

Reconnaissance (1:20,000) Fish and Fish Habitat Inventory

**Tributaries in the Sutherland River Watershed
2000**

General Watershed Code: 480-993600-*****

Prepared for:

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A handwritten signature in black ink, appearing to read 'S. Redden', is written over a horizontal line.

Shawn Redden, B.Sc., Bio.

March 31, 2001

Project Reference Information

FRBC Multi-Year Agreement Number	0000105
MELP Project Number	BFP-C016-001-2001
FRBC Activity Number	10437
FDIS Project Code	4119
FDIS Project WSC	480-993600
FRBC Region	Smithers Region
MELP Region	06 - Skeena
FW Management Units	6-6
DFO Sub-District	4D
Forest Region	Prince Rupert
Forest District	Lakes Forest District
Forest Licensee and Tenure #	Babine Forest Products Company Forest Licences A-16823 and A-16825
First Nations Claim Area	Carrier-Sekani Tribal Councils

Watershed Information (Within Project Area)

Watershed Group	BABL (Babine Lake)
Watershed Name	Sutherland River
Watershed Code	480-993600
UTM at Mouth	10.358740.6040200
Watershed Area (km ²)	182
Total of all Stream Lengths (km)	295
Stream Order	5 (at least – much of watershed out of project area)
NTS Maps	93 K/6, 93 K/7, 93 K/11
TRIM Maps	93K.035, 93K.036, 93K.045, 93K.046, 93K.055
BEC Zone	SBS (Sub-Boreal Spruce))
Air Photos	<u>30BCC96018</u> : 110-115; <u>30BCC98023</u> : 1-16, 122-139, 142-149 <u>30BCC98022</u> : 62-68; <u>30BCC98021</u> : 124-133, 167-183
Fish Species Present (captured in this inventory)	CAS, RB, SK

Sampling Design Summary

Total Number of Reaches	385
Random Sample Reaches	17
Discretionary Sample Reaches	48
Total Sample Reaches	65
% of Reaches Sampled	16.9
Field Sampling Dates	October 2 to October 5, 2000

Abbreviations Used in this Report

Avg	Average	NCD	Not classified drainage
BD	Stream bed, beaver dam	NCD*	No drainage present at mapped location
BFP	Babine Forest Products Company	Neg	Film negative
BGC	Biogeoclimatic zone	NFC	No fish captured
C	Clear (not turbid)	NFP	No fish present
C.	Creek	NS	Not sampled
CAS	Prickly sculpin (<i>Cottus asper</i>)	NTS	National Topographic Survey
CC	Sculpins -general	NVC	No visible channel
CD	Compact disc	pH	Acidity or alkalinity measurement unit
CO	Coho salmon (<i>O. kisutch</i>)	Prop	Proposed
Cond.	Conductivity	PW	Electric pulse width
CPUE	Catch per unit effort	R.	River
CW	Channel width	RB	Rainbow trout (<i>O. mykiss</i>)
D	Downstream	Rd	Road
DFO	Department of Fisheries and Oceans	Rip	Riparian
Dir	Direction	RSC	Redside shiner (<i>Richardsonius balteatus</i>)
Dist.	Distance	RSS	Regionally significant species
d/s	Downstream	S1 - S6	Riparian classes
EF	Electrofishing	s	Seconds
Exp	Expected	S	Small size stream
FDIS	Field Data Information System	SBS	Sub-Boreal Spruce BGC
FISS	Fisheries Information Summary System	SK	Sockeye salmon (<i>O. nerka</i>)
FPC	Forest Practices Code	S/S/I	Straight, sinuous or irregular wandering channels
FRBC	Forest Renewal of British Columbia	Spp.	Species
Freq	Electric current frequency	STD	Standard
FRIM	Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures (Version 1.1)	ST	Steelhead trout (<i>O. mykiss</i>)
Grad	Slope gradient	ST/SI/IR	Straight, sinuous or irregular wandering channels
H	High flow	T	Turbid
Hz	Hertz	Temp	Temperature
ILP	Interim Locational Point	TRIM	Terrain Resource Information Management
I/M/T	Irregular meandering, meandering or tortuous meandering channels	Turb	Turbidity
IM/ME/TM	Irregular meandering, meandering or tortuous meandering channels	U	Upstream
Info.	Information	u/s	Upstream
km	Kilometer	X	Across
KO	Kokanee (<i>O. nerka</i>)	UTM	Universal Transverse Mercator coordinates
L	Low flow, lightly turbid or large size stream	V	Volts
L.	Lake	Volt	Voltage
LWD	Large Woody Debris	Wb	Bankfull depth
m	Meter	WCB	Workers Compensation Board
mm	Millimeter	WSC	Watershed code
M	Moderate flow, moderate turbid or medium size stream	µs	Microseconds
MELP	Ministry of Environment, Lands and Parks	µS	Microsiemens
MW	Mountain whitefish (<i>Prosopium williamsoni</i>)	°C	Temperature
NA	Not applicable	%	Slope gradient

Contractor Information

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Disclaimer

This product has been accepted as being in accordance with approved standards within the limits of Ministry quality assurance procedures. Users are cautioned that interpreted information on this product developed for the purposes of the Forest Practices Code Act and Regulations, for example stream classifications, is subject to review by a statutory decision maker for the purposes of determining whether or not to approve an operational plan.

Acknowledgments

Forest Renewal B.C provided funding for this project. We would also like to give special thanks to those people who made this project possible, tolerable and even fun. Paul Giroux, who helped throughout the project and maintained the “common sense” approach; Lynn Miers, whose quick responses to our frequent requests still amaze us and Karen Grainger for, above all else, putting up with us throughout the field portion of the project.

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List of Attachments Available at Regional MELP Office in Smithers

The following material is supplemental to this report and is available at the MELP office in Smithers, B.C. The attachments provide information for all watersheds as defined in Schedule A (i.e., Francois, Bulkley and Sutherland River drainages).

Attachment I Planning Document (Digital Copy Only)

- i) Phase Completion Report
- ii) Project budget break-down by phase
- iii) Project sampling design plan
- iv) Hardcopy and digital Reach Table
- v) Hardcopy and digital Lake Table
- vi) Hardcopy and digital copy of the random sample table
- vii) List of air photographs

Attachment II Hardcopy FISS Update Data Forms and Maps

Attachment III Photodocumentation

- i) Photodocumentation Form 1
- ii) FDIS Photodocumentation Export File
- iii) Indexed Album of all negatives
- iv) 2 Indexed Copies of Photo CD's

Attachment IV Field Data

- i) site cards, fish collection forms, individual fish data forms and field notes
- ii) field working maps

Attachment V Digital Data

1. Introduction

1.1 Project Scope and Objectives

The objective of this project was to conduct a Reconnaissance (1:20,000) Fish and Fish Habitat Inventory in the Sutherland River watershed within the Babine Lake (BABL) watershed group. This is a continuation of a multi-year FRBC project commenced in 1996 for Babine Forest Products Company (BFP).

These inventories have a multi-phased approach with six phases required to complete the inventory. Phases I through III are known as the pre-field phases and consist of 1) existing data review, 2) classification and sampling design and, 3) project plan. Phase IV consists of field data collection where site level fish and fish habitat data is collected for pre-determined reaches and lakes, although no lakes were surveyed as part of this project. Phases V and VI embody data compilation, mapping and reporting for the inventory. This report encompasses Phases V and VI and is one of three reports produced under the scope of this project. However, the pre-field deliverables and project-planning document (available at the MELP Regional office in Smithers) are essential references for this report.

1.2 Location

The Sutherland River is a major inlet river to Babine Lake, located at the eastern end of the southern arm of Babine Lake, approximately 48km northeast of Burns Lake. Only the portion of the watershed located within Babine Forest Products' operating area was included in the project area, which excluded most of the Shass Creek watershed and the upper area of the Sutherland River watershed. The project overview map (Figure 1) on the following page provides the general location of the study area.

1.3 Access

Access to all reaches in this area was by helicopter, based out of Burns Lake.

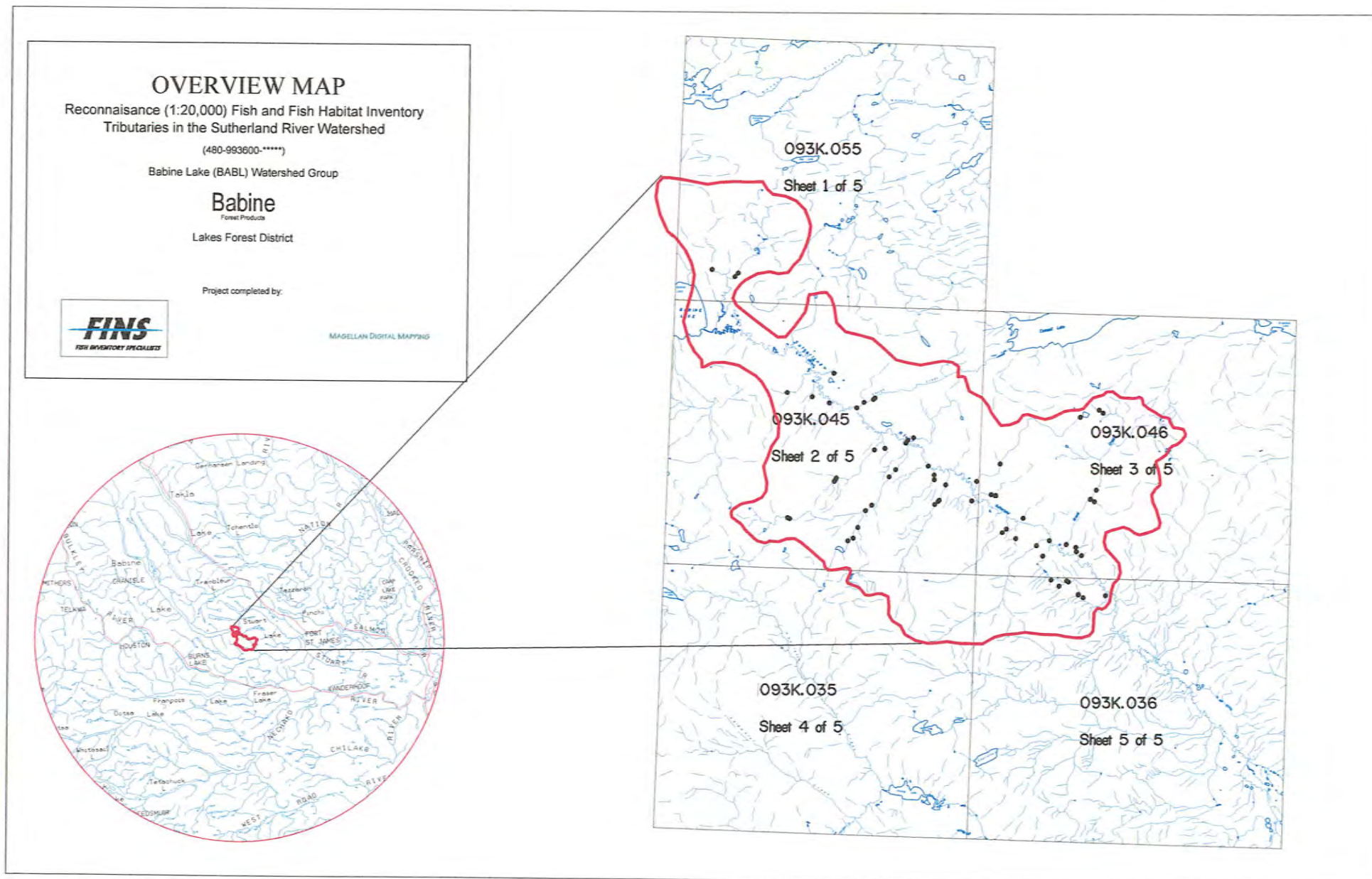


Figure 1: Project Area Overview Map.

2. Resource Information

The primary resource use within the area is forest management for timber extraction in BFP's operating area, although this is only in a small area in the lower watershed. Much of the watershed is pristine and lacks any significant development.

The Sutherland River is documented as the primary recruitment stream for trophy rainbow trout in Babine Lake (FISS). These fish have been historically targeted for a commercial fishery at the mouth of the river, but in an effort to preserve this population, this activity has since been banned. Recreational fishing in the eastern end of Babine Lake has been prohibited for the same reason.

Historical information regarding fish presence was collected and presented in the planning report (FINS, 2000) and the results were incorporated into the interpretive maps for this project. Table 1 below summarizes historical fish presence within the watershed.

Table 1: Historical information on fish presence in the Sutherland River Watershed.

WBID or Watershed Code	Waterbody Name	Fish Species	Dates
480-993600	Sutherland River	CO KO MW RB SK ST	FISS – Varied
480-993600-18700	Shass Creek	CO MW RB SK	FISS – Varied

* FISS = Fisheries Information Summary System

3. Methods

3.1 Project Plan and Alterations

Initial work, such as review of all existing information, preparation of fisheries information maps, location of stream features and selection of sample sites was completed during Phase 1-3 by FINS (Sept, 2000). The original planning report identified 65 reaches for sampling (22 random and 43 discretionary) within 380 total reaches in the study area. Upon completion of Phase 4, the actual number of sampled reaches was 65 (17 random and 48 discretionary) within 385 reaches. The differing numbers are generally the result of obstructions to fish passage whereby originally planned reach sampling above the obstructions was abandoned in favour of confirming the fish-bearing status upstream, as per the Guidelines for Local Area Agreement Preparation (June 1999). This also explains the difference in total reach number as several reaches were broken into separate reaches based on the presence or absence of fish. Additional discretionary sample reaches were chosen from a list of contingency sample reaches so that all reach categories remained appropriately represented.

3.2 Reconnaissance Standards

Methodology used throughout this project was consistent with the standards and methods as defined in the "Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures (May 1998)" manual (including all errata), and all standards referenced therein.

Fish Sampling

Electrofishing and visual observation were the primary methods used for fish sampling throughout the field portion of this project. It was not considered feasible to use minnow traps or other methods because of the limited access to the area.

Measurements

Stream channel and wetted widths were determined using a meter stick for smaller streams and a hip chain for streams with channel widths greater than 2.0m. A minimum of six channel width measurements were made along each site at a distance of approximately one channel width apart. Stream depth measurements were determined using a meter stick. Stream gradient measurements were determined using an Abney level along several sections of the site. Site lengths were determined either by hip chain or by ground estimate. Measurements of falls were based on ground estimates or calculated using the following formula:

$$H = H_o (\text{gradient } (\%) \text{ to top of falls}) / (\text{gradient } (\%) \text{ to bottom of falls}) + H_o$$

Where H = Height of falls (in m)

And H_o = Eye height of observer (in m)

The above formula is accurate provided the observer is at the same elevation as the base of the falls (i.e., standing at the edge of the plunge pool). Cascade heights and lengths were determined using a hip chain and Abney level. Vertical cascade height was calculated using the gradient and slope distance according to the formula:

$$\text{Height (m)} = \sin(\tan^{-1}(\text{gradient } (\%))) \times \text{slope distance (m)}$$

Stream water temperatures were determined using an alcohol thermometer while pH and conductivity measurements were made using Oakton portable meters, which were calibrated weekly using standardized solutions.

Site Numbering Convention

Site numbers for this project have been assigned in an upstream ascending order for all sampled reaches under the scope of this project. Site numbers have been included in all tables that provide specific reach sampling information and on all photographs and photodocumentation indices.

Usage of ILP Numbers

A naming convention for all ILP's has also been used in order to simplify stream referencing for this project for streams requiring watershed codes. All 5-digit ILP numbers that have been assigned are unique within the entire project area. This was done to avoid confusion in ILP referencing throughout the project and having to reference the ILP map number each time the ILP is referenced. Every ILP created uses the last two digits of its ILP map, combined with its number on the map. That is, the first ILP on TRIM mapsheet 93K.001 would be ILP **01001**. There was no overlap of mapsheet numbers among the different TRIM map series (i.e. 93K vs. 93F vs. 93E series). All streams in this report are referred to by their ILP or watershed code (last two sets of non-zero numbers), or by their gazetted or local stream name.

NVC (No Visible Channel) Reaches

There were three types of situations in which site assessment in the field revealed no visible channel. They include reaches where no drainage was present, reaches that were not a stream by FPC definition, or wetland-type reaches where there was no defined channel present. These different types of NVC reaches were noted in the comments on the site cards and are summarized in the "Fish-Bearing Status" section of this report. It is expected that NVC reaches would receive a "Non Classified Drainage" (NCD) FPC classification.

Appendix Layout - FDIS Reach/Site Summaries and Photographs

FDIS reach site summaries, site and fish form comments, and representative photographs for each sampled reach and significant features are presented in Appendix I, II and III. The reach/site summaries and comments are arranged by site number. The photographs are included with an index in Appendix III. The index is arranged by site number while the photographs are arranged by roll and frame number. The photographs have been reduced in size so that multiple photos can be presented on one page. Each photo is labeled with roll, frame, watershed code/ILP, reach and site numbers so that each photo can be easily cross-referenced in the index, report, the FDIS database, the negative binder or the photo CD's. All photos are available in Kodak photo CD format, included in Attachment III.

Field Equipment

All sampling equipment specifications are listed below:

- 2 Smith-Root model 12B P.O.W. Backpack Electrofishers
- 50 Gee-type minnow traps
- 2 Oakton pHTestr2 pH meters (with pH 7 & 10 buffer solutions)
- 2 Oakton TDSTestr3 conductivity meters (with 1413 μ S/cm solution)
- 2 Abney Levels, alcohol thermometers, Silva compasses
- 2 Pentax Zoom 90WR cameras
- assorted other equipment including tight chains, hip chains, dip nets, fishing rods, magnifying lenses, meter sticks
- 2 4X4 trucks equipped with Level 1 First Aid kits and 4 personal First Aid kits, as per WCB requirements

4. Results and Discussion

The following sections present fish and fish habitat information for the Sutherland River watershed, as identified earlier in this report. Biophysical information for this watershed is provided in the Watershed Information section at the beginning of this report. Summarized information for sampled reaches is presented in tabular format in the "Fish Bearing Status" section of this report while detailed site-specific information is available in the appendices. Mainstem reaches of the Sutherland River were not sampled due to the presence of extensive historical fisheries information. The following therefore discusses fish and fish habitat as it relates to tributaries of the Sutherland River.

4.1 Logistics

Problems encountered throughout the course of the sampling in the watershed include absence of both fish and water in many of the tributaries to the Sutherland River. That is, some streams provided suitable fish habitat and were easily accessible to fish from the Sutherland River, but fish presence was not confirmed. Many other streams lacked water (and therefore habitat) in their lower reaches. These problems were addressed by considering the presence and accessibility of existing or potential fish habitat at higher flow conditions to determine possible fish use (See Fish-Bearing Status section). In addition, only limited electrofishing could be undertaken in Shass Creek due to presence of large numbers of spawning sockeye salmon. Visual observation was the primary method of fish sampling in this situation. No other logistical problems were encountered.

4.2 Habitat and Fish Distribution

The Sutherland River flows through a post-glacial broad valley within a mountain plateau. Tributaries to the Sutherland River generally originate in the plateau area before descending the steep valley walls into the Sutherland valley. Fish distribution generally corresponds with this topography in that fish access to these tributaries from the Sutherland River is limited to the low gradient sections on the valley floor. However, overall distribution and abundance of fish in tributaries to the Sutherland River is extremely limited within this area. Although there is significant available habitat, fish were only present in four of the larger tributaries (two 4th order and two 3rd order), and even then in very low numbers.

In addition, presence of barriers to fish migration were confirmed/identified in several streams within the watershed that further limited fish distribution in the watershed. These are summarized in Table 2 below. Other than in Shass Creek, no fish are present in the watersheds upstream from these barriers. Obstructions located in confirmed non fish-bearing reaches have not been included in this table.

Table 2: Summary of historic and new barriers to fish migration found in tributaries in the Sutherland River Watershed

Stream Name	Watershed Code/ILP	TRIM Map	Reach	Site	Barrier Type	Height (m)	Length (m)	Verified in Field	Comments
Shass C.	480-993600-18700	93K.045	1.1	389	Falls	3.0		Y	Historic - Blocks all fish passage and marks upper distribution limit for anadromous species. Divides RB populations in the watershed. Located 0.95km u/s from mouth.
	480-993600-22300	93K.045	2.0	392	Falls	20.0		Y	Blocks all fish passage and marks upper extent of fish use in watershed. Located 1.49km u/s from mouth.
	480-993600-24500	93K.045	3.0	399	Falls	4.0		Y	Blocks all fish passage and marks upper extent of fish use in watershed. Located 1.76km u/s from mouth.
	480-993600-29300	93K.045	2.1	413	Falls	6.0		Y	Blocks all fish passage and marks upper extent of fish use in watershed. Located 1.44km u/s from mouth.
	480-993600-32300	93K.046	3.0	417	Falls	3.0		Y	Blocks all fish passage and marks upper extent of fish use in watershed. Located 1.9km u/s from mouth.
Gravel C.	480-993600-40800	93K.046	2.0	429	Falls	2.5		Y	Blocks all fish passage and marks upper extent of fish use in watershed. Located 3.04km u/s from mouth.
	480-993600-40800-32900	93K.046	0.1	433	Cascade	5.0	20	Y	Blocks all fish passage and marks upper extent of fish use in watershed. Located 0.2km u/s from mouth.

4.2.1 Fish Presence and Distribution

Fish species encountered within this watershed were prickly sculpin (CAS), rainbow trout (RB), and sockeye salmon (SK). CAS and SK were only found in reach 1 of Shass Creek.

Approximately 100 spawning sockeye were observed in this reach, in addition to numerous SK carcasses. None were observed in the short accessible section of reach 1.1 – the channel in this reach becomes steeper and more confined and is unsuitable for SK spawning. A 3m high falls at the end of reach 1.1 blocks fish passage for all species and marks the upper extent of anadromous use in Shass Creek.

As mentioned above, RB abundance and distribution was extremely limited within tributaries to the Sutherland River. Of the 65 reaches sampled in the watershed, only 7 were found to contain RB and 3 of these reaches were within the Shass Creek mainstem, both below and above the falls at the end of reach 1.1. RB were found in only very low numbers in three other tributaries, specifically reach 1 and 2 of –993600-24500, reach 1 of –993600-39600, and in reach 1 of Gravel Creek (–993600-40800). Within these streams, RB were most abundant in the first reaches, specifically in the lower sections near the Sutherland River. Physical barriers marked the upper extent of fish use in both the –993600-24500 and Gravel Creek tributaries. A 4m falls at the beginning of reach 3 of –993600-24500 and a series of 2.5m and 5m falls at the end of reach 2 in Gravel Creek block fish passage into the upper watersheds and render these streams non fish-bearing upstream from these obstructions.

No other fish use was confirmed within other tributaries to the Sutherland River. Presence of RB was inferred in several streams, but in general, fish access to these streams is affected by the nature of the glacio-fluvial deposits in the valley floor. This results in the majority of water from

streams being absorbed before reaching the Sutherland River – many streams were either dry or only had marginal channels and flow present near the mouth, although significant flow and good fish habitat may have been present upstream. Although fish use is unlikely in these circumstances, it is not impossible. Despite this fact, upper extents of inferred fish use were identified for several of these streams.

4.2.2 Habitat

Fish habitat in tributaries within the valley floor of the Sutherland River is generally poor due to lack of flow and connectivity to the river. The only significant habitat present in this area was found in reach 1 of Shass Creek, Gravel Creek, and -993600-24500. These streams provided perennial habitat with good rearing and overwintering potential. Significant salmonid spawning habitat is also present in all of these streams in the lower reaches. Sockeye spawning was observed in Shass Creek and has also been historically documented.

Habitat in tributaries generally improves as the streams approach the steeper valley walls. Many streams provide good fish habitat in this area, in slightly steeper, cascade pool morphology, but its use is frequently limited by poor fish access from the Sutherland River, or the habitat is isolated above physical barriers. Of the habitat that is accessible, the most significant is present in reach 1.1 of Shass Creek, reach 2 of Gravel Creek and -993600-24500, reach 2 and 3 of -993600-00600, reach 2.1 of -993600-29300, and reach 2 of -993600-36700. Overall, good rearing and overwintering habitat is provided in these streams, primarily in deep pools below boulder cascades and steps. No significant spawning habitat is present in these reaches, although frequent gravels are usually present in pool crests, which may provide spawning opportunity.

4.3 Fish Stage, Size and Life History

Fork length and maturity level of all fish sampled were recorded on the individual fish data forms. The life stage (fry, juvenile, or adult) for each fish was determined in the field based on length measurements, physical characteristics, and the habitat in which each fish was found. All captured fish appeared healthy and did not exhibit any external signs of disease.

Insufficient numbers of CAS were sampled within this area to provide any meaningful interpretation of fish stage, size and life history for this species. They were only captured in reach 1 of Shass Creek. Spawning use by SK also occurs in this reach, which has been historically documented. No other anadromous use was identified.

A total of 34 RB were sampled within this area and both juvenile and adult life stages were represented in healthy proportion. Presence of small RB juveniles in reach 1 of -993600-39600 indicates that spawning had occurred earlier in the season.

Fluvial and adfluvial populations of RB are present in the Sutherland River watershed. Adfluvial use is well documented, while small fluvial populations of RB are likely present in -993600-24500, Shass Creek and Gravel Creek. Abundant and diverse perennial habitat is available and is sufficient to support fluvial use. Presence of adult RB within these streams provides further indication of fluvial use.

The following table presents data for fish species encountered in this watershed. The CPUE column in the table indicates the number of fish captured per second of electrofishing. This data is extracted only from those reaches where the species were sampled.

Table 3: Summary of life stage, length and CPUE data from fish sampled within the Sutherland River watershed.

Stream Name	Watershed Code	Spp.	Stage	Number of Fish	Mean Length (mm)	Range of Lengths (mm)	CPUE (# of fish/sec electrofishing)
Sutherland R.	480-993600	CAS	J	2	86.5	81-92	0.011
		RB	J	28	67.4	41-140	0.021
		RB	A	6	158.7	151-163	0.005
		SK	A	~100	~575	~500-650	N/A

Figure 2 below provides general information on frequency of occurrence of RB within different length classes for the Sutherland River watershed for all fish captured in this inventory.

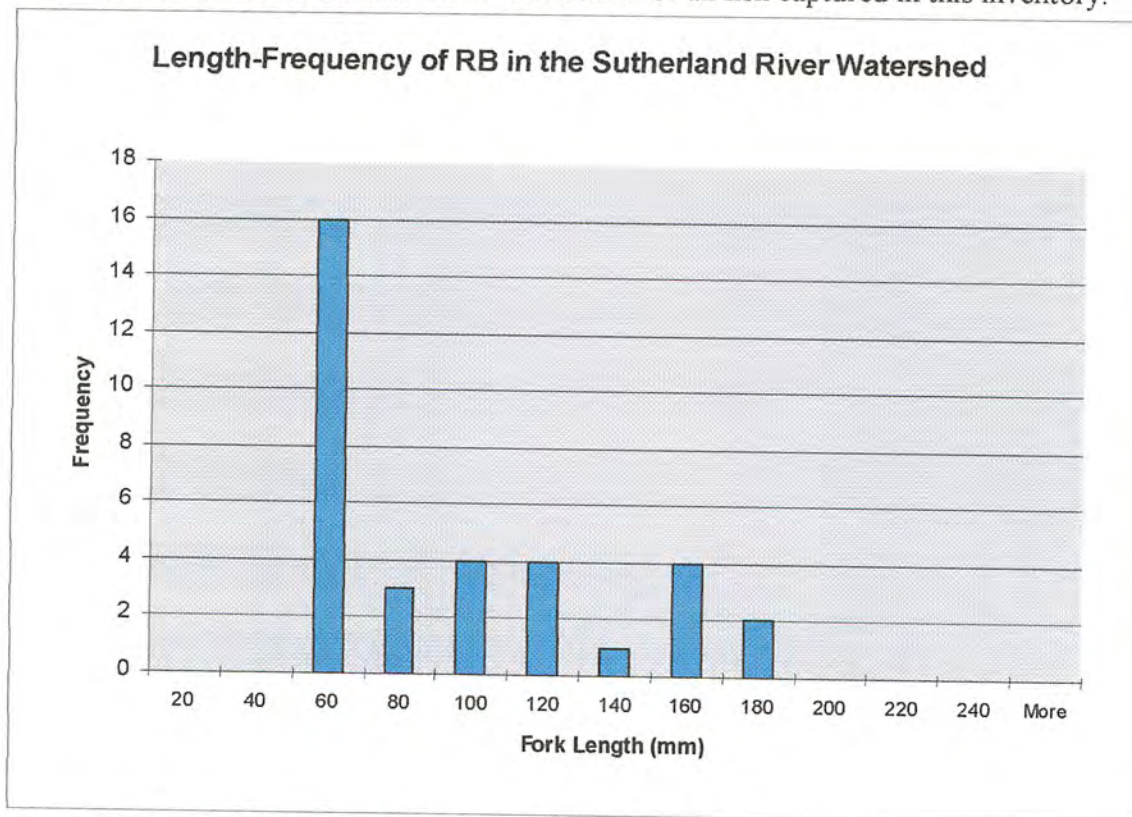


Figure 2: Length-frequency histogram of sampled RB from the Sutherland River Watershed, October 2 to October 5, 2000

4.4 Significant Features and Fisheries Observations

4.4.1 Fish and Fish Habitat

Significant fisheries observation and features within this project area that were not already documented in existing publications include:

1. Extremely low overall habitat utilization by RB in tributaries to the Sutherland River.
2. Presence of numerous barriers that block RB access and subsequent use in tributaries.

4.4.2 Habitat Protection Concerns

4.4.2.1 Fisheries Sensitive Zones

No fisheries sensitive zones were identified in this inventory.

4.4.2.2 Fish Above 20% Gradients

No fish were captured in gradients greater than 20% in this inventory.

4.4.2.3 Restoration and Rehabilitation Opportunities

No restoration and rehabilitation opportunities were identified in this inventory.

4.5 Fish Bearing Status

The following three sections summarize the fish-bearing status for all surveyed reaches within the entire project area. The first section summarizes all surveyed reaches; the second section presents information for all non fish-bearing reaches and the third section identifies reaches where follow-up sampling should be conducted. An overview of the process used in determining fish-bearing status is presented in a flowchart in Figure 3 on the following page.

4.5.1 Summary of all Surveyed Reaches

Table 4 on the following pages summarizes all surveyed reaches in the project area. In addition to confirmed fish-bearing reaches, non fish-bearing reaches and reaches requiring follow-up sampling have also been identified and summarized in this table. They are also discussed in further detail in the "Non Fish-bearing Reaches" and "Follow-up Sampling Required" sections of this report.

Stream Classification Process

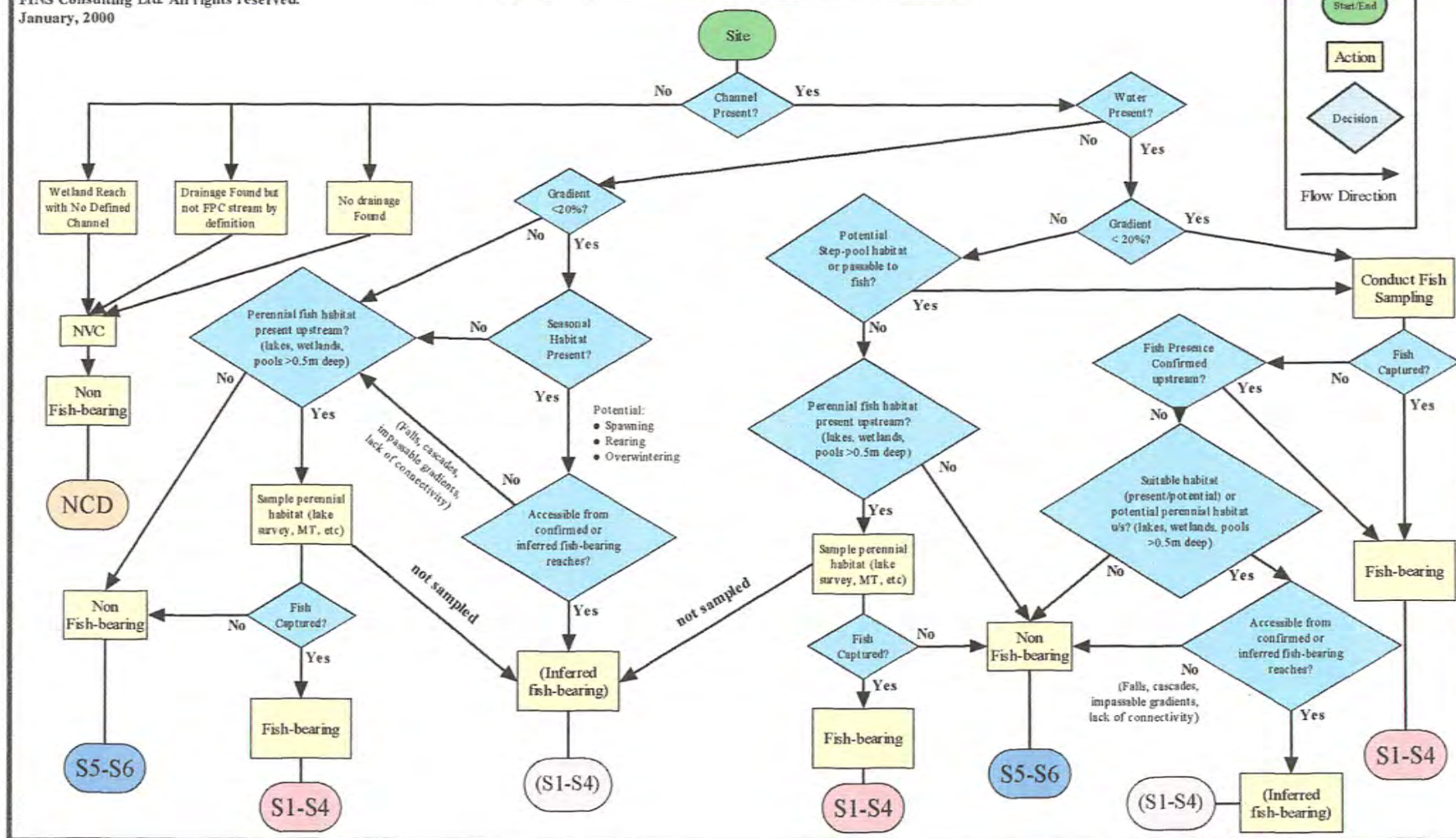
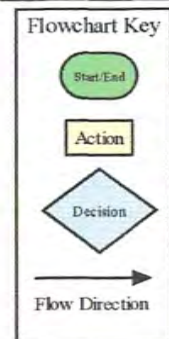


Figure 3: Flowchart of the stream classification process used in determining fish-bearing status of surveyed reaches

Table 4: Summary of data from all surveyed reaches in the Sutherland River Watershed

Stream Name	Watershed Code	ILP	Reach	Site	Species	Avg CW (m)	Avg Grad (%)	Proposed FPC Class	Follow-up Sampling?	Comments
	480-993600-00600		2.0	381	NFC (RB)	2.2	5.3	(S3)	Y	Assumed fish use - habitat present and accessible
	480-993600-00600		3.0	382	NFC (RB)	2.0	3.0	(S3)	Y	Assumed fish use - habitat present and accessible
	480-993600-00600-48300		2.0	383	NFC (RB)	1.4	1.0	(S4)	Y	Assumed fish use - habitat present and accessible
		45702	3.0	384	NFC	0.8	1.5	S6	N	Confirmed fish absence
		45705	1.0	385	NFC (RB)	1.0	0.5	(S4)	N	Assumed fish use - habitat present and accessible
	480-993600-14000		2.0	386	NFC	1.8	13.8	(S6)	Y	Suspected fish absence - resample to confirm
	480-993600-16300		1.0	387	NS (RB)	1.2	5.5	(S4)	Y	Assumed fish use - habitat present and accessible
Shass C.	480-993600-18700		1.0	388	CAS RB SK	6.3	1.5	S2	N	Confirmed fish presence
Shass C.	480-993600-18700		1.1	389	RB	5.7	6.8	S2	N	Confirmed fish presence
Shass C.	480-993600-18700		2.0	390	RB	5.5	16.3	S2	N	Confirmed fish presence
		45709	1.0	391	NS		0.5	NCD	N	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
	480-993600-22300		2.0	392	NFC (RB)	3.0	7.4	(S3)	N	Assumed fish use - habitat present and accessible
	480-993600-22300		4.0	393	NFC	0.8	2.1	S6	N	Confirmed fish absence
		45712	2.0	394	NS			NCD*	N	No stream/drainage present at mapped location
		45715	1.0	395	NFC	1.0	5.3	S6	N	Confirmed fish absence
		45716	1.0	396	NS			NCD*	N	No stream/drainage present at mapped location
	480-993600-24500		1.0	397	RB	2.8	1.0	S3	N	Confirmed fish presence
	480-993600-24500		2.0	398	RB	3.7	4.3	S3	N	Confirmed fish presence
	480-993600-24500		3.0	399	NFC	3.7	13.5	S5	N	Confirmed fish absence
	480-993600-24500		4.0	400	NFC	3.1	5.5	S5	N	Confirmed fish absence
	480-993600-24500		7.0	401	NFC	1.0	3.8	S6	N	Confirmed fish absence
	480-993600-24500-57600		1.0	402	NFC	1.9	4.0	S6	N	Confirmed fish absence
	480-993600-24500-57600		5.0	403	NFC	1.9	1.6	S6	N	Confirmed fish absence
		45724	1.0	404	NS			NCD	N	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
	480-993600-24500-72500		1.0	405	NFC	1.2	17.3	S6	N	Confirmed fish absence
		45730	1.0	406	NFC	0.4	19.3	S6	N	Confirmed fish absence
	480-993600-24800		1.0	407	NS		0.8	NCD	N	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
	480-993600-24800		2.0	408	NS	0.5	3.3	S6	N	Confirmed fish absence
		45735	1.0	409	NS			NCD*	N	No stream/drainage present at mapped location
		45738	1.0	410	NS			NCD	N	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
		45738	2.0	411	NS	0.8	4.5	S6	N	Confirmed fish absence
	480-993600-29300		1.0	412	NS (RB)	3.0	2.6	(S3)	N	Assumed fish use - habitat present and accessible
	480-993600-29300		2.1	413	NFC (RB)	2.7	10.3	(S3)	N	Assumed fish use - habitat present and accessible
	480-993600-29300		3.0	414	NFC	2.0	16.3	S6	N	Confirmed fish absence
	480-993600-29300		4.0	415	NFC	2.9	5.8	S6	N	Confirmed fish absence
	480-993600-32300		1.0	416	NFC (RB)	0.8	2.3	(S4)	N	Assumed fish use - habitat present and accessible
	480-993600-32300		3.0	417	NFC	2.2	12.0	S6	N	Confirmed fish absence
	480-993600-32300		9.0	418	NFC	0.9	2.3	S6	N	Confirmed fish absence
		45748	2.0	419	NS			NCD*	N	No stream/drainage present at mapped location

Table 4: Summary of data from all surveyed reaches in the Sutherland River Watershed

Stream Name	Watershed Code	ILP	Reach	Site	Species	Avg CW (m)	Avg Grad (%)	Proposed FPC Class	Follow-up Sampling?	Comments
		45750	1.0	420	NS			NCD*	N	No stream/drainage present at mapped location
	480-993600-36700		1.0	421	NFC (RB)	1.6	4.0	(S3)	Y	Assumed fish use - habitat present and accessible
	480-993600-36700		2.0	422	NFC (RB)	2.0	6.3	(S3)	Y	Assumed fish use - habitat present and accessible
	480-993600-37800		2.0	423	NS			NCD*	N	No stream/drainage present at mapped location
	480-993600-37900		1.0	424	NS			NCD	N	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
	480-993600-39600		1.0	425	RB	2.6	2.5	S3	N	Confirmed fish presence
	480-993600-39600		2.0	426	NFC (RB)	4.4	4.3	(S3)	Y	Assumed fish use - habitat present and accessible
		46705	3.0	427	NS			NCD*	N	No stream/drainage present at mapped location
Gravel C.	480-993600-40800		1.0	428	RB	3.0	3.0	S3	N	Confirmed fish presence
Gravel C.	480-993600-40800		2.0	429	NFC (RB)	4.1	8.3	(S3)	N	Assumed fish use - habitat present and accessible
Gravel C.	480-993600-40800		3.0	430	NFC	3.1	6.3	S5	N	Confirmed fish absence
Gravel C.	480-993600-40800		4.0	431	NFC	1.4	3.0	S6	N	Confirmed fish absence
Gravel C.	480-993600-40800		5.0	432	NFC	1.9	1.5	S6	N	Confirmed fish absence
	480-993600-40800-32900		0.1	433	NFC (RB)	1.1	7.5	(S4)	N	Assumed fish use - habitat present and accessible
	480-993600-40800-32900		1.0	434	NFC	0.9	17.3	S6	N	Confirmed fish absence
		46721	1.0	435	NS			NCD*	N	No stream/drainage present at mapped location
		46721	2.0	436	NS			NCD*	N	No stream/drainage present at mapped location
	480-993600-42300		1.0	437	NS	0.5	8.8	S6	N	Confirmed fish absence
	480-993600-45700		2.0	438	NFC (RB)	0.9	2.7	(S4)	N	Assumed fish use - habitat present and accessible
		36708	1.0	439	NS			NCD*	N	No stream/drainage present at mapped location
		36709	2.0	440	NS			NCD*	N	No stream/drainage present at mapped location
		36711	1.0	441	NFC	0.5	4.3	(S6)	Y	Suspected fish absence - resample to confirm
	480-993600-46700		1.0	442	NFC (RB)	0.7	0.6	(S3)	N	Assumed fish use - habitat present and accessible
	480-993600-46700		2.1	443	NFC (RB)	1.9	1.4	(S3)	N	Assumed fish use - habitat present and accessible
	480-993600-46700		3.0	444	NS			NCD	N	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
	480-993600-46700-80900		1.0	445	NFC (RB)	1.6	2.3	(S3)	Y	Assumed fish use - habitat present and accessible

4.5.2 Non Fish-bearing Reaches

This section summarizes all sampled reaches within this project area that have been designated as non fish-bearing. This has been based on interpretations and conclusions from the synthesis of data collected during Phases I through IV of this inventory. In addition, historic fish sampling results from numerous watersheds (Babine Forest Products Co. 1997 through 2000 Reconnaissance and Operational Inventories) have also been incorporated into this section to provide comparisons between reaches with similar channel characteristics. Specifically, fish sampling results (% of reaches with fish captured) in reaches within the same size, gradient and pattern classes, as defined in FRIM. Each site has been placed into a specific gradient, channel pattern and size class (based on reach and site data) in order to compare it to the historical inventory results. This is by no means an absolute indication of fish presence, but rather a useful tool to provide a general comparison among the differing reach types. It has been used only as further supporting evidence for the non fish-bearing designation. Table 5 below summarizes this categorized information.

Table 5: Fish sampling results for categorized reach classes (from 1997 through 2000 inventory data)

Reach Gradient Class	Reach Pattern Type	Reach Size Class								
		Small (1 st order)			Medium (2 nd and 3 rd order)			Large (4 th and higher order)		
		Total # of Reaches	# of Reaches with Fish Capture	%	Total # of Reaches	# of Reaches with Fish Capture	%	Total # of Reaches	# of Reaches with Fish Capture	%
1 (≤4%)	ST/SI/IR	208	3	1.44	447	107	23.94	91	72	79.12
	IM/ME/TM	31	3	9.68	111	25	22.52	23	11	47.83
2 (>4% and ≤8%)	ST/SI/IR	149	1	0.67	263	60	22.81	25	16	64.00
	IM/ME/TM	8	0	0.00	2	1	50.00	0	0	0.00
3 (>8% and ≤20%)	ST/SI/IR	121	2	1.65	122	17	13.93	8	4	50.00
	IM/ME/TM	0	0	0.00	0	0	0.00	0	0	0.00
4 (>20% and ≤30%)	ST/SI/IR	45	0	0.00	22	0	0.00	1	0	0.00
	IM/ME/TM	0	0	0.00	0	0	0.00	0	0	0.00
5 (>30%)	ST/SI/IR	9	0	0.00	4	0	0.00	0	0	0.00
	IM/ME/TM	0	0	0.00	0	0	0.00	0	0	0.00

Sampled reaches where fish absence is suspected but not confirmed are not included in this section. They are discussed in the "Follow-up Sampling Required" section of this report.

Determining whether any fish use occurs in a specific reach is a complex process, involving much more than applying fish sampling results on a site-specific basis. Specifically, when applying a non fish-bearing recommendation when fish are not captured in a sampling event, a more systematic process is required in order to provide an adequate rationale to support a conclusion of fish absence. Biological evaluation is used which factors in such considerations as known fish distributions and behavior, barriers, gradients, invertebrate presence, habitat quality, and

presence/absence of headwater lakes. This process is summarized in the flowchart in Figure 3 above.

Generally, two conditions must usually exist in order for fish to inhabit a specific stream reach; 1) presence of fish habitat and 2) accessibility to that habitat. There are exceptions to this, such as presence of resident or adfluvial populations above barriers which otherwise block access, but these situations are considered on an individual basis when appropriate sampling can be undertaken to accurately determine fish presence under these circumstances.

Determining presence of fish habitat requires biological judgment but is based on many tangible factors. A "snapshot" method is used to determine presence of fish habitat at the time of sampling, but this is not sufficient when lack of water limits available habitat. Under these circumstances, a temporal approach is required which factors in the potential for fish habitat presence during a different flow period. In this manner, different habitat requirements for suspected fish species are also considered, such as potential seasonal use for rearing (i.e., higher flow rearing or refuge habitat) or spawning (i.e. suitable gravels, gradient and potential flow). Again, biological judgment is required to recognize this potential habitat, bearing in mind how the different flow regimes may affect the availability of this habitat. Moreover, the presence of potential overwintering or perennial habitat upstream in the watershed (i.e. lakes, wetlands, pools >0.5m deep) is also taken into account and has influence on the fish-bearing status of a specific reach. Existence of habitat or potential habitat, if present, is noted and described in the comments on the site cards.

Once presence of fish habitat has been established, it must be determined whether fish are capable of accessing this habitat. The presence of obstructions to fish in the form of falls, cascades, impassable gradients and lack of connectivity within a watershed may limit fish distribution within a watershed and must be evaluated. When questionable obstructions or soft barriers (i.e., beaver dams, wetlands, NVC reaches) are present, the process for determining the presence of fish habitat upstream must be undertaken and combined with adequate sampling in order to determine fish use.

The fish-bearing status of a specific reach is dependent on the presence of fish habitat, the accessibility to that habitat and is supported by the results of fish sampling. The above process for determining fish presence is an overview of the variables evaluated before fish-bearing status can be accurately ascertained. This entire process is always supplemented by existing fisheries information and interpretations from map and air photo analysis.

Table 6 on the following page is a summary of all surveyed reaches within this project area that have been recommended for a non fish-bearing designation. It includes relevant site-specific data, some historical information and comments that provide a brief rationale to support the interpretation. The table is simply a summary of the interpretation, and not meant to be a reiteration of the data it summarizes. This data is available in the appendices included in this report.

Once a non-fish bearing conclusion has been established for a sampled reach, all reaches located upstream from that location are considered to be non fish-bearing and no further sampling is required to confirm this conclusion. This is inherent in the process used to determine the non fish-bearing status. Accordingly, only those reaches that were sampled and confirmed to be non fish-bearing are included in this section.

Interpretive mapping of non fish-bearing streams mirrors this procedure, using a solid blue line to denote fish absence, both in the sampled reach and in all reaches upstream. In the case of non classified drainages, a solid green line has been used, but these are still referred to as non fish-bearing and all reaches upstream are coloured solid blue.

Table 6: Summary of data from surveyed non-fish-bearing reaches in the Sutherland River Watershed

Stream Name	Watershed Code	ILP	Reach	Site	Date	Avg CW (m)	Avg Wb (m)	Avg Grad (%)	Exp Spp	FPC Class	Method	EF Dist (m)	EF Time (s)	Flow Stage	Water Temp (°C)	Cond (uS/cm)	Turb	Volt (V)	Freq (Hz)	PW (uS)	Grad Class	Pattern Class	Size Class	% of reaches with fish captured	Comments
		45702	3.0	384	2000/10/05	0.8	0.20	1.5	RB	S6	EF	150	261	L	4	120	C	500	70	4	1	S/S/I	S	1.44	No RB habitat, low and slow flow, organic fines in substrate, no spawning or overwintering, rearing limited to very few deeper pools. Likely inaccessible due to steep gradient in reach 2 (from map). No rearing, spawning or overwintering potential at higher flow.
		45709	1.0	391	2000/10/02			0.5	RB	NCD	NS										1	S/S/I	S	1.44	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
	480-993600-22300		4.0	393	2000/10/05	0.8	0.13	2.1	RB	S6	EF	150	85	L	4	60	C	600	80	6	1	S/S/I	M	23.94	Impassable 20m falls at the end of reach 2.0 of this stream blocks fish passage. No fish present in watershed above falls.
		45712	2.0	394	2000/10/05				RB	NCD*	NS										2	S/S/I	M	22.81	No stream/drainage present at mapped location
		45715	1.0	395	2000/10/05	1.0	0.33	5.3	RB	S6	EF	150	212	L	4	80	C	600	80	4	2	S/S/I	S	0.67	Impassable 20m falls at the end of reach 2.0 of parent stream (480-993600-22300) blocks fish passage. No fish present in watershed above falls.
		45716	1.0	396	2000/10/05				RB	NCD*	NS										1	S/S/I	S	1.44	No stream/drainage present at mapped location
	480-993600-24500		3.0	399	2000/10/05	3.7	0.67	13.5	RB	S5	EF	100	291	M	4	160	C	500	80	6	3	S/S/I	L	50.00	Impassable 4m falls at the end of reach 2.0 of this stream blocks fish passage. No fish present in watershed above falls.
	480-993600-24500		4.0	400	2000/10/05	3.1	0.37	5.5	RB	S5	EF	220	415	M	4	150	C	500	80	6	2	S/S/I	L	64.00	Impassable 4m falls at the end of reach 2.0 of this stream blocks fish passage. No fish present in watershed above falls.
	480-993600-24500		7.0	401	2000/10/05	1.0	0.13	3.8	RB	S6	EF	140	394	M	5	170	C	500	80	6	1	S/S/I	M	23.94	Impassable 4m falls at the end of reach 2.0 of this stream blocks fish passage. No fish present in watershed above falls.
	480-993600-24500-57600		1.0	402	2000/10/05	1.9	0.23	4.0	RB	S6	EF	130	291	M	4	130	C	500	80	6	1	S/S/I	M	23.94	Impassable 4m falls at the end of reach 2.0 of parent stream (480-993600-24500) blocks fish passage. No fish present in watershed above falls.
	480-993600-24500-57600		5.0	403	2000/10/03	1.9	0.47	1.6	RB	S6	EF	250	228	M	4	100	C	500	70	4	1	S/S/I	M	23.94	Impassable 4m falls at the end of reach 2.0 of parent stream (480-993600-24500) blocks fish passage. No fish present in watershed above falls.
		45724	1.0	404	2000/10/03				RB	NCD	NS										3	S/S/I	S	1.65	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
	480-993600-24500-72500		1.0	405	2000/10/05	1.2	0.23	17.3	RB	S6	EF	120	114	M	4	70	C	500	80	6	3	S/S/I	M	13.93	Impassable 4m falls at the end of reach 2.0 of parent stream (480-993600-24500) blocks fish passage. No fish present in watershed above falls.
		45730	1.0	406	2000/10/05	0.4	0.10	19.3	RB	S6	EF	100	147	M	4	160	C	500	80	6	3	S/S/I	S	1.65	Impassable 4m falls at the end of reach 2.0 of parent stream (480-993600-24500) blocks fish passage. No fish present in watershed above falls.
	480-993600-24800		1.0	407	2000/10/04			0.8	RB	NCD	NS										1	S/S/I	M	23.94	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.

Table 6: Summary of data from surveyed non-fish-bearing reaches in the Sutherland River Watershed

Stream Name	Watershed Code	ILP	Reach	Site	Date	Avg CW (m)	Avg Wb (m)	Avg Grad (%)	Exp Spp	FPC Class	Method	EF Dist (m)	EF Time (s)	Flow Stage	Water Temp (°C)	Cond (uS/cm)	Turb	Volt (V)	Freq (Hz)	PW (uS)	Grad Class	Pattern Class	Size Class	% of reaches with fish captured	Comments
	480-993600-24800		2.0	408	2000/10/04	0.5	0.20	3.3	RB	S6	NS			L							1	S/S/I	M	23.94	No connection to Sutherland R. due to lack of channel in reach 1. No perennial habitat available.
		45735	1.0	409	2000/10/04				RB	NCD*	NS										1	S/S/I	M	23.94	No stream/drainage present at mapped location
		45738	1.0	410	2000/10/04				RB	NCD	NS										1	S/S/I	M	23.94	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
		45738	2.0	411	2000/10/04	0.8	0.17	4.5	RB	S6	NS			L							2	S/S/I	M	22.81	No connection to Sutherland R. due to lack of channel in reach 1. No perennial habitat available.
	480-993600-29300		3.0	414	2000/10/04	2.0	0.57	16.3	RB	S6	EF	300	526	L	4	40	C	600	80	4	3	S/S/I	M	13.93	Impassable 6m falls at the end of reach 2.1 of this stream blocks fish passage. No fish present in watershed above falls.
	480-993600-29300		4.0	415	2000/10/04	2.9	0.47	5.8	RB	S6	EF	150	419	M	4	40	C	700	80	6	2	S/S/I	M	22.81	Impassable 6m falls at the end of reach 2.1 of this stream blocks fish passage. No fish present in watershed above falls.
	480-993600-32300		3.0	417	2000/10/04	2.2	0.30	12.0	RB	S6	EF	100	238	M	4	190	C	600	80	6	3	S/S/I	M	13.93	Impassable 3m falls at the end of reach 2 of this stream blocks fish passage. No fish present in watershed above falls.
	480-993600-32300		9.0	418	2000/10/04	0.9	0.10	2.3	RB	S6	EF	100	194	M	4	110	C	600	80	6	1	S/S/I	S	1.44	Impassable 3m falls at the end of reach 2 of this stream blocks fish passage. No fish present in watershed above falls.
		45748	2.0	419	2000/10/04				RB	NCD*	NS										3	S/S/I	S	1.65	No stream/drainage present at mapped location
		45750	1.0	420	2000/10/04				RB	NCD*	NS										2	S/S/I	S	0.67	No stream/drainage present at mapped location
	480-993600-37800		2.0	423	2000/10/03				RB	NCD*	NS										3	S/S/I	M	13.93	No stream/drainage present at mapped location
	480-993600-37900		1.0	424	2000/10/04				RB	NCD	NS										1	S/S/I	S	1.44	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
		46705	3.0	427	2000/10/03				RB	NCD*	NS										1	S/S/I	M	23.94	No stream/drainage present at mapped location
Gravel C.	480-993600-40800		3.0	430	2000/10/03	3.1	0.43	6.3	RB	S5	EF	100	644/397	M	4	90	C	400/500	80/90	6/4	2	S/S/I	M	22.81	Impassable series of 3m, 3m and 5m falls at the end of reach 2 of this stream blocks fish passage. No fish present in watershed above falls.
Gravel C.	480-993600-40800		4.0	431	2000/10/04	1.4	0.23	3.0	RB	S6	EF	120	191	M	4	40	C	700	80	6	1	S/S/I	M	23.94	Impassable series of 3m, 3m and 5m falls at the end of reach 2 of this stream blocks fish passage. No fish present in watershed above falls.
Gravel C.	480-993600-40800		5.0	432	2000/10/04	1.9	0.23	1.5	RB	S6	EF	110	116	M	4	40	C	700	80	6	1	S/S/I	S	1.44	Impassable series of 3m, 3m and 5m falls at the end of reach 2 of this stream blocks fish passage. No fish present in watershed above falls.
	480-993600-40800-32900		1.0	434	2000/10/03	0.9	0.10	17.3	RB	S6	EF	100	164/119	M	4	340	C	400/400	80/90	6/4	3	S/S/I	M	13.93	Impassable 4m high cascade at the end of reach 0.1 of this stream blocks fish passage. No fish present in watershed above cascade.
		46721	1.0	435	2000/10/03				RB	NCD*	NS										2	S/S/I	M	22.81	No stream/drainage present at mapped location
		46721	2.0	436	2000/10/03				RB	NCD*	NS										3	S/S/I	M	13.93	No stream/drainage present at mapped location

Table 6: Summary of data from surveyed non-fish-bearing reaches in the Sutherland River Watershed

Stream Name	Watershed Code	ILP	Reach	Site	Date	Avg CW (m)	Avg Wb (m)	Avg Grad (%)	Exp Spp	FPC Class	Method	EF Dist (m)	EF Time (s)	Flow Stage	Water Temp (°C)	Cond (uS/cm)	Turb	Volt (V)	Freq (Hz)	PW (uS)	Grad Class	Pattern Class	Size Class	% of reaches with fish captured	Comments
	480-993600-42300		1.0	437	2000/10/03	0.5	0.13	8.8	RB	S6	NS			L							3	S/S/I	S	1.65	Incised dry channel in gully. Channel frequently vegetated, occasionally discontinuous with no connection to Sutherland River. No potential for rearing, spawning or overwintering.
		36708	1.0	439	2000/10/02				RB	NCD*	NS										1	S/S/I	S	1.44	No stream/drainage present at mapped location
		36709	2.0	440	2000/10/02				RB	NCD*	NS										3	S/S/I	S	1.65	No stream/drainage present at mapped location
	480-993600-46700		3.0	444	2000/10/02				RB	NCD	NS										1	S/S/I	M	23.94	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.

4.5.3 Follow-up Sampling Required

Table 7 on the following page summarizes the need for follow-up sampling in sampled reaches where fish absence is suspected (i.e., marginal fish habitat at any time of year or habitat is isolated by an obstruction with insufficient sampling to confirm a non fish-bearing status). It is anticipated that follow-up sampling in these circumstances will result in a confirmation of fish absence. It also identifies where follow-up sampling could be conducted that would provide important additional fish distribution information. All suspected non fish-bearing reaches have been identified with a dashed blue line on the interpretive maps.

The table does not include sampled reaches where fish use is likely (i.e., fish habitat available or potentially available and easily accessible from confirmed or inferred fish-bearing reaches) and presence has been inferred. It is expected that further sampling in these situations would not affect fish-bearing status. These reaches are assumed to be fish-bearing and are displayed on the interpretive maps with a dashed red line.

Table 7: Follow-up sampling required for confirmation of fish-bearing status for streams in the Sutherland River Watershed

Stream Name	Watershed Code	ILP	Reach	Site	Timing	Method	Comments
	480-993600-00600		2.0	381	July	EF	Determine upper extent of fish use (if any) in entire watershed. Suspect barrier u/s.
	480-993600-00600-48300		2.0	383	July	EF	Determine upper extent of fish use (if any) in entire watershed. Suspect barrier u/s.
	480-993600-14000		2.0	386	July	EF	Confirm fish-bearing status
	480-993600-16300		1.0	387	July	EF	Determine upper extent of fish use. Suspect barrier u/s.
	480-993600-36700		1.0	421	July	EF	Determine upper extent of fish use. Suspect barrier u/s.
	480-993600-36700		2.0	422	July	EF	Determine upper extent of fish use. Suspect barrier u/s.
	480-993600-39600		2.0	426	July	EF	Determine upper extent of fish use. Suspect barrier u/s.
		36711	1.0	441	July	EF	Confirm fish-bearing status
	480-993600-46700-80900		1.0	445	July	EF	Determine upper extent of fish use. Suspect barrier u/s.

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6. List of Appendices

- Appendix I: FDIS Reach/Site Summaries**
- Appendix II: FDIS Site/Fish Form Comments**
- Appendix III: Photographs**
- Appendix IV: Hardcopy Maps**
- Appendix V: Phase Completion Reports**
- Appendix VI: QA Reports**

**Reconnaissance (1:20,000) Fish and Fish Habitat
Inventory**

**Tributaries in the Sutherland River Watershed
2000**

- **Appendix I: FDIS Reach/Site Summaries**

Stream Reach/Site Summary Report

Reach # 2.0 ILP Map # ILP #
2.0

Watershed Code: 480-993600-00600-00000-00000-00000-00000-00000-00000-00000

STREAM REFERENCING																																												
Gazetted Name:					Local Name:																																							
Watershed Code: 480-993600-00600-00000-00000-00000-00000-00000-00000-00000					ILP Map #:		ILP #:																																					
REACH																																												
Reach #: 2.0		UTM(Zone/East/North): ..			Sample Type: B																																							
Length (km): .85		Gradient (%): 4.47		US Elev (m): 758		Order: 3		Magnitude: 13																																				
Confinement: OC		Coupling: PC		Open water: A		BGC Zone: SBS																																						
Islands: N		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: M		Landuse: NO																																						
SITE																																												
Site #: 381		GIS UTM(Zone/East/North)			Date: 2000/10/07		Agency: C016		Crew: SR/MJ																																			
Site Lg (m): 190					Ref. Name:																																							
CHANNEL																																												
No Vis.Ch.: ☐ Intermittent: ☐																																												
Dw: ☐ Tribs.: ☐																																												
		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Channel Width (m):</td> <td>2.23</td> <td>1.700</td> <td>2.700</td> <td>6</td> </tr> <tr> <td>Wetted Width (m):</td> <td>1.50</td> <td>1</td> <td>2</td> <td>6</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.33</td> <td>0.3</td> <td>0.4</td> <td>3</td> </tr> </tbody> </table>					Avg	Min	Max	#	Channel Width (m):	2.23	1.700	2.700	6	Wetted Width (m):	1.50	1	2	6	Wb Depth (m):	0.33	0.3	0.4	3	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Gadient %:</td> <td>5.25</td> <td>4</td> <td>7</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.37</td> <td>0.200</td> <td>0.5</td> <td>6</td> </tr> </tbody> </table>					Avg %	Min %	Max %	#	Gadient %:	5.25	4	7	4	Pool Depth (m):	0.37	0.200	0.5	6
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Pool Depth (m):	0.37	0.200	0.5	6																																								
Stage: L ☐ M ☒ H ☐		Temp (C): 4		pH: 8.4		Cond.: 430		Turb.: ☐ T ☐ M ☐ L ☒ C																																				
MORPHOLOGY																																												
Bed Material: Dominant: C		Subdom: B		Bars: ☐ N ☒ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																								
D95: 50.00		D (cm): 12.00		O1 B1 B2 B3 D1 D2 D3																																								
Pattern: IR		Islands: N		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																									
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																			
Coupling: PC		Confinement: OC		DISTURBANCE INDICATORS																																								
Morph: CP				C1 C2 C3 C4 C5 S1 S2 S3 S4 S5																																								
				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																									
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COVER																																												
Total: A		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Type:</th> <th>SWD</th> <th>LWD</th> <th>B</th> <th>U</th> <th>DP</th> <th>OV</th> <th>IV</th> </tr> </thead> <tbody> <tr> <td>Amount:</td> <td>T</td> <td>T</td> <td>D</td> <td>T</td> <td>S</td> <td>T</td> <td>N</td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☐</td> </tr> </tbody> </table>							Type:	SWD	LWD	B	U	DP	OV	IV	Amount:	T	T	D	T	S	T	N	Loc: P/S/O:	☒	☒	☒	☒	☒	☒	☐	FSZ: ☐											
Type:	SWD	LWD	B	U	DP	OV	IV																																					
Amount:	T	T	D	T	S	T	N																																					
Loc: P/S/O:	☒	☒	☒	☒	☒	☒	☐																																					
LWD: F		DIST: E		INSTREAM VEG: N ☐ A ☐ M ☒ V ☐				CROWN CLOSURE																																				
RB SHP: V		Texture: ☒ F ☐ G ☒ C ☒ B ☐ R ☐ A		RIP: S		STG: NA		1 1-20%																																				
LB SHP: U		Texture: ☒ F ☐ G ☒ C ☒ B ☐ R ☐ A		RIP: S		STG: NA																																						
FISH																																												
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																			
381	EF	1	120	211 sec	500	NFC	0																																					

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-00600-00000-00000-00000-00000-00000-00000-00000

3.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-00600-00000-00000-00000-00000-00000-00000-00000

ILP Map #:

ILP #:

REACH

Reach #: 3.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): .93

Gradient (%): 1.4

US Elev (m): 771

Order: 3

Magnitude: 10

Confinement: UN

Coupling: DC

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: M

Landuse: NO

SITE

Site #: 382

GIS UTM(Zone/East/North)

Date: 2000/10/02

Agency: C016

Crew: SR/MJ

Site Lg (m): 160

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	2.02	1.700	2.3	6
Wetted Width (m):	1.58	1	2	6
Wb Depth (m):	0.37	0.3	0.4	3

	Avg %	Min %	Max %	#
Gradient %:	3.00	2	5	4
Pool Depth (m):	0.26	0.19	0.38	6

Stage: L ☐ M ☒ H ☐

Temp (C): 4

pH: 8.4

Cond.: 430

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: C
D95: 35.00

Subdom: G
D (cm): 6.00

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

Pattern: SI

Islands: N

Coupling: CO

Confinement: FC

Morph: CP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

COVER

Total: A

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☐ A ☐ M ☒ V ☐

CROWN CLOSURE
1 1-20%

RB SHP: U

Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

LB SHP: V

Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
382	EF	1	160	213 sec	500	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-00600-48300-0000-0000-000-000-000-000-000

2.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-00600-48300-0000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 2.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): 1.86

Gradient (%): 2.15

US Elev (m): 790

Order: 2

Magnitude: 3

Confinement: UN

Coupling: DC

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: M

Landuse: OT

SITE

Site #: 383

GIS UTM(Zone/East/North)

Date: 2000/10/02

Agency: C016

Crew: SR/MJ

Site Lg (m): 120

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.35	1.100	1.600	6
Wetted Width (m):	1.07	0.7	1.5	6
Wb Depth (m):	0.43	0.4	0.5	3

	Avg %	Min %	Max %	#
Gradient %:	1.00	1	1	4
Pool Depth (m):	0.38	0.270	0.64	5

Stage: L ☐ M ☒ H ☐

Temp (C): 4

pH: 8.5

Cond.: 140

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: F
D95: 0.10

Subdom: NA
D (cm): 0.01

Pattern: IR

Coupling: DC

Morph: LC

Islands: N

Confinement: UN

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

O1 B1 B2 B3 D1 D2 D3

DISTURBANCE
INDICATORS

C1 C2 C3 C4 C5 S1 S2 S3 S4 S5

COVER

Total: A

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☐ A ☐ M ☒ V ☒

CROWN CLOSURE
2 21-40%

RB SHP: S

Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

LB SHP: U

Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
383	EF	1	120	167 sec	500	NFC	0		

Stream Reach/Site Summary Report

Watershed Code: 000-000000-00000-00000-0000-000-000-000-000-000-000
 Reach # 3.0 ILP Map # 93K.045 ILP # 45702

STREAM REFERENCING

Gazetted Name: Local Name:
 Watershed Code: 000-000000-00000-00000-0000-000-000-000-000-000-000 ILP Map #: 93K.045 ILP #: 45702

REACH

Reach #: 3.0 UTM(Zone/East/North): .. Sample Type: B
 Length (km): .31 Gradient (%): 2.26 US Elev (m): 912 Order: 1 Magnitude: 1
 Confinement: OC Coupling: PC Open water: A BGC Zone: SBS
 Islands: N Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR Riparian Veg.: C Landuse: NO

SITE

Site #: 384 GIS UTM(Zone/East/North) Date: 2000/10/05 Agency: C016 Crew: MJ/MG
 Site Lg (m): 150 Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐
 Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	0.82	0.5	1.100	6
Wetted Width (m):	0.68	0.5	0.9	6
Wb Depth (m):	0.20	0.2	0.2	3

	Avg %	Min %	Max %	#
Gadient %:	1.50	1	2	4
Pool Depth (m):	0.16	0.100	0.25	5

 Stage: L ☒ M ☐ H ☐ Temp (C): 4 pH: 7.8 Cond.: 120 Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: F Subdom: NA Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR
 D95: 0.01 D (cm): 0.01
 Pattern: IR Islands: N
 Coupling: DC Confinement: UN
 Morph: LC
 DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

COVER

Total: M

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

 FSZ: ☐
 LWD: F DIST: E INSTREAM VEG: N ☒ A ☐ M ☐ V ☐
 RB SHP: U Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A RIP: C STG: MF
 LB SHP: U Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A RIP: C STG: MF
 CROWN CLOSURE 2 21-40%

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
384	EF	1	150	261 sec	500	NFC	0		

Stream Reach/Site Summary Report

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
 Reach # 1.0 ILP Map # 93K.045 ILP # 45705

STREAM REFERENCING

Gazetted Name: Local Name:
 Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000 ILP Map #: 93K.045 ILP #: 45705

REACH

Reach #: 1.0 UTM(Zone/East/North): .. Sample Type: R
 Length (km): .43 Gradient (%): 2.79 US Elev (m): 730 Order: 1 Magnitude: 1
 Confinement: UN Coupling: DC Open water: A BGC Zone: SBS
 Islands: N Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR Riparian Veg.: W Landuse: NO

SITE

Site #: 385 GIS UTM(Zone/East/North) Date: 2000/10/02 Agency: C016 Crew: SR/MJ
 Site Lg (m): 100 Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐
 Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.00	0.800	1.3	6
Wetted Width (m):	1.00	0.800	1.3	6
Wb Depth (m):	0.87	0.7	1	3

	Avg %	Min %	Max %	#
Gadient %:	0.50	0.5	0.5	4
Pool Depth (m):	0.58	0.560	0.610	3

 Stage: L ☐ M ☒ H ☐ Temp (C): 6 pH: 8.0 Cond.: 300 Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: F Subdom: NA Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR
 D95: 0.01 D (cm): 0.01
 Pattern: IM Islands: O
 Coupling: DC Confinement: UN
 Morph: LC
 DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

COVER

Total: M

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

 FSZ: ☐
 LWD: N DIST: NA INSTREAM VEG: N ☐ A ☒ M ☐ V ☒
 RB SHP: S Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A RIP: W STG: NA
 LB SHP: S Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A RIP: W STG: NA
 CROWN CLOSURE 1 1-20%

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
385	EF	1	100	107 sec	400	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-14000-00000-0000-000-000-000-000-000

2.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-14000-00000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 2.0

UTM(Zone/East/North): ..

Sample Type: R

Length (km): .70

Gradient (%): 27.29

US Elev (m): 928

Order: 2

Magnitude: 2

Confinement: CO

Coupling: CO

Open water: A

BGC Zone: SBS

Islands: NV

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: C

Landuse: NO

SITE

Site #: 386

GIS UTM(Zone/East/North)

Date: 2000/10/05

Agency: C016

Crew: MJ/MG

Site Lg (m): 150

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐

Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.83	1.4	2.200	6
Wetted Width (m):	1.28	1	1.600	6
Wb Depth (m):	0.20	0.2	0.2	3

	Avg %	Min %	Max %	#
Gradient %:	13.75	14	15	4
Pool Depth (m):	0.08	0.050	0.100	2

Stage: L ☒ M ☐ H ☐

Temp (C): 5

pH: 7.7

Cond.: 60

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: C

Subdom: G

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

D95: 15.00

D (cm): 2.00

Pattern: SI

Islands: N

Coupling: CO

Confinement: CO

Morph: CP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3				
☐	☐	☐	☐	☐	☐	☐				
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	
☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	

COVER

Total: T

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

RB SHP: V

Texture: ☐ F ☒ G ☒ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

LB SHP: V

Texture: ☐ F ☒ G ☒ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

CROWN CLOSURE

3 41-70%

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
386	EF	1	150	127 sec	600	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-16300-00000-00000-0000-000-000-000-000-000

1.0

STREAM REFERENCING										
Gazetted Name:					Local Name:					
Watershed Code: 480-993600-16300-00000-00000-0000-000-000-000-000-000					ILP Map #:		ILP #:			
REACH										
Reach #:	1.0	UTM(Zone/East/North): ..			Sample Type: B					
Length (km):	.28	Gradient (%):	10	US Elev (m):	749	Order:	2	Magnitude:	2	
Confinement:	FC	Coupling:	PC	Open water:	A	BGC Zone:	SBS			
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	C	Landuse:	NO			
SITE										
Site #:	387	GIS UTM(Zone/East/North)			Date:	2000/10/05	Agency:	C016	Crew:	MJ/MG
Site Lg (m):	150				Ref. Name:					
CHANNEL										
No Vis.Ch.:	☐	Intermittent:	☒							
Dw:	☐	Tribs.:	☐							
				Avg	Min	Max	#			
Channel Width (m):				1.22	0.9	1.5	6			
Wetted Width (m):				0.00	0	0	6			
Wb Depth (m):				0.20	0.2	0.2	3			
				Avg %	Min %	Max %	#			
Gradient %:				5.50	5	6	2			
Pool Depth (m):				0.00	0	0	0			
Stage:	L ☒ M ☐ H ☐	Temp (C):				pH:				
						Cond.:				
						Turb.:	T ☐ M ☐ L ☐ C ☐			
MORPHOLOGY										
Bed Material:	Dominant: G	Subdom: F				Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR			
	D95: 8.00	D (cm): 3.00				O1	B1	B2	B3	
	Pattern: SI	Islands: N				D1	D2	D3		
	Coupling: CO	Confinement: FC				DISTURBANCE INDICATORS				
	Morph: CP					C1	C2	C3	C4	
						C5	S1	S2	S3	
						S4	S5			
COVER										
Total:	N	Type:	SWD	LWD	B	U	DP	OV	IV	
		Amount:	N	N	N	N	N	N	N	
		Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐	
LWD:	N	DIST:	NA	INSTREAM VEG:	N ☒ A ☐ M ☐ V ☐	FSZ: ☐				
RB SHP:	V	Texture:	☒ F ☒ G ☐ C ☐ B ☐ R ☐ A	RIP:	C	STG:	MF			
LB SHP:	V	Texture:	☒ F ☒ G ☐ C ☐ B ☐ R ☐ A	RIP:	C	STG:	MF			
						CROWN CLOSURE				
						2 21-40%				

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-18700-00000-0000-0000-000-000-000-000-000

1.0

STREAM REFERENCING

Gazetted Name: SHASS CREEK

Local Name:

Watershed Code: 480-993600-18700-00000-0000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 1.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): .82

Gradient (%): 2.07

US Elev (m): 739

Order: 4

Magnitude: 59

Confinement: UN

Coupling: DC

Open water: A

BGC Zone: SBS

Islands: I

Bars: ☐ N ☒ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: M

Landuse: NO

SITE

Site #: 388

GIS UTM(Zone/East/North)

Date: 2000/10/02

Agency: C016

Crew: SR/MJ

Site Lg (m): 150

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐

Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	6.27	5.300	7.400	6
Wetted Width (m):	5.98	5.300	6.6	6
Wb Depth (m):	0.37	0.3	0.4	3

	Avg %	Min %	Max %	#
Gradient %:	1.50	1	2	4
Pool Depth (m):	0.43	0.360	0.52	5

Stage: L ☐ M ☒ H ☐

Temp (C): 7

pH: 8.6

Cond.: 80

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: G

Subdom: NA

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

D95: 18.00

D (cm): 15.00

Pattern: IR

Islands: O

Coupling: DC

Confinement: UN

Morph: RP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

COVER

Total: T

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

CROWN CLOSURE

1 1-20%

RB SHP: S

Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

LB SHP: S

Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
388	EF	1	150	177 sec	600	RB	7	41	59
388	EF	1	150	177 sec	600	CAS	2	81	92
388	VO	1		20 min		SK	100	500	650

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-18700-00000-0000-0000-000-000-000-000-000

1.1

STREAM REFERENCING													
Gazetted Name: SHASS CREEK					Local Name:								
Watershed Code: 480-993600-18700-00000-0000-0000-000-000-000-000-000					ILP Map #:		ILP #:						
REACH													
Reach #:	1.1	UTM(Zone/East/North): ..			Sample Type: B								
Length (km):	.13	Gradient (%):	25.38	US Elev (m):	772	Order:	4	Magnitude:	58				
Confinement:	EN	Coupling:	CO	Open water:	A	BGC Zone:	SBS						
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	N	Landuse:	NO						
SITE													
Site #:	389	GIS UTM(Zone/East/North)			Date:	2000/10/02	Agency:	C016	Crew:	SR/MJ			
Site Lg (m):	100	Ref. Name:											
CHANNEL													
No Vis.Ch.:	☐	Intermittent:	☐										
Dw:	☐	Tribs.:	☐										
				Avg	Min	Max	#						
Channel Width (m):				5.75	4.7	6.7	6						
Wetted Width (m):				4.77	3.200	6	6						
Wb Depth (m):				0.47	0.4	0.5	3						
				Avg %	Min %	Max %	#						
Gradient %:				6.75	5	7	4						
Pool Depth (m):				0.42	0.32	0.53	6						
Stage:	L ☐ M ☒ H ☐	Temp (C):	7	pH:	8.6	Cond.:	80	Turb.:	☐ T ☐ M ☐ L ☒ C				
MORPHOLOGY													
Bed Material:	Dominant: B	Subdom:	C	Bars: ☐ N ☒ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR									
	D95: 100.00	D (cm):	35.00										
	Pattern: SI	Islands:	N	O1	B1	B2	B3	D1	D2	D3			
	Coupling: CO	Confinement:	EN	DISTURBANCE INDICATORS									
	Morph: CP			C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
COVER													
Total:	A	Type:	SWD	LWD	B	U	DP	OV	IV	FSZ:	☐		
		Amount:	N	N	S	N	D	N	N				
		Loc: P/S/O:	☐	☐	☒	☐	☒	☐	☐				
LWD:	N	DIST:	NA	INSTREAM VEG:	N ☒ A ☐ M ☐ V ☐	CROWN CLOSURE							
RB SHP:	O	Texture:	☐ F ☐ G ☐ C ☐ B ☒ R ☐ A	RIP:	S	STG:	NA	1 1-20%					
LB SHP:	V	Texture:	☐ F ☐ G ☐ C ☒ B ☒ R ☐ A	RIP:	N	STG:							
FEATURES													
NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Zone/East/North/Method)				
93K.045	23871	F	3.0	MS			R: 19 F: 25 L: #:		GP3				
Comments: 1st falls on creek - mapped as cascade- UTM not possible													
FISH													
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)				
389	EF	2	100	136 sec	500	RB	3	120	160				

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-18700-00000-00000-0000-000-000-000-000-000

2.0

STREAM REFERENCING

Gazetted Name: SHASS CREEK

Local Name:

Watershed Code: 480-993600-18700-00000-00000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 2.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): .28

Gradient (%): 10

US Elev (m): 800

Order: 4

Magnitude: 58

Confinement: EN

Coupling: CO

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: C

Landuse: NO

SITE

Site #: 390

GIS UTM(Zone/East/North)

Date: 2000/10/02

Agency: C016

Crew: SR/MJ

Site Lg (m): 50

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐

Trips: ☐

	Avg	Min	Max	#
Channel Width (m):	5.47	5.1	6.1	6
Wetted Width (m):	4.28	3.700	5	6
Wb Depth (m):	0.63	0.6	0.7	3

	Avg %	Min %	Max %	#
Gradient %:	16.25	8	34	4
Pool Depth (m):	0.55	0.39	0.810	6

Stage: L ☐ M ☒ H ☐

Temp (C): 7

pH: 8.6

Cond.: 80

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: B

Subdom: R

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

D95: 1000

D (cm): 60.00

Pattern: SI

Islands: N

Coupling: CO

Confinement: EN

Morph: CP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐
C1	C2	C3	C4	C5	S1	S2
☐	☐	☐	☐	☐	☐	☐

COVER

Total: A

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

FSZ: ☐

LWD: N

DIST: NA

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

RB SHP: O

Texture: ☐ F ☐ G ☐ C ☐ B ☒ R ☐ A

RIP: N

STG:

LB SHP: V

Texture: ☐ F ☐ G ☐ C ☐ B ☒ R ☐ A

RIP: N

STG:

CROWN CLOSURE

1 1-20%

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
390	EF	2	50	196 sec	500	RB	5	107	163

Stream Reach/Site Summary Report

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

Reach # 1.0 ILP Map # 93K.045 ILP # 45709

STREAM REFERENCING

Gazetted Name:

Local Name:

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

ILP Map #: 93K.045

ILP #: 45709

REACH

Reach #: 1.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): .50

Gradient (%): 1.4

US Elev (m): 738

Order: 1

Magnitude: 1

Confinement: UN

Coupling: DC

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: S

Landuse: NO

SITE

Site #: 391

GIS UTM(Zone/East/North)

Date: 2000/10/02

Agency: C016

Crew: SR/MJ

Site Lg (m): 100

Ref. Name:

CHANNEL

No Vis.Ch.: ☒ Intermittent: ☐

Dw: ☐

Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	0.00	0	0	0
Wetted Width (m):	0.00	0	0	0
Wb Depth (m):	0.00	0	0	0

	Avg %	Min %	Max %	#
Gradient %:	0.50	0.5	0.5	2
Pool Depth (m):	0.00	0	0	0

Stage: L ☐ M ☐ H ☐

Temp (C):

pH:

Cond.:

Turb.: ☐ T ☐ M ☐ L ☐ C

MORPHOLOGY

Bed Material: Dominant:

Subdom:

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

D95:

D (cm):

O1 B1 B2 B3 D1 D2 D3

Pattern:

Islands:

☐ ☐ ☐ ☐ ☐ ☐ ☐

Coupling:

Confinement:

DISTURBANCE INDICATORS

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

Morph:

COVER

Total:

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

FSZ: ☐

LWD:

DIST:

INSTREAM VEG: N ☐ A ☐ M ☐ V ☐

RB SHP:

Texture: ☐ F ☐ G ☐ C ☐ B ☐ R ☐ A

RIP: STG:

LB SHP:

Texture: ☐ F ☐ G ☐ C ☐ B ☐ R ☐ A

RIP: STG:

CROWN CLOSURE

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-22300-00000-00000-0000-000-000-000-000-000

2.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-22300-00000-00000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 2.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): .72

Gradient (%): 16.81

US Elev (m): 881

Order: 2

Magnitude: 5

Confinement: CO

Coupling: CO

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: C

Landuse: NO

SITE

Site #: 392

GIS UTM(Zone/East/North)

Date: 2000/10/05

Agency: C016

Crew: MJ/MG

Site Lg (m): 800

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	2.97	2.3	4.300	6
Wetted Width (m):	1.08	0.7	1.4	6
Wb Depth (m):	0.43	0.4	0.5	3

	Avg %	Min %	Max %	#
Gradient %:	7.38	5	8	4
Pool Depth (m):	0.24	0.200	0.300	5

Stage: L ☒ M ☐ H ☐

Temp (C): 4

pH: 8.1

Cond.: 80

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: C
D95: 30.00
Pattern: SI
Coupling: CO
Morph: CP

Subdom: G
D (cm): 10.00
Islands: N
Confinement: CO

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

O1 B1 B2 B3 D1 D2 D3
☐ ☐ ☒ ☐ ☐ ☐ ☐

DISTURBANCE INDICATORS

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

COVER

Total: M

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

CROWN CLOSURE
2 21-40%

RB SHP: V

Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A RIP: C STG: MF

LB SHP: V

Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A RIP: C STG: MF

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Zone/East/North/Method)
93K.045	23921	F	20.0	GE			R: 28 F: 22 L: #:		GP3

Comments: at the end of the reach

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
392	EF	1	200	273 sec	600	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-22300-00000-00000-0000-000-000-000-000-000

4.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-22300-00000-00000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 4.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): 2.90

Gradient (%): 5.62

US Elev (m): 1157

Order: 2

Magnitude: 5

Confinement: FC

Coupling: PC

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: C

Landuse: NO

SITE

Site #: 393

GIS UTM(Zone/East/North)

Date: 2000/10/05

Agency: C016

Crew: MJ/MG

Site Lg (m): 150

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	0.75	0.5	1	6
Wetted Width (m):	0.32	0.200	0.5	6
Wb Depth (m):	0.13	0.1	0.2	3

	Avg %	Min %	Max %	#
Gadient %:	2.13	3	3	4
Pool Depth (m):	0.04	0.02	0.050	2

Stage: L ☒ M ☐ H ☐

Temp (C): 4

pH: 7.8

Cond.: 60

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: F

Subdom: G

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

D95: 1.00

D (cm): 1.00

Pattern: IR

Islands: N

Coupling: PC

Confinement: OC

Morph: RP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3			
☐	☐	☐	☐	☐	☐	☐			
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

COVER

Total: T

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☐ A ☒ M ☐ V ☐

RB SHP: U

Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A

RIP: C

STG: MF

LB SHP: U

Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A

RIP: C

STG: MF

CROWN CLOSURE

2 21-40%

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
393	EF	1	150	85 sec	600	NFC	0		

Stream Reach/Site Summary Report

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

Reach # 1.0 ILP Map # 93K.045 ILP # 45715

STREAM REFERENCING

Gazetted Name: Local Name: Watershed Code: 000-000000-00000-00000-0000-000-000-000-000-000 ILP Map #: 93K.045 ILP #: 45715

REACH

Reach #: 1.0 UTM(Zone/East/North): .. Sample Type: R
Length (km): .22 Gradient (%): 8.64 US Elev (m): 1097 Order: 1 Magnitude: 1
Confinement: CO Coupling: CO Open water: A BGC Zone: SBS
Islands: N Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR Riparian Veg.: C Landuse: NO

SITE

Site #: 395 GIS UTM(Zone/East/North) Date: 2000/10/05 Agency: C016 Crew: MJ/MG
Site Lg (m): 150 Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.02	0.800	1.3	6
Wetted Width (m):	0.73	0.5	1	6
Wb Depth (m):	0.33	0.3	0.4	3

	Avg %	Min %	Max %	#
Gradient %:	5.25	6	6	4
Pool Depth (m):	0.19	0.100	0.300	6

Stage: L ☒ M ☐ H ☐ Temp (C): 4 pH: 8.0 Cond.: 80 Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: C Subdom: G Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR
D95: 25.00 D (cm): 3.00
Pattern: SI Islands: N
Coupling: CO Confinement: CO
Morph: SP
DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

COVER

Total: A

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

FSZ: ☐
LWD: N DIST: NA INSTREAM VEG: N ☐ A ☐ M ☒ V ☐
RB SHP: U Texture: ☒ F ☐ G ☒ C ☐ B ☐ R ☐ A RIP: C STG: MF
LB SHP: U Texture: ☒ F ☐ G ☒ C ☐ B ☐ R ☐ A RIP: C STG: MF
CROWN CLOSURE 2 21-40%

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
395	EF	1	150	212 sec	600	NFC	0		

Stream Reach/Site Summary Report

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

Reach # 1.0 ILP Map # 93K.045 ILP # 45716

STREAM REFERENCING																																	
Gazetted Name:					Local Name:																												
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000					ILP Map #: 93K.045		ILP #: 45716																										
REACH																																	
Reach #:	1.0	UTM(Zone/East/North): ..			Sample Type: R																												
Length (km):	.67	Gradient (%):	3.88	US Elev (m):	1116	Order:	1	Magnitude:	1																								
Confinement:	FC	Coupling:	PC	Open water:	A	BGC Zone:	SBS																										
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	C	Landuse:		NO																									
SITE																																	
Site #:	396	GIS UTM(Zone/East/North)			Date:	2000/10/05	Agency:	C016	Crew:	MJ/MG																							
Site Lg (m):	100				Ref. Name:																												
CHANNEL																																	
No Vis.Ch.:	☒	Intermittent:	☐																														
Dw:	☐	Tribs.:	☐																														
				Avg	Min	Max	#																										
Channel Width (m):				0.00	0	0	0																										
Wetted Width (m):				0.00	0	0	0																										
Wb Depth (m):				0.00	0	0	0																										
				Avg %	Min %	Max %	#																										
Gradient %:				0.00	0	0	0																										
Pool Depth (m):				0.00	0	0	0																										
Stage:	L ☐ M ☐ H ☐	Temp (C):	pH:			Cond.:	Turb.: ☐ T ☐ M ☐ L ☐ C																										
MORPHOLOGY																																	
Bed Material:	Dominant:	Subdom:	Bars:			☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																											
	D95:	D (cm):	O1			B1	B2	B3	D1	D2	D3																						
	Pattern:	Islands:				☐	☐	☐	☐	☐	☐																						
	Coupling:	Confinement:	DISTURBANCE INDICATORS			C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																		
	Morph:					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																		
COVER																																	
Total:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Type:</td> <td>SWD</td> <td>LWD</td> <td>B</td> <td>U</td> <td>DP</td> <td>OV</td> <td>IV</td> </tr> <tr> <td>Amount:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>							Type:	SWD	LWD	B	U	DP	OV	IV	Amount:								Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐	FSZ: ☐	
Type:	SWD	LWD	B	U	DP	OV	IV																										
Amount:																																	
Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐																										
LWD:	DIST:			INSTREAM VEG:			N ☐ A ☐ M ☐ V ☐	CROWN CLOSURE																									
RB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																												
LB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																												

Stream Reach/Site Summary Report

Watershed Code: 480-993600-24500-00000-00000-00000-00000-00000-000

Reach # 1.0 ILP Map # ILP #

STREAM REFERENCING																																												
Gazetted Name:					Local Name:																																							
Watershed Code: 480-993600-24500-00000-00000-00000-00000-00000-000					ILP Map #:		ILP #:																																					
REACH																																												
Reach #: 1.0		UTM(Zone/East/North): ..			Sample Type: R																																							
Length (km): 1.04		Gradient (%): 3.08		US Elev (m): 756		Order: 4		Magnitude: 18																																				
Confinement: UN		Coupling: DC		Open water: A		BGC Zone: SBS																																						
Islands: NV		Bars: ☐ N ☒ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: C		Landuse: NO																																						
SITE																																												
Site #: 397		GIS UTM(Zone/East/North)		Date: 2000/10/04		Agency: C016		Crew: SR/MJ																																				
Site Lg (m): 100				Ref. Name:																																								
CHANNEL																																												
No Vis.Ch.: ☐ Intermittent: ☐																																												
Dw: ☐ Tribs.: ☐																																												
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Stage: L ☐ M ☒ H ☐		Temp (C): 4		pH: 8.3		Cond.: 150		Turb.: ☐ T ☐ M ☐ L ☒ C																																				
MORPHOLOGY																																												
Bed Material: Dominant: G		Subdom: F		Bars: ☐ N ☒ SIDE ☐ DIAG ☒ MID ☐ SPAN ☐ BR																																								
D95: 4.00		D (cm): 2.00		O1 B1 B2 B3 D1 D2 D3																																								
Pattern: IR		Islands: O		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																									
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Coupling: DC		Confinement: UN		DISTURBANCE INDICATORS																																								
Morph: RP				C1 C2 C3 C4 C5 S1 S2 S3 S4 S5																																								
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COVER																																												
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Amount:	T	T	N	S	D	T	N																																					
Loc: P/S/O:	☒	☒	☐	☒	☒	☒	☐																																					
LWD: F		DIST: E		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐		CROWN CLOSURE																																						
RB SHP: U		Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A		RIP: S		STG: NA																																						
LB SHP: U		Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A		RIP: S		STG: NA																																						
FISH																																												
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																			
397	EF	1	100	188 sec	600	RB	5	52	94																																			

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-24500-00000-00000-0000-000-000-000-000-000

2.0

STREAM REFERENCING																																	
Gazetted Name:					Local Name:																												
Watershed Code: 480-993600-24500-00000-00000-0000-000-000-000-000-000					ILP Map #:		ILP #:																										
REACH																																	
Reach #: 2.0		UTM(Zone/East/North): ..			Sample Type: B																												
Length (km): .72		Gradient (%): 11.39		US Elev (m): 838		Order: 4		Magnitude: 18																									
Confinement: CO		Coupling: CO		Open water: A		BGC Zone: SBS																											
Islands: NV		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: C		Landuse: NO																											
SITE																																	
Site #: 398		GIS UTM(Zone/East/North)		Date: 2000/10/05		Agency: C016		Crew: SR/MJ																									
Site Lg (m): 200				Ref. Name:																													
CHANNEL																																	
No Vis.Ch.: ☐ Intermittent: ☐						<table border="1" style="float: right; border-collapse: collapse;"> <thead> <tr> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Gradient %:</td> <td>4.25</td> <td>5</td> <td>5</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.38</td> <td>0.24</td> <td>0.810</td> <td>7</td> </tr> </tbody> </table>				Avg %	Min %	Max %	#	Gradient %:	4.25	5	5	4	Pool Depth (m):	0.38	0.24	0.810	7										
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Wb Depth (m):	0.33	0.3	0.4	3																													
Stage: L ☐ M ☒ H ☐		Temp (C): 4		pH: 8.5		Cond.: 160		Turb.: ☐ T ☐ M ☐ L ☒ C																									
MORPHOLOGY																																	
Bed Material: Dominant: C		Subdom: G		Bars: ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☒ BR																													
D95: 50.00		D (cm): 20.00																															
Pattern: SI		Islands: N		<table border="1" style="float: right; border-collapse: collapse;"> <thead> <tr> <th>O1</th> <th>B1</th> <th>B2</th> <th>B3</th> <th>D1</th> <th>D2</th> <th>D3</th> </tr> </thead> <tbody> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </tbody> </table>						O1	B1	B2	B3	D1	D2	D3	☐	☐	☐	☐	☐	☐	☐										
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☐	☐	☐	☐	☐	☐	☐																											
Coupling: PC		Confinement: FC		DISTURBANCE INDICATORS																													
Morph: CP				<table border="1" style="float: right; border-collapse: collapse;"> <thead> <tr> <th>C1</th> <th>C2</th> <th>C3</th> <th>C4</th> <th>C5</th> <th>S1</th> <th>S2</th> <th>S3</th> <th>S4</th> <th>S5</th> </tr> </thead> <tbody> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☒</td> </tr> </tbody> </table>						C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒				
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																								
☐	☐	☐	☐	☐	☐	☐	☐	☐	☒																								
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Type:	SWD	LWD	B	U	DP	OV	IV																										
Amount:	T	T	S	T	D	T	N																										
Loc: P/S/O:	☒	☒	☒	☒	☒	☒	☒																										
LWD: F		DIST: E		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐		CROWN CLOSURE																											
RB SHP: V		Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A		RIP: C		STG: MF																											
LB SHP: S		Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A		RIP: C		STG: MF																											
						3 41-70%																											
FISH																																	
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																								
398	EF	2	200	1014 sec	500	RB	3	61	157																								

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-24500-00000-00000-0000-000-000-000-000-000

3.0

STREAM REFERENCING																																										
Gazetted Name:					Local Name:																																					
Watershed Code: 480-993600-24500-00000-00000-0000-000-000-000-000-000					ILP Map #:		ILP #:																																			
REACH																																										
Reach #: 3.0		UTM(Zone/East/North): ..			Sample Type: R																																					
Length (km): .46		Gradient (%): 13.04		US Elev (m): 898		Order: 4		Magnitude: 18																																		
Confinement: EN		Coupling: CO		Open water: A		BGC Zone: SBS																																				
Islands: N		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: N		Landuse: NO																																				
SITE																																										
Site #: 399		GIS UTM(Zone/East/North)		Date: 2000/10/05		Agency: C016		Crew: SR/MJ																																		
Site Lg (m): 100				Ref. Name:																																						
CHANNEL																																										
No Vis.Ch.: ☐ Intermittent: ☐				<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> <tr> <td>Channel Width (m):</td> <td>3.72</td> <td>2.5</td> <td>5.1</td> <td>6</td> </tr> <tr> <td>Wetted Width (m):</td> <td>2.93</td> <td>1.9</td> <td>4</td> <td>6</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.67</td> <td>0.5</td> <td>0.8</td> <td>3</td> </tr> </table>		Avg	Min	Max	#	Channel Width (m):	3.72	2.5	5.1	6	Wetted Width (m):	2.93	1.9	4	6	Wb Depth (m):	0.67	0.5	0.8	3	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> <tr> <td>Gradient %:</td> <td>13.50</td> <td>13</td> <td>13</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.52</td> <td>0.360</td> <td>0.670</td> <td>5</td> </tr> </table>				Avg %	Min %	Max %	#	Gradient %:	13.50	13	13	4	Pool Depth (m):	0.52	0.360	0.670	5
Avg	Min	Max	#																																							
Channel Width (m):	3.72	2.5	5.1	6																																						
Wetted Width (m):	2.93	1.9	4	6																																						
Wb Depth (m):	0.67	0.5	0.8	3																																						
Avg %	Min %	Max %	#																																							
Gradient %:	13.50	13	13	4																																						
Pool Depth (m):	0.52	0.360	0.670	5																																						
Dw: ☐ Tribs.: ☐																																										
Stage: L ☐ M ☒ H ☐		Temp (C): 4		pH: 8.5		Cond.: 160		Turb.: ☐ T ☐ M ☐ L ☒ C																																		
MORPHOLOGY																																										
Bed Material: Dominant: B		Subdom: C		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																						
D95: 80.00		D (cm): 30.00																																								
Pattern: SI		Islands: N		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>O1</td><td>B1</td><td>B2</td><td>B3</td><td>D1</td><td>D2</td><td>D3</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td> </tr> </table>						O1	B1	B2	B3	D1	D2	D3	☐	☐	☐	☐	☐	☒	☐																			
O1	B1	B2	B3	D1	D2	D3																																				
☐	☐	☐	☐	☐	☒	☐																																				
Coupling: CO		Confinement: EN		DISTURBANCE INDICATORS																																						
Morph: SP				<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>C1</td><td>C2</td><td>C3</td><td>C4</td><td>C5</td><td>S1</td><td>S2</td><td>S3</td><td>S4</td><td>S5</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐													
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																																	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																	
COVER																																										
Total: A		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>Type:</td><td>SWD</td><td>LWD</td><td>B</td><td>U</td><td>DP</td><td>OV</td><td>IV</td> </tr> <tr> <td>Amount:</td><td>T</td><td>T</td><td>S</td><td>N</td><td>D</td><td>N</td><td>N</td> </tr> <tr> <td>Loc: P/S/O:</td><td>☒</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td> </tr> </table>						Type:	SWD	LWD	B	U	DP	OV	IV	Amount:	T	T	S	N	D	N	N	Loc: P/S/O:	☒	☐	☐	☐	☒	☐	☐	FSZ: ☐										
Type:	SWD	LWD	B	U	DP	OV	IV																																			
Amount:	T	T	S	N	D	N	N																																			
Loc: P/S/O:	☒	☐	☐	☐	☒	☐	☐																																			
LWD: F		DIST: E		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐		CROWN CLOSURE 1 1-20%																																				
RB SHP: V		Texture: ☐ F ☐ G ☐ C ☐ B ☒ R ☐ A		RIP: N		STG:																																				
LB SHP: V		Texture: ☐ F ☐ G ☐ C ☐ B ☒ R ☐ A		RIP: N		STG:																																				
FEATURES																																										
NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Zone/East/North/Method)																																	
93K.045	23992	F	4.0	GE			R: 23 F: 17 L: #:		GP3																																	
Comments: definite barrier - 40m above first falls - beginning of new reach																																										
FISH																																										
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																	
399	EF	1	100	291 sec	500	NFC	0																																			

Stream Reach/Site Summary Report

Reach #	ILP Map #	ILP #
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Watershed Code: 480-993600-24500-00000-0000-0000-000-000-000-000-000

4.0

STREAM REFERENCING																																																
Gazetted Name:					Local Name:																																											
Watershed Code: 480-993600-24500-00000-0000-000-000-000-000-000					ILP Map #:					ILP #:																																						
REACH																																																
Reach #:		4.0		UTM(Zone/East/North): ..				Sample Type: R																																								
Length (km): 1.24		Gradient (%): 6.53		US Elev (m): 979				Order: 4		Magnitude: 18																																						
Confinement: CO		Coupling: CO		Open water: A				BGC Zone: SBS																																								
Islands: NV		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: C				Landuse: NO																																								
SITE																																																
Site #: 400		GIS UTM(Zone/East/North)			Date: 2000/10/05				Agency: C016			Crew: SR/MJ																																				
Site Lg (m): 220		Ref. Name:																																														
CHANNEL																																																
No Vis.Ch.: ☐ Intermittent: ☐								Avg		Min		Max		#																																		
Dw: ☐ Tribs.: ☐								Channel Width (m):		3.08		2.6		3.700		6																																
								Wetted Width (m):		2.23		1.700		2.6		6																																
								Wb Depth (m):		0.37		0.3		0.4		3																																
								Gadient %:		5.50		7		7		4																																
								Pool Depth (m):		0.24		0.180		0.300		6																																
Stage: L ☐ M ☒ H ☐				Temp (C): 4				pH: 8.6				Cond.: 150				Turb.: ☐ T ☐ M ☐ L ☒ C																																
MORPHOLOGY																																																
Bed Material: Dominant: C				Subdom: G				Bars: ☐ N ☒ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																								
D95: 40.00				D (cm): 8.00																																												
Pattern: IR				Islands: O																																												
Coupling: CO				Confinement: CO																																												
Morph: CP																																																
				DISTURBANCE INDICATORS				<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>O1</td><td>B1</td><td>B2</td><td>B3</td><td>D1</td><td>D2</td><td>D3</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> <tr> <td>C1</td><td>C2</td><td>C3</td><td>C4</td><td>C5</td><td>S1</td><td>S2</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> <tr> <td>S3</td><td>S4</td><td>S5</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td> </tr> </table>							O1	B1	B2	B3	D1	D2	D3	☐	☐	☐	☐	☐	☐	☐	C1	C2	C3	C4	C5	S1	S2	☐	☐	☐	☐	☐	☐	☐	S3	S4	S5	☐	☐	☐
O1	B1	B2	B3	D1	D2	D3																																										
☐	☐	☐	☐	☐	☐	☐																																										
C1	C2	C3	C4	C5	S1	S2																																										
☐	☐	☐	☐	☐	☐	☐																																										
S3	S4	S5																																														
☐	☐	☐																																														
COVER																																																
Total: M		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>Type:</td><td>SWD</td><td>LWD</td><td>B</td><td>U</td><td>DP</td><td>OV</td><td>IV</td> </tr> <tr> <td>Amount:</td><td>T</td><td>T</td><td>S</td><td>T</td><td>D</td><td>T</td><td>N</td> </tr> <tr> <td>Loc: P/S/O:</td><td>☒</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☒</td><td>☐</td> </tr> </table>								Type:	SWD	LWD	B	U	DP	OV	IV	Amount:	T	T	S	T	D	T	N	Loc: P/S/O:	☒	☐	☐	☒	☐	☒	☐	FSZ: ☐														
Type:	SWD	LWD	B	U	DP	OV	IV																																									
Amount:	T	T	S	T	D	T	N																																									
Loc: P/S/O:	☒	☐	☐	☒	☐	☒	☐																																									
LWD: F		DIST: E		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐		CROWN CLOSURE																																										
RB SHP: V		Texture: ☒ F ☒ G ☒ C ☒ B ☒ R ☐ A		RIP: C		STG: MF																																										
LB SHP: S		Texture: ☒ F ☒ G ☒ C ☒ B ☒ R ☐ A		RIP: C		STG: MF																																										
FEATURES																																																
NID Map	NID	Type	Hgt	Method	Lg	Method	Photo		AirPhoto		UTM (Zone/East/North/Method)																																					
93K.045	24001	F	4.0	GE			R: 23	F: 20	L:	#:	10	365754	6032658	GP3																																		
Comments:		(Marek) - falls at upper part of reach 4																																														
FISH																																																
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																							
400	EF	1	220	415 sec	500	NFC	0																																									

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-24500-57600-0000-0000-000-000-000-000-000

1.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-24500-57600-0000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 1.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): 1.46

Gradient (%): 7.05

US Elev (m): 1090

Order: 3

Magnitude: 9

Confinement: OC

Coupling: PC

Open water: A

BGC Zone: SBS

Islands: NV

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: S

Landuse: NO

SITE

Site #: 402

GIS UTM(Zone/East/North)

Date: 2000/10/05

Agency: C016

Crew: SR/MJ

Site Lg (m): 130

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.92	1.4	2.6	6
Wetted Width (m):	1.48	1	2	6
Wb Depth (m):	0.23	0.2	0.3	3

	Avg %	Min %	Max %	#
Gradient %:	4.00	3	4	4
Pool Depth (m):	0.19	0.12	0.35	6

Stage: L ☐ M ☒ H ☐

Temp (C): 4

pH: 8.5

Cond.: 130

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: C
D95: 25.00
Pattern: SI
Coupling: CO
Morph: CP

Subdom: G
D (cm): 6.00
Islands: N
Confinement: CO

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

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3			
☐	☐	☐	☐	☐	☐	☐			
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

COVER

Total: M

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

CROWN CLOSURE
3 41-70%

RB SHP: U

Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A RIP: C STG: MF

LB SHP: V

Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A RIP: C STG: MF

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
402	EF	1	130	291 sec	500	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-24500-57600-0000-0000-000-000-000-000-000

5.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-24500-57600-0000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 5.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): 1.44

Gradient (%): 1.39

US Elev (m): 1170

Order: 2

Magnitude: 6

Confinement: OC

Coupling: PC

Open water: A

BGC Zone: SBS

Islands: NV

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: S

Landuse: NO

SITE

Site #: 403

GIS UTM(Zone/East/North)

Date: 2000/10/03

Agency: C016

Crew: MJ/MJ

Site Lg (m): 250

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.87	1.5	2.3	6
Wetted Width (m):	1.80	1.5	2	6
Wb Depth (m):	0.47	0.4	0.5	3

	Avg %	Min %	Max %	#
Gradient %:	1.63	0.5	3	4
Pool Depth (m):	0.42	0.300	0.600	6

Stage: L ☐ M ☒ H ☐

Temp (C): 4

pH: 7.6

Cond.: 100

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: G

Subdom: C

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

D95: 400.00

D (cm): 3.00

Pattern: IR

Islands: N

Coupling: PC

Confinement: OC

Morph: RP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3				
☐	☐	☐	☐	☐	☐	☐	☐			
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

COVER

Total: A

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

FSZ: ☐

LWD: N

DIST: NA

INSTREAM VEG: N ☐ A ☒ M ☒ V ☐

CROWN CLOSURE
4 71-90%

RB SHP: U

Texture: ☒ F ☒ G ☐ C ☒ B ☐ R ☐ A RIP: S STG: NA

LB SHP: U

Texture: ☒ F ☒ G ☐ C ☒ B ☐ R ☐ A RIP: S STG: NA

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
403	EF	1	250	228 sec	500	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-24500-72500-0000-0000-000-000-000-000-000

1.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-24500-72500-0000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 1.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): 1.00

Gradient (%): 11.3

US Elev (m): 1150

Order: 3

Magnitude: 4

Confinement: FC

Coupling: PC

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: C

Landuse: NO

SITE

Site #: 405

GIS UTM(Zone/East/North)

Date: 2000/10/05

Agency: C016

Crew: SR/MJ

Site Lg (m): 120

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐

Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.20	1	1.600	6
Wetted Width (m):	0.88	0.7	1.200	6
Wb Depth (m):	0.23	0.2	0.3	3

	Avg %	Min %	Max %	#
Gradient %:	17.25	16	19	4
Pool Depth (m):	0.11	0.08	0.140	6

Stage: L ☐ M ☒ H ☐

Temp (C): 4

pH: 8.1

Cond.: 70

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: C

Subdom: B

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

D95: 50.00

D (cm): 6.00

Pattern: SI

Islands: O

Coupling: CO

Confinement: CO

Morph: CP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐
C1	C2	C3	C4	C5	S1	S2
☐	☐	☐	☐	☐	☐	☐

COVER

Total: T

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

CROWN CLOSURE
3 41-70%

RB SHP: U

Texture: ☒ F ☒ G ☒ C ☒ B ☐ R ☐ A

RIP: C

STG: MF

LB SHP: V

Texture: ☒ F ☒ G ☒ C ☒ B ☐ R ☐ A

RIP: C

STG: MF

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
405	EF	1	120	114 sec	500	NFC	0		

Stream Reach/Site Summary Report

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

Reach #	ILP Map #	ILP #
1.0	93K.045	45730

STREAM REFERENCING

Gazetted Name:

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

REACH

Reach #: 1.0

Length (km): .84

Confinement: CO

Islands: N

Bars: ☒ N

Islands: N

Bars: ☒ N

SITE

Site #: 406

Site Lq (m): 100

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐Dw: Tribs.:

	Avg	Min	Max	#
Channel Width (m):	0.35	0.25	0.5	6
Wetted Width (m):	0.19	0.13	0.35	6
Wb Depth (m):	0.10	0.1	0.1	3

	Avg %	Min %	Max %	#
Gadient %:	19.25	19	22	4
Pool Depth (m):	0.06	0.050	0.08	6

Stage: L ☐ M ☒ H ☐

Temp (C): 4

MORPHOLOGY

Bed Material: Dominant: B

D95: 60.00

Pattern: SI

Coupling: CO

Morph: CP

COVER

Total: N

LWD: F

2 21-40%

RB SHP: U

LB SHP: V

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
406	EF	1	100	147 sec	500	NFC	0		

Stream Reach/Site Summary Report

Reach #	ILP Map #	ILP #
---------	-----------	-------

Watershed Code: 480-993600-24800-00000-0000-0000-000-000-000-000-000-000

1.0

STREAM REFERENCING																																														
Gazetted Name:				Local Name:																																										
Watershed Code: 480-993600-24800-00000-0000-0000-000-000-000-000-000						ILP Map #:		ILP #:																																						
REACH																																														
Reach #: 1.0		UTM(Zone/East/North): ..				Sample Type: B																																								
Length (km): .28		Gradient (%): 4.64		US Elev (m): 736		Order: 3		Magnitude: 4																																						
Confinement: UN		Coupling: DC		Open water: A		BGC Zone: SBS																																								
Islands: N		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: S		Landuse: NO																																								
SITE																																														
Site #: 407		GIS UTM(Zone/East/North)		Date: 2000/10/04		Agency: C016		Crew: SR/MJ																																						
Site Lg (m): 150		Ref. Name:																																												
CHANNEL																																														
No Vis.Ch.: ☒ Intermittent: ☐		<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td></td> <td>Avg</td> <td>Min</td> <td>Max</td> <td>#</td> </tr> <tr> <td>Channel Width (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Wetted Width (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>					Avg	Min	Max	#	Channel Width (m):	0.00	0	0	0	Wetted Width (m):	0.00	0	0	0	Wb Depth (m):	0.00	0	0	0	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td></td> <td>Avg %</td> <td>Min %</td> <td>Max %</td> <td>#</td> </tr> <tr> <td>Gadient %:</td> <td>0.75</td> <td>1</td> <td>1</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>							Avg %	Min %	Max %	#	Gadient %:	0.75	1	1	4	Pool Depth (m):	0.00	0	0	0
	Avg					Min	Max	#																																						
Channel Width (m):	0.00					0	0	0																																						
Wetted Width (m):	0.00	0	0	0																																										
Wb Depth (m):	0.00	0	0	0																																										
	Avg %	Min %	Max %	#																																										
Gadient %:	0.75	1	1	4																																										
Pool Depth (m):	0.00	0	0	0																																										
Dw: ☐ Tribs.: ☐																																														
Stage: L ☐ M ☐ H ☐		Temp (C):		pH:		Cond.:		Turb.: ☐ T ☐ M ☐ L ☐ C																																						
MORPHOLOGY																																														
Bed Material: Dominant:		Subdom:		Bars: ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																										
D95:		D (cm):																																												
Pattern:		Islands:																																												
Coupling:		Confinement:																																												
Morph:																																														
				<table style="width:100%; text-align: center;"> <tr> <td>O1</td><td>B1</td><td>B2</td><td>B3</td><td>D1</td><td>D2</td><td>D3</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>								O1	B1	B2	B3	D1	D2	D3	☐	☐	☐	☐	☐	☐	☐																					
O1	B1	B2	B3	D1	D2	D3																																								
☐	☐	☐	☐	☐	☐	☐																																								
				<table style="width:100%; text-align: center;"> <tr> <td>C1</td><td>C2</td><td>C3</td><td>C4</td><td>C5</td><td>S1</td><td>S2</td><td>S3</td><td>S4</td><td>S5</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>								C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐															
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																																					
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																					
COVER																																														
Total:		<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td>Type:</td> <td>SWD</td> <td>LWD</td> <td>B</td> <td>U</td> <td>DP</td> <td>OV</td> <td>IV</td> </tr> <tr> <td>Amount:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>							Type:	SWD	LWD	B	U	DP	OV	IV	Amount:								Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐	FSZ: ☐													
Type:	SWD	LWD	B	U	DP	OV	IV																																							
Amount:																																														
Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐																																							
LWD:		DIST: INSTREAM VEG: N ☐ A ☐ M ☐ V ☐																																												
RB SHP:		Texture: ☐ F ☐ G ☐ C ☐ B ☐ R ☐ A		RIP: S		STG: NA																																								
LB SHP:		Texture: ☐ F ☐ G ☐ C ☐ B ☐ R ☐ A		RIP: S		STG: NA																																								

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-24800-00000-00000-000-000-000-000-000-000

2.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-24800-00000-00000-000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 2.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): 2.04

Gradient (%): 4.8

US Elev (m): 834

Order: 3

Magnitude: 4

Confinement: FC

Coupling: PC

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N

☐ SIDE

☐ DIAG

☐ MID

☐ SPA

☐ BR

Riparian Veg.: M

Landuse: NO

SITE

Site #: 408

GIS UTM(Zone/East/North)

Date: 2000/10/04

Agency: C016

Crew: SR/MJ

Site Lg (m): 100

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☒

Dw: ☐

Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	0.50	0.300	0.800	6
Wetted Width (m):	0.00	0	0	6
Wb Depth (m):	0.20	0.2	0.2	3

	Avg %	Min %	Max %	#
Gradient %:	3.25	3	3	4
Pool Depth (m):	0.00	0	0	0

Stage: L ☒ M ☐ H ☐

Temp (C):

pH:

Cond.:

Turb.: ☐ T ☐ M ☐ L ☐ C

MORPHOLOGY

Bed Material: Dominant: F

Subdom: NA

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

D95: 0.01

D (cm): 0.01

Pattern: SI

Islands: N

Coupling: PC

Confinement: OC

Morph: RP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3			
☐	☐	☐	☐	☐	☐	☐			
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

COVER

Total: N

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

RB SHP: U

Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

LB SHP: V

Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

CROWN CLOSURE

2 21-40%

Stream Reach/Site Summary Report

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

Reach # 1.0 ILP Map # 93K.045 ILP # 45735

STREAM REFERENCING																																
Gazetted Name:					Local Name:																											
Watershed Code: 000-000000-00000-00000-0000-000-000-000-000-000					ILP Map #: 93K.045		ILP #: 45735																									
REACH																																
Reach #:	1.0	UTM(Zone/East/North): ..			Sample Type: B																											
Length (km):	.54	Gradient (%):	3.15	US Elev (m):	741	Order:	2	Magnitude:	3																							
Confinement:	UN	Coupling:	DC	Open water:	A	BGC Zone:	SBS																									
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	C	Landuse:	NO																									
SITE																																
Site #:	409	GIS UTM(Zone/East/North)		Date:	2000/10/04	Agency:	C016	Crew:	MJ/MG																							
Site Lg (m):	200			Ref. Name:																												
CHANNEL																																
No Vis.Ch.:	☒	Intermittent:	☐																													
Dw:	☐	Tribs.:	☐																													
				Avg	Min	Max	#																									
Channel Width (m):				0.00	0	0	0																									
Wetted Width (m):				0.00	0	0	0																									
Wb Depth (m):				0.00	0	0	0																									
				Avg %	Min %	Max %	#																									
Gradient %:				0.00	0	0	0																									
Pool Depth (m):				0.00	0	0	0																									
Stage:	L ☐ M ☐ H ☐	Temp (C):	pH:		Cond.:		Turb.: ☐ T ☐ M ☐ L ☐ C																									
MORPHOLOGY																																
Bed Material:	Dominant:	Subdom:	Bars: ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																													
	D95:	D (cm):	O1 B1 B2 B3 D1 D2 D3																													
	Pattern:	Islands:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐													
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																							
	Coupling:	Confinement:	DISTURBANCE INDICATORS																													
	Morph:		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐													
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																							
			C1 C2 C3 C4 C5 S1 S2 S3 S4 S5																													
			<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐													
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																							
COVER																																
Total:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Type:</th> <th>SWD</th> <th>LWD</th> <th>B</th> <th>U</th> <th>DP</th> <th>OV</th> <th>IV</th> </tr> <tr> <td>Amount:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>							Type:	SWD	LWD	B	U	DP	OV	IV	Amount:								Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐	FSZ: ☐
Type:	SWD	LWD	B	U	DP	OV	IV																									
Amount:																																
Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐																									
LWD:	DIST: INSTREAM VEG: N ☐ A ☐ M ☐ V ☐							CROWN CLOSURE																								
RB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																											
LB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																											

Stream Reach/Site Summary Report

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
 Reach # 1.0 ILP Map # 93K.045 ILP # 45738

STREAM REFERENCING

Gazetted Name: Local Name:
 Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000 ILP Map #: 93K.045 ILP #: 45738

REACH

Reach #: 1.0 UTM(Zone/East/North): .. Sample Type: B
 Length (km): .48 Gradient (%): 2.71 US Elev (m): 737 Order: 2 Magnitude: 3
 Confinement: UN Coupling: DC Open water: A BGC Zone: SBS
 Islands: N Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR Riparian Veg.: W Landuse: NO

SITE

Site #: 410 GIS UTM(Zone/East/North) Date: 2000/10/04 Agency: C016 Crew: MJ/MJ
 Site Lg (m): 200 Ref. Name:

CHANNEL

No Vis.Ch.: ☒ Intermittent: ☐
 Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	0.00	0	0	0
Wetted Width (m):	0.00	0	0	0
Wb Depth (m):	0.00	0	0	0

	Avg %	Min %	Max %	#
Gadient %:	0.00	0	0	0
Pool Depth (m):	0.00	0	0	0

 Stage: L ☐ M ☐ H ☐ Temp (C): pH: Cond.: Turb.: ☐ T ☐ M ☐ L ☐ C

MORPHOLOGY

Bed Material: Dominant: Subdom: Bars: ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR
 D95: D (cm):
 Pattern: Islands:
 Coupling: Confinement:
 Morph: DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

COVER

Total:

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

 FSZ: ☐
 LWD: DIST: INSTREAM VEG: N ☐ A ☐ M ☐ V ☐
 RB SHP: Texture: ☐ F ☐ G ☐ C ☐ B ☐ R ☐ A RIP: STG:
 LB SHP: Texture: ☐ F ☐ G ☐ C ☐ B ☐ R ☐ A RIP: STG:

CROWN CLOSURE

Stream Reach/Site Summary Report

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

Reach # 2.0 ILP Map # 93K.045 ILP # 45738

STREAM REFERENCING

Gazetted Name: Local Name: Watershed Code: 000-000000-00000-00000-0000-000-000-000-000-000-000 ILP Map #: 93K.045 ILP #: 45738

REACH

Reach #: 2.0 UTM(Zone/East/North): .. Sample Type: B
Length (km): .36 Gradient (%): 9.17 US Elev (m): 770 Order: 2 Magnitude: 3
Confinement: FC Coupling: PC Open water: A BGC Zone: SBS
Islands: N Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR Riparian Veg.: C Landuse: NO

SITE

Site #: 411 GIS UTM(Zone/East/North) Date: 2000/10/04 Agency: C016 Crew: MJ/MG
Site Lg (m): 200 Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☒
Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	0.83	0.600	1.200	6
Wetted Width (m):	0.00	0	0	6
Wb Depth (m):	0.17	0.1	0.2	3

	Avg %	Min %	Max %	#
Gadient %:	4.50	4	5	2
Pool Depth (m):	0.00	0	0	0

Stage: L ☒ M ☐ H ☐ Temp (C): pH: Cond.: Turb.: ☐ T ☐ M ☐ L ☐ C

MORPHOLOGY

Bed Material: Dominant: F Subdom: G Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR
D95: 2.00 D (cm): 2.00
Pattern: IR Islands: N
Coupling: CO Confinement: FC
Morph: RP
DISTURBANCE INDICATORS
O1 B1 B2 B3 D1 D2 D3
C1 C2 C3 C4 C5 S1 S2 S3 S4 S5

COVER

Total: N

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

FSZ: ☐

LWD: N DIST: NA INSTREAM VEG: N ☒ A ☐ M ☐ V ☐
RB SHP: V Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A RIP: S STG: NA
LB SHP: V Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A RIP: S STG: NA

CROWN CLOSURE
3 41-70%

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-29300-00000-00000-0000-000-000-000-000-000

1.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-29300-00000-00000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 1.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): .80

Gradient (%): 4.5

US Elev (m): 761

Order: 2

Magnitude: 9

Confinement: UN

Coupling: DC

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: M

Landuse: NO

SITE

Site #: 412

GIS UTM(Zone/East/North)

Date: 2000/10/04

Agency: C016

Crew: MJ/MG

Site Lg (m): 150

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☒

Dw: ☐

Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	3.02	2.3	3.6	6
Wetted Width (m):	0.00	0	0	6
Wb Depth (m):	0.17	0.1	0.2	3

	Avg %	Min %	Max %	#
Gradient %:	2.63	2	3	4
Pool Depth (m):	0.00	0	0	0

Stage: L ☒ M ☐ H ☐

Temp (C):

pH:

Cond.:

Turb.: ☐ T ☐ M ☐ L ☐ C

MORPHOLOGY

Bed Material: Dominant: G

Subdom: C

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

D95: 10.00

D (cm): 5.00

Pattern: SI

Islands: N

Coupling: DC

Confinement: NA

Morph: RP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☒	☐	☐	☐	☐	☐
C1	C2	C3	C4	C5	S1	S2
☒	☐	☐	☒	☐	☐	☐

COVER

Total: N

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

FSZ: ☐

LWD: N

DIST: NA

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

RB SHP: S

Texture: ☐ F ☒ G ☒ C ☐ B ☐ R ☐ A

RIP: M

STG: MF

LB SHP: S

Texture: ☐ F ☒ G ☒ C ☐ B ☐ R ☐ A

RIP: M

STG: MF

CROWN CLOSURE

2 21-40%

Stream Reach/Site Summary Report

Reach #	ILP Map #	ILP #
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Watershed Code: 480-993600-29300-00000-0000-0000-000-000-000-000

2.1

STREAM REFERENCING																																																	
Gazetted Name:					Local Name:																																												
Watershed Code: 480-993600-29300-00000-0000-0000-000-000-000-000-000										ILP Map #:			ILP #:																																				
REACH																																																	
Reach #: 2.1		UTM (Zone/East/North): ..				Sample Type: B																																											
Length (km): .10		Gradient (%): 20		US Elev (m): 850		Order: 2		Magnitude: 8																																									
Confinement: EN		Coupling: CO		Open water: A		BGC Zone: SBS																																											
Islands: N		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: C		Landuse: NO																																											
SITE																																																	
Site #: 413		GIS UTM (Zone/East/North)			Date: 2000/10/04			Agency: C016			Crew: MJ/MG																																						
Site Lg (m): 200					Ref. Name:																																												
CHANNEL																																																	
No Vis.Ch.: ☐ Intermittent: ☐								<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Channel Width (m):</td> <td>2.73</td> <td>1.8</td> <td>3.6</td> <td>6</td> </tr> <tr> <td>Wetted Width (m):</td> <td>1.93</td> <td>1.3</td> <td>2.3</td> <td>6</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.63</td> <td>0.6</td> <td>0.7</td> <td>3</td> </tr> </tbody> </table>			Avg	Min	Max	#	Channel Width (m):	2.73	1.8	3.6	6	Wetted Width (m):	1.93	1.3	2.3	6	Wb Depth (m):	0.63	0.6	0.7	3	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Gadient %:</td> <td>10.25</td> <td>7</td> <td>14</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.48</td> <td>0.200</td> <td>0.800</td> <td>6</td> </tr> </tbody> </table>			Avg %	Min %	Max %	#	Gadient %:	10.25	7	14	4	Pool Depth (m):	0.48	0.200	0.800	6			
	Avg	Min	Max	#																																													
Channel Width (m):	2.73	1.8	3.6	6																																													
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Gadient %:	10.25	7	14	4																																													
Pool Depth (m):	0.48	0.200	0.800	6																																													
Dw: ☐		Tribes.: ☐																																															
Stage: L ☐ M ☒ H ☐		Temp (C): 4		pH: 8.1		Cond.: 40		Turb.: ☐ T ☐ M ☐ L ☒ C																																									
MORPHOLOGY																																																	
Bed Material: Dominant: B		Subdom: C		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																													
D95: 400.00		D (cm): 25.00																																															
Pattern: SI		Islands: N																																															
Coupling: CO		Confinement: EN																																															
Morph: CP																																																	
				DISTURBANCE INDICATORS																																													
COVER																																																	
Total: A		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Type:</th> <th>SWD</th> <th>LWD</th> <th>B</th> <th>U</th> <th>DP</th> <th>OV</th> <th>IV</th> </tr> </thead> <tbody> <tr> <td>Amount:</td> <td>N</td> <td>T</td> <td>S</td> <td>N</td> <td>D</td> <td>T</td> <td>N</td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☐</td> <td>☒</td> <td>☒</td> <td>☐</td> <td>☒</td> <td>☒</td> <td>☐</td> </tr> </tbody> </table>							Type:	SWD	LWD	B	U	DP	OV	IV	Amount:	N	T	S	N	D	T	N	Loc: P/S/O:	☐	☒	☒	☐	☒	☒	☐	FSZ: ☐																
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Amount:	N	T	S	N	D	T	N																																										
Loc: P/S/O:	☐	☒	☒	☐	☒	☒	☐																																										
LWD: F		DIST: C		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐					CROWN CLOSURE																																								
RB SHP: V		Texture: ☐ F ☐ G ☒ C ☒ B ☒ R ☐ A		RIP: S		STG: NA																																											
LB SHP: V		Texture: ☒ F ☐ G ☐ C ☒ B ☒ R ☐ A		RIP: S		STG: NA																																											
FEATURES																																																	
NID Map		NID		Type		Hgt		Method		Lg		Method		Photo		AirPhoto		UTM (Zone/East/North/Method)																															
93K.045		24131		F		6.0		GE						R: 28 F: 12 L:		#:		GP3																															
Comments:		location as mapped																																															
FISH																																																	
Site Number		Capture Method		Number of Events		Total Length (m)		Total Time		Voltage		Species		Total Fish		Minimum Length (mm)		Maximum Length (mm)																															
413		EF		1		100		608 sec		600		NFC		0																																			

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-29300-00000-00000-00000-000-000-000-000-000

3.0

STREAM REFERENCING																																												
Gazetted Name:					Local Name:																																							
Watershed Code: 480-993600-29300-00000-00000-00000-000-000-000-000-000					ILP Map #:		ILP #:																																					
REACH																																												
Reach #: 3.0		UTM(Zone/East/North): ..			Sample Type: B																																							
Length (km): .16		Gradient (%): 18.75		US Elev (m): 880		Order: 2		Magnitude: 8																																				
Confinement: EN		Coupling: CO		Open water: A		BGC Zone: SBS		Landuse: NO																																				
Islands: N		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: C																																								
SITE																																												
Site #: 414		GIS UTM(Zone/East/North)		Date: 2000/10/04		Agency: C016		Crew: MJ/MG																																				
Site Lg (m): 300				Ref. Name:																																								
CHANNEL																																												
No Vis.Ch.: ☐ Intermittent: ☐		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Channel Width (m):</td> <td>2.02</td> <td>0.400</td> <td>3.3</td> <td>6</td> </tr> <tr> <td>Wetted Width (m):</td> <td>1.57</td> <td>0.400</td> <td>2.400</td> <td>6</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.57</td> <td>0.5</td> <td>0.7</td> <td>3</td> </tr> </tbody> </table>					Avg	Min	Max	#	Channel Width (m):	2.02	0.400	3.3	6	Wetted Width (m):	1.57	0.400	2.400	6	Wb Depth (m):	0.57	0.5	0.7	3	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Gradient %:</td> <td>16.25</td> <td>3</td> <td>17</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.95</td> <td>0.400</td> <td>2</td> <td>6</td> </tr> </tbody> </table>					Avg %	Min %	Max %	#	Gradient %:	16.25	3	17	4	Pool Depth (m):	0.95	0.400	2	6
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Dw: ☐ Tribs.: ☐		Stage: L ☒ M ☐ H ☐		Temp (C): 4		pH: 8.1		Cond.: 40																																				
						Turb.: ☐ T ☐ M ☐ L ☒ C																																						
MORPHOLOGY																																												
Bed Material: Dominant: R		Subdom: B		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																								
D95: 400.00		D (cm): 30.00		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>O1</th> <th>B1</th> <th>B2</th> <th>B3</th> <th>D1</th> <th>D2</th> <th>D3</th> </tr> </thead> <tbody> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☒</td> <td>☐</td> </tr> </tbody> </table>						O1	B1	B2	B3	D1	D2	D3	☐	☐	☐	☐	☐	☒	☐																					
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☐	☐	☐	☐	☐	☒	☐																																						
Pattern: SI		Islands: N		DISTURBANCE INDICATORS																																								
Coupling: CO		Confinement: EN		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>C1</th> <th>C2</th> <th>C3</th> <th>C4</th> <th>C5</th> <th>S1</th> <th>S2</th> <th>S3</th> <th>S4</th> <th>S5</th> </tr> </thead> <tbody> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </tbody> </table>						C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐															
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																																			
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																			
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COVER																																												
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Type:	SWD	LWD	B	U	DP	OV	IV																																					
Amount:	N	T	S	N	D	N	N																																					
Loc: P/S/O:	☐	☒	☒	☐	☒	☐	☐																																					
LWD: F		DIST: C		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐		CROWN CLOSURE																																						
RB SHP: V		Texture: ☐ F ☐ G ☐ C ☐ B ☒ R ☐ A		RIP: G		STG: NA																																						
LB SHP: V		Texture: ☐ F ☐ G ☐ C ☐ B ☒ R ☐ A		RIP: G		STG: NA																																						
FISH																																												
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																			
414	EF	1	300	526 sec	600	NFC	0																																					

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-29300-00000-00000-00000-00000-00000-00000-00000-00000

4.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-29300-00000-00000-00000-00000-00000-00000-00000-00000

ILP Map #:

ILP #:

REACH

Reach #: 4.0

UTM(Zone/East/North): ..

Sample Type: R

Length (km): 3.92

Gradient (%): 10.61

US Elev (m): 1296

Order: 2

Magnitude: 8

Confinement: CO

Coupling: CO

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: C

Landuse: NO

SITE

Site #: 415

GIS UTM(Zone/East/North)

Date: 2000/10/04

Agency: C016

Crew: MJ/MG

Site Lg (m): 150

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	2.90	2.3	3.900	6
Wetted Width (m):	2.30	1.600	2.900	6
Wb Depth (m):	0.47	0.4	0.5	3

	Avg %	Min %	Max %	#
Gradient %:	5.75	5	6	4
Pool Depth (m):	0.42	0.300	0.5	6

Stage: L ☐ M ☒ H ☐

Temp (C): 4

pH: 8.1

Cond.: 40

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: C

Subdom: B

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

D95: 50.00

D (cm): 10.00

Pattern: SI

Islands: N

Coupling: CO

Confinement: CO

Morph: SP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3				
☐	☐	☐	☐	☐	☐	☐				
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

COVER

Total: A

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☐ A ☐ M ☒ V ☐

CROWN CLOSURE
2 21-40%

RB SHP: V

Texture: ☒ F ☐ G ☒ C ☒ B ☐ R ☐ A

RIP: C

STG: MF

LB SHP: V

Texture: ☒ F ☐ G ☒ C ☒ B ☐ R ☐ A

RIP: C

STG: MF

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
415	EF	1	150	419 sec	700	NFC	0		

Stream Reach/Site Summary Report

Reach #	ILP Map #	ILP #
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Watershed Code: 480-993600-32300-00000-0000-0000-000-000-000-000-000-000

1.0

STREAM REFERENCING																																													
Gazetted Name:						Local Name:																																							
Watershed Code: 480-993600-32300-00000-0000-0000-000-000-000-000-000						ILP Map #:		ILP #:																																					
REACH																																													
Reach #:	1.0		UTM(Zone/East/North): ..			Sample Type:			B																																				
Length (km):	.72		Gradient (%): 5		US Elev (m): 761		Order: 2		Magnitude: 2																																				
Confinement:	UN		Coupling: DC		Open water: A		BGC Zone: SBS																																						
Islands:	N		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: W		Landuse:		NO																																				
SITE																																													
Site #: 416		GIS UTM(Zone/East/North)			Date: 2000/10/03		Agency: C016		Crew: SR/MJ																																				
Site Lg (m): 150		Ref. Name:																																											
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Dw: ☐		Tribs.: ☐																																											
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Avg	Min	Max	#																																										
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Pool Depth (m): 0.24	0.16	0.310	4																																										
Stage: L ☐ M ☒ H ☐		Temp (C): 4		pH: 8.4		Cond.: 200		Turb.: ☐ T ☐ M ☐ L ☒ C																																					
MORPHOLOGY																																													
Bed Material: Dominant: G		Subdom: NA		Bars: ☐ N ☒ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																									
D95: 5.00		D (cm): 2.00																																											
Pattern: IR		Islands: O																																											
Coupling: DC		Confinement: OC																																											
Morph: RP																																													
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O1	B1	B2	B3	D1	D2	D3																																							
☐	☐	☐	☐	☐	☐	☐																																							
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Type:	SWD	LWD	B	U	DP	OV	IV																																						
Amount:	T	N	N	T	D	T	T																																						
Loc: P/S/O:	☒ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☒ ☐ ☐	☒ ☐ ☐	☒ ☐ ☐	☒ ☐ ☐																																						
LWD: N		DIST: NA		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐						CROWN CLOSURE																																			
RB SHP: V		Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A		RIP: S		STG: NA																																							
LB SHP: V		Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A		RIP: S		STG: NA																																							
FISH																																													
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																				
416	EF	1	100	191 sec	500	NFC	0																																						

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-32300-00000-0000-0000-000-000-000-000

3.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-32300-00000-0000-0000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 3.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): 1.16

Gradient (%): 20.26

US Elev (m): 1108

Order: 2

Magnitude: 2

Confinement: CO

Coupling: CO

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: M

Landuse: NO

SITE

Site #: 417

GIS UTM(Zone/East/North)

Date: 2000/10/04

Agency: C016

Crew: SR/MJ

Site Lg (m): 100

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐

Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	2.23	1.9	2.6	6
Wetted Width (m):	1.93	1.700	2.3	6
Wb Depth (m):	0.30	0.3	0.3	3

	Avg %	Min %	Max %	#
Gradient %:	12.00	12	13	4
Pool Depth (m):	0.26	0.19	0.310	6

Stage: L ☐ M ☒ H ☐

Temp (C): 4

pH: 8.4

Cond.: 190

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: C

Subdom: B

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

D95: 60.00

D (cm): 8.00

Pattern: SI

Islands: O

Coupling: CO

Confinement: CO

Morph: CP

DISTURBANCE INDICATORS

O1 B1 B2 B3 D1 D2 D3

☐ ☐ ☐ ☐ ☐ ☐ ☐

C1 C2 C3 C4 C5 S1 S2 S3 S4 S5

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

COVER

Total: A

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

FSZ: ☐

LWD: F

DIST: C

INSTREAM VEG: N ☐ A ☐ M ☒ V ☐

CROWN CLOSURE

3 41-70%

RB SHP: S

Texture: ☒ F ☐ G ☒ C ☒ B ☐ R ☐ A

RIP: C

STG: MF

LB SHP: V

Texture: ☒ F ☐ G ☒ C ☒ B ☐ R ☐ A

RIP: C

STG: MF

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Zone/East/North/Method)
93K.046	24171	F	3.0	GE			R: F: L: #:		10 371124 6034548 GP3

Comments: marked from air - d/s from site - more of a cscade than falls, but still not passable to fish

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
417	EF	1	100	238 sec	600	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-32300-00000-0000-0000-000-000-000-000

9.0

STREAM REFERENCING										
Gazetted Name:					Local Name:					
Watershed Code: 480-993600-32300-00000-0000-0000-000-000-000-000					ILP Map #:		ILP #:			
REACH										
Reach #:	9.0	UTM(Zone/East/North): ..			Sample Type: B					
Length (km):	.24	Gradient (%):	3.33	US Elev (m):	1518	Order:	1	Magnitude:	1	
Confinement:	OC	Coupling:	PC	Open water:	A	BGC Zone:	SBS			
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	S	Landuse:	NO			
SITE										
Site #:	418	GIS UTM(Zone/East/North)			Date:	2000/10/04	Agency:	C016	Crew:	SR/MJ
Site Lg (m):	100				Ref. Name:					
CHANNEL										
No Vis.Ch.:	☐	Intermittent:	☐							
Dw:	☐	Tribs.:	☐							
				Avg	Min	Max	#			
Channel Width (m):				0.92	0.7	1.100	6			
Wetted Width (m):				0.78	0.600	1	6			
Wb Depth (m):				0.10	0.1	0.1	3			
							Avg %	Min %	Max %	
							2.25	1	3	
							0.09	0.06	0.140	
Stage:	L ☐ M ☒ H ☐	Temp (C):	4	pH:	8.6	Cond.:	110	Turb.:	☐ T ☐ M ☐ L ☒ C	
MORPHOLOGY										
Bed Material:	Dominant: F	Subdom:	C	Bars:			☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR			
	D95: 10.00		D (cm): 0.10							
	Pattern: SI		Islands: O				O1	B1	B2	
	Coupling: DC		Confinement: OC				B3	D1	D2	
	Morph: RP							D3		
				DISTURBANCE INDICATORS						
							C1	C2	C3	
							C4	C5	S1	
							S2	S3	S4	
							S5			
COVER										
Total:	T	Type:	SWD	LWD	B	U	DP	OV	IV	
		Amount:	T	T	T	T	D	T	T	
		Loc: P/S/O:	☒	☐	☐	☐	☒	☐	☐	
LWD:	N	DIST:	NA	INSTREAM VEG:	N	A	M	V	☒	
RB SHP:	V	Texture:	☒ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:	C	STG:	NA			
LB SHP:	U	Texture:	☒ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:	G	STG:	NA			
							FSZ: ☐			
							CROWN CLOSURE			
							1 1-20%			
FISH										
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)	
418	EF	1	100	194 sec	600	NFC	0			

Stream Reach/Site Summary Report

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

Reach #	ILP Map #	ILP #
2.0	93K.045	45748

STREAM REFERENCING

Gazetted Name:

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

REACH

Reach #: 2.0

Length (km): 1.72

Confinement: FC

Islands: N

SITE

Site #: 419

Site Lq (m): 100

CHANNEL

No Vis.Ch.: ☒ Intermittent: ☐Dw:

	Avg	Min	Max	#
Channel Width (m):	0.00	0	0	0
Wetted Width (m):	0.00	0	0	0
Wb Depth (m):	0.00	0	0	0

	Avg %	Min %	Max %	#
Gadient %:	0.00	0	0	0
Pool Depth (m):	0.00	0	0	0

Stage: L ☐ M ☐ H ☐

MORPHOLOGY

Bed Material: Dominant:

D95:

Pattern:

Coupling:

Morph:

COVER

Total:

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

CROWN CLOSURE

LWD:

RB SHP:

LB SHP:

Stream Reach/Site Summary Report

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

Reach #	ILP Map #	ILP #
1.0	93K.045	45750

STREAM REFERENCING

Gazetted Name:

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

REACH

Reach #: 1.0

Length (km): .60

Confinement: CO

Landuse: NO

SITE

Site #: 420

Site Lg (m): 200

CHANNEL

No Vis.Ch.: ☒ Intermittent: ☐Trips.: ☐

	Avg	Min	Max	#
Channel Width (m):	0.00	0	0	0
Wetted Width (m):	0.00	0	0	0
Wb Depth (m):	0.00	0	0	0

	Avg %	Min %	Max %	#
Gadient %:	0.00	0	0	0
Pool Depth (m):	0.00	0	0	0

Stage: L ☐ M ☐ H ☐

MORPHOLOGY

Bed Material: Dominant:

D95:

Pattern:

Coupling:

Morph:

COVER

Total:

LWD:

RB SHP:

LB SHP:

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-36700-00000-0000-0000-000-000-000-000-000

1.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-36700-00000-0000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 1.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): .80

Gradient (%): 4.63

US Elev (m): 780

Order: 2

Magnitude: 4

Confinement: UN

Coupling: DC

Open water: A

BGC Zone: SBS

Islands: NV

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: M

Landuse: NO

SITE

Site #: 421

GIS UTM(Zone/East/North)

Date: 2000/10/03

Agency: C016

Crew: MJ/MG

Site Lg (m): 150

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.57	1.4	1.8	6
Wetted Width (m):	1.40	1.200	1.600	6
Wb Depth (m):	0.20	0.2	0.2	3

	Avg %	Min %	Max %	#
Gradient %:	4.00	3	5	4
Pool Depth (m):	0.20	0.100	0.300	6

Stage: L ☐ M ☒ H ☐

Temp (C): 5

pH: 8.0

Cond.: 60

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: G

Subdom: C

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

D95: 40.00

D (cm): 6.00

Pattern: IR

Islands: O

Coupling: DC

Confinement: UN

Morph: SP

DISTURBANCE INDICATORS

O1 B1 B2 B3 D1 D2 D3

☐ ☐ ☐ ☐ ☐ ☐ ☐

C1 C2 C3 C4 C5 S1 S2 S3 S4 S5

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

COVER

Total: A

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

CROWN CLOSURE

2 21-40%

RB SHP: S

Texture: ☐ F ☒ G ☒ C ☒ B ☐ R ☐ A

RIP: M

STG: MF

LB SHP: S

Texture: ☐ F ☒ G ☒ C ☒ B ☐ R ☐ A

RIP: M

STG: MF

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
421	EF	1	150	107 sec	600	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-36700-00000-00000-00000-00000-00000-00000

2.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-36700-00000-00000-00000-00000-00000-00000

ILP Map #:

ILP #:

REACH

Reach #: 2.0

UTM(Zone/East/North): ..

Sample Type: R

Length (km): 1.28

Gradient (%): 16.17

US Elev (m): 987

Order: 2

Magnitude: 4

Confinement: CO

Coupling: CO

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: C

Landuse: NO

SITE

Site #: 422

GIS UTM(Zone/East/North)

Date: 2000/10/03

Agency: C016

Crew: MJ/MG

Site Lg (m): 200

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.98	1.700	2.200	6
Wetted Width (m):	1.50	1.200	1.8	6
Wb Depth (m):	0.27	0.2	0.3	3

	Avg %	Min %	Max %	#
Gradient %:	6.25	7	7	4
Pool Depth (m):	0.40	0.300	0.5	5

Stage: L ☐ M ☒ H ☐

Temp (C): 5

pH: 8.0

Cond.: 60

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: C

Subdom: G

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

D95: 30.00

D (cm): 10.00

Pattern: IR

Islands: N

Coupling: CO

Confinement: FC

Morph: CP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3				
☐	☐	☐	☐	☐	☐	☐				
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

COVER

Total: A

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

FSZ: ☐

LWD: F

DIST: C

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

CROWN CLOSURE

2 21-40%

RB SHP: V

Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A

RIP: C

STG: MF

LB SHP: S

Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A

RIP: C

STG: MF

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
422	EF	1	250	175 sec	600	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-37800-00000-0000-000-000-000-000-000

2.0

STREAM REFERENCING																																										
Gazetted Name:					Local Name:																																					
Watershed Code: 480-993600-37800-00000-0000-000-000-000-000-000					ILP Map #:		ILP #:																																			
REACH																																										
Reach #: 2.0		UTM(Zone/East/North): ..			Sample Type: B																																					
Length (km): .38		Gradient (%): 12.37		US Elev (m): 307		Order: 2		Magnitude: 3																																		
Confinement: FC		Coupling: PC		Open water: A		BGC Zone: SBS		Landuse: NO																																		
Islands: N		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: C																																						
SITE																																										
Site #: 423		GIS UTM(Zone/East/North)		Date: 2000/10/03		Agency: C016		Crew: MJ/MG																																		
Site Lg (m): 200				Ref. Name:																																						
CHANNEL																																										
No Vis.Ch.: ☒ Intermittent: ☐				<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> <tr> <td>Channel Width (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Wetted Width (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>		Avg	Min	Max	#	Channel Width (m):	0.00	0	0	0	Wetted Width (m):	0.00	0	0	0	Wb Depth (m):	0.00	0	0	0	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> <tr> <td>Gradient %:</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>				Avg %	Min %	Max %	#	Gradient %:	0.00	0	0	0	Pool Depth (m):	0.00	0	0	0
Avg	Min	Max	#																																							
Channel Width (m):	0.00	0	0	0																																						
Wetted Width (m):	0.00	0	0	0																																						
Wb Depth (m):	0.00	0	0	0																																						
Avg %	Min %	Max %	#																																							
Gradient %:	0.00	0	0	0																																						
Pool Depth (m):	0.00	0	0	0																																						
Dw: ☐ Tribs.: ☐																																										
Stage: L ☐ M ☐ H ☐		Temp (C):		pH:		Cond.:		Turb.: ☐ T ☐ M ☐ L ☐ C																																		
MORPHOLOGY																																										
Bed Material: Dominant:		Subdom:		Bars: ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																						
D95:		D (cm):		O1 B1 B2 B3 D1 D2 D3																																						
Pattern:		Islands:		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																							
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																	
Coupling:		Confinement:		DISTURBANCE INDICATORS																																						
Morph:				C1 C2 C3 C4 C5 S1 S2 S3 S4 S5																																						
				<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																							
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																	
COVER																																										
Total:		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <th>Type:</th> <th>SWD</th> <th>LWD</th> <th>B</th> <th>U</th> <th>DP</th> <th>OV</th> <th>IV</th> </tr> <tr> <td>Amount:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						Type:	SWD	LWD	B	U	DP	OV	IV	Amount:								Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐	FSZ: ☐										
Type:	SWD	LWD	B	U	DP	OV	IV																																			
Amount:																																										
Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐																																			
LWD:		DIST:		INSTREAM VEG: N ☐ A ☐ M ☐ V ☐				CROWN CLOSURE																																		
RB SHP:		Texture: ☐ F ☐ G ☐ C ☐ B ☐ R ☐ A		RIP:		STG:																																				
LB SHP:		Texture: ☐ F ☐ G ☐ C ☐ B ☐ R ☐ A		RIP:		STG:																																				

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-37900-00000-0000-0000-000-000-000-000

1.0

STREAM REFERENCING																																	
Gazetted Name:					Local Name:																												
Watershed Code: 480-993600-37900-00000-0000-000-000-000-000-000					ILP Map #:		ILP #:																										
REACH																																	
Reach #:	1.0	UTM(Zone/East/North): ..			Sample Type: B																												
Length (km):	.70	Gradient (%):	3.86	US Elev (m):	775	Order:	1	Magnitude:	1																								
Confinement:	UN	Coupling:	DC	Open water:	A	BGC Zone:	SBS																										
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	M	Landuse:	NO																										
SITE																																	
Site #: 424	GIS UTM(Zone/East/North)			Date: 2000/10/04	Agency: C016		Crew: SR/MJ																										
Site Lg (m): 150				Ref. Name:																													
CHANNEL																																	
No Vis.Ch.: ☒	Intermittent:	☐																															
Dw:	☐	Tribs.:	☐																														
				Avg	Min	Max	#																										
Channel Width (m):				0.00	0	0	0																										
Wetted Width (m):				0.00	0	0	0																										
Wb Depth (m):				0.00	0	0	0																										
				Avg %	Min %	Max %	#																										
Gradient %:				0.00	0	0	0																										
Pool Depth (m):				0.00	0	0	0																										
Stage: L ☐ M ☐ H ☐		Temp (C):		pH:		Cond.:		Turb.: ☐ T ☐ M ☐ L ☐ C																									
MORPHOLOGY																																	
Bed Material: Dominant:		Subdom:		Bars: ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																													
D95:		D (cm):		O1 B1 B2 B3 D1 D2 D3																													
Pattern:		Islands:		<table border="1" style="width:100%; text-align: center;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐														
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																								
Coupling:		Confinement:		DISTURBANCE INDICATORS																													
Morph:				C1 C2 C3 C4 C5 S1 S2 S3 S4 S5																													
				<table border="1" style="width:100%; text-align: center;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐														
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																								
COVER																																	
Total:	<table border="1" style="width:100%; text-align: center;"> <tr> <td>Type:</td> <td>SWD</td> <td>LWD</td> <td>B</td> <td>U</td> <td>DP</td> <td>OV</td> <td>IV</td> </tr> <tr> <td>Amount:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>							Type:	SWD	LWD	B	U	DP	OV	IV	Amount:								Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐	FSZ: ☐	
Type:	SWD	LWD	B	U	DP	OV	IV																										
Amount:																																	
Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐																										
LWD:	DIST: INSTREAM VEG: N ☐ A ☐ M ☐ V ☐																																
RB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP: W		STG: NA																												
LB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP: W		STG: NA																												
CROWN CLOSURE																																	

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-39600-00000-00000-00000-00000-00000-000

1.0

STREAM REFERENCING																																												
Gazetted Name:					Local Name:																																							
Watershed Code: 480-993600-39600-00000-00000-00000-00000-00000-000					ILP Map #:		ILP #:																																					
REACH																																												
Reach #: 1.0		UTM(Zone/East/North): ..			Sample Type: B																																							
Length (km): .60		Gradient (%): 5.17		US Elev (m): 790		Order: 3		Magnitude: 15																																				
Confinement: UN		Coupling: DC		Open water: A		BGC Zone: SBS																																						
Islands: O		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: M		Landuse: NO																																						
SITE																																												
Site #: 425		GIS UTM(Zone/East/North)		Date: 2000/10/03		Agency: C016		Crew: MJ/MG																																				
Site Lg (m): 200				Ref. Name:																																								
CHANNEL																																												
No Vis.Ch.: ☐ Intermittent: ☐																																												
Dw: ☐ Tribs.: ☐																																												
		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Channel Width (m):</td> <td>2.58</td> <td>2.3</td> <td>2.900</td> <td>6</td> </tr> <tr> <td>Wetted Width (m):</td> <td>1.45</td> <td>1.200</td> <td>1.700</td> <td>6</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.47</td> <td>0.4</td> <td>0.5</td> <td>3</td> </tr> </tbody> </table>					Avg	Min	Max	#	Channel Width (m):	2.58	2.3	2.900	6	Wetted Width (m):	1.45	1.200	1.700	6	Wb Depth (m):	0.47	0.4	0.5	3	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Gadient %:</td> <td>2.50</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.27</td> <td>0.200</td> <td>0.400</td> <td>3</td> </tr> </tbody> </table>					Avg %	Min %	Max %	#	Gadient %:	2.50	2	3	4	Pool Depth (m):	0.27	0.200	0.400	3
	Avg	Min	Max	#																																								
Channel Width (m):	2.58	2.3	2.900	6																																								
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Pool Depth (m):	0.27	0.200	0.400	3																																								
Stage: L ☐ M ☒ H ☐		Temp (C): 3		pH: 8.3		Cond.: 50		Turb.: ☐ T ☐ M ☐ L ☒ C																																				
MORPHOLOGY																																												
Bed Material: Dominant: C		Subdom: G		Bars: ☐ N ☒ SIDE ☒ DIAG ☐ MID ☐ SPAN ☐ BR																																								
D95: 12.00		D (cm): 7.00																																										
Pattern: IR		Islands: O																																										
Coupling: DC		Confinement: UN		DISTURBANCE INDICATORS																																								
Morph: RP				<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>O1</th> <th>B1</th> <th>B2</th> <th>B3</th> <th>D1</th> <th>D2</th> <th>D3</th> </tr> </thead> <tbody> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☒</td> <td>☐</td> </tr> </tbody> </table>						O1	B1	B2	B3	D1	D2	D3	☐	☐	☐	☐	☐	☒	☐																					
O1	B1	B2	B3	D1	D2	D3																																						
☐	☐	☐	☐	☐	☒	☐																																						
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C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																																			
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																			
COVER																																												
Total: M		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Type:</th> <th>SWD</th> <th>LWD</th> <th>B</th> <th>U</th> <th>DP</th> <th>OV</th> <th>IV</th> </tr> </thead> <tbody> <tr> <td>Amount:</td> <td>N</td> <td>S</td> <td>D</td> <td>T</td> <td>T</td> <td>T</td> <td>N</td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☐</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☐</td> </tr> </tbody> </table>							Type:	SWD	LWD	B	U	DP	OV	IV	Amount:	N	S	D	T	T	T	N	Loc: P/S/O:	☐	☒	☒	☒	☒	☒	☐	FSZ: ☐											
Type:	SWD	LWD	B	U	DP	OV	IV																																					
Amount:	N	S	D	T	T	T	N																																					
Loc: P/S/O:	☐	☒	☒	☒	☒	☒	☐																																					
LWD: F		DIST: C		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐				CROWN CLOSURE																																				
RB SHP: S		Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A		RIP: M		STG: MF																																						
LB SHP: S		Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A		RIP: M		STG: MF																																						
FISH																																												
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																			
425	EF	1	200	80 sec	700	RB	8	41	47																																			

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-39600-00000-00000-00000-00000-00000-00000-00000

2.0

STREAM REFERENCING																																												
Gazetted Name:					Local Name:																																							
Watershed Code: 480-993600-39600-00000-00000-00000-00000-00000-00000-00000					ILP Map #:		ILP #:																																					
REACH																																												
Reach #: 2.0		UTM(Zone/East/North): ..			Sample Type: R																																							
Length (km): .74		Gradient (%): 6.76		US Elev (m): 840		Order: 3		Magnitude: 15																																				
Confinement: OC		Coupling: PC		Open water: A		BGC Zone: SBS																																						
Islands: F		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: M		Landuse: NO																																						
SITE																																												
Site #: 426		GIS UTM(Zone/East/North)		Date: 2000/10/03		Agency: C016		Crew: MJ/MG																																				
Site Lg (m): 200				Ref. Name:																																								
CHANNEL																																												
No Vis.Ch.: ☐ Intermittent: ☐				<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <th></th> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> <tr> <td>Channel Width (m):</td> <td>4.43</td> <td>2.700</td> <td>6.2</td> <td>7</td> </tr> <tr> <td>Wetted Width (m):</td> <td>2.69</td> <td>1.4</td> <td>4.300</td> <td>7</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.43</td> <td>0.4</td> <td>0.5</td> <td>3</td> </tr> </table>			Avg	Min	Max	#	Channel Width (m):	4.43	2.700	6.2	7	Wetted Width (m):	2.69	1.4	4.300	7	Wb Depth (m):	0.43	0.4	0.5	3	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <th></th> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> <tr> <td>Gadient %:</td> <td>4.25</td> <td>4</td> <td>5</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.43</td> <td>0.300</td> <td>0.600</td> <td>3</td> </tr> </table>					Avg %	Min %	Max %	#	Gadient %:	4.25	4	5	4	Pool Depth (m):	0.43	0.300	0.600	3
	Avg	Min	Max	#																																								
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Pool Depth (m):	0.43	0.300	0.600	3																																								
Dw: ☐ Tribs.: ☐																																												
Stage: L ☐ M ☒ H ☐		Temp (C): 3		pH: 8.3		Cond.: 50		Turb.: ☐ T ☐ M ☐ L ☒ C																																				
MORPHOLOGY																																												
Bed Material: Dominant: G		Subdom: C		Bars: ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☒ BR																																								
D95: 20.00		D (cm): 10.00																																										
Pattern: IR		Islands: I																																										
Coupling: DC		Confinement: OC		DISTURBANCE INDICATORS		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>O1</td><td>B1</td><td>B2</td><td>B3</td><td>D1</td><td>D2</td><td>D3</td> </tr> <tr> <td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td> </tr> <tr> <td>C1</td><td>C2</td><td>C3</td><td>C4</td><td>C5</td><td>S1</td><td>S2</td> </tr> <tr> <td>☒</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>				O1	B1	B2	B3	D1	D2	D3	☐	☐	☒	☐	☐	☒	☐	C1	C2	C3	C4	C5	S1	S2	☒	☐	☐	☐	☐	☐	☐							
O1	B1	B2	B3	D1	D2	D3																																						
☐	☐	☒	☐	☐	☒	☐																																						
C1	C2	C3	C4	C5	S1	S2																																						
☒	☐	☐	☐	☐	☐	☐																																						
Morph: CP																																												
COVER																																												
Total: T		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <th>Type:</th> <th>SWD</th> <th>LWD</th> <th>B</th> <th>U</th> <th>DP</th> <th>OV</th> <th>IV</th> </tr> <tr> <td>Amount:</td> <td>T</td> <td>S</td> <td>D</td> <td>T</td> <td>T</td> <td>T</td> <td>N</td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☒</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>						Type:	SWD	LWD	B	U	DP	OV	IV	Amount:	T	S	D	T	T	T	N	Loc: P/S/O:	☒	☐	☐	☐	☐	☐	☐	FSZ: ☐												
Type:	SWD	LWD	B	U	DP	OV	IV																																					
Amount:	T	S	D	T	T	T	N																																					
Loc: P/S/O:	☒	☐	☐	☐	☐	☐	☐																																					
LWD: A		DIST: C		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐		CROWN CLOSURE: 3 41-70%																																						
RB SHP: V		Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A		RIP: S		STG: NA																																						
LB SHP: V		Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A		RIP: S		STG: NA																																						
FISH																																												
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																			
426	EF	1	200	247 sec	700	NFC	0																																					

Stream Reach/Site Summary Report

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

Reach # 3.0 ILP Map # 93K.046 ILP # 46705

STREAM REFERENCING																																	
Gazetted Name:					Local Name:																												
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000					ILP Map #: 93K.046		ILP #: 46705																										
REACH																																	
Reach #:	3.0	UTM(Zone/East/North): ..			Sample Type: B																												
Length (km):	.44	Gradient (%):	3.41	US Elev (m):	835	Order:	2	Magnitude:	4																								
Confinement:	OC	Coupling:	PC	Open water:	A	BGC Zone:	SBS																										
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	C	Landuse:	NO																										
SITE																																	
Site #:	427	GIS UTM(Zone/East/North)			Date:	2000/10/03	Agency:	C016	Crew:	MJ/MG																							
Site Lg (m):	100	Ref. Name:																															
CHANNEL																																	
No Vis.Ch.:	☒	Intermittent:	☐																														
Dw:	☐	Tribs.:	☐																														
				Avg	Min	Max	#																										
Channel Width (m):				0.00	0	0	0																										
Wetted Width (m):				0.00	0	0	0																										
Wb Depth (m):				0.00	0	0	0																										
				Avg %	Min %	Max %	#																										
Gradient %:				0.00	0	0	0																										
Pool Depth (m):				0.00	0	0	0																										
Stage:	L ☐ M ☐ H ☐	Temp (C):	pH:		Cond.:		Turb.: ☐ T ☐ M ☐ L ☐ C																										
MORPHOLOGY																																	
Bed Material:	Dominant:	Subdom:	Bars:			☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																											
	D95:	D (cm):																															
	Pattern:	Islands:				O1	B1	B2	B3	D1	D2	D3																					
	Coupling:	Confinement:				☐	☐	☐	☐	☐	☐	☐																					
	Morph:					DISTURBANCE INDICATORS																											
						C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																		
COVER																																	
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Type:	SWD	LWD	B	U	DP	OV	IV																										
Amount:																																	
Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐																										
LWD:	DIST: INSTREAM VEG: N ☐ A ☐ M ☐ V ☐							CROWN CLOSURE																									
RB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																												
LB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																												

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-40800-00000-00000-00000-00000-00000-000

1.0

STREAM REFERENCING

Gazetted Name: GRAVEL CREEK

Local Name:

Watershed Code: 480-993600-40800-00000-00000-00000-00000-00000-000

ILP Map #:

ILP #:

REACH

Reach #: 1.0

UTM(Zone/East/North): ..

Sample Type: B

Length (km): 1.32

Gradient (%): 5.08

US Elev (m): 830

Order: 3

Magnitude: 20

Confinement: UN

Coupling: DC

Open water: A

BGC Zone: SBS

Islands: O

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: M

Landuse: NO

SITE

Site #: 428

GIS UTM(Zone/East/North)

Date: 2000/10/03

Agency: C016

Crew: SR/MJ

Site Lg (m): 100

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	2.95	2.400	3.700	6
Wetted Width (m):	2.58	1.9	2.900	6
Wb Depth (m):	0.37	0.3	0.4	3

	Avg %	Min %	Max %	#
Gradient %:	3.00	3	4	4
Pool Depth (m):	0.38	0.32	0.44	6

Stage: L ☐ M ☒ H ☐

Temp (C): 4

pH: 8.4

Cond.: 200

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: G

Subdom: C

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

D95: 25.00

D (cm): 15.00

Pattern: SI

Islands: N

Coupling: DC

Confinement: UN

Morph: CP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐
C1	C2	C3	C4	C5	S1	S2
☐	☐	☐	☐	☐	☐	☐

COVER

Total: T

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

CROWN CLOSURE

3 41-70%

RB SHP: S

Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A

RIP: C

STG: MF

LB SHP: U

Texture: ☒ F ☒ G ☒ C ☐ B ☐ R ☐ A

RIP: C

STG: MF

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
428	EF	1	100	213 sec	500	RB	3	68	108

Stream Reach/Site Summary Report

Reach #	ILP Map #	ILP #
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Watershed Code: 480-993600-40800-00000-0000-0000-000-000-000-000-000-000

2.0

STREAM REFERENCING																																																														
Gazetted Name: GRAVEL CREEK								Local Name:																																																						
Watershed Code: 480-993600-40800-00000-0000-0000-000-000-000-000-000								ILP Map #:				ILP #:																																																		
REACH																																																														
Reach #: 2.0		UTM(Zone/East/North): ..				Sample Type: B																																																								
Length (km): 1.72		Gradient (%): 8.14		US Elev (m): 970			Order: 3			Magnitude: 20																																																				
Confinement: OC		Coupling: PC		Open water: A			BGC Zone: SBS																																																							
Islands: NV		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: M			Landuse: NO																																																							
SITE																																																														
Site #: 429		GIS UTM(Zone/East/North)			Date: 2000/10/03			Agency: C016			Crew: SR/MJ																																																			
Site Lg (m): 200		Ref. Name:																																																												
CHANNEL																																																														
No Vis.Ch.: ☐ Intermittent: ☐								<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> <tr> <td>Channel Width (m):</td> <td>4.12</td> <td>3.6</td> <td>4.7</td> <td>6</td> </tr> <tr> <td>Wetted Width (m):</td> <td>3.15</td> <td>2</td> <td>3.900</td> <td>6</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.47</td> <td>0.4</td> <td>0.5</td> <td>3</td> </tr> </table>			Avg	Min	Max	#	Channel Width (m):	4.12	3.6	4.7	6	Wetted Width (m):	3.15	2	3.900	6	Wb Depth (m):	0.47	0.4	0.5	3	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> <tr> <td>Gadient %:</td> <td>8.25</td> <td>7</td> <td>9</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.63</td> <td>0.48</td> <td>0.810</td> <td>6</td> </tr> </table>			Avg %	Min %	Max %	#	Gadient %:	8.25	7	9	4	Pool Depth (m):	0.63	0.48	0.810	6																
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Dw: ☐		Tribes.: ☐																																																												
Stage: L ☐ M ☒ H ☐		Temp (C): 4		pH: 8.5		Cond.: 90		Turb.: ☐ T ☐ M ☐ L ☒ C																																																						
MORPHOLOGY																																																														
Bed Material: Dominant: B		Subdom: C		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																																										
D95: 80.00		D (cm): 20.00																																																												
Pattern: SI		Islands: O																																																												
Coupling: PC		Confinement: OC		DISTURBANCE INDICATORS																																																										
Morph: CP				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>O1</td><td>B1</td><td>B2</td><td>B3</td><td>D1</td><td>D2</td><td>D3</td><td colspan="5"></td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td colspan="5"></td> </tr> <tr> <td>C1</td><td>C2</td><td>C3</td><td>C4</td><td>C5</td><td>S1</td><td>S2</td><td>S3</td><td>S4</td><td>S5</td><td colspan="2"></td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td colspan="2"></td> </tr> </table>											O1	B1	B2	B3	D1	D2	D3						☐	☐	☐	☐	☐	☐	☐						C1	C2	C3	C4	C5	S1	S2	S3	S4	S5			☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
O1	B1	B2	B3	D1	D2	D3																																																								
☐	☐	☐	☐	☐	☐	☐																																																								
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																																																					
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Amount:	T	T	S	N	D	T	N																																																							
Loc: P/S/O:	☒	☐	☐	☐	☒	☐	☐																																																							
LWD: F		DIST: E		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐								CROWN CLOSURE 2 21-40%																																																		
RB SHP: S		Texture: ☐ F ☐ G ☒ C ☒ B ☐ R ☐ A		RIP: C		STG: MF																																																								
LB SHP: S		Texture: ☐ F ☐ G ☒ C ☒ B ☐ R ☐ A		RIP: C		STG: MF																																																								
FEATURES																																																														
NID Map	NID	Type	Hgt	Method	Lg	Method	Photo		AirPhoto		UTM (Zone/East/North/Method)																																																			
93K.046	24293	F	5.0	GE			R: 21	F: 18	L:	#:				GP3																																																
Comments:		see comment above																																																												
NID Map	NID	Type	Hgt	Method	Lg	Method	Photo		AirPhoto		UTM (Zone/East/North/Method)																																																			
93K.046	24292	F	2.5	GE			R: 21	F: 18	L:	#:	10	375070	6033365	GP3																																																
Comments:		series of two falls, 30m u/s from 1st - definite barrier to all fish																																																												
NID Map	NID	Type	Hgt	Method	Lg	Method	Photo		AirPhoto		UTM (Zone/East/North/Method)																																																			
93K.046	24291	F	2.5	GE			R: 21	F: 17	L:	#:	10	375055	6033315	GP3																																																
Comments:		barrier to juveniles, maybe adults?																																																												
FISH																																																														
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																																					
429	EF	1	200	1391 sec	500	NFC	0																																																							

Monday, February 26, 2001

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-40800-00000-00000-00000-00000-00000-00000-00000

3.0

STREAM REFERENCING

Gazetted Name: GRAVEL CREEK

Local Name:

Watershed Code: 480-993600-40800-00000-00000-00000-00000-00000-00000-00000

ILP Map #:

ILP #:

REACH

Reach #: 3.0

UTM(Zone/East/North): ..

Sample Type: R

Length (km): 3.60

Gradient (%): 11.67

US Elev (m): 1390

Order: 3

Magnitude: 18

Confinement: CO

Coupling: CO

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: C

Landuse: NO

SITE

Site #: 430

GIS UTM(Zone/East/North)

Date: 2000/10/03

Agency: C016

Crew: SRMJ

Site Lg (m): 100

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	3.12	2.1	3.900	6
Wetted Width (m):	2.10	1.4	3.3	6
Wb Depth (m):	0.43	0.4	0.5	3

	Avg %	Min %	Max %	#
Gradient %:	6.25	5	5	4
Pool Depth (m):	0.48	0.360	0.670	6

Stage: L ☐ M ☒ H ☐

Temp (C): 4

pH: 8.5

Cond.: 90

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: B

Subdom: C

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

D95: 70.00

D (cm): 15.00

Pattern: SI

Islands: N

Coupling: CO

Confinement: CO

Morph: CP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3				
☐	☐	☐	☐	☐	☐	☐				
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

COVER

Total: A

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

CROWN CLOSURE
2 21-40%

RB SHP: V

Texture: ☐ F ☐ G ☒ C ☒ B ☐ R ☐ A

RIP: C

STG: MF

LB SHP: V

Texture: ☐ F ☐ G ☒ C ☒ B ☐ R ☐ A

RIP: C

STG: MF

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
430	EF	1	100	397 sec	500	NFC	0		
430	EF	1	100	644 sec	400	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-40800-00000-00000-00000-00000-00000-00000-00000

4.0

STREAM REFERENCING																																												
Gazetted Name: GRAVEL CREEK					Local Name:																																							
Watershed Code: 480-993600-40800-00000-00000-00000-00000-00000-00000-00000					ILP Map #:		ILP #:																																					
REACH																																												
Reach #: 4.0		UTM(Zone/East/North): ..			Sample Type: B																																							
Length (km): 1.16		Gradient (%): 8.62		US Elev (m): 1490		Order: 2		Magnitude: 5																																				
Confinement: FC		Coupling: PC		Open water: A		BGC Zone: SBS																																						
Islands: N		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: C		Landuse: NO																																						
SITE																																												
Site #: 431		GIS UTM(Zone/East/North)		Date: 2000/10/04		Agency: C016		Crew: SR/MJ																																				
Site Lg (m): 120				Ref. Name:																																								
CHANNEL																																												
No Vis.Ch.: ☐ Intermittent: ☐																																												
Dw: ☐ Tribs.: ☐																																												
		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Channel Width (m):</td> <td>1.37</td> <td>0.9</td> <td>1.700</td> <td>6</td> </tr> <tr> <td>Wetted Width (m):</td> <td>1.02</td> <td>0.9</td> <td>1.4</td> <td>6</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.23</td> <td>0.2</td> <td>0.3</td> <td>3</td> </tr> </tbody> </table>					Avg	Min	Max	#	Channel Width (m):	1.37	0.9	1.700	6	Wetted Width (m):	1.02	0.9	1.4	6	Wb Depth (m):	0.23	0.2	0.3	3	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Gradient %:</td> <td>3.00</td> <td>3</td> <td>3</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.17</td> <td>0.11</td> <td>0.230</td> <td>6</td> </tr> </tbody> </table>					Avg %	Min %	Max %	#	Gradient %:	3.00	3	3	4	Pool Depth (m):	0.17	0.11	0.230	6
	Avg	Min	Max	#																																								
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Stage: L ☐ M ☒ H ☐		Temp (C): 4		pH: 8.7		Cond.: 40		Turb.: ☐ T ☐ M ☐ L ☒ C																																				
MORPHOLOGY																																												
Bed Material: Dominant: F		Subdom: C		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																								
D95: 30.00		D (cm): 0.10																																										
Pattern: IR		Islands: N		<table style="width:100%;"> <tr> <td>O1</td><td>B1</td><td>B2</td><td>B3</td><td>D1</td><td>D2</td><td>D3</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						O1	B1	B2	B3	D1	D2	D3	☐	☐	☐	☐	☐	☐	☐																					
O1	B1	B2	B3	D1	D2	D3																																						
☐	☐	☐	☐	☐	☐	☐																																						
Coupling: DC		Confinement: UN		DISTURBANCE INDICATORS																																								
Morph: RP				<table style="width:100%;"> <tr> <td>C1</td><td>C2</td><td>C3</td><td>C4</td><td>C5</td><td>S1</td><td>S2</td><td>S3</td><td>S4</td><td>S5</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐															
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																																			
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																			
COVER																																												
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LWD: F		DIST: E		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐				CROWN CLOSURE																																				
RB SHP: U		Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A		RIP: C		STG: MF																																						
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FISH																																												
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																			
431	EF	1	120	191 sec	700	NFC	0																																					

Stream Reach/Site Summary Report

Reach #	ILP Map #	ILP #
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Watershed Code: 480-993600-40800-00000-0000-0000-000-000-000-000-000

5.0

STREAM REFERENCING																																												
Gazetted Name: GRAVEL CREEK					Local Name:																																							
Watershed Code: 480-993600-40800-00000-0000-000-000-000-000-000					ILP Map #:		ILP #:																																					
REACH																																												
Reach #: 5.0		UTM(Zone/East/North): ..			Sample Type: B																																							
Length (km): .52		Gradient (%): 3.27		US Elev (m): 1507		Order: 1		Magnitude: 1																																				
Confinement: OC		Coupling: PC		Open water: A		BGC Zone: SBS																																						
Islands: NV		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: W		Landuse: NO																																						
SITE																																												
Site #: 432		GIS UTM(Zone/East/North)		Date: 2000/10/04		Agency: C016		Crew: SR/MJ																																				
Site Lg (m): 110		Ref. Name:																																										
CHANNEL																																												
No Vis.Ch.: ☐ Intermittent: ☐																																												
Dw: ☐ Tribs.: ☐																																												
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MORPHOLOGY																																												
Bed Material: Dominant: C		Subdom: F		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																								
D95: 30.00		D (cm): 0.50		O1 B1 B2 B3 D1 D2 D3																																								
Pattern: IR		Islands: O		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																									
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																			
Coupling: DC		Confinement: UN		DISTURBANCE INDICATORS																																								
Morph: RP				C1 C2 C3 C4 C5 S1 S2 S3 S4 S5																																								
				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																									
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																			
COVER																																												
Total: T		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Type:</th> <th>SWD</th> <th>LWD</th> <th>B</th> <th>U</th> <th>DP</th> <th>OV</th> <th>IV</th> <th>FSZ:</th> </tr> </thead> <tbody> <tr> <td>Amount:</td> <td>T</td> <td>N</td> <td>S</td> <td>T</td> <td>D</td> <td>T</td> <td>N</td> <td></td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☒</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☒</td><td>☐</td><td></td> </tr> </tbody> </table>								Type:	SWD	LWD	B	U	DP	OV	IV	FSZ:	Amount:	T	N	S	T	D	T	N		Loc: P/S/O:	☒	☐	☐	☒	☐	☒	☐									
Type:	SWD	LWD	B	U	DP	OV	IV	FSZ:																																				
Amount:	T	N	S	T	D	T	N																																					
Loc: P/S/O:	☒	☐	☐	☒	☐	☒	☐																																					
LWD: N		DIST: NA		INSTREAM VEG: N ☐ A ☐ M ☒ V ☐		CROWN CLOSURE 1 1-20%																																						
RB SHP: V		Texture: ☒ F ☐ G ☒ C ☐ B ☐ R ☐ A		RIP: G		STG: NA																																						
LB SHP: U		Texture: ☒ F ☐ G ☒ C ☐ B ☐ R ☐ A		RIP: G		STG: NA																																						
FISH																																												
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																			
432	EF	1	110	116 sec	700	NFC	0																																					

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-40800-32900-0000-0000-000-000-000-000-000

.1

STREAM REFERENCING																		
Gazetted Name:						Local Name:												
Watershed Code: 480-993600-40800-32900-0000-0000-000-000-000-000-000						ILP Map #:		ILP #:										
REACH																		
Reach #: .1		UTM(Zone/East/North): ..				Sample Type: B												
Length (km): .20		Gradient (%): 10.5		US Elev (m): 957		Order: 2		Magnitude: 2										
Confinement: FC		Coupling: PC		Open water: A		BGC Zone: SBS												
Islands: N		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: C		Landuse: NO												
SITE																		
Site #: 433		GIS UTM(Zone/East/North)		Date: 2000/10/03		Agency: C016		Crew: SR/MJ										
Site Lg (m): 200				Ref. Name:														
CHANNEL																		
No Vis.Ch.: ☐ Intermittent: ☐				Avg		Min		Max		#								
Dw: ☐ Tribs.: ☐				Channel Width (m): 1.08		0.600		1.4		6								
				Wetted Width (m): 0.85		0.600		1.100		6								
				Wb Depth (m): 0.10		0.1		0.1		3								
				Avg %		Min %		Max %		#								
				Gradient %: 7.50		7		8		4								
				Pool Depth (m): 0.12		0.08		0.170		6								
Stage: L ☐ M ☒ H ☐		Temp (C): 4		pH: 8.5		Cond.: 340		Turb.: ☐ T ☐ M ☐ L ☒ C										
MORPHOLOGY																		
Bed Material: Dominant: C		Subdom: G		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR														
D95: 18.00		D (cm): 2.00		O1 B1 B2 B3 D1 D2 D3														
Pattern: SI		Islands: O		DISTURBANCE INDICATORS														
Coupling: CO		Confinement: FC		C1 C2 C3 C4 C5 S1 S2 S3 S4 S5														
Morph: CP																		
COVER																		
Total: T		Type: SWD		LWD		B		U		DP		OV		IV		FSZ: ☐		
		Amount: T		T		T		T		D		S		N				
		Loc: P/S/O: ☒		☒		☒		☒		☒		☒		☐				
LWD: F		DIST: E		INSTREAM VEG: N ☐ A ☐ M ☒ V ☐												CROWN CLOSURE 3 41-70%		
RB SHP: V		Texture: ☒ F ☐ G ☒ C ☐ B ☐ R ☐ A		RIP: M		STG: MF												
LB SHP: S		Texture: ☒ F ☐ G ☒ C ☐ B ☐ R ☐ A		RIP: C		STG: MF												
FEATURES																		
NID Map	NID	Type	Hgt	Method	Lg	Method	Photo			AirPhoto			UTM (Zone/East/North/Method)					
93K.046	24331	C	5.0	GE	20	GE	R:	21	F:	12	L:		#:		10	375070	6032990	GP3
Comments:		25% gradient - actually larger/higher, but able to measure part only																
FISH																		
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)									
433	EF	1	200	104 sec	400	NFC	0											

Stream Reach/Site Summary Report

Reach # 1.0 ILP Map # ILP #
1.0

Watershed Code: 480-993600-40800-32900-0000-0000-000-000-000-000-000

STREAM REFERENCING									
Gazetted Name:					Local Name:				
Watershed Code: 480-993600-40800-32900-0000-0000-000-000-000-000-000					ILP Map #:		ILP #:		
REACH									
Reach #:	1.0	UTM(Zone/East/North): ..			Sample Type: R				
Length (km):	.80	Gradient (%):	15.88	US Elev (m):	1084	Order:	2	Magnitude:	2
Confinement:	CO	Coupling:	CO	Open water:	A	BGC Zone:	SBS		
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	C	Landuse:	NO		
SITE									
Site #:	434	GIS UTM(Zone/East/North)		Date:	2000/10/03	Agency:	C016	Crew:	SR/MJ
Site Lg (m):	100			Ref. Name:					
CHANNEL									
No Vis.Ch.:	☐	Intermittent:	☐						
Dw:	☐	Tribs.:	☐						
				Avg	Min	Max	#		
Channel Width (m):				0.92	0.600	1.100	6		
Wetted Width (m):				0.75	0.300	1	6		
Wb Depth (m):				0.10	0.1	0.1	3		
				Avg %	Min %	Max %	#		
Gradient %:				17.25	14	24	4		
Pool Depth (m):				0.07	0.04	0.100	6		
Stage:	L ☐ M ☒ H ☐	Temp (C):	4	pH:	8.5	Cond.:	340	Turb.:	☐ T ☐ M ☐ L ☒ C
MORPHOLOGY									
Bed Material:	Dominant: C	Subdom: B	Bars:		☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR				
	D95: 60.00	D (cm): 10.00							
Pattern:	SI	Islands: N	O1	B1	B2	B3	D1	D2	D3
Coupling:	CO	Confinement: CO	DISTURBANCE INDICATORS						
Morph:	CP		C1	C2	C3	C4	C5	S1	S2
			S3	S4	S5				
COVER									
Total:	T	Type:	SWD	LWD	B	U	DP	OV	IV
		Amount:	T	T	S	N	D	T	N
		Loc: P/S/O:	☒	☐	☐	☐	☒	☐	☐
LWD:	A	DIST:	E	INSTREAM VEG:	N ☒ A ☐ M ☐ V ☐	FSZ: ☐			
RB SHP:	V	Texture:	☒ F ☐ G ☒ C ☒ B ☐ R ☐ A	RIP:	C	STG:	MF		
LB SHP:	V	Texture:	☒ F ☐ G ☒ C ☒ B ☐ R ☐ A	RIP:	C	STG:	MF		
FISH									
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
434	EF	2	100	283 sec	400	NFC	0		

Stream Reach/Site Summary Report

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

Reach # 2.0 ILP Map # 93K.046 ILP # 46721

STREAM REFERENCING																																
Gazetted Name:					Local Name:																											
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000					ILP Map #: 93K.046		ILP #: 46721																									
REACH																																
Reach #:	2.0	UTM(Zone/East/North): ..			Sample Type: R																											
Length (km):	.95	Gradient (%):	10.63	US Elev (m):	880	Order:	2	Magnitude:	2																							
Confinement:	FC	Coupling:	PC	Open water:	A	BGC Zone:	SBS																									
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	M	Landuse:	NO																									
SITE																																
Site #:	436	GIS UTM(Zone/East/North)			Date:	2000/10/03	Agency:	C016	Crew:	SR/MJ																						
Site Lg (m):	120				Ref. Name:																											
CHANNEL																																
No Vis.Ch.:	☒	Intermittent:	☐																													
Dw:	☐	Tribs.:	☐																													
				Avg	Min	Max	#																									
Channel Width (m):				0.00	0	0	0																									
Wetted Width (m):				0.00	0	0	0																									
Wb Depth (m):				0.00	0	0	0																									
				Avg %		Min %	Max %	#																								
				Gradient %:		0.00	0	0	0																							
				Pool Depth (m):		0.00	0	0	0																							
Stage:		L ☐ M ☐ H ☐	Temp (C):	pH:		Cond.:		Turb.: ☐ T ☐ M ☐ L ☐ C																								
MORPHOLOGY																																
Bed Material:		Dominant:	Subdom:		Bars: ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																											
		D95:	D (cm):																													
		Pattern:	Islands:																													
		Coupling:	Confinement:																													
		Morph:																														
					DISTURBANCE INDICATORS																											
					O1	B1	B2	B3	D1	D2	D3																					
					☐	☐	☐	☐	☐	☐	☐																					
					C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																		
					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																		
COVER																																
Total:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Type:</td> <td>SWD</td> <td>LWD</td> <td>B</td> <td>U</td> <td>DP</td> <td>OV</td> <td>IV</td> </tr> <tr> <td>Amount:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>							Type:	SWD	LWD	B	U	DP	OV	IV	Amount:								Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐	FSZ: ☐
Type:	SWD	LWD	B	U	DP	OV	IV																									
Amount:																																
Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐																									
LWD:	DIST: INSTREAM VEG: N ☐ A ☐ M ☐ V ☐							CROWN CLOSURE																								
RB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																											
LB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																											

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-42300-00000-0000-0000-000-000-000-000-000

1.0

STREAM REFERENCING															
Gazetted Name:					Local Name:										
Watershed Code: 480-993600-42300-00000-0000-0000-000-000-000-000-000					ILP Map #:		ILP #:								
REACH															
Reach #:	1.0	UTM(Zone/East/North): ..			Sample Type: B										
Length (km):	.58	Gradient (%):	8.79	US Elev (m):	819	Order:	1	Magnitude:	1						
Confinement:	OC	Coupling:	PC	Open water:	A	BGC Zone:	SBS								
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	M	Landuse:	NO								
SITE															
Site #:	437	GIS UTM(Zone/East/North)			Date:	2000/10/03	Agency:	C016	Crew:	SR/MJ					
Site Lg (m):	200				Ref. Name:										
CHANNEL															
No Vis.Ch.:	☐	Intermittent:	☒												
Dw:	☐	Tribs.:	☐												
				Avg	Min	Max	#								
Channel Width (m):				0.52	0.400	0.7	6								
Wetted Width (m):				0.00	0	0	6								
Wb Depth (m):				0.13	0.1	0.2	3								
				Avg %	Min %	Max %	#								
Gradient %:				8.75	10	10	4								
Pool Depth (m):				0.00	0	0	0								
Stage:	☒ L ☐ M ☐ H	Temp (C):				pH:			Cond.:						
								Turb.:	☐ T ☐ M ☐ L ☐ C						
MORPHOLOGY															
Bed Material:	Dominant: F	Subdom: NA				Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR								
	D95: 0.10	D (cm): 0.10				O1	B1	B2	B3	D1	D2	D3			
	Pattern: SI	Islands: N				☐	☐	☐	☐	☐	☐	☐			
	Coupling: CO	Confinement: FC				C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
	Morph: RP					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
COVER															
Total:	N	Type:	SWD	LWD	B	U	DP	OV	IV	FSZ:	☐				
		Amount:	N	N	N	N	N	N	N						
		Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐						
LWD:	F	DIST:	E	INSTREAM VEG:	N	☐ A ☐ M ☒ V ☐									
RB SHP:	U	Texture:	☒ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:	C	STG:	MF								
LB SHP:	U	Texture:	☒ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:	C	STG:	MF								
										CROWN CLOSURE					
										3 41-70%					

Stream Reach/Site Summary Report

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

Reach # 1.0 ILP Map # 93K.036 ILP # 36708

STREAM REFERENCING																																	
Gazetted Name:					Local Name:																												
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000					ILP Map #: 93K.036		ILP #: 36708																										
REACH																																	
Reach #:	1.0	UTM(Zone/East/North): ..			Sample Type: B																												
Length (km):	1.18	Gradient (%):	0.59	US Elev (m):	825	Order:	1	Magnitude:	1																								
Confinement:	OC	Coupling:	PC	Open water:	A	BGC Zone:		SBS																									
Islands:	N	Bars:	☒ WN ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	M	Landuse:		NO																									
SITE																																	
Site #: 439	GIS UTM(Zone/East/North)			Date: 2000/10/02	Agency: C016		Crew: MJ/MG																										
Site Lg (m): 100				Ref. Name:																													
CHANNEL																																	
No Vis.Ch.: ☒	Intermittent: ☐					<table border="1" style="display: inline-table; border-collapse: collapse;"> <thead> <tr> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Channel Width (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Wetted Width (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>				Avg	Min	Max	#	Channel Width (m):	0.00	0	0	0	Wetted Width (m):	0.00	0	0	0	Wb Depth (m):	0.00	0	0	0					
Avg	Min	Max	#																														
Channel Width (m):	0.00	0	0	0																													
Wetted Width (m):	0.00	0	0	0																													
Wb Depth (m):	0.00	0	0	0																													
Dw: ☐	Tribs.: ☐					<table border="1" style="display: inline-table; border-collapse: collapse;"> <thead> <tr> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>Gadient %:</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.00</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>				Avg %	Min %	Max %	#	Gadient %:	0.00	0	0	0	Pool Depth (m):	0.00	0	0	0										
Avg %	Min %	Max %	#																														
Gadient %:	0.00	0	0	0																													
Pool Depth (m):	0.00	0	0	0																													
Stage: L ☐ M ☐ H ☐		Temp (C):		pH:		Cond.:		Turb.: ☐ T ☐ M ☐ L ☐ C																									
MORPHOLOGY																																	
Bed Material: Dominant:		Subdom:		Bars: ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																													
D95:		D (cm):		O1 B1 B2 B3 D1 D2 D3																													
Pattern:		Islands:		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐														
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																								
Coupling:		Confinement:		DISTURBANCE INDICATORS																													
Morph:				<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐														
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																								
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Total:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <thead> <tr> <th>Type:</th> <th>SWD</th> <th>LWD</th> <th>B</th> <th>U</th> <th>DP</th> <th>OV</th> <th>IV</th> </tr> </thead> <tbody> <tr> <td>Amount:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </tbody> </table>							Type:	SWD	LWD	B	U	DP	OV	IV	Amount:								Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐	FSZ: ☐	
Type:	SWD	LWD	B	U	DP	OV	IV																										
Amount:																																	
Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐																										
LWD:	DIST:		INSTREAM VEG: N ☐ A ☐ M ☐ V ☐																														
RB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																												
LB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																												

Stream Reach/Site Summary Report

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

Reach #	ILP Map #	ILP #
10	93K.036	36711

STREAM REFERENCING

Gazetted Name:

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

REACH

Reach #:	1.0	UTM(Zone/East/North): ..				Sample Type: B			
Length (km):	.44	Gradient (%):	13.86	US Elev (m):	900	Order:	1	Magnitude:	1
Confinement:	UN	Coupling:	DC	Open water:	A	BGC Zone:	SBS		
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	C	Landuse:	NO		

SITE

Site Lg (m): 100

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

Stage: L ☒ M ☐ H ☐ Temp (C): 4 pH: 7.8 Cond.: 90 Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: G Subdom: F Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR
 D95: 3.00 D (cm): 3.00
 Pattern: IR Islands: N
 Coupling: PC Confinement: FC
 Morph: RP

COVER

Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A RIP: S STG: NA

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
441	EF	1	100	46 sec	400	NFC	0		

Stream Reach/Site Summary Report

Reach # 1.0 ILP Map # ILP #
1.0

Watershed Code: 480-993600-46700-00000-00000-00000-00000-00000-00000-00000

STREAM REFERENCING																																												
Gazetted Name:					Local Name:																																							
Watershed Code: 480-993600-46700-00000-00000-00000-00000-00000-00000-00000					ILP Map #:		ILP #:																																					
REACH																																												
Reach #: 1.0		UTM(Zone/East/North): ..			Sample Type: B																																							
Length (km): .26		Gradient (%): 1.92		US Elev (m): 780		Order: 3		Magnitude: 12																																				
Confinement: UN		Coupling: DC		Open water: A		BGC Zone: SBS																																						
Islands: N		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR		Riparian Veg.: M		Landuse: NO																																						
SITE																																												
Site #: 442		GIS UTM(Zone/East/North)		Date: 2000/10/02		Agency: C016		Crew: MJ/MG																																				
Site Lg (m): 100				Ref. Name:																																								
CHANNEL																																												
No Vis.Ch.: ☐ Intermittent: ☐				<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <th></th> <th>Avg</th> <th>Min</th> <th>Max</th> <th>#</th> </tr> <tr> <td>Channel Width (m):</td> <td>0.75</td> <td>0.5</td> <td>0.9</td> <td>6</td> </tr> <tr> <td>Wetted Width (m):</td> <td>0.58</td> <td>0.400</td> <td>0.800</td> <td>6</td> </tr> <tr> <td>Wb Depth (m):</td> <td>0.33</td> <td>0.3</td> <td>0.4</td> <td>3</td> </tr> </table>			Avg	Min	Max	#	Channel Width (m):	0.75	0.5	0.9	6	Wetted Width (m):	0.58	0.400	0.800	6	Wb Depth (m):	0.33	0.3	0.4	3	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <th></th> <th>Avg %</th> <th>Min %</th> <th>Max %</th> <th>#</th> </tr> <tr> <td>Gradient %:</td> <td>0.63</td> <td>0.5</td> <td>1</td> <td>4</td> </tr> <tr> <td>Pool Depth (m):</td> <td>0.23</td> <td>0.200</td> <td>0.25</td> <td>2</td> </tr> </table>					Avg %	Min %	Max %	#	Gradient %:	0.63	0.5	1	4	Pool Depth (m):	0.23	0.200	0.25	2
	Avg	Min	Max	#																																								
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Pool Depth (m):	0.23	0.200	0.25	2																																								
Dw: ☐ Tribs.: ☐																																												
Stage: L ☒ M ☐ H ☐		Temp (C): 4		pH: 8.1		Cond.: 80		Turb.: ☐ T ☐ M ☐ L ☒ C																																				
MORPHOLOGY																																												
Bed Material: Dominant: F		Subdom: NA		Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																																								
D95: 0.01		D (cm): 0.01																																										
Pattern: IR		Islands: N		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>O1</td><td>B1</td><td>B2</td><td>B3</td><td>D1</td><td>D2</td><td>D3</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						O1	B1	B2	B3	D1	D2	D3	☐	☐	☐	☐	☐	☐	☐																					
O1	B1	B2	B3	D1	D2	D3																																						
☐	☐	☐	☐	☐	☐	☐																																						
Coupling: DC		Confinement: UN		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>C1</td><td>C2</td><td>C3</td><td>C4</td><td>C5</td><td>S1</td><td>S2</td><td>S3</td><td>S4</td><td>S5</td> </tr> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐															
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5																																			
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																																			
Morph: LC				DISTURBANCE INDICATORS																																								
COVER																																												
Total: T		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>Type:</td><td>SWD</td><td>LWD</td><td>B</td><td>U</td><td>DP</td><td>OV</td><td>IV</td> </tr> <tr> <td>Amount:</td><td>S</td><td>N</td><td>N</td><td>D</td><td>T</td><td>S</td><td>N</td> </tr> <tr> <td>Loc: P/S/O:</td><td>☒</td><td>☐</td><td>☐</td><td>☒</td><td>☒</td><td>☒</td><td>☐</td> </tr> </table>						Type:	SWD	LWD	B	U	DP	OV	IV	Amount:	S	N	N	D	T	S	N	Loc: P/S/O:	☒	☐	☐	☒	☒	☒	☐	FSZ: ☐												
Type:	SWD	LWD	B	U	DP	OV	IV																																					
Amount:	S	N	N	D	T	S	N																																					
Loc: P/S/O:	☒	☐	☐	☒	☒	☒	☐																																					
LWD: N		DIST: NA		INSTREAM VEG: N ☒ A ☐ M ☐ V ☐				CROWN CLOSURE 3 41-70%																																				
RB SHP: U		Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A		RIP: S		STG: NA																																						
LB SHP: U		Texture: ☒ F ☐ G ☐ C ☐ B ☐ R ☐ A		RIP: S		STG: NA																																						
FISH																																												
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)																																			
442	EF	1	100	207 sec	500	NFC	0																																					

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-46700-00000-00000-00000-00000-00000-00000-00000

2.1

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-46700-00000-00000-00000-00000-00000-00000-00000

ILP Map #:

ILP #:

REACH

Reach #: 2.1

UTM(Zone/East/North): ..

Sample Type: B

Length (km): .85

Gradient (%): 2

US Elev (m): 816

Order: 2

Magnitude: 10

Confinement: UN

Coupling: DC

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: C

Landuse: NO

SITE

Site #: 443

GIS UTM(Zone/East/North)

Date: 2000/10/02

Agency: C016

Crew: MJ/MG

Site Lg (m): 200

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.95	1.600	2.3	6
Wetted Width (m):	0.92	0.7	1.200	6
Wb Depth (m):	0.23	0.2	0.3	3

	Avg %	Min %	Max %	#
Gradient %:	1.38	2	2	4
Pool Depth (m):	0.25	0.200	0.300	2

Stage: L ☒ M ☐ H ☐

Temp (C): 4

pH: 8.1

Cond.: 80

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: F

Subdom: G

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

D95: 1.00

D (cm): 1.00

Pattern: IR

Islands: N

Coupling: DC

Confinement: OC

Morph: RP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3				
☐	☐	☐	☐	☐	☐	☐				
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

COVER

Total: M

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

FSZ: ☐

LWD: F

DIST: E

INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

CROWN CLOSURE

3 41-70%

RB SHP: U

Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

LB SHP: U

Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
443	EF	1	200	123 sec	500	NFC	0		

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-46700-00000-00000-00000-00000-00000-00000-00000

3.0

STREAM REFERENCING																																	
Gazetted Name:					Local Name:																												
Watershed Code: 480-993600-46700-00000-00000-00000-00000-00000-00000-00000					ILP Map #:		ILP #:																										
REACH																																	
Reach #:	3.0	UTM(Zone/East/North): ..			Sample Type: B																												
Length (km):	.13	Gradient (%):	1.54	US Elev (m):	818	Order:	1	Magnitude:	1																								
Confinement:	UN	Coupling:	DC	Open water:	A	BGC Zone:	SBS																										
Islands:	N	Bars:	☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR	Riparian Veg.:	M	Landuse:	NO																										
SITE																																	
Site #:	444	GIS UTM(Zone/East/North)			Date:	2000/10/02	Agency:	C016	Crew:	MJ/MG																							
Site Lg (m):	150				Ref. Name:																												
CHANNEL																																	
No Vis.Ch.:	☒	Intermittent:	☐																														
Dw:	☐	Tribs.:	☐																														
				Avg	Min	Max	#																										
Channel Width (m):				0.00	0	0	0																										
Wetted Width (m):				0.00	0	0	0																										
Wb Depth (m):				0.00	0	0	0																										
				Avg %		Min %	Max %	#																									
				Gradient %:		0.00	0	0	0																								
				Pool Depth (m):		0.00	0	0	0																								
Stage: L ☐ M ☐ H ☐		Temp (C):		pH:		Cond.:		Turb.: ☐ T ☐ M ☐ L ☐ C																									
MORPHOLOGY																																	
Bed Material: Dominant:		Subdom:		Bars: ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR																													
D95:		D (cm):		O1 B1 B2 B3 D1 D2 D3																													
Pattern:		Islands:		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐														
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																								
Coupling:		Confinement:		DISTURBANCE INDICATORS																													
Morph:				C1 C2 C3 C4 C5 S1 S2 S3 S4 S5																													
				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐														
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																								
COVER																																	
Total:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Type:</td> <td>SWD</td> <td>LWD</td> <td>B</td> <td>U</td> <td>DP</td> <td>OV</td> <td>IV</td> </tr> <tr> <td>Amount:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Loc: P/S/O:</td> <td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td> </tr> </table>							Type:	SWD	LWD	B	U	DP	OV	IV	Amount:								Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐	FSZ: ☐	
Type:	SWD	LWD	B	U	DP	OV	IV																										
Amount:																																	
Loc: P/S/O:	☐	☐	☐	☐	☐	☐	☐																										
LWD:	DIST: INSTREAM VEG: N ☐ A ☐ M ☐ V ☐							CROWN CLOSURE																									
RB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																												
LB SHP:	Texture:	☐ F ☐ G ☐ C ☐ B ☐ R ☐ A	RIP:		STG:																												

Stream Reach/Site Summary Report

Reach # ILP Map # ILP #

Watershed Code: 480-993600-46700-80900-0000-0000-000-000-000-000-000

1.0

STREAM REFERENCING

Gazetted Name:

Local Name:

Watershed Code: 480-993600-46700-80900-0000-0000-000-000-000-000-000

ILP Map #:

ILP #:

REACH

Reach #: 1.0

UTM(Zone/East/North): ..

Sample Type: R

Length (km): .76

Gradient (%): 9.61

US Elev (m): 889

Order: 2

Magnitude: 5

Confinement: FC

Coupling: PC

Open water: A

BGC Zone: SBS

Islands: N

Bars: ☒ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPA ☐ BR

Riparian Veg.: C

Landuse: NO

SITE

Site #: 445

GIS UTM(Zone/East/North)

Date: 2000/10/02

Agency: C016

Crew: MJ/MG

Site Lg (m): 100

Ref. Name:

CHANNEL

No Vis.Ch.: ☐ Intermittent: ☐

Dw: ☐ Tribs.: ☐

	Avg	Min	Max	#
Channel Width (m):	1.55	1.3	1.700	6
Wetted Width (m):	0.80	0.600	1.100	6
Wb Depth (m):	0.20	0.2	0.2	3

	Avg %	Min %	Max %	#
Gradient %:	2.25	2	3	4
Pool Depth (m):	0.00	0	0	0

Stage: L ☒ M ☐ H ☐

Temp (C): 4

pH: 8.0

Cond.: 80

Turb.: ☐ T ☐ M ☐ L ☒ C

MORPHOLOGY

Bed Material: Dominant: G

Subdom: F

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

D95: 4.00

D (cm): 4.00

Pattern: IR

Islands: O

Coupling: PC

Confinement: OC

Morph: RP

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3				
☐	☐	☐	☐	☐	☐	☐	☐			
C1	C2	C3	C4	C5	S1	S2	S3	S4	S5	
☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	

COVER

Total: A

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

FSZ: ☐

LWD: A

DIST: E INSTREAM VEG: N ☒ A ☐ M ☐ V ☐

RB SHP: S

Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

LB SHP: S

Texture: ☒ F ☒ G ☐ C ☐ B ☐ R ☐ A

RIP: S

STG: NA

CROWN CLOSURE

2 21-40%

FISH

Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
445	EF	1	100	109 sec	500	NFC	0		

**Reconnaissance (1:20,000) Fish and Fish Habitat
Inventory**

**Tributaries in the Sutherland River Watershed
2000**

- **Appendix II: FDIS Site/Fish Form Comments**

Site/Habitat/Fish Comments

Site #	Owner	Type	Comment
381	Site	Channel	FPC = S3 high
381	Site	Morphology	gullied reach with cobbles/boulders and moderate gradient, distribution limited d/s?
381	Site	Site Card	site = UTM
381	Habitat	Other	excellent overall habitat quality for RB - nice pools/boulder cover and good flow to maintain oxygen - RB should be present
381	Habitat	Overwintering	fair to moderate due to potential perennial habitat
381	Habitat	Spawning	limited spawning due to large substrate, but occasional gravels in pools
381	Fish	Waterbody	Excellent RB habitat - why no fish?
382	Site	Channel	FPC = S3 high
382	Site	Morphology	confined channel in gully
382	Site	Site Card	site = UTM = from lower boundary
382	Site	Site Card	overall very nice creek with good habitat quality - no reason for RB not to reside in
382	Site	Site Card	unknown why NFC
382	Habitat	Overwintering	moderate - not abundant very deep pools, but good flow available likely able to support perennial use
382	Habitat	Rearing	excellent for RB in abundant deep pools and cobbles cover
382	Habitat	Spawning	fair - occasional gravel bars suitable for spawning
382	Fish	Waterbody	excellent RB habitat - why no fish?
383	Site	Channel	FPC = S4 high
383	Site	Morphology	frequently shallow trickle through grasses alternated with deep pool/run through shrubs with good flow - expected fish
383	Site	Site Card	site = UTM
383	Habitat	Other	however, although decent flow/size, frequent very shallow flow among grasses may(?) deter fish use and wetland d/s may(?) impede access
383	Habitat	Overwintering	moderately to good - very deep pools abundant
383	Habitat	Rearing	good for RB in frequent deep pools, but substrate entirely fines (not preferable for RB)?
383	Habitat	Spawning	no - no spawning substrate
383	Fish	Waterbody	nice pool habitat - expected fish
384	Site	Channel	FPC = S6
384	Site	Site Card	site = ~200m d/s from upper reach boundary
384	Habitat	Other	poor RB habitat, low and slow flow, organic fines in substrate, no spawning and overwintering, rearing limited to very few deeper pools; creek likely inaccessible due to steep gradient in reach 2 (from map), and cannot offer habitat to support resident RB
385	Site	Channel	FPC = S4 low
385	Site	Morphology	incised channel in grassy wetland, deep stagnant water
385	Site	Site Card	site = UTM
385	Site	Site Card	unlikely fish use but possible
385	Habitat	Other	poor salmonid habitat - lacks flow, gravels
385	Habitat	Overwintering	fair - some pretty deep run sections
385	Habitat	Spawning	none - all fines
385	Fish	Waterbody	v. unlikely salmonid use
386	Site	Channel	FPC = S3 low
386	Site	Site Card	site = ~300m u/s from lower reach boundary
386	Habitat	Other	very low value fish habitat, stream moderately steep with very poor cover, pools short and shallow, gravel mixed and angular, however creek accessible from Sutherland River
387	Site	Channel	FPC = S4 high
387	Site	Site Card	site = from mouth
387	Habitat	Other	seasonal habitat, may be used in spring as a refuge from Sutherland River, otherwise use unlikely, although potential route to upper reaches at high flow
388	Site	Channel	FPC = S2
388	Site	Cover	large channel, brisk flow with not a lot of instream cover in relation to the size of channel; in upper section more deeper pools
388	Site	Site Card	site = UTM = ~50m from mouth
388	Site	Site Card	pretty much 100% rounded gravels - excellent salmon/RB spawning substrate
388	Habitat	Overwintering	likely good perennial flow for overwintering, but lacks deep pools
388	Habitat	Rearing	moderate to good salmon rearing limited by lack of quality instream cover
388	Habitat	Spawning	primary use is SK (RB?) spawning - beautiful, uniform rounded gravels dominate reach 1 substrate
388	Fish	Waterbody	Limited shocking due to redds and spawning SK
388	Fish	Waterbody	SK adults in mainstem, RB and CAS in off-channel habitat.
389	Site	Channel	FPC = S2
389	Site	Cover	vertical bedrock bank, 50m high, no riparian zone
389	Site	Site Card	site = UTM = lower boundary
389	Site	Site Card	SK not seen in this reach - do not enter canyon; habitat suited to adult RB, which dominate
389	Site	Site Card	falls at the end of reach is a barrier to anadromous fish and mark u/s SK distribution limit
389	Habitat	Overwintering	good - perennial flow, nice pools
389	Habitat	Rearing	excellent rearing for resident RB - deep, frothy cascade cascade-boulder pools
389	Habitat	Spawning	no (bedrock, boulder)
389	Fish	Waterbody	Likely fluvial RB
390	Site	Channel	FPC = S2
390	Site	Morphology	pretty much the same as below falls
390	Site	Site Card	site = UTM
390	Site	Site Card	canyon inaccessible by foot pass falls
390	Site	Site Card	RB is the only species
391	Site	Channel	FPC = NCD
391	Site	Morphology	standing water collected on the gully floor, no fluvium, no continuous channel bed or banks; also water/channel disperses before reaching Shass C. - no connection, no fish habitat
391	Site	Site Card	site = UTM (no mouth)
392	Site	Channel	FPC = S3 low

Site/Habitat/Fish Comments

Site #	Owner	Type	Comment
392	Site	Morphology	forested gully with lots of blowdowns laying across the stream which not affect stream morphology
392	Site	Site Card	site = ~100m u/s from lower reach boundary
392	Site	Site Card	potential access from Sutherland River, but habitat not friendly to RB
392	Habitat	Overwintering	none - pools short, shallow and likely current too strong
392	Habitat	Rearing	fair - not much good instream cover - pools are shallow and not frequent - some protection from large cobbles and boulders, but generally creek too shallow and too fast flowing
392	Habitat	Spawning	poor - too shallow and substrate mostly mixed and too large for RB
393	Site	Channel	FPC = S6
393	Site	Site Card	site = 50m u/s from confluence with ILP 45715
393	Site	Site Card	extra site u/s from cascade obstruction to confirm fish absence
393	Habitat	Other	NFH - stream is shallow, mucky, full of organics, looks like headwaters, frequent (~60%) underground flow
393	Fish	Waterbody	Difficult electrofishing, frequent sub flow, shallow. Anode did not fit in channel.
394	Site	Channel	FPC = NCD
394	Site	Morphology	nothing but nice forest floor
394	Site	Site Card	site = middle of reach
394	Habitat	Other	no drainage present at mapped location. Wetland u/s does not have connection to this "stream", and this one does not have a sign of any kind of flow to 480-993600-22300
395	Site	Channel	FPC = S6
395	Site	Morphology	flows through forested gully
395	Site	Site Card	site = 30m u/s from mouth
395	Site	Site Card	this tributary carries more water and is bigger than mother stream (-993600-22300)
395	Habitat	Other	habitat inaccessible due to cascade obstruction d/s
395	Habitat	Overwintering	none - pools too shallow
395	Habitat	Rearing	good in diverse rearing and very abundant boulder/pools type of cover; creek very stable, well protected from erosion by large cobbles
395	Habitat	Spawning	none - angular substrate
395	Fish	Waterbody	Fairly nice habitat for RB, but lacks spawning and overwintering to support resident population in system.
396	Site	Channel	FPC = NCD
396	Site	Morphology	gully with forested bottom and has no sign of any kind of flow
396	Site	Site Card	site = u/s from mouth
396	Habitat	Other	NFH
397	Site	Channel	FPC = S3
397	Site	Site Card	site = UTM = mouth
397	Site	Site Card	nice low gradient reach with good flow, excellent spawning potential for RB and CO
397	Habitat	Overwintering	pools likely not deep enough - fish likely move to Sutherland River
397	Habitat	Rearing	good for RB/CO in pools/cutbanks areas
397	Habitat	Spawning	beautiful stretches of uniform small rounded gravels dominate surface
397	Fish	Waterbody	RB not very abundant given nice quality habitat and likelihood for spawning use. Nice CO habitat.
398	Site	Channel	FPC = S3
398	Site	Site Card	site = UTM
398	Site	Site Card	added reach for distribution info
398	Site	Water	flood - rock deposited on windthrow tree 1.5m above channel
398	Habitat	Overwintering	moderate to good - in infrequent deep pools
398	Habitat	Rearing	good overall - deep pools not abundant but occasional cascade/LWD pools provide excellent quality RB rearing habitat
398	Habitat	Spawning	poor - substrate too large, bars are with large, angular substrate, and not abundant
398	Fish	Waterbody	Not very abundant RB (as usual) - mainly only in best deep pools.
399	Site	Channel	FPC = S5
399	Site	Morphology	channel is in vertical wall, narrow bedrock gorge with abundant falls and cascades
399	Site	Site Card	site = above falls (40m u/s from reach boundary mapped location)
399	Site	Site Card	even 40m section below falls is steep with frequent small cascades - unlikely fish use in lower reach (NFC in this part)
399	Habitat	Other	falls at the beginning of the reach isolates habitat u/s
399	Habitat	Overwintering	very good potential - very deep pools, but isolated above falls
399	Habitat	Rearing	excellent for RB - very deep boulder/LWD step pools, but access limited by steep gradient, frequent cascades/falls.
399	Habitat	Spawning	no spawning substrate
399	Fish	Waterbody	Nice sampling in very deep steps but NF above falls.
400	Site	Channel	FPC = S5
400	Site	Site Card	site = UTM = (~240m below falls in reach 4)
400	Habitat	Other	overall good habitat
400	Habitat	Overwintering	some potential but pools might be not deep enough
400	Habitat	Rearing	good quality but isolated above falls (deep pools frequent)
400	Habitat	Spawning	no potential - gravels too big
401	Site	Channel	FPC = S6
401	Site	Site Card	site = UTM
401	Habitat	Other	habitat isolated by barriers d/s
401	Habitat	Overwintering	none
401	Habitat	Rearing	poor - extensive riffles and very shallow pools
401	Habitat	Spawning	some potential in scattered patches of good quality gravel
402	Site	Channel	FPC = S6
402	Site	Site Card	site = UTM = from the confluence with -24500
402	Site	Site Card	3rd site above the barrier in reach 3 to confirm fish absence, good sampling conditions, but NFC
402	Habitat	Other	overall moderate quality habitat with few deep, good pools. Creek contributes ~50% of flow into parent creek
402	Habitat	Overwintering	potentially possible in few deeper pools
402	Habitat	Rearing	moderate in pools mainly
402	Habitat	Spawning	small pockets of suitable gravel
403	Site	Channel	FPC = S6

Site/Habitat/Fish Comments

Site #	Owner	Type	Comment
403	Site	Site Card	site = ~100m u/s from confluence with ILP 45724
403	Habitat	Other	all habitat isolated above falls barrier d/s
403	Habitat	Overwintering	excellent in many deep pools
403	Habitat	Rearing	excellent in many deep pools
403	Habitat	Spawning	none - substrate angular
404	Site	Channel	FPC = NCD
404	Site	Site Card	site = from mouth u/s
404	Site	Site Card	no continuity for 100m
404	Habitat	Other	Discrete flow creek has 40m long channel near mouth mostly flowing underground
405	Site	Channel	FPC = S6
405	Site	Site Card	site = UTM = from the mouth
405	Site	Site Card	this trip contributes ~40% of flow into the parent creek
405	Habitat	Other	overall poor habitat due to steepness
405	Habitat	Overwintering	none - pools shallow
405	Habitat	Rearing	pools provide fair rearing, but habitat isolated
405	Habitat	Spawning	none - no gravel in substrate
406	Site	Channel	FPC = S6
406	Site	Site Card	site = UTM = 40m u/s from mouth
406	Habitat	Other	No fish habitat overall - steep, shallow, isolated by barriers d/s
407	Site	Channel	FPC = NCD
407	Site	Morphology	squishy ground with no define channel, no fluvium, no continuous channel bed, just few backwater stagnant pools near mouth
407	Site	Site Card	site = UTM = near mouth
407	Site	Site Card	no connection to u/s reaches, no fish habitat or passage
408	Site	Channel	FPC = S6
408	Site	Morphology	crap, seasonal, disperses d/s
408	Site	Site Card	site = UTM
408	Habitat	Other	No fish habitat - creek totally dry, potential - none - seasonal tiny trickle over organics - disperses in reach 1 (no connection to Sutherland R.) - very unlikely fish use even if connected
409	Site	Channel	FPC = NCD
409	Site	Site Card	site = from "mouth"
409	Habitat	Other	no channel found at mapped location; wetland near Sutherland River in lower 200m with no channel present, only wet forest floor with no sign of any drainage
410	Site	Channel	FPC = NCD
410	Site	Morphology	no channel present, wet, squishy ground with no fluvium, not a creek
410	Site	Site Card	site = middle of wetland
410	Site	Site Card	substituted reach for reach 5 - to determine lack of fish passage to upper reaches
410	Habitat	Other	NFH - wetland with no channel through to make fish passage to upper reaches; channel disperses in wetland ~50m d/s from upper reach boundary
411	Site	Channel	FPC = S6
411	Site	Site Card	site = from lower reach boundary
411	Habitat	Other	small and seasonal stream with no potential habitat for RB year around. Reach inaccessible for seasonal use due to impassable wetland d/s in reach 1.
412	Site	Channel	main channel shifted ~150m east from mapped location
412	Site	Channel	FPC = S3 low
412	Site	Morphology	creek flows through fluvial fan exhibiting signs of frequent channel shifting
412	Site	Site Card	site = ~200m d/s from upper reach boundary
412	Habitat	Other	very poor habitat overall - potentially used only during spring as a migratory route to upper reaches; substrate soft indicating high scour potential at spring flow - unlikely used for spawning
413	Site	Channel	FPC = S3 low
413	Site	Site Card	site = from lower reach boundary
413	Site	Site Card	unlikely fish use due to seasonal flow in reach 1, however habitable to falls which marks u/s distribution limit for RB
413	Habitat	Overwintering	good - many deep and long pools present
413	Habitat	Rearing	excellent boulder/pools habitat for RB
413	Habitat	Spawning	very opportunistic but gravel present in small pockets among boulders and pools crests
414	Site	Channel	FPC = S6
414	Site	Morphology	entire reach is a canyon with many falls, chutes and cascades
414	Site	Site Card	site = u/s from 1st falls
414	Habitat	Other	habitat good for RB but inaccessible due to first set of falls; plenty of deep pools excellent for potential rearing and overwintering; no spawning potential
414	Fish	Waterbody	Excellent habitat in this reach but no fish.
415	Site	Channel	FPC = S6
415	Site	Site Card	site = u/s from lower reach boundary
415	Site	Site Card	site above falls/canyon totally isolated - no resident RB population above
415	Habitat	Other	overall nice habitat for RB
415	Habitat	Overwintering	good - ~60% pools deeper than 40cm
415	Habitat	Rearing	excellent potential in very abundant cover - preferred RB habitat
415	Habitat	Spawning	good uniform gravels pockets present in every pool
416	Site	Channel	FPC = S4 high
416	Site	Morphology	small creek, but brisk flow over 100% gravel
416	Site	Site Card	site = UTM
416	Habitat	Overwintering	poor - not deep enough
416	Habitat	Rearing	moderate overall - small stream but good quality pools for RB
416	Habitat	Spawning	moderate to good spawning in abundant gravels - good for small RB
417	Site	Channel	channel much larger and has more flow than reach 1 - shows how much water the wetland absorbs

Site/Habitat/Fish Comments

Site #	Owner	Type	Comment
417	Site	Channel	FPC = S6
417	Site	Site Card	site = UTM = from falls
417	Site	Site Card	if RB ever used, would have been present in this nice pool habitat - we have found out that RB do not stray too far from Sutherland River (i.e. Gravel C.)
417	Site	Site Card	habitat isolated above falls
417	Habitat	Other	reach 1 d/s was crappy - nice in upper reach, but channel/flow/water got absorbed by wetland, restricting RB passage
417	Habitat	Overwintering	moderate to good in nice deep pools, but possibly freezes
417	Habitat	Rearing	excellent quality for RB in abundant deep cascade pools and among boulders/cobbles cover
417	Habitat	Spawning	poor overall, but occasional tiny gravels pockets
418	Site	Channel	FPC=S6
418	Site	Site Card	site = UTM
418	Site	Site Card	Abundant gammaridae present in stream and lake -no fish observed in lake
418	Site	Site Card	reach located above steep gradient, falls at start of reach 3
418	Habitat	Other	overall fair habitat, but pools fairly shallow - however all isolated above steep gradient, falls
418	Habitat	Overwintering	none - too shallow, possible in lake u/s
418	Habitat	Spawning	no spawning substrate at all
419	Site	Channel	FPC=NCD
419	Site	Morphology	No channel present, just defined, mossy gully with no trace of water, channel or flow.
419	Site	Site Card	site = UTM (appr.)
419	Site	Site Card	No fish habitat, no connection to d/s reaches.
420	Site	Channel	FPC = NCD
420	Site	Site Card	site = from wetland u/s
420	Habitat	Other	NFH - forested gully with no trace of any kind of drainage
421	Site	Channel	FPC = S3 high
421	Site	Morphology	creek flows through alluvial fan
421	Site	Site Card	site = ~200m d/s from upper reach boundary
421	Habitat	Other	creek easily accessible from Sutherland River
421	Habitat	Overwintering	none - pools are too shallow - occurs in Sutherland River
421	Habitat	Rearing	good in abundant pools/boulders cover
421	Habitat	Spawning	opportunistic but much more gravel than in reach 2
422	Site	Channel	FPC = S3
422	Site	Site Card	site = ~50m u/s from lower reach boundary
422	Habitat	Overwintering	habitat available in few pools
422	Habitat	Rearing	moderate - pools infrequent (~every 25-50m), but nice and deep, boulders provide some cover in boulder pools
422	Habitat	Spawning	opportunistic as gravel observed only at pools crests
423	Site	Channel	FPC = NCD
423	Site	Site Card	site = middle of the reach
423	Site	Site Card	no sign of any kind of drainage
424	Site	Channel	FPC=NCD
424	Site	Morphology	stream disperses in huge grass/moss wetland with no flow= squishy moss - no channel present.
424	Site	Site Card	site = UTM (walked perpendicular to channel to find it)
424	Site	Site Card	No fish habitat or connectivity to u/s reaches from Sutherland River.
425	Site	Channel	FPC=S3
425	Site	Cover	Boulder = cobble cover.
425	Site	Site Card	site = from mouth
425	Habitat	Overwintering	none - too shallow - occurs probably in Sutherland River
425	Habitat	Rearing	fair - not much instream cover, mainly cobbles, fairly fast flow
425	Habitat	Spawning	fair - mainly in first 50m of the reach, where gravels prevailing; further u/s mainly cobbles with gravels and spawning only opportunistic
426	Site	Channel	FPC=S3 high
426	Site	Cover	Boulder=cobble cover.
426	Site	Site Card	site = ~50m u/s from lower reach boundary
426	Site	Site Card	Creek is easily passable to upper reaches.
426	Habitat	Overwintering	none - pools are too short to protect fish from being washed out while overwintering
426	Habitat	Rearing	fair in mainly small log jam pools, otherwise flow fast
426	Habitat	Spawning	poor - fast flow mixed substrate, very little holding places, gravel patches scarce
427	Site	Channel	FPC = NCD
427	Site	Site Card	site = ~150m u/s from lower reach boundary
427	Site	Site Card	no sign of any kind of drainage, just forested gully
428	Site	Channel	FPC=S3
428	Site	Morphology	Deep creek large, brisk flow. Lacks abundant instream cover but frequent very nice quality cascade/LWD pools.
428	Site	Site Card	site = UTM - channel flows differently
428	Site	Site Card	Possibly a recent channel? UTM way off, looks recent.
428	Habitat	Overwintering	moderate to good - perennial flow, but RB may migrate d/s which might explain why RB not abundant here
428	Habitat	Rearing	good quality in occasional cascade pools, LWD, but lacks instream cover
428	Habitat	Spawning	good spawning gravels in lower gradient pool sections, but semi-angular
428	Fish	Waterbody	RB not very abundant - moved to Sutherland River?
429	Site	Channel	FPC=S3 high
429	Site	Cover	beautiful creek with abundant cover and excellent DV/RB rearing habitat.
429	Site	Site Card	site = UTM = ~80m above -40800-32900
429	Site	Site Card	Very low numbers of RB d/s in reach 1.
429	Site	Site Card	Accessible to 2nd falls at end of reach 2, but NFC here in good accessible habitat. Why not?
429	Habitat	Overwintering	good in abundant very deep boulder cascade pools
429	Habitat	Rearing	excellent quality for RB/DV in abundant very deep pools in textbook cascade-pool (boulder) morphology reach
429	Habitat	Spawning	no - moderately steep and no significant gravel

Site/Habitat/Fish Comments

Site #	Owner	Type	Comment
429	Fish	Waterbody	Extensive beautiful sampling habitat. Why no fish?
430	Site	Channel	FPC=S5
430	Site	Morphology	Similar to reach 2 but more confined.
430	Site	Site Card	site = UTM = lower reach
430	Site	Site Card	Excellent habitat but isolated above falls - no fish above.
430	Site	Site Card	1st site above falls.
430	Habitat	Overwintering	good in very deep pools
430	Habitat	Rearing	excellent quality for RB in abundant cascade pools and boulder cover
430	Habitat	Spawning	no spawning substrate
430	Fish	Waterbody	Beautiful habitat - not used due to falls downstream.
431	Site	Channel	FPC=S6
431	Site	Morphology	smaller size and flow than in reach 3.
431	Site	Site Card	site = UTM
431	Site	Site Card	Added this reach as fish absence confirmation - located in upper watershed above major tributary which was inaccessible to sample.
431	Habitat	Other	all isolated above falls d/s
431	Habitat	Overwintering	pools not deep enough for overwintering
431	Habitat	Rearing	moderate quality overall in deep pools and cobbles cover
431	Habitat	Spawning	no spawning substrate
431	Fish	Waterbody	Usable fish habitat, nice pools but no fish above falls.
432	Site	Channel	40m above site, water percolates through ground and no defined channel is present.
432	Site	Channel	In channelized section, channel is wide over cobbles through meadow, but is fairly shallow.
432	Site	Channel	FPC=S6
432	Site	Morphology	Site is in large meadow which acts as huge collection area for stream.
432	Site	Site Card	site = UTM = lower reach
432	Site	Site Card	3rd site above falls for fish absence confirmation.
432	Habitat	Overwintering	no - too shallow, no lakes u/s
432	Habitat	Rearing	moderate quality for RB in available occasional pools, but overall quite rare
432	Habitat	Spawning	no - all fines and cobbles
433	Site	Channel	FPC=S4 high
433	Site	Morphology	Fairly steep gully channel over sharp cobbles with limited pool habitat - shallow.
433	Site	Site Card	site = from mouth = UTM near mouth
433	Site	Site Card	Unlikely fish use but habitat available and easily accessible to cascade barrier, even though low abundance in parent stream.
433	Habitat	Other	overall poor to fair habitat
433	Habitat	Overwintering	poor - too shallow to support perennial use
433	Habitat	Rearing	fair for RB - in pools, but overall pools quite shallow and low quality
433	Habitat	Spawning	no - steep, angular cobbles dominate substrate
433	Fish	Waterbody	Pretty shallow cascade pools, moderately steep.
434	Site	Channel	FPC=S6
434	Site	Cover	LWD from abundant blowdown from gully wall.
434	Site	Site Card	site = UTM = above cascade
434	Site	Site Card	Steep and inaccessible to fish due to cascade at end of reach 1.
434	Site	Site Card	Extra reach to confirm no fish above cascade.
434	Habitat	Other	all isolated above cascade
434	Habitat	Overwintering	none - too shallow, no lakes u/s
434	Habitat	Rearing	poor overall - steep, shallow boulder pools, marginal
434	Habitat	Spawning	none - no gravels, too steep
435	Site	Channel	FPC=NCD
435	Site	Morphology	"channel" not present - dry gully with no evidence of flow or water, no channel bed, banks.
435	Site	Site Card	site = UTM = 30m from mouth
435	Site	Site Card	Added this reach to cut off fish distribution from mouth.
435	Habitat	Other	NFH - no water, no channel, no potential, no connection
436	Site	Channel	FPC=NCD
436	Site	Site Card	site = lower boundary
436	Site	Site Card	No channel/creek found at mapped location - gully from reach 1 turns to east, approximately 100m south of where shown on map. No sign of flow ever, no channel bed.
436	Habitat	Other	NFH - no water, no channel present
437	Site	Channel	FPC=S6
437	Site	Morphology	Incised dry channel in gully. Channel frequently vegetated, occasionally discontinuous with no connection to Sutherland River..
437	Site	Site Card	site = UTM
437	Site	Site Card	No potential habitat - no deep pools or spawning gravels.
437	Site	Site Card	Substituted this reach for reach 3 - no point since dry here.
437	Site	Site Card	Well used cut trail on Sutherland right bank.
437	Habitat	Other	NFH - totally dry - if flow ever - is too steep for rearing and lacks instream cover
437	Habitat	Overwintering	no potential here or u/s
437	Habitat	Spawning	none - moderately steep and all fines/organics
438	Site	Channel	FPC = S4 high
438	Site	Morphology	creek flows through deep gully
438	Site	Site Card	site = ~100m d/s from confluence with ILP 36708
438	Habitat	Overwintering	none - too shallow
438	Habitat	Rearing	moderate - cover abundant in pools/SWD mainly, good flow, channel not exposed
438	Habitat	Spawning	moderate - gravel abundant but ~20% fines
439	Site	Channel	FPC = NCD

Site/Habitat/Fish Comments

Site #	Owner	Type	Comment
439	Site	Site Card	site = from mouth
439	Site	Site Card	no drainage found at mapped location
439	Habitat	Other	NFH - forest floor
440	Site	Channel	FPC = NCD
440	Site	Site Card	site = u/s from lower reach boundary
440	Site	Site Card	no channel, no any kind of drainage, no fluvium, no creek, just a forest
441	Site	Channel	FPC = S4 low
441	Site	Morphology	flows through deep gully
441	Site	Site Card	site = ~100m u/s from mouth
441	Site	Site Card	resample
441	Habitat	Other	tiny and very shallow creek even at high flow (~1cm now), very poor fish habitat, unlikely fish use due to lack of instream cover and shallowness
441	Habitat	Overwintering	none
441	Habitat	Spawning	poor - ~60% fines in gravels, shallow
441	Fish	Waterbody	Very difficult electrofishing. Creek very shallow with no pools.
442	Site	Channel	FPC = S4 high
442	Site	Morphology	flows through shrubby Sutherland River floodplain
442	Site	Site Card	site = ~100m d/s from upper reach boundary
442	Site	Site Card	easily accessible, likely route to upper reaches
442	Habitat	Overwintering	none - too shallow, occurs likely in Sutherland River
442	Habitat	Rearing	low value - very exposed and shallow channel with not much instream cover
442	Habitat	Spawning	none - fines
443	Site	Channel	FPC = S3 low
443	Site	Morphology	deep (1m) incised channel in valley
443	Site	Site Card	site = ~200m d/s from confluence with -80900
443	Site	Site Card	resample reach 2 - maybe a better habitat
443	Habitat	Overwintering	none - shallow, lack deep enough pools (OW u/s too shallow too)
443	Habitat	Rearing	fair - not very good habitat, water slow, very little riffle/pool habitat, mainly riffles (shallow) and scarce pools
443	Habitat	Spawning	poor - gravel mixed with fines (~70% fines)
444	Site	Channel	FPC=NCD
444	Site	Site Card	site = confluence with -80900
444	Site	Site Card	Mainstem does not have connection to open wetland in reach 4 u/s, just shrubby valley with no channel, fluvium or banks.
444	Habitat	Other	No fish habitat.
445	Site	Channel	FPC = S3 low
445	Site	Site Card	site = 50m u/s from "mouth"
445	Site	Site Card	creek is actual mainstem
445	Habitat	Other	poor habitat overall - stream shallow, generally lacks instream cover
445	Habitat	Overwintering	no
445	Habitat	Rearing	only among woody debris only
445	Habitat	Spawning	fair - lacks holding places but gravels abundant

**Reconnaissance (1:20,000) Fish and Fish Habitat
Inventory**

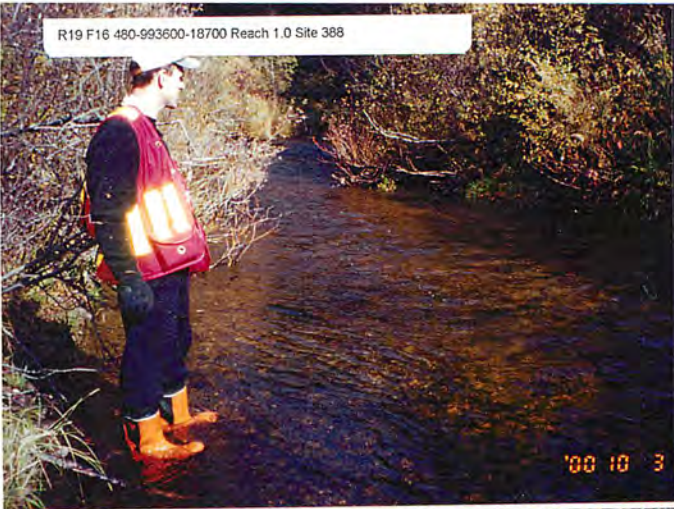
**Tributaries in the Sutherland River Watershed
2000**

• Appendix III: Photographs

**Index of Photos
(Arranged by Site)**

Site	Roll#	Frame #	Neg #	CD #	Image #	Watershed Code	Gazetted Name	ILPMap	ILP	Reach	Dir	Owner	Focal Length	Date	Comment
381	19	12	12	4	95	480-993600-00600				2.0	U	SITE	STD	10/2/2000	cam bag
381	19	13	13	4	96	480-993600-00600				2.0	D	SITE	STD	10/2/2000	cam bag
382	19	10	10	4	93	480-993600-00600				3.0	U	SITE	STD	10/2/2000	SR
382	19	11	11	4	94	480-993600-00600				3.0	D	SITE	STD	10/2/2000	cam bag
383	19	8	8	4	91	480-993600-00600-48300				2.0	U	SITE	STD	10/2/2000	SR
383	19	9	9	4	92	480-993600-00600-48300				2.0	D	SITE	STD	10/2/2000	cam bag
384	30	3	3	7	3			93K 045	45702	3.0	U	SITE	STD	10/5/2000	boot
384	30	4	4	7	4			93K 045	45702	3.0	D	SITE	STD	10/5/2000	notebook
385	19	14	14	4	97			93K 045	45705	1.0	U	SITE	STD	10/2/2000	no scale
385	19	15	15	4	98			93K 045	45705	1.0	D	SITE	STD	10/2/2000	no scale
386	30	1	1	7	1	480-993600-14000				2.0	U	SITE	STD	10/5/2000	Mac
386	30	2	2	7	2	480-993600-14000				2.0	D	SITE	STD	10/5/2000	Mac
387	28	24	24	6	96	480-993600-16300				1.0	U	SITE	STD	10/5/2000	boot
387	28	25	25	6	97	480-993600-16300				1.0	D	SITE	STD	10/5/2000	cam bag
388	19	16	16	4	99	480-993600-18700	Shass C.			1.0	U	SITE	STD	10/2/2000	(SR) - note SK holding in background, abundant spawning gravels
388	19	17	17	4	100	480-993600-18700	Shass C.			1.0	D	SITE	STD	10/2/2000	(MJ)
388	19	20	20	4	103	480-993600-18700	Shass C.			1.0	BD	FISH	STD	10/2/2000	(probe) Sample SK photo - numerous others observed.
389	19	21	21	4	104	480-993600-18700	Shass C.			1.1	U	SITE	STD	10/2/2000	(MJ) - start of canyon at lower boundary
389	19	22	22	4	105	480-993600-18700	Shass C.			1.1	U	SITE	STD	10/2/2000	(MJ)
389	19	23	23	4	106	480-993600-18700	Shass C.			1.1	D	SITE	STD	10/2/2000	(none)
389	19	24	24	4	107	480-993600-18700	Shass C.			1.1	U	SITE	STD	10/2/2000	(MJ) - note overhanging bedrock bank
389	19	25	25	4	108	480-993600-18700	Shass C.			1.1	U	SITE	STD	10/2/2000	(MJ) - falls in features - barrier to anadromus
390	21	2	2	5	18	480-993600-18700	Shass C.			2.0	U	SITE	STD	10/2/2000	note falls/cascades in background (No scale)
390	21	3	3	5	19	480-993600-18700	Shass C.			2.0	D	SITE	STD	10/2/2000	(SR)
391	19	18	18	4	101			93K 045	45709	1.0	D	SITE	STD	10/2/2000	(MJ)
391	19	19	19	4	102			93K 045	45709	1.0	U	SITE	STD	10/2/2000	cam bag
392	28	18	18	6	90	480-993600-22300				2.0	U	SITE	STD	10/5/2000	10.45 Mac
392	28	19	19	6	91	480-993600-22300				2.0	D	SITE	STD	10/5/2000	10.45 boots
392	28	20	20	6	92	480-993600-22300				2.0	U	SITE	STD	10/5/2000	cascade in features - photo taken from helicopter
393	28	23	23	6	95	480-993600-22300				4.0	BD	SITE	STD	10/5/2000	notebook
395	28	21	21	6	93			93K 045	45715	1.0	U	SITE	STD	10/5/2000	notebook
395	28	22	22	6	94			93K 045	45715	1.0	D	SITE	STD	10/5/2000	water tester
397	23	6	6	5	72	480-993600-24500				1.0	BD	SITE	STD	10/4/2000	(boot) - note spawning quality gravels dominate
397	23	7	7	5	73	480-993600-24500				1.0	U	SITE	STD	10/4/2000	cam bag
397	23	8	8	5	74	480-993600-24500				1.0	D	SITE	STD	10/4/2000	cam bag
398	23	12	12	5	77	480-993600-24500				2.0	U	SITE	STD	10/5/2000	SR
398	23	13	13	5	78	480-993600-24500				2.0	D	SITE	STD	10/5/2000	cam bag
399	23	15	15	5	80	480-993600-24500				3.0	U	SITE	STD	10/5/2000	SR
399	23	16	16	5	81	480-993600-24500				3.0	D	SITE	STD	10/5/2000	cam bag
399	23	17	17	5	82	480-993600-24500				3.0	U	SITE	STD	10/5/2000	falls in features - Marek
400	23	18	18	5	83	480-993600-24500				4.0	U	SITE	STD	10/5/2000	Marek
400	23	19	19	5	84	480-993600-24500				4.0	D	SITE	STD	10/5/2000	Marek
400	23	20	20	5	85	480-993600-24500				4.0	U	SITE	STD	10/5/2000	Marek - falls in features
401	25	1	1	6	1	480-993600-24500				7.0	U	SITE	STD	10/5/2000	cam bag
401	25	2	2	6	2	480-993600-24500				7.0	D	SITE	STD	10/5/2000	MJ
402	23	21	21	5	86	480-993600-24500-57600				1.0	U	SITE	STD	10/5/2000	cam bag
402	23	22	22	5	87	480-993600-24500-57600				1.0	D	SITE	STD	10/5/2000	MJ
403	28	5	5	6	77	480-993600-24500-57600				5.0	U	SITE	STD	10/3/2000	cam bag
403	28	6	6	6	78	480-993600-24500-57600				5.0	D	SITE	STD	10/3/2000	cam bag
405	23	23	23	5	88	480-993600-24500-72500				1.0	U	SITE	STD	10/5/2000	cam bag
405	23	24	24	5	89	480-993600-24500-72500				1.0	D	SITE	STD	10/5/2000	MJ
408	23	25	25	5	90			93K 045	45730	1.0	U	SITE	STD	10/5/2000	MJ
408	23	9	9	5	75	480-993600-24800				2.0	U	SITE	STD	10/4/2000	cam bag

R19 F16 480-993600-18700 Reach 1.0 Site 388



R19 F17 480-993600-18700 Reach 1.0 Site 388



R19 F18 ILP 45709 Reach 1.0 Site 391



R19 F19 ILP 45709 Reach 1.0 Site 391



R19 F20 480-993600-18700 Reach 1.0 Site 388



R19 F21 480-993600-18700 Reach 1.1 Site 389



R19 F22 480-993600-18700 Reach 1.1 Site 389



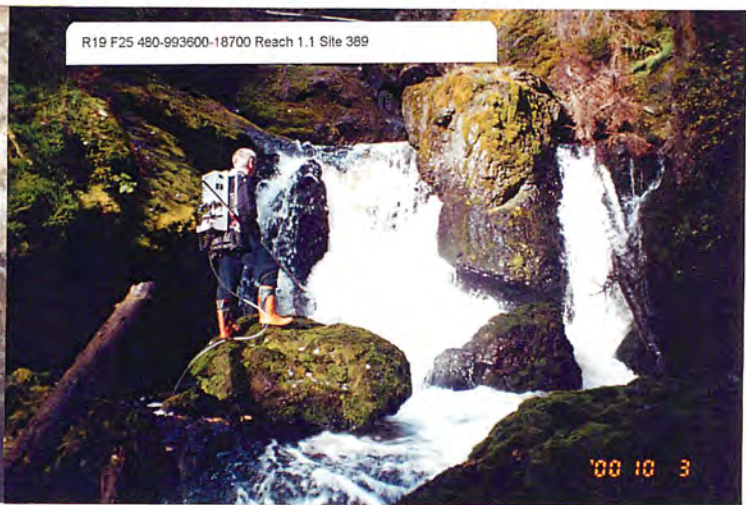
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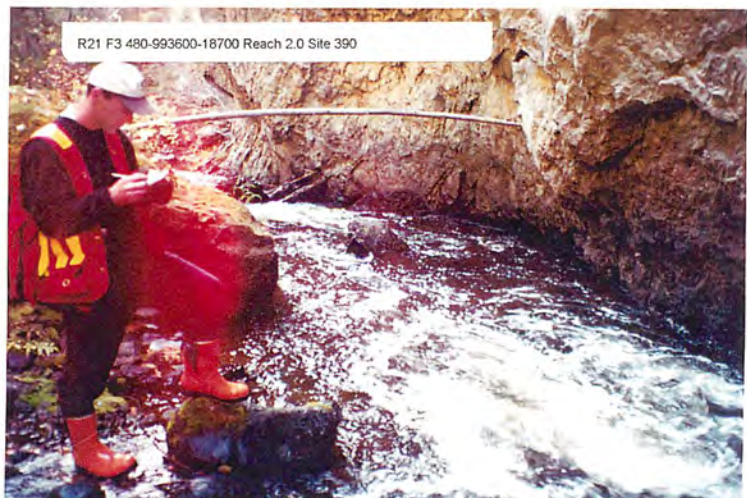
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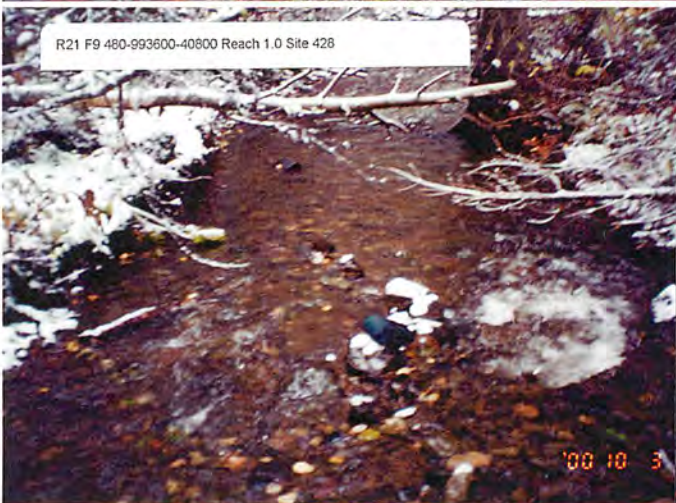


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R21 F3 480-993600-18700 Reach 2.0 Site 390







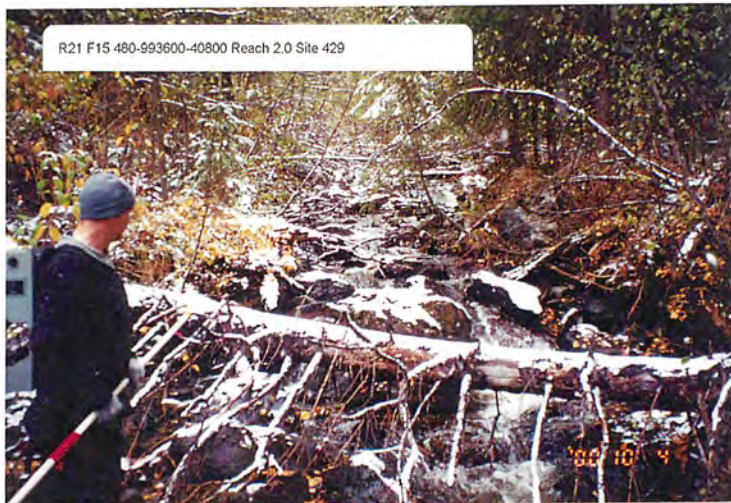
R21 F12 480-993600-40800-32900 Reach 0.1 Site 433



R21 F13 480-993600-40800-32900 Reach 1.0 Site 434



R21 F14 480-993600-40800-32900 Reach 1.0 Site 434



R21 F15 480-993600-40800 Reach 2.0 Site 429



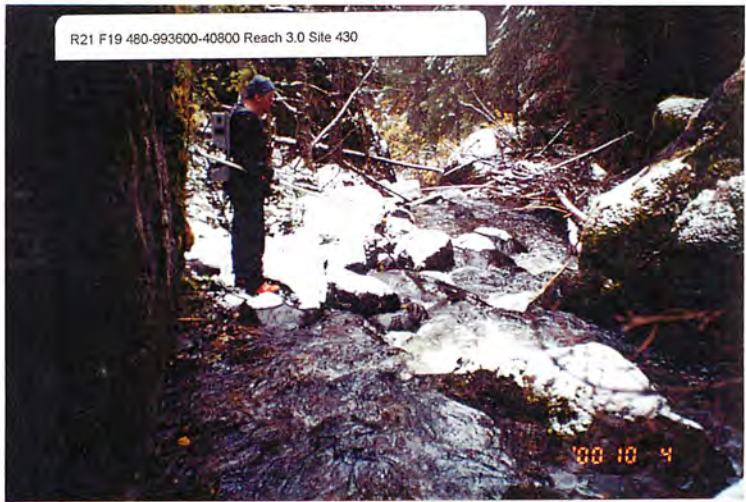
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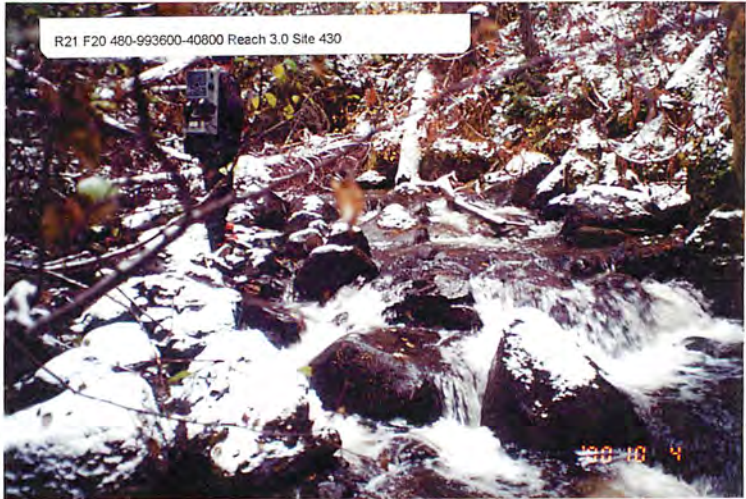
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R21 F18 480-993600-40800 Reach 2.0 Site 429



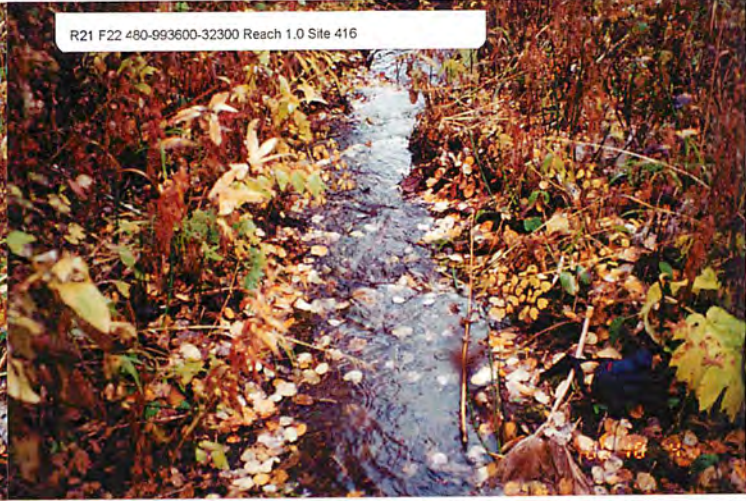
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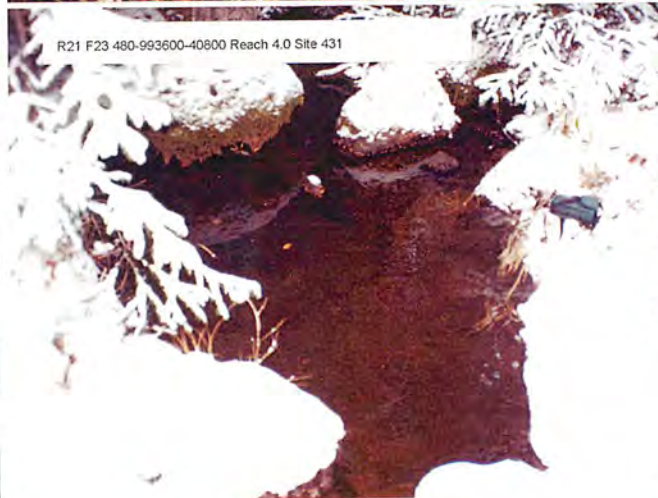
R21 F20 480-993600-40800 Reach 3.0 Site 430



R21 F21 480-993600-32300 Reach 1.0 Site 416



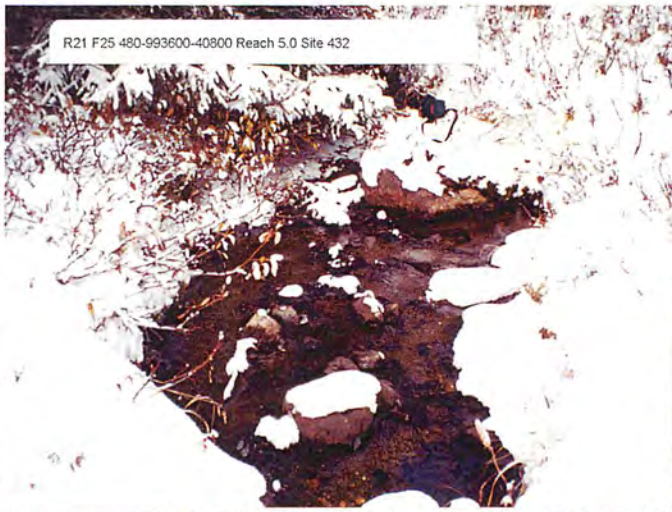
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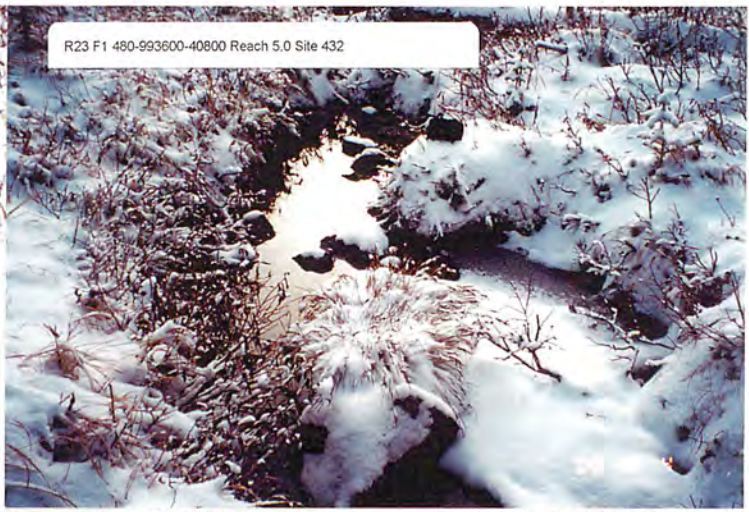
R21 F23 480-993600-40800 Reach 4.0 Site 431



R21 F24 480-993600-40800 Reach 4.0 Site 431



R21 F25 480-993600-40800 Reach 5.0 Site 432



R23 F1 480-993600-40800 Reach 5.0 Site 432



R23 F2 480-993600-32300 Reach 9.0 Site 418



R23 F3 480-993600-32300 Reach 9.0 Site 418



R23 F4 480-993600-32300 Reach 3.0 Site 417



R23 F5 480-993600-32300 Reach 3.0 Site 417

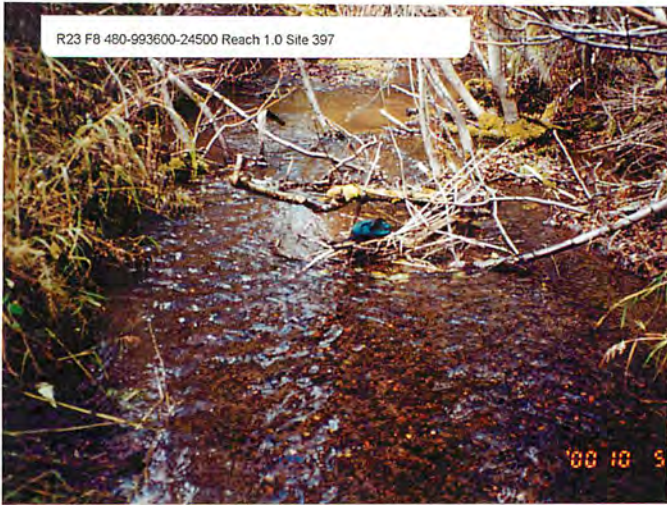


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R23 F7 480-993600-24500 Reach 1.0 Site 397

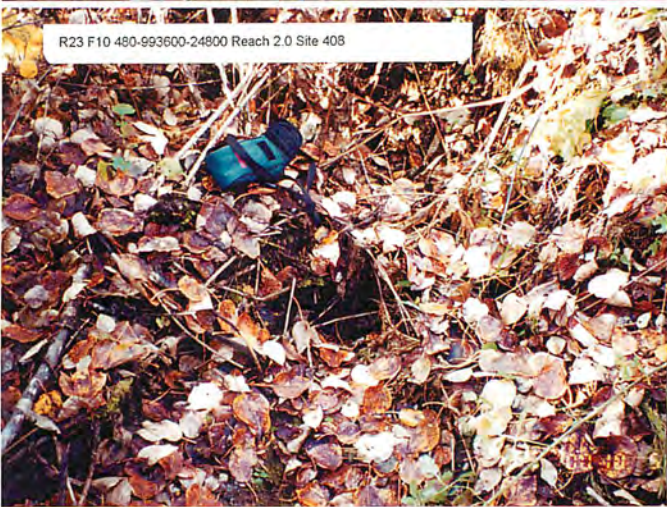
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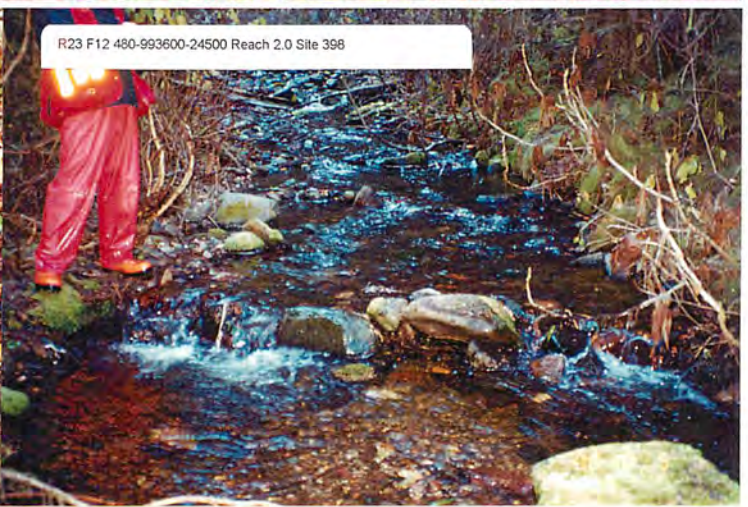
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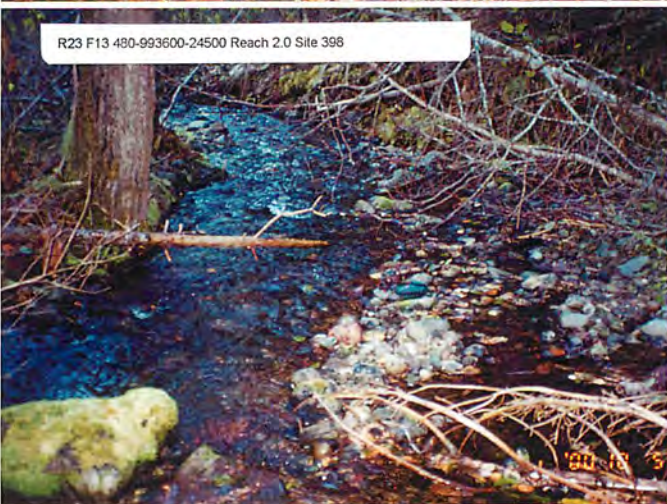
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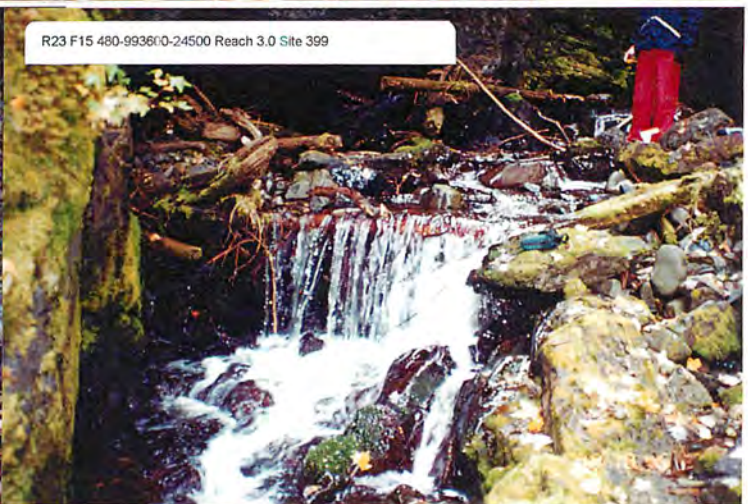
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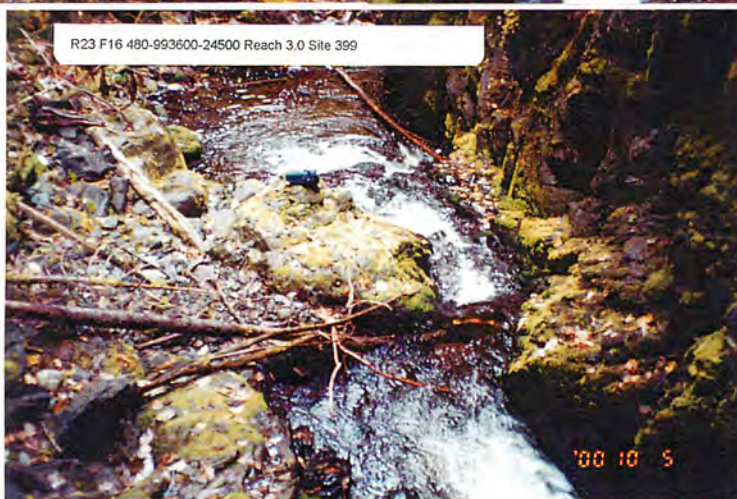
R23 F13 480-993600-24500 Reach 2.0 Site 398

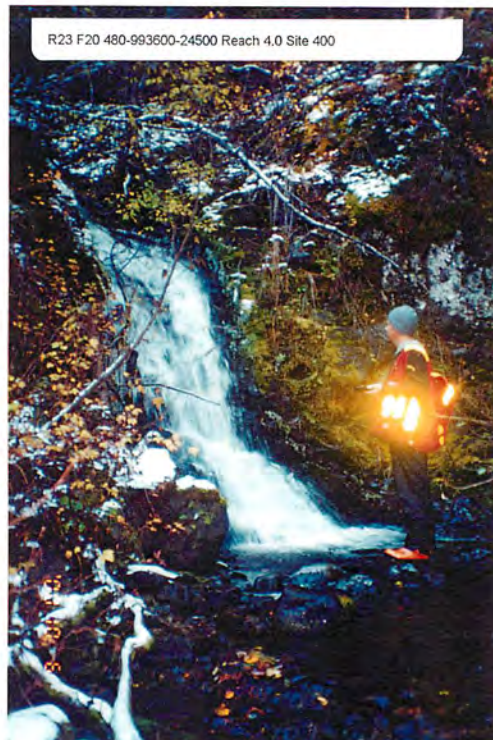
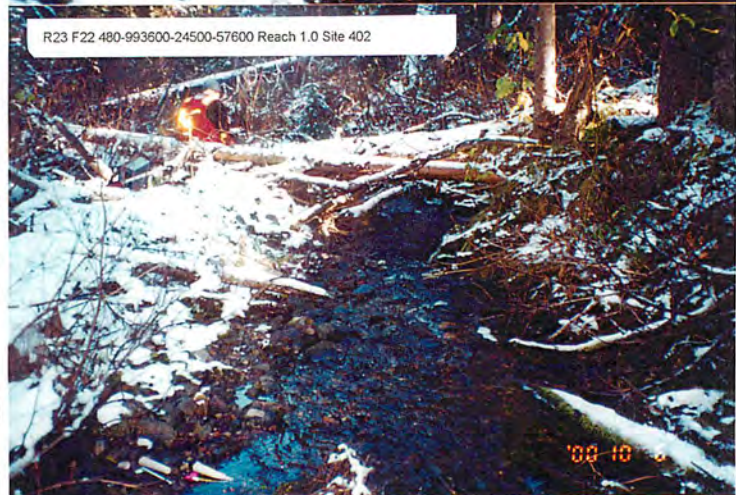
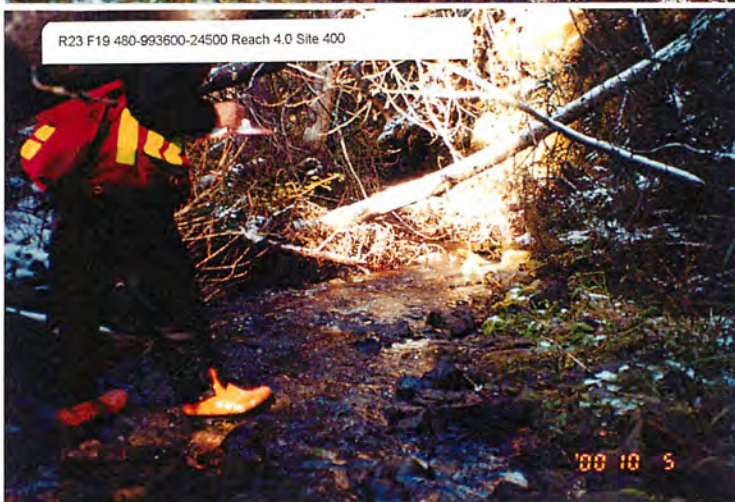


R23 F15 480-993600-24500 Reach 3.0 Site 399



R23 F16 480-993600-24500 Reach 3.0 Site 399







R23 F23 480-993600-24500-72500 Reach 1.0 Site 405



R23 F24 480-993600-24500-72500 Reach 1.0 Site 405



R23 F25 ILP 45730 Reach 1.0 Site 406



R25 F1 480-993600-24500 Reach 7.0 Site 401



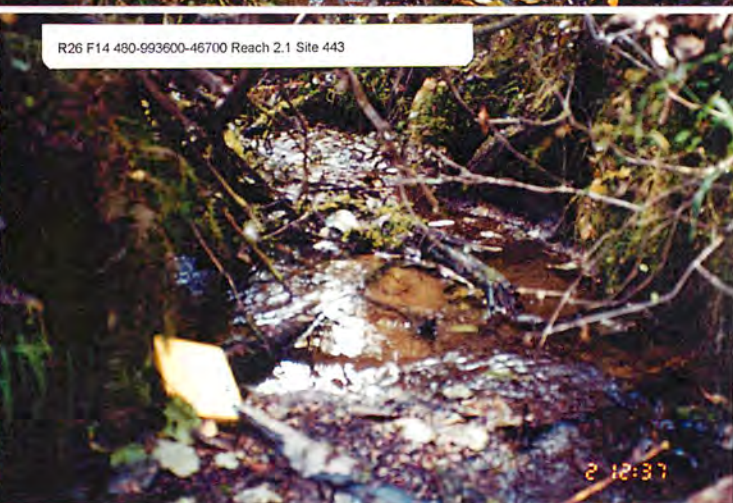
R25 F2 480-993600-24500 Reach 7.0 Site 401



R26 F12 480-993600-46700 Reach 1.0 Site 442

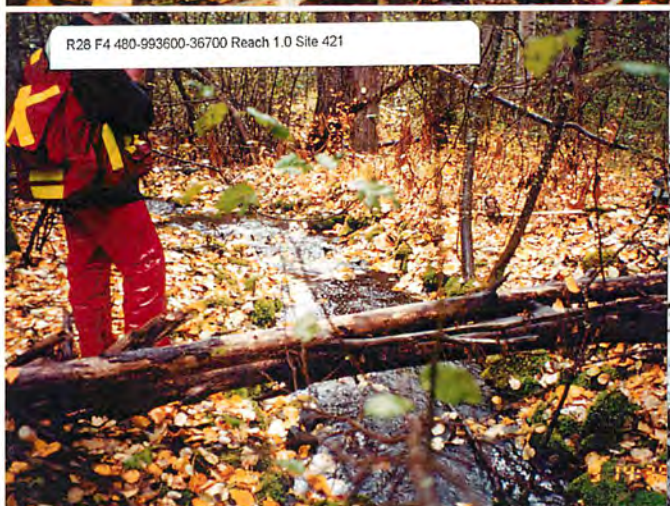
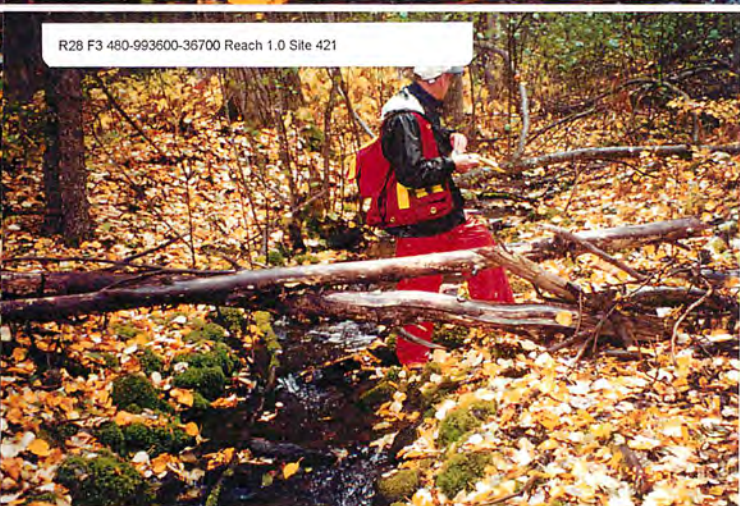
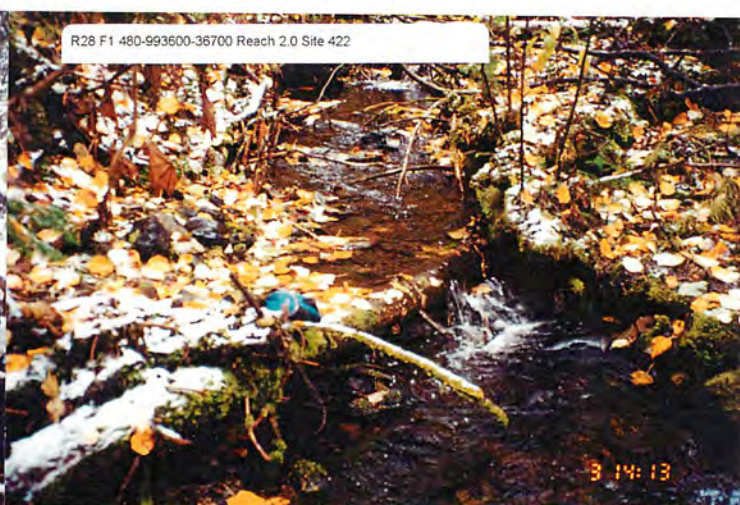


R26 F13 480-993600-46700 Reach 1.0 Site 442



R26 F14 480-993600-46700 Reach 2.1 Site 443





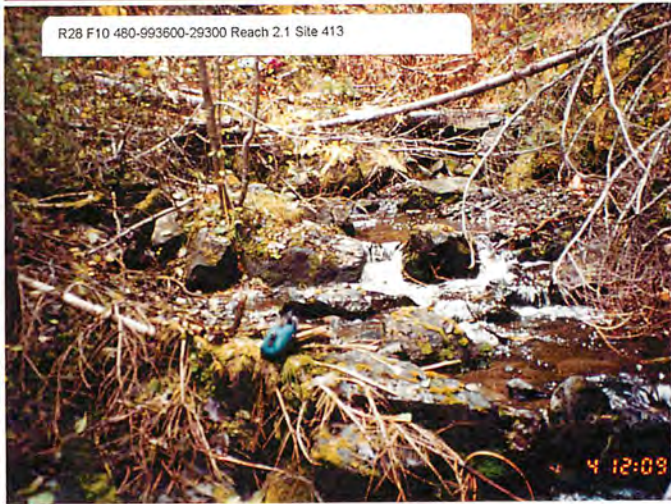
R28 F8 480-993600-29300 Reach 1.0 Site 412



R28 F9 480-993600-29300 Reach 1.0 Site 412



R28 F10 480-993600-29300 Reach 2.1 Site 413



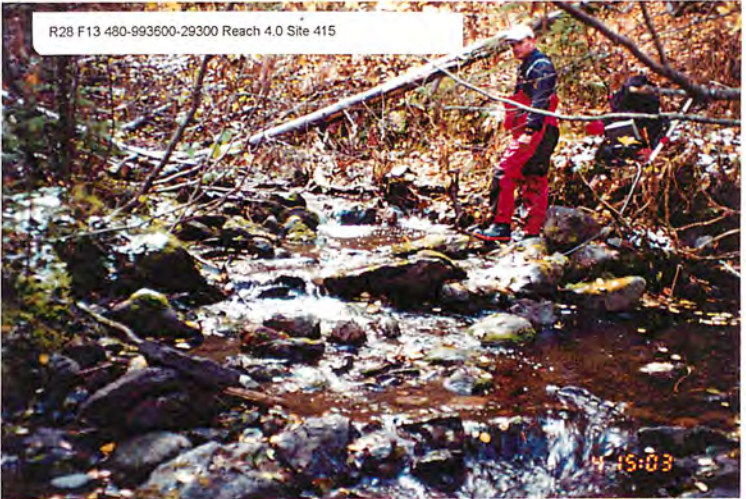
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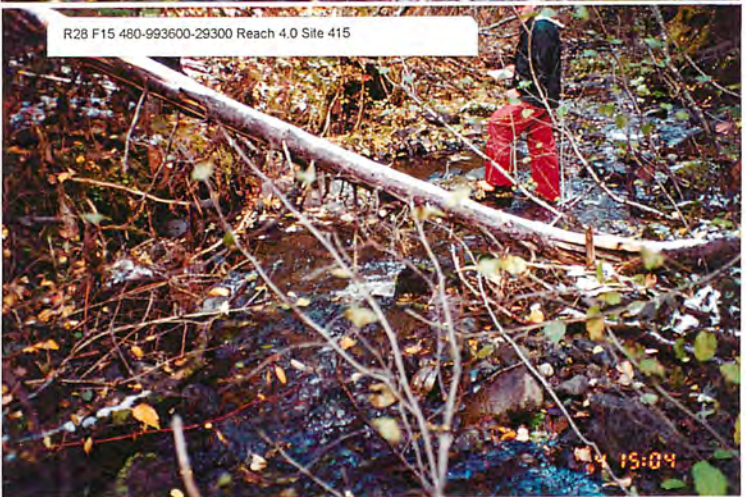
R28 F12 480-993600-29300 Reach 2.1 Site 413



R28 F13 480-993600-29300 Reach 4.0 Site 415



R28 F15 480-993600-29300 Reach 4.0 Site 415

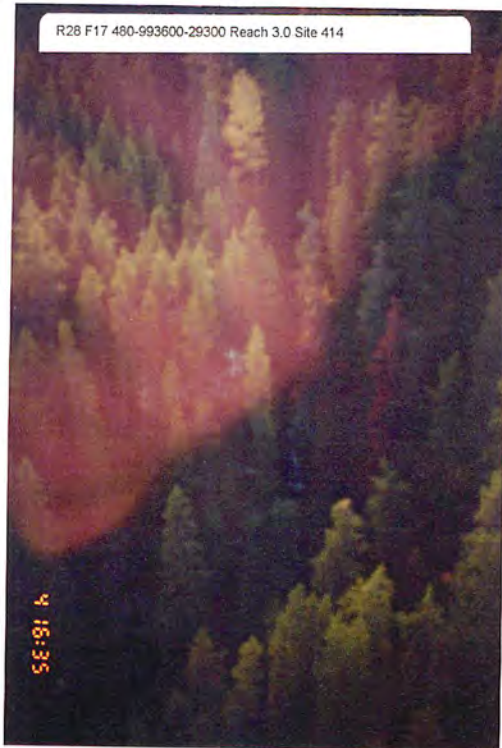


R28 F16 480-993600-29300 Reach 3.0 Site 414



9 16:33

R28 F17 480-993600-29300 Reach 3.0 Site 414



9 16:35

R28 F18 480-993600-22300 Reach 2.0 Site 392



R28 F19 480-993600-22300 Reach 2.0 Site 392



5 10:45

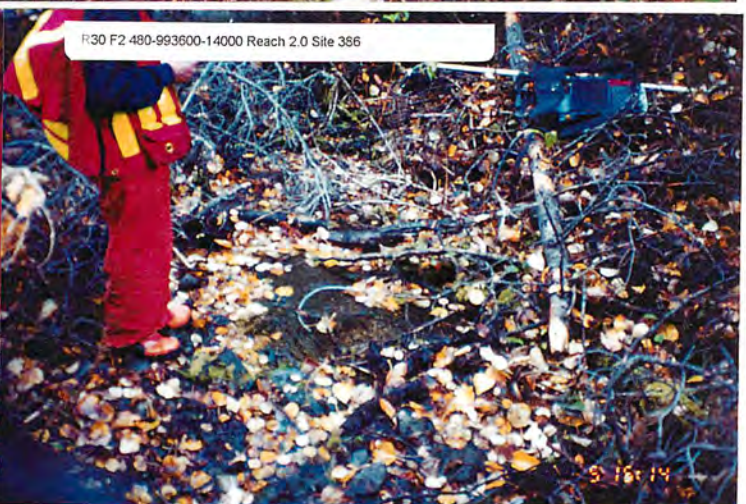
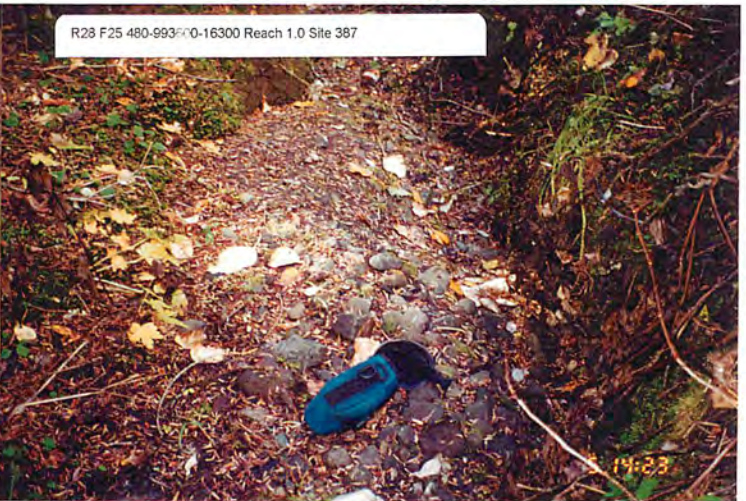
R28 F20 480-993600-22300 Reach 2.0 Site 392



R28 F21 ILP 45715 Reach 1.0 Site 395



5 10:45



**Reconnaissance (1:20,000) Fish and Fish Habitat
Inventory**

**Tributaries in the Sutherland River Watershed
2000**

• Appendix IV: Hardcopy Maps

**Reconnaissance (1:20,000) Fish and Fish Habitat
Inventory**

**Tributaries in the Sutherland River Watershed
2000**

- **Appendix V: Phase Completion Reports**

Project Phase Completion Report**Phases -1-3**

FRBC Multi-Year Agreement Number: 0000105
MELP Project Number: BFP-C016-001-2001
FRBC Activity Number: 10437

Project Name	FDIS Project Number	FDIS Project WSC
Francois Lake Watershed Fish Inventory - 2000	4121	180-374000-95200
Bulkley River Watershed Fish Inventory - 2000	4120	460-000000
Sutherland Watershed Fish Inventory - 2000	4119	480-993600

Project Type: 1:20,000 Reconnaissance Fish and Fish Habitat Inventory
Report Date: August 25, 2000
Proponent: Babine Forest Products Co.
Company/Agency: FINS Consulting Ltd.
Contact Person: Shawn Redden
Contact Phone: (250) 635-8481
Contact E-mail: fins@kermode.net
Ministry Representative: Paul Giroux

List of Deliverables Submitted

Deliverable Product	Received	Approved (QA)
Project Plan (digital and hardcopy)	✓	SB
Excel/Word File Names	✓	
Project Overview Map	✓	
List of References and Contacts	✓	
ILP Data Sheets (digital and hardcopy)	✓	
ILP Map Status	✓	
Interim Maps	✓	
Reach Table (digital and hardcopy)	✓	
Lake Table (digital and hardcopy)	✓	
Sampling Design Sheet (from FDIS)	✓	
FDIS database (digital)	✓	↓ SB

Activity Log

Date	Activity
June 15 - Aug 30, 2000	ILP assignment,, Data Review, Air Photo Interpretation and Data Entry, Draft Sampling Plan
August 31, 2000	Meeting with Paul Giroux for sampling plan approval
Sept 1, 2000	Finalize Project Plan

Summary of Work Completed

Project Area Statistics

Project Area (km2)	1252
Number of TRIM mapsheets	31
Largest watershed (stream order)	6
Number of 3rd order basins	53
km of stream in project area	1760
Number of stream reaches in project area	2532
Number of lakes in project area	106 (includes 22 wetlands)

Planned Sampling Program

Number of reach sample sites proposed	453
Number of Primary lakes proposed	0
Number of secondary lakes proposed	0
Number of sites where cutblock level fish-stream ID is proposed	0

Summary of Phase Costs

As per budget attached in Appendix VI in project plan.

Progress and Problems Summary

None

Next Phase Project Plans and Constraints

Plan to implement field data collection in early September.

Ministry Representative Acceptance

Report Submitted by: FINS Consulting Ltd.	Date:
Phase completion approved:	Date:
Comments:	

Project Phase Completion Report Phase -4

FRBC Multi-Year Agreement Number: 0000105
MELP Project Number: BFP-C016-001-2001
FRBC Activity Number: 10437

Project (Report) Name	FDIS Project Number	FDIS Project WSC
Francois Lake Watershed Fish Inventory - 2000	4121	180-374000-95200
Bulkley River Watershed Fish Inventory - 2000	4120	460-000000
Sutherland Watershed Fish Inventory - 2000	4119	480-993600

Project Type: 1:20,000 Reconnaissance Fish and Fish Habitat Inventory
Report Date: September 7, 2000
Proponent: Babine Forest Products Co.
Company/Agency: FINS Consulting Ltd.
Contact Person: Shawn Redden
Contact Phone: (250) 635-8481
Contact E-mail: fins@kermode.net
Ministry Representative: Paul Giroux

List of Deliverables Submitted

Deliverable Product	Received	Approved (QA)
Field Site Cards and Fish Collection Cards	✓	SB

Activity Log

Date	Activity
September 1 – October 19, 2000	Field sampling conducted. Field QA complete September 7 - joint QA across three Projects.

Summary of Work Completed

Actual Sampling Program Completed

Number of Stream reaches Sampled	441 (442 sites)
Number of Primary Lake Surveys Completed	0
Number of Secondary Lake Surveys Completed	0
Number of sites where cutblock level fish-stream ID completed	0

Summary of Phase Costs

As per budget attached in Appendix VI in project plan.

Progress and Problems Summary

None

Next Phase Project Plans and Constraints

Plan to complete data entry, reporting and mapping by March 15, 2001.

Ministry Representative Acceptance

Report Submitted by: FINS Consulting Ltd.	Date: March 27, 2001
Phase completion approved:	Date:
Comments:	

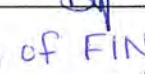
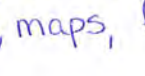
Project Phase Completion Report**Phases -5-6**

FRBC Multi-Year Agreement Number: 0000105
MELP Project Number: BFP-C016-001-2001
FRBC Activity Number: 10437

Project (Report) Name	FDIS Project Number	FDIS Project WSC
Tributaries in the Francois Lake Watershed - 2000	4121	180-374000-95200
Tributaries in the Bulkley River Watershed - 2000	4120	460-000000
Tributaries in the Sutherland River Watershed - 2000	4119	480-993600

Project Type: 1:20,000 Reconnaissance Fish and Fish Habitat Inventory
Report Date: March 31, 2001
Proponent: Babine Forest Products Co.
Company/Agency: FINS Consulting Ltd.
Contact Person: Shawn Redden
Contact Phone: (250) 635-8481
Contact E-mail: fins@kermode.net
Ministry Representative: Paul Giroux

List of Deliverables Submitted

Deliverable Product	Received <i>(one copy for QA only)</i>	Approved (QA)
4 copies of watershed report (Includes embedded overview map)	✓ *	
2 digital copies of above report	✓ *	
4 copies of Project and Interpretive Maps	✓ *	
2 digital copies of above map export files	✓ *	
1 digital copy of above map plot files	✓	
Hardcopy FISS update forms and maps (Attachment II)	✓	
Photodocumentation (Attachment III)		
• Photodocumentation Form 1	✓	
• Photodocumentation report printout (Excel spreadsheet - Export from FDIS)	✓	
• Indexed album of all negatives	✓	
• 2 indexed copies of photo CD's	✓ *	
Field Data (Attachment IV)		
• Field site cards, fish collection forms	✓	
Digital Data (attachment V - see readme.txt file)	✓	
1 hardcopy and 1 digital copy of QA report	✓	
1 hardcopy and 1 digital copy of Phase Completion Report	✓	

* Obtained verbal verification from Mac Jedrzejczyk, of FINS Consulting, that the above quantities of reports, maps, files, and CDs were distributed

Activity Log

Date	Activity
Nov 1, 2000 – March 15, 2001	Data entry into FDIS database, watershed report compilation, mapping
March 21, 2001	Submit report and maps to John Stadt (FES)
March 21, 2001 – March 31, 2000	Address ministry and QA review of report and maps

Summary of Work Completed

Verification of Project Area Statistics

Project Area (km2)	1252
Number of TRIM mapsheets	31
Largest watershed (stream order)	6
Number of 3rd order basins	53
km of stream in project area	1760
Number of stream reaches in project area	2560
Number of lakes in project area	106 (includes 22 wetlands)

Verification of Sampling Program

Number of Stream reaches Sampled	441 (442 sites)
Number of Primary Lake Surveys Completed	0
Number of Secondary Lake Surveys Completed	0
Number of sites where cutblock level fish-stream ID completed	0

Summary of Phase Costs

As per budget attached in Appendix VI in project plan.

Progress and Problems Summary

None

Ministry Representative Acceptance

Report Submitted by: FINS Consulting Ltd.	Date: March 31, 2001
Phase completion approved:	Date:
Comments:	

**Reconnaissance (1:20,000) Fish and Fish Habitat
Inventory**

**Tributaries in the Sutherland River Watershed
2000**

- **Appendix VI: QA Reports**

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Areas: Sutherland – WSC 480 -, FDIS Code: 4119, Bulkley – WSC 460 -, FDIS Code: 4120
Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1A – DELIVERABLE CHECKLIST FOR PRE-FIELD - PAGE 1 OF 1

Check to ensure that a pre-field project planning report was received in the correct format with all the associated deliverable products.

Pre-Field Project Planning Report Deliverables	Hardcopy	Digital	Acceptable Y/N	Comments
1. Cover Page	Y	Y	Y	
2. Table of Contents	Y	Y	Y	
3. List of Digital Products	Y	Y	Y	
4. Overview Map	Y	N/A	Y	
5. Existing Data Review				
• FISS map	N	N/A	Y	FISS data transferred for features only, maps not provided. Confirmed acceptable with Paul Giroux.
• List of references	N/A			
• List of contacts	Y	Y	Y	
• New FISS information summary and products	N/A	N/A	N/A	No new information located.
6. ILP Data*				
• ILP data sheets	Y	Y	Y	
• ILP map list	Y	Y	Y	
• ILP maps or status report	Y	N/A	Y	Confirmation Email included.
7. Interim Maps				
▪ map list	Y	Y	Y	
▪ maps	Y	N/A		
8. FDIS Database	N/A	Y	Y	
• FDIS QA Report	Y	N/A	Y	
9. Sampling Design Sheets	Y	Y	Y	
10. Aerial Video Record (Optional)	N/A	N/A	N/A	
11. Project Plan	Y	Y	Y	
12. Pre-field Planning Report complete	Y	Y	Y	
13. Related items to perform QA	Y	N/A	Y	
• Aerial Photos				

Approved? Yes

Comments/ Recommended actions:

Confirmed with Paul Giroux that leaving off historical FISS fish distribution information is acceptable. All FISS and other historical features have been transferred to the maps but do not have NIDs and are not in the FDIS historical features table. NIDs will be assigned once features are field confirmed.

NOTE: Require Phase Completion Report (PCR) in digital and hardcopy (signed by QA monitor) for final Phase I-III submission.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Areas: Sutherland – WSC 480 -, FDIS Code: 4119, Bulkley – WSC 460 -, FDIS Code: 4120
Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1B– EXISTING DATA REVIEW - PAGE 1 OF 1

Deliverable	Deliverable Check	Acceptable (Y/N)	Comments
List of Contacts	Is list in acceptable format?	Y	
	Have all relevant contacts been pursued?	Y	
	• If NO, report known important contacts	Y	
Bibliography	Is it in acceptable format?	Y	
	Adequately cover known info?	Y	
	• If NO, list missed information	Y	
FISS Information	Has FISS update information been provided for new sources of fisheries information that were not referenced in FISS as required in the contract?	N/A	No new fisheries information located.
	• FISS forms	N/A	
	• Clean NTS map	N/A	
	• Copy of each new source	N/A	
	• References to each new source	N/A	
	• If NO, report info not provided	N/A	

Approved: Yes

Comments / Recommended actions:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Areas: Sutherland – WSC 480 -, FDIS Code: 4119, Bulkley – WSC 460 -, FDIS Code: 4120
Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

Form 1C– Interim Locational Point Maps and Data Sheets - Page 1 of 1

ILP Deliverables

		Y/N	Comments
ILP Map	Provided as separate ILP maps	N	
	Provided as part of interim maps	Y	
	Maps and ILPs legible	Y	
ILP Data Sheet	Complete/consistent with TRIM maps	Y	
	Tables match standard	Y	
	UTMs provided for areas of congestion	N/A	

Are ILP deliverables acceptable (Y/N) ? Yes

Comments: Confirmation of ILP data and map submission included with Planning Report.

Complete ILP Coverage

	TRIM Sheet	Basin Reference	N streams with WSCs	N streams with ILPs	N streams without ILP or WSC	N inconsistencies between ILP map and ILP data sheet
1	93K001	180-	5	26	0	0
2	93K011	180-	4	27	0	0
3	93L029	460-	42	68	0	0
4	93L039	460-	44	57	0	0
5	93K046	480-	23	22	0	0
6	93L059	460-	0	2	0	0
7	93F081	180-	8	42	0	0
8	93F083	180-	5	41	0	0
9	93E090	180-	0	14	0	0
10	93F094	180-	0	3	0	0

Approved: Yes

Comments/ Recommended Actions:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Areas: Sutherland – WSC 480 -, FDIS Code: 4119, Bulkley – WSC 460 -, FDIS Code: 4120
Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1D – INTERIM MAP DATA – PAGE 1 OF 1 - INTERIM MAP SUMMARY

Map Item	Present	Legible	Comment
Watershed Codes	Y		
Waterbody ID's	Y		
ILPs	Y		
Forest Cover Map Streams (optional)	N/A		
Watershed Boundaries	Y		Color coded, not outlined to height of land
Reach Breaks	Y		
Existing Features with NIDs	N		Feature NIDS to be added following field phase, as confirmed, to avoid mapping confusion. Acceptable by P. Giroux.
New Features with NIDs	N		
Proposed reach sample sites (random/discretionary)	Y		
Proposed lake sample sites (primary/secondary)	N/A		

Approved: Pending OK from Paul Giroux re: Feature NIDs

Recommended Actions:

FISS Information

Randomly select features present on FISS maps to ensure information has been correctly transferred.

	1	2	3	4	5	6	7	8	9	10
FISS Map #										
Interim Map #										
FISS Feature										
Transferred (Y or N)										
Location Correct										
Symbol Correct										
NID Present										
Total Errors										

QA Summary

Number of marks (10 features x 4 items): 40 Max number of errors acceptable (12%): 5

Number of errors found: Is the number of errors acceptable:

Approved: UNK

Comments: FISS data not transferred, primarily fish distribution info. Recorded and considered in project plan but not added to interim maps or database because of foreseeable digital mapping problems. Confirmed acceptable by Paul Giroux.

Recommended Actions: Ensure features are assigned NIDs in Phases V-VI.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Areas: Sutherland – WSC 480 -, FDIS Code: 4119, Bulkley – WSC 460 -, FDIS Code: 4120
Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1H – STREAM SAMPLING DESIGN – PAGE 1 OF 1

	Acceptable (Y/N)	Comments
Is the inventory watershed based (ie. entire watershed)?	Y	
Are random reaches selected for sampling based on FDIS statistical sampling design?	Y	
For low gradient or small/medium sized streams, is the sample size of reaches ≥ 8 ?	Y	
For higher gradients (20-30%) or larger sized streams, is the minimum sample size 2 and maximum 25?	Y	
Are discretionary reach samples included?		
• Above or below barriers	Y	
• Adjacent to identified cutblocks	UNK	
• Major inlets and outlets of secondary lakes	Y	
• Of inlets and outlets of primary lakes	Y	
• To achieve connectivity within sub-basins for fish distribution and identification of upstream limits	Y	
Are proposed reach sample sites shown on TRIM maps with solid and dashed green lines?	N/A	
Are planning tables complete with gear and voucher requirements indicated?	N/A	To be determined during Phase IV, as required.
Does the distribution of sample sites adequately represent all basin types and basin connectivities?	Y	
Is the overall sampling rate (sample number vs total number of reaches) acceptable?	Y	
Does the sample design adequately cover the requirements for a reconnaissance inventory?	Y	

Note: Any error identified in a shaded cell constitutes a failure.

Approved: Yes

Comments: Consideration of existing data, distribution, barriers and good choice of discretionary reaches in sampling plan.

Recommended Actions:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Areas: Sutherland – WSC 480 -, FDIS Code: 4119, Bulkley – WSC 460 -, FDIS Code: 4120
Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1I – LAKES SAMPLING DESIGN – PAGE 1 OF 1

	Acceptable (Y/N)	Comments
Is the lake planning table complete and accurate (including classification of lakes as primary, secondary or not sampled)?	Y	Adjust lake group assignments.
Will all identified primary lakes be sampled?	N	No lakes sampling required, justification provided. OK with Paul Giroux of MELP.
Is there at least one lake from each lake group identified that will be sampled?	N	
Will at least 20% of all the secondary lakes be sampled?	N	
Is justification provided for those lakes that will not be sampled?	Y	
Are lakes proposed for sampling outlined on the TRIM maps with solid and dashed green lines?	N/A	
Are planning tables complete with gear and vocher requirements indicated?	N/A	
Does the sample design adequately cover the requirements for a reconnaissance inventory? If no, the sampling design is rejected.	Y	

Approved: Yes

Comments:

Recommended Actions:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Areas: Sutherland – WSC 480 -, FDIS Code: 4119, Bulkley – WSC 460 -, FDIS Code: 4120
Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1J – PROJECT PLAN – PAGE 1 OF 1

	Acceptable (Y/N)	Comments
Does the project plan cover field inventory procedures?	Y	
Does the project plan cover data compilation?	Y	
Does the plan cover reporting requirements?	Y	
Does the plan include proposed staff for the field phase?	Y	
Has existing data been considered and used in the project plan?	Y	
Have sampling intentions of relevant WRP projects or other inventory projects requirements been incorporated into the plan to avoid duplication?	Y	
Has the plan integrated the sampling of lakes and stream habitats, in particular, with any overview flights and sampling of lake tributaries?	Y	
Have requirements for effective sampling methods in relation to stream reach and lake types been addressed?	Y	
Have the requirements for biological and water samples been properly considered?		
• Water sampling particularly in primary lakes	N/A	
• Fish voucher specimens	Y	
• Other samples	Y	
Does and should the plan incorporate any special fish species level inventory needs on a provincial or regional scale?	N/A	
Are budget and schedule adequate to complete the project as planned?	Y	
If the answer to any of the above is no, is this going to have an impact on the inventory project? If so, the project plan is rejected.	N	

Approved: **Yes**

Comments:

Recommended Actions:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Area: Sutherland – WSC 480 -, FDIS Code: 4119

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1E – COMBINED CHECK OF STREAM REACH DATA – PAGE 1 OF 10

List of reaches checked (FDIS/Interim maps/air photos)

Reference	1	2	3	4	5	6	7	8	9	10
TRIM	93K035	93K035	93K035	93K036	93K036	93K036	93K036	93K045	93K045	93K045
ILP /WSC 480-993600-	-39600	35470	35472	-45700	36714	36718	46704	-00600- 13400	-08900	-18700
NID	18	23	27	21	44	53	16	2	7	38
Reach #	6	2	1	1	1	1	5	1	1	6

For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #											
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location		*	*								
Reach Map Symbol											
Map Status											
Order											
Upstream/Down stream Elevation											
Length											
Pattern										X	
Confinement											
An/BR											
Basin Type											
Total Errors	0	0	0	0	0	0	0	0	0	1	Total = 1
Shaded Cell Errors	0	0	0	0	0	0	0	0	0	0	

Features	1	2	3	4	5	6	7	8	9	10	Comments
NID and NID Map Number	X	X	X	X	X	X	X	X	X		No feature NIDs on Maps or FDIS
Map Symbol (Map 93K045)	6F	20c 60	5F	3F	12F	40C 130	40C 75	10F	5F		
Total Errors	1	1	1	1	1	1	1	1	1		Total = 10
Shaded Cell Errors	1	1	1	1	1	1	1	1	1		

Comments:

#2, #3 – extra reach? - these don't appear to warrant reach break.

#4 – WSC is on shortest branch – is this from the WSC Atlas?

#8 – WTLND, should be TRUE?

FEATURES: Confirm with Paul that it's OK to leave off NIDs until field confirmed.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Area: Sutherland – WSC 480 -, FDIS Code: 4119

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1E – COMBINED CHECK OF STREAM REACH DATA – PAGE 2 OF 10

List of reaches checked (FDIS/Interim maps/air photos)

Reference	11	12	13	14	15	16	17	18	19	20
TRIM	93K045	93K045	93K045	93K045	93K045	93K045	93K045	93K045	93K045	93K046
ILP /WSC 480-993600-	-24500	-24500- 57600	45702	45704	45710	45717	45738	45742	45744	-39100
NID	71	82	11	17	43	66	122	137	139	36
Reach #	3	4	1	1	1	4	2	2	1	2

For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #											
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location		*									
Reach Map Symbol											
Map Status											
Order											
Upstream/Down stream Elevation									X		
Length											
Pattern						X				X	
Confinement							X			X	
An/BR											
Basin Type					*						
Total Errors	0	0	0	0	0	1	1	0	1	2	Total = 5
Shaded Cell Errors	0	0	0	0	0	0	0	0	0	0	

Comments:

#12 – is reach break necessary?

#15 – Basin Type – are the wetland areas open water >7.5% of basin area? (Type 4 instead of 3?)

#16 – FC and IR – not a likely combination. Pattern appears to be ST/SI

#17 – FC and IR – “ “. Confinement appears to be OC.

#19 – Downstream elevation = 1066

#20 – Pattern ST/SI, Confinement FC (Not IR/OC)

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Area: Sutherland – WSC 480

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1E – COMBINED CHECK OF STREAM REACH DATA – PAGE 3 OF 10

List of reaches checked (FDIS/Interim maps/air photos)

Reference	21	22	23	24	25	26	27	28	29	30
TRIM	93K046	93K046	93K046	93K046	93K046	93K055	93K055	93K055	93K055	93K055
ILP /WSC 480-993600-	-40800- 32900	-40800- 55500	36713	46705	46714	-00600	-00600- 22100	55703	55706	55707
NID	53	58	102	41	76	4	8	21	28	31
Reach #	4	2	2	1	1	4	1	1	1	1

For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #											
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location											
Reach Map Symbol											
Map Status											
Order											
Upstream/Down stream Elevation					X						
Length											
Pattern								X			
Confinement											
An/BR											
Basin Type											
Total Errors	0	0	0	0	1	0	0	1	0	0	Total = 2
Shaded Cell Errors	0	0	0	0	0	0	0	0	0	0	

Comments:

#5 – upstream elevation = 1563

#8 – appears to be ST/SI

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP - C016-001-2001 FRBC Activity #: 10437

Project Area: Francois Lake - WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 - 30, 2000.

FORM 1E - COMBINED CHECK OF STREAM REACH DATA - PAGE 4 OF 10

List of reaches checked (FDIS/Interim maps/air photos)

Reference	1	2	3	4	5	6	7	8	9	10
TRIM	93E090	93F081	93F081	93F081	93F081	93F082	93F082	93F082	93F083	93F083
ILP/WSC 180-347000- 95200-	90011	-41400- 5280-4510	-41400- 5280-7330	90010	81027	-52800- 0610	82005	82005	-28700- 3110	83002
NID	35	33	88	161	128	7	22	27	38	23
Reach #	1	6	2	3	2	7	1	6	1	2

For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #											
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location											
Reach Map Symbol											
Map Status											
Order											
Upstream/Down stream Elevation											
Length											
Pattern											
Confinement											
An/BR											
Basin Type											
Total Errors	0	0	0	0	0	0	0	0	0	0	Total = 0
Shaded Cell Errors	0	0	0	0	0	0	0	0	0	0	

Features	1	2	3	4	5	6	7	8	9	10	Comments
NID and NID Map Number											
Map Symbol											
Total Errors											
Shaded Cell Errors											

Comments:

Features are missing NIDs

Note: Any error identified in a shaded cell constitutes a failure.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Areas: Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1E – COMBINED CHECK OF STREAM REACH DATA – PAGE 5 OF 10

List of reaches checked (FDIS/Interim maps/air photos)

Reference	11	12	13	14	15	16	17	18	19	20
TRIM	93F083	93F083	93F084	93F084	93F084	93F084	93F091	93F091	93F092	93F093
ILP/WSC 180-347000- 95200-	83015	83023	-2870- 5840	84002	84024	84044	-41400- 5280-5480	91009	-5280- 2540	93014
NID	47	78	20	33	90	126	41	32	16	48
Reach #	2	2	10	3	1	1	9	2	3	2

For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #											
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location											
Reach Map Symbol											
Map Status											
Order											
Upstream/Down stream Elevation											
Length											
Pattern											
Confinement											
An/BR											
Basin Type											
Total Errors	0	0	0	0	0	0	0	0	0	0	Total = 0
Shaded Cell Errors	0	0	0	0	0	0	0	0	0	0	

Note: Any error identified in a shaded cell constitutes a failure.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Area: Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1E – COMBINED CHECK OF STREAM REACH DATA – PAGE 6 OF 10

List of reaches checked (FDIS/Interim maps/air photos)

Reference	21	22	23	24	25	26	27	28	29	30
TRIM	93F094	93K001	93K001	93K002	93K002	93K011	93K011	93K011	93K012	93K012
ILP/WSC 180-347000- 95200-	93009	1001	1024	-59800	2004	-01900- 3580	11017	11022	-01900- 3580-6720	12013
NID	3	10	72	23	36	12	65	77	24	46
Reach #	1	5	1	8	3	18	1	1	6	1

For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #											
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location											
Reach Map Symbol											
Map Status											
Order											
Upstream/Down stream Elevation											
Length											
Pattern											
Confinement											
An/BR											
Basin Type						X	X	X			Basin Type appears to be 4
Total Errors	0	0	0	0	0	1	1	1	0	0	Total = 3
Shaded Cell Errors	0	0	0	0	0	0	0	0	0	0	

Note: Any error identified in a shaded cell constitutes a failure.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Area: Bulkley – WSC 460 -, FDIS Code: 4120

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1E – COMBINED CHECK OF STREAM REACH DATA – PAGE 7 OF 10

List of reaches checked (FDIS/Interim maps/air photos)

	1	2	3	4	5	6	7	8	9	10
TRIM	93L029	93L029	93L029	93L029	93L029	93L029	93L029	93L029	93L029	93L030
ILP /WSC 460-	-917900-75300-69468	-917900-80300	-917900-82616	-917900-82616	-924300-31500	29016	29034	29039	29049	30001
NID	8	13	34	35	1001	111	141	157	177	2
Reach #	3	2	2	3	4	1	1	1	6	1

For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #											
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location											
Reach Map Symbol											
Map Status											
Order											
Upstream/Down stream Elevation											
Length											
Pattern								*			#8 – ST/SI?
Confinement					*						#5 – R4 = EN?
An/BR											
Basin Type											
Total Errors	0	0	0	0	0	0	0	0	0	0	Total = 0
Shaded Cell Errors	0	0	0	0	0	0	0	0	0	0	

Features	1	2	3	4	5	6	7	8	9	10	Comments
NID and NID Map Number	X	X	X	X	X	X	X	X	X		No feature NIDs
Map Symbol	3F	15C 50	10C 30	150 F	40F	C	30F	8C2 0	10C 35		
Total Errors	1	1	1	1	1	1	1	1	1		Total = 9
Shaded Cell Errors	1	1	1	1	1	1	1	1	1		Total = 9

Note: Any error identified in a shaded cell constitutes a failure.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Area: Bulkley – WSC 460 -, FDIS Code: 4120

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1E – COMBINED CHECK OF STREAM REACH DATA – PAGE 8 OF 10

List of reaches checked (FDIS/Interim maps/air photos)

	1	2	3	4	5	6	7	8	9	10
TRIM	93L049	93L049	93L050	93L050	93L050	93L050	93L050	93L060	93L060	93L060
ILP /WSC 460-	49010	49021	829700- 20600-446	50001	50042	50051	50078	-829700- 20600	60024	60048
NID	22	45	44	6	162	174	237	16	86	142
Reach #	3	1	9	2	1	1	3	21	2	1

For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #											
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location											
Reach Map Symbol											
Map Status											
Order											
Upstream/Down stream Elevation											
Length											
Pattern											
Confinement											
An/BR											
Basin Type											
Total Errors	0	0	0	0	0	0	0	0	0	0	Total = 0
Shaded Cell Errors	0	0	0	0	0	0	0	0	0	0	

Note: Any error identified in a shaded cell constitutes a failure.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Area: Bulkley – WSC 460 -, FDIS Code: 4120

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1E – COMBINED CHECK OF STREAM REACH DATA – PAGE 9 OF 10

List of reaches checked (FDIS/Interim maps/air photos)

	1	2	3	4	5	6	7	8	9	10
TRIM	93L039	93L039	93L039	93L039	93L040	93L040	93L040	93L040	93L040	93L050
ILP /WSC	-26900- 460-	-26900- 80800	-53145- 64712	-58000	40004	40009	40029	40031	40035	-829700- 20600
NID	116	118	157	163	3	24	82	86	92	23
Reach #	2	4	1	6	1	4	4	1	1	12

For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #											
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location											
Reach Map Symbol											
Map Status											
Order											
Upstream/Down stream Elevation											
Length											
Pattern											
Confinement											
An/BR											
Basin Type											
Total Errors	0	0	0	0	0	0	0	0	0	0	Total = 0
Shaded Cell Errors	0	0	0	0	0	0	0	0	0	0	

Note: Any error identified in a shaded cell constitutes a failure.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Areas: Sutherland – WSC 480 –, FDIS Code: 4119, Bulkley – WSC 460 –, FDIS Code: 4120
Francois Lake – WSC 180 –, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1E – COMBINED CHECK OF STREAM REACH DATA – PAGE 10 OF 10

Reaches to be Field Sampled	1	2	3	4	5	6	7	8	9	10	Comments
BGC Zone											
Setting											
Open Water											
Coupling											
Valley Flat											
Active Floodplain											
Islands											
Bars											
Disturbance Indicators											
Mass Movement											
Riparian Vegetation											
Exposed/Eroded											
Land Use											
Total Errors											

QA Summary

	All Reaches		Features		Sample Reaches	
Number of Reaches to be Sampled	90		28			
Number of Marks (N reaches sampled x attributes)	N x 15	1350	N x 2	56	N x 13	
Maximum Errors Acceptable (12% of Marks)	162		6			
Number of Errors Found	11		28			
Is the Number of Errors Acceptable (Y/N)	Yes		N			
Number of Errors in Zero-Tolerance Attributes	0		28			

Approved: Yes - Paul Girous confirmed that it is acceptable to omit Feature NIDs at this stage

Comments / Recommended Actions: Very good consistency in Reach data, minor errors only. Reach card check is N/A at this stage – check to confirm whether Reach Card submission is required in Phase V-VI or not, see your contract.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Area: Sutherland – WSC 480 -, FDIS Code: 4119,

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1F – COMBINED CHECK OF PRE-FIELD LAKE INFORMATION PAGE 1 OF 3

List of Lakes checked (FDIS/Interim maps/air photos)

	1	2	3	4	5	6	7	8	9	10
ILP/WBID – BABL-	02259	02224	02074	01879	55901	01934	46901	02067	02090	45901
Reach #	4	8	6	5	2	6	4	10	3	2
Map #	93K036	93K045	93K045	93K055	93K055	93K055	93K046	93K046	93K046	93K045
NID	37	76	109	5	24	38	44	74	59	93

Attribute	1	2	3	4	5	6	7	8	9	10	Comments
Official Name											
Alias or Local Name											
WSC and Waterbody Identifier "or" ILP and ILP map number											
NID Number and NID Map Number								x			NID Typo – 14 on Map, 74 in FDIS
UTM (optional, but no errors allowed)											
Reach Number											
Basin Type											
Group		x	x	x		x		x	x		See notes below
Class (P/S)											
Genesis											
Surface Area											
Magnitude											
Biogeoclimatic Zone											
Wetland											
Total Errors for Each Lake	0	1	1	1	0	1	0	2	1	0	Total = 7

Note: Any error identified in shaded portion constitutes a failure.

Comments/ Recommended Actions:

Lake Groups – lakes have the same lake group only if interconnected so that fish have access between them. These lakes (NIDs 109,76,38,74,59) are located in separate basins, quite far apart from one another and therefore should not constitute the same lake group (CA). Lake groups need adjustment for the three areas within project.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Area: Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1F – COMBINED CHECK OF PRE-FIELD LAKE INFORMATION PAGE 2 OF 3

List of Lakes checked (FDIS/Interim maps/air photos)

	1	2	3	4	5	6	7	8	9	10
ILP# or WBID FRAN -		81902	02298	91901						
Reach #	4	13	2	26	2	3	3	9	11	2
Map #	93K012	93F081	93F081	93F091	93F092	93K002	93K002	93K002	93K011	93K012
NID	15	59	100	3	7	8	12	24	43	2

Attribute	1	2	3	4	5	6	7	8	9	10	Comments
Official Name											
Alias or Local Name											
WSC and Waterbody Identifier "or" ILP and ILP map number											
NID Number and NID Map Number											
UTM (optional, but no errors allowed)											
Reach Number											
Basin Type											
Group	X									X	
Class (P/S)											
Genesis											
Surface Area					X			X	X		
Magnitude				X							
Biogeoclimatic Zone											
Wetland											
Total Errors for Each Lake	1	0	0	1	1	0	0	1	1	1	Total = 6

Note: Any error identified in shaded portion constitutes a failure.

Comments/ Recommended Actions:

#4 – Mag – we calculate 18 vs. 15

#5 – SA = we get 1.28 ha vs. 0.9 ha.

#8 – SA = we get 38 ha vs. 44 ha

#10 - 00569FRAN and 00610FRAN should be in the same lake group.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Area: Bulkley – WSC 460 -, FDIS Code: 4120

Submitted By: FINS Consulting Ltd

QA Review By: Acer Resource Consulting Ltd. Review Date: August 25 – 30, 2000.

FORM 1F – COMBINED CHECK OF PRE-FIELD LAKE INFORMATION PAGE 3 OF 3

List of Lakes checked (FDIS/Interim maps/air photos)

	1	2	3	4	5	6	7	8	9	10
ILP# or WSC	29901	01675	460-8297- 20600-446	460-000	-829700- 20600	-829700- 20600- 30400				
Reach #	4	3	2	5	18	9				
Map #	93L029	93L039	93L050	93L050	93L060	93L060				

Attribute	1	2	3	4	5	6	7	8	9	10	Comments
Official Name											
Alias or Local Name											
WSC and Waterbody Identifier "or" ILP and ILP map number											
NID Number and NID Map Number											
UTM (optional, but no errors allowed)											
Reach Number											
Basin Type											
Group		X	X		X		X				
Class (P/S)											
Genesis											
Surface Area											
Magnitude											
Biogeoclimatic Zone											
Wetland											
Total Errors for Each Lake	1	1	0	1	0	1	0	0	0	0	Total = 4

Note: Any error identified in shaded portion constitutes a failure.

Lake Group Errors:

01675BULK can't have same lake group as 29901BULK (Lu Lake), but should be the same as Day Lake (01658BULK)

#4 – Conrad Lake, Old Woman Lake and Brown Lake should have same group

#6 – Airport Lake and #28 should have same group

QA Summary

	Lakes
Number of Lakes to be Sampled	26
Number of Marks (N Lakes sampled x attributes)	N x 13 338
Maximum Errors Acceptable (12% of Marks)	40
Number of Errors Found	17
Is the Number of Errors Acceptable	Yes
Number of Errors in Zero-Tolerance Attributes	1 – typo for NID

Approved: Yes

Comments/ Recommended Actions: Adjust Lake Group assignments for entire study area.

Fish Inventory Quality Assurance Check Form

Field Audit: Crew Information, Permits and Safety

Project Name: Babine Forest Products 2000 Fish and Fish Habitat Inventory Projects

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Project Areas: Sutherland – WSC 480 -, FDIS Code: 4119, Bulkley – WSC 460 -, FDIS Code: 4120
Francois Lake – WSC 180 -, FDIS Code: 4121

Submitted By: FINS Consulting Ltd

Review By: Sam Buchanan, Acer Resource Consulting Ltd. Review Date: September 7, 2000

Form 2A – Page 1 of 1

Crew Information

Crew Members Names	Listed in Contractor Plan	Area of Expertise (bio, geo, other)	First Aid		Electrofishing	
			Level I	Transportation	Crew Member	Crew Leader
Shawn Redden	Y	Bio	Y	Y		Y
Marek Janowicz	Y	Bio	Y	Y		Y
Mac Jedrzejczyk	Y	Bio	Y	Y		Y
Maciej Gostmski	Y	Bio	Y	Y	N	

QA comments about crew and/or certifications:

According to the WCB, the secondary crew member is not required to have electroshocking certification provided that the Crew Leader has supplied safe operation procedures, instructions and relevant written materials to the crew member. The crew leaders were questioned regarding safe work procedures and the crew member without certification was up to date on electroshocker safety, equipment and procedures. This crew is therefore approved by QA.

Permits and Safety Equipment

Group	Item	Acceptable		Specify Problem
		Yes	No	
Permits	MELP Fish Collection Permits	Yes		
	DFO Fish Collection Permits	Yes		
	Other	N/A		
Safety Plan	Safety Plan in Place	Yes		
	Is Safety Plan Followed	Yes		

QA comments about crew and/or certifications:

Note: If any obvious WCB regulations are contravened, the QA team must immediately inform the responsible contract monitor and the Ministry Representative.

Field Audit Confirmation

Field Audit Leader: SB For Field Crew: SR/MJ MJ/MG

Fish Inventory Quality Assurance Check Form

Field Audit for Stream Surveys: Site Card Procedures Check

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Submitted By: FINS Consulting Ltd

Field Audit By: S. Buchanan/Acer Resource Consulting Ltd. Site Identifier: . Field Audit Date: September 7, 2000

Form 2B – Page 1 of 2

Material Present in the Field	Yes	No	Notes
Site Cards	Y		
Field Reference Material	Y		
Field Maps	Y		
Other	N/A		

List Equipment Used	Calibrated (Y/N)	Proper Use (Y/N)	Notes
SR 12 B POW	N/A	N/A	Sites dry, no fish or WQ sampling
Oakton TDS	Y	N/A	
Oakton PH	Y	N/A	
Abney Level	N/A	Y	
Alcohol Therm.	N/A	N/A	

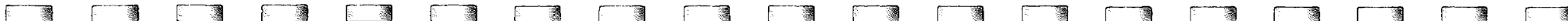
Notes:

Discussion of shocking techniques, calibration of meters etc. Observed shocking in 1999. Crews demonstrated acceptable level of knowledge.

Group	Item	Acceptable		Notes
		Tech.	Data	
Reference	Site Selection	Y	Y	
	Stream Name (Gaz)	N/A	N/A	
	Alias	N/A	N/A	
	WSD code or	N/A	N/A	
	ILP # and ILP Map #	Y	Y	
	Map NID and NID Map #	N/A	N/A	Assigned post field
	Field UTM and Method	Y	Y	
	Reach Number	Y	Y	
	Site Number	N/A	N/A	Assigned post field
	Site Length and Method	Y	Y	
	Access Date, Time	Y	Y	
	Agency	Y	Y	
	Crew	Y	Y	
	Fish Form	Y	Y	
Channel	Equipment	Y	Y	
	Channel Widths	Y	Y	
	Wetted Widths	Y	Y	

Field Audit Confirmation

Field Audit Leader: SBB. For Field Crew: FINS.



Fish Inventory Quality Assurance Check Form
Field Audit for Stream Surveys: Site Card Procedures Check Continued

Form 2B – Page 2 of 2

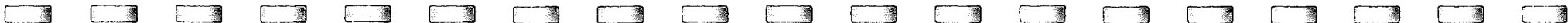
Group	Item	Acceptable		Notes
		Tech.	Data	
Channel (cont)	Residual Pool Depth	N/A	N/A	
	Bankful Depth	Y	Y	
	Gradient	Y	Y	
	Stage	Y	Y	
	NVC; Dry/Int; DW; Tribs	Y	Y	
Cover	Total Cover	Y	Y	
	Cover Elements - Amount	Y	Y	
	Cover Elements - location	Y	Y	
	Crown Closure	Y	Y	
	LWD – Function	Y	Y	
	LWD – Distribution	Y	Y	
	Instream Vegetation	Y	Y	
	Left and Right Bank Shape	Y	Y	
	Texture	Y	Y	
	Riparian Vegetation	Y	Y	
	Stage	Y	Y	
Morphology	Flood Signs	Y	Y	
	Bed Material	Y	Y	
	D95	Y	Y	
	D	Y	Y	
	Morphology	Y	Y	
	Disturbance Indicators	Y	Y	
	Channel Pattern	Y	Y	

Notes:

Group	Item	Acceptable		Notes
		Tech.	Data	
Morphology (cont)	Islands	Y	Y	
	Bars	Y	Y	
	Coupling	Y	Y	
	Confinement	Y	Y	
Water	Equipment	Y	Y	
	Temperature	N/A	N/A	
	PH	N/A	N/A	
	Conductivity	N/A	N/A	
	Turbidity	N/A	N/A	
Features	NID map #, NID	N/A	N/A	
	Type	N/A	N/A	
	Height, Length	N/A	N/A	
	Photo	N/A	N/A	
Habitat Quality	Keywords	Y	Y	
	Relevant Comments	Y	Y	
	FSZ	N/A	N/A	
Photodocumentation	Roll #	Y	Y	
	Photo #	Y	Y	
	Focal Length	Y	Y	
	Direction	Y	Y	
	NID #, NID Map #	Y	Y	
	UTM and Method	Y	Y	
Wildlife	Group	Y	Y	
	Relevant Comment	Y	Y	

Field Audit Confirmation

Field Audit Leader: SB . For Field Crew: FINS .



Fish Inventory Quality Assurance Check Form

Field Audit: Fish Collection Forms

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: BFP – C016-001-2001 FRBC Activity #: 10437

Submitted By: FINS Consulting Ltd

Field Audit By: S. Buchanan/Acer Resource Consulting Ltd. Site Identifier: Field Audit Date: September 7, 2000

Form 2D

Field Audit: Fish Collection Check

Page 1 of 3

Materials Present in Field	Y	N	Notes
Fish Collection Forms	Y		
Individual fish data forms	Y		
Field data reference	N		
Field key to the freshwater fishes of BC	N		
Approved electroshocker	Y		
Ancillary fish capture equipment (buckets, dipnets, stop net)	Y		
Fry Board/ruler	Y		
Weigh Scale	N/A		
Fish samples (scale envelopes, tissue vials)	Y		
Voucher containers, preservative, labels	Y		

Sampling Technique		Acceptable		Notes
		Y	N	
Lakes	Number and duration of gill nets set	N/A		
	Number and duration of minnow traps set	N/A		
	Other	N/A		
Streams	Site selection and length	N/A		
	Number and duration of minnow traps set	N/A		
	Other	N/A		
Electrofisher function	Tilt/safety	N/A		No water for EF at either site, however, we discussed EF techniques, sampling effort fish ID and handling with crews in field – crews have a sound knowledge of EF function, fish capture, fish handling, site coverage. Checked crew in 1999 – good EF technique.
	Main power switch	N/A		
	Anode deadman switch	N/A		
	Quick release harness	N/A		
	Anode Clean	N/A		
Electrofishing techniques	Safe operation and hand signals	N/A		
	Site coverage – all habitat types fished	N/A		
	Effective fish capture	N/A		
	Impact on fish	N/A		
Fish Handling	Impacts on fish	N/A		

Field Audit Confirmation

Field Audit Leader: SB For Field Crew: FINS

Form 2D Continued – Page 2 of 3

Sampling Technique		Acceptable		Notes
		Y	N	
Fish identification	Correct ID	N/A		No fish sampling
	Correct use of fish key	N/A		
	Unidentified fish procedure	N/A		
Fish Samples	Age sampling, labelling	N/A		
	Voucher storage, labelling	N/A		
Group	Item	Acceptable		Notes
		Tech	Data	
Header	Name	N/A		
	Stream/Lake/Wetland	N/A		
	WSC or ILP	N/A		
	WBID	N/A		
	ILP map	N/A		
	Project ID	N/A		
	Reach #	N/A		
	MELP Fish Permit #	N/A		
	Date/ start/end	N/A		
	Agency/ crew	N/A		
Site/Method	Resample	N/A		
	Site #	N/A		
	NID, NID map#	N/A		
	Site UTM	N/A		
	Method, method no.	N/A		
	Temp, cond, turbidity	N/A		

Notes:

Group	Item	Acceptable		Notes	
		Tech	Data		
Fish Summary	Site #	N/A			
	Method, method #	N/A			
	Haul/Pass	N/A			
	Specie, stage, toatl #	N/A			
	Min Length	N/A			
	Fish activity	N/A			
Gear Specs.	Site #	N/A			
	Method, method #	N/A			
	Haul	N/A			
	Date, time in	N/A			
	Date, time out	N/A			
	Net type, length and depth	N/A			
	Mesh size	N/A			
	Set, habitat	N/A			
	Electrofisher Specs.	Site #	N/A		
		Method, method #	N/A		
Pass		N/A			
Time in, time out		N/A			
EF seconds		N/A			
Length, width		N/A			
Enclosure		N/A			
Voltage, freq., pulse		N/A			
Make, model		N/A			
Individual Fish data		Fish collection form #	N/A		
	Site #	N/A			
	Method, method #	N/A			
	Haul/Pass	N/A			
	Species	N/A			
	Length	N/A			
	Weight	N/A			
	Sex	N/A			
	Maturity	N/A			
	Age structure	N/A			
	Age sample #	N/A			

Field Audit Confirmation

Field Audit Leader: 88 For Field Crew: FINS

FORM 2D- CONT'D – Page 3 of 3

Group	Item	Acceptable		Notes
		Y	N	
Individual Fish data (cont'd)	Age	N/A		
	Voucher	N/A		
	Genetic Structure	N/A		
	Genetic Sample #	N/A		
	Photos	N/A		
	Number of Fish Samples	N/A		

Notes:

No fish sampling, no fish captured, fish collection form not required for either site.

Notes:

Crew Sean Redden/ Marek Janowicz:

Site was NVC – located by GPS.

Assessment (NVC) accurate, site card completed correctly for NVC site, with additional notes. No fish card, no sampling.

In lieu of card comparison, discussed card completion and interpretation of Standards to establish crew's comprehension/accuracy. Our discussion included: defining habitat quality, confinement, pattern, coupling.

Techniques for measuring CW, Wb, D95, unusual channels.

Discussed fish sampling techniques and strategies for multiple species, fish handling, fish presence, etc.

Discussed equipment: Electroshocker, GPS.

Crew demonstrated good understanding of card components and their relevance as well as a good effort to collect appropriate site data.

Crew approved for Phase IV QA.

MJ – EF technique observed during 1999 QA, approved.

Crew Mac Jedrzejczyk/Maciej Gostmski:

Site contained no water, no fish sampling possible.

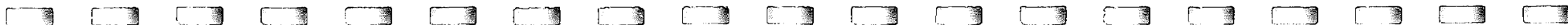
Discussed fish presence, sampling, equipment.

Site card completed correctly, crew demonstrated a good understanding of habitat parameters, methods for accurate and consistent measures.

Crew approved for Phase IV QA.

Field Audit Confirmation

Field Audit Leader: SB. For Field Crew: FINS.



FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. Review date: March, 2001

FORM 3A

DATA COMPILATION AND REPORTING DELIVERABLES FOR QA – PAGE 1 OF 1

	Deliverable	Hardcopy	Digital	Comments
Watershed reporting	Watershed report	Y	Y	
	Appendices			
	I. FDIS summary and photographs	Y	Y	
	II. Maps	Y	(N)	Folder created, to be included with final
	Attachments			
	I. Pre-field planning document	N/A	Y	Already at MELP for Ph. 123
	II. Field notes and forms	Y	N/A	
	III. Fish ageing structures	N/A	N/A	
	IV. Fish samples and vouchers	N/A	N/A	
	V. Photodocumentation	Y	Y	
	VI. Digital data	Y	(N)	Folder created, to be included with final, mapping data, metadata, map attributes table and Arc Info QA report to be included with final
	VII. FISS update data	Y	N/A	
	VIII. Aerial photography	N/A	N/A	
Individual lake reporting (for each lake)	Lake report	N/A		
	Appendices	N/A		
	I. Lake survey form	N/A		
	II. Water chemistry data	N/A		
	III. Fish collection forms	N/A		
	IV. Tributary summary	N/A		
	V. Photographs	N/A		
	VI. Bathymetric map	N/A		
	Attachments	N/A		
	I. Photodocumentation	N/A		
	II. Digital data	N/A		
	III. FISS update data	N/A		
	IV. Phase completion reports	N/A		
	V. Field notes and forms	N/A		
	VI. Aerial photography	N/A		
	VII. Fish ageing structures	N/A		
	VIII. Fish samples and vouchers	N/A		

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3B DIGITAL DATA CHECKING – PAGE 1 OF 1

For each FDIS file provided:

FDIS filename:

	Acceptable		Comments
	Y	N	
Conversions done:			
• ILP to WSC	Y		Confirmed by PG to leave off, but submit disk with new codes to MELP
• NID-UTM	UNK		Pls. include with final
• Update bathymetry	N/A		
FDIS QA report attached			
• Acceptable error report	Y		Viewed digital copy

For each FDIS file and digital map file set:

ARCView fish QA tool

	Filename	Acceptable		Comments
		Y	N	
Digital map files			X	To be completed for final
• Metadata table			X	
• Map attributes table			X	
FDIS data check		N/A		Internal/MELP process
• Sequential reach numbering:		N/A		
• Point locations on TRIM streams:		N/A		
Copy of ARCView fish QA tool error report attached			X	To be submitted with final
• Acceptable error report		UNK		

Note: The map attributes table, introduced in 1999, replaces the point table and the attribute table from 1998 standards.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 1 OF 4

	1	2	3	4	5	6	7	8	9	10
Site/ Nid#	382	388	389	390	391	397	398	400	406	414
Mapsheet (93K.)	055	045	045	045	045	045	045	045	045	045
ILP/WSC (480-993600-)	00600-0	18700-0	18700-0	18700-0	45709	24500-0	24500-0	24500-0	45730	29300-0

Record errors below with an 'x.' An error occurs if there is any inconsistency among: 1) field site cards, 2) FDIS, 3) project maps and 4) interpretive maps, as specified for each attribute.

Card section	Attribute	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Header	Stream name	1, 2, 3, 4											
	Watershed code or ILP map # and ILP #	1, 2, 3, 4											
	NID map # and NID #	1, 2											
	Reach #	1, 2, 3, 4											
	Site #	1, 2, 3, 4											
	Site length	1, 2											
	Access	1, 2											
	Survey date	1, 2, 3, 4											
	Agency conducting survey	1, 2, 3, 4											
	Time of survey	1, 2											
	Crew conducting survey	1, 2											
	Fish form completed	1, 2											
Channel	Channel width	1, 2, 3, 4			*						*		
	Stream Class, line color	1,2,4											
	Wetted width	1, 2											
	Residual pool depth	1, 2											
	Site gradient	1, 2, 3											
	Reach gradient	2, 3, 4											
	Bankfull depth	1, 2											
	Stage	1, 2											
	No Vis. Ch., DW, and Dry/Int.	1, 2, 3, 4											
	Tribs	1, 2, 3, 4											
Cover	Total cover	1, 2											
	Cover elements	1, 2											
	Functional LWD (amount, distribution)	1, 2											
	Crown closure	1, 2											
	Instream vegetation	1, 2											
	Bank shape, texture, riparian vegetation	1, 2											

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3C

CONTINUED – PAGE 2 OF 4

Card section	Attribute	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Water	EMS #	1, 2											
	Temperature, pH	1, 2											
	Water chemistry requisition #	1, 2											
	Conductivity, turbidity	1, 2											
Channel morphology	Flood signs	1, 2											
	Bed material	1, 2, 3											
	D95, D	1, 2										X	
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3											
	Pattern	2, 3											
	Islands, bars, coupling	1, 2											
	Confinement	2, 3											
Features	NID map # and NID #	1, 2			X								
	Type, height/length	1, 2, 3, 4			X								
	Photo, comments	1, 2											
	UTM	1, 2											
Habitat quality	General comments	1, 2											
	Fisheries sensitive zones	1, 2, 3, 4											
Photo-documentation	Roll #	1, 2											
	Frame #	1, 2											
	Focal length	1, 2											
	Direction	1, 2											
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2						*					
Comments	General comments	1, 2											
Total Errors:			0	0	2.5	0	0	0.5	0	0	0.5	1	

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 3 OF 4

	11	12	13	14	15	16	17	18	19	20
Site/ Nid#	417	425	428	431	434	436	438	443		
Mapsheet (93K.)	046	046	046	046	046	046	036	036		
ILP/WSC (480-993600-)	32300-0	39600-0	40800-0	40800-0	40800-32900-0	46721	45700-0	46700-0		

Record errors below with an 'x.' An error occurs if there is any inconsistency among: 1) field site cards, 2) FDIS, 3) project maps and 4) interpretive maps, as specified for each attribute.

Card section	Attribute	Where to check	1 1	2 2	3 3	4 4	5 5	6 6	7 7	8 8	9 9	20	Error locations
Header	Stream name	1, 2, 3, 4											
	Watershed code or ILP map # and ILP #	1, 2, 3, 4											
	NID map # and NID #	1, 2											
	Reach #	1, 2, 3, 4								X			
	Site #	1, 2, 3, 4											
	Site length	1, 2											
	Access	1, 2											
	Survey date	1, 2, 3, 4											
	Agency conducting survey	1, 2, 3, 4											
	Time of survey	1, 2											
	Crew conducting survey	1, 2											
	Fish form completed	1, 2											
Channel	Channel width	1, 2, 3, 4			*					*			
	Stream Class, line colour	1,2,4						X					
	Wetted width	1, 2											
	Residual pool depth	1, 2											
	Site gradient	1, 2, 3											
	Reach gradient	2, 3, 4											
	Bankfull depth	1, 2											
	Stage	1, 2											
	No Vis. Ch., DW, and Dry/Int.	1, 2, 3, 4											
	Tribes	1, 2, 3, 4											
Cover	Total cover	1, 2											
	Cover elements	1, 2											
	Functional LWD (amount, distribution)	1, 2											
	Crown closure	1, 2											
	Instream vegetation	1, 2											
	Bank shape, texture, riparian vegetation	1, 2											

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3C

CONTINUED – PAGE 4 OF 4

Card section	Attribute	Where to check	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	20	Error locations
Water	EMS #	1, 2											
	Temperature, pH	1, 2											
	Water chemistry requisition #	1, 2											
	Conductivity, turbidity	1, 2											
Channel morphology	Flood signs	1, 2											
	Bed material	1, 2, 3											
	D95, D	1, 2											
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3											
	Pattern	2, 3											
	Islands, bars, coupling	1, 2											
	Confinement	2, 3											
Features	NID map # and NID #	1, 2											
	Type, height/length	1, 2, 3, 4											
	Photo, comments	1, 2											
	UTM	1, 2											
Habitat quality	General comments	1, 2											
	Fisheries sensitive zones	1, 2, 3, 4											
Photo-documentation	Roll #	1, 2											
	Frame #	1, 2											
	Focal length	1, 2											
	Direction	1, 2											
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2											
Comments	General comments	1, 2											
Total errors:			0	0	0.5	0	0	1	0	1.5			

Summary of stream site information check:

Number of marks (# cards * 52): 1040

Maximum number of errors acceptable (5%): 52

Number of errors found: 7.5

Is the number of errors acceptable: **Yes**

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. Review date: March, 2001

Site 406 (#9)—channel width should be 0.4 on maps (round up from 0.35) *addressed*

~~Site 389 (#3)~~—Feature NID different between card & FDIS; Feature not mapped on either map *-- addressed*

—channel width should be 5.8 on maps (round up from 5.75) *addressed*

Site 397 (#6)—Moose info not entered in FDIS *addressed*

Site 414 (#10)—D₉₅=4000 in field, 400 in FDIS *-- //*

Site 428 (#13)—channel width should be rounded up *-- //*

Site 436 (#16)—channel mapped blue instead of green on Interp. *addressed*

~~Site 443 (#18)~~—Site located in reach 2 on maps, 2.1 on FDIS and card *-- , --*

--channel width should be rounded up *-- // --*

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3E

CONSISTENCY CHECK: FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP, LAKE OUTLINE MAP – PAGE 1 OF 2

	1	2	3	4	5	6	7	8	9	10
Site/ Nid#	388	389	390	397	398	425	428	434	438	443
Mapsheet (93K.)	045	045	045	045	045	046	046	046	036	036
ILP/WSC (480-093600-)	18700-0	18700-0	18700-0	24500-0	24500-0	39600-0	40800-0	40800-32900-0	45700-0	46700-0

Record errors below with an 'x'. An error occurs if there is inconsistency among 1) fish collection forms, 2) FDIS, 3) project maps, and 4) interpretive maps, and/or 5) lake outline maps, as specified for each attribute.

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Header	Name	1, 2, 3, 4, 5											
	Stream/Lake/Wetland	1, 2, 3											
	Watershed code or ILP	1, 2, 3, 4, 5											
	Waterbody ID	1, 2, 3, 4, 5											
	ILP map #	1, 2											
	Reach #	1, 2, 3, 4, 5									X		
	MELP fish permit #	1, 2											
	Date start, end	1, 2											
	Agency, crew	1, 2											
	Resample	1, 2											
Site/Method	Site #	1, 2, 3, 4, 5											
	NID map #, NID #	1, 2											
	Site UTM	1, 2											
	Method, method no.	1, 2											
	Temp, turbidity	1, 2											
	Conductivity	1, 2											
Fish summary	Method, method no.	1, 2											
	Haul/Pass (H/P)	1, 2											
	Species	1, 2, 3, 4											
	Stage, total #	1, 2											
	Min. length	1, 2											
	Fish activity	1, 2											

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3E

CONTINUED – PAGE 2 OF 2

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Gear specifications	Method, method no.	1, 2											
	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofischer specifications	Method, method no.	1, 2											
	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											

Number of marks (# cards * 36): 360

Maximum number of errors acceptable (5%): 18

Number of errors found: 1

Is the number of errors acceptable: **Yes**

Site 443 (#10)-located in reach 2 on maps. reach 2.1 on card and FDIS

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3F

CONSISTENCY CHECK: INDIVIDUAL FISH DATA CARD, FDIS – PAGE 1 OF 1

	1	2	3	4	5	6	7	8	9	10
Site/ Nid#	388	389	390	397	398	425	428	*		
Mapsheet (93K.)	045	045	045	045	045	046	046			
ILP/WSC (480-993600-)	18700-0	18700-0	18700-0	24500-0	24500-0	39600-0	40800-0			

Record errors below with an 'x'. An error occurs if there is inconsistency among 1) individual fish data cards and 2) FDIS, as specified for each attribute.

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Individual fish data	Site #	1, 2											
	Method, method no.	1, 2											
	Haul/Pass	1, 2											
	Species	1, 2											
	Length	1, 2											
	Weight	1, 2											
	Sex	1, 2											
	Maturity	1, 2											
	Age structure	1, 2											
	Age sample #	1, 2											
	Age	1, 2											
	Voucher	1, 2											
	Genetic structure	1, 2											
	Genetic sample #	1, 2											
	Photos	1, 2											

Number of marks (# cards * 15): 105

Maximum number of errors acceptable (5%): 5

Number of errors found: 0

Is the number of errors acceptable: **Yes**

*Only 7 'Individual Fish Cards' for this project area

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish & Fish Habitat Inventory for Tributaries to the Sutherland R. Watershed

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd.

Review date: March 2001

FORM 3K

WATERSHED REPORT – PAGE 1 OF 5

Report section	Attribute	Accept. Y/N	Notes
Title page	Proper title	Y	
	Watershed code below title	Y	
	Prepared for...	Y	
	Prepared by...	Y	
	Signature of R.P.Bio	(Y)	Will be signed for final
Reference information	Project reference information	Y	
	Watershed information	Y	
	Sampling design summary	Y	
	Contractor information	Y	
Disclaimer	Standard wording disclaimer	Y	
Acknowledgements		Y	
Table of contents	Page numbering correct	N	Missing page ii
	Report outline follows standard	Y	
Lists	List of Tables	N	*1
	List of Figures	Y	
	List of Attachments	Y	
	List of Appendices	N	*2

Comments:

*1—Fix name of Table 1 in TOC

*2—Pls include QA forms and proj. completion report in an Appendix, and burned on CD (required for regional copy only); Also—one extra Appendix of FDIS site/fish formComments not listed in TOC

*3—Pls consider adding additional inset map referencing area to BC rather than just Houston/Burns Lk area

Report section	Attribute	Accept. Y/N	Notes
Introduction			
Project scope, objectives	1:20 000, 1:5000, lakes, etc.	Y	
Location	Description	Y	
Overview map	8.5 × 11" or 11 × 17"	Y	
	Outline of entire study area	Y	
	Inset map showing relation to BC	N	*3
	Sample site locations	Y	
	1:20 000 map grid	Y	
	Major communities/roads	N	*No roads on map
	TRIM/FC aquatic features	Y	
Access	Description	Y	
Resource Information	First Nations	Y	
	Land use, logging, recreation, etc.	Y	
	Impacts and uses by wildlife	Y	No issues?
	Existing water quality data	Y	
	Previous fish presence (and ref.)	Y	
Methods	Reference to RECCE standards	Y	
	Reference to project plan	Y	
	Deviations from RECCE standards	Y	
	Deviations from project plan	Y	
	List of sampling equipment used	Y	

Report section	Attribute	Accept. Y/N	Notes
Results and Discussion			
Logistics	Problems encountered (e.g., weather, access, water levels)	Y	
	How were problems addressed?	Y	
	How were results affected?	UNK	
Summary of sub-basin biophysical information (optional)	Table of information defining each sub-drainage	N/A	Remove mention of table (pg 6), or include
Habitat and fish distribution	Characteristics of fish habitats	Y	
	Pattern of fish distribution	Y	
	Location of significant fish populations	Y	
	Lakes treated as a reach of the stream	Y	
	Upstream limits of species presence	Y	
	Obstructions that influenced fish presence	Y	
	Table of all barriers present	Y	
Fish age, size and life history	Summary of life stages, life history, etc.	Y	
	Length-frequency histograms	Y	
	Table: Summary of length-at-age...	Y	
	Data presented by species	Y	
	Data presented by sub-drainage	Y	
	Age classes appear correct	Y	

Report section	Attribute	Accept. Y/N	Notes
Significant features and fisheries observations	Fish and fish habitat	Y	
	Critical habitats	Y	
	Special populations (rare, etc.)	Y	
	Wild stocks	Y	
	High value sport fishing	Y	
	NO management recommendations	Y	
	Habitat protection concerns		
	Fisheries sensitive zones	Y	
	Fish above 20% gradients	Y	
	Restoration opportunities	Y	
Fish bearing status	Problem culverts	Y	
	Unstable slopes	Y	
	Brief narrative section	Y	
	Table: Summary of fish bearing reaches...	Y	
	Table: Summary of non-fish bearing reaches	Y	
Fish bearing status (cont.)	Table: Follow-up sampling required	Y	
References	All sources in report listed	N	(FINS, 2000)
	According to CBE style manual	Y	

Comments:

Stream Report Appendices

Report section	Attribute	Accept Y/N	Notes
Appendix I. FDIS summary and photographs	In ascending order by WSC	Y	
	Grouped by site	Y	
	FDIS reach card printouts	Y	Combined as one on summary card
	FDIS site card printouts	Y	
	Fish data collection form	N	Waiting for approval from PG to leave out
	Photos (min. 1, max. 4)	Y	
	All photos entered in FDIS	Y	
	Explanatory photo captions	Y	
	Photos in colour (final only)	Y	
Appendix II. Hardcopy maps – Fisheries project map	“E” size plots	Y	
	Folded in pocket in report	(Y)	App. created; will be folded in final
	UTM projection	Y	
	1:20 000 map grid	Y	
	1:20 000 scale	Y	
	Complete title box	Y	
	Complete legend box	(Y)	*1
	Source information box	N	Check Invent. dates
	Inset map box	Y	
	Fish species box	Y	
	Contour lines (thinned)	N	*2
	Disclaimer	N	Spelling mistake
	Lake and stream annotation	Y	

Report section	Attribute	Accept Y/N	Notes
Appendix II. Hardcopy maps – Fisheries project map (cont)	WSCs or ILPs for all sampled streams	Y	*Would like to see WSC/ILP placed at mouth or head of creek; they are occasionally in middle and difficult to find
	WSCs or ILPs for all 3 rd order or higher streams	Y	
	WSCs or ILPs for every other 1 st and 2 nd order stream	Y	
	WBIDs for all lakes	Y	*3
	Sample site locations/numbers	N	*4
	All site data symbols attached to sites	Y	
	Lake summary symbols	Y	
	Reach data symbols on all reaches <30% gradient and all reaches containing sites	Y	
	Features, obstructions and symbols	N	Falls not mapped (K045, Shass Cr.)
	Reach breaks and numbers	Y	

Comments:

*1—Box of codes beside fish species box: — addressed

Substrate codes: consider reversing order of B & R

Dist. Indicator codes: S5 may have part of definit'n cut off

*2—Please thicken every 5th contour, and add elevation markings — addressed

*3—check overlap of info for all lakes — addressed

*4—Mapsheet K.055-sites floating; Site 443 in wrong reach; one site not numbered on map K.046 addressed

Additional Comments:

*Please check study area boundary for all maps—boundary is off in some areas addressed

○ creek on map 93K.055 flows off sheet to west—should there be another mapsheet, or is it a mapping error, or not required? → just remind you to include this in Map K 55

*Please check overlap of info (eg-reach breaks and #s, site #s, ILPs/WSCs, SDSs/RDSs) for all maps. Some places extremely cluttered and difficult to figure out info addressed

Stream Report Appendices

Report section	Attribute	Accept. Y/N	Notes
Appendix II. Hardcopy maps – Fisheries interpretive map	“E” size plots	Y	
	Folded in pocket in report	(Y)	App created, will be folded in final
	UTM projection	Y	
	1:20 000 map grid	Y	
	1:20 000 scale	Y	
	Complete title box	Y	
	Complete legend box	N	*1
	Source information box	N	Check Invent. dated
	Inset map box	Y	
	Fish species box	Y	
	Contour lines (thinned as approp.)	N	*2
	Disclaimer	N	Sp mistake
	Lake and stream annotation	Y	
	WSCs or ILPs for all sampled streams	Y	*Would like to see WSC/ILP placed at mouth or head of creek; they are occasionally in middle and difficult to find
	WSCs or ILPs for all 3 rd order or higher streams	Y	
	WSCs or ILPs for every other 1 st and 2 nd order stream	Y	
	WBIDs for all lakes	Y	*3
	Sample site locations/numbers	N	
	Reach breaks and numbers	Y	
	Reach summary symbols for all reaches in the project area	N	*4

Report section	Attribute	Accept. Y/N	Notes
Appendix II. Hardcopy maps – Fisheries interpretive map (cont.)	Features, obstructions and symbols (optional)	N	*5
	Fisheries sensitive zones	Y	
	Fish distribution limits	Y	
	Red/blue, solid/dashed lines to illustrate fish stream class (optional)	N	*6
	Roads/communities (optional)	Y	*7

Notes:

- *1– Need LSS defined; Pls add symbology for single and double dashed roads — we've talk about it
- *2– Please thicken every 5th contour, and add elevation markings addressed
- *3– Pls. Check overlap for all annotations
- *4– Missing for ILP 55702; pls. Check for all maps
- *5– Site 389-falls not mapped
- *6– Sutherland R. wrong colour, check ilp 55702, also WSC 00600-48300-0. Pls. Check for all
- *7– Please consider changing road colour, as they are difficult to see against contours.

Additional Comments:

- *Please check study area boundary for all maps—boundary is off in some areas
- *creek on map 93K.055 flows off sheet to west—should there be another mapsheet, or is it a mapping error, or not required?
- *Please check overlap of info (eg reach breaks and #s, site #s, ILPs/WSCs, RSSs) for all maps. Some places extremely cluttered and difficult to figure out info

Stream Report Attachments

Report section	Attribute	Accept. Y/N	Notes
Attachment I. Planning document	Budget breakdown by phase	N/A	
	Project sampling design	N/A	
	Process of site selection	N/A	
	Reach table	N/A	
	Lake table	N/A	
	Random sample table	N/A	
	References, contacts list	N/A	
Attachment II. Field notes	Field book or facsimile	Y	
	Site cards	Y	
	Fish collection forms	Y	
	Individual fish data forms	Y	
	Field working maps	N/A	
Attachment III. Fish ageing structures	Actual ageing structures	N/A	
	Labelled photocopies	N/A	
	Annuli identified with red	N/A	
	Age data are correct	N/A	
Attachment IV. Voucher, DNA samples	Table: Vouchers collected	N/A	
	Table: DNA collected	N/A	
Attachment V. Photodocumentation	Table: Photo summary report	Y	
	Colour thumbnail reference	Y	
	Photo CD	Y	
	CD Image #s match digital	Y	
	Negatives in plastic sleeves	Y	
	Negatives labelled	N	*1

Report section	Attribute	Accept Y/N	Notes
Attachment V. Photodocumentation (cont.)	Negative #s match digital	Y	
	Prints in plastic sleeves	N/A	
	Prints labelled	N/A	
Attachment VI. Digital data	Budget breakdown by phase	Y	
	Project sampling design	Y	
	References, contacts list	Y	
	Table of vouchers collected	N/A	
	Table of DNA collected	N/A	
	Photo summary report	Y	
	Report tables, figures	Y	
	Report text	Y	
	FDISDAT.MDB	Y	
	Mapping files (plot files)	N	With final
	Mapping files (metadata and map features files)	N	With final
Attachment VII. FISS update data	FISS data forms and maps	N	*2
	Copies of reference material	N	*3
	Data on forms match FDIS	Y	
Attachment VIII. Aerial photography	Purchased aerial photos	N/A	
	Aerial video tape	N/A	

Comments:

*1—Please add labels to negative pages (in case of removal)-proj. name, 1 of __, date, FINS Consulting Ltd.; this is good to write on actual CDs. as well.

*2—Some discrepancies between FISS guide and forms. Please check all forms; some qualifiers appear to be filled out incorrectly (NB: "Fish Production Potential and Constraints"); Alos, some forms have the wrong mapsheet listed on them (observed in Section 4), so please ensure info is correct on all forms

*3—Please include a copy of report, with reference number on front cover, to be sent to Victoria with FISS updates

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March 2001

FORM 3A

DATA COMPILATION AND REPORTING DELIVERABLES FOR QA – PAGE 1 OF 1

	Deliverable	Hardcopy	Digital	Comments
Watershed reporting	Watershed report	Y	Y	
	Appendices			
	I. FDIS summary and photographs	Y	Y	
	II. Maps	Y	(N)	Folder created, to be included with final
	Attachments			
	I. Pre-field planning document	N/A	Y	Already at MELP for Phase 123
	II. Field notes and forms	Y	N/A	
	III. Fish ageing structures	N/A	N/A	
	IV. Fish samples and vouchers	N/A	N/A	
	V. Photodocumentation	Y	Y	
	VI. Digital data	Y	(N)	Folder created, to be included with final; mapping data, metadata, map attributes table and Arc Info QA report to be included with final
	VII. FISS update data	Y	N/A	
	VIII. Aerial photography	N/A	N/A	
Individual lake reporting (for each lake)	Lake report	N/A		
	Appendices	N/A		
	I. Lake survey form	N/A		
	II. Water chemistry data	N/A		
	III. Fish collection forms	N/A		
	IV. Tributary summary	N/A		
	V. Photographs	N/A		
	VI. Bathymetric map	N/A		
	Attachments	N/A		
	I. Photodocumentation	N/A		
	II. Digital data	N/A		
	III. FISS update data	N/A		
	IV. Phase completion reports	N/A		
	V. Field notes and forms	N/A		
	VI. Aerial photography	N/A		
	VII. Fish ageing structures	N/A		
	VIII. Fish samples and vouchers	N/A		

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March 2001

FORM 3B DIGITAL DATA CHECKING – PAGE 1 OF 1

For each FDIS file provided:

FDIS filename:

	Acceptable		Comments
	Y	N	
Conversions done:			
• ILP to WSC	Y		Confirmed by PG to leave off, but submit disk with new codes to MELP
• NID-UTM	UNK		Please include with final
• Update bathymetry	N/A		
FDIS QA report attached			
• Acceptable error report	Y		Viewed digital copy

For each FDIS file and digital map file set:

ARCView fish QA tool

	Filename	Acceptable		Comments
		Y	N	
Digital map files			X	To be completed for final
• Metadata table			X	
• Map attributes table			X	
FDIS data check		N/A		Internal/MELP process
• Sequential reach numbering:		N/A		
• Point locations on TRIM streams:		N/A		
Copy of ARCView fish QA tool error report attached			X	To be submitted with final
• Acceptable error report		UNK		

Note: The map attributes table, introduced in 1999, replaces the point table and the attribute table from 1998 standards.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March 2001

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 1 OF 4

	1	2	3	4	5	6	7	8	9	10
Site/ Nid#	187	197	201	209	216	228	234	250	253	265
Mapsheet (93L.)	050	039	039	049	049	060	060	039	039	049
ILP/WSC (460-)	460-0	49030	702000-82800-0	829700-0	829700-20600-0	829700-20600-30400-0	60014	39034	834400-26900-80800-0	882900-0

Record errors below with an 'x.' An error occurs if there is any inconsistency among: 1) field site cards, 2) FDIS, 3) project maps and 4) interpretive maps, as specified for each attribute.

Card section	Attribute	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Header	Stream name	1, 2, 3, 4											
	Watershed code or ILP map # and ILP #	1, 2, 3, 4											
	NID map # and NID #	1, 2											
	Reach #	1, 2, 3, 4											
	Site #	1, 2, 3, 4											
	Site length	1, 2											
	Access	1, 2											
	Survey date	1, 2, 3, 4											
	Agency conducting survey	1, 2, 3, 4											
	Time of survey	1, 2											
	Crew conducting survey	1, 2											
	Fish form completed	1, 2											
Channel	Channel width	1, 2, 3, 4											
	Stream Class, line color	1,2,4											
	Wetted width	1, 2											
	Residual pool depth	1, 2											
	Site gradient	1, 2, 3											
	Reach gradient	2, 3, 4											
	Bankfull depth	1, 2											
	Stage	1, 2											
	No Vis. Ch., DW, and Dry/Int.	1, 2, 3, 4											
	Tribs	1, 2, 3, 4											
Cover	Total cover	1, 2											
	Cover elements	1, 2	X										
	Functional LWD (amount, distribution)	1, 2											
	Crown closure	1, 2											
	Instream vegetation	1, 2											
	Bank shape, texture, riparian vegetation	1, 2											

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March 2001

FORM 3C

CONTINUED – PAGE 2 OF 4

Card section	Attribute	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Water	EMS #	1, 2											
	Temperature, pH	1, 2											
	Water chemistry requisition #	1, 2											
	Conductivity, turbidity	1, 2							X				
Channel morphology	Flood signs	1, 2											
	Bed material	1, 2, 3											
	D95, D	1, 2											
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3											
	Pattern	2, 3											
	Islands, bars, coupling	1, 2											
	Confinement	2, 3											
Features	NID map # and NID #	1, 2											
	Type, height/length	1, 2, 3, 4											
	Photo, comments	1, 2											
	UTM	1, 2											
Habitat quality	General comments	1, 2											
	Fisheries sensitive zones	1, 2, 3, 4											
Photo-documentation	Roll #	1, 2											
	Frame #	1, 2											
	Focal length	1, 2											
	Direction	1, 2											
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2											
Comments	General comments	1, 2											
Total Errors:			1	0	0	0	0	0	1	0	0	0	

Comments: Notes and comments following Forms 3C.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. Review date: March 2001

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 3 OF 4

	11	12	13	14	15	16	17	18	19	20
Site/ Nid#	275	287	301	306	314	324	327	349	354	365
Mapsheets (93L.)	050	039	040	030	029	029	029	040	050	050
ILP/WSC (460-)	50025	917900-58000-0	924300-31500-0	30009	924300-31500-40900-0	29027	924300-31500-50500-0	40032	967000-0	50056

Record errors below with an 'x.' An error occurs if there is any inconsistency among: 1) field site cards, 2) FDIS, 3) project maps and 4) interpretive maps, as specified for each attribute.

Card section	Attribute	Where to check	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	20	Error locations
Header	Stream name	1, 2, 3, 4											
	Watershed code or ILP map # and ILP #	1, 2, 3, 4				X		*					
	NID map # and NID #	1, 2											
	Reach #	1, 2, 3, 4											
	Site #	1, 2, 3, 4											
	Site length	1, 2											
	Access	1, 2											
	Survey date	1, 2, 3, 4											
	Agency conducting survey	1, 2, 3, 4											
	Time of survey	1, 2											
	Crew conducting survey	1, 2											
	Fish form completed	1, 2											
Channel	Channel width	1, 2, 3, 4						X	X				
	Stream Class, line colour	1,2,4						X	X			X	
	Wetted width	1, 2											
	Residual pool depth	1, 2											
	Site gradient	1, 2, 3						X	X				
	Reach gradient	2, 3, 4						X	X				
	Bankfull depth	1, 2											
	Stage	1, 2											
	No Vis. Ch., DW, and Dry/Int.	1, 2, 3, 4											
	Tribs	1, 2, 3, 4											
Cover	Total cover	1, 2											
	Cover elements	1, 2											
	Functional LWD (amount, distribution)	1, 2											
	Crown closure	1, 2											
	Instream vegetation	1, 2											
	Bank shape, texture, riparian vegetation	1, 2											

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March 2001

FORM 3C CONTINUED – PAGE 4 OF 4

Card section	Attribute	Where to check	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	2 0	Error locations
Water	EMS #	1, 2											
	Temperature, pH	1, 2											
	Water chemistry requisition #	1, 2											
	Conductivity, turbidity	1, 2											
Channel morphology	Flood signs	1, 2											
	Bed material	1, 2, 3											
	D95, D	1, 2				X	X		X				
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3											
	Pattern	2, 3						X	X				
	Islands, bars, coupling	1, 2											
	Confinement	2, 3						X	X				
	Features	NID map # and NID #	1, 2										
Type, height/length		1, 2, 3, 4											
Photo, comments		1, 2											
UTM		1, 2											
Habitat quality	General comments	1, 2											
	Fisheries sensitive zones	1, 2, 3, 4											
Photo-documentation	Roll #	1, 2											
	Frame #	1, 2											
	Focal length	1, 2											
	Direction	1, 2							X				
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2											
Comments	General comments	1, 2											
Total errors:			0	0	0	2	1	6.5	8	0	0	1	*=(-0.5)

Summary of stream site information check:

Number of marks (# cards * 52): 1040

Maximum number of errors acceptable (5%): 52

Number of errors found: 20.5

Is the number of errors acceptable: **Yes**

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. Review date: March 2001

Site 187 (#1)-wrong type (DP instead of OV) checked off for location of cover

addressed → new printout

Site 234 (#7)-Conductivity differs b/w site card & FDIS ~ *addressed*

→ new printout

Site 306 (#14)-Site symbol located on wrong creek

addressed

-D₉₅=4000 on site card, 400 in FDIS ✓

Site 314 (#15)- D₉₅=4000 on site card, 400 in FDIS

addressed

-Falls placed incorrectly on map ✓

Site 324 (#16)-No RSS on Interp.; should reach 0.1 be dashed blue?—check card hab. comments *addressed*

(rearing)

-ILP ½ on adjoining map ✓

-site # obscured by other stuff ✓

-no RDS on Proj. map ✓

Site 327 (#17)-No RSS on Interp.; No RDS on Proj.; reach should be solid red in colour ✓

- D₉₅=4000 on site card, 400 in FDIS ✓

- Falls (photo R12F4) photograph recorded as u/s on site card, d/s in FDIS ✓

Site 365 (#20)-field msrmnts =S3 creek; map=S2 → *u/s class is S2 in next site*

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March 2001

FORM 3E

CONSISTENCY CHECK: FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP, LAKE OUTLINE MAP – PAGE 1 OF 2

	1	2	3	4	5	6	7	8	9	10
Site/ Nid#	187	209	216	228	253	287	301	314	327	365
Mapsheet (93.L)	050	049	049	060	039	039	040	029	029	050
ILP/WSC (460-)	460-0	829700-0	829700-20600-0	829700-20600-30400-0	834400-26900-80800-0	917900-58000-0	924300-31500-0	924300-31500-40900-0	924300-31500-50500-0	50056

Record errors below with an 'x'. An error occurs if there is inconsistency among 1) fish collection forms, 2) FDIS, 3) project maps, and 4) interpretive maps, and/or 5) lake outline maps, as specified for each attribute.

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Header	Name	1, 2, 3, 4, 5											
	Stream/Lake/Wetland	1, 2, 3											
	Watershed code or ILP	1, 2, 3, 4, 5											
	Waterbody ID	1, 2, 3, 4, 5											
	ILP map #	1, 2											
	Reach #	1, 2, 3, 4, 5											
	MELP fish permit #	1, 2											
	Date start, end	1, 2											
	Agency, crew	1, 2											
	Resample	1, 2											
Site/Method	Site #	1, 2, 3, 4, 5											
	NID map #, NID #	1, 2											
	Site UTM	1, 2											
	Method, method no.	1, 2											
	Temp, turbidity	1, 2											
	Conductivity	1, 2											
Fish summary	Method, method no.	1, 2											
	Haul/Pass (H/P)	1, 2											
	Species	1, 2, 3, 4											
	Stage, total #	1, 2											
	Min. length	1, 2											
	Fish activity	1, 2											

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March 2001

FORM 3E

CONTINUED – PAGE 2 OF 2

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Gear specifications	Method, method no.	1, 2											
	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2							X				
Electrofisher specifications	Method, method no.	1, 2											
	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											

Number of marks (# cards * 36): 360

Maximum number of errors acceptable (5%): 18

Number of errors found: 1

Is the number of errors acceptable: **Yes**

Site 301 (#7)-for MTs, habitat filled out in FDIS, not on cards

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March 2001

FORM 3F

CONSISTENCY CHECK: INDIVIDUAL FISH DATA CARD, FDIS – PAGE 1 OF 1

	1	2	3	4	5	6	7	8	9	10
Site/ Nid#	187	209	216	228	253	287	301	314	327	365
Mapsheet (93L.)	050	049	049	060	039	039	040	029	029	050
ILP/WSC (460-)	460-0	829700-0	829700-20600-0	829700-20600-30400-0	834400-26900-80800-0	917900-58000-0	924300-31500-0	924300-31500-40900-0	924300-31500-50500-0	50056

Record errors below with an 'x'. An error occurs if there is inconsistency among 1) individual fish data cards and 2) FDIS, as specified for each attribute.

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Individual fish data	Site #	1, 2											
	Method, method no.	1, 2											
	Haul/Pass	1, 2											
	Species	1, 2											
	Length	1, 2					X						
	Weight	1, 2											
	Sex	1, 2											
	Maturity	1, 2											
	Age structure	1, 2											
	Age sample #	1, 2											
	Age	1, 2											
	Voucher	1, 2											
	Genetic structure	1, 2											
	Genetic sample #	1, 2											
	Photos	1, 2											

Number of marks (# cards * 15): 150

Maximum number of errors acceptable (5%): 8

Number of errors found: 1

Is the number of errors acceptable: **Yes**

Site 253 (#5)-data entry error

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K Fish and Fish Habitat Inventory: Tributaries to the Bulkley R. Watershed

FRBC activity number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd

QA review by: Acer Resource Consulting Ltd.

Review date: March 2001

FORM 3K

WATERSHED REPORT – PAGE 1 OF 5

Report section	Attribute	Accept. Y/N	Notes
Title page	Proper title	Y	
	Watershed code below title	Y	
	Prepared for...	Y	
	Prepared by...	Y	
	Signature of R.P.Bio	(Y)	Will be signed for final
Reference information	Project reference information	Y	
	Watershed information	Y	
	Sampling design summary	Y	
	Contractor information	Y	
Disclaimer	Standard wording disclaimer	Y	
Acknowledgements		Y	
Table of contents	Page numbering correct	Y	
	Report outline follows standard	Y	
Lists	List of Tables	Y	
	List of Figures	Y	
	List of Attachments	Y	
	List of Appendices	Y	

Comments:

Report section	Attribute	Accept. Y/N	Notes
Introduction			
Project scope, objectives	1:20 000, 1:5000, lakes, etc.	Y	
Location	Description	Y	
Overview map	8.5 × 11" or 11 × 17"	Y	Please consider an extra inset referencing area to BC, rather than just Houston/ Burns I.k. area
	Outline of entire study area	Y	
	Inset map showing relation to BC	N	
	Sample site locations	Y	
	1:20 000 map grid	Y	
	Major communities/roads	N	
	TRIM/FC aquatic features	Y	
Access	Description	Y	
Resource Information	First Nations	Y	
	Land use, logging, recreation, etc.	Y	
	Impacts and uses by wildlife	(Y)	? No issues, or not addressed ?
	Existing water quality data	(Y)	
	Previous fish presence (and ref.)	Y	
Methods	Reference to RECCE standards	Y	
	Reference to project plan	Y	
	Deviations from RECCE standards	Y	
	Deviations from project plan	Y	
	List of sampling equipment used	Y	

Report section	Attribute	Accept. Y/N	Notes
Results and Discussion			
Logistics	Problems encountered (e.g., weather, access, water levels)	Y	
	How were problems addressed?	Y	
	How were results affected?	UNK	
Summary of sub-basin biophysical information (optional)	Table of information defining each sub-drainage	Y	Referred reader to table in front of report
Habitat and fish distribution	Characteristics of fish habitats	Y	
	Pattern of fish distribution	Y	
	Location of significant fish populations	Y	
	Lakes treated as a reach of the stream	Y	
	Upstream limits of species presence	Y	
	Obstructions that influenced fish presence	Y	
	Table of all barriers present	Y	
Fish age, size and life history	Summary of life stages, life history, etc.	Y	
	Length-frequency histograms	Y	
	Table: Summary of length-at-age...	Y	
	Data presented by species	Y	
	Data presented by sub-drainage	Y	
	Age classes appear correct	Y	

Report section	Attribute	Accept. Y/N	Notes
Significant features and fisheries observations	Fish and fish habitat		
	Critical habitats	Y	
	Special populations (rare, etc.)	(N)	BMC an issue ?
	Wild stocks	Y	
	High value sport fishing	Y	
	NO management recommendations	Y	
	Habitat protection concerns		
	Fisheries sensitive zones	Y	
	Fish above 20% gradients	Y	
	Restoration opportunities	Y	
Fish bearing status	Problem culverts	Y	?ANY?
	Unstable slopes	Y	?ANY?
	Brief narrative section	Y	
Fish bearing status (cont.)	Table: Summary of fish bearing reaches...	Y	
	Table: Summary of non-fish bearing reaches	Y	
	Table: Follow-up sampling required	Y	
References	All sources in report listed	N	(FINS, 2000)
	According to CBE style manual	Y	

Comments:

Stream Report Appendices

Report section	Attribute	Accept Y/N	Notes
Appendix I. FDIS summary and photographs	In ascending order by WSC	Y	
	Grouped by site	Y	
	FDIS reach card printouts	Y	COMBINED ON A SUMMARY PAGE
	FDIS site card printouts	Y	
	Fish data collection form	N	Waiting for confirmation from PG
	Photos (min. 1, max. 4)	Y	
	All photos entered in FDIS	Y	
	Explanatory photo captions	Y	
	Photos in colour (final only)	Y	
Appendix II. Hardcopy maps – Fisheries project map	“E” size plots	Y	
	Folded in pocket in report	(Y)	App. Created, will be folded in final
	UTM projection	Y	
	1:20 000 map grid	Y	
	1:20 000 scale	Y	
	Complete title box	Y	
	Complete legend box	N	*1
	Source information box	Y	
	Inset map box	Y	
	Fish species box	Y	
	Contour lines (thinned)	N	*2
	Disclaimer	N	Spelling mistake
	Lake and stream annotation	N	*3

Report section	Attribute	Accept Y/N	Notes
Appendix II. Hardcopy maps – Fisheries project map (cont)	WSCs or ILPs for all sampled streams	Y	
	WSCs or ILPs for all 3 rd order or higher streams	Y	
	WSCs or ILPs for every other 1 st and 2 nd order stream	Y	
	WBIDs for all lakes	Y	*4
	Sample site locations/numbers	N	*5
	All site data symbols attached to sites	N	Found one missing on map L 050, pls. check for all maps
	Lake summary symbols	Y	
	Reach data symbols on all reaches <30% gradient and all reaches containing sites	N	Sites 324, 327, pls. Check for all maps
	Features, obstructions and symbols	N	Pls check placement (eg. falls on ~31500-40900) for all maps
	Reach breaks and numbers	N	Crow Cr., pls. check others

Comments:

*1-- Please add symbology for slide (LS?), dam, and culvert

*2-- Please thicken every 5th contour, and add elevation markings

*3-- N. Ailport, Watson Creeks labelled incorrectly

Bulkley R. annotation missing on one map

Much overlap of info, please check and correct for all maps

*4—check overlap of info for all maps

*5—Check Site 306, pls. check for all maps

Stream Report Appendices

Report section	Attribute	Accept. Y/N	Notes
Appendix II. Hardcopy maps – Fisheries interpretive map	"E" size plots	Y	
	Folded in pocket in report	(Y)	App. Created with final
	UTM projection	Y	
	1:20 000 map grid	Y	
	1:20 000 scale	Y	
	Complete title box	Y	
	Complete legend box	N	*1
	Source information box	Y	
	Inset map box	Y	
	Fish species box	Y	
	Contour lines (thinned as approp.)	N	*2
	Disclaimer	N	*3
	Lake and stream annotation	N	*4
	WSCs or ILPs for all sampled streams	Y	
	WSCs or ILPs for all 3 rd order or higher streams	Y	
	WSCs or ILPs for every other 1 st and 2 nd order stream	Y	
	WBIDs for all lakes	Y	
	Sample site locations/numbers	N	*5
	Reach breaks and numbers	N	*6
	Reach summary symbols for all reaches in the project area	N	*7

Report section	Attribute	Accept. Y/N	Notes
Appendix II. Hardcopy maps – Fisheries interpretive map (cont.)	Features, obstructions and symbols (optional)	N	*8
	Fisheries sensitive zones	Y	
	Fish distribution limits	Y	
	Red/blue, solid/dashed lines to illustrate fish stream class (optional)	N	*9
	Roads/communities (optional)	Y	Pls. consider changing road color

Notes:

- *1—Please add symbology for slide (LS?), dam, and culvert
Need explanation for the LSS added to legend
Addition of stream class definitions? Saw one classed as 'W2'
- *2—Please thicken every 5th contour, and add elevation markings
- *3—spelling mistake
- *4—N. Ailport, Watson Creeks labelled incorrectly
Bulkley R. annotation missing on one map
Much overlap of info, please check and correct for all maps
- *5—One mistake found: Site 306 (93L.030); pls. check and correct for all maps
- *6—Crow creek-mistake circled; please check for all maps
- *7—Sites 324, 327 missing R.S.S.s; pls check for all maps
- *8—check placement of lines attaching features etc. (eg-falls and their order on stream –31500-40900)
- *9—Crow creek is wrong colour; also check stream classes on RSS for all sites (see Site 365)
Also reach 0.1 of –31500-50500 is wrong colour

Stream Report Attachments

Report section	Attribute	Accept. Y/N	Notes
Attachment I. Planning document	Budget breakdown by phase	N/A	
	Project sampling design	N/A	
	Process of site selection	N/A	
	Reach table	N/A	
	Lake table	N/A	
	Random sample table	N/A	
	References, contacts list	N/A	
Attachment II. Field notes	Field book or facsimile	Y	
	Site cards	Y	
	Fish collection forms	Y	
	Individual fish data forms	Y	
	Field working maps	N/A	
Attachment III. Fish ageing structures	Actual ageing structures	N/A	
	Labelled photocopies	N/A	
	Annuli identified with red	N/A	
	Age data are correct	N/A	
Attachment IV. Voucher, DNA samples	Table: Vouchers collected	N/A	
	Table: DNA collected	N/A	
Attachment V. Photodocumentation	Table: Photo summary report	Y	
	Colour thumbnail reference	Y	Except CD#8
	Photo CD	Y	
	CD Image #s match digital	Y	
	Negatives in plastic sleeves	Y	
	Negatives labelled	N	*1

Report section	Attribute	Accept Y/N	Notes
Attachment V. Photodocumentation (cont.)	Negative #s match digital	N	Check R4
	Prints in plastic sleeves	N/A	
	Prints labelled	N/A	
Attachment VI. Digital data	Budget breakdown by phase	Y	
	Project sampling design	Y	
	References, contacts list	Y	
	Table of vouchers collected	N/A	
	Table of DNA collected	N/A	
	Photo summary report	Y	
	Report tables, figures	Y	
	Report text	Y	
	FDISDAT.MDB	Y	
	Mapping files (plot files)	N	WITH FINAL.
	Mapping files (metadata and map features files)	N	WITH FINAL.
Attachment VII. FISS update data	FISS data forms and maps	Y	
	Copies of reference material	N	*2
	Data on forms match FDIS	Y	
Attachment VIII. Aerial photography	Purchased aerial photos	N/A	
	Aerial video tape	N/A	

Comments:

*1-Please add labels to negative pages (in case of removal)-proj. name, 1 of __, date, FINS Consulting Ltd.; this is good to write on actual CDs, as well.

*2-Please include a copy of report, with reference number on front cover, to be sent to Victoria with FISS updates

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K F&FH Inventory: Tributaries in the Francois Lake Watershed 2000

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3A

DATA COMPILATION AND REPORTING DELIVERABLES FOR QA – PAGE 1 OF 1

	Deliverable	Hardcopy	Digital	Comments
Watershed reporting	Watershed report	Y	Y	
	Appendices			
	I. FDIS summary and photographs	Y	Y	
	II. Maps	Y	(N)	Folder created; to be included with final
	Attachments			
	I. Pre-field planning document	N/A	Y	
	II. Field notes and forms	Y	N/A	
	III. Fish ageing structures	N/A	N/A	
	IV. Fish samples and vouchers	N/A	N/A	
	V. Photodocumentation	Y	Y	
	VI. Digital data	Y	(N)	See above comment
	VII. FISS update data	Y	N/A	
	VIII. Aerial photography	N/A	N/A	
Individual lake reporting (for each lake)	Lake report	N/A		
	Appendices	N/A		
	I. Lake survey form	N/A		
	II. Water chemistry data	N/A		
	III. Fish collection forms	N/A		
	IV. Tributary summary	N/A		
	V. Photographs	N/A		
	VI. Bathymetric map	N/A		
	Attachments			
	I. Photodocumentation	N/A		
	II. Digital data	N/A		
	III. FISS update data	N/A		
	IV. Phase completion reports	N/A		
	V. Field notes and forms	N/A		
	VI. Aerial photography	N/A		
	VII. Fish ageing structures	N/A		
	VIII. Fish samples and vouchers	N/A		

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: I:20K F&FH Inventory: Tributaries in the Francois Lake Watershed 2000

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3B DIGITAL DATA CHECKING – PAGE 1 OF 1

For each FDIS file provided:

FDIS filename:

	Acceptable		Comments
	Y	N	
Conversions done:			
• ILP to WSC	Y		Confirmed from Paul to leave off, but submit disc with new codes to MELP
• NID-UTM	UNK		Please include with final
• Update bathymetry	N/A		
FDIS QA report attached			Viewed digital copy
• Acceptable error report	Y		

For each FDIS file and digital map file set:

ARCView fish QA tool

	Filename	Acceptable		Comments
		Y	N	
Digital map files		N		To be completed for final
• Metadata table		UNK		
• Map attributes table		UNK		
FDIS data check		N/A		Internal/MELP process
• Sequential reach numbering:		N/A		
• Point locations on TRIM streams:		N/A		
Copy of ARCView fish QA tool error report attached		N		To be submitted with final
• Acceptable error report		UNK		

Note: The map attributes table, introduced in 1999, replaces the point table and the attribute table from 1998 standards.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K F&FH Inventory: Tributaries in the Francois Lake Watershed 2000

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 1 OF 4

	1	2	3	4	5	6	7	8	9	10
Site/ Nid#	1	6	11	22	29	37	44	48	57	62
Mapsheet (93)	K.012	K.011	K.012	K.012	K.012	F.093	F.093	F.083	F.083	F.083
ILP/WSC (180-374000-95200-)	01900-3580-0	01900-3580-0	12021	01900-3580-6720-0	12013	41400-2870-0	41400-2870-0230-0	83009	83021	41400-2870-5090-0

Record errors below with an 'x.' An error occurs if there is any inconsistency among: 1) field site cards, 2) FDIS, 3) project maps and 4) interpretive maps, as specified for each attribute.

Card section	Attribute	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Header	Stream name	1, 2, 3, 4											
	Watershed code or ILP map # and ILP #	1, 2, 3, 4											
	NID map # and NID #	1, 2											
	Reach #	1, 2, 3, 4											
	Site #	1, 2, 3, 4											
	Site length	1, 2											
	Access	1, 2											
	Survey date	1, 2, 3, 4											
	Agency conducting survey	1, 2, 3, 4											
	Time of survey	1, 2											
	Crew conducting survey	1, 2											
	Fish form completed	1, 2											
Channel	Channel width	1, 2, 3, 4								*	X		
	Stream Class, line color	1,2,4						X					
	Wetted width	1, 2											
	Residual pool depth	1, 2											
	Site gradient	1, 2, 3											
	Reach gradient	2, 3, 4											
	Bankfull depth	1, 2											
	Stage	1, 2											
	No Vis. Ch., DW, and Dry/Int.	1, 2, 3, 4							X				
	Tribs	1, 2, 3, 4											
Cover	Total cover	1, 2											
	Cover elements	1, 2											
	Functional LWD (amount, distribution)	1, 2											
	Crown closure	1, 2											
	Instream vegetation	1, 2											
	Bank shape, texture, riparian vegetation	1, 2											

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K F&FH Inventory: Tributaries in the Francois Lake Watershed 2000

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. Review date: March, 2001

FORM 3C CONTINUED – PAGE 2 OF 4

Card section	Attribute	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Water	EMS #	1, 2											
	Temperature, pH	1, 2											
	Water chemistry requisition #	1, 2											
	Conductivity, turbidity	1, 2											
Channel morphology	Flood signs	1, 2											
	Bed material	1, 2, 3											
	D95, D	1, 2											
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3											
	Pattern	2, 3											
	Islands, bars, coupling	1, 2											
	Confinement	2, 3											
Features	NID map # and NID #	1, 2											
	Type, height/length	1, 2, 3, 4											
	Photo, comments	1, 2											
	UTM	1, 2											
Habitat quality	General comments	1, 2											
	Fisheries sensitive zones	1, 2, 3, 4											
Photo-documentation	Roll #	1, 2											
	Frame #	1, 2											
	Focal length	1, 2											
	Direction	1, 2											
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2											
Comments	General comments	1, 2											
Total Errors:			0	0	1	1	0	1	1	1.5	1	0	

Comments: Notes and comments following Forms 3C.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K F&FH Inventory: Tributaries in the Francois Lake Watershed 2000

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 3 OF 4

	11	12	13	14	15	16	17	18	19	20
Site/ Nid#	80	98	101	108	136	145	158	168	173	184
Mapsheet (93)	F.084	F.092	F.082	F.082	F.081	K.001	K.001	L.010	L.010	L.010
ILP/WSC (180-374000-95200-)	41400-2870-5840-571-0	41400-5280-0610-0	92006	82005	81031	59800-0	62100-0	71200-0	71200-3640-0	76600-0

Record errors below with an 'x.' An error occurs if there is any inconsistency among: 1) field site cards, 2) FDIS, 3) project maps and 4) interpretive maps, as specified for each attribute.

Card section	Attribute	Where to check	1	2	3	4	5	6	7	8	9	20	Error locations
Header	Stream name	1, 2, 3, 4											
	Watershed code or ILP map # and ILP #	1, 2, 3, 4											
	NID map # and NID #	1, 2											
	Reach #	1, 2, 3, 4											
	Site #	1, 2, 3, 4											
	Site length	1, 2											
	Access	1, 2											
	Survey date	1, 2, 3, 4											
	Agency conducting survey	1, 2, 3, 4											
	Time of survey	1, 2											
	Crew conducting survey	1, 2											
	Fish form completed	1, 2											
Channel	Channel width	1, 2, 3, 4							*				
	Stream Class, line colour	1,2,4											
	Wetted width	1, 2											
	Residual pool depth	1, 2		X									
	Site gradient	1, 2, 3											
	Reach gradient	2, 3, 4											
	Bankfull depth	1, 2											
	Stage	1, 2											
	No Vis. Ch., DW, and Dry/Int.	1, 2, 3, 4											
	Tribs	1, 2, 3, 4											
Cover	Total cover	1, 2											
	Cover elements	1, 2								X	X		
	Functional LWD (amount, distribution)	1, 2											
	Crown closure	1, 2											
	Instream vegetation	1, 2											
	Bank shape, texture, riparian vegetation	1, 2											

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K F&FH Inventory: Tributaries in the Francois Lake Watershed 2000

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3C CONTINUED – PAGE 4 OF 4

Card section	Attribute	Where to check	1	1	1	1	1	1	1	1	1	1	1	20	Error locations
			1	2	3	4	5	6	7	8	9	10	11	12	
Water	EMS #	1, 2													
	Temperature, pH	1, 2													
	Water chemistry requisition #	1, 2													
	Conductivity, turbidity	1, 2													
Channel morphology	Flood signs	1, 2													
	Bed material	1, 2, 3													
	D95, D	1, 2			X			X							
	Morphology	1, 2, 3													
	Disturbance indicators	1, 2, 3													
	Pattern	2, 3													
	Islands, bars, coupling	1, 2													
	Confinement	2, 3													
Features	NID map # and NID #	1, 2													
	Type, height/length	1, 2, 3, 4													
	Photo, comments	1, 2													
	UTM	1, 2													
Habitat quality	General comments	1, 2													
	Fisheries sensitive zones	1, 2, 3, 4													
Photo-documentation	Roll #	1, 2													
	Frame #	1, 2													
	Focal length	1, 2													
	Direction	1, 2													
	Comments	1, 2													
Wildlife	Group	1, 2													
	Observations	1, 2													
Comments	General comments	1, 2													
Total errors:			0	1	1	0	0	1	0.5	1	1	0			*=(-1/2)

Summary of stream site information check:

Number of marks (# cards * 52): 1040

Maximum number of errors acceptable (5%): 52

Number of errors found: 9

Is the number of errors acceptable: **Yes**

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K F&FH Inventory: Tributaries in the Francois Lake Watershed 2000

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. Review date: March, 2001

- Site 37 (#6)-Remove extra RSS on Interp.; reach dashed blue, should be solid red ✓ *addressed*
- Site 44 (#7)-Dry/Inter. Channel checked on site card, not FDIS ✓ *changed in FDIS & printed*
- Site 48 (#8)-Channel width should be 1.2 on both maps ? ✓ *changed in spreadsheet*
- Site 57 (#9)-extra channel width entry in FDIS (0.0); results in an apparent avg. channel width of S4 ✓
instead of S3 (S3 is correct); stream class on Interp. is correct *changed in FDIS & printed*
- Site 98 (#12)-res. Pool depth entries missing *changed in FDIS & printed*
- Site 101 (#13)-D₉₅ differs b/w field card & FDIS *same b&w in both → no f. error*
- Site 145 (#16)-D₉₅ differs b/w field card & FDIS *✓*
- Site 168 (#18)-LWD cover is missing loc'n info (P/S/O) *changed in FDIS & printed*
- Site 173 (#19)-OV cover is missing loc'n info (P/S/O) *✓*
- Site 158 (#17)-Channel width on maps should be 2.6 (not 2.5) *changed in spreadsheet*
RSS & SDS to change

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K F&FH Inventory: Tributaries in the Francois Lake Watershed 2000

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3E

CONSISTENCY CHECK: FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP, LAKE OUTLINE MAP – PAGE 1 OF 2

	1	2	3	4	5	6	7	8	9	10
Site/ Nid#	1	22	37	44	57	80	101	145	158	173
Mapsheet (93)	K.012	K.012	F.093	F.093	F.083	F.084	F.082	K.001	K.001	L.010
ILP/WSC (180-374000-95200-)	01900-35800-0	01900-3580-6720-0	41400-2870-0	41400-2870-0230-0	83021	41400-2870-5840-571-0	92006	59800-0	62100-0	71200-3640-0

Record errors below with an 'x'. An error occurs if there is inconsistency among 1) fish collection forms, 2) FDIS, 3) project maps, and 4) interpretive maps, and/or 5) lake outline maps, as specified for each attribute.

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Header	Name	1, 2, 3, 4, 5											
	Stream/Lake/Wetland	1, 2, 3											
	Watershed code or ILP	1, 2, 3, 4, 5											
	Waterbody ID	1, 2, 3, 4, 5											
	ILP map #	1, 2											
	Reach #	1, 2, 3, 4, 5											
	MELP fish permit #	1, 2											
	Date start, end	1, 2											
	Agency, crew	1, 2											
	Resample	1, 2											
Site/Method	Site #	1, 2, 3, 4, 5											
	NID map #, NID #	1, 2											
	Site UTM	1, 2											
	Method, method no.	1, 2											
	Temp, turbidity	1, 2											
	Conductivity	1, 2											
Fish summary	Method, method no.	1, 2											
	Haul/Pass (H/P)	1, 2											
	Species	1, 2, 3, 4											
	Stage, total #	1, 2											
	Min. length	1, 2											
	Fish activity	1, 2											

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K F&FH Inventory: Tributaries in the Francois Lake Watershed 2000

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3E

CONTINUED – PAGE 2 OF 2

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Gear specifications	Method, method no.	1, 2											
	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher specifications	Method, method no.	1, 2											
	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											

Number of marks (# cards * 36): 360

Maximum number of errors acceptable (5%): 18

Number of errors found: 0

Is the number of errors acceptable: **Yes**

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K F&FH Inventory: Tributaries in the Francois Lake Watershed 2000

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd. **Review date:** March, 2001

FORM 3F

CONSISTENCY CHECK: INDIVIDUAL FISH DATA CARD, FDIS – PAGE 1 OF 1

	1	2	3	4	5	6	7	8	9	10
Site/ Nid#	1	22	37	44	57	80	101	145	158	173
Mapsheet (93)	K.012	K.012	F.093	F.093	F.083	F.084	F.082	K.001	K.001	L.010
ILP/WSC (180-374000-95200-)	01900-35800-0	01900-3580-6720-0	41400-2870-0	41400-2870-0230-0	83021	41400-2870-5840-571-0	92006	59800-0	62100-0	71200-3640-0

Record errors below with an 'x'. An error occurs if there is inconsistency among 1) individual fish data cards and 2) FDIS, as specified for each attribute.

Group	Item	Where to check											Error locations
			1	2	3	4	5	6	7	8	9	10	
Individual fish data	Site #	1, 2											
	Method, method no.	1, 2											
	Haul/Pass	1, 2											
	Species	1, 2											
	Length	1, 2									X		
	Weight	1, 2											
	Sex	1, 2	*	*	*	*	*	*	*	*	*	*	=1 error
	Maturity	1, 2	*	*	*	*	*	*	*	*	*	*	=1 error
	Age structure	1, 2											
	Age sample #	1, 2											
	Age	1, 2											
	Voucher	1, 2											
	Genetic structure	1, 2											
	Genetic sample #	1, 2											
	Photos	1, 2											

Number of marks (# cards * 15): 150

Maximum number of errors acceptable (5%): 8

Number of errors found: (3)

Is the number of errors acceptable: **Yes**

Site 173 (#10)-small data entry error for one RB length

addressed

'Sex' & 'Maturity': a continuous error for the purpose of this check, and worth one mark each in total. In FDIS, both categories are filled out (U), but nothing appears on the site cards. Please ensure that these match to avoid marks deducted for this discrepancy.

addressed

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: 1:20K F&FH Inventory: Tributaries to the Francois Lake Watershed

FRBC project number: 10437

MELP project number: BFP-C016-001-2001

Contractor: FINS Consulting Ltd.

QA review by: Acer Resource Consulting Ltd.

Review date: March, 2001

FORM 3K

WATERSHED REPORT – PAGE 1 OF 5

Report section	Attribute	Accept. Y/N	Notes
Title page	Proper title	Y	
	Watershed code below title	Y	
	Prepared for...	Y	
	Prepared by...	Y	
	Signature of R.P.Bio	(Y)	Will be signed for final
Reference information	Project reference information	Y	
	Watershed information	Y	
	Sampling design summary	Y	
	Contractor information	N	QA Monitor info
Disclaimer	Standard wording disclaimer	Y	
Acknowledgements		Y	
Table of contents	Page numbering correct	Y	
	Report outline follows standard	Y	
Lists	List of Tables	Y	
	List of Figures	Y	
	List of Attachments	Y	
	List of Appendices	N	*1

Comments: *1—Please include extra App. in MELP Regional copy for a proj. completion report and the QA forms; must also be burned on PG's CD

Report section	Attribute	Accept. Y/N	Notes
Introduction			
Project scope, objectives	1:20 000, 1:5000, lakes, etc.	Y	
Location	Description	Y	
Overview map	8.5 × 11" or 11 × 17"	Y	
	Outline of entire study area	Y	
	Inset map showing relation to BC	(Y)	Add full map of BC?
	Sample site locations	Y	
	1:20 000 map grid	Y	
	Major communities/roads	N	
	TRIM/FC aquatic features	Y	
Access	Description	Y	
Resource Information	First Nations	Y	
	Land use, logging, recreation, etc.	Y	
	Impacts and uses by wildlife	Y	? No issues or not addressed
	Existing water quality data	Y	
	Previous fish presence (and ref.)	Y	
Methods	Reference to RECCE standards	Y	
	Reference to project plan	Y	
	Deviations from RECCE standards	Y	
	Deviations from project plan	Y	
	List of sampling equipment used	Y	

Report section	Attribute	Accept. Y/N	Notes
Results and Discussion			
Logistics	Problems encountered (e.g., weather, access, water levels)	Y	
	How were problems addressed?	Y	
	How were results affected?	Y	
Summary of sub-basin biophysical information (optional)	Table of information defining each sub-drainage	N	*1
Habitat and fish distribution	Characteristics of fish habitats	Y	
	Pattern of fish distribution	Y	
	Location of significant fish populations	Y	
	Lakes treated as a reach of the stream	Y	
	Upstream limits of species presence	Y	
	Obstructions that influenced fish presence	Y	
	Table of all barriers present	Y	
Fish age, size and life history	Summary of life stages, life history, etc.	Y	
	Length-frequency histograms	N	*2
	Table: Summary of length-at-age...	Y	
	Data presented by species	Y	
	Data presented by sub-drainage	Y	
	Age classes appear correct	Y	

Report section	Attribute	Accept. Y/N	Notes
Significant features and fisheries observations	Fish and fish habitat	Y	Snodgrass subdrain. (4.4.1.4)
	Critical habitats	Y	
	Special populations (rare, etc.)	N	BMC info ?
	Wild stocks	Y	
	High value sport fishing	Y	
	NO management recommendations	Y	
	Habitat protection concerns		
	Fisheries sensitive zones	Y	
	Fish above 20% gradients	Y	
	Restoration opportunities	Y	
Fish bearing status	Problem culverts	Y	?
	Unstable slopes	Y	?
	Brief narrative section	Y	
Fish bearing status (cont.)	Table: Summary of fish bearing reaches...	Y	
	Table: Summary of non-fish bearing reaches	Y	
	Table: Follow-up sampling required	Y	
References	All sources in report listed	N	(FINS, 2000)
	According to CBE style manual	Y	

Comments:

*1—Please include a table with the subdrainage info. In the Results & Discussion (see Buba Cr.)

*2—Check Figures 3 & 4

Stream Report Appendices

Report section	Attribute	Accept Y/N	Notes
Appendix I. FDIS summary and photographs	In ascending order by WSC	Y	
	Grouped by site	Y	
	FDIS reach card printouts	Y	In FDIS, but only the summary form has been printed for each site
	FDIS site card printouts	Y	
	Fish data collection form	Y	
	Photos (min. 1, max. 4)	Y	
	All photos entered in FDIS	Y	
	Explanatory photo captions	(Y)	*1
	Photos in colour (final only)	Y	
Appendix II. Hardcopy maps – Fisheries project map	“E” size plots	Y	
	Folded in pocket in report	N	Will be for final
	UTM projection	Y	
	1:20 000 map grid	Y	
	1:20 000 scale	Y	
	Complete title box	Y	
	Complete legend box	N	*2
	Source information box	Y	
	Inset map box	N	*3
	Fish species box	Y	
	Contour lines (thinned)	N	*4
	Disclaimer	Y	
	Lake and stream annotation	N	*5

Report section	Attribute	Accept Y/N	Notes
Appendix II. Hardcopy maps – Fisheries project map (cont)	WSCs or ILPs for all sampled streams	Y	
	WSCs or ILPs for all 3 rd order or higher streams	(N)	*6
	WSCs or ILPs for every other 1 st and 2 nd order stream	(N)	
	WBIDs for all lakes	Y	
	Sample site locations/numbers	N	*7
	All site data symbols attached to sites	Y	
	Lake summary symbols	Y	
	Reach data symbols on all reaches <30% gradient and all reaches containing sites	Y	
	Features, obstructions and symbols	N	*8
	Reach breaks and numbers	Y	

Comments:

*1—captions loaded into FDIS, but not included with photos themselves; caption is very helpful when referencing photo (eg—u/s, d/s, fish sp. & length) for the viewer

*2—Legend box(es): Box of codes next to fish sp. Codes

→Disturbance Indicator Codes: S5—part of definit'n may be cut off

Include symbology for culvert, slide (? Mapsheet 93F/084), and dam (? Map 93F.081)

Please consider adding various types of roads (loose surface, etc.) to legend, as there are various types on the maps (single dashed, double dashed...)

*3—On some maps, 93F.092 is labelled as 93K.092

*4—Contours need labels and every fifth one darkened (ie—every 100 m)

*5—Please ensure all named creeks are labelled on all mapsheets (eg—Takysie Cr. Not labelled on mapsheet F.091, E.090, E.100)

*6—Many streams within the “sample area” boundary have not been given ILPs/WSCs/SDSs/RDSs; what is going on with these particular creeks? Are they overlooked or not supposed to be in the sample area? Also, noted a couple of WSCs that were not attached to their creeks (93L.010)

*7—Some sample sites are not where they should be (eg-2 in one reach), or not connected to creek properly with a leader line

*8—Please make physical charac. on mapsheets red, instead of black

Please consider changing road colours to something different than that of the contour lines, as this makes them very difficult to see

Stream Report Appendices

Report section	Attribute	Accept. Y/N	Notes
Appendix II. Hardcopy maps – Fisheries interpretive map	“E” size plots	Y	
	Folded in pocket in report	N	For final
	UTM projection	Y	
	1:20 000 map grid	Y	
	1:20 000 scale	Y	
	Complete title box	Y	
	Complete legend box	N	*1
	Source information box	Y	
	Inset map box	N	*2
	Fish species box	Y	
	Contour lines (thinned as approp.)	N	*3
	Disclaimer	Y	
	Lake and stream annotation	N	*4
	WSCs or ILPs for all sampled streams	Y	
	WSCs or ILPs for all 3 rd order or higher streams	(N)	? Some creeks in area not annotated at all?
	WSCs or ILPs for every other 1 st and 2 nd order stream	(N)	
	WBIDs for all lakes	Y	
	Sample site locations/numbers	N	*5
	Reach breaks and numbers	Y	
	Reach summary symbols for all reaches in the project area	N	*6

Report section	Attribute	Accept. Y/N	Notes
Appendix II. Hardcopy maps – Fisheries interpretive map (cont.)	Features, obstructions and symbols (optional)	Y	
	Fisheries sensitive zones	Y	
	Fish distribution limits	Y	
	Red/blue, solid/dashed lines to illustrate fish stream class (optional)	N	*7
	Roads/communities (optional)	(Y)	*8

Notes:

*1- Lake summary symbol should be included in legend

- Include symbology for culvert, slide (? Mapsheet 93F/084), and dam (? Map 93F.081)

- Please consider adding various types of roads (loose surface, etc.) to legend, as there are various types on the maps (single dashed, double dashed...)

*2- On some maps, 93F.092 is labelled as 93K.092

*3- Contours need labels and every fifth one darkened (ie-every 100 m)

*4- Please ensure all named creeks are labelled on all mapsheets (eg-Takysie Cr. Not labelled on mapsheet F.091, E.090, E.100)

*5- one mistake observed on K.001/K.002

*6- Site 158 (K.001), Site 11 (K.012)

*7- one small mistake on Tchesinkut Cr., Map K.002

*8- Please consider changing road colour, as it is difficult to differentiate from contour lines

Stream Report Attachments

Report section	Attribute	Accept. Y/N	Notes
Attachment I. Planning document	Budget breakdown by phase	N/A	
	Project sampling design	N/A	
	Process of site selection	N/A	
	Reach table	N/A	
	Lake table	N/A	
	Random sample table	N/A	
	References, contacts list	N/A	
Attachment II. Field notes	Field book or facsimile	Y	
	Site cards	Y	
	Fish collection forms	Y	
	Individual fish data forms	Y	
	Field working maps	N/A	
Attachment III. Fish ageing structures	Actual ageing structures	N/A	
	Labelled photocopies	N/A	
	Annuli identified with red	N/A	
	Age data are correct	N/A	
Attachment IV. Voucher, DNA samples	Table: Vouchers collected	N/A	
	Table: DNA collected	N/A	
Attachment V. Photodocumentation	Table: Photo summary report	Y	
	Colour thumbnail reference	Y	(EXCEPT CD #8)
	Photo CD	Y	
	CD Image #s match digital	Y	
	Negatives in plastic sleeves	Y	
	Negatives labelled	N	*1

Report section	Attribute	Accept Y/N	Notes
Attachment V. Photodocumentation (cont.)	Negative #s match digital	Y	*3
	Prints in plastic sleeves	N/A	
	Prints labelled	N/A	
Attachment VI. Digital data	Budget breakdown by phase	N/A	Already at MELP as Attach . submitted for Ph. 123
	Project sampling design	N/A	
	References, contacts list	N/A	
	Table of vouchers collected	N/A	
	Table of DNA collected	N/A	
	Photo summary report	Y	
	Report tables, figures	Y	
	Report text	Y	
	FDISDAT.MDB	Y	
	Mapping files (plot files)	N	With final
	Mapping files (metadata and map features files)	N	With final
Attachment VII. FISS update data	FISS data forms and maps	Y	
	Copies of reference material	N	*2
	Data on forms match FDIS	Y	
Attachment VIII. Aerial photography	Purchased aerial photos	N/A	
	Aerial video tape	N/A	

Comments:

*1—Pls. label all negs. with all relevant info: full proj. name, company, date, proj. # if applic., anything else relevant. Also, pls. label all other included pieces, such as actual CDs, field notes book

*2—Pls. include a copy of report with reference # used in FISS on the front cover, to be sent with the FISS updates to Victoria. Not bound OK.

*3—Nice work!! on getting all photos entered with no mistakes, all negative #s matching frames, etc.