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

# Tributaries in the Sutherland River Watershed 2000

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

Prepared for:

#### **Babine Forest Products Co.**

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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

Lakes Forest District

Forest District

Lakes Forest District

Babine Forest Product

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 (km²) 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** 30BCC96018: 110-115; 30BCC98023: 1-16, 122-139, 142-149

30BCC98022: 62-68; 30BCC98021: 124-133, 167-183

Fish Species Present CAS, RB, SK

(captured in this inventory)

### Sampling Design Summary

Total Number of Reaches385Random Sample Reaches17Discretionary Sample Reaches48Total Sample Reaches65% of Reaches Sampled16.9

Field Sampling Dates October 2 to October 5, 2000

**Abbreviations Used in this Report** 

Abbrevia	itions Used in this Report	LYOD	N-4-1iG-4 denimons
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
С	Clear (not turbid)	NFP	No fish present
C.	Creek	NS	Not sampled
CAS	Prickly sculpin (Cottus asper)	NTS	National Topographic Survey
CC	Sculpins -general	NVC	No visible channel
CD	Compact disc	pН	Acidity or alkalinity measurement unit
CO	Coho salmon (O. kisutch)	Prop	Proposed
Cond.	Conductivity	PW	Electric pulse width
CPUE	Catch per unit effort	R.	River
CW	Channel width	RB	Rainbow trout (O. mykiss)
D	Downstream	Rd	Road
DFO	Department of Fisheries and Oceans	Rip	Riparian
Dir	Direction	RSC	Redside shiner (Richardsonius balteatus)
Dist.	Distance	RSS	Regionally significant species
d/s	Downstream	S1 - S6	Riparian classes
EF	Electrofishing	S S	Seconds Seconds
		S	Small size stream
Exp	Expected  Field Data Information System	SBS	Sub-Boreal Spruce BGC
FDIS	Field Data Information System		Sockeye salmon (O. nerka)
FISS	Fisheries Information Summary System	SK	
FPC	Forest Practices Code	S/S/I	Straight, sinuous or irregular wandering
EDDC	D 1 50 11 10 1 11	1.	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	ST	Steelhead trout (O. mykiss)
	(Version 1.1)		
Grad	Slope gradient	ST/SI/IR	Straight, sinuous or irregular wandering
Grad	Stope gradient	BINGUIK	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	Turb	Turbidity
1/1/1/1	meandering channels	Tuto	Tublatty
IM/ME/TM	Irregular meandering, meandering or tortuous	U	Upstream
	meandering channels	İ	•
Info.	Information	u/s	Upstream
km	Kilometer	X	Across
KO	Kokanee (O. nerka)	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 m	Meter	WCB	Workers Compensation Board
mm	Millimeter	WSC	Watershed code
M	Moderate flow, moderate turbid or medium	<del></del>	Microseconds
141	size stream	μs	Mucroseconds
MELP	Ministry of Environment, Lands and Parks	μS	Microsiemens
MW	Mountain whitefish (Prosopium williamsoni)	°C	Temperature
NA	Not applicable	%	Slope gradient
TAYZ	1 NOT applicable	1 70	Lorobe Rigoretti

# **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.

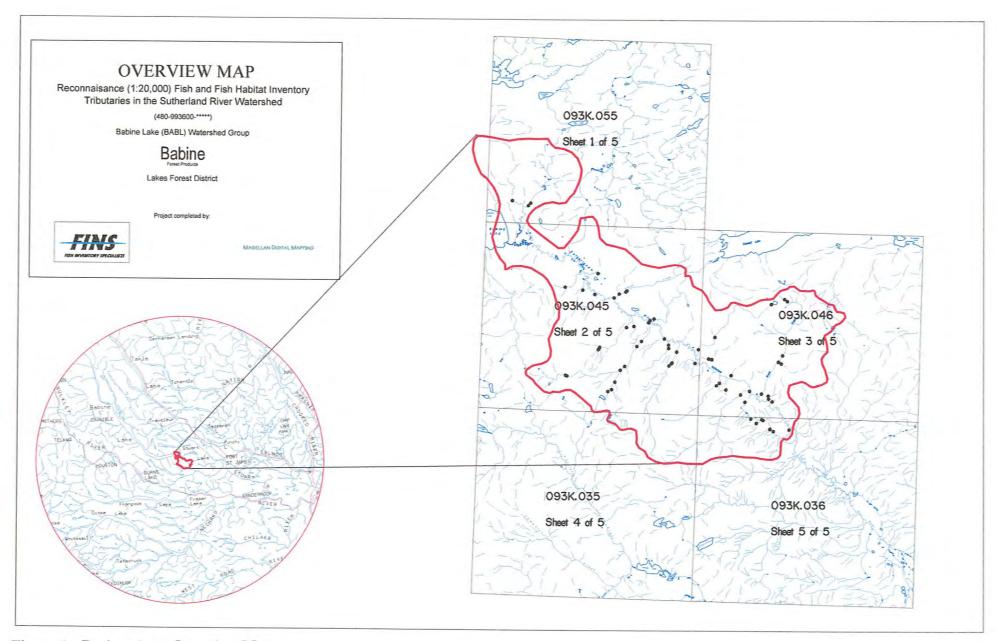


Figure 1: Project Area Overview Map.



#### 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

<sup>\*</sup> 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=Ho (gradient (%) to top of falls)/(gradient (%) to bottom of falls) + Ho

Where H = Height of falls (in m)
And Ho = 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:

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

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 1413μS/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 4<sup>th</sup> order and two 3<sup>rd</sup> 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.

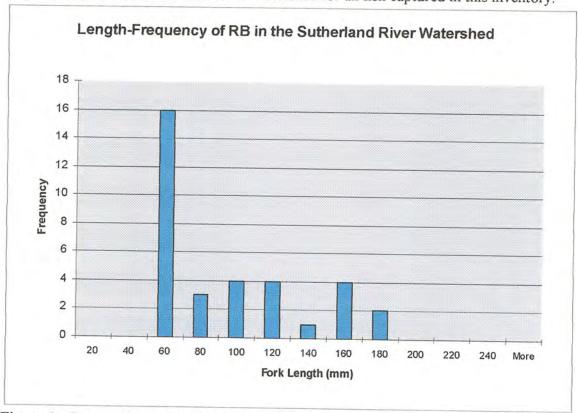


Figure 2: Length-frequency histogram of sampled RB from the Sutherland River Watershed, October 2 to October 5, 2000

# 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.

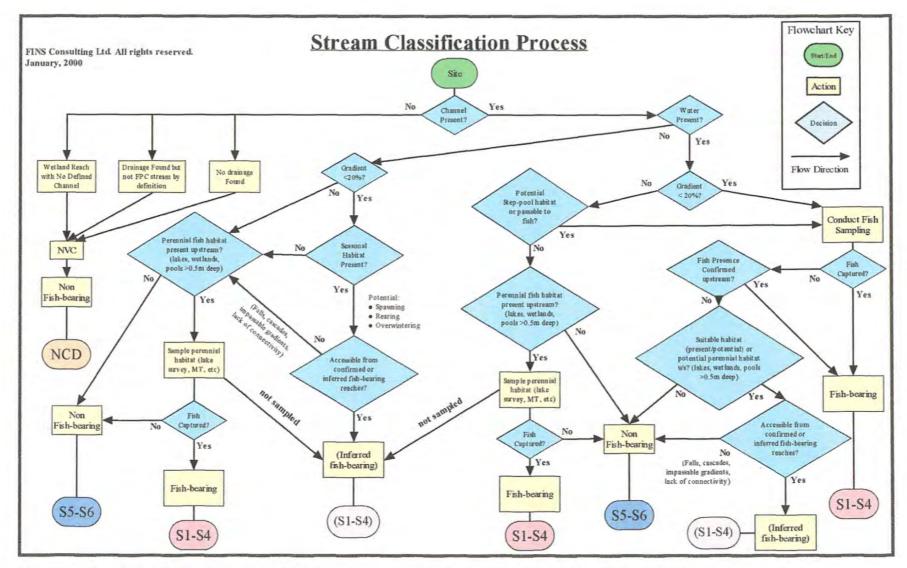


Figure 3: Flowchart of the stream classification process used in determining fish-bearing status of surveyed reaches

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

Stream Name	Watershed Code	ILP	Reach	Site	Species	CW	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	\$6	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.
<b></b>	480-993600-22300		2.0	392	NFC (RB)	3.0	7.4	(S3)	N	Assumed fish use - habitat present and accessible
	480-993600-22300	<del> </del>	4.0	393	NFC	0.8	2.1	S6	N	Confirmed fish absence
<b></b>		45712	2,0	394	NS			NCD*	N	No stream/drainage present at mapped location
	<del></del>	45715	1.0	395	NFC	1.0	5.3	S6	N	Confirmed fish absence
	<del>                                     </del>	45716		396	NS		7.0	NCD*	N	No stream/drainage present at mapped location
<del> </del>	480-993600-24500	13/10	1.0	397	RB	2.8	1.0	S3	N	Confirmed fish presence
	480-993600-24500	<del> </del>	2.0	398	RB	3.7	4.3	S3	N	Confirmed fish presence
<u> </u>	480-993600-24500	<del> </del>	3.0	399	NFC	3.7	13.5	S5	N	Confirmed fish absence
ļ	480-993600-24500	<del> </del>	4.0	400	NFC	3.1	5.5	S5	N	Confirmed fish absence
<del> </del>	480-993600-24500	<del> </del>	7.0	401	NFC	1.0	3.8	\$6	N	Confirmed fish absence
<u> </u>	480-993600-24500-57600	<del> </del>	1.0	402	NFC	1.9	4.0	\$6	N	Confirmed fish absence
	480-993600-24500-57600	<del> </del>	5.0	403	NFC	1.9	1.6	\$6	N	Confirmed fish absence
	480-993000-24300-37000	45724	1.0	404	NS	1.7	1.0	NCD	N	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
	480-993600-24500-72500	43724	1.0	405	NFC	1.2	17.3	S6	N	Confirmed fish absence
	480-993600-24300-72300	45720	1.0	405	NFC	0.4	19.3	S6	N	Confirmed fish absence
	480-993600-24800	45730		407	NS	0,4	0.8	NCD	N	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
		<del> </del>	1.0	407	NS	-	3.3	S6	N	Confirmed fish absence
	480-993600-24800	45726	2.0	408	NS NS	0.5	3.3	NCD*	N	No stream/drainage present at mapped location
		45735	1.0		NS NS	ļ	ļ	NCD*	N	Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.
		45738	1.0	410	NS NS	-	1.5		N N	
	400 003 (00 303 00	45738	2.0			0.8	4.5	\$6		Confirmed fish absence
	480-993600-29300	<del> </del>	1.0	412	NS (RB)	3.0	2.6	(83)	N	Assumed fish use - habitat present and accessible
	480-993600-29300	<del> </del>	2.1	413	NFC (RB)	2.7	10.3	(S3)	N	Assumed fish use - habitat present and accessible
	480-993600-29300		3.0		NFC	2.0	16.3	S6	N	Confirmed fish absence
	480-993600-29300	<b></b>	4.0		NFC	2.9	5.8	S6	N	Confirmed fish absence
	480-993600-32300	ļ	1.0	416	NFC (RB)	0.8	2.3	(S4)	N	Assumed fish use - habitat present and accessible
	480-993600-32300		3.0		NFC	2.2	12.0	S6	N	Confirmed fish absence
	480-993600-32300	ļ	9.0		NFC	0.9	2.3	S6	N	Confirmed fish absence
L	_L	45748	2.0	419	NS	L	<u> </u>	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	CW	Grad	Proposed FPC Class	Follow-up Sampling?	Comments
		45750	1.0	420	NS	<del> </del>	ļ	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		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	\$6	N	Confirmed fish absence
		46721	1.0	435	NS			NCD*	N	No stream/drainage present at mapped location
		46721	2.0	436	NS	$T^{-}$		NCD*	N	No stream/drainage present at mapped location
	480-993600-42300		1.0	437	NS	0.5	8.8	\$6	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	T		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	Reach	h Size C	lass										
Gradient Class	Pattern Type	(1	Small <sup>st</sup> order)		1	Medium nd 3 <sup>rd</sup> oi	der)	(4 <sup>th</sup> and	Large I 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	ST/SI/IR	208	3	1.44	447	107	23.94	91	72	79.12			
(≤4%)	IM/ME/TM	31	3	9.68	111	25	22.52	23	11	47.83			
2	ST/SI/IR	149	1	0.67	263	60	22.81	25	16	64.00			
(>4% and ≤8%)	IM/ME/TM	8	0	0.00	2	1	50.00	0	0	0.00			
3	ST/SI/IR	121	2	1.65	122	17	13.93	8	4	50.00			
(>8% and ≤20%)	IM/ME/TM	0	0	0.00	0	0	0.00	0	0	0.00			
4	ST/SI/IR	45	0	0.00	22	0	0.00	1	0	0.00			
(>20% and ≤30%)	IM/ME/TM	0	0	0.00	0	0	0.00	0	0	0.00			
5	ST/SI/IR	9	0	0.00	4	0	0.00	0	0	0.00			
(>30%)	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	Watershed Code	ILP	Read	ch Sit	e Date		T	$T^-$	T	T	T	T	T	$\neg \Gamma$	T	T	$\top$	Т	1	Τ	Т	T		Γ_	Comments
Name		l				1						1			Water Temp (°C)							}		with	Conditions
						12	) <u>-</u>	Avg Grad (%)	}	1				1		1 🗑	`		l			3		8.2	, [
		1	1			Ave CW (m)	Avg Wb (m)	9	1_	8		EF Dist (m)	EF Time (s)	Flow Stage	S 5	Cond (uS/cm)				1	Grad Class	Pattern Class	92	% of reaches v	
		1				18		1 5	Exp Spp	FPC Class	Method	is.	Ĕ	3	=	3	. [	Volt (V)	Freq (Hz)	PW (uS)	ð	F	Size Class	8 6	
		1				9	0 00	<u>@</u>	a	Ÿ	딒		=	1	1 2	B	운	¥ .	1 8	15	폏	<u>ā</u>	O	<b>5</b>	
ļ		+		<b>_</b>	<b></b>			1	E	E	Ž		Ē	_ E	≩	ರಿ	Turb	S .	Ę	12	Ğ	Z	Siz	8 2	
		4570	2 3.0	384	2000/10/05	5  0.8	3 0.20	1.5	RB	S6	EF	150	261	L	4	120	) C		70	4			I S	1.44	No RB habitat, low and slow flow, organic fines in
		1	1						1				İ			}	-	]		1	ļ	}			substrate, no spawning or overwintering, rearing
İ		1	1	İ		1				j			1			1	- 1			1			ŀ		limited to very few deeper pools. Likely inaccessible
			•		-		ł					l	1	ı		ŀ	ı	-			1				due to steep gradient in reach 2 (from map). No
					į		1							1	1			1			ł		-		rearing, spawning or overwintering potential at
	<del>-  </del>	4570	9 1.0	301	2000/10/02	,—	<del> </del>	0.5	DD	NCD	210	<u> </u>	<del> </del>	-	4		+			<u> </u>	<u> </u>	ļ	1_	L	higher flow.
		17570	1.0	371	2000/10/02	'	1	0.5	KB	NCD	N2			ı			Ì				1	S/S/	I   S	1.44	Not an FPC stream. No fish habitat present, no
	480-993600-22300	<del> </del>	4.0	303	2000/10/05	0.5	0.12	121	DD	S6	EE	150	85	+-	١.		-		<del> </del> _	-	<u> </u>	ļ.,	_	L	connectivity to u/s reaches.
	100 330000 22300		7.0	373	2000/10/03	0.0	0.13	2.1	KD	30	EF	130	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
]				1									İ	İ	1	1		1	İ						stream blocks fish passage. No fish present in
		45712	2 2.0	394	2000/10/05	+	┼	+	PR	NCD*	NIC		<del></del> -		┼				<del> </del>	<del> </del>	-	0/0/	<del></del>		watershed above falls.
			1.0		2000/10/05		0.33	53	RR	S6		150	212	+L	4	80	c	600		+-	2	8/8/	l M	22.8	No stream/drainage present at mapped location
			1			1.0	10.55	7.5	KD	30	Er	130	212	[	4	80		600	80	4	2	S/S/.	ı įs	0.67	Impassable 20m falls at the end of reach 2.0 of
L					†						ľ			-											parent stream (480-993600-22300) blocks fish
		45716	1.0	396	2000/10/05	+	-	+-	RR	NCD*	NC		<b></b>	+-	<del> </del>		+-1		+	╁	<del>├,</del> -	0/07	-	1 44	passage. No fish present in watershed above falls.
	480-993600-24500	<u> </u>	3.0		2000/10/05		0.67	13.5	RR	S5		100	291	14	4	160	c	500	80	+	3	8/8/	1   8	1.44	No stream/drainage present at mapped location
						10.,	0.07	13.5	1.0		12.1	100	291	IVI	4	100		300	80	6	3	8/8/	I  L	50.00	Impassable 4m falls at the end of reach 2.0 of this
		İ	Ì			ĺ															1	Ī			stream blocks fish passage. No fish present in
	480-993600-24500		4.0	400	2000/10/05	3.1	0.37	5.5	RB	S5	FF	220	415	1/	4	150	С	500	80	6	1	6/07	+	64.00	watershed above falls.
		l	1				]	1	-0	0,5	"	220	713	ivi	"	150		300	1 80	P	2	8/8/	1	64.00	Impassable 4m falls at the end of reach 2.0 of this
					1												11								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		500	80	6	1	0/0/1	17	22.07	Impassable 4m falls at the end of reach 2.0 of this
			ĺ				1					1.0	571	1		1,0		500	80	"	1	3/3/1	IVE	23.94	stream blocks fish passage. No fish present in
		<u> </u>		1	1									ĺ					1						watershed above falls.
	480-993600-24500-	_	1.0	402	2000/10/05	1.9	0.23	4.0	RB	<b>S6</b>	EF	130	291	м	4	130	C	500	80	6	1	S/S/I	M	23.04	Impassable 4m falls at the end of reach 2.0 of parent
	57600	ļ	İ		İ	[		•						1	١ ١	150		200	80	١	1	3/3/1	IVI	23.54	stream (480-993600-24500) blocks fish passage.
					l														ŀ						No fish present in watershed above falls.
	480-993600-24500-		5.0	403	2000/10/03	1.9	0.47	1.6	RB	S6	EF	250	228	М	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
	57600		1	1								_		1				500	1 ,		1	0,0,1	141	25.57	stream (480-993600-24500) blocks fish passage.
·				<u> </u>	L		<u> </u>																		No fish present in watershed above falls.
		45724	1.0	404	2000/10/03				RB	NCD	NS			1			11		<del> </del>	1-1	3	S/S/I	S	1.65	Not an FPC stream. No fish habitat present, no
												j							ł			J. J. 1		1.05	connectivity to u/s reaches.
	480-993600-24500-		1.0	405	2000/10/05	1.2	0.23	17.3	RB	<b>S</b> 6	EF	120	114	M	4	70	c	500	80	6	3	S/S/I	м	13.93	Impassable 4m falls at the end of reach 2.0 of parent
	72500			]		}		ľ				ŀ								i	Ť		"	10.70	stream (480-993600-24500) blocks fish passage.
														1			11								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 fails at the end of reach 2.0 of parent
												Ì										_			stream (480-993600-24500) blocks fish passage.
	480-993600-24800		<del></del>	45.5	20001	Ш											$\perp$			╚	[				No fish present in watershed above falls.
	480-223000-24800		1.0	407	2000/10/04			0.8	RB	NCD	NS	Ī			T		$\Box$				1	S/S/I	M	23.94	Not an FPC stream. No fish habitat present, no
	<u> </u>			<u> </u>		لــــــا		اا											<u> </u>						connectivity to u/s reaches.



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

Stream	Watershed Code	ILP	Reacl	Site	Date		T	T	I		T		1	Т			T	T	1		Γ		Т	Τ.		Comments
Name		İ								1				ŀ	S S			-					1	13	WIE	
		ŀ	1	-		2	1 =	Grad (%)			1				ے ا	夏			1			88			% of reaches v fish captured	
		1				Avg CW (m)	Avg Wb (m)	ğ		8	1	EF Dist (m)	EF Time (s)	ş	Water Temp	Cond (uS/cm)			2		Grad Class	Class	9	۱.		
	<u> </u>	ł		ľ	i	18	1 5	, E	Exp Spp	FPC Class	Method	1 12	Ĕ	25	1	3	1	/olt (V)	Freq (Hz)	PW (uS)	5	Pattern	Size Class		ᇎᇎ	
			ļ	Ī	l	56	50	50	S2	Ş	<b>-</b>	Ā	=	È	[ <del>2</del>	E	Turb	¥ =	2	5   A	Z P	ŧ	٥	١ اي	2 2	
					<u> </u>			Avg	A		Ž		E	Flow Stage	Š	ರ		:	£ _	2	Ö	Pa	3	3 3	<u>₹</u>	
	480-993600-24800		2.0	408	2000/10/04	0.5	0.20	3.3	RB	S6	NS			L							1	S/S/	ΙM	1 2	3.94	No connection to Sutherland R. due to lack of
		<u> </u>					<u> </u>				1	<u>L</u> _			1_		Т.				L		$\perp$	L		channel in reach 1. No perennial habitat available.
		45735	-		2000/10/04		<u> </u>	<u> </u>		NCD*				$\perp$		Ĺ	l			L.	1	S/S/	I M	1 2	3.94	No stream/drainage present at mapped location
		45738	1.0	410	2000/10/04				RB	NCD	NS	]					ŀ				1	S/S/	I M	1 2	3.94	Not an FPC stream. No fish habitat present, no
		ļ		ļ		<u> </u>	↓	<u> </u>	<u> </u>		1	L		$\perp$	<u></u>	L	$\perp$				<u> </u>	<u> </u>	┵	1		connectivity to u/s reaches.
		45738	2.0	411	2000/10/04	0.8	0.17	4.5	RB	<b>S</b> 6	NS			L							2	S/S/	I M	1 2	2.81	No connection to Sutherland R. due to lack of
		ļ		-	L		ļ	ļ	-		ـــــ	<u> </u>		$\perp$	<u> </u>		Щ.			<u> </u>	<u> </u>		4	1		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	1 1	3.93	Impassable 6m falls at the end of reach 2.1 of this
		İ		ŀ											ļ		1			1						stream blocks fish passage. No fish present in
	100 003 000 20300		4.0	41.6	2000/10/04	100	10.45	1-0		0.6	-	1.50	410	1.	١.	40	+	700	-	<u> </u>	-	0/0	+	+		watershed above falls. Impassable 6m falls at the end of reach 2.1 of this
	480-993600-29300	1	4.0	415	2000/10/04	2.9	0.47	3.8	KB	S6	EF	150	419	M	4	40	C	700	80	6	2	8/8/	I M	1 2	2.81	stream blocks fish passage. No fish present in
					ļ	1		1		1	1	1	Ì				1				-					watershed above falls.
	480-993600-32300	<del> </del>	3.0	417	2000/10/04	122	0.20	12.0	DD	S6	EE	100	238	3.4	1	190	1	600	80	6	2	0/0	1 1	/ 1	2 02	Impassable 3m falls at the end of reach 2 of this
	160-223000-32300	}	3.0	417	2000/10/04	2.2	0.30	12.0	IKB	30	EF	100	230	IVI	4	150		600	00	0	3	3/3/	1 11	ין י	3.73	stream blocks fish passage. No fish present in
	]					1		1	1		1		1				1			}						watershed above falls.
	480-993600-32300		9.0	418	2000/10/04	0.9	0.10	23	RB	86	EF	100	194	М	4	110	C	600	80	6	1	S/S/	TS	+	1.44	Impassable 3m falls at the end of reach 2 of this
1						10.5	0.10	]		00		***	1		'	110			00	ľ	1	0,0,	٦		• · · ·	stream blocks fish passage. No fish present in
	:					1			1					1			1							1		watershed above falls.
		45748	2.0	419	2000/10/04	1			RB	NCD*	NS	$\vdash$	<u> </u>	1	$\vdash$		7	<del> </del>			3	S/S/	I S	:	1.65	No stream/drainage present at mapped location
		45750	1.0	420	2000/10/04	T			RB	NCD*	NS						T	1			2					No stream/drainage present at mapped location
	480-993600-37800		2.0	423	2000/10/03	1		T	RB	NCD*	NS						T				3	S/S/	I M	1 1	3.93	No stream/drainage present at mapped location
	480-993600-37900		1.0	424	2000/10/04				RB	NCD	NS						Т				1	S/S/	I S	3	1.44	Not an FPC stream. No fish habitat present, no
L					l				L		<u> </u>	l			<u>.</u>		L						1	L		connectivity to u/s reaches.
		46705	3.0		2000/10/03					NCD*											1					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	1 2	2.81	Impassable series of 3m, 3m and 5m falls at the end
1		1						1					ŀ		1		1						-	1		of reach 2 of this stream blocks fish passage. No fish
		ļ		ļ		4		Ļ			<u> </u>	<u> </u>	ļ	1	_		1	<u> </u>		<u> </u>	_	<u> </u>	4	4		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	4 2	23.94	Impassable series of 3m, 3m and 5m falls at the end
	ŀ	i I					1	1									1		1					1		of reach 2 of this stream blocks fish passage. No fish
	100 000 000 10000	ļ		400	2000/10/04	<del>                                     </del>		<del>ا</del>			<del> </del>	ļ		<del> </del>	<u> </u>		1		<del> </del>	_	<del> </del>		-	+		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/	1   S	1	1.44	Impassable series of 3m, 3m and 5m falls at the end
	1			1			}	1				1									1			1		of reach 2 of this stream blocks fish passage. No fish
	480-993600-40800-		1.0	124	2000/10/03	100	0.10	17.2	DD	\$6	EF	100	164/110	1	-	240	╁	100/400	90/00	CIA	1-	0/0	T 1	4.	2 02	present in watershed above falls.  Impassable 4m high cascade at the end of reach 0.1
	32900		1.0	434	2000/10/03	0.9	0.10	17.3	KB	80	EF	100	104/119	M	4	340	ال	400/400	80/90	0/4	3	3/3/	ı IV	4	3.73	of this stream blocks fish passage. No fish present in
	52700																1			1						watershed above cascade.
<b> </b>	<del> </del>	46721	10	435	2000/10/03	+	$\vdash$	$\vdash$	RR	NCD*	NS	<del> </del>	<del> </del>	+	├		+-	<del> </del>	<del> </del>	<del> </del>	2	S/S	i M	1	2 81	No stream/drainage present at mapped location
<b> </b>	<del> </del>	46721			2000/10/03	+-	<del>                                     </del>	$\vdash$		NCD*			<del> </del>	+-	-		+-	<del> </del>		<del> </del>	3					No stream/drainage present at mapped location
		1.0,21		1,50		ــــــــــــــــــــــــــــــــــــــ	L	Ь	12.20		1,10		<u> </u>		Ь	L		<del></del>	ــــــــــــــــــــــــــــــــــــــ	1		10,0	- 1.4.	-1 '		P



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

Stream Name	Watershed Code	ILP	Reach			Avg CW (m)	Avg Wb	Avg Grad (%)	Exp Spp	FPC Class	Method	EF Dist (m)	EF Time (s)	tage	Water Temp (°C)	Cond (uS/cm)	Turb	v oil (v)	Freq (Hz)	PW (uS)	Grad Class	Pattern Class	Size Class	% of reaches with	Comments
	480-993600-42300		1.0	437	2000/10/03	0.5	0.13	8.8	RB	<b>S</b> 6	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			2000/10/02					NCD*					$\downarrow$										No stream/drainage present at mapped location
	480-993600-46700	36709			2000/10/02 2000/10/02					NCD*	_				1		<del> </del>								No stream/drainage present at mapped location  Not an FPC stream. No fish habitat present, no connectivity to u/s reaches.



March, 2001

#### 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	1 14 14	Determine upper extent of fish use (if any) in entire watershed. Suspect barrier u/s.
	480-993600-00600-48300		2.0	383	July		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	3 PP	Determine upper extent of fish use. Suspect barrier u/s.
	480-993600-36700		2.0	422	July	1 P.P	Determine upper extent of fish use. Suspect barrier u/s.
	480-993600-39600		2.0	426	July	l P.F	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	1 P.F	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

Reach #

ILP Map #

ILP#

2.0

			s.	TREAMP	EFERENCI	M/C			
0									
Gazetted Na						al Name:			
Watershed C	ode: 480-993600	0-00600-00000-00	00-000-000-000	-000-000-000-00	00	ILP	Map #:	ILP#:	
				RE	ACH				
React	1#: 2.0	ប	TM(Zone/East/No	orth):		Sample Type:	В		· · · · · · · · · · · · · · · · · · ·
Length (k	m): .85	Gradient (%	): 4.47	US Elev (m)	): <b>758</b>	Order:	3	Magnitude:	13
Confineme		Coupling		Open water		BGC Zone:			
Islan	ds: N	Bars: ✔N	SIDEDI	AG MID		Riparian Veg.:	M 	Landuse: N	10
				8	ITE				
Site #:		GIS UTM(Zo	ne/East/North)	Date: 20	000/10/07	Agency: C016	<b>;</b>	Crew: SR/M	J
Site Lg (m):	190					Ref. Name:			
	7				INNEL				
	_ Intermittent:	<u></u>	Ob 1 145 141			#		Avg % Min % N	
Dw: L	Tribs.:		Channel Width Wetted Width	<del>```</del>		6 P	Gadient %: Pool Depth (m):	5.25 4 0.37 0.200	7 4
			Wb Depth	<u> </u>		3	oor Deptir (iii).]	0.37   0.200	0.5 6
Stage: 1	M♥ H	T. (0) (	*	· · · · · · · · · · · · · · · · · · ·					
Staye. L	W. A. L.	Temp (C): 4		pH: 8.4		Cond.: 430	Turi	).: 🔲 T 📗 N	1 🗌 L 📝 C
Bed Material:	Dominant: C	-		MORP	HOLOGY				
Ded Waterial.	Dominant. C D95: 50.0		ubdom: B D (cm): 12.00		Ba	rs: N	SIDE DIAG	MID S	PAN 🗍 BR
	Pattern: IR	-	slands: N			O1 B1 B2	B3 D1	D2 D3	
	Coupling: PC	Confin	ement: OC	טוג					
	Morph: CP				STUDBANCE L				
<b>{</b>					STURBANCE L NDICATORS	C1 C2 C3	C4 C5	S1 S2 S3	SA SE
1					IDIOATODO	C1 C2 C3	C4 C5	S1 S2 S3	S4 S5
				IN.	VDICATORS	C1 C2 C3	C4 C5	S1 S2 S3	S4 S5
Total	: A	<u></u>	/pe: SWD	IN.	VER	C1 C2 C3		\$1 \$2 \$3	
Total	: <b>A</b>	T <sub>1</sub>		CO	VER U D		C4 C5	\$1 \$2 \$3	S4 S5
Total	: A		unt: T	CO  LWD B  T D	VER U D	P OV	IV		
Total:		Amo Loc: P/S	unt: T	LWD B	VER U D	OP OV S	IV		FSZ:
	F	Amo Loc: P/S	unt: T	LWD B T D	VER U D	P OV S T M V V	IV	CROWI	FSZ:
LWĐ:	F	Amo Loc: P/S DIS	T: E INS	LWD B T D STREAM VEG:	VER U D T S	P OV S T M V V S ST	IV N	CROWI	FSZ:
LWD: RB SHP:	F	Amo Loc: P/S DIS Texture: F	T: E INS	LWD B T D STREAM VEG:	VER U D T S N A A	P OV S T M V V S ST	IV N N OF THE PROPERTY OF THE	CROWI	FSZ:
LWD: RB SHP: LB SHP:	F V U	Amo Loc: P/S  DIS  Texture: F  Texture: F	T: E INS	LWD B T D STREAM VEG:  B R B R	VER U D T S N A RIP: S A RIP: S	P OV S T S ST S ST	IV N N OF THE PROPERTY OF THE	CROWI	FSZ:
LWD: RB SHP:	F	Amo Loc: P/S DIS Texture: F	T: E INS	LWD B T D STREAM VEG:  B R B R	VER U D T S N A RIP: S A RIP: S	P OV S T M V V S ST	IV N N OF THE PROPERTY OF THE	CROWI	FSZ:

Reach #

ILP Map #

ILP#

3.0

				REAMRE	PEKEN				
Gazetted Nai	me:				L	ocał Name:			
Watershed Co	de: 480-993600	0-00600-00000-00	00-0000-000-000-0	00-000-000-000	ס	IL	.P Map #:	ILF	P#:
				RE	ACH				
Reach	#: 3.0	נט	M(Zone/East/Nor	th):		Sample Typ	e: B		-
Length (kr	n): .93	Gradient (%	): 1.4	US Elev (m):	771	Orde	r: 3	Magnitude: 1	0
Confineme	nt: UN	Coupling	j: DC	Open water:	Α	BGC Zone	e: SBS		
island	is: N	Bars: 🗸 N	SIDE DIA	G MID	SPA BI	R Riparian Veg	.: M	Landuse: N	0
				SI	TE				
Site #: 3	382	GIS UTM(Zo	ne/East/North)	Date: 200	00/10/02	Agency: Co	016	Crew: SR/M.	1
Site Lg (m): 1	160			ł		Ref. Name:			
				CHA	NNEL				
No Vis.Ch.:	Intermittent:			Avg N	in Max	#		Avg % Min % M	ax % #
Dw:	Tribs.:		Channel Width (		700 2.3	6	Gadient %	<del> </del>	5 4
_	_		Wetted Width (		1 2	6	Pool Depth (m)	0.26 0.19	0.38 6
		Ł	Wb Depth (	m): 0.37 C	0.4	3			
Stage: L	M <b>√</b> H□	Temp (C): 4		pH: 8.4		Cond.: 430	Tu	ırb.: 🔲 T 🔲 N	I 🗌 L 🗸 C
				MORPE	OLOGY				
Bed Material:	Dominant: C	Si	ubdom: G			Bars: N	SIDE DIA	G MID S	PAN 🗍 BR
	D95: 35.0	00 I	O (cm): 6.00			O1 B1	B2 B3 D1	D2 D3	
	Pattern: SI		slands: N					D2 D3	
	Coupling: CO Morph: CP	Confin	ement: FC		TURBANCE				
	Worph, CP			IN	DICATORS	C1 C2	C3 C4 C5	S1 S2 S3	S4 S5
				ÇO	VER				
Total:	: <b>A</b>	T	ype: SWD L	.WD B	U	DP OV	IV		FSZ:
		Amo	· · · · · · · · · · · · · · · · · · ·	T S	Т	D T	N		
		Loc: P/S							N CLOSURE
					N A			1	1-20%
LWD:	F	Dis	T: E INS	TREAM VEG:	N 🔲 A	M ✓ ∨			
LWD:	•					∐ M 🗸 V P:S	□ STG: NA		
	U	Texture: 🗸 F	T:E INS'  GGCC	_ B _ R [	A RI		STG: NA STG: NA		
RB SHP:	U	Texture: 🗸 F	<b>V</b> G <b>V</b> C	_ B _ R [	A RI	P: S			<u></u>
RB SHP:	U	Texture: 🗸 F	<b>V</b> G <b>V</b> C	B R [	A RI	P: S			
RB SHP:	U	Texture: 🗸 F	<b>V</b> G <b>V</b> C	B R [	A RI	P: S		Minimum Length (mm)	Maximum Length (mm)

Reach #

ILP Map #

ILP#

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

2.0

			S	TREAMRE	FERENCI	NG			
Gazetted Na	me:				Loca	l Name:			
Watershed Co	xde: 480-993600	-00600-48300-00	00-0000-000-000	-000-000-000-00	0	ILP	Map#:	1 <u>L</u>	P#:
				RE	ACH		•	_	
Reach	#: 2.0	ın	M(Zone/East/No	vth):		Sample Type:	В		
Length (kr		Gradient (%		US Elev (m):	700	Order:		Manaturda	2
Confineme	•	Coupling	•	Open water:		BGC Zone:		Magnitude:	3
Island	ds: N	Bars: 🗸 N	SIDE DI	AG MID	SPA BR	Riparian Veg.:	M	Landuse: C	PΤ
				S	TE				
Site #: 3	383	GIS UTM(Zo	ne/East/North)	Date: 20	00/10/02	Agency: C016		Crew: SR/M	J
Site Lg (m): 1	120		<u> </u>		F	Ref. Name:			
				CHA	NNEL				
No Vis.Ch.:	Intermittent:				lin Max #	<b>F</b>		Avg % Min % N	lax % #
Dw:	Tribs.:		Channel Width		100 1.600		Gadient %:	1.00 1	1 4
		}	Wetted Width Wb Depth		0.7 1.5 6 0.4 0.5 3		ool Depth (m):	0.38   0.270	0.64 5
		i.	TTD Depti.	(11). 0.40   (	.4   0.5   .	<u>'</u>			
Stage: L	M <b>√</b> H□	Temp (C): 4		pH: 8.5		Cond.: 140	Turk	o.: 🗌 T 🔲 A	A 🗌 L 🔽 C
		**********************							
	_			MORPH	OLOGY				
Bed Material:			ıbdom: NA	MORPI	OLOGY Ba	rs: 🗸 N 📗	SIDE DIAG		PAN BR
Bed Material:	D95: 0.10	) [	O (cm): 0.01	MORPH	Ва	rs:		MID S	
Bed Material:	D95: 0.10 Pattern: IR	) [ !	O (cm): 0.01 slands: N		Ba				
Bed Material:	D95: 0.10	) [ !	O (cm): 0.01	Dis	Ba TURBANCE	O1 B1 B2	B3 D1	MID S	PAN BR
Bed Material:	D95: 0.10 Pattern: IR Coupling: DC	) [ !	O (cm): 0.01 slands: N	Dis	Ba TURBANCE		B3 D1	MID S	PAN BR
Bed Material:	D95: 0.10 Pattern: IR Coupling: DC	) [ !	O (cm): 0.01 slands: N	DIS IN	Ba TURBANCE DICATORS	O1 B1 B2	B3 D1	MID S	PAN BR
	D95: 0.10 Pattern: IR Coupling: DC Morph: LC	Confin	O (cm): 0.01 slands: N ement: UN	DIS IN C O	TURBANCE DICATORS	O1 B1 B2 C1 C2 C3	B3 D1 C4 C5	MID S	PAN BR
Bed Material:	D95: 0.10 Pattern: IR Coupling: DC Morph: LC	Confin	O (cm): 0.01 slands: N ement: UN	DIS IN	TURBANCE DICATORS  VER	O1 B1 B2 C1 C2 C3 P OV	B3 D1 C4 C5	MID S	PAN BR
	D95: 0.10 Pattern: IR Coupling: DC Morph: LC	Confin	O (cm): 0.01 slands: N ement: UN	DIS IN CO LWD B T N	TURBANCE DICATORS  VER  U D T [	O1 B1 B2 C1 C2 C3 P OV T	B3 D1  C4 C5	MID S D2 D3 S1 S2 S3	PAN BR
	D95: 0.10 Pattern: IR Coupling: DC Morph: LC	Confin	O (cm): 0.01 slands: N ement: UN  //pe: SWD unt: S	DIS IN CO LWD B T N	TURBANCE DICATORS  VER  U D T I	O1 B1 B2 C1 C2 C3 P OV T	B3 D1 C4 C5	MID S D2 D3 S1 S2 S3	PAN BR
Total:	D95: 0.10 Pattern: IR Coupling: DC Morph: LC	Confin  T) Amor	O (cm): 0.01 slands: N ement: UN  Ope: SWD unt: S Ope: SWD T: E IN	DIS IN COLUMN B T N	TURBANCE DICATORS  VER  U D T C	O1 B1 B2 C1 C2 C3 P OV D T M V V	B3 D1  C4 C5	MID S D2 D3 S1 S2 S3	PAN BR  S S4 S5  FSZ:   N CLOSURE
Total: LWD:	D95: 0.10 Pattern: IR Coupling: DC Morph: LC	Confin	O (cm): 0.01 slands: N ement: UN  //pe: SWD unt: S //O: // N T: E IN:	DIS IN COLUMN B T N	TURBANCE DICATORS  VER  U D T I	O1 B1 B2 C1 C2 C3 P OV D T M V V V	B3 D1  C4 C5	MID S D2 D3 S1 S2 S3	PAN BR  S S4 S5  FSZ:   N CLOSURE
Total: LWD: RB SHP:	D95: 0.10 Pattern: IR Coupling: DC Morph: LC	Confin  T) Amo Loc: P/S DIS  Texture: F	O (cm): 0.01 slands: N ement: UN  //pe: SWD unt: S //O: // N T: E IN:	DIS IN  CO  LWD B T N  STREAM VEG:	TURBANCE DICATORS  VER  U D T C N A RIP: S	O1 B1 B2 C1 C2 C3 P OV D T M V V V	B3 D1  C4 C5  IV  T  V G: NA	MID S D2 D3 S1 S2 S3	PAN BR  S S4 S5  FSZ:   N CLOSURE
Total: LWD: RB SHP:	D95: 0.10 Pattern: IR Coupling: DC Morph: LC	Confin  T) Amo Loc: P/S DIS  Texture: F	O (cm): 0.01 slands: N ement: UN  //pe: SWD unt: S //O: // N T: E IN:	DIS IN COLUMN B T N STREAM VEG:	TURBANCE DICATORS  VER  U D T C N A RIP: S	O1 B1 B2 C1 C2 C3 P OV D T M V V V	B3 D1  C4 C5  IV  T  V G: NA	MID S D2 D3 S1 S2 S3	PAN BR  S S4 S5  FSZ:   N CLOSURE
Total: LWD: RB SHP:	D95: 0.10 Pattern: IR Coupling: DC Morph: LC	Confin  T) Amo Loc: P/S DIS  Texture: F	O (cm): 0.01 slands: N ement: UN  //pe: SWD unt: S //O: // N T: E IN:	DIS IN COLUMN B T N STREAM VEG:	TURBANCE DICATORS  VER  U D T C N A RIP: S	O1 B1 B2 C1 C2 C3 P OV D T M V V V	B3 D1  C4 C5  IV  T  V G: NA	MID S D2 D3 S1 S2 S3	PAN BR  S S4 S5  FSZ:   N CLOSURE

Reach #

ILP Map#

ILP#

3.0

93K.045

45702

			S.	TREAMR	EFERENC	NG			
Gazetted Na	me:				Loc	al Name:			
Watershed Co	ode: 000-000000	-00000-00000-00	00-0000-000-000	-000-000-000-0	000	ILP	Map #: 93K.045	iLi	P#: 45702
				R	EACH				
Reach	#: 3.0	117	M(Zone/East/No	rth):		Sample Type:	В		
Length (kr			•	•	-). 042	Order:		Magnituda	4
Confineme	•	Gradient (%) Coupling		US Elev (m Open wate	•	BGC Zone:		Magnitude:	1
	ds: N	Bars: 🗸 N		·	SPA BR	Riparian Veg.:		Landuse: N	10
					SITE				
Site #: 3	384	GIS UTM(Zo	ne/East/North)	Date: 2	2000/10/05	Agency: C016	i	Crew: MJ/M0	3
Site Lg (m):	150					Ref. Name:			
				CH	ANNEL			-	
No Vis.Ch.:	Intermittent:			Avg	Min Max	#	7	Avg % Min % N	flax % #
Dw:	Tribs.:		Channel Width	(m): 0.82	0.5 1.100	6	Gadient %:	1.50 1	2 4
		_	Wetted Width	<del>``'                                    </del>	0.5 0.9		Pool Depth (m):	0.16 0.100	0.25 5
		L	Wb Depth	(m): 0.20	0.2 0.2	3			
Stage: L 🗸	M	Temp (C): 4		pH: 7.8		Cond.: 120	Turk	D.: 🔲 T 🔲 N	и 🗌 г 🔼 с
				MORP	HOLOGY				
Bed Material:	Dominant: F	Sı	ıbdom: NA		В	ars: 🗸 N 🗌	SIDE DIAG	MID S	PAN BR
	D95: 0.01	-	O (cm): 0.01			O1 B1 B2	. B2 D4	D2 D2	
1	Pattern: IR		slands: N		Г	O1 B1 B2	B3 D1	D2 D3	
	Coupling: DC Morph: LC	Contin	ement: UN		ISTURBANCE	<del></del>			
	Worph. LO				INDICATORS	C1 C2 C3	C4 C5	S1 S2 S3	S4 S5
					L				
				***************************************	OVER				
Total:	: M	Amo		LWD B	U I	OP OV	IV		FSZ:
		Loc: P/S					N	CROW	N CLOSURE
LWD:	F			STREAM VEG				2	21-40%
i						M  V			
RB SHP: LB SHP:		Texture: F		B		-	G: MF		
25 0111 .		rextore.	∐ G ∐ C		A RIP:	C SI	G: MF		
				F	ISH				
Site Number	Capture	Number of	Total Length	Total	Voltage	Species	Total	Minimum	Maximum
	Method	Events	(m)	Time			Fish	Length (mm)	Length (mm)
384	EF	1	150	261 sec	500	NEC	0	I	

Reach #

ILP Map #

ILP#

1.0

93K.045

	STREAM REFERENCING													
Gazetted Nam	e:					Lo	cal Name:							
Watershed Cod	e: 000-000000	0-00000-00000-00	00-0000-000-000	-000-000-000-	000		ILP	Map#: 93K.045	ILF	#: 45705				
				R	EACI	1								
Reach #	: 1.0	111	M(Zone/East/No	rth):			Sample Type	· R						
1	, ,	Gradient (%)	,	US Elev (n	a): 730		Order:		Magnitude:					
Length (km)		Coupling		Open wate	•		BGC Zone:		magintauc.					
islands	: N	Bars: 🗸 N	SIDE DI	AG MID	SPA	BR	Riparian Veg.:	W	Landuse: N	0				
					SITE									
Site #: 38	5	GIS UTM(Zo	ne/East/North)	Date:	2000/10/	02	Agency: C01	6	Crew: SR/MJ					
Site Lg (m): 10	0		<u> </u>				Ref. Name:							
				GH	ANN	EL								
No Vis.Ch.:	Intermittent:			Avg	Min	Max	#		Avg % Min % M 0.50 0.5	ax % #				
Dw:	Tribs.:		Channel Width Wetted Width		0.800	1.3	6	Gadient %: Pool Depth (m):		.610 3				
		ļ	Wb Depth	<del>```</del>	0.7	1	3			<del></del>				
Stage: L	M-Z H	Temp (C): 6		pH: 8.0	1		Cond.: 300	Turl	b.: 🗆 T 🗀 N	ı □ L 🔽 C				
Stage: L	<b>™</b> ♥ 11□	remp (o). o		MORI		ove v	GONG GOO	1411	у <b>.</b>					
Bed Material: D	ominant: F	Sı	Jbdom: NA		****		Bars: ✔ N	SIDE DIAG	☐ MID ☐ SI	PAN BR				
	D95: 0.0		O (cm): 0.01			_								
	Pattern: IM		slands: O				O1 B1 B	2 B3 D1	D2 D3					
(	Coupling: DC	Confin	ement: UN	Œ	DISTURE									
	Morph: LC				INDICA	TORS	C1 C2 C	3 C4 C5	S1 S2 S3	S4 S5				
				<b>2</b>	************	•		<u>                                      </u>						
					OVE		DB GV			<b>-</b> [				
Total: I	VI	Amo	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	LWD B		U N	DP OV	IV S		FSZ:				
		Loc: P/S	3/0:						CROW	I CLOSURE				
LWD: I	N	DIS	T: NA IN	STREAM VEG	: N [		M V		1	1-20%				
RB SHP:	S	Texture: 🗸 F	GC	⊓в ⊓ R	- -	RIP	 : W \$	STG: NA						
LB SHP:	S	Texture: F	☐ G ☐ C	☐ B	1 🔲 A	RIP	: W .	STG: NA						
Site Number	Cantri	Number of	Total I ament		FISH	Valte	D-sele-	Total	Mini	Marie				
Site Mullipel	Capture Method	Events	Total Length (m)	Totai Time		Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)				
385	EF	1	100	107 sec	$\neg$	400	NFC	0	1					

Reach #

ILP Map #

ILP#

			S.	TREAMF	REFERENCI	NG			
Gazetted Na	ne:				Loca	al Name:			
Watershed Co	de: 480-993600-	14000-00000-00	000-000-000-000	-000-000-000	-000	ILP i	Vlap#:	iLF	·#:
				R	EACH				
Reach	#: 2.0	רט	M(Zone/East/No	orth):		Sample Type:	R		
Length (kn	n): .70	Gradient (%		US Elev (1	n): 928	Order:		Magnitude: 2	2
Confineme	nt: CO Is: NV	Coupling Bars: ✔N		Open wat	er: A SPA BR	BGC Zone: Riparian Veg.:		Landuse: N	0
ISIAIR	15. 144	Dais. 💌 🦭			SITE	rupuriur veg.:			
Site #: 3	зв6 Г	GIS UTM(Zo	ne/East/North)		2000/10/05	Agency: C016		Crew: MJ/MC	3
Site Lg (m): 1	1					Ref. Name:			
				CH	IANNEL				
No Vis.Ch.:	Intermittent:			Avg		#		Avg % Min % M	
Dw:	Tribs.:		Channel Width Wetted Width			6 F		13.75 14 0.08 0.050 0	15 4
			Wb Depth		0.2 0.2	3	<u></u>		<del></del>
Stage: L	M H	Temp (C): 5		pH: 7.3	7	Cond.: 60	Turb	o.:	1 🗌 L 📝 C
				MOR	PHOLOGY				
Bed Material:			ubdom: G		Ba	ars: 🗸 N 📗	SIDE DIAG	MID S	PAN 🗌 BR
	D95: 15.00 Pattern: SI	-	O (cm): 2.00 slands: N			O1 B1 B2	B3 D1	D2 D3	
	Coupling: CO		ement: CO		DISTURBANCE				
	Morph: CP				INDICATORS	C1 C2 C3	C4 C5	S1 S2 S3	8 S4 S5
				C	OVER				_
Total	Т	Amo	ype: SWD unt: T	LWD E		DP OV	IV N		FSZ:
		Loc: P/s	Va					CROW	N CLOSURE
LWD:	F	DIS		STREAM VEC		MOV		3	41-70%
RB SHP	· v	Texture: F	<b>√</b> G <b>√</b> C	□ в □ я	R A RIP:	s <b>s</b>	rg: NA		
LB SHP:	: <b>V</b>	Texture: 🔲 F	<b>y</b> G <b>y</b> C	B F	R A RIP:	s <b>s</b> 1	rg: Na		
Site Number	Capture	Number of	Total Length	Total	FISH Voltage	Species	Total	Minimum	Maximum
	Method	Events	(m)	Time			Fish	Length (mm)	Length (mm)
386	EF	11	150	127 sec	600	NFC	0	1	<u> </u>

Reach #

ILP Map #

ILP#

Cazetted Name:   Local Name:   Watershed Code: 480-993600-16300-0000-0000-000-000-000-000-0000-0	
REACH  Reach #: 1.0 UTM(Zone/East/North): Sample Type: B  Length (km): .28 Gradient (%): 10 US Elev (m): 749 Order: 2 Magnitude: 2	
Reach #: 1.0 UTM(Zone/East/North): Sample Type: B  Length (km): .28 Gradient (%): 10 US Elev (m): 749 Order: 2 Magnitude: 2	
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:   Avg Min Max #  Avg Min Max #  Channel Width (m): 122 0.9 1.5 6  Gadient %: 5.50 5 6	
Dw: Tribs.: Channel Width (m): 1.22 0.9 1.5 6 Gadient %: 5.50 5 6  Wetted Width (m): 0.00 0 0 6 Pool Depth (m): 0.00 0 0	2 0
Wb Depth (m): 0.20 0.2 0.2 3	
Stage: L M H Temp (C): pH: Cond.: Turb.: T M	л∟
	_ L C
MORPHOLOGY  Bed Material: Dominant: G Subdom: F Bars: ✓N SIDE DIAG MID SPAN	□BR
Bed Material: Dominant: G Subdom: F Bars: ✓ N SIDE DIAG MID SPAN  D95: 8.00 D (cm): 3.00	
Pattern: SI Islands: N O1 B1 B2 B3 D1 D2 D3	
Coupling: CO Confinement: FC DISTURBANCE	
Morph: CP INDICATORS C1 C2 C3 C4 C5 S1 S2 S3	S4 S5
COVER	
Total: N Type: SWD LWD B U DP OV IV	FSZ:
Amount: N N N N N N	
Loc: P/S/O: CROWN C	
LWD: N DIST: NA INSTREAM VEG: N A M V	1-40%
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	

Reach # ILP Map #

JLP#

			ST	REAMR	EFERE	NCI	N G			
Gazetted Nam	ie: SHASS CRI	EEK				Loca	i Name:			
		 -18700-00000-000	0-0000-000-000-0	000-000-000-0	00		ILP N	<b>Л</b> ар #:	ILP	#:
Watershed Co.	1e. 400-385000				ACH			•		
				18.6	. m v II					
Reach	#: 1.0	UTU	M(Zone/East/Nor	rth):			Sample Type:	В		:
Length (km	): .82	Gradient (%):	2.07	US Elev (m	): 739		Order: 4		Magnitude: 59	9
Confinemen	t: UN	Coupling		Open wate			BGC Zone:			:
Island	s: 1	Bars: N	SIDE DIA	AG MID	SPA [	BR	Riparian Veg.:	M	Landuse: NO	
				S	ITE					
Site #: 3	88	GIS UTM(Zor	ne/East/North)	Date: 2	000/10/02		Agency: C016		Crew: SR/MJ	
Site Lg (m): 1	50					F	Ref. Name:			
				CH	ANNEL					
No Vis.Ch.:	Intermittent:			Avg			#		Avg % Min % M	
Dw:	Tribs.:		Channel Width	`					1.50 1	2 4
		-	Wetted Width	(117)			6 P	ool Depth (m):	0.43   0.360   0	52 5
-		L	Wb Depth	(m):   0.37	0.5   0	.4   ,	<u>.                                    </u>			
Stage: L	M♥ H□	Temp (C): 7		pH: 8.6			Cond.: 80	Turb	o.: 🗌 T 📋 M	L C
				MORP	HOLO	GΥ				
Bed Material:	Dominant: G	Su	bdom: NA			Ba	ars: 🔲 N 🗸	SIDE DIAG	✓ MID SF	PAN 🗹 BR
	D95: 18.0		(cm): 15.00				O1 B1 B2	B3 D1	D2 D3	
	Pattern: IR		slands: O			Г				
	Coupling: DC Morph: RP	Comine	ement: UN		ISTURBAN INDICATO			<del>                                     </del>		64 85
	worph. Kr				INDICATO	rk3 _	C1 C2 C3		\$1 \$2 \$3	\$4 \$5
					·····	L				
					OVER					
Total:	Т		<u> </u>	LWD B	U		OP OV	IV		FSZ:
		Loc: P/S		N N	T		D S	N	CROWN	CLOSURE
	_	<u> </u>							1	1-20%
LWD:	F			STREAM VEG	: N 🗸	Α _	] M 🗌 V 🗌			
RB SHP:			<b>y</b> G □ C		$\Box$	RIP:	_	FG: NA		
LB SHP:	S	Texture: 🔽 F	<b>⊘</b> G □ C	BR	A	RIP:	5 <b>S</b> 1	rg: NA		
Cita Blumb	Cantur	Membar -4	Tatal Langth	Total	ISH	itage	Species	Total	Minimum	Maximum
Site Number	Capture Method	Number of Events	Total Length (m)	Time	70	ıtaye	Species	Fish	Length (mm)	Length (mm)
388	EF	1	150	177 sec		000	RB	7	41	59
388	EF	1	150	177 sec	6	000	CAS	2	81	92 650
388	VO	1		20 min	l		SK	100	500	650

Reach #

ILP Map #

ILP#

STREAM REFERENCING															
Gazetted Na	ame: Sh	ASS CR	EEK					<u> </u>		Loca	l Name:	<u> </u>			
Watershed C	ode: 48	0-993600	D-18700	0-00000-00	00-0000-000-00	)-000-00	0-000-0	000				P Map#	t:	H_	P#:
							R	EAC	9					-	
											_				
Reaci		1.1	_		M(Zone/East/N	•					Sample Type				
Length (k			G	radient (% Coupling	•		Elev (m en wate	-			Order: BGC Zone:			Magnitude:	58
i	ids: N		Ba		j. CO □SIDE □D		MID			BR I	BGC Zone: Riparian Veg.:			Landuse: N	Ю
								HTE							
Site #:	389		G	IS UTM(Zo	ne/East/North)	$\neg$	Date: 2	000/10	/02		Agency: C0	16		Crew: SR/M	J
Site Lg (m):	100				<u> </u>					R	ef. Name:				
							ÇН	ANN	EL						
No Vis.Ch.:	Inter	mittent:					Avg	Min	Max	#			Γ.	Avg % Min % N	ax % #
Dw:		Tribs.:		Į.	Channel Widtl		5.75	4.7	6.7	6	_		adient %:	6.75 5	7 4
				}	Wetted Widtl Wb Depti	<del></del>	0.47	3.200 0.4	6 0.5	6		Pool D	epth (m):	0.42 0.32	0.53 6
_				L	110 Бери	. ()-[	0.47	0.4 1	0.0						
Stage: L	Stage:         L         M         H         Temp (C): 7         pH: 8.6         Cond.: 80         Turb.:         T         M         L         ✓         C														
		_				M	ORP	HOL	OGY						
Bed Material:		ant; B )95: 100.(	00		ibdom: C 0 (cm): 35.00					Bar	s: 🗌 N 🗸	SIDE	DIAG	MID S	PAN BR
		em: SI	00		slands: N					(	O1 B1 E	32 B	3 D1	D2 D3	
		ing: CO		Confin	ement: EN		D	ISTURE	BANCE			ור			
	Mo	rph: CP					ł	INDICA	TORS	(	C1 C2 C	з с	4 C5	S1 S2 S3	3 S4 S5
							C	VEF	1						
Total	l: <b>A</b>				pe: SWD	LWD	В		U	DI		ľV			FSZ:
				Amo: Loc: P/S		N	S		N	D	N	N			
LWD	- NI		I	<del> </del>		STREAM		<u> </u>				<u>                                     </u>		CROW!	N CLOSURE 1-20%
RB SHP			Toutur			STREA				Ш . <b></b>	M U	<u>.</u>		•	. 20%
LB SHP			Textur Textur		$\square$ G $\square$ C	□ B  B	✓ R ✓ R	A A		JP: S JP: N		STG: NA STG:	4		
	000000000000000000000000000000000000000	***********	***********			<u> </u>						,, O.			
NO AC	'			l			FEA								
	NID	Type F	Hgt 3.0	Method MS	Lg !	lethod	R: 1	Photo		<del> </del>	AirPhoto		UTM	(Zone/East/Nort	
	<u>-</u> -				cade- UTM not p	ossible	14.	JF.	1 45	15:1			I.	1	GP3
	************	***********	00000000000	· · · · · · · · · · · · · · · · · · ·							<del></del>				
Site Number	<u> </u>	nturc	At	mhor -f	Total I	r –	www.come.com	ISH				<u> </u>			
Site Mullipel		oture ethod		nber of vents	Total Length (m)	1	otal ime	'	/oltage	'	Species		Total Fish	Minimum Length (mm)	Maximum Length (mm)
389		EF		2	100	130	6 sec	+	500	$\dashv$	RB	+-	3	120	160

Reach # ILP Map #

2.0

ILP#

			S1	REAM	REF	ERENC	ING				
Gazetted Nar	ne: SHASS CRI	EEK				Lo	ocal Name:				
Watershed Co	de: 480-993600	-18700-00000-000	0-000-000-000-	000-000-00	00-000			ILP N	Лар #:	ILF	· #:
					REAC	3 H					
Reach	#: 2.0	117	M(Zone/East/No	rth):			Sample	Time:	В		
			•	•	. (). 00	•	•	rder: 4		Magnitude: 5	•
Length (kn Confinemer	=	Gradient (%) Coupling			/ (m): 80 vater:     /			ruei. 4 Cone:		Magnitude. 3	
Island		Bars: VN		•	D SF					Landuse: N	0
					SIT	E					
Site #: 3	90	GIS UTM(Zo	ne/East/North)	Date	e: 2000/	10/02	Agency	: C016		Crew: SR/MJ	
Site Lg (m): 5	o [						Ref. Name:	:			
				Ç	HAN	NEL		_			
No Vis.Ch.:	Intermittent:			Avg	Min	Max	#		1	Avg % Min % M	ax % #
Dw:	Tribs.:		Channel Width	· · · .		6.1	6		Gadient %:	16.25 8	34 4
		-	Wetted Width Wb Depth	• •		0.7	6	P	ool Depth (m):	0.55 0.39 0	.810 6
		L	vvo beptii	(111). 7 0.05	5   0.6	1 0.7	<u> </u>				
Stage: L	M✓ H	Temp (C): 7		pH:	8.6		Cond.: 80	0	Tui	b.: 🗌 T 📗 N	I 🗌 L 🗹 C
				MO	RPHO	LOGY					
Bed Material:			bdom: R				Bars: 📝 N	l 🗌 8	SIDE DIAG	MID S	PAN 🗌 BR
	D95: 1000	_	) (cm): 60.00				O1 B1	В2	B3 D1	D2 D3	
	Pattern: SI Coupling: CO		slands: N ement: EN								
	Morph: CP	Comm	ement. EN			RBANCE CATORS					
	p er				INDIC	DATONO	C1 C2	. C3	C4 C5	S1 S2 S3	S4 S5
				***************************************	******	-					
			- Curp	LIMB I	COVI		55 .		- N/ -		
Total:	А	Amo	• • • •	LWD N	B S	U		N N	IV N		FSZ: 💹
		Loc: P/S								CROW	N CLOSURE
LWD:	N	L D!S		STREAM V			M	V []	الطلبالب	1	1-20%
RB SHP:		Texture: F	GGC	B <b>√</b>			P: N	ST	œ·		:
LB SHP:		Texture: F	GC		R		P: N	ST			
						<del></del>					
					FIS	H					
Site Number	Capture Method	Number of Events	Total Length (m)	Tota Time		Voltage	Spec	ies	Total Fish	Minimum Length (mm)	Maximum Length (mm)
200				400		500			<del></del>	407	400

Reach #

ILP Map#

ILP#

1.0

93K.045

		STRI	AM	REFE	REN	CINC	3						
Gazetted Name:					L	ocal N	ame:						
Watershed Code: 000-000000	0-00000-00000-00	000-0000-000-000-000-	000-000	-000			IL	.P Map #:	93K.04	5	1	LP#:	45709
			F	REAC	H								
Reach #: 1.0	U	TM(Zone/East/North):				S	ample Typ	e: B	•				
Length (km): .50	Gradient (%	6): 1.4 U	S Elev (	(m): 738			Ordei	r: 1		Magr	nitude:	1	
Confinement: UN	Couplin	<del>-</del>	•	iter: A			BGC Zone					NO	
Islands: N	Bars: ✔N	SIDE DIAG	MID	SP/		R Rij	oarian Veg	.: S		Lar	nduse:	NO	
				SITE			~			<b></b> -	r: SR/	<b></b>	
Site #: 391 Site Lg (m): 100	GIS UTM(Z	one/East/North)	Date:	2000/10	J/U2		lgency: C0 .Name:	סרנ		Crew	r: Sro	W	
5.00 <b>29</b> ().			e e	HANN	9:21								
No Vis.Ch.: V Intermittent:			Avg	Min	Max	#	7	*******************		Avg %	Min %	Max %	#
Dw: Tribs.:		Channel Width (m):	0.00	0	0	0	1 🗆		lient %:	0.50	0.5	0.5	2
<b>5</b> W		Wetted Width (m):		0	0	0		Pool De	pth (m):	0.00	0	0	0
		Wb Depth (m):	0.00	0	0	0	J						
Stage: L M H	Temp (C):		pH:			Co	nd.:		Tui	b.: 🔲	τ [	M [	L     C
			MOR	PHOI	.0GY								
Bed Material: Dominant:	_	Subdom:				Bars:	□ N [	SIDE	DIAG	; _ N	IID 🗌	SPAN	☐ BR
D95: Pattern:		D (cm): Islands:				01	B1	B2 B3	D1	D2	D3		
Coupling:		isianos: nement:							ТП				
Morph:					RBANCE ATORS	C1	C2	C3 C4	C5	S1	S2	S3 S	34 S5
									T 🗖				
				OVE	R			<u> </u>					
Total:	7	Type: SWD LWI		В	U	DP	OV	IV	7				FSZ: 🗌
•		ount:							]				
	Loc: P/	/S/O:							]		CRO	WN CLO	SURE
LWD:	DI	ST: INSTR	EAM VE	G: N	A		M 🗌 V						
RB SHP:	Texture: F			R 🔲 A		IP:		STG:					
LB SHP:	Texture: F	e c	В	R 🔲 A	A R	IP:		STG:					
							·						

Reach#

ILP Map #

ILP#

						STRE	AM F	REFI	EREN	CIN	g							
Gazetted Na	me:	***************************************		<u>anamanana</u>		-				Local N	lame:							
Watershed Co	de: 480-99	3600-2230	0-00000-0	000-0	000-000-00	00-000-0	00-000-	-000				ILP	Map#:			i	LP #:	
							R	EAC	Н									
Reach	#: :	2.0	U	TM(Z	one/East/l	North): .	-			5	Sample	Туре:	В					
Length (kı	n): .72	(	Gradient (%	6): 16	i.81	us	Elev (r	m): 881	ļ		0	rder:	2		Ma	ignitude:	5	
Confineme	nt: CO ds: N		Couplin Bars: 📝 N				en wat	er: A	_	3R Ri	BGC Z Parian \				ı	_anduse:	NO	
ISIAII	15. IN		oais. Viv	·	31DE	DIAG [	<u> </u>	SITE		or Ki	Panan	veg			•			
Site #:	392		GIS UTM(Z	one/E	ast/North	<del>1  </del>	***********	2000/1	************		Agency	: C016	<u></u>		Cr	ew: MJ/l	MG	
Site Lg (m):											. Name:							
							C H	ANN	IEL									
No Vis.Ch.:	Intermitte	ent:					Avg	Min	Max	#	] ,					% Min %		#
Dw:	Tri	bs.:			annel Wid etted Wid		2.97 1.08	2.3 0.7	4.300	6	-{ }	-	Ga Pool De	dient epth (n			0.300	5
					Wb Dep	th (m):	0.43	0.4	0.5	3	] '			· · · · ·			· · · · · · · · · · · · · · · · · · ·	
Stage: L <b>√</b>	M	_ т	emp (C): 4				<b>pH:</b> 8.1	1		Co	ond.: 80	)			Turb.:	T [	M 🔲 L	. 🗸 C
						١	ORI	PHO	LOG	Y								
Bed Material:			Ş	Subdo						Bars:	□ N	V	SIDE	D	IAG	MID _	SPAN [	BR
	D95: Pattern:	30.00 SI		D (cr Island	n): 10.00 ds:N					01	l B1	B2	2 B3	3 D	1 D2	D3		
	Coupling:		Confi		ent: CO			DISTU	RBANCE			V						
	Morph:	CP						INDIC	ATORS	C1	C2	C	3 C4	t C:	5 S1	S2	S3 S4	S5
										<b>✓</b>								
								OVE										
Total	: M			Type: ount:	SWD	LWD			U T	DP S		DV T	IV N	-			F	SZ:
			Loc: P			~		-+						=		CRO	WN CLOSI	JRE
LWD	: F		DI	ST: E		INSTRE/	AM VEC		✓ A			ν [	]	=1		2	21-40	%
RB SHP	: V	Text		_			F	₹ 🔲 .	<b>A</b> 1	RIP: C		S	TG: MF	-				
LB SHP	: V	Text	ure: 🔽 F	<b>V</b>	G 🔽 C	: 🗌 в	F	₹ 🔲 .	A I	RIP: C		S'	TG: MF	•				
							FE/	ATUI	RES									
	NID Typ	· · · · · · · · · · · · · · · · · · ·	Metho	d	Lg	Method	<u> </u>	Pho			AirPh			L	JTM (Zo	ne/East/No	orth/Metho	
93K.045 2 Comments:	3921 F	20.0					R:	28 1	F: 22	L:		#:	<u>i</u> _					GP3
Comments:	a. are end o	ine reaci	·															
	·					<u> </u>	*******	FISI	******		_		,		.,		,	
Site Number	Captur Metho		umber of Events	To	tal Lengtl (m)		Total Time		Voitag	e	Spec	ies		Total Fish		Minimum ength (mm	Maxii Lengti	mum h (mm)
392	EF		1	土	200	2	73 sec	士	600		NF	С		0				
													-					

Reach # ILP Map #

ILP#

			S T	REAMR	EFERI	NCIN	IG			
Gazetted Nam	ne:		<u></u>			Local	Name:		,,,,,,	
		-22300-00000-00	00-0000-000-000-	000-000-000-	000		ILP	Map #:	ILP	· #:
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					EACH			•		
Reach #	<b>#</b> : 4.0	UT	M(Zone/East/No	rth):			Sample Type	: B		
Length (km	•	Gradient (%		US Elev (n	•		Order:		Magnitude: 5	5
Confinement Islands		Coupling Bars: ✔N		Open wate		BR F	BGC Zone: Riparian Veg.:		Landuse: N	0
ISIANOS	5; N	Bars: VN				BK	Spanan veg		Lanuuse. 14	
	-			_	SITE					
Site #: 39	1	GIS UTM(Zo	ne/East/North)	Date: 1	2000/10/05	-	Agency: C01	6	Crew: MJ/MG	3
Site Lg (m): 15	50 <u>[</u>						ef. Name:			
					ANNEL					
No Vis.Ch.:	Intermittent:	<u> </u>	Champal Middeh	Avg (m): 0.75		ax #		Gadient %		ax % #
Dw:	Tribs.:		Channel Width Wetted Width			.5 6	H	Pool Depth (m)		.050 2
		1	Wb Depth	· · · · · · · · · · · · · · · · · · ·		.2 3	┪	(····)	1	
					•		<del></del>	_		
Stage: L	M H	Temp (C): 4		pH: 7.8			Cond.: 60	11	ırb.: U T U N	I 🗌 L 🗸 C
		_		MORI	HOLO	.,				
Bed Material: [	Dominant: F D95: 1.00	-	ubdom: G D (cm): 1.00			Bar	s: 🗸 N 🗌	SIDE DIA	G MID SI	PAN BR
	Pattern: IR		slands: N			(	O1 B1 B	2 B3 D1	D2 D3	
	Coupling: PC		ement: OC	_	DISTURBAN	ICE [				
	Morph: RP			-	INDICATO		C1 C2 C	3 C4 C5	S1 S2 S3	S4 S5
						Π				
				C	OVER	حــــ				
Total:	Т	Т	ype: SWD	LWD B		DI	P OV	īv		FSZ:
,		Amo	<u> </u>	S N		N		N		
		Loc: P/s	S/O: 🗸 🗌 🗸							I CLOSURE
	-	- Dis	T: E INS	STREAM VEG	: N 🔲	A 🗸	M V		2	21-40%
LWD:	г	Dis								
LWD: RB SHP:		Texture: 🕡 F	□ G □ C I	<b>□ в </b> □ <b>я</b>	:	RIP: C	S	STG: MF		
	υ			B		RIP: C		STG: MF STG: MF		
RB SHP:	υ	Texture: 🕢 F							· · · · · · · · · · · · · · · · · · ·	
RB SHP:	υ	Texture: 🕢 F		В						
RB SHP:	υ	Texture: 🕢 F		В	A FISH				Minimum Length (mm)	Maximum Length (mm)

Reach # ILP Map #

JLP#

2.0 93K.045

		STRE	AM I	REFE	REN	CING						
Gazetted Name:					L	ocal Na	me:					
Watershed Code: 000-000000-0	00000-00000-00	000-0000-000-000-000-0	000-000	-000				ILP Map #: 93K.04	5	1	LP#:	45712
			R	REAC	Н							
Reach #: 2.0	Ú.	TM(Zone/East/North):				Sa	mpie 1	Гуре: В	<u> </u>			
Length (km): .18	Gradient (%			m): 758			Or	der: 2	Magn	itude:	2	
Confinement: FC	Couplin	g: PC O	pen wa	ter: A	_	1	BGC Z	one: SBS				
Islands: N	Bars: 🗸 N	SIDE DIAG	MID	SPA	\B	R Rip	arian V	/eg.: C	Lar	iduse:	NO	
				SITE								
Site #: 394	GIS UTM(Z	one/East/North)	Date:	2000/10	)/05	Ą	gency:	C016	Crew	: MJ/	MG	
Site Lg (m): 200	<u> </u>					Ref.	Name:					
			C I	HANN	EL.							
No Vis.Ch.: ✓ Intermittent:			Avg	Min	Max	#	_		Avg %			
Dw: Tribs.:		Channel Width (m):	0.00	0	0	0		Gadient %		0	0	0
		Wetted Width (m):	0.00	0	0	0	L	Pool Depth (m)	0.00	0	0	0
	İ	Wb Depth (m):	0.00	0	0	0						
Stage: L M H	Temp (C):		pH:			Co	nd.:	Tu	ırb.:	Τ 🗀	M [	] L 🗌 C
			MOR	PHO	.0G							
Bed Material: Dominant:	s	Subdom:				Bars:	$\square$ N	SIDE DIA	G 🗌 N	IID 🗌	SPAN	BR
D95:		D (cm):				01	В1	B2 B3 D1	D2	D3		
Pattern:		Islands:					Ţ.		TET			
Coupling: Morph:	Confi	nement:			RBANCE ATORS			<u> </u>				
Worph.				INDICA	MIURS	C1	C2	C3 C4 C5	S1	S2	S3 5	64 S5
				OVE								
Total:	-	Type: SWD LWD	<u> </u>	В	U	DP	0	V IV				FSZ:
	Loc: P	ount:		<del></del>			7			CRO	WN CL	OSURE
LMD	<u> </u>	الصالب السالب السالب			الساليال	<u> </u>		<u> </u>		0.10	02	,,,,,
LWD:					A		<b>'</b> 🗀	- 🗀				
	Texture: 🔲 F Texture: 🦳 F		ш			NP: NP:		STG: STG:				
LB SHP:	Texture: 🔲 F	· [] • [] • [] •	<b>-</b>	^ LJ /	ч г	ur.		316.				

Reach # ILP Map # ILP#

93K.045

		ST	REAM RE	FERENC	ING				
Gazetted Name:				Lo	ocal Name:				
Watershed Code: 000-00	0000-00000-00000-00	000-0000-000-000-0	000-000-000	)		ILP Map #:	93K.045	ILP	#: 45715
Traccisined Code, 500-50				ACH					
			No.						
Reach #:	.0 O.	TM(Zone/East/Nor	th):		Sample	Type: R			
Length (km): .22	Gradient (%	6): 8.64	US Elev (m):	1097	c	Order: 1		Magnitude: 1	
Confinement: CO	Couplin	•	Open water:			Zone: SBS			_
Islands: N	Bars: 🗸 N	SIDEDIA	G MID	SPA BF	Riparian	Veg.: C		Landuse: NO	)
			SI	TE					
Site #: 395	GIS UTM(Z	one/East/North)	Date: 200	00/10/05	Agency	y: C016		Crew: MJ/MG	
Site Lg (m): 150		_ <u></u>			Ref. Name	2:			
			CHA	NNEL					
No Vis.Ch.: Intermitte	ent:		Avg N	in Max	#		A	vg % Min % Ma	ax % #
	os.:	Channel Width (	m): 1.02 0.	800 1.3	6	G	dient %:	5.25 6	6 4
DW. 🗀 III	JS	Wetted Width (		).5 1	6	Pool D	epth (m):	0.19 0.100 0	300 6
		Wb Depth (	(m): 0.33 (	0.4	3				
Stage: L ✔ M H	Temp (C): 4		pH: 8.0		Cond.: 8	30	Turb	.:   T   M	☐ L 🗸 C
otage: - y			<u>-</u>	OLOGY					
Bed Material: Dominant:		Subdom: G		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Bars: 🗸 I	N SIDE	DIAG	MID SF	AN BR
	25.00	D (cm): 3.00			Dars. 💗	O.D.C			
Pattern:		Islands: N			O1 B	1 B2 B	3 D1	D2 D3	
Coupling:	CO Confi	inement: CO	DIS	TURBANCE					
Morph:	SP			DICATORS	C1 C	2 C3 C	4 C5	S1 S2 S3	S4 S5
			60	VER					
Total: A		Type: SWD I	WD B	U	DP	ov I iv	_		FSZ:
TOTAL: A		ount: T	N D	s	s	TT	-		
	Loc: P			<del></del>				CROWN	CLOSURE
LWD: N	<u>L</u>		STREAM VEG:		MV			2	21-40%
					<u>▼</u> IP: C	STG: M	=		
RB SHP: U LB SHP: U	Texture: 🐼 f	=	B		IP: C	STG: M			
LB SHF. U	16xture. 😿 1							,	
			E	SH					
Site Number   Captui	e Number of	Total Length	Total	Voltage	Soe	ecies	Total	Minimum	Maximum
Metho		(m)	Time				Fish	Length (mm)	Length (mm)
395 <i>EF</i>	1	150	212 sec	600	N	FC	0		

Reach # ILP !

ILP Map #

ILP#

1.0

93K.045

		•	STRE	AM F	REF	EREN	CING						
Gazetted Name:							Local Na	ıme:					
Watershed Code: 000-000000	-00000-00000-000	00-0000-000-0	00-000-0	00-000	-000			ILP	Map #: 9	3K.045		ILP#:	45716
				R	EAC	H							
Reach #: 1.0	υT	M(Zone/East/	North):				Sa	ample Type	: R				
Length (km): .67	Gradient (%)	: 3.88	US	Elev (	m): 11	16		Order:	1	M	lagnitu	de: 1	
Confinement: FC	Coupling			en wat		_	_	BGC Zone:				NO	
Islands: N	Bars: ✔N	SIDE	DIAG		SP		SR Rip	arian Veg.:			Langu	se: NO	
014 H 200	010.117847		<del>. 1</del>		S I T I 2000/1	*******	A	gency: C01	c	<u> </u>	rew:	MJ/MG	
Site #: 396 Site Lg (m): 100	GIS UTM(ZO	ne/East/North	"	Date:	2000/1	10/05	•	Name:			iew.	IVIO/IVIO	
31,7				C ł	ANI	VEL							
No Vis.Ch.: V Intermittent:				Avg	Min	Max	#			Ave	g % Mi	n % Max	% #
Dw: Tribs.:		Channel Wid		0.00	0	0	0			ent %: 0.		0 0	0
	}	Wetted Wid	_ `	0.00	0	0	0	<u> </u>	Pool Dept	th (m): 0.	00	0 0	0
					1	<u> </u>				<b>T</b>		_ N (	¬. ¬.
Stage: L M H	Temp (C):			pH:	*********	LOG'	Cor	na.:		Turb.:	<u></u>	M	
Bed Material: Dominant:	91	ubdom:		WUR	rnu	LUG	Bars:	N	SIDE	DIAG	□ MID	☐ SPAN	N □ BR
D95:		D (cm):							, _		_		
Pattern:	1	slands:					01	B1 E	32 B3	D1 D	2 D3	<b>3</b>	
Coupling:	Confin	ement:				RBANCE							
Morph:					INDIC	CATORS	C1	C2 C	C3 C4	C5 S	1 S2	2 S3	S4 S5
			**********	**********									
T-1-1		vpe: SWD	LWD		OVE	U	DP	T ov	Τν	1			FSZ:
Total:	Amo	· ·	LVVD	+-'	-		DF	<del>  0v</del>	+ "	1			r32
	Loc: P/s	5/0:								İ	(	CROWN C	LOSURE
LWD:	DIS	iT:	INSTRE	AM VE	G: N	A	. N	4 🗍 V 🛚		-			
RB SHP:	Texture: F	□ G □ C	C E	3 🔲 I	R 🗌	<b>A</b> I	RIP:	5	STG:				
LB SHP:	Texture: F	□ e □ c		3 🗆 1	R 🗌	A 1	RIP:	•	STG:				
l						· · · · · · · · · · · · · · · · · · ·	<del></del>						

Reach #

ILP Map #

ILP#

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

	STREAM REFERENCING												
			8	IKEAMI	< E F E	:KENCI	NG						
Gazetted Na	me:					Loca	al Name:						
Watershed Co	ode: 480-993600	)-24500-00000-00	00-0000-000-000	-000-000-000	-000		ILP	Map #:	IL.	P#:			
					EAC	8°5 8888888888		<b></b>	•-	• •••			
					EAU	17							
React	n#: 1.0	U	TM(Zone/East/No	orth):			Sample Type:	R					
Length (ki	m): 1.04	Gradient (%	): 3.08	US Elev (	m): 756		Order:	4	Magnitude:	18			
Confineme	ent: UN	Coupling	g: DC	Open wat	ter: A		BGC Zone:	SBS	_				
Islan	ds: NV	Bars: N	SIDE D	AG MID	SPA	A BR	Riparian Veg.:	С	Landuse: N	10			
					SITE								
Site #:	397	GIS UTM/Zo	ne/East/North)	Date:	2000/10	n/n4	Agency: C016	•	Crew: SR/M	ı			
Site Lg (m):	100				2000/10		Ref. Name:	•	Olew. Olow	•			
					IANN	Y-XXXX							
No Vie Ch	Intermittent:				Min		<del></del>	Г					
	_		Channel Width	Avg (m): 2.78	2.400	<del> </del>	# 5	Gadient %:	Avg % Min % N 1.00 1	1 4			
Dw:	Tribs.:		Wetted Width		1.9	<del></del>		Pool Depth (m):		0.310 5			
1			Wb Depth		0.3		3	ooi Deptii (iii).	0.24   0.100   0	2.510 3			
				<del></del>		·							
Stage: L	MV H	Temp (C): 4		pH: 8.3	3		Cond.: 150	Turk	).: 🔲 T 🔲 N	A 🗌 L 🗹 C			
				MORI	PHOL	OGY							
Bed Material:	Dominant: G	Si	ubdom: F			Ba	rs: N	SIDE DIAG	✓ MID S	PAN BR			
	D95: 4.00	) !	D (cm): 2.00					_					
	Pattern: IR		slands: O			_	O1 B1 B2	B3 D1	D2 D3				
	Coupling: DC	Confin	ement: UN	I	DISTUR	BANCE							
	Morph: RP				INDICA	ATORS	C1 C2 C3	C4 C5	S1 S2 S3	S S4 S5			
				C	OVE	R			9,10,15				
Total	: M	T	ype: SWD	LWD B		U D	P OV	rv		FSZ:			
		Amo		T N				N		F32			
		Loc: P/S	5/0:						CROW	N CLOSURE			
LWD:	F	DIS		STREAM VEG			MOV		1	1-20%			
RB SHP:	- 11												
LB SHP:		Texture: F	V G □ C	B R B R	!   A !   A			G: NA					
		техале: 👿 т	•		· 🗀 ^	KIP. S	31	G: NA					
					-01000010								
Site Number	Capture	Number of	Total Length	Total	FISH		Sanaias	T-4-1					
- To Hombel	Method	Events	(m)	Time		Voltage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)			
397	EF	1	100	188 sec	+	600	PR	5	52	24			

Reach # ILP I

ILP Map#

ILP#

STREAM REFERENCING											
Gazetted Name:				Loc	al Name:						
Watershed Code: 480-99360	0-24500-00000-000	00-0000-000-000-	-000-000-000-0	000	ILP N	lap #:	ILP	#:			
				EACH							
			-4- \		Samula Tamar	D					
Reach #: 2.0		M(Zone/East/No	•		Sample Type:	В	*********** 46	•			
Length (km): .72 Confinement: CO	Gradient (%) Coupling		US Elev (m Open wate		Order: 4 BGC Zone:		Magnitude: 18	•			
Islands: NV	Bars: VN		<u>.                                    </u>	SPA BR	Riparian Veg.:		Landuse: NO				
				IITE							
Site #: 398	Site #: 398 GIS UTM(Zone/East/North) Date: 2000/10/05 Agency: C016 Crew: SR/MJ										
Site Lg (m): 200		<u> </u>			Ref. Name:						
			CH	ANNEL							
No Vis.Ch.: Intermittent:	: 🗆		Avg	Min Max	#			ax % #			
Dw: Tribs.:	: 🗆	Channel Width	<u> </u>	2.900 5.6	6		4.25 5	5 4			
	1	Wetted Width Wb Depth	· · · · · · · · · · · · · · · · · · ·	2.6 3.1 0.3 0.4	6 P	ool Depth (m):	0.38   0.24   0.	810 7			
	Ĺ	WD Depth	(111/1-10.55	0.5   0.4	<u> </u>						
Stage: L M ✔ H	Temp (C): 4		pH: 8.5		Cond.: 160	Turb	.: T M	LVC			
			MORP	HOLOGY							
Bed Material: Dominant: C		ıbdom: G		E	Bars: N S	SIDE DIAG	MID SF	PAN 🗹 BR			
D95: 50 Pattern: SI	.00 L	O (cm): 20.00									
	14	elande: N			O1 B1 B2	B3 D1	D2 D3				
		slands: N ement: FC	-	NOTUDDANOS	O1 B1 B2	B3 D1	D2 D3				
Coupling: PC Morph: CP	Солfіл			DISTURBANCE INDICATORS				S4 S5			
Coupling: PC	Солfіл				01 B1 B2 C1 C2 C3	B3 D1  C4 C5	D2 D3 S1 S2 S3	S4 S5			
Coupling: PC	Солfіл							<del></del>			
Coupling: PC	Confin			INDICATORS				<del></del>			
Coupling: PC Morph: CP	Confin	ement: FC	C	INDICATORS  DVER	C1 C2 C3	C4 C5					
Coupling: PC Morph: CP	Confin	ype: SWD unt: T	C LWD B	OVER	C1 C2 C3  DP OV  D T	C4 C5	S1 S2 S3	FSZ:			
Coupling: PC Morph: CP	Confin  Ty  Amo  Loe: P/S	ype: SWD unt: T	LWD B	OVER U T	C1 C2 C3  DP OV  D T	C4 C5	S1 S2 S3	FSZ:			
Coupling: PC Morph: CP Total: M	Confin	ype: SWD unt: T S/O: VIII IN	LWD B T S	OVER U T : N  A RIP	C1 C2 C3  DP OV D T  M V :: C ST	C4 C5	S1 S2 S3	FSZ:			
Coupling: PC Morph: CP Total: M	Ty Amo Loc: P/S	ype: SWD unt: T S/O: VIII IN	LWD B T S	OVER U T : N V A	C1 C2 C3  DP OV D T  M V :: C ST	C4 C5	S1 S2 S3	FSZ:			
Coupling: PC Morph: CP  Total: M  LWD: F  RB SHP: V	Confin	ype: SWD unt: T S/O: VIII IN	LWD B T S  STREAM VEG B R B R	U T A RIP	C1 C2 C3  DP OV D T  M V :: C ST	C4 C5	S1 S2 S3	FSZ:			
Coupling: PC Morph: CP  Total: M  LWD: F  RB SHP: V  LB SHP: S	Confin	ype: SWD unt: T S/O: V I I I I I	LWD B T S STREAM VEG	OVER U T IN V A A RIP	C1 C2 C3  DP OV D T  M V :: C ST	C4 C5	S1 S2 S3	FSZ:  CLOSURE 41-70%			
Coupling: PC Morph: CP  Total: M  LWD: F  RB SHP: V	Confin	ype: SWD unt: T S/O: VIII IN	LWD B T S  STREAM VEG B R B R	U T A RIP	C1 C2 C3  DP OV D T  M V :: C ST	C4 C5	S1 S2 S3	FSZ:			

Reach# ILP M

ILP Map#

ILP#

STREAM REFERENCING																
										**********						
Gazetted Na										Locai	Name:		18a - 4		11	P#:
Watershed Co	ode: 48	0-99360	0-24500	)-00000-000	0-0000-000-0	100-000-0			***************************************			ILP I	Map #:		ı.	r #.
								EAC								
React	n #:	3.0		UT	M(Zone/East	/North):					Sample	e Type:	R			
Length (k	-		G	radient (%)			-	m): 89				Order:		Magı	nitude:	18
Confineme				Coupling ars: ✔N		Op DIAG		ter: A		BR R		Zone: Veg.:		l a	nduse: N	JO.
Islan	ds: N		D	ais. 💌 N		JUAG [	N			DK N	upanan	veg	IN	La	iluuse. I	
						. 7		SIT			•				v: SR/M	
Site #: Site Lg (m):			G	IS U I W(ZO	ne/East/NortI	n)	Date:	2000/1	0/05		Agency f. Name	y: C016 e:		Crev	V: SR/IVI	J
							C I	HANI	VEL							
No Vis.Ch.:	Inter	mittent:	П	*****************		Γ	Avg	Min	Max	#	7	***************************************		Avg %	Min % R	/lax % #
Dw:	7	Tribs.:			Channel Wi	dth (m):	3.72	2.5	5.1	6			Gadient 9	%: 13.50	13	13 4
	_			-	Wetted Wi	<del>```</del>	2.93	1.9	4	6	_	F	ool Depth (m	1): 0.52	0.360	0.670 5
				L	WD De	pth (m):	0.67	0.5	0.8	3						
Stage: L	M	н	Te	mp (C): 4			рН: 8.	5		C	ond.: 1	60		Turb.: 🔲	т 🗌 І	M 🗌 L 🔽 C
						1	AOR	PHO	LOG	Y						
Bed Material:					bdom: C					Bars	i: 🗸 l	N 🔲	SIDE DI	AG 🗌 N	AID S	SPAN 🔲 BR
		095: 80.0 em: SI	00		0 (cm):  30.00 slands: N	,				С	)1 B	1 B2	B3 D1	D2	D3	
		ing: CO			ement: EN			DISTIL	RBANCI	<b>.</b> [[				<b>V</b>		
	Мо	rph: SP							ATORS		1 C	2 C3	C4 C5	5 S1	S2 S	3 S4 S5
							Ç	OVE	R							
Total	I: A			Ту	pe: SWD	LWD		В	U	DP	•	ov	IV			FSZ:
				Amo		Ť	_	S	N	D		N	N			
				Loc: P/S											CROW	N CLOSURE 1-20%
LWD					T: E	INSTREA	AM VE	G: N	_		M [	V _			1	1-2070
RB SHP LB SHP			Textu Textu	ш		С <sub>П</sub> в С П в		R		RIP: N RIP: N			rG: rG:			
LD SH	. v		TEXLU	ie. 🔲 r		СВ	ري.			AIP. N		31	G.			
							FE	ATU	RES							
NID Map	NID	Туре	Hgt	Method	Lg	Method		Pho		1.	AirP	hoto	U	TM (Zone	/East/Nor	th/Method)
<del> </del>	23992 definite	F barrier -	4.0 - 40m a	GE bove first fa	lls - beginning	of new r	R:	23	F: 17	L:	<del></del>	#:			1	GP3
					J	/										
a: N :	,		<u> </u>		r <del></del>		and the same	FISI								· · · · · · · · · · · · · · · · · · ·
Site Number   Capture   Number of   Total Length   Total   Volta		Voitag	ge	Spe	cies	Total Fish		nimum gth (mm)	Maximum Length (mm)							
399	<u> </u>	EF	+	1	100		91 sec	+	500	-	NF	-c	0			
			*					•					<del></del>			

Reach #

ILP Map#

ILP#

STREAM REFERENCING																		
						STRE	AM	REFI	REN	CIN	G							
Gazetted Na	me:									Local I	Name:							
Watershed Co	de: 48	0-99360	0-2450	0-00000-00	00-0000-000-0	000-000-0	00-000	-000				ILP N	/lap#:			1L	P#:	
							ī	REAC	Н									
Reach	#:	4.0		זט	M(Zone/East	/North): .					Sample 1	Туре:	R					
Length (kr	n): 1.2	4	G	radient (%	: 6.53	US	Elev (	m): 979	)		Or	der: 4	4		Magr	nitude:	18	
Confineme		_	_	Coupling		- :	_	ter: A			BGC Z				1			
Island	ds: N	V	В	ars: ✔N		_DIAG	NID	SP		BR R	iparian V	/eg.:			Lar	nduse: 1	<b>NO</b>	
S#0.#1	400			IC LITM/7-		<u></u>	Deter	SITE	******		Aaanau	C016			Cross	r: SR/N		
Site #: 4 Site Lg (m): 2			١	15 U I W(20	ne/East/Nort	n)	Date:	2000/1	0/05		Agency: f. Name:				Crew	r. SPUIV	IJ	
							C I	HANN	IEL									
No Vis.Ch.:	Inter	mittent:	: 🗌			Γ	Avg	Min	Max	#	7				Avg %	Min %	Vlax %	#
Dw:		Tribs.:	: 🗌	Į.	Channel Wi		3.08	2.6	3.700	6	7 F			ent %:	5.50	7	7	4
				}	Wetted Wi	oth (m):	2.23 0.37	1.700 0.3	2.6 0.4	3	-  L		ool Dept	n (m):[	0.24	0.180	0.300	6
	l salla		_						1		<b>-</b> '	_			. –			
Stage: L	MV	] <b>H</b>	Te	mp (C): 4			pH: 8.		*****		ond.: 150	0		Turl	b.:	т 📋	M	L ✓ C
Bed Material:	Damie			c.	ıbdom: G	Ŋ	n v K	EST C	LOG	220000			eine –	7 DIAC		up 🗆 /	PDANI	
Deu Malenai.		D95: 40.	.00		D (cm): 8.00					Bars	:   N	<b>✓</b>	SIDE _	DIAG		IID ∐ S	SPAN	BR
	Patt	tem: IR			slands: O					0	1 B1	B2	<b>B</b> 3	D1	D2	D3		
	-	ling: CO		Confin	ement: CO				RBANCE	ŧ ∐								
	ivic	rph: CP						INDIC	ATORS	С	1 C2	C3	C4	C5	S1	S2 S	3 S	4 S5
			**********							L								
T-4-1	. 14			т.	euro	LWD		OVE	U	l pp	1 6	·········	D/	<u> </u>				<b>503</b> 🗆
Total	. IVI			Amo	/pe: SWD unt: T	T		S	T	DP D	O'		IV N					FSZ:
				Loc: P/S	i/O:	V										CROW	N CLC	SURE
LWD:	F			DIS	T: E	INSTRE	M VE	G: N	✓ A		M 🗍 '	v 🗖	<del></del>	ı		2	21-	40%
RB SHP:	: <b>V</b>		Textu			С 🕢 В	<b>✓</b>	R 🔲	A I	RIP: C		ST	G: MF					
LB SHP:	: S		Textu	re: 🗸 F	<b>V</b> G <b>V</b>	C 🕢 B	✓	R 🗍	A I	RIP: C		ST	G: MF					
							FE	ATUI	RES									
	NID	Туре	Hgt	Method	Lg	Method	1	Pho			AirPh			UTM	(Zone	/East/Nor	th/Met	hod)
	4001	F	4.0	GE		<u> </u>	R:	23	20	L:	ź	<b>#</b> :	10	36	5754	60326	58	GP3
Comments:	(iviarek	.) - ialis a	upper	part of read	:n 4													
								FISH										
Site Number		pture Number of Total Length Total Voltage ethod Events (m) Time		е	Speci	es		tal sh		nimum gth (mm)		ximum gth (mm)						
400		EF		1	220	4	15 sec	+	500		NFC	;	-	)	<del>                                     </del>		+	
															•			

Reach # ILP i

ILP Map#

ILP#

STREAM REFERENCING											
Gazetted Name: Local Name:											
Watershed Code: 480-993600-24500-00000-0000-0000-000-000-000-000-000	ILP#:										
REACH											
Reach #: 7.0 UTM(Zone/East/North): Sample Type: B											
Length (km): .63 Gradient (%): 3.17 US Elev (m): 1090 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.: C	Landuse: NO										
SITE											
Site #: 401 GIS UTM(Zone/East/North) Date: 2000/10/05 Agency: C016	Crew: SR/MJ										
Site Lg (m): 140 Ref. Name:											
CHANNEL											
No Vis.Ch.: Intermittent: Avg Min Max #	Avg % Min % Max % #										
Dw: Tribs.: Channel Width (m): 1.02 0.9 1.200 6 Gadient %											
Wetted Width (m): 0.98   0.9   1.200   6   Pool Depth (m   Wb Depth (m): 0.13   0.1   0.2   3	0.06 0.02 0.100 6										
Wb Depth (m).   0.13   0.1   0.2   3											
Stage: L M → H Temp (C): 5 pH: 8.3 Cond.: 170 T	urb.: 🗌 T 📗 M 🔲 L 🗹 C										
MORPHOLOGY											
Bed Material: Dominant: G Subdom: C Bars: ▼ N SIDE DIA	AG MID SPAN BR										
D95: 45.00 D (cm): 5.00  Determ ID Selection At O1 B1 B2 B3 D1	D2 D3										
Pattern: IR Islands: N											
Coupling: CO Confinement: FC DISTURBANCE INDICATORS C1 C2 C3 C4 C5											
21 62 63 64 65	S1 S2 S3 S4 S5										
COVER											
Total: T Type: SWD LWD B U DP OV IV	FSZ:										
Amount: T T T S D T N											
	CROWN CLOSURE										
	3 41-70%										
LWD: F DIST: E INSTREAM VEG: N A M V	3 41-70%										
LWD: F DIST: E INSTREAM VEG: N A M V RB SHP: U Texture: F F G G C B R A RIP: C STG: MF	3 41-70%										
LWD: F DIST: E INSTREAM VEG: N A M V	3 41-70%										
LWD: F DIST: E INSTREAM VEG: N A M V RB SHP: U Texture: F F G G C B R A RIP: C STG: MF	3 41-70%										
LWD: F DIST: E INSTREAM VEG: N A M V RS SHP: U Texture: F G G C B R A RIP: C STG: MF LB SHP: S Texture: F G G C B R A RIP: C STG: MF	3 41-70%  Minimum Maximum Length (mm) Length (mm)										

Reach #

ILP Map #

ILP#

	STREAM REFERENCING										
Gazetted Na	ne:				***********	L	ocal N	ame:			
Watershed Co	de: 480-993600	D-24500-57600-00	00-0000-000-000-0	000-000-000	-000			ILP	Map #:	ILI	<b>&gt;</b> #:
				#	EAC	H					
<b>D</b>	#- 40	1.17	34/3(F4/b)	41.3				I- <b>T</b>	. 5		
Reach			M(Zone/East/Nor	•			5	ample Type		8.0	•
Length (kn Confineme	•	Gradient (%) Coupling		US Elev ( Open wa	•			Order: BGC Zone:		Magnitude:	9
1	ls: NV	Bars: VN		G MID				oarian Veg.:		Landuse: N	0
					SITE						
Site #: 4	102	GIS UTM(Zo	ne/East/North)	Date:	2000/10	0/05	A	gency: C01	6	Crew: SR/M	J
Site Lg (m): 1	30						Ref.	Name:			
				C1	HANN	EIL					
No Vis.Ch.:	Intermittent:			Avg	Min	Max	#	]		Avg % Min % N	lax % #
Dw:	Tribs.:		Channel Width	` <u>`</u>	1.4	2.6	6		Gadient %	4	4 4
		}	Wetted Width (		0.2	0.3	6	┨ ┖	Pool Depth (m)	: 0.19   0.12	0.35 6
_		L				1 0.0	L	J			
Stage: L	MV H	Temp (C): 4		pH: 8.				nd.: 130	Τι	ırb.: 🔲 T 📗 N	t 🗌 r 🖎 c
				MOR	PHO	LOGY					
Bed Material:	Dominant: C D95: 25.0		ıbdom: G				Bars:	□ N 🖋	SIDE DIA	G ☐ MID ☐ S	PAN BR
:	Pattem: SI		0 (cm): 6.00 slands: N				01	B1 B	2 B3 D1	D2 D3	
	Coupling: CO		ement: CO		DICTUD	RBANCE	П				
	Morph: CP					ATORS	C1	C2 C	3 C4 C5	S1 S2 S3	3 S4 S5
								THI			
				6	OVE	R			<u> </u>		21.01.01
Total:	M	T)	pe: SWD L	WD I	3	U	DP	OV	IV		FSZ:
		Amo		T	r	T	D	Т	N		_
		Loc: P/S									N CLOSURE
LWD:	F	DIS	T: E INS	TREAM VE	G: N	<b>✓</b> A		A 🗌 V 🗀	]	3	41-70%
RB SHP:		Texture: F	<b>y</b> G <b>y</b> C [	اسببا است	R 🖂 A		iP: C		TG: MF		
LB SHP:	V	Texture: F	<b>A</b> e <b>A</b> c	В	R 🗆 A	A R	JP: C	S	TG: MF		
					FISH	-					
Site Number	Capture	Number of	Total Length	Total	FISH	Voitage	. T	Species	Total	Minimum	Meximum
	Method	Events	(m)	Time		gt			Fish	Length (mm)	Length (mm)
402	EF	1	130	291 sec		500		NFC	0		

Reach #

ILP Map #

ILP#

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

	STREAM REFERENCING											
Gazetted Nam	ie.					Lo	cal Na	me.				
		0-24500-57600-00	00-0000-000-000	-000-000-000	000				Map#:	<b>!LF</b>	·#:	
					EACH							
Reach			M(Zone/East/No	•			Sa	mple Type		9.4 · · · · · * * · · · · · · · · · · · ·		
Length (km Confinemen	•	Gradient (%) Coupling		US Elev (r Open wat	•		E	Order: SGC Zone:		Magnitude: 6	)	
Island		<u>.                                    </u>	SIDE DI	<u>-</u>		BR	_	arian Veg.:		Landuse: N	0	
					SITE							
Site #: 40	03	GIS UTM(Zo	ne/East/North)	Date:	2000/10/0	03	Ag	ency: C01	6	Crew: MJ/MJ	·	
Site Lg (m): 25	50		<u> </u>				Ref. N	łame:				
				CH	ANNE	l.						
No Vis.Ch.:	Intermittent:			Avg	Min	Max	#	<del></del>		Avg % Min % M	<del></del>	
Dw: 🗌	Tribs.:		Channel Width Wetted Width	<u></u>	1.5	2.3	6		Gadient % Pool Depth (m)		3 4	
		Į	Wb Depth	<del></del>	0.4	0.5	3	L	· · · · · · · · · · · · · · · · · · ·	1 0.12 1 0.000 1 0		
Stage: L	M H	Temp (C): 4		pH: 7.6	:		Con	d.: 100	Tı	arb.: T T M	ı ∏ L 🐼 C	
Jge. 2	···•	1 cmp (0): 4			HOL.	ne v	<b>30.</b> 1	u 100				
Bed Material: [	Dominant: G	Sı	bdom: C		*********		Bars:	<b>√</b> N □	SIDE DIA	G MID S	PAN 🗆 BR	
	D95: 400.	00 0	) (cm): 3.00				01	حبتا حبتا	 0		لينا	
	Pattern: IR Coupling: PC		slands: N ement: OC						2 B3 D1	D2 D3		
	Morph: RP	Comm	ement: OC	1	DISTURB INDICAT				2 24 25		24 25	
	·						C1	C2 C	3 C4 C5	\$1 S2 S3	\$4 \$5	
				G	OVER			ا الدا ا				
Total:	A	T	pe: SWD	LWD B		U	DP	ov	l v		FSZ:	
		Amo	ınt: S	N T		s	D	Ť	T			
		Loc: P/S								CROWN	CLOSURE	
LWD:	N	DIS	T: NA INS	STREAM VEG	: N [	] A [	M	✓ v [		4	71-90%	
RB SHP:		Texture: F	<b>y</b> G □ C	<b>₽</b> B □ F		RIP			TG: NA			
LB SHP:	U	Texture: 📝 F	₩ G C	<b>y</b> B ∐ R	Α 🔲 Α	RIP	): S	S	TG: NA			
					FISH							
Site Number	Capture	Number of	Total Length	Total		oltage/	T	Species	Total	Minimum	Maximum	
400	Method	Events	(m)	Time					Fish	Length (mm)	Length (mm)	
403	EF	1 1	250	228 sec		500		NFC	0			

Reach #

ILP Map#

ILP#

1.0

93K.045

STREAM REFERENCING													
Gazetted Name:				***		Local Na	me:			gernann na gar	<u>agent telpan</u>	***************	
Watershed Code: 000-00000	0-00000-00000-0000-0	000-000-000-000	-000-000	-000			ILP	Map#:	93K.04	5		iLP#:	45724
			F	REAC	H								
Reach #; 1.0	UTM(2	one/East/North):	••	*************		Sa	mple Type	: R		*********		***********	
Length (km): .20	Gradient (%): 12		S Elev (	m): 118	13		Order:			Magni	tude:	1	
Confinement: CO	Coupling: (	o 0	pen wa	ter: A		E	GC Zone:	SBS		_			
Islands: N	Bars: 🗸 N	SIDE DIAG	MID	SP	A 🔲 E	BR Ripa	arian Veg.:	С		Lan	duse:	NO	
SITE													
Site #: 404	East/North)	Date:	2000/1	0/03	Ag	jency: C01	6		Crew:	MJ/	MG		
Site Lg (m): 200							Name:						
			C I	HANA	IEL.								
No Vis.Ch.: 🗹 Intermittent:			Avg	Min	Max	#				Avg %		Max %	
Dw: Tribs.:	Ch		0	0	0	-		dient %:	0.00	0	0	0	
	<u> </u>	/etted Width (m): Wb Depth (m):		0	0	0	L	Pool De	pth (m):	0.00	0	0	0
	<u> </u>	770 Dept. ().	1 0.00		1	11							
Stage: L M H	Temp (C):		pH:			Con	d.:		Tur	rb.:	T [	M	L 🗆 (
			MOR	PHO	LOG								
Bed Material: Dominant:	Subdo					Bars:	□ N	SIDE	DIAG	MI 🗌 R	D 🗌	SPAN	BR
D95:	D (ci	•				<b>O</b> 1	B1 B	2 B3	D1	D2	D3		
Pattern: Coupling:	Islan Confineme								Th				
Morph:	Commona				RBANCE ATORS	C1	C2 C	3 C4	C5	S1	i	ca (	.4 CE
								.3 C4			S2	S3 5	\$4 \$5
				OVE	ъ	_لل	<u> </u>						<u></u>
Total:	Type:	SWD LWD		В	U	DP	Ιον	l iv	7				FSZ:
i otal.	Amount:	SVD LVV	<del>'   - '</del>	-	-	<u> </u>	1 00	14	-				F3Z:
	Loc: P/S/O:								7		CRO	WN CLO	SURE
LWD:	DIST:	INSTRI	EAM VE	G: N	A	M	V	1					
RB SHP:	Texture: F	GCC	В □ !	R 🗆 /	F	NP:	S	TG:					
LB SHP:	Texture: F	رسا 🗀 ا		ليبيا		RIP:		TG:					
<del></del>													

Reach #

ILP Map #

ILP#

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

STREAM REFERENCING											
Gazetted Na	me:						Local Na	ame:			***************************************
Watershed Co	rde: 480-993600	-24500-72500-00	00-0000-000-00	0-000-00	0-000-000			iLP	Мар#:	JLF	<b>&gt;</b> #:
					RE/			· <del>-</del> -			
							•				
Reach	#: 1.0	UT	「M(Zone/East/N	vorth):			S	iample Type	: B		
Length (kr	•	Gradient (%)	=		Elev (m):			Order:		Magnitude:	4
Confineme	nt: FC ds: N	Coupling Bars: ✔N		Ope DIAG	en water:			BGC Zone:		Landuse: N	^
Islands: N Bars: ✔N SIDE DIAG MID SPA BR Riparian Veg.: C Landu SITE									Landuse: N	·	
6:4- #-	405 Г	010 11714/7			***************************************						
Site #: 405								igency: C016 Name:	6	Crew: SR/M.	ļ
			-:		C H A			wante.			
No Vis.Ch.:	Intermittent:			Г	Avg M		#	7		Avg % Min % M	ax % #
Dw:	Tribs.:		Channel Widt		1.20		<u> </u>	1	Gadient %		19 4
DW	_ Hibs.;		Wetted Widt	<del></del>	0.88 0	7 1.200	6		Pool Depth (m)	: 0.11 0.08 0	.140 6
			Wb Dept	th (m):	0.23 0	2 0.3	3	]			
Stage: L	M <b>√</b> H □	Temp (C): 4			oH: 8.1		Cor	nd.: 70	Tu	ırb.: 🗌 T 🔲 N	I
				NA	ORPH	0110/6	Y2000				
1				***********		3403403403					
Bed Material:	Dominant: C		ubdom: B			24704-0240004-00		<b>☑</b> N 🗍	SIDE DIA	G MID S	PAN BR
Bed Material:	D95: 50.00	0 0	D (cm): 6.00				Bars:				PAN BR
Bed Material:	D95: 50.00 Pattern: SI	] O	D (cm): 6.00 slands: O				Bars:			G MID SI	PAN 🗍 BR
Bed Material:	D95: 50.00	] O	D (cm): 6.00		DIST	URBANCE	Bars:	B1 B:	2 B3 D1	D2 D3	
Bed Material:	D95: 50.06 Pattern: SI Coupling: CO	] O	D (cm): 6.00 slands: O		DIST		Bars:	B1 B:	2 B3 D1		
Bed Material:	D95: 50.06 Pattern: SI Coupling: CO	] O	D (cm): 6.00 slands: O		DIS1 INI	URBANCE DICATORS	Bars:	B1 B:	2 B3 D1	D2 D3	
	D95: 50.00 Pattern: SI Coupling: CO Morph: CP	0 [	D (cm): 6.00 slands: O erment: CO		DIST INC	URBANCE DICATORS	Bars: O1 C1	B1 B:	2 B3 D1	D2 D3	S4 S5
Bed Material:	D95: 50.00 Pattern: SI Coupling: CO Morph: CP	0 [	D (cm): 6.00 slands: O erment: CO	LWD T	DIS1 INI	URBANCE DICATORS	Bars:	B1 B:	2 B3 D1	D2 D3	
	D95: 50.00 Pattern: SI Coupling: CO Morph: CP	0 [ l: Confin	D (cm): 6.00 slands: O ement: CO	LWD	DIST IND COL	URBANCE DICATORS ER	Bars: O1 C1 DP	B1 B3	2 B3 D1	D2 D3 S1 S2 S3	S4 S5
	D95: 50.00 Pattern: SI Coupling: CO Morph: CP	Confin	D (cm): 6.00 slands: O ement: CO	LWD T	DIST IND COL	URBANCE DICATORS	Bars:  O1  C1  DP  DP	B1 B3 C2 C3 C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	2 B3 D1	D2 D3 S1 S2 S3	S4 S5
Total:	D95: 50.00 Pattern: SI Coupling: CO Morph: CP	Confin	D (cm): 6.00 slands: O sement: CO	LWD T	DIST	URBANCE DICATORS  E R  U  T  V  A	Bars:  O1  C1  DP  DP	B1 B3 C2 C3 OV T	2 B3 D1	D2 D3 S1 S2 S3	S4 S5
Total: LWD:	D95: 50.00 Pattern: SI Coupling: CO Morph: CP	Confin	D (cm): 6.00 slands: O sement: CO	LWD T	DIST	URBANCE DICATORS  E.R.  U.T.  V.O.D.  N. V.O.D.  A. J.	Bars: O1 C1 DP D D M M M M M M M M M M M M M M M M	B1 B3 C2 C3 C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	2 B3 D1 3 C4 C5	D2 D3 S1 S2 S3	S4 S5
Total: LWD: RB SHP:	D95: 50.00 Pattern: SI Coupling: CO Morph: CP	Confin	D (cm): 6.00 slands: O sement: CO	LWD T	CON B S W	URBANCE DICATORS  E.R.  U.T.  V.O.D.  N. V.O.D.  A. J.	Bars:  O1  C1  DP  DP  D  MRIP: C	B1 B3 C2 C3 C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	2 B3 D1 3 C4 C5 1V N TG: MF	D2 D3 S1 S2 S3	S4 S5
Total: LWD: RB SHP: LB SHP:	D95: 50.00 Pattern: SI Coupling: CO Morph: CP	Confin	operior SWD with T Sign G G C	LWD T V NSTREAL B B	CON B S W	URBANCE DICATORS  ER  U  T  V  A  A  A	Bars:  O1  C1  DP  DP  D  MRIP: C	B1 B3 C2 C3 C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	2 B3 D1 3 C4 C5 1V N TG: MF	D2 D3 S1 S2 S3	S4 S5
Total: LWD: RB SHP:	D95: 50.00 Pattern: SI Coupling: CO Morph: CP	Confin  Ty Amo Loc: P/S DIS  Texture: F  F  Number of	or (cm): 6.00 slands: O ement: CO  ype: SWD unt: T  S/O: G C  G C C	LWD T  NSTREA  B B 7	DISTINCT  COL  B S S V  R R R F1:	URBANCE DICATORS  ER  U  T  V  A  A  A	Bars:  O1  C1  DP  D  D  RIP: C  RIP: C	B1 B3 C2 C3 C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	2 B3 D1 3 C4 C5 1V N TG: MF TG: MF	D2 D3 S1 S2 S3 CROWN 3	FSZ: S4 S5 FSZ: S1 CLOSURE 41-70%
Total: LWD: RB SHP: LB SHP:	D95: 50.00 Pattern: SI Coupling: CO Morph: CP	Confin	operior SWD with T Sign G G C	LWD T  NSTREA  B B 7 7	DISTINCT  COL  B S V COL  R R R FIL	URBANCE DICATORS  E.R.  U T  V A A A A A B A B B B B B B B B B B B	Bars:  O1  C1  DP  D  D  RIP: C  RIP: C	B1 B3	2 B3 D1 3 C4 C5 1V N TG: MF	D2 D3 S1 S2 S3 CROW!	FSZ: NCLOSURE 41-70%

Reach #

ILP Map #

ILP#

1.0

93K.045

Gazetted Nam									
Gazetteu Haili	e:				Lo	cal Name:			
Natershed Cod	le: 000-000000	-00000-00000-00	00-0000-000-000-	000-000-000-000	)	iLP	Map#: 93K.045	ILF	#: 45730
				RE	ACH				
						0	-		
Reach #			M(Zone/East/No	•		Sample Type:			
Length (km)		Gradient (%) Coupling		US Elev (m): Open water:		Order: BGC Zone:		Magnitude:	1
Confinement Islands		<u> </u>	SIDE DIA					Landuse: N	0
					TE				
Site #: 40	ne [	GIS LITM/Zo	ne/East/North)	Date: 200		Agency: C016		Crew: SR/MJ	 I
Site Lg (m): 10		GISOTMIZE	:	Dute. 20	<i>50/10/05</i>	Ref. Name:		O.C.	•
				— Cha	NNEL				
No Vis.Ch.:	Intermittent:				in Max	#		Avg % Min % M	ax % #
Dw:	Tribs.:		Channel Width		.25 0.5	6		19.25 19	22 4
<b></b> _		[	Wetted Width	· · · · · · · · · · · · · · · · · · ·	.13 0.35		Pool Depth (m):	0.06 0.050	0.08 6
		Ĺ	Wb Depth	(m): 0.10 C	0.1 0.1	3			
Stage: L	M♥ H	Temp (C): 4		pH: 8.2		Cond.: 160	Turi	b.: 🗌 T 🔲 N	1 🗌 L 🗸 (
				MORPH	OLOGY				
Bed Material: [	Dominant: B	Sı	ıbdom: F		E	Bars: 📝 N 🔲	SIDE DIAG	MID SI	PAN BR
	D95: 60.0		O (cm): 4.00			O1 B1 B2	. B3 D1	D2 D3	
	Pattern: SI Coupling: CO		slands: N ement: CO						
·	Morph: CP	Commi	emen. 00		TURBANCE DICATORS	C1 C2 C3	3 C4 C5	S1 S2 S3	S4 S5
	·							31 32 33	34 33
				rn	VER		<u> </u>		ليا إليا إل
Total: I	N	Т	pe: SWD	LWD B	l u l	DP OV	N 1		FSZ:
TO(a).	••	Amo	·	N N	N	N N	N		F32
		Loc: P/S	5/0:			اممما ممد		CROW	N CLOSURE
LWD: I	F	DIS	T: E INS	STREAM VEG:	N A	MVV		2	21-40%
RB SHP:	U	Texture: 📝 F	<b>₽</b> G <b>₽</b> C	<b>₽</b> B □ R [	A RIP	P: C S	rg: MF		
LB SHP:	V	Texture: F	<b>⊘</b> G <b>⊘</b> C	B R	A RIP	r: C	rg: MF		
		· · · · · · · · · · · · · · · · · · ·							
					SH				
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voitage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
406	EF	1	100	147 sec	500	NFC	0		
<del></del>		.d			1		·	<del>1</del>	·

Reach # IL

ILP Map #

ILP#

STREAM REFERENCING															
Gazetted Name:			<u> </u>	************	*************		Local Na	ame:	00000000000			**********	200000000000000000000000000000000000000	<u> </u>	
Watershed Code: 480-993600-	-24800-00000-00	00-0000-000-0	00-000-0	000-000	-000				ILP	Map#:			ILP#:		
				R	EAC	H									
Reach #: 1.0	Ú.	rM(Zone/East/	North):			***************************************	S	ample	Туре	: В					**********
Length (km): .28	Gradient (%	): 4.64	Ú	S Elev (	m}: 736	<b>i</b>		. 0	rder:	3	Magn	itude:	4		
Confinement: UN	Coupling	g: DC	0	pen wat	ter: A			BGC Z	Zone:	SBS					
Islands: N	Bars: 🗸 N	SIDE	DIAG	MID		A 🔲	R Rip	arian '	Veg.:	\$	Lan	duse:	NO		
		SITE													
Site #: 407	)	Date:	2000/1	0/04	A	gency	: C01	6	Crew	: SR	/MJ				
Site Lg (m): 150							Ref.	Name	:						
				C)	IANA	IEL									
No Vis.Ch.: 🗹 Intermittent:		Channel Wid		Avg	Min	Max	#	] .			Avg %	Min %	Max %	#	
Dw: Tribs.: [		0.00	0	0	0		ļ	Gadient %		1	1	4			
		Wetted Wid		0.00	0	0	0		L	Pool Depth (m)	: 0.00	0	0	0	
	ł	Wb Dep	otn (m):	0.00	0	0	0	1							
Stage: L M H	Temp (C):			pH:			Çoı	nd.:		Tı	ırb.:	τ [	] M [	] L	c
				MOR	PHO	LOG)									
Bed Material: Dominant:		ubdom:					Bars:		' []	SIDE 🗌 DIA	G 🗌 M	ID [	SPAN		BR
D95:		D (cm):					01	B1	В	2 B3 D1	D2	D3			
Pattern: Coupling:		slands: nement:						T 🕝	1 T C		THI	$\overline{\Box}$			
Morph:	Comm	ierrierit.				RBANCE ATORS	C1	C2	· · ·	3 C4 C5	S1		••	•	05
·								C2	111	.3 C4 C5	51	S2	<b>S3</b>	S4	S5
					OVE			_i	J [ L		ابا	<u></u>	ا با	<u> </u>	<u></u>
Total:	T	ype: SWD	LWD			U	DP	1 6	OV.	I IV I				FSZ	. 🗆
rotar.	Amo	<i></i>		<del></del> -	-		Dr	+-`		<del>                                     </del>				F32	• Ш
	Loc: P/S/O:							7	$\overline{\Box}$			CRC	WN CL	OSUR	E
LWD:	DIST: INSTREAM VEG:						N	A 🗀	v [						
RB SHP:	Texture: 🦳 F	ПСПС	;	3 🗀 1	₹ 🖂 /	A F	LIP: S		S	STG: NA					
LB SHP:	Texture: 🗀 F		;   e		_		NP: S		s	STG: NA					
										······································	· · · · · · · · · · · · · · · · · · ·				

Reach #

ILP Map #

ILP#

STREAM REFERENCING												
Gazetted Name:				L	ocal Na	me:						
Watershed Code: 480-993600-2480	0-00000-0000-0000-000-00	0-000-000-00	0-000			IL	Р Мар #:				ILP#:	
		J	REAC	H								
Reach #: 2.0	UTM(Zone/East/N	lorth):			Sa	mple Typ	e: B	-		-		
Length (km): 2.04 G	Gradient (%): 4.8		(m): 834			Order			Magn	itude:	4	
Confinement: FC	Coupling: PC lars: ✔N ☐SIDE ☐I	Open wa		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		3GC Zone arian Veg.			Lar	iduse:	NO	
isiands. IV	MIS. UT GODE	JB10	SITE		•							
Site #: 408 G	GIS UTM(Zone/East/North)	Date	: 2000/10		Ag	ency: C0	16	***********	Crew	: SR/	MJ	
Site Lg (m): 100					Ref. i	Name:						
		¢	HANN	EL								
No Vis.Ch.: Intermittent:		Avg	Min	Max	#						Max %	#
Dw: Tribs.:	Channel Widt			0.800	6		Gadie		3.25	3	3	4
	Wetted Widt Wb Dept			0.2	6 3	L	Pool Depth	(m):	0.00	0	0	0
	<u> </u>	ar (m). [ 0.20	1 02	1 0.2								
Stage: L ✓ M H Te	emp (C):	pH:		-	Con	ıd.:		Turl	b.: 📋	Т [_	M	г∏с
		MOR	(PHO)	.ogy								
Bed Material: Dominant: F	Subdom: NA				Bars:	<b>₩</b> N	SIDE	DIAG	M	ID [	SPAN	BR
D95: 0.01 Pattern: SI	D (cm): 0.01 Islands: N				01	B1	B2 B3	D1	D2	D3		
Coupling: PC	Confinement: OC		DISTUR	DANCE								
Morph: RP				ATORS	C1	C2	C3 C4	C5	S1	S2	S3 S	4 S5
			COVE	R								
Total: N	Type: SWD	LWD	В	U	DP	OV	IV					FSZ:
	Amount: N	N	N	N	N	N	N					
									AM CTC			
LWD: F	DIST: E	NSTREAM VE	EG: N	<b>✓</b> A	M	V				2	21-	40%
	ure: 📝 F 🗌 G 📗 C		R /	-	<b>P</b> : S		STG: NA					
LB SHP: V Textu	ure: 🔽 F 🗌 G 🦳 C	B	R _ /	A RI	<b>P</b> : S		STG: NA					
<u> </u>			<del></del>							·		<del></del>

				STRE	AM I	REFE	REN	CING	•							
Gazetted Name:								Local Na	me:			******	<u> </u>			
Watershed Code: 000-00000	0-00000-	-00000-0000-	-0000-000-0	00-000-	000-000	-000				ILP	Map#:	93K.04	5		ILP#:	45735
					18	EAC	H									
Reach #: 1.0		UTM	(Zone/East	North):			*************	S	ample	Type	: В					
Length (km): .54	Gra	adient (%): 3	-	•	S Elev (	m): 741	ı		-	rder:			Man	nitude:	: 3	
Confinement: UN		Coupling:	DC		pen wa	•		1	BGC Z				mag	iniude.	. •	
islands: N	Bai	rs: 🛂N 🛚	SIDE	DIAG	MID	SP	A 🔲	3R Rip	arian \	/eg.:	С		La	nduse	NO	
						SITE										
Site #: 409	GIS	S UTM(Zone	/East/North	)	Date:	2000/10	0/04	A	gency:	C016	3		Crev	v: M	J/MG	
Site Lg (m): 200				l_				Ref.	Name:							
					C ł	IANA	EL									
No Vis.Ch.: V Intermittent:					Avg	Min	Max	#	_ ا					<del></del>	6 Max 9	
Dw: Tribs.:			hannel Wic		0.00	0	0	0				lient %:		0	0	0
		<u> </u>	Wetted Wid Wb Der		0.00	0	0	0	L		Pool De	pth (m):	0.00	0	0	0
		<b>L</b>			0.00		1		ĺ							
Stage: L M H	Tem	1p (C):			pH:			Cor	nd.:			Tu	rb.:	T [	] M [	] L [] C
					MOR	PHOI	.0G									
Bed Material: Dominant:		Subd						Bars:			SIDE	DIAG	<b>=</b> [] <b>N</b>	fID [	SPAN	BR
D95: Pattern:		,	cm):					01	B1	B2	2 83	D1	D2	DЗ		
Pattern: Coupling:		Isla Confinem							T 🗂	T			D2			
Morph:		Commen	en.		!		BANCE ATORS		<del></del>							
,						INDICA	TIONS	C1	C2	C3	3 C4	C5	S1	S2	S3	S4 S5
	·		000000000000000000000000000000000000000	************												
						OVE										
Total:	H	Type Amount	-	LWD	E	3	U	DP	0	<u>v</u>	IV .	4				FSZ:
	-	Loc: P/S/O			1					7[]		-		CRO	NAM CI	OSURE
LWD:	L	DIST:		NSTRE	AM VEC	: N		M		v	<u>lll_</u> I	4		0,11	JUNIO CE	COOKE
RB SHP:	Texture		G					□ ''' NP:	Ш,		rc.					
LB SHP:	Texture	ا السنة		;   B	نے			o <del>r.</del> UP:			rg: rg:					
·	·	L		- ليا	<u>., r.</u>	٠٠ ب	•									

ILP#

ILP Map #

93K.045 45738 STREAM REFERENCING **Gazetted Name:** Local Name: 45738 ILP#: ILP Map #: 93K.045 REACH Sample Type: UTM(Zone/East/North): .. Reach #: 1.0 Magnitude: 3 US Elev (m): 737 Order: 2 Length (km): .48 Gradient (%): 2.71 BGC Zone: SBS Confinement: UN Coupling: DC Open water: A Islands: Bars: IN 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 Ref. Name: Site Lg (m): 200 CHANNEL Avg % Min % Max % No Vis.Ch.: ✓ Intermittent: Avg Min Channel Width (m): 0.00 0 0 0 Gadient %: 0.00 Dw: Tribs.: Wetted Width (m): 0.00 ٥ 0 Pool Depth (m): Wb Depth (m): Stage: L M H Temp (C): pH: Cond.: Turb.: T M L C MORPHOLOGY DIAG MID Bed Material: Dominant: Subdom: SIDE D (cm): 01 вз D1 D2 D3 Pattern: islands: Coupling: Confinement: DISTURBANCE Morph: **INDICATORS** S5 C2 S3 **S4** COVER Total: SWD LWD DP ΟV īV FSZ: Type: Amount Lec: P/S/O **CROWN CLOSURE** LWD: DIST: RB SHP: GGCBGRA RIP: STG:

RIP:

STG:

Texture: FGGCBRA

LB SHP:

Reach #

ILP Map#

ILP#

2.0

93K.045

		STREAM REFE	RENCING			
Gazetted Name:			Local Name:			
Watershed Code: 000-000000-00	000-00000-0000-0000-000-0	000-000-000-000-000		ILP Map #: 93	K.045 ILP#:	45738
		REAC	Н			
Reach #: 2.0	UTM(Zone/East	/North):	Sampi	le Type: B		*****
Length (km): .36	Gradient (%): 9.17	<b>US Elev (m)</b> : 770		Order: 2	Magnitude: 3	
Confinement: FC	Coupling: PC	Open water: A		Zone: SBS		
Islands: N	Bars: VN SIDE		······································	n Veg.: C	Landuse: NO	
		SITE				
Site #: 411 Site Lg (m): 200	GIS UTM(Zone/East/Norti	h) Date: 2000/10	)/04 Agend Ref. Nam	:y: C016	Crew: MJ/MG	
Site Eg (iii). 200		CHANN		ie.		
No Vis.Ch.: Intermittent:		Avg Min	Max #		Avg % Min % Max %	. #
	Channel Wi		1.200 6	Gadier		2
Dw: Tribs.:	Wetted Win	<del></del>	0 6	Pool Depth	(m): 0.00 0 0	0
	Wb De	pth (m): 0.17 0.1	0.2 3	<u> </u>		<del></del>
Stage: L M H	Temp (C):	pH:	Cond.:		Turb.: T M	L []
		MORPHO	OGY			
Bed Material: Dominant: F	Subdom: G		Bars: 🗸	N SIDE	DIAG MID SPAN	BR
D95: 2.00	D (cm): 2.00		04 5	31 B2 B3	D4 D0 D0	_
Pattern: IR	Islands: N		O1 B	B1 B2 B3	D1 D2 D3	
Coupling: CO	Confinement: FC	DISTUR				
Morph: RP		INDIC	ATORS C1 C	2 C3 C4	C5 \$1 \$2 \$3 \$	S4 S5
		COVE	R			
Total: N	Type: SWD	LWD B	U DP	OV IV		FSZ:
	Amount: N	N N	N N	N N		
	EGC. F/3/O.				CROWN CLO	-70%
			🗸 A 🗌 M 🗍	<b>∨</b> □	3 41	-10 /0
LWD: N	DIST: NA	INSTREAM VEG: N				
RB SHP: V Tex	cture: 🕡 F 🕡 G 🔲	C B R A	RIP: S	STG: NA STG: NA		

Reach#

ILP Map #

ILP#

		STREAM	REFE	REN	ING			
Gazetted Name:				L	ocal Nar	me:		
Watershed Code: 480-993600-29	300-0000-0000-0000-000	000-000-000-00	0-000			ILP Map #:	ILP#:	
			REAC	Н				
Reach #: 1.0	UTM(Zone/Eas	t/North):			Sa	mple Type: B		
Length (km): .80	Gradient (%): 4.5	US Elev	(m): 761			Order: 2	Magnitude: 9	
Confinement: UN	Coupling: DC	Open wa			_	GC Zone: SBS	Landway NO	
Islands: N	Bars: VN SIDE	_DIAG [_]MID			к кіра	rian Veg.: M	Landuse: NO	
Site #: 412	OIS LITERIZ (Factor)	Dete	SITE 2000/10			anau 0016	Crew: MJ/MG	<u> </u>
Site #: 412 Site Lg (m): 150	GIS UTM(Zone/East/Nort	.n) Date	2000/10	1/04	Ref. N	ency: C016 lame:	CIEW. WIJ/MG	
			HANN	EL				
No Vis.Ch.: Intermittent:		Avg	Min	Max	#		Avg % Min % Max % #	$\overline{\Box}$
Dw: Tribs.:	Channel W		2.3	3.6	6	Gadient	%: 2.63 2 3 <b>4</b>	
	Wetted W		0	0	6	Pool Depth (	m): 0.00 0 0 0	
	Wb De	pth (m): 0.17	0.1	0.2	3			
Stage: L♥ M H	Temp (C):	pH:			Con	d.:	Turb.: U T U M U L	∐ с
		MOR	PHOL	OG Y				
Bed Material: Dominant: G	Subdom: C				Bars:	N SIDE D	DIAG 🗌 MID 🗌 SPAN 📝	BR
D95: 10.00 Pattern: Si	D (cm): 5.00 Islands: N				<b>Q1</b>	B1 B2 B3 D	1 D2 D3	
Coupling: DC	Confinement: NA		DICTUD	DANOE	П		THE	
Morph: RP			DISTUR		C1	C2 C3 C4 C	5 S1 S2 S3 S4	S5
					•			
			OVE	R	<u></u>			
Total: N	Type: SWD	LWD	В	U	DP	OV IV	FSZ	Z: 🔲
	Amount: N	N	N	N	N	N N		
	Loc: P/S/O:						CROWN CLOSUR	
LWD: N	DIST: NA	INSTREAM VE	:G: N	<b>✓</b> A	M	_ v _	2 21-40%	
		С ПВ П			P: M	STG: MF		
LB SHP: S Tex	xture: F 🔽 G 🗸	С ПВ П	R $\square$ A	. Ri	P: M	STG: MF		
		<del> </del>						

Reach # ILP Map #

ILP#

		s	TREA	MRE	FERE	NCI	NG				
Gazetted Name:						Loca	i Name:				
Watershed Code: 480-993600-2	9300-00000-00	00-000-000-000	0-000-000	-000-000				ILP Ma	p #:	iLP	#:
				REA	CH						
Reach #: 2.1	TU	M(Zone/East/N	orth):	· · · · · · · · · · · · · · · · · · ·			Samp	le Type:	В	-	
Length (km): .10	Gradient (%)	: 20	U\$ E	lev (m): 1	350			Order: 2		Magnitude: 8	
Confinement: EN	Coupling			n water:	r	7		Zone: Si	BS	Landinas MC	,
Islands: N	Bars: VN	SIDED	IAG		SPA L	BR	Riparia	n Veg.: C		Landuse: NO	, 
				SI				0040		Crew: MJ/MG	
Site #: 413 Site Lg (m): 200	GIS UTM (Zo	ne/East/North)		ate: 200	0/10/04	R	agend Ref. Nam	:y: C016 :e:		Crew: Maning	
Site Lg (iii). 200				CHA	NNFI					<u></u>	<del></del>
No Vis.Ch.: Intermittent:	7		Г	lvg M		x   #	# 1		17	Avg % Min % Mi	ax % #
Dw: Tribs.:		Channel Widt		2.73 1	$\overline{}$		5				14 4
DW: [] Inds [		Wetted Widt		.93 1			6	Poo	ol Depth (m):	0.48 0.200 0	800 6
	į	Wb Dept	h (m):   C	0.63 0	6 0.7		3				
Stage: L M ✔ H	Temp (C): 4		p	H: 8.1			Cond.:	40	Turt	o.: ☐ T ☐ ₩	□ r 🔼 c
			М	ORPH	OLOG	Ϋ́					
Bed Material: Dominant: B		ubdom: C				Ва	ırs: 🗸	N Sil	DE DIAG	MID SF	PAN BR
D95: 400.00		D (cm): 25.00					01 1	31 B2	B3 D1	D2 D3	
Pattern: SI Coupling: CO		slands: N nement: EN		DIO.	TURBAN	٦- [	ПТ				
Morph: CP					DICATOR	-	C1 (	C2 C3	C4 C5	S1 S2 S3	S4 S5
						Γ					
				CO	/ E R						
Total: A	T	ype: SWD	LWD	В	U	1	OP	ov	IV		FSZ:
	Amo		Т	S	N		D	T	N		
	Loc: P/			<b>V</b>						CROWN 1	I CLOSURE 1-20%
LWD: F	DIS	ST: C	NSTREA	W VEG:	N 🗸	A [				•	. 20%
•	fexture: F	☐ G 🐼 C	<b>✓</b> B	<b>₹</b> R	_ A	RIP: RIP:		STG STG			
LB SHP: V T	Texture: 📝 F	GC	<b>y</b> B	<b>₽</b> R	^ 	KIP:	<u> </u>	310	. NA		
				FEAT	URES	3					
	Hgt Metho	d Lg	Method	+	hoto		<del></del>	Photo	UTM	(Zone/East/Nort	h/Method) GP3
93K.045 24131 F Comments: location as mappe	6.0   GE ed			R: 28	F:  1	2  L:	·1	[#:]			GF3
Commonto, loodson do mappe	<del></del>										
					SH					T	
Site Number Capture Method	Number of Events	Total Length (m)		otal ime	Volt	age	Sp	ecles	Total Fish	Minlmum Length (mm)	Maximum Length (mm)
413 EF	1	100	60	8 sec	60	0		NFC	0		

Reach # ILP Map #

ILP#

			s T	REAMR	EFERI	ENCIN	IG			
Gazetted Name	):		<del></del>	· · · · · · · · · · · · · · · · · · ·		Local	Name:			
Watershed Code	: 480-993600	-29300-00000-000	0-0000-000-000-0	00-000-000-0	000		ILP M	ap #:	ILP	#:
	<del></del>				EACH					-
			M(Zone/East/Nor	h).	· · · · · · · · · · · · · · · · · · ·		Sample Type:	В		
Reach #:			•	•	·\. 000		Order: 2		Magnitude: 8	
Length (km): Confinement:		Gradient (%): Coupling:		US Elev (n Open wate			BGC Zone:		in a gilliano	
lslands:		Bars: VN		G MID		BR	Riparian Veg.:		Landuse: NO	)
					SITE			,, ., ., ., ., ., ., .,		
Site #: 414	4 [	GIS UTM(Zor	ne/East/North)	Date:	2000/10/04		Agency: C016		Crew: MJ/MG	
Site Lg (m): 300	J.	•	·			R	ef. Name:			
				СН	ANNE	-				
No Vis.Ch.:	intermittent:			Avg	Min M	ax #			vg % Min % Ma	
Dw:	Tribs.:		Channel Width (			1.3 6			6.25 3 0.95 0.400	17 4
		-	Wetted Width (			400 6 0.7 3		ooi Deptii (iii).	0.95   0.400	2 1 0
		L	No Dopui	, 0.0.	<u> </u>					
Stage: L ✔	M H	Temp (C): 4		pH: 8.1			Cond.: 40	Turb	.:   T   M	□ r 🔼 c
				MOR	PHOLO					🗀 55
Bed Material: D	ominant: R		ibdom: B			Bai	rs: 🔽 N 🔲 🤄	SIDE DIAG	MID SF	PAN BR
	D95: 400.		) (cm): 30.00 slands: N			į	O1 B1 B2	B3 D1	D2 D3	
	Coupling: CO		ement: EN	ı	DISTURBA	NCE				
	Morph: CP			'	INDICATO		C1 C2 C3	C4 C5	S1 S2 S3	S4 S5
				С	OVER					
Total:	T	Ty	/pe: SWD I	LWD E	ט	D	P OV	IV		FSZ:
		Amo		T S	N		) N	N	2000	. 61 661155
		Loc: P/S							O CROWN	O%
LWD: I	F	DIS		STREAM VE	_	Α 🗌	M V		•	•.•
RB SHP: V		Texture: F		B 💟 F		RIP:		G: NA		
LB SHP: \	V	Texture: F	□ a □ c	R <b>~</b> _ b	· 🗆 A	RIP:	5 SI	G: NA		
					FISH					
Site Number	Capture	Number of	Total Length	Total		itage	Species	Total	Minimum	Maximum
	Method	Events	(m)	Time				Fish	Length (mm)	Length (mm)
414	EF	11	300	526 sec		600	NFC	0	L	l

Reach # ILP Map #

ILP#

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

			S.	TREAMR	EFERENCI	NG			
Gazetted Na	me:				Loc	ał Name:			
Watershed Co	ode: 480-993600	)-29300-00000-00	00-000-000-000	-000-000-000-0	00	iLP	Map#:	1L1	P#:
				RE	ACH				
React	ı#: 4.0	UI	M(Zone/East/No	orth):		Sample Type:	R		<u> </u>
Length (k	•	Gradient (%	•	US Elev (m)		Order:	2	Magnitude:	8
Confineme	ent: CO ds: N	Coupling Bars: ✔N		Open water		BGC Zone: Riparian Veg.:		Landuse: N	10
IJIIII	us. 11	Dais. Eji			JSFABR	Ripanan veg	C	Landuse. N	
Site #:	415	GIS UTM(Zo	ne/East/North)		000/10/04	Agency: C016		Crew: MJ/M	3
Site Lg (m):	150					Ref. Name:		J. C. 11.0/111	•
				CHI	NNEL				
No Vis.Ch.:	Intermittent:					# ]		Avg % Min % N	
Dw:	Tribs.:		Channel Width Wetted Width			6 P	Gadient %: Pool Depth (m):	5.75 5 0.42 0.300	6 4
		İ	Wb Depth			3	oor Depth (iii).]	0.42   0.300	0.5   6
Stage: L	MV H	Temp (C): 4		pH: 8.1		Cond.: 40	Turt	o.:     T     N	5             C
	, <b>.</b>	. cp (0). 4		•		CONG 40	1011	o.:	f L L C
				MORP	4010GY				
Bed Material:	Dominant: C	Sı	ıbdom: B	MORP	HOLOGY Be	ırs: 📝 N 🗍	SIDE   DIAG	□ MID □ S	PAN □ BR
Bed Material:	D95: 50.0	00	O (cm): 10.00	MORP		ت یی			PAN 🗌 BR
Bed Material:	D95: 50.0 Pattern: SI	)O [	O (cm): 10.00 slands: N	MORP		ors:		MID S	PAN BR
Bed Material:	D95: 50.0	)O [	O (cm): 10.00	DI	Ba STURBANCE	O1 B1 B2	B3 D1	D2 D3	
Bed Material:	D95: 50.0 Pattern: SI Coupling: CO	)O [	O (cm): 10.00 slands: N	DI	Ba		B3 D1		
Bed Material:	D95: 50.0 Pattern: SI Coupling: CO	)O [	O (cm): 10.00 slands: N	ונס וו	BESTURBANCE INDICATORS	O1 B1 B2	B3 D1	D2 D3	
Bed Material:	D95: 50.0 Pattern: SI Coupling: CO Morph: SP	O [	O (cm): 10.00 slands: N ement: CO	ונס וו	BESTURBANCE NDICATORS	O1 B1 B2	B3 D1	D2 D3	
	D95: 50.0 Pattern: SI Coupling: CO Morph: SP	Confin	O (cm): 10.00 slands: N ement: CO	DI: II	STURBANCE NDICATORS  VER	O1 B1 B2 C1 C2 C3	B3 D1	D2 D3	S4 S5
Total	D95: 50.0 Pattern: SI Coupling: CO Morph: SP	Confin	O (cm): 10.00 slands: N ement: CO	DIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	STURBANCE NDICATORS  VER  U T	O1 B1 B2 C1 C2 C3 DP OV D	B3 D1 C4 C5	D2 D3 S1 S2 S3	S4 S5 FSZ:
Total L <b>WD</b> :	D95: 50.0 Pattern: SI Coupling: CO Morph: SP	Confin	O (cm): 10.00 slands: N ement: CO	LWD B T S  STREAM VEG:	STURBANCE NDICATORS  VER  U T N A	O1 B1 B2 C1 C2 C3 DP OV D T M V V	B3 D1  C4 C5	D2 D3 S1 S2 S3	S4 S5
Total	D95: 50.0 Pattern: SI Coupling: CO Morph: SP	Confin  Ty Amo Loc: P/S  DIS  Texture: F	O (cm): 10.00 slands: N ement: CO  //pe: SWD unt: N S/O:           T: E   INS	LWD B T S  STREAM VEG:	STURBANCE NDICATORS  VER  U T N A RIP:	O1 B1 B2 C1 C2 C3 OP OV D D T M V V C	B3 D1  C4 C5  IV  T	D2 D3 S1 S2 S3	S4 S5 FSZ:
Total LWD: RB SHP:	D95: 50.0 Pattern: SI Coupling: CO Morph: SP	Confin	O (cm): 10.00 slands: N ement: CO  //pe: SWD unt: N S/O:           T: E   INS	LWD B T S  STREAM VEG:	STURBANCE NDICATORS  VER  U T N A	O1 B1 B2 C1 C2 C3 OP OV D D T M V V C	B3 D1  C4 C5	D2 D3 S1 S2 S3	S4 S5 FSZ:
Total LWD: RB SHP:	D95: 50.0 Pattern: SI Coupling: CO Morph: SP	Confin  Ty Amo Loc: P/S  DIS  Texture: F	O (cm): 10.00 slands: N ement: CO  //pe: SWD unt: N S/O:           T: E   INS	DIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	STURBANCE NDICATORS  VER  U T N A RIP:	O1 B1 B2 C1 C2 C3 OP OV D D T M V V C	B3 D1  C4 C5  IV  T	D2 D3 S1 S2 S3	S4 S5 FSZ:
Total LWD: RB SHP:	D95: 50.0 Pattern: SI Coupling: CO Morph: SP	Confin  Ty Amo Loc: P/S  DIS  Texture: F	O (cm): 10.00 slands: N ement: CO  //pe: SWD unt: N S/O:           T: E   INS	DIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	STURBANCE NDICATORS  VER  U T N A RIP:	O1 B1 B2 C1 C2 C3 OP OV D D T M V V C	B3 D1  C4 C5  IV  T	D2 D3 S1 S2 S3	S4 S5 FSZ:

Reach # ILP Map #

IL P

			S	TREAMR	EFERI	NCI	N G			
Gazetted Na	me:				1404444444	Loca	l Name:			
Watershed Co	ode: 480-993600	-32300-00000-00	00-000-000-000	-000-000-000-4	300		ILP	Viap#:	IL	P#:
				R	EACH			•		
Reach	#: 1.0	117	「M(Zone/East/No	rth):			Sample Type:	В		
Length (ki		Gradient (%	•	US Elev (m	N. 761		Order:		Manuituda	2
Confineme	•	Coupling	•	Open wate	•		BGC Zone:		Magnitude:	2
Island	ds: N	Bars: ✔N	SIDE DI	AG MID	SPA	BR	Riparian Veg.:	w	Landuse: N	10
				,	ITE					
Site #:	416	GIS UTM(Zo	ne/East/North)	Date: 2	000/10/03		Agency: C016		Crew: SR/M	J
Site Lg (m):	150					R	ef. Name:			
				¢н	ANNEL					
No Vis.Ch.:	Intermittent:			Avg	Min M	ax #			Avg % Min % N	lax % #
Dw:	Tribs.:		Channel Width		0.400 1.1			Gadient %:	2.25 1	3 4
		}	Wetted Width Wb Depth	`	0.400 0. 0.2 0.			ool Depth (m):	0.24 0.16 0	0.310 4
_		L		()-[ [	02   0		<b></b>			
Stage: L	M ✓ H	Temp (C): 4		pH: 8.4			Cond.: 200	Tur	b.:   T   N	A L L C
_				MORP	HOLO	3 Y				
Bed Material:	Dominant: G D95: 5.00		ubdom: NA			Bar	rs: 🗌 N 📝 :	SIDE 🗍 DIAG	MID S	PAN 🔲 BR
	Pattern: IR	•	D (cm): 2.00 slands: O			4	O1 B1 B2	B3 D1	D2 D3	
	Coupling: DC		ement: OC	_	ISTURBAN	CE				
	Morph: RP				INDICATO		C1 C2 C3	C4 C5	S1 S2 S3	S4 S5
				C (	VER	<u></u>		1 9 1 9 1		<u> </u>
Total:	: M	T	ype: SWD	LWD B	U	ΙD	P OV I	N		FSZ:
		Amo	unt: T	N N	Т			T		102.
		Loc: P/S	5/0:	ادا ادا				<b>V</b>	CROW	N CLOSURE
LWD:	N	DIS	T: NA INS	STREAM VEG	N 🗸	A 🗌	M U V	**************************************	1	1-20%
RB SHP:	: <b>v</b>	Texture: 🕢 F	GCC	B R	∏ A	RIP: S	s st	G: NA		
LB SHP:	: <b>V</b>	Texture: 🔽 F	GC	B R	A	RIP: S	S ST	G: NA		
				****						
			90000000000000000000000000000000000000	(1000)	ISH					*************************
Sita Number	C	Month						-	,	
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Volt	age	Species	Total Fish	MinImum Length (mm)	Maximum Length (mm)

Reach #

ILP Map #

ILP#

						STRE	AMI	REFI	REN	CING	ì					
Gazetted N	ame:									Local Na	ame:					
Watershed C	ode: 4	30-99360	0-32300	-00000-00	0-000-000-0	00-000-0	000-000	-000			ILF	Map#:			ILP#	:
							R	EAC	H							
Reac	h#:	3.0		UT	M(Zone/East/	North):	••	•	•	S	ample Type	: B				
Length (			G	radient (%)			S Elev (	•			Order:			Magnitude:	2	
Confinem	ent: C nds: N		R:	Coupling rs: VN		O DIAG	pen wat				BGC Zone: arîan Veg.:			Landuse:	NO	
10,21	,03. ,	•				, JAC		SITE		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	anan veg					
Site #:	417		G	S UTM(Zo	ne/East/North	<u>,                                     </u>		2000/1		A	gency: C01	6		Crew: SR	/MJ	
Site Lg (m):	100		<u> </u>	<u> </u>	<u> </u>						Name:					
							¢ i	IANA	EL							
No Vis.Ch.:	Inte	rmittent:		г	Oh	Mb ().	Avg 2.23	Min	Max	#		Gadient		vg % Min %		
Dw:		Tribs.:		ŀ	Channel Wid		1.93	1.700	2.6	6	<del>                                     </del>	Pool Depth (		0.26 0.19	0.3	
					Wb Dep	th (m):	0.30	0.3	0.3	3	]	······································			<u> </u>	<del></del>
Stage: L	_ M. <b>~</b>	н 🗌	Ter	np (C): 4			pH: 8.	4		Cor	nd.: 190		Turb.	: [ ] т [	M	LVC
							MOR	PHO	LOG	1						
Bed Material:					ıbdom: B					Bars:	<b>⊘</b> N [	SIDE [ [	DIAG	MID [	SPA	N 🔲 BR
		D95: 60. tern: SI	00		0 (cm): 8.00 slands: 0					01	B1 E	32 B3 E	01	D2 D3		
		ling: CO			ement: CO			DISTUR	RBANCE	. 🗆			1			
	M	orph: CP							ATORS	C1	C2 C	3 C4 C	5	S1 S2	S3	S4 S5
													J.L			
							Ç	OVE	R							
Tota	ıt: A		I		/pe: SWD	LWD		3	U	DP	ov	IV				FSZ:
			ł	Amo Loc: P/S		T		<u> </u>	N	D	T	N		CRO	own c	CLOSURE
LWI	D: F		1	DIS	1	INSTRE		<u>-! -</u> 3: N	A		IV V	<u>                                     </u>		3		41-70%
RB SHI	<b>?</b> : S		Textu	re: 🔽 F	G <b>_</b> _ C			<b>२</b> 🗀 .	 А I	U NP: C		_ STG: MF				
LB SHI	P: V		Textu	re: 👿 F	G ∑ C	: 💆 E		۶ ∐ ،	A I	RIP: C	\$	STG: MF				
							F E	ATUI	RES							
NID Map	NID	Туре	Hgt	Method	Lg	Metho	d	Pho	to	T	AirPhoto		UTM (	Zone/East/N	lorth/l	Method)
	24171		3.0	GE			R:		::[	L:	#:	10	371	124 603	4548	GP3
Comments.	marke	o irom an	- 0/8 1/0	om ske - m	ore of a cscad	e man ia	iis, but	Still not	passani	e to iisn			<del></del>	···		
								FISI								
Site Number		apture lethod		mber of Events	Total Lengti (m)	h	Total Time		Voltag	е	Species	Total Fish		Minimum Length (mi		Maximum Length (mm)
417		EF		1	100	1 2	238 sec		600		NFC	0				

Reach # ILP Map #

ILP#

			S	TRE	MRE	FE	REN	ING				
Gazetted Nar	ne:						L	ocal Nar	me:			
		-32300-00000-00	00-0000-000-000	0-000-00	0-000-00	0			ILP I	√lap #:	ILF	·#:
Watershed CO	ue. 400-333000					ACI	S (000000000000000000000000000000000000			•		
					IX.L	~ · ·						
Reach	#: 9.0	U	M(Zone/East/N	orth):				Sai	mple Type:	8		
Length (km	1): .24	Gradient (%	•		Elev (m):		ŀ		Order:		Magnitude:	l
Confinemer		Coupling			n water:		——————————————————————————————————————	_	GC Zone:		Landuse: N	_
Island	is: N	Bars: ✔N	SIDEC	IAG [			∟Ві	к кіра	ırian Veg.:	5	Landuse. N	
					S	T E						
Site #: 4	18	GIS UTM(Zo	ne/East/North)	1	Date: 20	00/10/	/04		ency: C016		Crew: SR/M.	l :
Site Lg (m): 1	00		<u> </u>					Ref. N	lame:			
					CHA	NN	EL					
No Vis.Ch.:	Intermittent:				Avg P	Vlin	Max	#			Avg % Min % N	
Dw:	Tribs.:		Channel Widt	()-		0.7	1.100	6		Gadient %:	2.25 1 0.09 0.06 0	3 4
			Wetted Widt			.600 0.1	0.1	6		Pool Depth (m):	0.09 0.06 0	1.140 6
		1	Wb Dept	n (m):]	0.10	0.1 1	0.1					
Stage: L	M♥ H	Temp (C): 4		ŧ	H: 8.6			Con	d.: 110	Tu	rb.: 📙 T 📙 🧗	1 ∐ L M C
				M	ORPI	HOL	OGY					
Bed Material:	Dominant: F	s	ubdom: C					Bars:	<b>№</b> N 🗌	SIDE DIAC	MID S	PAN 🗌 BR
	D95: 10.0	00	D (cm): 0.10					01	B1 B2	. B3 D1	D2 D3	
	Pattern: SI		lslands: O									
	Coupling: DC	Confi	nement: OC				BANCE					
	Morph: RP				11	NDICA	TORS	C1	C2 C3	C4 C5	S1 S2 S3	S S4 S5
					CO	VE	R					
Total:	T	7	ype: SWD	LWD	В		U	DP	ΟV	IV		FSZ:
		ļ	ount: T	Т	Т		Т	D	T	T		
		Loc: P/	S/O: 🔽 🗀	V								N CLOSURE 1-20%
LWD:	: N	Di	ST: NA	NSTREA	M VEG:	N	A	M	U V 🗹	}	1	1-2070
RB SHP	: V	Texture: 📝 F			☐ R	A	R	IP: C	s <sup>-</sup>	TG: NA		
LB SHP	: U	Texture: 🔽 F		□ В	R	A	R	IP: G	s <sup>-</sup>	TG: NA		
					7	ISH						
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	19	94 sec	$\top$	600		NFC	0		
<del></del>		•										

Reach #

ILP Map #

ILP#

2.0

93K.045

		STREAM REF	RENCING			
Gazetted Name:			Local Name:			
	-00000-00000-0000-0000-000	00-000-000-000		ILP Map #:	93K.045 ILP#	45748
		REAC	н			
Reach #: 2.0	UTM(Zone/East/	North):	Sampi	е Туре: В		
Length (km); 1.72	Gradient (%): 8.6	US Elev (m): 888	•	Order: 1	Magnitude: 1	
Confinement: FC	Coupling: PC	Open water: A	BGC	Zone: SBS	•	
Islands: N	Bars: VN SIDE	DIAG MID SP	A 🔲BR Ripariar	ı Veg.: M	Landuse: NO	
		SITI				
Site #: 419	GIS UTM(Zone/East/North	) Date: 2000/1	0/04 Agenc	y: C016	Crew: SR/MJ	
Site Lg (m): 100			Ref. Nam	e:		
		CHANI	IEL.			
No Vis.Ch.: 🗹 Intermittent:		Avg Min	Max #		Avg % Min % Max	
Dw: Tribs.:	Channel Wic		0 0		ent %: 0.00 0 0	
	Wetted Wid	<del> </del>	0 0	Pool Dep	th (m): 0.00 0 0	1 0
	<u> </u>	,	1 - 1 - 1			
Stage: L M H	Temp (C):	pH:	Cond.:		Turb.: T M	<b>L</b>
		MORPHO	LOGY			
Bed Material: Dominant:	Subdom:		Bars:	N SIDE	DIAG MID SPA	N BR
D95: Pattern:	D (cm): Islands:		O1 B	11 B2 B3	D1 D2 D3	
Coupling:	Confinement:	DIETLE	RBANCE TIT			
Morph:			ATORC	2 C3 C4	C5 S1 S2 S3	S4 S5
		COVE	R			
Total:	Type: SWD	LWD B	U DP	ov Iv	1	FSZ:
	Amount:				]	
	Loc: P/S/O:				CROWN	CLOSURE
LWD:	DIST:	INSTREAM VEG: N	A M	V 🗌		
RB SHP:	L. L.	BBR	A RIP:	STG:		
LB SHP:	Texture: F G G	CBCR	A RIP:	STG:		

Reach #

ILP Map#

ILP#

1.0

93K.045

REACH			SIRE	: AM	REFE	KEN	CINC							
REACH	Gazetted Name:					Ł	ocal Na	ame:						
Reach #: 1.0	Watershed Code: 000-00000	0-0000-0000-0000	)-0000-000-000-000-	000-000	-000			il	_P Map #:	93K.04	5		ILP#:	45750
Length (km): .60				R	EAC	H								
Length (km): .60	Reach#: 10	UT№	I/Zone/East/North):		******	*****	S	ampie Tv	pe: B	*********	4444	14:14:16:44:44		
Confinement: CO   Islands: N   Bars:   N   SIDE   DIAG   MID   SPA   BR   Riparian Veg.: M   Landuse: NO			•		m): 770		_				Magn	nitude:	1	
SITE	•			•	•						9.			
Site #: 420   GIS UTM(Zone/East/North)   Date: 2000/10/04   Agency: C016   Crew: MJ/MJ	Islands: N	Bars: VN	SIDE DIAG		SPA	∖ ∐в	R Rip	arian Veg	j.: M		La	nduse:	NO	
Site Lg (m): 200   Ref. Name:					SITE									
No Vis.Ch.:   Intermittent:	Site #: 420	GIS UTM(Zone	e/East/North)	Date:	2000/10	0/04	A	gency: C	016		Crew	r: MJ/	MJ	
No Vis.Ch.: Intermittent:	Site Lg (m): 200						Ref.	Name:						
Dw:   Tribs::     Channel Width (m): 0.00   0   0   0   0   0   0   0   0				(3)	IANN	EL								
Wetted Width (m): 0.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No Vis.Ch.: 🗹 Intermittent			Avg	Min	Max	#	]			Avg %	Min %	Max %	
Wb Depth (m): 0.00	Dw: Tribs.:	: 🗆						1	<del></del>				<del></del>	
Stage: L   M		-							Pool De	epth (m):	0.00	0	1 0	0
NORPHOLOGY   Bars:   N   SIDE   DIAG   MID   SPAN   BR		<u> </u>	TID Depen (III).	0.00				1						
Bed Material:   Dominant:   Subdom:   Bars:   N   SIDE   DIAG   MID   SPAN   BR	Stage: L M H	Temp (C):		•			***	nd.:		Tu	rb.: 📋	τ _	M	L
D95: D (cm): Pattern: Islands: Coupling: Confinement: DISTURBANCE INDICATORS C1 C2 C3 C4 C5 S1 S2 S3 S4 S5  C O V E R  Total: Type: SWD LWD B U DP OV IV FSZ: Amount: Loc: P/S/O: DIST: INSTREAM VEG: N A M V  RB SHP: Texture: F G C B R A RIP: STG:				MOR	PHOL	OGY								
Pattern:   Islands:   O1   B1   B2   B3   D1   D2   D3							Bars:	N	SIDE	DIAC	3 <u> </u>	IID [	SPAN	BR
Coupling: Confinement: DISTURBANCE INDICATORS C1 C2 C3 C4 C5 S1 S2 S3 S4 S5  COVER  Total: Type: SWD LWD B U DP OV IV FSZ: Amount: Loc: P/S/O: CROWN CLOSURE  LWD: DIST: INSTREAM VEG: N A M V  RB SHP: Texture: F G C B R A RIP: STG:			` '				01	B1	B2 B3	D1	D2	D3		
Morph:   INDICATORS   C1   C2   C3   C4   C5   S1   S2   S3   S4   S5					DICTUR	DANCE				ПП				
COVER  Total: Type: SWD LWD B U DP OV IV FSZ: Amount: CROWN CLOSURE  LWD: DIST: INSTREMIVEG: N A M V  RB SHP: Texture: F G C B R A RIP: STG:	Morph:						C1	C2	C3 C4	C5	S1	S2	S3 S	i4 S5
Total:								TM		ПП		П		
Total:				Ç	OVE	R								
Loc: P/S/O: CROWN CLOSURE  LWD: DIST: INSTREAM VEG: N _ A _ M _ V _  RB SHP: Texture: F _ G _ C _ B _ R _ A _ RIP: STG:	Total:	Тур	e: SWD LWD		*******		DP	OV	IV	7				FSZ:
LWD: DIST: INSTREAM VEG: N A M V RB SHP: STG:		Amou	nt:											
RB SHP: Texture:   F   G   C   B   R   A RIP: STG:		Loc: P/S/										CRO	WN CLC	SURE
RB SHP: Texture: F G C B R A RIP: STG:  LB SHP: Texture: F G C B R A RIP: STG:	LWD:	DIST	: INSTRE	EAM VE	G: N	A		≬ 📋 V						
LB SHP: Texture: FGGCBRARIP: STG:			GGC	B 🔲 1	R 🔲 A	A R								
	LB SHP:	Texture: F		ВПІ	R	A R	IP:		STG:					

Reach #

ILP Map#

ILP#

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

1.D

watersneu	Code. 400-99.	3000-3		<i></i> 0000-0000	-000-000	-000-000											
					STRI	EAM I	REF	EREN	ICIN	G							
Gazetted Na	me:								Local	Nam	e:						
Watershed Co	de: 480-993600	-36700	-00000-000	0-0000-000	-000-000-	-000-000	-000				ILP	Map#:			I	LP #:	
						ŀ	EAC	; H									
Reach	#- 10		1171	M(Zone/Fas	t/North):	***************************************				Sam	nie Tyne	· B				***************************************	
		G		,	•		m\- 78	n		-	• •			Manr	itude.	Δ	
	•	٠	• •			•	•			ВС				mag.	incouc.	7	
Island	is: NV	В	ars: 🛂N	SIDE	DIAG	MID	SF	PA 🔲	BR R	tipari	ian Veg.:	M		Lar	duse:	NO.	
							SIT	Ē									
Site #: 4	121	G	IS UTM(Zor	ne/East/Nor	th)	Date:	2000/1	10/03		Age	ncy: C01	6		Crew	: MJ/l	ИG	
Site Lg (m): 1	150		<u> </u>	<u> </u>					Re	f. Na	ıme:						
						C I	IAN	N.E.L									
No Vis.Ch.:	Intermittent:		-			Avg	Min	Max	#			<u> </u>		Avg %			#
Dw:	Tribs.:									$\dashv$							
			-				0.2	0.2	3	7	L	. co. scpt.	. (	0.20	0.100	0.000	لــــّــا
Stage:	ME HE	Ϋ́				-U- 0	σ.				. en		Tue	<b>.</b> . $\Box$	<b>-</b> -	se T	ا الما د
Stage. L	SITE																
Red Material:	Dominant: G	*******	Ç.,	bdom: C		WOR	rnv	LUG			N	SIDE .	DIAG		חוו רוו	SDAN	□ RD
Deu Maleriai.		0			)				Dars	• (	114	SIDE _	) DIAG	' L ''		SPAN	i_ or
	Pattern: IR			• •					C	21	B1 B	2 B3	D1	D2	D3		
			Confine	ement: UN			DISTU	RBANCE	<sub>E</sub> LI			للللا					
	Morph: SP						INDIC	CATORS	c	1	C2 C	3 C4	C5	S1	\$2	S3 S	34 S5
						C	OVE	R									
Total:	: <b>A</b>											<u> </u>					FSZ:
					-				<del> </del>			N			one	***	
1 1470-	_			ــالـــالـــا				_::::::::::::::::::::::::::::::::::::::	Part - 1								
		Tavin															
			(manual)	M C M	C M												
					- !V!	1 !	1 !										
							FISI	H									
Site Number		1		_	<del>jth</del>		T	Voltag	je	S	pecies	- 1				1	
421	L						$\dashv$	600			NFC			1		1	· g ()
	· · · · · · · · · · · · · · · · · · ·	•			<del> </del>		<u> </u>		<del></del>					··•	<del>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del>	<del></del>	· · · · · · · · · · · · · · · · · · ·

Reach #

ILP Map #

ILP#

			S.	TREAM F	EFERE	NCING	i .				
Gazetted Nan	na·					Local Na	ame:				
		-36700-00000-000	A DOOD DOOL DOO	.000.000.000	nnn	2002, 110		Map #:		<u> </u>	P#:
watersned Co	de. 460-993000-	-36700-00000-000	0-0000-000-000		EACH		, <b>_</b> ,	p #.			···
*****				ĸ	EAUR			M. 1010000000000000000000000000000000000			
Reach	#: 2.0	UTI	M(Zone/East/No	orth):		Si	ample Type:	R			
Length (km	n): 1.28	Gradient (%):	: 16.17	US Elev (r	n): 987		Order:		Ma	gnitude:	4
Confinemen		Coupling:		Open wat		_	BGC Zone:		,	anduse: N	10
Island	Is: N	Bars: <b>⊻</b> N		AG MID		JBK KIP	oarian Veg.:	· · · · · · · · · · · · · · · · · · ·		anduse. N	
	г				SITE	_					
Site #: 4		GIS UTM(Zor	ne/East/North)	Date:	2000/10/03		gency: C016 Name:	õ	Cr	ew: MJ/M	3
Site Lg (m): 2	:00 <u>[</u>				****	Aei.	italije.		*************		
	7			Avg	ANNEL Min Ma	x   #	1		Avg	% Min % N	fax %[ # ]
No Vis.Ch.:	_		Channel Width		1.700   2.20		1	Gadier			7 4
Dw:	Tribs.:	□ <b>├</b>	Wetted Width		1.200 1.0	6		Pool Depth	(m): 0.4	0.300	0.5 5
			Wb Depth	(m): 0.27	0.2 0.3	3	]				
Stage: L	M <b>✓</b> H	Temp (C): 5		pH: 8.0	)	Cor	nd.: 60		Turb.: [	] T [] !	A 🗌 L 📝 C
				MOR	HOLOG	Y					
Bed Material:	Dominant: C	Su	bdom: G			Bars:	□ N 🗸	SIDE 🗸	DIAG [	MID S	PAN 🗍 BR
	D95: 30.0		) (cm): 10.00			01	B1 B:	2 B3	D1 D2	D3	
	Pattern: IR Coupling: CO		slands: N ement: FC			<u> </u>	Thir	TITLE	HID		
-	Morph: CP			1	DISTURBAN INDICATOR		C2 C	3 C4	C5 S1	S2 S:	3 S4 S5
										Thi	
	_			e.	OVER			<del>-</del>			
Total:	Δ	Tv	pe: SWD	LWD E		DP	lov	īv			FSZ:
		Amoi		T C		S	Ŧ	N			
		Loc: P/S	/o:								N CLOSURE
LWD:	: <b>F</b>	DIS	T: C IN	STREAM VEC	: N 🗸	A 📋 A	4 📋 V 📋			2	21-40%
RB SHP:	: <b>V</b>	Texture: 🗸 F	<b></b> G <b></b> C C	<b>∏В ∏ F</b>	R 🗀 A	RIP: C	s	TG: MF			
LB SHP:	: <b>S</b>	Texture: F	<b>⊘</b> G	∏ В ∏ F	R A	RIP: C	s	TG: MF			
L											
		T			FISH		_	-			
Site Number	Capture	Number of	Total Length	Total Time	Voit	age	Species	Tota Fis		Minimum ength (mm)	Maximum Length (mm)
1 1	Method	Events	(m)	1 mile		3		, ,,,,,		argur (mmy	Lengar (mm)
422	EF EF	1	250	175 sec	60	0	NFC	0		erigui (mm)	Lengar (mm)

Reach # ILP Map #

ILP#

			STRE	AM i	REFE	REN	CING	i					
Gazetted Name:						I	_ocal Na	me:	<b>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</b>				
Watershed Code: 480-99360	0-37800-00000-0	0-000-000-0	00-000-0	000-000	-000			ILP	Map#:			ILP#:	
Materialica Code: 100 coos					EAC	H			•				
									. 5			****	
Reach #: 2.0		TM(Zone/East/	•				Si	ample Type				_	
Length (km): .38	Gradient (%	•		•	m): 807			Order: BGC Zone:	_	Magi	ritude:	3	
Confinement: FC	Couplin Bars: VN		DIAG	•	ter: A SP/			arian Veg.:		Lai	nduse:	NO	
iolanus. 14	Data. (6)		,,		SITE								
54- H. 400	C OIG LETTAGE	(FABIA	, 1		2000/10		Δ.	gency: C01	6	Crew	r: MJ/	nac	
Site #: 423 Site Lg (m): 200	GISUIM(2	one/East/North	"	Date:	2000/10	0/03		gency: Cor Name:	O	CIEW	, IVIO/	IVIG	
5.10 ±9 (). ±00	<u> </u>			******	IANN	¥-8***	*********						
No Vis.Ch.; ✓ Intermittent:	. 🗆			Avg	Min	Max	T #	1		Ava %	Min %	Max %	#
		Channel Wic	tth (m):	0.00	0	0	0	<del> </del>	Gadient %		0	0	0
Dw: Tribs.:	: []	Wetted Wic		0.00	0	0	0		Pool Depth (m)	0.00	0	0	0
		Wb Dep	oth (m):	0.00	0	0	0	]					
Stage: L M H	Temp (C):			pH:			Co	nd.:	Tu	rb.:	T [	M	L
				MOR	PHO	LOG	7						
Bed Material: Dominant:		Subdom:				···	Bars:	□N □	SIDE DIA	G ∏ N	1D 🗆	SPAN	BR
D95:		D (cm):										;	
Pattern:		Islands:					01	B1 E	32 B3 D1	D2	D3		
Coupling:	Conf	inement:				RBANCE	ا لــلــا						
Morph:					INDIC	ATORS	C1	C2 C	3 C4 C5	S1	S2	S3 :	S4 S5
				Ç	OVE	R							
Total:		Type: SWD	LWD		3	U	DP	ov	ΙV				FSZ:
	Loc: P	ount:	l	-			· · · · · · · · · · · · · · · · · · ·					345) 51	
	L					لللك		<u>ياليال</u>	اللتا		CRO	WN CL	USURE
LWD:	Di	IST:	INSTRE	AM VE	G: N	A		4 [] V [					
RB SHP:	Texture: [ ]					-	RIP:	-	STG:				
LB SHP:	Texture:	-   G   C	C	3   1	R 🗍	A F	UP:	\$	STG:				
	···	<del> </del>	<del></del>				<del> </del>	<del></del>					<del></del>

Reach #

ILP Map #

ILP#

		STRE	AM R	EFE	REN	CING	i				
Gazetted Name:					1	ocal Na	ıme:				
Watershed Code: 480-993600	-37900-00000-0000-000	0-000-000-000-0	00-000-	000			<b>ILP</b>	Map #:		ILP#:	
			R	EAC	H						
Reach #: 1.0	UTM(Zor	ie/East/North): .				Sa	mple Type:	: В	<u>,</u>		
Length (km): .70	Gradient (%): 3.86		Elev (n	•			Order:		Magnitude:	1	
Confinement: UN  Islands: N	Coupling: DC Bars: ✔N SI		en wate	er: A SP#	√ Пв	_	BGC Zone: arian Veg.:		Landuse:	NO	
ISIANGS: N	BSIS: AM [ SI	DEDIAG [		srr SITE		n nip	anan vey	141	Landust.	140	2000 2000
Site #: 424	GIS UTM(Zone/Ea	et/Morth)	Date: 2			Δι	gency: C016	6	Crew: SR	мj	
Site Lg (m): 150	GIS OTIM(ZOITE) Za	Juliorui,	Dute.	2000/10	,, <b>0</b> -		Name:	•			
			CH	ANN	EL						
No Vis.Ch.: ✓ Intermittent:			Avg	Min	Max	#			Avg % Min %	Max % #	
Dw: Tribs.:		nel Width (m):	0.00	0	0	0		Gadient %		0 0	
		ted Width (m): Wb Depth (m):	0.00	0	0	0	L	Pool Depth (m)	0.00 0	0 0	į
	<u> </u>	wb Deptii (iii).]	0.00	U		0	ı				
Stage: L M H	Temp (C):		pH:			Cor	nd.:	Τι	ırb.: 🔲 T 📋	] M 🗌 L 📗	C
		ħ	ORF	HOI	OG1						
Bed Material: Dominant:	Subdom					Bars:	□ N □	SIDE DIA	G MID	SPAN BR	₹
D95:	D (cm)					01	B1 B:	2 <b>B3</b> D1	D2 D3		
Pattern: Coupling:	Islands Confinement	-					THE				
Morph:	Commement	•			BANCE ATORS	الملا			24 22	00 04 05	
				1140107	1,0110	C1	C2 C	3 C4 C5	S1 S2	S3 S4 S5	, T
			C	OVE	R			<u> </u>			<i></i>
Total:	Type:	SWD LWD	В		U	DP	lov	īv		FSZ:	7
Total.	Amount:	SWD LWD	+	_	-		1	<del>''</del>		102.	
•	Loc: P/S/O:					أصات			CRO	OWN CLOSURE	
LWD:	DIST:	INSTRE	AM VEG	: N	A	N	1 🗆 v 🗆				
RB SHP:		э 🗌 С 🗌 В				IP: W		TG: NA			
LB SHP:	Texture: F	Э 🗌 С 🗌 В	R		A F	IP: W	s	STG: NA			

Reach # ILP Map #

ILP#

Watershed Code: 480-993600-39600-0000-0000-0000-000-000-000-000-000

			ST	REAM	REFE	RENC	ING				
Gazetted Nam	e:					Lo	cal Nam	e:			
Watershed Cod	e: 480-993600	-39600-00000-00	00-0000-000-000-0	000-000-000	-000			ILP	Map #:	ILF	) #:
				F	EAC	H					
Reach#	: 1.0	117	'M(Zone/East/Nor	+h)-			Sam	ple Type	: В		
			•	•	1. 700		<b>J</b>	Order:		Magnitude: 1	۶.
Length (km) Confinement		Gradient (% Coupling		US Elev ( Open wa			ВС	C Zone:		Magnitude.	•
Islands		Bars: VN			SPA	BR		an Veg.:	<del>-</del>	Landuse: N	0
					SITE						
Site #: 42	25	GIS UTM(Zo	ne/East/North)	Date:	2000/10	)/03	Age	ncy: C01	6	Crew: MJ/MC	3
Site Lg (m): 20	ю .						Ref. Na	me:			
				CI	IANN	EL					
No Vis.Ch.:	Intermittent:			Avg	Min	Max	#			Avg % Min % N	
Dw:	Tribs.:		Channel Width (		2.3	2.900	6		Gadient %:	2.50 2	3 4
			Wetted Width (		1.200	1.700 0.5	6		Pool Depth (m):	0.27   0.200   0	.400 3
		i	vvo Deptii (	(111)-[ 0.41	0.4	0.5	<u>-</u>				
Stage: L	MV H	Temp (C): 3		pH: 8.	3		Cond	.: 50	Tur	b.: 🗌 T 🔲 R	1 🗌 L 🐼 C
				MOR	PHOL	OGY					
Bed Material: D			ubdom: G				Bars:	] N 🕢	SIDE V DIAG	MID S	PAN 📋 BR
	D95: 12.0		D (cm): 7.00				Qf	B1 B	2 B3 D1	D2 D3	
	Pattern: IR Coupling: DC		slands: O ement: UN				ПП				
·	Morph: RP	Comm	ement. Giv		DISTUR	BANCE ATORS	C1	C2 C	3 C4 C5	S1 S2 S3	s S4 S5
	•				.,				3 C4 C3		34 33
					· A tre	6					<u> </u>
Takah I		7	vpe: SWD I		OVE	U I	DP	ĐV	l v		FSZ:
Total: 1	IVI	Amo	<del>''</del>			T	T	T	N		F32: [_]
		Loc: P/								CROW	N CLOSURE
LWD:	F	DIS		TREAM VE			M		<u>                                     </u>	2	21-40%
FAAD.			<b>V</b> G <b>V</b> C		R   A	_	 Р: М		TG: MF		
	s	Texture: 🔑 F		1 - 1					STG: MF		
RB SHP:		Texture:		⊣́в ⊢́	R 🗌 A	A RI	P: M	S	I G. WII		
RB SHP:				B 🗍	R _ A	A RI	P: M		TG. MI		·····
RB SHP:				B [	R		P: M	s	TG. WI		
RB SHP:				B Total				Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)

Reach # ILP Map #

Watershed (	Code: 480-993	3600-39600-0000	D-0000-0000-000-0	000-000-000-	-000-000	)			2.0		
			ST	REAMR	EFE	RENC	ING	i			
Gazetted Nan	ne:					Lo	cal Na	me:			
Watershed Co	de: 480-993600-	-39600-00000-000	0-0000-000-000-0	000-000-000-	000			ILP	Map #:	ILF	<b>*</b> #:
				R	EAC	H					
Reach	#: 2.0	זט	M(Zone/East/Norl	th):		****	Şa	mpie Type	: R		
Length (kn	1): .74	Gradient (%)	: 6.76	US Elev (n	n): 840			Order:	3	Magnitude: 1	5
Confinemen		Coupling		Open wate	_			BGC Zone:		1 4 N	•
Island	s: F	Bars: YN	SIDE DIA		SPA SITE		KIP	arian Veg.:	IVI	Landuse: N	· · · · · · · · · · · · · · · · · · ·
Site #: 4	<sub>26</sub> Г	CIS LITM/7	ne/East/North)	_	2000/10	***********	Λ.	gency: C01	<u> </u>	Crew: MJ/M0	2
Site Lg (m): 2	ſ	GIS 01 M(20	ile/Easu(Voitii)	Date.	2000/10	705	-	Name:	•	Orett. NONTE	•
				CH	ANN	EL					
No Vis.Ch.:	Intermittent:			Avg	Min	Max	#			Avg % Min % N	
Dw:	Tribs.:		Channel Width ( Wetted Width (		2.700 1.4	6.2 4.300	7		Gadient %: Pool Depth (m):	4.25 4 0.43 0.300 0	5 4
		}	Wb Depth (		0.4	0.5	3	<u> </u>	rooi Deptii (iii).	0.45   0.500   0	
Stage: L	MV H	Temp (C): 3		pH: 8.3	3		Cor	nd.: 50	Tur	b.: 🗌 T 🔲 A	f 🗌 L 🕢 C
				MORI	HOL	.OGY					
Bed Material:	Dominant: G	St	ıbdom: C				Bars:	□ N □	SIDE DIAG	MID S	PAN 🔽 BR
	D95: 20.04 Pattern: IR		O (cm): 10.00 slands: I				01	B1 B	2 B3 D1	D2 D3	
	Coupling: DC		ement: OC	,	DISTUR	BANCE				<b>V</b>	
	Morph: CP			,	INDICA		C1	C2 C	3 C4 C5	S1 S2 S3	3 S4 S5
							<b>V</b>				
				C	OVE	R					
Total:	Т	J——————	<del>````</del>	.WD B		U	DP	ον	īV		FSZ:
		Loc: P/S		s D		T	T	T	N	CROW	N CLOSURE:
LWD:	Α	DIS	1,22,22,22,1	TREAM VEG			N		<u>                                     </u>	3	41-70%
RB SHP:		Texture: 🕡 F		В Г	,		_ •: s	S	TG: NA		
LB SHP:			<b>7</b> G <b>7</b> C	B F	₹ 🗍 A		P: S	S	TG: NA		
Site Number	Capture	Number of	Total Length	Total	FISH	Voltage	Т	Species	Total	Minimum	Maximum
	Method	Events	(m)	Time					Fish	Length (mm)	Length (mm)
426	EF	11	200	247 sec		700		NFC	0	1	<u> </u>

Reach #

ILP Map#

ILP#

3.0

93K.046

46705

		STRE	AM I	REFE	REN	CING				
Gazetted Name:					L	ocal Na	me:			
Watershed Code: 000-000000	-00000-00000-0000-0	000-000-000-000-	000-000	-000			ILP Map#:	. 93K.046	ILP#:	46705
			ī	EAC	H					
						S-	ımple Type: B			
Reach #: 3.0	•	Zone/East/North):				38	•	0.6 34		
Length (km): .44	Gradient (%): 3. Coupling: 1			m): 835 ter:    A			Order: 2  BGC Zone: SBS	мадпя	ude: 4	
Confinement: OC Islands: N	Bars: VN		•		A DB		arian Veg.: C	Land	use: NO	
				SITE		•	-			
Site #: 427	GIS UTM(Zone/	Fast/North)		2000/10		Ac	ency: C016	Crew:	MJ/MG	
Site Lg (m): 100	0.00 Tim(20.1C)	Lussidorui,		2000.		_	Name:			
			Ċi	IANA	8=88					
No Vis.Ch.: ✓ Intermittent:			Avg	Min	Max	#		Avg % N	in % Max %	#
Dw: Tribs.:	C	annel Width (m):	0.00	0	0	0	Ga	dient %: 0.00	0 0	0
DW ITIDS	V	Vetted Width (m):	0.00	0	0	0	Pool De	epth (m): 0.00	0 0	0
		Wb Depth (m):	0.00	0	0	0				
Stage: L M H	Temp (C):		pH:			Con	nd.:	Turb.: 🔲 1	M	] L 🗌 C
			MOR	PHO	LOG					
Bed Material: Dominant:	Subde	om:				Bars:	N SIDE	DIAG MID	SPAN	BR
D95:	D (c	:m):				01	B1 B2 B3	B D1 D2 [	03	
Pattern:	İslar								<del>,</del>	
Coupling: Morph:	Confineme	ent:			RBANCE ATORS					
រមហម្ភា.				INDIC	ATORS	C1	C2 C3 C4	6 C5 S1 S	S2 S3 S	S4 S5
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
				OVE						
Total:	Type: Amount:	<del></del>	<u> </u>	В	υ	DP	OV IV	-		FSZ:
	Loc: P/S/O								CROWN CLO	DSURE
LWD:	LDIST:	الالالالالالالالالالالالالالالالالالال	EAM VE		A	N				
						U " RIP:	STG:			
RB SHP:	Texture: F	اا لدما لد		لبيا		RIP:	STG:			
				··		•••				

Reach #

iLP Map#

ILP#

				STREA	MREI	EREN	CIN	G			
Gazetted Na	ne: GRAVEL CR	EEK					Local l	Name:			• •
Watershed Co	de: 480-993600-	40800-00000-00	0-000-000-0	00-000-000	-000-000			ILP N	lap #:	iLF	<b>#</b> :
					REA	CH			***		
Reach	#: 1.0	זט	M(Zone/East	North):				Sample Type:	В		
Length (kr	n): 1.32	Gradient (%			lev (m): 8			Order: 3		Magnitude: 2	0
Confineme	nt: UN is: O	Coupling Bars: ✔N		•	n water: MID		3R R	BGC Zone: iparian Veg.:		Landuse: N	n
Islanc	13. 0	Dela: (*)is	_NIDE _		SI		J	ipanan veg	•••	Landase: 11	
Site #;	128 F	GIS UTM(Zo	ne/East/North	1) 0	ate: 2000	*************	***********	Agency: C016		Crew: SR/MJ	
Site Lg (m): 1	1							f. Name:			
					CHAP	INEL					
No Vis,Ch,;	Intermittent;		<del></del>		lvg Mi		#	]		\vg % Min % M	
Dw:	Tribs.:	→ {	Channel Wid		.95 2.46 .58 1.9					3.00 3 0.38 0.32	4 4
		Į	Wb Dep	oth (m): 0	.37 0.:	3 0.4	3				
Stage: L	M <b>⊘</b> H□	Temp (C): 4		Pl	H: 8.4		С	ond.: 200	Turb	.:	i
				M	ORPH	OLOG	Y				
Bed Material:			ibdom: C				Bars	: N 🗸 S	SIDE DIAG	MID SI	PAN BR
	D95: 25.00 Pattern: SI		0 (cm): 15.00 slands: N				0	1 B1 B2	B3 D1	D2 D3	
	Coupling: DC		ement: UN		DIST	URBANCE					
	Morph: CP				IND	ICATORS		1 C2 C3	C4 C5	S1 S2 S3	S4 S5
	_		T	T	COV			T = 1			🗀
Total	: Т	Amo	/pe: SWID	LWD	B	U T	DP	OV	N		FSZ:
		Loc: P/s	/O: 🗸 🗆 🗆							CROW	I CLOSURE
LWD:	F	DIS	T: E	INSTREAM	VEG:	N 🕢 A		M 🗌 V 📋	<del></del>	3	41-70%
RB SHP		Texture: 📝 F	<b>⊘</b> G <b>∨</b> (	С 🗍 В		١	RIP: C		G: MF		
LB SHP	Ü	Texture: 🔽 F	<b>⊘</b> G <b>⊘</b> (	СВ	R	] <b>A</b>	RIP: C	ST	G: MF		
					FIS	34					
Site Number	,p	Number of			otai	Voitag	re	Species	Total	Minimum	Maximum
428	Method EF	Events 1	(m) 100		me sec	500		RB	Fish 3	Length (mm) 68	Length (mm) 108
420	Er	L	1 100	213	sec 1	300		, KD	3	1. 00	100

Reach #

ILP Map #

ILP#

						STRE	AM I	REF	EREN	CING	ı				
Gazetted N	ame: G	RAVEL (	REEK						ı	ocal Na	ıme:				
Watershed C	ode: 48	8 <b>0-99</b> 360	0-40800	-00000-000	0-0000-000-0	00-000-0	000-000	-000			ILP	Мар #:		ILF	°#:
							F	EA	CH						
Reac	h #:	2.0		UTI	VI(Zone/East/	North): .	•			Sá	ample Type:	B			
Length (i	(m): 1.7	2	Gr	adient (%):	8.14	US	Elev (	m): 97	70		Order:		Mag	initude: 2	0
Confinem			_	Coupling				ter: /			BGC Zone:			andreas N	_
Islar	nds: N	v 	Ва	ırs: 🗹N	_SIDE _	DIAG (	_MID			R Rip	arian Veg.:	IVI	Li	induse: N	<u> </u>
								SIT	E						
Site #: Site Lg (m):			GI	S UTM(Zor	ne/East/North	)	Date:	2000/	10/03		gency: C016 Name:	3	Cre	w: SR/M.	
							C I	IAN	NEL						
No Vis.Ch.:	Inte	mittent	: []			Γ	Avg	Min	Max	#			Avg %	Min % N	ax % #
Dw:		Tribs.:	. $\square$	Γ	Channel Wic	tth (m):	4.12	3.6	4.7	6		Gadier	t %: 8.25	7	9 4
	_	11100.	• []		Wetted Wid	<del></del>	3.15	2	3.900	6		Pool Depth	(m): 0.63	0.48	.810 6
				L	Wb Dep	oth (m):	0.47	0.4	0.5	3	j				
Stage: L	_ M <b>_</b>	н 🗆	Ter	np (C): 4			pH: 8.	5		Cor	nd.: 90		Turb.:	] T [] N	f [] L [✔] C
						ħ	OR	PHC	LOGY						
Bed Material:	Domir	nant: B		Su	bdom: C		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Bars:	<b>V</b> N □	SIDE	DIAG 🗍	MID S	PAN BR
		D95: 80	.00	C	(cm): 20.00										
	Pat	tem: Sl		ls	lands: O					01	B1 B2	2 B3	D1 D2	D3	
	•	ling: PC		Confine	ement: OC				JRBANCE						
	Ma	orph: CP						INDI	CATORS	C1	C2 C:	3 C4	C5 S1	S2 S3	S4 S5
							C	OV	ER						
Tota	al: A			Ту	pe: SWD	LWD	T	В	U	DP	ov	IV			FSZ:
				Amou	ınt: T	T		s	N	D	T	N			
			1	Loc: P/S	/O: <b>V</b>	<b>V</b>	<b>V</b>								N CLOSURE
LWI	D: F			DIS	T: E	INSTRE	AM VE	G: N	✓ A	N	1 🗌 V 🗀	]		2	21-40%
RB SH	<b>P</b> : S		Textu	re: F	_ G <b>√</b> (	C <b>₽</b> B		R 🖂	A F	RIP: C	s	TG: MF			
LB SH	P: S		Textu	re: 🗍 F	☐ G 🔽 (			R 🗌	A F	NP: C	S	TG: MF			
							FF	4 7 11	RES						
NID Map	NID	Туре	Hgt	Method	Lg	Metho			oto	Т	AirPhoto	I	LITM (Zon	e/East/Nori	h/Method\
	24293		5.0	GE	1 -9	Metrio	R:		F: 18	Tc:	#:		J (201	L	GP3
Comments				1	1			_ ·							
NID Map	NID	Туре	Hgt	Method	Lg	Metho	1	Ph	oto	<del></del>	AirPhoto		UTM (Zon	e/East/Nort	h/Method)
93K.046	24292	F	2.5	GE			R:	21	F: 18	L:	#:	10	375070	603336	5 GP3
Comments	: series	of two fa	ils, 30m	u/s from 1s	t - definite ba	rrier to all	fish								
NID Map	NID	Туре	Hgt	Method	Lg	Metho	i		oto		AirPhoto		<u> </u>	e/East/Nor	
<del></del>	24291	F	2.5	GE			R:	21	F: 17	L:	#:	10	375055	60333	5 GP3
Comments	: barrie	r to juve	nites, ma	ybe adults?	·										
								FIS	H						
Site Number	T c	apture	Nu	mber of	Total Lengt	h	Total		Voitag	e i	Species	Tota	ai la	linimum	Maximum
		lethod		ents	(m)		Time	-		}		Fisi		ngth (mm)	Length (mm)
429		EF		1	200	13	391 sec	: ]	500		NFC	0			

Reach # ILP Map #

ILP#

			S.	TREAM RE	EFERENC	ING			
Gazetted Na	me: GRAVEL CF	REEK			Lo	ocal Name:			
		-40800-00000-00	าก.กกกก.กกก.กกก.	_^^^			Map #:	ir i	• #:
Watershed C	sae: 400 000000	40000 00000 00				121	map #.	12,	<i>n</i> .
				KE	ACH				
Reach	n#: 3.0	บา	M(Zone/East/No	orth):		Sample Type	: R		
Length (ki	m): 3.60	Gradient (%	: 11.67	US Elev (m):	1390	Order:	3	Magnitude: 1	18
Confineme	nt: CO	Coupling		Open water:		BGC Zone:	SBS		
Island	ds: N	Bars: 🛂 N	SIDEDI	AG MID	SPA BR	Riparian Veg.:	С	Landuse: N	Ю
				S	TE				
Site #:	430	GIS UTM(Zo	ne/East/North)	Date: 20	00/10/03	Agency: C01	6	Crew: SR/M	J
Site Lg (m):	100					Ref. Name:			
				CHA	NNEL				
No Vis.Ch.:	Intermittent:			Avg 1	Min Max	#	ſ	Avg % Min % N	lax % #
Dw:	Tribs.:		Channel Width	<u> </u>	2.1 3.900	6	Gadient %:	6.25 5	5 4
	_	_ }	Wetted Width	· · · · · · · · · · · · · · · · · · ·	1.4 3.3		Pool Depth (m):	0.48 0.360 0	.670 6
		L	Wb Depth	(m): 0.43	0.4   0.5	3			
Stage: L	] M ✓ H □	Temp (C): 4		pH: 8.5		Cond.: 90	Turi	b.: 🗌 T 🔲 N	f 🗌 L 🗹 C
				MORPI	IOLOGY				
Bed Material:	Dominant: B		ıbdom: C			Bars: 🗸 N 📋	SIDE DIAG	MID S	PAN 🔲 BR
	D95: 70.00	-	) (cm): 15.00			O1 B1 B	2 B3 D1	D2 D3	
	Pattern: SI		slands: N				2 63 01		
	Coupling: CO Morph: CP	Contin	ement: CO		TURBANCE				
	MOIPH. CF			II.	IDICATORS	C1 C2 C	3 C4 C5	S1 S2 S3	S4 S5
				CO	VER				
Total	: <b>A</b>	<u> </u>		LWD B	U	DP OV	īV		FSZ:
		Amo	10	T S	N	D T	N		
		Loc: P/S							N CLOSURE
LWD:	: F	DIS	T: E IN	STREAM VEG:	N 🗹 A	_ M _ V _	]	2	21-40%
RB SHP:	: <b>V</b>	Texture: 🔲 F	_ G 🕢 C	<b>₽</b> B □ R [	A RIF	e: C s	TG: MF		
LB SHP:	: <b>V</b>	Texture: F	☐ G 🔽 C	<b>▼</b> B □ R [	A RIF	P: C S	TG: MF		
								<del></del>	
					SH				
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voltage	Species	Total Fish	Minimum	Maximum
430	EF .		100	397 sec	500	NFC	PISIT 0	Length (mm)	Length (mm)
		l T							
430	EF	1	100	644 sec	400	NFC	1 0		

Reach # ILP Map #

ILP#

			ST	REAM RE	FERENC	NG			
Gazetted Name:	GRAVEL CR	EEK			Loc	al Name:			
Watershed Code:	480-993600-	40800-00000-000	0-0000-000-000-	000-000-000-000	)	ILP R	Лар#:	ILP	#:
				REA	ACH		•		
Reach #:	4.0	UTI	M(Zone/East/No	rth):		Sample Type:	В		
Length (km): 1	1.1 <del>6</del>	Gradient (%):	8.62	US Elev (m):	1490	Order: 2	2	Magnitude: 5	
Confinement:		Coupling	PC	Open water:		BGC Zone:	SBS		
Islands:	N	Bars: 🗹 N		AG MID	SPA BR	Riparian Veg.:	С	Landuse: NO	) 
				SI	TE				
Site #: 431	Γ	GIS UTM(Zor	e/East/North)	Date: 200	0/10/04	Agency: C016		Crew: SR/MJ	
Site Lg (m): 120	L		: 			Ref. Name:			
]	г				NNEL		г		
No Vis.Ch.: in	-		Channel Width		lin Max .9 1.700	# 6	Gadient %:	Avg % Min % Ma 3.00 3	3 4
Dw:	Tribs.:	-	Wetted Width		9 1.4		ool Depth (m):		230 6
			Wb Depth		.2 0.3	3			
Stage: L M		Temp (C): 4		pH: 8.7		Cond.: 40	Turi	b.: П Т 🗔 М	□ L 🗸 C
ouge. L	▼	10111P (0): 1			OLOGY				
Bed Material: Dor	minant: F	Su	bdom: C			ars: 🗸 N 🗍	SIDE DIAG	☐ MID ☐ SF	AN DBR
	D95: 30.00	) [	(cm): 0.10						
F	Pattern: IR		lands: N		1	O1 B1 B2	B3 D1	D2 D3	
1	upling: DC	Confine	ement: UN		TURBANCE				
	Morph: RP			IN	DICATORS	C1 C2 C3	C4 C5	S1 S2 S3	S4 S5
					VER				]
Total: M		<u> </u>	<u>'                                    </u>	LWD B	S S	DP OV	N		FSZ:
		Loc: P/S	·					CROWN	CLOSURE
LWD: F		L		STREAM VEG:	N V A	MOV	البالبالبا	2	21-40%
RB SHP: U		Texture: 🕡 F			TA RIP		'G: MF		
LB SHP: V		Texture: 🗸 F			A RIP		G: MF		
L									<u> </u>
				FI	SH				
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voitage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm)
<del></del>		<del>                                     </del>		<del> </del>	<del> </del>		+		
431	EF	1	120	191 sec	700	NFC	0	<u> </u>	

Reach # ILP Map #

ILP#

Watershed	Code: 480-99	3600-40800-00000	-0000-0000-000-	000-000-000-000	-000		.0		
			ST	REAMRE	FERENCII	VG			
Gazetted Nar	me: GRAVEL C	REEK			Locai	Name:			
Watershed Co	de: 480-993600	3-40800-00000-000	0-0000-000-000-	000-000-000-000		ILP M	ap #:	{LP	#:
				REA	CH				
Reach	<b>#</b> : 5.0	UTI	VI(Zone/East/Noi	rth):		Sample Type:	В		
Length (kn		Gradient (%):	`	US Elev (m):	1507	Order: 1		Magnitude: 1	
Confineme	•	Coupling:		Open water:		BGC Zone:	SBS	_	
Island	is: NV	Bars: 🗸 N	SIDE DIA	AG MID	SPA BR	Rìparian Veg.: \	N	Landuse: NO	)
				Si	ΓE				
Site #: 4	432	GIS UTM(Zor	ne/East/North)	Date: 200	0/10/04	Agency: C016		Crew: SR/MJ	
Site Lg (m): 1	110		<u> </u>		R	ef. Name:			
				CHAI	VNEL				
No Vis.Ch.:	Intermittent:			Avg M				Avg % Min % Ma	
Dw:	Tribs.:		Channel Width						2 4
		-	Wetted Width Wb Depth				oi Depth (m):	0.12   0.08   0	.10   3
		L	W Depart	(31)1 0.20 1 0.	<del></del>				
Stage: L	M♥ H□	Temp (C): 4		pH: 8.7		Cond.: 40	Turb	).: T [ M	□ r 🔼
				MORPH	OLOGY				
Bed Material:	Dominant: C		bdom: F		Bar	rs: 🔽 N 🗌 S	IDE DIAG	MID SF	PAN BR
	D95: 30.9 Pattern: IR		(cm): 0.50 lands: O			O1 B1 B2	B3 D1	D2 D3	
	Coupling: DC		ement: UN	Die	TURBANÇE				
	Morph: RP					C1 C2 C3	C4 C5	S1 S2 S3	S4 S5
				COI	/ER		1 1		
Total	· T	Tv	pe: SWD	LWD B		P OV I	IV		FSZ:
, 0141	• '	Amoi	<del>'                                     </del>	N S	T I	O T	N		
		Loc: P/S	/O: <b>V</b>						CLOSURE
LWD:	: N	DIS	T: NA INS	STREAM VEG:	N [ A [	M 🗸 V 🗌		1	1-20%
RB SHP	: V	Texture: 🗸 F	∏ G 🔽 C	T B T R T	A RIP:	G <b>ST</b> C	3: NA		
LB SHP	: บ	Texture: 🔽 F			A RIP: 0	g <b>s</b> to	3: NA		
				F)		,		1	
Site Number	Capture Method	Number of Events	Total Length (m)	Total Time	Voitage	Species	Total Fish	Minimum Length (mm)	Maximum Length (mm
432	EF	1	110	116 sec	700	NFC	0		
	<u> </u>				<u> </u>	<u> </u>		<u> </u>	****

Reach #

ILP Map #

ILP#

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

4

					S	TREA	MRE	FEREN	ic ii	V G				
Gazetted Na	me·								l ocal	Name:				
		0-993600	-40800-	-32900-000	00-0000-000-000	-000-000	-000-000		Loca	iLP M	lap#:		11	_P#:
							RE/	CH			'			
Reach	. 4-	.1			M(Zone/East/No	urth l-				Sample Type:	В			
Length (kr		.,	Gr	adient (%)	•	-	ilev (m): !	957		Order: 2			Magnitude:	2
Confineme	•	:	<b>.</b>	Coupling			n water:			BGC Zone:			magnitude.	-
Island	ds: N		Ba	rs: 🛂N	SIDE DI	AG 🗌	MID 🗌	SPA 🔲	BR I	Riparian Veg.:	С		Landuse:	NO
		_					Ş.I	T E						
Site #:			GI	S UTM(Zo	ne/East/North)	0	ate: 200	0/10/03	_	Agency: C016			Crew: SR/N	ŊJ
Site Lg (m): 2	200	L					CHAI	1919-888	رم *******	ef. Name:	V0000000000000000000000000000000000000	************		
No Vis.Ch.:	inter	mittent:					Vg M		T #			Ī.	vg % Min %	Max % #
	e	Tribs.:		Γ	Channel Width		.08 0.6		6		Gadi		7.50 7	8 4
<b>5</b> .	_	11103	لب		Wetted Width		.85 0.6		6		ol Dept	h (m):	0.12 0.08	0.170 6
				L	Wb Depth	(m):  U	0.10 0.	1   0.1	3					
Stage: L	MV	н	Теп	ip (C): 4		pl	H: 8.5			Cond.: 340		Turb	.: _ T _	M 🗌 L 🐼 C
	_					M	ORPH	OLOG	Y					
Bed Material:		ant: C 95: 18.0	n		bdom: G (cm): 2.00				Bar	s: 📝 N 🗌 S	IDE [	DIAG	MID	SPAN BR
		ern: SI	_		slands: O				(	O1 B1 B2	В3	D1	D2 D3	
		ing: CO		Confin	ement: FC			URBANCE	: Ц					
	IVIO	rph: CP					INC	DICATORS	(	C1 C2 C3	C4	C5	S1 S2 S	3 S4 S5
						i de la companione de l								
Total	· T		Г	т.	rpe: SWD	LWD	CON	E.K	D	P I OV I	IV	ı		F07.
Total	. '		ŀ	Amo	<del>`</del>	T	T	Ť			N			FSZ:
				Loc: P/S	5/0: 🔽 🗀 🕟		<b>V</b>	<b>V</b>	V				CROV	VN CLOSURE
LWD	: F		_	DIS	T: E IN	STREAM	I VEG:	N 🗌 A		M 🗸 V 🗌			3	41-70%
RB SHP				e: 🕢 F		В	R		RIP: N		G: MF			
LB SHP	; S		Textur	e: 🕢 F	☐ G 🔼 C	В	R	] A   F	₹IP: C	STO	G: MF			
							FEAT	URES						
		Type	Hgt	Method	-9	lethod		hoto	I.,	AirPhoto			(Zone/East/No	
	4331 25% gr	C adient - ad	5.0 ctually l	GE arger/high	20 er, but able to me	GE easure pa	R: 21 art only	F: 12	L:	#:	10	375	60329	90 GP3
}		*****		************										
Site Number	· ~	pture	Alse	nber of	Total Length	T	F I !		•	Spacies	7-	tal	Minimum	Marimum
Orte Mailing		ethod		vents	rotal Length (m)		me	Voltag	e .	Species		tal sh	Minimum Length (mm)	Maximum Length (mm)
433		EF		1	200	104	sec	400		NFC	C	)		

Reach #

ILP Map #

ILP#

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

			S1	TREAM RE	FERENCI	N G			
Gazetted Na	me:				Loca	ł Name:			
Watershed Co	de: 480-993600-	-40800-32900-000	00-0000-000-000-	-000-000-000-000	)	ILP N	/lap #:	ILF	P#:
				RE.	ACH				
Reach	#: 1.0	ŲΤ	M(Zone/East/No	rth):		Sample Type:	R		
Length (kr Confineme	•	Gradient (%) Coupling		US Elev (m): Open water:		Order: 2 BGC Zone:		Magnitude: 2	2
Island	is: N	Bars: 🗹 N	SIDE DI	AG MID	SPA BR	Riparian Veg.:	С	Landuse: N	0
				SI	TE				
Site #: 4 Site Lg (m): 1		GIS UTM(Zo	ne/East/North)	Date: 200		Agency: C016 lef. Name:		Crew: SR/MJ	1
				CHA	NNEL				
No Vis.Ch.:	Intermittent:			Avg N	lin Max #		[7	Avg % Min % M	ax % #
Dw:	Tribs.:		Channel Width		600 1.100 6				24 4
			Wetted Width		300 1 6		ool Depth (m):	0.07   0.04   0	.100 6
1		Ĺ	Wb Depth	(m):[ 0.10 ] 0	1.1 1 0.1 1 3	<u> </u>			
Stage: L	M <b>√</b> H□	Temp (C): 4		pH: 8.5		Cond.: 340	Turb	o.: 🗌 T 📗 M	l 🗌 r 🔼 c
				MORPH	OLOGY				
Bed Material:	Dominant: C	Sı	ıbdom: B		Ba	rs: 📝 N 🔲 🤄	SIDE DIAG	MID SI	PAN BR
	D95: 60.08		0 (cm): 10.00			O1 B1 B2	B3 D1	D2 D3	
	Pattern: SI		slands: N		_				
	Coupling: CO Morph: CP	Confin	ement: CO		TURBANCE L				
	iviorph: CP			IN	DICATORS	C1 C2 C3	C4 C5	S1 S2 S3	S4 S5
				CO	VER				
Total:	T	<u> </u>		LWD B	U D		īV		FSZ:
		Amo		T S	<del> </del>	рт	N		
		Loc: P/S							N CLOSURE
LWD:	Α.	DIS	T: E INS	STREAM VEG:	N 🕢 A 🗌	M U V		2	21-40%
RB SHP:	: <b>V</b>	Texture: 🗹 F		<b>√</b> B □ R [	A RIP: (	c st	G: MF		
LB SHP:	: <b>V</b>	Texture: 😿 F	☐ G 🗸 C	<b>y</b> B □ R □	A RIP: 0	c st	G: MF		
64-N	Г <b>а</b> :	L Marie C			SH			I .a. :	
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		

Reach #

ILP Map #

JLP#

1.0

93K.046

46721

Gazetted Name:							CING							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
							Local Na	me:	********		<u></u>	<u> </u>			
Watershed Code: 000-000000-0	00000-00000-00	00-0000-000-00	0-000-0	00-000	-000				ILP N	Vlap#: !	93K.046	i		ILP#:	46721
				R	EAC	Н									
Reach #: 1.0	ហ	M(Zone/East/l	lorth):			••••••	Sa	ample T	уре:	В					
Length (km): .22	Gradient (%	): 5.45	US	Elev (	m): 779			Ore	der: 2	2		Magn	itude:	2	
Confinement: UN	Coupling	<b>.</b>	-		er: A			BGC Zo							
Islands: N	Bars: ✔N	SIDE	DIAG (		SP/		BR Rip	arian V	eg.:	C	***********	Lar	duse:	NO	
-:: :: .o.=		- 451 41			SITE				0046			C	: SR	041	
Site #: 435 Site Lg (m): 100	GISUTM(ZC	one/East/North	'	Date:	2000/10	0/03		gency: Name:	CUID			Crew	. SR	NN	
31.7				Ci	ANA	EL									
No Vis.Ch.: ✓ Intermittent:			[	Avg	Min	Max	#	1				Avg %	Min %	Max %	#
Dw: Tribs.:		Channel Wid		0.00	0	0	0	] [			ient %:	0.00	0	0	0
		Wetted Wid		0.00	0	0	0	L	<u> </u>	ool Dep	th (m):	0.00	0	0	0
			(/-1		L	<u> </u>					_				
Stage: L M H	Temp (C):	***************************************		pH:	~~~~~	vaas-1000-1001		nd.:	*******		Tur	b.:	Τ [_	M	<b>L</b>
Bed Material: Dominant:		ubdom:		#OK	<del>-</del> 11 (0)	(O,G)	Y Bars:	□N		SIDE [	DIAG		iD 🗆	SPAN	□BR
Ded Waterial. Dominant.	_	D (cm):						ш		۷.				J OF AIR	
Pattern:		Islands:					01	B1	B2	B3	D1	D2	D3		
Coupling:	Confir	nement:				RBANCE									
Morph:					INDIC	ATORS	C1	C2	C3	C4	C5	S1	S2	S3 5	S4 S5
			********	******	OVE	~~			<u> </u>		للا	الل			
Total:		ype: SWD	LWD		3	U	DP	Το	v T	IV	7				FSZ:
i Otar.	Amo	<i>,</i> ,		+-'	-		-	+	•		1				102.
	Loc: P/	S/O:											CRC	OWN CL	DSURE
LWD:	DIS	ST:	INSTRE	AM VE	G: N	A	N	A 🔲 🕦	٧ 🗌		_				
	Texture: 🔲 F	$\Box$			. Ш	-	RIP:			rg:					
LB SHP:	Texture: F	☐ G ☐ C	: E		R 🗌	A I	RIP:		ST	rG:					
				<del></del>	· · · · · ·		·								

 Reach #
 ILP Map #
 ILP #

 2.0
 93K.046
 46721

		STRE	AM F	REFE	REN	CING	<b>)</b>						
Gazetted Name:					L	ocal Na	ame:						
Watershed Code: 000-000000	-00000-00000-00	000-0000-000-000-000-0	000-000	-000				ILP Map #:	93K.046	6	1	ILP#:	46721
			R	EAC	H								
Reach #: 2.0	ឋ	TM(Zone/East/North):				S	ample T	ype: R					
Length (km): .95	Gradient (%	5): 10.63 US	S Elev (1	m): 880			Ord	ier: 2		Magr	nitude:	2	
Confinement: FC	Couplin	•	pen wat	ter: A			BGC Zo	ne: SBS					
Islands: N	Bars: VN	SIDE DIAG	MID			R Rip	oarian Ve	eg.: M		Lar	nduse:	NO	
				SITE									
Site #: 436	GIS UTM(Z	one/East/North)	Date:	2000/10	0/03		gency:	C016		Crew	r: SR/	MJ	
Site Lg (m): 120						Ref.	Name:						<del></del>
			C ł	IANN	EL								
No Vis.Ch.: 🗸 Intermittent:			Avg	Min	Max	#	] _					Max %	#
Dw: Tribs.:		Channel Width (m):	0.00	0	0	0			dient %:	0.00	0	0	0
	_	Wetted Width (m):	0.00	0	0	0	<b>↓ ∟</b>	Pool De	pth (m):	0.00	0	0	0
		Wb Depth (m):	0.00	0	0		j						
Stage: L M H	Temp (C):		pH:			Co	nd.:		Tu	r <b>b.:</b>	τ 🗀	M [	L   C
			MOR	PHO	.0G								
Bed Material: Dominant:	5	Subdom:				Bars:	N	SIDE	DIAC	5N	AID [	SPAN	BR
D95:		D (cm):				01	B1	B2 B3	D1	D2	D3		
Pattern:		Islands:											
Coupling:	Confi	nement:			RBANCE	<u> </u>							
Morph:				INDIC	ATORS	C1	C2	C3 C4	C5	S1	S2	S3 5	S4 S5
			Ç	OVE	R								
Total:	<u> </u>	Type: SWD LWD		В	U	DP	0	V IV	4				FSZ:
		ount:					+		_			NAGA 1 62 1	20105
	Loc: P				السال		_ال_ل				CRC	WN CL	JOURE
LWD:	DI	ST: INSTRE	EAM VE	G: N	A		M 🔲 \	<b>/</b> 🗌					
RB SHP:	Texture: F			· . Ш .		NP:		STG:					
LB SHP:	Texture: F		В	R 🗌 /	A F	RIP:		STG:					

Reach # ILP Map #

ILP#

		STR	REAMI	REFE	REN	ZINC	l	
Gazetted Name:	*****			•	L	ocal Na	ame:	
Watershed Code: 480-993600-423	00-00000-0000	-0000-000-000-00	0-000-000	-000			ILP Map #:	ILP#:
			R	EAC	Н			
Reach#: 1.0	UTM	(Zone/East/North	n):			S	ample Type: B	
	Gradient (%):		., US Elev (	m)• 819			Order: 1	Magnitude: 1
Confinement: OC	Coupling:		Open wat	•			BGC Zone: SBS	<b>3</b>
Islands: N	Bars: 🗸N	SIDE DIAG	GIM	SPA	A DB	Rip	oarìan Veg.: M	Landuse: NO
				SITE				
Site #: 437	GIS UTM(Zon	e/East/North)	Date:	2000/10	0/03	А	gency: C016	Crew: SR/MJ
Site Lg (m): 200			l			Ref.	Name:	
			C)	IANN	EL			
No Vis.Ch.: ☐ Intermittent: ✔			Avg	Min	Max	#		Avg % Min % Max % #
Dw: Tribs.:		Channel Width (m	<del></del>	0.400	0.7	6	Gadie	
	-	Wetted Width (n Wb Depth (n	<del></del>	0.1	0.2	3	Pool Depth	n (m): 0.00 0 0 0
	<u> </u>	WD Depth (ii	<i>ŋ.</i> [ 0.13	1 0.1	0.2	<del></del>	J	
Stage: L ✓ M H T	emp (C):		pH:			Co	nd.:	Turb.: T M L C
			MOR	PHOI	OGY			
Bed Material: Dominant: F		odom: NA				Bars:	✓ N SIDE	DIAG MID SPAN BR
D95: 0.10		(cm): 0.10				01	B1 B2 B3	D1 D2 D3
Pattern: SI Coupling: CO		ands: N ment: FC						
Morph: RP	Conmile	ment. 1 C			RBANCE ATORS	C1	C2 C3 C4	C5 S1 S2 S3 S4 S5
								C5 S1 S2 S3 S4 S5
								<u> </u>
		I aug I u		OVE		DP	T ov T iv	FSZ:
Total: N	Amou			N	U N	N	N N	F32
	Loc: P/S/							CROWN CLOSURE
LWD: F	DIST	: E INST	REAM VE	G: N	A		M V	3 41-70%
RB SHP: U Tex	ture: 🕡 F	_G _ C _	В	R 🖂 /	 A R	IP: C	STG: MF	
1	ture: 👿 F			R 🗌 /	A R	IP: C	STG: MF	

Reach # ILP Map #

ILP#

watersned	Joue. 400-33	3600-45700-00000	-0000-0000-000-0	05-005-000	000 000	•			2.0		
			ST	REAMI	REFE	REN	CING				
Gazetted Nan	ne:					L	ocal Na	me:			
Watershed Co	de: 480-993600	-45700-00000-000	0-0000-000-000-0	00-000-000	-000			ILP	Map #:	ILP	#:
				R	EAC	H					
Reach	#: 2.0	UTI	VI(Zone/East/Nort	th):			Sa	imple Type:	В		
Length (km		Gradient (%):		US Elev (	•			Order:		Magnitude: 7	
Confinemer Island		Coupling: Bars: ✔N		Open wat G ☐MID	rer: A	. Пві		GC Zone: arian Veg.:		Landuse: NO	
					SITE						
Site #: 4	38	GIS UTM(Zor	ne/East/North)	Date:	2000/10	/02	Αç	ency: C01	3	Crew: MJ/MG	
Site Lg (m): 1	00 [				····		Ref. i	Name:			
				61	IANN	EL					
No Vis.Ch.:	Intermittent:			Avg	Min	Max	#	<b>,</b>		Avg % Min % M	
Dw:	Tribs.:		Channel Width (		0.5	1.4	6		Gadient %: Pool Depth (m):	2.67 2 0.19 0.100 0	3 3
		}-	Wetted Width (	<del></del>	0.300	0.9	6 3	L	Pool Depth (m):	0.19   0.100   0	1.23   4
		Ŀ	WD Deptii (	111). [ 0.20	0.2	0.2					
Stage: L ✓	M H	Temp (C): 4		pH: 7.				nd.: 80	Tur	b.: 🗌 T 🔲 M	LFC
				MOR	PHOL	OGY					
Bed Material:	Dominant: G	Su	bdom: F				Bars:	N	SIDE DIAG	S MID SF	PAN 🗌 BR
	D95: 3.0	0 D	(cm): 3.00				01	B1 B	2 <b>B3</b> D1	D2 D3	
	Pattern: IR		lands: O				01		2 63 61		
	Coupling: CO	Confine	ement: FC		DISTUR						
	Morph: RP				INDICA	ATORS	C1	C2 C	3 C4 C5	S1 S2 S3	S4 S5
				C	OVE	R					
Total:	Α	Ту	pe: SWD L	.WD I	В	υ	DP	OV	īV		FSZ:
		Amou	ınt: T	T I	V	D	s	T	Т		
		Loc: P/S	/O: V V				V		<b>V</b>		CLOSURE
LWD:	F	DIS	T: E INS	TREAM VE	G: N	A	<b>✓</b> M	I 🗌 V 🗆	]	2	21-40%
RB SHP:	s	Texture: 🗸 F	<b>y</b> G □ C □	_ в і	R 🗌 A	R	IP: S	S	TG: NA		
LB SHP:	S	Texture: 🕢 F	▼ G □ C □	_ B I	R 🗌 🛭	A R	IP: S	S	TG: NA		
Cha North	C	Number 24	Total Length	T-4-1	FISH	Voltage	. 7	Species	Total	Minimum	Maximum
Site Number	Capture Method	Number of Events	(m)	Total Time		Voitage		Species	Fish	Length (mm)	Length (mm)
438	EF	1	100	113 sec		500		NFC	0		

			STRE	AMI	REFE	REN	CING	ì					
Gazetted Name:						ı	ocal Na	ame:				27171711777	
Watershed Code: 000-000000-000	000-00000-000	00-0000-000	-000-000-0	000-000	-000			ILP Map #:	93K.03	5		(LP#:	36708
				Ř	EAC	H							
Reach #: 1.0	υT	M(Zone/Eas	st/North):		***********		S	ample Type: B					
Length (km): 1.18	Gradient (%)	•	•		m): 825			Order: 1		Magr	itude:	1	
Confinement: OC	Coupling			pen wat	•		Ŧ	BGC Zone: SBS					
Islands: N	Bars: ✔N	SIDE	DIAG	MID	SPA		R Rip	arian Veg.: M		Lar	nduse:	NO	
					SITE								
Site #: 439	GIS UTM(Zo	ne/East/Nor	th)	Date:	2000/10	)/02	A	gency: C016		Crew	: MJ/	MG	
Site Lg (m): 100							Ref.	Name:					
				C I	HANN	EL							
No Vis.Ch.: ✓ Intermittent:				Avg	Min	Max	#	]		Avg %	Min %	Max %	#
Dw: Tribs.:		Channel W		0.00	0	0	0	1	dient %:		0	0	0
	-	Wetted W		0.00	0	0	0	Pool De	epth (m):	0.00	0	0	0
	L	WDU	epth (m):	0.00		0	J 0	1					
Stage: L M H	Temp (C):			pH:			Co	nd.:	Tu	rb.: 🗌	τ [	] M [	] L [] C
				HOR	PHO	OGY							
Bed Material: Dominant:	Sı	ıbdom:					Bars:	N SIDE	DIAC	3 N		SPAN	BR
D95:	ī	) (cm):					01	B1 B2 B3	3 D1	D2	D3		
Pattern:		slands:											
Coupling:	Confin	ement:			DISTUR						Ш		
Morph:					INDICA	ATORS	C1	C2 C3 C4	1 C5	S1	S2	S3 5	S4 S5
							Ш				للا		
				C	OVE	R							
Total:	Ty	/pe: SWD	LWD		В	U	DP	OV IV					FSZ: 🗌
	Amo								_				
1	Loc: P/S	5/0:			┸┦┞						CRC	WN CL	DSURE
LWD:	DIS	T:	INSTRE	AM VE	G: N	A	A	4 🗌 V 📗					
	cture: F	☐ G ☐		ш	R 🗆 A		RIP:	STG:					
LB SHP: Tex	cture: 🗍 F	☐ G ☐	C	3 🗌 1	R 🗆 /	4 F	NP:	STG:					

ILP Map# Reach #

ILP#

2.0 

93K.036

36709

		(	STRE	AM I	REFE	REN	CING						
Gazetted Name:						ı	ocal Na	me:		-			
Watershed Code: 000-000000	0-00000-00000-00	00-0000-000-00	00-000-0	000-000	-000			ILP	Map#: 93K.03	16	1	LP#:	36709
				R	EAC	Н							
Reach#: 2.0	U.	TM(Zone/East/	North):				Sa	mple Type	: R				
Length (km): .26	Gradient (%	•	•		m): 898	<b>.</b>		Order:		Magu	nitude:	1	
Confinement: FC	Coupling	•			ter: A		E	BGC Zone:		5		·	
Islands: N	Bars: 🗸 N	SIDE	DIAG	MID	SP	A 🔲 B	R Ripa	arian Veg.:	M	La	nduse:	NO	
					SITE								
Site #: 440	GIS UTM(Ze	one/East/North	,	Date:	2000/1	0/02	Ag	gency: C01	6	Crew	r: MJ/	MJ	
Site Lg (m): 100		<u> </u>					Ref. I	Name:					
				C I	IANE	HEL							
No Vis.Ch.: ✔ Intermittent:				Avg	Min	Max	#		<u></u>		Min %		#
Dw: Tribs.:		Channel Wid		0.00	0	0	0	<b> </b>	Gadient %		0	0	0
_	_	Wetted Wid		0.00	0	0	0	L	Pool Depth (m)	0.00	0	0	0
		Wb Dep	n (m):	0.00	0	1 0		l					
Stage: L M H	Temp (C):			pH:			Cor	nd.:	Tu	ırb.: 🗌	T [	M 🗌	r 🗌 (
				W O R	940	LOG							
Bed Material: Dominant:	s	ubdom:					Bars:	□ N □	SIDE DIA	G 🗌 N	AID	SPAN	BR
D95:		D (cm):					01	B1 B	2 B3 D1	D2	D3		
Pattern:		Islands: nement:											
Coupling: Morph:	Com	nemen.				RBANCE ATORS	C1	C2 C	3 C4 C5	S1	S2	sa s	34 S5
									3 C4 C3		32 	<del>55</del> 5	
					OVE				<u> </u>				
<b>-</b>		vpe: SWD	LWD		8	U	DP	Tov	l v				FSZ:
Total:		ype: SWD	LAAD	<del></del>			Dr	+	"				102.
	Loc: P			1							CRO	WN CLC	SURE
LWD:	Di	ST:	INSTRE	AM VE	G: N	A	N	A V					
RB SHP:	Texture:  F	- G G G		3 🗀	R 🗆	A F	RIP:		STG:				
LB SHP:	Texture: F			$\Box$	$\Box$		RIP:	s	STG:				

Reach # ILP Map # ILP # 1.0 93K.036 36711

Watershed Code: 000-000000-00000-00	0-000-0000-0000-0000	1	.0	93K.036	36711		
	ST	REAM RE	FERENCI	N G			
Gazetted Name:			Loca	l Name:			
Watershed Code: 000-000000-00000-00000-	0000-0000-000-000-0	00-000-000-000		ILP Ma	ap#: 93K.036	ILP	#: 36711
		REA	CH				
Reach #: 1.0	UTM(Zone/East/Nort	th):		Sample Type:	В		
	(%): 13.86 ling: DC	US Elev (m): 9		Order: 1 BGC Zone: 5	RS.	Magnitude: 1	
		G MID		Riparian Veg.:		Landuse: NO	)
		SI	TE				
1	(Zone/East/North)	Date: 200		Agency: C016		Crew: MJ/MG	
Site Lg (m): 100		CHA		Ref. Name:			
No Vis.Ch.: Intermittent:		Avg M		#	[A	lvg % Min % Ma	1x % #
Dw: Tribs.:	Channel Width (			6		4.25 3	6 4
Dw:   Ilius	Wetted Width (				ol Depth (m):	0.00 0	0 6
	Wb Depth (	m): 0.07	0.1	3			
Stage: L M H Temp (C):	4	pH: 7.8		Cond.: 90	Turb	.: 🗌 T 📗 M	LFC
		MORPH	OLOGY				
Bed Material: Dominant: G	Subdom: F		Ba	ers: 📝 N 🗌 S	IDE DIAG	MID SF	AN BR
D95: 3.00 Pattern: IR	D (cm): 3.00 Islands: N			O1 B1 B2	B3 D1	D2 D3	
1	nfinement: FC	Dis	TURBANCE				
Morph: RP			DICATORS	C1 C2 C3	C4 C5	S1 S2 S3	S4 S5
		ÇO	VER				
Total: T	77	.WD B		DP OV	IV		FSZ:
1	Amount: S	TN	N	N D	N	CROWN	CLOSURE
L	: P/S/O:					3	41-70%
	DIST: E INS	TREAM VEG:			G: MF		
	F G G C				3: NA		
	F G G C	ب لصبة لصب	A RIP:				
		BAR			G: NA	-	
	F ♥ G □ C	BAR	A RIP:			Minimum Length (mm)	Maximum Length (mm)

Reach # ILP Map #

ILP#

Watershed	Code: 480-99	3600-4	16700-00000	-0000-0000-00	0-000-00	00-000-	000-00	00			1.0			
				S	TRE	AM R	EFE	REN	CIN	G				
Gazetted Nar	ne:								Local N	lame:				
Watershed Co	de: 480-993600	)-46700	0000-000	0-0000-000-00	0-000-00	00-000-	000			<b>[L</b> ]	Р Мар#:		ILP	#:
						R	EAG	H						
Reach	#: 1.0		UT	VI(Zone/East/N	lorth):		**********		5	Sample Type	e: B			
Length (kn	n): .26	G	radient (%):	1.92	us	Elev (n	n): 780	)		Order	: 3		Magnitude: 12	2
Confineme		_	Coupling:		-	en wate		_	.D. Di.	BGC Zone			Landinos N	_
isiand	ls: N	5	ars: 🗹N		DIAG _	_MID	SITE	_	SR Ri	parian Veg.	. IVI		Landuse: N	
Site #: 4	142	G	IS LITM/Zor	e/East/North)	<del></del>	Date:		*****		Agency: C0	16		Crew: MJ/MG	
Site Lg (m): 1		3	13 OTHILEON	ie/Lastriortii)		Date.	2000/1	0/02		. Name:			orew. money	
						СH	ANA	IEL						
No Vis.Ch.:	Intermittent:		_			Avg	Min	Max	#	]			vg % Min % M	
Dw:	Tribs.:		-	Channel Widt Wetted Widt		0.75	0.5	0.9	6	┨ ┟	Gadie Pool Depti		0.63 0.5 0.23 0.200 0	1 4
			}	Wb Dept		0.33	0.400	0.4	3	┥┕	rooi Depti	1 (111)-[	0.23   0.200   0	2 2
Stage: L	м н	Te	mp (C): 4			pH: 8.1			Cc	ond.: 80		Turb	.:   т   м	□ L 🗸 C
<u> </u>			· · · ·		N	ORI	2 H O	LOG	Ż					
Bed Material:	Dominant: F		Su	bdom: NA					Bars:	<b>V</b> N □	SIDE	DIAG	MID SF	PAN BR
	D95: 0.0	1		(cm): 0.01					01	! <del>B</del> 1 I	B2 B3	D1	D2 D3	
	Pattern: IR Coupling: DC			lands: N ment: UN										
	Morph: LC		Comme	anone or		I		RBANCE ATORS	C1	l C2 (	C3 C4	C5	S1 S2 S3	S4 S5
						C	OVE	R						
Total:	: T		Ту	pe: SWD	LWD	В		U	DP	ov	IV			FSZ: 🗌
			Amou Loc: P/S		N	N	-+	D	T	S	N		CROVA	CLOSURE
LWD:	. 11		L		LLL					M V			3	41-70%
		Tautu			NSTREA			✓ A	RIP: S		_ STG: NA			
RB SHP:		Textu Textu	ıre: 🕢 F ıre: 🗸 F	G C	В	-			RIP: S		STG: NA			
							FIST							
Site Number	Capture Method		ımber of Events	Total Length (m)		Total Time		Voltag	e	Species	To:		Minimum Length (mm)	Maximum Length (mm)
442	EF		1	100	20	07 sec		500		NFC	0			

Reach # ILP Map #

ILP#

Gazetted Name: Watershed Code: 480-993600-46700-00000-0000-0000-0000		***************************************	
		Local Name:	
Watershed Code. 450-33300-45700-0000-000-000		ILP Map #:	ILP#:
		iti nap n.	
	REACH		
Reach #: 2.1 UTM(Zone/Ea	st/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: VN SIDE	DIAG MID SPA	BR Riparian Veg.: C	Landuse: NO
	SITE		
Site #: 443 GIS UTM(Zone/East/No	rth) Date: 2000/10/02	Agency: C016	Crew: MJ/MG
Site Lg (m): 200		Ref. Name:	
	CHANNEL		
No Vis.Ch.: Intermittent:	Avg Min Max	#	Avg % Min % Max % #
Dw: Tribs.: Channel V			adient %: 1.38 2 2 4
<u></u>	Vidth (m): 0.92 0.7 1.200 Depth (m): 0.23 0.2 0.3	6 Pool Do	epth (m): 0.25   0.200   0.300   2
WD L	Depth (m): 0.23   0.2   0.3	13	
Stage: L ✓ M H Temp (C): 4	pH: 8.1	Cond.: 80	Turb.: 🗌 T 📗 M 📋 L 📝 C
	MORPHOLOG	Y	
Bed Material: Dominant: F Subdom: G		Bars: ☐ N 📝 SIDE	DIAG MID SPAN BR
D95: 1.00 D (cm): 1.0	00	O1 B1 B2 B3	3 D1 D2 D3
Pattern: IR Islands: N			
Coupling: DC Confinement: OC	DISTURBANC		
Morph: RP	INDICATORS	C1 C2 C3 C	4 C5 S1 S2 S3 S4 S5
ł			
	COVER		
Total: M Type: SWI	LWD B U	DP OV IV	FSZ:
Amount: S	D LWD B U	T T N	
Amount: S Loc: P/S/O:	LWD B U T N D	T T N	FSZ: CROWN CLOSURE 3 41-70%
Amount: S	LWD B U T N D	T T N	CROWN CLOSURE
Amount: S  Loc: P/S/O:   LWD: F  DIST: E  RB SHP: U  Texture: F G	D LWD B U T N D INSTREAM VEG: N  C B R A	T T N    V   V        RIP: S STG: N	CROWN CLOSURE 3 41-70%
Amount: S Loc: P/S/O:	D LWD B U T N D INSTREAM VEG: N  C B R A	T T N	CROWN CLOSURE 3 41-70%
Amount: S  Loc: P/S/O:   LWD: F  DIST: E  RB SHP: U  Texture: F G	INSTREAM VEG: N A  C B R A	T T N    V   V        RIP: S STG: N	CROWN CLOSURE 3 41-70%
Amount: S  Loc: P/S/O:  LWD: F  DIST: E  RB SHP: U  Texture: F  G  LB SHP: U  Texture: F  G  G	INSTREAM VEG: N FISH	T T N  T N  T N  T N  T N  T N  T N  T	CROWN CLOSURE 3 41-70% A
Amount: S  Loc: P/S/O:   LWD: F  DIST: E  RB SHP: U  Texture: F G	INSTREAM VEG: N IN A  C B R A  C B R A  C B R V  FISH  Total Volta	T T N  T N  T N  T N  T N  T N  T N  T	CROWN CLOSURE 3 41-70%
Amount: S  Loc: P/S/O:   LWD: F  DIST: E  RB SHP: U  Texture: F G  LB SHP: U  Texture: F G  Site Number   Capture   Number of   Total Lea	INSTREAM VEG: N FISH  Total Time    Voltage	T T N  M V  RIP: S STG: N  RIP: S STG: N  ge Species	CROWN CLOSURE 3 41-70%  A A Total Minimum Maximum

Reach# IL

ILP Map #

JLP#

		STRE	AM F	REFE	REN	CING				
Gazetted Name:					L	ocal Na	me:			
Watershed Code: 480-993600	-46700-00000-0000-	0000-000-000-000-0	000-000	-000			ILI	P Map #:		ILP#:
			R	EAC	H					
Reach #: 3.0	UTM(	Zone/East/North):			<u> </u>	Sa	mple Typ	e: B		
Length (km): .13	Gradient (%): 1	.54 U	S Elev (	m): 818			Order	: 1	Magnitude	: 1
Confinement: UN	Coupling:		pen wat			_	GC Zone			
Islands: N	Bars: ✔N	SIDE DIAG		SPA		R Ripa	irian Veg.	: M	Landuse	: NO
				SITE						
Site #: 444	GIS UTM(Zone	/East/North)	Date:	2000/10	0/02	_	jency: C0	16	Crew: M	J/MG
Site Lg (m): 150						Ref. I	Name:			
			C I	ANA	EL					
No Vis.Ch.: ✓ Intermittent:			Avg	Min	Max	#			Avg % Min s	
Dw: Tribs.:	<del> </del>	hannel Width (m):	0.00	0	0	0	<u> </u>	Gadien		0 0
		Wetted Width (m):	0.00	0	0	0	<u> </u>	Pool Depth	(m): 0.00 0	0 0
	<u></u>	Wb Depth (m):	0.00	0	0					
Stage: L M H	Temp (C):		pH:			Con	ıd.:		Turb.: T	_ M _ L _ C
			MOR	PHO	106)					
Bed Material: Dominant:	Subo	lom:				Bars:	□ N □	SIDE	DIAG MID	SPAN BR
D95:	D (	cm):				01	В1	B2 B3 I	D1 D2 D3	
Pattern:		nds:								]
Coupling:	Confinen	nent:			RBANCE		144			
Morph:				iNDiC.	ATORS	C1	C2	C3 C4	C5 S1 S2	\$3 \$4 \$5
			C	OVE	R					
Total:	Туре		)	В	C	DP	ov	IV		FSZ:
	Amoun								CE	OWN CLOSURE
	Loc: P/S/C								Cr	OAMA CLOSOKE
LWD:	DIST:	INSTRI	EAM VE	G: N	A	N	1 🗌 V			
RB SHP:	Texture: F			لبا		RIP:		STG:		
LB SHP:	Texture: F	_ G _ C _	В	R 🔲	A F	RIP:		STG:		
L									<u>,</u>	

Reach # ILP Map #

ILP#

			ST	REAM RE	FERENCII	NG				
Gazetted Name:		***************************************			Loca	l Name:				
Watershed Code:		167 <b>00_</b> 80 <b>900_</b> 000	n_000_00_00	000-000-000		ILP Ma	ıp#:	ILP	#:	
Water Sileu Code.	400-933000-	10100-00500-000		RE#	e u		'			
				n.c.						
Reach #:	1.0	UTI	M(Zone/East/Nor	th):		Sample Type:	R			
Length (km):	.76	Gradient (%):	: 9.61	US Elev (m): 8		Order: 2		Magnitude: 5		
Confinement:		Coupling:		Open water:		BGC Zone: S		Landuse: NO	<b>\</b>	
islands:	N	Bars: ✔N	_side _dia			Riparian Veg.: C	•	Landuse. 140		
Site #: 445		GIS UTM(Zor	ne/East/North)	Date: 200		Agency: C016		Crew: MJ/MG		
Site Lg (m): 100	L		<u>:</u>			lef. Name:				
				CHA	VNEL					
No Vis.Ch.:	ntermittent:			Avg M				Avg % Min % Ma		
Dw:	Tribs.:	□ <b> </b> -	Channel Width (				Gadient %: ol Depth (m):		3 4	
		-	Wetted Width (				or Deput (in).]	0.00   0	9 1 9	
		Ĺ	W Deptin	111). 0.20   0	<u> </u>					
Stage: L 🗸 N	1 H	Temp (C): 4		pH: 8.0		Cond.: 80	Turt	э.: Т М	☐ L 🐼 C	
				MORPH	OLOGY					
Bed Material: Do	minant: G	Su	ıbdom: F		Ba	ırs: 🗌 N 📝 Si	DE 🔲 DIAG	MID SP	AN BR	
	D95: 4.00	τ	) (cm): 4.00			O1 B1 B2	B3 D1	D2 D3		
1	Pattem: IR	O1 B1 B2 B3 D1 D2 D3								
l C				Г						
	oupling: PC		ement: OC		TURBANCE					
	oupling: PC Morph: RP		ement: OC		TURBANCE DICATORS	C1 C2 C3	C4 C5	S1 S2 S3	\$4 \$5	
	. •		ement: OC	INI	DICATORS	C1 C2 C3	C4 C5	\$1 \$2 \$3	\$4 \$5	
	. •		ement: OC	INI			C4 C5	S1 S2 S3		
Total: A	Morph: RP	Confin	ype: SWD	C Q I	VER	DP OV	IV	S1 S2 S3	S4 S5	
	Morph: RP	Confine Ty Amo	ype: SWD	CO. LWD B	VER	DP OV N D			FSZ:	
	Morph: RP	T) Amo	ype: SWD unt: S	CO B S N	VER U I	DP OV N D	IV			
	Morph: RP	Ty Amo	ype: SWD   iunt: S S/O: V   W	C Q B S N T STREAM VEG:	VER U E	DP OV N D M V D	IV N	CROWN	FSZ:	
Total: A LWD: A RB SHP: S	Morph: RP	Ty Amo Loc: P/S DIS	ype: SWD   wint: S   S/O: W   W   W   W   W   W   W   W   W   W	CO  LWD B S N  The stream veg: B R	VER U E N A RIP:	DP OV N D M V S STO	IV N	CROWN	FSZ:	
Total: A	Morph: RP	Ty Amo Loc: P/S DIS	ype: SWD   iunt: S S/O: V   W	CO  LWD B S N  The stream veg: B R	VER U E	DP OV N D M V S STO	IV N	CROWN	FSZ:	
Total: A  LWD: A  RB SHP: S	Morph: RP	Ty Amo Loc: P/S DIS	ype: SWD   wint: S   S/O: W   W   W   W   W   W   W   W   W   W	CO  LWD B S N  STREAM VEG: B R B R	VER U C N A C A RIP:	DP OV N D M V S STO	IV N	CROWN	FSZ:	
Total: A  LWD: A  RB SHP: S  LB SHP: S	Morph: RP	Confine  Ty Amo Loc: P/S  DIS  Texture: F  Texture: F	ype: SWD unt: S S/O: V   W ST: E INS V G C	COOLUMD B S N STREAM VEG: B R B R	VER U I N A RIP:	OP OV N D S STC	IV N S: NA S: NA	CROWN 2	FSZ:	
Total: A  LWD: A  RB SHP: S	Morph: RP	Ty Amo Loc: P/S DIS	ype: SWD   wint: S   S/O: W   W   W   W   W   W   W   W   W   W	CO  LWD B S N  STREAM VEG: B R B R	VER U C N A C A RIP:	DP OV N D M V S STO	IV N	CROWN	FSZ: SCLOSURE 21-40%	
Total: A  LWD: A  RB SHP: S  LB SHP: S	Morph: RP	Ty Amo Loc: P/S DIS Texture: F	ype: SWD unt: S S/O: V   V ST: E INS V G C V G C	CO  LWD B S N  STREAM VEG: B R B R  FI  Total	VER U I N A RIP:	OP OV N D S STC	IV N S: NA S: NA	CROWN 2	FSZ: CLOSURE 21-40%	

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

# Tributaries in the Sutherland River Watershed 2000

• Appendix II: FDIS Site/Fish Form Comments

Site #	Owner	Туре	Comment						
381	Site		FPC = S3 high						
			guilied reach with cobbles/boulders and moderate gradient; distribution limited d/s?						
381	Site	Site Card	site = UTM						
	Habitat		excellent overall habitat quality for RB - nice pools/boulder cover and good flow to maintain oxygen - RB should be present						
	Habitat		fair to moderate due to potential perennial habitat						
	Habitat		limited spawning due to large substrate, but occasional gravels in pools						
	Fish		Excellent RB habitat - why no fish?						
	Site		FPC = S3 high						
	Site	Morphology	confined channel in gully						
	Site	Site Card	site = UTM = from lower boundary						
	Site	Site Card	overall very nice creek with good habitat quality - no reason for RB not to reside in						
<del> </del>	Site	Site Card	unknown why NFC						
	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						
	Habitat	Spawning	fair - occasional gravel bars suitable for spawning						
	Fish	Waterbody	excellent RB habitat - why no fish?						
	Site		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(?)						
	1		impede access						
	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						
	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						
	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						
	Site	Channel	FPC = S4 high						
	Site	Site Card	site = from mouth						
	Habitat Site	Other Channel	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  EPC = S2						
	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						
	Site	Site Card	site = UTM = ~50m from mouth						
	Site	Site Card	pretty much 100% rounded gravels - excellent salmon/RB spawning substrate						
	Habitat		likely good perennial flow for overwintering, but lacks deep pools						
	Habitat	Rearing	moderate to good salmon rearing limited by lack of quality instream cover						
	Habitat	Spawning	primary use is SK (RB?) spawning - beautiful, uniform rounded gravels dominate reach 1 substrate						
	Fish	Waterbody	Eimited shocking due to redds and spawning SK						
	Fish		SK adults in mainstem, RB and CAS in off-channel habitat.						
	Site	Waterbody Channel	FPC = S2						
	Site								
		Cover Site Card	vertical bedrock bank, 50m high, no riparian zone						
	Site	Site Card	site = UTM = lower boundary						
	Site	Site Card	SK not seen in this reach - do not enter canyon; habitat suited to adult RB, which dominate						
	Site	Site Card	falls at the end of reach is a barrer to anadromous fish and mark u/s SK distribution limit						
	Habitat		good - perennial flow, nice pools						
	Habitat	Rearing	excellent rearing for resident RB - deep, frothy cascade cascade-boulder pools						
	Habitat	Spawning	no (bedrock, boulder)						
	Fish	Waterbody	Likely fluvial RB						
	Site	Channel	FPC = S2						
	Site	Morphology	pretty much the same as below falls						
ı 390	Site	Site Card	site = UTM						
	Site	Site Card	canyon inaccessible by foot pass falls						
390	0.1		RB is the only species						
390 390	Site	Site Card	FDC - NCD						
390 390 391	Site	Channel	FPC = NCD						
390 390 391 391	Site Site	Channel 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						
390 390 391 391 391	Site	Channel	standing water collected on the gully floor, no fluvium, no continuous channel bed or banks; also water/channel disperses before						

Site #	Owner	Туре	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
	Site	Site Card	potential access from Sutherland River, but habitat not friendly to RB
	Habitat		none - pools short, shallow and likely current too strong fair - not much good instream cover - pools are shallow and not frequent - some protection from large cobbles and boulders, but
392	Habitat	Rearing	generally creek too shallow and too fast flowing
202	Habitat	Spawning	poor - too shallow and substrate mostly mixed and too large for RB
	Site	Channel	FPC = S6
	Site	Site Card	site = 50m u/s from confluence with ILP 45715
	Site	Site Card	extra site u/s from cascade obstruction to confirm fish absence
	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.
	Site	Channel	FPC = NCD
	Site	Morphology	nothing but nice forest floor
	Site	Site Card	site = middle of reach no drainage present at mapped location. Wetland u/s does not have connection to this "stream", and this one does not have a sign
394	Habitat	Other	of any kind of flow to 480-993600-22300
	Site	Channel	FPC = S6
	Site	Morphology	flows through forested gully
	Site	Site Card	site = 30m u/s from mouth
	Site Habitat	Site Card	this tributary carries more water and is bigger than mother stream (-993600-22300) habitat inaccessible due to cascade obstruction d/s
	Habitat	Other	none - pools too shallow
	Habitat	Overwintering Rearing	good in diverse rearing and very abundant boulder/pools type of cover; creek very stable, well protected from erosion by large
1 393	, ideliat	cuing	cobbles
395	Habitat	Spawning	none - angular substrate
	Fish	Waterbody	Fairly nice habitat for RB, but lacks spawning and overwintering to support resident population in system.
	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
	Habitat	Other	NFH
	Site	Channel	FPC = S3
	Site	Site Card	site = UTM = mouth
-	Site	Site Card Overwintering	nice low gradient reach with good flow, excellent spawning potential for RB and CO pools likely not deep enough - fish likely move to Sutherland River
	Habitat Habitat	Rearing	good for RB/CO in pools/cutbanks areas
	Habitat	Spawning	beautiful stretches of uniform small rounded gravels dominate surface
	Fish	Waterbody	RB not very abundant given nice quality habitat and likelihood for spawning use. Nice CO habitat.
	Site	Channel	FPC = S3
398	Site	Site Card	site = UTM
	Site	Site Card	added reach for distribution info
	Site	Water	flood - rock deposited on windthrow tree 1.5m above channel
	Habitat	Overwintering	moderate to good - in infrequent deep pools good overall - deep pools not abundant but occasional cascade/LWD pools provide excellent quality RB rearing habitat
	Habitat	Rearing	poor - substrate too large, bars are with large, angular substrate, and not abundant
	Habitat Fish	Spawning Waterbody	Not very abundant RB (as usual) - mainly only in best deep pools.
	Site	Channel	FPC = S5
	Site	Morphology	channel is in vertical wall, narrow bedrock gorge with abundant falls and cascades
	Site	Site Card	site = above falls (40m u/s from reach boundary mapped location)
	Site	Site Card	even 40m section below falls is steep with frequent small cascades - unlikely fish use in lower reach (NFC in this part)
	Habitat	Other	falls at the beginning of the reach isolates habitat u/s
	Habitat		very good potential - very deep pools, but isolated above falls
	Habitat	Rearing	excellent for RB - very deep boulder/LWD step pools, but access limited by steep gradient, frequent cascades/falls.
	Habitat	Spawning	no spawning substrate  Nice sampling in very deep steps but NF above falls.
	Fish Site	Waterbody Channel	FPC = S5
	Site	Site Card	site = UTM = (~240m below falls in reach 4)
	Habitat	Other	overall good habitat
	Habitat	Overwintering	
	Habitat	Rearing	good quality but isolated above falls (deep pools frequent)
	) Habitat	Spawning	no potential - gravels too big
	Site	Channel	FPC = S6
	Site	Site Card	site = UTM
	Habitat	Other	habitat isolated by barriers d/s
	Habitat Habitat	Overwintering Rearing	poor - extensive riffles and very shallow pools
	Habitat	Spawning	some potential in scattered patches of good quality gravel
	Site	Channel	FPC = S6
	Site	Site Card	site = UTM = from the confluence with -24500
	Site	Site Card	3rd site above the barrier in reach 3 to confirm fish absence; good sampling conditions, but NFC
402	2 Habitat	Other	overall moderate quality habitat with few deep, good pools. Creek contributes ~50% of flow into parent creek
	Habitat		potentially possible in few deeper pools
	Habitat	Rearing	moderate in pools mainly
	Habitat	Spawning	small pockets of suitable gravel
403	Site	Channel	FPC = \$6

Site #	Owner	Туре	Comment
Ļ	Site	Site Card	site = ~100m u/s from confluence with ILP 45724
	Habitat	Other	all habitat isolated above falls barrier d/s
403	Habitat	Overwintering	excellent in many deep pools
	Habitat	Rearing	excellent in many deep pools
	Habitat	Spawning	none - substrate angular
	Site	Channel	FPC = NCD site = from mouth u/s
	Site Site	Site Card Site Card	no continuity for 100m
	Habitat	Other	Discrete flow creek has 40m long channel near mouth mostly flowing underground
	Site	Channel	FPC = S6
	Site	Site Card	site = UTM = from the mouth
	Site	Site Card	this trip contributes ~40% of flow into the parent creek
405	Habitat	Other	overall poor habitat due to steepness
	Habitat		none - pools shallow
	Habitat	Rearing	pools provide fair rearing, but habitat isolated
	Habitat	Spawning	none - no gravel in substrate
	Site	Channel Chan	FPC = S6 site = UTM = 40m w/s from mouth
	Site Habitat	Site Card Other	No fish habitat overall - steep, shallow, isolated by barriers d/s
	Site	Channel	FPC = NCD
	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
	Site	Morphology	crap, seasonal, disperses d/s
	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
	Site	Channel	FPC = NCD
	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
		<u> </u>	with no sign of any drainage
	Site	Channel	FPC = NCD
	Site Site	Morphology Site Card	no channel present, wet, squishy ground with no fluvium, not a creek site = middle of wetland
	Site	Site Card	substituted reach for reach 5 - to determine lack of fish passage to upper reaches
	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.
	Site	Channel	main channel shifted ~150m east from mapped location
	Site	Channel	FPC = S3 low
	Site	Morphology	creek flows through fluvial fan exhibiting signs of frequent channel shifting
	Site Habitat	Site Card Other	site = ~200m d/s from upper reach boundary  very poor habitat overall - potentially used only during spring as a migratory route to upper reaches; substrate soft indicating high
	Site		very poor habitat overall - potentially used only during spring as a migratory route to upper reaches, substitute soft indicating riight scour potential at spring flow - unlikely used for spawning  FPC = S3 low
	Site	Channel Site Card	site = from lower reach boundary
	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
	Habitat	Overwintering	+ w- · · · · · · · · · · · · · · · · · ·
	Habitat	Rearing	excellent boulder/pools habitat for RB
	Habitat	Spawning	very opportunistic but gravel present in small pockets among boulders and pools crests
	Site	Channel	FPC = S6
	Site	Morphology	entire reach is a canyon with many falls, chutes and cascades
	Site Habitat	Site Card Other	site = u/s from 1st falls habitat good for RB but inaccessible due to first set of falls; plenty of deep pools excellent for potential rearing and overwintering;
	Fish	Motorbook	no spawning potential
	Fish Site	Waterbody Channel	Excellent habitat in this reach but no fish.  FPC = S6
	Site	Site Card	site = w/s from lower reach boundary
415	Site	Site Card	site above falls/canyon totally isolated - no resident RB population above
	Habitat	Other	overall nice habitat for RB
415	Habitat		good - ~60% pools deeper than 40cm
	Habitat	Rearing	excellent potential in very abundant cover - preferred RB habitat
	Habitat	Spawning	good uniform gravels pockets present in every pool
	Site	Channel	FPC = S4 high small creek, but brisk flow over 100% gravel
	Site Site	Morphology Site Card	site = UTM
	Habitat	Overwintering	
	Habitat	Rearing	moderate overall - small stream but good quality pools for RB
	Habitat	Spawning	moderate to good spawning in abundant gravels - good for small RB
	Site	Channel	channel much larger and has more flow than reach 1 - shows how much water the wetland absorbs

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

Site #	Owner	Type	Comment
429	Fish	Waterbody	Extensive beautiful sampling habitat. Why no fish?
430			FPC=S5
430			Similar to reach 2 but more confined.
430		Site Card	site = UTM = lower reach
430		Site Card	Excellent habitat but isolated above falls - no fish above.
430	Habitat :	Site Card	1st site above falls. good in very deep pools
	Habitat	Rearing	geod in tay, acceptant
	Habitat	Spawning	no spawning substrate
	Fish	Waterbody	Beautiful habitat - not used due to falls downstream.
431	Site		FPC=S6
431		Morphology	smaller size and flow than in reach 3.
431		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
	Habitat		pools not deep enough for overwintering
	Habitat	Rearing	moderate quality overall in deep pools and cobbles cover
431	Habitat	Spawning	no spawning substrate
	Fish	Waterbody	Usable fish habitat, nice pools but no fish above falls.
432		Channel	40m above site, water percolates through ground and no defined channel is present.
432		Channel	In channelized section, channel is wide over cobbles through meadow, but is fairly shallow.  FPC=S6
432		Channel Morphology	Site is in large meadow which acts as huge collection area for stream.
	Site		site = UTM = lower reach
	Site	Site Card	3rd site above falls for fish absence confirmation.
432	Habitat		no - too shallow, no lakes u/s
	Habitat	Rearing	moderate quality for RB in available occasional pools, but overall quite rare
	Habitat	Spawning	no - all fines and cobbles
	Site	Channel	FPC=S4 high Fairly steep gully channel over sharp cobbles with limited pool habitat - shallow.
433	Site	Morphology Site Card	site = from mouth = UTM near mouth
433		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
	Habitat	Overwintering	
<del></del>	Habitat	Rearing	fair for RB - in pools, but overall pools quite shallow and low quality
	Habitat Fish	Spawning Waterbody	no - steep, angular cobbles dominate substrate  Pretty shallow cascade pools, moderately steep.
	Site	Channel	FPC=S6
	Site	Cover	LWD from abundant blowdown from guily wall.
434	Site	Site Card	site = UTM = above cascade
	Site	Site Card	Steep and inaccessible to fish due to cascade at end of reach 1.
	Site	Site Card	Extra reach to confirm no fish above cascade.
	Habitat Habitat	Other Overwintering	all isolated above cascade none - too shallow, no lakes u/s
	Habitat	Rearing	poor overall - steep, shallow boulder pools, marginal
	Habitat	Spawning	none - no gravels, too steep
435	Site	Channel	FPC=NCD
	Site	Morphology	"channel" not present - dry gully with no evidence of flow or water, no channel bed, banks.
	Site	Site Card	site = UTM = 30m from mouth
	Site	Site Card	Added this reach to cut off fish distribution from mouth.  NFH - no water, no channel, no potential, no connection
	Habitat Site	Other Channel	FPC=NCD
	Site	Site Card	site = lower boundary
	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.
	Habitat	Other	NFH - no water, no channel present
	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.
	Habitat	Other	NFH - totally dry - if flow ever - is too steep for rearing and lacks instream cover
	Habitat		no potential here or u/s
	Habitat Site	Spawning Channel	none - moderately steep and all fines/organics  FPC = S4 high
	Site	Morphology	creek flows through deep gully
	Site	Site Card	site = ~100m d/s from confluence with ILP 36708
438	Habitat	Overwintering	none - too shallow
	Habitat	Rearing	moderate - cover abundant in pools/SWD mainly, good flow, channel not exposed
	Habitat	Spawning	moderate - gravel abundant but ~20% fines
439	Site	Channel	FPC = NCD

Site #	Owner	Туре	Comment
		Site Card	site = from mouth
439	Site	Site Card	no drainage found at mapped location
	Habitat	Other	NFH - forest floor
	Site	Channel	FPC = NCD
	Site	Site Card	site = u/s from lower reach boundary
		Site Card	no channel, no any kind of drainage, no fluvium, no creek, just a forest
		Channel	FPC = S4 low
	Site		flows through deep guily
	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	Mainstern 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

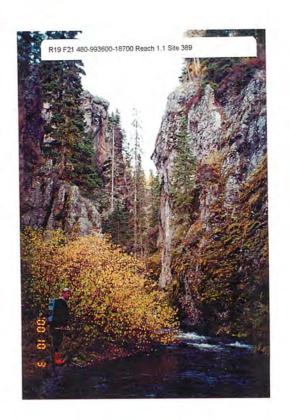
• Appendix III: Photographs

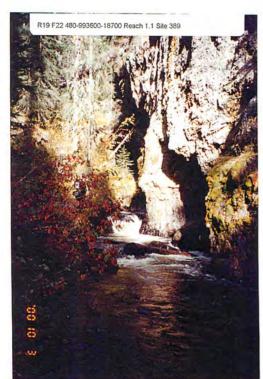
#### Index of Photos (Arranged by Site)

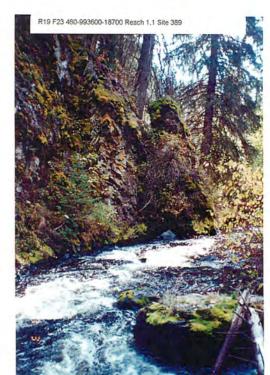
Site	Roll#	Frame				Watershed Code	Gazetted Name	ILPMap	ILP	Reach	Dir	Owner	Focal	Date	Comment
		#	#	#	#		<del></del>			2.0	U	SITE	Length STD	10/2/2000	cam bag
381	19	12	12	4	95	480-993600-00600		<del> </del>		2.0	품	SITE	STD		cam bag
381	19	13	13	4	96	480-993600-00600	_				- U	SITE	STD	10/2/2000	
382	19	10	10	4	93	480-993600-00600		<del> </del>		3.0		SITE	STD	10/2/2000	cam had
382	19	11	11	4	94	480-993600-00600		<del> </del>		3.0 2.0	U	SITE	STD	10/2/2000	
383	19	8	8_	4	91	480-993600-00600-48300					D	SITE	STD	10/2/2000	
383	19	9	9	4	92	480-993600-00600-48300		2014 5 45	45700	2.0		SITE	STD	10/5/2000	
384	30	3	3	7	3			93K.045	45702 45702	3.0 3.0	U	SITE	STD	10/5/2000	
384	30	4	4	7	4			93K.045	45705	1.0	U	SITE	STD	10/3/2000	
385	19	14	14	4	97			93K.045		1.0	H	SITE	STD	10/2/2000	
385	19	15	15	4	98	100 000001 1 1000		93K.045	45705	2.0	U	SITE	STD	10/2/2000	
386	30	1_1_	1	7		480-993600-14000			<del>  </del>	2.0	B	SITE	STD	10/5/2000	
386	30	2	2	7	2	480-993600-14000		<del> </del>		1.0	U	SITE	STD	10/5/2000	
387	28	24	24	6	96	480-993600-16300			<del>                                     </del>	1.0	D	SITE	STD	10/5/2000	
387	28	25	25	6	97	480-993600-16300	0,0	<del> </del>		1.0	Ü	SITE	STD	10/3/2000	(SR) - note SK holding in background, abundant
388	19	16	16	4	99	480-993600-18700	Shass C.			1.0	۱۰۱	SITE	310	10/2/2000	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
1 ***				'					1						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	
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	C	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	
391	19	18	18	4	101			93K.045	45709	1.0	D	SITE	STD	10/2/2000	
391	19	19	19	4	102			93K.045	45709	1.0	U	SITE	STD	10/2/2000	
392	28	18	18	6	90	480-993600-22300				2.0	U	SITE	STD		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			1	4.0	BD	SITE	STD	10/5/2000	notebook
395	28	21	21	6		400 00000 22000		93K.045	45715	1.0	U	SITE	STD		notebook
395	28	22	22	6	94			93K.045	45715		D		STD	10/5/2000	water tester
397	23	6	8	5	72	480-993600-24500			1.51.1.5	1.0	BD		STD	10/4/2000	(bcot) - note spawning quality gravels dominate
		7	7	5	73	480-993600-24500		<del> </del>	+	1.0	U	SITE	STD	10/4/2000	cam bag
397 397	23	8	8	5	74	480-993600-24500		1		1.0	D		STD		cam bag
398	23	12	12	5	77	480-933000-24500		<del> </del>		2.0	ΙŪ		STD	10/5/2000	SR
398	23	13	13	5	78	480-993600-24500		<del>                                     </del>	<del>                                     </del>	2.0	Ď	SITE	STD		cam bag
	23	15	15	5	80	480-993600-24500		†	<del>                                     </del>	3.0	Tu		STD	10/5/2000	
399 399	23	16	16	5	81	480-993600-24500		+	·	3.0	D	SITE	STD	10/5/2000	cam bag
	23	17	17	5	82	480-993600-24500		<del> </del>		3.0	U		STD	10/5/2000	falls in features - Marek
399 400	23	18	18	5	83	480-993600-24500		<del> </del>		4.0	Ū	SITE	STD	10/5/2000	Marek
400	23	19	19	5	84	480-993600-24500		<del> </del>		4.0	D	SITE	STD	10/5/2000	
400	23	20	20	5	85	480-993600-24500		<del> </del>		4.0	Ū		STD		Marek - falls in features
400	25	1	1	6	1	480-993600-24500		<del> </del>	1	7.0	Τü		STD		cam bag
401	25	2	2	6	2	480-993600-24500		1	<del> </del>	7.0	T D	SITE	STD	10/5/2000	
401	23	21	21	5	86	480-993600-24500-57600		<del> </del>	1	1.0	ΤŪ	SITE	STD		cam bag
402	23	22	22	5	87	480-993600-24500-57600		† · · · · ·	1	1.0	D	SITE	STD	10/5/2000	
402	28	5	5	6	77	480-993600-24500-57600		<del> </del>	1	5.0	Ū	SITE	STD		cam bag
403	28	6	6	6	78	480-993600-24500-57600		<del>                                     </del>	1	5.0	D	SITE	STD		cam bag
405	23	23	23	5	88	480-993600-24500-72500		<del> </del>	<del> </del>	1.0	Ü	SITE	STD	10/5/2000	
405	23	23	24	5	89	480-993600-24500-72500		<del> </del>	<del> </del>	1.0	Ď	SITE	STD	10/5/2000	
406	23	25	25	5	90	400-303000-24300-12300	<del></del>	93K.045	45730	1.0	Ū	SITE	STD	10/5/2000	
408		9	9	5	75	480-993600-24800		10011.040	10,00	2.0	Τŭ		STD		cam bag
400	4,3	7 2	1 3	<u> </u>	1 17	1400-333000-24000			<del></del>						



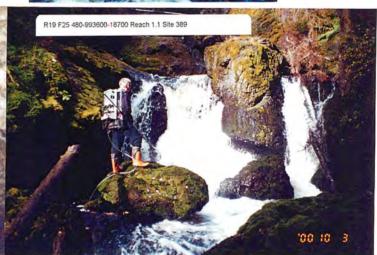


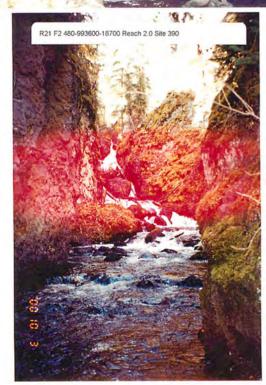




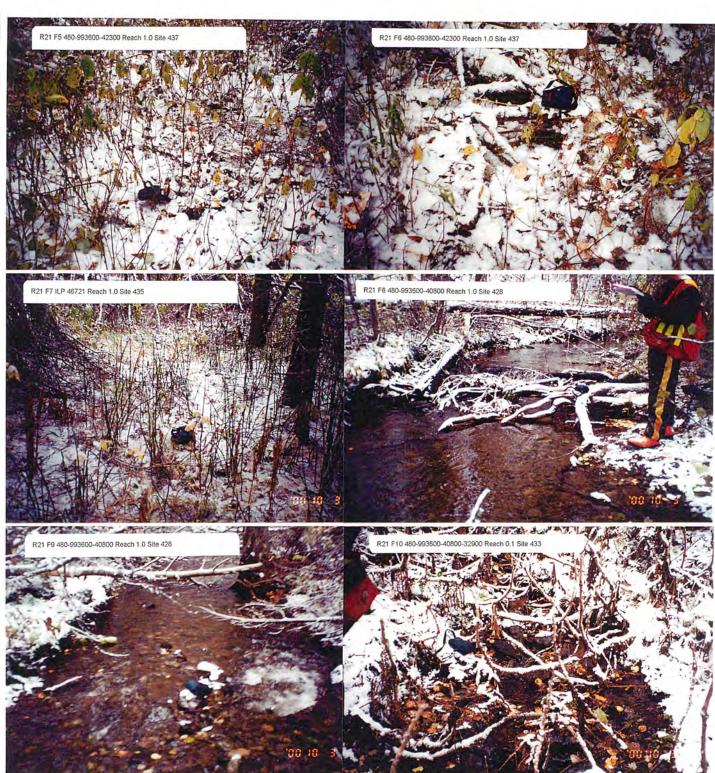






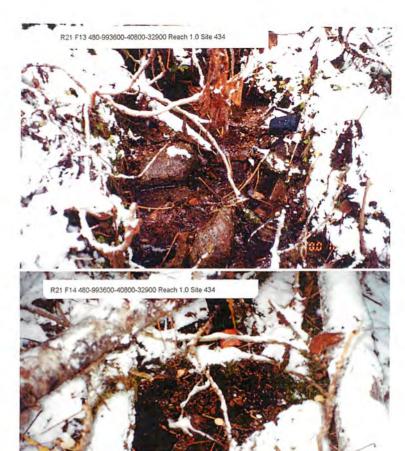


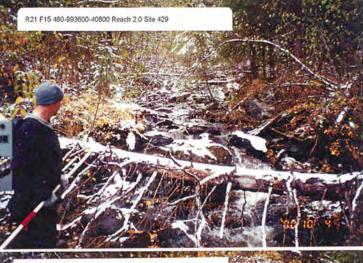


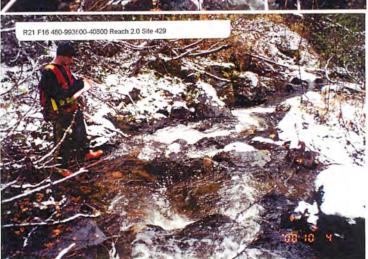


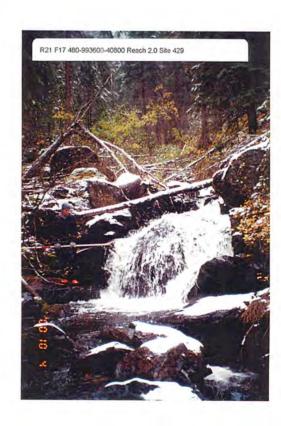


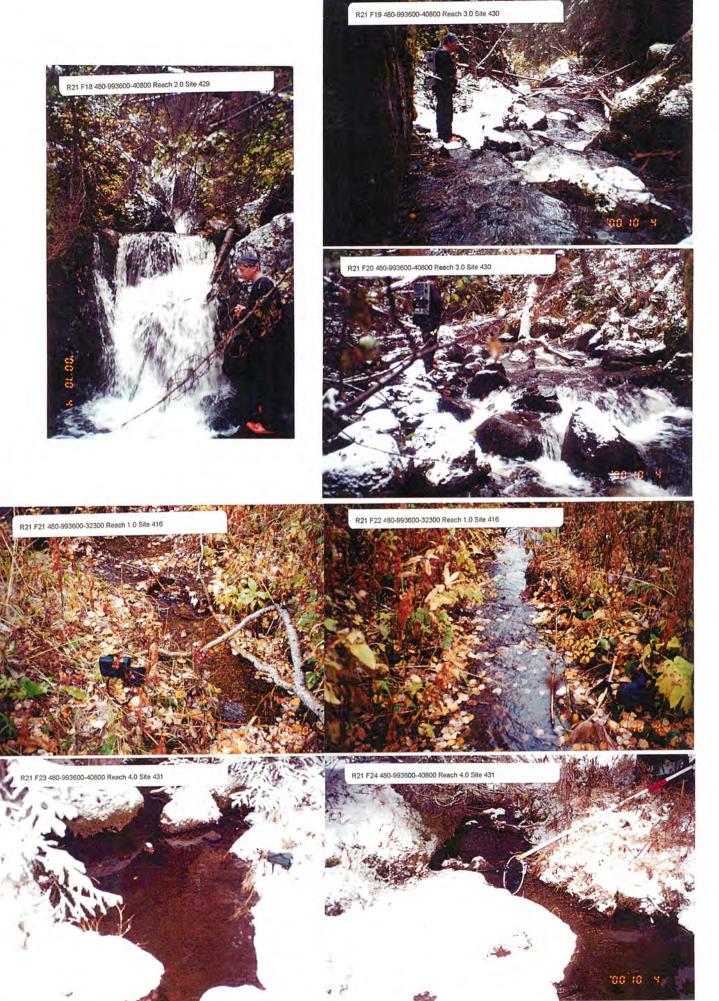












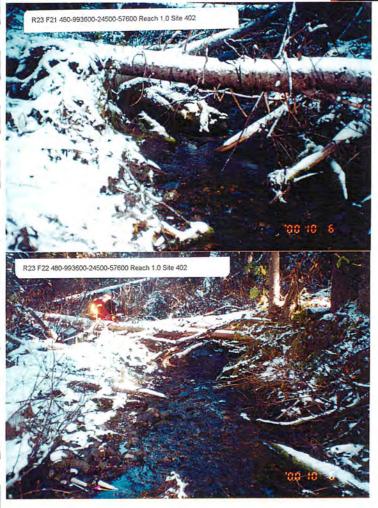






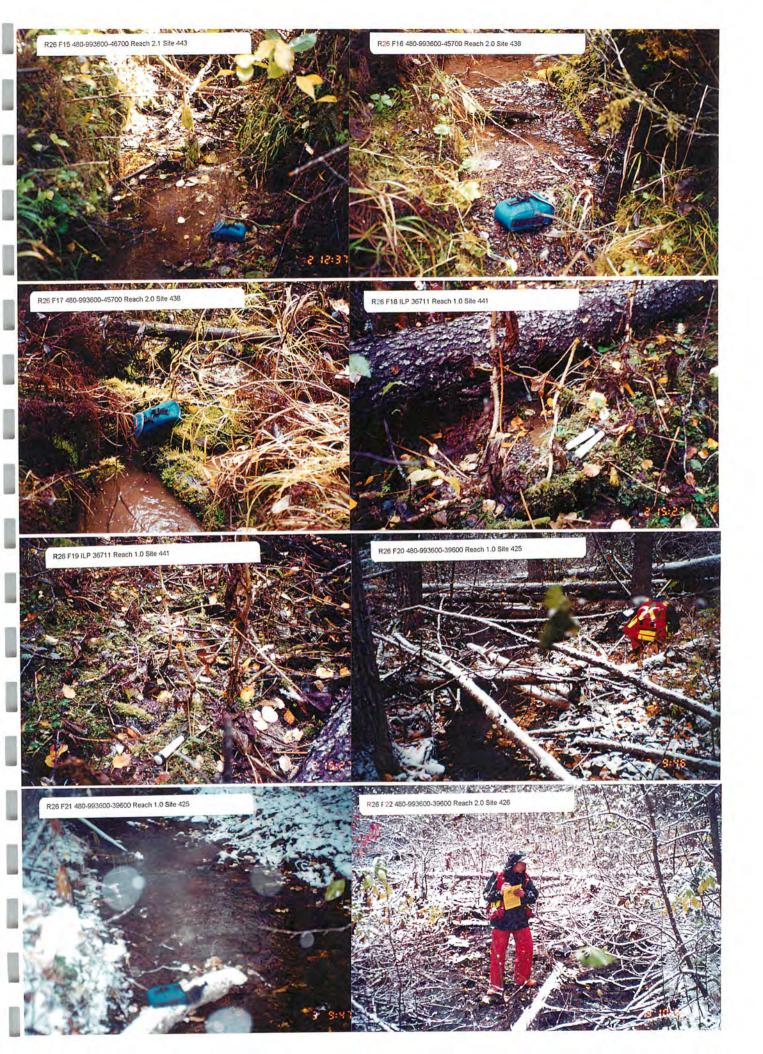
























# Reconnaissance (1:20,000) Fish and Fish Habitat Inventory

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: 0

0000105

**MELP Project Number:** 

BFP-C016-001-2001

FRBC Activity Number:

10437

Project Name	FDIS Project Number	FDIS Project WSC
François 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 fins@kermode.net

Contact E-mail: Ministry Representative:

Paul Giroux

#### List of Deliverables Submitted

Deliverable Product	Received	Approved (QA)
Project Plan (digital and hardcopy)	V	SB
Excel/Word File Names		
Project Overview Map	V	
List of References and Contacts	V	
ILP Data Sheets (digital and hardcopy)	V	
ILP Map Status		
Interim Maps	V	
Reach Table (digital and hardcopy)	V	
Lake Table (digital and hardcopy)	V	
Sampling Design Sheet (from FDIS)		
FDIS database (digital)		4 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: Contact Phone: Shawn Redden (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		4B

#### **Activity Log**

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

**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 François 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 Fnone:

fins@kermode.net

Ministry Representative:

Paul Giroux

#### List of Deliverables Submitted

Deliverable Product	Received (for GA caly	Approved (QA)
4 copies of watershed report (Includes embedded overview map)	/*	
2 digital copies of above report	V **	
4 copies of Project and Interpretive Maps	/ *	
2 digital copies of above map export files 1 digital copy of above map plot files	V *	
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  indexed copies of photo CD's	√ √ √*	
Field Data (Attachment IV)  Field site cards, fish collection forms	/	<b>1</b>
Digital Data (attachment V - see readme.txt file)		
1 hardcopy and 1 digital copy of QA report	V	- B- B- B- B- B- B- B- B- B- B- B- B- B-
1 hardcopy and 1 digital copy of Phase Completion Report	1	The second second

\*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,	Data entry into FDIS database, watershed report compilation,
2001	mapping
March 21, 2001	Submit report and maps to John Stadt (FES)
March 21, 2001 - March	Address ministry and QA review of report and maps
31, 2000	

### **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, 200				
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

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

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 data transferred for
<ul><li>FISS map</li><li>List of references</li></ul>	N N/A	N/A	Y	features only, maps not provided. Confirmed acceptable with Paul Giroux.
<ul> <li>List of contacts</li> </ul>	Y	Y	Y	
<ul> <li>New FISS information summary and products</li> </ul>	N/A	N/A	N/A	No new information located.
6. ILP Data*				
<ul> <li>ILP data sheets</li> </ul>	Y	Y	Y	
<ul> <li>ILP map list</li> </ul>	Y	Y	Y	
ILP maps or status repor	t Y	N/A	Y	Confirmation Email included.
7. Interim Maps				
map list	Y	Y	Y	
<ul><li>maps</li></ul>	Y	N/A		
8. FDIS Database	N/A	Y	Y	
<ul> <li>FDIS QA Report</li> </ul>	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	
<ul><li>13. Related items to perform QA</li><li>Aerial Photos</li></ul>	Y	N/A	Y	

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.

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: 10437

Project Areas: Sutherland - WSC 480 -, FDIS Code: 4119, Bulkley - WSC 460 -, FDIS Code: 4120 François 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:

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> 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	<u> </u>
	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:

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

François 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	<b>.</b>	
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
New Features with NIDs	N		phase, asconfirmed, to avoid mapping confusion. Acceptable by P. Giroux.
Proposed reach sample sites	Y		
(random/discretionary)			
Proposed lake sample sites	N/A		
(primary/secondary)			

Approved: **Recommended Actions:** 

Pending OK from Paul Giroux re: Feature NIDs

#### 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)	 1				
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.

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> 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 <b>random</b> 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 $\geq$ 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?		
<ul> <li>Above or below barriers</li> </ul>	Y	
<ul> <li>Adjacent to identified cutblocks</li> </ul>	UNK	
<ul> <li>Major inlets and outlets of secondary lakes</li> </ul>	Y	
<ul> <li>Of inlets and outlets of primary lakes</li> </ul>	Y	
<ul> <li>To achieve connectivity within sub-basins for fish distribution and identification of upstream limits</li> </ul>	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:

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
Is there at least one lake from each lake group identified that will be sampled?	N	provided. OK with Paul Giroux of MELP.
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:

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

Project Areas: Sutherland - WSC 480 -, FDIS Code: 4119, Bulkley - WSC 460 -, FDIS Code: 4120

François 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	Comments
<u></u>	(Y/N)	
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:** 

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

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	i	1	5	<u> </u>	1	6

					_						
For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #						<u> </u>		1	<u> </u>		
ILP Sheet, FDIS, ILP (or interim) map match						<u> </u>					
NID # and NID map # or UTM								1	<b>†</b> —		
TRIM Map Number		1				1	<u> </u>		<b></b>		
Reach #									<del>                                     </del>		
Reach Break Location		*	*				1		-	ļ —	
Reach Map Symbol			1	<u> </u>			<u> </u>				
Map Status		<del>                                     </del>	1 —	<u> </u>			<del> </del>		<del>                                     </del>		
Order					· · · · ·						
Upstream/Down stream Elevation		<b>-</b>	†		<u> </u>				_	-	
Length		1	<b> </b>	-	<b>-</b>			<b>-</b>			
Pattern		<b></b> -			†		<del>                                     </del>		<u> </u>	X	
Confinement			ļ ———						<b></b> -		
An/BR		<u> </u>			-	<del>                                     </del>					
Basin Type						<u> </u>		<u> </u>			
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	Total 1

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

#### 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.

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)

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

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	-40800-	-40800-	36713	46705	46714	-00600	-00600-	55703	55706	55707
480-993600-	32900	55500					22100			
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										l	
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

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> 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	-52 <b>80</b> 0- 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

TO ATT TO									,		
For All Reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed Code or ILP# and ILP map #			1		1			l	1		
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location											
Reach Map Symbol					1						
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	

	10 N						1.7	1.5	****/**		
Features	1	2	3	4	5	6	7	8	9	10	Comments
NID and NID Map Number					T						
Map Symbol											
Total Errors									<u> </u>		
Shaded Cell Errors											

Comments:

Features are missing NIDs

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

Project Areas: François 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	

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

Project Area: François 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			L								
Reach #											
Reach Break Location											
Reach Map Symbol											
Map Status											
Order						<u> </u>					
Upstream/Down stream Elevation											
Length								<u></u>			
Pattern			<u> </u>			<u> </u>					
Confinement		<u> </u>		<u></u>							
An/BR					1			l			
Basin Type	l .					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	

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

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 #											5
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	

	1					-					
Features	1	2	3	4	5	6	7	8	9	10	Comments
NID and NID Map Number	х	х	х	х	х	х	Х	Х	х		No feature NIDs
Map Symbol	3F	15C 50	10C 30	150 F	40F	С	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	I	1	1		Total = 9

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

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

E. All D.						, i.					
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								T -			
Map Status											
Order							<b></b>				
Upstream/Down stream Elevation									-		
Length							<b></b>	_			
Pattern				_			_				
Confinement				· · · ·							
An/BR				-				<u> </u>		-	
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	

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-	-26900-	-53145-	-58000	40004	40009	40029	40031	40035	-829700-
460-	80800	80800	64712			}				20600
NID	116	118	157	163	3	24	82	86	92	23
Reach #	2	4	1	6	1	4	4	1	1	12

D ALL D	1	2	2	4	5	(	7	8	9	10	Comments
For All Reaches	1	2	3	4	3	6		0	7	10	Сощшента
Watershed Code or ILP# and ILP map #										l	
ILP Sheet, FDIS, ILP (or interim) map match											
NID # and NID map # or UTM											
TRIM Map Number											
Reach #											
Reach Break Location											
Reach Map Symbol			<u> </u>								
Map Status											
Order	<u>.</u>			L							
Upstream/Down stream Elevation											
Length										ļ	
Pattern											
Confinement											
An/BR										L	
Basin Type								ļ			
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.

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

François 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								<u> </u>			
Open Water											
Coupling								<u> </u>			
Valley Flat											
Active Floodplain											
Islands											
Bars				<u> </u>				L			
Disturbance Indicators							<u> </u>				
Mass Movement											
Riparian Vegetation							1				
Exposed/Eroded											
Land Use					<u> </u>		L		<u> </u>	L	
Total Errors				<u> </u>	<u> </u>	L				<u> </u>	

**QA Summary** 

£.1 2	All Re	aches	Feat	ures	Sample	Reaches
Number of Reaches to be Sampled	9	0	23	8		
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)	10	52	6	j		
Number of Errors Found	1	1	2	8		
Is the Number of Errors Acceptable (Y/N)	Y	es	N	1		
Number of Errors in Zero-Tolerance Attributes	a en jak y <b>(</b>	)	2	8		

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.

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

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 -	02259	02224	02074	01879	55901	01934	46901	02067	02090	45901
BABL-										
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	N :	1.5	· 항	38	Ť	1.				\$	
NID Number and NID Map Number				1.				х		100	NID Typo – 14 on Map, 74 in FDIS
UTM (optional, but no errors allowed)											
Reach Number											
Basin Type							i				
Group		х	х	х		х		х	х		See notes below
Class (P/S)											
Genesis											
Surface Area		,					l				
Magnitude											
Biogeoclimatic Zone											
Wetland											
Total Errors for Each Lake	0	1	1	1	0	ĺ	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.

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

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)

_ <del>`</del>	1	2	3	4	5	6	7	8	9	10
ILP# or WBID		81902	02298	91901						
FRAN -					1	ļ				
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"				-		Ą	1		- :	14 6,	¥
ILP and ILP map number											
NID Number and NID Map Number						Ŷ.			4.5	4	<u> </u>
UTM (optional, but no errors allowed)											1
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.

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)							I				
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		I – typo for NID	

Approved: Y

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	Listed in	Area of Expertise		First Aid	Electrofishing		
Names	Contractor Plan	(bio, geo, other)	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		

OA 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	7
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: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

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
Oakton TDS	Y	N/A	WQ sampling
Oakton PH	Y	N/A	1
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	Accep	Acceptable	
_		Tech.	Data	
Site Selection		Y	Y	
Reference	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: O For Field Crew: 7703	Field Audit Leader:	<u>58</u>	For Field Crew:_	FINS
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# Fish Inventory Quality Assurance Check Form Field Audit for Stream Surveys: Site Card Procedures Check Continued

# Form 2B - Page 2 of 2

Group	Item	Accep	Acceptable		
-		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		

Group	Item	Accer	Acceptable	
•		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	
	Туре	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	

Notes:

#### **Field Audit Confirmation**

Field Audit Leader:	6B	. For Field Crew:	FINS
riciu Audit Leauci.		. Poi Piciu Ciew.	

# Fish Inventory Quality Assurance Check Form Field Audit: Fish Collection Forms

Project Name: Babine Forest Products Fish and Fish Habitat Inventory

MELP Project Number: <u>BFP - C016-001-2001</u> FRBC Activity #: <u>10437</u>

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	N		
fishes of BC			
Approved electroshocker	Y		
Ancillary fish capture	Y		
equipment (buckets,			
dipnets, stop net)			
Fry Board/ruler	Y		
Weigh Scale	N/A		
Fish samples (scale	Y		
envelopes, tissue vials)			
Voucher containers,	Y		
preservative, labels		<u> </u>	

Sampling Technique		Accepta	ble		
		Y	N	Notes	
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	Tilt/safety	N/A		No water for EF at either	
function	Main power switch	N/A		site, however, we discussed EF techniques, sampling	
	Anode deadman switch	N/A		effort fish ID and handling	
	Quick release harness	N/A		with crews in field – crews	
	Anode Clean	N/A		have a sound knowledge of	
Electrofishing techniques	Safe operation and hand signals	N/A		EF function, fish capture, fish handling, site coverage	
	Site coverage - all habitat types fished	N/A		Checked crew in 1999 – good EF technique.	
	Effective fish capture	N/A			
	Impactson fish	N/A		1	
Fish Handling	Impacts on fish	N/A		7	

	1.0		F
Field Audit Leader:	SOB	. For Field Crew:	F1105
i iviu / iuuit Loguvi.	U. E. Z.	. I of I fold Civit.	

Form 2D Continued – Page 2 of 3

····		Accepta	able	
Sampling Tec	hnique	Y	N	
	· · · · · · · · · · · · · · · · · · ·			Notes
Fish	Correct ID	N/A		No fish sampling
identification	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		Accepta	able	Notes
<b>F</b>	1	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		
	Resample	N/A		
Site/Method	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	Accepta	ible	Notes
Отоир	rem .	Tech	Data	110000
Fish	Site#	N/A		
Summary				
	Method, method #	N/A		
- <u> </u>	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	Site#	N/A		
Specs.	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 collection form #	N/A		
Fish data	Site#	N/A		
	Method, method #	N/A		
	Haul/Pass	N/A	1	
	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

	CD		F : 1 C
Field Audit Leader:	76.	For Field Crew:	F1103

#### FORM 2D- CONT'D - Page 3 of 3

Group	Item	Accept	able	Notes
		Y	N	
Individual	Age	N/A		
Fish data	Voucher	N/A		
(cont'd)	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 disucussion 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:	5B	For Field Crew:_	FINS
		_	· · · · · · · · · · · · · · · · · · ·

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	Watershed report	Y	Y	
reporting	Appendices			
	I. FDIS summary and photographs	Y	Y	
	II. Maps	Y	(N)	Folder created; to be included with fianl
	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	Lake report	N/A		
reporting (for each lake)	Appendices	N/A		
(101 cdell lake)	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		

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:

	Accep	table	·
	to WSC Y Con  -UTM UNK Pls ate bathymetry N/A  a report attached	Comments	
Conversions done:			
ILP to WSC	Y		Confirmed by PG to leave off, but submit disk with new codes to MELI
• 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

		Acce	ptable	
	Filename	Y	N	Comments
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.

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

FRBC activity number: 10437 MELP pr

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	I, 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											

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	1 0	Error locati ons
Water	EMS#	1, 2											
	Temperature, pH	1, 2											
	Water chemistry requisition #	1, 2											
	Conductivity, turbidity	1, 2		-									
Channel	Flood signs	1, 2											
morpho-	Bed material	1, 2, 3											
logy	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	General comments	1, 2						-					
quality	Fisheries sensitive zones	1, 2, 3, 4											
Photo-	Roll #	1, 2											
documen-	Frame #	1, 2											
tation	Focal length	1, 2	1										
	Direction	1, 2				T							
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2						*					
Comments	General comments	1, 2											
Total Error	'S:		0	0	2.5	0	0	0.5	0	0	0.5	1	

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	1 3	1 4	1 5	1 6	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											
	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	T										
	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											· <u></u>
	Instream vegetation	1, 2											
	Bank shape, texture, riparian vegetation	1, 2											

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 2	1	1	1 5	1 6	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	Flood signs	1, 2											
morpho-	Bed material	1, 2, 3											
logy	D95, D	1, 2				1							
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3											
	Pattern	2, 3		-									
	Islands, bars, coupling	1, 2											
	Confinement	2, 3	ļ										
Features	NID map # and NID #	1, 2					1						
	Type, height/length	1, 2, 3, 4											
	Photo, comments	1, 2											
	UTM	1, 2											
Habitat	General comments	1, 2											
quality	Fisheries sensitive zones	1, 2, 3, 4											
Photo-	Roll#	1, 2											
documen-	Frame #	1, 2											
tation	Focal length	1, 2											
	Direction	1, 2											
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2											
Comments	General comments	1, 2											
Total errors	s:		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

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)

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)

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

Site 414 (#10)— $D_{95}$ =4000 in field, 400 in FDIS — n

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

Site 443 (#18)—Site located in reach 2 on maps, 2.1 on FDIS and card \_ /. \_

--channel width should be rounded up

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 (480-993600-)	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											<u>-</u>
	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	1										
	Species	1, 2, 3, 4											
	Stage, total #	1, 2											
	Min. length	1, 2											
	Fish activity	1, 2											

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	Method, method no.	1, 2											
specifications	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher	Method, method no.	1, 2											
specifications	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

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	Site #	1, 2											
fish data	Method, method no.	1, 2											
	Haul/Pass	1, 2											
	Species	1, 2											
	Length	1, 2	1										
	Weight	1, 2											
	Sex	1, 2	Ī									,	
	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

<sup>\*</sup>Only 7 'Individual Fish Cards' for this project area

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:**

Report section	Attribute	Accept. Y/N	Notes
Introduction		<u>.L</u>	
Project scope, objectives	1:20 000, 1:5000, lakes, etc.	Y	F T
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	

<sup>\*1-</sup>Fix name of Table 1 in TOC

<sup>\*2--</sup>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

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

# CONTINUED – PAGE 2 OF 5

Report section	Attribute	Accept. Y/N	Notes	Report section	Attribute	Accept. Y/N	Notes
Results and Discussion		- •	· · · · · · · · · · · · · · · · · · ·	Significant features and	Fish and fish habitat	Y	
Logistics	Problems encountered (e.g.,	Y		fisheries observations	Critical habitats	Y	
	weather, access, water levels)				Special populations (rare, etc.)	Y	
	How were problems addressed?	Y			Wild stocks	Y	
	How were results affected?	UNK			High value sport fishing	Y	
Summary of sub-basin biophysical information (optional)	Table of information defining each sub-drainage	N/A	Remove mention of table (pg 6), or		NO management recommendations	Y	
Habitat and fish	Characteristics of fish habitats	Y	include		Habitat protection concerns		
distribution	Pattern of fish distribution	Y	-		Fisheries sensitive zones	Y	
			4		Fish above 20% gradients	Y	
	Location of significant fish populations	Y			Restoration opportunities	Y	
	Lakes treated as a reach of the	Y	1		Problem culverts	Y	
	stream				Unstable slopes	Y	
	Upstream limits of species	Y	1	Fish bearing status	Brief narrative section	Y	
	presence Obstructions that influenced fish	Y			Table: Summary of fish bearing reaches	Y	
	presence  Table of all barriers present	Y		Fish bearing status (cont.)	Table: Summary of non-fish bearing reaches	Y	
Fish age, size and life history	Summary of life stages, life history, etc.	Y		· •	Table: Follow-up sampling required	Y	
	Length-frequency histograms	Y		References	All sources in report listed	N	(FINS, 2000)
	Table: Summary of length-atage	Y			According to CBE style manual	Y	
	Data presented by species	Y	<del> </del>	Comments:			
	Data presented by sub-drainage	Y					

Y

Age classes appear correct

#### FORM 3K

#### CONTINUED - PAGE 3 OF 5

Stream Report Appendices

Report section	Attribute	Accept Y/N	Notes
Appendix I.	In ascending order by WSC	Y	
FDIS summary and	Grouped by site	Y	
photographs	FDIS reach card printouts	Y	Combined as one
	FDIS site card printouts	Y	on summary card
	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.	"E" size plots	Y	
Hardcopy maps – Fisheries project map	Folded in pocket in report	(Y)	App_created; will be folded in final
r islicites project map	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 –	WSCs or ILPs for all sampled streams	Y	*Would like to see WSC/ILP placed at mouth or head of creek		
Fisheries project map (cont)	WSCs or ILPs for all 3 <sup>rd</sup> order or higher streams	Y	they are occasionally in middle and		
	WSCs or ILPs for every other 1st and 2nd order stream	Y	difficult to find		
	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:

Substrate codes: consider reversing order of B & R

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

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

\*3-check overlap of info for all lakes

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

#### 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? -> just remided you to include this in Hep 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 reddressed

#### Stream Report Appendices

Report section	Attribute	Accept. Y/N	Notes
Appendix II.	"E" size plots	Y	
Hardcopy maps – Fisheries interpretive map	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	112
	WSCs or ILPs for all sampled streams	Y	*Would like to see WSC/ILP
	WSCs or ILPs for all 3 <sup>rd</sup> order or higher streams	Y	placed at mouth or head of creek;
	WSCs or ILPs for every other 1 <sup>st</sup> and 2 <sup>nd</sup> order stream	Y	they are occasionally in middle and difficult to find
	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 –	Features, obstructions and symbols (optional)	N	*5
Fisheries interpretive map (cont.)	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 \_\_\_\_\_ ue ve talk ebout



- \*2-Please thicken every 5th contour, and add elevation markings
- \*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 itp 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.	Budget breakdown by phase	N/A	
Planning document	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 book or facsimile	Y	
Field notes	Site cards	Y	
	Fish collection forms	Y	
	Individual fish data forms	Y	
	Field working maps	N/A	
Attachment III.	Actual ageing structures	N/A	
Fish ageing structures	Labelled photocopies	N/A	
	Annuli identified with red	N/A	
	Age data are correct	N/A	
Attachment IV.	Table: Vouchers collected	N/A	
Voucher, DNA samples	Table: DNA collected	N/A	
Attachment V.	Table: Photo summary report	Y	
Photodocumentation	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.	Negative #s match digital	Y	
Photodocumentation	Prints in plastic sleeves	N/A	
(cont.)	Prints labelled	N/A	
Attachment VI.	Budget breakdown by phase	Y	
Digital data	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 data forms and maps	N	*2
FISS update data	Copies of reference material	N	*3
	Data on forms match FDIS	Y	
Attachment VIII.	Purchased aerial photos	N/A	
Aerial photography	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

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	Watershed report	Y	Y	·
reporting	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	
			ļ	
Individual lake	Lake report	N/A		
reporting (for each lake)	Appendices	N/A		
(101 each take)	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		

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		
	Y	N	Comments
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

		Acce	ptable	
	Filename	Y	N	Comments
Digital map files			X	To be completed for final
Metadata table			X	
Map attributes table			X	
FDIS data check		N/A		Internal/MELP process
<ul> <li>Sequential reach numbering:</li> </ul>		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.

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	I, 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											

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. R

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	1							-			
	Conductivity, turbidity	1, 2	1						X				
Channel	Flood signs	1, 2	1										
morpho-	Bed material	1, 2, 3											
logy	D95, D	1, 2				-						-	
	Morphology	1, 2, 3	1										
	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	General comments	1, 2											
quality	Fisheries sensitive zones	1, 2, 3, 4											
Photo-	Roll #	1, 2											
documen-	Frame #	1, 2											
tation	Focal length	I, 2		•									
	Direction	1, 2											
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2											
Comments	General comments	1, 2										-	
Total Error	s:		1	0	0	0	0	0	1	0	0	0	

Comments: Notes and comments following Forms 3C.

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
Mapsheet (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 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				Х		*					
	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	Х				
	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	Х				
	Reach gradient	2, 3, 4						Χ	X			1	
	Bankfull depth	1, 2											
	Stage	1, 2											
	No Vis. Ch., DW, and Dry/Int.	1, 2, 3, 4		-									
	Tribs	1, 2, 3, 4										ı	
Cover	Total cover	1, 2											
	Cover elements	1, 2											
	Functional LWD (amount, distribution)	1, 2											
	Crown closure	1, 2											
	Instream vegetation	1, 2							$\neg$				
	Bank shape, texture, riparian vegetation	1, 2											

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 2	1 3	1 4	1 5	6	7	1 8	1 9	2 0	Error locations
Water	EMS#	1, 2	1-				ļ		1	_			
	Temperature, pH	1, 2	İ	<b> </b>	1	-			+	$\vdash$		-	
	Water chemistry requisition #	1, 2	$\top$		ļ —	Ť			†				
	Conductivity, turbidity	1, 2				+-			1				
Channel	Flood signs	1, 2			T				+				
morpho-	Bed material	1, 2, 3			<u> </u>				1			-	
logy	D95, D	1, 2	1			X	X		X	-	-		
	Morphology	1, 2, 3				-	-			-			
	Disturbance indicators	1, 2, 3			-	ļ							
	Pattern	2, 3	ļ -	-				X	X			-	
	Islands, bars, coupling	1, 2							-				
	Confinement	2, 3	-	-				X	X				<del>-</del>
Features	NID map # and NID #	I, 2			$\Box$		ļ <u>.</u>						
	Type, height/length	1, 2, 3, 4		-									
	Photo, comments	1, 2											
	UTM	1, 2											
Habitat	General comments	1,2					_						
quality	Fisheries sensitive zones	1, 2, 3, 4		-					1				
Photo-	Roll #	1, 2											<del></del>
documen-	Frame #	1, 2											
tation	Focal length	1, 2							<u> </u>	-			
	Direction	1, 2							X				
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2			-							1	
Comments	General comments	1, 2			-								
Total errors	):	L	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

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

Site 234 (#7)-Conductivity differs b/w site card & FDIS

Site 306 (#14)-Site symbol located on wrong creek

addressed

addressed

70 (#14)-Site symbol located on wrong creek

-D<sub>95</sub>=4000 on site card, 400 in FDIS  $\checkmark$ 

Site 314 (#15)- D<sub>95</sub>=4000 on site card, 400 in FDIS

-Falls placed incorrectly on map -

Site 324 (#16)-No RSS on Interp.; should reach 0.1 be dashed blue?—check card hab. comments (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

-  $D_{95}$ =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 Sz in next site

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	83-1400- 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	1										
	Stream/Lake/Wetland	1, 2, 3	1										
	Watershed code or ILP	1, 2, 3, 4, 5	1										
	Waterbody ID	1, 2, 3, 4, 5											
	ILP map #	1, 2											
	Reach #	1, 2, 3, 4, 5											
	MELP fish permit #	1, 2						<del></del>					
	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	1										
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											

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	Method, method no.	1, 2											
specifications	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	Method, method no.	1, 2											
specifications	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											- 10
	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

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	Site #	1, 2											
fish data	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	1					-					

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

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	Location Description					
Overview map	8.5 × 11" or 11 × 17"	Y	Please consider			
	Outline of entire study area	Y	an extra			
	Inset map showing relation to BC	N	referencin g area to			
	Sample site locations	Y	BC, rather than just Houston/			
	1:20 000 map grid	Y	Burns Lk.			
	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			
	Existing water quality data	(Y)	not addressed			
	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				

# CONTINUED – PAGE 2 OF 5

Report section	Attribute	Accept. Y/N	Notes	Report section	Attribute	Accept. Y/N	Notes
Results and Discussion				Significant features and	Fish and fish habitat		
Logistics	Problems encountered (e.g	Y		fisheries observations	Critical habitats	Y	
	weather, access, water levels)				Special populations (rare, etc.)	(N)	BMC an issue?
	How were problems addressed?	Y			Wild stocks	Y	13300 /
	How were results affected?	UNK			High value sport fishing	Y	
Summary of sub-basin biophysical information (optional)	Table of information defining each sub-drainage	Y	Referred reader to table in front of report		NO management recommendations	Y	
Habitat and fish	Characteristics of fish habitats	Y			Habitat protection concerns		
distribution	Pattern of fish distribution	Y	7		Fisheries sensitive zones	Y	Γ΄
	Location of significant fish	Y	-		Fish above 20% gradients	Y	
	populations				Restoration opportunities	Y	
	Lakes treated as a reach of the	Y	1		Problem culverts	Y	?ANY?
	stream				Unstable slopes	Y	?ANY?
	Upstream limits of species	Y		Fish bearing status	Brief narrative section	Y	
	Obstructions that influenced fish	Y	-		Table: Summary of fish bearing reaches	Y	
	Table of all barriers present	Y		Fish bearing status (cont.)	Table: Summary of non-fish bearing reaches	Y	
Fish age, size and life history	Summary of life stages, life history, etc.	Y			Table: Follow-up sampling required	Y	
	Length-frequency histograms	Y		References	All sources in report listed	N	(FINS, 2000)
	Table: Summary of length-atage	Y			According to CBE style manual	Y	2000,
	Data presented by species	Y		Comments:			

Y

Y

Data presented by sub-drainage
Age classes appear correct

Disclaimer

Lake and stream annotation

### **Stream Report Appendices**

Report section	Attribute	Accept Y/N	Notes	Report section	Attribute	Accept Y/N	Notes
Appendix I.	In ascending order by WSC	Y		Appendix II.	WSCs or ILPs for all sampled	Y	
FDIS summary and	Grouped by site	Y		Hardcopy maps -	streams		
photographs	FDIS reach card printouts	Y	COMBINED ON A SUMMARY	Fisheries project map (cont)	WSCs or ILPs for all 3 <sup>rd</sup> order or	Y	
	FDIS site card printouts	Y	PAGE	(com)	higher streams		_
	Fish data collection form	N	Waiting for confirmation from PG		WSCs or ILPs for every other 1 <sup>st</sup> and 2 <sup>nd</sup> order stream	Y	
	Photos (min. 1, max. 4)	Y			WBIDs for all lakes	Y	*4
	All photos entered in FDIS	Y			Sample site locations/numbers	N	*5
	Explanatory photo captions	Y		•	All site data symbols attached	N	Found one missing on map
	Photos in colour (final only)	Y		•	to sites		L 050, pls. check
Appendix II.	"E" size plots	Y			Lake summary symbols	Y	
Hardcopy maps – Fisheries project map	Folded in pocket in report	(Y)	App. Created; will be folded in final	•	Reach data symbols on all reaches	N	Sites 324, 327; pls. Check for
r ionerios project map	UTM projection	Y		•	<30% gradient and all reaches		all maps
	1:20 000 map grid	Y		•	containing sites		Pls check
	1:20 000 scale	Y		•	Features, obstructions and symbols	N	placement (eg- falls on -31500-
	Complete title box	Y		•	Symbols		40900) for all maps
	Complete legend box	N	*1	•	Reach breaks and numbers	N	Crow Cr., pls. check others
	Source information box	Y		Comments:			
	Inset map box	Y		*1 Please add symbology for	slide (LS?), dam , and culvert		
	Fish species box	Y		*2 Please thicken every 5th co	ontour, and add elevation markings		
	Contour lines (thinned)	N	*2	*3 N. Ailport, Watson Creek			

N

N

Spelling mistake

\*3

- \*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.	"E" size plots	Y	
Hardcopy maps – Fisheries interpretive	Folded in pocket in report	(Y)	App. Created with final
map	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 <sup>rd</sup> order or higher streams	Y	
	WSCs or ILPs for every other 1st and 2nd 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

# CONTINUED – PAGE 5 OF 5

Negatives in plastic sleeves

Negatives labelled

Y

N

\*1

#### **Stream Report Attachments**

Report section	Attribute	Accept. Y/N	Notes	Report section	Attribute	Accept Y/N	Notes
Attachment I.	Budget breakdown by phase	N/A		Attachment V.	Negative #s match digital	N	Check R4
Planning document	Project sampling design	N/A		Photodocumentation	Prints in plastic sleeves	N/A	
	Process of site selection	N/A		(cont.)	Prints labelled	N/A	
	Reach table	N/A		Attachment VI.	Budget breakdown by phase	Y	
	Lake table	N/A		Digital data	Project sampling design	Y	
	Random sample table	N/A			References, contacts list	Y	
	References, contacts list	N/A			Table of vouchers collected	N/A	
Attachment II.	Field book or facsimile	Y			Table of DNA collected	N/A	
Field notes	Site cards	Y		•	Photo summary report	Y	
	Fish collection forms	Y		•	Report tables, figures	Y	
	Individual fish data forms	Y		•	Report text	Y	
	Field working maps	N/A			FDISDAT.MDB	Y	
Attachment III.	Actual ageing structures	N/A			Mapping files (plot files)	N	WITH FINAL
Fish ageing structures	Labelled photocopies	N/A			Mapping files (metadata and map	N	WITH FINAL
	Annuli identified with red	N/A		· <del></del>	features files)	ļ., —	
	Age data are correct	N/A		Attachment VII.	FISS data forms and maps	Y	
Attachment IV.	Table: Vouchers collected	N/A		FISS update data	Copies of reference material	N	*2
Voucher, DNA samples	Table: DNA collected	N/A			Data on forms match FDIS	Y	-
Attachment V.	Table: Photo summary report	Y		Attachment VIII.	Purchased aerial photos	N/A	
Photodocumentation	Colour thumbnail reference	Y	Except CD#8	Aerial photography	Aerial video tape	N/A	
	Photo CD	Y		Comments:			
	CD Image #s match digital	Y		*1-Please add labels t	o negative pages (in case of remova	ıl)-proj. ı	name, 1

<sup>\*1-</sup>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.

<sup>\*2-</sup>Please include a copy of report, with reference number on front cover, to be sent to Victoria with FISS updates

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	Watershed report	Y	Y	
reporting	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	Lake report	N/A		
reporting (for each lake)	Appendices	N/A		
(101 each lake)	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		

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 3B

#### DIGITAL DATA CHECKING - PAGE 1 OF 1

#### For each FDIS file provided:

#### FDIS filename:

	Accep	table	
	Y	N	Comments
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

		Accep	table	
	Filename Y N		N	Comments
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.

Project name: 1:20K F&FH Inventory: Tributaries in the François 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											<del>-</del>
	Watershed code or ILP map # and ILP #	1, 2, 3, 4											
	NID map # and NID #	1, 2	1	<u> </u>									
	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								*	Х		
	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											

Project name: 1:20K F&FH Inventory: Tributaries in the François 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	1 0	Error locations
Water	EMS#	1, 2											
	Temperature, pH	1, 2	T										
	Water chemistry requisition #	1, 2											
	Conductivity, turbidity	1, 2											
Channel	Flood signs	1, 2											
morpho-	Bed material	1, 2, 3											
logy	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	General comments	1, 2											
quality	Fisheries sensitive zones	1, 2, 3, 4											
Photo-	Roll#	1, 2											
documen-	Frame #	1, 2	1										
tation	Focal length	1, 2											
	Direction	1, 2											
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2											
Comments	General comments	1, 2											
Total Error	s:		0	0	i	1	0	1	1	1.5	1	0	

Comments: Notes and comments following Forms 3C.

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 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											
	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											

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 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	<del>  -</del>			<u> </u>							
	Water chemistry requisition #	1, 2									-		
	Conductivity, turbidity	1, 2											
Channel	Flood signs	1, 2								T			-
morpho-	Bed material	1, 2, 3											
logy	D95, D	1, 2		ļ	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								1			
	Type, height/length	1, 2, 3, 4											
	Photo, comments	1, 2											
	UTM	1, 2											
Habitat	General comments	1, 2											
quality	Fisheries sensitive zones	1, 2, 3, 4											
Photo-	Roll #	1, 2					-						
documen- tation	Frame #	1, 2											
tation	Focal length	1, 2											
	Direction	1, 2											
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2											
Comments	General comments	1, 2											
Total errors	<b>:</b> :	· · · · · · · · · · · · · · · · · · ·	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

Project name: 1:20K F&FH Inventory: Tributaries in the François 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 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 ? V changed in Sprendshoet 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 waryed in FDIS & printed Site 98 (#12)-res. Pool depth entries missing charged in FDIS & printed

Site 101 (#13)-Dos differs b/w field card & FDIS some both - no f. evror

Site 145 (#16)-D<sub>95</sub> differs b/w field card & FDIS

Site 168 (#18)-LWD cover is missing loct'n info (P/S/O) changed in FDIS & printed

Site 173 (#19)-OV cover is missing loct'n info (P/S/O)

Site 158 (#17)-Channel width on maps should be 2.6 (not 2.5) . changed in spreadolisest

RSS & SDS to change

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											

Project name: 1:20K F&FH Inventory: Tributaries in the François 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	Method, method no.	1, 2											
specifications	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher	Method, method no.	1, 2											
specifications	Pass	1, 2											
	Time in, time out	1, 2	T	-									
	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

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	1	2	3	4	5	6	7	8	9	10	Error locations
Individual	Site #	1, 2						1					
fish data	Method, method no.	1, 2											
	Haul/Pass	1, 2						T					
	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	1			H							
	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

adduessed

'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.

Project name: 1:20K F&FH Inventory: Tributaries to the François 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		1	
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
	Existing water quality data	Y	not addressed
	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	

# FORM 3K

# CONTINUED – PAGE 2 OF 5

Report section	Attribute	Accept. Y/N	Notes	Report section	Attribute	Accept. Y/N	Notes
Results and Discussion		1-	<u> </u>	Significant features and	Fish and fish habitat	Y	Snodgrass subdrain
Logistics	Problems encountered (e.g.,	Y		fisheries observations			(4.4.1.4)
	weather, access, water levels)				Critical habitats	Y	
	How were problems addressed?	Y			Special populations (rare, etc.)	N	BMC info?
	How were results affected?	Y			Wild stocks	Y	
Summary of sub-basin	Table of information defining	N	*1		High value sport fishing	Y	
biophysical information (optional)	each sub-drainage				NO management recommendations	Y	
Habitat and fish	Characteristics of fish habitats	Y			Habitat protection concerns		
distribution	Pattern of fish distribution	Y	_		Fisheries sensitive zones	Y	
	Location of significant fish populations	Y			Fish above 20% gradients	Y	
	Lakes treated as a reach of the	Y	-		Restoration opportunities	Y	
	stream	1			Problem culverts	Y	?
	Upstream limits of species	Y	1		Unstable slopes	Y	?
	presence			Fish bearing status	Brief narrative section	Y	
	Obstructions that influenced fish presence	Y			Table: Summary of fish bearing reaches	Y	
	Table of all barriers present	Y		Fish bearing status	Table: Summary of non-fish	Y	
Fish age, size and	Summary of life stages, life	Y		(cont.)	bearing reaches		
life history	history, etc.				Table: Follow-up sampling	Y	
	Length-frequency histograms	N	*2	<del></del>	required		(55) 16
	Table: Summary of length-atage	Y		References	All sources in report listed	N	(FINS, 2000)
	Data presented by species	Y			According to CBE style manual	Y	
		Y		Comments:			
	Data presented by sub-drainage			*1—Please include a table with	the subdrainage info. In the Results & Discuss	sion (see Buba	Cr.)
	Age classes appear correct	Y			e e e e e e e e e e e e e e e e e e e	•	•

<sup>\*2—</sup>Check Figures 3 & 4

#### **Stream Report Appendices**

Report section	Attribute	Accept Y/N	Notes
Appendix I. FDIS summary and	In ascending order by WSC	Y	
	Grouped by site	Y	
photographs	FDIS reach card printouts	Y	In FDIS, but only the summary form has
	FDIS site card printouts	Y	been printed for each site
	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.	"E" size plots	Y	
Hardcopy maps – Fisheries project map	Folded in pocket in report	N	Will be for final
r isheries project map	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	0
	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 <sup>rd</sup> order or higher streams	(N)	*6
	WSCs or ILPs for every other 1 <sup>st</sup> and 2 <sup>nd</sup> 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\(\rightarrow\)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 $\frac{1}{1}$ On some maps, 93F.092 is labelled as 93K.092
  - -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 WSC 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
- 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

#### CONTINUED - PAGE 4 OF 5

### **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	Ÿ	
	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 <sup>rd</sup> order or higher streams	(N)	? Some creeks in area not
	WSCs or ILPs for every other 1 <sup>st</sup> and 2 <sup>nd</sup> order stream	(N)	annotated at all?
	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:

  -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

#### CONTINUED - PAGE 5 OF 5

#### **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 book or facsimile	Y	
Field notes	Site cards	Y	
	Fish collection forms	Y	
	Individual fish data forms	Y	
	Field working maps	N/A	
Attachment III.	Actual ageing structures	N/A	
Fish ageing structures	Labelled photocopies	N/A	
	Annuli identified with red	N/A	
	Age data are correct	N/A	
Attachment IV.	Table: Vouchers collected	N/A	
Voucher, DNA samples	Table: DNA collected	N/A	
Attachment V.	Table: Photo summary report	Y	
Photodocumentation	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
	1		<u></u>

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.	Budget breakdown by phase	N/A	Already at MELP as
Digital data	Project sampling design	N/A	Attach , submitted for
	References, contacts list	N/A	Ph. 123
	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.	Purchased aerial photos	N/A	
Aerial photography	Aerial video tape	N/A	
Comments:			1

- \*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.