	6282633
12/9/2010	1	1	23	Pool	438380	6282657
16/9/2010	1	2	31	Pool	436684	6283852
16/9/2010	1	2	36	Glide	437208	6283429
16/9/2010	1	2	40	Run	437599	6283224
16/9/2010	1	2	46	Pool	438335	6282654
16/9/2010	1	2	95	Pool	438582	6282643
16/9/2010	1	2	51	Pool	438771	6282639
16/9/2010	1	2	52	Run	439073	6282619
16/9/2010	1	2	112	Pool	440125	6283293
16/9/2010	1	2	120	Pool	440628	6283956
15/9/2010	2	1	30	Run	442850	6288111
15/9/2010	2	1	32	Run	442934	6288433
17/9/2010	2	2	63	Run	441223	6285684
17/9/2010	2	2	131	Pool	443611	6288802
11/9/2010	3	1	16	Pool	443868	6288749
11/9/2010	3	1	19	Riffle	443986	6288826
17/9/2010	3	2	75	Run	442158	6287574
17/9/2010	3	2	85	Riffle	442934	6288433
17/9/2010	3	2	41	Run	443012	6288630
17/9/2010	3	2	62	Pool	443117	6288792
17/9/2010	3	2	71	Pool	443156	6288813
17/9/2010	3	2	201	Run	443257	6288866
17/9/2010	3	2	11	Pool	443466	6288842
17/9/2010	3	2	21	Run	444048	6288790
17/9/2010	3	2	22	Run	444076	6288768

Appendix 5.4-7

Snorkel Redd Spawning Survey Habitat and Fish Count Data for Teigen, South Teigen and North Treaty Creeks, 2010

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Appendix 5.4-7. Snorkel Redd Spawning Survey Habitat and Fish Count Data for Teigen, South Teigen and North Treaty Creeks, 2010

						Habitat Type UTM			Habitat Unit Width (m)				# Observed					
Stream Name	Survey Date (d/m/y)	Section	Survey #	Site #	Snorkel Habitat Type (Pool/Riffle/Run/Glide)	Easting	Northing	Habitat Unit Length (m)	1	2	3	Max Depth (m)	Bull Trout	Mountain Whitefish	Rainbow Trout / Steelhead	Coho Salmon	Sockeye Salmon	Chinook Salmon
Teigen Creek	16/9/2010	1	2	26	Glide	436600	6284073	15	4	7	9	0.5						
Teigen Creek	16/9/2010	1	2	27	Pool	436622	6284057	5	1.3	2	3	0.35	1					
Teigen Creek	16/9/2010	1	2	28	Pool	436623	6284046	6	2.2	3	5	0.55						
Teigen Creek	16/9/2010	1	2	29	Glide	436607	6283994	13	5	3	2	0.4						
Teigen Creek	16/9/2010	1	2	86	Pool	436615	6283925	18	12	9	8	1	1					
Teigen Creek	16/9/2010	1	2	30	Glide	436671	6283861	18	6	8	11	0.35						
Teigen Creek	16/9/2010	1	2	31	Pool	436684	6283852	20	4	3	4	0.5	2		2			
Teigen Creek	16/9/2010	1	2	32	Pool	436845	6283744	7	4	4.2	3	0.48						
Teigen Creek	16/9/2010	1	2	33	Riffle	436886	6283695	20	2	1.6	2	0.65						
Teigen Creek	16/9/2010	1	2	34	Pool	437091	6283553	20	15	6	11	1.2	1	2		1		
Teigen Creek	16/9/2010	1	2	35	Run	437204	6283478	10	8	9	8	0.7	1					
Teigen Creek	16/9/2010	1	2	36	Glide	437208	6283429	21	10	9	13	1	2					
Teigen Creek	16/9/2010	1	2	37	Glide	437274	6283392	20	8	9	6	0.75	1	1				
Teigen Creek	16/9/2010	1	2	38	Pool	437305	6283402	4	21	18	20	0.35						
Teigen Creek	16/9/2010	1	2	39	Riffle	437532	6283218	12	9	7	8	0.8						
Teigen Creek	16/9/2010	1	2	40	Run	437599	6283224	30	10	8	10	0.5	2					
Teigen Creek	16/9/2010	1	2	87	Run	437624	6283146	46	9	10	12	0.6						
Teigen Creek	16/9/2010	1	2	41	Riffle	437751	6283032	4	2	3	6	0.28		2				
Teigen Creek	16/9/2010	1	2	42	Run	437849	6282907	8	10	11	8	0.4	1					
Teigen Creek	16/9/2010	1	2	43	Run	438038	6282788	17	12	9	8	0.35						
Teigen Creek	16/9/2010	1	2	44	Run	438090	6282756	40	11	9	12	0.45						
Teigen Creek	16/9/2010	1	2	45	Glide	438223	6282633	10	6	9	13	0.3	5					
Teigen Creek	16/9/2010	1	2	46	Pool	438335	6282654	23	10	11	9	0.3	2					
Teigen Creek	16/9/2010	1	2	47	Pool	438380	6282657	27	7	13	17	2	7					
Teigen Creek	16/9/2010	1	2	48	Pool	438573	6282634	10	11	14	13	1.3			1			
Teigen Creek	16/9/2010	1	2	95	Pool	438582	6282643	30	13	13	16	1.5	5	4		1		
Teigen Creek	16/9/2010	1	2	49	Pool	438640	6282781	17	13	15	16	1	1					
Teigen Creek	16/9/2010	1	2	50	Pool	438706	6282772	8	11	8	9	1.2						
Teigen Creek	16/9/2010	1	2	51	Pool	438771	6282639	17	8	13	20	1	2					
Teigen Creek	16/9/2010	1	2	52	Run	439073	6282619	-	-	-	-	-	2					
Teigen Creek	16/9/2010	1	2	99	Pool	439240	6282715	16	13	13	13	0.5	1					
Teigen Creek	16/9/2010	1	2	100	Run	439382	6282806	60	13	15	17	1						
Teigen Creek	16/9/2010	1	2	101	Run	439418	6282895	19	10	10	10	0.5						
Teigen Creek	16/9/2010	1	2	102	Glide	439513	6282924	29	9	14	16	0.7						
Teigen Creek	16/9/2010	1	2	103	Run	439594	6282981	25	9	9	9	0.7		4				
Teigen Creek	16/9/2010	1	2	104	Pool	439655	6283081	10	12	10	9	1.2		2				
Teigen Creek	16/9/2010	1	2	105	Run	439749	6283095	25	8	6	8	0.8						
Teigen Creek	16/9/2010	1	2	106	Pool	439772	6283086	37	10	8	10	0.7						
Teigen Creek	16/9/2010	1	2	108	Run	439915	6283161	17	12	7	12	0.5	1	2				
Teigen Creek	16/9/2010	1	2	109	Pool	440049	6283210	27	9	9	10	0.6						
Teigen Creek	16/9/2010	1	2	110	Pool	440081	6283255	24	12	9	9	1.2						
Teigen Creek	16/9/2010	1	2	112	Pool	440125	6283293	60	10	13	13	1	4					
Teigen Creek	16/9/2010	1	2	113	Pool	440204	6283314	22	8	10	10	0.5						
Teigen Creek	16/9/2010	1	2	115	Run	440352	6283440	52	12	13	12	0.6						
Teigen Creek	16/9/2010	1	2	116	Run	440401	6283531	22	12	13	13	0.8						
Teigen Creek	16/9/2010	1	2	119	Pool	440556	6283835	24	13	13	15	0.5						
Teigen Creek	16/9/2010	1	2	120	Pool	440628	6283956	26	14	13	14	1.5	3		2			
Teigen Creek	16/9/2010	1	2	122	Pool	440732	6284027	33	13	14	18	1.5	1			12		
Teigen Creek	17/9/2010	2	2	53	Pool	440833	6284198	25	9	8	7	0.4	1					
Teigen Creek	17/9/2010	2	2	125	Pool	440828	6284262	15	8	8	7	0.8						
Teigen Creek	17/9/2010	2	2	126	Run	440810	6284267	46	13	13	16	1			1			
Teigen Creek	17/9/2010	2	2	128	Pool	440835	6284501	13	6	5	6	0.9		7				

Dashes indicate no data available

Appendix 5.4-7. Snorkel Redd Spawning Survey Habitat and Fish Count Data for Teigen, South Teigen and North Treaty Creeks, 2010

Stream Name	Survey Date (d/m/y)	Section	Survey #	Site #	Snorkel Habitat Type (Pool/Riffle/Run/Glide)	Habitat Type UTM		Habitat Unit Length (m)	Habitat Unit Width (m)			Max Depth (m)	# Observed					
						Easting	Northing		1	2	3		Bull Trout	Mountain Whitefish	Rainbow Trout / Steelhead	Coho Salmon	Sockeye Salmon	Chinook Salmon
Teigen Creek	17/9/2010	2	2	55	Pool	440872	6285032	8	6	12	11	0.5						
Teigen Creek	17/9/2010	2	2	130	Run	440924	6285130	17	10	11	13	0.8		1				
Teigen Creek	17/9/2010	2	2	56	Glide	441073	6285232	35	14	10	8	0.3	1	8				
Teigen Creek	17/9/2010	2	2	57	Run	441106	6285257	40	7	10	16	0.6						
Teigen Creek	17/9/2010	2	2	58	Run	441199	6285338	5	8	8	7	0.5	1					
Teigen Creek	17/9/2010	2	2	59	Pool	441223	6285369	10	6	7	9	0.6						
Teigen Creek	17/9/2010	2	2	131	Pool	443611	6288802	27	9	8	9	1.2	2					
Teigen Creek	17/9/2010	2	2	61	Run	441165	6285528	32	12	13	14	0.4		1				
Teigen Creek	17/9/2010	2	2	62	Pool	443117	6288792	15	6	9	7	0.6						
Teigen Creek	17/9/2010	2	2	63	Run	441223	6285684	10	18	18	21	0.8	3	6		1		
Teigen Creek	17/9/2010	2	2	64	Glide	441238	6285768	34	11	10	7	0.4		9				
Teigen Creek	17/9/2010	2	2	65	Pool	441274	6285835	40	6	6.5	7	2		4		1		
Teigen Creek	17/9/2010	2	2	66	Glide	441438	6285870	7	9	9.5	8	0.4	1					
Teigen Creek	17/9/2010	2	2	135	Run	441565	6285982	55	17	22	20	0.5						
Teigen Creek	17/9/2010	2	2	67	Glide	441708	6286359	40	6	11	11	0.35		40				
Teigen Creek	17/9/2010	2	2	68	Run	441747	6286404	35	7	10	13	0.4		1				
Teigen Creek	17/9/2010	2	2	69	Pool	441900	6286467	12	15	17	17	0.4	1	15				
Teigen Creek	17/9/2010	2	2	70	Pool	441926	6286483	6	10	13	13	1		7				
Teigen Creek	17/9/2010	2	2	136	Pool	441935	6286501	21	14	11	8	1.2	1					
Teigen Creek	17/9/2010	2	2	138	Pool	441928	6286544	18	7	6	7	2		2				
Teigen Creek	17/9/2010	2	2	139	Run	441912	6286592	18	9	11	12	0.5	1	50			1	
Teigen Creek	17/9/2010	2	2	72	Run	441938	6286726	30	14	13	11	0.2						
Teigen Creek	17/9/2010	2	2	73	-	442035	6286967	-	-	-	-	-						
Teigen Creek	11/9/2010	3	1	1	Glide	442979	6288508	80	3	3	3	1.2		4				
Teigen Creek	11/9/2010	3	1	2	Pool	443000	6288562	10	5	5	5	1.5		1				
Teigen Creek	11/9/2010	3	1	3	Pool	443018	6288619	10	1	0.75	1.2	0.7						
Teigen Creek	11/9/2010	3	1	4	Pool	443093	6288729	27	6	9	7	0.5						
Teigen Creek	11/9/2010	3	1	5	Run	443117	6288792	28	5	8	7	0.4						
Teigen Creek	11/9/2010	3	1	6	Run	443156	6288813	16	3	2.7	2.4	0.45						2
Teigen Creek	11/9/2010	3	1	7	Pool	443169	6288841	11	2.6	7	4	0.75						
Teigen Creek	11/9/2010	3	1	8	Run	443231	6288825	200	4	4	4	0.35		4				2
Teigen Creek	11/9/2010	3	1	9	Pool	443381	6288815	57	8	7	11	2		3				
Teigen Creek	11/9/2010	3	1	10	Pool	443466	6288843	20	11	10	8	2						
Teigen Creek	11/9/2010	3	1	11	Glide	443391	6288866	40	5	4	2.7	0.5						
Teigen Creek	11/9/2010	3	1	12	Pool	443610	6288802	50	7	8	10	0.8						
Teigen Creek	11/9/2010	3	1	13	Riffle	443676	6288694	20	8	9	11	0.6						
Teigen Creek	11/9/2010	3	1	14	Riffle	443757	6288677	20	6	8	9	0.4						
Teigen Creek	11/9/2010	3	1	15	Pool	443807	6288705	12	4	5	4	0.55						
Teigen Creek	11/9/2010	3	1	16	Pool	443868	6288749	17	7	9	12	0.8	2					
Teigen Creek	11/9/2010	3	1	17	Riffle	443887	6288781	13	8	7	6	0.45						
Teigen Creek	11/9/2010	3	1	18	Pool	443932	6288819	30	10	8	7	0.8	1					
Teigen Creek	11/9/2010	3	1	19	Riffle	443986	6288826	10	3	5	5	0.6	2					
Teigen Creek	11/9/2010	3	1	20	Pool	444047	6288790	10	5	6	4	1		1				
Teigen Creek	11/9/2010	3	1	21	Glide	444076	6288768	80	16	23	10	0.5		30				
Teigen Creek	11/9/2010	3	1	22	Pool	443912	6288872	5	2	6	8	0.6						
Teigen Creek	11/9/2010	3	1	23	Pool	443874	6288893	8	3	6	5	0.4						
Teigen Creek	11/9/2010	3	1	24	Riffle	443798	6298922	50	10	13	11	0.45	1					
Teigen Creek	17/9/2010	3	2	74	Run	442001	6287013	42	11	15	10	0.4	1	15				
Teigen Creek	17/9/2010	3	2	200	Pool	441971	6287049	8	3	4	3			1				
Teigen Creek	17/9/2010	3	2	75	Run	442158	6287574	56	13	16	15	0.9	2	10				
Teigen Creek	17/9/2010	3	2	76	Run	442257	6287704	20	11	12	14	1	1	10	1			
Teigen Creek	17/9/2010	3	2	77	Glide	442501	6287744	24	13	13	15	0.42		7				

Dashes indicate no data available

Appendix 5.4-7. Snorkel Redd Spawning Survey Habitat and Fish Count Data for Teigen, South Teigen and North Treaty Creeks, 2010

						Habitat Type UTM			Habitat Unit Width (m)				# Observed					
Stream Name	Survey Date (d/m/y)	Section	Survey #	Site #	Snorkel Habitat Type (Pool/Riffle/Run/Glide)	Easting	Northing	Habitat Unit Length (m)	1	2	3	Max Depth (m)	Bull Trout	Mountain Whitefish	Rainbow Trout / Steelhead	Coho Salmon	Sockeye Salmon	Chinook Salmon
Teigen Creek	17/9/2010	3	2	78	Pool	442602	6287807	8	11	13	8	1		7				
Teigen Creek	17/9/2010	3	2	79	Run	442687	6287801	16	9	11	14	0.5						
Teigen Creek	17/9/2010	3	2	80	Run	442720	6287845	5	16	13	12	0.4		6				
Teigen Creek	17/9/2010	3	2	81	Riffle	442804	6287959	40	10	9	11	0.8	1	15				
Teigen Creek	17/9/2010	3	2	82	Pool	442868	6288096	10	17	14	18	0.5						
Teigen Creek	17/9/2010	3	2	83	Pool	442850	6288111	35	15	18	17	0.4	1	15				
Teigen Creek	17/9/2010	3	2	84	Pool	442840	6288177	12	18	19	21	0.5						
Teigen Creek	17/9/2010	3	2	85	Riffle	442934	6288433	14	12	14	14	0.5	2	1				
Teigen Creek	17/9/2010	3	2	21	Run	442979	6288508	80	3	3	3	1.2		30				
Teigen Creek	17/9/2010	3	2	31	Pool	443000	6288562	10	5	5	5	1.5		5	1			
Teigen Creek	17/9/2010	3	2	41	Run	443012	6288630	10	1	0.75	1.2	0.7	2	5				
Teigen Creek	17/9/2010	3	2	51	Pool	443093	6288729	27	6	9	7	0.5	1	7	1			
Teigen Creek	17/9/2010	3	2	62	Pool	443117	6288792	28	5	8	7	0.4	3		1			
Teigen Creek	17/9/2010	3	2	71	Pool	443156	6288813	16	3	2.7	2.4	0.45	2		1			1
Teigen Creek	17/9/2010	3	2	81	Run	443169	6288841	11	2.6	7	4	0.75		20				
Teigen Creek	17/9/2010	3	2	201	Run	443257	6288866	26	6	10	10		6	15				
Teigen Creek	17/9/2010	3	2	202	Pool	443303	6288863	18	3	4	3							
Teigen Creek	17/9/2010	3	2	10	Pool	443380	6288815	200	4	4	4	0.35						
Teigen Creek	17/9/2010	3	2	11	Pool	443466	6288842	-	-	-	-	-	5	10	1			
Teigen Creek	17/9/2010	3	2	121	Pool	443591	6288866	-	-	-	-	-						
Teigen Creek	17/9/2010	3	2	131	Pool	443611	6288802	-	-	-	-	-						
Teigen Creek	17/9/2010	3	2	171	Pool	443867	6288749	-	-	-	-	-						
Teigen Creek	17/9/2010	3	2	191	Pool	443932	6288819	-	-	-	-	-						
Teigen Creek	17/9/2010	3	2	201	Run	443986	6288826	-	-	-	-	-	1					
Teigen Creek	17/9/2010	3	2	21	Run	444048	6288790	-	-	-	-	-	3	15	2	20		
Teigen Creek	17/9/2010	3	2	22	Run	444076	6288768	-	-	-	-	-	2	10		1		
Teigen Creek	12/9/2010	1	1	2	Glide	436600	6284073	15	4	7	9	0.5				3		
Teigen Creek	12/9/2010	1	1	3	Pool	436622	6284057	5	1.3	2	3	0.35	2					
Teigen Creek	12/9/2010	1	1	4	Pool	436623	6284046	6	2.2	3	5	0.55						
Teigen Creek	12/9/2010	1	1	5	Glide	436607	6283994	13	5	3	2	0.4						
Teigen Creek	12/9/2010	1	1	6	Glide	436671	6283861	18	6	8	11	0.35						
Teigen Creek	12/9/2010	1	1	7	Pool	436684	6283852	20	4	3	4	0.5	2	2				
Teigen Creek	12/9/2010	1	1	8	Pool	436845	6283744	7	4	4.2	3	0.48						
Teigen Creek	12/9/2010	1	1	9	Riffle	436886	6283695	20	2	1.6	2	0.65						
Teigen Creek	12/9/2010	1	1	10	Pool	437091	6283553	20	15	6	11	1.2		3				
Teigen Creek	12/9/2010	1	1	11	Run	437204	6283478	10	8	9	8	0.7						
Teigen Creek	12/9/2010	1	1	12	Glide	437208	6283429	21	10	9	13	1	1					
Teigen Creek	12/9/2010	1	1	13	Glide	437274	6283392	20	8	9	6	0.75		2				
Teigen Creek	12/9/2010	1	1	14	Pool	437305	6283402	4	21	18	20	0.35						
Teigen Creek	12/9/2010	1	1	15	Riffle	437532	6283218	12	9	7	8	0.8						
Teigen Creek	12/9/2010	1	1	16	Run	437599	6283224	30	10	8	10	0.5		1				
Teigen Creek	12/9/2010	1	1	17	Riffle	437751	6283032	4	2	3	6	0.28						
Teigen Creek	12/9/2010	1	1	18	Run	437849	6282907	8	10	11	8	0.4	1					
Teigen Creek	12/9/2010	1	1	19	Run	438038	6282788	17	12	9	8	0.35	2	4				
Teigen Creek	12/9/2010	1	1	20	Run	438090	6282756	40	11	9	12	0.45						
Teigen Creek	12/9/2010	1	1	21	Glide	438223	6282633	10	6	9	13	0.3	4					
Teigen Creek	12/9/2010	1	1	22	Pool	438335	6282654	23	10	11	9	0.3						
Teigen Creek	12/9/2010	1	1	23	Pool	438380	6282657	27	7	13	17	2	2	2				
Teigen Creek	12/9/2010	1	1	24	Pool	438573	6282634	10	11	14	13	1.3		2				
Teigen Creek	12/9/2010	1	1	25	Pool	438640	6282781	17	13	15	16	1		4				
Teigen Creek	12/9/2010	1	1	26	Pool	438706	6282772	8	11	8	9	1.2		5				
Teigen Creek	12/9/2010	1	1	27	Pool	438771	6282639	17	8	13	20	1						

Dashes indicate no data available

Appendix 5.4-7. Snorkel Redd Spawning Survey Habitat and Fish Count Data for Teigen, South Teigen and North Treaty Creeks, 2010

Stream Name	Survey Date (d/m/y)	Section	Survey #	Site #	Snorkel Habitat Type (Pool/Riffle/Run/Glide)	Habitat Type UTM		Habitat Unit Length (m)	Habitat Unit Width (m)			Max Depth (m)	# Observed					
						Easting	Northing		1	2	3		Bull Trout	Mountain Whitefish	Rainbow Trout / Steelhead	Coho Salmon	Sockeye Salmon	Chinook Salmon
Teigen Creek	12/9/2010	1	1	28	Run	439073	6282619	-	-	-	-	-						
Teigen Creek	12/9/2010	1	1	29	Pool	-	-	28	13	16	14	0.4						
Teigen Creek	12/9/2010	1	1	30	Glide	-	-	8	16	15	17	0.45	1	2				
Teigen Creek	12/9/2010	1	1	31	Pool	-	-	7	2	4	9	0.7						
Teigen Creek	12/9/2010	1	1	32	Glide	-	-	17	12	11	11	0.75						
Teigen Creek	12/9/2010	1	1	33	Glide	-	-	13	10	10	11	0.4	2					
Teigen Creek	12/9/2010	1	1	34	Pool	-	-	8	9	12	14	1.5		5				
Teigen Creek	15/9/2010	2	1	1	Pool	440833	6284198	25	9	8	7	0.4						
Teigen Creek	15/9/2010	2	1	2	Run	440800	6284289	35	9	12	14	0.6		11				
Teigen Creek	15/9/2010	2	1	3	Pool	440872	6285032	8	6	12	11	0.5		15				
Teigen Creek	15/9/2010	2	1	4	Glide	441073	6285232	35	14	10	8	0.3	1	10				
Teigen Creek	15/9/2010	2	1	5	Run	441106	6285257	40	7	10	16	0.6						
Teigen Creek	15/9/2010	2	1	6	Run	441199	6285338	5	8	8	7	0.5						
Teigen Creek	15/9/2010	2	1	7	Pool	441223	6285369	10	6	7	9	0.6						
Teigen Creek	15/9/2010	2	1	8	Run	441165	6285528	32	12	13	14	0.4						
Teigen Creek	15/9/2010	2	1	9	Pool	443117	6288792	15	6	9	7	0.6						
Teigen Creek	15/9/2010	2	1	10	Run	441223	6285684	10	18	18	21	0.8	1	3				
Teigen Creek	15/9/2010	2	1	11	Glide	441238	6285768	34	11	10	7	0.4						
Teigen Creek	15/9/2010	2	1	12	Pool	441274	6285835	40	6	6.5	7	2						
Teigen Creek	15/9/2010	2	1	13	Glide	441438	6285870	7	9	9.5	8	0.4	1					
Teigen Creek	15/9/2010	2	1	14	Glide	441708	6286359	40	6	11	11	0.35						
Teigen Creek	15/9/2010	2	1	15	Run	441747	6286404	35	7	10	13	0.4						
Teigen Creek	15/9/2010	2	1	16	Pool	441900	6286467	12	15	17	17	0.4	1	3				
Teigen Creek	15/9/2010	2	1	17	Pool	441926	6286483	6	10	13	13	1						
Teigen Creek	15/9/2010	2	1	18	Run	441918	6286533	10	7	9	9	0.5						
Teigen Creek	15/9/2010	2	1	19	Run	441938	6286726	30	14	13	11	0.2	1	1				
Teigen Creek	15/9/2010	2	1	20	Pool	442035	6286967	8	13	11	8	0.9						
Teigen Creek	15/9/2010	2	1	21	Run	442001	6287013	42	11	15	10	0.4	1	11				
Teigen Creek	15/9/2010	2	1	22	Run	442158	6287574	56	13	16	15	0.9	1	10				1
Teigen Creek	15/9/2010	2	1	23	Run	442257	6287704	20	11	12	14	1	1	10				
Teigen Creek	15/9/2010	2	1	24	Run	442501	6287744	24	13	13	15	0.42		6				
Teigen Creek	15/9/2010	2	1	25	Run	442602	6287807	8	11	13	8	1		1				
Teigen Creek	15/9/2010	2	1	26	Run	442687	6287801	16	9	11	14	0.5						
Teigen Creek	15/9/2010	2	1	27	Pool	442720	6287845	5	16	13	12	0.4		1				
Teigen Creek	15/9/2010	2	1	28	Run	442804	6287959	40	10	9	11	0.8						
Teigen Creek	15/9/2010	2	1	29	Pool	442868	6288096	10	17	14	18	0.5						
Teigen Creek	15/9/2010	2	1	30	Run	442850	6288111	35	15	18	17	0.4	2	1				
Teigen Creek	15/9/2010	2	1	31	Pool	442840	6288177	12	18	19	21	0.5	1					
Teigen Creek	15/9/2010	2	1	32	Run	442934	6288433	14	12	14	14	0.5	2	1				
South Teigen Creek	16/9/2010	1	1	1	Pool	440942	6283242	-	-	-	-	-	3					
South Teigen Creek	16/9/2010	1	1	2	Pool	440991	6282820	-	-	-	-	-	2					

Dashes indicate no data available

Appendix 5.4-8

Aerial Fish Count Spawning Survey for Compensation Site Watersheds, 2010

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Appendix 5.4-8. Aerial Fish Count Spawning Survey for Compensation Site Watersheds, 2010

Stream Name	Survey Date (d/m/y)	Survey Start Time	Survey End Time	Start Location	End Location	Water Clarity	Weather	Precipitation	Species	# Fish Observed
Taft Creek	5/8/2010	10:00	10:30	Bell-Irving Confluence	Upstream to 3 km marker	Moderately Turbid	Sunny	No Rain	Chinook	0
Taft Creek	8/8/2010	10:00	10:30	Bell-Irving Confluence	Upstream to 3 km marker	Moderately Turbid	Sunny	No Rain	Chinook	0
Taft Creek	12/8/2010	10:00	10:30	Bell-Irving Confluence	Upstream to 3 km marker	Moderately Turbid	Sunny	No Rain	Chinook	0
Taft Creek	15/8/2010	10:00	10:30	Bell-Irving Confluence	Upstream to 3 km marker	Moderately Turbid	Sunny	No Rain	Chinook	0
Snowbank Creek	8/8/2010	9:00	10:00	Teigen Creek Confluence	Upstream to Redflat Creek Confluence	Turbid	Cloudy	Light Rain	Chinook	0
Snowbank Creek	7/8/2010	13:30	14:00	Teigen Creek Confluence	Upstream to Redflat Creek Confluence	Turbid	Cloudy	Light Rain	Chinook	0
Snowbank Creek	12/8/2010	13:30	14:00	Teigen Creek Confluence	Upstream to Redflat Creek Confluence	Turbid	Cloudy	No Rain	Chinook	0
Snowbank Creek	15/8/2010	13:30	14:00	Teigen Creek Confluence	Upstream to Redflat Creek Confluence	Turbid	Cloudy	No Rain	Chinook	0
Oweegee Creek - Side Channel	7/8/2010	13:00	13:30	Bell-Irving Confluence	Oweegee Creek Confluence	Clear	Sunny	None	Chinook	25
Oweegee Creek - Side Channel	12/8/2010	11:00	11:30	Bell-Irving Confluence	Oweegee Creek Confluence	Clear	Sunny	None	Chinook	0
Oweegee Creek - Side Channel	15/8/2010	11:00	11:30	Bell-Irving Confluence	Oweegee Creek Confluence	Clear	Sunny	None	Chinook	0
East Todedada Creek	8/8/2010	8:00	8:30	Todedada Creek Confluence	Upstream to headwaters	Lightly Turbid	Sunny	No Rain	Chinook	0
East Todedada Creek	12/8/2010	8:00	8:30	Todedada Creek Confluence	Upstream to headwaters	Lightly Turbid	Sunny	No Rain	Chinook	0
East Todedada Creek	15/8/2010	8:00	8:30	Todedada Creek Confluence	Upstream to headwaters	Lightly Turbid	Sunny	No Rain	Chinook	0
Todedada Creek	8/8/2010	9:00	9:30	Treaty Creek Confluence	Upstream to Todedada Lake Creek	Turbid	Sunny	No Rain	Chinook	0
Todedada Creek	12/8/2010	9:00	9:30	Treaty Creek Confluence	Upstream to Todedada Lake Creek	Turbid	Sunny	No Rain	Chinook	0
Todedada Creek	15/8/2010	9:00	9:30	Treaty Creek Confluence	Upstream to Todedada Lake Creek	Turbid	Sunny	No Rain	Chinook	0
South Teigen Creek	4/8/2010	14:00	14:30	Teigen Creek Confluence	Upstream to Falls	Lightly Turbid	Partly Cloudy	No Rain	Chinook	0
South Teigen Creek	9/8/2010	8:10	9:10	Teigen Creek Confluence	Upstream to Falls	Moderately Turbid	Partly Cloudy	No Rain	Chinook	0
South Teigen Creek	15/8/2010	13:00	14:15	Teigen Creek Confluence	Upstream to Falls	Lightly Turbid	Sunny	No Rain	Chinook	0
Sulphurets Creek	13/8/2010	12:00	12:30	Unuk River Confluence	Upstream to Cascade	Turbid	Cloudy	No Rain	Chinook	0
Sulphurets Creek	18/10/2010	14:00	14:10	Unuk River Confluence	Upstream to Cascade	Turbid	Cloudy	Light Rain	Coho	0
Todedada Creek	18/10/2010	10:00	10:50	Treaty Creek Confluence	Upstream to Todedada Lake Creek	Turbid	Partly Cloudy	Light Rain	Coho	1
Todedada Creek	19/10/2010	13:00	14:00	Treaty Creek Confluence	Upstream to Todedada Lake Creek	Turbid	Cloudy	Snow	Coho	6
East Todedada Creek	18/10/2010	9:30	10:30	Todedada Creek Confluence	Upstream to 1st Beaver Dam	Moderately Turbid	Partly Cloudy	No Rain	Coho	2
East Todedada Creek	18/10/2010	9:30	10:30	1st Beaver Dam	Upstream to headwaters	Moderately Turbid	Partly Cloudy	No Rain	Coho	21
Snowbank Creek	19/8/2010	11:00	11:30	Teigen Creek Confluence	Upstream to Redflat Creek Confluence	Turbid	Cloudy	Light Rain	Coho	0
Snowbank Creek	19/8/2010	11:00	11:30	Wetland	Upstream to Headwaters	Lightly Turbid	Cloudy	Light Rain	Coho	15

Appendix 5.4-9

Ground-truthed Redd Spawning Survey for Compensation Site Watersheds, 2010

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Appendix 5.4-9. Ground-truthed Redd Spawning Survey for Compensation Site Watersheds, 2010

Stream Name	Survey Date (d/m/y)	Survey Start Time	Survey End Time	Start Location	End Location	Water Clarity	Weather	Precipitation	Water Temp	Air Temp	Species	# Redds Observed	# Fish Observed
Taft Creek	7/8/2010	9:00	10:00	Bell-Irving Confluence	Upstream 500 m from Highway 37 Crossing	Moderately Turbid	Sunny	None	10	-	Chinook	0	0
Taft Creek	11/8/2010	9:00	10:00	Bell-Irving Confluence	Upstream 500 m from Highway 37 Crossing	Moderately Turbid	Sunny	None	10	-	Chinook	0	0
Snowbank Creek	7/8/2010	13:00	16:40	Highway 37 Crossing	Redflat Creek Confluence	Turbid	Sunny	None	9	-	Chinook	0	0
Gilbert Creek	10/8/2010	9:00	11:00	Treaty Creek Confluence	300 m Upstream of 1st Beaver Dam	Clear	Sunny	None	9	-	Chinook	0	0
Gilbert Creek	13/8/2010	9:00	11:00	Treaty Creek Confluence	300 m Upstream of 1st Beaver Dam	Clear	Sunny	None	9	-	Chinook	0	0
Oweegee Creek - Side Channel	6/8/2010	10:00	16:00	Bell-Irving Confluence	Oweegee Creek Confluence	Clear	Sunny	None	17	-	Chinook	0	25
Oweegee Creek	7/8/2010	10:00	16:00	Oweegee Creek Confluence	Upstream 1 km	Clear	Sunny	None	16	-	Chinook	0	0
Oweegee Creek	7/8/2010	9:00	12:00	1.2 km	Upstream to 1.5 km	Clear	Sunny	None	16	-	Chinook	0	0
East Todedada Creek	8/8/2010	8:00	11:30	Todedada Creek Confluence	Upstream to headwaters	Lightly Turbid	Sunny	No Rain	10	-	Chinook	0	0
East Todedada Creek	12/8/2010	8:00	11:30	Todedada Creek Confluence	Upstream to headwaters	Lightly Turbid	Sunny	No Rain	10	-	Chinook	0	0
Todedada Creek	12/8/2010	9:00	12:30	Treaty Creek Confluence	Upstream 2 km	Turbid	Sunny	No Rain	5	-	Chinook	0	0
Todedada Creek	15/8/2010	9:00	12:30	East Todedada Creek Confluence	Upstream 2 km	Turbid	Sunny	No Rain	5	-	Chinook	0	0
South Teigen Creek	9/8/2010	8:00	11:00	Teigen Creek Confluence	Upstream to Falls	Moderately Turbid	Partly Cloudy	No Rain	7	-	Chinook	0	0
South Teigen Creek	29/4/2010	10:00	12:00	Teigen Creek Confluence	Upstream to Falls	Clear	Cloudy	None	3	-	Steelhead	0	0
North Treaty Creek	29/4/2010	12:00	13:00	Treaty Creek Confluence	Upstream to 1.5 km	Clear	Cloudy	None	3	-	Steelhead	0	0
Treaty Creek	29/4/2010	13:00	15:00	North Treaty Creek Confluence	Downstream 2 km	Clear	Cloudy	None	4	-	Steelhead	0	0
Oweegee Creek	9/14/2010	14:00	15:00	Oweegee Creek Confluence	Upstream 1 km	Clear	Sunny	None	14	-	Sockeye	0	0
Oweegee Creek - Side Channel	9/14/2010	14:00	15:00	Bell-Irving Confluence	Oweegee Creek Confluence	Clear	Sunny	None	14	-	Sockeye	10	16
East Todedada Creek	9/10/2010	9:00	16:00	Todedada Creek Confluence	Upstream to headwaters	Clear	Sunny	Light Rain	8	-	Sockeye	0	4
Gilbert Creek	9/9/2010	9:00	15:00	Treaty Creek Confluence	Gilbert Lake Outlet	Clear	Sunny	Light Rain	8	-	Sockeye	0	0
East Todedada Creek	22/9/2010	13:30	14:30	Todedada Creek Confluence	Upstream to headwaters	Clear	Sunny	None	7	-	Sockeye	1	15
Gilbert Creek	16/10/2010	9:30	11:40	Treaty Creek Confluence	Gilbert Lake Outlet	Moderately Turbid	Cloudy	Light Rain	5.5	4	Coho	2	2
East Todedada Creek	15/10/2010	9:45	15:20	Todedada Creek Confluence	Upstream to 1st Beaver Dam	Moderately Turbid	Partly Cloudy	No Rain	3	2	Coho	12	3
East Todedada Creek	15/10/2010	9:45	15:20	1st Beaver Dam	Upstream to headwaters	Moderately Turbid	Partly Cloudy	No Rain	3	2	Coho	23	42
East Todedada Creek	19/10/2010	9:20	14:20	Todedada Creek Confluence	Upstream to 1st Beaver Dam	Moderately Turbid	Partly Cloudy	No Rain	4	8	Coho	12	6
East Todedada Creek	19/10/2010	9:20	14:20	1st Beaver Dam	Upstream to headwaters	Moderately Turbid	Partly Cloudy	No Rain	4	8	Coho	35	58
Sulphurets Creek	13/8/2010	12:00	12:30	Unuk River Confluence	Upstream to Cascade	Turbid	Cloudy	No Rain	-	-	Chinook	0	0
Sulphurets Creek	18/10/2010	14:00	14:10	Unuk River Confluence	Upstream to Cascade	Turbid	Cloudy	Light Rain	-	-	Coho	0	0
South Teigen Creek	18/10/2010	14:00	15:35	Teigen Creek Confluence	Upstream to Falls	Moderately Turbid	Partly Cloudy	No Rain	6	7	Coho	0	0
North Treaty Creek	18/10/2010	12:00	13:30	Treaty Creek Confluence	Upstream to 1.5 km	Moderately Turbid	Partly Cloudy	No Rain	6	7	Coho	0	0
Teigen Creek - Side Channel	17/10/2010	9:30	13:00	Teigen Creek Side Channel Exit	Teigen Creek Side Channel Entry	Moderately Turbid	Cloudy	Light Rain	4	5	Coho	2	4

Appendix 5.4-10

Ground-truthed Redd Locations for Compensation Site Watersheds, 2010

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Appendix 5.4-10. Ground-truthed Redd Locations for Compensation Site Watersheds, 2010

Waterbody	Date (d/m/y)	Species	Redd #	Redd Count	Number of Fish On Redd	Redd Age	UTM		
Gilbert Creek	16/10/2010	Coho	1 - 2	2	0	1	9V	451912	6267870
East Todedada Creek	15/10/2010	Coho	1 - 4	4	0	1	9V	451367	6264958
East Todedada Creek	15/10/2010	Coho	5 - 10	6	0	1	9V	451368	6264938
East Todedada Creek	15/10/2010	Coho	11 - 12	2	1	1	9V	451374	6264784
East Todedada Creek	15/10/2010	Coho	13	1	1	1	9V	451097	6264044
East Todedada Creek	15/10/2010	Coho	14 - 16	3	2	1	9V	451315	6263662
East Todedada Creek	15/10/2010	Coho	17	1	2	1	9V	451342	6263637
East Todedada Creek	15/10/2010	Coho	18 - 19	2	0	1	9V	451367	6263624
East Todedada Creek	15/10/2010	Coho	20	1	0	1	9V	451643	6263364
East Todedada Creek	15/10/2010	Coho	21 - 22	2	2	1	9V	451678	6263344
East Todedada Creek	15/10/2010	Coho	23	1	2	1	9V	451705	6263363
East Todedada Creek	15/10/2010	Coho	24	1	0	1	9V	451760	6263382
East Todedada Creek	15/10/2010	Coho	25	1	1	1	9V	451769	6263368
East Todedada Creek	15/10/2010	Coho	26	1	0	1	9V	452010	6263334
East Todedada Creek	15/10/2010	Coho	27	1	4	1	9V	451994	6263329
East Todedada Creek	15/10/2010	Coho	28	1	0	1	9V	452021	6263340
East Todedada Creek	15/10/2010	Coho	29 - 31	3	0	1	9V	452033	6263337
East Todedada Creek	15/10/2010	Coho	32	1	0	1	9V	452105	6263336
East Todedada Creek	15/10/2010	Coho	33	1	0	1	9V	452136	6263338
East Todedada Creek	15/10/2010	Coho	34	1	0	1	9V	452144	6263341
East Todedada Creek	15/10/2010	Coho	35	1	7	1	9V	452144	6263341
East Todedada Creek	19/10/2010	Coho	36	1	2	1	9V	451361	6263625
East Todedada Creek	19/10/2010	Coho	37	1	2	1	9V	452016	6263348
East Todedada Creek	19/10/2010	Coho	38	1	2	1	9V	451979	6263323
East Todedada Creek	19/10/2010	Coho	39	1	5	1	9V	451984	6263327
East Todedada Creek	19/10/2010	Coho	40	1	2	1	9V	452010	6263334
East Todedada Creek	19/10/2010	Coho	41	1	0	1	9V	452123	6263328
East Todedada Creek	19/10/2010	Coho	42	1	4	1	9V	452165	6263334
East Todedada Creek	19/10/2010	Coho	43	1	3	1	9V	452140	6263325
East Todedada Creek	19/10/2010	Coho	44 - 47	4	3	1	9V	453034	6262637
Teigen Creek - Side Channel	17/10/2010	Coho	1 - 2	2	4	1	9V	439878	6283266
Oweegee Creek - Side Channel	9/14/2010	Sockeye	1 - 5	5	0	1	9V	457110	6275845
Oweegee Creek - Side Channel	9/14/2010	Sockeye	6 - 10	5	0	1	9V	456906	6276147
East Todedada Creek	9/22/2010	Sockeye	1	1	1	1	9V	451363	6264948
Todedada Creek	10/19/2010	Coho	1	1	3	1	9V	451053	6263185
Todedada Creek	10/19/2010	Coho	2 - 3	2	1	1	9V	451050	6263215

Appendix 5.5-1

SHIM at Fish Habitat Compensation Sites

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Appendix 5.5-1. SHIM at Fish Habitat Compensation Sites

Stream Name	ILP	Date	Time	Stage	Segment Number	Reach	Length	Gradient	Crown Closure	Ana. Spawning Habitat	Res. Spawning Habitat	Over Wintering Habitat	Rearing Habitat	Overall Habitat	Limitation: LWD	Limitation: OV
Gilbert Creek	1050	9/9/2010	02:01:38pm	moderate	1	1	42	1.0	1-20%	None	None	Good	Fair	Important		
Gilbert Creek	1050	9/9/2010	02:09:35pm	moderate	2	1	144	1.0	1-20%	Good	Fair	Good	Good	Important		
Gilbert Creek	1050	9/9/2010	02:27:43pm	moderate	3	1	164	1.0	1-20%	Good	Fair	Good	Good	Important		
Gilbert Creek	1050	9/9/2010	02:34:57pm	moderate	4	1	70	1.0	1-20%	Good	Fair	Good	Good	Important		
Gilbert Creek	1050	9/9/2010	02:40:53pm	moderate	5	1	65	1.0	1-20%	Good	Poor	Good	Good	Important		
Gilbert Creek	1050	9/9/2010	02:45:48pm	moderate	6	1	34	1.0	1-20%	Good	Poor	Good	Good	Important		
Gilbert Creek	1050	9/9/2010	03:38:29pm	moderate	7	1	135	1.0	1-20%	Poor	Fair	Good	Good	Important		
Gilbert Creek	1050	9/9/2010	03:48:55pm	moderate	8	1	56	1.0	1-20%	Fair	Fair	Good	Good	Important		
Gilbert Creek	1050	9/9/2010	04:04:22pm	moderate	9	2	83	1.0	1-20%	None	None	Good	Good	Important	Yes	
Gilbert Creek	1050	9/9/2010	04:21:55pm	moderate	10	2	46	0.0	1-20%	None	Poor	Good	Good	Important	Yes	
Gilbert Creek	1050	9/9/2010	04:46:03pm	moderate	11	2	34	1.0	1-20%	Fair	Good	Fair	Good	Important		
Gilbert Creek	1050	9/9/2010	04:53:35pm	moderate	12	2	26	0.0	1-20%	None	None	Good	Fair	Important	Yes	
Gilbert Creek	1050	9/9/2010	04:56:43pm	moderate	13	2	63	0.0	1-20%	Fair	Fair	Fair	Fair	Important		
Gilbert Creek	1050	9/9/2010	05:04:10pm	moderate	14	2	25	0.0	1-20%	Poor	Poor	Fair	Fair	Important		
Gilbert Creek	1050	9/9/2010	05:08:46pm	moderate	15	2	26	1.0	1-20%	Poor	Fair	Fair	Fair	Important		
Gilbert Creek	1050	9/10/2010	09:25:39am	moderate	16	2	186	1.0	1-20%	Poor	Fair	Poor	Fair	Important	Yes	
Gilbert Creek	1050	9/10/2010	09:50:43am	moderate	17	2	40	1.0	1-20%	Poor	Fair	Poor	Fair	Important		
Gilbert Creek	1050	9/10/2010	09:54:54am	moderate	18	2	86	1.0	1-20%	Poor	Fair	Poor	Fair	Important	Yes	
Gilbert Creek	1050	9/10/2010	10:03:33am	moderate	19	2	68	1.0	1-20%	Poor	Fair	Poor	Fair	Important	Yes	
Gilbert Creek	1050	9/10/2010	10:10:19am	moderate	20	2	28	1.0	1-20%	Poor	Fair	Fair	Fair	Important		
Gilbert Creek	1050	9/10/2010	10:18:08am	moderate	21	3	175	0.0	1-20%	None	None	Fair	Fair	Important	Yes	
Gilbert Creek	1050	9/10/2010	10:49:54am	moderate	22	3	20	0.0	1-20%	None	None	Fair	Fair	Important	Yes	
Gilbert Creek	1050	9/10/2010	10:53:04am	moderate	23	3	23	0.0	1-20%	None	None	Fair	Poor	Important	Yes	
Gilbert Creek	1050	9/10/2010	11:10:05am	moderate	24	3	41	0.0	1-20%	None	None	Fair	Poor	Important	Yes	
Gilbert Creek	1050	9/10/2010	11:16:59am	moderate	25	3	231	0.0	0	None	None	Fair	Poor	Important	Yes	Yes
Hodkin Lake Creek 1	1053	9/13/2010	02:13:01pm	moderate	1	1	60	0.0	0	None	Poor	Fair	Fair	Important	Yes	
Hodkin Lake Creek 1	1053	9/13/2010	02:21:18pm	moderate	2	1	13	0.0	0	None	Poor	Fair	Fair	Important	Yes	
Hodkin Lake Creek 1	1053	9/13/2010	02:23:56pm	moderate	3	1	195	0.0	0	None	Poor	Fair	Fair	Important	Yes	
Hodkin Lake Creek 1	1053	9/13/2010	02:45:14pm	moderate	4	1	109	0.0	0	None	Poor	Poor	Fair	Important	Yes	
Hodkin Lake Creek 1	1053	9/13/2010	02:56:10pm	moderate	5	1	21	0.0	0	None	None	Poor	Fair	Important	Yes	
Hodkin Lake Creek 1	1053	9/13/2010	02:58:30pm	moderate	6	1	55	0.0	0	None	None	Poor	Fair	Important	Yes	
Hodkin Lake Creek 1	1053	9/13/2010	03:04:05pm	moderate	7	1	109	0.0	0	None	None	Poor	Fair	Important	Yes	
Hodkin Lake Creek 1	1053	9/13/2010	03:14:12pm	moderate	8	2	66	0.0	0	None	None	Poor	Fair	Important	Yes	
Hodkin Lake Creek 1	1053	9/13/2010	03:17:23pm	moderate	9	2	122	2.0	1-20%	None	None	Poor	Fair	Important	Yes	
Hodkin Lake Creek 1	1053	9/13/2010	03:40:51pm	moderate	10	2	50	2.0	1-20%	None	None	Poor	Fair	Important	Yes	
Hodkin Lake Creek 1	1053	9/13/2010	03:45:19pm	moderate	11	2	75	4.0	1-20%	None	None	Poor	Fair	Important	Yes	
Hodkin Lake Creek 2	1054	9/14/2010	10:16:44am	moderate	1	1	56	0.0	0	None	Poor	Fair	Fair	Important	Yes	
Hodkin Lake Creek 2	1054	9/14/2010	10:22:22am	moderate	2	1	175	1.0	0	None	Fair	Poor	Fair	Important	Yes	
Hodkin Lake Creek 2	1054	9/14/2010	10:42:59am	moderate	3	1	102	1.0	0	None	Poor	Poor	Fair	Important	Yes	
Hodkin Lake Creek 2	1054	9/14/2010	10:49:47am	moderate	4	1	27	1.0	0	None	Good	Poor	Fair	Important	Yes	
Hodkin Lake Creek 2	1054	9/14/2010	10:51:54am	moderate	5	1	14	1.0	0	None	Good	Poor	Fair	Important	Yes	
Hodkin Lake Creek 2	1054	9/14/2010	10:53:11am	moderate	6	1	172	1.0	0	None	Fair	Poor	Fair	Important	Yes	
Hodkin Lake Creek 2	1054	9/14/2010	11:07:03am	moderate	7	2	13	3.0	1-20%	None	Poor	Poor	Fair	Important	Yes	
Hodkin Lake Creek 2	1054	9/14/2010	11:10:39am	moderate	8	2	65	3.0	1-20%	None	None	Poor	Poor	Important	Yes	
Mere Creek	1061	9/15/2010	03:59:52pm	low	1	1	78	1.0	41-70%	Poor	Poor	Poor	Fair	Important		
Mere Creek	1061	9/15/2010	04:24:24pm	low	2	1	189	1.0	41-70%	Poor	Poor	Poor	Fair	Important		
Mere Creek	1061	9/15/2010	04:44:09pm	low	3	1	85	1.0	41-70%	Poor	Poor	Poor	Fair	Important		
Mere Creek	1061	9/15/2010	04:52:27pm	low	4	1	49	1.0	41-70%	Poor	Poor	Poor	Fair	Important		
Mere Creek	1061	9/15/2010	04:56:14pm	low	5	1	19	3.0	41-70%	Poor	Poor	Poor	Fair	Important		
Oweegee Side Channel	1056	9/14/2010	04:57:57pm	low	1	-	225	1.0	1-20%	Good	Poor	Fair	Good	Important	Yes	Yes
Oweegee Side Channel	1056	9/14/2010	05:09:56pm	low	2	-	708	1.0	1-20%	None	None	Fair	Fair	Important	Yes	Yes
Oweegee Side Channel	1056	9/14/2010	05:35:50pm	low	3	-	126	1.0	1-20%	Good	Poor	Fair	Fair	Important	Yes	Yes
Oweegee Side Channel	1056	9/14/2010	05:42:38pm	low	4	-	219	1.0	1-20%	Poor	Poor	None	Poor	Important	Yes	Yes
Oweegee Side Channel	1056	9/14/2010	05:47:30pm	dry	5	-	104	1.0	1-20%	Poor	Poor	None	Poor	Important	Yes	Yes
Teigen Side Channel	1066	9/18/2010	11:36:48am	moderate	1	-	45	1.0	0	Poor	Poor	Poor	Fair	Important	Yes	
Teigen Side Channel	1066	9/18/2010	11:30:21am	moderate	2	-	72	0.0	0	None	None	Poor	Poor	Important	Yes	
Teigen Side Channel	1066	9/18/2010	11:41:25am	moderate	3	-	28	1.0	0	Poor	Poor	Poor	Fair	Important	Yes	
Teigen Side Channel	1066	9/18/2010	11:44:46am	moderate	4	-	27	1.0	0	Poor	Poor	Poor	Fair	Important	Yes	
Teigen Side Channel	1066	9/18/2010	11:23:55am	moderate	5	-	56	1.0	0	Poor	Poor	Poor	Fair	Important	Yes	
Teigen Side Channel	1066	9/18/2010	11:18:29am	moderate	6	-	76	1.0	0	Poor	Poor	Poor	Fair	Important	Yes	
Teigen Side Channel	1066	9/18/2010	11:08:11am	moderate	7	-	43	1.0	0	Fair	Poor	Poor	Fair	Important	Yes	
Teigen Side Channel	1066	9/18/2010	10:59:58am	moderate	8	-	67	0.0	1-20%	Poor	Poor	Fair	Fair	Important	Yes	
Teigen Side Channel	1066	9/18/2010	11:10:51am	moderate	9	-	19	1.0	0	Fair	Poor	Poor	Fair	Important	Yes	
Teigen Side Channel	1066	9/18/2010	10:31:02am	moderate	10	-	136	0.0	1-20%	Poor	Poor	Fair	Fair	Important	Yes	
Teigen Side Channel	1066	9/20/2010	10:40:29am	moderate	11	-	64	1.0	21-40%	Poor	Poor	Fair	Fair	Important	Yes	
Teigen Creek 2	1063	9/18/2010	10:20:42am	low	12	-	86	0.0	0	Poor	Poor	Fair	Fair	Important		
Teigen Creek 1	1062	9/18/2010	10:07:06am	low	13	-	189	0.0	0	Poor	Poor	Poor	Fair	Important		
Todedada Creek	1052	9/13/2010	12:57:51pm	moderate	1	1	1021	0.0	1-20%	Fair	Poor	Fair	Fair	Important		Yes
Todedada Creek	1052	9/13/2010	12:55:40pm	moderate	2	1	480	0.0	0	Fair	Poor	Fair	Poor	Important	Yes	Yes
Todedada Creek	1052	9/13/2010	12:50:58pm	moderate	3	1	883	0.0	0	Fair	Poor	Fair	Poor	Important	Yes	Yes
Todedada Creek	1052	9/13/2010	12:46:38pm	moderate	4	1	870	0.0	0	Fair	Poor	Fair	Poor	Important	Yes	Yes
Todedada Creek	1052	9/13/2010	12:28:59pm	moderate	5	2	3404	0.0	0	Fair	Poor	Fair	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	01:50:09pm	moderate	1	1	65	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	01:43:38pm	moderate	2	1	191	1.0	0	Poor	Poor	Fair	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	01:38:44pm	moderate	3	1	85	1.0	0	Fair	Poor	Fair	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	01:26:43pm	moderate	4	1	203	1.0	0	Fair	Poor	Fair	Fair	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	01:22:45pm	moderate	5	1	107	0.0	0	None	None	Fair	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	01:12:12pm	moderate	6	1	196	1.0	0	Fair	Poor	Fair	Fair	Important	Yes	
East Todedada Creek	1051	9/11/2010	12:39:35pm	moderate	7	1	88	1.0	0	Fair	Poor	Poor	Fair	Important	Yes	
East Todedada Creek	1051	9/11/2010	12:32:33pm	moderate	8	1	50	1.0	0	Fair	Poor	Poor	Fair	Important	Yes	
East Todedada Creek	1051	9/11/2010	11:45:35am	moderate	9	2	195	1.0	0	Poor	Poor	Fair	Poor	Important	Yes	
East Todedada Creek	1051	9/11/2010	11:32:22am	moderate	10	2	119	1.0	0	Poor	Poor	Poor	Fair	Important	Yes	
East Todedada Creek	1051	9/11/2010	11:22:22am	moderate	11	2	113	1.0	0	Poor	Poor	Poor	Fair	Important	Yes	
East Todedada Creek	1051	9/11/2010	11:17:01am	moderate	12	3	24	1.0	0	None	None	Poor	Fair	Important		
East Todedada Creek	1051	9/10/2010	04:36:48pm	moderate	13	3	73	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	04:23:54pm	moderate	14	3	181	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	04:17:24pm	moderate	15	3	135	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	04:09:55pm	moderate	16	3	99	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	04:01:09pm	moderate	17	3	116	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	03:55:53pm	moderate	18	3	47	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	03:41:52pm	moderate	19	3	244	1.0	0	Fair	Poor	Fair	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/10/2010	03:01:59pm	moderate	20	3	274	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/10/2010	02:40:07pm	moderate	21	3	123	1.0	0	Fair	Poor	Good	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	02:03:36pm	moderate	22	3	43	1.0	0	Fair	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	02:01:10pm	moderate	23	3	84	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	02:50:13pm	low	24	3	173	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/10/2010	01:55:55pm	moderate	25	3	115	1.0	0	Fair	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	01:32:13pm	moderate	26	3	216	1.0	0	Fair	Poor	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/10/2010	01:29:26pm	moderate	27	3	31	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/10/2010	01:21:20pm	moderate	28	3	143	1.0	0	Fair	Poor	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/10/2010	01:38:14pm	moderate	29	3	65	1.0	0	Fair	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/10/2010	12:50:12pm	moderate	30	3	236	1.0	0	Poor	Poor	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/10/2010	12:33:56pm	moderate	31	3	182	1.0	0	Fair	Poor	Poor	Poor	Important	Yes	
East Todedada Creek	1051	9/11/2010	03:08:23pm	moderate	32	4	122	0.5	0	Poor	Poor	Fair	Fair	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	03:21:10pm	moderate	33	4	229	0.5	0	None	Poor	Fair	Fair	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	03:31:25pm	moderate	34	4	97	0.5	0	None	Poor	Fair	Fair	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	03:35:58pm	moderate	35	4	146	0.5	0	None	None	Fair	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	03:42:32pm	moderate	36	4	144	0.5	0	None	None	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	03:48:22pm	moderate	37	4	71	0.5	0	None	None	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	03:51:29pm	moderate	38	4	84	0.5	0	None	None	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	04:03:53pm	moderate	39	4	155	0.5	0	None	None	Poor	Poor	Important	Yes	Yes
East Todedada Creek	1051	9/11/2010	04:41:36pm	moderate	40	5	165	1.0	0	Poor	Fair	Poor	Fair	Important	Yes	

Appendix 5.5-1. SHIM at Fish Habitat Compensation Sites

Stream Name	ILP	Limitation: Pools	Limitation: Boulders	Limitation: Velocity	Limitation: Spawning Habitat	Limitation: UC	Limitation: Off Channels	Limitation: SWD	Wetted Width (m)	Bankfull Width (m)	Dominant Substrate	Sub Dominant Substrate	Substrate Compaction	Left Bank Riparian Class
Gilbert Creek	1050								0.00	0.00	Fines	Fines	High	Shrubs
Gilbert Creek	1050								5.75	6.95	Small Gravel	Fines	Low	Broadleaf forest
Gilbert Creek	1050								0.00	0.00	Large Gravel	Fines	Low	Broadleaf forest
Gilbert Creek	1050								4.85	5.30	Large Gravel	Small Gravel	Low	Shrubs
Gilbert Creek	1050								4.85	5.30	Large Gravel	Small Gravel	Low	Mixed forest
Gilbert Creek	1050								4.85	5.30	Large Gravel	Small Cobble	Medium	Mixed forest
Gilbert Creek	1050								4.85	5.30	Fines	Small Gravel	Low	Broadleaf forest
Gilbert Creek	1050								4.85	5.30	Small Gravel	Fines	Low	Broadleaf forest
Gilbert Creek	1050								12.00	12.00	Fines	Fines	Low	Broadleaf forest
Gilbert Creek	1050								3.20	5.90	Fines	Small Gravel	Low	Shrubs
Gilbert Creek	1050	Yes							3.20	5.90	Large Gravel	Small Gravel	Low	Shrubs
Gilbert Creek	1050								0.00	0.00	Fines	Large Gravel	Low	Shrubs
Gilbert Creek	1050								0.00	0.00	Large Gravel	Small Gravel	Low	Shrubs
Gilbert Creek	1050				Yes				0.00	0.00	Small Cobble	Small Gravel	High	Shrubs
Gilbert Creek	1050								0.00	0.00	Small Gravel	Fines	Medium	Shrubs
Gilbert Creek	1050	Yes			Yes	Yes	Yes	Yes	0.00	6.50	Large Gravel	Small Cobble	High	Shrubs
Gilbert Creek	1050	Yes			Yes	Yes	Yes	Yes	0.00	6.50	Large Gravel	Small Cobble	High	Shrubs
Gilbert Creek	1050	Yes			Yes	Yes	Yes		0.00	7.60	Large Gravel	Small Cobble	High	Mixed forest
Gilbert Creek	1050	Yes			Yes	Yes	Yes		0.00	7.60	Large Gravel	Small Cobble	High	Mixed forest
Gilbert Creek	1050	Yes			Yes	Yes	Yes		0.00	12.00	Small Gravel	Fines	Medium	Mixed forest
Gilbert Creek	1050				Yes				0.00	24.00	Fines	Fines	Low	Mixed forest
Gilbert Creek	1050				Yes				0.00	10.00	Small Cobble	Fines	Medium	Mixed forest
Gilbert Creek	1050				Yes				0.00	10.00	Small Gravel	Fines	High	Shrubs
Gilbert Creek	1050				Yes				0.00	13.00	Fines	Fines	Low	Shrubs
Gilbert Creek	1050				Yes				0.00	10.00	Fines	Fines	Low	Shrubs
Hodkin Lake Creek 1	1053			Yes	Yes				4.60	4.60	Small Gravel	Large Gravel	High	Shrubs
Hodkin Lake Creek 1	1053			Yes	Yes				3.90	3.90	Small Gravel	Large Gravel	High	Shrubs
Hodkin Lake Creek 1	1053			Yes	Yes				2.20	2.20	Large Gravel	Small Gravel	High	Shrubs
Hodkin Lake Creek 1	1053	Yes		Yes	Yes				2.20	2.20	Large Gravel	Small Gravel	High	Shrubs
Hodkin Lake Creek 1	1053	Yes		Yes	Yes				2.20	2.20	Small Cobble	Large Cobble	High	Coniferous forest
Hodkin Lake Creek 1	1053	Yes		Yes	Yes				2.60	2.60	Small Cobble	Large Gravel	High	Shrubs
Hodkin Lake Creek 1	1053	Yes		Yes	Yes				2.60	2.60	Large Gravel	Small Cobble	High	Shrubs
Hodkin Lake Creek 1	1053	Yes		Yes	Yes				2.60	2.60	Small Cobble	Large Gravel	High	Shrubs
Hodkin Lake Creek 1	1053	Yes		Yes	Yes				3.10	3.10	Small Cobble	Boulder	High	Coniferous forest
Hodkin Lake Creek 1	1053	Yes		Yes	Yes				3.10	3.10	Small Cobble	Boulder	High	Coniferous forest
Hodkin Lake Creek 1	1053	Yes		Yes	Yes				3.10	3.10	Large Cobble	Boulder	High	Coniferous forest
Hodkin Lake Creek 2	1054							Yes	0.00	3.80	Small Gravel	Fines	Low	Shrubs
Hodkin Lake Creek 2	1054	Yes				Yes		Yes	0.00	2.65	Small Gravel	Large Gravel	Low	Shrubs
Hodkin Lake Creek 2	1054	Yes			Yes			Yes	0.00	1.30	Small Gravel	Large Gravel	Low	Shrubs
Hodkin Lake Creek 2	1054	Yes			Yes			Yes	0.00	1.30	Small Gravel	Fines	Low	Shrubs
Hodkin Lake Creek 2	1054							Yes	0.00	1.30	Small Gravel	Fines	Low	Shrubs
Hodkin Lake Creek 2	1054	Yes			Yes			Yes	0.00	3.20	Small Gravel	Large Gravel	Low	Shrubs
Hodkin Lake Creek 2	1054	Yes			Yes			Yes	0.00	3.20	Small Cobble	Small Gravel	High	Coniferous forest
Hodkin Lake Creek 2	1054	Yes			Yes			Yes	0.00	3.20	Large Cobble	Large Gravel	High	Coniferous forest
Mere Creek	1061	Yes			Yes	Yes			0.00	2.35	Small Cobble	Large Cobble	High	Broadleaf forest
Mere Creek	1061	Yes			Yes	Yes			0.00	2.83	Small Cobble	Large Cobble	Medium	Mixed forest
Mere Creek	1061	Yes			Yes	Yes			0.00	3.42	Large Cobble	Small Cobble	Low	Mixed forest
Mere Creek	1061	Yes			Yes	Yes			0.00	3.42	Large Cobble	Small Gravel	Medium	Mixed forest
Mere Creek	1061	Yes			Yes	Yes			0.00	3.10	Small Cobble	Boulder	Low	Mixed forest
Oweegee Side Channel	1056	Yes							0.00	0.00	Large Gravel	Fines	Low	Broadleaf forest
Oweegee Side Channel	1056								0.00	0.00	Fines	Fines	Low	Broadleaf forest
Oweegee Side Channel	1056								0.00	0.00	Large Gravel	Small Gravel	Low	Broadleaf forest
Oweegee Side Channel	1056			Yes					0.00	0.00	Large Gravel	Small Cobble	Low	Broadleaf forest
Oweegee Side Channel	1056			Yes					0.00	0.00	Large Gravel	Small Cobble	Low	Broadleaf forest
Teigen Side Channel	1066	Yes			Yes				0.00	6.70	Fines	Small Cobble	High	Mixed forest
Teigen Side Channel	1066	Yes			Yes				0.00	13.00	Fines	Fines	High	Mixed forest
Teigen Side Channel	1066	Yes			Yes				0.00	4.50	Large Gravel	Small Cobble	High	Mixed forest
Teigen Side Channel	1066	Yes			Yes				0.00	3.80	Fines	Small Cobble	High	Shrubs
Teigen Side Channel	1066	Yes			Yes				0.00	13.00	Small Cobble	Large Gravel	High	Mixed forest
Teigen Side Channel	1066	Yes							0.00	6.90	Small Cobble	Large Gravel	High	Mixed forest
Teigen Side Channel	1066	Yes							0.00	6.50	Large Gravel	Small Cobble	Medium	Mixed forest
Teigen Side Channel	1066	Yes							0.00	6.50	Large Gravel	Small Cobble	High	Coniferous forest
Teigen Side Channel	1066	Yes							0.00	6.50	Large Gravel	Small Cobble	Medium	Mixed forest
Teigen Side Channel	1066	Yes			Yes				0.00	7.40	Fines	Small Cobble	High	Coniferous forest
Teigen Side Channel	1066	Yes			Yes				0.00	7.40	Large Cobble	Small Cobble	High	Coniferous forest
Teigen Creek 2	1063								0.00	1.00	Fines	Large Cobble	High	Mixed forest
Teigen Creek 1	1062								0.00	0.30	Fines	Fines	High	Mixed forest
Todedada Creek	1052	Yes	Yes	Yes			Yes	Yes	0.00	0.00	Large Gravel	Large Cobble	High	Broadleaf forest
Todedada Creek	1052	Yes	Yes	Yes			Yes	Yes	0.00	0.00	Large Gravel	Large Cobble	High	Broadleaf forest
Todedada Creek	1052	Yes	Yes	Yes			Yes	Yes	0.00	0.00	Large Gravel	Large Cobble	High	Broadleaf forest
Todedada Creek	1052	Yes	Yes	Yes			Yes	Yes	0.00	0.00	Large Gravel	Small Gravel	Medium	Shrubs
Todedada Creek	1052	Yes	Yes	Yes			Yes	Yes	0.00	0.00	Large Gravel	Small Gravel	Medium	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	10.00	Fines	Fines	Low	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	10.00	Small Gravel	Fines	Low	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	10.00	Small Gravel	Fines	Low	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	9.00	Small Gravel	Fines	Low	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	9.00	Small Gravel	Fines	Low	Shrubs
East Todedada Creek	1051	Yes				Yes		Yes	0.00	8.00	Small Gravel	Large Gravel	Low	Shrubs
East Todedada Creek	1051	Yes				Yes		Yes	0.00	8.00	Large Gravel	Small Gravel	Medium	Shrubs
East Todedada Creek	1051				Yes	Yes			0.00	11.00	Fines	Fines	Low	Shrubs
East Todedada Creek	1051	Yes			Yes	Yes			0.00	2.50	Fines	Fines	Low	Shrubs
East Todedada Creek	1051	Yes			Yes	Yes			0.00	4.20	Fines	Small Gravel	Low	Shrubs
East Todedada Creek	1051								0.00	0.00	Fines	Small Gravel	Low	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	3.30	Small Gravel	Large Gravel	Low	Shrubs
East Todedada Creek	1051	Yes		Yes		Yes	Yes	Yes	0.00	3.30	Small Gravel	Large Gravel	Medium	Shrubs
East Todedada Creek	1051	Yes		Yes		Yes	Yes	Yes	0.00	3.30	Large Gravel	Small Gravel	Medium	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	2.10	Large Gravel	Small Gravel	High	Shrubs
East Todedada Creek	1051	Yes		Yes		Yes	Yes	Yes	0.00	3.90	Fines	Small Gravel	Low	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	0.00	Large Gravel	Small Gravel	Low	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	9.00	Large Gravel	Small Gravel	Low	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	9.00	Large Gravel	Small Gravel	Medium	Shrubs
East Todedada Creek	1051					Yes	Yes	Yes	0.00	9.00	Large Gravel	Small Gravel	Low	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	9.00	Large Gravel	Small Gravel	Low	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	9.00	Large Gravel	Small Cobble	Low	Shrubs
East Todedada Creek	1051	Yes				Yes		Yes	0.00	4.50	Large Gravel	Small Gravel	High	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	9.00	Large Gravel	Small Gravel	Low	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	6.30	Large Gravel	Small Cobble	Low	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	6.30	Large Gravel	Small Cobble	Medium	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	6.30	Large Gravel	Small Cobble	Medium	Shrubs
East Todedada Creek	1051	Yes				Yes			0.00	5.80	Large Gravel	Small Gravel	Low	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	8.20	Large Gravel	Small Cobble	Medium	Shrubs
East Todedada Creek	1051	Yes				Yes	Yes	Yes	0.00	0.00	Large Gravel	Small Gravel	Medium	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	12.00	Fines	Large Gravel	Medium	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	14.00	Fines	Fines	Low	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	27.00	Fines	Fines	Low	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	12.00	Fines	Fines	Low	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	20.00	Fines	Fines	Low	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	39.00	Fines	Fines	Low	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	4.00	Fines	Fines	Low	Shrubs
East Todedada Creek	1051					Yes		Yes	0.00	7.00	Fines	Fines	Low	Coniferous forest
East Todedada Creek	1051	Yes				Yes		Yes	0.00	10.00	Large Gravel	Small Cobble	High	Coniferous forest

Appendix 5.5-1. SHIM at Fish Habitat Compensation Sites

Stream Name	ILP	Left Bank Riparian Stage	Right Bank Riparian Class	Right Bank Riparian Stage	Bank Stability	Dominant Bank Material	Channel Morphology	Hydraulic Type
Gilbert Creek	1050	tall shrubs 2-10m	Broadleaf forest	sapling >10m	Stable - undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	sapling >10m	Broadleaf forest	sapling >10m	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	young forest	Broadleaf forest	sapling >10m	Stable - undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	mature forest	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	mature forest	Mixed forest	mature forest	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	sapling >10m	Broadleaf forest	sapling >10m	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	sapling >10m	Broadleaf forest	sapling >10m	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	sapling >10m	Broadleaf forest	sapling >10m	Stable - no undercut	Fines	Large Channel	Beaver Pond
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	Beaver Pond
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	Beaver Pond
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	tall shrubs 2-10m	Coniferous forest	mature forest	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	young forest	Coniferous forest	mature forest	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	young forest	Coniferous forest	mature forest	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	young forest	Coniferous forest	mature forest	Stable - no undercut	Fines	Riffle Pool	-
Gilbert Creek	1050	young forest	Coniferous forest	mature forest	Stable - no undercut	Fines	Large Channel	Beaver Pond
Gilbert Creek	1050	young forest	Coniferous forest	mature forest	Stable - no undercut	Fines	Large Channel	Beaver Pond
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	Beaver Pond
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	Beaver Pond
Gilbert Creek	1050	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	Wetland
Hodkin Lake Creek 1	1053	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	-
Hodkin Lake Creek 1	1053	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	-
Hodkin Lake Creek 1	1053	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 1	1053	tall shrubs 2-10m	Coniferous forest	young forest	Stable - no undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 1	1053	young forest	Shrubs	tall shrubs 2-10m	Stable - no undercut	Cobble	Riffle Pool	-
Hodkin Lake Creek 1	1053	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 1	1053	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 1	1053	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 1	1053	mature forest	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 1	1053	mature forest	Coniferous forest	mature forest	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 1	1053	mature forest	Coniferous forest	mature forest	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 2	1054	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	-
Hodkin Lake Creek 2	1054	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 2	1054	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 2	1054	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 2	1054	tall shrubs 2-10m	Coniferous forest	young forest	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 2	1054	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 2	1054	mature forest	Coniferous forest	mature forest	Stable - no undercut	Fines	Riffle Pool	-
Hodkin Lake Creek 2	1054	mature forest	Coniferous forest	mature forest	Stable - no undercut	Bed_Rock	Cascade Pool	-
Mere Creek	1061	young forest	Broadleaf forest	young forest	Stable - no undercut	Fines	Riffle Pool	-
Mere Creek	1061	young forest	Mixed forest	young forest	Stable - no undercut	Cobble	Riffle Pool	-
Mere Creek	1061	young forest	Mixed forest	young forest	Stable - no undercut	Cobble	Riffle Pool	-
Mere Creek	1061	young forest	Mixed forest	young forest	Stable - no undercut	Cobble	Riffle Pool	-
Mere Creek	1061	young forest	Mixed forest	young forest	Stable - no undercut	Cobble	Riffle Pool	-
Oweegee Side Channel	1056	young forest	Broadleaf forest	young forest	Stable - undercut	Fines	Riffle Pool	-
Oweegee Side Channel	1056	young forest	Broadleaf forest	young forest	Stable - undercut	Fines	Large Channel	-
Oweegee Side Channel	1056	young forest	Broadleaf forest	young forest	Stable - undercut	Fines	Riffle Pool	-
Oweegee Side Channel	1056	young forest	Broadleaf forest	young forest	Stable - undercut	Fines	Riffle Pool	-
Oweegee Side Channel	1056	young forest	Broadleaf forest	young forest	Stable - undercut	Fines	Riffle Pool	-
Teigen Side Channel	1066	young forest	Shrubs	tall shrubs 2-10m	Stable - no undercut	Cobble	Riffle Pool	-
Teigen Side Channel	1066	young forest	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	Beaver Pond
Teigen Side Channel	1066	young forest	Shrubs	tall shrubs 2-10m	Stable - no undercut	Cobble	Riffle Pool	-
Teigen Side Channel	1066	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
Teigen Side Channel	1066	young forest	Mixed forest	young forest	Stable - no undercut	Gravel	Riffle Pool	-
Teigen Side Channel	1066	young forest	Mixed forest	young forest	Stable - no undercut	Gravel	Riffle Pool	-
Teigen Side Channel	1066	young forest	Mixed forest	young forest	Stable - no undercut	Gravel	Riffle Pool	-
Teigen Side Channel	1066	mature forest	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	Beaver Pond
Teigen Side Channel	1066	young forest	Mixed forest	young forest	Stable - no undercut	Gravel	Riffle Pool	-
Teigen Side Channel	1066	mature forest	Coniferous forest	mature forest	Stable - no undercut	Fines	Large Channel	Beaver Pond
Teigen Side Channel	1066	mature forest	Coniferous forest	mature forest	Stable - no undercut	Fines	Riffle Pool	-
Teigen Creek 2	1063	mature forest	Mixed forest	mature forest	Stable - no undercut	Fines	Riffle Pool	-
Teigen Creek 1	1062	mature forest	Mixed forest	mature forest	Stable - no undercut	Fines	Riffle Pool	-
Todedada Creek	1052	mature forest	Broadleaf forest	mature forest	Stable - no undercut	Fines	Riffle Pool	-
Todedada Creek	1052	young forest	Broadleaf forest	young forest	Stable - no undercut	Fines	Riffle Pool	-
Todedada Creek	1052	young forest	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
Todedada Creek	1052	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
Todedada Creek	1052	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Large Channel	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Eroding	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	tall shrubs 2-10m	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	mature forest	Shrubs	tall shrubs 2-10m	Stable - undercut	Fines	Large Channel	Beaver Pond
East Todedada Creek	1051	mature forest	Shrubs	tall shrubs 2-10m	Stable - no undercut	Fines	Riffle Pool	-

Appendix 5.5-2

Detailed Fish Habitat Assessment at Fish Habitat Compensation Sites

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Appendix 5.5-2. Detailed Fish Habitat Assessment at Fish Habitat Compensation Sites

								Depth (m)				Width (m)		Bed Material (%)					Gravel		Instream Cover (%)					Off Channel Habitat			Functional LWD (Count)				Pool Info		Riparian Cover (%)		
Stream	Site	Date	Habitat Number	Habitat Type	Distance from Start (m)	Length (m)	Slope	Wetted	Wetted	Wetted	Bankfull	Wetted	Bankfull	Sand	Gravel	Cobble	Boulder	Bedrock	Type	Amount	Pool	Boulder	Overhang Vegetation	Undercut Bank	Large Woody Debris	Small Woody Debris	Type	Access	Length	10-20cm	20-50cm	>50cm	Total LWD Tally	Type	Residual (m)	Type	Structure	Canopy
East Todedada Creek	1	10-Sep-10	1	Riffle	0	107	1	0.10	0.22	0.21	0.50	7.90	8.40	-	60	40	-	-	A	M	-	-	1	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
East Todedada Creek	1	10-Sep-10	2	P	107	12	1	0.54	0.55	0.78	1.08	7.00	10.10	10	70	20	-	-	A	L	90	-	5	-	-	-	N	-	-	-	-	-	0	SC	0.3	S	S	0
East Todedada Creek	1	10-Sep-10	3	G	119	25	1	0.36	0.46	0.61	0.90	3.30	3.50	-	70	30	-	-	A	H	-	-	30	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
East Todedada Creek	1	10-Sep-10	4	Riffle	144	70	1	0.11	0.22	0.24	0.50	7.50	7.70	-	40	10	-	-	A	L	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
East Todedada Creek	2	10-Sep-10	3	Riffle	59	82	1	0.09	0.25	0.35	0.60	3.80	5.30	-	90	10	-	-	A	H	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
East Todedada Creek	2	10-Sep-10	4	G	141	15	1	0.12	0.25	0.33	0.55	10.00	11.00	-	100	-	-	-	A	H	-	-	20	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
East Todedada Creek	2	10-Sep-10	5	P	156	13	0	0.10	0.59	0.64	0.90	10.00	10.50	40	60	-	-	-	A	L	80	-	20	-	-	-	N	-	-	-	-	-	0	SC	0.51	S	S	0
East Todedada Creek	2	10-Sep-10	6	G	169	30	-	0.21	0.27	0.18	0.50	6.80	7.30	-	90	10	-	-	A	H	-	-	30	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
East Todedada Creek	3	10-Sep-10	1	Run	0	200	1	0.20	0.21	0.27	0.30	2.70	2.70	5	95	-	-	-	N	-	-	-	10	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
East Todedada Creek	4	11-Sep-10	1	Run	0	24	1	0.30	0.29	0.23	0.75	9.00	9.20	30	70	-	-	-	A	H	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
East Todedada Creek	4	11-Sep-10	2	P	24	61	0	0.60	0.99	0.60	1.40	8.00	10.00	40	60	-	-	-	A	L	90	-	5	-	-	-	N	-	-	-	-	-	0	SC	0.85	S	S	0
East Todedada Creek	4	11-Sep-10	3	Riffle	85	12	1	0.14	0.16	0.32	1.00	7.00	9.00	10	90	-	-	-	A	H	-	-	10	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
East Todedada Creek	4	11-Sep-10	4	P	97	16	0	1.10	0.08	0.70	1.50	7.40	9.00	80	20	-	-	-	A	L	80	-	10	-	-	-	N	-	-	-	-	-	0	SC	0.96	S	S	0
East Todedada Creek	4	11-Sep-10	5	G	113	72	0	0.12	0.23	0.27	2.70	10.00	10.00	30	70	-	-	-	A	H	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Gilbert Creek	1	9-Sep-10	1	P	0	14	1	0.32	0.36	0.09	0.43	3.10	5.40	80	20	-	-	-	A	H	80	-	20	5	20	-	N	-	-	2	4	3	9	SC	0.92	M	MF	5
Gilbert Creek	1	9-Sep-10	2	Riffle	19	17	1	0.18	0.13	0.15	0.50	5.00	5.40	-	30	70	-	-	A	L	-	-	25	-	10	-	N	-	-	3	-	3	6	-	-	M	MF	5
Gilbert Creek	1	9-Sep-10	3	P	31	13	1	0.51	0.30	0.21	1.19	4.80	6.30	60	40	-	-	-	A	H	90	-	-	-	10	-	N	-	-	-	1	1	2	SC	0.34	M	MF	5
Gilbert Creek	1	9-Sep-10	4	Riffle	44	11	1	0.16	0.12	0.22	0.59	4.10	5.20	-	30	70	-	-	A	L	-	-	10	-	-	-	N	-	-	-	-	-	0	-	-	M	MF	5
Gilbert Creek	1	9-Sep-10	5	P	55	15	1	0.45	0.49	0.43	1.00	6.70	9.30	60	40	-	-	-	A	H	80	-	10	-	50	-	N	-	-	10	5	9	24	SC	1.6	M	MF	5
Gilbert Creek	1	9-Sep-10	6	Riffle	70	17	1	0.04	0.03	0.22	0.70	6.80	7.90	20	60	20	-	-	A	H	-	-	40	-	5	-	N	-	-	1	1	-	2	-	-	M	MF	5
Gilbert Creek	1	9-Sep-10	7	P	87	14	1	0.28	0.56	0.72	1.00	4.30	5.00	60	40	-	-	-	A	H	90	-	60	10	-	-	N	-	-	2	-	-	2	SC	0.58	M	MF	5
Gilbert Creek	2	9-Sep-10	1	Run	0	11	1	0.26	0.25	0.27	0.80	2.40	5.60	30	40	30	-	-	A	L	-	-	40	-	20	-	N	-	-	3	-	-	3	-	-	S	S	5
Gilbert Creek	2	9-Sep-10	2	Riffle	11	25	1	0.07	0.10	0.15	0.45	6.10	6.10	5	25	70	-	-	A	L	-	-	20	-	5	-	N	-	-	2	-	-	2	-	-	S	S	5
Gilbert Creek	2	9-Sep-10	3	G	35	15	1	0.10	0.10	0.31	0.55	3.90	5.20	10	40	50	-	-	A	L	-	-	20	-	5	-	N	-	-	-	-	-	0	-	-	S	S	5
Gilbert Creek	2	9-Sep-10	4	P	50	14	1	0.11	0.09	0.06	0.60	6.80	7.20	5	25	70	-	-	A	L	-	-	40	-	-	-	N	-	-	-	-	-	0	-	-	S	S	5
Gilbert Creek	2	9-Sep-10	5	G	64	30	1	0.19	0.31	0.35	0.80	4.30	6.20	30	50	20	-	-	A	L	-	-	30	-	5	-	N	-	-	5	-	-	5	-	-	S	S	5
Gilbert Creek	2	9-Sep-10	6	Riffle	94	6	1	0.10	0.12	0.09	0.60	7.20	9.20	-	30	70	-	-	A	L	-	-	10	-	-	-	N	-	-	-	-	-	0	-	-	S	S	5
Hodkin Creek 2	1	14-Sep-10	1	G	0	4	0	0.26	0.26	0.18	0.40	2.65	2.65	10	90	-	-	-	R	L	-	-	20	5	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Hodkin Creek 2	1	14-Sep-10	2	Riffle	7	3	1	0.09	0.05	0.04	0.30	2.90	2.90	-	100	-	-	-	R	L	-	-	40	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Hodkin Creek 2	1	14-Sep-10	3	G	4	4	0	0.15	0.17	0.12	0.30	2.30	2.30	10	90	-	-	-	R	L	-	-	20	5	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Hodkin Creek 2	1	14-Sep-10	4	Riffle	11	4	1	0.08	0.04	0.03	0.35	2.50	2.50	-	100	-	-	-	R	L	-	-	40	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Hodkin Lake Creek 1	1	13-Sep-10	1	Riffle	0	100	1	0.30	0.30	0.24	0.70	2.20	2.20	-	**80**	**20**	-	-	**R**	**None**	-	-	**100**	-	-	-	**N**	-	-	-	-	-	**0**	-	-	**S**	**S**	**0**
Hodkin Lake Creek 1	2	13-Sep-10	1	C	0	50	2	0.26	0.26	0.39	0.70	3.00	3.10	-	20	60	20	-	R	None	-	20	10	-	5	-	N	-	-	3	-	-	3	-	-	C	MF	20
Hodkin Lake Creek 1	2	13-Sep-10	2	Run	50	5	1	0.30	0.20	0.40	0.70	3.50	3.50	-	40	55	5	-	R	None	-	5	-	-	-	-	N	-	-	-	-	-	0	-	-	C	MF	20
Hodkin Lake Creek 1	2	13-Sep-10	3	C	55	50	2	0.20	0.40	0.30	0.70	3.20	3.20	-	20	60	20	-	R	None	-	20	10	-	5	-	N	-	-	2	-	-	2	-	-	C	MF	20
Taft Creek	1	7-Aug-10	1	C	0	200	-	1.50	1.50	1.50	2.00	52.00	76.00	10	10	80	-	-	N	-	1	-	1	-	5	-	N	-	-	50	50	10	110	SC	-	M	MF	1
Taft Creek	1	7-Aug-10	2	Riffle	0	34	-	0.09	0.15	0.09	0.30	3.00	3.00	-	30	70	-	-	N	-	-	20	-	-	-	-	N	-	-	-	-	-	0	-	-	N	N	0
Taft Creek	1	7-Aug-10	3	G	34	38	-	0.38	0.30	0.31	0.50	10.00	10.00	60	30	10	-	-	N	-	-	-	20	-	5	-	N	-	-	1	-	-	1	-	-	N	N	0
Taft Creek	1	7-Aug-10	4	Riffle	72	62	-	0.10	0.20	0.10	0.50	3.00	3.00	-	30	70	-	-	N	-	-	20	-	-	-	-	N	-	-	-	-	-	0	-	-	N	N	0
Taft Creek	1	7-Aug-10	5	P	134	69	-	0.34	0.57	0.30	1.50	4.00	4.00	80	20	-	-	-	N	-	60	-	-	-	25	-	N	-	-	-	-	5	5	SC	0.5	YF	YF	10
Taft Creek	2	8-Aug-10	1	P	0	65	-	0.50	2.00	1.00	2.90	38.00	51.00	40	30	30	-	-	A	H	100	-	-	-	50	-	N	-	-	20	20	10	50	SC	2	D	YF	0
Taft Creek	2	8-Aug-10	2	Run	65	42	-	0.50	0.70	0.50	1.50	47.00	49.00	-	60	40	-	-	A	H	-	-	5	-	10	-	N	-	-	2	1	1	4	-	-	S	S	0
Taft Creek	2	8-Aug-10	3	Riffle	107	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taft Creek	2	8-Aug-10	4	P	141	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taft Creek	3	8-Aug-10	1	P	0	47	-	2.00	2.00	2.00	3.00	27.00	37.00	10	80	-	5	5	A	H	100	5	1	-	5	-	N	-	-	6	-	-	6	SC	2	C	MF	1
Taft Creek	3	8-Aug-10	2	C	47	150	-	0.22	0.30	1.00	2.00	39.00	39.00	-	10	50	40	-	N	-	-	50	-	-	-	-	N	-	-	-	-	-	0	-	-	C	MF	1
Todedada Creek	1	12-Sep-10	1	Run	0	125	1	0.09	0.27	0.42	0.65	16.00	17.00	10	90	-	-	-	A	H	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	1	12-Sep-10	2	G	125	30	1	0.79	0.70	0.19	1.20	15.00	17.00	60	40	-	-	-	A	H	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	1	12-Sep-10	3	Run	155	111	1	0.34	0.20	0.40	0.98	13.00	14.00	10	90	-	-	-	A	H	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	1	4-Aug-10	1	Run	0	27	-	0.30	0.72	1.00	1.50	17.00	19.00	30	20	50	-	-	A	L	-	-	10	-	1	-	N	-	-	-	1	-	1	-	-	S	S	0
Todedada Creek	1	4-Aug-10	2	Riffle	27	80	-	0.45	0.60	7.00	1.50	23.00	23.00	-	20	80	-	-	A	L	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	1	4-Aug-10	3	Run	107	20	-	0.30	0.71	1.00	1.70	17.00	19.00	30	40	30	-	-	A	L	-	-	10	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	1	4-Aug-10	4	Riffle	127	35	-	-	-	-	-	-	-	-	40	80	-	-	-	-	-	-	10	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	1	4-Aug-10	5	Run	162	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Todedada Creek	2	5-Aug-10	1	Run	0	40	-	0.90	1.10	0.90	1.30	10.00	10.00	30	70	-	-	-	A	L	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	2	5-Aug-10	2	G	40	23	-	0.90	1.50	1.50	1.80	13.00	13.00	20	80	-	-	-	A	L	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	2	5-Aug-10	3	Run	63	25	-	0.90	1.50	1.50	1.80	16.00	16.00	20	80	-	-	-	A	L	-	-	5	-	-	-	SL	P	10	-	-	-	0	-	-	S	S	0
Todedada Creek	2	5-Aug-10	4	G	88	30	-	0.90	1.50	1.50	1.80	-	-	30	70	-	-	-	A	L	-	-	5	-	-	-	SL	P	15	-	-	-	0	-	-	S	S	0
Todedada Creek	2	5-Aug-10	5	Run	118	80	-	0.90	1.50	1.50	1.80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Todedada Creek	3	7-Aug-10	1	Run	0	90	-	1.06	1.40	1.06	1.50	10.00	10.00	30	70	-	-	-	A	L	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	3	7-Aug-10	2	Riffle	90	10	-	0.30	0.50	0.70	0.90	15.00	15.00	10	90	-	-	-	A	H	-	-	1	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	3	7-Aug-10	3	G	100	23	-	0.90	0.90	0.70	1.10	18.00	18.00	20	80	-	-	-	A	L	-	-	1	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0
Todedada Creek	3	7-Aug-10	4	Run	123	80	-	1.00	1.00	1.00	1.20	13.00	13.00	20	80	-	-	-	A	L	-	-	5	-	-	-	N	-	-	-	-	-	0	-	-	S	S	0

G = glide, P = pool, A = anadromous, R = resident, N = none, H = high, M = moderate, L = low, SC = scour
S = shrub, C = coniferous, D = deciduous, M = mixed, YF = young forest, MF = mature forest

Appendix 5.5-3

Gilbert Lake Habitat Data, 2010

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Appendix 5.5-3. Gilbert Lake Habitat Data, 2010

			Bed Material					Shoreline Type					Beginning		End	
Lake	Category	Unit #	Sand	Gravel	Cobble	Boulder	Bedrock	Coniferous	Deciduous	Mixed	Shrub	None	Easting	Northing	Easting	Northing
Gilbert Lake	Littoral Substrate	1	D	-	-	-	-	-	-	-	-	-	450218	6268219	450525	6268896
Gilbert Lake	Littoral Substrate	2	D	-	-	-	-	-	-	-	-	-	450525	6268896	450647	6268811
Gilbert Lake	Littoral Substrate	3	D	-	-	-	-	-	-	-	-	-	450647	6268811	450203	6268190
Gilbert Lake	Shoreline Substrate	1	D	T	T	-	-	-	-	-	-	-	450218	6268219	450079	6269082
Gilbert Lake	Shoreline Substrate	2	D		T	-	-	-	-	-	-	-	450079	6269082	450753	6268457
Gilbert Lake	Shoreline Substrate	3	D	T	S	-	-	-	-	-	-	-	450753	6268457	450809	6268336
Gilbert Lake	Shoreline Substrate	4	D	-	T	-	-	-	-	-	-	-	450809	6268336	450861	6268288
Gilbert Lake	Shoreline Substrate	5	D	-	-	-	-	-	-	-	-	-	450861	6268288	450203	6268190
Gilbert Lake	Shoreline Category	1	-	-	-	-	-	D	-	-	S	-	450218	6268219	450031	6268459
Gilbert Lake	Shoreline Category	2	-	-	-	-	-	D	T	-	S	-	450031	6268459	450043	6269017
Gilbert Lake	Shoreline Category	3	-	-	-	-	-	T	T	-	D	-	450043	6269017	450079	6269082
Gilbert Lake	Shoreline Category	4	-	-	-	-	-	D	-	-	S	-	450079	6269082	450393	6268979
Gilbert Lake	Shoreline Category	5	-	-	-	-	-	D	-	-	S	-	450393	6268979	450861	6268288
Gilbert Lake	Shoreline Category	6	-	-	-	-	-	-	-	S	D	-	450861	6268288	450203	6268190

Bed material - D = dominant, SD = subdominant, T = trace

Dashes indicate not present

Appendix 5.5-4

Stream and Side Channel Electrofishing Effort and Catch Data for Compensation Sites, 2010

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Appendix 5.5-4. Stream and Side Channel Electrofishing Effort and Catch Data for Compensation Sites, 2010

Polygon	ILP	Site	Site ID	Temperature (°C)	Conductivity (µscm)	Turbidity	Date In	Time In	Date Out	Time Out	EF Spec	EF Length	EF Width	EF Volt	EF Freq	EF Pulse
112 Todedada	1001	1	1	7	70	T	2010/08/04	1430	2010/08/04	1530	1010	200	17	605	30	12
112 Todedada	1001	2	2	5	70	T	2010/08/05	915	2010/08/05	1015	998	300	6	450	30	12
110 Gilbert	1002	0	1	9	80	T	2010/08/05	1330	2010/08/05	1437	700	100	5	345	30	12
110 Gilbert	1002	0	2	16	130	C	2010/08/06	845	2010/08/06	945	926	200	5	300	30	12
112 Todedada	1001	3	3	4	70	T	2010/08/07	845	2010/08/07	945	970	200	10	400	30	12
112 East Todedada	1003	0	3			M	2010/07/09	1030	2010/07/09	1110	515	100	15	380	30	12
112 East Todedada	1003	0	1	9	130	C	2010/08/06	1200	2010/08/06	1300	1101	200	7	365	30	12
130 Taft	1004	1	1	10	50	T	2010/08/07	1300	2010/08/07	1400	900	200	5	425	30	12
130 Taft	1004		2	8	50	T	2010/08/08	900	2010/08/08	1000	967	200	10	710	30	12
130 Taft	1004	4	3	9	60	T	2010/08/08	1130	2010/08/08	1231	697	200	10	420	30	12
129 Glacier	1005	1	1	5	40	L	2010/08/08	1400	2010/08/08	1500	543	100	8	580	30	12
129 Glacier	1005	2	2	4	50	L	2010/08/09	1030	2010/08/09	1130	802	300	7	820	30	12
112 East Todedada	1003	0	2	10	103	M	2010/08/07	1045	2010/08/07	1145	830	200	8	380	30	12
112 East Todedada	1051	0	1	7	-	C	2010/09/12	1200	2010/09/12	1300	830	400	10	300	30	12
112 Todedada	1052	1	1	5	-	L	2010/09/12	945	2010/09/12	1045	1071	200	16	300	30	12
100 Creek 1	2001	0	2001	14	49	C	2010/08/04	900	2010/08/04	1000	1007	100	3	585	30	12
100 Creek 2	2002	0	2002	10	99	C	2010/08/05	900	2010/08/05	1000	900	100	2	100	30	12
137A Bowser	2008	1	1	11.5	-	C	2010/08/10	1000	2010/08/10	1100	816	200	3.5	420	40	12
126 Oweegee SC	3000	1	3000	17	120	L	2010/08/06	1000	2010/08/06	1130	1118	300	1.5	330	40	2.5
126 Oweegee Creek	3001	2	3001	18	110	C	2010/08/06	1300	2010/08/06	1430	800	250	2.5	400	50	3
126 Oweegee Creek	3002	3	3002	16	110	C	2010/08/07	1000	2010/08/07	1115	910	300	2	500	45	4
118 Snowbank	3003	1	3003	9	90	T	2010/08/07	1400	2010/08/07	1430	660	100	1.5	500	33	4
Bell Irving SC	3004	164	3005	12	200	C	2010/08/08	1130	2010/08/08	1300	683	200	1.5	450	47	3
Bell Irving SC	3005	171	3006	10	120	L	2010/08/08	1400	2010/08/08	1500	838	260	1	450	47	3
Bell Irving SC	3006	125	3007	13	120	L	2010/08/11	1400	2010/08/11	1500	579	150	1.5	450	40	3.5
133 Mere Creek	3007	-	3008	11	150	C	2010/08/12	1015	2010/08/12	1030	141	5	1.5	355	37	3.2
Bell Irving SC	3008	124	3010	10	190	L	2010/08/12	1315	2010/08/12	1415	322	125	1.5	400	40	3.5

T = turbid, M = moderately turbid, L = lightly turbid, C - clear

EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon

Appendix 5.5-4. Stream and Side Channel Electrofishing Effort and Catch Data for Compensation Sites, 2010

Polygon	Total Catch							DV Catch				BT Catch			
	DV	BT	RB	MW	CH	CO	Total	Fry	Parr	Adult	Total	Fry	Parr	Adult	Total
112 Todedada	11	1	0	0	1	0	13	0	10	1	11	0	1	0	1
112 Todedada	11	0	0	0	0	0	11	0	7	4	11	0	0	0	0
110 Gilbert	2	0	13	2	37	16	70	1	1	0	2	0	0	0	0
110 Gilbert	0	0	45	0	0	0	45	0	0	0	0	0	0	0	0
112 Todedada	8	0	0	0	0	0	8	0	8	0	8	0	0	0	0
112 East Todedada	6	0	0	0	0	0	6	6	0	0	6	0	0	0	0
112 East Todedada	30	0	0	0	0	8	38	10	7	13	30	0	0	0	0
130 Taft	2	1	0	0	43	6	52	2	0	0	2	0	0	1	1
130 Taft	6	11	0	0	42	0	59	1	1	4	6	6	3	2	11
130 Taft	0	0	1	1	15	0	17	0	0	0	0		1	0	1
129 Glacier	4	0	1	0	0	0	5	0	1	3	4	0	0	0	0
129 Glacier	5	0	0	0	0	0	5	0	3	2	5	0	0	0	0
112 East Todedada	23	0	0	0	0	7	30	20	2	1	23	0	0	0	0
112 East Todedada	10	0	0	0	0	15	25	7	3	0	10	0	0	0	0
112 Todedada	16	0	0	1	0	4	21	11	5	0	16	0	0	0	0
100 Creek 1	26	0	0	0	0	0	26	3	17	6	26	0	0	0	0
100 Creek 2	53	0	0	0	0	0	53	17	36	0	53	0	0	0	0
137A Bowser	12	0	7	0	0	2	21	0	7	5	12	0	0	0	0
126 Oweegee SC	0	0	15	0	0	2	17	0	0	0	0	0	0	0	0
126 Oweegee Creek	0	0	11	0	0	2	13	0	0	0	0	0	0	0	0
126 Oweegee Creek	0	0	19	0	0	5	24	0	0	0	0	0	0	0	0
118 Snowbank	4	0	13	0	24	1	42	0	2	2	4	0	0	0	0
Bell Irving SC	0	0	2	0	3	12	17	0	0	0	0	0	0	0	0
Bell Irving SC	0	0	2	12	29	0	43	0	0	0	0	0	0	0	0
Bell Irving SC	0	0	0	9	11	1	21	0	0	0	0	0	0	0	0
133 Mere Creek	1	0	1	0	0	39	41	0	0	1	1	0	0	0	0
Bell Irving SC	0	0	0	5	18	0	23	0	0	0	0	0	0	0	0

T = turbid, M = moderately turbid, L = lightly turbid, C - clear

EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon

Appendix 5.5-4. Stream and Side Channel Electrofishing Effort and Catch Data for Compensation Sites, 2010

	RB Catch				MW Catch				CH Catch			CO Catch		
Polygon	Fry	Parr	Adult	Total	Fry	Parr	Adult	Total	Fry	Parr	Total	Fry	Parr	Total
112 Todedada	0	0	0	0	0	0	0	0	0	1	1	0	0	0
112 Todedada	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110 Gilbert	1	12	0	13	0	0	2	2	37	0	37	16	0	16
110 Gilbert	31	14	0	45	0	0	0	0	0	0	0	0	0	0
112 Todedada	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112 East Todedada	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112 East Todedada	0	0	0	0	0	0	0	0	0	0	0	8	0	8
130 Taft	0	0	0	0	0	0	0	0	43	0	43	6	0	6
130 Taft	0	0	0	0	0	0	0	0	42	0	42	0	0	0
130 Taft	0	0	0	0	0	0	1	1	15	0	15	0	0	0
129 Glacier	0	1	0	1	0	0	0	0	0	0	0	0	0	0
129 Glacier	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112 East Todedada	0	0	0	0	0	0	0	0	0	0	0	7	0	7
112 East Todedada	0	0	0	0	0	0	0	0	0	0	0	14	1	15
112 Todedada	0	0	0	0	0	0	1	1	0	0	0	4	0	4
100 Creek 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100 Creek 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137A Bowser	6	1	0	7	0	0	0	0	0	0	0	2	0	2
126 Oweegee SC	15	0	0	15	0	0	0	0	0	0	0	2	0	2
126 Oweegee Creek	6	5	0	11	0	0	0	0	0	0	0	0	2	2
126 Oweegee Creek	15	4	0	19	0	0	0	0	0	0	0	3	2	5
118 Snowbank	8	5	0	13	0	0	0	0	24	0	24	1	0	1
Bell Irving SC	0	2	0	2	0	0	0	0	2	1	3	11	1	12
Bell Irving SC	0	2	0	2	0	12	0	12	28	1	29	0	0	0
Bell Irving SC	0	0	0	0	0	8	1	9	11	0	11	1	0	1
133 Mere Creek	1	0	0	1	0	0	0	0	0	0	0	36	3	39
Bell Irving SC	0	0	0	0	0	5	0	5	18	0	18	0	0	0

T = turbid, M = moderately turbid, L = lightly turbid, C - clear

EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon

Appendix 5.5-5

Side Channel Minnow Trap Effort and Catch Data for Compensation Sites, 2010

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Appendix 5.5-5. Side Channel Minnow Trap Effort and Catch Data for Compensation Sites, 2010

Polygon	ILP	Reach	Site ID	Method Number	Date In	Time In	Time Set Conversion	Date Out	Time Out	Time Pulled Conversion	Set Duration Conversion (hrs)	Total Catch			CH Catch			CO Catch		
												CH	CO	Total	Fry	Parr	Total	Fry	Parr	Total
Bell Irving SC	3006	125	3007	1	2010/08/11	14:00	14.00	2010/08/12	14:30	14.50	24.50	2	0	2	2	0	2	0	0	0
Bell Irving SC	3006	125	3007	2	2010/08/11	14:00	14.00	2010/08/12	14:30	14.50	24.50	1	0	1	1	0	1	0	0	0
Bell Irving SC	3006	125	3007	3	2010/08/11	14:00	14.00	2010/08/12	14:30	14.50	24.50	1	0	1	1	0	1	0	0	0
Bell Irving SC	3006	125	3007	4	2010/08/11	14:00	14.00	2010/08/12	14:30	14.50	24.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3006	125	3007	5	2010/08/11	14:00	14.00	2010/08/12	14:30	14.50	24.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3006	125	3007	6	2010/08/11	14:00	14.00	2010/08/12	14:30	14.50	24.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3006	125	3007	7	2010/08/11	14:00	14.00	2010/08/12	14:30	14.50	24.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3006	125	3007	8	2010/08/11	14:00	14.00	2010/08/12	14:30	14.50	24.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3006	125	3007	9	2010/08/11	14:00	14.00	2010/08/12	14:30	14.50	24.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3008	124	3010	1	2010/08/12	16:00	16.00	2010/08/13	9:30	9.50	17.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3008	124	3010	2	2010/08/12	16:00	16.00	2010/08/13	9:30	9.50	17.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3008	124	3010	3	2010/08/12	16:00	16.00	2010/08/13	9:30	9.50	17.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3008	124	3010	4	2010/08/12	16:00	16.00	2010/08/13	9:30	9.50	17.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3008	124	3010	9	2010/08/12	16:00	16.00	2010/08/13	9:30	9.50	17.50	0	0	0	0	0	0	0	0	0
Bell Irving SC	3008	124	3011	5	2010/08/12	15:45	15.75	2010/08/13	9:30	9.50	17.75	5	5	10	5	0	5	1	4	5
Bell Irving SC	3008	124	3011	6	2010/08/12	15:45	15.75	2010/08/13	9:30	9.50	17.75	0	0	0	0	0	0	0	0	0
Bell Irving SC	3008	124	3011	7	2010/08/12	15:45	15.75	2010/08/13	9:30	9.50	17.75	3	0	3	3	0	3	0	0	0
Bell Irving SC	3008	124	3011	8	2010/08/12	15:45	15.75	2010/08/13	9:30	9.50	17.75	3	0	3	3	0	3	0	0	0

CH = chinook salmon, CO = coho salmon

Appendix 5.5-6

Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

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Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
Unamed Lake #1	MT	3	DV	126	21.0	1.05	A	-	-	-
160	MT	3	CO	92	-	-	P	-	-	-
160	MT	3	DV	95	-	-	A	-	-	-
160	MT	3	CO	94	-	-	P	-	-	-
160	MT	3	CO	90	-	-	P	-	-	-
160	MT	3	CO	98	-	-	P	-	-	-
160	MT	4	CO	95	-	-	P	-	-	-
160	MT	4	CO	86	-	-	P	-	-	-
160	MT	4	CO	90	-	-	P	-	-	-
160	MT	4	CO	82	-	-	P	-	-	-
160	MT	4	CO	75	-	-	P	-	-	-
160	MT	4	CO	81	-	-	P	-	-	-
160	MT	5	DV	130	-	-	A	-	-	-
160	MT	5	CO	100	-	-	P	-	-	-
160	MT	5	CO	81	-	-	P	-	-	-
112 Todedada	MT	1	DV	191	47.0	0.67	A	FR/SC	1	3
112 Todedada	MT	1	DV	135	19.5	0.79	A	FR/SC	2	2
112 Todedada	MT	6	DV	74	4.4	1.07	P	-	-	-
107	MT	5	DV	170	-	-	A	-	-	-
107	MT	6	RB	125	23.5	1.20	A	FR/SC	1	1
107	MT	6	DV	172	52.3	1.03	A	FR/SC	2	2
107	MT	8	DV	140	26.5	0.97	A	FR/SC	3	
107	MT	8	DV	160	36.0	0.88	A	FR/SC	4	1
107	MT	8	DV	173	-	-	A	FR/SC	5	3
108	MT	3	DV	105	12.0	1.04	A	FR/SC	1	1
108	MT	4	DV	72	-	-	P	-	-	-
108	MT	5	DV	93	7.0	0.87	A	FR/SC	2	0
108	MT	5	DV	108	12.5	0.99	A	FR/SC	3	-
108	MT	5	DV	85	6.3	1.03	P	-	-	-
108	MT	5	DV	76	4.0	0.91	P	-	-	-
108	MT	5	DV	86	8.0	1.26	P	-	-	-
108	MT	5	DV	85	5.7	0.93	P	-	-	-
108	MT	5	DV	97	8.5	0.93	A	-	-	-
108	MT	5	DV	96	9.6	1.09	A	FR/SC	4	1
108	MT	5	DV	123	16.3	0.88	A	-	-	-
108	MT	6	DV	86	6.0	0.94	P	-	-	-
108	MT	6	DV	85	7.2	1.17	P	-	-	-
108	MT	6	DV	85	5.6	0.91	P	-	-	-
108	MT	6	DV	79	5.3	1.07	P	-	-	-
108	MT	6	DV	88	7.0	1.03	A	-	-	-
108	MT	6	DV	93	7.9	0.98	A	FR/SC	5	-
108	MT	6	DV	95	8.8	1.03	A	FR/SC	6	0
108	MT	6	DV	160	43.7	1.07	A	FR/SC	7	2
135	MT	1	LSU	160	37.8	0.92	A	-	-	-
135	MT	1	LSU	131	21.2	0.94	A	-	-	-
135	MT	1	LSU	135	21.7	0.88	A	-	-	-
135	MT	1	LSU	128	18.6	0.88	A	-	-	-

A = adult, P = parr, F = fry

MT = minnow trap, EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
135	MT	1	LSU	151	34.5	1.00	A	-	-	-
135	MT	1	LSU	110	13.0	0.98	A	-	-	-
135	MT	1	LSU	112	13.5	0.96	A	-	-	-
135	MT	1	LSU	109	12.7	0.98	A	-	-	-
135	MT	1	LSU	107	11.8	0.96	A	-	-	-
135	MT	1	LSU	127	19.9	0.97	A	-	-	-
135	MT	1	LSU	172	57.5	1.13	A	-	-	-
135	MT	1	LSU	69	3.1	0.96	A	-	-	-
135	MT	1	LSU	120	13.5	0.78	A	-	-	-
135	MT	1	LSU	65	-	-	A	-	-	-
116	MT	1	CO	47	1.1	1.06	F	-	-	-
116	MT	3	CH	55	2.0	1.22	F	-	-	-
116	MT	4	CO	45	1.2	1.29	F	-	-	-
116	MT	4	CO	56	1.4	0.81	F	-	-	-
116	MT	5	CH	46	0.7	0.76	F	-	-	-
116	MT	5	CH	53	1.5	1.03	F	-	-	-
116	MT	6	CO	42	0.9	1.24	F	-	-	-
116	MT	7	CO	41	1.0	1.41	F	-	-	-
116	MT	7	CO	37	0.5	0.91	F	-	-	-
116	MT	7	CO	50	1.2	0.94	F	-	-	-
116	MT	7	CO	44	0.8	0.89	F	-	-	-
116	MT	7	CO	35	0.5	1.19	F	-	-	-
116	MT	7	CO	53	1.5	1.01	F	-	-	-
116	MT	7	CH	54	1.6	0.98	F	-	-	-
116	MT	7	CH	53	0.8	0.56	F	-	-	-
116	MT	8	CO	47	1.1	1.06	F	-	-	-
116	MT	8	CH	58	3.0	1.52	F	-	-	-
116	MT	8	CO	53	2.1	1.40	F	-	-	-
116	MT	8	CO	60	2.4	1.09	F	-	-	-
116	MT	8	CH	56	2.2	1.25	F	-	-	-
116	MT	8	CH	60	1.8	0.83	F	-	-	-
116	MT	8	CH	62	2.0	0.84	F	-	-	-
116	MT	8	CH	55	2.3	1.38	F	-	-	-
116	MT	8	CO	85	6.2	1.01	P	-	-	-
116	MT	8	CO	80	4.7	0.92	P	-	-	-
116	MT	8	CH	70	-	-	F	-	-	-
116	MT	8	CO	85	5.5	0.90	P	-	-	-
116	MT	8	CO	100	9.2	0.92	P	-	-	-
116	MT	8	CO	100	11.0	1.10	P	-	-	-
116	MT	8	CO	120	18.0	1.04	P	-	-	-
137A Bowser	MT	1	DV	117	13.5	0.84	A	FR	1	-
137A Bowser	MT	6	CO	58	1.2	0.59	F	-	-	-
137A Bowser	MT	7	CO	69	3.4	1.03	F	-	-	-
137A Bowser	MT	7	CO	70	2.6	0.76	F	-	-	-
137A Bowser	MT	7	CO	58	2.4	1.23	F	-	-	-
137A Bowser	MT	8	CO	45	1.3	1.43	F	-	-	-
137A Bowser	MT	8	CO	49	1.3	1.10	F	-	-	-
137A Bowser	MT	8	CO	53	2.0	1.34	F	-	-	-

A = adult, P = parr, F = fry

MT = minnow trap, EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
130 Taft	MT	1	CO	44	0.8	0.94	F	-	-	-
130 Taft	MT	1	CO	59	2.1	1.02	F	-	-	-
130 Taft	MT	1	CO	66	3.6	1.26	F	-	-	-
130 Taft	MT	1	CO	46	1.0	1.03	F	-	-	-
130 Taft	MT	1	CO	50	1.4	1.12	F	-	-	-
130 Taft	MT	1	CO	48	1.3	1.13	F	-	-	-
130 Taft	MT	1	CO	46	1.4	1.44	F	-	-	-
130 Taft	MT	1	CO	61	2.3	1.01	F	-	-	-
130 Taft	MT	1	CO	57	2.0	1.08	F	-	-	-
130 Taft	MT	1	CO	58	1.6	0.82	F	-	-	-
130 Taft	MT	1	CO	52	1.1	0.75	F	-	-	-
130 Taft	MT	1	CO	71	3.3	0.92	F	-	-	-
130 Taft	MT	1	CO	57	1.6	0.87	F	-	-	-
130 Taft	MT	1	CO	51	0.8	0.60	F	-	-	-
130 Taft	MT	1	CO	48	0.9	0.77	F	-	-	-
130 Taft	MT	1	CO	53	1.4	0.94	F	-	-	-
130 Taft	MT	1	CO	63	2.4	0.97	F	-	-	-
130 Taft	MT	8	DV	151	38.0	1.10	A	-	-	-
130 Taft	MT	8	DV	24	-	-	F	-	-	-
160	MT	1	CO	70	-	-	F	-	-	-
160	MT	1	CO	55	-	-	F	-	-	-
160	MT	1	CO	55	-	-	F	-	-	-
160	MT	1	CO	48	-	-	F	-	-	-
160	MT	1	CO	55	-	-	F	-	-	-
160	MT	1	CO	45	-	-	F	-	-	-
160	MT	1	CO	55	-	-	F	-	-	-
160	MT	1	CO	45	-	-	F	-	-	-
160	MT	1	CO	35	-	-	F	-	-	-
160	MT	1	CO	40	-	-	F	-	-	-
160	MT	6	CO	90	8.5	1.17	P	-	-	-
160	MT	8	CO	105	-	-	P	-	-	-
112 East Todedada	MT	1	CO	77	-	-	P	-	-	-
112 East Todedada	MT	1	CO	95	9.7	1.13	P	-	-	-
112 East Todedada	MT	1	CO	87	7.0	1.06	P	-	-	-
112 East Todedada	MT	1	CO	100	10.7	1.07	P	-	-	-
112 East Todedada	MT	1	DV	124	16.5	0.87	A	-	-	-
112 East Todedada	MT	1	CO	104	11.9	1.06	P	-	-	-
112 East Todedada	MT	1	CO	91	8.0	1.06	P	-	-	-
112 East Todedada	MT	1	CO	96	8.0	0.90	P	-	-	-
112 East Todedada	MT	1	CO	99	9.4	0.97	P	-	-	-
112 East Todedada	MT	1	CO	97	9.1	1.00	P	-	-	-
112 East Todedada	MT	1	CO	82	5.6	1.02	P	-	-	-
112 East Todedada	MT	1	CO	59	1.9	0.93	F	-	-	-
112 East Todedada	MT	1	CO	94	8.3	1.00	P	-	-	-
112 East Todedada	MT	1	CO	94	8.6	1.04	P	-	-	-
112 East Todedada	MT	1	CO	56	1.8	1.02	F	-	-	-
112 East Todedada	MT	2	DV	79	5.3	1.07	P	-	-	-

A = adult, P = parr, F = fry

MT = minnow trap, EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
112 East Todedada	MT	2	CO	91	7.4	0.98	P	-	-	-
112 East Todedada	MT	2	CO	99	9.4	0.97	P	-	-	-
112 East Todedada	MT	2	CO	94	8.2	0.99	P	-	-	-
112 East Todedada	MT	2	DV	117	23.8	1.49	A	-	-	-
112 East Todedada	MT	3	CO	97	9.8	1.07	P	-	-	-
112 East Todedada	MT	3	DV	135	20.9	0.85	A	-	-	-
112 East Todedada	MT	3	DV	192	-	-	A	-	-	-
112 East Todedada	MT	3	DV	146	28.5	0.92	A	-	-	-
112 East Todedada	MT	3	DV	159	38.0	0.95	A	-	-	-
112 East Todedada	MT	3	DV	160	38.2	0.93	A	-	-	-
112 East Todedada	MT	3	DV	136	22.3	0.89	A	-	-	-
112 East Todedada	MT	3	DV	129	19.4	0.90	A	-	-	-
112 East Todedada	MT	3	DV	139	25.2	0.94	A	-	-	-
112 East Todedada	MT	3	CO	89	7.0	0.99	P	-	-	-
112 East Todedada	MT	3	CO	95	10.5	1.22	P	-	-	-
112 East Todedada	MT	3	DV	115	13.6	0.89	A	-	-	-
112 East Todedada	MT	3	DV	103	10.1	0.92	A	-	-	-
112 East Todedada	MT	3	DV	94	7.3	0.88	A	-	-	-
112 East Todedada	MT	3	DV	107	10.9	0.89	A	-	-	-
112 East Todedada	MT	3	DV	133	22.5	0.96	A	-	-	-
112 East Todedada	MT	3	DV	95	6.9	0.80	A	-	-	-
112 East Todedada	MT	3	DV	83	5.1	0.89	P	-	-	-
112 East Todedada	MT	4	DV	54	1.4	0.89	P	-	-	-
112 East Todedada	MT	4	DV	129	20.5	0.95	A	-	-	-
112 East Todedada	MT	4	DV	129	20.5	0.95	A	-	-	-
112 Todedada	EF		DV	64	2.4	0.92	P	-	-	-
112 Todedada	EF		DV	60	2.3	1.06	P	-	-	-
112 Todedada	EF		DV	54	1.3	0.83	P	-	-	-
112 Todedada	EF		DV	69	2.9	0.88	P	-	-	-
112 Todedada	EF		DV	55	1.5	0.90	P	-	-	-
112 Todedada	EF		DV	70	3.2	0.93	P	-	-	-
112 Todedada	EF		DV	58	1.7	0.87	P	-	-	-
112 Todedada	EF		DV	57	1.8	0.97	P	-	-	-
112 Todedada	EF		DV	59	1.6	0.78	P	-	-	-
112 Todedada	EF		DV	76	4.1	0.93	P	-	-	-
112 Todedada	EF		BT	71	3.0	0.84	P	-	-	-
112 Todedada	EF		DV	97	8.6	0.94	A	FR	1	1
112 Todedada	EF		CH	91	7.4	0.98	P	-	-	-
112 Todedada	EF		DV	143	24.0	0.82	A	FR	1	1
112 Todedada	EF		DV	136	25.6	1.02	A	FR	2	2
112 Todedada	EF		DV	195	69.1	0.93	A	FR	3	3
112 Todedada	EF		DV	59	2.1	1.02	P	-	-	-
112 Todedada	EF		DV	82	5.2	0.94	P	-	-	-
112 Todedada	EF		DV	59	1.8	0.88	P	-	-	-
112 Todedada	EF		DV	70	3.0	0.87	P	-	-	-
112 Todedada	EF		DV	64	2.2	0.84	P	-	-	-
112 Todedada	EF		DV	74	3.6	0.89	P	-	-	-

A = adult, P = parr, F = fry

MT = minnow trap, EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
112 Todedada	EF		DV	73	3.4	0.87	P	-	-	-
112 Todedada	EF		DV	124	18.5	0.97	A	FR	4	2
112 Todedada	EF		DV	75	4.1	0.97	P	-	-	-
112 Todedada	EF		DV	64	2.5	0.95	P	-	-	-
112 Todedada	EF		DV	70	3.4	0.99	P	-	-	-
112 Todedada	EF		DV	63	2.0	0.80	P	-	-	-
112 East Todedada	EF		DV	43	0.8	1.01	F	-	-	-
112 East Todedada	EF		CO	46	1.0	1.03	F	-	-	-
112 East Todedada	EF		CO	39	0.5	0.84	F	-	-	-
112 East Todedada	EF		CO	43	0.6	0.75	F	-	-	-
112 East Todedada	EF		CO	45	0.8	0.88	F	-	-	-
112 East Todedada	EF		CO	46	0.9	0.92	F	-	-	-
112 East Todedada	EF		CO	40	0.4	0.63	F	-	-	-
112 East Todedada	EF		CO	44	0.9	1.06	F	-	-	-
112 East Todedada	EF		CO	44	1.0	1.17	F	-	-	-
110 Gilbert	EF		DV	107	11.4	0.93	A	FR	7	1
110 Gilbert	EF		CO	48	1.1	0.99	F	-	-	-
110 Gilbert	EF		CO	41	-	-	F	-	-	-
110 Gilbert	EF		RB	65	2.6	0.95	P	-	-	-
110 Gilbert	EF		CO	52	1.3	0.92	F	-	-	-
110 Gilbert	EF		RB	90	7.3	1.00	P	-	-	-
110 Gilbert	EF		RB	86	6.1	0.96	P	-	-	-
110 Gilbert	EF		RB	92	7.1	0.91	P	-	-	-
110 Gilbert	EF		RB	95	8.0	0.93	P	-	-	-
110 Gilbert	EF		CO	65	3.1	1.13	F	-	-	-
110 Gilbert	EF		RB	82	5.1	0.92	P	-	-	-
110 Gilbert	EF		MW	150	32.5	0.96	A	-	-	-
110 Gilbert	EF		MW	110	12.2	0.92	A	-	-	-
110 Gilbert	EF		RB	74	3.8	0.94	P	-	-	-
110 Gilbert	EF		CO	60	2.5	1.16	F	-	-	-
110 Gilbert	EF		CO	61	2.5	1.10	F	-	-	-
110 Gilbert	EF		CO	53	1.4	0.94	F	-	-	-
110 Gilbert	EF		RB	74	3.8	0.94	P	-	-	-
110 Gilbert	EF		RB	85	5.4	0.88	P	-	-	-
110 Gilbert	EF		CO	65	2.3	0.84	F	-	-	-
110 Gilbert	EF		RB	83	5.2	0.91	P	-	-	-
110 Gilbert	EF		RB	93	8.1	1.01	P	-	-	-
110 Gilbert	EF		CO	65	3.2	1.17	F	-	-	-
110 Gilbert	EF		CO	50	1.2	0.96	F	-	-	-
110 Gilbert	EF		CO	57	1.6	0.86	F	-	-	-
110 Gilbert	EF		CO	60	2.2	1.02	F	-	-	-
110 Gilbert	EF		CO	65	2.7	0.98	F	-	-	-
110 Gilbert	EF		CO	54	-	-	F	-	-	-
110 Gilbert	EF		CO	54	-	-	F	-	-	-
110 Gilbert	EF		CO	43	-	-	F	-	-	-
110 Gilbert	EF		CO	47	-	-	F	-	-	-
110 Gilbert	EF		CH	39	0.5	0.84	F	-	-	-

A = adult, P = parr, F = fry

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DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

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Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
110 Gilbert	EF		CH	36	0.4	0.86	F	-	-	-
110 Gilbert	EF		CH	42	0.6	0.81	F	-	-	-
110 Gilbert	EF		CH	37	0.4	0.79	F	-	-	-
110 Gilbert	EF		CH	42	0.7	0.94	F	-	-	-
110 Gilbert	EF		CH	44	0.6	0.70	F	-	-	-
110 Gilbert	EF		CH	38	0.5	0.91	F	-	-	-
110 Gilbert	EF		CH	40	0.5	0.78	F	-	-	-
110 Gilbert	EF		CH	41	0.6	0.87	F	-	-	-
110 Gilbert	EF		CH	37	0.4	0.79	F	-	-	-
110 Gilbert	EF		CH	46	0.9	0.92	F	-	-	-
110 Gilbert	EF		CH	42	0.8	1.08	F	-	-	-
110 Gilbert	EF		DV	42	0.8	1.08	F	-	-	-
110 Gilbert	EF		DV	53	1.3	0.87	P	-	-	-
110 Gilbert	EF		RB	83	5.1	0.89	P	-	-	-
110 Gilbert	EF		RB	180	67.3	1.15	A	FR	1	2
110 Gilbert	EF		RB	123	21.6	1.16	A	FR	2	2
110 Gilbert	EF		RB	104	11.8	1.05	A	FR	3	1
110 Gilbert	EF		RB	115	18.8	1.24	A	FR	4	2
110 Gilbert	EF		RB	75	4.3	1.02	P	-	-	-
110 Gilbert	EF		RB	89	7.2	1.02	P	-	-	-
110 Gilbert	EF		RB	138	31.0	1.18	A	FR	5	2
110 Gilbert	EF		RB	82	5.9	1.07	P	-	-	-
110 Gilbert	EF		RB	76	5.4	1.23	P	-	-	-
110 Gilbert	EF		RB	112	11.9	0.85	A	FR	6	0
110 Gilbert	EF		RB	40	-	-	F	-	-	-
110 Gilbert	EF		RB	84	5.8	0.98	P	-	-	-
110 Gilbert	EF		RB	82	6.2	1.12	P	-	-	-
110 Gilbert	EF		RB	83	5.4	0.94	P	-	-	-
110 Gilbert	EF		RB	45	1.2	1.32	F	-	-	-
110 Gilbert	EF		RB	49	1.2	1.02	F	-	-	-
110 Gilbert	EF		RB	55	1.7	1.02	F	-	-	-
110 Gilbert	EF		RB	40	0.8	1.25	F	-	-	-
110 Gilbert	EF		RB	50	1.3	1.04	F	-	-	-
110 Gilbert	EF		RB	42	0.8	1.08	F	-	-	-
110 Gilbert	EF		RB	44	0.9	1.06	F	-	-	-
110 Gilbert	EF		RB	49	1.1	0.93	F	-	-	-
110 Gilbert	EF		RB	33	0.4	1.11	F	-	-	-
110 Gilbert	EF		RB	35	0.5	1.17	F	-	-	-
110 Gilbert	EF		RB	37	0.6	1.18	F	-	-	-
110 Gilbert	EF		RB	36	0.4	0.86	F	-	-	-
110 Gilbert	EF		RB	43	0.9	1.13	F	-	-	-
110 Gilbert	EF		RB	38	0.6	1.09	F	-	-	-
110 Gilbert	EF		RB	48	1.2	1.09	P	-	-	-
110 Gilbert	EF		RB	47	1.0	0.96	F	-	-	-
112 East Todedada	EF		DV	157	40.7	1.05	A	FR	1	2
112 East Todedada	EF		DV	33	0.3	0.83	F	-	-	-
112 East Todedada	EF		CO	39	0.4	0.67	F	-	-	-

A = adult, P = parr, F = fry

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OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
112 East Todedada	EF		CO	41	0.5	0.73	F	-	-	-
112 East Todedada	EF		CO	42	0.9	1.21	F	-	-	-
112 East Todedada	EF		DV	43	0.3	0.38	F	-	-	-
112 East Todedada	EF		CO	34	0.4	1.02	F	-	-	-
112 East Todedada	EF		DV	33	0.3	0.83	F	-	-	-
112 East Todedada	EF		CO	33	0.3	0.83	F	-	-	-
112 East Todedada	EF		DV	35	0.4	0.93	F	-	-	-
112 East Todedada	EF		DV	40	0.5	0.78	F	-	-	-
112 East Todedada	EF		DV	37	0.4	0.79	F	-	-	-
112 East Todedada	EF		DV	35	0.4	0.93	F	-	-	-
112 East Todedada	EF		DV	34	-	-	F	-	-	-
112 East Todedada	EF		DV	30	-	-	F	-	-	-
112 East Todedada	EF		DV	37	-	-	F	-	-	-
112 East Todedada	EF		DV	36	-	-	F	-	-	-
112 East Todedada	EF		DV	36	-	-	F	-	-	-
112 East Todedada	EF		DV	75	3.8	0.90	P	-	-	-
112 East Todedada	EF		DV	39	-	-	F	-	-	-
112 East Todedada	EF		DV	37	-	-	F	-	-	-
112 East Todedada	EF		DV	28	-	-	F	-	-	-
112 East Todedada	EF		DV	67	3.0	1.00	P	-	-	-
112 East Todedada	EF		DV	87	6.4	0.97	P	-	-	-
112 East Todedada	EF		DV	60	2.0	0.93	P	-	-	-
112 East Todedada	EF		DV	66	2.7	0.94	P	-	-	-
112 East Todedada	EF		DV	76	4.4	1.00	P	FR	1	2
112 East Todedada	EF		DV	185	76.4	1.21	A	FR	2	
112 East Todedada	EF		DV	140	35.1	1.28	A	FR	3	1
112 East Todedada	EF		DV	124	20.7	1.09	A	FR	4	2
112 East Todedada	EF		DV	137	25.5	0.99	A	FR	5	1
112 East Todedada	EF		DV	124	19.5	1.02	A	FR	6	1
112 East Todedada	EF		DV	125	22.5	1.15	A	-	-	-
112 East Todedada	EF		DV	50	1.3	1.04	P	-	-	-
112 East Todedada	EF		DV	47	0.6	0.58	F	-	-	-
112 East Todedada	EF		DV	45	1.1	1.21	F	-	-	-
112 East Todedada	EF		DV	47	0.9	0.87	F	-	-	-
112 East Todedada	EF		DV	44	0.7	0.82	F	-	-	-
112 East Todedada	EF		DV	49	1.3	1.10	P	-	-	-
112 East Todedada	EF		DV	43	0.8	1.01	F	-	-	-
112 East Todedada	EF		DV	75	3.7	0.88	P	-	-	-
112 East Todedada	EF		DV	47	1.2	1.16	P	-	-	-
130 Taft	EF		CH	50	1.2	0.96	F	-	-	-
130 Taft	EF		CH	56	1.8	1.02	F	-	-	-
130 Taft	EF		CH	56	1.7	0.97	F	-	-	-
130 Taft	EF		CO	41	0.7	1.02	F	-	-	-
130 Taft	EF		CH	58	1.9	0.97	F	-	-	-
130 Taft	EF		CO	59	2.3	1.12	F	-	-	-
130 Taft	EF		CH	48	0.9	0.81	F	-	-	-
130 Taft	EF		CH	49	1.2	1.02	F	-	-	-

A = adult, P = parr, F = fry

MT = minnow trap, EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
130 Taft	EF		CH	45	0.9	0.99	F	-	-	-
130 Taft	EF		CH	58	2.0	1.03	F	-	-	-
130 Taft	EF		CO	40	0.6	0.94	F	-	-	-
130 Taft	EF		CH	57	1.9	1.03	F	-	-	-
130 Taft	EF		CH	44	0.8	0.94	F	-	-	-
130 Taft	EF		CH	58	1.7	0.87	F	-	-	-
130 Taft	EF		CH	54	1.7	1.08	F	-	-	-
130 Taft	EF		CH	42	0.8	1.08	F	-	-	-
130 Taft	EF		CH	55	1.7	1.02	F	-	-	-
130 Taft	EF		CH	44	0.8	0.94	F	-	-	-
130 Taft	EF		CH	49	1.0	0.85	F	-	-	-
130 Taft	EF		CH	60	2.2	1.02	F	-	-	-
130 Taft	EF		CH	56	1.7	0.97	F	-	-	-
130 Taft	EF		CH	49	1.1	0.93	F	-	-	-
130 Taft	EF		CH	45	0.8	0.88	F	-	-	-
130 Taft	EF		CH	53	1.7	1.14	F	-	-	-
130 Taft	EF		CH	46	0.8	0.82	F	-	-	-
130 Taft	EF		CH	59	2.0	0.97	F	-	-	-
130 Taft	EF		CH	46	1.1	1.13	F	-	-	-
130 Taft	EF		CH	48	1.1	0.99	F	-	-	-
130 Taft	EF		CH	57	2.1	1.13	F	-	-	-
130 Taft	EF		BT	300			A	-	-	-
130 Taft	EF		DV	104	10.9	0.97	A	FR	1	1
130 Taft	EF		DV	104	9.5	0.84	A	FR	2	1
130 Taft	EF		DV	114	16.0	1.08	A	FR	3	2
130 Taft	EF		BT	80	5.3	1.04	P	FR	4	0
130 Taft	EF		BT	83	5.6	0.98	P	FR	5	
130 Taft	EF		DV	102	10.3	0.97	A	FR	6	1
130 Taft	EF		BT	87	5.6	0.85	P	FR	7	0
130 Taft	EF		DV	88	6.6	0.97	P	-	-	-
130 Taft	EF		CH	54	1.8	1.14	F	-	-	-
130 Taft	EF		CH	55	1.2	0.72	F	-	-	-
130 Taft	EF		CH	50	1.3	1.04	F	-	-	-
130 Taft	EF		CH	54	1.6	1.02	F	-	-	-
130 Taft	EF		CH	45	0.9	0.99	F	-	-	-
130 Taft	EF		CH	45	1.0	1.10	F	-	-	-
130 Taft	EF		CH	46	0.9	0.92	F	-	-	-
130 Taft	EF		CH	43	0.8	1.01	F	-	-	-
130 Taft	EF		DV	44	0.9	1.06	F	-	-	-
130 Taft	EF		BT	43	1.0	1.26	F	-	-	-
130 Taft	EF		MW	192	87.4	1.23	A	-	-	-
130 Taft	EF		CH	52	1.3	0.92	F	-	-	-
130 Taft	EF		CH	51	1.1	0.83	F	-	-	-
130 Taft	EF		CH	49	1.1	0.93	F	-	-	-
130 Taft	EF		CH	55	1.4	0.84	F	-	-	-
130 Taft	EF		CH	51	0.9	0.68	F	-	-	-
130 Taft	EF		CH	50	1.0	0.80	F	-	-	-

A = adult, P = parr, F = fry

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OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
130 Taft	EF		CH	49	1.1	0.93	F	-	-	-
130 Taft	EF		CH	60	2.0	0.93	F	-	-	-
130 Taft	EF		CH	56	1.8	1.02	F	-	-	-
130 Taft	EF		CH	65	3.1	1.13	F	-	-	-
129 Glacier	EF		DV	131	25.2	1.12	A	FR	1	1
129 Glacier	EF		DV	73	3.9	1.00	P	FR	2	0
129 Glacier	EF		DV	142	29.4	1.03	A	FR	3	1
129 Glacier	EF		DV	119	18.6	1.10	A	FR	4	2
129 Glacier	EF		RB	165	48.8	1.09	A	FR	5	2
129 Glacier	EF		DV	157	41.5	1.07	A	FR	1	2
129 Glacier	EF		DV	130	24.2	1.10	A	FR	2	1
129 Glacier	EF		DV	84	7.5	1.27	P	-	-	-
129 Glacier	EF		DV	72	5.0	1.34	P	-	-	-
129 Glacier	EF		DV	72	4.9	1.31	P	-	-	-
112 East Todedada	EF		CO	41	-	-	F	-	-	-
112 East Todedada	EF		DV	82	-	-	P	-	-	-
112 East Todedada	EF		CO	64	-	-	F	-	-	-
112 East Todedada	EF		CO	52	-	-	F	-	-	-
112 East Todedada	EF		CO	49	-	-	F	-	-	-
112 East Todedada	EF		DV	38	-	-	F	-	-	-
112 East Todedada	EF		DV	50	-	-	P	-	-	-
112 East Todedada	EF		CO	46	-	-	F	-	-	-
112 East Todedada	EF		CO	44	-	-	F	-	-	-
112 East Todedada	EF		CO	36	-	-	F	-	-	-
112 East Todedada	EF		CO	49	-	-	F	-	-	-
112 East Todedada	EF		CO	88	-	-	P	-	-	-
112 East Todedada	EF		CO	54	-	-	F	-	-	-
112 East Todedada	EF		CO	57	-	-	F	-	-	-
112 East Todedada	EF		CO	44	-	-	F	-	-	-
112 East Todedada	EF		DV	43	-	-	F	-	-	-
112 East Todedada	EF		CO	40	-	-	F	-	-	-
112 East Todedada	EF		DV	45	-	-	F	-	-	-
112 East Todedada	EF		CO	42	-	-	F	-	-	-
112 East Todedada	EF		DV	45	-	-	F	-	-	-
112 East Todedada	EF		DV	48	-	-	P	-	-	-
112 East Todedada	EF		DV	33	-	-	F	-	-	-
112 East Todedada	EF		DV	39	-	-	F	-	-	-
112 East Todedada	EF		DV	36	-	-	F	-	-	-
112 Todedada	EF		DV	36	-	-	F	-	-	-
112 Todedada	EF		DV	74	-	-	P	-	-	-
112 Todedada	EF		DV	68	-	-	P	-	-	-
112 Todedada	EF		CO	50	-	-	F	-	-	-
112 Todedada	EF		CO	59	-	-	F	-	-	-
112 Todedada	EF		CO	46	-	-	F	-	-	-
112 Todedada	EF		DV	65	-	-	P	-	-	-
112 Todedada	EF		DV	71	-	-	P	-	-	-
112 Todedada	EF		CO	47	-	-	F	-	-	-

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Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
112 Todedada	EF		DV	49	-	-	P	-	-	-
112 Todedada	EF		DV	38	-	-	F	-	-	-
112 Todedada	EF		DV	33	-	-	F	-	-	-
112 Todedada	EF		DV	36	-	-	F	-	-	-
112 Todedada	EF		DV	39	-	-	F	-	-	-
112 Todedada	EF		DV	38	-	-	F	-	-	-
112 Todedada	EF		DV	34	-	-	F	-	-	-
100 Creek 1	EF		DV	135	-	-	A	FR	3	2
100 Creek 1	EF		DV	30	-	-	F	-	-	-
100 Creek 1	EF		DV	78	-	-	P	-	-	-
100 Creek 1	EF		DV	63	-	-	P	-	-	-
100 Creek 1	EF		DV	65	-	-	P	-	-	-
100 Creek 1	EF		DV	55	-	-	P	-	-	-
100 Creek 1	EF		DV	98	-	-	A	FR	4	1
100 Creek 1	EF		DV	135	-	-	A	FR	5	1
100 Creek 1	EF		DV	33	-	-	F	-	-	-
100 Creek 1	EF		DV	68	-	-	P	-	-	-
100 Creek 1	EF		DV	70	-	-	P	-	-	-
100 Creek 1	EF		DV	70	-	-	P	-	-	-
100 Creek 1	EF		DV	105	-	-	A	FR	6	1
100 Creek 1	EF		DV	60	-	-	P	-	-	-
100 Creek 1	EF		DV	63	-	-	P	-	-	-
100 Creek 1	EF		DV	80	-	-	P	-	-	-
100 Creek 1	EF		DV	118	-	-	A	FR	1	1
100 Creek 1	EF		DV	70	-	-	P	-	-	-
100 Creek 1	EF		DV	75	-	-	P	-	-	-
100 Creek 1	EF		DV	65	-	-	P	-	-	-
100 Creek 1	EF		DV	87	-	-	P	-	-	-
100 Creek 1	EF		DV	75	-	-	P	-	-	-
100 Creek 1	EF		DV	60	-	-	P	-	-	-
100 Creek 1	EF		DV	85	-	-	P	-	-	-
100 Creek 1	EF		DV	45	-	-	F	-	-	-
100 Creek 1	EF		DV	115	-	-	A	FR	2	1
100 Creek 2	EF		DV	55	-	-	P	-	-	-
100 Creek 2	EF		DV	75	-	-	P	-	-	-
100 Creek 2	EF		DV	75	-	-	P	-	-	-
100 Creek 2	EF		DV	70	-	-	P	-	-	-
100 Creek 2	EF		DV	63	-	-	P	-	-	-
100 Creek 2	EF		DV	75	-	-	P	-	-	-
100 Creek 2	EF		DV	85	-	-	P	-	-	-
100 Creek 2	EF		DV	63	-	-	P	-	-	-
100 Creek 2	EF		DV	58	-	-	P	-	-	-
100 Creek 2	EF		DV	68	-	-	P	-	-	-
100 Creek 2	EF		DV	70	-	-	P	-	-	-
100 Creek 2	EF		DV	55	-	-	P	-	-	-
100 Creek 2	EF		DV	75	-	-	P	-	-	-
100 Creek 2	EF		DV	57	-	-	P	-	-	-

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Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
100 Creek 2	EF		DV	60	-	-	P	-	-	-
100 Creek 2	EF		DV	70	-	-	P	-	-	-
100 Creek 2	EF		DV	72	-	-	P	-	-	-
100 Creek 2	EF		DV	55	-	-	P	-	-	-
100 Creek 2	EF		DV	65	-	-	P	-	-	-
100 Creek 2	EF		DV	52	-	-	P	-	-	-
100 Creek 2	EF		DV	62	-	-	P	-	-	-
100 Creek 2	EF		DV	55	-	-	P	-	-	-
100 Creek 2	EF		DV	50	-	-	P	-	-	-
100 Creek 2	EF		DV	50	-	-	P	-	-	-
100 Creek 2	EF		DV	88	-	-	P	-	-	-
100 Creek 2	EF		DV	32	-	-	F	-	-	-
100 Creek 2	EF		DV	30	-	-	F	-	-	-
100 Creek 2	EF		DV	25	-	-	F	-	-	-
100 Creek 2	EF		DV	32	-	-	F	-	-	-
100 Creek 2	EF		DV	30	-	-	F	-	-	-
100 Creek 2	EF		DV	35	-	-	F	-	-	-
100 Creek 2	EF		DV	70	-	-	P	-	-	-
100 Creek 2	EF		DV	65	-	-	P	-	-	-
100 Creek 2	EF		DV	83	-	-	P	-	-	-
100 Creek 2	EF		DV	68	-	-	P	-	-	-
100 Creek 2	EF		DV	68	-	-	P	-	-	-
100 Creek 2	EF		DV	65	-	-	P	-	-	-
100 Creek 2	EF		DV	85	-	-	P	-	-	-
100 Creek 2	EF		DV	45	-	-	F	-	-	-
100 Creek 2	EF		DV	32	-	-	F	-	-	-
100 Creek 2	EF		DV	35	-	-	F	-	-	-
100 Creek 2	EF		DV	30	-	-	F	-	-	-
100 Creek 2	EF		DV	35	-	-	F	-	-	-
100 Creek 2	EF		DV	30	-	-	F	-	-	-
100 Creek 2	EF		DV	30	-	-	F	-	-	-
100 Creek 2	EF		DV	30	-	-	F	-	-	-
100 Creek 2	EF		DV	70	-	-	P	-	-	-
100 Creek 2	EF		DV	57	-	-	P	-	-	-
100 Creek 2	EF		DV	63	-	-	P	-	-	-
100 Creek 2	EF		DV	30	-	-	F	-	-	-
100 Creek 2	EF		DV	35	-	-	F	-	-	-
100 Creek 2	EF		DV	50	-	-	P	-	-	-
100 Creek 2	EF		DV	30	-	-	F	-	-	-
137A Bowser	EF		DV	55	-	-	P	-	-	-
137A Bowser	EF		CO	50	-	-	F	-	-	-
137A Bowser	EF		DV	50	2.2	1.76	P	-	-	-
137A Bowser	EF		DV	50	1.8	1.44	P	-	-	-
137A Bowser	EF		DV	53	1.4	0.94	P	-	-	-
137A Bowser	EF		DV	55	1.7	1.02	P	-	-	-
137A Bowser	EF		CO	55	1.8	1.08	P	-	-	-
137A Bowser	EF		DV	68	3.0	0.95	P	-	-	-

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Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
137A Bowser	EF		DV	55	1.8	1.08	P	-	-	-
137A Bowser	EF		RB	45	0.8	0.88	F	-	-	-
137A Bowser	EF		RB	30	0.4	1.48	F	-	-	-
137A Bowser	EF		DV	110	12.8	0.96	A	FR	1	1
137A Bowser	EF		DV	118	13.7	0.83	A	FR	2	1
137A Bowser	EF		DV	118	16.5	1.00	A	FR	3	1
137A Bowser	EF		DV	88	-	-	P	-	-	-
137A Bowser	EF		RB	90	10.5	1.44	P	FR	4	0
137A Bowser	EF		RB	40	0.3	0.47	F	-	-	-
126 Oweegee SC	EF		RB	43	0.8	1.01	F	-	-	-
126 Oweegee SC	EF		RB	34	0.4	1.02	F	-	-	-
126 Oweegee SC	EF		RB	40	0.9	1.41	F	-	-	-
126 Oweegee SC	EF		RB	37			F	-	-	-
126 Oweegee SC	EF		RB	42	1.0	1.35	F	-	-	-
126 Oweegee SC	EF		RB	45	0.9	0.99	F	-	-	-
126 Oweegee SC	EF		CO	55	1.2	0.72	F	-	-	-
126 Oweegee SC	EF		CO	49	1.3	1.10	F	-	-	-
126 Oweegee SC	EF		RB	30	0.3	1.11	F	-	-	-
126 Oweegee SC	EF		RB	41	0.9	1.31	F	-	-	-
126 Oweegee SC	EF		RB	44	0.8	0.94	F	-	-	-
126 Oweegee SC	EF		RB	48	1.3	1.18	F	-	-	-
126 Oweegee SC	EF		RB	46	1.3	1.34	F	-	-	-
126 Oweegee SC	EF		RB	41	0.7	1.02	F	-	-	-
126 Oweegee SC	EF		RB	33			F	-	-	-
126 Oweegee SC	EF		RB	40	1.0	1.56	F	-	-	-
126 Oweegee SC	EF		RB	29	0.3	1.23	F	-	-	-
126 Oweegee Creek	EF		RB	147	35.0	1.10	A	-	-	-
126 Oweegee Creek	EF		CO	71	3.5	0.98	P	-	-	-
126 Oweegee Creek	EF		RB	36			F	-	-	-
126 Oweegee Creek	EF		RB	41	0.2	0.29	F	-	-	-
126 Oweegee Creek	EF		CO	75	5.0	1.19	P	-	-	-
126 Oweegee Creek	EF		RB	47	0.9	0.87	F	-	-	-
126 Oweegee Creek	EF		RB	49	1.3	1.10	F	-	-	-
126 Oweegee Creek	EF		RB	46			F	-	-	-
126 Oweegee Creek	EF		RB	51	1.5	1.13	P	-	-	-
126 Oweegee Creek	EF		RB	68	3.7	1.18	P	-	-	-
126 Oweegee Creek	EF		RB	42			F	-	-	-
126 Oweegee Creek	EF		RB	44	1.1	1.29	F	-	-	-
126 Oweegee Creek	EF		RB	48	1.4	1.27	F	-	-	-
126 Oweegee Creek	EF		CO	58	2.6	1.33	F	-	-	-
126 Oweegee Creek	EF		CO	49	1.4	1.19	F	-	-	-
126 Oweegee Creek	EF		RB	46	1.2	1.23	F	-	-	-
126 Oweegee Creek	EF		RB	45	0.9	0.99	F	-	-	-
126 Oweegee Creek	EF		RB	51	1.5	1.13	P	-	-	-
126 Oweegee Creek	EF		RB	36	0.6	1.29	F	-	-	-
126 Oweegee Creek	EF		RB	48	1.6	1.45	F	-	-	-
126 Oweegee Creek	EF		RB	33	0.5	1.39	F	-	-	-

A = adult, P = parr, F = fry

MT = minnow trap, EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
126 Oweegee Creek	EF		RB	46	1.2	1.23	F	-	-	-
126 Oweegee Creek	EF		RB	50	1.3	1.04	P	-	-	-
126 Oweegee Creek	EF		CO	84	7.6	1.28	P	-	-	-
126 Oweegee Creek	EF		CO	74	5.6	1.38	P	-	-	-
126 Oweegee Creek	EF		CO	51			F	-	-	-
126 Oweegee Creek	EF		RB	49	1.4	1.19	P	-	-	-
126 Oweegee Creek	EF		RB	59	2.4	1.17	P	-	-	-
126 Oweegee Creek	EF		RB	52	1.8	1.28	P	-	-	-
126 Oweegee Creek	EF		RB	58	1.4	0.72	P	-	-	-
126 Oweegee Creek	EF		RB	44	1.0	1.17	F	-	-	-
126 Oweegee Creek	EF		RB	40	0.9	1.41	F	-	-	-
126 Oweegee Creek	EF		RB	40			F	-	-	-
126 Oweegee Creek	EF		RB	41	0.9	1.31	F	-	-	-
126 Oweegee Creek	EF		RB	104	12.4	1.10	A	SC	1	1
126 Oweegee Creek	EF		RB	117	16.3	1.02	A	SC	2	0
126 Oweegee Creek	EF		RB	153	39.7	1.11	A	SC	3	0
118 Snowbank	EF		DV	113	16.2	1.12	A	FR	4	1
118 Snowbank	EF		RB	124	21.8	1.14	A	-	-	-
118 Snowbank	EF		DV	105	12.4	1.07	A	-	-	-
118 Snowbank	EF		RB	126	22.8	1.14	A	-	-	-
118 Snowbank	EF		CH	82	6.3	1.14	P	-	-	-
118 Snowbank	EF		RB	92	10.3	1.32	P	-	-	-
118 Snowbank	EF		RB	81	5.5	1.03	P	-	-	-
118 Snowbank	EF		RB	50	1.7	1.36	P	-	-	-
118 Snowbank	EF		CH	55	1.8	1.08	F	-	-	-
118 Snowbank	EF		DV	67	3.3	1.10	P	-	-	-
118 Snowbank	EF		DV	55	1.4	0.84	P	-	-	-
118 Snowbank	EF		RB	60	2.7	1.25	P	-	-	-
118 Snowbank	EF		CH	55	2.0	1.20	F	-	-	-
118 Snowbank	EF		CH	57	2.3	1.24	F	-	-	-
118 Snowbank	EF		RB	50	1.5	1.20	P	-	-	-
118 Snowbank	EF		CH	55	2.0	1.20	F	-	-	-
118 Snowbank	EF		CH	52	1.7	1.21	F	-	-	-
118 Snowbank	EF		CO	42	0.8	1.08	F	-	-	-
118 Snowbank	EF		CH	39	0.7	1.18	F	-	-	-
118 Snowbank	EF		CH	50	1.3	1.04	F	-	-	-
118 Snowbank	EF		CH	55	1.9	1.14	F	-	-	-
118 Snowbank	EF		CH	46	1.1	1.13	F	-	-	-
118 Snowbank	EF		CH	47	0.9	0.87	F	-	-	-
118 Snowbank	EF		CH	47	1.2	1.16	F	-	-	-
118 Snowbank	EF		CH	55	2.3	1.38	F	-	-	-
118 Snowbank	EF		CH	53	1.4	0.94	F	-	-	-
118 Snowbank	EF		CH	50	1.2	0.96	F	-	-	-
118 Snowbank	EF		RB	35	-	-	F	-	-	-
118 Snowbank	EF		RB	42	-	-	F	-	-	-
118 Snowbank	EF		RB	30	-	-	F	-	-	-
118 Snowbank	EF		RB	30	-	-	F	-	-	-

A = adult, P = parr, F = fry

MT = minnow trap, EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
118 Snowbank	EF		RB	35	-	-	F	-	-	-
118 Snowbank	EF		RB	32	-	-	F	-	-	-
Bell Irving SC	EF		CO	54	2.3	1.46	F	-	-	-
Bell Irving SC	EF		CO	51	1.5	1.13	F	-	-	-
Bell Irving SC	EF		CO	58	2.6	1.33	F	-	-	-
Bell Irving SC	EF		CO	58	2.0	1.03	F	-	-	-
Bell Irving SC	EF		CO	66	3.1	1.08	F	-	-	-
Bell Irving SC	EF		CO	42	2.2	-	F	-	-	-
Bell Irving SC	EF		CH	49	1.3	1.10	F	-	-	-
Bell Irving SC	EF		CO	40	1.0	1.56	F	-	-	-
Bell Irving SC	EF		CO	68	4.4	1.40	F	-	-	-
Bell Irving SC	EF		RB	69	3.6	1.10	P	-	-	-
Bell Irving SC	EF		CH	50	1.4	1.12	F	-	-	-
Bell Irving SC	EF		CO	54	1.8	1.14	F	-	-	-
Bell Irving SC	EF		RB	99	13.2	1.36	P	-	-	-
Bell Irving SC	EF		CH	78	4.1	0.86	P	-	-	-
Bell Irving SC	EF		CO	81	7.2	1.35	P	-	-	-
Bell Irving SC	EF		CO	67	1.3	0.43	F	-	-	-
Bell Irving SC	EF		CO	59	1.3	0.63	F	-	-	-
Bell Irving SC	EF		CH	51	1.4	1.06	F	-	-	-
Bell Irving SC	EF		MW	46	1.2	1.23	F	-	-	-
Bell Irving SC	EF		CH	50	1.7	1.36	F	-	-	-
Bell Irving SC	EF		CH	55	1.9	1.14	F	-	-	-
Bell Irving SC	EF		CH	58	2.2	1.13	F	-	-	-
Bell Irving SC	EF		CH	57	2.2	1.19	F	-	-	-
Bell Irving SC	EF		CH	52	2.3	1.64	F	-	-	-
Bell Irving SC	EF		CH	55	-	-	F	-	-	-
Bell Irving SC	EF		CH	48	0.9	0.81	F	-	-	-
Bell Irving SC	EF		CH	46	1.5	1.54	F	-	-	-
Bell Irving SC	EF		CH	55	2.4	1.44	F	-	-	-
Bell Irving SC	EF		CH	57	1.5	0.81	F	-	-	-
Bell Irving SC	EF		CH	61	2.2	0.97	F	-	-	-
Bell Irving SC	EF		CH	64	1.2	0.46	F	-	-	-
Bell Irving SC	EF		CH	55	1.5	0.90	F	-	-	-
Bell Irving SC	EF		CH	52	2.0	1.42	F	-	-	-
Bell Irving SC	EF		CH	51	1.9	1.43	F	-	-	-
Bell Irving SC	EF		CH	50	1.3	1.04	F	-	-	-
Bell Irving SC	EF		CH	46	1.5	1.54	F	-	-	-
Bell Irving SC	EF		CH	46	1.0	1.03	F	-	-	-
Bell Irving SC	EF		CH	47	1.4	1.35	F	-	-	-
Bell Irving SC	EF		CH	49	1.7	1.44	F	-	-	-
Bell Irving SC	EF		MW	36	-	-	F	-	-	-
Bell Irving SC	EF		CH	49	1.3	1.10	F	-	-	-
Bell Irving SC	EF		RB	153	43.0	1.20	A	-	-	-
Bell Irving SC	EF		CH	78	6.1	1.29	P	-	-	-
Bell Irving SC	EF		MW	41	0.6	0.87	F	-	-	-
Bell Irving SC	EF		RB	67	-	-	P	-	-	-

A = adult, P = parr, F = fry

MT = minnow trap, EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

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Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
Bell Irving SC	EF		MW	150	-	-	A	-	-	-
Bell Irving SC	EF		MW	60	-	-	P	-	-	-
Bell Irving SC	EF		MW	70	-	-	P	-	-	-
Bell Irving SC	EF		CO	55	-	-	F	-	-	-
Bell Irving SC	EF		MW	80	-	-	P	-	-	-
Bell Irving SC	EF		MW	40	-	-	F	-	-	-
Bell Irving SC	EF		MW	70	-	-	P	-	-	-
Bell Irving SC	EF		MW	70	-	-	P	-	-	-
Bell Irving SC	EF		MW	40	-	-	F	-	-	-
Bell Irving SC	EF		CH	55	-	-	F	-	-	-
Bell Irving SC	EF		CH	50	-	-	F	-	-	-
Bell Irving SC	EF		MW	45	-	-	F	-	-	-
Bell Irving SC	EF		CH	40	-	-	F	-	-	-
Bell Irving SC	EF		CH	55	-	-	F	-	-	-
Bell Irving SC	EF		CH	50	-	-	F	-	-	-
Bell Irving SC	EF		CH	45	-	-	F	-	-	-
133 Mere Creek	EF		DV	125	-	-	A	-	-	-
133 Mere Creek	EF		CO	49	-	-	F	-	-	-
133 Mere Creek	EF		CO	88	-	-	P	-	-	-
133 Mere Creek	EF		CO	79	-	-	P	-	-	-
133 Mere Creek	EF		CO	56	-	-	F	-	-	-
133 Mere Creek	EF		CO	43	-	-	F	-	-	-
133 Mere Creek	EF		CO	60	-	-	F	-	-	-
133 Mere Creek	EF		CO	80	-	-	P	-	-	-
133 Mere Creek	EF		CO	45	-	-	F	-	-	-
133 Mere Creek	EF		CO	42	-	-	F	-	-	-
133 Mere Creek	EF		CO	44	-	-	F	-	-	-
133 Mere Creek	EF		CO	50	-	-	F	-	-	-
133 Mere Creek	EF		CO	44	-	-	F	-	-	-
Bell Irving SC	EF		CH	57	-	-	F	-	-	-
Bell Irving SC	EF		CH	58	-	-	F	-	-	-
Bell Irving SC	EF		MW	106	-	-	A	-	-	-
Bell Irving SC	EF		CH	64	-	-	F	-	-	-
Bell Irving SC	EF		MW	54	-	-	P	-	-	-
Bell Irving SC	EF		MW	48	-	-	P	-	-	-
Bell Irving SC	EF		CH	46	-	-	F	-	-	-
Bell Irving SC	EF		CH	52	-	-	F	-	-	-
Bell Irving SC	EF		CH	56	-	-	F	-	-	-
Bell Irving SC	EF		CH	46	-	-	F	-	-	-
Bell Irving SC	EF		MW	44	-	-	F	-	-	-
Bell Irving SC	EF		CH	67	-	-	F	-	-	-
Bell Irving SC	EF		CH	59	-	-	F	-	-	-
Bell Irving SC	EF		CH	56	-	-	F	-	-	-
Bell Irving SC	EF		CH	70	-	-	P	-	-	-
Bell Irving SC	EF		CH	69	-	-	F	-	-	-
Bell Irving SC	EF		CH	64	-	-	F	-	-	-
Bell Irving SC	EF		CH	55	-	-	F	-	-	-

A = adult, P = parr, F = fry

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DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-6. Wetland, Stream, and Side Channel Biological Fish Data for Compensation Sites, 2010

Polygon	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Maturity (A/P/F)	Structure (OT/FR/SC)	Sample #	Age
Bell Irving SC	EF		CO	105	13.7	1.18	P	-	-	-
Bell Irving SC	EF		CO	74	4.6	1.14	P	-	-	-
Bell Irving SC	EF		CO	97	10.3	1.13	P	-	-	-
Bell Irving SC	EF		CO	103	12.4	1.13	P	-	-	-
Bell Irving SC	EF		CO	95	9.6	1.12	P	-	-	-
Bell Irving SC	EF		CH	59	2.1	1.02	F	-	-	-
Bell Irving SC	EF		CH	60	2.4	1.11	F	-	-	-
Bell Irving SC	EF		CH	58	2.3	1.18	F	-	-	-
Bell Irving SC	EF		CH	59	2.2	1.07	F	-	-	-
Bell Irving SC	EF		CH	65	2.3	0.84	F	-	-	-
Bell Irving SC	EF		CH	65	2.9	1.06	F	-	-	-
Polygon Y	EF		CH	49	1.4	1.19	F	-	-	-
Polygon Y	EF		CH	52	1.7	1.21	F	-	-	-
Polygon Y	EF		CH	54	1.6	1.02	F	-	-	-
Polygon Y	EF		CH	52	1.6	1.14	F	-	-	-
Polygon Y	EF		CO	70	4.6	1.34	P	-	-	-
Polygon Y	EF		CH	65	3.1	1.13	F	-	-	-
Polygon Y	EF		CH	56	2.2	1.25	F	-	-	-
Polygon Y	EF		CH	52	1.9	1.35	F	-	-	-
Polygon Z	EF		DV	25	-	-	F	-	-	-
Polygon Z	EF		DV	25	-	-	F	-	-	-
Polygon Z	EF		DV	29	-	-	F	-	-	-
Polygon Z	EF		DV	30	-	-	F	-	-	-
Polygon Z	EF		DV	29	-	-	F	-	-	-
Polygon Z	EF		DV	27	-	-	F	-	-	-

A = adult, P = parr, F = fry

MT = minnow trap, EF = electrofishing

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

OT = otolith, FR = fin ray, SC = scale

Appendix 5.5-7

Wetland Minnow Trap Effort and Catch Data for Compensation Sites, 2010

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Appendix 5.5-7. Wetland Minnow Trap Effort and Catch Data for Compensation Sites, 2010

Polygon	Wetland #	MT #	Date Set	Time Set	Time Set Conversion	Date Pulled	Time Pulled	Time Pulled Conversion	Set Duration Conversion (hrs)	Total Catch						Fry Catch						Parr Catch						Adult Catch					
										DV	RB	LSU	CO	CH	All	DV	RB	LSU	CO	CH	All	DV	RB	LSU	CO	CH	All	DV	RB	LSU	CO	CH	All
109	Pond	1	15-Jul-10	16:03	16.05	16-Jul-10	9:30	9.50	17.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Pond	2	15-Jul-10	16:07	16.12	16-Jul-10	9:32	9.53	17.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Pond	3	15-Jul-10	16:11	16.18	16-Jul-10	9:35	9.58	17.40	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
109	Pond	4	15-Jul-10	16:14	16.23	16-Jul-10	9:37	9.62	17.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Pond	5	15-Jul-10	16:17	16.28	16-Jul-10	9:40	9.67	17.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	-	1	5-Aug-10	14:00	14.00	7-Aug-10	16:00	16.00	26.00	0	0	0	71	0	71	0	0	0	71	0	71	0	0	0	0	0	0	0	0	0	0	0	0
160	-	2	5-Aug-10	14:05	14.08	7-Aug-10	16:00	16.00	25.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	-	3	5-Aug-10	14:20	14.33	7-Aug-10	16:00	16.00	25.67	1	0	0	5	0	6	0	0	0	0	0	0	0	0	0	5	0	5	1	0	0	0	0	1
160	-	4	5-Aug-10	14:25	14.42	7-Aug-10	16:00	16.00	25.58	0	0	0	5	0	5	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0
160	-	5	5-Aug-10	14:30	14.50	7-Aug-10	16:00	16.00	25.50	1	0	0	2	0	3	0	0	0	0	0	0	0	0	0	2	0	2	1	0	0	0	0	1
160	-	6	5-Aug-10	14:45	14.75	7-Aug-10	16:00	16.00	25.25	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
160	-	7	5-Aug-10	15:00	15.00	7-Aug-10	16:00	16.00	25.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	-	8	5-Aug-10	15:10	15.17	7-Aug-10	16:00	16.00	24.83	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
160	-	9	5-Aug-10	15:20	15.33	7-Aug-10	16:00	16.00	24.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112 TOD	-	1	8-Aug-10	9:00	9.00	9-Aug-10	14:30	14.50	29.50	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
112 TOD	-	2	8-Aug-10	9:00	9.00	9-Aug-10	14:30	14.50	29.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112 TOD	-	3	8-Aug-10	9:00	9.00	9-Aug-10	14:30	14.50	29.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112 TOD	-	4	8-Aug-10	9:00	9.00	9-Aug-10	14:30	14.50	29.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112 TOD	-	5	8-Aug-10	9:00	9.00	9-Aug-10	14:30	14.50	29.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112 TOD	-	6	8-Aug-10	9:00	9.00	9-Aug-10	14:30	14.50	29.50	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
112 TOD	-	7	8-Aug-10	9:00	9.00	9-Aug-10	14:30	14.50	29.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112 TOD	-	8	8-Aug-10	9:00	9.00	9-Aug-10	14:30	14.50	29.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	-	1	6-Aug-10	11:00	11.00	7-Aug-10	15:00	15.00	28.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	-	2	6-Aug-10	11:00	11.00	7-Aug-10	15:00	15.00	28.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	-	3	6-Aug-10	11:00	11.00	7-Aug-10	15:00	15.00	28.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	-	4	6-Aug-10	11:00	11.00	7-Aug-10	15:00	15.00	28.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	-	5	6-Aug-10	11:00	11.00	7-Aug-10	15:00	15.00	28.00	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
107	-	6	6-Aug-10	11:00	11.00	7-Aug-10	15:00	15.00	28.00	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
107	-	7	6-Aug-10	11:00	11.00	7-Aug-10	15:00	15.00	28.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	-	8	6-Aug-10	11:00	11.00	7-Aug-10	15:00	15.00	28.00	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
108	-	1	6-Aug-10	10:00	10.00	7-Aug-10	15:00	15.00	29.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	-	2	6-Aug-10	10:00	10.00	7-Aug-10	15:00	15.00	29.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	-	3	6-Aug-10	10:00	10.00	7-Aug-10	15:00	15.00	29.00	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
108	-	4	6-Aug-10	10:00	10.00	7-Aug-10	15:00	15.00	29.00	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
108	-	5	6-Aug-10	10:00	10.00	7-Aug-10	15:00	15.00	29.00	9	0	0	0	0	9	0	0	0	0	0	0	4	0	0	0	0	4	5	0	0	0	0	5
108	-	6	6-Aug-10	10:00	10.00	7-Aug-10	15:00	15.00	29.00	8	0	0	0	0	8	0	0	0	0	0	0	4	0	0	0	0	4	4	0	0	0	0	4
108	-	7	6-Aug-10	10:00	10.00	7-Aug-10	15:00	15.00	29.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	-	8	6-Aug-10	10:00	10.00	7-Aug-10	15:00	15.00	29.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	-	1	11-Aug-10	13:00	13.00	12-Aug-10	8:30	8.50	19.50	0	0	15	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15
135	-	2	11-Aug-10	13:10	13.17	12-Aug-10	8:40	8.67	19.50	0	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10
135	-	3	11-Aug-10	13:20	13.33	12-Aug-10	8:45	8.75	19.42	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
135	-	4	11-Aug-10	13:40	13.67	12-Aug-10	8:50	8.83	19.17	0	0	15	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15
135	-	5	11-Aug-10	14:00	14.00	12-Aug-10	8:55	8.92	18.92	0	0	40	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	40
135	-	6	11-Aug-10	14:20	14.33	12-Aug-10	9:00	9.00	18.67	0	0	40	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	40
135	-	7	11-Aug-10	14:40	14.67	12-Aug-10	9:00	9.00	18.33	0	0	62	0	0	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0	0	62
135	-	8	11-Aug-10	15:00	15.00	12-Aug-10	9:00	9.00	18.00	0	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8
137-B	-	1	10-Aug-10	9:00	9.00	11-Aug-10	8:30	8.50	23.50	0	0	0	0	0	0																		
137-B	-	2	10-Aug-10	9:00	9.00	11-Aug-10	8:30	8.50	23.50	0	0	0	0	0	0																		
137-B	-	3	10-Aug-10	9:00	9.00	11-Aug-10	8:30	8.50	23.50	0	0	0	0	0	0																		
137-B	-	4	10-Aug-10	9:00	9.00	11-Aug-10	8:30	8.50	23.50	0	0	0	0	0	0																		
137-B	-	5	10-Aug-10	9:00	9.00	11-Aug-10	8:30	8.50	23.50	0	0	0	0	0	0																		
137-B	-	6	10-Aug-10	9:00	9.00	11-Aug-10	8:30	8.50	23.50	0	0	0	0	0	0																		
137-B	-	7	10-Aug-10	9:00	9.00	11-Aug-10	8:30	8.50	23.50	0	0	0	0	0	0																		
137-B	-	8	10-Aug-10	9:00	9.00	11-Aug-10	8:30	8.50	23.50	0	0	0	0	0	0																		
116 BELOW	-	1	8-Aug-10	14:00	14.00	9-Aug-10	10:05	10.08	20.08	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
116 BELOW	-	2	8-Aug-10	14:00	14.00	9-Aug-10	10:05	10.08	20.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116 BELOW	-	3	8-Aug-10	14:00	14.00	9-Aug-10	10:05	10.08	20.08	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
116 BELOW	-	4	8-Aug-10	14:00	14.00	9-Aug-10	10:05	10.08	20.08	0	0	0	2	0	2	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
116 BELOW	-	5	8-Aug-10	14:00	14.00	9-Aug-10	10:05	10.08	20.08	0	0	0	0	2	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0

MT = minnow trap

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

Appendix 5.5-7. Wetland Minnow Trap Effort and Catch Data for Compensation Sites, 2010

Polygon	Wetland #	MT #	Date Set	Time Set	Time Set Conversion	Date Pulled	Time Pulled	Time Pulled Conversion	Set Duration Conversion (hrs)	Total Catch						Fry Catch						Parr Catch						Adult Catch					
										DV	RB	LSU	CO	CH	All	DV	RB	LSU	CO	CH	All	DV	RB	LSU	CO	CH	All	DV	RB	LSU	CO	CH	All
116 BELOW	-	6	8-Aug-10	14:00	14.00	9-Aug-10	10:05	10.08	20.08	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
116 BELOW	-	7	8-Aug-10	14:00	14.00	9-Aug-10	10:05	10.08	20.08	0	0	0	35	2	37	0	0	0	11	2	13	0	0	0	24	0	24	0	0	0	0	0	0
116 BELOW	-	8	8-Aug-10	14:00	14.00	9-Aug-10	10:05	10.08	20.08	0	0	0	19	9	28	0	0	0	6	9	15	0	0	0	13	0	13	0	0	0	0	0	0
116 ABOVE	-	9	8-Aug-10	14:00	14.00	9-Aug-10	11:00	11.00	21.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116 ABOVE	-	10	8-Aug-10	14:00	14.00	9-Aug-10	11:00	11.00	21.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116 ABOVE	-	11	8-Aug-10	14:00	14.00	9-Aug-10	11:00	11.00	21.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116 ABOVE	-	12	8-Aug-10	14:00	14.00	9-Aug-10	11:00	11.00	21.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116 ABOVE	-	13	8-Aug-10	14:00	14.00	9-Aug-10	11:00	11.00	21.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116 ABOVE	-	14	8-Aug-10	14:00	14.00	9-Aug-10	11:00	11.00	21.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116 ABOVE	-	15	8-Aug-10	14:00	14.00	9-Aug-10	11:00	11.00	21.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116 ABOVE	-	16	8-Aug-10	14:00	14.00	9-Aug-10	11:00	11.00	21.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137-A	-	1	10-Aug-10	14:00	14.00	11-Aug-10	10:30	10.50	20.50	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
137-A	-	2	10-Aug-10	14:00	14.00	11-Aug-10	10:30	10.50	20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137-A	-	3	10-Aug-10	14:00	14.00	11-Aug-10	10:30	10.50	20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137-A	-	4	10-Aug-10	14:00	14.00	11-Aug-10	10:30	10.50	20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137-A	-	5	10-Aug-10	14:00	14.00	11-Aug-10	10:30	10.50	20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137-A	-	6	10-Aug-10	14:00	14.00	11-Aug-10	10:30	10.50	20.50	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
137-A	-	7	10-Aug-10	14:00	14.00	11-Aug-10	10:30	10.50	20.50	0	0	0	4	0	4	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
137-A	-	8	10-Aug-10	14:00	14.00	11-Aug-10	10:30	10.50	20.50	0	0	0	3	0	3	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
130	1012	1	11-Aug-10	10:00	10.00	12-Aug-10	10:30	10.50	24.50	0	0	0	31	0	31	0	0	0	31	0	31	0	0	0	0	0	0	0	0	0	0	0	0
130	BP1	2	11-Aug-10	11:00	11.00	12-Aug-10	10:25	10.42	23.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	BP1	3	11-Aug-10	11:00	11.00	12-Aug-10	10:20	10.33	23.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	BP1	4	11-Aug-10	11:00	11.00	12-Aug-10	10:15	10.25	23.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	BP1	5	11-Aug-10	11:00	11.00	12-Aug-10	10:10	10.17	23.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	BP2	6	11-Aug-10	11:30	11.50	12-Aug-10	10:05	10.08	22.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	BP2	7	11-Aug-10	11:30	11.50	12-Aug-10	10:00	10.00	22.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	BP5	8	12-Aug-10	11:50	11.83	13-Aug-10	8:45	8.75	20.92	2	0	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1
130	BP5	9	12-Aug-10	11:50	11.83	13-Aug-10	8:45	8.75	20.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	BP5	10	12-Aug-10	11:50	11.83	13-Aug-10	8:45	8.75	20.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	BP5	11	12-Aug-10	11:50	11.83	13-Aug-10	8:45	8.75	20.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	-	1	12-Sep-10	15:00	15.00	13-Sep-10	8:45	8.75	17.75	1	0	0	14	0	15	0	0	0	2	0	2	0	0	0	12	0	12	1	0	0	0	0	1
112	-	2	12-Sep-10	15:00	15.00	13-Sep-10	8:45	8.75	17.75	2	0	0	2	0	4	0	0	0	0	0	0	1	0	0	2	0	3	1	0	0	0	0	1
112	-	3	12-Sep-10	15:00	15.00	13-Sep-10	8:45	8.75	17.75	15	0	0	5	0	20	0	0	0	0	0	0	1	0	0	5	0	6	14	0	0	0	0	14
112	-	4	12-Sep-10	15:00	15.00	13-Sep-10	8:45	8.75	17.75	6	0	0	3	0	9	0	0	0	0	0	0	1	0	0	3	0	4	5	0	0	0	0	5
112	-	5	12-Sep-10	15:00	15.00	13-Sep-10	8:45	8.75	17.75	18	0	0	27	0	45	0	0	0	1	0	1	1	0	0	26	0	27	17	0	0	0	0	17
112	-	6	12-Sep-10	15:00	15.00	13-Sep-10	8:45	8.75	17.75	2	0	0	3	0	5	0	0	0	0	0	0	0	0	0	3	0	3	2	0	0	0	0	2
101	-	1	30-Mar-10	11:30	11.50	31-Mar-10	13:30	13.50	26.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	-	2	30-Mar-10	11:30	11.50	31-Mar-10	13:30	13.50	26.00	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
101	-	3	30-Mar-10	11:30	11.50	31-Mar-10	13:30	13.50	26.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	-	1	30-Mar-10	13:00	13.00	31-Mar-10	14:00	14.00	25.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	-	2	30-Mar-10	13:00	13.00	31-Mar-10	14:00	14.00	25.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	-	3	30-Mar-10	13:00	13.00	31-Mar-10	14:00	14.00	25.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MT = minnow trap

DV = Dolly Varden, BT = bull trout, RB = rainbow trout, MW = mountain whitefish, CH = chinook salmon, CO = coho salmon, LSU = longnose sucker

Appendix 5.5-8

Lake Biological Fish Data for Compensation Sites, 2010

Rescan™
Engineers and Scientists

Appendix 5.5-8. Lake Biological Fish Data for Compensation Sites, 2010

							Age			Genetic	
Site #	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Structure (OT/FC/SC)	Sample #	Age	Structure (AD)	Sample #
Unnamed Lake #1	GN	3	RB	315	366	1.17	FR/SC/OT	1	5	-	-
Unnamed Lake #1	GN	4	DV	270	223	1.13	FR/SC	2	3	-	-
Unnamed Lake #1	GN	4	DV	312	326	1.07	FR/SC	3	3	-	-
Unnamed Lake #1	GN	4	DV	241	165	1.18	FR/SC	4	2	-	-
Unnamed Lake #1	GN	4	RB	307	394	1.36	FR/SC	5	3	-	-
Unnamed Lake #1	GN	4	DV	309	316	1.07	FR/SC	6	3	-	-
Unnamed Lake #1	GN	4	DV	328	395	1.12	FR/SC	7	3	-	-
Unnamed Lake #1	GN	4	DV	308	325	1.11	FR/SC/OT	8	3	-	-
Unnamed Lake #1	GN	5	RB	304	364	1.30	FR/SC	9	3	-	-
Unnamed Lake #1	GN	5	DV	326	378	1.09	FR/SC	10	3	-	-
Unnamed Lake #1	GN	5	DV	294	310	1.22	FR/SC	11	3	-	-
Unnamed Lake #1	GN	5	RB	322	382	1.14	FR/SC	12	2	-	-
Unnamed Lake #1	GN	5	RB	320	418	1.28	FR/SC	13	3	-	-
Unnamed Lake #1	GN	5	DV	309	382	1.29	FR/SC	14	3	-	-
Unnamed Lake #1	GN	6	RB	370	476	0.94	FR/SC	15	2	-	-
Unnamed Lake #1	GN	6	RB	368	601	1.21	FR/SC	16	3	-	-
Unnamed Lake #1	GN	6	RB	299	293	1.10	FR/SC	17	3	-	-
Unnamed Lake #1	GN	6	RB	318	391	1.22	FR/SC/OT	18	3	-	-
Unnamed Lake #2	MT	7	DV	67	4	1.33	-	-	-	-	-
Unnamed Lake #2	MT	8	DV	136	15	0.60	-	-	-	-	-
Unnamed Lake #2	MT	9	DV	124	18	0.94	-	-	-	-	-
Unnamed Lake #2	MT	10	DV	107	12	0.98	-	-	-	-	-
Unnamed Lake #2	MT	10	DV	133	23	0.98	-	-	-	-	-
Unnamed Lake #2	GN	1	DV	268	183	0.95	FR/SC	1	5	-	-
Unnamed Lake #2	GN	2	DV	216	105	1.04	FR/SC	2	3	-	-
Unnamed Lake #2	GN	2	DV	211	113	1.20	FR/SC	3	3	-	-
Unnamed Lake #2	GN	2	DV	186	61	0.95	FR/SC	4	3	AD	4
Unnamed Lake #2	GN	3	DV	236	133	1.01	FR/SC	5	2	AD	5
Unnamed Lake #2	GN	3	DV	222	107	0.98	FR/SC	6	3	-	-
Unnamed Lake #2	GN	4	DV	225	118	1.04	FR/SC	7	3	-	-
Unnamed Lake #2	GN	4	DV	237	130	0.98	FR/SC	8	3	AD	8
Unnamed Lake #2	GN	4	DV	235	123	0.95	FR/SC	9	3	-	-
Unnamed Lake #2	GN	4	DV	212	96	1.01	-	-	-	-	-
Unnamed Lake #2	GN	4	DV	241	143	1.02	-	-	-	-	-
Unnamed Lake #2	GN	4	DV	222	96	0.88	-	-	-	-	-
Unnamed Lake #2	GN	4	DV	209	90	0.99	-	-	-	-	-
Unnamed Lake #2	GN	4	DV	203	111	1.33	FR/SC/OT	10	3	-	-
Unnamed Lake #2	GN	5	DV	201	84	1.03	-	-	-	-	-
Hodkin Lake	GN	1	DV	220	115	1.08	FR/SC	1	3	-	-
Hodkin Lake	GN	4	DV	395	744	1.21	FR/SC	2	5	-	-
Hodkin Lake	GN	5	DV	390	724	1.22	FR/SC	3	3	-	-
Hodkin Lake	GN	7	DV	246	173	1.16	FR/SC	4	3	-	-
Hodkin Lake	GN	8	DV	219	112	1.07	FR/SC	5	3	-	-
Hodkin Lake	GN	8	DV	216	101	1.00	FR/SC	6	3	-	-
Hodkin Lake	GN	12	DV	173	161	3.11	FR/SC	7	2	-	-
Hodkin Lake	GN	12	DV	204	96	1.13	FR/SC	8	2	-	-
Hodkin Lake	GN	13	DV	228	127	1.07	FR/SC	9	3	-	-
Hodkin Lake	GN	14	DV	199	83	1.05	FR/SC	10	3	-	-
Hodkin Lake	GN	16	DV	214	113	1.15	FR/SC	11	3	-	-
Unuk Lake	GN	7	DV	189	66	0.98	-	-	-	-	-
Unuk Lake	GN	7	DV	205	95	1.10	-	-	-	-	-
Unuk Lake	GN	7	DV	136	27	1.07	-	-	-	-	-
Unuk Lake	GN	7	DV	169	53	1.10	FR/SC	1	3	-	-
Unuk Lake	GN	7	DV	205	93	1.08	FR/SC	2	4	-	-
Unuk Lake	GN	7	DV	185	64	1.01	FR/SC	3	3	-	-

Species: RB = rainbow trout, DV = dolly varden, MWF = mountain whitefish, U = unknown

Method: GN = gillnet, MT = minnow trap

Structures: FC = fin clip, SC = scales, OT = otolith, AD = adipose fin

Appendix 5.5-8. Lake Biological Fish Data for Compensation Sites, 2010

							Age			Genetic	
Site #	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Structure (OT/FC/SC)	Sample #	Age	Structure (AD)	Sample #
Unuk Lake	GN	7	DV	186	78	1.21	FR/SC	4	4	-	-
Unuk Lake	GN	7	DV	184	62	1.00	FR/SC	5	3	-	-
Unuk Lake	GN	9	DV	197	75	0.98	-	-	-	-	-
Unuk Lake	GN	9	DV	184	61	0.98	-	-	-	-	-
Unuk Lake	GN	9	DV	148	36	1.11	-	-	-	-	-
Unuk Lake	GN	9	DV	176	59	1.08	-	-	-	-	-
Unuk Lake	GN	9	DV	145	38	1.25	-	-	-	-	-
Unuk Lake	GN	9	DV	186	82	1.27	-	-	-	-	-
Unuk Lake	GN	9	DV	171	79	1.58	-	-	-	-	-
Unuk Lake	GN	9	DV	209	120	1.31	-	-	-	-	-
Unuk Lake	GN	9	DV	142	48	1.68	-	-	-	-	-
Unuk Lake	GN	9	DV	179	84	1.46	-	-	-	-	-
Unuk Lake	GN	9	DV	152	54	1.54	-	-	-	-	-
Unuk Lake	GN	9	DV	187	95	1.45	-	-	-	-	-
Unuk Lake	GN	9	DV	133	30	1.28	-	-	-	-	-
Unuk Lake	GN	9	DV	143	34	1.16	-	-	-	-	-
Unuk Lake	GN	9	DV	199	70	0.89	-	-	-	-	-
Unuk Lake	GN	9	DV	146	26	0.84	-	-	-	-	-
Unuk Lake	GN	9	DV	137	24	0.93	-	-	-	-	-
Unuk Lake	GN	9	DV	134	23	0.96	-	-	-	-	-
Unuk Lake	GN	9	DV	139	33	1.23	-	-	-	-	-
Unuk Lake	GN	9	DV	145	34	1.12	-	-	-	-	-
Unuk Lake	GN	9	DV	209	105	1.15	-	6	2	-	-
Unuk Lake	GN	9	DV	176	85	1.56	-	7	3	-	-
Unuk Lake	GN	9	DV	216	117	1.16	-	8	3	-	-
Unuk Lake	GN	9	DV	167	56	1.20	-	9	3	-	-
Unuk Lake	GN	9	DV	209	96	1.05	-	10	3	-	-
Unuk Lake	GN	9	DV	155	42	1.13	-	-	-	-	-
Unuk Lake	GN	10	DV	179	54	0.94	FR/OT	11	3	-	-
Unuk Lake	GN	10	DV	195	85	1.15	-	-	-	-	-
Unuk Lake	GN	10	DV	183	63	1.03	-	-	-	-	-
Unuk Lake	GN	10	DV	175	58	1.08	FR/OT	14	3	-	-
Unuk Lake	GN	10	DV	182	62	1.03	-	-	-	-	-
Unuk Lake	GN	10	DV	164	53	1.20	FR/OT	15	3	-	-
Unuk Lake	GN	10	DV	224	127	1.13	FR/OT	13	3	-	-
Unuk Lake	GN	10	DV	194	83	1.14	-	12	4	-	-
Unuk Lake	GN	10	DV	185	71	1.12	-	-	-	-	-
Gilbert Lake	MT	2	DV	169	53	1.10	FR/SC	1	2	-	-
Gilbert Lake	MT	24	DV	107	14	1.14	FR/SC	2	3	-	-
Gilbert Lake	MT	26	DV	123	20	1.07	FR/SC	3	ua	-	-
Gilbert Lake	MT	31	MWF	139	18	0.67	-	-	-	-	-
Gilbert Lake	MT	31	MWF	107	14	1.14	-	-	-	-	-
Gilbert Lake	MT	36	DV	105	11	0.95	FR/SC	4	1	-	-
Gilbert Lake	MT	44	RB	116	16	1.03	-	-	-	-	-
Gilbert Lake	GN	1	RB	249	186	1.20	FR/SC	1	4	-	-
Gilbert Lake	GN	1	RB	299	289	1.08	FR/SC	2	3	-	-
Gilbert Lake	GN	1	RB	264	216	1.17	FR/SC	3	4	-	-
Gilbert Lake	GN	1	RB	266	235	1.25	FR/SC	4	4	-	-
Gilbert Lake	GN	1	RB	312	324	1.07	FR/SC	5	4	-	-
Gilbert Lake	GN	1	RB	306	359	1.25	FR/SC	6	3	-	-
Gilbert Lake	GN	1	RB	313	360	1.17	FR/SC	7	3	-	-
Gilbert Lake	GN	1	RB	246	153	1.03	FR/SC	8	4	-	-
Gilbert Lake	GN	1	RB	281	262	1.18	-	-	-	-	-
Gilbert Lake	GN	1	RB	302	359	1.30	-	-	-	-	-
Gilbert Lake	GN	1	RB	286	163	0.70	-	-	-	-	-

Species: RB = rainbow trout, DV = dolly varden, MWF = mountain whitefish, U = unknown

Method: GN = gillnet, MT = minnow trap

Structures: FC = fin clip, SC = scales, OT = otolith, AD = adipose fin

Appendix 5.5-8. Lake Biological Fish Data for Compensation Sites, 2010

							Age			Genetic	
Site #	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Structure (OT/FC/SC)	Sample #	Age	Structure (AD)	Sample #
Gilbert Lake	GN	1	RB	302	244	0.89	-	-	-	-	-
Gilbert Lake	GN	1	RB	258	188	1.09	-	-	-	-	-
Gilbert Lake	GN	1	RB	220	135	1.27	-	-	-	-	-
Gilbert Lake	GN	1	MWF	263	227	1.25	-	-	-	-	-
Gilbert Lake	GN	1	DV	201	93	1.15	-	-	-	-	-
Gilbert Lake	GN	1	MWF	313	416	1.36	FR/OT	11	9	-	-
Gilbert Lake	GN	1	MWF	304	361	1.28	FR/OT	12	7	-	-
Gilbert Lake	GN	1	RB	281	233	1.05	FR/SC	14	6	-	-
Gilbert Lake	GN	1	RB	251	186	1.18	FR/OT	15	4	-	-
Gilbert Lake	GN	1	RB	267	218	1.15	-	-	-	-	-
Gilbert Lake	GN	1	RB	266	240	1.28	-	-	-	-	-
Gilbert Lake	GN	1	RB	277	245	1.15	-	-	-	-	-
Gilbert Lake	GN	1	RB	305	301	1.06	-	-	-	-	-
Gilbert Lake	GN	1	RB	374	247	0.47	-	-	-	-	-
Gilbert Lake	GN	1	RB	282	274	1.22	-	-	-	-	-
Gilbert Lake	GN	1	MWF	279	75	0.35	-	-	-	-	-
Gilbert Lake	GN	1	MWF	201	104	1.28	FR/OT	13	3	-	-
Gilbert Lake	GN	1	RB	313	334	1.09	FR/OT	16	5	-	-
Gilbert Lake	GN	2	RB	307	219	0.76	-	-	-	-	-
Gilbert Lake	GN	2	RB	329	281	0.79	-	-	-	-	-
Gilbert Lake	GN	2	MWF	266	213	1.13	FR/SC	9	5	-	-
Gilbert Lake	GN	2	DV	323	447	1.33	FR/SC	10	4	-	-
Gilbert Lake	GN	3	MWF	312	373	1.23	FR/SC	17	8	-	-
Gilbert Lake	GN	3	MWF	256	185	1.10	FR/SC	18	6	-	-
Gilbert Lake	GN	3	MWF	247	163	1.08	FR/SC	19	4	-	-
Gilbert Lake	GN	3	MWF	143	34	1.16	FR/SC	20	3	-	-
Gilbert Lake	GN	3	MWF	217	125	1.22	FR/SC	21	3	-	-
Gilbert Lake	GN	3	MWF	213	128	1.32	-	-	-	-	-
Gilbert Lake	GN	3	MWF	134	36	1.50	-	-	-	-	-
Gilbert Lake	GN	3	MWF	143	38	1.30	-	-	-	-	-
Gilbert Lake	GN	3	MWF	192	94	1.33	FR/SC	22	3	-	-
Gilbert Lake	GN	3	DV	205	85	0.99	-	-	-	-	-
Gilbert Lake	GN	3	MWF	342	349	0.87	-	-	-	-	-
Gilbert Lake	GN	3	MWF	351	477	1.10	FR/SC	23	13	-	-
Gilbert Lake	GN	4	MWF	116	209	13.39	-	-	-	-	-
Gilbert Lake	GN	4	RB	290	271	1.11	-	-	-	-	-
Gilbert Lake	GN	4	RB	257	200	1.18	-	-	-	-	-
Gilbert Lake	GN	4	RB	181	82	1.38	-	-	-	-	-
Gilbert Lake	GN	4	RB	285	257	1.11	-	-	-	-	-
Gilbert Lake	GN	4	MWF	231	145	1.18	-	-	-	-	-
Gilbert Lake	GN	5	MWF	281	229	1.03	-	-	-	-	-
Gilbert Lake	GN	5	MWF	243	168	1.17	-	-	-	-	-
Gilbert Lake	GN	5	MWF	267	184	0.97	-	-	-	-	-
Gilbert Lake	GN	5	MWF	300	280	1.04	-	-	-	-	-
Gilbert Lake	GN	5	MWF	322	320	0.96	-	-	-	-	-
Gilbert Lake	GN	5	RB	287	227	0.96	-	-	-	-	-
Gilbert Lake	GN	5	MWF	275	231	1.11	-	-	-	-	-
Gilbert Lake	GN	6	DV	352	464	1.06	FR/SC	24	7	-	-
Gilbert Lake	GN	8	RB	257	188	1.11	-	-	-	-	-
Gilbert Lake	GN	8	RB	292	228	0.92	-	-	-	-	-
Gilbert Lake	GN	8	RB	265	184	0.99	-	-	-	-	-
Gilbert Lake	GN	9	RB	289	251	1.04	-	-	-	-	-
Gilbert Lake	GN	9	RB	291	272	1.10	-	-	-	-	-
Gilbert Lake	GN	9	RB	264	195	1.06	-	-	-	-	-
Gilbert Lake	GN	9	RB	292	241	0.97	-	-	-	-	-

Species: RB = rainbow trout, DV = dolly varden, MWF = mountain whitefish, U = unknown

Method: GN = gillnet, MT = minnow trap

Structures: FC = fin clip, SC = scales, OT = otolith, AD = adipose fin

Appendix 5.5-8. Lake Biological Fish Data for Compensation Sites, 2010

							Age			Genetic	
Site #	Method	Set #	Species	Length (mm)	Weight (g)	Condition (g/mm^3)	Structure (OT/FC/SC)	Sample #	Age	Structure (AD)	Sample #
Gilbert Lake	GN	9	RB	245	156	1.06	-	-	-	-	-
Gilbert Lake	GN	9	RB	303	278	1.00	-	-	-	-	-
Gilbert Lake	GN	9	RB	313	294	0.96	-	-	-	-	-
Gilbert Lake	GN	9	RB	302	288	1.05	-	-	-	-	-
Gilbert Lake	GN	9	RB	249	167	1.08	-	-	-	-	-
Gilbert Lake	GN	9	RB	245	149	1.01	-	-	-	-	-
Gilbert Lake	GN	9	RB	279	215	0.99	-	-	-	-	-
Gilbert Lake	GN	9	RB	274	204	0.99	-	-	-	-	-
Gilbert Lake	GN	9	RB	279	232	1.07	-	-	-	-	-
Gilbert Lake	GN	10	DV	267	219	1.15	FR/SC	25	5	-	-
Gilbert Lake	GN	10	DV	259	218	1.25	FR/SC	26	5	-	-
Gilbert Lake	GN	10	DV	274	229	1.11	FR/SC	27	5	-	-
Gilbert Lake	GN	10	DV	223	140	1.26	FR/SC	28	4	-	-
Gilbert Lake	GN	10	MWF	356	600	1.33	-	-	-	-	-
Gilbert Lake	GN	10	MWF	146	37	1.19	-	-	-	-	-
Gilbert Lake	GN	10	MWF	139	26	0.97	-	-	-	-	-
Gilbert Lake	GN	10	MWF	164	45	1.02	-	-	-	-	-
Gilbert Lake	GN	10	DV	248	187	1.23	FR/SC	29	5	-	-

Species: RB = rainbow trout, DV = dolly varden, MWF = mountain whitefish, U = unknown

Method: GN = gillnet, MT = minnow trap

Structures: FC = fin clip, SC = scales, OT = otolith, AD = adipose fin

Appendix 5.5-9

Gillnet Effort and Catch Data for Compensation Sites, 2010

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Appendix 5.5-9. Gillnet Effort and Catch Data for Compensation Sites, 2010

Lake	GN #	Date In	Time In	Date Pulled	Time Pulled	Set Duration (hrs)	Dolly Varden	Rainbow Trout	Mountain Whitefish
Unnamed Lake #1	1	15-Jul-10	8:00	15-Jul-10	9:00	1.0	0	0	0
Unnamed Lake #1	2	15-Jul-10	9:10	15-Jul-10	10:10	1.0	0	0	0
Unnamed Lake #1	3	15-Jul-10	10:30	15-Jul-10	12:00	1.5	0	1	0
Unnamed Lake #1	4	15-Jul-10	11:20	15-Jul-10	12:50	1.5	6	1	0
Unnamed Lake #1	5	15-Jul-10	12:15	15-Jul-10	13:50	1.6	3	3	0
Unnamed Lake #1	6	15-Jul-10	1:15	15-Jul-10	14:45	13.5	0	4	0
Unnamed Lake #2	1	16-Jul-10	8:40	16-Jul-10	9:40	1.0	1	0	0
Unnamed Lake #2	2	16-Jul-10	10:15	16-Jul-10	11:15	1.0	3	0	0
Unnamed Lake #2	3	16-Jul-10	11:30	16-Jul-10	12:30	1.0	2	0	0
Unnamed Lake #2	4	16-Jul-10	12:46	16-Jul-10	13:45	1.0	8	0	0
Unnamed Lake #2	5	16-Jul-10	14:00	16-Jul-10	15:00	1.0	1	0	0
Hodkin Lake	1	7-Jul-10	10:40	7-Jul-10	11:45	1.1	1	0	0
Hodkin Lake	2	7-Jul-10	11:15	7-Jul-10	12:45	1.5	0	0	0
Hodkin Lake	3	7-Jul-10	12:30	7-Jul-10	13:40	1.2	0	0	0
Hodkin Lake	4	7-Jul-10	13:15	7-Jul-10	14:20	1.1	1	0	0
Hodkin Lake	5	7-Jul-10	14:00	7-Jul-10	15:00	1.0	1	0	0
Hodkin Lake	6	7-Jul-10	14:30	7-Jul-10	15:30	1.0	0	0	0
Hodkin Lake	7	8-Jul-10	11:10	8-Jul-10	12:10	1.0	1	0	0
Hodkin Lake	8	8-Jul-10	11:45	8-Jul-10	13:15	1.5	2	0	0
Hodkin Lake	9	8-Jul-10	13:10	8-Jul-10	14:15	1.1	0	0	0
Hodkin Lake	10	8-Jul-10	14:10	8-Jul-10	15:10	1.0	0	0	0
Hodkin Lake	11	9-Jul-10	9:05	9-Jul-10	10:10	1.1	0	0	0
Hodkin Lake	12	9-Jul-10	9:40	9-Jul-10	10:40	1.0	2	0	0
Hodkin Lake	13	9-Jul-10	10:20	9-Jul-10	11:25	1.1	1	0	0
Hodkin Lake	14	9-Jul-10	11:00	9-Jul-10	12:15	1.3	1	0	0
Hodkin Lake	15	9-Jul-10	11:46	9-Jul-10	11:55	0.1	0	0	0
Hodkin Lake	16	9-Jul-10	12:35	9-Jul-10	13:35	1.0	1	0	0
Hodkin Lake	17	9-Jul-10	13:15	9-Jul-10	14:15	1.0	0	0	0
Unuk Lake	1	10-Jul-10	10:30	10-Jul-10	11:30	1.0	0	0	0
Unuk Lake	2	10-Jul-10	11:15	10-Jul-10	12:15	1.0	0	0	0
Unuk Lake	3	10-Jul-10	11:50	10-Jul-10	13:20	1.5	0	0	0
Unuk Lake	4	10-Jul-10	13:30	10-Jul-10	15:00	1.5	0	0	0
Unuk Lake	5	10-Jul-10	13:50	11-Jul-10	12:00	22.2	30	0	0
Unuk Lake	6	10-Jul-10	14:20	11-Jul-10	13:30	23.2	27	0	0
Unuk Lake	7	10-Jul-10	15:40	11-Jul-10	10:00	18.3	8	0	0
Unuk Lake	9	10-Jul-10	16:00	11-Jul-10	10:15	18.3	52	0	0
Unuk Lake	10	10-Jul-10	16:10	11-Jul-10	12:24	20.2	26	0	0
Gilbert Lake	1	12-Jul-10	10:30	13-Jul-10	11:30	1.0	1	23	5
Gilbert Lake	2	12-Jul-10	11:00	13-Jul-10	12:25	1.4	1	2	1
Gilbert Lake	3	12-Jul-10	13:35	12-Jul-10	14:03	0.5	1	0	11
Gilbert Lake	4	12-Jul-10	15:00	12-Jul-10	15:35	0.6	0	3	10
Gilbert Lake	5	13-Jul-10	9:25	13-Jul-10	9:55	0.5	0	1	6
Gilbert Lake	6	13-Jul-10	10:10	13-Jul-10	10:40	0.5	1	0	0
Gilbert Lake	7	13-Jul-10	10:50	13-Jul-10	11:20	0.5	0	0	0
Gilbert Lake	8	13-Jul-10	11:30	13-Jul-10	12:00	0.5	0	3	0
Gilbert Lake	9	13-Jul-10	12:15	13-Jul-10	12:50	0.6	1	13	0
Gilbert Lake	10	13-Jul-10	13:30	13-Jul-10	14:00	0.5	5	0	4

Appendix 5.5-10

Minnow Trap Effort and Catch Data for Compensation Sites, 2010

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Appendix 5.5-10. Minnow Trap Effort and Catch Data for Compensation Sites, 2010

Lake	MT #	Date Set	Time Set	Date Pulled	Time Pulled	Set Duration (hrs)	Species Caught	
							Dolly Varden	Rainbow Trout
Unnamed Lake #1	1	14-Jul-10	13:00	15-Jul-10	7:27	18.5	0	0
Unnamed Lake #1	2	14-Jul-10	13:35	15-Jul-10	7:29	17.9	0	0
Unnamed Lake #1	3	14-Jul-10	13:38	15-Jul-10	7:30	17.9	0	0
Unnamed Lake #1	4	14-Jul-10	13:41	15-Jul-10	7:31	17.8	0	0
Unnamed Lake #1	5	14-Jul-10	13:44	15-Jul-10	7:32	17.8	0	0
Unnamed Lake #1	6	14-Jul-10	13:48	15-Jul-10	7:34	17.8	0	0
Unnamed Lake #1	7	14-Jul-10	13:52	15-Jul-10	7:35	17.7	0	0
Unnamed Lake #1	8	14-Jul-10	13:55	15-Jul-10	7:36	17.7	0	0
Unnamed Lake #1	9	14-Jul-10	13:59	15-Jul-10	7:37	17.6	0	0
Unnamed Lake #1	10	14-Jul-10	14:04	15-Jul-10	7:39	17.6	0	0
Unnamed Lake #1	11	14-Jul-10	14:07	15-Jul-10	7:40	17.6	0	0
Unnamed Lake #1	12	14-Jul-10	14:09	15-Jul-10	7:42	17.6	0	0
Unnamed Lake #1	13	14-Jul-10	14:12	15-Jul-10	7:44	17.5	0	0
Unnamed Lake #1	14	14-Jul-10	14:15	15-Jul-10	7:45	17.5	0	0
Unnamed Lake #1	15	14-Jul-10	14:18	15-Jul-10	7:47	17.5	0	0
Unnamed Lake #2	1	16-Jul-10	7:55	17-Jul-10	7:27	23.5	0	0
Unnamed Lake #2	2	16-Jul-10	7:57	17-Jul-10	7:29	23.5	0	0
Unnamed Lake #2	3	16-Jul-10	7:59	17-Jul-10	7:30	23.5	0	0
Unnamed Lake #2	4	16-Jul-10	8:02	17-Jul-10	7:31	23.5	0	0
Unnamed Lake #2	5	16-Jul-10	8:05	17-Jul-10	7:32	23.5	0	0
Unnamed Lake #2	6	16-Jul-10	8:07	17-Jul-10	7:34	23.5	0	0
Unnamed Lake #2	7	16-Jul-10	8:11	17-Jul-10	7:35	23.4	1	0
Unnamed Lake #2	8	16-Jul-10	8:14	17-Jul-10	7:37	23.4	1	0
Unnamed Lake #2	9	16-Jul-10	8:17	17-Jul-10	7:38	23.4	1	0
Unnamed Lake #2	10	16-Jul-10	8:20	17-Jul-10	7:40	23.3	2	0
Hodkin Lake	1	7-Jul-10	8:50	8-Jul-10	8:50	24.0	0	0
Hodkin Lake	2	7-Jul-10	9:05	8-Jul-10	8:51	23.8	0	0
Hodkin Lake	3	7-Jul-10	9:10	8-Jul-10	8:55	23.8	0	0
Hodkin Lake	4	7-Jul-10	9:15	8-Jul-10	8:57	23.7	0	0
Hodkin Lake	5	7-Jul-10	9:20	8-Jul-10	8:59	23.7	0	0
Hodkin Lake	6	7-Jul-10	9:25	8-Jul-10	9:00	23.6	0	0
Hodkin Lake	7	7-Jul-10	9:30	8-Jul-10	9:05	23.6	0	0
Hodkin Lake	8	7-Jul-10	9:35	8-Jul-10	9:07	23.5	0	0
Hodkin Lake	9	7-Jul-10	9:40	8-Jul-10	9:10	23.5	0	0
Hodkin Lake	10	7-Jul-10	9:45	8-Jul-10	9:12	23.5	0	0
Hodkin Lake	11	7-Jul-10	9:50	8-Jul-10	9:15	23.4	0	0
Hodkin Lake	12	7-Jul-10	9:55	8-Jul-10	9:18	23.4	0	0
Hodkin Lake	13	7-Jul-10	10:00	8-Jul-10	9:20	23.3	0	0
Hodkin Lake	14	7-Jul-10	10:05	8-Jul-10	9:23	23.3	0	0
Hodkin Lake	15	7-Jul-10	10:10	8-Jul-10	9:25	23.3	0	0
Hodkin Lake	16	8-Jul-10	9:30	9-Jul-10	7:45	22.3	0	0
Hodkin Lake	17	8-Jul-10	9:35	9-Jul-10	7:47	22.2	0	0
Hodkin Lake	18	8-Jul-10	9:40	9-Jul-10	7:49	22.2	0	0
Hodkin Lake	19	8-Jul-10	9:45	9-Jul-10	7:51	22.1	0	0
Hodkin Lake	20	8-Jul-10	9:47	9-Jul-10	7:54	22.1	0	0
Hodkin Lake	21	8-Jul-10	9:50	9-Jul-10	7:57	22.1	0	0
Hodkin Lake	22	8-Jul-10	9:55	9-Jul-10	8:01	22.1	0	0
Hodkin Lake	23	8-Jul-10	10:00	9-Jul-10	8:03	22.1	0	0
Hodkin Lake	24	8-Jul-10	10:05	9-Jul-10	8:06	22.0	0	0
Hodkin Lake	25	8-Jul-10	10:07	9-Jul-10	8:10	22.1	0	0
Hodkin Lake	26	8-Jul-10	10:10	9-Jul-10	8:13	22.1	0	0
Hodkin Lake	27	8-Jul-10	10:15	9-Jul-10	8:15	22.0	0	0
Hodkin Lake	28	8-Jul-10	10:20	9-Jul-10	8:17	22.0	0	0
Hodkin Lake	29	8-Jul-10	10:25	9-Jul-10	8:20	21.9	0	0
Hodkin Lake	30	8-Jul-10	10:30	9-Jul-10	8:23	21.9	0	0

MT = minnow trap