Reconnaissance (1:20,000)
Fish and Fish Habitat Inventory of
Tributaries to West Shore of Babine Lake
Between Newman Island and the Fulton River
and an Unnamed Inlet stream to the
North Shore of Fulton Lake
East of Broughton Creek

Watershed Code: 480, 480-697200-08100

Prepared for

Houston Forest Products Co.
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Houston, B.C.
V0J 1Z0

Prepared by

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RR#1, Site 11, Comp. 4
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Approved by:

R. Saimoto

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Biologist
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March 31, 2002

PROJECT SUMMARY SHEET

PROJECT REFERENCE INFORMATION

MSR Project #:	HFP-SKR-001-2002
FRBC MYA #	CON 0001398
FRBC Activity #:	721096
FDIS Project #:	1282
MSR Region:	Prince Rupert Region (06)
FW Management Unit:	06-08
DFO Subdistrict:	Prince Rupert (6)
Forest Region:	Prince Rupert
Forest District:	Morice Forest District
Forest Licensee:	Houston Forest Products
Tenure Number:	FLA – 16827
First Nations Claim Area:	Lake Babine Nation

WATERSHED INFORMATION

Watershed Group	BABL
Watershed Name	Babine Lake, Fulton River
Watershed Code	480, 480-697200
UTM at Mouth	09.650476.6132826, 09.685874.6079110
Watershed Area	96 km^2 (study area only)
Total of all Stream Lengths	120.45 (study area only)
Stream Order	3 (study area only)
NTS Maps (1:50,000)	93L/16 (study area only)
TRIM Maps	093L.089, 093L.090, 093L.099 (study area only)
BEC Zone	SBSmc, ESSFmc (study area only)
Air Photos for Study Area	30BCC96151 No. 92-96, 169-171

SAMPLING DESIGN

Total # of Reaches	126
Random Sampling Sites	19 (19 planned)
Discretionary Sample Sites	13 (13 planned)
Value Added Sites	0 (0 discretionary)
Total Sample Sites	32 (32 planned)
Field Sampling Dates	July 18th – 20th, 2001; August 22nd and 23rd, 2001
Fish Species in Watershed	KO, CT, BB, RB, MW, LW, DV/BT, CSU, LSU, CSU, NSC, LT, PCC, CO, CH, PK, SK, CAS, LKC, RSC

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DISCLAIMER

This product has been accepted as being in accordance with the approved standards within the limits of the 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.

ACKNOWLEDGEMENTS

Funding for this project was provided by Forest Renewal B.C. and Houston Forest Products Co. (HFP), Houston, B.C. The contract was administered and monitored by Karen Balkwill for HFP. Melissa Todd and Karen Balkwill (HFP) were invaluable in their support throughout this project. Helicopter services were provided by Highland Helicopters, and the help and effort of Pat Rooney, Ryan Buchanan and Tanya Booth are greatly appreciated. Editorial comments on drafts of this report were provided by Melissa Todd and Karen Balkwill (HFP), Ron Saimoto (SKR Consultants Ltd.), Chris Schell (QA/QC Monitor), and Matthew Jessop (Ministry of Sustainable Resources). Matthew Jessop (Ministry of Sustainable Resources) reviewed the non-fish bearing tables for this project.

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Indexed negatives
Digital reports
Digital FDIS database

1.0 INTRODUCTION

Portions of the Fulton River watershed, and a series of inlet streams to the west shore of Babine Lake between the Fulton River and Newman Island were surveyed in July 1997, June 1999, July – August 2000, and July – August 2001 to assess fish habitat characteristics and to investigate the diversity, population characteristics and distribution of fish. SKR Consultants Ltd. was retained by Houston Forest Products Co. (Houston, B.C.) to conduct these surveys. The project was jointly funded by Forest Renewal B.C. (FRBC) and Houston Forest Products Co. (HFP), and is a continuation of reconnaissance level fish and fish habitat inventories initiated in 1999 (SKR 2000). This report summarizes results obtained from the reconnaissance level stream inventory project conducted on streams within the Fulton River watershed, and selected Babine Lake inlet streams.

The Fulton watershed was split up into smaller sub-basins according to boundaries obtained from ftp://ftp.env.gov.bc.ca/dist/arcwhse/watershed_atlas/region6/babl/lwsdbabl (B.C. Environment, 1999b). Preferred planning was done for five of six sub-basins that coincide with the Tanglechain Landscape Unit within HFP's operating area (SKR 1999, 2001d) This portion of the Fulton watershed includes all northern tributaries to Fulton Lake and the lower Fulton River downstream from and including Tanglechain Creek, as well as inlet streams to the west shore of Babine Lake between Fulton River and Newman Island. The sub-basins are:

- Sub-basin I - Fulton Face Units (480-697200),
- Sub-basin II - Unnamed Creek (480-697200-08100),
- Sub-basin III - Unnamed Creek (480-697200-11500),
- Sub-basin IV - Broughton Creek (480-697200-21600),
- Sub-basin V - Unnamed Creek (480-697200-26400),
- Sub-basin VI - Tanglechain Creek (480-697200-33400), and
- Sub-basin VII - Babine Face Units (480).

During previous years of sampling, three sub-basins (sub-basins III, IV and VI) were inventoried in 2000 (SKR 2001a, b, c), and two of sub-basins (Sub-basin I and Sub-basin V) were inventoried in 1999 (SKR 2000). The two sub-basins that were inventoried in 2001 were Sub-basin II and Sub-basin VII.

1.1 OBJECTIVES

The main objectives of the reconnaissance (1:20,000) fish and fish habitat stream inventory project within the selected sub-basins of the Fulton River watershed were:

- to review and summarize historical fisheries information for the study area,
- to undertake a reconnaissance level stream inventory to describe fish distribution and diversity,
- to document barriers to fish passage,
- to document fish habitat characteristics,
- to identify further sampling requirements, and
- to classify reaches sampled according to the B.C. Forest Practices Code Fish – Stream Identification guidebook (FPC 1998).

Babine Lake

093L.099
Map 3 of 3

Granisle

Babine Lake

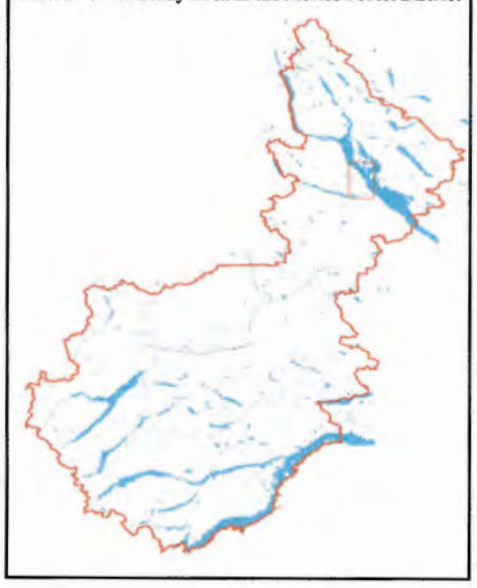
Fulton Lake

093L.089
Map 1 of 3

093L.090
Map 2 of 3

Location of the Morice Forest District in B.C.

Location of the Study Area in the Morice Forest District



OVERVIEW MAP

Sub-Basins to Babine and Fulton lakes

Scale 1:75,000

2 0 2 Kilometers

Project Code: 1284
Date: 2001/10/25
Inventory Company: SKR Consultants Ltd.
Printed in Canada by: SKR Consultants Ltd.

N
W E
S

LEGEND

- Sample Site
- Historical Information
- Beaver Dam
- Cascades
- Falls
- Culvert
- River/Stream - Definite
- River/Stream - Indefinite
- Lake - Definite
- Lake - Indefinite
- Reservoir - Intermittent
- Wetland
- Road (Gravel Undivided) - 1 Lane
- Road (Gravel Undivided) - 2 Lanes
- Road (Paved Divided)

1.2 LOCATION

Fulton River drains into the western shore of Babine Lake at Topley Landing, approximately 8.5 kilometers due south-southeast of the village of Granisle (Figure 1). The Fulton watershed, and Babine Lake inlet streams sampled in 2001 are located in the Prince Rupert Region (Ministry of Sustainable Resources), and in the Morice Forest District. The two sub-basins that were sampled in 2001 include an unnamed third order inlet stream to the north shore of Fulton Lake (sub-basin II, watershed code 480-697200-08100), and first, second and third order inlet streams to the west shore of Babine Lake from the Fulton River north to Newman Island.

1.2.1 Access

Access within the study area is possible using several modes of transportation including four-wheel drive vehicle, boat, or helicopter. Many reaches within the two sub-basins are accessible by road. For road access, turn off Highway 16 onto the Granisle Highway at Topley, B.C., and travel along the Granisle Highway to the mouth of the Fulton River (just past Topley Landing). Signs for the Fulton River spawning channels clearly landmark the location of the Fulton River along the road. The Granisle Highway proceeds north past Red Bluff Provincial Park, through the village of Granisle and continues to Smithers Landing, allowing access to the lower reaches of inlet streams to the west shore of Babine Lake within the study area. A network of logging roads can be used to access stream reaches in the Babine Face Units from the Granisle Highway. Some of the reaches in sub-basins II and VII could only be accessed by helicopter, which was chartered from Houston, B.C..

1.3 HISTORICAL INFORMATION

The Fulton River drainage forms the largest inlet to Babine Lake. Only the lower six kilometers of Fulton River are accessible to anadromous fish species due to the presence of an 18 meter high waterfall/dam located at the outlet to Fulton Lake (FISS). Coho (*Oncorhynchus kistuch*), chinook (*O. tsawytscha*), sockeye (*O. nerka*), and pink (*O. gorbuscha*) salmon, as well as steelhead (*O. mykiss*), have been documented to spawn in the lower portion of Fulton River, downstream of the falls (FISS). A spawning channel for sockeye salmon, operated by the Department of Fisheries and Oceans, is located approximately 1.5 kilometers upstream of Babine Lake (Karenka, pers. comm.). A wide diversity of species have been documented upstream of the dam including rainbow trout (*O. mykiss*), cutthroat trout (*O. clarki*), Dolly Varden (*Salvelinus malma*; possibly bull trout (*S. confluentus*) (Atagi, pers. comm.)), lake trout (*S. namaycush*), kokanee (*O. nerka*), mountain whitefish (*Prosopium williamsoni*), lake whitefish (*Coregonus clupeaformis*), burbot (*Lota lota*), largescale sucker (*Catastomus macrocheilus*), longnose sucker (*C. catastomus*), white sucker (*C. commersoni*), northern pike minnow (*Ptychocheilus oregonensis*), peamouth chub (*Mylocheilus caurinus*), lake chub (*Couesius plumbeus*), redside shiner (*Richardsonius balteatus*), and prickly sculpin (*Cottus asper*) (FISS).

Fish and fish habitat inventory at the reconnaissance level (1:20,000) was completed for sub-basins I and V in 1999 (SKR 2000), and sub-basins III, IV and VI in 2000 (SKR 2001c). Historical information that pertains specifically to the two sub-basins in the current year of the study is relatively sparse. No historical information exists for sub-basin II, but some operational inventory has resulted in sampling of six reaches in sub-basin I (SKR 1997), and previous lake inventories have documented the presence of Dolly Varden and rainbow trout in Bonehead (ILP 51154, WBID 0967BABL) and Skinhead (ILP 51149, WBID 0812BABL) lakes (FISS).

2.0 RESOURCE USE

The study area within the Fulton watershed is public land and as such is utilized by several resource sectors.

1. First Nations issues and interests in the study area:
    - The Lake Babine Nation has claimed portions of the Tanglechain Landscape unit as part of their traditional territories. The Lake Babine Nation is currently in stage three of the Treaty Negotiation Process (B.C. Treaty Commission 2000).
2. Development and land use: logging, mining, recreation
    - Houston Forest Products Ltd. is the main licensee for the unit.
    - Logging and/or road building is proposed to the year 2003 near the stream survey sites examined in this report (HFP 1998).
    - The study area has some recreational value, including snow mobiling, a B.C. Forest Service (BCFS) recreation trail and cross country skiing near the village of Granisle, a BCFS recreation site located at the Bear Island View Point Trial (about 6 km north of the village of Granisle), a BCFS recreation site at Tanglechain Lake, Doris Lake, and Pine Tree Lake (MOF 1997), and a provincial park at Red Bluff.
    - The guide outfitter territory in the study area is 608G003, and the three trap line territories is 608T008. The study area within the Fulton watershed is located in the Fulton Lake Range permit (HFP 1999).
    - There are no mineral tenures, placed stakes, or coal licenses in the study area (Ministry of Employment and Investment 2000).
3. Other developments, concerns or points of interest:
    - No higher level plans are known to exist within the Tanglechain Landscape Unit (Land Use Coordination Office 2000).
    - Two water licenses exist for the Fulton River and are summarized in Table 1 (BC Environment 2000). No community watersheds are located in the study area (BC Environment 1999a pers. comm.)
4. Impacts and uses by wildlife:
    - A comprehensive inventory of wildlife species does not exist for the Morice Forest District. However, several rare and endangered wildlife species are known or suspected to utilize habitat in the Fulton River area, including Grizzly bear (*Ursus arctos*), wolverine (*Gulu gulu luscus*), fisher (*Martes pennanti*), trumpeter swan (*Cyngus buccinator*). Other wildlife species of interest include moose and mule deer.
5. Existing water quality data:
    - Water quality data exists for a deep station on Fulton Lake (EMS # E223349) (Giroux 1999 pers. comm.)
6. Previous presence of fish in systems of interest:
    - Fish presence previously documented in the study area is summarized in Table 2.

Table 1. Water licenses information for selected areas in the Tanglechain Landscape Unit (B.C. Environment 1999a).

Date	File # [1]	Operator	Amount	Comments
1965/10/22	C031323	Fisheries and Oceans	200.00 CS	Fulton River
1965/10/22	C031324	Fisheries and Oceans	76,000.00 AF	Fulton River

[1] File number preceded by C indicate approved water licenses, file number preceded by Z indicate applications for water licenses)

Table 2. A summary of fish previously documented to be present in streams and lakes in the Fulton River watershed, and Babine Lake inlet streams.

Species	Code	Area Located	Date	Reference
coho salmon	CO	below 18 m falls at outlet to Fulton Lake; Babine Lake and inlet streams	unknown	FISS
chinook salmon	CH	below 18 m falls at outlet to Fulton Lake; Babine Lake and inlet streams	unknown	FISS
pink salmon	PK	below 18 m falls at outlet to Fulton Lake; Babine Lake and inlet streams	unknown	FISS
sockeye salmon	SK	below 18 m falls at outlet to Fulton Lake; Babine Lake and inlet streams	unknown	FISS
kokanee	KO	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
lake trout	LT	Tanglechain Lake, Doris Lake, Fulton Lake; Babine Lake	unknown	FISS
burbot	BB	Doris Lake, Fulton Lake; Babine Lake	unknown	FISS
lake whitefish	LW	Tanglechain Lake, Doris Lake, Fulton Lake; Babine Lake	unknown	FISS
mountain whitefish	MW	Tanglechain Lake, Doris Lake, Fulton Lake; Babine Lake	unknown	FISS
rainbow trout	RB	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
cutthroat trout	CT	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
Dolly Varden	DV	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
largescale sucker	CSU	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
longnose sucker	LSU	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
white sucker	WSU	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
northern pike minnow	NSC	Tanglechain Lake, Doris Lake, Pine Lake, Fulton Lake; Babine Lake	unknown	FISS
peamouth chub	PCC	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
prickly sculpin	CAS	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
redside shiner	RSC	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
lake chub	LKC	throughout Fulton watershed; Babine Lake and inlet streams	unknown	FISS
bull trout	BT	potentially present	unknown	Atagi, pers. comm.

3.0 METHODS

This project closely follows all applicable RIC Standards (1998a, 1999, 2000, 2001) and the Forest Practice Code fish - stream identification guidebook (FPC 1998). Details on methodologies and value-added attributes of sampling site selection, field assessments, and digital mapping are provided in the following sub-sections.

3.1 SAMPLE SITE SELECTION

Sample sites were selected by conducting reach break analysis and random sampling queries using the Fish Data Information System (FDIS 7.0) ACCESS 2.0 data tool for each of the sub-basins in the study area. All streams on the 1:20,000 TRIM map scale were identified numerically by assigning an Interim Location Point (ILP) or watershed code, following 1:20,000 fish and fish habitat inventory standards (RIC 1998a, 1999). Streams were divided into reaches based on map and air photo interpretation. Necessary reach information was entered in the FDIS database, following Resource Inventory Committee standards (RIC 1998a, 1999). Version 7.0 of the FDIS ACCESS 2.0 data tool was used to randomly select sampling sites to determine the general distribution and total number of sites required in the study area for the Babine Face Units (sub-basin VII) (SKR 1999), and FDIS Version 7.2 was used to select random sample sites for sub-basin II (SKR 2001d). Some sites were deleted or moved based on previous fish sampling in the watershed and site accessibility. Random and biased sampling sites were mapped on 1:20,000 scale, along with existing fisheries information for presentation to the contract monitor and the ministry representative. The sampling plan was summarized in a project plan (SKR 1999, SKR 2001d) for ministry and contract monitor approval.

3.2 STREAM ASSESSMENT

All stream assessments were conducted in July and August 2001. Stream sites were accessed by four wheel drive vehicle, helicopter and foot. Stream sections of interest were assessed to determine fish presence and habitat values. Fish Data Information System (FDIS) site cards and fish collection cards were completed at sample sites, following Resource Inventory Committee Standards (RIC 2001), and data were entered into the FDIS database using the FDIS data entry tool (version 7.2).

All fish that were captured during this study were identified to species in the field or small sub-samples were preserved for confirmation using a dissecting microscope (McPhail and Carveth, 1994). Fork lengths were recorded for all fish captured. Scale samples were collected for a sub-sample of salmonids captured in the watershed. Voucher specimens were retained for representative fish samples. Voucher specimens were preserved in 10% formalin for a minimum of 14 days after which they were rinsed in water and transferred to 50% isopropyl alcohol. Voucher samples were submitted to the Ministry of Sustainable Resources for species verification (Appendix 3).

A list of sampling equipment used during this 1:20,000 reconnaissance level fish and fish habitat inventory project is presented in Table 3.

Table 3. List of sampling equipment for stream reaches used during the 1:20,000 reconnaissance fish and fish habitat inventory project in Unnamed Creek (watershed code 480-697200-08100), and selected Babine Lake inlet streams that was conducted in July and August 2001.

Parameter	Sampling Intensity	Method
date and time	each site	wrist watch
water temperature	each site	alcohol thermometer
pH	each site	Oaktron pHTestr2
conductivity	each site	Hanna HI 9033, Oaktron TDSTestr 3
water clarity	each site	Visual
fish presence	as required to determine fish presence	Smith Root Model 15C, Smith Root Model 12B, minnow traps
photography	each site	Canon Sureshot A1
GPS	where available	Garmen GPS 45
Gradient	each site	Abney Level or Suunto clinometer

3.3 MAPPING

Reach break analysis was conducted during phase II of this reconnaissance (1:20000) fish and fish habitat inventory project (RIC 1998a) by SKR Consultants Ltd. (SKR) and Western Geographic Information Systems Inc. (WGIS)(SKR 1999). The majority of reach break information for the FDIS database was obtained from TRIM map and air photograph interpretations by SKR. WGIS provided lengths, gradients, and UTM coordinates for all reaches in the study area after linking new spatial data to TRIM map data that was obtained from the FTP//...TRIM library (MELP). All reach break mapping closely followed the RIC standards for reach analysis (1998a) and digital mapping (1998b).

Mapping during phase III of the project was completed by SKR Consultants Ltd. using the Fish Inventory Mapping System (Geosense Consulting Ltd. 2000). Data presented on the maps included sub-basin boundaries, sample site locations, significant features, and historical information within the study area. In addition, SKR identified reaches with known fish presence, suspected fish presence, suspected fish absence, and known fish absence for presentation of fish distribution on the interpretive maps. The criteria used by SKR for determining fish presence and absence are presented in Table 4.

Table 4. Criteria used to evaluate fish distribution for presentation on the Fisheries Project/Interpretive Hardcopy Maps (Appendix 5) of this study area.

Fish Present _____	• Stream reaches where fish have been captured or can be classified as fish bearing based on fish captured upstream. NOTE: fish distribution may not always extend to the upper limit of all reaches symbolized as fish bearing
Fish Suspected Present ----------	• Stream reaches with gradients less than 21% and with any potential for fish presence, excluding first order streams less than 1 km in length on 1:20000 TRIM map
Fish Suspected Absent ----------	• First order streams less than 1 km in total length on 1:20000 TRIM map • Streams visited with limited potential for fish presence, but no definable barriers to fish passage following RIC standards, thus still requiring resampling
Fish Absent _____	• Reaches with no fish captured in two seasons upstream of natural obstructions to fish migration • Reaches upstream of identified natural barriers to fish migration following intensive sampling in one season • First and small second order streams flowing into non fish bearing reaches • Reaches with gradients exceeding 20% (Note: the location of lower reach break is not defined until field sampling is conducted)

4.0 RESULTS AND DISCUSSION

Thirty-two of the 126 reaches in Sub-basins II and VII within the Fulton River and Babine Lake watershed were sampled in July and August 2001. This includes 19 reaches randomly selected by FDIS and 13 discretionary reaches added to augment fish distribution information obtained in this and previous studies (SKR 1997, FISS). The following sections discuss findings from this field inventory project in context with historical information available for the Fulton River watershed, as outlined in the "Buba Creek Example Report" (MSR 2001).

4.1 LOGISTICS

Access to many of reaches sampled was difficult. Ten of the reaches sampled (31.3%) were accessed by helicopter and eight reaches (25%) were accessed on foot, since road access was not available to these sites. Helicopter landing sites are relatively abundant due to the gently sloped terrain, and there is an abundance of wetlands throughout the study area.

4.2 SUMMARY OF SUB-BASIN BIOPHYSICAL INFORMATION

Tributaries to the Fulton watershed inventoried in this study are located in the Humid Continental Highlands Ecodivision of the Humid Temperate Ecodomain. Within the Sub-Boreal Interior Ecoprovince, these tributaries are found within the Fraser Basin Ecoregion of the Babine Upland Ecosection (Meidinger and Pojar 1991, Ministry of Forests 2001). The streams in the study area are characterized by the Moist Cold Subzone of the Sub-Boreal Spruce Biogeoclimatic Zone (Meidinger and Pojar 1991, Ministry of Forests 2001). Table 5 provides a summary of watershed information for the seven sub-basins in the study area. The two sub-basins that were field inventoried in 2001 were Sub-basin II and Sub-basin VII.

4.2.1 Sub-basin II

Sub-basin II consists of a small, third order system that drains an area of approximately 1290 hectares. This sub-basin is characterized primarily by low to moderate stream gradients with no steep gradient reaches (reach gradient determined from TRIM ranged between 0.13 and 6.7%) . Channel patterns are typically sinuous while confinement ranges from unconfined to frequently confined. No ice or steeplands are present in Sub-basin II, but five wetlands and one lake are present.

Conductivity, pH, water temperature, and turbidity were the water quality parameters that were recorded where possible. Conductivities ranged from 90 µS/cm to 140 µS/cm and water temperatures ranged between 10°C and 15°C. Water was clear at all sampling locations and pH readings ranged from 7.2 to 7.4. Water quality data related to specific sampling sites can be located in Appendix I.

Table 5. Summary of watershed information for the seven sub-basins identified within the Tanglechain Landscape Unit.

Sub-basin	Gazetted Name	Watershed Code	Watershed Area (ha)	Stream Length (km)	Stream Order	NTS Maps	BEC Zone	Lake Names	Wetlands
Sub-basin I	Fulton Face Unit UTM: 9.683402.6077850	480-697200	7470	102.74	1, 2, 3	93L/16	SBSmc	Saturday (15 ha)	21 areas (160 ha)
Sub-basin II	**Unnamed Creek UTM: 9.676817.6077967**	**480-697200-08100**	**1290**	**10.83**	**3**	**93L/16**	**SBSmc**	**Unnamed**	**5 areas (22.4 ha)**
Sub-basin III	*Unnamed Creek UTM: 9.673320.6077132*	*480-697200-11500*	*3290*	*51.28*	*4*	*93L/16*	*SBSmc*	*none*	*7 areas (1.05 ha)*
Sub-basin IV	*Broughton Creek UTM: 9.663978.6080282*	*480-697200-21600*	*5378*	*101.27*	*4*	*93L/16*	*SBSmc/ ESSFmc*	*none*	*44 areas (303 ha)*
Sub-basin V	Unnamed Creek UTM: 9.659835.6082277	480-697200-26400	598	5.46	3	93L/16	SBSmc	none	1 area (2.5 ha)
Sub-basin VI	*Tanglechain Creek UTM: 9.656096.6084339*	*480-697200-33400*	*10605*	*179.28*	*5*	*93L/16*	*SBSmc*	*Tanglechain, Doris, Boomerang, Pine Tree*	*46 areas (226 ha)*
Sub-basin VII	**Babine Face Unit UTM: 9.650476.6132826**	**480**	**8323**	**109.3**	**3**	**93L/16**	**SBSmc**	**Skinhead Bonehead**	**19 areas (76 ha)**

Note: Bold text refers to sub-basins that were sampled in 2001; italic text refers to sub-basins that were sampled in 2000 (SKR 2001c), and regular text refers to sub-basins inventoried in 1999 (SKR 2000).

4.2.2 Sub-basin VII

Sub-basin VII encompasses first, second and third order inlet streams to the west shore of Babine Lake from the Fulton River north to Newman Island. This area covers approximately 8323 ha. As for sub-basin II, this sub-basin is characterized by a predominance of low to moderate gradient reaches, although some steeper gradient reaches, with gradients exceeding 20% are found in this area. Channel patterns are typically sinuous while confinement ranges from unconfined to confined with the majority of reaches being occasionally or frequently confined. No ice or steeplands are present in Sub-basin VIII, but 19 wetlands and four lakes are present.

Conductivity, pH, water temperature, and turbidity were the water quality parameters that were recorded where possible. Conductivities ranged from 60 µS/cm to 250 µS/cm and water temperatures ranged between 7°C and 14°C. Water was clear at all sample sites, and pH readings ranged from 7.1 to 8.0. Water quality data related to specific sampling sites can be located in Appendix I.

4.3 HABITAT AND FISH DISTRIBUTION

Fish were confirmed to be present in approximately 20.07 kilometers of stream in the study area, which has approximately120.45 kilometers of first, second and third order streams shown on the 1:20,000 TRIM maps. Habitat quality in most of the first order reaches sampled was poor or absent, with three of the 14 first order reaches being dry, and four of being classified as NCD. Habitat quality tended to improve in higher order reaches, and third order reaches were fish bearing or suspected to be fish bearing, except third order reaches in ILP 40216, upstream of a 5 meter falls in reach 2 of the system, and in ILP 40229 upstream of a 3 meter falls at the upper extent of reach 1 (Table 6). Fish distribution in higher order reaches was generally limited by the few natural topographic barriers (i.e. falls, cascades, etc.) or anthropogenic causes that were identified in the study area, rather than limited habitat quality which tended to be the case in the majority of first order reaches (Table 6).

Table 6. Summary of historic and new barriers and to fish migration and features found in Sub-basin II and Sub-basin VII (sorted by sub-basin, ILP and reach number).

ILP	TRIM map #	Reach	Barrier			
			Type	Height (m)	Verified in field	Description
Sub-basin II (Unnamed Creek)						
ILP 40309	93L.089	1	NDC		Y	No defined channel
ILP 40310	93L.089	1	NDC		Y	No defined channel
Sub-Basin VII (Babine Face Units)						
ILP 40216	93L.099	2	F	5	Y	
ILP 40229	93L.099	1	F	3	Y	At upper extent of reach
ILP 40334	93L.089	1	BD	2	Y	135 m upstream of lake
ILP 40347	93L.089	1	CV	0.7	Y	Likely not a barrier, but obstructs passage at some flows
ILP 40353	93L.089	1	CV	1.5	Y	Barrier to fish passage
ILP 40363	93L.090	1	CV	0.8	Y	Barrier to fish passage
ILP 40399	93L.099	1	C	8	Y	22% gradient, 40 m long cascade at confluence

FSB = underground flow, NDC = no defined channel, NVC = no visible channel, CV = culvert, C = cascade, F = falls, D = dam

Within the Fulton watershed, anadromous fish species distribution is limited by an 18 meter falls at the outlet to Fulton Lake (SKR 2000 FISS). Anadromous fish therefore have access to inlet streams to Babine Lake within the Babine Face Units (Sub-basin VII), but are prevented from accessing the third order tributary to the north shore of Fulton Lake which constitutes sub-basin II. Fish distribution in three of the inlet streams to Babine Lake is limited by topographic barriers (falls, cascades), and anthropogenic barriers along the Granisle Highway limit fish access to the lower reach within several of the inlet streams to Babine Lake sampled in July and August 2001. The generally moderate to gentle sloped topography of the remainders of the systems sampled allows for fish access to all but the smallest reaches (generally first order), which are limited by sections of seepage flow, and poor habitat quality.

The amount and quality of suitable fish habitat in sub-basins II and VII sampled in July and August 2001 was relatively low, when compared to other sub-basins in the Fulton River watershed, particularly Tanglechain Creek (SKR 2000, 2001a). This is partly due to the relatively small size of the systems sampled, since the highest stream order in the two sub-basins was 3rd order. Generally, fish habitat quality and quantity appeared to be greater in sub-basin VII than in sub-basin II, which is partly attributable to the larger size of the sub-basin. Of the seven reaches sampled in sub-basin II, the best quality fish habitat was noted in the mainstem (ILP 40314, 3rd order system) reaches 8 and 9. Reach 8 (site 28) consisted of a beaver pond area which provided good overwintering and rearing habitat, and reach 9 (site 29) offered good rearing, spawning and overwintering habitat. Reach 9 of ILP 40314 was the only capture location for fish in sub-basin II. Fish habitat quality in second or first order tributaries to ILP 40314 that were sampled was generally very poor to non-existent. Good quality, accessible fish habitat was noted in several reaches in sub-basin VII, and was generally found in the lower reaches of 3rd and some 2nd order inlet streams to Babine Lake. Excellent rearing and spawning habitat, along with good overwintering habitat was present in reach 1 of ILP 40208 (site 1), a 2nd order inlet stream to Babine Lake with an average channel width of 3.60 meters. Reach 1 of ILP 40216 (site 4), a third order inlet stream to Babine Lake with an average channel width of 4.05 meters, also provided excellent rearing and spawning habitat, along with good overwintering habitat. Excellent spawning and rearing habitat was documented in reach 1 of ILP 40356 (site 23), a 2nd order inlet stream to Babine Lake. The greater number of third and second order reaches generally resulted in more abundant and higher quality fish habitat in sub-basin VII when compared to sub-basin II sampled in July to August 2001.

Overall, Sub-basin II and Sub-basin VII appear to contain a low amount of usable fish habitat based on Tables 7 to 9 and Figure 2. A total of 0.11 km of first order stream, 10.38 km of second order stream, and 9.58 kilometers of third order stream have been identified to be fish bearing. Another 8.48 kilometers of first order stream, 8.96 kilometers of second order stream and 2.02 kilometers of third order stream may potentially be fish bearing. The total kilometers of confirmed or suspected fish bearing reaches accounts for 32.8 kilometers of the streams in the study area. Fish are confirmed or suspected to be absent from 63.33 kilometers of first order stream, 8.84 kilometers of second order stream, and 8.75 kilometers of third order stream. In fact, a significant proportion of the stream reaches, particularly first order stream reaches, that have been conservatively identified to have some fish bearing potential are expected to be predominantly identified as non-fish bearing when field assessments are conducted.

Table 7. Fish presence/absence in first order reaches in Sub-Basins II and VII.

% Gradient Range	1st order reaches (km)			
	Fish Confirmed Present	Fish Suspected Present	Fish Absent/ Suspected Absent	**Totals**
0-2	0.11	0.22	1.08	**1.41 (2.0%)**
2-10	0.00	7.74	50.59	**58.33 (81.1%)**
10-20	0.00	0.52	7.66	**8.18 (11.4%)**
>20	0.00	0.00	3.99	**3.99 (5.5%)**
totals	**0.11 (0.2%)**	**8.48 (11.8%)**	**63.33 (88.0%)**	**71.91**

Table 8. Fish presence/absence in second order reaches in Sub-Basins II and VII.

% Gradient Range	2nd order reaches (km)			
	Fish Confirmed Present	Fish Suspected Present	Fish Absent/ Suspected Absent	**Totals**
0-2	1.02	0.00	1.57	**2.58 (9.2%)**
2-10	9.37	7.30	7.27	**23.94 (84.9%)**
10-20	0.00	1.67	0.00	**1.67 (5.9%)**
>20	0.00	0.00	0.00	**0.00 (0%)**
totals	**10.38 (36.8%)**	**8.96 (31.8%)**	**8.84 (31.4%)**	**28.19**

Table 9. Fish presence/absence in third order reaches in Sub-Basins II and VII.

% Gradient Range	3rd order reaches (km)			
	Fish Confirmed Present	Fish Suspected Present	Fish Absent/ Suspected Absent	**Totals**
0-2	1.82	0.00	0.00	**1.82 (8.9%)**
2-10	7.76	2.02	8.75	**18.53 (91.1%)**
10-20	0.00	0.00	0.00	**0.00**
>20	0.00	0.00	0.00	**0.00**
totals	**9.58 (47.1%)**	**2.02 (9.9%)**	**8.75 (43%)**	**20.35**

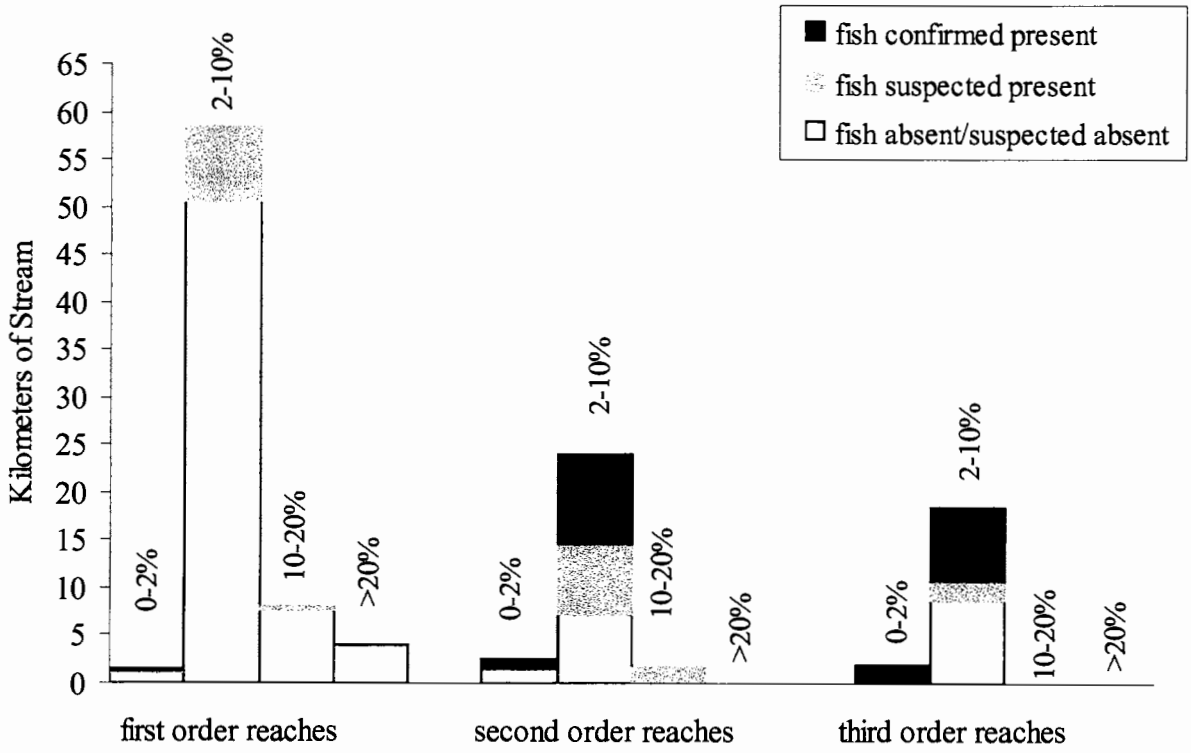


Figure 2. Distribution of fish presence in different order and gradient classes of stream reaches within Sub-basins II and VII. Data labels represent the gradient classes (%) within each stream order.

4.4 FISH AGE, SIZE AND LIFE HISTORY

Species captured in Sub-basins II and VII within the Fulton and Babine Lake watersheds include coho, cutthroat trout, rainbow trout, Dolly Varden and prickly sculpin. All of these species were captured in the Babine Lake inlet streams within sub-basin VII, but only cutthroat trout were captured in the third order inlet stream to the north shore of Fulton Lake sampled (sub-basin II). Of the species captured, coho was the most numerous, followed by cutthroat trout, Dolly Varden, prickly sculpin and rainbow trout. The following sub-sections summarize the acquired fish data and provide interpretations and discussions of fish size and age distributions, and species life histories.

4.4.1 Coho

Coho was the most common species captured during the reconnaissance inventory of Babine Lake inlet streams (sub-basin VII), but the species was not captured in the unnamed inlet stream to Fulton Lake, upstream of the 18 m falls at the outlet of Fulton Lake. While coho accounted for 63 of the 101 fish captured, coho were only captured in three of the 15 reaches sampled for fish. The vast majority of the coho captured (43 coho, 68.3% of coho captured) were captured at site 23 (ILP 40356 reach 1) in sub-basin VII. Coho was the most common species captured in the inlet streams to Babine Lake sampled in July and August 2001.

Eighteen scale samples (28.6%) were collected from the 63 coho captured. Of the 18 age sample collected, six could not be aged, but an age was determined for the remaining 13 samples. All

of the coho aged from scale samples were determined to be age 1+. Length frequency histograms for coho captured in inlet streams to the west shore of Babine Lake between the Fulton River and Newman Island are illustrated in Figure 3. Size ranges of the different age classes present in the sample of coho captured in the inlet streams sampled, as determined from un-aged coho trout and length frequency distribution are also shown in Figure 3. Based on length frequency analysis, and scale aging information, two age groups are speculated to be present in the sample obtained from inlet steams to Babine Lake, representing age 0+ and 1+ coho. Age 1+ coho represent a proportion of coho that delay smoltification for one or more additional winters in freshwater, when compared to most coho, which have been documented to smolt after one winter in freshwater.

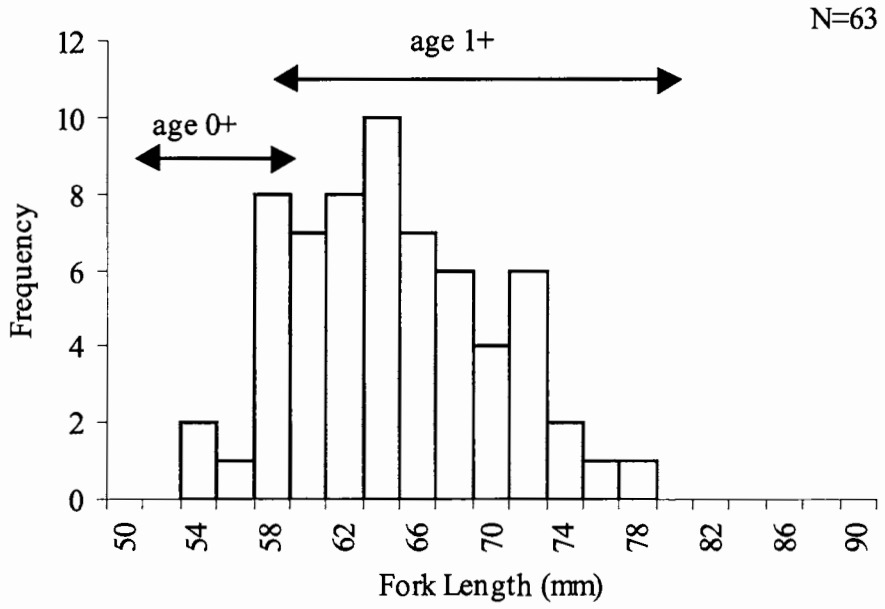


Figure 3. Length frequency histogram of coho captured in inlet streams to the west shore of Babine Lake between Fulton River and Newman Island.

4.4.2 Cutthroat trout

Cutthroat trout was the second most numerous and the most wide spread salmonid species captured within reaches sampled in Sub-basin II and VII in July and August 2001. This species was also found to be the most widespread species in other sub-basins within the Fulton River sampled during previous inventory projects (SKR 2000, 2001c). Of the 15 reaches sampled for fish in July and August 2001, cutthroat trout were captured in six reaches, including one reach in sub-basin II, where cutthroat trout was the only species captured. The vast majority of the cutthroat trout captured (24 of 31 cutthroat trout captured) were found in sub-basin VII. Cutthroat trout appears to be the most widespread and abundant species in the reaches sampled in the Fulton River watershed sampled in 1999 (SKR 2000), 2000 (SKR 2001c), and 2001, as well as in inlet streams to the west shore of Babine Lake between the Fulton River and Newman Island.

Twenty scale samples were collected from the 31 cutthroat trout captured (64.5%). Of the 20 age samples collected, five could not be aged, but an age was determined for the remaining 15 samples. Length at age data for the 15 cutthroat trout aged by scale sample analysis are summarized in Table 10. Length frequency histograms for cutthroat trout captured in the two sub-basins sampled are illustrated in Figure 4. Size ranges of the different age classes present in the sample of cutthroat trout captured in the three sub-basins, as determined from aged cutthroat trout and length frequency distribution are also shown in Figure 4. Cutthroat trout captured in the two sub-basins in the Fulton Landscape Unit represented four distinct age classes, ranging from young of the year (age 0) to one adult (age 4). Of the smaller cutthroat trout captured, a disproportionate number were captured in sub-basin II, at site 29, while few small bodied cutthroat trout were captured in the inlet streams to Babine Lake located between the Fulton River and Newman Island. This is speculated to be a result of different life history strategies or ecological factors (e.g. competition, food abundance, spawning locations), or the timing of sampling which may have been prior to emergence at some sites. Cutthroat trout in both, the inlet streams to Babine Lake (sub-basin VII), and the third order inlet stream to Fulton Lake (sub-basin II) are speculated to have a lacustrine – adfluvial life history reflected in the proximity of capture locations to Babine Lake, and the small lake found in sub-basin II, although stream resident forms may also be present.

Table 10. Length at age for 15 cutthroat trout aged from scales.

Age	N	Fork Length (mm)			
		min.	max.	mean	SE
1	6	60	72	64.8	1.851
2	9	97	118	109.8	2.338

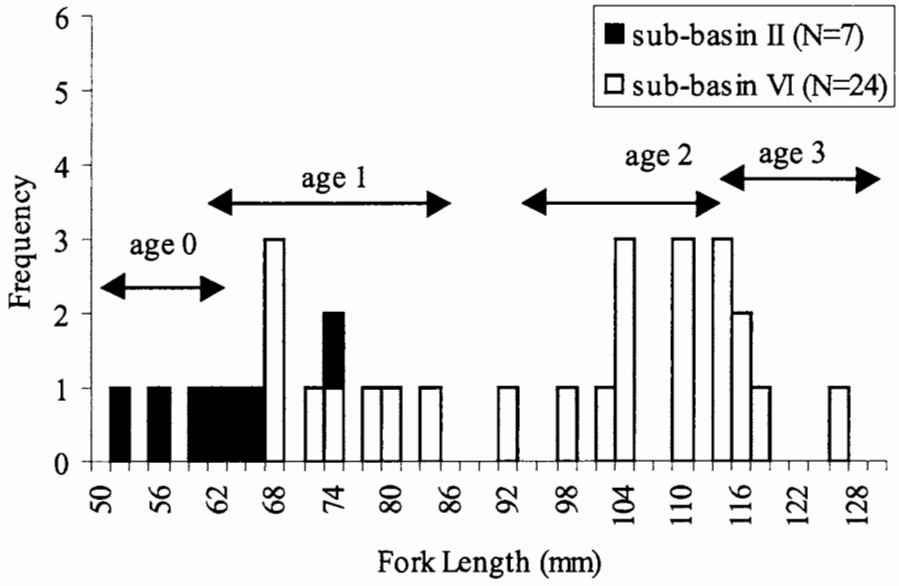


Figure 4. Length frequency histogram of cutthroat trout captured in Sub-basins II and VII.

4.4.3 Rainbow Trout

One rainbow trout was captured in sub-basin VII, and no rainbow trout were captured in sub-basin II sampled in July and August 2001. While rainbow trout were captured at low densities in sub-basins IV and VI in 2000 (SKR 2001c), no rainbow trout were captured in sub-basin I, sub-basin III or sub-basin V in the previous two years of the study (SKR 2000, 2001c). This indicates that rainbow trout are generally much less common than cutthroat trout in the Fulton River watershed (sub-basins I to VI), and in the inlet streams to Babine Lake between the Fulton River and Newman Island. The one rainbow trout captured during this study was captured at site 1 in a second order inlet stream (ILP 40208, reach 1) to the west shore of Babine Lake, along with two cutthroat trout and four Dolly Varden. In addition to being the only site where rainbow trout were captured during the study, this site was also the only site where Dolly Varden were captured during the study. The rainbow trout captured in the system measured 128 mm, and was an immature three year old (determined from scales). The proximity of the capture location to Babine Lake (500 m upstream of Babine Lake) suggests a lacustrine-adfluvial life history, or a potential anadromous life history (i.e. steelhead).

4.4.4 Dolly Varden

Four Dolly Varden were captured in sub-basins VII, but no Dolly Varden were captured in sub-basin II. Three Dolly Varden were captured in sub-basin I (Fulton Lake face unit) during an inventory conducted in 1999 (SKR 2000), but the species was not captured during sampling in sub-basins III to VI (SKR 2000, 2001c). The Dolly Varden captured in inlet streams to Babine Lake were all captured at site 1, located in reach 1 of ILP 40208, a moderate gradient second order inlet stream to the west shore of Babine Lake. Dolly Varden ranged in size from 68 mm to 111 mm. Scale samples were collected for three of the four Dolly Varden captured, and size at age data for Dolly Varden captured is summarized in Table 11. Length frequency analysis was not conducted due to the small sample size. Based on age data, two age classes of Dolly Varden are present, ranging in age from 1+ to 2+.

Table 11. Length at age for four Dolly Varden captured in sub-basin VII (Babine Lake face units).

Age	N	Fork Length (mm)			
		min.	max.	mean	SE
1+	1	68	68	68.0	---
2+	3	108	111	109.3	0.882

4.4.4 Other Species

Prickly sculpin was captured in addition to coho, cutthroat trout, rainbow trout and Dolly Varden. Both of the prickly sculpin were captured in sub-basin VII, and none were present in sub-basin II. Prickly sculpin were found at site 23, in a second order inlet stream to Babine Lake (ILP 40356, reach 1). The prickly sculpin captured ranged in length between 70 mm and 72 mm. Prickly sculpin generally prefer quiet waters and avoid strong currents (McPhail and Lindsey 1970, Scott and Crossman 1973). This species may be found along lake shores or in streams (McPhail and Lindsey 1970, Scott and Crossman 1973), which is consistent with the location of site 23, about 180 m upstream of Babine Lake.

4.5 SIGNIFICANT FEATURES AND FISHERIES OBSERVATIONS

Of the sub-basins sampled in 1999 (SKR 2000), in 2000 (SKR 2001c), and in 2001, Tanglechain Creek (sub-basin VI) and the Babine Lake Face Units (sub-basin VII) offer the most valuable and apparently most productive fish habitat in the system. The remaining five sub-basins sampled over the three years of the study within the Fulton River watershed do not appear to be notably productive for fish. The following sections describe interesting features related to fish, fish habitat, and habitat protection concerns in the study area within the Fulton watershed based on historical information and the findings from this study.

4.5.1 Fish and Fish Habitat

Species diversity and density appeared to be highest in reaches sampled near Babine Lake, Fulton Lake or smaller lakes within sub-basins III, IV, VI and VII. This is partly attributable to the number of species, which frequently exhibit a lacustrine-adfluvial life history that are found in the Fulton River watershed and Babine Lake inlet streams. Anadromous species, such as coho and sockeye can access the inlet streams to Babine Lake, and the lower two reaches of the Fulton River, but are prevented from accessing the majority of the Fulton watershed due to the 18 m falls located at the outlet of Fulton Lake. Of the systems sampled in the three years of the study, ILP 40128 (sub-basin I) is probably the most unique and sensitive drainage in the study area (SKR 2000). A population of resident cutthroat trout were identified in reach four above two cascade barriers (SKR 2000). This genetically isolated population appears to have a lacustrine life history utilizing Saturday Lake. Another noteworthy feature of this system is the wetland in reach two that appears prone to drastic temperature fluctuation making the lower two reaches of ILP 40128 a temperature sensitive zone (SKR 2000). The only notable finding in sub-basins II and VII sampled in 2001 was the capture of Dolly Varden, and the relatively wide distribution of cutthroat trout, both of which are blue listed species.

4.5.2 Habitat Protection Concerns

4.5.2.1 Fisheries Sensitive Zones

No fisheries sensitive zones were identified in the reaches sampled in sub-basins II and VII in July and August 2001. A fisheries sensitive zone was identified in Sub-basin I in the lower 80 meters of ILP 40316, downstream of a series of barriers (SKR 2000). This section of stream offers good potential rearing, spawning, and overwintering habitat for fish in the lower Fulton River and may act as a refuge during high flows.

4.5.2.2 Fish above 20% gradient

Gradient barriers or falls were uncommon within sub-basins II and VII. No fish were captured in reaches with gradients greater than 20%, or reaches upstream of known gradient barriers. However, one adult and several juvenile cutthroat were captured upstream of a 30 meter long, 19.5 % gradient section of stream near the upper end of the first reach of ILP 40240 in sub-basin I during a previous fish inventory study (SKR 2000). As previously mentioned, a resident population of cutthroat trout was also identified in ILP 40128 near Saturday Lake upstream of a cascade barrier (SKR 2000).

4.5.2.3 Rare and Endangered Species

Dolly Varden was captured in sub-basin VII (Babine face units) in this study, and the species was previously captured in sub-basin I (Fulton Face Units) during a previous inventory (SKR 2000). Although not documented, bull trout may be present in the lower Fulton watershed (Atagi, pers. comm.), and the Babine drainage is an area where the two species may hybridize. In addition, cutthroat trout were captured in reaches throughout the Fulton watershed, and in Babine Lake inlet streams between the Fulton River and Newman Island in this and previous studies (SKR 2000, 2001c). Cutthroat trout is a blue listed species by the Conservation Data Center (2001).

4.5.2.4 High Value Sport Fishing

Several species attractive for sport fishing have been documented in the Fulton River watershed and in inlet stream to Babine Lake, including rainbow trout, coho, sockeye, cutthroat trout, Dolly Varden and bull trout. Sport fishing opportunities exist in Babine Lake, Fulton River and Fulton Lake, as well as several of the smaller lakes and streams in the system. The section of the Fulton River downstream of Fulton Lake is renowned for its sport fishing opportunities. No additional high value sport fishing opportunities were identified during the reconnaissance fish and fish habitat inventory project conducted in July and August 2001.

4.5.2.5 Restoration and Rehabilitation Opportunities

Restoration and rehabilitation opportunities identified in sub-basins II and VII concentrated along the Granisle Highway, since road crossing on this section of the road commonly consisted of perched culverts which were found to restrict or prevent fish access. A 1.5 m perched culvert in reach 1 of ILP 40353 (site 16), and a 0.8 m perched culvert in reach 1 of ILP 40363 (site 24) were noted as barriers to fish passage. A 0.7 m perched culvert in reach 1 of ILP 40347 (site 14) is an obstruction of fish passage, but this culvert may be passable at some flows. Fish were captured downstream of these structures, but no fish were captured upstream.

4.6 FISH BEARING STATUS

Fish distribution in the three sub-basins studied in the Fulton watershed is limited by sections of underground flow and/or no visible channel in several smaller streams (typically first order). Waterfalls, cascades, or anthropogenic features also limit fish distribution in the study area (Table 6). The sampling that was conducted in 2001 gives some evidence as to the fish bearing status of a significant proportion of the sub-basins studied. Fish bearing reaches are summarized in Table 12, while proposed non-fish bearing reaches are summarized in Table 13. Given that stream resident populations are present in all seasons, reaches upstream of barriers to fish resident populations, which should be present through all seasons, is the primary concern in such reaches. Some areas sampled require further sampling to conclusively establish fish presence/absence (Table 14). Confirmed and/or suspected fish distribution for all reaches in the study area are summarized on the Fisheries Project/Interpretive Maps (Appendix 5).

4.6.1 Fish Bearing Reaches

Fish bearing status was assigned to all reaches in which species listed in the Forest Practices Code Fish Stream Identification guidebook were captured (FPC 1998). In addition, reaches in which no fish were captured, but where fish presence has been documented upstream, and where no barriers to fish migration have been identified were defaulted as fish bearing. Table 12 summarizes reaches that were documented to be fish bearing during fish and fish habitat sampling during this study. Overall, fish were relatively widespread in the two sub-basins sampled, with fish distribution extending into mid and upper reaches of the mainstems and some of the larger tributaries. Other potential fish bearing reaches are indicated on the Fisheries Project/Interpretive Maps (Appendix 5).

4.6.1 Non - Fish Bearing Reaches

Non-fish bearing status was assigned to reaches sampled upstream of barriers to fish migration in which no fish were captured in one season of sampling or did not offer perennial fish habitat (Table 13). This indicates a lack of resident fish upstream of these barriers.

4.6.2 Follow – Up Sampling Required

Fish presence/absence was not conclusively determined for ten reaches sampled in the study area during the reconnaissance fish and fish habitat inventory project conducted in 2000 (Table 14). These reaches require re-sampling to indicate if seasonal fish use is present and to confirm fish absence as determined under Forest Practices Code standards (FPC 1998).

Table 12. Summary of data from the eight fish bearing reaches (sorted by site number) sampled in Sub-basins II and Sub-basin VII within the Fulton River watershed that were surveyed during July and August 2001 (*for details see* Appendix 1).

Sample Site #	ILP	TRIM Map #	Reach	Species	Channel		Proposed Riparian Class	Comments
					Width (m)	Site gradient (%)		
1	40208	093L.099	1	CT, RB, DV	3.60	4.5	**S3**	This reach provided excellent spawning and rearing habitat
4	40216	093L.099	1	CT	4.05	4	**S3**	This reach provided excellent spawning and rearing habitat
14	40347	093L.089	1	CT, CO	1.58	2	**S3**	A 0.7 m perched culvert in this reach may restrict fish access (Table 6)
16	40353	093L.089	1	CT, CO	2.25	3.5	**S3**	A 1.5 m perched culvert in this reach is a barrier to fish passage in this reach; good rearing and spawning habitat were noted in the reach
21	40402	093L.089	1	CT	1.15	4.5	**S4**	Good rearing and moderate spawning habitat were identified in this reach
23	40356	093L.090	1	CT, CO, CAS	1.57	5.75	**S3**	Coho and cutthroat trout were captured at relatively high densities in a pool at the outfall of a culvert at the Granisle Highway crossing of the stream, but coho and cutthroat trout were also captured upstream of the culvert, although at apparently lower densities; excellent rearing and spawning habitat was identified in this reach
28	40314	93L.089	8	CT captured upstream	23.30	0	**W1**	This reach consisted of a large beaver pond within a wetland; no fish sampling was conducted in the reach due to the capture of cutthroat trout upstream
29	40314	93L.089	9	CT	1.58	2	**S3**	Good rearing and spawning habitat along with moderate overwintering habitat were identified in this reach; the reach is in a harvested area, and while the riparian vegetation is re-establishing, fish habitat quality in this reach was noticeably poorer than in unharvested areas downstream

Table 13. Summary of data from the nine non-fish bearing reaches (sorted by site number) in Sub-basin II and Sub-basin VII within the Fulton River and Babine Lake watershed that were surveyed in July and August 2001 (*for details see* Appendix 1).

Sample Site #	ILP	Reach	TRIM map	Gradient (%)	Channel Width (m)	Electrofishing Specifications							Proposed Riparian Class	Comments
						Dist. (m)	Time (s)	Cond. (µS)	Temp. °C	Stage	Turbidity	Date (2001)		
3	40399	1	93L.099	5.5	0.62	---	---	120	7	L	C	08/23	**S4/S6**	A 22% gradient over the lower 40 m of the reach was identified as a barrier to fish passage (Table 6); no perennial fish habitat was found upstream due to the lack of overwintering habitat (no deep pools), no suitable spawning habitat (no gravels) and limited rearing habitat; the lower 10 m of the reach, downstream of the cascade, are accessible to fish, and should be managed as fish bearing unless reach 3 of the mainstem (ILP 40208) is found to be non-fish bearing during re-sampling (see site 2, Table 16)
5	40216	2	93L.099	1	2.47	100	1207	60	10	M	C	07/20	**S6**	No fish were captured in this reach, which offered excellent rearing, spawning and overwintering habitat; the reach is located upstream of a 5 meter falls in reach 2 of ILP 40216; no fish were captured in one other site sampled (site 7, ILP 40219), and no perennial fish habitat was present in three other sites sampled upstream of the falls (sites 6, 8 and 9)
6	40216	4	93L.099	7.5	0.72	---	---	120	12	L	C	08/23	**S6**	This reach is located upstream of a 5 meter falls in reach 2 of ILP 40216; no perennial fish habitat was present at this sample site, due to the lack of overwintering habitat (no deep pools) and the lack of spawning habitat (fines only in substrate); no perennial fish habitat was present at two other sites sampled upstream of the falls (sites 8 and 9), and no fish were captured at two sites sampled upstream of the falls (sites 5 and 7).
7	40219	1	93L.099	7.25	1.50	100	614	100	10	M	C	07/20	**S6**	No fish were captured in this reach, which provided rearing and marginal overwintering habitat, but no spawning habitat (fines only in substrate); this reach is located upstream of a 5 meter falls in reach 2 of the mainstem (ILP 40216, Table 6); no fish were captured in one other site sampled upstream of the falls (site 5), and no perennial fish habitat was identified in three additional sites surveyed upstream of the falls (sites 6, 8 and 9)

Table 13 (cont.) Summary of data from the nine non-fish bearing reaches (sorted by site number) in Sub-basin II and Sub-basin VII within the Fulton River and Babine Lake watershed that were surveyed in July and August 2001 (*for details see* Appendix 1).

Sample Site #	ILP	Reach	TRIM map	Gradient (%)	Channel Width (m)	Electrofishing Specifications							Proposed Riparian Class	Comments
						Dist. (m)	Time (s)	Cond. (µS)	Temp. °C	Stage	Turbidity	Date (2001)		
8	40222	1	93L.099	18.5	0.93	---	---	100	7	L	C	08/22	**S6**	No suitable fish habitat (steep gradient, lack of deep pools for overwintering, lack of suitable spawning substrate) was noted in this steep gradient reach, located upstream of a 5 meter falls in reach 2 of the mainstem (ILP 40216, Table 6); no perennial fish habitat was present at two other sites sampled upstream of the falls (sites 6 and 9), and no fish were captured at two sites sampled upstream of the falls (sites 5 and 7).
9	40223	1	93L.099	8.5	---	---	---	---	---	---	---	08/23	**NCD**	This reach consisted of some short sections of defined channel, separated by seepage sections (3-10 m long); the reach is located in a mature fir forest with little riparian vegetation; a 5 m falls in reach 2 of the mainstem (IP 40216, Table 6) blocks fish access to this reach; this reach does not provide perennial fish habitat due to the lack of a defined channel; no perennial fish habitat was present at two other sites sampled upstream of the falls (sites 6 and 9), and no fish were captured at two sites sampled upstream of the falls (sites 5 and 7).
11	40327	11	93L.089	2.75	---	---	---	---	---	---	---	07/19	**NCD**	This reach consisted of a riparian bank in a shallow gully, with no sign of alluvium, or fluvial deposits; the lower 600 m of the reach were surveyed, but no continuous channel was present
31	40309	1	93L.089	3	---	---	---	---	---	---	---	07/19	**NCD**	A riparian band was present for the initial 50 m of the reach, but no distinct riparian band was present upstream although the entire forested area surveyed has riparian undergrowth; no channel was found in the riparian band in the initial 50 m, which was 15-25 m wide, and consisted of mountain alder, willow, horsetail, sedges and grasses
32	40307	1	93L.089	1	---	---	---	---	---	---	---	07/19	**NCD**	This reach consists of a distinct riparian band within a gully, but no sign of alluvium or fluvial deposits were identified in a 300 m section surveyed; some muddy patches were commonly observed in the reach, but no scoured, continuous channel was present

Table 14. Follow - up sampling requirements for classification of ten reaches (sorted by site number) sampled in Sub-basin II and Sub-basin VII within the Fulton River and Babine Lake watershed in July and August, 2001 (*for details see* Appendix 1).

Site #	ILP/Stream name	Reach	TRIM map	Channel Width (m)	Timing	Methods	Proposed Riparian Class	Comments
2	40208	3	093L.099	1.40	Spring	EF	**S4**	No fish captured in 521 seconds of electrofishing over 100 lineal meters; electrofishing efficiency was reduced by inaccessibility of some locations due to underground flow, root wads and LWD; a barrier may be present in reach 2 which is located in a deep rock canyon
10	40327	2	093L.099	1.10	Spring	EF	**S4**	No fish captured in 601 seconds of electrofishing over 100 lineal meters; electrofishing efficiency was reduced by dense overhanging vegetation but temperature and conductivity were conducive to sampling; two non-permanent barriers were noted downstream of the sampling location, both of which restricted fish passage at the time of sampling; sampling in the small lake in reach 3 may identify the presence of resident fish
12	40334	1	093L.089	1.62	Spring	EF	**S3**	No fish captured in 1192 seconds of electrofishing over 200 lineal meters; electrofishing efficiency was reduced by thick overhanging vegetation, but temperature and conductivity were conducive to sampling; a 2 meter high beaver dam located about 140 m upstream of the lake was noted as an obstruction to fish passage; re-sampling in the lake located upstream (reach 2) may identify the presence of resident fish
13	40334	3	093L.089	1.97	Spring	MT	**W?**	No fish captured in 823 seconds of electrofishing over 100 lineal meters; electrofishing efficiency was poor due to large channel morphology and difficult access to the stream channel; a 2 meter high beaver dam in reach 1 was noted to restrict access at the time of sampling (see site 12); sampling in the lake in reach 2 is recommended
15	40351	1	093L.089	0.97	Spring high flows	EF	**S4**	This intermittent reach was primarily dry at the time of sampling, with few shallow pockets of standing water; no electrofishing was conducted due to the lack of sufficient water for sampling; overall habitat quality is poor, and fish use is unlikely even during peak discharge periods

Table 14 cont. Follow - up sampling requirements for classification of ten reaches (sorted by site number) sampled in Sub-basin II and Sub-basin VII within the Fulton River and Babine Lake watersheds in July and August, 2001 (*for details see* Appendix 1).

Site #	ILP/Stream name	Reach	TRIM map	Channel Width (m)	Timing	Methods	Proposed Riparian Class	Comments
17	40353	3	093L.089	1.75	After culvert removal	EF	**S3**	No fish were captured in this reach after 614 seconds of electrofishing over 100 lineal meters (18/07/01); a 1.5 m perched culvert in reach 1 of this stream is an anthropogenic barrier to fish passage (Table 6), and prevents fish access to marginal rearing habitat in this reach; this reach should be managed as fish bearing, and re-sampling is not recommended until fish access to the reach has been re-established
18	40353	5	093L.089	0.60	After culvert removal	EF	**S4**	No fish were captured in this reach after 399 seconds of electrofishing over 100 lineal meters (19/07/01); a 1.5 m perched culvert in reach 1 of this stream is an anthropogenic barrier to fish passage (Table 6), and prevents fish access to moderate rearing habitat in this reach; this reach should be managed as fish bearing, and re-sampling is not recommended until fish access to the reach has been re-established
19	40354	1	093L.089	0.80	After culvert removal	EF	**S4**	This reach was dry and no suitable fish habitat was present at the time of survey (18/07/01); a 1.5 m perched culvert in reach 1 of the mainstem (ILP 40353) is an anthropogenic barrier to fish passage (Table 6), and prevents fish access to very marginal and seasonal habitat in this reach; this reach should be managed as fish bearing, and re-sampling is not recommended until fish access to the reach has been re-established

Table 14 cont. Follow - up sampling requirements for classification of ten reaches (sorted by site number) sampled in Sub-basin II and Sub-basin VII within the Fulton River and Babine Lake watersheds in July and August, 2001 (*for details see* Appendix 1).

Site #	ILP/Stream name	Reach	TRIM map	Channel Width (m)	Timing	Methods	Proposed Riparian Class	Comments
20	40354	2	093L.089	1.48	After culvert removal	EF	**S4**	This steep gradient reach (12-14%) was primarily dry at the time of survey (18/07/01) and the ephemeral nature of the stream restricts the suitability of the marginal fish habitat in this reach; a 1.5 m perched culvert in reach 1 of the mainstem (ILP 40353) is an anthropogenic barrier to fish passage (Table 6), and prevents fish access to very marginal and seasonal habitat in this reach; this reach should be managed as fish bearing, and re-sampling is not recommended until fish access to the reach has been re-established
22	40359	1	093L.089	1.20	Spring	EF	**S4**	No fish captured in 419 seconds of electrofishing over 100 lineal meters despite good sampling conditions; fair rearing and some pockets of spawning habitat were noted in the reach, but no overwintering habitat was present due to a lack of deep pools; the reach is located in a 12-15 year old harvested area, and no leave strip was noted adjacent to the stream banks; the channel exhibited extensive riffles with few shallow pools; cover was poor due to the lack of mature riparian vegetation
24	40363	1	093L.090	0.90	Spring high flows below culvert	EF	**S4**	This intermittent reach was primarily dry with some small, isolated pockets of water at the time of sampling (18/07/01); no electrofishing was conducted due to the lack of sufficient water; a 0.8 meter hanging culvert upstream of the sample site was identified as a barrier to fish passage at the Granisle Highway crossing; the lower portion of the reach does not flow as indicated on the TRIM map; fish habitat in the lower 350 m of the reach (downstream of the perched culvert) was very poor

Table 14 cont. Follow - up sampling requirements for classification of ten reaches (sorted by site number) sampled in Sub-basin II and Sub-basin VII within the Fulton River and Babine Lake watersheds in July and August, 2001 (*for details see* Appendix 1).

Site #	ILP/Stream name	Reach	TRIM map	Channel Width (m)	Timing	Methods	Proposed Riparian Class	Comments
25	40363	2	093L.090	0.80	Spring In reach 1	EF	**S4**	This intermittent reach was primarily dry at the time of sampling (18/07/01), although some stagnant pools were present; no spawning (no suitable substrate, lack of discharge), and no overwintering habitat (no deep pools) were noted in this reach, upstream of a 0.8 m perched culvert in reach 1 (Table 6); the culvert is an anthropogenic barrier to fish passage; this reach should be managed as fish bearing by default, and re-sampling is not recommended until fish access to the reach has been re-established; sampling in reach 1 may provide further indication for the potential of fish presence if the culvert barrier is removed
26	40314	1	093L.089	1.0	Spring high flows	EF	**S4**	This reach was dry at the time of sampling (23/08/01); the location of the mainstem differs from that shown on the TRIM map, and this reach does not carry the majority of the flow from ILP 40314 reach 3; a channel was present, but the channel was poorly defined, and no overwintering or spawning habitat were noted present (no deep pools, no gravels); some beaver activity was noted in this reach; re-sampling is recommended during spring high flows when sufficient water may be present for electrofishing
27	40314	3	093L.089	1.85	Spring high flows	EF	**S3**	No fish were captured in 447 seconds of electrofishing over 100 lineal meters in the lower 200 m of this reach; the main flow of the upper portion of the reach diverts to the south, and does not drain east as indicated on the TRIM map, but increased flow during peak discharge may result in the diversion of some of the flow into this channel; fish habitat was noted to be poor, and no overwintering habitat or spawning habitat was present (no deep pools, no gravels)
30	40403	1	093L.089	1.27	Spring	EF/MT	**S4**	No fish were captured in 457 seconds of electrofishing over 100 lineal meters; electrofishing efficiency was reduced by large channel morphology and difficult access to the stream channel; some rearing habitat but no overwintering habitat (too shallow) or spawning habitat (no gravels) were identified in the reach

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Appendix 1. Sample Site Information Including FDIS Site Cards, Fish Forms, and Site Photographs, (sorted by site number).

SITE CARD INDEX

Watershed Code/ILP	Reach #	Site #	TRIM Map #	Page #
40208	1.0	1	093L.099	S - 1
40208	3.0	2	093L.099	S - 2
40216	1.0	4	093L.099	S - 4
40216	3.0	5	093L.099	S - 5
40216	4.0	6	093L.099	S - 6
40219	1.0	7	093L.099	S - 7
40222	2.0	8	093L.099	S - 8
40223	1.0	9	093L.099	S - 9
40307	1.0	32	093L.089	S - 32
40310	1.0	31	093L.089	S - 31
40314	1.0	26	093L.089	S - 26
40314	3.0	27	093L.089	S - 27
40314	8.0	28	093L.089	S - 28
40314	9.0	29	093L.089	S - 29
40327	2.0	10	093L.099	S - 10
40327	11.0	11	093L.089	S - 11
40334	1.0	12	093L.089	S - 12
40334	3.0	13	093L.089	S - 13
40347	1.0	14	093L.089	S - 14
40351	1.0	15	093L.089	S - 15
40353	1.0	16	093L.089	S - 16
40353	3.0	17	093L.089	S - 17
40353	5.0	18	093L.089	S - 18
40354	1.0	19	093L.089	S - 19
40354	2.0	20	093L.089	S - 20
40356	1.0	23	093L.090	S - 23
40359	1.0	22	093L.089	S - 22
40363	1.0	24	093L.090	S - 24
40363	2.0	25	093L.090	S - 25
40399	1.0	3	093L.099	S - 3
40402	1.0	21	093L.089	S - 21
40403	1.0	30	093L.089	S - 30

Note: Digital versions of all forms are available on the Field Data Information System (FDIS) databases delivered to B.C. Environment, Skeena Region and Houston Forest Products, Houston, B.C..

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40208	1

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40208 NID Map #: 093L.099 NID #: 46109 Reach #: 1.0 Site #: 1
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V2
GIS UTM (Z.E.N): 9.673689.6091615 Ref. Name:
Date: 2001/07/18 Time: 18:00 Agency: C141 Crew: ML /NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	3.50	3.60	3.30	4.10	3.60	3.50					3.60
Wetted Width (m):	MS	1.70	3.30	1.50	2.20	3.00	1.90					2.27
Pool Depth (m):	MS	0.30	0.20	0.25	0.40	0.20	0.25					0.27

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

Wb Depth:	.6	.7	.6

Avg: 0.63 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 9 Method: T3
pH: 8.0 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 140 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: C
D95: 22.0 D (cm): 17.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Spawning Habitat	Excellent - abundant suitable substrate.
Rearing Habitat	Excellent- many deep scour pools.
OverWinter Habitat	Good - several pools likely suitable.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC1	F:	21	STD	U	520 metres upstream of Babine Lake.
R:	TC1	F:	22	STD	D	520 metres upstream of Babine Lake.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40208	1

Section	Comments
SITE LOCATION	500 m upstream of Babine Lake.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed 300 m starting 400 m upstream of Babine Lake.
COMMENTS	
Section	Comments
FISH PRESENCE	Fish also confirmed above 0.7 m hanging culvert at Granisle Highway.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	5-10 m band on both banks consisting of twinberry, alder, devil's club, cottonwood and spruce.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

	Reach #	ILP Map #	ILP #
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.099	40208

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.099 ILP #: 40208 Reach #: 1 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/18 To: 2001/07/18 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
1	093L.099	46109					MT	1	9	140	C	
1	093L.099	46109					EF	1	9	140	C	
1	093L.099	46109					MT	2	9	140	C	
1	093L.099	46109					MT	3	9	140	C	
1	093L.099	46109					MT	4	9	140	C	
1	093L.099	46109					MT	5	9	140	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
1	EF	1	1	2001/07/18	17:55	2001/07/18	18:14	
1	MT	1	1	2001/07/17	18:40	2001/07/18	17:44	
1	MT	2	1	2001/07/17	18:41	2001/07/18	17:46	
1	MT	3	1	2001/07/17	18:44	2001/07/18	17:42	
1	MT	4	1	2001/07/17	18:40	2001/07/18	17:45	
1	MT	5	1	2001/07/17	18:42	2001/07/18	17:47	

B. NET/TRAP SPECIFICATIONS

Site #	MTD/NO.		H/P	Net Type	Length	Depth	Mesh	Set	Habitat
1	MT	1	1			0.4		BT	L
1	MT	2	1			0.3		BT	L
1	MT	3	1			0.3		BT	L
1	MT	4	1			0.3		BT	L
1	MT	5	1			0.4		BT	L

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
1	EF	1	1	O	399	100.0	1.5	700	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
1	EF	1	1	DV	A		4	68	111	R	
1	EF	1	1	RB	A		1	128	128	R	
1	EF	1	1	CT	A		2	109	113	R	
1	MT	1	1	NFC			0				
1	MT	2	1	NFC			0				
1	MT	3	1	NFC			0				
1	MT	4	1	NFC			0				
1	MT	5	1	NFC			0				

INDIVIDUAL FISH DATA

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age			Vch#	Genetic		Roll #	Frame#	Comment
									Str/Smpl#/Age				Str/Smpl#				
1	EF	1	1	RB	128		U	U	SC	1	3	1					
1	EF	1	1	CT	113		U	U	SC	14	2						
1	EF	1	1	CT	109		U	U	SC	15	2	4					
1	EF	1	1	DV	111		U	U	SC	1	2+	1					12l 11R
1	EF	1	1	DV	109		U	U	SC	2	2+						11L 12R
1	EF	1	1	DV	108		U	U	SC	3	2+						11L 12R
1	EF	1	1	DV	68		U	U	SC	4	1+	2					12L 11R

COMMENTS

Section	Comments

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.099	40208

COMMENTS	
Section	Comments
SITE LOCATION	3 minnow traps set upstream of North Road crossing and 2 downstream.
SITE DESCRIPTION	Electrofishing over best habitat above and below culvert (1 DV was captured above the culvert), 1 DV was captured shocking in the same pool that one of the unsuccessful minnow traps was set in.

Site # 1
ILP # 40208 ILP Map # 093L.099
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 46 Roll #: TC1 Frame #: 21
Comment: 520 metres upstream of Babine Lake.

Direction of Photo: D CD #: 1 Image #: 47 Roll #: TC1 Frame #: 22
Comment: 520 metres upstream of Babine Lake.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	3.0	093L.099	40208	2

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER
Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40208 NID Map #: 093L.099 NID #: 46110 Reach #: 3.0 Site #: 2
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H
GIS UTM (Z.E.N): 9.670759.6093015 Ref. Name:
Date: 2001/08/23 Time: 11:15 Agency: C141 Crew: RS NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.20	1.40	1.70	1.50	1.30	1.30					1.40
Wetted Width (m):	MS	1.00	0.70	0.60	0.80	0.60	0.30					0.67
Pool Depth (m):	MS	0.20	0.10	0.20	0.10	0.20	0.20					0.17

	Gadient %		Mtd	Avg
Method I:	2.0	3.0	AL	2.50
Method II:				

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

Wb Depth:	.2	.2	.2

Avg: 0.20 Method: MS Stage: L ☐ M ☑ H ☐

COVER Total: M

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 8 Method: T3
pH: 7.9 Method: FD
Flood Signs: Method:

Req #:
Cond.: 120 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: G
D95: 4.00 D (cm): 3.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: FC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Rearing Habitat	Some good cover.
OverWinter Habitat	None observed.
Spawning Habitat	Limited.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC4	F:	12	STD	U	Approximately 50 metres downstream of tributary (ILP 40399).
R:	TC4	F:	13	STD	D	Approximately 50 metres downstream of tributary (ILP 40399).

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	3.0	093L.099	40208	2

Section	Comments
SITE LOCATION	Approximately 50 m downstream of tributary ILP40399.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed entire reach in helicopter in search of barriers but no definite barriers were observed in reaches 1-3 via helicopter.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Channel appeared to have better qualities in reach 2.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	3-5 m band on both sides consisting of alder ,willow, horsetail, and ferns.
COMMENTS	
Section	Comments
FISH PRESENCE	No fish captured but resampling and a ground search to identify a likely barrier in a deep rock canyon in reach 2 is required.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	3.0	093L.099	40208

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.099 ILP #: 40208 Reach #: 3 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/08/23 To: 2001/08/23 Agency: C141 Crew: NF/RS Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd	MTD/NO	Temp	Cond	Turbid	Comment
2	093L.099	46110		EF 1	8	120	C	

A. GEAR SETTINGS

Site#	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
2	EF 1	1	2001/08/23	10:45	2001/08/23	10:59	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO	H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
2	EF 1	1	O	521	100.0	0.3	500	60	6	SR	12B

FISH SUMMARY

Site#	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	FishAct	Comment
2	EF 1	1	NFC			0			

COMMENTS

Section	Comments
PERCENT HABITAT SHOCKED	Shocked 45% large woody debris pools, 20% glide tail outs to these pools and 35% riffle.
SAMPLING EFFICIENCY	Efficiency was moderate due to abundant inaccessible locations, underground flow through root wads, large woody debris etc.

Site # 2
ILP # 40208 ILP Map # 093L.099
Reach # 3.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 68 Roll #: TC4 Frame #: 12
Comment: Approximately 50 metres downstream of tributary (ILP 40399).

Direction of Photo: D CD #: 1 Image #: 69 Roll #: TC4 Frame #: 13
Comment: Approximately 50 metres downstream of tributary (ILP 40399).

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40399	3

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40399 NID Map #: 093L.099 NID #: 46111 Reach #: 1.0 Site #: 3
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H
GIS UTM (Z.E.N): 9.670598.6092979 Ref. Name:
Date: 2001/08/23 Time: 10:30 Agency: C141 Crew: RS NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.80	0.70	0.60	0.50	0.40	0.70					0.62
Wetted Width (m):	MS	0.10	0.20	0.30	0.10	0.20	0.20					0.18
Pool Depth (m):	MS	0.10	0.10	0.10	0.10	0.10	0.10					0.10

	Gadient %		Mtd	Avg
Method I:	6.0	5.0	AL	5.50
Method II:				

Wb Depth:	.1	.1	.2

Avg: 0.13 Method: MS Stage: L ☑ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: T

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 7 Method: T3
pH: 7.8 Method: FD
Flood Signs: none observed Method: GE

Req #:
Cond.: 120 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: C
D95: 7.00 D (cm): 5.00 Morph: CP
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Z/E/N)	Method
093L.099	46146	C	8.0	AL	40	HC	R: F:	L: #:	9.670674.6093027	GIS

Comments: 22% gradient cascade.

HABITAT QUALITY

Name	Comments
Rearing Habitat	A few glides in lower 10 meters downstream of cascade.
OverWinter Habitat	None - seepage sections and no pools.
Spawning Habitat	None observed

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40399	3

PHOTOS						
Photo				Foc Lg	Dir	Comments
R:	TC4	F:	10	STD	U	150 metres upstream of confluence of mainstem (ILP 40208).
R:	TC4	F:	11	STD	D	150 metres upstream of confluence of mainstem (ILP 40208).

COMMENTS	
Section	Comments
SITE LOCATION	150 m upstream of confluence with mainstem (ILP40208).

COMMENTS	
Section	Comments
SITE DESCRIPTION	Site was representative of reach observed by helicopter.

COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed entire reach by helicopter.

COMMENTS	
Section	Comments
RIPARIAN VEGETATION	1-4 m band on both sides of alder, horsetail, twisted stalk, and oak fern.

COMMENTS	
Section	Comments
FISH PRESENCE	No fish present upstream of 8C40 and 22% gradient section at confluence or in mainstem.

Site # 3
ILP # 40399 ILP Map # 093L.099
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 66 Roll #: TC4 Frame #: 10
Comment: 150 metres upstream of confluence of mainstem (ILP 40208).

Direction of Photo: D CD #: 1 Image #: 67 Roll #: TC4 Frame #: 11
Comment: 150 metres upstream of confluence of mainstem (ILP 40208).

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40216	4

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40216 NID Map #: 093L.099 NID #: 46112 Reach #: 1.0 Site #: 4
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V2
GIS UTM (Z.E.N): 9.674517.6090578 Ref. Name:
Date: 2001/07/18 Time: 18:50 Agency: C141 Crew: ML / NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	3.90	4.10	4.30	3.60	4.00	4.40					4.05
Wetted Width (m):	MS	3.00	2.30	1.90	3.40	3.10	2.90					2.77
Pool Depth (m):	MS	0.30	0.15	0.20	0.30	0.25	0.20					0.23

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

Wb Depth:	.7	.6	.7

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

COVER Total: A

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 9 Method: T3
pH: 7.9 Method: FD
Flood Signs: alluvium 50cm Method: NS

Req #:
Cond.: 130 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: C Subdom: G
D95: 28.0 D (cm): 25.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Spawning Habitat	Excellent: abundant suitable substrate
Rearing Habitat	Excellent: many deep scour pools
OverWinter Habitat	Good: several suitable pools observed.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC1	F:	23	STD	U	650 metres upstream of Babine Lake.
R:	TC1	F:	24	STD	D	650 metres upstream of Babine Lake.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40216	4

Section	Comments
SITE LOCATION	600 m upstream of Babine Lake.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed upper 250 m of reach.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Left riparian and right riparian 5-10 m of twinberry, alder, devil's club, cottonwood and spruce.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #
		1.0	093L.099	40216

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.099 ILP #: 40216 Reach #: 1 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/18 To: 2001/07/18 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
4	093L.099	46112					MT	1	9	130	C	
4	093L.099	46112					MT	2	9	130	C	
4	093L.099	46112					MT	3	9	130	C	
4	093L.099	46112					MT	4	9	130	C	
4	093L.099	46112					MT	5	9	130	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
4	MT	1	1	2001/07/17	18:50	2001/07/18	18:51	
4	MT	2	1	2001/07/17	18:53	2001/07/18	18:54	
4	MT	3	1	2001/07/17	18:50	2001/07/18	18:55	
4	MT	4	1	2001/07/17	18:51	2001/07/18	18:53	
4	MT	5	1	2001/07/17	18:52	2001/07/18	18:54	

B. NET/TRAP SPECIFICATIONS

Site #	MTD/NO.		H/P	Net Type	Length	Depth	Mesh	Set	Habitat
4	MT	1	1			0.4		BT	PL
4	MT	2	1			0.3		BT	PL
4	MT	3	1			0.3		BT	PL
4	MT	4	1			0.4		BT	PL
4	MT	5	1			0.3		BT	PL

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
4	MT	1	1	CT	NS		1	80	80	R	
4	MT	2	1	NFC			0				
4	MT	3	1	CT	NS		1	67	67	R	
4	MT	4	1	CT	NS		1	77	77	R	
4	MT	5	1	CT	NS		1	68	68	R	

INDIVIDUAL FISH DATA

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age			Vch#	Genetic		Roll #	Frame#	Comment
									Str/Smpl#/Age				Str/Smpl#				
4	MT	1	1	CT	80		U	IM									
4	MT	3	1	CT	67		U	IM									
4	MT	4	1	CT	77		U	IM									
4	MT	5	1	CT	68		U	IM									

COMMENTS

Section	Comments
SITE DESCRIPTION	Set 3 MT's upstream of North Road crossing and 2 downstream. A large log across the front of the culvert has accumulated alluvium under it and created a "step" into the front of the culvert, allowing a pool to build here. 1 MT was set here.

Site # 4
ILP # 40216 ILP Map # 093L.099
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 48 Roll #: TC1 Frame #: 23
Comment: 650 metres upstream of Babine Lake.

Direction of Photo: D CD #: 1 Image #: 49 Roll #: TC1 Frame #: 24
Comment: 650 metres upstream of Babine Lake.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	3.0	093L.099	40216	5

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER
Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40216 NID Map #: 093L.099 NID #: 46113 Reach #: 3.0 Site #: 5
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V2
GIS UTM (Z.E.N): 9.671714.6089665 Ref. Name:
Date: 2001/07/20 Time: 12:30 Agency: C141 Crew: ML / NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	4.30	2.00	1.70	1.90	2.50	2.40					2.47
Wetted Width (m):	MS	4.00	2.00	1.70	1.60	1.90	1.90					2.18
Pool Depth (m):	MS	0.60	0.40	0.30	0.30	0.40	0.20					0.37

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

Wb Depth:	.4	.5	.5

Avg: 0.47 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 10 Method: T3
pH: 7.8 Method: FD
Flood Signs: none' Method: GE

Req #:
Cond.: 60 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: C Subdom: G
D95: 14.0 D (cm): 10.00 Morph: LC
Pattern: SI
Islands: O
Coupling: DC
Confinement: FC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Spawning Habitat	Excellent.
Rearing Habitat	Excellent.
OverWinter Habitat	Excellent.

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC3 F: 2	STD	U	250 metres upstream of confluence of ILP 40219.
R: TC3 F: 3	STD	D	250 metres upstream of confluence of ILP 40219.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	3.0	093L.099	40216	5

Section	Comments
SITE LOCATION	200 m upstream of confluence of ILP 40214.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed 400 m starting 60 m downstream of confluence of ILP 40219.
COMMENTS	
Section	Comments
SURVEY LOCATION	At confluence with ILP 40219 many large beaver ponds were present (approximately 15 m wide); sampling conducted in less impacted, narrow section where EF would be more efficient.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Valley bottom is 25-40 m wide, and where not flooded the dominant riparian vegetation is alder, willow, twinberry, cow-parsnip, cottonwood and spruce.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	3.0	093L.099	40216

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.099 ILP #: 40216 Reach #: 3 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/20 To: 2001/07/20 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
5	093L.099	46113					EF	1	10	60	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
5	EF	1	1	2001/07/20	12:30	2001/07/20	13:00	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
5	EF	1	1	O	1207	100.0	1.5	800	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
5	EF	1	1	NFC			0				

COMMENTS

Section	Comments
PERCENT HABITAT SHOCKED	EF over 40% pool (some beaver pond at lower end of site), 30% glide, 30% riffle, over some excellent habitat. Efficiency was good (excellent visibility and access) but would have been better with large anode ring.

Site # 5
ILP # 40216 ILP Map # 093L.099
Reach # 3.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 51 Roll #: TC3 Frame #: 2
Comment: 250 metres upstream of confluence of ILP 40219.

Direction of Photo: D CD #: 1 Image #: 52 Roll #: TC3 Frame #: 3
Comment: 250 metres upstream of confluence of ILP 40219.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	4.0	093L.099	40216	6

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER
Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40216 NID Map #: 093L.099 NID #: 46114 Reach #: 4.0 Site #: 6
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H
GIS UTM (Z.E.N): 9.668528.6092262 Ref. Name:
Date: 2001/08/23 Time: 09:52 Agency: C141 Crew: NFRS Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.70	1.20	0.60	0.40	0.30	1.10					0.72
Wetted Width (m):	MS	0.60	1.10	0.60	0.40	0.30	0.70					0.62
Pool Depth (m):	MS	0.10	0.10	0.10	0.20	0.10	0.20					0.13

	Gadient %		Mtd	Avg
Method I:	7.5		AL	7.50
Method II:				

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

Wb Depth:	.1	.1	.1

Avg: 0.10 Method: MS Stage: L ☑ M ☐ H ☐

COVER Total: M

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 12 Method: T3
pH: 7.1 Method: FD
Flood Signs: none noted Method: GE

Req #:
Cond.: 120 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: NA
D95: 0.01 D (cm): 0.01 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: UN
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Spawning Habitat	None - no appropriate substrates.
OverWinter Habitat	None - lack of flow and shallow pools.
Rearing Habitat	Very limited - stream is very shallow and abundant seepage steps make access very difficult for fish.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC5	F:	1	STD	U	View of site approximately 520 metres upstream of tributary ILP 40225.
R:	TC5	F:	2	STD	D	View of site approximately 520 metres upstream of tributary ILP 40225.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	4.0	093L.099	40216	6

Section	Comments
SITE LOCATION	Approximately 500 m upstream of mapped confluence with tributary ILP 40225.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed 200 m starting at site location and going upstream.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Stream has only enough momentum to scour away surface vegetation and debris. Substrate was entirely fines. Many short seepage steps (approximately 1.5 m) were also observed. Stream may be ephemeral.
COMMENTS	
Section	Comments
FISH PRESENCE	Not suspected due to poor habitat quality and barrier downstream in reach 2. This stream was not sampled.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Riparian band on both banks consisting of horsetail, arrow leafed groundsel, alpine fir, oak fern, willow.
COMMENTS	
Section	Comments
BARRIER	A 5 m falls was observed from the helicopter in reach 2, 680 m upstream of tributary ILP 40217.

Site # 6
ILP # 40216 ILP Map # 093L.099
Reach # 4.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 79 Roll #: TC5 Frame #: 1
Comment: View of site approximately 520 metres upstream of tributary ILP 40225.

Direction of Photo: X CD #: 1 Image #: 70 Roll #: TC4 Frame #: 14
Comment: Aerial view of 5 metres falls located downstream in reach 2.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40219	7

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40219 NID Map #: 093L.099 NID #: 46116 Reach #: 1.0 Site #: 7
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V2
GIS UTM (Z.E.N): 9.671940.6089591 Ref. Name:
Date: 2001/07/20 Time: 11:40 Agency: C141 Crew: ML / NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.70	2.10	0.80	1.90	0.70	1.80					1.50
Wetted Width (m):	MS	1.70	2.10	0.80	1.90	0.70	1.80					1.50
Pool Depth (m):	MS	0.30	0.20	0.35	0.25	0.35	0.15					0.27

	Gadient %		Mtd	Avg
Method I:	7.5	7.0	AL	7.25
Method II:				

Wb Depth:	.3	.3	.3

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

COVER Total: A

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

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

LWD: A DIST: C

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

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

WATER

EMS:
Temp: 10 Method: T3
pH: 7.2 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 100 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: NS
D95: 10.0 D (cm): 10.00 Morph: SPB
Pattern: SI
Islands: N
Coupling: DC
Confinement: FC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Spawning Habitat	None.
Rearing Habitat	Good due to many large deep pools created by beaver activity.
OverWinter Habitat	Fair: some pools may allow overwintering.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC2	F:	25	STD	U	50 metres upstream of confluence with mainstem.
R:	TC3	F:	1	STD	D	50 metres upstream of confluence with mainstem.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40219	7

Section	Comments
SITE LOCATION	Started at confluence with mainstem.
COMMENTS	
Section	Comments
SITE DESCRIPTION	Section sampled had been heavily influenced by beaver activity which created several organic steps (0.3 to 0.6 m).
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 480 m of reach.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Beaver damn influenced section in lower 150 m; upstream of which average channel width was approximately 0.8 m.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Left riparian and right riparian 8-12 m consisting of alder, cow-parsnip, baneberry, twinberry, cottonwood, and spruce.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.099	40219

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.099 ILP #: 40219 Reach #: 1 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/20 To: 2001/07/20 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd	MTD/NO	Temp	Cond	Turbid	Comment
7	093L.099	46116		EF 1	10	100	C	

A. GEAR SETTINGS

Site#	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
7	EF 1	1	2001/07/20	11:34	2001/07/20	12:00	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO	H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
7	EF 1	1	O	614	100.0	0.5	600	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	FishAct	Comment
7	EF 1	1	NFC			0			

COMMENTS

Section	Comments
PERCENT HABITAT SHOCKED	Shocked 70% of pool (30 % step-pool, 40% beaver pool), 20% glide, 10% riffle. Efficiency was good but somewhat reduced by dark substrate.

Site # 7
ILP # 40219 ILP Map # 093L.099
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 25 Roll #: TC2 Frame #: 25
Comment: 50 metres upstream of confluence with mainstem.

Direction of Photo: D CD #: 1 Image #: 50 Roll #: TC3 Frame #: 1
Comment: 50 metres upstream of confluence with mainstem.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Reach #	ILP Map #	ILP #	Site
2.0	093L.099	40222	8

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

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER
Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40222 NID Map #: 093L.099 NID #: 46117 Reach #: 2.0 Site #: 8
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H
GIS UTM (Z.E.N): 9.668116.6092069 Ref. Name:
Date: 2001/08/22 Time: 09:30 Agency: C141 Crew: RS NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.10	1.00	0.80	0.70	0.80	1.20					0.93
Wetted Width (m):	MS	0.10	0.20	0.20	0.10	0.10	0.10					0.13
Pool Depth (m):	MS	0.10	0.10	0.20	0.10	0.20	0.10					0.13

	Gadient %		Mtd	Avg
Method I:	19.0	18.0	AL	18.50
Method II:				

Wb Depth:	.2	.2	.3

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

COVER Total: M

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

CROWN CLOSURE
3 41-70%
INSTREAM VEG: N ☐ A ☐ M ☑ V ☐

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 7 Method: T3
pH: 7.6 Method: FD
Flood Signs: none Method: GE
Req #:
Cond.: 100 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: C Subdom: F
D95: 14.0 D (cm): 10.00 Morph: CP
Pattern: ST
Islands: N
Coupling: CO
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Rearing Habitat	none - high gradient.
OverWinter Habitat	none - no pools and very low flow
Spawning Habitat	none

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC4 F: 6	STD	U	Approximately 1400 metres upstream of confluence with mainstem (ILP 40222).
R: TC4 F: 7	STD	D	Approximately 1400 metres upstream of confluence with mainstem (ILP 40222).

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	2.0	093L.099	40222	8

Section	Comments
SITE LOCATION	Approximately 1400 m upstream of confluence with mainstem (ILP40222).
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 250 m of the reach.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Alder and horsetail, but mature fir to stream bank.
COMMENTS	
Section	Comments
FISH PRESENCE	Not sampled due to no fish captured downstream in mainstem and very low discharge at time of survey. No fish present due to no fish present in mainstem.

Site # 8
ILP # 40222 ILP Map # 093L.099
Reach # 2.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 62 Roll #: TC4 Frame #: 6
Comment: Approximately 1400 metres upstream of confluence with mainstem (ILP 40222).

Direction of Photo: D CD #: 1 Image #: 63 Roll #: TC4 Frame #: 7
Comment: Approximately 1400 metres upstream of confluence with mainstem (ILP 40222).

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40223	9

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40223 NID Map #: 093L.099 NID #: 46118 Reach #: 1.0 Site #: 9
Field UTM (Z.E.N): .. Method: Site Lg: 250 Method: HC Access: H
GIS UTM (Z.E.N): 9.668201.6091768 Ref. Name:
Date: 2001/08/23 Time: 08:45 Agency: C141 Crew: RS NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

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

	Gadient %		Mtd	Avg
Method I:	8.0	9.0	AL	8.50
Method II:				

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

COVER Total:

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

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

WATER

EMS: Req #:
Temp: Method: Cond.: Method:
pH: Method: Turb.: T ☐ M ☐ L ☐ C ☐ Method:
Flood Signs: none Method: GE

MORPHOLOGY

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

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Other	none

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC4	F:	1	STD	U	150 metres upstream of confluence with mainstem (ILP 40222).
R:	TC4	F:	2	STD	U	150 metres upstream of confluence with mainstem (ILP 40222)
R:	TC4	F:	3	STD	D	150 metres upstream of confluence with mainstem (ILP 40222).

COMMENTS

Section	Comments

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40223	9

SITE LOCATION	Approximately 250 m upstream of confluence with mainstem ILP 40222.
COMMENTS	
Section	Comments
SITE DESCRIPTION	Channel consists of short sections of defined channel and 3-10 m sections of seepage.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Stream runs through mature fir forest with little riparian vegetation.
COMMENTS	
Section	Comments
FISH PRESENCE	No fish present and no potential for fish habitat further upstream due to high gradient in reach 2.

Site # 9
ILP # 40223 ILP Map # 093L.099
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 58 Roll #: TC4 Frame #: 2
Comment: 150 metres upstream of confluence with mainstem (ILP 40222).

Direction of Photo: D CD #: 1 Image #: 59 Roll #: TC4 Frame #: 3
Comment: 150 metres upstream of confluence with mainstem (ILP 40222).

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	2.0	093L.099	40327	10

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER
Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40327 NID Map #: 093L.099 NID #: 46119 Reach #: 2.0 Site #: 10
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H
GIS UTM (Z.E.N): 9.675826.6088040 Ref. Name:
Date: 2001/08/23 Time: 12:25 Agency: C141 Crew: RS NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.00	0.90	1.20	1.10	0.90	1.50					1.10
Wetted Width (m):	MS	0.80	0.70	0.80	1.00	0.70	0.60					0.77
Pool Depth (m):	MS	0.30	0.10	0.20	0.20	0.10	0.10					0.17

	Gadient %		Mtd	Avg
Method I:	8.0	8.0	AL	8.00
Method II:				

Wb Depth:	.2	.2	.2

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

COVER Total: M

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

CROWN CLOSURE
5 >90%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 12 Method: T3
pH: 7.9 Method: FD
Flood Signs: beaver dam debris Method: GE

Req #:
Cond.: 110 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: C
D95: 10.0 D (cm): 6.50 Morph: CP
Pattern: SI
Islands: N
Coupling: CO
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Rearing Habitat	Some good cover.
OverWinter Habitat	Limited
Spawning Habitat	A few gravel bars.

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC4 F: 15	STD	U	Approximately 1700 metres upstream of Babine Lake.
R: TC4 F: 16	STD	D	Approximately 1700 metres upstream of Babine Lake.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	2.0	093L.099	40327	10

Section	Comments
SITE LOCATION	Approximately 1700 m upstream of Babine Lake.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed upper 300 m of reach.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Stream is overgrown with lady fern.
COMMENTS	
Section	Comments
BARRIER	Two soft barrier steps 1.3 m and 1.2 m were observed and others are suspected downstream suggesting no fish passage at time of survey.
COMMENTS	
Section	Comments
FISH PRESENCE	Resampling in lake reach 3 and resampling this reach are required to confirm fish absence.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	2.0	093L.099	40327

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.099 ILP #: 40327 Reach #: 2 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: _145013K_ Date: 2001/08/23 To: 2001/08/23 Agency: C141 Crew: NF/RS Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
10	093L.099	46119					EF	1	12	110	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
10	EF	1	1	2001/08/23	12:10	2001/08/23	12:21	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
10	EF	1	1	O	601	100.0	0.6	500	60	6	SR	12B

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
10	EF	1	1	NFC			0				

COMMENTS

Section	Comments
PERCENT HABITAT SHOCKED	Shocked 40% riffle, 35% pool, 25% glide over some good habitat, but many large steps were present.
SAMPLING EFFICIENCY	Efficiency was reduced by thick lady fern overhanging vegetation.

Site # **10**
ILP # 40327 ILP Map # 093L.099
Reach # 2.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 71 Roll #: TC4 Frame #: 15
Comment: Approximately 1700 metres upstream of Babine Lake.

Direction of Photo: D CD #: 1 Image #: 72 Roll #: TC4 Frame #: 16
Comment: Approximately 1700 metres upstream of Babine Lake.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	11.0	093L.099	40327	11

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40327 NID Map #: 093L.089 NID #: 46120 Reach #: 11.0 Site #: 11
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V4
GIS UTM (Z.E.N): 9.675809.6082810 Ref. Name:
Date: 2001/07/19 Time: 11:50 Agency: C141 Crew: ML / NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

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

	Gadient %		Mtd	Avg
Method I:	2.5	3.0	AL	2.75
Method II:				

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

Wb Depth: Avg: 0.00 Method: Stage: L ☐ M ☐ H ☐

COVER Total:

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

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

LWD: DIST:

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

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

WATER

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

MORPHOLOGY

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

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Other	None.

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC2 F: 5	STD	U	750 metres upstream of inlet to lake in reach 9.
R: TC2 F: 6	STD	D	750 metres upstream of inlet to lake in reach 9.

COMMENTS

Section	Comments

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	11.0	093L.099	40327	11

COMMENTS	
Section	Comments
SITE LOCATION	700 m upstream of inlet to lake in reach 9.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 600 m of reach.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Reach consisted of a riparian band in shallow gully with no sign of alluvium or fluvial deposits; reach over section surveyed was NCD.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	40 m band of willow, alder, twinberry, and grasses between replanted spruce and pine.

Site # **11**
ILP # 40327 ILP Map # 093L.099
Reach # 11.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 5 Roll #: TC2 Frame #: 5
Comment: 750 metres upstream of inlet to lake in reach 9.

Direction of Photo: D CD #: 1 Image #: 6 Roll #: TC2 Frame #: 6
Comment: 750 metres upstream of inlet to lake in reach 9.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Reach #	ILP Map #	ILP #	Site
1.0	093L.089	40334	12

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

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER
Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40334 NID Map #: 093L.089 NID #: 46121 Reach #: 1.0 Site #: 12
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V4
GIS UTM (Z.E.N): 9.675271.6084826 Ref. Name:
Date: 2001/07/19 Time: 10:35 Agency: C141 Crew: ML / NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.30	1.90	1.70	1.50	1.50	1.80					1.62
Wetted Width (m):	MS	1.20	1.80	1.50	1.40	1.50	1.60					1.50
Pool Depth (m):	MS	0.10	0.20	0.20	0.10	0.30	0.30					0.20

	Gadient %		Mtd	Avg
Method I:	4.5	5.0	AL	4.75
Method II:				

Wb Depth:	.4	.5	.4

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

COVER Total: A

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 12 Method: T3
pH: 8.0 Method: FD
Flood Signs: oriented grass Method: GE

Req #:
Cond.: 120 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: F
D95: 8.00 D (cm): 6.00 Morph: RP
Pattern: SI
Islands: N
Coupling: PC
Confinement: FC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☐ DIAG☐ MID☑ SPAN☐ BR☐

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Z/E/N)	Method
093L.089	46143	BD	2.0	NS	0	NS	R: TC2 F: 4	L: #:	9.675637.6084611	GIS

Comments: 2 m high semi-permanent BD.

HABITAT QUALITY

Name	Comments
Spawning Habitat	Excellent: spawning size gravel is abundant with adequate discharge.
Rearing Habitat	Good: good discharge, sufficient cover, however water temperature is some what warm.
OverWinter Habitat	Good discharge but relatively deep pools.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40334	12

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC2 F: 1	STD	U	View of site 570 metres upstream of lake ILP 40327, R7.
R: TC2 F: 2	STD	D	View of site 570 metres upstream of lake ILP 40327, R7.
R: TC2 F: 3	STD	NS	View of large beaver dam.
R: TC2 F: 4	STD	U	View of 2 metres high beaver dam 135 metres upstream of lake ILP 40327, R7.

COMMENTS

Section	Comments
SITE LOCATION	550 m upstream of lake ILP 40327, R7.

COMMENTS

Section	Comments
SURVEY LOCATION	Surveyed lower 680 m of stream.

COMMENTS

Section	Comments
SURVEY DESCRIPTION	Stream is entrenched for 80 m starting just upstream of wetland edge of lake, where this ravine ends, 138 m upstream of lake, a 2 m high (water level has a 2 m difference on each side) permanent beaver dam is obstructing fish passage.

COMMENTS

Section	Comments
SURVEY DESCRIPTION	Beaver pond above dam is passable. Re-sampling recommended due to lake upstream of BD. Site was established above BD and road crossing where stream appears to provide good fish habitat in a frequently confined section.

COMMENTS

Section	Comments
RIPARIAN VEGETATION	Consists of twinberry, fireweed, cow-parsnip, and 2nd growth willow, aspen, and lodgepole pine in a 12-15 year old cut block with no leave-strip.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.089	40334

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40334 Reach #: 1 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/19 To: 2001/07/19 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd	MTD/NO		Temp	Cond	Turbid	Comment
12	093L.089	46121		EF	1	12	120	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
12	EF	1	1	2001/07/19	10:20	2001/07/19	11:00	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
12	EF	1	1	O	1192	200.0	0.7	800	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
12	EF	1	1	NFC			0				

COMMENTS

Section	Comments
SAMPLING EFFICIENCY	Efficiency was reduced by thick shrubby over-vegetation over much of the shocked area.
PERCENT HABITAT SHOCKED	EF over 40% pool (several nice scour pools with over-vegetation for cover), 40% glide (cobble/gravel substrate; often with heavy over-vegetation), 20% riffle (cobble/ gravel substrate).

Site # **12**
ILP # 40334 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: NS CD #: 1 Image #: 3 Roll #: TC2 Frame #: 3
Comment: View of large beaver dam.

Direction of Photo: U CD #: 1 Image #: 4 Roll #: TC2 Frame #: 4
Comment: View of 2 metres high beaver dam, 135 metres upstream of lake ILP 40327, R7.

Site # **12**
ILP # 40334 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 1 Roll #: TC2 Frame #: 1
Comment: View of site 570 metres upstream of lake ILP 40327, R7.

Direction of Photo: D CD #: 1 Image #: 2 Roll #: TC2 Frame #: 2
Comment: View of site 570 metres upstream of lake ILP 40327, R7.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	3.0	093L.089	40334	13

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 — ILP #: 40334 — NID Map #: 093L.089 — NID #: 46122 — Reach #: 3.0 — Site #: 13
Field UTM (Z.E.N): .. — Method: — Site Lg: 100 — Method: HC — Access: H
GIS UTM (Z.E.N): 9.673478.6086440 — Ref. Name:
Date: 2001/08/23 — Time: 13:45 — Agency: C141 — Crew: RS NF — Fish Crd?: ☑ — Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	4.00	1.50	2.00	1.80	1.20	1.50					2.00
Wetted Width (m):	MS	4.00	1.50	2.00	1.80	1.20	1.50					2.00
Pool Depth (m):												0.00

	Gadient %		Mtd	Avg
Method I:	0.0	0.0	AL	0.00
Method II:				

Wb Depth:	.6	.8	.7

Avg: 0.70 — Method: MS — Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ — Intermittent: ☐ — Dw: ☐ — Tribs.: ☐

COVER — Total: M

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

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

LWD: N — DIST: NA

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

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

WATER

EMS:
Temp: 13 — Method: T3
pH: 7.2 — Method: FD
Flood Signs: none — Method: GE

Req #:
Cond.: 130 — Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ — Method: GE

MORPHOLOGY

Bed Material: — Dominant: F — Subdom: NA
D95: 0.01 — D (cm): 0.01 — Morph: LC
Pattern: IM
Islands: N
Coupling: DC
Confinement: UN
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Rearing Habitat	Good deep channel but temperature is likely too warm in summer.
OverWinter Habitat	Some potentially deep enough sections in channel.
Spawning Habitat	none.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC4	F:	17	STD	U	Approximately 200 metres upstream of lake in reach 2 of ILP 40334
R:	TC4	F:	18	STD	D	Approximately 200 metres upstream of lake in reach 2 of ILP 40334

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	3.0	093L.089	40334	13

Section	Comments
SITE LOCATION	Approximately 200 m upstream of lake in reach 2 of ILP 40334.
COMMENTS	
Section	Comments
SITE DESCRIPTION	This reach is a long 30-50 m wide wetland reach between lakes with a series of beaver ponds.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Willow, sedges, and alder in a 30 m wide band on both river right and left.
COMMENTS	
Section	Comments
FISH PRESENCE	Suspect fish are absent upstream of reach 1 in this drainage, but lake resampling is required to confirm.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	3.0	093L.089	40334

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40334 Reach #: 3 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: _145013K Date: 2001/08/23 To: 2001/08/23 Agency: C141 Crew: NF/RS Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd	MTD/NO	Temp	Cond	Turbid	Comment
13	093L.089	46122		EF 1	13	130	C	

A. GEAR SETTINGS

Site#	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
13	EF 1	1	2001/08/23	13:32	2001/08/23	13:41	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO	H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
13	EF 1	1	O	823	100.0	1.5	500	60	6	SR	12B

FISH SUMMARY

Site#	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	FishAct	Comment
13	EF 1	1	NFC			0			

COMMENTS

Section	Comments
PERCENT HABITAT SHOCKED	Shocked 100% beaver influenced large channel morphology.
SAMPLING EFFICIENCY	Efficiency very poor due to large channel morphology, wide channel, (lots of room to escape), difficult access and small anode ring.

Site # **13**
ILP # 40334 ILP Map # 093L.089
Reach # 3.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 73 Roll #: TC4 Frame #: 17
Comment: Approximately 200 metres upstream of lake in reach 2 of ILP 40334.

Direction of Photo: D CD #: 1 Image #: 74 Roll #: TC4 Frame #: 18
Comment: Approximately 200 metres upstream of lake in reach 2 of ILP 40334.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40347	14

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40347 NID Map #: 093L.089 NID #: 46123 Reach #: 1.0 Site #: 14
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V2
GIS UTM (Z.E.N): 9.678763.6086228 Ref. Name:
Date: 2001/07/20 Time: 09:00 Agency: C141 Crew: ML / NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.20	1.50	1.70	2.00	1.50	1.60					1.58
Wetted Width (m):	MS	0.40	0.90	0.80	1.20	0.90	1.10					0.88
Pool Depth (m):	MS	0.10	0.15	0.10	0.20	0.10	0.15					0.13

	Gadient %		Mtd	Avg
Method I:	2.0	2.0	AL	2.00
Method II:				

Wb Depth:	.3	.4	.4

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

COVER Total: M

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

CROWN CLOSURE
3 41-70%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 11 Method: T3
pH: 7.8 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 250 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: F
D95: 19.0 D (cm): 8.00 Morph: RP
Pattern: SI
Islands: N
Coupling: PC
Confinement: FC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo				AirPhoto				UTM (Z/E/N)	Method
093L.089	46147	CV	.7	NS	0	NS	R:	TC2	F:	22	L:		#:		9.678742.6086208	GIS

Comments: at Granisle Hwy crossing

HABITAT QUALITY

Name	Comments
Spawning Habitat	Good: plenty of gravel available.
Rearing Habitat	Moderate: low frequency of quality pools reduces quality of rearing habitat.
OverWinter Habitat	Poor: no pools likely suitable.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40347	14

PHOTOS						
Photo				Foc Lg	Dir	Comments
R:	TC2	F:	20	STD	U	60 metres upstream of Babine Lake.
R:	TC2	F:	21	STD	D	60 metres upstream of Babine Lake.
R:	TC2	F:	22	STD	U	View of 0.7 metres hanging culvert.

COMMENTS	
Section	Comments
SITE LOCATION	Started 20 m upstream of Babine Lake.

COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 300 m of reach.

COMMENTS	
Section	Comments
BARRIER	Although the culvert at the Granisle Highway did not appear to be a barrier to fish passage, no fish were captured upstream of the highway.

COMMENTS	
Section	Comments
RIPARIAN VEGETATION	10-15 m band of riparian vegetation on each side of stream consisting of alder, twinberry, gooseberry, and cottonwood.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code:	Reach #	ILP Map #	ILP #
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.089	40347

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40347 Reach #: 1 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/20 To: 2001/07/20 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd	MTD/NO		Temp	Cond	Turbid	Comment
14	093L.089	46123		EF	1	11	250	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
14	EF	1	1	2001/07/20	09:30	2001/07/20	09:49	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
14	EF	1	1	O	604	100.0	1.0	500	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
14	EF	1	1	CO	J		7	57	68	R	
14	EF	1	1	CT	A		1	125	125	R	

INDIVIDUAL FISH DATA

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age			Vch#	Genetic		Roll #	Frame#	Comment
									Str/Smpl#/Age				Str/Smpl#				
14	EF	1	1	CO	57		U	IM									
14	EF	1	1	CO	58		U	IM									
14	EF	1	1	CO	62		U	IM									
14	EF	1	1	CO	57		U	IM									
14	EF	1	1	CO	60		U	IM									
14	EF	1	1	CT	125		U	M									
14	EF	1	1	CO	68		U	IM									
14	EF	1	1	CO	66		U	IM									

COMMENTS

Section	Comments
SITE DESCRIPTION	Shocked for 470 seconds approximately 220 m upstream of Babine Lake at second road crossing unsuccessfully. Further shocking below culvert on Bell Mine road captured fish.
SAMPLING EFFICIENCY	Efficiency was excellent : good visibility and access.

Site # **14**
ILP # 40347 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 20 Roll #: TC2 Frame #: 20
Comment: 60 metres upstream of Babine Lake.

Direction of Photo: U CD #: 1 Image #: 22 Roll #: TC2 Frame #: 22
Comment: View of 0.7 metres hanging culvert.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40351	15

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER
Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.099 ILP #: 40351 NID Map #: 093L.089 NID #: 46124 Reach #: 1.0 Site #: 15
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V2
GIS UTM (Z.E.N): 9.677882.6086416 Ref. Name:
Date: 2001/07/20 Time: 10:15 Agency: C141 Crew: ML / NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.80	0.90	1.30	0.70	1.00	1.10					0.97
Wetted Width (m):	MS	0.05	0.10			0.30						0.15
Pool Depth (m):	MS			0.05		0.05						0.05

	Gadient %		Mtd	Avg
Method I:	2.0	2.0	AL	2.00
Method II:				

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

Wb Depth:	.2	.2	.3

Avg: 0.23 Method: MS Stage: L ☑ M ☐ H ☐

COVER Total: N

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

CROWN CLOSURE
3 41-70%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: F DIST: E

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

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

WATER

EMS:
Temp:
pH:
Flood Signs: none
Method:
Method:
Method: GE
Req #:
Cond.:
Turb.: T ☐ M ☐ L ☐ C ☑
Method:
Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: NS
D95: 10.0 D (cm): 10.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Spawning Habitat	None.
Rearing Habitat	Poor: limited discharge and lack of pools result in low quality.
OverWinter Habitat	None.

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC2 F: 23	STD	U	50 metres upstream of confluence with ILP 40347.
R: TC2 F: 24	STD	D	50 metres upstream of confluence with ILP 40347.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.099	40351	15

Section	Comments
SITE LOCATION	Started at confluence with ILP 40347.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 300 m.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Channel contained little or no water over entire section surveyed; habitat quality would only improve marginally during periods of higher flow due to lack of well functioning structures in the channel to scour pools and provide cover.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	40-50 m band of alder, willow, twinberry, ferns, and horsetail.

Site # **15**
ILP # 40351 ILP Map # 093L.099
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 23 Roll #: TC2 Frame #: 23
Comment: 50 metres upstream of confluence with ILP 40347.

Direction of Photo: D CD #: 1 Image #: 24 Roll #: TC2 Frame #: 24
Comment: 50 metres upstream of confluence with ILP 40347.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40353	16

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40353 NID Map #: 093L.089 NID #: 46125 Reach #: 1.0 Site #: 16
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V2
GIS UTM (Z.E.N): 9.679525.6085002 Ref. Name:
Date: 2001/07/18 Time: 17:50 Agency: C141 Crew: ML / NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	2.80	2.40	1.80	2.10	2.50	1.90					2.25
Wetted Width (m):	MS	2.10	1.80	1.50	1.90	2.10	0.90					1.72
Pool Depth (m):	MS	0.20	0.30	0.15	0.15	0.20	0.40					0.23

	Gadient %		Mtd	Avg
Method I:	3.0	4.0	AL	3.50
Method II:				

Wb Depth:	.4	.4	.4

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

COVER Total: A

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 9 Method: T3
pH: 7.5 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 140 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: C
D95: 23.0 D (cm): 16.00 Morph: CP
Pattern: SI
Islands: N
Coupling: PC
Confinement: CO
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☑ DIAG☐ MID☑ SPAN☐ BR☐

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo				AirPhoto				UTM (Z/E/N)	Method
093L.089	46144	CV	1.5	NS	0	NS	R:	TC2	F:	19	L:		#:		9.679387.6085003	GIS

Comments: At Granisle Highway road crossing.

HABITAT QUALITY

Name	Comments
Spawning Habitat	Good.
Rearing Habitat	Good.
OverWinter Habitat	Moderate: a few pools may be suitable.

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40353	16

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC2 F: 17	STD	U	250 metres upstream of Babine Lake.
R: TC2 F: 18	STD	D	250 metres upstream of Babine Lake.
R: TC2 F: 19	STD	U	Culvert at Granisle highway road crossing.

COMMENTS

Section	Comments
SITE LOCATION	200 m upstream of Babine Lake.

COMMENTS

Section	Comments
SURVEY DESCRIPTION	Surveyed 300 m starting at Granisle Highway crossing, which is a barrier; no pool is present at out flow and substrate is cobble and boulder.

COMMENTS

Section	Comments
RIPARIAN VEGETATION	Left riparian and right riparian 15-20 m to top of gully, dominant species are alder, thimbleberry, cow-parsnip, Devil's club, twinberry, and cottonwood.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.089	40353

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40353 Reach #: 1 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/19 To: 2001/07/19 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd	MTD/NO	Temp	Cond	Turbid	Comment
16	093L.089	46125		EF 1	9	140	C	

A. GEAR SETTINGS

Site#	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
16	EF 1	1	2001/07/19	18:30	2001/07/19	19:00	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO	H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
16	EF 1	1	O	217	100.0	1.1	700	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
16	EF 1	1	CT	J		2	53	69	R	
16	EF 1	1	CT	J		2	84	92	R	
16	EF 1	1	CO	J		7	102	110	R	

INDIVIDUAL FISH DATA

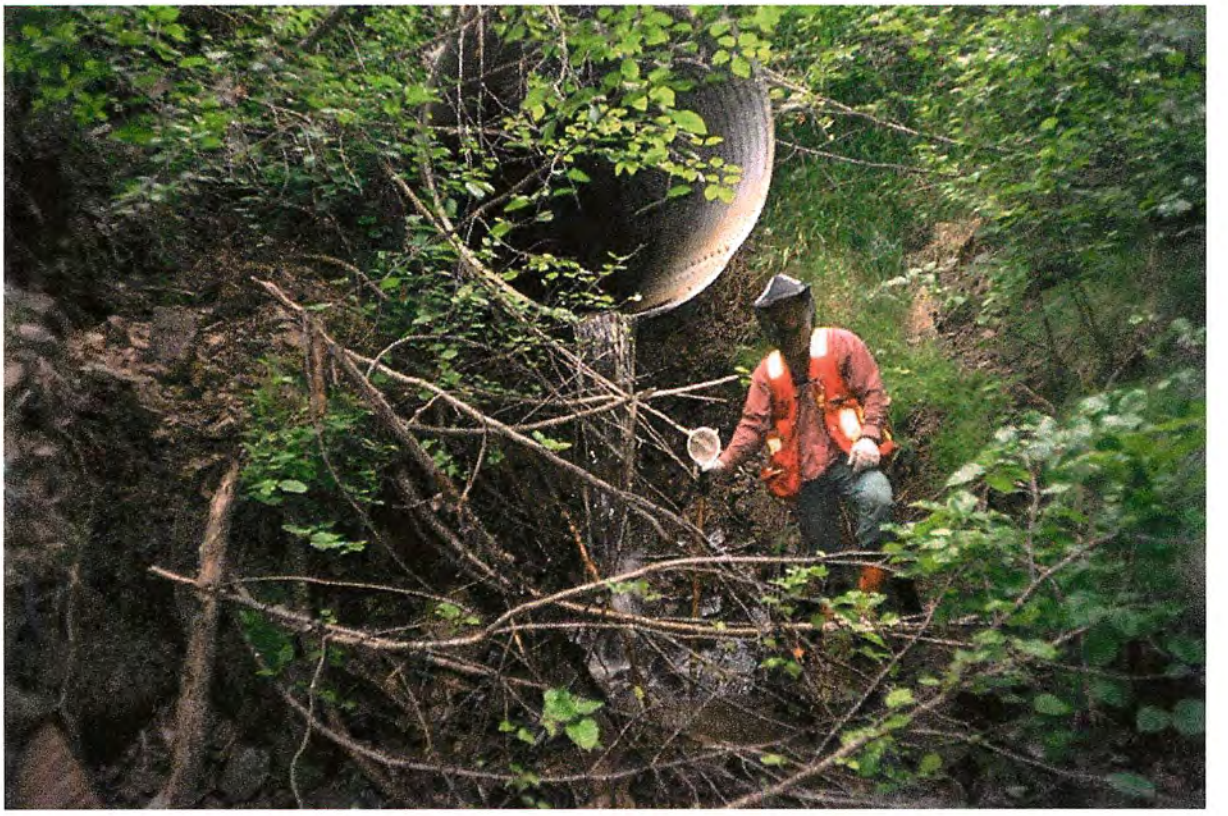
Site#	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age Str/Smpl#/Age	Vch#	Genetic Str/Smpl#	Roll #	Frame#	Comment
16	EF 1	1	CT	92		U	IM						
16	EF 1	1	CT	110		U	M						
16	EF 1	1	CO	57		U	IM						
16	EF 1	1	CO	62		U	IM						
16	EF 1	1	CO	59		U	IM						
16	EF 1	1	CT	102		U	MT						
16	EF 1	1	CT	84		U	MT						
16	EF 1	1	CO	54		U	IM						
16	EF 1	1	CO	60		U	IM						
16	EF 1	1	CO	53		U	IM						
16	EF 1	1	CO	69		U	IM						

COMMENTS

Section	Comments
PERCENT HABITAT SHOCKED	Shocked mostly glide habitat with cobble / boulder cover (80%). Also shocked some past riffle and LWD pool.

Site # **16**
ILP # 40353 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: D CD #: 1 Image #: 18 Roll #: TC2 Frame #: 18
Comment: 250 metres upstream of Babine Lake.



Direction of Photo: U CD #: 1 Image #: 19 Roll #: TC2 Frame #: 19
Comment: Culvert at Granisle Highway road crossing.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	3.0	093L.089	40353	17

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40353 NID Map #: 093L.089 NID #: 46126 Reach #: 3.0 Site #: 17
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V4
GIS UTM (Z.E.N): 9.677310.6083485 Ref. Name:
Date: 2001/07/18 Time: 14:15 Agency: C141 Crew: ML / NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.20	2.00	1.80	1.50	1.90	2.10					1.75
Wetted Width (m):	MS	1.00	1.30	1.00	1.10	1.30	1.60					1.22
Pool Depth (m):	MS		0.15									0.15

	Gadient %		Mtd	Avg
Method I:	0.5	0.5	AL	0.50
Method II:				

Wb Depth:	.2	.2	.2

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

COVER Total: T

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

CROWN CLOSURE
4 71-90%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: N DIST: NS

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

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

WATER

EMS:
Temp: 13 Method: T3
pH: 7.6 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 80 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: NS
D95: 0.01 D (cm): 0.01 Morph: LC
Pattern: SI
Islands: N
Coupling: DC
Confinement: UN
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Spawning Habitat	None.
Rearing Habitat	Poor: average water depth is 10 cm with very little cover.
OverWinter Habitat	None.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC1	F:	15	STD	U	3250 metres upstream of Babine Lake.
R:	TC1	F:	16	STD	D	3250 metres upstream of Babine Lake.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	3.0	093L.089	40353	17

Section	Comments
SITE LOCATION	Started 3.2 km upstream of Babine Lake at the bottom end of this reach.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 200 m.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Channel flows through 5 m tall willow and alder; water very shallow and stagnant in most areas.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Extent of riparian area very difficult to determine due to low gradient, unconfined nature of this reach and extensive presence of alder and willow species.

FDIS Fish Card

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	3.0	093L.089	40353

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40353 Reach #: 3 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/18 To: 2001/07/18 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
17	093L.089	46126					EF	1	13	80	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
17	EF	1	1	2001/07/18	14:15	2001/07/18	14:35	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
17	EF	1	1	O	614	100.0	1.0	700	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
17	EF	1	1	NFC			0				

COMMENTS

Section	Comments
PERCENT HABITAT SHOCKED	EF through 80% LC morph. With fine substrate and average water depth of 10 cm; 20% of channel had some riffle over SWD and overgrown shrubs.

Site # 17
ILP # 40353 ILP Map # 093L.089
Reach # 3.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 40 Roll #: TC1 Frame #: 15
Comment: 3250 metres upstream of Babine Lake.

Direction of Photo: D CD #: 1 Image #: 41 Roll #: TC1 Frame #: 16
Comment: 3250 metres upstream of Babine Lake.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	5.0	093L.089	40353	18

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40353 NID Map #: 093L.089 NID #: 46127 Reach #: 5.0 Site #: 18
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V4
GIS UTM (Z.E.N): 9.676642.6084224 Ref. Name:
Date: 2001/07/19 Time: 16:35 Agency: C141 Crew: ML / NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.70	0.40	0.60	0.50	0.90	0.50					0.60
Wetted Width (m):	MS	0.50	0.40	0.60	0.40	0.70	0.50					0.52
Pool Depth (m):	MS	0.10	0.10	0.10	0.05	0.15	0.10					0.10

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

Wb Depth:	.3	.4	.4

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

COVER Total: NS

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

CROWN CLOSURE
3 41-70%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 14 Method: T3
pH: 7.2 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 110 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: NS
D95: 10.0 D (cm): 5.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Spawning Habitat	Poor: a couple tiny, isolated patches.
Rearing Habitat	Moderate: lower 40 m had habitat since this section had not been directly altered by past harvest.
OverWinter Habitat	None.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC2	F:	15	STD	U	50 metres upstream of inlet to lake in reach 4.
R:	TC2	F:	16	STD	D	50 metres upstream of inlet to lake in reach 4.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	5.0	093L.089	40353	18

Section	Comments
SITE LOCATION	Started at inlet to lake in reach 4.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 300 m.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Lower 40 m of this reach had best habitat; upstream rearing habitat deteriorated to only fair.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	40 m band of riparian vegetation present consisting of alder, gooseberry, twinberry, and thimbleberry.

FDIS Fish Card

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	5.0	093L.089	40353

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40353 Reach #: 5 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/19 To: 2001/07/19 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
18	093L.089	46127					EF	1	14	110	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
18	EF	1	1	2001/07/19	16:35	2001/07/19	17:00	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
18	EF	1	1	O	399	100.0	0.4	600	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
18	EF	1	1	NFC			0				

COMMENTS

Section	Comments
SAMPLING EFFICIENCY	Efficiency was good but somewhat reduced by dark pine substrate in LC section.
PERCENT HABITAT SHOCKED	Shocked all available habitat: 35% pool, 35% glide, 10% large channel glide, 20% riffle.

Site # **18**
ILP # 40353 ILP Map # 093L.089
Reach # 5.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 15 Roll #: TC2 Frame #: 15
Comment: 50 metres upstream of inlet to lake in reach 4.

Direction of Photo: D CD #: 1 Image #: 16 Roll #: TC2 Frame #: 16
Comment: 50 metres upstream of inlet to lake in reach 4.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40354	19

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40354 NID Map #: 093L.089 NID #: 46128 Reach #: 1.0 Site #: 19
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V4
GIS UTM (Z.E.N): 9.678282.6084701 Ref. Name:
Date: 2001/07/18 Time: 12:50 Agency: C141 Crew: ML / NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.20	1.00	0.60	0.50	0.80	0.70					0.80
Wetted Width (m):	MS											0.00
Pool Depth (m):	MS	0.15	0.10	0.10	0.15							0.13

	Gadient %		Mtd	Avg
Method I:	7.0	6.0	AL	6.50
Method II:				

Wb Depth:	.3	.2	.3

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

COVER Total:

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

CROWN CLOSURE

INSTREAM VEG: N ☐ A ☐ M ☑ V ☑

LWD: F DIST: E

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

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

WATER

EMS: — Req #:
Temp: — Method: — Cond.: — Method:
pH: — Method: — Turb.: T ☐ M ☐ L ☐ C ☐ — Method:
Flood Signs: none — Method: GE

MORPHOLOGY

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

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Other	None.

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC1 F: 9	STD	U	250 metres upstream of confluence with ILP 40353.
R: TC1 F: 10	STD	D	250 metres upstream of confluence with ILP 40353.

COMMENTS

Section	Comments

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40354	19

COMMENTS	
Section	Comments
SITE LOCATION	200 m upstream of confluence with ILP 40353.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed upper 200 m of reach.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Channel was bone dry over entire section surveyed; channel was well scoured and likely had flow in the spring.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Left riparian and right riparian 10-25 m consisting of thimbleberry, twinberry, stinging nettle, alder, Devil's club, and the occasional fir.

Site # **19**
ILP # 40354 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 34 Roll #: TC1 Frame #: 9
Comment: 250 metres upstream of confluence with ILP 40353.

Direction of Photo: D CD #: 1 Image #: 35 Roll #: TC1 Frame #: 10
Comment: 250 metres upstream of confluence with ILP 40353.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Reach #	ILP Map #	ILP #	Site
2.0	093L.089	40354	20

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

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER
Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40354 NID Map #: 093L.089 NID #: 46129 Reach #: 2.0 Site #: 20
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: FT
GIS UTM (Z.E.N): 9.677981.6084611 Ref. Name:
Date: 2001/07/18 Time: 12:52 Agency: C141 Crew: ML / NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.40	1.50	1.60	1.70	1.30	1.40					1.48
Wetted Width (m):												0.00
Pool Depth (m):	MS	0.10	0.10	0.10	0.30	0.20						0.16

	Gadient %		Mtd	Avg
Method I:	12.0	14.0	AL	13.33
Method II:	14.0		AL	

Wb Depth:	.4	.4	.3

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

COVER Total: NS

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

CROWN CLOSURE
3 41-70%
INSTREAM VEG: N ☐ A ☐ M ☑ V ☑

LWD: F DIST: E

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

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

WATER

EMS: Req #:
Temp: Method: Cond.: Method:
pH: Method: Turb.: T ☐ M ☐ L ☐ C ☐ Method:
Flood Signs: see comments Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: F
D95: 15.0 D (cm): 13.00 Morph: CP
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☑ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Spawning Habitat	though some suitable gravels are present, ephemeral nature and high gradient preclude use by spawning fish.
Rearing Habitat	None: dry at time of survey, plus high gradient and likely high water velocity, during freshet.
OverWinter Habitat	None due to ephemeral nature.

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC1 F: 11	STD	U	575 metres upstream of confluence with ILP 40353.
R: TC1 F: 12	STD	D	575 metres upstream of confluence with ILP 40353.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	2.0	093L.089	40354	20

Section	Comments
SITE LOCATION	525 m upstream of confluence with ILP 40353.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 200 m of reach and at road crossing, approximately 740 m upstream of confluence with ILP 40353.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	This stream appears to draw a relatively large amount of water (for a first order) during the spring freshet. The channel is cut deep in some substrate and spreads out to 2 m, in places where there is a gravel and cobble substrate.
COMMENTS	
Section	Comments
FISH PRESENCE	Very unlikely due to seasonal nature and high gradient, though no definite barriers were observed. A well defined channel was not found at the road crossing 740 m upstream of confluence with ILP 40353.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Very thick 12-15 m band of green alder, Devil's club, stinging nettle, red elderberry, and red-osier dogwood; conifers are sub-alpine fir.

Site # **20**
ILP # 40354 ILP Map # 093L.089
Reach # 2.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 36 Roll #: TC1 Frame #: 11
Comment: 575 metres upstream of confluence with ILP 40353.

Direction of Photo: D CD #: 1 Image #: 37 Roll #: TC1 Frame #: 12
Comment: 575 metres upstream of confluence with ILP 40353.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Reach #	ILP Map #	ILP #	Site
1.0	093L.089	40402	21

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

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER
Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40402 NID Map #: 093L.089 NID #: 46134 Reach #: 1.0 Site #: 21
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: FT
GIS UTM (Z.E.N): 9.678207.6082414 Ref. Name:
Date: 2001/07/18 Time: 15:40 Agency: C141 Crew: ML / NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.90	1.00	1.30	1.00	1.30	1.40					1.15
Wetted Width (m):	MS	0.90	0.60	0.90	0.80	0.70	0.90					0.80
Pool Depth (m):	MS	0.20	0.10	0.15	0.15	0.15	0.20					0.16

	Gadient %		Mtd	Avg
Method I:	6.0	4.0	AL	3.33
Method II:	0.0			

Wb Depth:	.4	.5	.5

Avg: 0.47 Method: MS Stage: L ☐ M ☑ H ☐ No Vis.Ch.: ☐ Intermittent: ☐ Dw: ☐ Tribs.: ☐

COVER Total: A

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

CROWN CLOSURE
4 71-90%
INSTREAM VEG: N ☐ A ☐ M ☑ V ☐

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 9 Method: T3
pH: 7.8 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 90 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: F
D95: 8.00 D (cm): 7.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: FC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Spawning Habitat	Moderate (several areas with suitable substrate observed).
Rearing Habitat	Good (great cover from over-vegetation and several nice pools despite small nature of this channel).
OverWinter Habitat	Poor (pools not likely deep enough to avoid freezing).

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC1 F: 17	STD	U	60 metres upstream of confluence with mainstem.
R: TC1 F: 18	STD	D	60 metres upstream of confluence with mainstem.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40402	21

Section	Comments
SITE LOCATION	Started at confluence with mainstem.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 500 m of reach.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Left riparian and right riparian 3-12 m consisting of alder, Devil's club, twinberry and occasional spruce.

FDIS Fish Card

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.089	40402

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40402 Reach #: 1 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/18 To: 2001/07/18 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
21	093L.089	46134					EF	1	8.5	90	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
21	EF	1	1	2001/07/18	15:09	2001/07/18	15:35	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
21	EF	1	1	O	221	100.0	1.0	800	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
21	EF	1	1	CT	A		1	104	104	R	
21	EF	1	1	CT	J		3	68	74	R	

INDIVIDUAL FISH DATA

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age			Vch#	Genetic		Roll #	Frame#	Comment
									Str/Smpl#/Age				Str/Smpl#				
21	EF	1	1	CT	72		U	IM	SC	10	1						
21	EF	1	1	CT	104		U	M	SC	11							Regen scale
21	EF	1	1	CT	74		U	IM	SC	12							No useable scale
21	EF	1	1	CT	68		U	IM	SC	13	1	14					

COMMENTS

Section	Comments
SITE DESCRIPTION	All fish captured within 50 m of the confluence with the mainstem, however, no barriers prevent fish from migrating farther up.
SAMPLING EFFICIENCY	Efficiency was good.
PERCENT HABITAT SHOCKED	Shocked 35 % pool, 35 % glide, and 30 % riffle.

Site # **21**
ILP # 40402 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 42 Roll #: TC1 Frame #: 17
Comment: 60 metres upstream of confluence with mainstem.

Direction of Photo: D CD #: 1 Image #: 43 Roll #: TC1 Frame #: 18
Comment: 60 metres upstream of confluence with mainstem.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40359	22

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40359 NID Map #: 093L.089 NID #: 46131 Reach #: 1.0 Site #: 22
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: FT
GIS UTM (Z.E.N): 9.677969.6082529 Ref. Name:
Date: 2001/07/18 Time: 16:43 Agency: C141 Crew: ML /NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.90	1.10	1.30	11.00	0.90	1.00					2.70
Wetted Width (m):	MS	0.70	0.80	0.90	0.80	0.80	0.90					0.82
Pool Depth (m):	MS	0.10	0.10	0.10	0.10	0.10	0.10					0.10

	Gadient %		Mtd	Avg
Method I:	6.0		AL	6.00
Method II:				

Wb Depth:	.3	.3	.3

Avg: 0.30 Method: MS Stage: L ☐ M ☑ H ☐

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

COVER Total: M

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 10 Method: T3
pH: 7.2 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 100 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: C
D95: 20.0 D (cm): 10.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☑ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Spawning Habitat	Several pockets of suitable substrate, but limited due to the lack of pools and limited discharge.
Rearing Habitat	Fair: lack of pools and limited discharge.
OverWinter Habitat	Poor: lack of pools and limited discharge.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC1	F:	19	STD	U	View of site 95 metres upstream of confluence with ILP 40402.
R:	TC1	F:	20	STD	D	View of site 95 metres upstream of confluence with ILP 40402.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40359	22

Section	Comments
SITE LOCATION	Started at confluence with ILP 40402 and went upstream for 100 m.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 200 m.
COMMENTS	
Section	Comments
SITE DESCRIPTION	Stream flows through a 12-15 year old cut block and has no leave strip. Shade is provided only by alders at various points along the stream; stream is lacking in pools and slides; pools present are very shallow.
COMMENTS	
Section	Comments
FISH PRESENCE	Unlikely fish use due to low discharge, lack of pod cover, and independent shading, but no barriers were noted.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Weakly developed but consisting of Mt.. Alder, willow, fireweed, and black gooseberry.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.089	40359

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40359 Reach #: 1 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/18 To: 2001/07/18 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd	MTD/NO	Temp	Cond	Turbid	Comment
22	093L.089	46131		EF 1	10	100	C	

A. GEAR SETTINGS

Site#	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
22	EF 1	1	2001/07/18	16:35	2001/07/18	16:55	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO	H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
22	EF 1	1	O	419	100.0	0.4	800	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	FishAct	Comment
22	EF 1	1	NFC			0			

COMMENTS

Section	Comments
PERCENT HABITAT SHOCKED	EF over 70% pool (low quality and choked with shrubby over-vegetation), 20% glide (approximately 3 c m was the average depth with gravel / cobble substrate), 10% riffle (approximately 3 cm was the average depth with gravel / cobble substrate).

Site # 22
ILP # 40359 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 44 Roll #: TC1 Frame #: 19
Comment: View of site 95 metres upstream of confluence with ILP 40402.

Direction of Photo: D CD #: 1 Image #: 45 Roll #: TC1 Frame #: 20
Comment: View of site 95 metres upstream of confluence with ILP 40402.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.090	40356	23

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER
Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name:
Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.090 ILP #: 40356 NID Map #: 093L.090 NID #: 46130 Reach #: 1.0 Site #: 23
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V2
GIS UTM (Z.E.N): 9.680299.6083606 Ref. Name:
Date: 2001/07/18 Time: 10:15 Agency: C141 Crew: ML / NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.50	1.30	1.70	1.60	1.50	1.80					1.57
Wetted Width (m):	MS	1.20	1.30	1.50	1.40	1.00	1.30					1.28
Pool Depth (m):	MS	0.30	0.15	0.20	0.25	0.15	0.20					0.21

	Gadient %		Mtd	Avg
Method I:	6.0	5.5	AL	5.75
Method II:				

Wb Depth:	.4	.4	.5

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

COVER Total: A

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 9 Method: T3
pH: 7.8 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 110 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: F
D95: 10.0 D (cm): 5.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Spawning Habitat	Excellent (suitable gravels-abundant).
Rearing Habitat	Excellent rearing habitat (abundant cover from over-vegetation, pools and woody debris).
OverWinter Habitat	Fair (very limited number of pools with adequate depth).

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC1	F:	7	STD	U	250 metres upstream of Babine Lake.
R:	TC1	F:	8	STD	D	250 metres upstream of Babine Lake.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.090	40356	23

Section	Comments
SITE LOCATION	180 m upstream of Babine Lake.
COMMENTS	
Section	Comments
SITE DESCRIPTION	Most fish were captured at Highway 16 but CO and CT were also captured above in much lower densities.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Left riparian 4-10 m and right riparian 4-10 m consisting of alder, Devil's club, twinberry, cow-parsnip, ferns, cottonwood.
COMMENTS	
Section	Comments
	Approximately 5 m upstream of mainstem ILP51919.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.090	40356

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.090 ILP #: 40356 Reach #: 1 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/17 To: 2001/07/17 Agency: C141 Crew: ML / NF Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
23	093L.090	46130					MT	1	9	110	C	
23	093L.090	46130					MT	2	9	110	C	
23	093L.090	46130					MT	3	9	110	C	
23	093L.090	46130					MT	4	9	110	C	
23	093L.090	46130					MT	5	9	110	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
23	MT	1	1	2001/07/17	09:07	2001/07/17	10:24	
23	MT	2	1	2001/07/17	09:10	2001/07/17	10:26	
23	MT	3	1	2001/07/17	09:11	2001/07/17	10:24	
23	MT	4	1	2001/07/17	09:07	2001/07/17	10:26	
23	MT	5	1	2001/07/17	09:09	2001/07/17	10:28	

B. NET/TRAP SPECIFICATIONS

Site #	MTD/NO.		H/P	Net Type	Length	Depth	Mesh	Set	Habitat
23	MT	1	1			0.3		BT	PL
23	MT	2	1			0.3		BT	PL
23	MT	3	1			0.3		BT	PL
23	MT	4	1			0.4		BT	PL
23	MT	5	1			0.3		BT	PL

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
23	MT	1	1	CT	A		1	115	115	R	
23	MT	1	1	CO	F		41	55	78	R	
23	MT	2	1	CAS	A		2	70	72	R	
23	MT	2	1	CO	F		6	61	67	R	
23	MT	2	1	CT	A		4	97	118	R	
23	MT	3	1	CT	A		2	104	104	R	
23	MT	3	1	CO	F		1	104	104	R	
23	MT	4	1	NFC			0				
23	MT	5	1	CO	F		1	72	72	R	
23	MT	5	1	CT	A		1	103	103	R	

INDIVIDUAL FISH DATA

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age			Vch#	Genetic		Roll #	Frame#	Comment
									Str/Smpl#/Age				Str/Smpl#				
23	MT	1	1	CO	66		U	IM									
23	MT	1	1	CO	67		U	IM									
23	MT	1	1	CT	115		U	M	SC	1	2						
23	MT	3	1	CO	75		U	IM	SC	18	1+	5					
23	MT	3	1	CT	114		U	M	SC	2	2	1					
23	MT	3	1	CT	104		U	M	SC	3	2	2					
23	MT	2	1	CT	109		U	MT	SC	4							regen scales
23	MT	2	1	CT	115		U	M	SC	5	3						
23	MT	2	1	CT	118		U	M	SC	6	3						
23	MT	2	1	CT	97		U	MT	SC	7	2						
23	MT	2	1	CT	113		U	M	SC	8							regen scales
23	MT	2	1	CO	62		U	IM									
23	MT	2	1	CO	67		U	IM									

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #
		1.0	093L.090	40356

INDIVIDUAL FISH DATA

Site#	MTD/NO		H/P	Species	Length	Weight	Sex	Mat	Age Str/Smpl#/Age			Vch#	Genetic Str/Smpl#		Roll #	Frame#	Comment
23	MT	2	1	CO	67		U	IM									
23	MT	2	1	CO	62		U	IM									
23	MT	2	1	CO	61		U	IM									
23	MT	2	1	CO	64		U	IM									
23	MT	2	1	CAS	70		U	U				1					
23	MT	2	1	CAS	72		U	U				2					
23	MT	5	1	CT	103		U	MT	SC	9	2						
23	MT	5	1	CO	72		U	IM									
23	MT	1	1	CO	69		U	IM	SC	1	1+	1					
23	MT	1	1	CO	73		U	IM	SC	2							Regen scales
23	MT	1	1	CO	62		U	IM	SC	3	1+	2					
23	MT	1	1	CO	62		U	IM	SC	4	1+						
23	MT	1	1	CO	58		U	IM									
23	MT	1	1	CO	57		U	IM									
23	MT	1	1	CO	72		U	IM	SC	5	1+						
23	MT	1	1	CO	63		U	IM	SC	6							Regen scales
23	MT	1	1	CO	69		U	IM	SC	7							Regen scales
23	MT	1	1	CO	64		U	IM	SC	8	1+						
23	MT	1	1	CO	71		U	IM	SC	9							Regen scales
23	MT	1	1	CO	63		U	IM	SC	10							Regen scales
23	MT	1	1	CO	63		U	IM	SC	11							Regen scales
23	MT	1	1	CO	65		U	IM	SC	12	1+						
23	MT	1	1	CO	74		U	IM	SC	13	1+	3					
23	MT	1	1	CO	67		U	IM	SC	14	1+						
23	MT	1	1	CO	60		U	IM									
23	MT	1	1	CO	60		U	IM									
23	MT	1	1	CO	55		U	IM									
23	MT	1	1	CO	64		U	IM									
23	MT	1	1	CO	63		U	IM									
23	MT	1	1	CO	59		U	IM									
23	MT	1	1	CO	78		U	IM	SC	15	1+						
23	MT	1	1	CO	62		U	IM									
23	MT	1	1	CO	72		U	IM	SC	16	1+						
23	MT	1	1	CO	66		U	IM	SC	17	1+						
23	MT	1	1	CO	72		U	IM									
23	MT	1	1	CO	64		U	IM									
23	MT	1	1	CO	58		U	IM									
23	MT	1	1	CO	69		U	IM									
23	MT	1	1	CO	57		U	IM									
23	MT	1	1	CO	66		U	IM									
23	MT	1	1	CO	63		U	IM									
23	MT	1	1	CO	72		U	IM									
23	MT	1	1	CO	60		U	IM									
23	MT	1	1	CO	66		U	IM									
23	MT	1	1	CO	65		U	IM									
23	MT	1	1	CO	68		U	IM									
23	MT	1	1	CO	63		U	IM									

COMMENTS

Section	Comments
SITE DESCRIPTION	Set 3 minnow traps within 50 m upstream from Granisle Hwy (R3-5) and 2 downstream (R1-2). Few locations with sufficient depth to set traps were found.

Site # **23**
ILP # 40356 ILP Map # 093L.090
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 32 Roll #: TC1 Frame #: 7
Comment: 250 metres upstream of Babine Lake.

Direction of Photo: D CD #: 1 Image #: 33 Roll #: TC1 Frame #: 8
Comment: 250 metres upstream of Babine Lake.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.090	40363	24

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.090 ILP #: 40363 NID Map #: 093L.090 NID #: 46132 Reach #: 1.0 Site #: 24
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: V2
GIS UTM (Z.E.N): 9.680620.6082011 Ref. Name:
Date: 2001/07/18 Time: 08:30 Agency: C141 Crew: ML / NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.90	1.10	0.80	1.20	0.60	0.80					0.90
Wetted Width (m):	MS	0.20		0.30	0.30		0.30					0.28
Pool Depth (m):	MS			0.05		0.10						0.08

	Gadient %		Mtd	Avg
Method I:	3.0	3.5	AL	3.25
Method II:				

Wb Depth:	.3	.4	.3

Avg: 0.33 Method: MS Stage: L ☑ M ☐ H ☐ No Vis.Ch.: ☐ Intermittent: ☑ Dw: ☐ Tribs.: ☐

COVER Total: T

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 8 Method: T3
pH: 7.1 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 100 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: G Subdom: F
D95: 8.00 D (cm): 6.00 Morph: RP
Pattern: SI
Islands: N
Coupling: PC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

FEATURES

NID Map	NID	Type	Hgt	Method	Lg	Method	Photo	AirPhoto	UTM (Z/E/N)	Method
093L.090	46142	CV	.8	NS	0	NS	R: TC1 F: 3	L: #:	9.680472.6082010	GIS

Comments: culvert at Granisle Highway crossing.

HABITAT QUALITY

Name	Comments
Spawning Habitat	Poor: plenty of suitable gravels but insufficient discharge.
Rearing Habitat	Poor: very low discharge and limited pools available.
OverWinter Habitat	None: insufficient discharge.

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.090	40363	24

PHOTOS						
Photo				Foc Lg	Dir	Comments
R:	TC1	F:	1	STD	U	View in Red Bluff Park approximately 40 metres upstream of Babine Lake.
R:	TC1	F:	2	STD	D	View in Red Bluff Park approximately 40 metres upstream of Babine Lake.
R:	TC1	F:	3	STD	U	View at sample site approximately 40 metres downstream of Granisle Highway (shows culvert).
R:	TC1	F:	4	STD	D	View at sample site approximately 40 metres downstream of Granisle Highway.

COMMENTS	
Section	Comments
SITE LOCATION	200 m upstream of inlet to Babine Lake.

COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 350 m of reach.

COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Stream does not flow as mapped on TRIM downstream of Granisle Highway; it is diverted along a ditch upstream of a road in Red Bluff Park and flows into Babine Lake at the park beach; channel is dry for at least lower 60 m; no perennial habitat.

COMMENTS	
Section	Comments
SURVEY DESCRIPTION	No EF plus almost no shockable habitat at time of sampling.

COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Left riparian and right riparian 3-8 m consisting of twinberry, alder, mature cottonwood, and horsetail.

Site # **24**
ILP # 40363 ILP Map # 093L.090
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 26 Roll #: TC1 Frame #: 1
Comment: View in Red Bluff Park approximately 40 metres upstream of Babine Lake.

Direction of Photo: D CD #: 1 Image #: 27 Roll #: TC1 Frame #: 2
Comment: View in Red Bluff Park approximately 40 metres upstream of Babine Lake.

Site # **24**
ILP # 40363 ILP Map # 093L.090
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 28 Roll #: TC1 Frame #: 3
Comment: View at sample site approximately 40 metres downstream of Granisle Highway (shows culvert).

Direction of Photo: D CD #: 1 Image #: 29 Roll #: TC1 Frame #: 4
Comment: View at sample site, approximately 40 metres downstream of Granisle Highway.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	2.0	093L.090	40363	25

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.090 ILP #: 40363 NID Map #: 093L.090 NID #: 46133 Reach #: 2.0 Site #: 25
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: FT
GIS UTM (Z.E.N): 9.680037.6082081 Ref. Name:
Date: 2001/07/18 Time: 09:31 Agency: C141 Crew: ML / NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	0.30	0.60	0.40	0.50	0.70	1.00	1.10				0.66
Wetted Width (m):	MS	0.30	0.30	0.30	0.40	0.50	0.60	0.60				0.43
Pool Depth (m):	MS	0.10	0.10	0.10	0.20	0.10	0.10	0.00				0.10

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

Wb Depth:	.3	.3	.4

Avg: 0.33 Method: MS Stage: L ☑ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☑
Dw: ☐ Tribs.: ☐

COVER Total: A

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

CROWN CLOSURE
3 41-70%
INSTREAM VEG: N ☐ A ☑ M ☑ V ☑

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 8 Method: T3
pH: 7.1 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 100 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: G
D95: 6.00 D (cm): 4.00 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: FC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Spawning Habitat	No appropriate substrate and lack of discharge.
Rearing Habitat	Extremely limited due to lack of discharge and stagnating pools.
OverWinter Habitat	None due to lack of discharge and stagnating pools.

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC1 F: 5	STD	U	View at site location (approximately 1220 metres upstream from Babine Lake).
R: TC1 F: 6	STD	D	View at site location (approximately 1220 metres upstream from Babine Lake).

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	2.0	093L.090	40363	25

Section	Comments
SITE LOCATION	Approximately 1220 m upstream of confluence with Babine Lake.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 200 m of reach.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Stream is flowing through a small gully and clean cobble substrate at the base of some steps indicates that flow is higher at different times of the year (freshet)
COMMENTS	
Section	Comments
BARRIER	Low flows and a hanging culvert downstream in reach 1 at the Granisle highway crossing preclude fish use.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Slides of gully (8-15 m) both sides consisting of thimbleberry, green alder, twinberry, black gooseberry, oak fern, and some Devil's club. Tree speaks are black cottonwood and interior spruce.
COMMENTS	
Section	Comments
WATER	No shocking due to lack of available habitat.

Site # **25**
ILP # 40363 ILP Map # 093L.090
Reach # 2.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 30 Roll #: TC1 Frame #: 5
Comment: View at site location (approximately 1220 metres upstream from Babine Lake).

Direction of Photo: D CD #: 1 Image #: 31 Roll #: TC1 Frame #: 6
Comment: View at site location (approximately 1220 metres upstream from Babine Lake).

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40314	26

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40314 NID Map #: 093L.089 NID #: 46137 Reach #: 1.0 Site #: 26
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H
GIS UTM (Z.E.N): 9.677621.6078717 Ref. Name:
Date: 2001/08/23 Time: 14:00 Agency: C141 Crew: RS NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.00	1.10	1.00	0.80	0.90	1.20					1.00
Wetted Width (m):												0.00
Pool Depth (m):	MS	0.10	0.05	0.10	0.10	0.05	0.10					0.08

	Gadient %		Mtd	Avg
Method I:	0.0	0.0	AL	0.00
Method II:				

No Vis.Ch.: ☐ Intermittent: ☑

Wb Depth:	.1	.1	.1

Avg: 0.10 Method: MS Stage: L ☐ M ☐ H ☐ Dw: ☐ Tribs.: ☐

COVER Total: A

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

CROWN CLOSURE 5 >90%
INSTREAM VEG: N ☐ A ☐ M ☑ V ☐

LWD: F DIST: E

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

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

WATER

EMS: — Req #:
Temp: — Method: — Cond.: — Method:
pH: — Method: — Turb.: T ☐ M ☐ L ☐ C ☐ — Method:
Flood Signs: — Method:

MORPHOLOGY

Bed Material: Dominant: F Subdom: NA
D95: 0.01 D (cm): 0.01 Morph: LC
Pattern: SI
Islands: N
Coupling: DC
Confinement: UN
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☑	☐	☐	☐	☐	☐	☐

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

Bars: N☑ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Rearing Habitat	poor- ephemeral flow.
OverWinter Habitat	none - dry at time of survey.
Spawning Habitat	none

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC4 F: 19	STD	U	Approximately 1350 metres upstream of Babine Lake.
R: TC4 F: 20	STD	D	Approximately 1350 metres upstream of Babine Lake.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40314	26

Section	Comments
SITE LOCATION	Approximately 1350 m upstream of Babine Lake.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	Majority of discharge from reach 2 actually flows East and not South.
COMMENTS	
Section	Comments
SURVEY DESCRIPTION	The upper 600 m of this reach is only a secondary flood channel of ILP 40314 which is mapped as the mainstem. Reach 3 actually flows into this reach approximately 600 m downstream of the mapped location.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Wide riparian band on both sides consisting of willow, alder, twinberry, grasses, and stinging nettle.
COMMENTS	
Section	Comments
FISH PRESENCE	Resampling is required to confirm fish absence from this poorly defined channel.

Site # 26
ILP # 40314 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 75 Roll #: TC4 Frame #: 19
Comment: Approximately 1350 metres upstream of Babine Lake.

Direction of Photo: D CD #: 1 Image #: 76 Roll #: TC4 Frame #: 20
Comment: Approximately 1350 metres upstream of Babine Lake.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	3.0	093L.089	40314	27

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40314 NID Map #: 93L.089 NID #: 46138 Reach #: 3.0 Site #: 27
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H
GIS UTM (Z.E.N): 9.677645.6078906 Ref. Name:
Date: 2001/08/23 Time: 15:30 Agency: C141 Crew: NF RS Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.20	1.30	2.00	2.10	1.20	3.30					1.85
Wetted Width (m):	MS	1.10	1.10	2.00	2.10	1.10	2.90					1.72
Pool Depth (m):												0.00

	Gadient %		Mtd	Avg
Method I:	0.0		AL	0.00
Method II:				

Wb Depth:	.3	.4	.4

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

COVER Total: M

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

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

LWD: N DIST: NA

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

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

WATER

EMS:
Temp: 12 Method: T3
pH: 7.4 Method: FD
Flood Signs: wetland fluctuates Method: GE

Req #:
Cond.: 140 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: NA
D95: 0.01 D (cm): 0.01 Morph: LC
Pattern: ME
Islands: O
Coupling: DC
Confinement: UN
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☑	☐	☐	☐	☐	☐	☐

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

Bars: N☑ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Spawning Habitat	none- no appropriate substrates.
OverWinter Habitat	none due to lack of flow and no pools.
Rearing Habitat	poor- many separate braids make access difficult for fish, lack of flow allows channel to become choked with algae and aquatic vegetation. Temperature and oxygen are likely at the edge of the range for salmonids at many times of the year.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC5	F:	3	STD	U	View of best defined braid approximately 70 metres upstream from wetland.
R:	TC5	F:	4	STD	D	View of best defined braid approximately 70 metres upstream from wetland.

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	3.0	093L.089	40314	27

WILDLIFE	
Group	Observations
MAM	beavers observed in wetland/beaver lodges.
AMP	abundant spotted frogs and westen toads

COMMENTS	
Section	Comments
SITE LOCATION	Started at wetland reach 2 and went upstream.

COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 200 m of reach on foot and entire reach from helicopter.

COMMENTS	
Section	Comments
SURVEY DESCRIPTION	This stream is actually a drainage complex of many poorly defined channels with minimal flow through a beaver influenced alder/willow lowland (basically it is now a swamp). Channel characteristics taken here for best defined channel located (see photos).

COMMENTS	
Section	Comments
SURVEY DESCRIPTION	The upper portion of this reach was observed to have a well defined channel from the helicopter, but this channel has been redirected south approximately 550 m upstream of the wetland in reach 2.

COMMENTS	
Section	Comments
FISH PRESENCE	None suspected due to stream diversion upstream and lack of flow, but spring sampling is recommended to determine if flushing flows enter wetland at high flow levels.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	3.0	093L.089	40314

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40314 Reach #: 3 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: _145013K Date: 2001/08/23 To: 2001/08/23 Agency: C141 Crew: NF/RS Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
27	093L.089	46138					EF	1	12	140	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
27	EF	1	1	2001/08/23	15:18	2001/08/23	15:27	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
27	EF	1	1	O	447	100.0	0.5	500	60	6	SR	12B

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
27	EF	1	1	NFC			0				

COMMENTS

Section	Comments
PERCENT HABITAT SHOCKED	Shocked 100% large channel, off channel habitat (no real main channel exists).
SAMPLING EFFICIENCY	Efficiency was moderate due to many unfinished beaver dams and lack of access to some channels.

Site # 27
ILP # 40314 ILP Map # 093L.089
Reach # 3.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 81 Roll #: TC5 Frame #: 3
Comment: View of the most defined braid, approximately 70 metres upstream from wetland.

Direction of Photo: D CD #: 1 Image #: 82 Roll #: TC5 Frame #: 4
Comment: View of the most defined braid, approximately 70 metres upstream from wetland.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	8.0	093L.089	40314	28

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40314 NID Map #: 093L.089 NID #: 46139 Reach #: 8.0 Site #: 28
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: FT
GIS UTM (Z.E.N): 9.676007.6080939 Ref. Name:
Date: 2001/07/19 Time: 07:19 Agency: C141 Crew: ML / NF Fish Crd?: ☐ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	GE	2.00	4.00	1.00	3.00	2.50	1.50					2.33
Wetted Width (m):	GE	2.00	4.00	1.00	3.00	2.50	1.50					2.33
Pool Depth (m):	MS											0.00

	Gadient %		Mtd	Avg
Method I:		0.0	AL	0.00
Method II:				

Wb Depth:	1.5	2.0	1.8

Avg: 1.77 Method: MS Stage: L ☐ M ☑ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: A

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

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

LWD: NS DIST: NS

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

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

WATER

EMS:
Temp: 15 Method: T3
pH: 7.2 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 120 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: NS
D95: 10.0 D (cm): 10.00 Morph: LC
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Spawning Habitat	None.
Rearing Habitat	Good: deep beaver pond.
OverWinter Habitat	Good: deep beaver pond.

PHOTOS

Photo				Foc Lg	Dir	Comments
R:	TC2	F:	11	STD	U	400 metres upstream of lake in reach 6.
R:	TC2	F:	12	STD	D	400 metres upstream of lake in reach 6.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	8.0	093L.089	40314	28

Section	Comments
SITE LOCATION	Started 380 m upstream of lake in reach 6.
SITE LOCATION	Started 380 m upstream of lake in reach 6.
SITE LOCATION	Started 380 m upstream of lake in reach 6.
SITE LOCATION	Started 380 m upstream of lake in reach 6.
COMMENTS	
Section	Comments
SITE LOCATION	Surveyed entire reach.
SITE LOCATION	Surveyed entire reach.
SITE LOCATION	Surveyed entire reach.
SITE LOCATION	Surveyed entire reach.
COMMENTS	
Section	Comments
FISH PRESENCE	No electrofishing due to CT captured upstream in reach 9 and inability to safely or effectively shock in this wetland reach.
FISH PRESENCE	No Endue to CT captured upstream in reach 9 and inability to safely or effectively shock in this wetland reach.
FISH PRESENCE	No EF due to CT captured upstream in reach 9 and inability to safely or effectively shock in this wetland reach.
FISH PRESENCE	No EF due to CT captured upstream in reach 9 and inability to safely or effectively shock in this wetland reach.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	Beaver pond wetland.
RIPARIAN VEGETATION	Beaver pond wetland.
RIPARIAN VEGETATION	Beaver pond wetland.
RIPARIAN VEGETATION	Beaver pond wetland.

Site # **28**
ILP # 40314 ILP Map # 093L.089
Reach # 8.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 11 Roll #: TC2 Frame #: 11
Comment: 400 metres upstream of lake in reach 6.

Direction of Photo: D CD #: 1 Image #: 12 Roll #: TC2 Frame #: 12
Comment: 400 metres upstream of lake in reach 6.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	9.0	093L.089	40314	29

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40314 NID Map #: 093L.089 NID #: 46140 Reach #: 9.0 Site #: 29
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: FT
GIS UTM (Z.E.N): 9.675929.6081315 Ref. Name:
Date: 2001/07/19 Time: 13:30 Agency: C141 Crew: ML/ NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	2.00	1.50	1.30	1.40	1.70	1.60					1.58
Wetted Width (m):	MS	1.60	1.50	1.00	1.10	1.50	1.10					1.30
Pool Depth (m):	MS	0.20	0.15	0.20	0.15	0.40	0.25					0.23

	Gadient %		Mtd	Avg
Method I:	2.0	2.0	AL	2.00
Method II:				

Wb Depth:	.4	.4	.4

Avg: 0.40 Method: MS Stage: L ☐ M ☑ H ☐

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

COVER Total: A

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

CROWN CLOSURE
3 41-70%
INSTREAM VEG: N ☑ A ☐ M ☐ V ☐

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 10 Method: T3
pH: 7.3 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 90 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: G
D95: 2.00 D (cm): 1.50 Morph: RP
Pattern: SI
Islands: N
Coupling: DC
Confinement: OC
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☑ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Spawning Habitat	Good- many places with good gravel.
Rearing Habitat	Good- lots of pools and complex woody debris for cover.
OverWinter Habitat	Moderate- a few suitable pools were observed.

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC2 F: 9	STD	U	100 metres upstream of confluence of ILP 40307.
R: TC2 F: 10	STD	D	100 metres upstream of confluence of ILP 40307.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	9.0	093L.089	40314	29

Section	Comments
SITE LOCATION	60 m upstream of confluence with tributary ILP 40307.
COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed entire reach.
COMMENTS	
Section	Comments
SURVEY LOCATION	Stream sections in old cut block have a riparian band but the habitat quality in the block is notably worse than that observed downstream in the non-harvested area.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	10-20 m bands on both banks consisting of alder, twinberry, spruce, and twisted stalk.

FDIS Fish Card

1:20K Reconnaissance Stream Inventory 2001

		Reach #	ILP Map #	ILP #
Watershed Code:	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	9.0	093L.089	40314

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40314 Reach #: 9 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: 145013K Date: 2001/07/19 To: 2001/07/19 Agency: C141 Crew: NF/ML Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd	MTD/NO	Temp	Cond	Turbid	Comment
29	093L.089	46140		EF 1	10	90	C	

A. GEAR SETTINGS

Site#	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
29	EF 1	1	2001/07/19	13:29	2001/07/19	13:41	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO	H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
29	EF 1	1	O	265	100.0	1.1	900	60	6	SR	15C

FISH SUMMARY

Site#	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	FishAct	Comment
29	EF 1	1	CT	J	1	7	52 74	R	

INDIVIDUAL FISH DATA

Site#	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age Str/Smpl#/Age	Vch#	Genetic Str/Smpl#	Roll #	Frame#	Comment
29	EF 1	1	CT	61		U	IM	SC 16 1					
29	EF 1	1	CT	55		U	IM						
29	EF 1	1	CT	60		U	IM	SC 17 1					
29	EF 1	1	CT	65		U	IM	SC 18 1					
29	EF 1	1	CT	52		U	IM						
29	EF 1	1	CT	74		U	IM	SC 19					No useable scales
29	EF 1	1	CT	63		U	IM	SC 20 1					

COMMENTS

Section	Comments
SAMPLING EFFICIENCY	Efficiency was good, most habitat shocked was 0.3 m - 0.4 m pools with undercut banks.
PERCENT HABITAT SHOCKED	Shocked 40% pool, 40% glide, and 20% riffle. Stream has some sections in alder/willow lowland that were unsuccessfully shocked (downstream).

Site # 29
ILP # 40314 ILP Map # 093L.089
Reach # 9.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: D CD #: 1 Image #: 10 Roll #: TC2 Frame #: 10
Comment: 100 metres upstream of confluence of ILP 40307.

Direction of Photo: U CD #: 1 Image #: 9 Roll #: TC2 Frame #: 9
Comment: 100 metres upstream of confluence of ILP 40307.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40403	30

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40403 NID Map #: 093L.089 NID #: 46141 Reach #: 1.0 Site #: 30
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H
GIS UTM (Z.E.N): 9.677803.6078986 Ref. Name:
Date: 2001/08/23 Time: 14:46 Agency: C141 Crew: RS NF Fish Crd?: ☑ Incomplete: ☐

CHANNEL

	Mtd	width	width	width	width	width	width	width	width	width	width	Avg
Channel Width (m):	MS	1.10	1.40	1.30	1.20	1.20	1.40					1.27
Wetted Width (m):	MS	1.00	1.10	1.20	1.10	1.10	1.20					1.12
Pool Depth (m):	MS	0.20	0.10	0.10	0.20	0.10	0.10					0.13

	Gadient %		Mtd	Avg
Method I:	0.0	0.0	AL	0.00
Method II:				

Wb Depth:	.3	.3	.4

Avg: 0.33 Method: MS Stage: L ☑ M ☐ H ☐
No Vis.Ch.: ☐ Intermittent: ☐
Dw: ☐ Tribs.: ☐

COVER Total: M

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

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

LWD: F DIST: E

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

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

WATER

EMS:
Temp: 13 Method: T3
pH: 7.4 Method: FD
Flood Signs: none Method: GE

Req #:
Cond.: 140 Method: S4
Turb.: T ☐ M ☐ L ☐ C ☑ Method: GE

MORPHOLOGY

Bed Material: Dominant: F Subdom: NA
D95: 0.01 D (cm): 0.01 Morph: LC
Pattern: ME
Islands: N
Coupling: DC
Confinement: UN
FSZ: ☐

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☑	☐	☐	☐	☐	☐	☐

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

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

HABITAT QUALITY

Name	Comments
Rearing Habitat	Limited due to low flow, fine substrates and algae.
OverWinter Habitat	None observed due to no deep pools and very little flow.
Spawning Habitat	None observed

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC4 F: 21	STD	U	Approximately 75 metres upstream of wetland reach 2 of ILP 40314.
R: TC4 F: 22	STD	D	Approximately 75 metres upstream of wetland reach 2 of ILP 40314.

COMMENTS

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40403	30

Section	Comments
SURVEY LOCATION	Surveyed lower 200 m.
COMMENTS	
Section	Comments
SITE LOCATION	Approximately 75 m upstream of wetland reach 2 of ILP 40314.
COMMENTS	
Section	Comments
RIPARIAN VEGETATION	5-20 m riparian band on both sides consisting of alder, some willow, horsetail, and twinberry
COMMENTS	
Section	Comments
FISH PRESENCE	No fish captured, requires resampling to confirm fish absence.

FDIS Fish Card

	Reach #	ILP Map #	ILP #
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.089	40403

WATERBODY

Gazetted Name: Local: Unnamed Creek

Project Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-

WS Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Waterbody ID: ILP Map #: 093L.089 ILP #: 40403 Reach #: 1 -

Project ID: 1282 Lake/Stream: S Lake From Date:

Fish Permit #: _145013K_ Date: 2001/08/23 To: 2001/08/23 Agency: C141 Crew: NF/RS Resample: ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
30	093L.089	46141					EF	1	13	140	C	

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
30	EF	1	1	2001/08/23	14:33	2001/08/23	14:43	

C. ELECTROFISHER SPECIFICATIONS

Site#	MTD/NO		H/P	Encl	Sec	Length	Width	Voltage	Frequency	Pulse	Make	Model
30	EF	1	1	O	457	100.0	1.0	500	60	6	SR	12B

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)		FishAct	Comment
30	EF	1	1	NFC			0				

COMMENTS

Section	Comments
PERCENT HABITAT SHOCKED	Shocked 100% large channel morphology.
SAMPLING EFFICIENCY	Efficiency was poor due to flooded wetland (limited access) and small anode ring.

Site # 30
ILP # 40403 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 77 Roll #: TC4 Frame #: 21
Comment: Approximately 75 metres upstream of wetland reach 2 of ILP 40314.

Direction of Photo: D CD #: 1 Image #: 78 Roll #: TC4 Frame #: 22
Comment: Approximately 75 metres upstream of wetland reach 2 of ILP 40314.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40310	31

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40310 NID Map #: 093L.089 NID #: 46136 Reach #: 1.0 Site #: 31
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: FT
GIS UTM (Z.E.N): 9.675632.6080746 Ref. Name:
Date: 2001/07/19 Time: 14:59 Agency: C141 Crew: NF / ML Fish Crd?: ☐ Incomplete: ☐

CHANNEL

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

	Gadient %		Mtd	Avg
Method I:	4.0	2.0	AL	3.00
Method II:				

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

COVER Total:

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

CROWN CLOSURE
3 41-70%
INSTREAM VEG: N ☐ A ☐ M ☐ V ☐

LWD: DIST:

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

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

WATER

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

MORPHOLOGY

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

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Other	None: no stream identified; no surface water.

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC2 F: 13	STD	U	View in riparian band 40 metres upstream of Lake ILP 40314, R6.
R: TC2 F: 14	STD	D	View in riparian band 40 metres upstream of Lake ILP 40314, R6.

COMMENTS

Section	Comments

FDIS Site Card

	Reach #	ILP Map #	ILP #	Site
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	1.0	093L.089	40310	31

COMMENTS

Section	Comments
SURVEY LOCATION	Started at lake ILP 40314, R6.
SURVEY LOCATION	Started at lake ILP 40314, R6.
SURVEY LOCATION	Started at lake ILP 40314, R6.
SURVEY LOCATION	Started at lake ILP 40314, R6.

COMMENTS

Section	Comments
SURVEY LOCATION	Surveyed riparian band for 50 m upstream of lake; stream can then no longer be identified; line intersects at 75 m, 120 m and 220 m upstream of lake revealed nothing; entire forest has riparian undergrowth; several breaks in forest canopy.
SURVEY LOCATION	Surveyed riparian band for 50 m upstream of lake; stream can then no longer be identified; line intersects at 75 m, 120 m and 220 m upstream of lake revealed nothing; entire forest has riparian undergrowth; several breaks in forest canopy.
SURVEY LOCATION	Surveyed riparian band for 50 m upstream of lake; stream can then no longer be identified; line intersects at 75 m, 120 m and 220 m upstream of lake revealed nothing; entire forest has riparian undergrowth; several breaks in forest canopy.
SURVEY LOCATION	Surveyed riparian band for 50 m upstream of lake; stream can then no longer be identified; line intersects at 75 m, 120 m and 220 m upstream of lake revealed nothing; entire forest has riparian undergrowth; several breaks in forest canopy.

COMMENTS

Section	Comments
RIPARIAN VEGETATION	Riparian band leaving lake is 15-25 m wide and consists of mountain alder, willow, horsetail, sedges, and grasses.
RIPARIAN VEGETATION	Riparian band leaving lake is 15-25 m wide and consists of mountain alder, willow, horsetail, sedges, and grasses.
RIPARIAN VEGETATION	Riparian band leaving lake is 15-25 m wide and consists of mountain alder, willow, horsetail, sedges, and grasses.
RIPARIAN VEGETATION	Riparian band leaving lake is 15-25 m wide and consists of mountain alder, willow, horsetail, sedges, and grasses.

Site # **31**
ILP # 40310 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 13 Roll #: TC2 Frame #: 13
Comment: View in riparian band 40 metres upstream of Lake ILP 40314, R6.

Direction of Photo: D CD #: 1 Image #: 14 Roll #: TC2 Frame #: 14
Comment: View in riparian band 40 metres upstream of Lake ILP 40314, R6.

FDIS Site Card

1:20K Reconnaissance Stream Inventory 2001

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40307	32

PROJECT

Project Name: Babine Lake and Fulton Lake Tributaries
Stream Name (gaz.): BABINE RIVER — Project Code: 1282
Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Gazetted Name: — Local Name: Unnamed Creek
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000
ILP Map#: 093L.089 ILP #: 40307 NID Map #: 093L.089 NID #: 46135 Reach #: 1.0 Site #: 32
Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: FT
GIS UTM (Z.E.N): 9.675812.6081334 Ref. Name:
Date: 2001/07/19 Time: 13:10 Agency: C141 Crew: ML Fish Crd?: ☐ Incomplete: ☐

CHANNEL

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

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

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

COVER Total:

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

CROWN CLOSURE
4 71-90%
INSTREAM VEG: N ☐ A ☐ M ☐ V ☐

LWD: DIST:

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

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

WATER

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

MORPHOLOGY

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

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

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

Bars: N☐ SIDE☐ DIAG☐ MID☐ SPAN☐ BR☐

HABITAT QUALITY

Name	Comments
Other	None

PHOTOS

Photo	Foc Lg	Dir	Comments
R: TC2 F: 7	STD	U	210 metres upstream of confluence with ILP 40314.
R: TC2 F: 8	STD	D	210 metres upstream of confluence with ILP 40314.

COMMENTS

Section	Comments

FDIS Site Card

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000	Reach #	ILP Map #	ILP #	Site
	1.0	093L.089	40307	32

COMMENTS	
Section	Comments
SITE LOCATION	160 m upstream of confluence with ILP 40314.
SITE LOCATION	160 m upstream of confluence with ILP 40314.
SITE LOCATION	160 m upstream of confluence with ILP 40314.
SITE LOCATION	160 m upstream of confluence with ILP 40314.

COMMENTS	
Section	Comments
SURVEY LOCATION	Surveyed lower 300 m upstream reach.
SURVEY LOCATION	Surveyed lower 300 m upstream reach.
SURVEY LOCATION	Surveyed lower 300 m upstream reach.
SURVEY LOCATION	Surveyed lower 300 m upstream reach.

COMMENTS	
Section	Comments
SUVERY DESCRIPTION	Reach consisted of a distinct riparian band within a gully with no sign of alluvium of fluvial deposits; muddy patches were commonly observed throughout surveyed section.
SUVERY DESCRIPTION	Reach consisted of a distinct riparian band within a gully with no sign of alluvium of fluvial deposits; muddy patches were commonly observed throughout surveyed section.
SUVERY DESCRIPTION	Reach consisted of a distinct riparian band within a gully with no sign of alluvium of fluvial deposits; muddy patches were commonly observed throughout surveyed section.
SUVERY DESCRIPTION	Reach consisted of a distinct riparian band within a gully with no sign of alluvium of fluvial deposits; muddy patches were commonly observed throughout surveyed section.

COMMENTS	
Section	Comments
RIPARIAN VEGETATION	25-40 m band of alder, twinberry, willow, prickly rose and spruce.
RIPARIAN VEGETATION	25-40 m band of alder, twinberry, willow, prickly rose and spruce.
RIPARIAN VEGETATION	25-40 m band of alder, twinberry, willow, prickly rose and spruce.
RIPARIAN VEGETATION	25-40 m band of alder, twinberry, willow, prickly rose and spruce.

Site # 32
ILP # 40307 ILP Map # 093L.089
Reach # 1.0
Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Direction of Photo: U CD #: 1 Image #: 7 Roll #: TC2 Frame #: 7
Comment: 210 metres upstream of confluence with ILP 40314.

Direction of Photo: D CD #: 1 Image #: 8 Roll #: TC2 Frame #: 8
Comment: 210 metres upstream of confluence with ILP 40314.

Appendix 2. Photodocumentation Forms 1 and 2. Negatives and digital images of photos (2 copies) were submitted to B.C. Environment.

Photodocumentation Form 1 – Equipment Details

Survey Start Date:	2001/07/18	Survey End Date:	2001/08/23
Agency:	C141		
Crew:	RS/ ML/ DM/ NF		

Camera:

Make and Model:	Canon Sureshot A1
Lense:	35 mm
Format:	135 mm, Kodak CD Rom

Roll and or Batches Detail:

Roll #	CD #	Output Medium	Film Type	ISO
TC1	1 (Tanglechain)	Negative / CD Rom	colour print	200
TC2	1 (Tanglechain)	Negative / CD Rom	colour print	200
TC3	1 (Tanglechain)	Negative / CD Rom	colour print	200
TC4	1 (Tanglechain)	Negative / CD Rom	colour print	200
TC5	1 (Tanglechain)	Negative / CD Rom	colour print	200

Photo Documentation Report

Project Watershed Code: 480-000000-00000-00000-0000-0000-000-000-000-000-000-000

WS Code	ILP MAP #	NID MAP #	Photo		Photo CD		Reach		Site	UTM(Zone/East/North)	Date	Type	Foc Len	Foc Dir
Waterbody ID	ILP #	NID #	Roll	Frame	CD #	Image #	Comment							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.090	093L.090	TC1	1	1	26	1.0		24	9.680620.6082011	2001/07/18	SITE	STD	U
	40363	46132	View in Red Bluff Park approximately 40 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.090	093L.090	TC1	2	1	27	1.0		24	9.680620.6082011	2001/07/18	SITE	STD	D
	40363	46132	View in Red Bluff Park approximately 40 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.090	093L.090	TC1	3	1	28	1.0		24	9.680472.6082010	2001/07/18	SITE	STD	U
	40363	46142	View at sample site approximately 40 metres downstream of Granisle Highway (shows culvert).											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.090	093L.090	TC1	4	1	29	1.0		24	9.680620.6082011	2001/07/18	SITE	STD	D
	40363	46132	View at sample site approximately 40 metres downstream of Granisle Highway.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.090	093L.090	TC1	5	1	30	2.0		25	9.680037.6082081	2001/07/18	SITE	STD	U
	40363	46133	View at site location (approximately 1220 metres upstream from Babine Lake).											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.090	093L.090	TC1	6	1	31	2.0		25	9.680037.6082081	2001/07/18	SITE	STD	D
	40363	46133	View at site location (approximately 1220 metres upstream from Babine Lake).											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.090	093L.090	TC1	7	1	32	1.0		23	9.680299.6083606	2001/07/18	SITE	STD	U
	40356	46130	250 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.090	093L.090	TC1	8	1	33	1.0		23	9.680299.6083606	2001/07/18	SITE	STD	D
	40356	46130	250 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC1	9	1	34	1.0		19	9.678282.6084701	2001/07/18	SITE	STD	U
	40354	46128	250 metres upstream of confluence with ILP 40353.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC1	10	1	35	1.0		19	9.678282.6084701	2001/07/18	SITE	STD	D
	40354	46128	250 metres upstream of confluence with ILP 40353.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC1	11	1	36	2.0		20	9.677981.6084611	2001/07/18	SITE	STD	U
	40354	46129	575 metres upstream of confluence with ILP 40353.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC1	12	1	37	2.0		20	9.677981.6084611	2001/07/18	SITE	STD	D
	40354	46129	575 metres upstream of confluence with ILP 40353.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC1	15	1	40	3.0		17	9.677310.6083485	2001/07/18	SITE	STD	U
	40353	46126	3250 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC1	16	1	41	3.0		17	9.677310.6083485	2001/07/18	SITE	STD	D
	40353	46126	3250 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC1	17	1	42	1.0		21	9.678207.6082414	2001/07/18	SITE	STD	U
	40402	46134	60 metres upstream of confluence with mainstem.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC1	18	1	43	1.0		21	9.678207.6082414	2001/07/18	SITE	STD	D
	40402	46134	60 metres upstream of confluence with mainstem.											

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WS Code	ILP MAP #	NID MAP #	Photo		Photo CD		Reach		Site	UTM(Zone/East/North)	Date	Type	Foc Len	Foc Dir
Waterbody ID	ILP #	NID #	Roll	Frame	CD #	Image #	Comment							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC1	19	1	44	1.0		22	9.677969.6082529	2001/07/18	SITE	STD	U
	40359	46131	View of site 95 metres upstream of confluence with ILP 40402.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC1	20	1	45	1.0		22	9.677969.6082529	2001/07/18	SITE	STD	D
	40359	46131	View of site 95 metres upstream of confluence with ILP 40402.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC1	21	1	46	1.0		1	9.673689.6091615	2001/07/18	SITE	STD	U
	40208	46109	520 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC1	22	1	47	1.0		1	9.673689.6091615	2001/07/18	SITE	STD	D
	40208	46109	520 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC1	23	1	48	1.0		4	9.674517.6090578	2001/07/18	SITE	STD	U
	40216	46112	650 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC1	24	1	49	1.0		4	9.674517.6090578	2001/07/18	SITE	STD	D
	40216	46112	650 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	1	1	1	1.0		12	9.675271.6084826	2001/07/19	SITE	STD	U
	40334	46121	View of site 570 metres upstream of lake ILP 40327, R7.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	2	1	2	1.0		12	9.675271.6084826	2001/07/19	SITE	STD	D
	40334	46121	View of site 570 metres upstream of lake ILP 40327, R7.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	3	1	3	1.0		12	9.675271.6084826	2001/07/19	SITE	STD	NS
	40334	46121	View of large beaver dam.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	4	1	4	1.0		12	9.675637.6084611	2001/07/19	SITE	STD	U
	40334	46143	View of 2 metres high beaver dam 135 metres upstream of lake ILP 40327, R7.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.089	TC2	5	1	5	11.0		11	9.675809.6082810	2001/07/19	SITE	STD	U
	40327	46120	750 metres upstream of inlet to lake in reach 9.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.089	TC2	6	1	6	11.0		11	9.675809.6082810	2001/07/19	SITE	STD	D
	40327	46120	750 metres upstream of inlet to lake in reach 9.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	7	1	7	1.0		32	9.675812.6081334	2001/07/19	SITE	STD	U
	40307	46135	210 metres upstream of confluence with ILP 40314.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	8	1	8	1.0		32	9.675812.6081334	2001/07/19	SITE	STD	D
	40307	46135	210 metres upstream of confluence with ILP 40314.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	9	1	9	9.0		29	9.675929.6081315	2001/07/19	SITE	STD	U
	40314	46140	100 metres upstream of confluence of ILP 40307.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	10	1	10	9.0		29	9.675929.6081315	2001/07/19	SITE	STD	D
	40314	46140	100 metres upstream of confluence of ILP 40307.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	11	1	11	8.0		28	9.676007.6080939	2001/07/19	SITE	STD	U
	40314	46139	400 metres upstream of lake in reach 6.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	12	1	12	8.0		28	9.676007.6080939	2001/07/19	SITE	STD	D
	40314	46139	400 metres upstream of lake in reach 6.											

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WS Code	ILP MAP #	NID MAP #	Photo		Photo CD		Reach		Site	UTM(Zone/East/North)	Date	Type	Foc Len	Foc Dir
Waterbody ID	ILP #	NID #	Roll	Frame	CD #	Image #	Comment							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	13	1	13	1.0		31	9.675632.6080746	2001/07/19	SITE	STD	U
	40310	46136	View in riparian band 40 metres upstream of Lake ILP 40314, R6.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	14	1	14	1.0		31	9.675632.6080746	2001/07/19	SITE	STD	D
	40310	46136	View in riparian band 40 metres upstream of Lake ILP 40314, R6.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	15	1	15	5.0		18	9.676642.6084224	2001/07/19	SITE	STD	U
	40353	46127	50 metres upstream of inlet to lake in reach 4.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	16	1	16	5.0		18	9.676642.6084224	2001/07/19	SITE	STD	D
	40353	46127	50 metres upstream of inlet to lake in reach 4.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	17	1	17	1.0		16	9.679525.6085002	2001/07/18	SITE	STD	U
	40353	46125	250 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	18	1	18	1.0		16	9.679525.6085002	2001/07/18	SITE	STD	D
	40353	46125	250 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	19	1	19	1.0		16	9.679387.6085003	2001/07/18	SITE	STD	U
	40353	46144	Culvert at Granisle highway road crossing.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	20	1	20	1.0		14	9.678763.6086228	2001/07/20	SITE	STD	U
	40347	46123	60 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	21	1	21	1.0		14	9.678763.6086228	2001/07/20	SITE	STD	D
	40347	46123	60 metres upstream of Babine Lake.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC2	22	1	22	1.0		14	9.678742.6086208	2001/07/20	SITE	STD	U
	40347	46147	View of 0.7 metres hanging culvert.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.089	TC2	23	1	23	1.0		15	9.677882.6086416	2001/07/20	SITE	STD	U
	40351	46124	50 metres upstream of confluence with ILP 40347.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.089	TC2	24	1	24	1.0		15	9.677882.6086416	2001/07/20	SITE	STD	D
	40351	46124	50 metres upstream of confluence with ILP 40347.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC2	25	1	25	1.0		7	9.671940.6089591	2001/07/20	SITE	STD	U
	40219	46116	50 metres upstream of confluence with mainstem.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC3	1	1	50	1.0		7	9.671940.6089591	2001/07/20	SITE	STD	D
	40219	46116	50 metres upstream of confluence with mainstem.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC3	2	1	51	3.0		5	9.671714.6089665	2001/07/20	SITE	STD	U
	40216	46113	250 metres upstream of confluence of ILP 40219.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC3	3	1	52	3.0		5	9.671714.6089665	2001/07/20	SITE	STD	D
	40216	46113	250 metres upstream of confluence of ILP 40219.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	1	1	57	1.0		9	9.668201.6091768	2001/08/23	SITE	STD	U
	40223	46118	150 metres upstream of confluence with mainstem (ILP 40222).											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	2	1	58	1.0		9	9.668201.6091768	2001/08/23	SITE	STD	U
	40223	46118	150 metres upstream of confluence with mainstem (ILP 40222)											

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WS Code	ILP MAP #	NID MAP #	Photo		Photo CD		Reach		Site	UTM(Zone/East/North)	Date	Type	Foc Len	Foc Dir
Waterbody ID	ILP #	NID #	Roll	Frame	CD #	Image #	Comment							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	3	1	59	1.0		9	9.668201.6091768	2001/08/23	SITE	STD	D
	40223	46118					150 metres upstream of confluence with mainstem (ILP 40222).							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	6	1	62	2.0		8	9.668116.6092069	2001/08/22	SITE	STD	U
	40222	46117					Approximately 1400 metres upstream of confluence with mainstem (ILP 40222).							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	7	1	63	2.0		8	9.668116.6092069	2001/08/22	SITE	STD	D
	40222	46117					Approximately 1400 metres upstream of confluence with mainstem (ILP 40222).							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	10	1	66	1.0		3	9.670598.6092979	2001/08/23	SITE	STD	U
	40399	46111					150 metres upstream of confluence of mainstem (ILP 40208).							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	11	1	67	1.0		3	9.670598.6092979	2001/08/23	SITE	STD	D
	40399	46111					150 metres upstream of confluence of mainstem (ILP 40208).							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	12	1	68	3.0		2	9.670759.6093015	2001/08/23	SITE	STD	U
	40208	46110					Approximately 50 metres downstream of tributary (ILP 40399).							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	13	1	69	3.0		2	9.670759.6093015	2001/08/23	SITE	STD	D
	40208	46110					Approximately 50 metres downstream of tributary (ILP 40399).							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	14	1	70	2.0			9.673209.6089518	1999/03/17	REACH	STD	BD
	40216	46145					Aerial view of 5 m falls located downstream in reach 2.							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	15	1	71	2.0		10	9.675826.6088040	2001/08/23	SITE	STD	U
	40327	46119					Approximately 1700 metres upstream of Babine Lake.							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC4	16	1	72	2.0		10	9.675826.6088040	2001/08/23	SITE	STD	D
	40327	46119					Approximately 1700 metres upstream of Babine Lake.							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC4	17	1	73	3.0		13	9.673478.6086440	2001/08/23	SITE	STD	U
	40334	46122					Approximately 200 metres upstream of lake in reach 2 of ILP 40334							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC4	18	1	74	3.0		13	9.673478.6086440	2001/08/23	SITE	STD	D
	40334	46122					Approximately 200 metres upstream of lake in reach 2 of ILP 40334							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC4	19	1	75	1.0		26	9.677621.6078717	2001/08/23	SITE	STD	U
	40314	46137					Approximately 1350 metres upstream of Babine Lake.							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC4	20	1	76	1.0		26	9.677621.6078717	2001/08/23	SITE	STD	D
	40314	46137					Approximately 1350 metres upstream of Babine Lake.							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC4	21	1	77	1.0		30	9.677803.6078986	2001/08/23	SITE	STD	U
	40403	46141					Approximately 75 metres upstream of wetland reach 2 of ILP 40314.							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	093L.089	TC4	22	1	78	1.0		30	9.677803.6078986	2001/08/23	SITE	STD	D
	40403	46141					Approximately 75 metres upstream of wetland reach 2 of ILP 40314.							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC5	1	1	79	4.0		6	9.668528.6092262	2001/08/23	SITE	STD	U
	40216	46114					View of site approximately 520 metres upstream of tributary ILP 40225.							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.099	093L.099	TC5	2	1	80	4.0		6	9.668528.6092262	2001/08/23	SITE	STD	D
	40216	46114					View of site approximately 520 metres upstream of tributary ILP 40225.							

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WS Code	ILP MAP #	NID MAP #	Photo		Photo CD		Reach		Site	UTM(Zone/East/North)	Date	Type	Foc Len	Foc Dir
Waterbody ID	ILP #	NID #	Roll	Frame	CD #	Image #	Comment							
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	93L.089	TC5	3	1	81	3.0		27	9.677645.6078906	2001/08/23	SITE	STD	U
	40314	46138	View of best defined braid approximately 70 metres upstream from wetland.											
000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093L.089	93L.089	TC5	4	1	82	3.0		27	9.677645.6078906	2001/08/23	SITE	STD	D
	40314	46138	View of best defined braid approximately 70 metres upstream from wetland.											

Appendix 3. List of Voucher Specimens submitted to the Ministry of Sustainable Resources.

Landscape Unit	ILP	TRIM map	Reach	Site	Date Collected	Voucher	Species ID	Fork Length (mm)	Verified ID
Nadina	21855		1	20	25-Jul-01	LSU1	LSU	LSU1	
Nadina	21855		1	20	25-Jul-01	LSU2	LSU	LSU2	
Nadina	21855		1	20	25-Jul-01	LSU3	LSU	LSU3	
Nadina	21855		1	20	25-Jul-01	RB2	RB	RB2	
Nadina	21855		1	20	25-Jul-01	RB3	RB	RB3	
Nadina	21855		1	20	25-Jul-01	RB4	RB	RB4	
Nadina	21855		1	20	25-Jul-01	RB5	RB	RB5	
Nadina	21855		1	20	25-Jul-01	CAS3	CAS	CAS3	
Nadina	21855		1	20	25-Jul-01	CAS4	CAS	CAS4	
Nadina	21855		1	20	25-Jul-01	CAS5	CAS	CAS5	
Nadina	21567		1	58	25-Jul-01	DV3	DV	DV3	
Nadina	21567		1	58	25-Jul-01	DV4	DV	DV4	
Nadina	21567		1	58	25-Jul-01	DV5	DV	DV5	
Nadina	21763		1	41	25-Jul-01	RSC1	RSC	RSC1	
Nadina	21763		1	41	25-Jul-01	RSC2	RSC	RSC2	
Nadina	21763		1	41	25-Jul-01	RSC3	RSC	RSC3	
Nadina	21763		1	41	25-Jul-01	RSC4	RSC	RSC4	
Nadina	21763		1	41	25-Jul-01	RSC5	RSC	RSC5	
Nadina	21915		1	16	16-Jul-01	LNC1	LNC	LNC1	
Fulton	40208		1	1	18-Jul-01	DV1	DV	111	
Fulton	40208		1	1	18-Jul-01	DV2	DV	58	
Fulton	40208		1	1	18-Jul-01	CT4	CT	109	
Fulton	40208		1	1	18-Jul-01	RB1	RB	128	
Fulton	40356		1	23	18-Jul-01	CO1	CO	69	
Fulton	40356		1	23	18-Jul-01	CO2	CO	62	
Fulton	40356		1	23	18-Jul-01	CO3	CO	74	
Fulton	40356		1	23	18-Jul-01	CO4	CO	55	
Fulton	40356		1	23	18-Jul-01	CO5	CO	75	
Fulton	40356		1	23	18-Jul-01	CT1	CT	114	
Fulton	40356		1	23	18-Jul-01	CT2	CT	104	
Fulton	40356		1	23	18-Jul-01	CT3	CT	97	
Fulton	40356		1	23	18-Jul-01	CAS1	CAS	70	
Fulton	40356		1	23	18-Jul-01	CAS2	CAS	72	
Tahtsa	61775		7	14	02-Aug-01	BB1	BB	193	
Tahtsa	61773		1	11	31-Jul-01	MW1	MW	153	
Tahtsa	61778		3	18	31-Jul-01	LKC1	LKC	116	
Tahtsa	40208		1	1	18-Jul-01	DV1	DV	111	

Appendix 4. QA/QC Communications

August 21, 2001

To: Karen Campbell
FRBC Co-ordinator, Houston Forest Products Ltd.

RE: Quality assurance of phase 1-3 of the 1:20,000 reconnaissance fish and fish habitat inventory in the Morice Forest District.

Karen:

The stage 1 quality assurance (QA) review of the Morice fish and fish habitat inventory project has been completed. Resources Inventory Committee standard QA forms were filled-out during the audit and are included with this letter. These forms list objectives that were met and comments pertaining to any problems that were identified during the QA review.

As usual, I found no significant problems in the stream ILP designation, reach break analysis, or reach characteristics. There was a mis-match of NID numbers between the maps and databases, but as UTMs are already included in the database, this is a minor problem that SKR should be aware of. Reach forms had not been completed for sampled reaches. This will be checked during phase 5-6.

None of the lakes were labeled on the maps. ILP, waterbody ID, watershed code and NIDs for lakes were wither missing or wrong. With the exception of the Peter Aleck area lakes, which I was able to find using UTMs, I was unable to find most of the lakes in the database. This is an issue that must be addressed for the final maps.

As I discussed with SKR when they gave me the project, and as with previous years, I am unable to grant QA approval to the stream sampling plan. SKR's site selection methodology rejected 76% of the randomly selected sites with insubstantial justification. While I feel the resulting sampling plan will do a good job of describing fish distributions, the rejection of such a high proportion of the random sites is a glaring departure from RIC standards and cannot meet with QA approval. As with previous years, SKR will have to receive approval for this sampling plan outside the QA process.

With the exception of the lake map labels and the stream sampling plan, this project has passed QA evaluation. I will re-check the lakes during phase 5-6 and would ask SKR, as usual, to get an allowance from the contract monitor for their sampling plan. If you have any questions regarding the information presented in this memo or in the QA forms, please contact me by e-mail (schell@mail.bulkley.net) or by telephone (250-847-0180).

Sincerely,

Chris Schell
QA/QC Monitor

cc. Regina Saimoto, SKR Environmental Consultants Ltd., BC

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002

FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.

QA review by: Chris Schell **Review date:** August 2001

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

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

Deliverable	Hardcopy	Digital	Comments
1. Cover page	Y	Y	
2. List of digital products	Y	Y	no mention of ILP tables here.
3. Overview map	N	na	
4. FISS map	na	na	
5. Existing data review			
• list of references	Y	Y	
• list of contacts	Y	Y	
• new FISS information summary and products	na	na	
6. ILP data*			
• ILP data sheets	Y	Y	
• ILP maps	Y	Y	
• ILP information sent to ministry	not yet	not yet	
7. Interim maps*	Y	Y	
8. FDIS database	na	Y	
9. Sampling design sheets	N	Y	in FDIS
10. Aerial video record (optional)	na	na	
11. Project plan	Y	Y	

Approved: **Yes**

Comments:

Recommended actions:
Have a nice day.

* If ILP maps and ILP data sheets have been sent to the ministry for processing, ILPs must be shown on the interim maps to allow QA to proceed.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002

FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.

QA review by: Chris Schell **Review date:** August 2001

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

Deliverable	Deliverable check	Acceptable Y/N	Comments
List of contacts	Is list of contacts provided in acceptable format?	Y	Table 1 and table 2 are both titled "list of contacts…"
	Have all relevant contacts for the project area in question been pursued?	Y	
	• If **NO**, report known important contacts not provided on list.		
Bibliography	Is bibliography provided in acceptable format?	Y	
	Does the bibliography adequately cover the information known to be available for the project area in question?	Y	
	• If NO, report known available information that was not provided in bibliography.		
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:	na	FISS stuff is to be submitted with phase 5-6 deliverables
	• FISS forms		
	• clean NTS maps		
	• a copy of each new source provided		
	• a reference to each new source provided		
	• If NO, report required information not provided.		

Approved: **Y**

Comments:

Recommended actions:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002

FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.

QA review by: Chris Schell **Review date:** August 2001

FORM 1D COMBINED CHECK OF STREAM REACH DATA – PAGE 1 OF 6

List of reaches checked (FDIS /maps/air photos) 1-3 Hay M., 4-5 Cliff, 6-9 Poplar, 10 Sweeney

	1	2	3	4	5	6	7	8	9	10
ILP	20800	20840	20869	22020	22097	20944	21003	21034	21947	60649
Map	93e.097	93e.097	93e.096	93e.096	93e.096	931.006	931.005	931.005	93e.096	93e.074
Reach #	10	2	2	1	1	1	2	2	1	1

For all reaches	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Comments**
Watershed code **or** ILP # and ILP map #						X					
ILP sheet, FDIS, ILP (or interim) map all match											
NID # and NID map # **or** UTM (optional, but no errors allowed; do not include in marking scheme)	X	X	X	X	X	X	X	X	X	X	9)why is UTM missing?
TRIM map number											
Reach number											
Reach break location											
Reach map symbol											
Map status											
Order						X					
Upstream/Downstream elevation											
Length											
Pattern											
Confinement											
AN/BR											
Basin type											
Total errors	1	1	1	1	1	3	1	1	1	1	
Shaded cell errors	1	1	1	1	1	1	1	1	1	1	

Features	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Comments**
NID and NID map number											
Map symbol											
Total errors											
Shaded cell errors											

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

1-2) Record includes UTM but NID in FDIS and on map are different.

6) mouth of ILP is on 93e.096 the one in FDIS is 931.006.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002

FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.

QA review by: Chris Schell **Review date:** August 2001

FORM 1D **CONTINUED – PAGE 2 OF 6**

Reaches to be field sampled	1	2	3	4	5	6	7	8	9	10	Comments
BCG zone											
Setting											
Open water											
Coupling											
Valley flat											
Active floodplain											
Islands											
Bars											
Disturbance indicators											
Mass movement											
Riparian vegetation											
Exposed/Eroded											
Land use											
Total errors											

Comments:

Recommended actions:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002

FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.

QA review by: Chris Schell **Review date:** August 2001

FORM 1D COMBINED CHECK OF STREAM REACH DATA – PAGE 3 OF 6

List of reaches checked (FDIS /maps/air photos) 1-2 Sweeney, 3-4 Kasalka, 5-6 Cummins, 7-9 Tanglechain, 10 Bulkley

	1	2	3	4	5	6	7	8	9	10
ILP	60699	61778	51788	51913	51423	51464	40307	40314	40403	80004
Map	93e.075	93e.074	93e.065	93e.065	93e.055	93e.055	93L.089	93L.089	93L.089	93l.038
Reach #	1	1	3	1	1	3	1	3	1	2

For all reaches	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Comments**
Watershed code **or** ILP # and ILP map #	X										
ILP sheet, FDIS, ILP (or interim) map all match											
NID # and NID map # **or** UTM (optional, but no errors allowed; do not include in marking scheme)	X	X	X	X	X	X	X	X	X	X	
TRIM map number											
Reach number											
Reach break location											
Reach map symbol											
Map status											
Order						X					6) order should be 2
Upstream/Downstream elevation											
Length											
Pattern											
Confinement											
AN/BR											
Basin type											
Total errors	**2**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**1**	
Shaded cell errors	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	

Features	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Comments**
NID and NID map number											
Map symbol											
Total errors											
Shaded cell errors											

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

1-10) all NIDs are different on FDIS than on the map

1) ILP map number is the map at the mouth of stream, which is on the next map.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002

FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.

QA review by: Chris Schell **Review date:** August 2001

FORM 1D CONTINUED – PAGE 4 OF 6

Reaches to be field sampled	1	2	3	4	5	6	7	8	9	10	Comments
BCG zone											
Setting											
Open water											
Coupling											
Valley flat											
Active floodplain											
Islands											
Bars											
Disturbance indicators											
Mass movement											
Riparian vegetation											
Exposed/Eroded											
Land use											
Total errors	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

Comments:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002

FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.

QA review by: Chris Schell **Review date:** August 2001

FORM 1D **COMBINED CHECK OF STREAM REACH DATA – PAGE 5 OF 6**

List of reaches checked (FDIS /maps/air photos) 1-6 Buck, 7-10 Peter Aleck

	1	2	3	4	5	6	7	8	9	10
ILP	80048	80094	80142	80180	80208	80228	70001	70018	70040	70056
Map	931.038	931.037	93.027	931.028	931.028	931.018	931.006	931.006	931.006	931.006
Reach #	1	1	4	2	1	4	22	2	1	1

For all reaches	1	2	3	4	5	6	7	8	9	10	Comments
Watershed code **or** ILP # and ILP map #					X						
ILP sheet, FDIS, ILP (or interim) map all match											
NID # and NID map # **or** UTM (optional, but no errors allowed; do not include in marking scheme)	X	X	X	X	X	X	X	X	X	X	
TRIM map number											
Reach number											
Reach break location											
Reach map symbol											
Map status											
Order											
Upstream/Downstream elevation											
Length											
Pattern										X	10) looks straight to me
Confinement											
AN/BR											
Basin type											
Total errors	1	1	1	1	2	1	1	1	1	2	
Shaded cell errors	1	1	1	1	1	1	1	1	1	1	

Features	1	2	3	4	5	6	7	8	9	10	Comments
NID and NID map number											
Map symbol											
Total errors											
Shaded cell errors											

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

1-10) no NIDs on the maps

5) ILP map is supposed to be at the mouth, not the headwater. This is also a problem with 80207. Please check for other similar mistakes.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002
FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.
QA review by: Chris Schell **Review date:** August 2001

FORM 1D CONTINUED – PAGE 6 OF 6

Reaches to be field sampled	1	2	3	4	5	6	7	8	9	10	Comments
BCG zone											
Setting											
Open water											
Coupling											
Valley flat											
Active floodplain											
Islands											
Bars											
Disturbance indicators											
Mass movement											
Riparian vegetation											
Exposed/Eroded											
Land use											
Total errors	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

Comments:
7-10) coding as to which reaches are to be sampled do not follow the standards and the system of coloured stars is not noted in the legend.

QA Summary

	All reaches		Features		Sampled reaches	
Number of reaches sampled	30		0		0	
Number of marks (N reaches sampled × attributes)	N×15	450	N×2		N×13	351
Maximum errors acceptable (12% of marks)	54				0	
Number of errors found	36				0	
Is the number of errors acceptable (Y/N)	Y				Y	
Number of errors in zero-tolerance attributes	30				0	

Approved: Y

Recommended actions:
Deal with this NID issue, if relevant. Otherwise correct the few errors I found. Please examine for a systematic problem with the ILP maps numbers. Make sure the map that the mouth is on is the ILP map.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002

FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.

QA review by: Chris Schell **Review date:** August 2001

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

	1	2	3	4	5	6	7	8	9	10
WBID or ILP	632 FRAN	581 FRAN	1568 UNRS	1652 UNRS	1694 UNRS	80245	80248	01808 BULK	908 UNRS	890 UNRS
Reach #	3	20	2	2	4	2	2	3	2	4
Map #	931.006	931.006				931.037	931.027			

Attribute	1	2	3	4	5	6	7	8	9	10	Comments
Official name											
Alias or local name											
WSC and waterbody identifier **"or"**	X	X	X	X	X	X	X	X	X	X	
ILP number and ILP map number											
NID # and NID map #											
Reach number											
Basin type											
Group											
Class (P/S)											
Genesis											
Surface area											
Magnitude											
Biogeoclimatic zone											
Wetland											
Total errors for each lake	1	1	1	1	1	1	1	1	1	1	

QA Summary

	Lakes	
Number of lakes sampled	10	
Number of marks (N lakes sampled x attributes)	N×13	130
Maximum errors acceptable (12% of marks)	15.6	
Number of errors found	10	
Is the number of errors acceptable (Y/N)	no	
Number of errors in zero-tolerance attributes	10	

Approved: N

Comments:

1-2) No lake labelling on the maps for these projects. The only way I found these lakes was by the UTMs.
Buck, Whitesail, Tahtsa and others: None of the lakes are labeled with either ILPs or WSCs, there are no UTM grids on the map, the maps themselves are not labeled (Buck only), and there are no NIDs in the databases, so I can not find any of the lakes on the maps.

Recommended actions:

The lakes require map labels. I was unable to check most of these lakes.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002

FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.

QA review by: Chris Schell **Review date:** August 2001

FORM 1G STREAM SAMPLING DESIGN – PAGE 1 OF 1

	Acceptable (Y/N)	Comment
Is the inventory watershed based (i.e., entire watershed)?	Y	
Are **random** reaches selected for sampling based on the FDIS statistical sampling design?	N	yes but 76% of the random sites are rejected for sampling
For low gradient or small/medium sized streams, is the sample size of reaches ≥ 8?	Y	
For higher gradient (20–30%) or large sized streams, is the minimum sample size 2 and maximum 25?	Y	
Are **discretionary** reach samples included?	Y	
• above or below barriers	Y	suspected barriers
• adjacent to identified cutblocks	Y	
• major inlets and outlets to secondary lakes	Y	
• of inlets and outlets to primary lakes	Y	
• to achieve connectivity within sub-basins for fish distribution and identification of upstream limits.	Y	
Are proposed reach sample sites shown on TRIM maps with solid and dashed green lines?	Y	
Are planning tables complete with gear and voucher requirements indicated?	na	
Does the distribution of sample sites adequately represent all basin types and basin connectivities.	Y	as much as possible with the current sampling rates
Is the overall sampling rate (sample number vs total number of low gradient reaches) acceptable?	Y	
Does the sample design adequately cover the requirements for a reconnaissance inventory?	N	

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

Approved: Y

Comments:

The rejection of 76% of the randomly selected sites without sufficient justification is not acceptable under RIC standards.

Recommended actions:

As with previous years, permission to proceed with a non-RIC standard sampling plan must be attained from the contract monitor or other appropriate Ministry representative.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002
FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002
Submitted by: SKR Environmental Consulting Ltd.
QA review by: Chris Schell **Review date:** August 2001

FORM 1H LAKES SAMPLING DESIGN – PAGE 1 OF 1

	Acceptable (Y/N)	Comment
Is the lakes planning table complete and accurate (including classification of lakes as primary, secondary or not sampled)?	Y	
Will all identified primary lakes be sampled?	N	
Is there at least one lake from each lake group identified that will be sampled?	N	
Will at least 20% of all identified secondary lakes be sampled?	na	
Is justification provided for those lakes that will not be sampled?	na	
Are lakes proposed for sampling outlined on TRIM maps with solid and dashed green lines?	Y	
Are planning tables complete with gear and voucher requirements indicated?	na	
Does the sample design adequately cover the requirements for a reconnaissance inventory? If no, the sampling design is rejected.	Y	Lake sampling is appropriate considering previously existing data for these areas.

Approved: Y
Comments:

Recommended actions:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products - Fish and Fish Habitat Inventory 2001-2002

FRBC project number: 000108 **MELP project number:** HFP-SKR-001-2002

Submitted by: SKR Environmental Consulting Ltd.

QA review by: Chris Schell **Review date:** August 2001

FORM 1I PROJECT PLAN – PAGE 1 OF 1

	Acceptable (Y/N)	Comment
Does the project plan cover field inventory procedures?	Y	
Does the project plan cover data compilation?	N	
Does the plan cover reporting requirements?	N	
Does the plan include proposed staff for field phase?	N	
Has existing data been considered and used in the project plan?	Y	
Have sampling intentions of relevant WRP projects or other inventory project requirements been incorporated into the plan to avoid duplication?	Y	
Has the plan integrated the sampling of lake and stream habitats, in particular, with any aerial over 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 requirements for biological and water samples been properly considered?	Y	
• water sampling particularly in primary lakes	Y	
• fish voucher specimens	Y	
• other samples.		
Does and should the plan incorporate any special fish species level inventory needs on a provincial or regional scale?	Y	
Are budget and schedule adequate to complete the project as planned?	na	
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	project plan is accepted

Approved: Y

Comments:

Usually a short paragraph or two outlining data entry methods and report formats is included.

Recommended actions:

rsaimoto

From: "Jessop, Mathew ELP:EX" <Mojessop@envgate.env.gov.bc.ca>
To: "SKR" <rsaimoto@bulkley.net>
Cc: <Karen_Balkwill@weldwood.com>
Sent: October 17, 2001 10:15 AM
Subject: Meeting of October 10

Hello Ron and Reg,

After writing up and reading my notes and discussing them with Paul these are the comments I have.

1. I realise that we are in a difficult position now that the field work has been done without a pre-field meeting (which was not my preferrence and I'm sure not yours either).

2. It was felt that more attention could have been paid to assessing the smaller, first order, high elevation reaches. This would have provided more data for not just the FHAT20 modelling tool, but any other modelling tool that might be developed at a later date. It is important to have all reach types represented during the initial sampling and data gathering phase, that way those types of reach (in this case - high gradient, higher elevation, likely poor fish habitat) will be represented in the output of any current or future fish habitat or production model. While you and I realise that based on experience, those reaches are likely dry, poorly defined and probably don't contain fish, we need to prove it by sampling them.

3. A suggestion - I have been looking at the maps submitted as the deliverables from SKR's previous projects and it would be nice if the historical info could be more specific. Instead of referring the user to another report and set of maps it would have been more useful if the actual info could have been displayed. I've seen maps with a symbol denoting a historical site and a label indicating what fish, if any, were captured at that site. As newer maps come in for the same operational area or landscape unit, I can file older, redundant ones in the archive (a dusty aisle behind Jeff Lough's desk). Now that you guys are doing your maps perhaps this can be more easily addressed.

4. As far as the ILP label location goes, I like the way Ron described it - label at the u/s end of the stream except when the stream is on more than one TRIM tile. I approve the use of this convention for the maps.

I hope these comments help out with future work. Thanks for coming in and meeting with me.

If you have any questions or comments please call or email me.

Regards, Matt.

Matthew Jessop
Fisheries Inventory Specialist
Ministry of Sustainable Resource Management
Prince Rupert Region
Bag 5000, Smithers, BC, V0J 2N0
Tel. (250) 847-7291
Fax (250) 847-7728

August 2, 2001

Chris Schell M.Sc., R.P.Bio
Box 4695
Smithers BC V0J 2N0

Karen Campbell,
FRBC Co-ordinator, Houston Forest Products
Box 5000
Houston BC V0J 2Z0

Karen:

The stage 2 quality assurance (QA) audits of the 1:20k stream inventory field data collection performed by SKR Environmental Consultants Ltd. has been completed. Resources Inventory Committee standard QA forms were completed during the audit and are included with this letter. These forms list objectives that were met and comments pertaining to any problems that were identified during the QA evaluation.

The audit of stream sites went very well and the crew demonstrated an ability to collect data for the site card and fish collection card. I had discussions with different crew members concerning various aspects of data collection and was satisfied with their responses. The audit of the lake sampling also found no departures from RIC standards. All field QA requirements were met with no additional comments.

This letter concludes the stage 2 QA audit and reporting. If you have any questions regarding the information presented in this memo or in the QA forms please contact me by e-mail (schell@bulkley.net) or by telephone (250-847-0180).

Sincerely,

Chris Schell
Quality Assurance Monitor
Fish and Fish Habitat Inventory

cc. Ron and Regina Saimoto, SKR Environmental Consultants Ltd., Smithers, BC

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: HFP 1:20k Aquatic Inventory - 2000

FRBC project number: _____ **MELP project number:** _____

Contractor: SKR Environmental Consultants Ltd.

Field audit by: Chris Schell **Site identifier:** na **Field audit date:** July 2000

FORM 2A FIELD AUDIT: CREW INFORMATION, PERMITS AND SAFETY

Crew information

Crew members' names	Listed in contract or plan	Area of expertise (bio, geo, other)	First aid		Electrofishing	
			Level 1	Transport-ation	Crew member	Crew leader
Ron Saimoto	Y	Bio	Y	Y		Y
Mark LeRuez	Y	Bio	Y	Y		Y
Neal Foord	Y	Bio	Y	Y		Y
Doug McKay	Y	Bio	Y	Y		Y

QA comments about crew and/or certifications:

Permits and safety equipment

Group	Item	Acceptable		Specify problem
		Y	N	
Permits	MELP fish collection permit	Y		
	DFO fish collection permit	Y		
Safety plan	Safety plan in place	Y		
	Is safety plan followed	Y		

QA comments about permits and safety:

Note: If any obvious WCB regulations are contravened, the QA team must immediately inform the responsible contract manager and the ministry representative.

Field Audit Confirmation

Field audit leader: Chris Schell _____ For field crew: All _____

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: HFP 1:20k Aquatic Inventory - 2000

FRBC project number: _____ **MELP project number:** _____

Contractor: SKR Environmental Consultants Ltd.

Field audit by: Chris Schell ____ **Site identifier:** na **Field audit date:** July 2000

FORM 2B **FIELD AUDIT FOR STREAM SURVEYS: SITE CARD PROCEDURES CHECK – PAGE 1 OF 2**

Materials present in field	Y	N	Notes
Site cards	Y		
Field reference materials	Y		
Field maps	Y		

List equipment used	Calibrated (Y/N)	Proper use (Y/N)	Notes
pH – electric meter (pH tester 3)	Y	Y	
Conductivity – electronic meter	Y	Y	
Temperature – alcohol therm.	na	Y	

Group	Item	Acceptable		Notes
		Tech.	Data	
Site selection	Representative site	Y	Y	
Reference	Stream name (Gaz)	Y	Y	
	Alias	Y	Y	
	WSD code or	Y	Y	
	ILP # and ILP map #	Y	Y	
	Map NID and NID map #	Y	Y	
	Field UTM (and method)	Y	Y	
	Reach number	Y	Y	
	Site number	Y	Y	
	Site length (and method)	Y	Y	
	Access	Y	Y	
	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	

Notes:

Notes:

Field Audit Confirmation:

Field audit leader: Chris Schell _____ For field crew: ALL _____

FORM 2B **CONTINUED – PAGE 2 OF 2**

Group	Item	Acceptable		Note
		Tech.	Data	
Channel (continued)	Residual pool depth	Y	Y	
	Bankfull 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	
	• location	Y	Y	
	Crown closure	Y	Y	
	Large woody debris	Y	Y	
	• function	Y	Y	
	• 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	
	Morhpology	Y	Y	
	Disturbance indicators	Y	Y	
	Channel pattern	Y	Y	

Group	Item	Acceptable		Notes
		Tech.	Data	
Morphology (cont.)	Islands	Y	Y	
	Bars	Y	Y	
	Coupling	Y	Y	
	Confinement	Y	Y	
Water	Equipment	Y	Y	
	Temperature	Y	Y	
	pH	Y	Y	
	Conductivity	Y	Y	
	Turbidity	Y	Y	
Features	NID map #, NID	Y	Y	
	Type	Y	Y	
	Height, length	Y	Y	
	Photo	Y	Y	
Habitat quality	Keywords	Y	Y	
	Relevant comments	Y	Y	
	FSZ	Y	Y	
Photodocu-mentation	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:

Notes:

Field Audit Confirmation:

Field audit leader: Chris Schell _____ For field crew: ALL _____

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: HFP 1:20k Aquatic Inventory - 2000

FRBC project number: _____ **MELP project number:** _____

Contractor: SKR Environmental Consultants Ltd.

Field audit by: Chris Schell ____ **Site identifier:** na **Field audit date:** July 2000 _____

FORM 2C

FIELD AUDIT FOR LAKE SURVEYS: LAKE SURVEY PROCEDURES CHECK – PAGE 1 OF 3

Materials present in field	Y	N	Notes
Lake survey forms	Y		
Field data reference	Y		
Lake outline maps	Y		
Field maps	Y		

List equipment used and available	Calibrated (Y/N)	Proper use (Y/N)	Notes
pH - pocket meter	Y	Y	
conductivity - pocket meter	Y	Y	
Temp/ oxygen (Oxyguard MK2)	Y	Y	

Group		Acceptable		Notes
		Tech.	Data	
Waterbody	Class of wetland or lake	Y	Y	
	Fish collection form	Y	Y	
	Lake name (Gaz, local)	Y	Y	
	Watershed code or	Y	Y	
	ILP#, ILP map #	Y	Y	
	Waterbody ID	Y	Y	
	Reach #	Y	Y	
	Project ID	Y	Y	
	NID map #, NID #	Y	Y	
	UTM	Y	Y	
	Magnitude	Y	Y	
	Surface area, source	Y	Y	
	TRIM map #, year	Y	Y	
	Air photo reference	Y	Y	
	Elevation, source	Y	Y	
	Biogeoclimatic zone	Y	Y	
Terrain characteristics	Setting	Y	Y	
	Aspect	Y	Y	
	Hillslope coupling	Y	Y	

Notes:

Field Audit Confirmation:

Field audit leader: Chris Schell _____ For field crew: Ron S. and Mark L. _____

FORM 2C **CONTINUED – PAGE 2 OF 3**

Group	Item	Acceptable		Notes
		Tech.	Data	
Terrain characteristics	Lake basin genesis	Y	Y	
	Land use %	Y	Y	
Shoreline characteristics	Shoreline type %	Y	Y	
	Cover	Y	Y	
	Recreational features	Y	Y	
Inlets/Outlets	Inlets/outlets (#)	Y	Y	
	Inlet spawning	Y	Y	
	List of inlets/outlets	Y	Y	
	Watershed code or	Y	Y	
	ILP #, ILP map #	Y	Y	
Survey information	Start, end dates	Y	Y	
	Agency	Y	Y	
	Crew	Y	Y	
Access	Mode (air/road)	Y	Y	
	Auto within	Y	Y	
	Off road and distance	Y	Y	
	Trail, distance	Y	Y	
	Closest community	Y	Y	
	Comments	Y	Y	
Aquatic flora	Emergent vegetation	Y	Y	
	Dominant species	Y	Y	
	Submergent vegetation	Y	Y	
	Dominant species	Y	Y	
	Floating algae	Y	Y	

Notes:

Group	Item	Acceptable		Notes
		Tech.	Data	
Aquatic flora (continued)	Species list	Y	Y	
	Voucher specimens	Y	Y	
Lake bathymetry	Equipment	Y	Y	
	Bathymetry techniques	Y	Y	
	Bathymetric data recording	Y	Y	
	Type of survey	Y	Y	
	Littoral area	Y	Y	
	Maximum depth	Y	Y	
	Benchmark height	na	na	
	Benchmark type/location	na	na	
	Maximum water level	Y	Y	
Photodocu-mentation	Roll #	Y	Y	
	Photo #	Y	Y	
	Focal length	Y	Y	
	Direction	Y	Y	
	NID #, NID map #	Y	Y	
	UTM and method	Y	Y	
Aquatic wildlife	Group	Y	Y	
	Species/Comments	Y	Y	
Weather	Visual observations	Y	Y	
Limnological station	Properly located	Y	Y	
	Equipment	Y	Y	
	Station no.	Y	Y	
	Date, time	Y	Y	
	UTM			NID
	EMS no.	Y	Y	

Notes:

Field Audit Confirmation:

Field audit leader: Chris Schell _____ For field crew: Ron S. and Mark L. _____

FORM 2C **CONTINUED – PAGE 3 OF 3**

Group	Item	Acceptable		Notes
		Tech.	Data	
Limnological station (cont.)	Secchi depth	Y	Y	
	Water colour	Y	Y	
	pH (surface and bottom)	Y	Y	
	Ice depth	Y	Y	
Water samples	Depth	Y	Y	
	Requisition #	Y	Y	
	Processing, labeling and transport to lab	Y	Y	
Profiles	Depth	Y	Y	
	Dissolved oxygen	Y	Y	
	Temperature	Y	Y	
	Conductivity	Y	Y	
	H_2S presence	Y	Y	
Equipment used		Y	Y	

Notes:

Field Audit Confirmation:

Field audit leader: Chris Schell _____ For field crew: Ron S. and Mark L. _____

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: HFP 1:20k Aquatic Inventory - 2000

FRBC project number: _____ **MELP project number:** _____

Contractor: SKR Environmental Consultants Ltd.

Field audit by: Chris Schell **Site identifier:** na **Field audit date:** July 2000

FORM 2D

FIELD AUDIT: FISH COLLECTION CHECK – PAGE 1 OF 3

Materials present in field	Y	N	Notes
Fish collection forms	X		
Individual fish data forms	X		
Field data reference	X		
Field key to freshwater fishes of BC	X		
Approved electroshocker	X		
Ancillary fish capture equipment (buckets, dip nets, stop net)	X		
Measuring board/ruler	X		
Weigh scale	X		
Fish samples (e.g., scale envelopes, tissue vials)	X		
Voucher containers, preservative, labels	X		

Sampling technique		Acceptable Y	Acceptable N	Notes
Lakes	Number and duration of gill nets set	Y		
	Number and duration of minnow traps set	Y		
	Other	Y		
Streams	Site selection and length	Y		
	Number and duration of minnow traps set	Y		
	Other			
Electrofisher function	Tilt/safety switch	Y		
	Main power switch	Y		generator
	Anode deadman's switch	Y		
	Quick release harness	Y		
	Anode clean	Y		
Electrofishing techniques	Safe operation and signals	Y		
	Site coverage – all habitats	Y		
	Effective fish capture	Y		
	Impact on fish	Y		
Fish handling	Impacts on fish	Y		

Notes:

Field Audit Confirmation:

Field audit leader: Chris Schell _____ For field crew: All _____

FORM 2D **CONTINUED – PAGE 2 OF 3**

Sampling technique		Acceptable Y	Acceptable N	Notes
Fish identification	Correct identification	Y		
	Correct use of fish key	Y		
	Unidentified fish procedure	Y		
Fish samples	Age sampling, labeling	na		
	Voucher storage, labeling	na		

Group	Item	Acceptable Tech.	Acceptable Data	Notes
Header	Name	Y	Y	
	Stream/Lake/Wetland	Y	Y	
	Watershed code or ILP	Y	Y	
	Waterbody ID	Y	Y	
	ILP map #	Y	Y	
	Project ID	Y	Y	
	Reach #	Y	Y	
	MELP fish permit #	Y	Y	
	Date start, end	Y	Y	
	Agency, crew	Y	Y	
	Resample	Y	Y	
Site/Method	Site #	Y	Y	
	NID map #, NID #	Y	Y	
	Site UTM	Y	Y	
	Method, method no.	Y	Y	
	Temp, cond., turbidity	Y	Y	

Group	Item	Acceptable Tech.	Acceptable Data	Notes
Fish summary	Site #	Y	Y	
	Method, method no.	Y	Y	
	Haul/Pass (H/P)	Y	Y	
	Species, stage, total #	Y	Y	
	Min. length	Y	Y	
	Fish activity	Y	Y	
Gear specifications	Site #	Y	Y	
	Method, method no.	Y	Y	
	Haul	Y	Y	
	Date, time in	Y	Y	
	Date, time out	Y	Y	
	Net type, length & depth	Y	Y	
	Mesh size	Y	Y	
	Set, habitat	Y	Y	
Electrofisher specifications	Site #	Y	Y	
	Method, method no.	Y	Y	
	Pass	Y	Y	
	Time in, time out	Y	Y	
	EF sec.	Y	Y	
	Length, width	Y	Y	
	Enclosure	Y	Y	
	Voltage, freq., pulse	Y	Y	
	Make, model	Y	Y	
Individual fish data	Fish collection form #	Y	Y	
	Site #	Y	Y	

Notes:

Notes:

Field Audit Confirmation:

Field audit leader: Chris Schell _____ For field crew: All _____

FORM 2D **CONTINUED – PAGE 3 OF 3**

Group	Item	Acceptable		Notes
		Tech.	Data	
Individual fish data continued	Method, method no.	Y	Y	
	Haul/Pass	Y	Y	
	Species	Y	Y	
	Length	Y	Y	
	Weight	na	na	
	Sex	na	na	
	Maturity	na	na	
	Age structure	na	na	
	Age sample #	na	na	
	Age	na	na	
	Voucher	na	na	
	Genetic structure	na	na	
	Genetic sample #	na	na	
	Photos	na	na	
	Number of fish sampled	na	na	

Notes:

Notes:

Field Audit Confirmation:

Field audit leader: Chris Schell _____ For field crew: All _____

February 22, 2002

Karen Balkwill
Houston Forest Products Co.
Box 5000
Houston, BC, V0J 1Z0

Re: QA of phase 5-6 deliverables for Fish and Fish Habitat Inventory performed by SKR Consulting Ltd. for Houston Forest Products Co.

Karen,

The stage 3 quality assurance (QA) review of the final deliverables for the 1:20k stream inventory performed by SKR Consulting Ltd. has been completed. Resources Inventory Committee standard QA forms were completed during the audit and are included with this letter. The forms list objectives that were met and comments pertaining to any problems that were identified during the QA evaluation.

The deliverables package was generally complete. I needed to contact SKR for the digital mapping proximity test. This identified a few errors which SKR has now dealt with. The site card and site fish collection and FDIS consistency check found very few errors, well within acceptable limits. However, the wrong lake summary symbol was placed for one of the lakes and this created an unacceptable number of errors lake cards. All quick fixes, and no systematic problems.

SKR had made a few changes to the FDIS database (fdisdat.mdb). I forwarded it Lynn Miers (MSRN, data management branch) to for her to review. She has stated that the database is OK as it is, but would ask SKR to contact her in the future if they change the database further. It is possible for them to change the database to the point that importing it into ministry would be very problematic.

The check of the lake and watershed reports found only a few errors, all of which are listed on the appropriate QA form. The photodocumentation package was complete and the FISS deliverables were to standards of content and format.

The project maps are well done considering it's SKR's first year doing their own maps. Never the less, both HFP and myself found errors that will require correction. These are mostly limited

to incomplete, or incorrect interpretive coding, a few missing site symbols, and reach breaks that required rotating. All in all though, relatively few errors, and they are all marked on the maps.

With one exception, the map is a mix of project and interpretive formats similar to that used by most inventory projects in the region now. The exception is that SKR only provides reach information for the sampled reaches. I would suggest that SKR puts at least gradient on each reach in the project area. A full reach data symbol is not required, simply a coloured number (the gradient) placed along the stream channel. This takes up very little space on the map, and adds a great deal of useful information to the interpretative product. M. Jessop and P. Giroux both support this suggestion, it's a similar format to most other maps being produced in the region, and it would make the maps a great deal more useful for all users, HFP included.

I would ask SKR to respond to the QA with a letter, addressing each comment point by point. Once we have agreed how each comment will be addressed, I can give QA approval and SKR can proceed to project completion. If you have any questions regarding the information in this letter or in the QA forms please contact me by e-mail (schell@bulkley.net) or by phone (847-0180).

Sincerely,

Chris Schell

cc. Ron and Regina Saimoto, SKR Consultants Ltd., Smithers, BC

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3A DATA COMPILATION AND REPORTING DELIVERABLES FOR QA – PAGE 1 OF 1

Deliverable		Hardcopy	Digital	Comments
Watershed reporting	Watershed report	Y	Y	Is the CD readable
	Appendices			
	I. FDIS summary and photographs	Y	Y	
	II. Hardcopy maps	Y	Y	
	Attachments			
	I. Pre-field planning document	-	-	Submitted with phase 1-3
	II. Field notes and forms	Y	na	
	III. Fish aging structures	Y	na	
	IV. Fish samples and vouchers	N	na	
	V. Photodocumentation	Y	Y	
	VI. Digital data	Y	Y	
	VII. FISS update data	Y	Y	
	VIII. Aerial photography	na	na	
Individual lake reporting (for each lake)	Lake report	Y	Y	
	Appendices			
	I. Lake survey form	Y	Y	
	II. Water chemistry data	na	na	
	III. Fish collection forms	Y	Y	
	IV. Tributary summary	Y	Y	
	V. Photographs	Y	Y	
	VI. Bathymetric map	na	na	
	Attachments			
	I. Photodocumentation	Y	Y	
	II. Digital data	na	Y	
	III. FISS update data	Y	na	
	IV. Phase completion reports	Y	Y	
	V. Field notes and forms	Y	na	
	VI. Aerial photography	Y	ny	
	VII. Fish ageing structures	Y	na	
	VIII. Fish samples and vouchers	Y	na	

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3B **DIGITAL DATA CHECKING – PAGE 1 OF 1**

For each FDIS file provided:

FDIS filename:

	Acceptable		Comments
	Y	N	
Conversions done:			
• ILP to WSC	Y		not expected at this time
• NID-UTM	Y		GIS derived UTMs are in FDIS
• Update bathymetry	na		
FDIS QA report attached			
• Acceptable error report	Y		see comment below

For each FDIS file and digital map file set:

ARCView fish QA tool

	Filename	Acceptable		Comments
		Y	N	
Digital map files				
• Metadata table	various	Y		
• Map attributes table	various	Y		
FDIS data check				
• Sequential reach numbering:		Y		
• Point locations on TRIM streams:		Y		
Copy of ARCView fish QA tool error report attached				
• Acceptable error report		Y		

Whiting and Rhine CD data. Something is going on with this CD and/or my reader. A portion of the disk shows up as filled with data but it's blank in Windows explorer. Check and see if there's any problems at your end. The others CDs are all fine.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS
PAGE 1 OF 6

1-3) Babine Lake, 6-10) Nadina

	1	2	3	4	5	6	7	8	9	10
Site #	5	17	30	9	17	23	34	42	52	69
NID map #	93L.99	93L.089	93L.089	93E.097	93E.096	93E.096	93E.096	93E.096	93E.095	93E.096
NID #	46113	46126	46141	6179	6191	6151	6141	6219	6118	6187

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											
	Wetted width	1, 2											
	Residual pool depth	1, 2											
	Gradient	1, 2, 3, 4											
	Bankfull depth	1, 2		X									
	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								X			
	Crown closure	1, 2											
	Instream vegetation	1, 2			X								
	Bank shape, texture, riparian vegetation	1, 2											

FORM 3C **CONTINUED – PAGE 2 OF 6**

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

Comments:
1) morphology is LC on card and in FDIS but NS on map.
2) typo. Card says 0.15, FDIS has 0.5 for Wb Dp. D90 and D95, card has fines, FDIS has 10.0.
3) A & M on card, blank in FDIS.
7) card states site is 140m us of HT Creek, FDIS states HT-Lake. FDIS is wrong.
8) typo; cards has C, FDIS has E

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS

1-4 Nadina, 5-7 Peter Aleck, 8-10 Buck Creek

	1	2	3	4	5	6	7	8	9	10
Site #	74	86	93	105	6	18	25	2	11	22
NID map #	93E.096	93L.005	93L.095	93E.096	93L.006	93L.006	93L.006	93L.037	93L.038	93L.037
NID #	6208	6198	6241	6172	34022	34033	34046	91021	91076	91034

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								X			
Channel	Channel width	1, 2, 3, 4											
	Wetted width	1, 2											
	Residual pool depth	1, 2											
	Gradient	1, 2, 3, 4		X									
	Bankfull depth	1, 2											
	Stage	1, 2											
	No Vis. Ch., DW, and Dry/Int.	1, 2, 3, 4											
	Tribs	1, 2, 3, 4											
Cover	Total cover	1, 2											
	Cover elements	1, 2											
	Functional LWD (amount, distribution)	1, 2											
	Crown closure	1, 2											
	Instream vegetation	1, 2											
	Bank shape, texture, riparian vegetation	1, 2											

FORM 3C **CONTINUED – PAGE 4 OF 6**

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

Comments:
2) typo, card has ST, FDIS has SI, gradient on map is wrong
3) Subom. blank on card, G in FDIS
8) checked yes on site card, not checked in FDIS
9) thimbleberry omitted from the list of riparian vegetation
10) beaver dam checked in disturbance indicators, abandoned channel checked in FDIS

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 5 OF 6

1-3 Buck Creek; 4-6 Kasalka & Cummins; 7-10 Whiting & Rhine

	1	2	3	4	5	6	7	8	9	10
Site #	33	45	52	6	15	25	3	16	23	33
NID map #	93L.027	93L.018	93L.028	93E.065	93E.065	93E.55	93E.075	93E.074	93E.074	93E.075
NID #	91044	91055	91062	26210	26206	26218	13025	13020	13002	13013

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											
	Wetted width	1, 2											
	Residual pool depth	1, 2											
	Gradient	1, 2, 3, 4											
	Bankfull depth	1, 2		X									
	Stage	1, 2	X										
	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											

FORM 3C **CONTINUED – PAGE 6 OF 6**

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

Summary of stream site information check:

Number of marks (# cards * 52): 1560 Maximum number of errors acceptable (5%): 78

Number of errors found: 21 Is the number of errors acceptable: Yes

Comments:

1) stage L on card, M in FDIS; morphology missing in FDIS and on map
2) typo. 0.2 on card, 0.3 in FDIS
6) height and length are different on card and in FDIS
7) why is this card checked as incomplete?
8) only OW habitat has been entered into FDIS
9) C1 & C2 on card, C2 & C3 in FDIS.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3D

CONSISTENCY CHECK: LAKE CARDS, FDIS, BATHYMETRIC MAP, LAKE OUTLINE MAP AND PROJECT MAP – PAGE 1 OF 4

Lake Name: two unnamed lakes
Watershed code: various **Waterbody ID:** see below
Record errors below with an 'x.' An error occurs if there is inconsistency among 1) lake cards, 2) FDIS, and/or 3) bathymetric maps, and/or 4) outline maps, and/or 5) project maps, as specified for each attribute.

	Attribute (max # errors)	Where to check	01168 FRAN	00672 FRAN	Comments
Waterbody	Type of wetland or lake	1, 2, 5			
	Fish collection form	1, 2			
	Lake name	1, 2, 3, 4			
	WSC or ILP map # and ILP #	1, 2, 3, 4			
	Reach #	1, 2, 4			
	Air photo reference	1, 2, 3, 4			
	Waterbody ID	1, 2, 3, 4			
	Project ID	1, 2, 3, 4			
	Magnitude	1, 2			
	NID map # and NID #	1, 2			
	UTM	1, 2, 3, 4, 5			
	Surface area	1, 2, 3, 4, 5	X		
	Elevation	1, 2, 3, 4			
	Biogeoclimatic zone	1, 2, 3, 4			
Terrain characteristics	Setting, aspect	1, 2			
	Coupling, genesis	1, 2	X		form = OL, FDIS = GL
Shoreline characteristics	Shoreline type %	1, 2			
	Land use %	1, 2			
	Cover	1, 2			
	Recreational features	1, 2, 4			
Inlets/Outlets	# Inlets/Outlets	1, 2, 3, 4			
	Spawning present (2°)	1, 2, 4			
	WSC or ILP map # and ILP #	1, 2, 3, 4			
Survey information	Start date	1, 2, 3, 4			
	End date	1, 2			
	Agency, crew	1, 2, 3, 4			
Access	Mode (Air/Road/Off road/Trail)	1, 2			
	Auto within	1, 2			
	Distance from road	1, 2			
	Closest community, comments	1, 2			

	Attribute (max # errors)	Where to check			Comments
Aquatic flora	Emergent and submergent	1, 2, 4			
	Dominant species	1, 2			
	Floating algae	1, 2, 4			
	Species list	1, 2			
Lake bathymetry	Type of survey	1, 2			
	Littoral area (%)	1, 2, 3, 5	X		
	Maximum depth	1, 2, 3, 5	X		
	Benchmark height	1, 2, 4			
	Benchmark type/location	1, 2, 4			
	Maximum water level	1, 2, 3, 4			
Photo documentation	Roll #, frame #, direction	1, 2, 4			
	Focal length	1, 2			
	NID map # and NID #	1, 2			
	UTM	1, 2			
Aquatic wildlife observations	Group	1, 2			
	Species/Comments	1, 2			
Water quality	Station no., UTM	1, 2			
	Date, time	1, 2			
	EMS no.	1, 2, 4			
	Secchi depth, colour	1, 2			
	pH (surface and bottom)	1, 2, 5	X		
Water sample	Depth	1, 2			
	Requisition #	1, 2			
Dissolved temperature, oxygen, and conductivity profiles	Depth	1, 2	X		
	Dissolved oxygen, temp.	1, 2	X		
	Conductivity	1, 2, 5	X		
	Descend and ascend	1, 2			
	H_2S presence	1, 2			
Equipment	Equipment class	1, 2	X		Form and FDIS different
Total errors:			9		

Comments:

Summary of lake information check:

Number of marks (# cards * 85): 170
Number of errors found: 9
Maximum number of errors acceptable (5%): 8
Is the number of errors acceptable: N

Comments:

01168 FRAN – there's a problem with the deepest two T/O2 profile measurements as entered into FDIS. Map summary symbol is for the other sampled lake (672FRAN).

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3E

CONSISTENCY CHECK: STREAM FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP, – PAGE 1 OF 6

1-3) Babine Lake, 6-10) Nadina

	1	2	3	4	5	6	7	8	9	10
Site #	5	17	30	9	17	23	34	42	52	69
NID map #	93L.99	93L.089	93L.089	93E.097	93E.096	93E.096	93E.096	93E.096	93E.095	93E.096
NID #	46113	46126	46141	6179	6191	6151	6141	6219	6118	6187

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, 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, 3, 4											
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											

FORM 3E	CONTINUED – PAGE 2 OF 6

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Gear specifications	Method, method no.	1, 2											
	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher specifications	Method, method no.	1, 2											
	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											
		Total:	0	0	0	0	0	0	0	0	0	0	0

Comments:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3E

CONSISTENCY CHECK: STREAM FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP – PAGE 3 OF 6

1-4) Nadina, 5-7 Peter Aleck, 8-10 Buck Creek

	1	2	3	4	5	6	7	8	9	10
Site #	74	86	93	105	6	18	25	2	11	22
NID map #	93E.096	93L.005	93L.095	93E.096	93L.006	93L.006	93L.006	93L.037	93L.038	93L.037
NID #	6208	6198	6241	6172	34022	34033	34046	91021	91076	91034

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, 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, 3, 4											
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											

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Gear specifications	Method, method no.	1, 2											
	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher specifications	Method, method no.	1, 2											
	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2									X		
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											
		Total:	0	0	0	0	0	0	0	0	1	0	1

Comments:
9)
9) length 150 on card, 100 in FDIS.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3E

CONSISTENCY CHECK: STREAM FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP – PAGE 5 OF 6

1-3 Buck Creek; 4-6 Kasalka & Cummins; 7-10 Whiting & Rhine

	1	2	3	4	5	6	7	8	9	10
Site #	33	45	52	6	15	25	3	16	23	33
NID map #	93L.027	93L.018	93L.028	93E.065	93E.065	93E.55	93E.075	93E.074	93E.074	93E.075
NID #	91044	91055	91062	26210	26206	26218	13025	13020	13002	13013

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, 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, 3, 4											
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											

FORM 3E	CONTINUED – PAGE 6 OF 6

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Gear specifications	Method, method no.	1, 2											
	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher specifications	Method, method no.	1, 2											
	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											
		Total:	0	0	0	0	0	0	0	0	0	0	0

Number of marks (# cards * 36): _1080__
Number of errors found: __1___

Maximum number of errors acceptable (5%): _54___
Is the number of errors acceptable: Yes

Comments:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3E

CONSISTENCY CHECK: LAKE 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
Lake	01168	00672								
WBID	FRAN	FRAN								

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, 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, 3, 4	X										
Fish summary	Method, method no.	1, 2											
	Haul/Pass (H/P)	1, 2											
	Species	1, 2, 3, 4	X										
	Stage, total #	1, 2											
	Min. length	1, 2											
	Fish activity	1, 2											

FORM 3E **CONTINUED – PAGE 2 OF 2**

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Gear specifications	Method, method no.	1, 2											
	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2	X										
	Mesh size	1, 2	X										
	Set, habitat	1, 2											
Electrofisher specifications	Method, method no.	1, 2											
	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											
		Total:	4	0									4

Number of marks (# cards * 36): _72__
Number of errors found: __4___

Maximum number of errors acceptable (5%): __3__
Is the number of errors acceptable: **N**

Comments:

1168FRAN) specifications of gill net are missing from FDIS printout. Lake summary symbol is for the 672FRAN.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3F **CONSISTENCY CHECK: INDIVIDUAL FISH DATA CARD, FDIS, LAKE OUTLINE MAP - PAGE 1 OF 1**

	1	2	3	4	5	6	7	8	9	10
Site #	34	42	69	6	2	22	3	52	4	00672 FRAN
NID map #	93E.096	93E.096	93E.096	93L.006	93L.037	93L.037	93E.075	93E.095	93L.099	
NID #	6141	6219	6187	34022	91021	91034	13025	6114	46112	

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

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Individual fish data	Site #	1, 2											
	Method, method no.	1, 2											
	Haul/Pass	1, 2											
	Species	1, 2											
	Length	1, 2								X			
	Weight	1, 2										X	
	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											
		Totals											

Number of marks (# cards * 15): 105
Number of errors found: 2
Maximum number of errors acceptable (5%): 5
Is the number of errors acceptable: Y

Comments:
8) 72 mm on card and 95 mm in FDIS for DV5.
9) individual fish data is OK but the Fish Summary Section is missing length data on the printout.?
10) Weight data missing from FDIS printout.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3G INDIVIDUAL LAKE REPORT – PAGE 1 OF 3

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	
Reference information	Project reference information	Y	
	Watershed information	Y	
	Lake sampling summary	Y	
	Contractor information	N	1
Disclaimer	Standard wording disclaimer	Y	
Acknowledgements		Y	2
Table of contents	Page numbering correct	Y	
	Report outline follows standard	Y	
Lists	List of Tables	Y	
	List of Figures	Y	
	List of Appendices	Y	
	List of Attachments	N	3

Report section	Attribute	Accept. (√/x)	Notes
Introduction			
Project scope/objectives		Y	
Location	Description; map	Y	
Access	Detailed description	Y	
Resource Information	First Nations	Y	
	Land use, logging, recreation, ...	Y	
	Impacts and uses by wildlife	Y	
	Existing water quality data	Y	
	Previous fish presence	Y	
Methods	Reference to RECCE standards	Y	
	Reference to project plan	Y	
	Deviations from standards	Y	
	Deviations from project plan	Y	
	List of sampling equip. used	Y	
Results and Discussion			
Logistics	Problems encountered	Y	

Notes:
1) GIS contractor
2) You should probably give Karen some credit for her editing
3) many of the attachments are with the project deliverables. A reference for the project should be given here.

Notes:

FORM 3G **CONTINUED – PAGE 2 OF 3**

Lake Report Format

Report section	Attribute	Accept. (Y/N)	Notes
Immediate shoreline		Y	
Terrain		Y	
Aquatic flora		Y	
Site summary	Lake outline map; description	Y	
Bathymetry	Table of statistics; map	Y	
Limnological sampling	Table of results; T/O_2 profile	Y	1
Inlets, outlets		Y	
Fish age, size and life history	Fish sampling summary	Y	
	Fish capture summary	N	2
	Summary of life history, etc	Y	
	Length-frequency histograms	na	
	Summary of Length-at-age	Y	
	Data presented by species	Y	
	Age classes appear correct	Y	
Significant features and fisheries observations	Fish and fish habitat		
	Critical habitats	Y	
	Special populations	na	
	Wild stocks	na	
	Rare stocks or species	na	
	High value sport fishing	Y	
	NO management recommend.	Y	
	Habitat concerns	Y	
Wildlife observations		Y	

Report section	Attribute	Accept. (Y/N)	Notes
References	All sources in report listed	Y	
	According to CBE style manual	Y	

Lake Report Appendices

Report section	Attribute	Accept. (Y/N)	Notes
Appendix I. Lake survey form		Y	
Appendix II. Water chemistry summary		na	
Appendix III. Fish data collection form		Y	
Appendix IV. FDIS tributary summary	In ascending order by WSC	na	
	Grouped by site	na	
	FDIS reach card printouts	Y	
	FDIS site card printouts	Y	
	Fish data collection form	N	missing
	Photos (min. 1, max. 4)	Y	
	All photos entered in FDIS	Y	
	Explanatory photo captions	Y	
	Photos in colour (final only)	Y	
Appendix V. Photos		Y	
Appendix VI. Bathymetric map	Proper size ("C" or "D" size)	na	
	Folded in pocket in report	na	

Notes:

1) table is missing for 1168FRAN

2) MT were used in lake 672FRAN but are not listed in table 16

Lake Report Attachments

Attachment I. Photodocumentation	Table: Photo summary report	Y	
	Colour thumbnail reference	Y	
	Photo CD	Y	
	CD image #s match digital	Y	
	Negatives in plastic sleeves	Y	
	Negatives labelled	Y	
	Negative #s match digital	na	
	Prints in plastic sleeves	na	
	Prints labelled	na	
Attachment II. Digital data	Budget breakdown by phase	na	
	Project sampling design	na	1
	References, contacts list	na	1
	Table of vouchers collected	Y	2
	Table of DNA collected	Y	2
	Photo summary report	Y	2
	Report tables, figures	Y	
	Report text	Y	
	FDISDAT.MDB	Y	
	Bathymetric map file	na	
Attachment III. Reference material	FISS data forms and maps	Y	
	Copies of reference material	Y	
	Data on forms match FDIS	Y	
Attachment IV. Phase completion reports	Hardcopy contract phase completion reports	Y	

Report section	Attribute	Accept. (Y/N)	Notes
Attachment V. Field notes	Field book or facsimile	Y	
	Lake survey forms	Y	
	Fish collection forms	Y	
	Individual fish data forms	Y	
	Field working maps	Y	
	Site cards	Y	
Attachment VI. Aerial photography	Purchased aerial photos	na	
	Aerial video tape	na	
Attachment VII. Fish ageing structures	Actual ageing structures	Y	
	Labelled photocopies	na	
	Age data is correct	na	
Attachment VIII. Voucher and DNA samples	Table: Vouchers collected	?	were any collected
	Table: DNA collected	?	??

Notes:
1) phase 1-3
2) contained in FDIS

Notes:

na = not applicable, not required.

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 31 OUTLINE MAP CHECK – PAGE 1 OF 1

Lake name: 01168FRAN, 00672FRAN

Section	Attribute	(Y/N)	Notes
Map	"E" line is present	N	1
	Sounding transects perpendicular to "E" line	na	
	Sounding transects agree with bathymetric map	na	
	Inlet/outlet streams and direction of flow agree with bathymetric map and air photo	N	2
	Location of deepest point in each "major" basin	Y	
	Limnological station in each "major" basin	Y	
	Reach breaks and stream survey sites indicated	N	3
	Significant aquatic macrophyte beds indicated	Y	
	Prominent shoreline features	Y	
	Benchmark location agrees with bathymetric map and air photo	na	
	Location, direction of lake features photos	N	4
Map (cont.)	All symbols as outlined in 'bathymetric standards'	Y	
	Fish sample sites	Y	
Header block	Name of lake	Y	
	Watershed code	Y	
	Date of survey (month, year, day)	Y	day missing
	Legend with all symbols used on map	Y	
	Bottom left-hand corner, contractor/organization producing the map	Y	

No. marks (# maps * 18): 162 Max. no. errors acceptable (5%): 8.1

No. errors found: 0 Is no. errors acceptable: √ Y

Notes:
1) e-line is present but it is not indicated what it is in the legend
2) outlet arrow is pointing in the wrong direction
3) site 81 and 82 should be shown on the outline map
4) panorama photos only are shown

Notes:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory

FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002

Contractor: SKR Consultants Ltd.

QA review by: Chris Schell **Review date:** February, 2001

FORM 3J ANNOTATED AIR PHOTO CHECK – PAGE 1 OF 1

Lake name: 01168 FRAN, 00672FRAN

Attribute	Errors	Notes
Benchmark location agrees with bathymetric map and outline map	na	
High water mark	na	
Limnological station in each "major" basin	Y	
Fish sampling sites	Y	
Inlet/outlet streams and direction of flow agree with bathymetric map and outline map	Y	

No. marks (# maps * 5): 27 Max. no. errors acceptable (5%): 1

No. errors found: 0 Is no. errors acceptable: √Y

❑ N

Notes:

Notes:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: Houston Forest Products Co. - 2001/2002 – Fish and Fish Habitat Inventory
FRBC project number: CON0001398 **MELP project number:** HFP-SKR-001-2002
Contractor: SKR Consultants Ltd.
QA review by: Chris Schell **Review date:** February, 2001

FORM 3K **WATERSHED REPORT – PAGE 1 OF 4**

Report section	Attribute	Accept. (Y/N)	Notes
Title page	Proper title	Y	
	Watershed code below title	N	1
	Prepared for...	Y	
	Prepared by...	Y	
	Signature of R.P.Bio	Y	
Reference information	Project reference information	Y	
	Watershed information	N	1
	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	

Report section	Attribute	Accept. (Y/N)	Notes
Introduction			
Project scope, objectives	1:20 000, 1:5000, lakes, etc.	N	2
Location	Description	Y	
Overview map	8.5 × 11" or 11 × 17"	Y	3
	Outline of study area	Y	
	Inset map showing relation to BC	Y	
	Sample site locations	Y	
	1:20 000 map grid	Y	
	Major communities	Y	
	TRIM/FC aquatic features	Y	
Access	Description	Y	
Resource Information	First Nations	Y	
	Land use, logging, recreation, etc.	Y	
	Impacts and uses by wildlife	N	missing
	Existing water quality data	Y	
	Previous fish presence	Y	
Methods	Reference to RECCE standards	Y	
	Reference to project plan	Y	
	Deviations from RIC standards	Y	
	Deviations from project plan	Y	
	List of sampling equipment used	Y	

Notes:
1) I don't understand why you can't come up with a WSC for Peter-Aleck Creek.
2) no mention of the lakes in the Nadina Project.
3) Overview map is missing from Whiting and Rhine report

Notes:

Report section	Attribute	Accept. (Y/N)	Notes
Results and Discussion			
Logistics	Problems encountered	Y	
	Weather	Y	
	Access	Y	
	Water levels	Y	
	How was it addressed	Y	
	How did it impact the results	Y	

Stream Report Format

Report section	Attribute	Accept. (Y/N)	Notes
Summary of sub-basin biophysical information	Table defining each sub-drainage	Y	
	Sub-drainages not sampled but included in the planning document	Y	
	Previous sampling reference	Y	Sec. 1.3
Habitat and fish distribution	Characteristics of fish habitats	Y	1
	Pattern of fish distribution	Y	
	Location of significant fish pop.s	Y	
	Lakes treated as a reach of the stream	Y	
	Upstream limits of fish presence	Y	
	Obstructions influencing fish	Y	
	Table of all barriers present	Y	

Stream Report Format – cont.

Report section	Attribute	Accept. (Y/N)	Notes
Fish age, size and life history	Summary of life stages, life history, etc.	Y	2
	Length-frequency histograms	Y	
	Histograms have the same x-axis	Y	
	Table: Summary of length-at-age.	Y	
	Data presented by species	Y	
	Data presented by sub-drainage	Y	
	Age classes appear correct	Y	
Significant features and fisheries observations	Fish and fish habitat		
	Critical habitats	Y	
	Special populations	Y	
	Wild stocks	na	
	Rare stocks or species	Y	
	High value sport fishing	N	missing
	NO management recommend.	Y	
	Habitat protection concerns		
	Fisheries sensitive zones	Y	
	Fish above 20% gradients	Y	
	Restoration opportunities	Y	
	Problem culverts	Y	
	Unstable slopes	Y	
Fish bearing status	Brief narrative section	Y	
	Table: Summary of fish bearing reaches…	Y	

Notes:

1) Figures in this section show the same data as the tables. Why have both?

2) SKR uses a nomenclature for fish life history unique to them. "Lacustrine-adfluvial" does not exist in fish biology. A population has a "lacustrine" (lake resident) or an "adfluvial" (lake to stream migrations) life history.

Notes:

Stream Report Format – cont.

Report section	Attribute	Accept. (Y/N)	Notes
Fish bearing status (cont.)	Table: Summary of non-fish bearing reaches	Y	
	Table: Follow-up sampling required	Y	
References	All sources in report listed	N	1
	According to CBE style manual	Y	

Stream Report Appendices

Report section	Attribute	Accept (Y/N)	Notes
Appendix I. FDIS summary and photographs	In ascending order by WSC	na	
	Grouped by site	Y	
	FDIS reach card printouts	N	missing
	FDIS site card printouts	Y	
	Fish data collection form	Y	
	Photos (min. 1, max. 4)	Y	
	All photos entered in FDIS	Y	
	Explanatory photo captions	Y	
	Photos in colour (final only)	Y	
Appendix II. Hardcopy maps – General	"E" size plots	Y	
	Folded in pocket in report	Y	
	UTM projection	Y	
	1:20 000 map grid	Y	
	1:20 000 scale	Y	
	Complete title box	Y	
	Complete legend box	Y	
	Source information box	Y	

Stream Report Appendices – cont.

Report section	Attribute	Accept. (Y/N)	Notes
Appendix II. Hardcopy maps – General (cont.)	Inset map box	Y	
	Fish species box	Y	
	100 m contour lines	Y	
	WSCs or ILPs for all sampled streams	Y	
	WSCs or ILPs for all 3rd order or higher streams	Y	
	WSCs or ILPs for every other 1st and 2nd order stream	Y	
	WBIDs for all lakes	N	4
	Sample site locations	Y	
Project map	All site data symbols attached to sites	N	5
	Lake summary symbols	Y	
	Reach data symbols on all reaches <30% gradient and all reaches containing sites	N	2
	Features, obstructions, etc.	Y	
	Reach breaks and numbers	Y	
Interpretive map	Reach summary symbols for all reaches in the project area	Y	
	Features, obstructions	Y	
	Fish distribution limits	N	3
	Stream class	Y	

Notes:

1) One missing on page 17 of the Whiting & Rhine report (McPhail's BB review).

2) You need to have a gradient shown for every reach in the project. Just a number placed along the stream line (M. Jessop, P. Giroux).

3) A few segments/reaches did not receive or received wrong interpretive coding. These are marked on the map.

4) missing on the Nadina maps

5) A few sites without symbols are noted on the map.

Stream Report Attachments

Report section	Attribute	Accept. (Y/N)	Notes
Attachment I. Planning document	Budget breakdown by phase	na	1
	Project sampling design	na	1
	Process of site selection	na	1
	Reach table	na	1
	Lake table	na	1
	Random sample table	na	1
	References, contacts list	na	1
Attachment II. Field notes	Field book or facsimile	Y	
	Site cards	Y	
	Fish collection forms	Y	
	Individual fish data forms	Y	
	Field working maps	Y	
Attachment III. Fish ageing structures	Actual ageing structures	Y	
	Labelled photocopies	N	
	Annuli identified with red	N	
	Age data are correct	?	
Attachment IV. Voucher, DNA samples	Table: Vouchers collected	N	
	Table: DNA collected	N	
Attachment V. Photodocumentation	Table: Photo summary report	Y	
	Colour thumbnail reference	Y	
	Photo CD	Y	
	CD Image #s match digital	Y	
	Negatives in plastic sleeves	Y	
	Negatives labelled	Y	
Attachment V. Photodocumentation (cont.)	Negative #s match digital	Y	
	Prints in plastic sleeves	na	
	Prints labelled	na	
Attachment VI. Digital data	Budget breakdown by phase	na	1
	Project sampling design	na	1
	References, contacts list	na	1
	Table of vouchers collected	Y	in FDIS
	Table of DNA collected	Y	in FDIS
	Photo summary report	Y	in FDIS
	Report tables, figures	Y	
	Report text	Y	
	FDISDAT.MDB	Y	
	Mapping files (plot files)	Y	
	Mapping files (metadata and map features files)	Y	
Attachment VII. FISS update data	FISS data forms and maps	Y	
	Copies of reference material	Y	
	Data on forms match FDIS	Y	
Attachment VIII. Aerial photography	Purchased aerial photos	na	
	Aerial video tape	na	

Notes:
1) submitted with phase 1-3.

Notes:

Comments. comment heading are of SKR's own creation, and not those in FDIS.
93e.097 – some reach summary symbols on this map

SKR Consultants Ltd.

RR1, S11, C4 Smithers, B.C. V0J 2N0
Phone: (250) 847-4674 Fax: (250) 847-4684 E-mail: rsaimoto@bulkley.net

March 21, 2002

Chris Schell
Smithers, B.C.\
V0J 2N0

RE: QA of Phase 5-6 deliverables for Fish and Fish Habitat Inventory performed by SKR Consultants Ltd. for Houston Forest Products Co.

Dear Chris,

We have reviewed the stage 3 quality assurance (QA) for the Fish and Fish Habitat Inventory projects conducted by SKR Consultants during the 2001/2002 fiscal year. Ron and I have finished addressing the recommended changes and comments from the QA letter (dated February 22nd, 2002) and have completed the following:

1. All errors found in the FDIS consistency check were reviewed and corrected.
2. The wrong Lake Summary symbol was corrected on the Nadina map.
3. The proximity tests were run for reaches, sites, and feature points associated with the maps for all 6 areas, with 0 errors.
4. The Whiting/Rhine CD was reformatted and tested on a non-rewritable CD Drive.
5. All errors on the reports were addressed and corrected including:
    - all editorial comments,
    - a short section on "impacts and uses by wildlife" was added to each report, and
    - comments were added to each report regarding "High Value Sport Fishing".
6. All identified errors on the hard copy maps were corrected and
    - an italic grey number was inserted approximately 2000 metre downstream from each reach break to represent average reach gradient (%),
    - the average reach gradient symbol was added to the map Legend, and
    - all of the *.eps map files were replaced on each of the CD's
7. All map Attriibute files were corrected where necessary including
    - changes of point locations related to the proximity test were adjusted in the attribute table, and
    - the attribute files were replaced on each of the CD's.

We found all of the QA efforts extremely valuable toward standardizing and improving the quality of our final deliverables. If you have any further questions, please do not hesitate to contact us by e-mail (regina@skrsmithers.ca) or by phone (250-847-4674).

Yours truly,

Regina Saimoto

Regina Saimoto (M.Sc., R.P. Bio.)
Senior Biologist

cc. Karen Balkwill, Melissa Todd-MacMillan, Matthew Jessop

Appendix 5. 1:20,000 Fisheries Project/Interpretive Maps for Sub-basin II and Sub-basin VII within the Fulton River watershed.

Fisheries Interpretive Maps

093L.089
093L.090
093L.099