Reconnaissance 1:20,000 Fish and Fish Habitat Inventory in the Babine Watershed

(West Babine Planning Area) WSC 480-430700 – WSC 480-518400-75313

Prepared for:

Pacific Inland Resources Ltd.

PO Box 3130 Smithers, BC V0J 2N0

March 2002

Prepared by:



#300-4546 Park Avenue Terrace, BC V8G 1V4 Tel: (250) 635-1494 Fax: (250) 635-1495

Reviewed by:

Tom Watson, Ph.D., R.P. Bio.

PROJECT REFERENCE INFORMATION

FDIS Project Number: 5098

MELP Project Number: PIR_C172_010_2002

FRBC Project Number: 01FRBC14

FRBC Region: Skeena-Bulkley Region

MELP Region:

MELP District:

Skeena

FW Management Unit:

Region 6-8

Fisheries Planning Unit:

North Coast

DEO Sub-districts

AD Swithers

DFO Sub-district:

Forest Region:

Prince Rupert
Bulkley

Forest Licensee and Tenure #: Pacific Inland Resources Ltd.

FL16830

First Nation Traditional Area: Wet'suwet'en Nation

WATERSHED INFORMATION

Watershed Group: Babine

Watershed Code: 480-430700 – 480-518400-75313

Watershed Area: 23,089 ha
Total of All Stream Lengths: 372 kms

Largest Stream Order: 4

BGC Zones: ESSF, SBS NTS Maps: 93M/2, 93M/7

TRIM Maps: 93M.007 93M.017 93M.018

93M.026 93M.027 93M.028

93M.037

Air Photos: SRS30C6244 #87-90, 111, 112, 117-

123, 170, 174-178, 208-213, 272-

283, 350-352

SRS30C6298 #30, 31, 277, 309,

318-324, 351-361

SRS30C6299 #58, 60, 79-86, 102-

111, 318, 344-351

SAMPLE DESIGN SUMMARY

Total number of Reaches:409Random Sampling Sites:13Biased Sampling Sites:16Fish Sampling Only Sites:3Total Sampling Sites:32

Field Sampling Dates: July 4 to August 13, 2001

Fish Species Captured: DV, CT

CONTRACTOR INFORMATION

Project Manager: Jason Harris, Fisheries Technician

Triton Environmental Consultants Ltd. (Terrace)

P.O. Box 88, Terrace, BC, V8G 4A2 Courier: #300-4546 Park Avenue,

Terrace, BC, V8G 1V4

(250) 635-1494 fax (250) 635-1495 e-mail: jharris@triton-env.com

Field Crew:

J. Dorey, J. Harris, D. Taft, J. Anaka, E. Lem

Data Entry by:

J. Dorey, S. Hartman J. Harris, S. Hartman

Report Prepared by: GIS Services:

Triton Environmental Consultants Ltd. (Prince George)

Technicians: S. Johal, K. Strong Courier: #201-1157 Fifth Avenue, Prince George, BC, V2L 3L7

Phone: (250) 562-9155 Fax: (250) 562-9135

DISCLAIMER

"The Province has not accepted the contents of this product* for the purposes of the Forest Practices Code, and reserves the right to dispute the validity of summarized results. The province does not necessarily agree with the classification assigned to any individual stream reach, for use in logging plans, silviculture prescriptions or any other application."

* Product refers to the information detailed in the following pages of this report.

ACKNOWLEDGMENTS

Triton would like to thank Alan Baxter of Pacific Inland Resources Ltd and Jay Baker of Silvicon Services for their assistance throughout the planning and field phases of this project. Matthew Jessop, Fisheries Inventory Specialist for the Skeena Region for his feedback and approval of the Non Fish Bearing Status Report and Stream Classifications associated with this project. Chris Schell for his Quality Assurance participation and support in meeting Reconnaissance (1:20,000) Fish and Fish Habitat Inventory Standards for British Columbia. Paul Giroux and Matthew Jessop, Fisheries Inventory Specialists for the Skeena Region were the principal contract monitors.

Forest Renewal BC – a partnership of forest companies, workers, environmental groups, First Nations, communities and government, provided funding for this inventory. Forest Renewal BC funding – from stumpage fees and royalties that forest companies pay for the right to harvest timber on Crown lands – is reinvested in the forest, forest workers and forest companies.

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Appendix II Phase Completion Reports

Appendix III Quality Assurance Forms and Correspondence

Appendix IV Phase I-III Project Plan (with attachments)

Appendix V Project/Interpretive Maps

LIST OF ATTACHMENTS AVAILABLE AT MELP REGIONAL OFFICE

Attachment I Planning Document

Triton Environmental Consultants Ltd., April 2001. Phase I-III Pre-field Project Planning Report Reconnaissance (1:20,000) Fish and Fish Habitat Inventory in selected tributaries within the Babine and Suskwa River watersheds. Prepared for Skeena Cellulose Inc.

Attachment II Field Notes

Site Cards/Fish Collection Forms

Attachment III Photodocumentation

Photo Summary Report

Photo CD

Prints in Plastic Sleeves Negatives in Plastic Sleeves

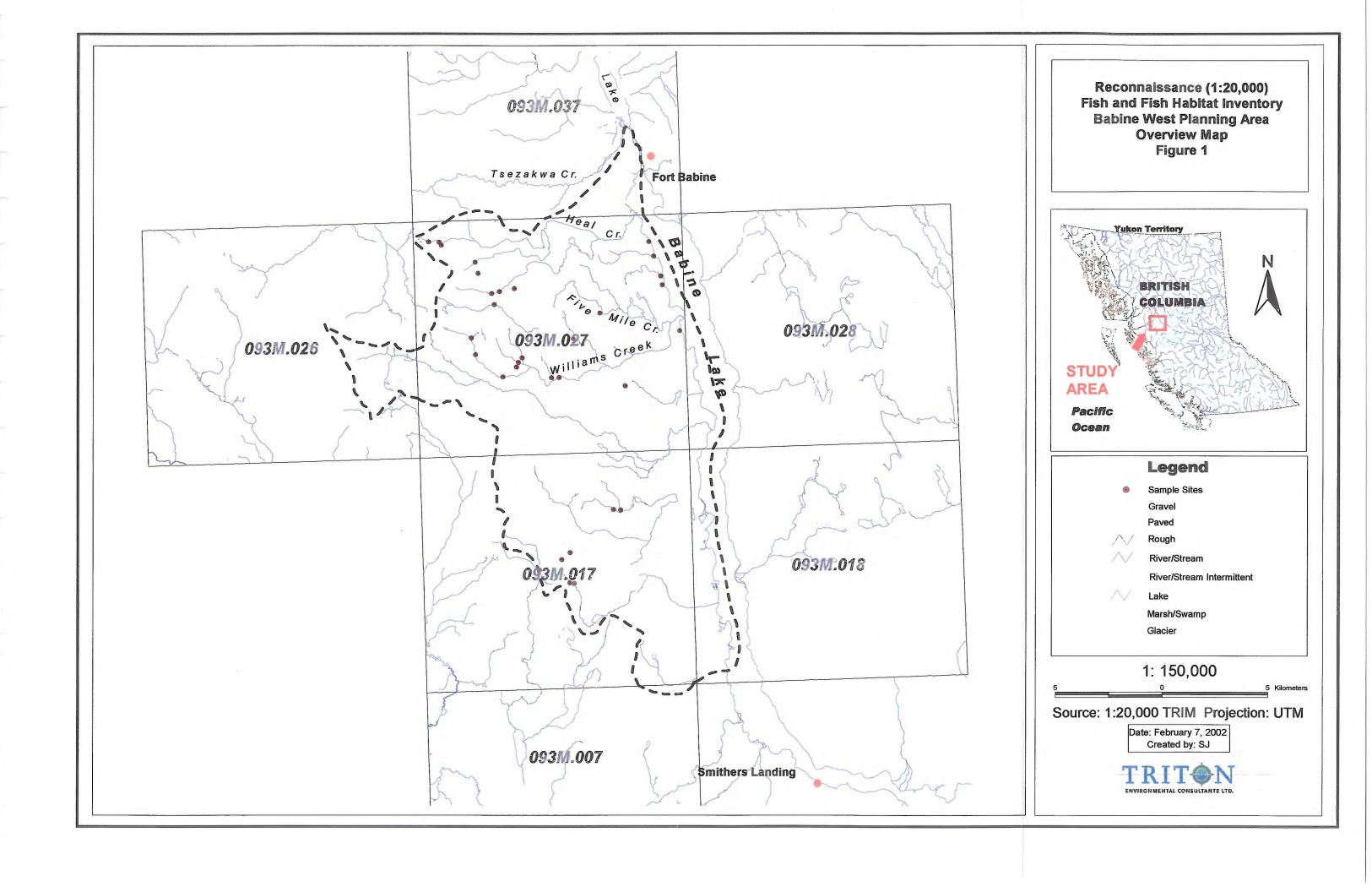
Attachment IV Digital Data

Watershed Report Files

FDIS Files Mapping Files

Attachment V FISS Update Data

FISS Update Forms FISS Update Maps



1.0 INTRODUCTION

Triton Environmental Consultants Ltd. (Triton, Terrace) was retained by Pacific Inland Resources Ltd. (PIR) to conduct a Reconnaissance (1:20,000) Fish and Fish Habitat Inventory in PIR's West Babine Planning Area, which is located within the Bulkley Forest District.

This project commenced as a result of BC Fisheries and Ministry of Environment, Lands and Parks (MELP) initiatives to gather information about fish distribution, population status, and the condition and capability of stream habitats (Resource Inventory Committee, 2001). Forest Renewal of British Columbia (FRBC) funding and MELP supervision facilitated the commencement of this sample-based survey of the sub-basins outlined within the study area. The inventory provides information regarding the characteristics, the distribution and the relative abundance of fish species, as well as information on biophysical lake and stream data. This information can be used for the interpretation of habitat sensitivity and fish production capability (Resource Inventory Committee, 2001). The results of the inventory may be applied to initial Riparian Management Area (RMA) and lake classification under the Forest Practices Code for forest development planning, watershed restoration, and for the establishment of some landscape-level biodiversity objectives (BC Forest Practices Code, 1998).

1.1 Project Scope/Objectives

Fish and fish habitat values were the primary components of the inventory:

- Fish
 - identify and map fish-bearing stream reaches and lakes using existing information and new field information (field inventory).
- Fish Habitat
 - identification and coding of all waterbodies.
 - identification and characterization of stream reaches utilizing topographic maps and aerial photographs, with confirmation via field sampling.

The results of the inventory are presented on 1:20,000 scale Terrain Resource Information Management Terrain Resource Information Management (TRIM) based maps, MELP Field Data Information Summary (FDIS) data forms, and in the body of this report.

1.2 Location

The West Babine study area includes the tributaries between WSC 480-430700 and WSC 480-518400-75313 flowing into Babine Lake. The study area is outlined in Figure 1, and is located south of the village of Fort Babine. The study area lies within the southern portion of the Hazelton Mountains and is situated in the Central Interior Ecoprovince

within the Fraser Plateau Ecoregion (Demarchi, 1996). The study area is approximately 23089 ha and covers 7 TRIM map sheets (Figure 1).

1.2.1 Access

Crews accessed the watershed from either Telkwa or Smithers along the Babine Lake Road. Various spur roads along the Babine Lake Road were used to access sample site locations within the study area.

Sample sites were accessed by both road and air. Helicopter access was the most efficient method of transport due to the distribution of sample sites within the watershed. Helicopters were used extensively to recce streams and reference barriers.

2.0 RESOURCE INFORMATION

Resource values within the study area are primarily forestry based. PIR is currently logging throughout the area. Most of the study area has low capability for agriculture due to adverse climate, topography, bedrock, or poor drainage (Meidinger & Pojar, 1991). Outdoor recreation such as hiking, hunting, fishing, camping, snowmobiling, crosscountry skiing and alpine skiing are prevalent within the study area.

Traditional fishing grounds of the Lake Babine Nation lie in and adjacent to the study area.

No active mines were observed in the study area and no water quality data specific to the study area was identified.

The study area, supports moose (Alces alces), caribou (Rangifer tarandus), mule deer (Odocoileus hemionus hemionus), whitetail deer (O. virginianus) and mountain goat (Oreamnos americanus). In addition, black bear (Ursus americanus), wolf (Canis lupus), fisher (Martes pennanti), and lynx (Lynx canadensis) are widely distributed throughout the region.

2.1 Existing Fisheries Information

Fisheries Information Summary System (FISS) (1995) and Stream Summary Catalogue (FHIIP, 1991) records indicate that chinook salmon (Oncorhynchus tshawytscha), coho salmon (O. kisutch), pink salmon (O. gorbuscha), kokanee/sockeye salmon (O. nerka), steelhead (O. mykiss), rainbow trout (O. mykiss), Dolly Varden char (Salvelinus malma), and cutthroat trout (O. clarki) occur within the study area. Numerous consultant reports were reviewed and found to support FISS and FHIIP information. The reports also identified the presence bull trout (S. confluentus), lake trout (S. namaycush), largescale sucker (Catostomus macrocheilus), longnose sucker (C. catostomus), white sucker (C.

commersoni), northern pikeminnow (Ptychocheilus oregonesis), peamouth chub(Mylocheilus caurinus), redside shiner (Richardsonius balteatus), longnose dace (Rhinichthys cataractae), mountain whitefish (Prosopium williamsoni), pygmy whitefish (P. coulteri), lake whitefish (Coregonus clupeaformis), burbot (Lota lota), prickly sculpin (Cottus asper) and lamprey (Lampetra sp.). The species identified from existing sources were placed in the Field Data Information System (FDIS) database and mapped according to Resource Inventory Committee (RIC) standards for historical information. Several barriers and obstructions were also identified from the FHIIP and FISS information. The barrier and obstruction information was incorporated into the FDIS database and placed on the maps as historical features.

MELP (Skeena Region) stream and lake files were reviewed and found to support the FHIIP and FISS information.

In 1998, Triton completed a 1:20,000 Fish and Fish Habitat Inventory of the Bulkley Forest District, which included portions of the West Babine watershed. The results of this inventory project have been incorporated into the FDIS database and mapping product.

3.0 METHODS

The Reconnaissance 1:20,000 Fish and Fish Habitat Inventory was completed in the following six phases:

- Phase 1: Existing Data Review
- Phase 2: Map and Air Photo Analysis
- Phase 3: Sampling Design and Project Plan
- Phase 4: Field Data Collection
- Phase 5: Data Compilation
- Phase 6: Report and Map preparation.

The methods employed for each phase of the project followed those outlined in the *Reconnaissance* (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures, April 2001 (Resource Inventory Committee, 2001). Alterations were made to the project plan in Phase 4 and are outlined in the sections below.

3.1 Field Data Collection

The following sections describe the methods and approaches taken to complete field sampling and data collection.

3.1.1 Pre-field Preparations

The stream reaches inventoried were identified by two methods: random sites generated by the FDIS planning tool and biased sites identified by PIR and Triton. Biased sites were selected to address gaps within the randomly generated sampling plan. The final sampling sites incorporated into the contract were reviewed by Alan Baxter (PIR), Jay Baker (FRBC Coordinator), Paul Giroux (FIS, MELP Skeena Region), and Triton to ensure that sample sites met the requirements of PIR, MELP and the FDIS planning model.

Required fish collection permits were obtained from MELP and DFO prior to the commencement of field activities.

3.1.2 Field Procedures

All sampling procedures followed those outlined in the Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures, April 2001 (Resource Inventory Committee, 2001) and the Forest Practices Code Fish Stream Identification Guidebook, (BC Forest Practices Code, 1998).

Fieldwork was conducted by two person field crews. Crews accessed sites by both road and air. Helicopter transportation was provided by Highland Helicopters (Smithers).

Field data was collected on RIC field site and fish collection cards. In addition, the following information was collected at each site and recorded in the comments section of the site card:

- stream classification (as per the BC Forest Practices Code),
- comments supporting stream classification,
- comments regarding fish access (i.e. downstream barriers), and
- general comments regarding rearing, spawning and overwintering habitats were also included in the Habitat Quality section of the site card.

Each crew was equipped with the following field gear:

- Smith-Root Model 12A backpack electrofisher
- electrofisher safety gear (leak proof waders, wading belts, linesman's gloves, hat with a brim, polarized sunglasses)
- minnow traps and bait
- clinometer
- compass
- hip chain

- 50 m tape
- meter stick
- VHF radio
- first aid kit
- water quality kit (hand held pH and conductivity meters)
- thermometer
- Canon waterproof camera and print film
- voucher specimen container
- MELP Site cards
- MELP Fish collection forms
- MELP Individual fish data cards
- field maps

Fish sampling within stream reaches was conducted using two primary sampling techniques: electrofishing and visual observation. Electrofishing is the most efficient method of sampling in shallow stream habitats and was the preferred sampling method for all habitat types. In habitats where using an additional sampling method would not provide additional information (i.e. species, relative abundance), electrofishing was the only fish sampling technique employed.

3.2 Field Data Compilation

Following each field day, field crews met to compile field notes, review field data and summarize the field findings onto hardcopy maps. This ensured all information was thoroughly documented, allowing for preliminary stream classifications and changes to the sampling plan. Field crews were in constant contact with Paul Giroux (Fisheries Inventory Specialist) and Alan Baxter (PIR) when the originally proposed plan needed modifications. In most cases, sites downstream of known fish bearing reaches were moved to reduce sampling redundancy. These sites were placed in other locations to address potential barriers, identify species composition, establish fish distribution and provide additional sampling data. This did not compromise the process for selecting sites and maintained the desired geographical coverage for sampling streams.

3.2.1 Site Cards

Site Cards and Reach Forms were entered into MELP's FDIS database following the completion of the Phase 4 field inventory. Hard copy versions of the Reach/Site Cards are presented in Appendix I.

3.2.2 Fish Collection Cards

The Fish Collection Cards were entered into MELP's FDIS database following the completion of the Phase 4 field inventory. Hard copies of the Fish Collection Forms are presented in Appendix I following the Reach/Site cards.

4.0 RESULTS AND DISCUSSION

4.1 Logistics

Weather conditions were variable over the field sampling dates. Rain caused turbid and high water conditions at several sample sites. Field crews often made the decision to sample selected streams, which were not affected by the increased runoff. The turbid streams were then revisited when sampling conditions were favorable. The timing of the field sampling helped reduce the number of dry/intermittent streams and the number of these streams was low (1 of 34 sample sites). Several sites were moved in the field due to lack of helicopter access (no landing available).

4.2 Survey Information

Table 1 provides an overview of the survey information compiled for the study area.

Table 1. Summary information for the study area.

Watershed Name:	West Babine
Major sub-basins within project area:	Five Mile Creek (WSC 480-452300)
	Heal Creek (WSC 480-430700)
	Williams Creek (WSC 480-452300-13942)
Drainage:	Babine River → Skeena River → Chatham Sound
NTS Maps:	93M/2 93M/7
TRIM Maps:	93M.007 93M.017 93M.018 93M.026 93M.027 93M.037
Total Number of Lakes:	11
Total Number of Reaches:	409
Stream Field Sampling Dates:	July 4 to August 13, 2001
Number of Random Sites Sampled:	13
Number of Bias Sites Sampled:	16
Number of Fish Sampling Only Sites	3
Total Number of Sampling Sites:	32

Various consultants as well as Federal and Provincial sources were contacted to obtain information pertaining to the West Babine study area. The project planning report completed prior to field sampling activities includes a list of references and contacts that have completed various projects throughout the area. See Appendix IV (Phase I-III Project Plan), Section 2.1 for these information sources.

4.3 Summary of Sub-Basin Biophysical Information

Table 2 provides a summary of sub-basin biophysical information for the study area.

Table 2. Sub-basin biophysical information.

Gazetted Name	WSC/ILP	UTM at Mouth	Watershed Area (ha)	Stream Length (km)	Stream Order	NTS Maps	BGC Zones
Five Mile Creek	480-452300	10.66840 6125680	1,914	10.3	3	93M/7	ESSF, SBS
Heal Creek	480-430700	10.650220 6130820	2,142	12.9	3	93M7	ESSF, SBS
Williams Creek	480-452300- 13942	10.652500 6125900	5,072	15.1	4	93M/2 93M/7	ESSF, SBS

Information was collected by Triton, using GIS software and digital TRIM maps.

ESSF = Engelmann Spruce-Subalpine Fir

SBS = Sub-Boreal Spruce

4.4 Habitat and Fish Distribution

The following is a brief description of each of the major sub basins within the West Babine Watershed.

Five Mile Creek (460-452300)

Five Mile Creek, a tributary to Williams Creek, is a 3rd order stream that is 10.3 km long and is fed by 10 tributaries. A total of 5 sample sites have been completed in the Five Mile Creek drainage. No barriers to fish migration were noted in this drainage.

Rainbow trout and Dolly Varden were captured in a lake WBID 00280BABL located in Reach 4 of Five Mile Creek (British Columbia Ministry of Environment, Lands and Parks, and Department of Fisheries and Oceans, 1995). Dolly Varden were captured in a 1st order tributary WSC 480-452300-37188 to Reach 5 of Five Mile Creek (Triton, 1998). Dolly Varden were also found to be present in a 1st order tributary to Reach 8 of Five Mile Creek (SKR Consultants, 2000). Historical data indicates that coho, kokanee and prickly sculpin were captured in Williams Creek ~50 m downstream from the mouth of Five Mile Creek (British Columbia Ministry of Environment, Lands and Parks, and Department of Fisheries and Oceans, 1995).

Heal Creek (WSC 480-430700)

Heal Creek is a 3rd order stream that is 12.9 km long and is fed by 7 tributaries. A total of 30 sample sites have been completed in the Heal Creek drainage.

Historical records indicate the presence of coho, rainbow trout, Dolly Varden, kokanee, burbot, prickly sculpin and lamprey in Reach 1 of Heal Creek (British Columbia Ministry

of Environment, Lands and Parks, and Department of Fisheries and Oceans, 1995). Rainbow trout and Dolly Varden were also captured in Reach 1 of Heal Creek (Triton, 1998). Dolly Varden were captured throughout this drainage in small 1st and 2nd order tributaries to Heal Creek (Triton, 1998, SKR Consultants, 2000 and Silvicon Services, 2001). Historical information shows that bull trout were captured in Reach 10 of Heal Creek and in WSC 480-430700-44400 to Reach 4 of Heal Creek (Triton, 1998 and Silvicon Services, 2001). A set of cascades (4 m x 3 m and 1.7 m x 20 m), located in Reach 11 of Heal Creek were identified as barriers to upstream fish migration.

Williams Creek (WSC 480-452300-13942)

Williams Creek is a large 4th order stream that is 15.1 km long and is fed by 12 tributaries. A total of 21 sample sites have been completed in the Williams Creek drainage.

Historical records indicate the presence of coho, kokanee, rainbow trout, sockeye, Dolly Varden and prickly sculpin in Reach 1 of Williams Creek (British Columbia Ministry of Environment, Lands and Parks, and Department of Fisheries and Oceans, 1995). Rainbow trout and Dolly Varden were captured in Reach 2 of Williams Creek (Triton, 1998). Dolly Varden were captured throughout the drainage in small 1st and 2nd order tributaries to Williams Creek. A 4 m falls in Reach 6 of Williams Creek is a barrier to upstream fish migration and marks the upper limit of fish distribution within the mapped mainstem of this system.

4.4.1 Patterns of Fish Distribution

Bedrock cascades or falls were identified as the primary permanent barriers to fish access within the study area. Anthropogenic obstructions such as culverts were also identified as potential barriers to upstream fish migration. The barriers and obstructions identified during the 2001 sampling program are found in Table 3.

Fish were captured in 1st to 4th order streams and fish distribution was generally associated with perennial fish habitat and reaches contiguous to other fish bearing streams. Perennial habitat includes the presence of overwintering, spawning, and rearing habitat. Instream overwintering habitat was identified as containing residual pool depths greater than 0.5 m. Other overwintering habitat included wetlands and lakes with depths greater than 0.5 m.

Spawning habitat was characterized by the presence of suitable spawning substrates, perennial flows, and adequate water velocity in order to incubate eggs. The quality of spawning habitat was a field observation and field crews made judgments on how well each of the parameters were satisfied. Low or poor quality spawning habitat was characterized by a lack of significant accumulations of spawning substrates, turbulent flows, low average water velocity (<1% gradient), or high average water velocity (>1 m/s). Medium or Moderate quality spawning habitat was characterized by occasional

accumulations of spawning substrates (<10% of total habitat area), but was limited by one or more of the following parameters; turbulent flows, high proportion of fines, low average water velocity (<1% gradient), or high average water velocity (>1 m/s). High or good quality spawning habitat was characterized by abundant accumulations of suitable spawning substrates (>10% of total habitat area) perennial flows, and moderate gradient (1 to 5% gradient).

Rearing habitat was characterized as habitat where fish can live and grow. The quality of rearing habitat was a field observation and field crews made judgments on how well each of the parameters was satisfied. Low or poor quality rearing habitat was characterized by a lack of channel development and was limited by ephemeral flows, shallow average water depths (<10 cm), lack of significant pools (>10 cm), predominance of fine or organic substrates. Medium or moderate quality rearing habitat was characterized by the presence of perennial flows and was limited by one or several of the following parameters; low gradient (<2%), high gradient (>10%), lack of cover, lack of significant pools (>20 cm), lack of coarse substrates, or large average substrate size (boulders). High or good quality rearing habitat was characterized by perennial flows, abundant cover, moderate gradient (1-5%), and frequent riffles and pools.

During the 2001 sampling program no fish were captured in reaches with an average channel width of less than 0.98 m, or with an average gradient greater than 10.75%.

Table 3. Summary of features identified within the study area.

Site	ILPWSC	Reach	Feature Type	Feature Height (m)	Feature Length (m)	Comments
62	480-430700	12	С	4	3	Barrier to all fish species (NFC upstream).
62	480-430700	12	С	1.7	2	Cascade over bedrock downstream of reach 12. Barrier to all fish species (NFC upstream).
65	10138	1	CV	0.9	NA	Twin culverts 450 mm and 900 mm, 40 cm and 35 cm drop with a 60 cm pool. Culverts may be potential barrier to upstream fish migration.
448	480-452300- 13942	7	F	4	NA	Barrier to all fish species (NFC upstream).

C = cascade

CV = culvert

F = falls

4.5 Fish Age, Size and Life History

Fish were captured in 11 of 32 sample locations. Table 4 provides a summary of the sites where fish were captured.

Table 4. Summary of fish capture locations within the study area.

Site	ILP/WSC	Reach	Order	Species	Stage	Number	Minimum Length (mm)	Maximum Length (mm)
60	480-452300-13942-32072	7	2	DV	J	3	81	110
63	480-430700	11	1	DV	j	5	69	103
410	480-452300-13942	3	3	DV	j	9	60	70
411	480-452300-13942-48843	1	2	DV	J	3	55	60
413	480-452300-13942	5	2	DV	1	7	55	80
414	10125	1	1	DV	9	5	60	75
415	10123	2	2	DV	J	5	60	75
416	10124	1	1	DV	J	5	50	60
417	480-504200-67300	1	2	СТ	J	4	200	210
418	480-504200	16	2	СТ	J	6	200	220
446	480-504200-67300	4	2	CT	J	2	120	125

CT = cutthroat trout

DV = Dolly Varden

J= juvenile

Dolly Varden char and cutthroat trout were captured within the study area during the 2001 sampling season. Length frequency distributions for these sport species are provided in the figures below. Quantitative abundance figures were not generated for this project, as sampling methods to determine abundance were not utilized. No ageing analysis was conducted, as no ageing samples were taken for this study area.

Dolly Varden

Dolly Varden were captured at 8 locations within the study area and were found in habitats that ranged from high energy streams to low gradient stagnant pools. Fry and juvenile Dolly Varden were predominately found to inhabit the smaller first order and second order streams adjacent to overwintering habitat (larger mainstems and lakes) and the larger (mature) Dolly Varden were found in mainstem/larger tributary streams. Dolly Varden reach sexual maturity in 3-6 years and spawn in streams with cobble/gravel substrates and moderate flows. The fry hatch in the spring and reside (3-4 years) in their natal stream until reaching a size large enough to move downstream into larger bodies of water. Northern and high elevation populations are often stunted and rarely exceed 30 cm. Dolly Varden are a relatively long-lived species reaching ages of 10-12 years (Scott & Crossman, 1985). A length frequency distribution historgram for Dolly Varden captured in the study area is presented in Figure 2.

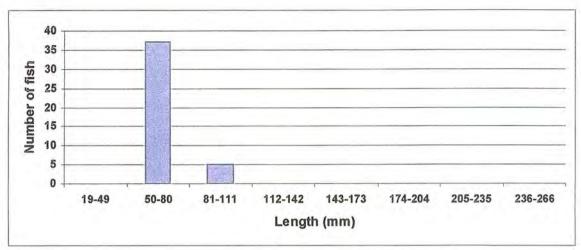


Figure 2. Length frequency distribution for Dolly Varden char captured in the study area (n=42).

Cutthroat trout

Cutthroat trout were captured at 3 sampling locations; 3 small 2nd order tributaries to a larger mainstem (WSC 480-504200). The cutthroat trout that were captured in these 2nd order tributaries were juveniles, which indicates that they are likely using these streams for rearing and/or refuge. Cutthroat live to a maximum of 10 years and can reach sexual maturity in as little as 2 years. Spawning takes place in the spring (February to May) in streams with adequate gravel substrates. Redds are constructed and the eggs hatch within 6-7 weeks. Fry emerge from the redds in 1-2 weeks (Scott & Crossman, 1985). A length frequency distribution histogram for cutthroat trout captured in the study area is presented in Figure 3.

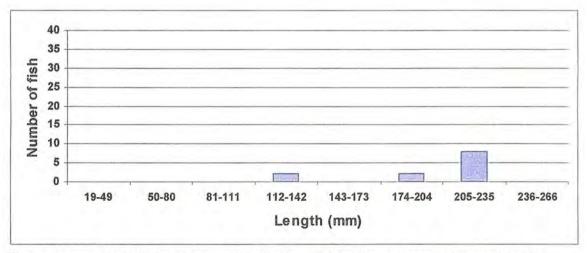


Figure 3. Length frequency distribution for cutthroat trout captured in the study area (n=12).

4.6 Significant Features and Fisheries Observations

4.6.1 Fish and Fish Habitat

Fisheries values within the sites sampled are largely associated with the limited occurrence of suitable spawning and rearing habitats for fish species. The prevalence of high gradients (>20%) and cascade/pool morphology appeared to be the primary limiting factors for spawning and rearing habitats within the sampled reaches.

4.6.1.1 Critical Fish Habitats

No critical fish habitats such as staging areas or large spawning grounds were identified.

4.6.1.2 Special Populations

The BC Conservation Data Center has blue listed bull trout within the Bulkley Forest District. Blue-listed means the species is considered vulnerable and "at risk", but not yet endangered or threatened. Populations of bull trout may not be in decline, but their habitat or other requirements are such that they are vulnerable to further disturbance. Historical data indicates that bull trout have been captured throughout the West Babine Planning Area (Triton, 1998 and Silvicon Services, 2001). Habitat requirements and life history strategies should be considered when encroaching on watersheds where bull trout have been identified.

4.6.1.3 Sport Fishing Opportunities

Moderate value sport fishing opportunities were identified within the West Babine study area.

4.6.2 Habitat Protection Concerns

4.6.2.1 Fisheries Sensitive Zones

Numerous FSZs were identified during the historical data review. Most of the FSZs were described as swamps, sloughs or wetlands. Most of the wetlands identified were channelized and offered access to fish during flooding. Many of the FSZs provide a link between confirmed upstream and downstream fish bearing waters. Irrespective of the official classifications of the numerous wetlands and FSZs throughout the study area, the maintenance of fish passage, access and protection of habitats is a concern.

4.6.2.2 Fish above 20% Gradients

No fish were captured during the survey in gradients above 20%.

4.6.2.3 Restoration and Rehabilitation Opportunities

Twin culverts (Table 3) located in Reach 1 on ILP 10138, were identified as potential barriers to upstream fish migration. The culvert outlets were perched 35 cm and 40 cm above the outlet pool creating a potential barrier at lower flows. Restoration of the natural watercourse through culvert removal is a possible restoration option if road access is no longer needed. Culvert replacement (downsetting) or outflow pool modification can be used to restore fish access if road access is required.

4.6.2.4 Unstable Slopes

No unstable slopes were identified within the study area.

4.7 Fish Bearing Status

4.7.1 Fish Bearing Reaches

Fish species were captured in 11 of the 17 reaches classified as fish bearing (Table 5). One (1) reach in the fish bearing classification table was classified as fish bearing by default. It was determined that fish can access this reach (from downstream fish bearing waters) and further sampling is not recommended.

The fish bearing status of streams may be directly supported by sampling data or inferred based on the presence of fish habitat and available access from fish bearing waters (inferred seasonal use). For example, if fish habitat within a given reach is suitable for rearing and/or spawning, and the reach is contiguous to a fish bearing reach, but no fish were captured and no barriers were observed, the reach would be classified as fish bearing.

If the reach does not provide suitable rearing, spawning and overwintering habitat or where barriers (includes high gradient) prevent fish from accessing and utilizing the reach it would be classified as non-fish bearing.

4.7.2 Additional Sampling Recommendations

No reaches within the study area were recommended for additional sampling.

Table 5. Summary of fish bearing reaches within the study area.

Site	ILP/WSC	Reach	Width (m)	Gradient (%)	Species	Stream Class	Follow-up Sampling (y or n)	Comments
57	480-488800- 10300	7	1.33	4,25	NFC	S4	ń	Moderate rearing, poor spawning and poor overwintering habitat identified within the reach. No barriers to upstream fish migration were observed.
60	480-452300- 13942-32072	7	2.63	6	DV	\$3	n	Moderate rearing, poor spawning and poor overwintering habitat identified within the reach. No barriers to upstream fish migration were observed.
63	480-430700	11	NA	NA	DV	NA	n	Fish only sampling site.
65	10138	1	2.20	1	NFC	\$3	n	Moderate rearing, poor spawning and poor overwintering habitat identified within the reach. Fish migration is impacted by non permanent barriers (downstream beaver dam complexes and twin culverts). Default fish bearing, Dolly Varden and rainbow trout were captured in downstream lake (Triton 1998).
66	480-464400	6	1,30	0.25	NFC	S4	n	No barriers to upstream fish migration were identified. Rainbow trout were captured downstream in Reach 2 (Triton 1998).
82	480:444000	1	1.18	1.75	NS	S4	n	No barriers to upstream fish migration were identified.
83			3.76	Direction of the second	7.1			No barriers to upstream fish
410	480-439800 480-452300- 13942	3	4.02	4.5	NS DV	S4 S3	n	migration were identified. Moderate rearing, low spawning and no overwintering habitat identified within the reach. Dolly Varden captured.
411	480-452300- 13942-48843	1	1.40	4	DV	S4	n	Moderate rearing, low spawning and no overwintering habitat identified within the reach. Possible overwintering habitat in upstream lake. Dolly Varden captured.
413	480-452300- 13942	5	5.57	3.5	DV	S2	n	Moderate spawning, rearing and overwintering habitat available within reach. Dolly Varden captured.
414	10125	1	0.98	7.25	DV	S 4	n	Moderate rearing, low spawning and low overwintering habitat observed in the reach. No barriers to upstream fish migration were identified. Dolly Varden captured.
415	10123	2	1.60	10.75	DV	\$3	n	Moderate rearing, moderate overwintering and low spawning habitat observed within the reach. No barriers to fish migration were identified. Dolly Varden captured.

Table 5. Summary of fish bearing reaches within the study area.

Site	ILP/WSC	Reach	Width (m)	Gradient (%)	Species	Stream Class	Follow-up Sampling (y or n)	Comments
416	10124	1	1.39	8.25	DV	S4	n	Excellent rearing habitat with good overwintering and good spawning habitat within reach. No barriers to fish migration were identified. Dolly Varden captured.
417	480-504200- 67300	- 1-	1.75	9.75	СТ	S 3	п	High rearing habitat, moderate overwintering and limited spawning habitat observed within site. No mixed age classes of cutthroat trout were observed, suspect a possible soft barrier downstream only accessible for larger fish.
418	480-504200	16	1.93	5.75	CT	`S3	n	Moderate rearing and moderate overwintering habitat present within reach. No mixed age classes of cutthroat trout were observed, suspect a possible soft barrier or small obstruction downstream may limit some upstream access.
446	480-504200- 67300	4	2.00	9.25	ст	\$3	n	Moderate rearing and spawning with low overwintering habitat observed within reach. Low numbers of cutthroat trout captured. Possible soft barrier downstream may limit recruitment to this system.
447	10030	2	1.04	8.25	NFC	S4*	n	Moderate rearing and moderate spawning with low overwintering habitat. No barriers to fish migration were identified.

CT = cutthroat trout

DV = Dolly Varden NS = Not Sampled

NFC = No Fish Captured NVC = No Visible Channel

* = Indicates inferred fish bearing

4.7.3 Non-Fish Bearing Status

Non-fish bearing status was assigned to 13 of the 32 sample sites within the study area (Table 6). A non-fish bearing classification has been assigned to all sampled reaches within the non-fish bearing table. Non-fish bearing classifications are associated with reaches that lack suitable habitat to sustain salmonids or are inaccessible to fish. Non-fish bearing status was assigned to reaches where any or all of the following criteria applied:

- The stream was labeled a non-visible channel containing no potential fish habitat;
- The stream was deemed inaccessible from fish bearing waters and did not have perennial fish habitat upstream of the barrier;
- Permanent barriers (cascades, falls, etc.) prevented upstream fish migration and the stream did not have perennial fish habitat upstream of the barrier;
- Permanent barriers (cascades, falls, etc.) prevented upstream fish migration and the stream habitat was found to be non fish bearing through sampling above the barrier;
- The stream gradient is >30% (through map interpretation); Gradients were calculated during the pre field planning phases.
- The stream gradient is >30% (through map interpretation) in the lower section of stream (i.e. reach 1) and all reaches upstream of that reach are >20%;

Inferred non-fish bearing status was given to non sampled reaches with the following criteria:

- Reaches above a stream section found to contain no stream channel (NVC) with no potential fish habitat;
- Reaches above a stream section with an average gradient greater than or equal to 20% (through map interpretation) with no headwater lake present.

Insufficient discharge often results in a lack of connectivity between the channelized portion of stream and downstream watercourses. Lack of connectivity can be described as the channelized portion of stream being isolated from downstream watercourses in which no surface connection or subsurface channel exists (joining the two at any time of the year). Evidence of no surface connection includes a lack of scour to mineral substrate, no alluvial deposition and no evidence of surface ponding or seasonal flooding. These small streams with no connectivity to fish bearing waters were sampled upstream of the loss of connectivity to verify fish absence.

Reaches that have been assigned a non fish bearing status and are classified as Non Visible Channel (NVC) do not possess potential fish habitat and are not streams due to the fact that they do not posses the criteria necessary to classify them as such. Reaches classified as NVC are largely drainages that are mapped incorrectly and no stream channel exists where the map indicates. They may also be drainages that lack evidence of

surface scour, contain no continuous definable channel bed, lack alluvial deposits, and exhibit no evidence of extensive ponding.

5.0 STREAM CLASSIFICATION SUMMARY

Table 7 provides a summary of stream inventory information collected during the project and Riparian Management Area (RMA) classifications for each reach sampled.

Table 6. Summary of non fish bearing reaches within the study area.

		2 - 1	Width	Gradient	Stream			Elect	rofishing	Specific	ations		Other	Methods	Comments
Site	ILP/WSC	Reach	(m)	(%)	Class	Date	Dist. (m)	Time (s)	Cond. (uS)	Stage (vls)	Turb. (vis)	Temp,	Туре	Method	
58	10038	1	NA	NA	NVC	7/10/01	NA	NA	NA	NA.	NA	NA	NA	NA	Fully vegetated depression. No fish habitat.
59	10130	1	1.92	1	\$6	7/10/01	100	206	30	Y.	С	5	NA	NA	Falls (4 m) located downstream on William's Creek block upstream fish access. Two (2) sample sites upstream of the falls confirms non fish bearing status. No perennial habitat was observed within reach. Dolly Varden were captured downstream of the falls.
61	480-430700- 44400	6	0.82	3.5	\$6	7/10/01	100	139	30	М	С	6	NA	NA	High gradient (23%) in downstream reach prevents upstream fish migration. No perennial habitat observed above the high gradient section and no fish captured.
62	480-430700	12	1.00	8.25	\$6	7/11/01	200	246	30	м	С	8	NA	NA	Two cascades; one (1.7 m x 2 m) located in this Reach, and one (4 m x 3 m) located in Reach 11 of this stream block upstream fish access. Electrofishing effort above the cascades (one (1) site) resulted in no fish captured. Dolly Varden were captured downstream of the 4 m x 3 m cascade with minimal effort.
64	10159	ī	0.90	25.75	\$6	7/11/01	100	112	30	М	С	5	NA	NA	High gradient (31%) at confluence with Heal Creek blocks upstream fish migration. No perennial habitat observed and no fish captured.
80	480-456200	1	NA.	NA	NVC	8/13/01	NA	NA	NA	NA	NA	NA.	NA	NA	No Visible Channel. Dry depression. No fish habitat.
81	10142	1	0.50	6	S6	8/13/01	NA	NA .	NA	NA	NA	NA	NA	NA	Vegetated discontinuous channel.
84	10163	1	0.42	1.25	S6	8/13/01	NA	NA	NA	NA	NA	NA	NA	NA	Heavily vegetated discontinuous channel. Ephemeral stream with no connectivity to fish bearing water.

Table 6. Summary of non fish bearing reaches within the study area.

- 3		-	Width	Overdient	01		100	Elect	rofishing	Specific	ations	198	Other	Methods	
Site	ILP/WSC	Reach	(m)	Gradient (%)	Stream Class	Date	Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp.	Type	Method	Comments
448	480-452300- 13942	7	2.28	13.75	\$6	7/11/01	250	275	30	Н	С	5	NA	NA	Falls (4 m) located downstream in Reach 6 of this stream block upstream fish migration. Electroshocking efforts conducted upstream of falls resulted in no fish captured. Dolly Varden were captured downstream of the falls.
449	480-430700- 21000-72100	4	2.28	14.5	S6	7/11/01	470	400	40	М	С	5	NA	NA .	High gradient (23% for 150 m) in Reach 3 of this stream blocks upstream fish access. No fish captured with extensive electrofishing (470 m and 400 seconds of effort).
450	480-430700- 21000-72100	3	2.40	23.5	\$6	7/11/01	150	159	30	М	С	5	NA	NA	High gradient (23%) throughout this Reach blocks upstream fish access. Electrofishing efforts resulted in no fish captured. Dolly Varden are present in downstream Reach (SKR 2000 and Triton 1998).
451	480-430700- 21000	12	0.74	21	S6	7/11/01	150	160	40		С	5	NA	NA	High gradient (21%) throughout this Reach prevents upstream fish migration. No perennial habitat observed within reach and no fish captured.
452	10155	3	0.83	26	S6	7/12/01	200	120	40	М	С	6	NA	NA	High gradient (26%) throughout this Reach blocks upstream fish migration. No fish captured.

NFC = No Fish Captured NVC = No Visible Channel H = High M = Moderate

L = Low C = Clear

NA = Not Applicable L = NS = Not Sampled C = Indicates inferred fish bearing

Table 7. Stream sampling summary for the study area.

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
57	480-488800- 10300	7	093M.017	1.33	4.25	NFC	\$4	Moderate rearing, poor spawning and poor overwintering habitat identified within the reach. No barriers to upstream fish migration were observed.
58	10038	1	093M.017	NA	NA	NA	NVC	Fully vegetated depression. No fish habitat.
59	10130	1	093М.027	1.92	1	NFC	S6	Falls (4 m) located downstream on William's Creek block upstream fish access. Two (2) sample sites upstream of the falls confirms non fish bearing status. No perennial habitat was observed within reach. Dolly Varden were captured downstream of the falls.
60	480-452300- 13942-32072	7	093M.027	2.63	6	DV	\$3	Moderate rearing, poor spawning and poor overwintering habitat identified within the reach. No barriers to upstream fish migration were observed.
61	480-430700- 44400	6	093M.027	0.82	3.5	NFC	\$6	High gradient (23%) in downstream reach prevents upstream fish migration. No perennial habitat observed above the high gradient section and no fish captured.
62	480-430700	12	093M.027	1.00	8.25	NFC	S6	Two-cascades; one (1.7 m x 2 m) located in this Reach, and one (4 m x 3 m) located in Reach 11 of this stream block upstream fish access. Electrofishing effort above the cascades (one (1) site) resulted in no fish captured. Dolly Varden were captured downstream of the 4 m x 3 m cascade with minimal effort.
63	480-430700	11	093M.027	NA	NA	DV	NA	Fish only sampling site.
64	10159	1	093M.027	0.90	25.75	NFC	\$6	High gradient (31%) at confluence with Heal Creek blocks upstream fish migration. No perennial habitat observed and no fish captured.
65	10138	1	093M.027	2.20	1	NFC	\$3	Moderate rearing, poor spawning and poor overwintering habitat identified within the reach. Fish migration is impacted by non permanent barriers (downstream beaver dam complexes and twin culverts). Default fish bearing, Dolly Varden and rainbow trout were captured in downstream lake (Triton 1998).
66	480-464400	6	093M.027	1.30	0.25	NFC	S4	No barriers to upstream fish migration were identified. Rainbow trout were captured downstream in Reach 2 (Tritor 1998).
80	480-456200	1	093M.027	NIX.	ALA:	NIA	NUC	No Visible Channel. Dry depression. No
81	10142	1	093M.027	0.50	NA 6	NA NS	NVC S6	fish habitat. Vegetated discontinuous channel.
	75.40 VX 1.450	7.1	COLUMN TO	h You Oil	100 745 1	100	7.7	No barriers to upstream fish migration
82	480-444000	1	093M.027	1.18	1.75	NS	S4	were identified. No barriers to upstream fish migration
83	480-439800	1	093M.027	1.09	1.25	NS	S4	were identified. Heavily vegetated discontinuous
84	10163	1	093M.027	0.42	1,25	NS	S6	channel. Ephemeral stream with no connectivity to fish bearing water.

Table 7. Stream sampling summary for the study area.

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
410	480-452300-	3	003M 037	4.02	4.5	DV	\$3	Moderate rearing, low spawning and no overwintering habitat identified within
410	13942 480-452300- 13942-48843	1	093M.027 093M.027	1.40	4.5	DV	\$3 \$4	the reach. Dolly Varden captured. Moderate rearing, low spawning and no overwintering habitat identified within the reach. Possible overwintering habitat in upstream lake. Dolly Varden captured.
413	480-452300- 13942	5	093M.027	5.57	3.5	DV	S2	Moderate spawning, rearing and overwintering habitat available within reach. Dolly Varden captured.
414	10125	1	093M.027	0.98	7.25	DV	S4	Moderate rearing, low spawning and low overwintering habitat observed in the reach. No barriers to upstream fish migration were identified. Dolly Varder captured.
415	10123	2	093M.027	1.60	10.75	DV	S3	Moderate rearing, moderate overwintering and low spawning habitat observed within the reach. No barriers to fish migration were identified. Dolly Varden captured.
416	10124	1	093M.027	1.39	8.25	DV	S4	Excellent rearing habitat with good overwintering and good spawning habitat within reach. No barriers to fish migration were identified. Dolly Varden captured.
417	480-504200- 67300	1	093M.017	1.75	9.75	СТ	\$3	High rearing habitat, moderate overwintering and limited spawning habitat observed within site. No mixed age classes of cutthroat trout were observed, suspect a possible soft barried downstream only accessible for larger fish.
418	480-504200	16	093M.017	1.93	5.75	СТ	\$3	Moderate rearing and moderate overwintering habitat present within reach. No mixed age classes of cutthroat trout were observed, suspect possible soft barrier or small obstruction downstream may limit som upstream access.
446	480-504200- 67300	4	093M.017	2.00	9.25	CT	\$3	Moderate rearing and spawning with low overwintering habitat observed within reach. Low numbers of cutthroat trout captured. Possible soft barrier downstream may limit recruitment to this system.
447	10030	2	093М.017	1.04	8.25	NFC	S4*	Moderate rearing and moderate spawning with low overwintering habital No barriers to fish migration were identified.
448	480-452300- 13942	7	093M.027	2.28	13.75	NFC	S6	Falls (4 m) located downstream in Reach 6 of this stream block upstream fish migration. Electroshocking efforts conducted upstream of falls resulted in no fish captured. Dolly Varden were captured downstream of the falls.
449	480-430700- 21000-72100	4	093M.027	2.28	14.5	NFC	\$6	High gradient (23% for 150 m) in React 3 of this stream blocks upstream fish access. No fish captured with extensive electrofishing (470 m and 400 seconds of effort).

Table 7. Stream sampling summary for the study area.

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
450	480-430700- 21000-72100	3	093M.027	2.40	23.5	NFC	S6	High gradient (23%) throughout this Reach blocks upstream fish access. Electrofishing efforts resulted in no fish captured. Dolly Varden are present in downstream Reach (SKR 2000 and Triton 1998).
451	480-430700- 21000	12	093M.027	0.74	21	NFC	S6	High gradient (21%) throughout this Reach prevents upstream fish migration. No perennial habitat observed within reach and no fish captured.
452	10155	3	093M.027	0.83	26	NFC	S6	High gradient (26%) throughout this Reach blocks upstream fish migration. No fish captured.
453	10119	1	093M.027	NA	NA	NFC	NA	Fish only sampling site
947	480-504200	19	093M.017	NA	NA	NFC	NA	Fish only sampling site

CT = cutthroat trout DV = Dolly Varden NS = Not Sampled

NFC = No Fish Captured NVC = No Visible Channel NA = Not Applicable
* = Indicates inferred fish bearing

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APPENDIX I Reach Cards/Site Cards/Fish Collection Forms and Photographs (in order of ascending site number)

FDIS Reach/Site Summary

West Babine Study Area

Reach # ILP Map #

IIP#

7.0

			STR	EAM	REF	EREN	CING	1	High San		The same	學激生
Gazetted Na	me:					Lo	ocal Name:					
Watershed 0	Code: 480-4	88800-10300-00	000-0000-0000-00	00-000-00	00-000-0	000-000	ILP	Map #:		ILI	P #:	
		が 対策をよう。 対策をよう			REA	O H	PROPERTY.		711-000	AND D	中国家的	
Reach #: 7	.0		UTM(Zone/East/N	orth): 10	0.648388	3.6117232			Sample 1	уре:	Biase	d
Length (km) Gradient (%)			oupling: Coupled nement: Frequentl	y Confin	Mag		BGC Zone: SBS Open water: Absent					
US Elev (m)	: 980	- 1	slands: NONE		Rip	arian Veg	etation: Mixe	d C/D				
Bars: None	✓ Side	Diagonal	Mid-channel	Span	□ В	raid 🔙	Landuse: No	t Specified				
Q Description	13-2-6				SIT	E (2 - 1) 2	- 共四級	H-1570 Print 15	1 1 A		WHAT	
Site #:	500000	Field UTM GIS UT	и М 10.649159.6116	5791			c C172 y Name: Trito	Crew: El	L/JD al Consult		2001/07 errace)	/10
Total Control	000	100	7500	C	HAN	NEL		F1 (1)	3.44	3112	200	
No Vis.Ch.:	Interm	ittent:		Avg	Min	Max	#		Avg	Min	Max	#
Dewatered:	1		channel Width (m):	1.33	1.100	1.5	6	Gradient %	: 4.25	3	5	4
Stage: Low			Wetted Width (m):	1.33	1.100	1.5		Pool Depth (m)	0.32	0.200	0.400	6
Med	~	L B	Bankfull Depth (m):	0.33	0.3	0.4	3	Turk	oidity.:	Turbid		Low
High		Temp (C): 7	pH: 7.4		C	conductivity	r: 70		Мо	derate		lear
574. IS	1-1-21	in the second	* 25	MOR	PHO	LOGY		4 T				1 1/4/1
Bed Material	: Dominan Subdominan		D95 (cm): 7. D (cm): 2.			Bars: Non	✓ Side	Diagonal	Mid-c	hannel		aid 🗌
	ttern: Sinuo		Islands: No	ne		RBANCE	O1 B1	B2 B3	D1 E)2 D	3	
W 24 - 21	pling: Decou					ATORS						
	ology: RP	ionally Confine Riffle Pool			C1	C2 C3	C4 C5	S1 S2	S3	S4	S5	
*		William - de la			COVE			心思學者主意			n eligibility (es he o
Total Cover: /	Abundant		Type:	SWD	LWD		U		ov	IV		
LWD: I	Few Evenly Distr	ibuted	Amount: Location: P/S/O:	s	s	N	T	T	D C	N	FSZ	: 🗆
Right Bank: Left Bank: Right Bank: Left Bank:		Sloping (g Text	ture: Fines Grand			-		Manmade Manmade Manmade Manmade	Algae		own Clos 41-70	30.30
1-45		3-25		te la l	FISI	H 35000	11-16-			7.10	= inv	15-87
Site Number	Capture Method	Number of Events	Length fished (m)	Tota Time		Voltage	Species	Total Fish	Minimu Length (Maxim	
57	EF	1	100	169 se	ec	600	NFC	0				

FDIS Site Card

West Babine Study Area

Reach# ILP

ILP Map #

ILP#

Site 57

7.0

7#

PROJECT Project Name: Babine River Fish Inventory - 2001 Stream Name (gaz.): BABINE RIVER Project Code: 5098 WATERSHED Gazetted Name: Local Name: None ILP Map#: ILP#: NID Map #: 093M.017 NID #: 10057 Reach #: 7.0 Site #: 57 Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: H GIS UTM (Z.E.N): 10.649159.6116791 Ref. Name: Date: 2001/07/10 Time: 12:30 Agency: C172 Crew: EL/JD Fish Crd?: V Incomplete: CHANNEL Mtd width width width width width width width Gadient % Mtd width width Avg Avg Channel Width (m): MS 1.30 1.40 1.10 1.30 1.40 1.50 1.33 Method I: 3.0 С 4.25 Wetted Width (m): MS 1.30 1.40 1.10 1.30 1.40 1.50 1.33 Method II: 5.0 5.0 C Pool Depth (m): MS 0.30 0.40 0.40 0.30 0.20 0.30 0.32 No Vis.Ch.: Intermittent: Stage: L M W H Wb Depth: .3 Avg: 0.33 Method: MS Dw: Tribs.: COVER Total: A Type: SWD LWD В U DP OV IV CROWN CLOSURE Amount: S S N D N 41-70% Loc: P/S/O: INSTREAM VEG: N A M V LWD: F DIST: E LB SHP: S RB SHP: S Texture: F G C B R A □ Texture: F G C B R A RIP: S RIP: S STG: SHR STG: SHR WATER EMS: Req#: Temp: 7 Method: T4 Cond.: 70 Method: S3 pH: 7.4 Method: P2 Turb.: T M L C Method: GE Flood Signs: None Method: GE MORPHOLOGY 01 **B1** B₂ D1 D2 D3 Bed Material: Dominant: F Subdom: G D95: 7.00 D (cm): 2.00 Morph: RP DISTURBANCE Pattern: SI **INDICATORS** C1 C2 C3 C4 C5 S1 S2 **S**3 S4 **S5** Islands: N Coupling: DC Confinement: OC Bars: SIDE DIAG MID BR FSZ: HABITAT QUALITY Name Comments Poor - deep sections of stream but lacks water velocity so it would most likely freeze in the winter OverWinter Habitat Rearing Habitat Moderate - riffle pool complex with abundant overstream vegetation Poor - lack of strong water flow - dirty gravel Spawning Habitat PHOTOS Photo Foc Lg Dir R: 05 13 STD U upstream photo of overstream vegetation choking channel (typical) 05 R: 14 STD D downstream photo of open glide section (not typical)

FDIS Site Card

West Babine Study Area

Reach # ILP Map #

ILP#

Site 57

7.0

	COMMENTS									
Section	Comments									
CHANNEL	Shocking was difficult due to the amount of overstream vegetation									

FDIS Fish Card

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

7.0

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Ga	zettec	Name	:									Loc	al: N	one				
1	Projec	t Code	: 480-	000000-	00000	-00000-00	0-0000-0	00-00	0-000-0	000-000	-0							
	WS	Code	: 480-	488800-	10300	-00000-00	0-0000-0	00-00	0-000-0	000-000	-000							
Waterbody ID:			ILP M											ILP#: Reach#: 7 -				
	Pro	ject ID	: 5098									Lake/St	ream:	s		Lake Fro	m Date:	
F	ish P	ermit #:	145	5086K		Date:	2001/07/1	0	To:	2001/0	07/10	Age	ency:	C172	С	rew: EL/JD	Resa	mple:
		lo.	产数 ₀	1.4	207	1	No.	S	ITE	/ ME	TH	O D	21-6	PHE WE	No.		Vp. 1	生制制
Site#	NII) Мар	NID# UTM:Zone/Ea				st/North/Mtl	MTD/	MTD/NO Ter		Cond Ti		urbid		Comment			
57	093	M.017	10057					GPU	EF	1	7	70	С					
113		W.				200	11	A .	GEA	RSE	TT	INGS	inc)	11 17	Flore S		And the	
Site#	MT	D/NO	H/P	H/P Date In Time In Date Out Time Out							Comment							
57	EF	1	1	1 2001/07/10 12:30 2001/07/10 13:00														
1			FILE :	ika syta Titigarjan		C. E	LECT	RO	FISH	ER	SPE	CIFI	CA	TION	S	震" 经加	品牌色彩	South Marie
Site#	4	MTD/N	10	H/F		Encl	Sec	1	ength Widt		Vidth	Vol	tage	Freq	uency	Pulse	Make	Model
57	EF		1	1	= 4	0	169		100.0		1.0	600			60 6		SMITH	12B
Pani	(idn):	Al-	THE STATE OF	124	W.	- 16 1	w/-H	F	ISH	SUM	MA	RY	1.7			710	ROOT	
Site#	T	MTD/N	MTD/NO H/P Species Stage Age		e T	Total #	Lgt	h (Min/M	ax)	FishAc	t I		Comment					
57	EF		1	1	NE			_		0	1		-		-			



Site #57, upstream photo of overstream vegetation choking channel (typical). Roll #5, Frame #13, Date: 2001/07/10



Site #57, downstream photo of open glide section (not typical). Roll #5, Frame #14, Date: 2001/07/10

West Babine Study Area

Reach # ILP Map #

ILP#

1.0 093M.017

	STREAT	MREF	ERE	NCI	N G		連續	湯湯		声鹏
Gazetted Name:				Local I	Name:					
Watershed Code: 000-000000-0	0000-0000-0000-0000-000-000	-000-000-0	000-000		ILP N	lap #: 093M.0	17	IL	P#:	10038
Art San Handal		REA	C H	100	Mr. France	S STATE OF	PUNT.	Ninot:	1	
Reach #: 1.0 Length (km): .65 Gradient (%): 4.2 US Elev (m): 881 Bars: None Side Diag	UTM(Zone/East/North): Coupling: Partially Couple Confinement: Occasionally Co Islands: NONE onal Mid-channel Spa	Mag onf Rip	gnitude Order	: 1 : 1 egetation	on: Mixed	c/D	12.22		-	lom
	He was the second	SIT	EXT	177.50	Wat Allian	(AAME)		Show 1	100	(3) (E)
Site #: 58 Fi	eld UTM GIS UTM 10.649498.6116759		-	ncy: C1 ency Nar		Crew: EL/ Environmental	7.7		2001/(errace)	7/10
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		CHAN	NEL	N. P. S.		11 4	RE SEE	in the	1	問題
No Vis.Ch.: V Intermittent: Dewatered: Tribs.:	Channel Width (m): 0.00	0	Max 0	#		Gradient %:	Avg 0.00	Min 0	Max 0	# 0
Stage: Low Med Med	Wetted Width (m): 0.00 Bankfull Depth (m): 0.00	0	0	0	Po	ool Depth (m): Turbi	100	0 Turbid	0	Low
High Temp (C			onducti				М	oderate	_	Clear
1 12 加加加加加加加加加加加加加加加加加加加加加加加加加加加加加加加加加加		RPHO	LOG	Y	n. P. San	With a			, HY	La property
Bed Material: Dominant: Subdominant:	D95 (cm): D (cm):		Bars: N	on _	Side	Diagonal _	Mid-	channel		Span 🔲 Braid 🔲
Channel Pattern: Coupling:	Islands:		RBANCE		B1	B2 B3	D1	D2 [03	
Confinement: Morphology:		C1	C2	C3 C	C4 C5	S1 S2	S3	S4	\$5	
CONTRACTOR TOTAL	连一定上的第四条形式	COVE	R	ere "	E 18 19 19	CENTER I	9,948		pr. gd	
Total Cover: LWD:	Type: SWD Amount: Location: P/S/O:	LWD		В	U	DP O	V	IV		
LWD Dist: Right Bank: Shape: Left Bank: Shape: Right Bank: Rip.Veg: Left Bank: Rip.Veg:	Texture: Fines Gravel Texture: Fines Gravel Stage: Stage:	Cobble Cobble	Boul Boul	der	Rock Rock	Manmade Manmade None A	lgae _		own Clo	Z: osure scular

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

1.0 093M.017 10038 58 PROJECT Project Name: Babine River Fish Inventory - 2001 Stream Name (gaz.): BABINE RIVER Project Code: 5098 WATERSHED Gazetted Name: Local Name: None ILP Map#: 093M.017 ILP #: 10038 NID #: 10058 NID Map #: 093M.017 Reach #: 1.0 Site #: 58 Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: GE Access: H GIS UTM (Z.E.N): 10.649498.6116759 Ref. Name: Date: 2001/07/10 Time: 13:35 Agency: C172 Crew: EL/JD Fish Crd?: Incomplete: CHANNEL Mtd width width Avg width width width width width width width Gadient % Mtd width Avg Channel Width (m): MS 0.00 Method I: C 0.00 Wetted Width (m): MS Method II: 0.00 С Pool Depth (m): MS 0.00 No Vis.Ch.: V Intermittent: Wb Depth: Avg: 0.00 Method: MS Stage: L M H Dw: Tribs.: COVER Total: Type: SWD LWD В DP CROWN CLOSURE U OV IV Amount: Loc: P/S/O: INSTREAM VEG: N A M V LWD: DIST: LB SHP: RB SHP: Texture: GCCBCRA Texture: F G C B R A RIP: STG: STG: WATER EMS: Req #: Temp: Method: T4 Cond .: Method: S3 pH: Method: P2 Turb.: T M L C Method: GE Flood Signs: Method: GE MORPHOLOGY 01 **B**1 B₂ **B3** D1 D2 D3 Bed Material: Dominant: Subdom: D95: D (cm): Morph: DISTURBANCE **INDICATORS** Pattern: C1 C2 C3 C4 C5 S1 S2 **S3 S**5 Islands: Coupling: Confinement: Bars: N SIDE FSZ: DIAG MID SPAN BR HABITAT QUALITY Name Comments Cover None - No Visible Channel Rearing Habitat None - No Visible Channel OverWinter Habitat None - No Visible Channel Spawning Habitat None - No Visible Channel PHOTOS The Market Control Photo Foc Lg Dir Comments R: 05 15 STD F U upstream photo of vegetated depression STD

downstream photo of vegetated depression

16

D

West Babine Study Area

Reach#

ILP Map #

ILP#

Site

1.0

093M.017

10038

1 1 1 3	COMMENTS
Section	Comments
CHANNEL	Fully vegetated linear depression, No Fish Habitat



Site #58, upstream photo of vegetated depression. Roll #5, Frame #15, Date: 2001/07/10



Site #58, downstream photo of vegetated depression. Roll #5, Frame #16, Date: 2001/07/10

West Babine Study Area

Reach # ILP Map #

ILP#

1.0 093M.027

STREAM REFERENCING **Gazetted Name:** Local Name: ILP Map #: 093M.027 10130 REACH Reach #: 1.0 UTM(Zone/East/North): 10.642504.6125029 Sample Type: Random Length (km): .19 Coupling: Decoupled Magnitude: 1 BGC Zone: SBS Gradient (%): 3.2 Confinement: Unconfined Order: 1 Open water: Absent US Elev (m): 1395 Islands: NONE Riparian Vegetation: Shrubs Bars: None 🗸 Side 🗌 Diagonal 🔝 Mid-channel 📗 Span 🔝 Braid ___ Landuse: Not Specified SITE Site #: 59 Field UTM 9.642436.6124940 Agency: C172 **EL/JD** Date: 2001/07/10 Crew: Site Length (m): 100 GIS UTM 10.642435.6124938 Agency Name: Triton Environmental Consultants (Terrace) CHANNEL No Vis.Ch.: Intermittent: Avg Min Max # Avg Min Max Dewatered: Tribs.: Channel Width (m): 1.92 1.5 2.8 Gradient %: 6 1.00 0 4 Pool Depth (m): Wetted Width (m): 1.92 2.8 6 1.5 6 0.10 0.100 0.100 Low V Bankfull Depth (m): 0.3 0.3 0.30 3 Med Low Turbidity .: Turbid High Temp (C): 5 pH: 7.8 Conductivity: 30 Moderate Clear V MORPHOLOGY Bed Material: Dominant: Cobble D95 (cm): 14.00 Bars: Non 🗸 Side Diagonal Span Subdominant: Fines D (cm): 1.00 Braid Channel Pattern: Irregular, Wandering Islands: None DISTURBANCE Coupling: Decoupled Confinement: Unconfined C3 C5 **S1 S4** Morphology: RP Riffle Pool COVER Total Cover: Abundant Type: SWD LWD В U DP OV IV Amount S LWD: None Location: P/S/O LWD Dist: Not Applicable FSZ: Right Bank: Shape: Sloping (g Texture: Fines ✔ Gravel Cobble Boulder Rock Manmade Crown Closure Left Bank: Shape: Sloping (g Texture: Fines Gravel Cobble Boulder Rock 0% Right Bank: Rip.Veg: Shrubs Stage: Shrub/herb stage Left Bank: Rip.Veg: Stage: Shrub/herb stage Instream Veg: None ☐ Algae ☐ Moss ✔ Vascular FISH Site Number Capture Number of Length fished Total Voltage Minimum **Species** Total Maximum Method **Events** (m) Time Fish Length (mm) Length (mm) EF 59 100 206 sec 800 NFC 0

West Babine Study Area

Reach #

II P Man #

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Site

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093M.027

10130

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Proje Stream Nar Project Watersh	ne (gaz	.): BAB	INE RIV	ER	ventory -		-000-00	0-000-0	00-000-0	00	ı	Project C	ode;		5098		
×	-11		ns.	. 29	-	- (T)	WAT	ERS	HED	V-gui	10	, orbi	1000	SIL III			N PORT OF
Gazetted Name	:							17,1		Lo	cal Nam	e: None					
Watershed Code ILP Map# Field UTM (Z.E.N) GIS UTM (Z.E.N)	: 093M. : 9.6424	027 136.6124	1940	LP #: 10		NID M	000-000 lap #: 09			NID #: 20 Site Lo	g: 100	Read	ch #: Method:	1.0 GE		Site #: 5	59
De	. 200	11/07/10		Time: 14	.05			0170		2	CI / ID		Fig. 6		2		-
Da	te: 200	01/07/10		ime: 14	1:05		Agency	10.00		Crew:	FLIJD		Fish (Crd?:	2 tr	ncomple	ite:
	7 E 10			- 25	-1	4	CH	ANN	EL	18	是有	13.80	1117		TARR	Mil Til	E TO UN
	Mtd	width	width	width	width	width	width	width	width	width	width	Avg	V.		dient %	Mtd	Avg
Channel Width (m):	MS	2.10	2.80	1.70	1.60	1.50	1.80				1	1.92	Meth		-	С	1.00
Wetted Width (m): Pool Depth (m):	MS	0.10	0.10	0.10	0.10	0.10	0.10	185		-		1.92	Metho	d II: 1.0	2.0	С	
					7.07		0.10					0.10	No Vi	s.Ch.:	Intermi	ittent:	
Wb Depth:	.3	.3	.3		g: 0.30		Method:	MS	S	tage: L	V M	H		Dw:	1	ribs.:	
COVER			Tota	al: A													
Type:	SWI		ND	В	U	DF	0	OV	IV	-		OSURE					
Loc: P/S/O:	N	1	N	Т	Т	Т		D	S	0		0%					
200.17570.			V		V	~	~		V	INS	TREAM	VEG:	N - A	MV	V		
RIP: STG:	SHR	250.5		115-02	al illori	nt-	W	ATE	R	Tr.	STG	SHR	TIE CON	mine.	7013		P.V = 0
EMS:								7.5.		R	eq #:				10.00	2 10000	THE REAL PROPERTY.
Temp:	5					Metho	od: T4				ond.: 30				Meth	hod: S	3
pH:	7.8						od: P2										
Flood Signs:	None					Metho	od: GE				urb 1	M		~	мет	hod: G	E
1 1 1		TO S	^1.	Jim I		N	ORF	HOL	OGY	ME I		T'AFI.	10.1975	NV AT	1/4		
Bed Material:	r	Dominan	t: C		Subdom	F				01	B1	B2 E	33 D1	D2	D3		
D95:	14.0	D (cm): 1.00		Morph	: RP	-	NETLID	BANCE								
Pattern:	IR							INDICA		C1	C2	C3 C	C4 C5	S1	S2 S3	3 S4	S5
Islands:	N												74 03		52 55) 34	35
Coupling:	DC																
Confinement:	UN																
FSZ:								Е	Bars:	NV	SIDE		DIAG	MID	SPAN	N	BR
X 105 - 31	1.00	Ú.	E	ani d		HAI	BITA	TQ	UALI	TY	6.411	2005		~0.00	(Times)	45 705	- 3
Name	3 147	T	- 45					N. Sept.	TENNE.	comment	e		1000		-1111		ne A
Cover		Poor -	some se	ections o	of stream	with ove	erhangin	a veget				banks		_			
Rearing Habitat					rphology												
OverWinter Habita	t	None -	no deep	pools											_		
Spawning Habitat		None -	no grav	el seen	in sample	e area											
	2.3		1	The sales			PH	OTO	S	5800			Secretary.	1 5	1	TOTAL	E SKELL
Photo		c Lg	74	D)ir						(Commen	ts		-0.140		
05 F: 17		TD		_	U	upst	ream ph	oto of g	lide								
05 F: 18	S	TD			D	dow	nstream	photo o	of alide w	th some	overhan	aina ven	etation on	hank			

West Babine Study Area

Reach # ILP

ILP Map #

11 D#

Site

1.0

093M.027

The state of the state of	COMMENTS
Section	Comments
CHANNEL	Stream substrates mostly fine organics and moss
CHANNEL	No Fish Captured. Falls located by helicopter downstream on Willaims Creek

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

000-00000-00000-00000-0000-0000-000-000-000-000-000

1.0

093M.027

ct Code								LUC	al: No	ile			
CL COUC.	480-0	0-00000	0000-00	000-000	0-0000-000-0	00-000-000	-000-0						
S Code:	000-0	000000-0	0000-00	000-000	0-000-000-0	00-000-000	-000-000						
body ID:						ILP Map	#: 093M.0	027		ILP#:	10130 F	Reach #:	-
oject ID:	5098							Lake/St	ream:	S	Lake Fro	m Date:	
Permit #:	145	086K		Date: 2	001/07/10	To: 20	001/07/10	Ag	ency: (C172	Crew: EL/JD	Resar	nple:
ATT.	J					SITE /	METH	OD	ini.	2 3 A 18	-1-14	2 734	WARE
ID Map	NID	#	UTM:Zo	ne/East/	North/Mthd	MTD/NO	Temp	Cond	Turb	d	Co	mment	
3M.027	200	59 9	642	436 6	124940 GPL	EF 1	5	30	С				
	TOTAL	"清洁"	A TOL	100	Α.	GEAR	SETT	INGS	WF-35	- July		WITH LONG	SAL WIFE
TD/NO	H/P	Date	In T	Time In	Date Out	Time Out				Co	omment		Controlled Constitution
F 1	1	2001/0	7/10	14:05	2001/07/10	14:20							
S-M	- 1	#A 19		C. EL	ECTRO	FISHE	RSP	ECIFI	CAT	IONS		产 测过的	ON SERVICE
MTD/N	0	H/P	E	ncl	Sec	Length	Width	Vol	tage	Frequency	Pulse	Make	Model
F	1	1		0	206	100.0	1.0	8	00	60	6	SMITH	12B
	body ID: oject ID: Permit #: D Map 3M.027	body ID: oject ID: 5098 Permit #: 145 D Map NID 3M.027 2009 TD/NO H/P	body ID: oject ID: 5098 Permit #: 145086K D Map	body ID: oject ID: 5098 Permit #: 145086K D Map	body ID: oject ID: 5098 Permit #: 145086K Date: 2 D Map NID # UTM:Zone/East/ 3M.027 20059 9 642436 6 TD/NO H/P Date In Time In E 1 1 2001/07/10 14:05 C E I MTD/NO H/P Encl	body ID: oject ID: 5098 Permit #: 145086K Date: 2001/07/10 D Map	December December	Demit #: 145086K Date: 2001/07/10 To: 2001/07/10	Debug Debu	Debug Debu	ILP Map #: 093M.027 ILP #: oject ID: 5098 Lake/Stream: S	ILP Map #: 093M.027 ILP #: 10130 Foject ID: 5098 Lake/Stream: S Lake From Stream: S Lake From Stre	ILP Map #: 093M.027 ILP #: 10130 Reach #: 10 Reach R



Site #59, upstream photo of glide. Roll #5, Frame #17, Date: 2001/07/10



Site #59, downstream photo of glide with some overhanging vegetation on bank. Roll #5, Frame #18, Date: 2001/07/10

West Babine Study Area

Reach # ILP Map #

IIP#

Watershed Code: 480-452300-13942-32072-0000-0000-000-000-000-000-000

	The Booking	100	STR	EAM	REF	EREN	CING	Can display	問門器	400	
Gazetted Na	ame:			***		ı	ocal Name	:			
Watershed (Code: 480-45	2300-13942-3	2072-0000-0000-00	00-000-00	00-000-	000-000	- 11	_P Map #:		ILP#	1
		Mind of	非洲的	35 %	REA	CH		5.075.0	TO SHEET		
Reach #: 7	7.0		UTM(Zone/East/N	lorth): 10	0.64152	0.6126521			Sample Typ	e: E	Biased
Length (km)			oupling: Partially C		Ma	gnitude:			BGC Zor	200	S
Gradient (%)			nement: Frequently	y Confin	-	Order:		1.0/0	Open water:	Absent	
US Elev (m)	-	_	Islands: NONE	11200	-	-	getation: Mi				
Bars: None	✓ Side	Diagonal	Mid-channel _	Span		raid	Landuse:	Not Specified			
					SIT	E of		The state of		19	2000
Site #:	Salaran I		M 9.643681.61264 TM 10.643535.6126				y: C172	Crew: I iton Environmer			01/07/10
Site Length	(111). 100	GIS U	TW 10.045555.0120		HAN		cy Name. II	Iton Environmen	ital Consultan	s (Tella	ce)
No Vis.Ch.;	Intermi	Hook		Avg	Min	Max	#		Aug I A	16,78	
Dewatered:			Channel Width (m):		2.3	2.900	6	Gradient 6			7 4
Stage: Low			Wetted Width (m):		2.3	2.900	6	Pool Depth (n	G-12-2-1		400 6
Med	V		Bankfull Depth (m):	0.33	0.3	0.4	3	Tu	rbidity.: Tu	rbid	Low
High		Temp (C): 7	pH: 7.4		(Conductivit	y: 30	100	Mode		Clear
AS STEED	21 hr - 12	WW 15		MOR	PHO	LOGY	No - uli	面对对数型等	- 000000000000000000000000000000000000	The Real	學是認為
Bed Material	: Dominant Subdominant		D95 (cm): 72 D (cm): 8.			Bars: Nor	Side	Diagonal	Mid-cha	nnel	Span Braid
Channel Pa	ttern: Sinuou	IS	Islands: No	ne	DISTU	RBANCE	O1 B1	B2 B3	D1 D2	D3	
	pling: Decou				INDIC	CATORS					
	ment: Confin	ed Cascade Poo		ī	C1	C2 C:	3 C4	C5 S1 S	2 S3 S	4 S5	
Morphic	ology: CP	Cascade Poo		,[
1-180	一人の地方	nas-	The military	(COVI	ER	Children	100 100 1		de la	C. THE
Total Cover:	Abundant		Туре:	SWD	LWE		U	DP	OV IV		
LWD:	Few		Amount:	S	D	S	T	T	T N		
LWD Dist:	Evenly Distri	buted	Location: P/S/O:	V	~		'	V			FSZ:
Right Bank: Left Bank: Right Bank: Left Bank:	Shape: S Shape: S Rip.Veg: C Rip.Veg:	loping (g Tex	ture: Fines 🗸 Gra Stag	avel 🗸 avel 🗸 e: Mature e: Mature	forest	Boulde	er Rock	_	Algae M		Closure 1-20% Vascular
T - 200-0	V -105000	177	4.		FIS		7-3-10				
Site Number	Capture	Number of	Length fished	Tota	S. September 1	Voltage	Species	Total	Minimum	٨	Maximum
	Method	Events	(m)	Time				Fish	Length (mr	Transfer or comment	ength (mm)
60	EF	1	100	112 se	ec	700	DV	3	81		110

West Babine Study Area

Reach#

ILP Map #

ILP#

Site

Watershed Code: 480-452300-13942-32072-0000-0000-000-000-000-000-000

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THE PLANT	也似				200		PR	OJE	CT				The second		1	NEW YEAR	\$1 A.	
Pro Stream Na Project Waters): BABIN	IE RIV	ER			-000-00	0-000-00	0-000-00	00	9	Project C	Code:			5098		
F 1 3 4 2 1 1			Siz.	19-1		10.	WAT	ERS	HED	# - T		86770	他即		100	W/F	JUNE	194
Gazetted Nam Watershed Cod ILP Map Field UTM (Z.E.N GIS UTM (Z.E.N	e: 480-45 #: I): 9.6436	81.61264	56	LP #:	0-0000-0 Method:	NID M		-000-000 3 M .027	N	ID#: 20 Site Le	0060 g: 100	e: None Rea	ch #:	thod: GE	7.0	K	Site #: 6	
Di	ate: 2001	1/07/10	1	Γime: 14	:45	- 4	Agency	C172	C	Crew:	EL/JD		1	Fish Crd?	~	- 6	ncomple	ete:
MITTER AND	=,_6=0	WITH THE	THALL .	A- 1500	100	Toka Di	CH	ANN	EL		200	TO BE	300	T	The state of	- 7(4)	150 X U	DESCRIPTION OF THE PARTY OF THE
	Mtd	width	width	width	width	width	width	width	width	width	width	Avg	1		Gadie	ent %	Mtd	Avg
Channel Width (m)	: MS	2.50 2	2.30	2.50	2.90	2.80	2.80	1	(2.63	I	Method I:	_	6.0	С	6.00
Wetted Width (m)		2.50	2.30	2.50	2.90	2.80	2.80					2.63	1 17	Method II:	7.0	5.0	С	
Pool Depth (m) Wb Depth COVER	: .3	.3	0.40 .4	0.40 Avg	0.40	0.30 N	0.20 Method:	MS	St	age: L	✓ M	0.33 H		No Vis.Ch Dw	1	Interm	ittent:	
Туре	: SWD	LWI		В	U	DF		OV	IV	CR	OWN CL	OSURE						
Loc: P/S/C	-	D		S	T	T		T	N	1	1	-20%						
RIF	F			ВПІ	R 🗀 A		144				STG	C MF	G	∑ c □	В	R	A	
EMS			25.		5.33	9175	VV	ATE	T 9	-		CHAP	-		.E0		ENG	S (d)
Temp	: 7 : 7.4						od: T4 od: P2 od: GE			Co	eq #: ond.: 30 urb.: T	_ M	_ L	_ c	V		hod: S:	
L. Control	46.3	200				M	ORP	HOL	OGY	Fy. C.		W	V-	J.F. (-1)	- 14	137	15 +2	1002 CV 256
Bed Material D95: Pattern: Islands: Coupling: Confinement: FSZ:	72.0 SI N DC CO	ominant: D (cm):	C pp		Subdom Morph	1 4 4	D	DISTURB INDICAT	ANCE FORS	01 C1	B1 C2 SIDE	C3 (DIAG	D1 D:	ПĒ			S5 BR
172 1974 建南西	784	7.30	-070	F 3 149	Hillian	HAE	BITA	T QU	ALIT	Υ		Dr. also		1	OST	-	WOS T	m -a
Name		They bear	42.0		A SELECT		Office of	A	2 PALTA	omment		K. K	10-18	1300	113	Mark III	A Contract	可對此
OverWinter Habita	at	Poor - so	me po	ols that	may not	freeze		_		omment	5	-			_	_	_	
Cover		Good - g					er cobb	le cover			_		_			_	_	
Rearing Habitat		Moderate	- caso	cade poo	ol comple	ex with g	ood hol	ding area	as aroun	d casca	des				-			
Spawning Habita	t	Poor - so	me cle	an grave	el pocke	ts, but m	ainly co	bble sub	strates									
	E P	WASTE D	3 -3	TO STATE	in the	4.57	PH	ОТО	Similar	Winds.	中间	NATA :	THE	AL PER	7.5		3,013	田野 医
Photo	Foc			Di						-	(Commen	ts	3 5/2		-	AND DESCRIPTION OF THE PERSON	
R: 05 F: 19	ST			U				oto of ca	the second second		ders				_			
R: 05 F: 20	ST	D		D		down	stream	photo of	cascade	over fu	nctioning	LWD						

West Babine Study Area

Reach # ILP Map #

ILP#

Site

Watershed Code: 480-452300-13942-32072-0000-0000-000-000-000-000-000

7.0

1000年就會	COMMENTS
Section	Comments
CHANNEL	DV captured in sample site
CHANNEL	Channel has been abandoned downstream by cutblock. Channel is completely exposed.

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

480-452300-13942-32072-0000-0000-000-000-000-000-000

	4			948			Sep. 544	潮	WA	TE	RBO	DΥ	张 [4]		No.	建	學為制度		
G	Proj		: 480-		0000-000								Loca	al: N	lone				
	Wate	VS Code rbody ID roject ID			13942-320)72-0000	-0000-00	0-00		-000- Map #			ake/Str	eam:		P#:		Reach #:	7 -
	_	Permit #		5086K	E	Date: 20	01/07/10	-	T	o: 20	01/07/1	0	Age	ency:	C172	С	rew: EL/JD	Resa	ample:
mis.	1	FIRE	8	Jane 1	22.1	BC F	7110	S	ITE	1	MET	но	D	1	+36	1 3	W- 129	- 1.4Mb	1111
Site#	1	IID Map	NIC	0#	UTM:Zon	e/East/N	lorth/Mtho	1	MT	D/NO	Temp	1	Cond	Tur	bid		C	omment	
60	0	93M.027	200	60 9	6436	81 61	26456	PU	EF	1	7		30	(
11-10	AIR	EV.		1,461,1752 4,437 (1984)	7 1 1		A	. (3E/	R	SET	TIN	IGS	50	100	7			No. 1ha
Site#	I	ATD/NO	H/P	Date	In T	ime In	Date O	ut	Time	e Out						Con	nment		
60	E	F 1	1	2001/0	7/10	14:46	2001/07	/10	15	:00:									
			337	1	C	. EL	ECTR	101	FIS	HE	RSF	E	SIFI	CA	TION	IS			三十二
Site#		MTD/I	10	H/P	Er	ncl	Sec	L	ength		Width	1	Volt	age	Freq	uency	Pulse	Make	Model
60		EF	1	1			112		100.0		1.0		70	00		60	6	SMITH	12B
184	-53		110	17562.30	12.19	1200		FI	SH	SI	J M M	AR	Υ		3.50	S IN COLUMN	5 (- 10)	ROOT	
Site#	T	MTD/N	10	H/P	Specie	s St	age	Age		Tota	1# T	gth (Min/Ma	ax)	FishAd	t T		Comment	Very Management
60	0	EF	1	1	DV	J		_			3	81		10	R				
			10	500	1	Iru.	IND	١٧	IDL	JAL	FIS	H	DA	TA	1440	3717	15-4	4-1198	stoker in
Site#	M	TD/NO	H/P	Species	Length	Weigh	t Sex	Mat		1	Age		Vch#	G	enetic	Roll #	Frame#	Com	ment
									1	Str/Sn	npl#/Ag	е		Str	/Smpl#				
60	EF	-1	1	DV	81		U	U	7			33							
60	EF	1	1	DV	110	7	U	U											
60	EF	1 1	1	DV	94		U	U	3										



Site #60, upstream photo of cascade over boulders. Roll #5, Frame #19, Date: 2001/07/10



Site #60, downstream photo of cascade over functioning LWD. Roll #5, Frame #20, Date: 2001/07/10

West Babine Study Area

Reach # ILP Map #

ILP#

	15/19		STRE	AM	REF	ERENC	ING	No. 1	南州			
Gazetted Na	me:					Lo	cal Name:					
Watershed C	ode: 480-43	30700-44400-0	0000-0000-0000-000	-000-00	0-000-0	00-000	ILF	Map #:		ILI	P #:	
	4.764	を表現して	美国基本的	1 8 1	REAC	Harris	心。於於					
Reach #: 6	.0		UTM(Zone/East/No	rth): 10	.642515	.6128140			Sample	Type:	Rando	m
Length (km)	: .45		oupling: Coupled		_		1		BGC	Zone:	SBS	
Gradient (%):		Conf	inement: Occasional	y Conf		Order: 1			Open wa	ter: Abs	ent	
US Elev (m):	: 1340		Islands: NONE		Ripa	arian Vege	tation: Mixe	ed C/D				
Bars: None	✓ Side	Diagonal	Mid-channel	Span	Bra	aid I	Landuse: No	ot Specified				
58	2011年	10000000000000000000000000000000000000	territarian e		SITI		TENT & B	TO VERY	- Soll of	能力	10	7
Site #:	61	Field UT	M 9.642705.612800	6		Agency:	C172	Crew: E	L/JD	Date:	2001/07	/10
Site Length	(m): 100	GIS U	TM 10.642757.61279	75		Agency	Name: Trito	on Environment	al Consu	Itants (Te	епасе)	
in with the	11.25	W 57	101-14-1	C	HANI	VEL	400-0	27 6	100	N.E.	力之的	-135
No Vis.Ch.:	Interm	ittent:		Avg	Min	Max	#		Avg	Min	Max	#
Dewatered:		ribs.:	Channel Width (m):	0.82	0.600	1	6	Gradient %	: 3.50	3	5	4
Stage: Low			Wetted Width (m):	0.82	0.600	3	6	Pool Depth (m	0.15	0.100	0.200	6
Med			Bankfull Depth (m):	0.23	0.2	0.3	3	Tur	oidity.:	Turbid	7	Low
High	-	Temp (C): 6	pH: 7.5		C	onductivity	: 30	10		oderate_	-	lear 🗸
Saving Services	(10000)	ATTE ST	ellary accord	MOR	PHO	LOGY	The Age	A restablished	Cl. Sa	-	- S [U.I.	HE WELL
Bed Material:	Dominan		D95 (cm): 17.0 D (cm): 1.00	0		Bars: Non	Side	Diagonal	Mid-	channel	- 31	an [
Channel Pa	ttern: Sinuo	ıs	Islands: None		DISTUR	BANCE	O1 B1	B2 B3	D1	D2 D	3	
Coup	oling: Decou	pled			INDICA	ATORS						
Confiner	ment: Occas	ionally Confine			C1	C2 C3	C4 C	5 S1 S2	S3	S4	S5	
Morpho	logy: RP	Riffle Pool			Di		HILL		TÒ	DI		
15 - A	8 4 11	Ma Hose	The state of the s	- 0	OVE	R	The same		- 34	Name of Street	-	43.50
Total Cover: N	Moderate		Type:	SWD	LWD	В	U	DP	ov T	IV		
LWD: F	-ew		Amount:	D	S	N	S	T	S	N		
	Evenly Distri	buted	Location: P/S/O:		>		1	V V			FSZ	П:
Right Bank:	Shape: S	Sloping (g. Te	xture: Fines V Grav	el (Cobble	Boulder	Rock	Manmade	7	Con	own Clos	
	- 1 A CO A CO		xture: Fines V Grav		Cobble	Boulder	-	Manmade	=	Cit	1-20	
			-	Mature		Dodidor		Wallingue			1-20	70
Left Bank: Right Bank:	Rip.Veg: 0				forest		Instream V	eg: None	Algae _	Moss	✓ Vasc	ular
Left Bank:	Rip.Veg: 0		Stage:	Mature				the state of the s				
Left Bank: Right Bank:		10132	Stage:	Mature	FISL		-					e los
Left Bank: Right Bank:		Number of		Total	FISH	VOE BECAUSE	Species	Total	Minim	num	Maxim	
Left Bank: Right Bank: Left Bank:	Rip.Veg:	Number of Events		1"	1	/oltage	Species	Total Fish	Minim Length		Maxin Length	num

West Babine Study Area

Reach #

ILP Map #

II D#

Site 61

6,0

- 1000	14			分类门		HELD MARKET	PR	OJE	CT	relit.		經期			100	和新	
Proje Stream Nar Project Watersh	ne (gaz	A Comment	INE RIV	ER			-000-000)-000-00	0-000-00	00		Project Co	ode:		5098		
	3 +01	10.00				440.4	WAT	ERS	HED	2.80	12/2	Was a	G445.2.0.T	F = 14	運動		19.00
Gazetted Name										Lo	cal Nam	e: None					
Watershed Code	480-43	30700-44	400-000	000-000	0-0000-0	00-000-0	000-000	-000-000)								
ILP Map#			1	LP #:		NID M	ap #: 09	3M.027	N	ID#: 20	0061	Read	ch #:	5.0	S	ite #: 6	1
Field UTM (Z.E.N)	9.6427	705.6128	006	N.	Method:	GPU				Site L	g: 100		Method: GE		Acces	s: H	
GIS UTM (Z.E.N)	10.642	2757.612	7975						R	ef. Name	e:						
Da	e. 200	1/07/10	- 0	Time: 16	-10		Agency:	C172		rew:	EL/JD		Fish Crd?	~	Inc	comple	to: 🗔
			Maria - a	rine. 10	.10	ole se				new.	LUJU				IIIC	omple	te.
400 (100)		-	J. 14 . 1 . 5		34	理。但	tion of male	ANN	-0.000	100	ME AN		11-20-1	7.3(2.0)	1 10	1 1	
Ob a see of Military Vest	Mtd	width	width	width	width	width	width	width	width	width	width	Avg	C	Gadien	_	Mtd	Avg
Channel Width (m): Wetted Width (m):	MS	0.70	0.60	1.00	0.80	0.80	1.00	-				0.82	Method I:		3.0	С	3.50
Pool Depth (m):	MS	0.20	0.20	0.20	0.10	0.10	0.10					0.82	Method II:	3.0	3.0	С	
* 23. C.P.S., V.V.	10.0				2.15	0.10	0.10				-	0.10	No Vis.Ch	: 🔲 In	termitt	ent:	
Wb Depth:	.3	.2	,2	Avg	g: 0.23	٨	Method:	MS	St	age: L	M	VH	Dv	<i>r</i> :	Tri	bs.:	
COVER			Tota	al: M													
Type:	SWI	LV	VD	В	U	T DF		OV T	IV	CR	OWN CI	OSURE					
Amount:	D	5	3	N	S	Т		S	N	1		-20%					
Loc: P/S/O:	V	~			~	~	1		HIA	INS	TREAM	VEG:	NA	MVV	П		
STG:	MF	120	53.00	100		1.7: > 6	w	ATE	R	, ,	STG		2017 F35	12 100	Anal	T 15 5	our Ser
EMS:						- UT-SOL			1000	R	eq #:	SIDE	100000	-70			- 1
Temp:	6					Metho	d: T4				ond.: 30				Metho	od: S3	3
pH:						Metho	d: P2			т	urb · T	- M	-1-0				
Flood Signs:	None					Metho	d: GE				urb 1	_ M	_ r _ c	V	Metho	od: Gl	=
	200	April 18	W. Sala	DINE	KITCH.	M	ORP	HOL	OGY	281 20	112120	1	HARIOT NA	attera			· · · · · · · · · · · · · · · · · · ·
Bed Material:	-	Dominant	. =		Subdom					01	B1	B2 B	3 D1 D	2 D3	affelt years.		
D95:		D (cm)			Morph				20.36		mi	TILE		110	1		
Pattern:		2 (0.11)			Working	. 13		ISTURE INDICA		-				4.1.1.4	25		
Islands:								IIIOIOA	iono	C1	C2	C3 C	24 C5 S	1 S2	S3	S4	S5
Coupling: I																	
Confinement: (
FSZ:[Ba	ars:	N	SID		DIAG N	MID_	SPAN		BR
1. 有人是是世代	10	100		7	5	HAE	BITA	TQU	IALIT	Y	7.5	417.00	CAN DIVER	15/00/0	性性	17-9	
Name						1000000			C	omment	s						9
Cover					WD jams												
Rearing Habitat		_			mplex w	ith some	standir	ig water									
OverWinter Habitat Spawning Habitat			no pools		-												
Spawning Flabitat	TEN-Y	F001 -	mostly fi	nes		100	Du	ото	9	- 7 - 7 -	X250			- Land	2004500	94.5	officer of these
Photo	PENDAN		Car i	7 - 17	-	1	100	910	1	HAVE	12.4	54125		5.3	313	400	時間
05 F: 21		c Lg TD		Di		unet	da mea	ato of co	nall chan	nol		Comment	ts				
05 F: 22		TD				_			riffle/por		_					_	

West Babine Study Area

Reach #

ILP Map #

ILP#

Site 61

	COMMENTS
Section	Comments
CHANNEL	No Fish Captured above gradient of 23% in downstream Reach

West Babine Study Area

Reach#

ILP Map #

ILP#

Watershed Code:

16	Ela	級	1	ELL T	OF E	200	AP		WA	TER	BOD	Y	40	AMME.	18-5	4	41 41	La lies
Ga	zetted Na	me:										Loc	al: N	one				
F	Project C	ode:	480-0	0-00000	00000-0	0000-000	0-0000-0	00-00	0-000	-000-000	0-0							
	WS C	ode:	480-4	30700-4	4400-0	0000-000	0-0000-0	00-00	0-000	-000-000	-000							
V	Vaterbody	ID:							ILP	Мар #:				ILP #:		R	each #:	6 -
	Projec	ID:	5098									Lake/St	ream:	S	L	ake Fron	m Date:	
F	ish Perm	it #:	145	086K		Date: 2	2001/07/1	0	To	: 2001/	07/10	Ag	ency:	C172	Crew:	EL/JD	Resa	mple:
1891						MAC I	广片特	, s	ITE	/ M	TH	OD	7000	SE 不行的	of the later	W. B.		
Site#	NID M	ар	NID	#	UTM:Z	one/East	/North/Mti	hd	MTD	NO 1	emp	Cond	Turt	oid		Cor	mment	- Service Continue
61	093M.0	27	2006	51 9	64	2705	6128006	GPU	EF	11	6	30	C		-			
1111		1,0	11.95	les Charles		H 5.4	17 770	A. (GEA	R S	ETT	INGS		197			ALC: UNITED HIS	STEP STEP
Site#	MTD/N	10	H/P	Date	In	Time In	Date	Out	Time	Out				0	ommen	t		To the same of the
61	EF	1	1	2001/0	7/10	16:10	2001/0		16:									
100			-915	76.4	130	C. E	LECT	RO	FIS	HER	SPI	CIF	CA	TIONS	3	-7.		
Site#	МТ	D/NO	0	H/P	E. 12	Encl	Sec	L	ength	- V	Vidth	Vol	tage	Frequency	P	ulse	Make	Mode
61	EF		1	1		0	139		100.0		1.0	7	00	60		6	SMITH ROOT	12B
	a a	10			ELLX.	111-21	H	F	ISH	SUN	MA	RY	b	1. 地位	9119	71 F		- His
Site#	МТ	D/NC	0	H/P	Spe	cies S	Stage	Age	9	Total #	Lg	h (Min/M	ax)	FishAct			Comment	12001-11
61	EF		1	1	NF	C				0								



Site #61, upstream photo of small channel. Roll #5, Frame #21, Date: 2001/07/10



Site #61, downstream photo of riffle/pool section. Roll #5, Frame #22, Date: 2001/07/10

West Babine Study Area

Reach # ILP Map #

ILP#

	TEN.			開席 特	STR	EAM	REF	EREN	CH	NG		功為平	蒸	TOME!	
Gazetted N	lame: H	EAL CF	REEK					d	Local	Name:					
Watershed	Code: 4	180-430	700-00000	-00000-0000	-0000-00	00-000-00	00-000	000-000		ILP	Map #:		IL	P#:	
				-0.90	LE IS	1976	REA	CH	3.00	9		1 1	3.64	· Ni	
Reach #: Length (kr Gradient (% US Elev (r	n): .33 6): 7.0 n): 1419			UTM(Zon Coupling: P offinement: C Islands: N	artially Cocasional	ouple	Ma	3.6129500 ignitude: Order: parian Ve	1	on: Mixe	ed C/D	Sample BGC Open wa	Zone:	44.4	d
Bars: None	✓ Si	ide	Diagonal	Mid-chi	annel _	Span	77.0	Braid	Lan	duse: No	ot Specified				
1/2012/10/10		100		18 4 W. 18		17.	SIT			1100		1. 10	ilea no	14	e aller
Site Site Lengt	#: 62 th (m): 20	00		JTM 9.64056 UTM 10.6404					cy: C		Crew: on Environme	EL/JD ntal Consu		2001/07 errace)	/11
4. A.	- 35W		2000至1	TOP MES		C	HAN	NEL	prod produced	沙 世		1000	KAL.	6/10/1	
No Vis.Ch		ntermitte				Avg	Min	Max	#			Avg	Min	Max	#
Dewatered	:	Tri	bs.:	Channel W Wetted W	1	1.00	0.800	1.200	6		Gradient		7	10	4
Stage: Lov	The state of		-	Bankfull De		0.23	0.800	0.3	3	-	Pool Depth (0.100	0.300	6
Me High	-	Te	emp (C): 8		H: 7.6		10	Conductivi	ty: 30	-	To	urbidity.: M	Turbid oderate		Low_ lear ✓
V-1-96	1 300		P07-15	1000		MOR	PHO	LOG	Valentin.	W 15		S 080		3751425E	SAN PLANT
	ement: F nology:		tly Confined Cascade Po		- 33		C1	C2 C	3 (C4 C	5 S1 S	S2 S3	S4	S5	en la constant
Total Cover	Abunda	ant			Type:	SWD	LWI		95,88	U	I DP I	OV.	10.4	7 749	でで
		arit		A	mount:	D	S	S		T	T	OV	N		
LWD Dist	: Few :: Evenly	Distribu	uted [Location:	P/S/O:		~	~		v	V	-		FSZ	П
Right Bank Left Bank Right Bank Left Bank	Sha	ape: Slo /eg: Co		exture: Fines exture: Fines	Stage	-	forest	✔ Bould	er		Manmade Manmade	Algae		own Clos 1-20	%
NID Man	AUD	Trees	1 0-4 1	C CEDITED	18-18	714	S	EATU		S	State of the state	Jie - Ich	Martin	Ale Olevani	448
093M.027	88016	Type	Hgt 4.0	Method GE	Lg 3	Metho	R:	Phot 06 F		Li	AirP	hoto #:	-0.01		(Z/E/N) 09.6129
Comment	_					1 02	1,7	00 11	-1 01	15.1		#.		10.0407	09.0129
NID Map	NID	Туре	Hgt	Method	Lg	Metho	od	Phot	0		AirPi	hoto	-1	UTN	1 (Z/E/N)
093M.027	88015	С	1.7	GE	2	GE	R:	05 F	25	L;		#:			41.6129
Comment	s: casca	de over	bedrock do	wnstream of	reach 1	2									
FIRE		_					FIS	Her.		15年		40 - 1	100	17.7%	7,00
Site Number	Met	hod	Number of Events	(m)	Total Time		Voltage	S	pecies	Total Fish	Minim Length		Maxin Length	
62	E	F	1	20	0	246 se	c	900		NFC	0				

West Babine Study Area

Reach #

ILP Map #

ILP#

Site 62

12.0

PROJECT Project Name: Babine River Fish Inventory - 2001 Stream Name (gaz.): BABINE RIVER Project Code: 5098 WATERSHED Gazetted Name: HEAL CREEK Local Name: None ILP Map#: ILP#: NID Map #: 093M.027 NID #: 20062 Reach #: 12.0 Site #: 62 Field UTM (Z.E.N): 9.640560.6129444 Method: GPU Site Lg: 200 Method: GE Access: H GIS UTM (Z.E.N): 10.640417.6129458 Ref. Name: Date: 2001/07/11 Time: 08:00 Agency: C172 Crew: EL/JD Fish Crd?: V Incomplete: CHANNEL Mtd width width width width width width width width width Avg Avg width Gadient % Mtd Channel Width (m): MS 1.20 1.00 0.80 1.10 1.00 0.90 1.00 Method I: 10.0 8.0 C 8.25 Wetted Width (m): MS 1.20 1.00 0.80 1.10 1.00 0.90 1.00 Method II: 8.0 7.0 C Pool Depth (m): MS 0.10 0.10 0.20 0.10 0.30 0.10 0.15 No Vis.Ch. Intermittent: Wb Depth: .2 Stage: L M H Avg: 0.23 Method: MS Dw: Tribs.: COVER Total: A Type: SWD LWD В DP OV **CROWN CLOSURE** IV Amount S S Loc: P/S/O: INSTREAM VEG: N A M V LWD: F DIST: E LB SHP: S RB SHP: S G C B R A Texture: F Texture: F G C B R A RIP: C RIP: C STG: MF STG: MF WATER EMS: Reg #: Temp: 8 Method: T4 Cond.: 30 Method: S3 pH: 7.6 Method: P2 Turb.: T M L C Method: GE Flood Signs: None Method: GE MORPHOLOGY 01 **B1 B2 B3** D1 D2 D3 Bed Material: Dominant: C Subdom: G D95: 32.0 D (cm): 3.00 Morph: CP DISTURBANCE Pattern: SI **INDICATORS** C1 C2 C3 C4 C5 SI S2 **S**3 **S4 S5** Islands: N Coupling: PC Confinement: FC Bars: SIDE DIAG FSZ: MID SPANT BR FEATURES NID Map NID Туре Hgt Method Method Photo Lg AirPhoto UTM (Z/E/N) Method 093M.027 88016 C GE GE 06 F: 01 #: 10.640709.6129516 GIS cascade barrier Comments: NID Map NID Type Hgt Method Method Photo AirPhoto Lg UTM (Z/E/N) Method 093M.027 1.7 GE 2 GE 05 F: 25 10.640541.6129459 GIS Comments: cascade over bedrock downstream of reach 12 HABITAT QUALITY Name Comments

West Babine Study Area

Reach # ILP Map #

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ILP#

Site 62

		Name			Comments
Ov	verW	inter Habita	t Poor - poor in	reach but lake i	in Reach 13
		Cover	Moderate - S	ND and LWD ja	ms
F	Rear	ing Habitat	Moderate - ca	iscade / pool coi	mplex, good pools and glides
S	paw	ning Habitat	Poor - some	gravel but covere	ed in moss
meta.		100	The state of the s	912 VIII	PHOTOS
P	hoto		Foc Lg	Dir	Comments
R: 05		=: 23	STD	U	upstream photo of cascade section (typical)
R: 05		=: 24	STD	D	downstream photo of LWD jam
R: 05	1	: 25	STD	X	photo of cascade barrier 1.7m high x 2m long (cascade over bedrock downstream of reach 12)
R: 06		-: 01	STD	X	photo of cascade barrier in Reach 11 - (4m high x 3m long)
	Mi			acap = linh	COMMENTS
-	5	Section			Comments

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

-	Project C	code:	480-0		0-0000		00-0000-000					al; N	one				
٧	Vaterboo								ILP Map #				ILP	#:			2 -
	Proje	ct ID:	5098								Lake/St	ream:	S		Lake From	m Date:	
F	ish Perr	nit #:	145	086K		Date: 2	2001/07/11		To: 200	1/07/1	Ag	ency:	C172	Cr	ew: EL/JD	Resa	mple:
383	S. F. W.			了被李	FE	119-31	A STATE OF THE	SI	TE / I	AET	HOD	到落	5000		加鐵	1 1 2	
Site#	NID	Map	NID	#	UTM:Z	one/East	/North/Mthd		MTD/NO	Temp	Cond	Turt	oid	200000	Co	mment	The Control of the Co
62	093M.	027	200	62 9	640	0560	129444 G	PU	EF 1	8	30	C	21 6				
	3-1-4		17.77	1113	1		A	G	EAR	SET	TINGS			100	issue a v		
Site#	MTD/	NO	H/P	Date	In	Time In	Date Ou	t	Time Out					Com	ment		
62	EF	1	1	2001/0	7/11	08:00	2001/07/	1	08:20								
11:	a Maria	網	25		15 Th	C. E	LECTR	O F	ISHE	SP	ECIFI	CA	TION	S	医 图像		- Circle
Site#	M	TD/N	0	H/P		Encl	Sec	Le	ength	Width	Vol	tage	Frequ	ency	Pulse	Make	Mode
62	EF		1	1		0	246	2	200.0	1.0	9	00	60		6	SMITH ROOT	12B
41	F			170	10.5	OF STREET	THE STREET	FI	SH SU	MM.	ARY		TO THE			S TO THE W	
Site#	M	TD/N	0	H/P	Spec	cies :	Stage	Age	Total	# L	gth (Min/M	ax)	FishAct	1		Comment	Company of the Company
62	EF		1	1	NFC	C			(- Town						



Site #62, upstream photo of cascade section (typical). Roll #5, Frame #23, Date: 2001/07/11



Site #62, downstream photo of LWD jam. Roll #5, Frame #24, Date: 2001/07/11



Site #62, photo of cascade barrier 1.7m high x 2m long (cascade over bedrock downstream of reach 12). Roll #5, Frame #25, Date: 2001/07/11



Site #62, photo of cascade barrier in Reach 11 - (4m high x 3m long). Roll #6, Frame #01, Date: 2001/07/11

FDIS Reach Card

West Babine Study Area

Reach # ILP Map #

ILP#

11.0

	A STATE OF S	PROJECT	研究以参加的复数形式	
Stream Name (gaz.):		2001 00-0000-000-000-000-000-000	Project Code: 5	5098
THE DWG W		WATERSHED	Crar SUP TAN	
Reach Watershed Code: ILP Map #:	480-430700-00000-00000-000 ILP #:	00-0000-000-000-000-000-000 Reach #: 11.0	NID Map #: 093M.027	NID#: 10066
Air Photos LINE: SRS30C6298 #: 323	Gaz.: HEAL CREEK Local:	Names		UTM(Zone/East/North/Method) 10.640610.6129490 GIS Sample Type: B Wetland:
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	\$010 J. V.T. E. Back	SURVEY INFO	Constitution of	
Date: 2001/02/01		Agency: C172		Crew: SH
	Mark Res	ATTRIBUTES		· · · · · · · · · · · · · · · · · · ·
Length (km): .54 DS Elev.: 1312 US Elev: 1396	Gradient: 15.56 Order: 1 Magnitude: 1 BGC Zone: SBS	Setting: VW Open water: A Confinement: CO Coupling: CO	DISTURBANCE INDICATORS C1 C2	O1 B1 B2 B3 D1 D2 D3 C3 C4 C5 S1 S2 S3 S4 S5
Valley Flat: N Active Floodplain Visible: Channel Pattern: SI	C/D: Est. Width:	Mass	Islands: N N SIDE DIAG s Movement: H iparian Veg.: M	S MID SPAN BR Exposed/Eroded: NS Landuse: NS
MA.	Manager State of the State of t			
Map Type Mag	year Year			

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West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

Will'	100	4 1	E1/02/1		311/1/1	17:18	200	1991	WATE	ERB	OD	Y	15		1			
G		7		L CREEK		00-000-	0000-00	0-000	-000-000	0-000-	0	Loca	al: N	None				
	W	S Code	: 480-	430700-0	0000-000	00-0000-	0000-00	0-000	-000-000	0-000-	000							
	Water	body ID	:						ILP Map	#:				ILP	#:		Reach #: 11	-
	Pr	oject ID	: 5098	3								Lake/Str	eam	S		Lake Fr	om Date:	
	Fish F	Permit #	: 14	5086K	0	ate: 200	1/07/11		To: 2	2001/0	7/11	Age	ency:	C172	Cre	ew: EL/JD	Resar	nple:
West	1	= 0			1.5500	40-7	11-10	SI	TE /	ME	TH	O D	200	Trail I			· 当150 篇	
Site#	N	D Map	NIC			e/East/No	orth/Mth	d	MTD/NC	Te	emp	Cond	Tur	bid	nasu=	С	omment	STATE OF THE PARTY OF
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3/		1	4500		A Dir		A	G	EAR	SE	TTI	NGS	1	10/2	-(10)- (1-	ATT SA		THE STATE OF
Site#	M	TD/NO	H/P	Date	In Ti	me In	Date C	ut	Time Ou	ıt			_		Com	ment		2001
63	E	1	1	2001/0			2001/07		09:00									
處置	PORT	35 140	BE.		C	. ELI	ECTE	OF	ISHE	R	SPE	CIFI	CA	TION	l.S	2 17 17 19		
Site#	1	MTD/I	10	H/P	En		Sec	Le	ength	W	idth	Volt	age	Freq	uency	Pulse	Make	Mode
63	E	F	1		0		620	6	0.00		1.0	90	00	- ε	00	6	SMITH	12B
8	1 70	S DE	FIVE	764701	10.15	J. 17863	W-14	FI	SHS	UM	MAI	RY		- 2/1SH		1 1	ROOT	
Site#	7	MTD/I	NO	H/P	Specie	UK PL	- Pa 46	Age		tal#	C.De. W.	n (Min/Ma	l/xe	FishAc	+ 1		Comment	er District
63	E	F	1	1	DV	J	90	7.90	1,0	5	-		03	R	`-		Comment	
9	2197	The state	9118	PA HILL	DE SAF	Mr Tall	IND	IVI	DUA	L F	ISH	DA	FA	SOUTH	F. 200	- III		C BEST
Site#	МТ	D/NO	H/P	Species	Length	Weight	Sex	Mat		Age	/A	Vch#		enetic	Roll#	Frame#	Comn	nent
63	EF	1 1	1	DV	88		U	U	Str/S	Smpl#	Age		Str	/Smpl#				
63	EF	1	1	DV	103		U	U					_		-			
63	EF	1	1	DV	69		U	U						+				
63	EF	1	1	DV	74		U	U		-								
63	EF	1	1	DV	76		U	U										

West Babine Study Area

Reach # ILP Map #

ILP#

1.0

093M.027

THE THE THREST		Jan S	STR	EAM	REF	RENC	ING	in Hei	1. 作品的	MARK		問題
Gazetted Na	ame:					Loc	cal Name:					
Watershed (Code: 000-000	00-00000-000	000-0000-0000-00	0-000-0	00-000-00	00-000	ILP	Map #: 09:	3M.027	ILP	#: 10	0159
7935		argra -	PENER!	F 11	REAC	H	445		るかっき	17 W. 17	1318	
Reach #: 1	1.0		UTM(Zone/East/N	orth): 10	0.640795.	6129098			Sample	Type:	Randon	n
Length (km)): .45	Co	oupling: Coupled		Mag	nitude: 2	2		BGC	Zone: S	BS	
Gradient (%)			nement: Confined			Order: 2			Open wa	ater: Abse	nt	
US Elev (m)): 1407		slands: NONE		Ripa	rian Vege	tation: Mixe	d C/D				
Bars: None	✓ Side	Diagonal	Mid-channel _	Span	Bra	aid L	anduse: No	t Specified				
1 - V - E		10	or or an experience	C ST	SITE	200		达到的影	OF A	表以初	多思味	10 mg
Site #:			M 9.641092.61294 M 10.641011.6129	1000		Agency: Agency		Crew: on Environm	EL/JD nental Consu	22.44	2001/07/ race)	11
	1 1/2	他是個話	C Sheet S	C	HANN	IEL	F-10-470	15) In (d. 15)	建设和	· · · · · · · · · · · · · · · · · · ·	、 当中	THE SE
No Vis.Ch.:	Intermitte	ent:		Avg	Min	Max i	#		Avg	Min	Max	#
Dewatered:	Tri		hannel Width (m):	0.90	919,53		6	Gradier	nt %: 25.75	20	31	4
Stage: Low			Wetted Width (m):		0.400		6	Pool Depth	(m): 0.08	0.050	0.100	6
Med	V	E	Bankfull Depth (m):	0.33	0.3	0.4	3		Turbidity.:	Turbid	L	ow
High	Te	emp (C): 5	pH: 7.8		Co	onductivity:	30		N	loderate	CI	ear 🗸
the AMERICA	2. 105	No. of the	Same Files	MOR	PHO	LOGY	(= (F-0)	- 58/10/20	n and n	- Min	1979	CONTROL OF
Bed Material	: Dominant: Subdominant:	2222/21	D95 (cm): 40 D (cm): 5.		В	ars: Non	Side	Diagon	al Mid	-channel	Spa Bra	-
	attern: Sinuous pling: Partially		Islands: No	ne	DISTUR	-	O1 B1	B2 B	3 D1	D2 D3		
	ment: Frequen	A PERSON PERSON			C1 (C2 C3	C4 C	5 S1	S2 S3	S4	S5	
Morpho	ology: CP	Cascade Pool										
10.39 <u>A</u> =		5/30	ment in	1	COVE	R	100	- Appetion	FINE.	N2-	P. C. ST	U avenue of
Total Cover:	Abundant	100	Type:	SWD	LWD	R B	U	DP	OV	JV	1000	U areas
10.00			Amount:				U	DP N	OV T	JV T		V ANTA
Total Cover: LWD:		uted	Amount:		LWD	В			Ť		FSZ:	U ANTINE
Total Cover: LWD:	Few	erhangi Text erhangi Text	Amount: Location: P/S/O: ure: Fines Graure: Fines Graure: Stag	SWD T	LWD S Cobble Cobble	B D Boulder Boulder	T Rock	N Manmad Manmad	T e	Crow	vn Closu 21-40	ire %
Total Cover: LWD: LWD: LWD Dist: Right Bank: Left Bank: Right Bank: Left Bank:	Few Evenly Distribu Shape: Ov Shape: Ov Rip.Veg: Co Rip.Veg:	erhangi Text erhangi Text erhangi Text niferous	Amount: Location: P/S/O: ure: Fines Graure: Fines Graure: Stag	SWD T wavel avel e: Mature	LWD S Cobble Cobble e forest e forest	B D D Soulder Boulder	Rock Rock	N Manmad Manmad	T e e	Crow	vn Closu 21-40	ire %
Total Cover: LWD: LWD: LWD Dist: Right Bank: Left Bank: Right Bank:	Few Evenly Distribu Shape: Ov Shape: Ov Rip.Veg: Co	erhangi Text erhangi Text	Amount: Location: P/S/O: ure: Fines Graure: Fines Graure: Stag	SWD T v avel avel e: Mature	Cobble Cobble e forest	B D Boulder Boulder	Rock Rock	N Manmad Manmad	T e e	Crow Moss w	vn Closu 21-40	wilar

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

1.0

093M.027

10159

64 PROJECT Project Name: Babine River Fish Inventory - 2001 Stream Name (gaz.): BABINE RIVER 5098 Project Code: WATERSHED Gazetted Name Local Name: None ILP Map#: 093M.027 ILP #: 10159 NID Map #: 093M.027 NID #: 20064 Reach #: 1.0 Site #: 64 Field UTM (Z.E.N): 9.641092.6129483 Method: GPU Site La: 100 Method: GE Access: H GIS UTM (Z.E.N): 10.641011.6129303 Ref. Name: Date: 2001/07/11 Time: 09:00 Agency: C172 Crew: EL/JD Fish Crd?: ~ Incomplete: CHANNEL Mtd width width width width width width width width Gadient % Mtd Avg width width Avg Channel Width (m): MS 1,10 0.70 0.80 1.00 0.60 1,20 0.90 Method I: 27.0 25.0 C 25.75 Wetted Width (m): MS 0.70 0.60 0.50 0.40 0.40 0.70 0.55 31.0 20.0 Method II: С Pool Depth (m): MS 0.10 0.10 0.05 0.06 0.10 0.07 0.08 No Vis.Ch.: Intermittent: Wb Depth: .3 Stage: L M W H .3 Avg: 0.33 Method: MS Dw: Tribs.: COVER Total: A Type: SWD LWD В U DP OV **CROWN CLOSURE** Amount: S D N Loc: P/S/O: INSTREAM VEG: N A M V LWD: F DIST: E LB SHP: O RB SHP: O Texture: F G C B R A Texture: F G C B R A RIP: C RIP: C STG: MF STG: MF WATER EMS: Req#: Temp: 5 Method: T4 Method: S3 pH: 7.8 Method: P2 Turb.: T M L C Method: GE Flood Signs: None Method: GE MORPHOLOGY 01 **B1** B2 **B**3 D1 D2 D3 Bed Material: Dominant: C Subdom: B D95: 40.0 D (cm): 5.00 Morph: CP DISTURBANCE **INDICATORS** Pattern: SI C1 C2 C3 C4 C5 S1 S2 **S3 S4 S5** Islands: N Coupling: PC Confinement: FC DIAG Bars: NV SIDE MID SPAN BR FSZ: HABITAT QUALITY Name Comments Poor - SWD jams and boulder cover Cover Rearing Habitat Poor - small pools with little holding areas OverWinter Habitat None - no deep pools in surveyed section Spawning Habitat Poor - moss covered gravel with poor water depth Photo Foc Lg Dir Comments 06 02 STD U photo looking upstream from confluence, 31% gradient cascade R: 06 03 STD D

downstream photo of flooded section of stream

West Babine Study Area

Reach#

ILP Map #

ILP#

Site

1.0

093M.027

	COMMENTS
Section	Comments
CHANNEL	S6 Stream
CHANNEL	Gradient of 31% at confluence with Heal Creek
CHANNEL	No Fish Captured

West Babine Study Area

Reach#

ILP Map #

ILP#

Watershed Code:

000-000000-00000-00000-0000-0000-000-000-000-000-000

1.0

093M.027

Gaz	zetted Nar	ne:									Loca	al: No	one			
F	Project Co	de:	480-00	00000-000	000-0000-	0000-0000-	000-00	000-000-00	-000-	0						
	WS Co	de:	000-00	00000-000	000-0000-	0000-0000-	000-00	0-000-000	-000-	000						
W	/aterbody	ID:						ILP Map	#: 09	3M.02	27		ILP#:	10159	Reach #: 1	1 -
	Project	ID:	5098								Lake/Str	eam:	S	Lake Fr	om Date:	
F	ish Permi	#:	1450	086K	Date	2001/07/	11	To: 20	001/0	7/11	Age	ency:	C172	Crew: EL/JD	Resar	mple:
	1 20 2		作品質	THE CO	12:10		S	ITE /	ME	TH	0 D	4		一个一个		12.25
Site#	NID Ma	p	NID #	# U	TM:Zone/E	ast/North/M	thd	MTD/NO	Te	emp	Cond	Turb	id	C	omment	
64	093M.0	27	20064	4 9	641092	6129483	GPU	EF 1		5	30	С				
	March 1			医排 鱼	No.	a true	A. 1	GEAR	SE	TTI	NGS		TE STATE	150 元数	(CH-10-0)	To all the
Site#	MTD/N	0	H/P	Date In	Time	In Date	Out	Time Out					(Comment		
64	EF		1	2001/07/	11 09:0	0 2001/	07/11	09:15								
			1.54	W	C.	ELECT	RO	FISHE	R	SPE	CIFI	CA	TIONS			10年7
Site#	MT)/NC		H/P	Encl	Sec	1	.ength	W	idth	Volt	age	Frequenc	y Pulse	Make	Mode
64	EF		1	1	0	112		100.0		1.0	9(00	60	6	SMITH ROOT	12B
186	× Jilre		规	A THE O	Halin and	WHY 20	F	ISHS	U M	MA	RY	311		LEUWIN M	生主英軍等	加爾胡
Site#	MT)/NC		H/P	Species	Stage	Ag	e Tota	al#	Lgtl	h (Min/M	ax)	FishAct		Comment	
64	EF		1	1	NFC				0							



Site #64, photo looking upstream from confluence, 31% gradient cascade. Roll #6, Frame #02, Date: 2001/07/11



Site #64, downstream photo of flooded section of stream. Roll #6, Frame #03, Date: 2001/07/11

West Babine Study Area

Reach # ILP Map #

ILP#

1.0 093M.027

Gazetted N	lame.							ı	ocal Na	ame.			
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watersiled	Code: 0	00-000	0000-00000-0	0000-0000		3000			and the same of	ILP	Map #: 093	M.U2/ II	_P #: 10138
Service Service	N. F	A. C.					REA	CH	The St	CIO (II)	-6		· 高温·
Reach #:	1.0			UTM(Zon	e/East/N	orth): 10	.6477	22.6126537				Sample Type:	Random
Length (kn	1): 1.19		C	oupling: F	Partially C	ouple	M	agnitude:	1			BGC Zone:	SBS
Gradient (%	6): 5.4		Conf	inement: (Occasiona	ally Conf		Order:	1			Open water: Ab	sent
US Elev (n	1): 941			Islands: N	NONE		R	iparian Veg	getation	: Mixed	C/D		
Bars: None	✓ Si	de 🗌	Diagonal	Mid-ch	annel [Span		Braid 🗌	Landu	se: Not	Specified		
	1 2/8/	Mary)	B4617.02		6分数		SI	re me	1	時後	\$ 15 m	A CONTRACTOR	STORE T
Site	#: 65		Field UT	M 9.6493	14.61263	12		Agend	y: C17	2	Crew:	EL/JD Date:	2001/07/11
Site Lengt	h (m): 20	0	GIS U	TM 10.648	515.6126	128		Agen	y Name	e: Tritor	Environme	ental Consultants (7	Геггасе)
	1 / 8		33 1 JF		18-51	C	HAN	INEL	- T	566			The state of the
No Vis.Ch.	: Ir	termitte	ent:			Avg	Min	Max	#			Avg Min	Max #
Dewatered	: 🗆	Tri	bs.:	Channel V	/idth (m):	2.20	1.9	2.400	6		Gradien	%: 1.00 0	2 4
tage: Lov				Wetted W	/idth (m):	2.10	1.9	2.400	6	F	Pool Depth	m): 0.27 0.200	0.400 6
Med Med				Bankfull D	epth (m):	0.23	0.2	0.3	3	_	7	antain . Thinti	CT Sect
High	100	Te	mp (C): 8		H: 7.6			Conductivit	v: 50			urbidity.: Turbid Moderate	
2014 71 100	15-3-000	SAU'AS	and Surface	73.70	Times Silver	MOR	DU	OLOGY		-		7	
5 111 11							S. colin E		_		上月 100	, Land	THE PARTY OF
Bed Materia			Gravels		(cm): 17			Bars: Nor	~	Side	Diagona	I Mid-channe	
	Subdom	iinant: i	rines	U	(cm): 7.	00							Braid _
Channel P	attern: S	inuous		Isla	ands: No	ne		JRBANCE	01	B1	B2 B3	D1 D2	D3
	upling: D	A A.					IND	CATORS					
Confin	ement: U	nconfir	ned				C1	C2 C:	G4	C5	S1 .	S2 S3 S4	S5
Morph	nology:	RP	Riffle Pool										
\$4 · 18500		17 A	A PARTY	- N O			OV	ER	他起音		以验检查的	PROCESSION TO THE	
Total Cover:	Abunda	nt			Type:	SWD	LW	D B	ÞŒ	U	DP	ov IV	
LWD	Few			A	mount:	D	S	N		T	T.	ST	1
LWD Dist		d		Location:	P/S/O:	/	~		V		VIII		FSZ:
Right Bank:			nine /a Ta	duras Flanc			0-11	T					
Left Bank			100	kture: Fine: kture: Fine:				_		Rock	Manmade	=	rown Closure
Right Bank:		-		kture. Fine	P-France -	vel 🗸		_	er_ H	Rock	Manmade		21-40%
Left Bank:		eg: Sh	lubs			e: Shrub/			Section			the factor	D
Leit Dank.	rap.v	eg.			Stage	e: Shrub/	nerb s	tage	Instre	am veg	: None _	Algae V Moss	Vascular
	OF THE	915-	11512 5		The same	TO MALE		EATU	RES	1 5		100 100	Tarrell Sales
NID Map	NID	Туре	Hgt	Method	Lg	Metho	bd	Photo			AirF	hoto	UTM (Z/E/
093M.027	88026	CV	.9	GE		HC	R	06 F:	04	L:		#:	10.648672.61
Comments	twin cu	ulverts											
				S-Ty.	1200	28 11 50	FIS	Hiter n	A 1500	0/64	9-3 (0)-00	Control of the Control	The Market
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ite Number			Number of	Length	fished	Tota		Voltage		cies	Total	Minimum	Maximum
lite Number	Capt Meth	nod	Number of Events	Length (n		Tota Time				cies	Total Fish	_	Maximum Length (mm

West Babine Study Area

Reac

ILP Map #

ILP#

Site

1.0

093M.027

10138

3.41%	J.	4//	65 TH	TA			P	ROJE	CT				1 (V)			製地	3 A	
Project Name: Babine River Fish Inventory - 2001 Stream Name (gaz.): BABINE RIVER Project Watershed Code: 480-000000-00000-0000-0000-0000-0000-00										0-000	Project Code:					5098		
Hitzaki	No. of	A STATE OF	(70 P. F	- 7.5°	WA	TERS	HE	0	217	Kna.	1012	Weigh	275-0468		Catholia In	
Watersho IL Field UTM	P Map#: 0 (Z.E.N): 9	93M.027 .649314.	6126312	ILP 2	#: 10138		GPU			NID#: 20	Local Name: None NID #: 20065 Reach # Site Lg: 200 M Ref. Name:			#: 1.0 Site #: 65 Method: GE Access: H				
GISOTM	(Z.E.N): 10		01/07/11 Time: 09:55				Agonew 0172							Fish Ced2: W Incomplete:				
S. Sales	Date.	2001/0	1/07/11 Time. 09.55				Agency: C172				Crew: EL/JD			Fish Crd?: Incomplete:			te:	
51 3	e to really	Mtd w	vidth w	vidth v	vidth w	idth widtl					width	LAug	100	Co	diant 9/	SALE IN	AUG BE	
Channel Wi Wetted Wi Pool De	idth (m): idth (m):	MS 2.	10 2.4 1.90 2	40 2.10	1.90 2 1.90 2	.30 2.40 .20 2.40 .20 0.20	2.1	0	Wid	uri widur	Width	2.20 2.10 0.27	Metho Metho	od II: 0.0	2.0	Mtd C C	1.00	
No Vis.Ch.:																		
		SWD	LWD B U DP OV IV CI								CROWN CLOSURE 2 21-40% INSTREAM VEG: N A M V V							
	Texture: RIP: S STG: SI	HR	y c	В	R	A []		WATE	h		RIP		G ✓ C		R] A [
	EMS:	/-	4.0	-		457	JC.	WATE	K	15 A 15	= 201	S.U.S.	4-4	in h				
Floor	S one					Method: T4 Method: P2 Method: GE			Req #: Cond.: 50 Turb.: T M			L	Method: S3 L C Method: GE					
-1-		J.F.			Sell D		MOR	PHOI	OG	Υ	203		31	120 34	Parties.	501	77.74	
Bed M	7.0 D	Dominant: G Subdor D (cm): 7.00 Morp								O1 B1 B2 B3 D1 D2 D3 C1 C2 C3 C4 C5 S1 S2 S3 S4 S5 N SIDE DIAG MID SPAN BR								
- 11 1 Bes	1	15 35	-6		14.4 T		ΉE	ATUR	ES	CHEST OF	1000		25-30-	a He	神神神神	E CANA	ale an an	
NID Map N	ID Type	e Hg	t M	ethod	Lg	Method	SEC. 17.	Photo	0.000	- 1000 100	AirPh	noto		UTM	(Z/E/N)	選出	Method	
	026 CV	.9	(3E	V =	HC	R:	06 F:	04	L:		#:			72.61260		GIS	
Comments: tv	列制器	(Paris)	. Z.		S all the	НА	ВІТ	AT Q	UAL	Comment	5	T. Fam.	公衛門鎮	W W W	2 h - m			
OverWinte						ot for BD co												
Cov						of stream h				olexes subr	nerged							

West Babine Study Area

Reach #

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ILP Map #

093M.027

ILP#

Site 65

PROJECT Project Name: Babine River Fish Inventory - 2001 Stream Name (gaz.): BABINE RIVER Project Code: 5098 WATERSHED Gazetted Name: Local Name: None ILP Map#: 093M.027 ILP #: 10138 NID Map #: 093M.027 NID #: 20065 Reach #: 1.0 Site #: 65 Field UTM (Z.E.N): 9.649314.6126312 Method: GPU Site Lg: 200 Method: GE Access: H GIS UTM (Z.E.N): 10.648515.6126128 Ref. Name: Date: 2001/07/11 Time: 09:55 Agency: C172 Crew: EL/JD Fish Crd?: ~ Incomplete: CHANNEL Mtd width width width width width width width width width Gadient % Mtd Avg width Avg Channel Width (m): MS 2.10 2.40 1.90 2.30 2.40 2.10 2.20 Method I: 1.0 1.0 C 1.00 Wetted Width (m): MS 1.90 2.10 1.90 2.20 2.40 2.10 2.10 0.0 Method II: 2.0 C Pool Depth (m): MS 0.20 0.30 0.30 0.20 0.20 0.40 0.27 No Vis.Ch.: Intermittent: Wb Depth: .3 .2 Avg: 0.23 Method: MS Stage: L M H Dw: Tribs.: COVER Total: A Type: SWD LWD В OV **CROWN CLOSURE** U DP Amount D S N S Loc; P/S/O: INSTREAM VEG: N A W M V LWD: F DIST: C LB SHP: S Texture: F G G C B R A Texture: F G G C B R A RIP: S RIP: S STG: SHR STG: SHR WATER EMS: Req#: Temp: 8 Method: T4 Cond.: 50 Method: S3 pH: 7.6 Method: P2 Turb.: T M L C 🗸 Method: GE Flood Signs: None Method: GE MORPHOLOGY 01 **B1** B2 **B**3 D1 D2 D3 Bed Material: Dominant: G Subdom: F D95: 17.0 D (cm): 7.00 Morph: RP DISTURBANCE **INDICATORS** Pattern: SI C2 C3 C4 C5 S1 S2 **S3 S4 S5** Islands: N Coupling: DC Confinement: UN Bars: SIDE DIAG MID SPAN BR FSZ: FEATURES NID Map NID Type Hgt Method Method Photo Lg AirPhoto UTM (Z/E/N) Method 093M.027 88026 CV .9 GE HC R: 06 F: 04 10.648672.6126086 GIS Comments: twin culverts HABITAT QUALITY Name Comments OverWinter Habitat Poor - no deep pools except for BD complexes downstream Cover Moderate - some sections of stream had abundant SWD complexes submerged Rearing Habitat Moderate - riffle pool complex, some riffles and lots of holding areas

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

1.0

093M.027

C	-

	Na	ame			Comments										
S	Spawnir	g Habitat	Poor - good	gravel but shallo	but shallow water										
7	(800)	197	Market - 15	The white	PHOTOS										
F	hoto		Foc Lg	Dir	Comments										
R: 06	06 F: 04 STD U				twin culverts, 450mm and 900mm, 40cm and 35cm drop, 60cm pool										
R: 06	F:	05	STD	U	Upstream photo of glide section with shallow water (typical)										
R: 06	F:	06	STD	D	downstream photo of stream with overhanging vegetation (typical)										
T. E.	7.5			friend and	COMMENTS										
	Se	ction			Comments										
	CHA	NNEL	Culverts ma	y be a partial barr	rier, but fish migration upstream is impacted by beaver dam complexes downstream. Shocking was also										

FDIS Fish Card

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

000-00000-00000-00000-0000-000-000-000-000-000-000

1.0

093M.027

-	199 00		7.17	A Property				排除	WA	TER	BOI	Y = 0;	3500	- CALLED	1.12	SAU!	Will William	
Gaz	zetted Na	me:										Loc	al: N	one				
F	Project Co	de:	480-0	00000-	-00000	00000-0	000-0000-	000-00	00-000	-000-00	0-00							
	WS Co	de:	000-0	00000-	00000-	00000-0	000-0000-	000-00	00-000	-000-00	00-000							
W	Vaterbody	ID:							ILP	Мар #:	093M.	27		ILP#:	1013	8	Reach #:	1 -
	Project	ID:	5098									Lake/St	ream:	S		Lake Fr	om Date:	
F	ish Perm	t #:	145	086K		Date:	2001/07/	11	Тс	o: 200	1/07/11	Ag	ency:	C172	Crew	EL/JD	Resar	mple:
6.32		16	1315	- ASE	1973	WHEN Y		S	ITE	1 M	ETH	O D	200		Approx.	N ST	" "	1000
Site#	NID M	р	NID	#	UTM:2	Zone/Ea	st/North/M	thd	MTD	O/NO	Temp	Cond	Turt	oid		С	omment	
65	093M.0	27	2006	55 9	64	49314	6126312	GPU	EF	1	8	50	С			- 4		
					4 4 3	-0.0	W 17 17 19	Ad	GEA	RS	ETT	INGS		3 100		學學	The Name of Street	1000
Site#	MTD/N	0	H/P	Date	ln	Time I	n Date	Out	Time	Out					Comme		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NI CONTRACTOR OF THE PARTY OF T
65	EF		1	2001/0	7/11	09:55	2001/	07/11	10:	:35								
NAME OF			The state of	R TO	No.	C. E	LECT	RO	FIS	HER	SP	ECIFI	CA	TIONS	19.	4	流移。清朝時	100
Site#	MT	D/NC	0	H/P		Encl	Sec		ength	911	Width	Vol	tage	Frequen	су	Pulse	Make	Mode
65						30.0	200.0		1.0	6	00	60		6	SMITH	12B		
	4			1		F.0180	(A 3)	F	ISH	รบ	MMA	RY	1	CAMPARE.	何饮	開發		
Site#	MT	D/NC	0	H/P	Spe	ecies	Stage	Ag	е	Total	# Lo	th (Min/M	ax)	FishAct			Comment	
65	EF		1	1	NF	C		-		0								



Site #65, twin culverts, 450mm and 900mm, 40cm and 35cm drop, 60cm pool. Roll #6, Frame #04, Date: 2001/07/11



Site #65, upstream photo of glide section with shallow water (typical). Roll #6, Frame #05, Date: 2001/07/11



Site #65, downstream photo of stream with overhanging vegetation (typical). Roll #6, Frame #06, Date: 2001/07/11

West Babine Study Area

Reach # ILP Map #

ILP#

6	Secretary Secretary	Service Control	阿斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯	EAM	KEFE		A. 3 C. 19	巴利特性		THE I		
Gazetted Na	ime:					Loc	al Name:					
Watershed (Code: 480-46	4400-00000-00	0000-0000-0000-00	0-000-00	0-000-00	0-000	ILP	Map #:		IL	P#:	
Carlot Sal	The state of	外正 上於	Telephone filter		REAC	H		海路市		929	He in	
Reach #: 6	5.0		UTM(Zone/East/N	orth): 10.	.648759.	5122573			Sample	Type:	Biase	d
Length (km) Gradient (%)			oupling: Partially Conement: Occasion			nitude: 2 Order: 2			BGC Open wa		SBS	
US Elev (m)			Islands: NONE	any Com			ation: Mixe		ppen wa	ici. Aus	CIII	
Bars: None		Diagonal	Mid-channel _	Span	-	-	anduse: No					
	a CRASS	Ballan Control	E fact	3/10/2	SITE	W. S. W.	15 TO	923 GE T	17.113	用企为/N	all way	7.1
Site #:	7.7	100000	M 9.649600.61227 M 10.649711.6122			Agency: Agency		Crew: El	/JD al Consu		2001/07 errace)	/11
	Let A The			CI	HANN	EL	10 8 ft.	100 mg (100 mg	(E. (35)		17.32	THE P
No Vis.Ch.:	Intermit	tent:		Avg	Min	Max #	#		Avg	Min	Max	#
Dewatered:	Tr		Channel Width (m):	17123	1.200	1.5		Gradient %	0.25	0	1	4
Stage: Low	Ti.		Wetted Width (m):		1.200	1.5		Pool Depth (m)	0.60	0.600	0.600	6
Med	V	LE	Bankfull Depth (m):	0.70	0.7	0.7	3	Turk	idity.:	Turbid	1 0	ow V
High	T	emp (C): 9	pH: 7.8		Co	nductivity:	50		М	oderate		lear _
TITEM	2 10 100	斯拉在外 边市	可能的时候	MOR	PHOL	OGY	er methode et	2 - 3 Ly	37 9			
Bed Material		Fines Not Applicable	D95 (cm): 1. D (cm): 0.		В	ars: Non	Side	Diagonal	Mid-	channel	☐ Sp Bra	
	ittern: Irregula	r, Wandering	Islands: No	ne l	DISTURE	· ·	O1 B1	B2 B3	D1	D2 D	3	
					INDICA	IURS						
Cou	pling: Decoup								عادلك			
Cou Confine	pling: Decoup ment: Not App	olicable				2 C3	C4 C5	S1 S2	S3	S4	S5	
Cou Confine	pling: Decoup ment: Not App					22 C3	C4 C5	S1 S2	S3	S4	S5	
Cou Confine	pling: Decoup ment: Not App	olicable		C			C4 C5	S1 S2	S3	\$4	\$5 	715
Cou Confine	pling: Decoup ment: Not App blogy: LC	olicable	Туре:	SWD	C1 C	R B	U	DP (S3	S4	\$5 	
Cou Confine Morpho	pling: Decoup ment: Not App plogy: LC	olicable	Type: Amount:		C1 C	R		1 0 1 0 2 7 1 5 1			\$5 	
Cou Confiner Morpho Total Cover: A	pling: Decoup ment: Not App plogy: LC	olicable Large Channe	Type: Amount:	SWD	C1 C	R B	U	DP (DV	IV D	S5	
Cou Confiner Morpho	pling: Decoup ment: Not App plogy: LC Abundant	e Large Channe	Type: Amount: Location: P/S/O: ture: Fines ✓ Gravure: Fines ✓ Gravure: Stag	SWD T	C1 C LWD T Cobble Cobble Dlicable	B N Boulder Boulder	U T	DP (S) Manmade Manmade	DV T	IV D	FSZ own Close 1-20	ure %
Total Cover: A LWD: LWD Dist: Right Bank: Left Bank: Right Bank:	pling: Decoup ment: Not App blogy: LC Abundant None Not Applicable Shape: Ur Shape: Ur Rip.Veg: Gi	e Large Channe	Type: Amount: Location: P/S/O: ture: Fines ✓ Gravure: Fines ✓ Gravure: Stag	SWD T avel C avel C e: Not Apper	C1 C LWD T Cobble Cobble Dlicable	B N Boulder Boulder	U T Rock Rock	DP (S) Manmade Manmade	DV T	IV D	FSZ own Close 1-20	ure
Total Cover: A LWD: LWD Dist: Right Bank: Left Bank: Right Bank:	pling: Decoup ment: Not App blogy: LC Abundant None Not Applicable Shape: Ur Shape: Ur Rip.Veg: Gi	e Large Channe	Type: Amount: Location: P/S/O: ture: Fines ✓ Gravure: Fines ✓ Gravure: Stag	SWD T avel C avel C e: Not Apper	C1 C LWD T Cobble Cobble plicable plicable	B N Boulder Boulder	U T Rock Rock	DP (S) Manmade Manmade	DV T	IV D Cro	FSZ own Close 1-20	ure % ular

West Babine Study Area

Reach #

ILP Map #

Site

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TO DIELEN		al C	抵領	461.7		XXX	PR	OJE	CT	F	计编数		位位 "	4.00	新	5 7	
Proje Stream Nam Project Watersh	ne (gaz.)		NE RIVE	ER			-000-00	0-000-00	0-000-00	00	1	Project Co	ode:		5098		
I forest action	MIRE	Marin E	100	纳鲁 曼	1	400	WAT	ERS	HED	45.00		Pro U		i iris	- A	27000617	tale!
Gazetted Name:	2									Lo	cal Nam	e: None					
Watershed Code:	480-464	400-000	00-000	00-0000	-0000-0	00-000-0	000-000	-000-000									
ILP Map#:			II	LP#:		NID M	ap #: 09	3M.027	N	ID#: 20	0066	Reac	h#:	6.0		Site #: 6	66
Field UTM (Z.E.N):	9.64960	0.61227	20	N	Method:	MAP				Site L	g: 100		Method: GE		Acce	ss: H	
GIS UTM (Z.E.N):	10.6497	11.6122	699						Re	ef. Name	e:						
Dat	e: 2001	/07/11	Ť	ime: 11:	15		Agency	C172		crew:	FI /JD		Fish Crd	?: 🗸		ncomple	to:
	. 2001			Canala Pla	and the same	ALCOHOL:		ANN		- Dubby	The section	15V - 122	TISH CIU	March 19		icomple	
100	Mtd	width [width	Luddin				- Drive	2001000	1 446	No. of the		- 170-0-00		ter for		
Channel Width (m):			1.20	width 1.30	width 1.20	width 1.40	width 1.50	width	width	width	width	Avg 1.30	Method	_	1.0	Mtd C	Avg
Wetted Width (m):	MS	1.20	1.20	1.30	1.20	1.40	1.50				-	1.30	Method I	_	0.0	C	0.25
Pool Depth (m):	MS	0.60	0.60	0.60	0.60	0.60	0.60		-			0.60	Welliou	. 0.0	0.0	C	1
				V. 5013 .				1		_	_	0.00	No Vis.C	h.:	Interm	ittent:	
Wb Depth:	.7	.7	.7	Avg	: 0.70		Method:	MS	St	age: L	_ M	VH		w:		Tribs.:	5
COVER			Tota	al: A							_						
Type:	SWD	LWI	7	В	10	Lor	. 1	ov. T		1 000	OUAL OI	001105					
Amount:	T	T		N	U	DF		OV	D	1		OSURE					
Loc; P/S/O:	<u> </u>			14		V		-		1			N A	44			
RIP: STG:	NA	ŠŲ.	29.5	(PS)	× (21)	UAL TO	W	ATE	3	indress,	STG	: NA	20 B/2000	17 AND 18	in a second	a la traca	
EMS:			200		100	(File-1)	ALC: N	PASSES N	erie se	9 553 7		Contract of	ALI BO MALE	l sr			
Temp: 9)					Metho	d: T4				eq #:						
pH: 7							d: P2			C	ond.: 50				Met	hod: S3	3
Flood Signs: N							d: GE			Ţ	urb.: T	M	LVC		Met	hod: GE	E
W	r minds		-	- VC	100			11101	000								
	3121			SILBAR	100	The Parket	UKF	HOL	UGI	04	D4	D0 D		I-CTI-	in least	As-	
Bed Material:		ominant:			Subdom	24 (2.0)				01	B1	B2 B:)3		
D95:	1.00	D (cm):	0.01		Morph	: LC		DISTURB	ANCE								
Pattern: I	R							INDICAT	ORS	C1	C2	C3 C	4 C5 5	S1 S	2 S	3 S4	S5
Islands: N	1									FFIT	EVI	TIL	TOI				TET
Coupling: D	C									Lind I							1 1
Confinement: N	IA																
FSZ:								Ba	rs:	NV	SIDE	_ D	IAG	MID	SPA	N	BR
1 (AMADE) (AMADE)	S117.38		SYN VE	- 4-4	VV/	HAE	ATI	TQU	ATITY	· V	Sep Diggs	CO.	Sales and	10000	THE RESERVE	11	
Name	e libera		ACD-V		R. ST	140	Min.	A) Said	MINDERS	10.00		1	100	195	299	加加	产力
OverWinter Habitat		Madarat	a if the			16			C	omment	S						
Cover	_	Moderate	_														
Rearing Habitat		Moderate Poor - la						er ice cover	increasi	na akaa	m torre	enti					
Spawning Habitat		None - s	ubstrate	es were	comoris	ed of fin	es and	organice	increasi	ng strea	in tempe	erature					
San Contraction	DE 2018	(SI) 12-19	10	# 700000	No. of the last	(200		OTO	•							(8) (1) == 5.0	· ·
The second secon			Marie Control	W					100 000	Charles on the last	2000 2 1/2 1/2	PERSONAL PROPERTY.	-1	Design of the last	2015年1月1日		
Photo		10	100	- Maria		100/00	COPPE	010	STEEL S		KIII Pa	1-11-15	i y		300	5.04	如何是
Photo	Foc			Di	r		CU PET					Comments	s			15 W. S	采用 原
Photo	Foc STI	D			r		eam ph	oto of gra	assy ripa		a glide (t	A DIAMETER		Line .			

West Babine Study Area

Reach # ILP Map #

IIP#

Site

6.0

With characters and the second	COMMENTS
Section	Comments
CHANNEL	Channel had no pools, but the depth of the water was generally 60cm. No Fish Captured during shocking

FDIS Fish Card

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

	-	SU PE	- 14.76	125	12-12	200 600		10		RBC	10.65	STALL!	TO AND	SW TENE	4 D/ 15	ETTER.	CAN THE S		11/1
Ga	zetted	Name	12									Loca	I: No	one					
	Projec	ct Code	: 480-	000000-	00000	-00000-00	000-0000-000	-000	-000-000-	0-000-									
	W	S Code	: 480-	464400-	00000	-00000-00	000-0000-000	-000	-000-000-	-000-00	00								
V	Vatert	oody ID	:						ILP Map	# :				ILP#:		R	each #:	6 -	
		oject ID									Lak	ce/Stre	eam:	S	- 1	ake Fron	n Date:		
f	Fish P	ermit#	: 145	5086K		Date:	2001/07/11		To: 20	01/07/	11	Age	ncy: (C172	Crew:	EL/JD	Resa	imple:	
William.		Well or				The state of	門(唐)	SI	TE /	MET	HOE		200		司部	1	相關的影		14
Site#	NII	D Map	NID)#	UTM	:Zone/Eas	t/North/Mthd		MTD/NO	Ten	ip Co	ond	Turb	id		Con	mment		
66	093	3M.027	200	66 9	9 6	49600	6122720 G	PU	EF 1	9		50	C						
		200	1 193	与阻	L.		A	G	EAR	SET	TIN	GS	WE	一种 原色	1 - 12	Take		i de	
Site#	MT	TD/NO	H/P	Date	e In	Time In	Date Ou	t	Time Out					C	ommer	nt			
66	EF	14.	1	2001/0	07/11	11:15	2001/07/	11	11:35				-						
	N. Control	> Mi		13		C. E	LECTR	0 F	ISHE	RS	PEC	IFI	CAT	TIONS	F.		DIAM'S		
Site#		MTD/N	10	H/P		Encl	Sec	Le	ngth	Wid	th	Volta	ige	Frequency	F	Pulse	Make	M	ode
66	E	F	1_	1		0	132	1	0.00	1.	0	60	0	60		6	SMITH	1	2B
		4	VERY.	9000	- 100	Op.	(1)	FI	SHS	UMM	ARY	题	9.71	1011	500		Edin SA	世佛	2013
			*										-					219 3	1217
Site#	1	MTD/N	10	H/P	Sp	ecies	Stage	Age	Tota	al#	Lgth (N	lin/Ma	x)	FishAct		. (Comment		



Site #66, upstream photo of grassy riparian area glide (typical). Roll #6, Frame #07, Date: 2001/07/11



Site #66, downstream photo of grassy riparian area- glide (typical). Roll #6, Frame #08, Date: 2001/07/11

West Babine Study Area

Reach # ILP Map #

IIP#

10000000000000000000000000000000000000	STR	EAM	REF	ERE	NCIN	G	権がまたもの	11/2/10	NA.	11-15	
Gazetted Name:					Local N	Name:					
Watershed Code: 480-456200-0000	0-0000-0000-0000-000	0-000-0	00-000-0	000-000		ILP	Map #:		IL	P#:	
		10	REA	CH	1	25.00	想成此不	on The	the later	490	
Reach #: 1.0	UTM(Zone/East/No	orth): 1	0.652156	6.612518	37			Sample	Type:	Rando	m
Length (km): .23	Coupling: Coupled		Mag	gnitude				BGC	Zone:	SBS	
Particular and San	nfinement: Confined		-	Order		W/50 /		pen wa	ter: Abs	ent	
US Elev (m): 764	Islands: NONE		Rip	arian V	egetatio	n: Mixed	d C/D				
Bars: None 🗸 Side 🔝 Diagona	Mid-channel	Span	В	aid	Land	luse: No	Specified				
4. 门的是一个自然例识别。	加度加度 。[4] 数	W.W.	SIT	E ⁶ 円)	1.70	it you	- The House day	-	- WH	SPECIAL SECTION	The same
	UTM 9.652300.612530 UTM 10.652282.61252				ncy: C1		Crew: JD	/DT		2001/08 епасе)	/13
	Hallan Fall helps	C	HAN	NEL	Mar.	a - (1)	0.01.20.20.2	13/2	100	13/1/d /	
No Vis.Ch.: V Intermittent:		Avg	Min	Max	#	1	at also a up.	Avg	Min	Max	#
Dewatered: Tribs.:	Channel Width (m):	0.00	0	0	0		Gradient %:	0.00	0	0	0
Stage: Low	Wetted Width (m):	0.00	0	0	0		Pool Depth (m)	0.00	0	0	0
Med	Bankfull Depth (m):	0.00	0	0	0		Turb	idity.:	Turbid		Low
High Temp (C):	pH:		C	Conducti	vity:			М	oderate	0	lear
是一个的的人的"多种"的"A		MOF	PHO	LOG	Y	世界部	图 图 特別	11.00		1000	V REPORT
Bed Material: Dominant: Subdominant:	D95 (cm): D (cm):			Bars: N	on 🗌	Side	Diagonal	Mid-	channel		an 🗌
Channel Pattern:	Islands:			RBANCE	1	B1	B2 B3	D1	D2 [)3	
Coupling:			INDIC	ATORS							
Confinement:			C1	C2	C3 C	4 C5	S1 S2	S3	S4	S5	
Morphology:											
· 用一把一个用品。	te at a lipe (4) 0	5.209	COVE	R	2 -0-3	7HE I		directly the	10.00	2018	大
Total Cover:	Type:	SWD	LWD		В	U	DP C	V	IV		
LWD:	Amount:		4-								
LWD Dist:	Location: P/S/O:									FSZ	
Right Bank: Shape:	Texture: Fines Gra	vel	Cobble	Boul	der	Rock _	Manmade		Cr	own Clos	ure
Left Bank: Shape:	Texture: Fines Gra	vel	Cobble	Boul	der	Rock	Manmade				
Right Bank: Rip.Veg:	Stage							_			
Left Bank: Rip.Veg:	Stage	:			Inst	ream Ve	g: None /	Algae	Moss	Vaso	cular _

West Babine Study Area

Reach #

ILP Map #

ILP#

Site 80

作品数學院	F/E/E						PF	OJE	CT	·阿勒		No.	制題	K II	過數			
Proje Stream Nan Project Watersh	ne (gaz.): BABI	INE RIV	ER	entory - :		-000-00	0-000-0	00-000-0	00	- 1	Project Co	ode:			5098		
	P IN	100		pl palm	5,000	樹玉	WAT	ERS	HED	200	不 加斯特		() Project	p Table				別別的
Gazetted Name:										Loc	cal Nam	e: None						
Watershed Code: ILP Map#: Field UTM (Z.E.N): GIS UTM (Z.E.N):	9.6523	00.6125	300	LP #:	0-0000-00	NID M		93M.027	N	ID#: 11 Site Lo	g: 400	Read		1 od: GE	.0	Acces	Site #: 8 ss: B	0
Dat	e: 200	1/08/13	- 1	Time: 10	:30		Agency	: C172	(Crew:	JD/DT		Fis	h Crd?:		In	comple	te:
Special Control			230	- 103	Kind.	No.	CF	IANN	EL	TE CALL	Silver and		万里市	建 档		21/15	为质	27.00
	Mtd	width	width	width	width	width	width	width	width	width	width	Avg			Gadien	nt %	Mtd	Avg
Channel Width (m):	MS			-								0.00	Me	ethod I:			С	0.00
Wetted Width (m):	MS				-							0.00	Me	thod II:			С	
Pool Depth (m):	MS											0.00	No	Vis.Ch.	V 1	ntermi	ttent:	
Wb Depth:				Avg	9: 0.00	N	Method:	MS	S	tage: L	M	ПНГ		Dw			ribs.:	ā.
COVER			Tota	al:														
Type:	SWD	LV	VD T	В	U	T DF	-	ov T	IV	1 CR	OWN CL	OSURE						
Amount:																		
Loc: P/S/O:										INS	TREAM	VEG:	N	A	мпу			
LWD:			D	IST:											_			
				101.														
LB SHP: Texture:		G	C	B - 1	p - A					- 1	RB SHP		0	0	p —	p —		
		9			, _ ,	-						F	G	0	ь 🗆	м <u>П</u>	A	
RIP: STG:											RIP							
313											310	,						
The second	SIE	A POPULA			eleji i		V	ATE	R	dies!	3 10	11514	250	H	TIVE P	使物	Millian	明图制
EMS:						\$15.25					eq #:							
Temp: pH:							od: T4			C	ond.:					Meth	nod: S	3
Flood Signs:							od: P2			Т	urb.: T	M	L	C		Meth	nod: G	E
y	Secretary of the		Sale (F. sa															
N. P.	11/45				1.055(Mark M	ORI	HOL	OGY				213.5	造工				
Bed Material:	E	ominant			Subdom					01	B1	B2 B	33 D	1 D	2 D3			
D95:		D (cm)			Morph	:		DISTUR							1111			
Pattern:								INDICA	TORS	C1	C2	C3 C	4 C	5 S	1 S2	S	S 54	S5
Islands:																		
Coupling:																		
Confinement: FSZ:								В	lars:	N	SIDI		DIAG	N	IID_	SPAN	N	BR
(Italy) italy	13714	NAME OF	1 (MI)	(1) 海南流	SE 141	HAE	BITA	TQ	JALI	ΓY			NO STATE	No. of the		T ANGE	常证历史	多思川農地間
Name	10.4	CHENHOLD III	diction."	See Section 1	98813	Marie Co.		STATE OF STREET	493 BT 128	omment	S	(Canal)	101	11936	472713	MAKE.		Service of the
Other		No Visi	ble Cha	nnel, no	channel	found 2	00m or	either s				Dry depre	ession.					
以特殊以中 有			1	XXXX		h di	PF	OTO	S	開始			- Hall		W.C.			20 M
Photo	Foo	c Lg	11,	Di	ir			4,531,5				Comment	ts	-	The state of the s	The same	The second	14
7 F: 1		TD						noto of d	ry gully			1000						
7 F: 2	S	ΓD	OCCUPANT.	N:	S		o of sho		17.0		-			041-54				
I di continu	-0.15	为锋门	110,00	1		顺程	CON	MEN		7 H	7017	AUTO !			生物	400		建 工
Section									C	omment	s		-					

West Babine Study Area

Reach # ILP N

ILP Map #

ILP#

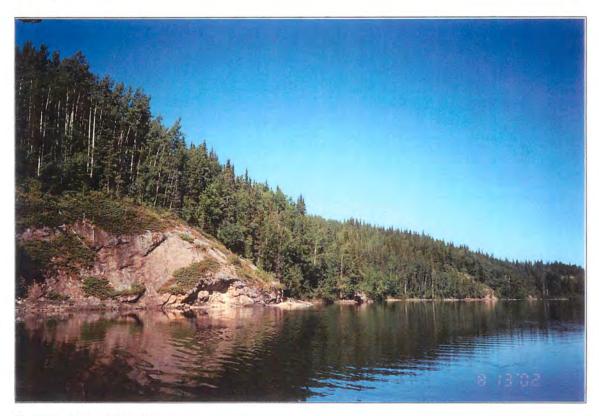
Site

1.0

	COMMENTS
Section	Comments
CHANNEL	No Visible Channel



Site #80, upstream photo of dry gully. Roll #7, Frame #1, Date: 2001/08/13



Site #80, photo of shoreline. Roll #7, Frame #2, Date: 2001/08/13

West Babine Study Area

Reach # ILP Map #

ILP#

0 093M.027

1 1985 - 62 (1988)	STRE	AMREI	EREN	CING	与基本规则	100			1015
Gazetted Name:		167 6	L	ocal Name					
Watershed Code: 000-000000-0	0000-00000-0000-0000-000-	000-000-000	-000-000	п	P Map #: 093M.0	27	IL	P#:	10142
	1. 清洁。这些企业一家期	REA	CH		1,24			162.00	1 10
Reach #: 1.0 Length (km): .68 Gradient (%): 8.4 US Elev (m): 767 Bars: None Side Diag	UTM(Zone/East/Nor Coupling: Partially Cou Confinement: Occasionally Islands: NONE onal Mid-channel	iple Ma Conf	ognitude: Order: 2 parian Veg	etation: Mi	0	- 5.50	Type: Zone: iter: Abs		ed
Thus You	为为生态	SIT	E		MANUAL E	3 3	n Turk	213	. 0
Site #: 81 F Site Length (m): 100	ield UTM GIS UTM 10.651452.612744	16		/: C172 y Name: Tr	Crew: JD/ iton Environmenta	-		2001/08 errace)	3/13
IL TENIA DI MARKETA F	TERROLLER SERVICE	CHAN	NEL		(17.15)		1	1	
No Vis.Ch.: Intermittent: No Vis.Ch.: Tribs.:		Avg Min 0.50 0.400	0.600	6	Gradient %:	Avg 6.00	Min 4	Max 8	#
		0.00 0.400	0.600	0	Pool Depth (m):	0.00	0	0	0
Stage: Low ✔ Med High Temp (0	Bankfull Depth (m):	0.13 0.1	0.2 Conductivity	3	Turbi	dity.:	Turbid oderate		Low _
	THE WAY	ORPHO	LOGY	10000	Carlo mile	11.00	-255	1 300	-50,005.00
Bed Material: Dominant: Fines Subdominant: Not Ag Channel Pattern: Irregular, Wan Coupling: Decoupled Confinement: Unconfined Morphology: CP Casca	dering Islands: None	DISTL	Bars: Non JRBANCE CATORS C2 C3	O1 B1			D2 D		pan raid
40 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	(多世界)加州自安州东西	COV	ER	7 33 70	Harman Tri	10	(579)		川波
Total Cover: Abundant LWD: None LWD Dist: Not Applicable	Type: S Amount: Location: P/S/O:	T T	D B	U N	DP O)	IV S	0.52	
Right Bank: Shape: Sloping (Left Bank: Shape: Sloping (Right Bank: Rip.Veg: Mixed Col. Left Bank: Rip.Veg:	g Texture: Fines ✓ Grave g Texture: Fines ✓ Grave D Stage:	Cobble	Boulde	Rock	Manmade Manmade	lgae [Cro	FSZ own Clos 21-4 Vas	sure

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

1.0

093M.027

10142

19.9		le T	ijin.	40		7/16	THE ST	PR	OJE	ECT	13/11		11 2011 - 1	AT WHE		3		
Stream Project Wat	Name	(gaz.):	BABI	NE RIV				-000-000	0-000-	000-000-00	00		Project Co	ode:		5098		
No.	SW		100	uple)		y 304		WAT	ERS	SHED	Tar.	45	24.1	M. Leve	Sh.	- 1945 - 1945		
Gazetted N											Loc	cal Nam	e: None					
Watershed C ILP M Field UTM (Z.I GIS UTM (Z.I	lap#: 09 E.N):	3M.02	27		ILP #: 10			000-000- ap #: 09		7 N	ID #: 11 Site Lo	g: 100	Reac	h #: Method: GE	1.0		Site #: 8 ess: B	11
	Date:	2001/	/08/13		Time: 11:	:30		Agency:	C172	C	rew:	JD/DT		Fish Crd	?: 🗌)	ncomple	te:
	70	(1) · · · · · · · · · · · · · · · · · · ·	TEATE NAME OF	1	to the last	W. Take		CH	AN	NEL	1 7 1		ET A	* 1	150		(學)	
			width	width	width	width	width	width	widt	h width	width	width	Avg		Gadi	ent %	Mtd	Avg
Channel Width Wetted Width		MS C	0.50	0.60	0.40	0.60	0.40	0.50					0.50	Method		8.0	C	6.00
Pool Depth		MS											0.00	Method I	6.0	6.0	C	
Mh Do	nthil		-		1	0.40			05	-				No Vis.C			ittent:	/
Wb De		.1	.2	Tot	J Avg	: 0.13	,	Method:	GE	St	age: L	V M	Н	Ü	w:	- 2	Tribs.:	J
		SWD	T LV		В	U	DF		OV	I IV	1 CR	OWN CI	OSURE					
Amo	**	T	1		N	N	N		D	S	2		1-40%					
Loc: P/	S/O: 🗸		~					1	100	7	INS	TREAM	VEG:	NA	M	VV		
	STG: MI											STG	: MF					
	rd/E-9	e is the	21		举写	SAL	26/2	W	ATI	ER /	教學	18-1	21 11	الصويالميا	100		医	海里外
	MS:						Manha	W 74				eq #:						
ie	mp: pH:							od: T4			C	ond.:				Met	thod: S	3
Flood Sig		ne						d: GE			Т	urb.: T	□ M □	□г□с		Met	hod: G	E
Miller	. 170	101		9-1	1	- 11	M	ORP	но	LOGY		17 (1)	N E Y	7025	- 77	45-97	(事)	GOT IS
Bed Mate	rial:	Do	minant	t: F		Subdom	: NA				01	B1	B2 B	3 D1 I	02 D	3		
	95: 0.	10	D (cm)	: 0.10		Morph	: CP		ISTUE	RBANCE					JIE			
Patt	em: IR									ATORS	C1	C2	C3 C	4 C5	S1 S	2 S	3 S4	S5
	nds: N															H	III	TE
	ing: DC																	
Confinem	SZ:									Bars:	NV	SIDI		DIAG	MID	SPA	N	BR
N Salah Marin	NG-12-15-	GITWA.	FERE	172.50	2,515,1110	an pile in t	HAE	ATTS	TO	UALIT				TO ATTEMPT THE	200	To a second	New Company	
Name	513 M			1) - 41	III-NO DE		UAL	,,,,	1 4	2011年1月20日	omment	•	學。因此					持到法
OverWinter Ha	abitat		None							-	Omment	.5			-		_	_
Rearing Hab		_								s, epheme	ral							
Spawning Ha	bitat	No. of Street	_	100% f	ines, eph	emeral s	stream, v					4007-07		*1839				and the second
Ph-4-	12	Na A	TOTAL		m - 1	200		机工	ОТ	US	Sautty.	51116	胜。	10 000	F. Port			かまり
Photo 7 F: 3	-	Foc			Di		limet	room =L	oto of	dat vezet-	and cha		Comment	S				
7 F: 4	1	STI		+			_			dry vegeta of dry vege	Address of the con-		_		_			
1 1 1	1	011	_				Juowi	iou caill	PITOLO	or dry vege	cialed Cl	iainei						

West Babine Study Area

ILP Map #

ILP#

Site

1.0

093M.027

	T

一個學問題	COMMENTS
Section	Comments
CHANNEL	Discontinuous channel, vegetated
CHANNEL	S6 Stream



Site #81, upstream photo of dry vegetated channel. Roll #7, Frame #3, Date: 2001/08/13



Site #81, downstream photo of dry vegetated channel. Roll #7, Frame #4, Date: 2001/08/13

West Babine Study Area

Reach # ILP Map #

ILP#

是企物的基础设置		STI	REAM	REFE	REI	N C I I	N G	學生的	排作機			
Gazetted Name:						Local	Name:					
Watershed Code: 48	0-444000-00000	-00000-0000-0000-0	0-000-0	00-000-00	00-000		ILP	Map #:		IL	P#:	
To the state			传· 弘	REAC	H						N. T.	
Reach #: 1.0 Length (km): 2.34 Gradient (%): 4.0 US Elev (m): 803 Bars: None Side		UTM(Zone/East/I Coupling: Decouple offinement: Occasion Islands: NONE	ed	Mag f Ripa	nitude: Order:	3 2 egetati	on: Mixed	d C/D	Sample BGC Open wa	Zone:	V	d
12 12 7	- 500 h	10-11-9	R. W.	SITE		1000	12 = 100	Dept. The	- 1	Asia.	100	T MAN
Site #: 82 Site Length (m): 200	(********	JTM UTM 10.651367.612	7844			ncy: C		Crew:	DT/JD ntal Consu		2001/08 errace)	/13
1 1 1 1 2 1 1 1	147 July 1		C	HANN	IEL	10	100		The st		7/10	Din 1
	ermittent:	Channel Width (m	Avg	Min 1.06	Max 1.3	#] _	Gradient	Avg %: 1.75	Min 1	Max 2	#
Dewatered:	Tribs.:	Wetted Width (m	_	0	0	0	1 1	Pool Depth (0	0	0
Stage: Low 🗸		Bankfull Depth (m		0.2	0.3	3	1 "		urbidity.:	Turbid		Low
High	Temp (C):	pH:		Co	onductiv	ity:			М	oderate	_ c	lear
	1-70	1000	MOF	PHO	LOG	Y	1957	900 (A)	100	· · · · · · · · · · · · · ·	SE VALUE	10 M
	2733.0	D95 (cm): 1 D (cm): 2 Islands: No	2.00	DISTUR			Side B1	Diagona B2 B3	D1	D2 [an 🗌
Confinement: Un Morphology: R				C1	C2 (23 (C4 C5	S1 S	S2 S3	S4	S5	
	Application of the second					-111						
- 10			100 10010	COVE	- Zane	38.0	100	广东西(11 11/21	etrop t		36 1 18 1
Total Cover: Abundan	t	Type: Amount:	SWD	LWD	I E		U	DP N	OV D	IV T		
LWD: None LWD Dist: Not Appl	icable	Location: P/S/O:	v	V			v		-		FSZ	
Left Bank: Shap	e: Overhangi 1 eg: Mixed C/D	Sta	ravel ravel ge: Matur ge: Matur	212 11 11	Bould	der	Rock Rock tream Ve	Manmade Manmade g: None		- 12	own Clos 21-4 Vaso	0%

West Babine Study Area

Reach #

ILP Map #

IIP#

Site

1.0

700 沙东西	A THE		10			113	PR	OJE	CT	STILL ST				新				
Proje Stream Nam Project Watersh	ne (gaz.)	: BAB		ER			-000-00	0-000-0	000-000-00	00	4	Project Co	ode:			5098		
Later Service	2.4	S. J. S.	Title all		PARTY.	功许可能	WAT	ERS	HED		They !	w 350	Carly .	100	7 夜	Maria	4.16.7	注新 (3
Gazetted Name: Watershed Code: ILP Map#: Field UTM (Z.E.N):			-11	LP#:	0-0000-0 Method:		000-000 ap #: 09		7 N	ID#: 1	1082 g: 200	e: None Read	h #: Method		.0		Site #:	B2
GIS UTM (Z.E.N):	10.6513	367.612	7844						Re	ef. Name	e:							
Dat	e: 2001	/08/13	10	Time: 12	:30		Agency			crew:	DT/JD		Fish	Crd?:		4	ncomple	ete:
	-198		201	E PARTY	100		CH	ANI	YEL	10.5	Har. X	統領政				起图	Black.	以 经
	Mtd	width	width	width	width	width	width	width	n width	width	width	Avg	-		Gadi		Mtd	Avg
Channel Width (m): Wetted Width (m):	MS MS	1.20	1.11	1.15	1.30	1.26	1.06					0.00		thod I:	2.0	2.0	C	1.75
Pool Depth (m):	MS							-				0.00		1 2				1
Wb Depth:	.3	.3	.2	1 Αν	g: 0.27		Method:	MS	Ç.	200: 1	- M			/is.Ch. Dw	-		rittent;	/
COVER		-		al: A	J. U.L.		nounou.	WIC	O.	aye. L	V	Н	1	DW			IIDS L	-
Type:	SWD	Tiv	ND T	В	U	T DF		OV	IV	1 CB	OWN C	OSURE						
Amount:	Т	_	T	N	T	N		D	T	2		1-40%						
Loc: P/S/O:	V	1	9-1		~		~		1	INS	TREAM	VEG:	N	0	M TO	V		
STG:	MF										STG	: MF						
F TO STEEL ST	3.300	6157	STATE OF THE STATE	300	To a	建筑	W	ATE	R				1	3911	到海	30-10		
EMS: Temp:						rand.					eq #:							
pH:							od: T4			C	ond.:					Met	hod: S	3
Flood Signs: N	None						d: GE			J	urb.: T	\square M		C		Met	hod: G	E
1000 300	53		1-29	9 3 10		N. N	ORP	HO	LOGY	Setter		collin se	the Callin	13216	1 1	- NGS	NEW PROPERTY.	64-08 J
Bed Material:	D	ominan	+ G		Subdom					01	B1	B2 B	3 D1	D2	2 D:	and the last		
D95:): 2.00		Morph			ICTUE	DANCE			FIF	716	TE	TI	77		
Pattern: S	SI								RBANCE ATORS	C1	C2	C3 C	4 C5	S1	S	2 S:	3 54	S5
Islands: N	1												7 03	31	3.	2 3.	3 34	30
Coupling: [-1-					
Confinement: L FSZ:								i	Bars:	NV	SIDI		OIAG_	М	ID_	SPA	N	BR
- 17 Wan 1	100	3/2	5 3		t and	HAE	BITA	T Q	UALIT	Υ	2367	Jan	A) A)		tel Too	1 161	2010	255 E
Name			-			MINISTER ALAK	425(425)	THE SE	C	omment	S	0.0	The state of	1		F L	20.100	T
OverWinter Habitat		None																
Rearing Habitat		_	lack of re	_														
Spawning Habitat	La la	531.3	gravels a	absent b	No. of Concession,	NOTE 15-		ото	10	S-170+ S-	A to Top	Section 1	THEFTA		1211 4	10-20-10-	Codification	
Photo	Foc		-	- A	EV/VA	12	C. Comp	as the			4,1,27		X ST		R.A		的情報	
7 F: 5	ST	_		Di		unstr	eam nh	oto of s	dry chan	nel		Comment	S			_		
7 F: 6	ST	-				_			of gravel s		s	_			-	-	_	_
						_												

West Babine Study Area

Reach #

ILP Map #

ILP#

Site 82

1.2000 建宝宝	COMMENTS
Section	Comments
CHANNEL	No barriers to upstream fish migration were identified
CHANNEL	S4 Stream



Site #82, upstream photo of a dry channel. Roll #7, Frame #5, Date: 2001/08/13



Site #82, downstream photo of gravel substrates. Roll #7, Frame #6, Date: 2001/08/13

West Babine Study Area

Reach # ILP Map #

IP#

		STI	REAM	REF	ERE	ACIN	G	學們所思				西东
Gazetted Name:						Local N	Name:					
Watershed Code: 48	80-439800-00000	-00000-0000-0000-0	0-000-00	00-000-0	000-000		ILF	Map #:		IL	P #:	
				REAG	ЭН	湖南	N. S	i Walio		10.72	558	
Reach #: 1.0 Length (km): 1.95 Gradient (%): 4.0 US Elev (m): 788 Bars: None 🗹 Sid	_	UTM(Zone/East/ Coupling: Decouple offinement: Occasion Islands: NONE	ed	Mag f Rip	0.612897 gnitude: Order: arian Ve	5 2 getatio		c	75		Rando SBS ent	m
可能为他们企业	三 第一条	空间之一可能以	MATERIAL PROPERTY.	SIT	E	7.5	SEL 01		90 - 12	ii.	31,50	1
Site #: 83 Site Length (m): 100		JTM UTM 10.651039.612	28800			icy: C1 ncy Nan		Crew: JD on Environmenta	/DT I Consu		2001/08 еггасе)	/13
	的版句的。此	能製の主要	C	HAN	NEL		50	La Tue of	T.	學"人	清四四	100
No Vis.Ch.: Int	ermittent:	Channel Width (m	Avg): 1.09	Min 0.16	Max 1.470	# 6	Г	Gradient %:	Avg 1.25	Min 1	Max 2	#
Stage: Low 🗸	E	Wetted Width (m Bankfull Depth (m	,	0.3	0 0.4	3		Pool Depth (m): Turb	0.00 idity.:	0 Turbid	0	0 Low
High	Temp (C):	pH:		C	onductiv	ity:			М	oderate		lear
" " " " " " " " " " " " " " " " " " "	語・対象		MOR	RPHO	LOG	Y 15	101/1	用的思想	1975	12-25	では	1. 15
Bed Material: Domi Subdomi Channel Pattern: Si Coupling: De Confinement: Ur Morphology: F	nant: Fines nuous ecoupled nconfined	D95 (cm): 4 D (cm): 4 Islands: N	4.00	DISTUR	Bars: No		Side B1	B2 B3 S5 S1 S2		D2 D		an [
3,4		The Contract of		COVE	R	1748		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	$= -3^{6-6}$	100	100	TINE TO
Total Cover: Abundar LWD; Few LWD Dist: Evenly D		Type: Amount: Location: P/S/O:	SWD T	S	E N		T		OV O	IV T	FSZ	
Left Bank: Shap	pe: Sloping (g T					der	Rock Rock ream V	Manmade Manmade eg: None A	Algae _	Cro Moss	own Clos 1-20	ure

West Babine Study Area

ILP Map #

1.0

因的類似的				建		70 P	PR	OJE	CT	全球				with the				
Proje Stream Nan Project Watersh	ne (gaz.		NE RIV	ER			-000-000)-000-00	00-000-00	00	F	Project Co	ode:			5098		
一个一个社员		医拉尔	13/10	対し		Y.	WAT	ERS	HED		1		500		= 27 B	16	Part T	ME ALL
Gazetted Name:										Loc	cal Nam	: None						
Watershed Code:	480-43	9800-00	000-000	00-000	-0000-00	0-000-00	000-000-	000-000)									
ILP Map#:			- 11	LP #:		NID M	ap #: 09	3M.027	N	ID#: 11	083	Read	ch #:		1.0		Site #: 8	3
Field UTM (Z.E.N):				,	Method:					Site Lg	g: 100		Met	hod: GE		Acces	ss: B	
GIS UTM (Z.E.N):	10.651	039.612	8800						Re	ef. Name	9:							
Dat	e: 200	1/08/13	1	Time: 13	:00		Agency:	C172	C	rew:	JD/DT		F	ish Crd	2:	In	ncomple	te:
- worth it	Par William		Artica -	5.4.2	- E	at water		ANN		80 TB	Carl Carl	pr og 15	T-ST	and a	STATE OF	- Previous	Mark V	
	Mtd	width	width	width	width	width	width	width	width	width	width	Avg		Haland To	Gadie	ent %	Mtd	Avg
Channel Width (m):	MS	1.31	1.47	0.16	1.00	1.40	1.21	maur	madi	Wider	Width	1.09		Method		2.0	C	1.25
Wetted Width (m):	MS						100		1		-	0.00	N	Method I	: 1.0	1.0	С	
Pool Depth (m):	MS			1-0			2001		255			0.00		- \"- 0		taking in	uca E	2
Wb Depth:	.4	.3	.3	1 Ave	: 0.33		Method:	MS	St	age: L	M	- H -	N	lo Vis.Cl	w:		ribs.:	9
COVER				al: A	, ,,,,,,					-54	¥)	II. 07 L	4	-				-
Type:	SWE	LV		В	U	T DF		ov T	IV	CP	DIAMICI	OSURE						
Amount:	T	5		N	T	N		D	T	1		-20%						
Loc: P/S/O:	V				~	100			7			VEG:	N	A	мп	V		
RIP: STG:				200	1.00	18000	CONTRACT LAY	ATE	D. S. S. S.	grane of	STG			W. 1941		11000000	**************************************	in set
EMS:	L - Mag	HIE SERVICE	37/20	22.000	32,24	2	SHEET,	AIL	N.	D	eq #:			15071	THE PARTY	a sandquire		
Temp:						Metho	od: T4				ond.:					Meth	hod: S3	3
pH:							od: P2					M			_			
Flood Signs:	None					Metho	od: GE				uib i	_ M				Meti	hod: Gl	-
	Sali	2.53	- 1		- 4	M	ORP	HOL	OGY	46,19		F. 17			The	1-0.10		F-1-1-1
Bed Material:	Г	Dominan	t-G		Subdom	·F				01	B1	B2 E	33	D1 1	D2 D	3		
D95:			: 4.00		Morph			ISTURE	DANCE			ПП						
Pattern:		4.5.1.1			1.0.00			INDICA		C1	C2	C3 (24	C5	S1 S	2 S	3 54	S5
Islands:													71			115	711	
Coupling:	DC																	
Confinement:									ars:	N	ein		DIAC	_	MID	CDA	NI	BR
FSZ:								Ь	dis.	NV	SID		DIAG		MID	SPA	•	DK
1 000 - 1 - 100	, protesting	2.20	G Lingar M		10	HA	BITA	TQI	JALI	Y	11 AND	野連州	阿豐				Water 1/2	(Alexa)
Name		The second	E-90.5	4.00		のかから		E109.1%	TV NV HC	omment	s	STEP STATE	1400年末	II dia		A SHETTING		3件。至3
OverWinter Habita	t	None										-				_		
Spawning Habitat					avel pres													
Rearing Habitat	-12-3/	Poor -	epheme	ral strea	ım, shallo	ow depth											elinor.	
1.1	TAN	150.5	200	18 (S		1	W. P.	ото	S					971	o single		No. of Street, or other party of the	10 mg
Photo 7 E-1 7		C Lg	-15	D		400		-1				Commen	nts					
7 F: 7 7 F: 8		TD	-		D	_			ry channe of dry cha		_	_						_
	-	-				- Jacon	·········	F	y									

West Babine Study Area

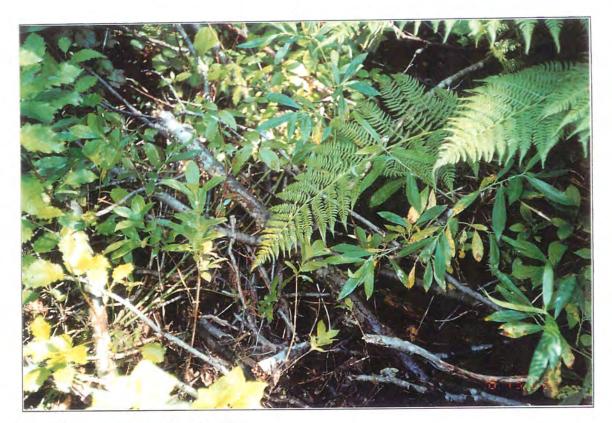
Reach # IL

ILP Map #

ILP#

Site 83

可以是外对	COMMENTS
Section	Comments
CHANNEL	No barriers to upstream fish migration were identified
CHANNEL	S4 Stream



Site #83, upstream photo of dry channel. Roll #7, Frame #7, Date: 2001/08/13



Site #83, downstream photo of dry channel. Roll #7, Frame #8, Date: 2001/08/13

West Babine Study Area

Reach # ILP Map #

ILP#

1.0 093M.027

10163

STREAM REFERENCING 12145 Local Name: **Gazetted Name:** ILP Map #: 093M.027 ILP#: 10163 REACH UTM(Zone/East/North): 10.650103.6129415 Sample Type: Random Reach #: 1.0 Magnitude: 1 BGC Zone: SBS Length (km): .80 Coupling: Decoupled Order: 1 Open water: Absent Gradient (%): 6.5 Confinement: Occasionally Conf US Elev (m): 762 Islands: NONE Riparian Vegetation: Mixed C/D Braid Bars: None V Side Diagonal Mid-channel Span Landuse: Not Specified SITE Agency: C172 Crew: DT/JD Date: 2001/08/13 Site #: 84 Field UTM .. Site Length (m): 100 GIS UTM 10.650808.6129490 Agency Name: Triton Environmental Consultants (Terrace) CHANNEL Min Max Max No Vis.Ch.: Intermittent: V Avg Avg Min Dewatered: Tribs.: Channel Width (m): 0.42 0.300 0.5 6 Gradient % 1.25 2 4 Wetted Width (m): 0.00 0 0 0 Pool Depth (m): 0.00 0 0 0 Low V Stage: Bankfull Depth (m): 0.27 0.2 0.3 3 Med Turbidity.: Turbid Low High Temp (C): pH: Conductivity: Moderate Clear MORPHOLOGY 25-27-50 Bed Material: Dominant: Fines D95 (cm): 15.00 Side Diagonal Mid-channel Bars: Non 🗸 Span Subdominant: Gravels D (cm): 2.00 Braid Channel Pattern: Sinuous Islands: None DISTURBANCE D2 INDICATORS Coupling: Decoupled Confinement: Unconfined C2 C3 C4 C5 51 S2 **S3 S4 S**5 Morphology: RP Riffle Pool COVER SWD LWD Total Cover: Abundant Type: DP В U OV IV Amount: N S N D LWD: None Location: P/S/O: ~ LWD Dist: Not Applicable FSZ: Right Bank: Shape: Overhangi Texture: Fines ✔ Gravel Cobble Boulder Rock Crown Closure Left Bank: Shape: Overhangi Texture: Fines ✔ Gravel Cobble Boulder Rock Manmade 21-40% Right Bank: Rip.Veg: Mixed C/D Stage: Mature forest Left Bank: Rip.Veg: Stage: Mature forest Instream Veg: None Algae Moss V Vascular V

West Babine Study Area

Reach #

ILP Map #

ILP#

Site 84

1.0

093M.027

10163

PROJECT Project Name: Babine River Fish Inventory - 2001 Stream Name (gaz.): BABINE RIVER Project Code: 5098 WATERSHED Gazetted Name: Local Name: None ILP Map#: 093M.027 ILP #: 10163 NID Map #: 093M.027 NID#: 11084 Reach #: 1.0 Site #: 84 Field UTM (Z.E.N): .. Method: Site Lg: 100 Method: HC Access: B GIS UTM (Z.E.N): 10.650808.6129490 Ref. Name: Date: 2001/08/13 Time: 14:30 Agency: C172 Crew: DT/JD Fish Crd?: Incomplete: CHANNEL Avg Mtd width Gadient % Mtd Avg Channel Width (m): MS 0.40 0.40 0.50 0.30 0.40 0.50 0.42 1,25 Method I: 2.0 1.0 C Wetted Width (m): MS 0.00 Method II: 1.0 1.0 C Pool Depth (m): MS 0.00 No Vis.Ch.: Intermittent: 🗸 .2 Wb Depth: .3 Avg: 0.27 Method: MS Stage: L V M H Dw: Tribs.: COVER Total: A SWD LWD В DE OV CROWN CLOSURE Type: IV Amount S N D 21-40% N Loc: P/S/O: INSTREAM VEG: N A M V V 1 LWD: N DIST: NA LB SHP: O RB SHP: O Texture: F G C B R A □ Texture: F G C B R A RIP: M RIP: M STG: MF STG: MF WATER EMS: Reg #: Temp: Method: T4 Cond.: Method: S3 pH: Method: P2 Turb.: T M L C Method: GE Flood Signs: None Method: GE MORPHOLOGY 01 **B**1 **B2 B3** D1 D2 D3 Bed Material: Dominant: F Subdom: G D95: 15.0 D (cm): 2.00 Morph: RP DISTURBANCE **INDICATORS** Pattern: SI C1 C2 C3 C4 C5 S1 S2 S3 **S4 S5** Islands: N Coupling: DC Confinement: UN Bars: SIDE DIAG MID BR FSZ: HABITAT QUALITY Name Comments OverWinter Habitat No overwintering habitat. Spawning Habitat None - substrates are not suitable for spawning. None - ephemeral stream with no connectivity to fish bearing water. Channel is discontinuous. Rearing Habitat PHOTOS Photo Foc Lg Dir Comments 10 STD U upstream photo of dry channel STD D downstream photo of dry channel

West Babine Study Area

Reach # ILP Map #

ILP#

Site

1.0

093M.027

10163

COMMENTS										
Section	Comments									
CHANNEL	Discontinuous channel, heavily vegetated.									
CHANNEL	S6 Stream									



Site #84, upstream photo of dry channel. Roll #7, Frame #10, Date: 2001/08/13



Site #84, downstream photo of dry channel. Roll #7, Frame #9, Date: 2001/08/13

West Babine Study Area

Reach # ILP Map #

ILP#

Watershed Code: 480-452300-13942-00000-0000-0000-000-000-000-000-000

		為妙方思	STI	REAN	REF	EREN	CING	""	包围的机			
Gazetted N	ame: WILLIA	MS CREEK				1,4	Local Name:					
Watershed	Code: 480-4	52300-13942-0	0000-0000-0000-0	000-000-0	000-000-	000-000	IL	P Map #:		IL	P#:	
44.6			The same of the sa	A11-07-930	REA	CH	相談問	BIROSER	WILL A	CAR PAR	V - 174	117800
Reach #:	2.0	Bush Files		district to	B. 101	対抗の対象権	個力を担任を		9945Wa93	AT PERSON	100	1 1
Length (km			UTM(Zone/East/loupling: Coupled	North): 1		3.612294 gnitude:			Sample		Biase	ed
Gradient (%			nement: Confined	1	Ma	Order:			Open wa	Zone:		
US Elev (m			Islands: NONE		Ri		getation: Mix	ed C/D	Open wa	iter: Abs	ent	
Bars: None	✓ Side	Diagonal	Mid-channel	Spar	_	raid		Not Specified				
(je)		I STATE OF STATE	the way	350	SIT		R-14/2012	Ozi Joseph	437.01	W	7.70000	670-
Site #	±: 410	Field UT	м			Agend	cy: C172	Crew:	JH/JA	Date:	2001/07	7/04
Site Length	n (m): 1100	GIS UT	M 10.646572.612	3091			cy Name: Tri					104
	1 1	100	100	C	HAN	NEL			N- 10	4/12/2	100	-
No Vis.Ch.:	Intermi	ittent:		Avg	Min	Max	#]		Avg	Min	Max	#
Dewatered:	T	ribs.:	Channel Width (m)	: 4.02	3.700	4.300	6	Gradier		4	5	4
Stage: Low			Wetted Width (m)		2	3.1	6	Pool Depth	(m): 0.47	0.400	0.600	6
Med		E	Bankfull Depth (m)	0.87	0.8	0.9	3		Turbidity.:	Turbid		Low
High	Ĭ,	Temp (C): 6	pH: 7.1		(Conductivi	ty: 60			oderate		lear 🗸
100		1	10000	MOF	RPHO	LOG	ADD SO	1 5 14 F/42	U.S. HOLLOW	UWATE.		THE LOCAL D
Bed Materia	l: Dominant	: Cobble	D95 (cm): 50			Bars: Nor		✓ Diagon	-1 1	a la consti	2116-007	a planta
	Subdominant	: Gravels	D (cm): 30			Dai 3. 1401	i Side	Diagon	al Mid-	-channel	-	an L
Channel Pa	attern: Irregula	ar, Wandering	Islands: No	one	DISTU	RBANCE	O1 B1	B2 B	3 D1	D2 D	3	uid [
	pling: Partiall					ATORS		Inir			7	
Confine	ment: Freque	ently Confined			C1	C2 C	3 C4 C	25 S1	S2 S3	S4	S5	
Morph	ology: RP	Riffle Pool						TITL	n n			
R IN THE	THE SER	NA CELEBRA	(5) (p) 1 (b)	SECONO.	COVI	ER	- Spill of	28 100 m	C) Carrott	er miles en en	white the same	Ang interest
Total Cover:	Moderate		Type:	SWD	LWE	В	Ιυ	I DP I	ov I	IV	and the parties	
LWD:	Few		Amount:	S	D	T	N	T	T	N		
LWD Dist:	1.700		Location: P/S/O:	V	V	~			V		FSZ	. 🗆
Right Bank:	Shape: V	- shape Text	ure: Fines Gr	avel 🗸	Cobble	Boulde	er Rock				100	
Left Bank:	Shape: V			avel 🗸	THE PARTY OF	Boulde		Manmad	_	Cro	wn Clos	77.3
Right Bank:	Rip.Veg: N		-	e: Matur			- NOCK	Manmade			21-40	0%
Left Bank:	Rip.Veg:	2010.202	1 1 1 2	e: Matur			Instream V	eg: None	Alnae	Moss	Vasc	ulas -
	S-1-1-10	11 - 500		2 450000				eg. Trone L		INIOSS	vasc	ulai
Site Number	Capture	Number of	Length fished	Tota	FISI	Voltage	Canada			10 2001	1907	1
	Method	Events	(m)	Time		vonage	Species	Total Fish	Minim Length	1000	Maxin Length	
410	EF	_1	400	613 s	ec	600	DV	9	60		70	

West Babine Study Area

Reach #

ILP Map #

PROJECT

3.0

Project Watershe	ed Cod	e: 480-	INE RIV	ER	entory - 0000-000		-000-00	0-000-00	0-000-00	00	F	roject C	ode:			5098		
1300 75 601	1	7.5	E.H.	1 49	E 15	AC-	WAT	ERS	HED	FIE.		15 11		170 mg	100	1.00	ing:	
Gazetted Name:	WILLIA	AMS CR	EEK							Loc	al Name	: None						
Watershed Code:	480-45	2300-13	942-000	000-0000	-0000-0	00-000-0	000-000	-000-000										
ILP Map#:			1	LP#:		NID M	ap #: 09	3M.027	N	ID#: 40	010	Read	ch #:	3	3.0		Site #: 4	110
Field UTM (Z.E.N):					Method:					Cital	: 1100		Mot	hod: GE		Acce	ss: V2	
GIS UTM (Z.E.N):		572 612	3091	.,	neu lou.				R	ef. Name			Wich	100. 02		ricce	33. VE	
010 0 (W (E.E.14).	10.040	012.012	.0001						14	oi. Hairi								
Date	e: 200	1/07/04	1 1	Time: 15	:30	1,0	Agency	: C172	0	crew:	JH/JA		F	ish Crd?		1	ncomple	ete:
制, 下海山流流	niew.	M. SALL	DATE:	Sept. 14	Live St.	11 A	CH	ANN	EL	75	E West	T. L.	WALT.	6.5	000	- 1150L		Territal I
255	Mtd	width	width	width	width	width	width	width	width	width	width	Avg			Gadi	ent %	Mtd	Avg
Channel Width (m):	MS	4.10	4.30	4.20	4.00	3.80	3.70			11.00.		4.02		Method I:	4.0	5.0	С	4.50
Wetted Width (m):	MS	2.70	2.80	2.10	2.00	2.90	3.10				12.00	2.60		lethod II:		4.0	С	1.54.4
Pool Depth (m):	MS	0.40	0.50	0.60	0.50	0.40	0.40					0.47	-			1,407.0		4
								-					N	o Vis.Ch	.: 🔲	Interm	ittent:	
Wb Depth:	.9	.9	.8	Avg	g: 0.87		Method:	MS	St	age: L	M	V H		Dv	/:		Tribs.:	
COVER			Tot	al: M														
Type:	SWE	1 1	VD	В	U	DF		ov T	IV	1 CR	OWN CI	OSURE						
Amount:	S		0	T	N	T		T	N	2		1-40%						
Loc: P/S/O:				2000		1			111	4			M -	A				
RIP:	м	GV	С	В	R						RIP	F 🖂	G 🗸	c	В	R	A [
RIP: I STG: I	м		С	В	R		in w	ATE	R	e louis	Texture	F 🖂	G 🗸	C	В	R	A [4.12
RIP: I	M MF		C	В	R A		in w	ATE	R ===	in the state of	Texture RIP STG	F 🖂	G V	C C	В	R	A _	
RIP: I STG: I EMS:	M MF		С	В	R 🗍 A	NE JA		ATE	R ⊘ H	Re	Texture RIP STG	F 🖂	G 🗸	C	В		S. C.	KINT I
RIP: I STG: I EMS: Temp: 6	M MF		С	В	R	Metho	od: T4		R∌ ⊕	R	RIP STG eq #: ond.: 60	F 🖂	G	1 34	30 H	Met	hod: S	3
RIP: I STG: I EMS:	M MF	FW.	C	В	R A	Metho Metho			R	R	Texture RIP STG	F 🖂		1 34	30 H	Met	S. C.	3
EMS: Temp: 6 ph: 7	M MF	FW.	C	В	R _ A	Metho Metho Metho	od: T4 od: P2 od: GE			R	RIP STG eq #: ond.: 60	M MF		1 34	30 H	Met	hod: S	3
EMS: Temp: 6 ph: 7	M MF	FW.	C	B _ 1	R	Metho Metho Metho	od: T4 od: P2 od: GE			Ro Co	RIP STG eq #: ond.: 60 urb.: T	M MF		_ C	V	Met Met	hod: S	3
EMS: Temp: 6 pH: 7 Flood Signs: ra	M MF 5 7.1 afted d	ebris	t: C		R A	Metho Metho Metho	od: T4 od: P2 od: GE			R	RIP STG eq #: ond.: 60	M MF		1 34	V	Met	hod: S	3
EMS: Temp: 6 pH: 7 Flood Signs: ra	M MF 5 7.1 afted d	ebris				Metho Metho Metho	od: T4 od: P2 od: GE		OGY	Ro Co	RIP STG eq #: ond.: 60 urb.: T	M MF		_ C	V	Met Met	hod: S	3
EMS: Temp: 6 pH: 7 Flood Signs: ra	M MF 7.1 afted d	ebris	t: C		Subdom	Metho Metho Metho	od: T4 od: P2 od: GE	PHOL	O G Y	Ric Ci	RIP STG eq #: ond.: 60	M MF	L 333	C D1 D	2 0	Met Met	hod: S:	3 E
EMS: Temp: 6 pH: 7 Flood Signs: ra	M MF 7.1 afted d	ebris	t: C		Subdom	Metho Metho Metho	od: T4 od: P2 od: GE	PHOL	O G Y	Ro Co	RIP STG eq #: ond.: 60 urb.: T	M MF	L 333	_ C	2 0	Met Met	hod: S:	3 E
EMS: Temp: 6 pH: 7 Flood Signs: ra Bed Material: D95: 6	M MF 7.1 afted d	ebris	t: C		Subdom	Metho Metho Metho	od: T4 od: P2 od: GE	PHOL	O G Y	Ric Ci	RIP STG eq #: ond.: 60	M MF	L 333	C D1 D	2 0	Met Met	hod: S:	3 E
EMS: Temp: 6 ph: 7 Flood Signs: ra Bed Material: D95: 6 Pattern: If	M MF 7.1 afted d	ebris	t: C		Subdom	Metho Metho Metho	od: T4 od: P2 od: GE	PHOL	O G Y	Ric Ci	RIP STG eq #: ond.: 60 'urb.: T	M MF	L 333	C D1 D	2 0	Met Met	hod: S:	3 SE 4 S5
EMS: Temp: 6 ph: 7 Flood Signs: ra Bed Material: D95: 5 Pattern: II Islands: N Coupling: P	M MF 7.1 afted d	ebris	t: C		Subdom	Metho Metho Metho	od: T4 od: P2 od: GE	PHOL DISTURB INDICA	O G Y	Ric Ci	RIP STG eq #: ond.: 60	M MF	L 333	C D1 D	2 0	Met Met	hod: Si hod: G	3 SE 4 S5
EMS: Temp: 6 ph: 7 Flood Signs: ra Bed Material: D95: \$ Pattern: If Islands: N Coupling: P Confinement: F	M MF 7.1 afted d	ebris	t: C		Subdom	Method Me	od: T4 od: P2 od: GE	PHOL DISTURB INDICA*	O G.Y	Ric Ci	RIP STG eq #: ond.: 60 'urb.: T	M MF	L	C D1 D	2 D	Met Met	hod: Si hod: G	3 SE 4 S5
EMS: Temp: 6 pH: 7 Flood Signs: ra Bed Material: D95: 6 Pattern: If Islands: N Coupling: P Confinement: F FSZ:	M MF 7.1 afted d	ebris	t: C		Subdom	Method Me	od: T4 od: P2 od: GE	PHOL DISTURB INDICA	O G.Y	Ric Ci	RIP STG eq #: ond.: 60 'urb.: T	M MF	L	C D1 D	2 D	Met Met	hod: Si hod: G	3 SE 4 S5
EMS: Temp: 6 pH: 7 Flood Signs: ra Bed Material: D95: 5 Pattern: If Islands: N Coupling: P Confinement: F FSZ:	MMF 3 3 77.1 aafted d 1 1 PC C C C C C C C C C C C C C C C C C	ebris Dominan D (cm	t: C): 30.00		Subdom	Method Me	od: T4 od: P2 od: GE	PHOL DISTURB INDICA*	OGY ANCE TORS	Ric Ci	RIP STG eq #: ond.: 60 urb.: T B1 C2 SIDI	M MF	L	C D1 D	2 D	Met Met	hod: Si hod: G	3 SE 4 S5
EMS: Temp: 6 pH: 7 Flood Signs: ra Bed Material: D95: 5 Pattern: If Islands: N Coupling: P Confinement: F FSZ: Name OverWinter Habitat	MMF 3 3 77.1 aafted d 1 1 PC C C C C C C C C C C C C C C C C C	ebris Dominan D (cm	t: C): 30.00	ed with p	Subdom	Metho Metho	od: T4 od: P2 od: GE	PHOL DISTURB INDICA Ba	OGY ANCE TORS	01 C1 N	RIP STG eq #: ond.: 60 urb.: T B1 C2 SIDI	M MF	L	C D1 D	2 D	Met Met	hod: Si hod: G	3 SE 4 S5
EMS: Temp: 6 pH: 7 Flood Signs: ra Bed Material: D95: 5 Pattern: If Islands: N Coupling: P Confinement: F FSZ: Name OverWinter Habitat Rearing Habitat	MMF 3 3 77.1 aafted d 1 1 PC C C C C C C C C C C C C C C C C C	ebris Dominan D (cm	t: C): 30.00 associat ate - ass	ed with p	Subdom Morph Dools with cover	Metho Metho	od: T4 od: P2 od: GE	PHOL DISTURB INDICA Ba	OGY ANCE TORS Ars:	01 C1 N	RIP STG eq #: ond.: 60 urb.: T B1 C2 SIDI	M MF	L	C D1 D	2 D	Met Met	hod: Si hod: G	3 E
EMS: Temp: 6 pH: 7 Flood Signs: ra Bed Material: D95: 5 Pattern: If Islands: N Coupling: P Confinement: F FSZ: Name OverWinter Habitat	MMF 3 3 77.1 aafted d 1 1 PC C C C C C C C C C C C C C C C C C	ebris Dominan D (cm	t: C): 30.00 associat ate - ass ate - ass	ed with posciated sociated	Subdom Morph Dools with cover	Metho Metho	od: T4 od: P2 od: GE I ORI	PHOL DISTURB INDICA Ba AT Q U s ws, subst	OGY ANCE TORS ars;	01 C1 N	RIP STG eq #: ond.: 60 urb.: T B1 C2 SIDI	M MF	L	C D1 D	2 D	Met Met	hod: Si hod: G	3 SE \$ \$5
EMS: Temp: 6 ph: 7 Flood Signs: ra Bed Material: D95: 5 Pattern: II Islands: N Coupling: P Confinement: F FSZ: Name OverWinter Habitat Rearing Habitat Spawning Habitat	MMF S S 77.1 For a street of the street of	ebris Dominan D (cm	t: C): 30.00 associat ate - ass ate - ass	ed with p	Subdom Morph Dools with cover	Metho Metho	od: T4 od: P2 od: GE I ORI	PHOL DISTURB INDICA Ba	OGY ANCE TORS ars;	01 C1 N	RIP STG eq #: ond.: 60 urb.: T B1 C2 SIDI	M MF	L	C D1 D	2 D	Met Met	hod: Si hod: G	3 SE \$ \$5
EMS: Temp: 6 pH: 7 Flood Signs: ra Bed Material: D95: 6 Pattern: If Islands: N Coupling: P Confinement: F FSZ: Name OverWinter Habitat Rearing Habitat	MMF S S S S S S S S S S S S S S S S S S S	ebris Dominan D (cm	t: C): 30.00 associat ate - ass ate - ass	ed with posciated sociated	Subdom Morph Dools with cover with cover	Method Me	BITA ss. pool	PHOL DISTURB INDICA Ba AT Q U s ws, subst	OGY ANCE TORS ARS:	O1 C1 N C1 C1 Comment	RIP STG eq #: ond.: 60 rurb.: T B1 C2 SIDI	M MF MF C3 (C3 CC3 CC3 CC3 CC3 CC3 CC3 CC3 CC3	L L STATE OF THE S	C D1 D	2 D	Met Met	hod: Si hod: G	3 SE 4 S5

West Babine Study Area

Reach#

ILP Map #

ILP#

Site 410

	COMMENTS
Section	Comments
CHANNEL	DV Captured

FDIS Fish Card

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

480-452300-13942-00000-0000-0000-000-000-000-000-000

1	500	加	Ty G			in i	建	ETC.	VATE	RB	וססו		基化		AND THE PERSON NAMED IN	7.00	MALE CO			
G	Proje	ct Code	480-	LIAMS CR 000000-00	0000-0000							Loca	al: No	one						
WS Code: 480-452300-13942-00000 Waterbody ID:							0000-00	15 777	LP Map	128.613	000			II D			Panch #			
		oject ID:		1					LP Мар	-	ILP #: Lake/Stream: S				Reach #: 3 - Lake From Date:					
_		0,000,10.	0000					-							-					
	Fish F	Permit #:	14	5086K	D	ate: 200	1/07/04		To: 2001/07/04			Age	ency: (C172	Cre	Crew: JH/JA Resample:				
- 4	-	101/2	1	小型	12231	villegers.	NEW MEN	SI	TE /	ME	THO	D		-	Tag	W SW		如何是此		
Site#	N	ID Map	NIE	0# (JTM:Zone				MTD/NO Temp			Cond	Turb		Comment					
410	093M.027 40010 GPI				GPU	EF 1		6 60 C												
pite	111	-110	5	The same		WALL S	5 1	1. G	EAR	SE	TTI	NGS		N Section	1211	FILE WA	ndigni - L	A STATE OF		
Site#	M	TD/NO	H/P	Date		me In	Date C		Time Out						Com	ment				
410	E	F 1	1	2001/07			2001/07		16:50											
	hiji		- XIN) · C	. ELE	CTI	ROF	ISHE	R S	SPE	CIFI	CAT	LION	\$			view of		
Site#	_	MTD/N	10	H/P	En		Sec	_	ngth	Wi	dth	Voltage Frequ		Jency	Pulse	Make	Mode			
410	E	F	1 1 0 613 400.0 3		3.0	600				5	SMITH	12B								
N.F.	-25	7 (6)	11.00	SUPP	4 T 1		290	FI	SH S	UMI	MAF	Yiff	SHE	1000年			4470	AND THE REST		
Site#	-	MTD/N	10	H/P	Species	Stag	e T	Age	Tot	al#	Lath	th (Min/Max) FishAct				Comment				
410	E	F	1	1	DV	J		1+	-	9	60		70	R						
Mark I		13/4	No.	1	1850)	THE CO.	INC	IVI	DUAL	F	SH	DAT	FA	le in	1000	A CONTRACTOR	SHITTERNY	14 化学		
ite#	MT	MTD/NO		Species	Length	Weight	ht Sex	Mat	at A			Vch#	Ge	netic	Roll#	Frame#	Comr	nent		
	1.20							1	Str/S	mpl#/	Age		Str/Smpl#							
410	EF	1	1	DV	60	C	U	U			-	1		, CIT		1				
410	EF	1	1	DV	60		U	U												
410	EF	1	1	DV	65		υ	U												
410	EF	1	-1	DV	70		U	U						1 10						
440	EF	1	1	DV	60 65		U	U												
	LEF	-	1	DV	70		U	U		-					_					
410	FF			· L/V	7.0		U	U	1 1					1 1						
410 410 410 410	EF EF	1	1	DV	60		U	U												



Site #410, upstream photo of typical habitat within Williams Creek. Roll #10, Frame #14, Date: 2001/07/04



Site #410, downstream photo of typical habitat within Williams Creek. Roll #10, Frame #15, Date: 2001/07/04

West Babine Study Area

Reach # ILP Map #

ILP#

Watershed Code: 480-452300-13942-48843-0000-0000-000-000-000-000-000

Charles and	世際關	遊師就使	SIR	EAM	REF	EREN	CING	Epite 1	學的學		444	
Gazetted N	ame:					1	ocal Name:					
Watershed	Code: 480-4	52300-13942-48	8843-0000-0000-00	00-000-0	000-000-0	000-000	ILF	Map #:		IL	P#:	
		MENG SE	24 - 48 F 76	(100	REA	СН	William	1500	485 000	All cons	STEELS.	
Reach #:	4.0	15185	MIX F BEST MAN		1000	N. W. DOW	101111111111111111111111111111111111111	r Aller L		12-4-20		
Length (km	3.00		UTM(Zone/East/N oupling: Partially (6.6123827 gnitude:	2		Sample		Biase	ed
Gradient (%			nement: Occasion			Order:			Open wa		7.75	
US Elev (m): 1068		Islands: NONE	311,311		parian Ve	getation: Mixe	ed C/D	open na		- Citt	
Bars: None	✓ Side	Diagonal	Mid-channel	Span	В	raid	Landuse: No	ot Specified				
	1 de 1	W -	30 W V	i t	SIT	E	4 - 4 900	J. Second		100 m	200	dimi-
Site #	#: 411	Field UTI	м			Agend	y: C172	Crew:	JH/JA	Date:	2001/07	/04
Site Lengti	n (m): 100	GIS UT	TM 10.646223.6123	3062		Agen	cy Name: Trito	n Environmer	ntal Consu	Itants (T	епасе)	
1000	1 1 N	THE THE	THE PERSON	C	HAN	NEL :	horas	**	Jan Jan J	C-11-15		10 90
No Vis.Ch.:	Intermi	ittent:		Avg	Min	Max	#		Avg	Min	Max	#
Dewatered:	_ T	ribs.:	Channel Width (m):	1.40	1.3	1.5	6	Gradient 1	%: 4.00	3	5	4
Stage: Low			Wetted Width (m):		1.100	1.4		Pool Depth (n	n): 0.30	0.200	0.400	6
Med	~	_ E	Bankfull Depth (m):	0.67	0.6	0.7	3	Tu	rbidity.:	Turbid		Low
High		Гетр (C): 7	pH: 7.1		C	Conductivit	y: 60	Moderate Cl				
1 37 - 5	1000		7. 7. 7. 1. 1. 1.	MOF	PHO	LOGY	2100000	VS STATE OF	1-356	100	13V (201	11000
Bed Materia	l: Dominant Subdominant		D95 (cm): 18 D (cm): 7.		10	Bars: Non	✓ Side	Diagonal	Mid-	channel		an 🗌
	attern: Irregula	ar, Wandering	Islands: No	ne		RBANCE	O1 B1	B2 B3	D1 I	D2 D	3	
		ionally Confine			C1	C2 C	3 C4 C5	5 S1 S	0 00		0.5	
	ology: RP	Riffle Pool						31 3	2 S3	S4	S5	
-												
****	127.5.0				COVE		131	e de la company	0.00		計學	2 de
Total Cover:	Moderate		Type:	SWD	LWD		U	DP	OV	IV		
LWD:			Amount: Location: P/S/O:	D	S	N	N	N	Т	T		
LWD Dist:	Clumped		Eccation. 17670.	<u> </u>	~			V	V		FSZ	: 🗆
Right Bank: Left Bank: Right Bank:	Shape: V Shape: V Rip.Veg: S	- shape Text	ture: Fines 🗸 Gra ture: Fines 🗸 Gra Stage	avel	Cobble Cobble /herb sta	Boulde Boulde ge		Manmade Manmade	3	Cro	own Clos 1-20	7/2
Left Bank:	Rip.Veg:		Stage	e: Shrub	/herb sta	ge	Instream Ve	g: None	Algae _	Moss	Vasc	ular 🗸
1 1 1 th	Tel a fe		Thursday of the tea	, jii	FISH	1	NEW Y	W 15 1		ny ne	STAIR	of Cartin
Site Number	Capture Method	Number of Events	Length fished (m)	Tota Time		Voltage	Species	Total Fish	Minim Length		Maxin	
411	EF	1	100	120 se	ес	600	DV	3	55		60)

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

Watershed Code: 480-452300-13942-48843-0000-0000-000-000-000-000-000-000

1.0

	17開	100 and	35	alt 3		是[[7]	PR	OJE	CT	图 1	7 Y		斯爾聯	BYTH			
Proje Stream Nan Project Watersh	ne (gaz		NE RIV	ER			-000-000	0-000-0	00-000-00	00	-1	Project C	ode:		5098		
	0.00	160	- 17		5 0 7	140	WAT	ERS	HED	1400	F (33)	diameter.				以治療	E S
Gazetted Name										Lo	cal Nam	e: None					
Watershed Code: ILP Map#; Field UTM (Z.E.N): GIS UTM (Z.E.N):	••		1	LP#:	0-0000-00		000-000- ap #: 09		N	ID #: 40 Site Ly	g: 100	Read	ch #: Method: Gl	1.0	S	Site #: 41 ss: V2	11
Dat	e: 200	1/07/04		Time: 16	:55		Agency:	C172	C	Crew:	JH/JA		Fish Cro	?: 🗸	Inc	complete	e: 🗆
	MASS	Statut.	(E) 2 - 2	Attendit	- VERT S-	1-5 25		ANN			LECTIVITATION		COLUMN THE	2000	4-387	1000	COLUMN TO SERVICE
	Mtd	width	width	width	width	width	width	width	_	width	width	Avg	THE OWNER	Gadi	ient %	Mtd	Avg
Channel Width (m):	MS	1.40	1.30	1.40	1.50	1.50	1.30	***************************************	T T T T T T T T T T T T T T T T T T T	Wilder.	maar	1.40	Method	_	4.0	C	4.00
Wetted Width (m):	MS	1.20	1.10	1.20	1.40	1.30	1.20					1.23	Method	1: 5.0	3.0	С	
Pool Depth (m):	MS	0.40	0.30	0.40	0.30	0.20	0.20					0.30	No Vie C	LE	1-1	C	1
Wb Depth:	.6	.7	.7	1 Avo	: 0.67		Method:	MS	St	age: L	— м	V H	No Vis.C	w:	Intermitt	ibs.:	1
COVER			Tota	al: M								•		-	-,-		
Type:	SWE) I LW		ВТ	U	T DF	1	l ov l iv		1 cp/	OWN CLOSURE						
Amount:	D	S		N	N	N		T	T	1		-20%					
Loc: P/S/O:	7	~			TY		~	TITLE	V	INS			NFAF	м	V		
RIP: STG:											STG	:S :SHR					
	-113	15					W	ATE	R		1 1		200		- #	The second	
EMS:											eq #:						
Temp: pH:							od: T4				ond.: 60				Metho	od: S3	
Flood Signs:							d: GE			T	urb.: T	M	_ r _ c	~	Metho	od: GE	2
THE STREET	-		90-1		- C-	- 61	APP	שות	OGY	Clader.		19412		- Service	(140 to 160	S 20.01	
A				- Service	200		OKF	1101	001	01	B1	B2 E	33 D1	D2 D	03	272	等程制
Bed Material: D95:		Dominant D (cm)			Subdom												
Pattern:		0 (0111)	. 7.00		Worpi			INDICA	BANCE	-	00						
Islands:								III	TONO	C1	C2	C3 C	C4 C5	S1 S	32 S3	S4	S5
Coupling:																	
Confinement:	oc																
FSZ:								В	ars:	NV	SIDI		DIAG	MID	SPAN		BR
- 16 m - 19	(1.2)	THE T	1913	Dig-Mil	521	HAI	BITA	T QI	JALIT	ΓY	Gart S	31	C. TREATMEN	11/24	一种	S275-73	CONTROL BY
Name	11 - 298	TITE OF THE PERSON NAMED IN		N. Carlo	05640	Here's	SALES OF	E P	(PSSC) 17	omment	e e		S THE		100	12/75/3	
OverWinter Habita	t	None								Cimila				_			
Rearing Habitat		Modera	ate - ass	ociated	with flow	s, cover	, access										
Spawning Habitat	1,000	Low - li	mited b	y substra	ates, high	fine co				Series III							
The state of	4	4.3	8	1		TYME	PH	ото	S	N. P.	2 1/427	143	4 3 M/L	1 150			
Photo		c Lg		Di		Comments downstream photo of typical habitat within stream											
R: 10 F: 16 R: 10 F: 17		TD TD				_											
	- 0	, 0				Jupst	earn ph	UIU OF T	pical hab	mat With	in strear						1

West Babine Study Area

Reach # ILP Map #

II P#

Site

Watershed Code: 480-452300-13942-48843-0000-0000-000-000-000-000-000

1.0

7 · · · · · · · · · · · · · · · · · · ·	COMMENTS
Section	Comments
CHANNEL	DV Captured

West Babine Study Area

Reach #

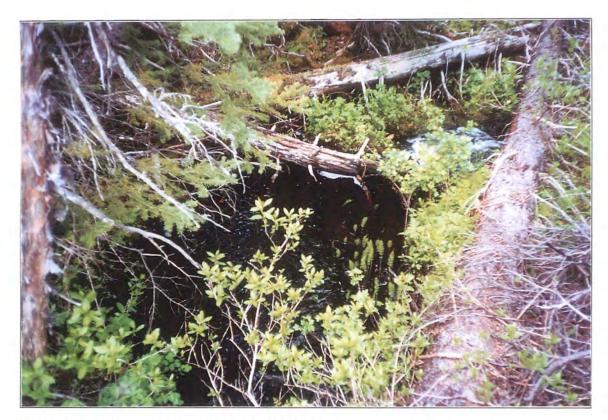
ILP Map #

IIP#

Watershed Code:

480-452300-13942-48843-0000-0000-000-000-000-000-000

	(B)					Mark 1	授例		WA	TEI	RBOI	Y			建议	問問則	HIS STATE	
G	Proj	production paths and	e: 480	-000000-0 -452300-1			0.000					Loc	cal:	None				
1	Wate	erbody II Project II):		3942-400	43-0000-	0000-00	00-00		Map #		Lake/S	tream	100	P#:		Reach #: om Date:	1 -
	Fish	Permit #	t: 14	5086K		ate: 200	1/07/04		To	: 200	01/07/04	Ag	ency	: C172	Cr	ew: JH/JA	Resa	mple:
HILLER	93	We Tal			400	ATT.	7.00	S	ITE	11	METH	OD	17 6	1		700		1 50
Site#	1	VID Map	NII	D#	UTM:Zon	e/East/No	orth/Mth	d	MTC	O/NO	Temp	Cond	Tu	rbid	F-12000-1	C	omment	11411-11401
411	0	93M.027	400	011			- 54	GPU	EF	1	7	60	10	С			23.25.26.3	
10		351	S. W.	強い傾す	B1 = V (4		F		3 E A	R:	SETT	INGS	Will.	可清湖	Page 1		N TO WAR THE STATE OF	
Site#	1	MTD/NO	H/P	Date	In T	me In	Date C	ut	Time	Out		-1			Com	ment		SP SW III
411	E	F 1	1	2001/07	7/01 1	6:55	2001/07	/01	17:	:30								
H	SET		749	1	C C	. ELE	ECTI	101	FIS	HE	SP	ECIF	CA	TION	IS	erin a	经验 证价的是	1000000
Site#		MTD/	NO	H/P	En	cl	Sec	L	ength		Width	Vo	Itage	Freq	uency	Pulse	Make	Model
411	H.	EF	1	-1	0		120		100.0		1.5	6	00		J	7	SMITH	12B
HOW	PE	- No.	THE SECOND	MAX PA		4000	6.48	FI	SH	SU	MMA	RY	-1	2000	MILES IN		ROOT	10 THE RES
Site#	1	MTD/	NO	H/P	Specie	s Sta	ge T	Age	A SUL	Total	# Lc	th (Min/N	lax)	FishAc	# I	- I Not	Comment	
411		EF	1	1	DV	J		1+		3	-	55	60	R	-		Comment	
Trans.	10	W. S.	The second		0.00		IND	IV	IDU	AL	FIS	H DA	TA	ALT HE PL	Marie A		2000年1月20日	1 70
Site#	M	TD/NO	H/P	Species	Length	Weight	Sex	Mat		Α	ge	Vch#	G	enetic	Roll#	Frame#	Comr	ment
	_					American)				Str/Sm	pl#/Age		Str	r/Smpl#	1,7.1	117.18		
411	EF	1	1	DV	60		Ü	U							1111			
411	EF	1	1	DV	55		U	U										
411	EF	1	1	DV	55		U	U			44							



Site #411, downstream photo of typical habitat within stream. Roll #10, Frame #16, Date: 2001/07/04



Site #411, upstream photo of typical habitat within stream. Roll #10, Frame #17, Date: 2001/07/04

West Babine Study Area

Reach # ILP Map #

IIP#

1305			STR	EAM	REF	EREN	CING		T. H		W.W.	Will the
Gazetted Na	ame: WILLIA	MS CREEK				ı	ocal Name:					
Watershed (Code: 480-45	2300-13942-0	0000-0000-0000-00	00-000-00	0-000-	000-000	ILP	Map #:		IL	P#:	
TOTAL PROPERTY.	1 1 1 1 1 1 1	Marks men	17-A - NA. C 1912	tale is	REA	CH	to a second	17 ALCTA = \$1	FALL ST	Willo.	TEN SER	. 101 (E.)
		1. N. V.		WENTER	2.4.5	British St	LARMI			Mineral	AB-COLD	
Reach #: 5			UTM(Zone/East/N	lorth): 10					Sample		Biase	ed
Length (km) Gradient (%)			oupling: Coupled nement: Occasion	ally Conf	ma	gnitude: Order:				Zone: iter: Abs		
US Elev (m)			Islands: NONE	any Com	Rin		getation: Mixe		Sherr we	iter. Aus	CIIL	
Bars: None	_	Diagonal		Span	_	raid	Landuse: No					
Bars. None	Side	_ Diagonal _	Mid-Chairnei	opan .	SIT		Landuse. N	ot opecined	t this day	dex se	STATE WAS	Love Dec
Site #	442	Field UT	N. C. S.	Mark Committee	311	- CA1	0470	Crew: JI	I/JA	Data	2001/07	7/05
Site Length		1000	м TM 10.643943.6123	3107			cy: C172	on Environment				7/05
- CHONES CONTRACTOR	- 1 - 3/m P 5 0/m	No recommendation			I A AL			Tariff to Start			estimation,	Tales of
No Vis.Ch.:	行业	Min & D.	The state of the s	**************************************	Annual Control	14 200	Sheet some	and the last	of a complete of			-
Dewatered:	=	= -	Channel Width (m):	Avg 5.57	Min 4.300	7.1	6	Gradient %	Avg : 3.50	Min 1	Max 6	#
			Wetted Width (m):		3.400	7	6	Pool Depth (m)		0.230	0.600	6
Stage: Low Med	Manager 1	33	Bankfull Depth (m):	0.80	0.6	1	3	, , , , ,	0			Lacol I
High		emp (C): 4	pH: 6.7		(Conductivi	tv: 20	Turc	idity.:	Turbid oderate	=	Low_
No.	2 24 5 C 4 D	N. W. Series	507 F 188 C	MOB		LOGY	• • • • • • • • • • • • • • • • • • • •	To all Colembra	etten a.a.	sout a low		
Bed Material	l: Dominant:	Cabble	0054		_				PANES.	THE REAL PROPERTY.	-	
	Subdominant:		D95 (cm): 20 D (cm): 5.			Bars: Nor	Side	Diagonal	Mid	-channel		pan raid
		ar, Wandering	Islands: No		DISTIL	RBANCE	O1 B1	D2 D2	24	D0 F		alu
	pling: Decoup		Islands. 140	iie .		CATORS	O1 B1	B2 B3	D1	-	03	
		onally Confine			C1	C2 C	3 C4 C	5 S1 S2	S3	S4	S5	
Morpho	ology: CP	Cascade Poo	bl	I					I			
	7	(C) 41900		C	OVI	ER	SELEC	* - To = 1	0.00	TO TAKE	Marin S	Salar at
Total Cover:	Moderate		Type:	SWD	LWE) В	ΙU	DP (ov I	IV		101
LWD:	Few		Amount:	T	D	Т	T	S	T	N		
	Evenly Distrib	outed	Location: P/S/O:	\ 	~	V		V V			FSZ	· 🗆
Right Bank:	Shape: V	Mary Control	ture: Fines Gra	avel V	Cobble	Bould	er Rock	Manmade	1	Co	own Clos	
Left Bank:	Shape: V			avel 🗸 (-	Boulde	=	Manmade	1	Ç.	1-20	200,00
Right Bank:	Rip.Veg: M	lixed C/D	Stag	e: Mature	forest			_				
Left Bank:	Rip.Veg:		Stag	e: Mature	forest		Instream Ve	eg: None 🗸	Algae [Moss	Vasc	cular [
1000		- 1 - V	1000	tentre v	FIS	H	And Sales		1200	12.00	1051810	7777
Site Number	Capture	Number of	THE TOTAL TO SECURE THE TAIL	Total	STITE	Voltage	Species	Total	Minin	num	Maxi	mum
	Method	Events	(m)	Time		1.34		Fish	Length	(mm)	Length	n (mm)
413	EF	1	300	372 SP	C	700	DV	7	51		0	0

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

Watershed Code: 480-452300-13942-00000-0000-0000-000-000-000-000-000

5.0

			11115	新 []	in I	PR	OJE	CT				4.7					
Project Nam Stream Name (gaz. Project Watershed Cod): BABI	NE RIV	ER			-000-00	0-000-00	0-000-0	00	á	Project C	ode:			5098		
THE PROPERTY OF THE PARTY OF TH		=" = #	75,0		1500	WAT	ERS	HED	GEOTICS.	开始		The his	EL TANGE	1370			向向前
Gazetted Name: WILLIA Watershed Code: 480-45 ILP Map#: Field UTM (Z.E.N): GIS UTM (Z.E.N): 10.643	AMS CRE 2300-13	942-000 II	LP#:	0-0000-0 Method:			-000-000 3M.027	N	Loc IID#: 40 Site Loc ef. Name	0013 g: 300	e: None Rea	ch #:	5 ethod: HC	i.0		Site #: 4 ss: V2	113
Date: 200	1/07/05	1	Time: 11	:00		Agency	: C172	(Crew:	JH/JA			Fish Crd?:	~	Ir	ncomple	te:
	45h		00		1117	CH	ANN	EL	战。他			1	11 11 -	Visite.	雪節		TO MIL
Mtd	width	width	width	width	width	width	width	width	width	width	Avg			Gadie	ent %	Mtd	Avg
Channel Width (m): MS	4.80	5.00	6.30	7.10	5.90	4.30					5.57		Method I:	5.0	1.0	С	3.50
Wetted Width (m): MS Pool Depth (m): MS	4.80	4.00	4.00	7.00	4.00	3.40					4.53		Method II:	6.0	2.0	С	
Pool Depth (m): MS Wb Depth: .6 COVER	1.0	0.23 .8	0.50 Ave	0.40 g: 0.80	0.30	0.60 Method:	MS	SI	tage: L	ПМ	0.39		No Vis.Ch. Dw	-	Interm	ittent:	3
Type: SWD	LW	VD	В	U	DF	· T	ov T	IV	7 CR	OWN CI	OSURE						
Amount: T	- 0		T	Т	S		T	N	1		-20%						
Loc: P/S/O:	1	1		V	~	1			INS	TREAM	VEG:	NI	A	М	V		
LB SHP: V Texture: F	G 🗸	С	В	R						RB SHP Texture		G	y c □	В	R	A	
Texture: F RIP: M STG: MF						Table 14	ATE	D. T.			: F	G	v c □	В	R	A [
Texture: F RIP: M STG: MF				R _ A		W	ATE	R is	工作 位	Texture RIP STG	: F	G	√ c □	В	R	A [
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Texture: F RIP: M STG: MF					Metho	wod: T4	ATE	R	Re	RIP STG eq #: ond.: 20	: F : M : MF				Met	hod: S	3
Texture: F RIP: M STG: MF EMS: Temp: 4					Metho Metho	od: T4	ATE	R · ·	Re	Texture RIP STG	: F : M : MF		√ c □		Met		3
Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7				tozally	Metho Metho Metho	od: T4 od: P2 od: GE			Re	RIP STG eq #: ond.: 20	: F : M : MF				Met	hod: S	3 E
Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: rafted d		t: C		tozally	Metho Metho Metho	od: T4 od: P2 od: GE	PHOL	OGY	Re	RIP STG eq #: ond.: 20	: F : M : MF : MF : MF : MF : C3 : C		D1 D:	2 03	Meti Meti	hod: S. hod: G	3 E
EMS: Temp: 4 pH: 6.7 Flood Signs: rafted d Bed Material: D95: 20.0 Pattern: IR Islands: N Coupling: DC Confinement: OC	ebris	t: C		Subdom	Metho Metho Metho I: G	od: T4 od: P2 od: GE	PHOL	OGY BANCE TORS	Ri Ci	RIP STG eq #: ond.: 20 furb.: T	: F : M : MF : MF : MF : MF : C3 : C	B3 CC4	D1 D:	2 D3	Meti Meti	hod: S. hod: G	3 E S5
EMS: Temp: 4 pH: 6.7 Flood Signs: rafted d Bed Material: D95: 20.0 Pattern: IR Islands: N Coupling: DC Confinement: OC FSZ: Name	ebris Dominant D (cm)	t: C :: 5.00	And the second	Subdom	Metho Metho Metho I: G	od: T4 od: P2 od: GE	PHOL DISTURE INDICA B	OGY BANCE TORS ars:	Ri Ci	RIP STG eq #: ond.: 20 furb.: T	: F : M : MF : MF : MF : MF : C3 : C	B3 CC4	D1 D:	2 D3	Meti Meti	hod: S. hod: G	3 E S5
EMS: Temp: 4 pH: 6.7 Flood Signs: rafted d Bed Material: D95: 20.0 Pattern: IR Islands: N Coupling: DC Confinement: OC FSZ: Name OverWinter Habitat	ebris Dominant D (cm)	t: C :: 5.00	d moder	Subdom Morph	Metho Metho Metho In: G In: CP	od: T4 od: P2 od: GE	PHOL DISTURE INDICA B.	OGY BANCE TORS ars:	Ri Ci	RIP STG eq #: ond.: 20 furb.: T	: F : M : MF : MF : MF : MF : C3 : C	B3 CC4	D1 D:	2 D3	Meti Meti	hod: S. hod: G	3 E S5
EMS: Temp: 4 pH: 6.7 Flood Signs: rafted d Bed Material: D95: 20.0 Pattern: IR Islands: N Coupling: DC Confinement: OC FSZ: Name OverWinter Habitat Rearing Habitat	ebris Dominant D (cm)	t: C :: 5.00	d moder	Subdom Morph ate flow at-associ	Metho Metho Metho In: G In: CP	od: T4 od: P2 od: GE	PHOL DISTURE INDICA B.	OGY BANCE TORS ars:	Ri Ci	RIP STG eq #: ond.: 20 furb.: T	: F : M : MF : MF : MF : MF : C3 : C	B3 CC4	D1 D:	2 D3	Meti Meti	hod: S. hod: G	3 E S5
EMS: Temp: 4 pH: 6.7 Flood Signs: rafted d Bed Material: D95: 20.0 Pattern: IR Islands: N Coupling: DC Confinement: OC FSZ: Name OverWinter Habitat	ebris Dominant D (cm)	t: C :: 5.00	d moder	Subdom Morph	Metho Metho Metho In: G In: CP	od: T4 od: P2 od: GE IORF	PHOL DISTURE INDICA B: T Q L , flows and vels and	OGY BANCE TORS ars:	Ri Ci	RIP STG eq #: ond.: 20 furb.: T	: F : M : MF : MF : MF : MF : C3 : C	B3 CC4	D1 D:	2 D3	Meti Meti	hod: S. hod: G	3 E S5
EMS: Temp: 4 pH: 6.7 Flood Signs: rafted d Bed Material: D95: 20.0 Pattern: IR Islands: N Coupling: DC Confinement: OC FSZ: Name OverWinter Habitat Rearing Habitat Spawning Habitat	ebris Dominant D (cm) Deep p Modera Modera	t: C :: 5.00	d moder ng habit vning ha	Subdom Morph ate flow at-associ bital-ass	Metho Metho Metho In: G In: CP	od: T4 od: P2 od: GE IORF	PHOL DISTURE INDICA B.	OGY BANCE TORS ars:	Ri Ci	RIP STG eq #: ond.: 20 furb.: T	: F : M : MF : MF : MF : MF : MF : MF :	B3 C4 DIAG	D1 D:	2 D3	Meti Meti	hod: S. hod: G	3 E S5
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West Babine Study Area

Reach # ILP Map #

an#

ILP#

Site 413

1, 10 10 10 10	COMMENTS
Section	Comments
CHANNEL	DV captured. This site also covers the bottom of Reach 6
CHANNEL	S2 Stream

West Babine Study Area

Reach #

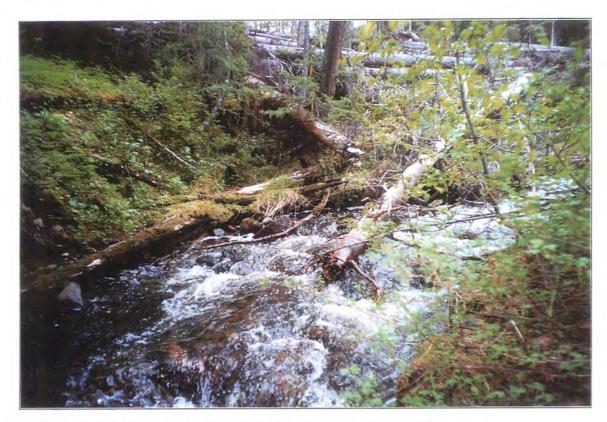
ILP Map #

ILP#

Watershed Code:

480-452300-13942-00000-0000-0000-000-000-000-000-000

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	Pro	oject C WS Co terbody	ode: ode: / ID:	480-4 480-4	IAMS CR 000000-00 452300-13	0000-0000			00-000		00-00		L Lake/		il: No	ILP	#:		Reach #: 5	í š
		Projec			3334		7. 1554		_	32			, many san	-	-		-			
	Fish	h Perm	it #:	145	5086K	Da	ate: 200	1/07/05				1/07/05		Age	ncy:	C172	Cri	ew: JH/JA	Resar	nple:
	31	J.		100	1	EVI SAL			SI	TE	/ M	ETH	OD	15					经产品增加	A DUM
Site#		NID M	ар	NID	# (JTM:Zone	/East/No	rth/Mth	d	MTD/I	OF	Temp	Con	d	Turb	id		С	omment	
413		093M.0	27	400	13	-			GPU		1	4	20		С					the of the
Pi.	1	14	.16		1. 建键	经 标图	T67: 1013	Virgo.	4 . G	EA	R S	ETT	ING	S		910	Maria 7			1 31-10
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	20		16			C	. ELE	CT	ROF	ISH	IER	SP	ECII	4	CA:	LION	S	国际企业	Entrace To	
Site#	ы		D/N	0	H/P	End	cl s	Sec	Le	ength		Width	1	/olta	age	Frequ	uency	Pulse	Make	Mode
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Sille	TIV.	1374	17-1		外的产	1	22/11/19		FJ	SH	SU	MMA	RY	2//	104	27.85	和制工	3		
Site#	T	МТ	D/N	0	H/P	Species	Sta	ge	Age	100	Total :	# Lg	th (Min	/Ma	ix)	FishAc	t		Comment	
413		EF		1	_1_	DV	J		1+		7		55	8	30	R	3			
00		1	- 1					INE	IVI	DU.	AL	FISI	H D	A T	A			The state of	語和學家學	
ite#	٨	MTD/N	0	H/P	Species	Length	Weight	Sex	Mat		Ag r/Smp	ge ol#/Age	Vcl	n#	_	netic Smpl#	Roll #	Frame#	Comr	nent
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413	EF		1	1	DV	60		U	U	-	-			4		/_ 1				
413	EF	24	1	1	DV	60		U	U			A 1								



Site #413, upstream photo typical of stream and surrounding riparian vegetation. Roll #10, Frame #18, Date: 2001/07/05



Site #413, downstream photo of habitat within stream. Roll #10, Frame #19, Date: 2001/07/05

West Babine Study Area

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Reach # ILP Map #

ILP#

1.0

093M.027

100			STR	EAM	REF	EREN	CING	1949年後	1000		1	
Gazetted Nar	me:					L	ocal Name:					
Watershed C	ode: 000-00	00000-00000-00	000-0000-0000-00	00-000-00	00-000-	-000-000	ILI	P Map #: 093M.0	027)L	P#:	10125
	King and	常為動物	AN ANTIBOD	MAN AND AND AND AND AND AND AND AND AND A	REA	CH	部對情報	活躍快乐		学家	極緩	
Reach #: 1. Length (km): Gradient (%): US Elev (m): Bars: None	.93 8.5 1181	Confir	UTM(Zone/East/Noupling: Partially Comment: Occasion slands: NONE Mid-channel	Couple	Ma Ri	gnitude: Order:	1 etation: Mix Landuse: N	ed C/D	Sample BGC Open wa	Zone:	Biase SBS sent	эd
- 1 - M	E Str. 18	NE STORY	Towns of the Control	In all	SIT	但		FINE PROPERTY.	\$2.2	Mr.	PACINE.	活作
Site #:		Field UTM GIS UT	и M 10.644573.6123	3567			y: C172 cy Name: Trit	Crew: JF on Environment	I/JA al Consu		2001/07 'еггасе)	7/05
19.86 L	11.41	Thinks	后上与是他们	C	HAN	NEL	· July - 1		100	在18	3,2,5	一川の部
No Vis.Ch.:	Intermit	ttent:		Avg	Min	Max	#		Avg	Min	Max	#
Dewatered:	T		hannel Width (m):	0.98	0.600	1.600	6	Gradient %	-	5	10	4
Stage: Low			Wetted Width (m):		0.600	1.100	6	Pool Depth (m)	: 0.23	0.100	0.400	6
Med v	/	Е	ankfull Depth (m):	0.43	0.4	0.5	3	Turk	oidity.:	Turbid		Low
High		emp (C): 8	pH: 6.5		3)	Conductivit	y: 30		М	oderate		Clear
	1870	W.		MOR	PHO	LOGY			1 1/2	100	Pakyan	力。許能
Bed Material:	Dominant: ubdominant:	2.000	D95 (cm): 10 D (cm): 1.			Bars: Non	✓ Side	Diagonal	Mid	-channel		pan 🔲
Coup Confiner	ling: Partiall	ar, Wandering y Coupled onally Confine Riffle Pool	Islands: No	ne		CATORS C2 C3	O1 B1	B2 B3 25 S1 S2	D1 S3	D2 [S5	
THE WATER	G-U.S.	nithates	IN THE REST		COV	ER	No of Street,	以那种称为 证	4	STATE OF		- whi will
Total Cover: M	foderate		Type:	SWD	LW	о І в	ΙU	I DP I (ov T	IV		
LWD: F	-		Amount:	S	D	N	T	Т	T	N		
LWD Dist: E	100000000000000000000000000000000000000	outed	Location: P/S/O:	/	~		~	V V			FSZ	7.
Right Bank: Left Bank: Right Bank: Left Bank:	Shape: V Shape: V Rip.Veg: M Rip.Veg;	- shape Text	ure: Fines Gra Stag	avel 🗸 avel 🗸 e: Mature e: Mature	e forest	Boulde	Rock	Manmade Manmade	Algae		own Clos	sure
LOS-miles in	3 (2) (3)	AND THE	F 17:1516	2 15 m	FIS	H 7215	1 2-03	40	gestat.	等	500	100
Site Number	Capture Method	Number of Events	Length fished (m)	Tota Time		Voltage	Species	Total Fish	Minim Length			mum h (mm)
414	EF	1	200	190 se	ec	600	DV	5	60)	7	75

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

1.0

093M.027

10125

· 位于一种的			70.0		19/1 P.	PR	OJE	СТ	166		16日本	是用		Sign.	100 m		
Project N Stream Name (Project Watershed		BINE RIV	ER			-000-000	0-000-00	0-000-00	00		Project Co	ode:			5098		
一种 一种的现在分词				支护的		WAT	ERS	HED	rate.		William Co	100	SELLE				nearly.
Gazetted Name:									Loc	al Nam	e: None						
Watershed Code: 00	0-000000-0	0000-000	000-000	-0000-00	00-000-0	000-000	-000-000										
ILP Map#: 09:	3M.027	1	LP #: 10	125	NID M	ap #: 09	3M.027	N	D#: 40	014	Reac	h#:	1	.0	Sit	e #: 41	14
Field UTM (Z.E.N):			N	Method:					Site Lg	: 200		Metho	od: HC		Access:	V2	
GIS UTM (Z.E.N): 10.	644573.61	23567						Re	f. Name	:							
Date:	2001/07/05	5	Time: 13:	:00		Agency:	C172	C	rew:	JH/JA		Fis	h Crd?:	~	Inco	mplete	e:
1	No. of Resident		AC 12		280-11	2 11 12	ANN		SCIGO		5011		110.00	POLESION IN	W.S. A. S.		THE REAL PROPERTY.
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	S 0.70	_	0.90	1.10	0.60	0.95					0.86		thod II:	5.0	7.0	C	1,20
	S 0.40	0.20	0.10	0.15	0.20	0.30					0.23			_			
			1	1			V.E					No	Vis.Ch.	-	Intermitte		
Wb Depth: .	4 .5	.4	Avg	3: 0.43	,	Method:	MS	St	age: L	M	V H		Dw		Trib	s.:	_
COVER		Tota	al: M														
Type: S	SWD L	.WD	В	U	DF		OV	IV	CRO	OWN CI	OSURE						
Amount:	S	D	N	Т	Т		Т	N	1		-20%						
Loc: P/S/O:	V			V	~	~			INS	TREAM	VEG:	NV	A	M	V		
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'THE 900	C. S.	taie		750	11-17-	W	ATE	R	F 9 7 6		NE N	(.15	7000	心在	1. 整体		13
EMS:									Re	eq #:							
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pH: 6.5						od: P2			T	urb.: T	M	LI	C		Method	: GE	
Flood Signs: Non	ie				Metho	od: GE											
					N	ORP	HOL	OGY	11/1/2	Call	15-8-11) le	7 915	5.18	. Service	产品	53
Bed Material:	Domina	nt: G		Subdom	: F				01	B1	B2 B	3 D	1 D	2 D3	3		
D95; 10.	0 D (cn	n): 1.00		Morph	: RP	-	ISTURE	RANCE					V				
Pattern: IR							INDICA		C1	C2	C3 C	4 C	5 S	1 52	2 S3	S4	S
Islands: N										TI	TIT		TIT			П	TT
Coupling: PC														4 1 1			11
Confinement: OC										010					2237		
FSZ:							В	ars:	NV	SID	= L	DIAG	M	IID	SPAN		В
· · · · · · · · · · · · · · · · · · ·	all's late	8. 50	off is a	- F4.0	HAI	BITA	TOL	JALIT	Y	17. 170	15215	600	Own	- 10	- Hard		2017
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Spawning Habitat	Low -	potential	. limited	by fines			_		omment	5			-	-			_
Rearing Habitat	_	rate - ass		_	ercut ba	nks and	LWD			_		_		_		_	_
OverWinter Habitat	Low -	due to se	eason flo	w and la	ck of de	ep pools	3										
TI (Barrell Sale		- 1	-	CT HUT	1 11	PH	OTO	S			3	-	185	15/31	THE WAY		37
Photo	Foc Lg		D	ir							Comment	ts		SECTION	A STATE OF THE PARTY OF	and the same	
10 F: 20	STD		l		upst	ream ph	oto of ty	pical hab	itat withi	n site							
10 F: 21	STD				dow	nstream	photo o	f typical h	nabitat w	ithin site							-

West Babine Study Area

Reach # ILP Map #

Site

1.0

093M.027

10125

	COMMENTS
Section	Comments
CHANNEL	DV captured

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

1.0

093M.027

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G	Proje		: 480-	000000-0								Loca	al: N	lone				
	Water	body ID oject ID		20064793		00 0000			ILP Map		3M.02	7 Lake/Str	eam:	S	#: 10		Reach #: 1 om Date:	•
	Fish P	Permit #	: 14	5086K	D	ate: 200	1/07/05	;	To: 2	001/07	7/05	Age	ency:	C172	Cr	ew: JH/JA	Resar	nple:
	The Co	Jan	引網	11 A	法法	1	W ME	SI	TE /	ME	THO	D	11/2	CORD	14-34		100 W/L 304	T SHEET
Site#	NI	D Map	NIC)#	UTM:Zon	e/East/No	orth/Mth	d	MTD/NO	Te	mp	Cond	Tur	bid		C	omment	
414	093	3M.027	400	14			-11	GPU	EF 1	1	В	30	C					
- 16			EXIT				1	1. G	EAR	SE	TTI	NGS	11.	Wettern	// j-			TO THE T
Site#	M	TD/NO	H/P	Date	In Ti	me In	Date 0	Out	Time Out	T					Com	ment	The state of the s	I STATE OF THE STA
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Site#	MI	MTD/I	10	H/P	En	cl	Sec	Le	ength	Wie	dth	Volt	age	Freq	uency	Pulse	Make	Mode
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Site#	200	MTD/N	10	I H/P	Specie	- 1 04-				3000	0.229120		15	Op. III	1840° 1740	A TANK	ALC: N	1.25
414			1	1	DV	s Sta	ge	Age 1+	100	al #	Lgtn	(Min/Ma	75	FishAc	-		Comment	
11000	0.012/0	- 1 (a)	963.656	HVKSLISE	DV	W 199	INF		DUAL						E STATE	SEAR SEE SE	Carried in Sin	OF STATES
Site#	MTI	D/NO	H/P	Species	Length	Weight	Sex	Mat	CONTRACTOR OF THE PARTY OF THE	Age	S DECK TO	Vch#	G	enetic	Roll #	Frame#	Comm	nent
							1		Str/S	mpl#//	Age	300	Str	Smpl#				
414	EF	1	1	DV	60		U	U							1			
414	EF	1	1	DV	75		U	U				1						
414	EF	1	1	DV	65		U	U			100							
414	EF	1	1	DV	65 65		U	U										
414																		



Site #414, upstream photo of typical habitat within site. Roll #10, Frame #20, Date: 2001/07/05



Site #414, downstream photo of typical habitat within site. Roll #10, Frame #21, Date: 2001/07/05

West Babine Study Area

Reach # ILP Map #

ILP#

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Gazetted Na							ocal Name:					
Watershed (Code: 000-00	00-00000-00	0000-0000-0000-00				ILP	Map #: 093M.0)27	IL	P#:	10123
1 1 1 1 1	A STATE OF	West of the			REA	СН	tale/ale	Biggie	1.44	To the last	17.17	
Reach #: 2 Length (km) Gradient (%) US Elev (m) Bars: None	: 1.13 : 12.4 : 1261	Confi	UTM(Zone/East/N cupling: Coupled nement: Frequently Islands: NONE Mid-channel		Ma _i Rip	gnitude: Order: 2	3 etation: Mixed	d C/D	Sample BGC Open wa	Zone:		ed
Burs. Hone	· Olde	_ Diagona	This charife	- Opun	SIT		Editouse: No	Call	9 July 2007	50 V"-) 15	1002	750
Site #:	7.7	Field UTI	M FM 10.644668.6123	784		Agenc	y: C172 y Name: Trito	Crew: JF n Environmenta	I/JA al Consu		2001/07 errace)	7/05
	real of	Sec. 11.		C	HAN	NEL			- physical	を	Thirty.	4
No Vis.Ch.: Dewatered:			Channel Width (m):	Avg 1.60	Min 1	Max 2.1	7	Gradient %	Avg : 10.75	Min 8	Max 13	#
Stage: Low			Wetted Width (m): Bankfull Depth (m):	1.56	1 0.2	1.8	7	Pool Depth (m)		0.150	0.35	6
Med High	Name of the last o	emp (C): 5	pH: 6.4		(Conductivit	y: 30	Turb	idity.: M	Turbid oderate	= ,	Low_ Clear
The Park	72-11-0	100	1816 - AL - W	MOR	RPHO	LOGY		SHIP THE PARTY OF	10.00	Maria		214
Bed Material	: Dominant Subdominant		D95 (cm): 30 D (cm): 4.		-	Bars: Non	Side S	∠ Diagonal	Mid-	channel		pan [raid [
	ttern: Sinuou		Islands: No	ne		RBANCE	O1 B1	B2 B3	D1	D2 D	03	
Confine	ment: Uncont				C1	C2 C3	C4 C5	S1 S2	S3	S4	\$5	
	P P T	prefinence 2 2 1	- X.y	- Sight a	COVI	R	Tarket State	四周 电子 4		17 18	第 表新	
Total Cover:	Moderate		Type:	SWD	LWD	В	U	DP (OV	IV		
LWD: I	Few Evenly Distril	outed	Amount: Location: P/S/O:	T	D	T	T	D	T	N	FSZ	z: 🗍
Right Bank: Left Bank: Right Bank: Left Bank:	Shape: V Shape: V Rip.Veg: M Rip.Veg:	- shape Text	ture: Fines Gra			Boulde Boulde	Rock	Manmade Manmade g: None	Algae 🗌	Cre	own Clos	sure
11 11.	- HE IF P	131			FIS	H, 90	e Desagn	Party of the	, an	18 mile	Seatolii	17.57
Site Number	Capture Method	Number of Events	Length fished (m)	Tota Time		Voltage	Species	Total Fish	Minim Length			imum h (mm)
415	EF	1	200	165 s	ec	600	DV	5	60		7	75

West Babine Study Area

Reach # IL

2.0

ILP Map #

093M.027

ILP#

Site 415

PROJECT Project Name: Babine River Fish Inventory - 2001 5098 Stream Name (gaz.): BABINE RIVER Project Code: WATERSHED Local Name: None Gazetted Name: ILP Map#: 093M.027 ILP #: 10123 NID Map #: 093M.027 NID #: 40015 Reach #: 20 Site #: 415 Field UTM (Z.E.N): ... Method: Site Lg: 200 Method: HC Access: V2 GIS UTM (Z.E.N): 10.644668.6123784 Ref. Name: Date: 2001/07/05 Agency: C172 Crew: JH/JA Fish Crd?: Incomplete: Time: 13:20 CHANNEL Mtd width width width width width Gadient % width width width width width Avg Avg Channel Width (m): MS 1.60 2.10 1.80 1.00 1.50 1.40 1.80 1.60 Method I: 12.0 | 13.0 C 10.75 Wetted Width (m): MS 1.60 1.80 1,80 1.00 1.50 1,40 1.80 1.56 Method II: 10.0 8.0 C Pool Depth (m): MS 0.30 0.25 0.35 0.15 0.20 0.30 0.26 No Vis.Ch.: Intermittent: Method: MS Wb Depth: .4 Stage: L M H .2 .2 Avg: 0.27 Dw: Tribs.: COVER Total: M LWD OV **CROWN CLOSURE** Type: SWD IV D 1-20% Amount D N Loc: P/S/O INSTREAM VEG: N A M V LWD: F DIST: E LB SHP: V RB SHP: V Texture: F G C B R A Texture: F G C B R A RIP: M RIP: M STG: MF STG: ME WATER EMS: Req #: Temp: 5 Method: T4 Cond.: 30 Method: S3 pH: 6.4 Method: P2 Turb.: T M L C Method: GE Flood Signs: None Method: GE MORPHOLOGY 01 **B**1 D3 **B2** D2 Bed Material: Dominant: C Subdom: G D95: 30.0 D (cm): 4.00 Morph: RP DISTURBANCE **INDICATORS** Pattern: SI C1 C2 C3 C4 C5 SI S2 **S3 S**5 Islands: N Coupling: DC Confinement: UN Bars: DIAG MID SPAN BR FSZ: HABITAT QUALITY Name Comments Spawning Habitat Low - associated with substrates, limited by frequency of laminar/glide habitat Rearing Habitat Moderate - associated with cover, flows and access OverWinter Habitat Moderate - associated with pools and flows PHOTOS Photo Foc Lg Dir Comments 22 STD upstream photo of typical habitat within site 10 U 23 D downstream photo of typical habitat within site

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

2.0

093M.027

10123

古世界的建筑	COMMENTS
Section	Comments
CHANNEL	DV Captured

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

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Lake Fro w: JH/JA Co	Lake Fr	Reach #: 2 - rom Date: A Resample:
Lake Fro w: JH/JA Co	Lake Fr rew: JH/JA C	Resample:
Co	C	Comment
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	al Transfer	E-120 A 10 11 22
		10 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
Pulse	Pulse	Make Mode
7	7	SMITH 12B
		ROOT
至 6 以 哪门	學的學術	[1] 《公司》中代成。"
		Comment
		及中国。主人及《西·森里
Frame#	Frame#	Comment
		Frame#



Site #415, upstream photo of typical habitat within site. Roll #10, Frame #22, Date: 2001/07/05



Site #415, downstream photo of typical habitat within site. Roll #10, Frame #23, Date: 2001/07/05

West Babine Study Area

Reach # ILP Map #

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	15-250	(新产品) (1)	STR	EAM	REF	EREN	CING	"西安是产生"	. Kiz	1	100000	心事
Gazetted Na	ame:					L	ocal Name:					
Watershed (Code: 000-00	00-00000-00	000-0000-0000-00	0-000-0	00-000-0	000-000	ILP	Map #: 093M.	027	IL	P#:	10124
	STATE OF THE STATE			La constitution	REA	C H		10年末100万		X-V	A Ch	li,
Reach #: 1	Acres 10		UTM(Zone/East/N						Sample		Biase	ed
Length (km)	3.00		oupling: Partially (1			Zone:	200	
Gradient (%) US Elev (m)			nement: Occasion Islands: NONE	ally Conf		Order: 1	etation: Mixe		Open wa	ter: Abs	ent	
Bars: None		Diagonal	Mid-channel	Span	-	-	Landuse: No					
Dais. None	3ide	Diagonal	ivilo-criamilei _	Span	SIT		Landuse. No	t Specified	1 200	and the	ETHAL.	N 25 28 18
Site #	416	Field UTN	M	1 - 10 1	ALC: MARKET	The state of the state of	/: C172	Crew: Ji	H/JA	Date:	2001/07	7/05
Site Length	2.711.71		M 10.644831.6124	1003				n Environment	0.00	20.00		100
			温度 福港	C	HAN	NEL	raph ta	4444		TIES	3 23	
No Vis.Ch.:	Intermi	ttent:		Avg	Min	Max	#		Avg	Min	Max	#
Dewatered:	T	ribs.:	Channel Width (m)	1.39	0.800	1.75	8	Gradient %	: 8.25	3	11	4
Stage: Low			Wetted Width (m):		0.600	1.75	8	Pool Depth (m): 0.22	0.100	0.35	7
Med		В	Bankfull Depth (m):	0.17	0.1	0.2	3	Tur	bidity.:	Turbid		Low
High	1	emp (C): 4	pH: 6.7		C	conductivity	7: 70	200		oderate	-	Clear 🗸
Y 15 ()	- The Lower	10172-1-1-	· 个 · 艾 · 为 @	MOR	PHO	LOGY	COLORS	A PROPERTY	V 571 3	781	专用的	1,2%
Er all vareval	: Dominant Subdominant		D95 (cm): 35 D (cm): 4			Bars: Non	Side S	Diagonal	Mid-	channel		pan raid
	attern: Irregula	ar, Wandering	Islands: No	ne		RBANCE	01 B1	B2 B3	D1	D2 D	03	
	ment: Unconf				C1	C2 C3	C4 C5	S1 S2	S3	S4	S5	
	ology: RP	Riffle Pool		1		02 03			33			
1025	-1,11 h		2 The Marie	The state of	COVE	R	5.250		The state of the s	P. Oak	E=U8)**	
Total Cover:	Moderate		Type:	SWD	LWD	В	U	DP	ov I	IV		
LWD:	Few		Amount:	T	S	N	T	S	D	N		
	Evenly Distrit	outed	Location: P/S/O:	V	~			V V			FSZ	z: 🗍
Right Bank:	Shape: U	ndercut Text	ture: Fines Gr	avel	Cobble	Boulde	r Rock	Manmade		Cr	own Clos	entre
Left Bank:	Shape: U	ndercut Text		avel 🗸	7.5.7.7.0±	Boulde		Manmade	1	O.	1-20	
Right Bank:	Rip.Veg: N	lixed C/D	Stag	e: Mature	e forest							
Left Bank:	Rip.Veg:		Stag	e: Mature	e forest		Instream Ve	g: None 🗸	Algae [Moss	Vaso	cular [
- 11435	八百百世	11 6		1 N 1 T	FISI	Estatat		120,		The same	STAV	FMG
Site Number	Capture Method	Number of Events	Length fished (m)	Tota Time		Voltage	Species	Total Fish	Minim Length		Maxi	mum h (mm)
416	EF	1	100	116 s	ec	600	DV	5	50		6	0

West Babine Study Area

Reach #

ILP Map #

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Site

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Project Nam	ne: Babine River Fish	Inventory - 2001					
	z.): BABINE RIVER	inventory - 2001			Project C	ode:	5098
Project Watershed Coo		0-0000-0000-00	00-000-000-000-00	0-000-000	r toject o	oue.	5090
	J. 113-55- 0	and the second	WATERS	HED		774-201-	山西河縣 [四百]
Gazetted Name:				Lo	cal Name: None		
Watershed Code: 000-0	00000-00000-00000-00	000-0000-000-000	0-000-000-000-000				
ILP Map#: 093M	.027 ILP #:	10124 NID	Map #: 093M.027	NID#: 40	0016 Rea	ch#: 1.0	Site #: 416
Field UTM (Z.E.N):		Method:		Site L	g: 300	Method: HC	Access: V2
GIS UTM (Z.E.N): 10.64	4831.6124003			Ref. Name	9:		
Date: 200	01/07/05 Time:	13:41	Agency: C172	Crew:	JH/JA	Fish Crd?:	✓ Incomplete:
	medicate from the second	Entra Section	CHANN				moonpiete
Mtd	width width wid	th width widt		width width	Luidth Aug	The second lines of the second	Sadient % Mtd Avg
Channel Width (m): MS	1.60 1.70 1.7			1.30 1.30	width Avg 1.30 1.39		Sadient % Mtd Avg .0 10.0 C 8.25
Wetted Width (m): MS	1.60 1.70 1.7			1.10	1.27		.0 11.0 C
Pool Depth (m): MS	0.17 0.25 0.2	0 0.10 0.3	5 0.33 0.15		0.22		
Wb Depth: .2	1 1 2 1	0.47	Mathada MO	Out I		No Vis.Ch.:	
13 T. C. L.	1000	Avg: 0.17	Method: MS	Stage: L	MMH	Dw:	Tribs.:
COVER	Total: M						
Type: SW			DP OV		OWN CLOSURE		
Amount: T	S N	T	S D	N 1			
Loc: P/S/O:	V	V V		INS	TREAM VEG:	NVAM	_ v _
LWD: F LB SHP: U Texture: F	DIST; E				RB SHP: U		
LB SHP: U	DIST: E				RB SHP: U		RA
LB SHP: U Texture: F RIP: M			WATE		RB SHP: U Texture: F		
LB SHP: U Texture: F RIP: M			WATER	R	RB SHP: U Texture: F RIP: M STG: MF		
LB SHP: U Texture: F RIP: M STG: MF		RA	WATER	R	RB SHP: U Texture: F		RA
LB SHP: U Texture: F RIP: M STG: MF		R A Me		R R C	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70	G ☑ C ☐ B	R A Method: S3
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4		R A Me	thod: T4	R R C	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70		RA
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7		R A Me	thod: T4 thod: P2	R R C	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70	G ☑ C ☐ B	R A Method: S3
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None	G ♥ C □ B □	R A Me	thod: T4 thod: P2 thod: GE	R R C	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 furb.: T M	G ☑ C ☐ B	R A Method: S3
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None	G ♥ C B Dominant: G	R A Me	thod: T4 thod: P2 thod: GE	R R C T	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 furb.: T M	G ♥ C □ B	R A Method: S3 Method: GE
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0	G ♥ C □ B □	R A Me	thod: T4 thod: P2 thod: GE MORPHOL DISTURB	R R C	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 rurb.: T M B1 B2 B	G ♥ C □ B L □ C ♥	Method: S3 Method: GE
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR	G ♥ C B Dominant: G	R A Me	thod: T4 thod: P2 thod: GE	R R C T	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 furb.: T M B1 B2 E	G ♥ C □ B	R A Method: S3 Method: GE
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR Islands: N	G ♥ C B Dominant: G	R A Me	thod: T4 thod: P2 thod: GE MORPHOL DISTURB	R R C	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 rurb.: T M B1 B2 B	G ♥ C □ B L □ C ♥	Method: S3 Method: GE
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LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR Islands: N Coupling: DC	G ♥ C B Dominant: G	R A Me	thod: T4 thod: P2 thod: GE MORPHOL DISTURB INDICAT	R R C	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 rurb.: T M B1 B2 E C2 C3 (G ♥ C □ B L □ C ♥	Method: S3 Method: GE
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR Islands: N Coupling: DC Confinement: UN	G ♥ C B Dominant: G	Me Me Subdom: C Morph: RP	thod: T4 thod: P2 thod: GE MORPHOL DISTURB INDICAT	R R C C T T O G Y O1 ANCE TORS C1	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 rurb.: T M B1 B2 E C2 C3 (SIDE	G C B L C 33 D1 D2 C4 C5 S1	Method: S3 Method: GE
EMS: RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR Islands: N Coupling: DC Confinement: UN FSZ:	G ♥ C B Dominant: G	Me Me Subdom: C Morph: RP	thod: T4 thod: P2 thod: GE MORPHOL DISTURB INDICAT	R R C C T T O G Y O1 ANCE TORS C1	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 rurb.: T M B1 B2 E C2 C3 (SIDE	G C B L C 33 D1 D2 C4 C5 S1	Method: S3 Method: GE
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR Islands: N Coupling: DC Confinement: UN FSZ:	G ✓ C B Dominant: G D (cm): 4.00	Me Me Me Subdom: C Morph: RP	thod: T4 thod: P2 thod: GE MORPHOL DISTURB INDICAT	R R C C T T O G Y O1 ANCE TORS C1	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 furb.: T M B1 B2 E C2 C3 (C) SIDE	G C B L C 33 D1 D2 C4 C5 S1	Method: S3 Method: GE
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR Islands: N Coupling: DC Confinement: UN FSZ: Name Spawning Habitat	Dominant: G D (cm): 4.00	Me Me Me Subdom: C Morph: RP	thod: T4 thod: P2 thod: GE MORPHOL DISTURB INDICAT	R R C C T O C T O C C C C C C C C C C C C C	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 furb.: T M B1 B2 E C2 C3 (C) SIDE	G C B L C 33 D1 D2 C4 C5 S1	Method: S3 Method: GE
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR Islands: N Coupling: DC Confinement: UN FSZ: Name Spawning Habitat Rearing Habitat	Dominant: G D (cm): 4.00	Me Me Me Me Me Merph: RP	thod: T4 thod: P2 thod: GE MORPHOL DISTURB INDICAT Ba ABITAT QU	R R C C T O C T O C C C C C C C C C C C C C	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 furb.: T M B1 B2 E C2 C3 (C) SIDE	G C B L C 33 D1 D2 C4 C5 S1	Method: S3 Method: GE
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR Islands: N Coupling: DC Confinement: UN FSZ: Name Spawning Habitat	Dominant: G D (cm): 4.00	Me Me Me Me Me Merph: RP	thod: T4 thod: P2 thod: GE MORPHOL DISTURB INDICAT Ba ABITAT QU deep pools and und served	R C C T OGY OI HANCE FORS CI C ALITY Comment	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 furb.: T M B1 B2 E C2 C3 (C) SIDE	G C B L C 33 D1 D2 C4 C5 S1	Method: S3 Method: GE
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR Islands: N Coupling: DC Confinement: UN FSZ: Name Spawning Habitat Rearing Habitat OverWinter Habitat	Dominant: G D (cm): 4.00	Me Me Me Subdom: C Morph: RP	thod: T4 thod: P2 thod: GE MORPHOL DISTURB INDICAT Ba ABITAT QU	R C C T OGY OI HANCE FORS CI C ALITY Comment	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 urb.: T M B1 B2 E C2 C3 (SIDE SIDE	G	Method: S3 Method: GE
LB SHP: U Texture: F RIP: M STG: MF EMS: Temp: 4 pH: 6.7 Flood Signs: None Bed Material: D95: 35.0 Pattern: IR Islands: N Coupling: DC Confinement: UN FSZ: Name Spawning Habitat Rearing Habitat OverWinter Habitat	Dominant: G D (cm): 4.00	Me Me Me Subdom: C Morph: RP	thod: T4 thod: P2 thod: GE MORPHOL DISTURB INDICAT Ba ABITAT QU deep pools and und served	R R C O T O G Y ANCE FORS C1 ARS: N Comment lercut banks	RB SHP: U Texture: F RIP: M STG: MF eq #: ond.: 70 urb.: T M B1 B2 E C2 C3 C SIDE Commen	G	Method: S3 Method: GE

West Babine Study Area

Reach # ILP Map #

ILP#

Site

1.0

093M.027

10124

	COMMENTS	
Section	Comments	
CHANNEL	DV captured	

West Babine Study Area

Watershed Code:

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Reach #

ILP Map #

ILP#

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C		d Name									-)	Loca	il: No	one				
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		body ID							ILP Map	#: 0931				ILP	#: 10	10 To	32	1 -
	Pr	oject ID	: 5098								Lake	e/Stre	eam:	S		Lake Fro	om Date:	
	Fish F	Permit #	: 14	5086K	D	ate: 200	1/07/05		To: 2	001/07/0	05	Age	ncy: (C172	Cr	ew: JH/JA	Resar	mple:
問語	740		7.5 -100	1	370			SI	TE /	MET	HOD	E.			A CONTRACTOR OF THE PARTY OF TH	是用數數		The section of
Site#	NI	D Map	NIC	# (JTM:Zone	/East/No	rth/Mth	d	MTD/NO	Tem	p Cor	nd	Turb	id	12,200,4		omment	on a search plant of
416	09	3M.027	400	16				GPU	EF 1	4	70		С					
1			0.00	地位	100		- 1	1. G	EAR	SET	TING	S	Orda	6. 茅枝的	2000			
Site#	M	TD/NO	H/P	Date I	n Tir	me In	Date C	Out	Time Ou			-	-		Com	ment		
416	EF	1	1	2001/07	/05 1	4:31	2001/07	7/05	15:00									
e jun	199	2000	SHIP	CONTRACTOR OF	Charles Co.	The second second												
2300	200111			7		TELE	CT	ROF	ISHE	R S	PECI	FIC	CAI	TION	S	是	哈斯尔 (6	
Site#	12.0040	MTD/N	10	H/P	End	200	Sec	A PARTY	ISHE ngth	R S Widt	a 1650 下型以	F1 (507 E 64	Frequ		Pulse	Make	Mode
Site#	_	MTD/N	NO 1	H/P	AMERICAN DE	d :	Marie	Le	An Valva		h		age	100	ency	Pulse 7	SMITH	Mode 12B
12.02.5	_	1000 400	-		End O	el	Sec	Le	ngth 00.0	Widt 1.	h 0	Volta 60	age 0	Frequ	iency	1	SMITH ROOT	12B
416	E T	F [1		Enc O		Sec 116	Le 10	ngth 00.0	Widt 1.0 U M M	ARY	Volta 600	age 0	Frequ	ency	1	SMITH ROOT	12B
416 Site#	E	F [1	1 H/P	Species	s Sta	Sec 116	Le 10 F1:	ngth 00.0	Widt 1.1 U M M al #	ARY	Volta 600 n/Ma	age 0	Frequ	ency	1	SMITH ROOT	12B
416	E	F [1		Enc O		Sec 116	FI:	ngth 00.0 SH S	Widt 1. U M M al #	ARY Lgth (Mil	Volta 600 n/Ma	age 0 ax)	Frequ	ency	1	SMITH ROOT Comment	计 医地数
416 Site# 416	E	MTD/N	1 100 1	1 H/P 1	Species DV	Stag	Sec 116	FI: Age 1+	ngth 00.0	Widt 1.1 UMM al# 5	ARY Lgth (Min	Volta 600 n/Ma 6	age 0	FishAct R	iency	7	SMITH ROOT Comment	12B
416 Site# 416	E	F [1	1 H/P	Species	s Sta	Sec 116	FI:	ngth 00.0 SH S Tot	Widt 1.1 UMM al# 5 LFIS	ARY Lgth (Mil 50 SH D	Volta 600 n/Ma	age 0 ix) 60 Ger	FishAct R	ency	1	SMITH ROOT Comment	12B
416 Site# 416 Site#	E	MTD/N	1 NO 1	H/P 1	Species DV	Stag	Sec 116 ge INE Sex	FI: Age 1+ DIVI Mat	ngth 00.0 SH S Tot	Widt 1.1 UMM al# 5	ARY Lgth (Mil 50 SH D	Volta 600 n/Ma 6	age 0 ix) 60 Ger	FishAct R	iency	7	SMITH ROOT Comment	12B
416 Site# 416	EF	MTD/NF D/NO	1 NO 1 H/P	H/P 1 Species	Species DV Length	Stag	Sec 116 ge IN E Sex U	Le 10 F1: Age 1+ DIVI Mat	ngth 00.0 SH S Tot	Widt 1.1 UMM al# 5 LFIS	ARY Lgth (Mil 50 SH D	Volta 600 n/Ma 6	age 0 ix) 60 Ger	FishAct R	iency	7	SMITH ROOT Comment	12B
416 Site# 416 site# 416 416	EF EF	MTD/N	1 NO 1 H/P 1 1	H/P 1 Species DV DV	Species DV Length 50	Stag	Sec 116 ge IN E Sex U U	Le 10 FI: Age 1+ DIVI Mat U	ngth 00.0 SH S Tot	Widt 1.1 UMM al# 5 LFIS	ARY Lgth (Mil 50 SH D	Volta 600 n/Ma 6	age 0 ix) 60 Ger	FishAct R	iency	7	SMITH ROOT Comment	12B
416 Site#	EF	MTD/NOD/NO	1 NO 1 H/P	H/P 1 Species	Species DV Length	Stag	Sec 116 ge IN E Sex U	Le 10 F1: Age 1+ DIVI Mat	ngth 00.0 SH S Tot	Widt 1.1 UMM al# 5 LFIS	ARY Lgth (Mil 50 SH D	Volta 600 n/Ma 6	age 0 ix) 60 Ger	FishAct R	iency	7	SMITH ROOT Comment	12B



Site #416, upstream photo of typical habitat within site. Roll #10, Frame #24, Date: 2001/07/05



Site #416, downstream photo of typical habitat within site. Roll #10, Frame #25, Date: 2001/07/05

West Babine Study Area

Reach # ILP Map #

LP#

T. Finance			# STF	EAM	REF	EREN	CING			PRINT		
Gazetted Na	me:					L	ocal Name:					
Watershed C	ode: 480-50	4200-67300-00	000-0000-0000-0	00-000-00	00-000-	000-000	IL	P Map #:		IL	P#:	
- Variable	146				REA	CH -		· 机拉二		Shippi		V. 1200
Reach #: 1.	0		JTM(Zone/East/N	lorth): 10	0.64735	1.6113898			Sample	Type:	Biase	ed
Length (km):	.76	Co	upling: Decouple	d	Ma	gnitude:	5		BGC	Zone:	SBS	
Gradient (%):		75,50000	ement: Unconfine	ed		Order:			Open wa	ter: Abs	ent	
US Elev (m):	907		slands: NONE		Rij	parian Veg	getation: Mi	ked C/D				
Bars: None	/ Side	Diagonal	Mid-channel	Span	□ в	raid 🗌	Landuse:	Not Specified				
100		(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	2000年	煙幣	SIT	B 计系列	"你 "	· · · · · · · · · · · · · · · · · · ·	7 F.1	10 m	部地	
Site #:	417	Field UTM	۸			Agenc	y: C172	Crew: J	H/JA	Date:	2001/07	7/05
Site Length	(m): 200	GIS UT	M 10.647317.611	3267		Agend	cy Name: Tri	ton Environmen	tal Consu	Itants (T	errace)	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	一种特殊	EXPLOSION AND AND AND AND AND AND AND AND AND AN	" "	C	HAN	NEL	修成位			Phone Bar	1.7.48	
No Vis.Ch.:	Intermit	ttent:		Avg	Min	Max	#		Avg	Min	Max	#
Dewatered: _		7-17-17	hannel Width (m)		1.3	2.1	8	Gradient %	41 Feet 21	8	11	4
Stage: Low	3		Wetted Width (m)		1	2.200	8	Pool Depth (m): 0.15	0.070	0.25	8
Med	/	_ <u>_</u>	ankfull Depth (m)	0.23	0.1	0.4	3	Tur	bidity.:	Turbid		Low
High	1	emp (C): 8	pH: 7.1		(Conductivit	y: 30		М	oderate	0	lear 🗸
1 1 10 10 10 10 10 10 10 10 10 10 10 10		0400	£0)	MOR	PHC	LOGY		-5	の温度は含	1991月1		18 A
Bed Material: S	Dominant: ubdominant:		D95 (cm): 25 D (cm): 3			Bars: Non	Side	Diagonal	Mid-	channel	_	pan 🔲
Channel Pat	tern: Irregula	ar, Wandering	Islands: Oc	casional	DISTU	RBANCE	O1 B1	B2 B3	D1	D2 D	03	
Coup	ling: Decoup	oled			INDIC	CATORS						
		onally Confine			C1	C2 C3	3 C4	C5 S1 S2	2 S3	S4	S5	
Morpho	logy: RP	Riffle Pool					~					
the state of	下: 100 Line	the Distribution	は少な方で		COV	ER	Total Hamilton	CY GARAN	1950	0-7/CV	1-21	
Total Cover: N	Moderate		Type:	SWD	LWI	О В	U	DP	OV	IV		
LWD: F	ew	_	Amount:	Т	S	T	S	T	D	N		
LWD Dist: E	evenly Distrib	outed	Location: P/S/O:	V	~	V		V			FSZ	z: 🗌
Right Bank:	Shape: V	- shape Text	ure: Fines V Gr	avel	Cobble	Boulde	er Rock	Manmade		Cre	own Clos	sure
Left Bank:	Shape: V	- shape Text	ure: Fines 🗸 Gr	avel	Cobble	Boulde	er Rock	Manmade	<u> </u>		1-20	
Right Bank:	Rip.Veg: M	lixed C/D	Stag	e: Mature	e forest							
Left Bank:	Rip.Veg:		Stag	e: Mature	e forest		Instream \	/eg: None	Algae	Moss	✓ Vaso	cular _
8 M W	- The part	\$ 100 m		ONE THE	FIS	H min	7-1			By I Harry		de Maria
Site Number	Capture Method	Number of Events	Length fished (m)	Tota	I	Voltage	Species	Total Fish	Minin	2 2 2 2 2 2 2		mum h (mm)
417	EF	1	200	217 s	90	600	CT	4	20	0	2	10

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

1.0

	. 化二角		NAME OF THE PERSON				PR	OJE	CT	N 500		Hin.					長小	
Proje Stream Nar Project Watersh	ne (gaz.		NE RIV	ER	70.70		-000-000	0-000-00	00-000-00	00	F	Project C	Gode:			5098		
Part of the second		egul (=	1.00	1 - SA	F. Just V	115	WAT	ERS	HED	Marine 1		ell .	107.24	10	PZij	1.12 数量	9.40.	SOUN STATE
Gazetted Name Watershed Code ILP Map# Field UTM (Z.E.N) GIS UTM (Z.E.N)	: 480-50 : :	317.611	3267	LP#:	Method:	NID M	000-000- lap #: 09	3M.017	R	ID #: 40 Site Lo ef. Name	g: 200 e:		ch #: Metho	1. od: HC	.0	Acces	Site #: 4 ss: V2 comple	
作目的包括機	310			M No.		122	CH	ANN	ELT	7		191 m	TENS		1 1 - 10	1	300	三级 值
	Mtd	width	width	width	width	width	width	width	width	width	width	Avg	1	ſ	Gadie	ent %	Mtd	Avg
Channel Width (m):	MS	1.90	1.60	2.10	2.00	1.30	1.60	1.80	1.70	1.70	1.70	1.75	Me	ethod I:	10.0	11.0	С	9.75
Wetted Width (m):	MS	1.90	1.80	2.00	2.20	1.00	1.50	1.80	1.70			1.74	Me	thod II:	8.0	10.0	С	
Pool Depth (m):	MS	0.10	0.20	0.15	0.12	0.25	0.22	0.07	0.10			0.15						
Wb Depth:	.2	.4	,1 Tota] Avg	g: 0.23		Method:	MS	St	age: L	_ M	✓ H		Vis.Ch.: Dw:		Intermit Tr	ttent: _ ribs.: _	=
Type:	SWE	_		В	U	DF		ov	IV	CR	OWN CL							
Amount:			3	T	S	T		D	N	1	1	-20%						
Loc: P/S/O:	~	~	V		~	V	V			INS	TREAM	VEG:	N T	AIN	M V	V		
RIP STG	MF					100001					RIP STG	MF						
	32(70)	NO.	057		* 2.0	DER ST	W	ATE	R	1.12	A STATE OF THE STA	ESW(S)	Que la	997-5	SPERIE		100	
EMS:						4	0.40				eq #:							
Temp:							od: T4			C	ond.: 30					Meth	nod: S	3
pH:							od: P2			Т	urb.: T	M	LI	C		Meth	od: G	E
Flood Signs:	None					Meth	od: GE					-						
ar district	1975	STEEL STEEL	医学生	O NO	U.S.	N	ORP	HOL	OGY	W 247	14/0)	to religi	- Arrive		17115			2.53
Bed Material: D95: Pattern: Islands: Coupling: Confinement: FSZ:	25.0 IR O DC OC	Dominant D (cm)			Subdom Morph			DISTURE INDICA B	BANCE TORS	01 C1	B1 C2 SIDI	C3	B3 D C4 C V DIAG	25 S1				\$ \$5
In Management	16(7)	1800	神原性	*	1 (19)	HA	BITA	TQU	JALI	r.Y	(f) (i)	Q.	Winds.	- 1912	CONTRACTOR OF THE PARTY OF		9.3-70 L	With G
Name		WE THE	No. of Contract of		79.	TU KA	ALC: NE	· HEART	Simple St.	omment	5 T/3 S	The state of		1000			P. L.	4
OverWinter Habita	t	perenn	ial flow a	and dee	p pools		_	-		Juli (e)		-				_	_	
Rearing Habitat	-					ndercut	banks m	ake for	positive r	earing	_				-		_	
Spawning Habital		_	ow perce										_		_		_	
	1	U.S. P	119 74	O's Fire	715 Ex	All the same	PH	OTO	S	1	11111	W Mu	4 58	100	3.89	が発展	T WAR	2570
Photo	Fo	c Lg		D	ir	7	27.756	SE (05)	NAME OF	MAN AND	BE 13	Comme	nte	100	-			17 113
R: 11 F: 01		TD			J	upst	ream ph	oto of tv	pical hat	itat with		Comme	1,0		-			
R: 11 F: 02		TD			0	_			f typical I						_			
						_					-							

West Babine Study Area

Reach # ILP Map #

ILP#

Site

Watershed Code: 480-504200-67300-0000-0000-0000-000-000-000-000-000

1.0

Section	Comments
CHANNEL	Spawning is limited by high fine content.
CHANNEL	Possible soft barrier downstream, only accessible for large fish.
CHANNEL	No mixed age classes were captured.
CHANNEL	Low densities of CT within site.
CHANNEL	CT captured.

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

480-504200-67300-0000-0000-0000-000-000-000-000-000

1	+ 500	The gr	塘销	The same			4.7	不能	WATE	RB	OD	LIE POL	J.K	TO THE	103			
G	azetted	Name	:									Loca	al: N	lone				
				000000-0														
			4.73	504200-6	7300-000	00-0000-0	0-000	00-00			000							
		ody ID							ILP Map	#:		Lake/Str		ILP	#:		Reach #: 1 om Date:	-
	Pro	oject ID	; 5098	,								Lake/Str	eam:	5		Lake Fr	om Date:	
	Fish P	ermit#	: 14	5086K	D	ate: 200	1/07/05	5	To: 2	001/0	7/05	Age	ency:	C172	Cr	ew: JH/JA	Resar	nple:
	- 277	T. 11.	-	6.36	1000	TO SHE	1-11	S	TE /	ME	THO	O D	1		STATE OF	A ASS	机产品计算	
Site#	NI	D Map	NIE)#	JTM:Zon	e/East/No	rth/Mth	nd	MTD/NO	Te	mp	Cond	Tur	bid	ATTITIC SE	C	omment	
417	093	3M.017	400	17				GPU	EF 1		8	30	C	3				
THE S	ELV.	300	1	4.5	1	28-14-87	10	١. ٥	EAR	SE	TTI	NGS	100	- S. W.	420	The series	1000	
Site#	M	D/NO	H/P	Date	In Ti	me In	Date (Out	Time Out						Com	ment		- E SPACE STATE
417	EF	1	1	2001/07	7/05 1	6:28	2001/0	7/05	16:42	1-								
F-19		阳电		275	n C	. ELE	CT	ROF	ISHE	RS	SPE	CIFI	CA	TION	S	到后是等		15.20
Site#		MTD/N	10	H/P	En	cl :	Sec	Le	ength	W	dth	Volt	age	Frequ	uency	Pulse	Make	Model
417	E	F	1	1	0		217	2	0.00		2.0	60	00		J	7	SMITH	12B
1 116	473				1180	77	7 0 19	FI	SHS	UM	MAF	RY	BA	THE S	× 12		经 的一点一点	· (1)
Site#	1 10	MTD/N	10	H/P	Specie	s Sta	ge	Age	Tot	al#	Lgth	(Min/M	ax)	FishAc	t		Comment	N. N. STANSON
417	E	F	1	1	CT	J		2+		4	20	0 2	10	R				
	151		te Time	1-1-12			INI	110	DUA	F	ISH	DA	TA		也們	Vila	HE HAR S	
Site#	MTI	O/NO	H/P	Species	Length	Weight	Sex	Mat		Age		Vch#	_	enetic	Roll#	Frame#	Comn	nent
									Str/S	mpl#/	Age		Str	/Smpl#				
417	EF	1	1	CT	200		U	U										
417	EF	1	1	CT	205		U	U	1					-				
417	EF	1	-	CT	210		U	U		-				1				



Site #417, upstream photo of typical habitat within site. Roll #11, Frame #01, Date: 2001/07/05



Site #417, downstream photo of typical habitat within site. Roll #11, Frame #02, Date: 2001/07/05

West Babine Study Area

Reach # ILP Map #

IIP#

L. Sept		公州。南	STR	EAM	REF	EREN	CING	侧極紅手	拉德			Ym.
Gazetted Na	me:					L	ocal Name:					
Watershed C	ode: 480-50	4200-00000-00	000-0000-0000-000	0-000-000	-000-0	000-000	ILP	Map #:		ILI	P#:	
			建筑度是现在	R	EA	CH		WIEW.	192			
Reach #: 1	6.0		UTM(Zone/East/No	orth): 10.6	546542	2.6113718			Sample	Type:	Biase	d
Length (km):	: 1.05	Co	oupling: Decoupled		Mag	gnitude:	7		BGC	Zone:	SBS	
Gradient (%):	1.3	Confi	nement: Occasiona	lly Conf		Order: 2			pen wa	ter: Abse	ent	
US Elev (m):	913		Islands: NONE		Rip	arian Veg	etation: Mixe	d C/D				
Bars: None	✓ Side	Diagonal	Mid-channel	Span	В	raid 🗌	Landuse: No	t Specified				
	400		eruy ere	\$1 = Ju-	SIT	E 10	64年200	11. 11. 11. 11.		1 1	534	
Site #:	7	Field UTI					r: C172		/JA		2001/07	/05
Site Length	(m): 200	GIS UT	TM 10.647111.61132	293		Agenc	y Name: Trito	n Environmenta	l Consul	tants (Te	епасе)	
		10	- EN VAL	+CH	AN	NEL	逐步和計算		100	17	AL S	
No Vis.Ch.:	Intermi	ttent:		Avg	Min	Max	#		Avg	Min	Max	#
Dewatered:	T	ribs.:	Channel Width (m):	111111111111111111111111111111111111111	1.600	2.200	6	Gradient %:	5.75	4	8	4
Stage: Low			Wetted Width (m):	200	1.600	2.200		Pool Depth (m)	0.21	0.100	0.32	6
Med	V		Bankfull Depth (m):	0.27	0.2	0.3	3	Turb	idity.:	Turbid		Low
High	1	Temp (C): 8	pH: 6.9		C	Conductivity	/: 40		Mo	oderate	_ 0	lear 🗸
A TIME	1 - 1 - 1 - 1 - 1 - 1 - 1	100 PM - 100	(2015)。日本出	MORI	PHO	LOGY	No. 11 11 11 11 11 11 11 11 11 11 11 11 11	de Macri	15 m	77 N 6-1		
Bed Material:	Dominant Subdominant		D95 (cm): 20.0 D (cm): 2.0			Bars: Non	Side S	Diagonal	Mid-	channel		an [
Channel Par	ttern: Sinuou	IS	Islands: Non	e E	DISTUR	RBANCE	O1 B1	B2 B3	D1 I	D2 D	3	
Coup	oling: Decoup	oled			INDIC	ATORS			V	V		
Confiner	ment: Unconf	fined			C1	C2 C3	C4 C5	S1 S2	S3	S4	S5	
Morpho	logy: RP	Riffle Pool				DIC						
	and h	of the entire		C	OVE	R	CRAFFILL	是你是 \$ 7 °	松油		上海的	
Total Cover: M	Moderate		Type:	SWD	LWD	В	U	DP C	OV	IV		
LWD: F	ew		Amount:	T	S	N	T	S	D	T		
	Evenly Distril	buted	Location: P/S/O:		V			ソ			FSZ	
Right Bank: Left Bank: Right Bank: Left Bank:	Shape: V Shape: V Rip.Veg: M Rip.Veg:	-shape Tex				Boulde Boulde	r Rock	Manmade Manmade g: None	Algae _	Cro	own Clos 1-20	1%
10 5 20	3 19,310	Tool Select		East 1	FISI	Hr. 1	19 19		\$5° (6°	4.77	Trouble E	Wis a
Site Number	Capture Method	Number of Events	Length fished (m)	Total Time		Voltage	Species	Total Fish	Minim Length	99 2 2 1	Maxir	
418	EF	1	200	304 sec	:	700	CT	6	200)	22	20

West Babine Study Area

Reach # ILP Map #

IIP#

Site

16.0

418

PROJECT Project Name: Babine River Fish Inventory - 2001 Stream Name (gaz.): BABINE RIVER Project Code: 5098 WATERSHED Gazetted Name: Local Name: None ILP Map#: ILP#: NID Map #: 093M.017 NID#: 40018 Reach #: 16.0 Site #: 418 Field UTM (Z.E.N): ... Method: Site Lg: 200 Method: HC Access: V2 GIS UTM (Z.E.N): 10.647111.6113293 Ref. Name: Date: 2001/07/05 Time: 16:48 Agency: C172 Crew: JH/JA Fish Crd?: V Incomplete: CHANNEL Mtd width width width Avg Gadient % Mtd Avg width width width width width width width Channel Width (m): MS 2.10 1.60 1.80 1.90 2.20 2.00 1.93 Method I: 5.0 8.0 C 5.75 Wetted Width (m): MS 2.20 1.80 1.80 1.70 1.60 2.20 1.88 Method II: 4.0 6.0 C Pool Depth (m): MS 0.15 0.20 0.10 0.32 0.30 0.20 0.21 No Vis.Ch.: Intermittent: Wb Depth: .3 .3 .2 Avg: 0.27 Method: MS Stage: L M W H Dw: Tribs.: COVER Total: M Type: SWD LWD В DP **CROWN CLOSURE** OV Amount S N S D Loc: P/S/O: INSTREAM VEG: N A M V LWD: F DIST: E LB SHP: V RB SHP: V Texture: F G G C B R A Texture: F G C B R A RIP: M RIP: M STG: MF STG: MF WATER EMS: Req #: Temp: 8 Method: T4 Cond.: 40 Method: S3 pH: 6.9 Method: P2 Turb.: T M L C Method: GE Flood Signs: None Method: GE MORPHOLOGY 01 **B1** D1 D2 D3 Bed Material: Dominant: C Subdom: G D95: 20.0 D (cm): 2.00 Morph: RP V DISTURBANCE **INDICATORS** Pattern: SI C1 C2 C3 C4 C5 S1 **S2 S3 S4 S5** Islands: N Coupling: DC Confinement: UN SIDE Bars: DIAG BR FSZ: HABITAT QUALITY Name Comments OverWinter Habitat Perennial flow and deep pools support overwintering Rearing Habitat Deep pools, functioning LWD and undercut banks suggest positive rearing Spawning Habitat No clean gravel was observed PHOTOS Photo Foc Lg Dir Comments 11 03 STD U upstream photo of typical habitat within site R: 11 F: 04 STD D downstream photo of typical habitat within site

West Babine Study Area

Reach # ILP Map #

IIP#

Site

16.0

	COMMENTS
Section	Comments
CHANNEL	Small obstructions downstream may limit some upstream access
CHANNEL	CT captured in low densities.

West Babine Study Area

Reach #

ILP Map#

ILP#

Watershed Code:

16.0

WATERBODY Gazetted Name: Local: None Waterbody ID: ILP Map #: ILP#: Reach #: 16 -Project ID: 5098 Lake/Stream: S Lake From Date: Fish Permit #: 145086K Date: 2001/07/05 To: 2001/07/05 Agency: C172 Crew: JH/JA Resample: SITE / METHOD NID Map MTD/NO Temp Site# NID# UTM:Zone/East/North/Mthd Cond Turbid Comment 418 093M.017 40018 GPU EF 1 C 8 A. GEAR SETTINGS MTD/NO H/P Date Out | Time Out Site# Date In Time In Comment 418 2001/07/05 16:48 2001/07/05 17:30 C. ELECTROFISHER SPECIFICATIONS MTD/NO Site# H/P Encl Length Width Voltage Frequency Pulse Make Model 418 EF 0 304 200.0 2.0 700 5 SMITH 12B ROOT FISH SUMMARY Total # Lgth (Min/Max) Site# MTD/NO H/P Species Stage FishAct Comment 418 CT 200 220 INDIVIDUAL FISH DATA Site# H/P Species Length Weight Sex Mat Vch# Genetic Frame# Age Roll # Comment Str/Smpl#/Age Str/Smpl# EF CT 418 220 U 1 1 U 418 EF CT 205 1 1 U U 418 EF 205 1 CT U 1 U 418 EF 1 CT 200 U 1 U 418 EF 1 CT 205 U 1 U 418 EF 1 CT 210 U U



Site #418, upstream photo of typical habitat within site. Roll #11, Frame #03, Date: 2001/07/05



Site #418, downstream photo of typical habitat within site. Roll #11, Frame #04, Date: 2001/07/05

West Babine Study Area

Reach # ILP Map #

ILP#

Watershed Code: 480-504200-67300-0000-0000-0000-000-000-000-000-000

公司職	维加斯	新疆	STR	EAM	REF	EREN	CING	经 创建版				
Gazetted Na	ıme:					1	ocal Name					
Watershed 0	Code: 480-50	4200-67300-00	000-0000-0000-00	0-000-0	00-000-	000-000	II.	.P Map #:		ILP#	:	
	P. P.			13/	REA	CH	扩展 有效		in control			
Reach #: 4	.0		UTM(Zone/East/N	orth): 10	0.64658	4.6115999)		Sample Ty	oe: F	andom	
Length (km) Gradient (%) US Elev (m)	: 6.8	Confir	oupling: Coupled nement: Frequently slands: NONE	y Confin		gnitude: Order: parian Ve			BGC Zor Open water:		S	
Bars: None	✓ Side	Diagonal	Mid-channel	Span	□ 8	raid 🗌	Landuse:	Not Specified				
10 July 31		e care		CHE	SIT	E	10161	SALE BUILDING	105			1,45
Site #:		Field UTM GIS UT	И М 10.647117.6114	722			cy: C172 cy Name: Tr	Crew: JH		ate: 200 ts (Terra		1
» · ·	The First Street	HAME'S		C	HAN	NEL	無事事	Say San and	行"以 能"。	SAL THE	A.	Sales Sales
No Vis.Ch.:	Intermi	ttent:	- Charles	Avg	Min	Max	#		Avg N	lin M	fax	#
Dewatered:	T		channel Width (m):	2.00	1.8	2.200	6	Gradient %	9.25	8	11	4
Stage: Low			Wetted Width (m):	1.73	1.600	1.9	6	Pool Depth (m)	0.13 0	.03 0	.25	6
Med	~	В	Bankfull Depth (m):	0.23	0.2	0.3	3	Turb	idity.: Tu	rbid	Lo	w
High	1	Temp (C): 5	pH: 6.9			Conductivi	ty: 30		Mode	rate	Clea	ar 🗸
The second			会生 独作品	MOR	PHO	LOG	Maria in	To the second	- William Bayes	2. 化酸		H.
Bed Material	: Dominant Subdominant	134707	D95 (cm): 15 D (cm): 2.			Bars: Nor	n Side	Diagonal [Mid-cha	nnel _	Span	
	attern: Irregula	ar, Wandering pled	Islands: Nor	ne	200	RBANCE CATORS	O1 B1	B2 B3	D1 D2	D3	ĺ	
Confine	ment: Unconf	fined			C1	C2 C	3 C4	C5 S1 S2	S3 S	4 S5	5	
Morpho	ology: RP	Riffle Pool										
		-has-		Ji jeri	COV	ER	-, 42 - V		The state of		- TOP	TI JE
Total Cover:	Moderate		Type:	SWD	LWI) В	U	DP C	DV IV			
LWD:	Few		Amount:	Ť	T	N	S	T	D N	2.7		
	Evenly Distril	buted	Location: P/S/O:	/	V						FSZ:	
Right Bank: Left Bank: Right Bank: Left Bank:	Shape: U Shape: U Rip.Veg: M Rip.Veg:	Indercut Text	Stage			Bould	er Rock	Manmade Manmade Veg: None V] Algae 🔲 M	Crown	Closure 1-20% Vascula	1-
0-17				, A	FIS	HS	V 4010	The state of the s	1. 7 TWE		100	etu) di
Site Number	Capture Method	Number of Events	Length fished (m)	Tota Time		Voltage	Species	Total Fish	Minimum Length (m		Maximu ength (r	
446	EF	1	300	299 s	ec	600	CT	2	120		125	

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

Watershed Code: 480-504200-67300-0000-0000-0000-000-000-000-000-000

4.0

Project Na Stream Name (ga	me: Babir	ne River		entory -	2001	2013	OJE	to Fall	144	- Shiri	Project C	nde.			5098		
Project Watershed Co				000-000	00-0000-	-000-000	0-000-00	0-000-00	00		roject o	oue.			3030		
一一個日間提		ayel h			T	WAT	ERSI	IED	Miles on	(Section	M = 15			Till a	a t		(n=)
Gazetted Name:				LE.U		7			Loc	al Name	e: None						
Watershed Code: 480-	504200-67			-0000-00				- 22		0.0	5			T.C.		2000 0	
ILP Map#:		11	LP #:		NID M	ap #: 09	3M.017	N	ID#: 40	046	Read	sh #:		4.0		Site #: 4	46
Field UTM (Z.E.N):			M	fethod:					Site Lo			Meth	od: HC		Acce	ess: H	
GIS UTM (Z.E.N): 10.6	47117.611	4722						Re	ef. Name	2:							
Date: 2	001/07/11	1	Time: 10:	30	Ti.	Agency:	C172	C	rew:	JH/JA		Fi	sh Crd?		1	ncomple	te: 🔲
	72 (E)	1 18	11.0	5.00	PAR	CH	ANN	EL	No. of	- , g	3	in a line	<i>a</i> 2			有量是 1	-100
Mto		width	width	width	width	width	width	width	width	width	Avg	NE.		Gadie		Mtd	Avg
Channel Width (m): MS		2.00	1.90	2.20	2.00	1.80		-	,		2.00		lethod I		10.0	С	9.25
Wetted Width (m): MS Pool Depth (m): MS	_	1.60 0.25	1.80	0.11	1.90 0.15	0.11					1.73 0.13	М	ethod II	8.0	8.0	С	
roor bepar (m).	0.03	0.20	0.12	0.11	0.15	0.11	_		_		0.13	No	Vis.Ch	1.:	Interm	ittent:	
Wb Depth: .3	.2	.2	Avg	: 0.23	N	Method:	MS	St	age: L	M	V H	J	D	W:		Tribs.:]
COVER		Tota	al: M														
Type: SV	VD LV	VD.	В	U	DF		ov T	IV	CR	OWN CL	OSURE						
Amount:			N	S	T		D	N	- 1	. 1	-20%						
Loc: P/S/O:	V			~	V	V			INS	TREAM	VEG:	NV	A	M	V		
RIP: M STG: MF										STG							
	Tult -	33.0	100	+ 16 m	1	W	ATE	3		- prof	ALC:	Side	100	in Both			
EMS:					22.4					eq #:							
Temp: 5 pH: 6.9						od: T4			C	ond.: 30					Met	thod: S	3
Flood Signs: None						d: GE			Т	urb.: T	M] L	ОС	~	Met	thod: G	E
			1600		232		HOL	000		Jana	E -700	143	570020	F-STAG			17927
P-111-1-1						UKF	HUL	001	01	B1	B2 E	33	D1 [02 D	3	Anna S	S 1
Bed Material: D95: 15.0	Dominant D (cm)	: 2.00		Subdom													
	D (citi)	. 2.00		MOIDI	. IXE		INDICA		-						т.	2 3	4.0
Pattern: IR Islands: N							INDIOA	ONO	C1	C2	C3 (24	C5 S	S1 S	2 S	3 S4	S
Coupling: DC																	
Confinement: UN																	
FSZ:							Ba	irs:	N	SID	~	DIAG	3 4	MID	SPA	M	BR
The state of the s	in the state of	4973		A 14	HAI	BITA	T QU	ALI	ΓY	。盐油		alt.	100	0.55 N	7	in per	10
Name	and the second			No medical control	S. 10.	EN DE	H SOLE	A CHIEFE	ommen	s	· 10 1	3.00	7777.11		LE COMP		
Spawning Habitat	Modera	ate - ass	ociated	with pato	hes of c	lean gra	vel, limit				vel was o	bserve	ed on si	de of ch	annel i	n low flo	w mon
Rearing Habitat						nks and	overstre	am vege	etation, I	mited by	lack of	deep p	ools				
OverWinter Habitat	Low - I	acks de	ep pools	, limited	by flow	10 70 4		O PER SING					97.				Diament I
E THE THE PARTY OF	1100 J			200 F	S. ves	in a	ото	5	159	1	1/4	T 31"			A STATE		13.
Photo 12 F: 24	Foc Lg STD		Di		Jane 1	******	ala cf -	hhla	avial		Commer	its					
12 F: 24	STD	-			-	-	photo of							-		-	
- 1 - 40					dow	oucaill	אוטוט טו	SODDIG.	gravel	OCCUOIT							

West Babine Study Area

Reach # ILP Map #

ILP#

Site

4.0

Section	Comments
CHANNEL	All sample sites within this system have had low densities of fish captured for electroshocking effort.
CHANNEL	Possible soft barrier downstream may limit recruitment to this system.
CHANNEL	Extremely low density for cutthroat.
CHANNEL	CT caught (120mm)
CHANNEL	Heavy overstream vegetation (alder and devil's club).

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

480-504200-67300-0000-0000-0000-000-000-000-000-000

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G	Pro	oject		: 480-	000000-0 504200-6							77	Loca	al: N	lone				
15			dy ID ect ID	: : 5098	3					ILP Maj	p #:		Lake/Str	eam:		P#:	Lake Fro		4
	Fish	h Per	mit#	14	5086K	D	ate: 200	1/07/11	1	To:	2001	/07/11	Age	ency:	C172	Cr	ew: JH/JA	Resar	nple:
413	1	29	Sp	1000	4.54	全の社会!	17 400	10-1	S	ITE /	M	ETH	OD		IL.		We like		-
Site#	_	NID 093N		NIE 400		UTM:Zone	e/East/No		nd GPU	MTD/N	-	Temp 5	Cond 30	Tur			Co	omment	
440	580	UBSIV	1.017	400	740	SATURE.	1	_					INGS			ALC: SERVICE	3 - 37	STATISTICS OF THE	
Site#	5.0	MTD	/NO	H/P	Date	In Tu	me In	Date 0	13 E	Time O	1000			(A)		HOLING YOU	ment		
446	_	EF	1	1	2001/07			2001/0		11:20	_	-	-	-		Com	ment		
	SIE			E 0.16	ATT I	C	ELE	CT	RO	FISH	ER	SPI	ECIFI	CA	TIOI	NS.	olan kir	7.4 7.6 3.78	
Site#	T	N	ITD/N	10	H/P	En	cl S	Sec	L	ength	1	Width	Volt	age	Fred	quency	Pulse	Make	Mode
446		EF	T	1	1	0		299		300.0		2.0	60	00		J	5	SMITH	12B
Si				# 1/2 T	Webs 180 c.s	F. E. L. Tar.	1000000	TO AT	F	SHS	U	MMA	RY	W. 1	5	10/1	10000000000000000000000000000000000000		10世界中
Site#	T	N	ITD/N	10	H/P	Species	Stag	ge	Age	e To	otal #	‡ Lg	th (Min/M	ax)	FishA	ct	The state of	Comment	- A
446		EF		1	1	CT	J		2+		2			25	R				
		製	572	16-15	Nach		1000	INI	VIC	IDUA	L	FISH	I DA	TA:	意思	和其他		1011111111111111111111111111111111111	5万吨
Site#	٨	ATD/I	40	H/P	Species	Length	Weight	Sex	Ма	-	Ag	e l#/Age	Vch#	_	enetic Smpl#	Roll #	Frame#	Comn	nent
446	EF		1	1	CT	120		U	U	le -									
446	EF	1	1	1	СТ	125		U	U										
TANK!	1/	100			当酮,药生	41	April 100	5	101	COM	M E	NTS		VE S	277	1124			
		Sect	ion										Comm	ents					
	WA	TER	BOD	Y	con	ductivity ju	imped are	ound fr	om 20	to 30									



Site #446, upstream photo of cobble - gravel section. Roll #12, Frame #24, Date: 2001/07/11



Site #446, downstream photo of cobble - gravel section. Roll #12, Frame #25, Date: 2001/07/11

West Babine Study Area

Reach # ILP Map #

ILP#

2.0 093M.017

10030

STREAM REFERENCING Gazetted Name: Local Name: ILP Map #: 093M.017 10030 REACH No or and the last Reach #: 2.0 UTM(Zone/East/North): 10.645875.6115348 Sample Type: Biased Length (km): 1,37 Coupling: Partially Couple Magnitude: 1 BGC Zone: SBS Gradient (%): 11.6 Confinement: Frequently Confin Order: 1 Open water: Absent US Elev (m): 1086 Islands: NONE Riparian Vegetation: Mixed C/D Braid __ Bars: None 🗸 Side 🗌 Diagonal 📗 Mid-channel Span Landuse: Not Specified SITE Site #: 447 Field UTM .. Agency: C172 JH/JA Date: 2001/07/11 Crew: GIS UTM 10.646723.6114401 Site Length (m): 250 Agency Name: Triton Environmental Consultants (Terrace) CHANNEL No Vis.Ch.: Intermittent: Min Max Min Avg # Max Channel Width (m): Dewatered: Tribs.: 1.04 0.7 1.3 6 Gradient %: 8.25 10 4 Wetted Width (m): 0.68 0.5 0.800 6 Pool Depth (m): 0.06 0.02 0.11 6 Low Stage: Bankfull Depth (m): 0.23 0.2 0.3 3 Med 🗸 Turbidity .: Turbid Low High Temp (C): 5 pH: 6.6 Conductivity: 30 Clear V Moderate MORPHOLOGY Bed Material: Dominant: Gravels D95 (cm): 10.00 Bars: Non Side V Diagonal Mid-channel Span Subdominant: Fines D (cm): 0.10 Braid Channel Pattern: Irregular, Wandering Islands: Occasional DISTURBANCE **INDICATORS** Coupling: Decoupled Confinement: Unconfined C2 C3 C4 C5 S1 S2 **S3 S4 S5** Morphology: RP Riffle Pool COVER LWD Total Cover: Moderate SWD Type: DP R 11 OV IV Amount: N S D LWD: Few Location: P/S/O: LWD Dist: Evenly Distributed FSZ: Right Bank: Shape: V - shape Texture: Fines ✓ Gravel Cobble Boulder Rock Manmade Crown Closure Texture: Fines ✔ Gravel Cobble Left Bank: Shape: V - shape Boulder Rock Manmade 1-20% Right Bank: Rip. Veg: Shrubs Stage: Mature forest Left Bank: Rip.Veg: Instream Veg: None Algae Moss Vascular Stage: Mature forest FISH Site Number Capture Number of Length fished Total Voltage Total Species Minimum Maximum Method **Events** (m) Time Fish Length (mm) Length (mm) 447 EF 300 380 sec 600 NFC 0

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

2.0 093M.017 10030 447 PROJECT Project Name: Babine River Fish Inventory - 2001 Stream Name (gaz.): BABINE RIVER Project Code: 5098 WATERSHED Gazetted Name: Local Name: None ILP Map#: 093M.017 ILP #: 10030 NID Map #: 093M.017 NID#: 40047 Reach #: Site #: 447 Field UTM (Z.E.N): .. Method: Site Lg: 250 Method: HC Access: H GIS UTM (Z.E.N): 10.646723.6114401 Ref. Name: Date: 2001/07/11 Time: 12:17 Agency: C172 Crew: JH/JA Fish Crd?: Incomplete: CHANNEL Mtd width Avg Avg width width width width width width width width width Gadient % Mtd Channel Width (m): MS 1.10 1.30 0.90 1.25 1.00 0.70 1.04 Method I: 10.0 С 8.25 8.0 Wetted Width (m): MS 0.60 0.50 0.60 0.80 0.80 0.80 0.68 Method II: 8.0 7.0 С Pool Depth (m): MS 0.02 0.05 0.05 0.08 0.11 0.06 0.06 No Vis.Ch.: Intermittent: Wb Depth: .2 3 .2 Avg: 0.23 Method: MS Stage: L M W H Dw: Tribs.: COVER Total: M CROWN CLOSURE SWD LWD В DP OV Type: U IV S D 1-20% Amount N Loc: P/S/O: INSTREAM VEG: N A M V LWD: F DIST: E Texture: F G C B R A Texture: F G C B R A RIP: S RIP: S STG: MF STG: MF WATER EMS: Reg #: Temp: 5 Method: T4 Method: S3 pH: 6.6 Method: P2 Turb.: T M L C Method: GE Flood Signs: None Method: GE MORPHOLOGY 01 **B1 B2 B3** D1 D2 D3 Bed Material: Dominant: G Subdom: F D95: 10.0 D (cm): 0.10 Morph: RP DISTURBANCE **INDICATORS** Pattern: IR C1 C2 C3 C4 C5 S1 S2 **S3** S4 **S5** Islands: O Coupling: DC Confinement: UN Bars: SIDE DIAG MID SPAN BR FSZ: HABITAT QUALITY Name Comments Spawning Habitat Moderate - associated with side gravel bars, limited by flow Rearing Habitat Moderate - associated with undercut banks and overstream vegetation, limited by flow OverWinter Habitat Low - no deep pools limited by flow PHOTOS Photo Foc Lg Dir Comments R: 13 F 02 STD U upstream photo taken of typical overstream cover within sample site

downstream photo taken of typical overstream cover within sample site

03

F:

STD

D

West Babine Study Area

Reach # ILP Map #

ILP#

Site 447

2.0

093M.017

244	的数据数据,更是" to 2000 100 200 200 100 100 100 200 200 100 1
Section	Comments
CHANNEL	No Fish Caught
CHANNEL	Potential fish access
CHANNEL	No barriers observed in site

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

000-000000-00000-00000-0000-000-000-000-000-000

2.0

093M.017

	zetted Name									Loca	al: N	one			
1						0-000-000-0									
V	WS Code Vaterbody ID		000000-0	00000-(00000-000	0-000-000-0						11.75.44	10000	D	
	Project ID						ILP N	мар #.	093M.0	Lake/Str	eam:	ILP#:	1001011	Reach #: 2 om Date:	2.0
F	Fish Permit#	: 14	5086K		Date: 2	2001/07/11	То	: 2001	/07/11	Age	ency:	C172	Crew: JH/JA	Resar	nple:
April 1		455		1-1	馬頭	\$ 100 (S	ITE	1 M	ETH	OD		Cald S	77年7月10日		
Site#	NID Map	NID	#	UTM:Z	Zone/East	/North/Mthd	MTD	/NO	Temp	Cond	Turb	oid	C	omment	The second
447	093M.017	400	47			GPL	EF	1	5	30	С				
ic is	17.		1. "西方			Α.	GEA	R S	ETT	NGS	NE SE	Ser E View	THE PERSON NAMED IN	这是"陈蒙特	
Site#	MTD/NO	H/P	Date	In	Time In	Date Out	Time	Out	-			С	omment	1011041110	
447	EF 1	1	2001/0	7/11	12:17	2001/07/11	13:0	00							
		10	WHEN THE	18	C. E	LECTRO	FISI	HER	SPE	CIFI	CA	TIONS	The Tribes of	No 9 Ex	大學程
Site#	MTD/N	10	H/P		Encl	Sec	Length		Width	Volt	age	Frequency	Pulse	Make	Mode
447	EF	1	1	XIII	0	380	300.0		1.0	60	00	1	5	SMITH	12B
		1 .	200	-		T. F	15 H	SUI	AMA	RY		m Marin Stephen		是打扮問題	TAME
Site#	MTD/N	10	H/P	Spe	cies S	Stage Ag	je	Total #	Lgt	h (Min/Ma	ax)	FishAct	301130	Comment	Locality
447	EF	1	1	NF	C			0							



Site #447, upstream photo taken of typical overstream cover within sample site. Roll #13, Frame #02, Date: 2001/07/11



Site #447, downstream photo taken of typical overstream cover within sample site. Roll #13, Frame #03, Date: 2001/07/11

West Babine Study Area

Reach # ILP Map #

II P#

Watershed Code: 480-452300-13942-00000-0000-0000-000-000-000-000-000

	等的数	沙漠河流流	STR	EAM	REF	ERE	CING		Kall	A ₊ , L ₃ ,		
Gazetted Na	me: WILLIA	AMS CREEK					Local Name	e:				
Watershed (code: 480-4	52300-13942-00	000-0000-0000-00	00-000-00	0-000-	000-000		LP Maj	p #:		ILP#:	
		建			EA	CH	720717	能得	A CONTRACTOR	抗性性	11/04	問問
Reach #: 7 Length (km) Gradient (%) US Elev (m) Bars: None	: 1.29 : 3.3 : 1395	Confir	UTM(Zone/East/Noupling: Partially Conement: Occasion Islands: NONE Mid-channel	Couple	Ma Rij B	gnitude: Order: parìan Ve	4		'D	Sample Typ BGC Zon Open water:	e: SBS	ndom
1 4	40	my ser	The Property	-	SIT	-		, e - 17	778	. 500	W 26.13	11 500
Site #:		Field UTN GIS UT	и М 10.642641.6124	1155			ncy: C172 ncy Name: T			H/JA Da tal Consultant	ite: 2001 s (Terrac	
int dis	J11(2)	CIP-1		CI	IAN	NEL	年情 三	12.24	Part of the		2 4.50	"上面是
No Vis.Ch.:	Interm	nittent:		Avg	Min	Max	#			Avg M	in Ma	× #
Dewatered:			channel Width (m):	2.28	2.1	2.5	6		Gradient %		0 20	
Stage: Low			Wetted Width (m):	_	1.8	2.3	6	Poo	Depth (m): 0.35 0.1	0.6	00 6
Med			Bankfull Depth (m):	0.43	0,2	8.0	3		Tur	bidity.: Tur	-	Low
High	~	Temp (C): 5	pH: 6.6		.(Conductiv	rity: 30			Moder	ate	Clear
Channel Pa Cou Confine	pling: Partia		D (cm): 3.			CATORS	O1 B	1 B	2 B3 S1 S2	D1 D2	D3 4 S5	Braid
and their	The Spine of	William State of	WAR END WEIGHT	C	OV	FR	107.181	ZTROWN CO	- Allertin	M. A. A.	3 Carl 2 Toll	THE SHARE
Total Cover:	Moderate		Type:	SWD	LWI		IU	SAN DEST	DP I	ov I iv		25 10 70 11 115
LWD:	17.03.15.0		Amount:	Т	S	5			D	TT		
LWD Dist:			Location: P/S/O:	/	V	~						FSZ:
Right Bank: Left Bank: Right Bank: Left Bank:	Shape:	- 5 (5	ture: Fines Gr	avel 🗸 C avel 🗸 C e: Mature e: Mature	cobble	Bould Bould	_	k M	fanmade fanmade	Algae Mo	Crown (1-20%
		Spin 15	3	- OF	F	EATL	JRES		Marile	me milet		
NID Map	NID Ty		Method Lg	Metho	_	Pho			AirPh			UTM (Z/E/N
093M.027 Comments:	40548 F		GE	HC	R:	13 F	: 06 L	3		#:	10.6	42726.612
Comments												
I am they to	连腰局	Mark Control of the Control	L. B. W.	at a second	FIS		19 - 192	1	E	1 7 14	100	地區
Site Number	Capture Method	Number of Events	Length fished (m)	Total Time		Voltage	Specie	S	Total Fish	Minimum Length (mn		aximum ngth (mm)
448	EF	1	250	275 se	С	600	NFC	211	0			

West Babine Study Area

Reach # ILF

ILP Map #

II D #

Site

7.0

1.50		446.7	A. C. A.		37.74	All E	W. #	PF	ROJE	CT.		の引着	四年代	小台班	4		Ť	
Pro	Pro Stream Na oject Waters	ame (gaz	.): BAE		ER			-000-00	00-000-0	000-000	-000		Project Cod	e:		5098		
	alm.	A H	No.	1	01 = 0		A E I	WAT	ERS	HED		2.00	SECTION 1	100	1,150		MI.	Est.
Wate	zetted Nam ershed Cod ILP Map JTM (Z.E.N JTM (Z.E.N	e: 480-4: #: I):	52300-1	3942-000 I	LP #:	0-0000-0 Method:			0-000-00 93M.027		NID#: 4	0048 .g: 250	Reach	#: Method: H	7.0 C	Sit	e #: 44 : H	18
	D	ate: 200	01/07/11	,	Time: 13	:40		Agency	: C172		Crew:	JH/JA		Fish Cro	i?: 🗸	Inco	mplete	e: 🗔
	7 1	-4000	Evi- all	to della	Common Co	Cigina :	CLIEB TO SE	C. HE	ANN	IEL	4	200 250	10 - Va. F	100	2 3 17		MAN LOS	100
	E I SOUTH OF	Mtd	width	width	width	width	width	width	- pysikusos	20 2 2 2 7 1	width	width	Avg		in the second	- U-W1	Mtd	Avg
	el Width (m) d Width (m)	: MS	2.40	2.10	2,50	2.20	2.20	2.30		1			2.28	Method	l: 20.0	10.0		13.75
Poo	l Depth (m)	: MS	0.40	0.60	0.10	0.43	0.25	0.32					0.35	No Vis.0		Intermitte		
	Wb Depth	_	.3	.2	Avg	g: 0.43		Method:	MS	- 9	Stage: L	М	_ H 🗸	1	ow:	Trib	s.: _	
E	Type Amount Loc: P/S/C	: SWI		WD S	B S	U T	DF	_	OV T	IV T	1 1		LOSURE 1-20% I VEG: N					
	RIF	P: D B: MF		С				F W	ATE	R		RIF	e: F			N think		
F	EMS Temp pH Flood Signs	: 5 : 6.6	debris				Metho	od: T4 od: P2 od: GE			C	Req #: Cond.: 30 Turb.: T		r 🗆 c		Method		
CHICA	1	- 820	613550	2000	in a let	Series	N	ORI	РНОІ	OG	V	5 0 10		W. 1150 81	SECRET OF	V 30 21		200
	ed Material D95 Pattern Islands Coupling onfinement	: 100.0 : SI : O : PC	Dominar D (cm	nt: B): 3.00		Subdom	: C		DISTUR	BANCE ATORS Bars:	01	B1 C2 SID	B2 B3 C3 C4 E DIA	D1 C5	D2 D		\$4	S5
100	San San	13000		gi ces	1960	1	Z 10 T	FEA	TUF	ES	3555	(201)	10+ 3	AND CO		THE MANUAL PROPERTY.		Street le
D Map	NID	Туре	Hgt	Method	1 1	g N	lethod	discon	Photo	55120		AirD	hoto		UTM (Z	Z/E/N)	NA NA	lethod
3M.027		F	4.0	GE		_	HC	R: 1	3 F:	06	L:	All	#:	10	-	.6123864	_	GIS
Comment	ts: barrier to	fish																
1 21	They be	Shan	7,0	117	95/	100	HAI	BITA	T, Q	UAL	ITY	32	FILE	SELECTIVE SERVICE	150	1) = 2, E	1	
	Name	10 000						250			Commer	nts					1 = A)	18 de 14 (2)
Spaw	ning Habita	at	Low -	associate	ed with le	ow amou	ints of c	lear gra	vel patc	hes, lim			d lack of adu	ult resting				
	ring Habitat		_										type habita	nt				
OverV	Vinter Habit	at	Moder	ate - ass	ociated	with dee	p pools,	perenn	ial flow,	limited	by access	3						

West Babine Study Area

Reach # ILP Map #

ILP#

Site

7.0

	Ph	oto		Foc Lg	Dir	Comments
R:	13	F:	04	STD	U	upstream photo taken of typical habitat within site
R:	13	F:	05	STD	D	downstream photo taken of typical habitat within site
₹:	13	F:	06	STD	U	upstream photo of 4m Falls
			9.14	- Testar I		COMMENTS
		Sec	ction			Comments
	- 3	CHA	NNEL	Fal	lls downstream at top of Re	each #6
		CHA	NNEL	Ext	tensive electroshocking eff	orts in mainstem immediately upstream of Falls
			NNEL		Fish Caught upstream of	

West Babine Study Area

Reach #

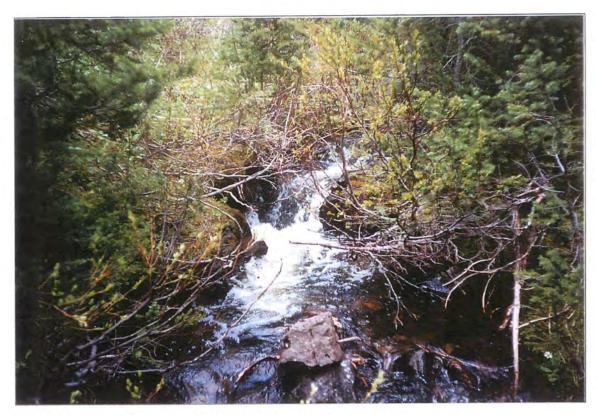
ILP Map #

ILP#

Watershed Code:

480-452300-13942-00000-0000-0000-000-000-000-000-000

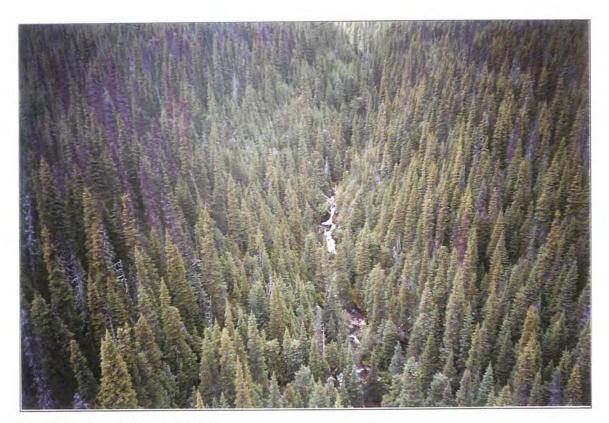
Ga	zetted	Name	WILL	IAMS C	REEK						Loc	al: N	one				
	Projec	t Code	480-	000000-	00000-		00-0000-000				250						
V		ody ID				111111	,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	777.54	Map #:	19-28-51			ILP#:		F	Reach #: 7	120
	Pro	ject ID:	5098								Lake/St	ream:	S		Lake Fro	m Date:	
F	ish Pe	ermit #:	145	5086K		Date: 2	2001/07/11	7	To: 200	1/07/11	Ag	ency:	C172	Cre	w: JH/JA	Resar	nple:
5.75		199	H. 300		1	307	1	SIT	E / N	ETH	O D		Charles and	mill's	日刊(到))	* St. 1875	
Site#	NIE	Мар	NID	#	UTM:2	Zone/East	/North/Mthd	МТ	D/NO	Temp	Cond	Turt	oid		Co	mment	-
448	093	M.027	400	48			GF	U EF	1	5	30	С					
		The state of the s	WH	2 阿尔	- ir		A.	GE	AR S	ETT	INGS	(B)3	Jan Maria	MOR			
Site#	MT	D/NO	H/P	Date	e In	Time In	Date Out	Tin	ne Out					Comr	nent		No.
448	EF	1	1	2001/0	7/11	13:40	2001/07/1	1 1	4:20								
	=10					C. E	LECTR	OFIS	SHER	SP	ECIFI	CA	TIONS	No.	1 100	別。制度	
Site#		MTD/N	0	H/P		Encl	Sec	Lengt	th	Width	Vol	tage	Frequer	су	Pulse	Make	Mode
448	EF		1	1		0	275	250.	0	2.0	6	00	1-1		5	SMITH ROOT	12B
375	1	T.	40	T	8	98.	- 3	FISI	H SU	MMA	RY		和信息條	2 1/2	- W. 14	CA GALLE	of orker
Site#		MTD/N	0	H/P	Spe	cies	Stage /	Age	Total	# Lg	th (Min/M	ax)	FishAct			Comment	
448	EF		- 1	- 4	NF	0			0			-					



Site #448, upstream photo taken of typical habitat within site. Roll #13, Frame #04, Date: 2001/07/11



Site #448, downstream photo taken of typical habitat within site. Roll #13, Frame #05, Date: 2001/07/11



Site #448, upstream photo of 4m Falls. Roll #13, Frame #06, Date: 2001/07/11

West Babine Study Area

Reach # ILP Map #

ILP#

Watershed Code: 480-430700-21000-72100-0000-0000-000-000-000-000-000

			STR	EAM	REF	EREN	CING	A THE !!	非常使		anie II	
Gazetted Na	ne:					L	ocal Name:					
Watershed C	ode: 480-43	0700-21000-72	2100-0000-0000-00	00-000-00	0-000-0	00-000	ILP	Map #:		(L	P#:	
	加斯特	A CONTRACT			REA	Н	1407	1000000		77	達置	11,46
Reach #: 4.	0		UTM(Zone/East/N	orth): 10.	643145	.6127119			Sample	Type:	Biase	ed
Length (km):			oupling: Coupled	2.00		initude:				Zone:	353	
Gradient (%): US Elev (m):			nement: Frequently	y Confin		Order: 2	etation: Mixe	od C/D	Open wa	ter: Abs	ent	
Bars: None	_	Diagonal		Span		aid	Landuse: No					
Baisi None S	5.00	Diagona	THE CHAINE	- Opan	SIT	-	Edilouse: No	A Opecinea	A STATE	STRAN		W-24
Site #:	449	Field UTN	M				y: C172	Crew:	JH/JA	Date:	2001/07	7/11
Site Length	(m): 200		M 10.643403.6127	039			the second second	n Environmer				
	A PERSONAL PROPERTY.		MINISTER ST	CI	HAN	NEL		SELECT S	140	PUR.	No.	COLUMN TO SERVICE
No Vis.Ch.:	Intermit	ttent:		Avg	Min	Max	#		Avg	Min	Max	#
Dewatered:	_ T		channel Width (m):		2,1	2.400	6	Gradient 6		10	17	4
Stage: Low			Wetted Width (m):		1.600	2.400		Pool Depth (n	n): 0.32	0.16	0.5	6
Med	/		Bankfull Depth (m):	0.43	0.1	-1 1	3	Tu	rbidity.:	Turbid		Low_
High	1	emp (C): 5	pH: 7.0		C	onductivity	y: 40		M	oderate		Clear 🗸
1.4.4	EXPOSITE	William .		MOR	PHO	LOGY	Plat is	riel being		加州市	可學門	4500
Bed Material: S	Dominant: ubdominant:	VIII III	D95 (cm): 80. D (cm): 2.		E	Bars: Non	Side	Diagonal	✓ Mid-	channel		pan 🔲
Channel Pat	tern: Irregula	ar, Wandering	Islands: Occ	casional I			O1 B1	B2 B3	D1	D2 D	03	
	ling: Decoup					ATORS						
	nent: Unconf ogy: CP	ined Cascade Pool			C1	C2 C3	C4 C	5 S1 S	2 S3	S4	S5	
Morpho	ogy. CP	Cascade Pool		L						Ш		
	1	III is	-127m S	C	OVE	R	11-11-12-11	75-574	1 000	14.9	(F15)(e)	0 170
Total Cover: M	Moderate		Type:	SWD	LWD		U	DP	OV	IV		
LWD: F	7.1		Amount: Location: P/S/O:	Т	S	T	S	D	T	T		
LWD Dist: C	Clumped		Location. F/3/O.	/	/	V	V	V			FSZ	2:
Right Bank: Left Bank: Right Bank:	Shape: S Shape: S Rip.Veg: D	loping (g Text	ture: Fines 🗸 Gra ture: Fines 🗸 Gra Stag		Cobble Cobble forest	Boulde Boulde		Manmade Manmade		Cn	own Clos 1-20	0.702
Left Bank:	Rip.Veg:		Stage	e: Mature	forest		Instream Ve	eg: None	Algae	Moss	✓ Vas	cular 🗸
	703	Ciny.		the Wa	FISH			1 1 x 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Messi	AND SECTION		
Site Number	Capture Method	Number of Events	Length fished (m)	Total Time		Voltage	Species	Total Fish	Minim Length			mum h (mm)
449	EF	1	470	400 se	С	600	NFC	0				

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

Watershed Code: 480-430700-21000-72100-0000-0000-000-000-000-000-000

4.0

Stream Nan Project Watersh	ne (gaz	.): BAB	INE RIV	ER	ventory -		-000-00	0-000-00	00-000-0	00		Project Co	ode:			5098		
11、北京省下班開發	d.	1000	15/4	10 10	Jan Ha	illa e	WAT	ERS	HED	5 - 15	1 30		un T	NEVEL	45	NEGI	E V	Mis.
Gazetted Name:										Lo	cal Nam	e: None						
Watershed Code: ILP Map#:		30700-21			0-0000-0					ID # 40	20.40		c ú				0	
				LP #:	24250	NID M	ap #: 09	3M.027	N			Read			1.0		Site #: 4	149
Field UTM (Z.E.N): GIS UTM (Z.E.N):		400 040	7000		Method:				_	Site L			Meth	hod: HC		Acce	ss: H	
GIS UTM (Z.E.N).	10.043	403.012	7039						K	ef. Name	2:							
Dat	e: 200	1/07/11	1	Time: 14	:50		Agency	: C172	(Crew:	JH/JA		F	ish Crd?	~	li	ncomple	te:
	X			- 48	(- Ca)	To the	CH	ANN	EL	14	- sky	HILL	351	THE SE	-511/3			E.
	Mtd	width	width	width	width	width	width	width	width	width	width	Avg			Gadie	ent %	Mtd	Avg
Channel Width (m):	MS	2.10	2.30	2.10	2.40	2.40	2.40	-	100	-	-	2.28	A	/lethod I:	15.0	17.0	С	14.5
Wetted Width (m):	MS	1.90	2.40	2.30	1.60	1.60	2.20					2.00	М	lethod II:	10.0	16.0	С	
Pool Depth (m):	MS	0.28	0.19	0.50	0.40	0.40	0.16	4				0.32	N	o Vis.Ch.	. [Interm	ittent:	7
Wb Depth:	.1	.2	1.0	Avg	g: 0.43		Method:	MS	SI	tage: L	M	VH					ribs.:	1
COVER			Tot	al: M														
Type:	SWE) I LV	VD	В	U	DF		ov T	IV	1 CR	OWN CL	OSURE						
Amount:	Т		S	T	S	D		T	T	1		-20%						
Loc: P/S/O:	7	1			~	1	-		V	INS	TREAM	VEG:	N	A	M	V		
LWD: LB SHP: Texture: RIP: STG:	S F 🗸 D	G		B	R A						RB SHP	s F] A [
LB SHP: Texture: RIP:	S F 🗸 D MF		c 🗆	В			w	ATE	R		RB SHP Texture RIP	S F	G _] c []	В	R		
LB SHP: Texture: RIP: STG:	S F 🗸 D MF		c 🗆	В	R A		w	ATE	R		RB SHP Texture RIP STG	S F	G _		В	R		
LB SHP: Texture: RIP: STG: EMS: Temp:	S F • D MF		c 🗆	В		100	Wod: T4	/ATE	R	Re	RB SHP Texture RIP STG	S F	G _] c []	В	R		al I
LB SHP: Texture: RIP: STG: EMS: Temp: 6 pH:	S F • D MF		c 🗆	В		Metho	od: T4		R	Ro Co	RB SHP Texture RIP STG	S F V	G] c _	В	R Met	hod: S	3
LB SHP: Texture: RIP: STG: EMS: Temp:	S F • D MF		c 🗆	В		Metho	od: T4		R	Ro Co	RB SHP Texture RIP STG	S F	G] c _	В	R Met	A STATE OF	3
LB SHP: Texture: RIP: STG: EMS: Temp: 6 pH:	S F • D MF		c 🗆	В		Metho Metho Metho	od: T4 od: P2 od: GE		R	Ro Co	RB SHP Texture RIP STG	S F V	G] c _	В	R Met	hod: S	3
LB SHP: Texture: RIP: STG: EMS: Temp: 6 pH:	S F V D MF 5 7.0 None		c 🗆	В		Metho Metho Metho	od: T4 od: P2 od: GE			Ro Co	RB SHP Texture RIP STG eq #: ond.: 40 furb.: T	S F V	G] c _	B	R Metil	hod: S	3
LB SHP: Texture: RIP: STG: EMS: Temp: pH: Flood Signs: I	S F D MF 5 7.0 None	Philippin and the second and the sec	c _	В	the same	Metho Metho Metho	od: T4 od: P2 od: GE	HOL	OGY	Re Co T	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T	S F V	G	_ c _	B	R Metil	hod: S	3
LB SHP: Texture: RIP: STG: EMS: Temp: pH: Flood Signs: I	S F • D MF 57.0 None	Oominan (c _	В	Subdom	Metho Metho Metho	od: T4 od: P2 od: GE		OGY BANCE	Re Co T	RB SHP Texture RIP STG eq #: ond.: 40 furb.: T	S F V D MF	GL	_ c _	B	Metil Metil	hod: S hod: G	3 E
LB SHP: Texture: RIP: STG: EMS: Temp: pH: Flood Signs: I	S F V D MF 5 7.0 None	Oominan (c _	В	Subdom	Metho Metho Metho	od: T4 od: P2 od: GE	PHOL	OGY BANCE	Re Co	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T	S F V D MF	GL	C C	B	Metil Metil	hod: S hod: G	3 E
EMS: Temp: EMS: Temp: pH: Flood Signs: I Bed Material: D95: Pattern: I Islands: (Coupling: I	S F VD MF 57.0 None 80.0 RD DC	Oominan (c _	В	Subdom	Metho Metho Metho	od: T4 od: P2 od: GE	PHOL	OGY BANCE	Re Co	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T	S F V D MF	GL	C C	B	Metil Metil	hod: S hod: G	3 E
EMS: Temp: EMS: Temp: pH: Flood Signs: I Bed Material: D95: Pattern: I Islands: (Coupling: I Confinement: I	S F V D MF 5 7.0 None 80.0 R D DC JN	Oominan (c _	В	Subdom	Metho Metho Metho	od: T4 od: P2 od: GE	PHOL	OGY BANCE TORS	Re Co	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T	S F D MF	GL	C C	B 2 D3	Meth Meth	hod: Shod: G	33 E
EMS: Temp: EMS: Temp: pH: Flood Signs: I Bed Material: D95: Pattern: I Islands: (Coupling: I	S F V D MF 5 7.0 None 80.0 R D DC JN	Oominan (c _	В	Subdom	Metho Metho Metho	od: T4 od: P2 od: GE	PHOL	OGY BANCE	Re Co	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T	S F D MF	GL	C C	B	Metil Metil	hod: Shod: G	3 E
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EMS: Texture: RIP: STG: EMS: Temp: pH: Flood Signs: I Bed Material: D95: Pattern: I Islands: (Coupling: I Confinement: U FSZ:	S F V D MF 5 7.0 None 80.0 R D DC JN	Dominan D (cm)	c	В	Subdom	Metho Metho Metho In: G In: CP	od: T4 od: P2 od: GE	PHOL DISTURE INDICA B	BANCE TORS	Re Co	RB SHP Texture RIP STG eq #: ond.: 40 furb.: T	S F V D MF	G L L STATE OF THE	C C	B 2 D3	Metil Metil	hod: S. hod: G	33 E
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EMS: Texture: RIP: STG: EMS: Temp: pH: Flood Signs: I Bed Material: D95: Pattern: I Islands: (Coupling: I Confinement: U FSZ:	S F V D MF 5 7.0 None	Dominan D (cm) Modera Modera	t: C): 2.00	B Gociated sociated	Subdom Morph with clea with dee	Metho Metho Metho In G In CP	od: T4 od: P2 od: GE I ORF	PHOL DISTURE INDICA B: T QL avel throilercut ba	BANCE TORS ars:	O1 C1 C1 Commentite, mode	RB SHP Texture RIP STG eq #: ond.: 40 furb.: T	S F V D MF	G L L STATE OF THE	C C	B 2 D3	Metil Metil	hod: S. hod: G	33 E
LB SHP: Texture: RIP: STG: EMS: Temp: 6 pH: Flood Signs: I Bed Material: D95: Pattern: I Islands: (Coupling: I Confinement: U FSZ: Name Spawning Habitat Rearing Habitat	S F V D MF 5 7.0 None	Dominan D (cm) Moder Moder Moder	t: C): 2.00	B cociated cociated cociated	Subdom Morph with clea with dee	Metho Metho Metho In G In CP	od: T4 od: P2 od: GE IORF	PHOL DISTURE INDICA B: T QL avel throilercut ba	BANCE TORS ars: Ughout sinks erennial	O1 C1 C1 Commentite, mode	RB SHP Texture RIP STG eq #: ond.: 40 furb.: T	S F V D MF	G L L STATE OF THE	C C	B 2 D3	Metil Metil	hod: S. hod: G	33 E
LB SHP: Texture: RIP: STG: EMS: Temp: 6 pH: Flood Signs: I Bed Material: D95: Pattern: I Islands: (Coupling: I Confinement: U FSZ: Name Spawning Habitat Rearing Habitat	S F V D MF 57.0 None	Dominan D (cm) Moder Moder Moder	t: C): 2.00	B Gociated Sociated	Subdom Morph with clea with dee	Metho Metho Metho In G In CP	od: T4 od: P2 od: GE IORF	B: T QU avel throilercut balls and p	BANCE TORS ars: Ughout sinks erennial	O1 C1 C1 Commentite, mode	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T B1 C2 SIDI	S F D MF	G L	C C	B 2 D3	Metil Metil	hod: S. hod: G	33 E
EMS: RIP: STG: EMS: Temp: pH: Flood Signs: I Bed Material: D95: Pattern: I Islands: (Coupling: I Confinement: U FSZ: Name Spawning Habitat Rearing Habitat	S F V D MF 57.0 None	Dominan D (cm) Modern Modern	t: C): 2.00	B Gociated Sociated D	Subdom Morph with clea with dee with moc	Metho Metho	od: T4 od: P2 od: GE I O R F	PHOL DISTURB INDICA B. T QU avel throilercut balls and p	BANCE TORS ars: Ughout sinks erennial	Record T	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T B1 C2 SIDI	S F V D MF	G L	C C	B 2 D3	Metil Metil	hod: S. hod: G	33 E

West Babine Study Area

Reach # ILP Map #

ILP#

Site

Watershed Code: 480-430700-21000-72100-0000-0000-000-000-000-000-000

4.0

	COMMENTS
Section	Comments
CHANNEL	Downstream gradient barrier blocks upstream fish access
CHANNEL	No Fish Captured with extensive electroshocking effort

West Babine Study Area

Reach #

ILP Map #

ILP#

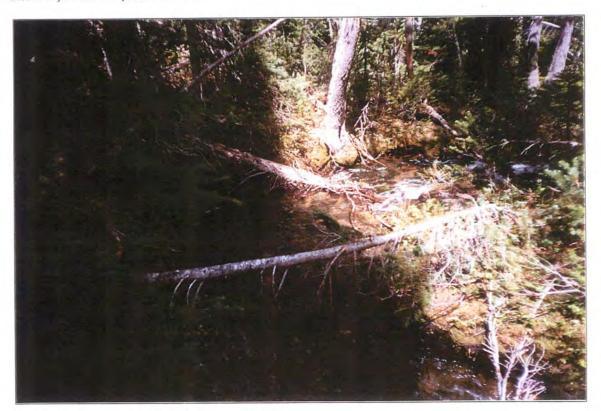
Watershed Code:

480-430700-21000-72100-0000-0000-000-000-000-000-000

Ga	zetted Nar	ne:										Loca	al: N	one				
	Project Co	de:	480-0	000000-0	0000-	00000-0	0000-0000	-000-00	00-000-00	000-00	-0							
	WS Co	de:	480-4	30700-2	1000-	72100-0	0000-0000-	000-00	00-000-00	000-00	-000							
٧	Vaterbody	D:							ILP Maj	p #:				ILP#:		R	teach #: 4	
	Project	D: 4	5098									Lake/Str	eam;	S		Lake From	m Date:	
F	ish Permit	#:	145	086K		Date:	2001/07/	11	To:	2001/0	7/11	Age	ency:	C172	Crew	: JH/JA	Resar	nple:
63	10	. 6		Tâ	35		35 R	S	ITE /	ME	TH	O D	6	S Start	WA.	19.30	JE 849	- Shirt
Site#	NID Ma	p	NID	#	UTM:	Zone/Ea	st/North/M	thd	MTD/N	O T	emp	Cond	Turt	id	-	Cor	mment	Anna Pillian Africa
449	093M.02	7	4004	19				GPU	EF :	1	5	40	С					
		396	Na	1 1361	Minist.	4:13	张 伯纳3	A. 1	GEAR	SE	TT	INGS	100		E 44-6	() 和智斯	TWO BUT HE	
Site#	MTD/N)	H/P	Date	In	Time I	n Date	Out	Time O	ut				THE ST. PRINCE.	Comme	ent	A PART OF THE PARTY OF THE PART	and the later of
449	EF 1		1	2001/0	7/11	14:50	2001/	07/11	15:25									
	VALUE OF THE PARTY		85	129	ME.	C. I	ELECT	RO	FISH	ER	SPE	CIFI	CA	TIONS		100	Part No.	· 有型。
Site#	MT	/NO		H/P		Encl	Sec	1	ength	N	/idth	Volt	age	Frequenc	у	Pulse	Make	Mode
449	EF		1	1		0	400		470.0		2.2	60	00			5	SMITH	12B
130			1		7	188	478	F	ISH S	UM	MA	RY	350		1.3	WE CAN	ROOT	
Site#	MTE	/NO	9 97	H/P	Spe	ecies	Stage	Ag	e To	otal #	Lat	h (Min/M	ax) T	FishAct			Comment	Det Sty
449	EF		1	- 1	NF	0				0	-	-	-		_		MATERIAL STREET	



Site #449, upstream photo of typical insects within site. Roll #13, Frame #07, Date: 2001/07/11



Site #449, downstream photo of habitat within site. Roll #13, Frame #08, Date: 2001/07/11

West Babine Study Area

Reach # ILP Map #

ILP#

Watershed Code: 480-430700-21000-72100-0000-0000-000-000-000-000-000

and mult	- 344	AL TO	STR	EAM	REFE	REN	CING	ne brit	(4)(月)	野期	70 70	
Gazetted Na	me:					Lo	ocal Name:					
Watershed C	ode: 480-43	0700-21000-72	100-0000-0000-00	00-000-00	00-000-00	000-000	ILP	Map #:		IL	P#:	
	W. MESS	AMERICAN PROPERTY.	Vallet As	340	REAC	Н		do 15-2	FE TELE	Carlot St	E CHI	F.Head
Reach #: 3	.0		UTM(Zone/East/N	lorth): 10	.643632.	6127077			Sample	Type:	Rando	m
Length (km) Gradient (%) US Elev (m)	: 21.6	Confir	upling: Coupled nement: Confined slands: NONE		Magr	nitude: Order: 2	2 etation: Mixe	ed C/D	1 - 1 - 1 - 1 - 1	Zone:		
Bars: None	✓ Side	Diagonal	Mid-channel _	Span	Bra	id 🗌	Landuse: No	ot Specified				
L. Him	- That	Market	THE PROPERTY		SITE	le mill	握。这	The Part of	dan -	W. 1		in the last
Site #:		Field UTM GIS UT	и м 10.643779.6127	7129			: C172 y Name: Trito	2,777	JH/JA ental Consu		2001/07 errace)	711
	1. 为此能	150 J - 0	10 mg	C	HANN	EL	1155	STOCK		ull (HATTE IL	1000
No Vis.Ch.:	Intermi	ttent:		Avg	Min	Max	#		Avg	Min	Max	#
Dewatered:	_ т	ribs.:	hannel Width (m):	2.40	2.1	2.6	6	Gradien	t %: 23.50	21	26	4
Stage: Low		_	Wetted Width (m):		1.9	2.3		Pool Depth	(m): 0.33	0.100	0.600	6
Med	~	В	ankfull Depth (m):	0.60	0.4	0.9	3	1	urbidity.:	Turbid		Low
Hìgh	7	emp (C): 5	pH: 6.8		Co	nductivity	: 30		М	oderate	0	lear
E/M	120	1		MOR	PHOI	OGY	Search .	in the second	SES!	A Edin	To The B	Sales in
Bed Material	: Dominant Subdominant		D95 (cm): 80 D (cm): 40		В	ars: Non	Side	Diagona	Mid-	-channel	_	an _
Cou	ittern: Sinuou pling: Decoup ment: Uncon	oled	Islands: Oc	casional	INDICA		O1 B1	B2 B3	D1	D2 C	03 S5	
Morpho	ology: CP	Cascade Pool		1		711			02 03			
ylander of	-213	28/	special, in		OVE	R	With the	and Cont	SIN UNIV	With the second	dw-s	Jan.
Total Cover: I	Moderate		Type:	SWD	LWD	В	U	DP	ov	IV		
LWD:	Few		Amount:	T	S	S	S	D	T	T	i	
LWD Dist:			Location: P/S/O:	<	V	~	~	V		1	FSZ	: 🗆
Right Bank: Left Bank: Right Bank: Left Bank:	Shape: V Shape: V Rip.Veg: D Rip.Veg:	- shape Text	-			Boulder		Manmade Manmade			own Clos 1-20	0%
9	11-1400	Yarra III	(3.5)	HE WAY	FISH	Take U.S.	THE REAL	THE BOOK	Til Til	A Part	11073	T TOWN
Site Number	Capture Method	Number of Events	Length fished (m)	Total Time		oltage	Species	Total Fish	Minim Length		Maxii	
450	EF	1	150	159 se	c	700	NFC	0				

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

3.0

Project Name: Babine River Fish Inventory - 2001 Stream Name (gaz.): BABINE RIVER Project Code: 5098 Project Watershed Code: 480-000000-0000-0000-0000-000-000-000-00	
Gazetted Name: Local Name: None Watershed Code: 480-430700-21000-72100-0000-000-000-000-000-000-000	STREET, SQUARE, SQUARE,
Watershed Code: 480-430700-21000-72100-0000-0000-000-000-000-000-000-000	Salah
Field UTM (Z.E.N): Method: Site Lg: 150 Method: HC Access: H GIS UTM (Z.E.N): 10.643779.6127129 Ref. Name:	450
Date: 2001/07/11	lete:
	acres and
CHANNEL Mtd width width width width width width width width Avg Gadient % Mtd Mtd Width Width	Avg
Channel Width (m): MS 2.40 2.60 2.10 2.30 2.50 2.50 2.50 2.40 Method I: 25.0 26.0 C	
Wetted Width (m): MS 2.00 1.90 2.10 2.00 2.20 2.30 2.08 Method II: 21.0 22.0 C	
Pool Depth (m): MS 0.60 0.40 0.30 0.30 0.28 0.10 0.33 No Vis.Ch.: Intermittent:	ā
Wb Depth: .4 .5 .9 Avg: 0.60 Method: MS Stage: L M → H Dw: Tribs.:	
COVER Total: M	
Type: SWD LWD B U DP OV IV CROWN CLOSURE	
Amount: T S S S D T T 1 1-20%	
Loc: P/S/O: V V V INSTREAM VEG: N A M V	
RIP: D STG: MF STG: MF	
WATER	歌歌
EMS: Req #: Temp: 5 Method: T4 Cond.; 30 Method: pH: 6.8 Method: P2 Flood Signs: None Method: GE Req #: Cond.; 30 Method: Method: Turb.: T M L C ✓ Method:	
MORPHOLOGY	
Bed Material: Dominant: C Subdom: G O1 B1 B2 B3 D1 D2 D3	EXPERT OF
Islands: O Coupling: DC Confinement: UN FSZ: Bars: N SIDE DIAG MID SPAN	S4 S5
Islands: O Coupling: DC Confinement: UN	S4 S5
Islands: O Coupling: DC Confinement: UN FSZ: Bars: N SIDE DIAG MID SPAN HABITAT QUALITY Name Comments	\$4 \$5
Islands: O Coupling: DC Confinement: UN FSZ: Bars: N SIDE DIAG MID SPAN HABITAT QUALITY Name Comments Spawning Habitat Moderate - associated with moderate clean patches of gravel, limited by steep gradient	S4 S5
Islands: O Coupling: DC Confinement: UN FSZ: Bars: N SIDE DIAG MID SPAN HABITAT QUALITY Name Comments Spawning Habitat Moderate - associated with moderate clean patches of gravel, limited by steep gradient Rearing Habitat Moderate - associated with deep pools, LWD and boulders, limited by steep gradient	S4 S5
Islands: O Coupling: DC Confinement: UN FSZ: Bars: N SIDE DIAG MID SPAN HABITAT QUALITY Name Comments Spawning Habitat Moderate - associated with moderate clean patches of gravel, limited by steep gradient Rearing Habitat Moderate - associated with deep pools, LWD and boulders, limited by steep gradient OverWinter Habitat Moderate - associated with deep pools and perennial flow, limited by steep gradient	S4 S5
Islands: O Coupling: DC Confinement: UN FSZ: Bars: N SIDE DIAG MID SPAN HABITAT QUALITY Name Comments Spawning Habitat Moderate - associated with moderate clean patches of gravel, limited by steep gradient Rearing Habitat Moderate - associated with deep pools, LWD and boulders, limited by steep gradient OverWinter Habitat Moderate - associated with deep pools and perennial flow, limited by steep gradient PHOTOS	S4 S5
Islands: O Coupling: DC Confinement: UN FSZ: Bars: N SIDE DIAG MID SPAN HABITAT QUALITY Name Comments Spawning Habitat Moderate - associated with moderate clean patches of gravel, limited by steep gradient Rearing Habitat Moderate - associated with deep pools, LWD and boulders, limited by steep gradient OverWinter Habitat Moderate - associated with deep pools and perennial flow, limited by steep gradient	S4 S5

West Babine Study Area

Reach #

ILP Map #

ILP#

Site 450

Watershed Code: 480-430700-21000-72100-0000-0000-000-000-000-000-000

The state	COMMENTS
Section	Comments
CHANNEL	High gradients block upstream access
CHANNEL	No Fish Captured upstream of gradient section with electroshocking effort
CHANNEL	Steep gradient, 23% - 150m approx.

West Babine Study Area

Reach #

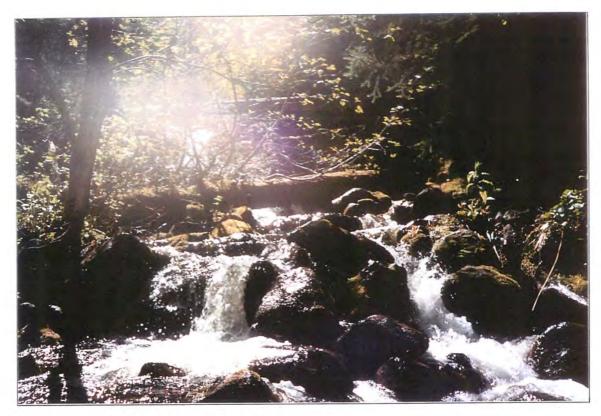
ILP Map #

ILP#

Watershed Code:

480-430700-21000-72100-0000-0000-000-000-000-000-000

Ga	zetted	Name:									Loca	al: No	one			
11					0000-00000											
	1000	200	480-4	30700-2	1000-72100	-0000-0000	-000-00			00			200			
V	Vaterbo							ILP Map	#:				ILP#:			-
	Proj	ect ID:	5098	1						L	ake/Str	eam:	S	Lake From	m Date:	
F	Fish Pe	rmit #:	145	086K	Date	2001/07/	111	To: 20	001/07/	11	Age	ency:	C172	Crew: JH/JA	Resan	nple:
1717	1.5	1	30	- 电新一	1	, i	S	ITE /	MET	НО	D	60	H. Car	3 100	14	Total T
Site#	NID	Мар	NID	# (UTM:Zone/E	ast/North/N	Athd	MTD/NO	Ten	np	Cond	Turb	id	Cor	mment	
450	0931	1.027	400	50			GPU		5		30	С				
WE.						11	Α.	GEAR	SET	TII	NGS		9.74.19			14.2
Site#	MT	O/NO	H/P	Date	In Time	In Date	e Out	Time Out					C	omment		
450	EF	1	1	2001/07	7/11 15:3	30 2001	/07/11	15:50								
10	. Oak	Eil	6	500	C.	ELEC.	TRO	FISHE	R S	PE	CIFI	CA	TIONS			11
Site#	111	MTD/N	0	H/P	Encl	Sec	1	Length	Wid	th	Volt	age	Frequency	Pulse	Make	Model
450	EF		1	1	0	159		150.0	2	.4	70	00		5	SMITH ROOT	12B
100	200	100	司位	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	巴巴斯	F	ISH S	UMN	IAR	Υ	ES,	THE STATE OF		SICHER PROPERTY.	AND HOLE
Site#		ATD/N	0	H/P	Species	Stage	Ag	e Tot	al#	Lgth	(Min/Ma	ax)	FishAct		Comment	
	EF	_	_		NFC		_	_	0		_	_	_			



Site #450, upstream photo of cascades typical within sample site. Roll #13, Frame #09, Date: 2001/07/11



Site #450, downstream photo of cascades typical within sample site. Roll #13, Frame #10, Date: 2001/07/11

West Babine Study Area

Reach # ILP Map #

ILP#

And China	建设制	全点出。 图	STE	REAN	REF	EREN	ICING	LENGTH IN	人也可能	Service Control	2.0
Gazetted N	lame:)	Local Name:				
Watershed	Code: 480-4	30700-21000-0	0000-0000-0000-0	00-000-0	000-000	000-000	ILF	Map #:		ILP#:	
- 4-5-2	100	Mark Cit	Terror	Short	REA	CH	A COL	and the second		motion and	
Reach #:	12.0	MILE OF BUILDING	UTM(Zone/East/I	Vorth): 1	0.65145	2 612744	Name of Street		Sample Typ	e: Rand	
Length (km		C	oupling: Coupled	toruij.		gnitude:	1		BGC Zor		om
Gradient (%	6): 18.9		inement: Confined			Order:			Open water:		
US Elev (m	1): 1168		Islands: NONE		Ri	parian Ve	getation: Mixe	ed C/D	2.5217.113-27.1	1000000	
Bars: None	✓ Side	Diagonal	Mid-channel	Spar	-	Braid	Landuse: N				
	P 21	and Table			SIT	E	15 A 31		100 -100	7.25 640	P STA
Site #	#: 451	Field UT	М			Agen	cy: C172	Crew:	JH/JA D	ate: 2001/0	7/11
Site Lengt	h (m): 100	GIS U	TM 10.644477.612	7266		Agen	cy Name: Trito		ntal Consultan		
7.1				C	HAN		7 20 21 3	4. 44		Tare Tribale	1078
No Vis.Ch.	: Interm	ittent:		Avg	Min	Max	#		Avg N	lin Max	#
Dewatered	_ T	ribs.:	Channel Width (m)	0.74	0.600	0.810	6	Gradient		20 22	4
Stage: Low	7		Wetted Width (m)	0.54	0.400	0.75	6	Pool Depth (m): 0.14 0.	08 0.25	6
Med			Bankfull Depth (m)	0.23	0.1	0.4	3	Ť	urbidity.: Tu	rbid	Low
High		Temp (C): 5	pH: 6.8		(Conductivi	ty: 40	1.0	Mode	-	Clear 🗸
7.010	or Miss	3,747	A SE	MOF	RPHO	LOG	/	mp.	PDF 315020	197	STEEL STATE OF
Bed Materia	il: Dominant Subdominant		D95 (cm): 24			Bars: Nor	Side	✓ Diagonal	Mid-cha		pan 🔲
Confine	attern: Irregula upling: Decou ement: Uncon ology: CP		Islands: Oc	casional		RBANCE CATORS C2 C	01 B1 3 C4 C	B2 B3 5 S1 S	D1 D2	D3	
F 138	FF OF THE	MH TO SEE	(1) Same		COVI	ER .	TOTAL PARTY	4:10:00	一块铁块坑	Charles to the state of	Project Control
Total Cover:	Moderate		Type:	SWD	LWD	В	1 0	DP I	OV I IV		Sulfus
LWD:	Few	_	Amount:	S	S	N	S	N	D T		
LWD Dist:	Evenly Distril	buted	Location: P/S/O:		~		~			FSZ	. 🗆
Right Bank: Left Bank: Right Bank: Left Bank:	Shape: S Shape: V Rip.Veg: S Rip.Veg:	- shape Text	7.7			Boulde		Manmade Manmade g: None		Crown Clos	sure 0%
	10000		\$ 6 7 1 1	THE	FISI	100	11121 37	po to	1 7977	75. A 210	可多數
Site Number	Capture Method	Number of Events	Length fished (m)	Tota Time		Voltage	Species	Total Fish	Minimum Length (mm	Maxin) Length	
451	EF	1	150	160 se	ec	600	NFC	0	100		

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

12.0

Control of the same		100	11.15	HI S		PR	OJE	CT		100		7 24.5	機長	-6123		1	四五十分
Project N Stream Name (Project Watershed		INE RIVE	ER			-000-000)-000-00	00-000-00	00	F	Project Co	ode:			5098		
Maria de Caracteria de Car	WE TWY	D RED		26.5	III.	WAT	ERS	HED	- 10	1 127	03	48	56	182	1000	Vine I	PEU PS
Gazetted Name:									Loc	cal Name	e: None						
Watershed Code: 48 ILP Map#: Field UTM (Z.E.N): GIS UTM (Z.E.N): 10		IL	_P #:	0-0000-00		000-000- ap #: 09		N	ID #: 40 Site Lo	g: 100	Read	ch #: Meth	12 od: HC	2,0	Acce	Site #: 4	151
Date:	2001/07/11	1	ime: 17	:00		Agency:	C172	C	rew:	JH/JA		Fis	sh Crd?:	~	I	ncomple	ete:
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	S. SECAR	F, FIG	- 10	FSL	12mm	CH	ANN	EL	X , 1		Ne - Ki	200	300	(3	AF MC	NOTE:	Part of
	Atd width	width	width	_	width	width	width	width	width	width	Avg	_			ent %	Mtd	Avg
The second secon	MS 0.80	0.75	0.60	0.73	0.76	0.81					0.74		ethod II:	21.0	20.0	OO	21.00
	MS 0.60 MS 0.25	0.60	0.40	0.41	0.50	0.75		7			0.14	Livie	etriod II.		-		1
		1 4		0.00							71.6		Vis.Ch	and the same of	Interm		
Wb Depth:	.1 ,4	.2 Tota] Avo	g: 0.23	,	Method:	MS	Si	tage: L	V M	н		Dw	v:		Tribs.:	
Type:	SWD L	WD	В	U	DF		OV	IV	CR	OWN CL	OSURE						
Amount:	S	S	N	S	N	31	D	Т	1		-20%						
Loc: P/S/O:	· ·			V		V		V	INS	TREAM	VEG:	N	A 🔲	M V	V		
Texture: RIP: S STG: Mi	F ✔ G □	C _	В	R 🗀 A						Texture RIP STG		G	С	В	R	A _	1
	100	VI 3-1	23.6	Elain	100	W	ATE	R	_(%))****	10,100	o. Tr		(d) 1 m				
EMS:									R	eq #:							
Temp: 5						od: T4			C	ond.: 40					Met	hod: S	3
pH: 6.8 Flood Signs: No						od: P2 od: GE			7	urb.: T	M	TL	C	~	Met	hod: G	SE
Flood Signs, No	ne																
	3.00	11-	100	1790	N	ORF	HOL	OGY			Benis		些有	183			W 9.75
Bed Material: D95: 24 Pattern: IR Islands: O Coupling: DO Confinement: UN		nt: G a): 1.00		Subdom Morph		C	INDICA	BANCE ATORS	01 C1	B1 C2 SID	C3 (C5 S		52 S		4 S5
FSZ:	H0 11	TENTE I	75-77-7		НΔ	RITA		UALI		Z# *50	(V)	113			SUI CARRO		
Name	5 15 1 2	271	- 23	200				alian-in	Commen	te	-	- 3	100	Part of	1000	- 1	物源可
Spawning Habitat	None	- limited l	by seas	onal flow	and ste	ep grad	ient, fine		Johnnett				-				
Rearing Habitat	None	- limited !	by seas	onal flow	and ste	ep grad	ient										
OverWinter Habitat	None	- no deep	pools,	seasona	I flow ar												
n- , n- ,	11.1	1		the turner	arther , -	PH	ЮТС	S		V3:		4.3	yth, as	TAIL		THE PARTY	新心量
Photo	Foc Lg)ir							Commer						
R: 13 F: 11 R: 13 F: 12	STD			U D				teep grad			bla e't-						
N. 13 F. 12	310		- 1	U	Igow	ristream	pnoto	of typical	nabitat f	ound wit	nin site						

West Babine Study Area

Reach #

ILP Map #

ILP#

Site

12.0

Wiles	COMMENTS
Section	Comments
CHANNEL	Highly ephemeral flows, low habitat complexity, predominance of fine and organic substrates, high gradient
CHANNEL	No Fish Captured
CHANNEL	Flows into cutblock

West Babine Study Area

Reach #

ILP Map#

ILP#

Watershed Code:

APPLY T	· W	V.	份額	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ME	100		ti	WATI	ERB	O D	Υ	22:	HALL		10 M		
Ga	zetted N	Name:										Loc	al: N	one				
F	Project	Code:	480-0	0-00000	00000-0	0000-000	00-0000-00	0-000	0-000-00	0-000-	0							
	WS	Code:	480-4	130700-2	1000-0	0000-000	00-0000-000	0-00	0-000-00	0-000-	000							
V	Vaterbo								ILP Map	#:		4.5		ILP#:			Reach #: 12	
	Proje	ect ID:	5098								- 4	Lake/St	ream:	S		Lake Fro	m Date:	
F	ish Per	mit #:	145	5086K		Date: 2	2001/07/11		To:	2001/0	7/11	Ag	ency:	C172	Cre	w: JH/JA	Resar	nple:
3(10	100		PEN	TOTAL STATE	W/T	151	4.7	S	TE /	ME	TH	0 D		H. H	16:1	二次原	#	
Site#	NID	Мар	NID	#	UTM:Z	one/East/	North/Mtho	1	MTD/N) Te	emp	Cond	Turt	oid		Co	mment	
451	093N	1.027	400	51	41 =		G	PU	EF 1	Yict	5	40	С					
				1			A	. (SEAR	SE	TTI	NGS		THE PERSON		7 3/5		
Site#	MTD	/NO	H/P	Date	In	Time In	Date O	ut	Time O	ut					Comn	nent		
451	EF	1	1	2001/0	7/11	17:00	2001/07/	/11	17:20									
				0.77		C. E	LECTR	O	ISH	ER S	SPE	CIFI	CA	TIONS	300			21.5
Site#	1	ITD/N	0	H/P	7 1 2	Encl	Sec	L	ength	W	idth	Vol	tage	Frequen	су	Pulse	Make	Model
451	EF		1	1		0	160		150.0		0.7	6	00	1 - 1		5	SMITH ROOT	12B
		7	-	Shire				FI	SHS	UM	MA	RY	5.7	F = F			1.0	Tank.
Site#	l N	ITD/N	0	H/P	Spe	cies S	Stage	Age	To	tal#	Lgtl	h (Min/M	ax)	FishAct			Comment	
451	EF		1	1	NF	0			17	0		311						



Site #451, upstream photo of steep gradient section. Roll #13, Frame #11, Date: 2001/07/11



Site #451, downstream photo of typical habitat found within site. Roll #13, Frame #12, Date: 2001/07/11

West Babine Study Area

Reach # ILP Map #

ILP#

3.0

093M.027

O GALLANDER	A TO VOLUM		STR	EAM	REF	EREN	CING	相如明			of the	
Gazetted Na	me:					L	ocal Name:					
Watershed (Code: 000-00	00-00000-00	000-0000-0000-00	00-000-00	0-000-0	000-000	ILP	Map #: 093M.	027	IL	P#:	10155
		TEMPORE S			REA	CH	OW TH	APOLINE S		Salar.	7, 2	I Tay by
Reach #: 3	3.0		UTM(Zone/East/N	orth): 10	.642067	7.6128128			Sample '	Туре:	Rande	om
Length (km)): .92	Co	oupling: Coupled		Mag	gnitude:	1		BGC	Zone:	SBS	
Gradient (%)): 23.0	Confir	nement: Confined			Order: 1			Open wat	er: Abs	ent	
US Elev (m)	: 1413		slands: NONE		Rip	arian Veg	etation: Mixe	d C/D				
Bars: None	✓ Side	Diagonal	Mid-channel	Span	B	raid	Landuse: No	t Specified				
PROPERTY.	100		1 E E E E	5.7	SIT	E	1500			11		9113
Site #	: 452	Field UTM	и			Agenc	y: C172	Crew: J	H/JA	Date:	2001/0	7/12
Site Length	(m):250	GIS UT	M 10,642608.6128	3497		Agend	y Name: Trito	n Environmen	tal Consul	tants (T	епасе)	
THE IF	1 5 / A A A	3		C	HAN	NEL				JJ 53	11.91	· Colin
No Vis.Ch.:	Intermit	ttent:		Avg	Min	Max	#		Avg	Min	Max	#
Dewatered:	_ T	ribs.:	Channel Width (m):	0.83	0.75	0.930	6	Gradient %	: 26.00	20	30	4
Stage: Low			Wetted Width (m):	0.74	0.65	0.800	6	Pool Depth (m): 0.19	0.150	0.230	6
Med		В	Bankfull Depth (m):	0.17	0.1	0.3	3	Tur	bidity.:	Turbid		Low
High	Name of the last o	Temp (C): 6	pH: 6.6		C	Conductivity	y: 40	101		derate		Clear
THE PERMIT		100	C Mary man	MOR	PHO	LOGY	2条时 (**	House of	16 = =1-1V	er financia	LCTP SSW	111
Bed Material	: Dominant	: Gravels	D95 (cm): 31			Bars: Non	-	✓ Diagonal	Mid-	channel	S	pan 🗌
	Subdominant	: Cobble	D (cm): 1.	00							В	raid 🗌
Channel Pa	attem: Sinuou	s	Islands: Oc	casional			O1 B1	B2 B3	D1 [D2 [03	
Cou	pling: Decoup	pled			INDIC	ATORS						
	ment: Unconf	7.7			C1	C2 C3	C4 C	5 S1 S2	S3	S4	S5	
Morpho	ology: RP	Riffle Pool										
na , m,	- N - M	10000000000000000000000000000000000000	1000	0	OVE	R	Harrist Co	- High - T	mining			6.4
Total Cover:	Moderate		Type:	SWD	LWD	В	U	DP	ov	IV		
LWD:	Few		Amount:	S	S	N	D	T	T	T		
	Evenly Distrit	buted	Location: P/S/O:	~	>		~	V V			FS	Z: 🗌
Right Bank:	Shape: U	Indercut Text	ture: Fines V Gra	avel (Cobble	Boulde	Rock	Manmade		Cr	own Clo	SUITA
Left Bank:	Shape: U		ture: Fines V Gra		Cobble	Boulde		Manmade	Fi.	O.		0%
Right Bank:	Rip.Veg: D	eciduous	Stag	e: Mature	forest		VILL PARAME	0.0.0.0.0.0				0.70
Left Bank:	Rip.Veg:			e: Mature			Instream Ve	g: None	Algae _	Moss	✓ Vas	cular [
in the second	7 300		Y	No. of	FISI	H-Carly	The second	et ikake	-14-000	uttaes		1000
Site Number	Capture Method	Number of Events	Length fished (m)	Total Time	1	Voltage	Species	Total Fish	Minim			mum h (mm)
452	EF	1	200	120 se	С	600	NFC	0	-		- 0	2. N. 2. 184
		1	1			95.7	476					

West Babine Study Area

Reach

ILP Map #

ILP#

Site

3.0

093M.027

10155

18 1 1 1 1	神像	15.0																
Project Stream Nam Project Watershe	ne (gaz.	A COLUMN	INE RIV	ER			-000-00	0-000-00	00-000-00	00	1	Project Co	ode:			5098		
272.50	S	50.34	- 20		- Magain	(U)	WAT	ERS	HED	Name of	in the	in the	3			F .0	into a	de:
Gazetted Name:										Loc	cal Nam	e: None			U HILLS		1311	
Watershed Code:	000-00	00-0000	000-000	000-000	0-0000-0	00-000-0	000-000	-000-000	0									
ILP Map#:	093M.	027	1	ILP #: 10	155	NID M	ap #: 09	3M.027	N	ID#: 40	052	Read	ch #:		3.0	1	Site #:	52
Field UTM (Z.E.N):				٨	Method:					Site Lo	g: 250		Me	thod: HC		Acce	ss: H	
GIS UTM (Z.E.N):	10.642	608.612	8497						R	ef, Name	:							
Date	e: 200	1/07/12	7	Time: 08	:30		Agency:	: C172		crew:	JH/JA		F	Fish Crd?		tr	ncomple	ete:
SOM THE	V 27			91 29	165	E2: / B1	CH	ANN	EL	100		2.76		50.39		-3027	Thorne .	110-
	Mtd	width	width	width	width	width	width	width	width	width	width	Avg			Gadi	ent %	Mtd	Av
Channel Width (m):	MS	0.80	0.90	0.81	0.80	0.75	0.93	100		V. T. E. C.		0.83		Method I	-	20.0	С	26.
Wetted Width (m):	MS	0.80	0.70	0.80	0.80	0.65	0.69					0.74	٨	Method II	26.0	30.0	C	
Pool Depth (m):	MS	0.15	0.20	0.23	0.15	0.22	0.17					0.19		1- \/:- OF		late and		
Wb Depth:	.1	1 .3	1.1	1 Ave	g: 0.17		Method:	MS	St	age: L	- M	V H		No Vis.Ch Dv	1	Interm	ribs.:	=
COVER				al: M	50.500		0.48,540,			-30	- "	V				7	1100	
	SWD	1 11			- 11	T 50		ov. T	. 0.7	1 000	NAME OF	OCUPE						
Type: Amount:	S		WD S	B	D	DF		OV	T	1		OSURE						
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LB SHP: Texture: RIP: STG: EMS: Temp: 6	D MF	G			R A	Metho Metho Metho	wod: T4 od: P2 od: GE	ATE		Re Co	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T	: U : F 🗸 : D : MF	G	c _ c	B	R Metil	hod: S	3
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EMS: Temp: 6 pH: 6 Flood Signs: N Bed Material: D95: 3 Pattern: S Islands: C	D MF 3.6.6 None	Dominant	C _	B 1	Subdom	Metho Metho Metho Metho	wod: T4 od: P2 od: GE	HOL	ROGY	Re CC T	RB SHP Texture RIP STG	D MF	G L	C C	B	R Metil	hod: S hod: G	3 E
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EMS: Temp: 6 pH: 6 Flood Signs: N Bed Material: D95: 3 Pattern: S Islands: C Coupling: D Confinement: U	D MF 3.6.6 None 31.0 Si D DC JN	Dominant	C _	B 1	Subdom	Metho Metho Metho Metho Metho	od: T4 od: P2 od: GE	PHOL	R O G Y	Re Cc T	RB SHP Texture RIP STG	EU : F	G L	C C D1 C C5 S	B	Metil Metil	hod: S hod: G	3 E
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LB SHP: Texture: RIP: STG: EMS: Temp: 6 pH: 6 Flood Signs: N Bed Material: D95: 3 Pattern: S Islands: C Coupling: D Confinement: U FSZ:	D MF 3.6.6 None 31.0 Si D DC JN	Dominant D (cm)	t: G): 1.00	B _ I	Subdom Morph	Method Me	Wod: T4 od: P2 od: GE	PHOLDISTURE INDICA B T QU	R BANCE TORS ars: Cones, limite	Re Co	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T	EU : F	G L L SA	C C5 S	B	Metil Metil	hod: S hod: G	33 E
EMS: Texture: RIP: STG: EMS: Temp: 6 pH: 6 Flood Signs: N Bed Material: D95: 3 Pattern: S Islands: C Coupling: D Confinement: U FSZ: Name Spawning Habitat Rearing Habitat	D MF 3 3.6 None COLUMN	Dominant D (cm) Modera Low - a	t: G): 1.00	B I	Subdom Morph with mod	Method Me	Wod: T4 od: P2 od: GE	PHOLDISTURE INDICA B T QU vel patch y steep y	R BANCE TORS ars: Cones, limite gradient	Re Co	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T	B2 B	G L L SA	C C5 S	B	Metil Metil	hod: S hod: G	3 E
LB SHP: Texture: RIP: STG: EMS: Temp: 6 pH: 6 Flood Signs: N Bed Material: D95: 3 Pattern: S Islands: C Coupling: D Confinement: U FSZ:	D MF 3 3.6 None COLUMN	Dominant D (cm) Modera Low - a	t: G): 1.00	B I	Subdom Morph	Method Me	od: T4 od: P2 od: GE IORF	PHOLDISTURE INDICA B T Q L vel patch y steep g steep g	BANCE TORS ars: Cones, limite gradient radient	Re Co	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T	B2 B	G L L SA	C C5 S	B	Meth Meth	hod: S hod: G	33 E
EMS: Texture: RIP: STG: EMS: Temp: 6 pH: 6 Flood Signs: N Bed Material: D95: 3 Pattern: S Islands: C Coupling: D Confinement: U FSZ: Name Spawning Habitat Rearing Habitat OverWinter Habitat	D MF 3 3.6 None 31.0 Si D DC JIN	Dominant D (cm) Modera Low - a	t: G): 1.00	B Sociated with u	Subdom Morph with mod undercut no deep p	Method Me	od: T4 od: P2 od: GE IORF	PHOLDISTURE INDICA B T QU vel patch y steep y	BANCE TORS ars: Cones, limite gradient radient	Re Co	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T	B2 B C3 CC	G L L Seesso	C C5 S	B	Meth Meth	hod: S hod: G	33 E
EMS: Texture: RIP: STG: EMS: Temp: 6 pH: 6 Flood Signs: N Bed Material: D95: 3 Pattern: S Islands: C Coupling: D Confinement: U FSZ: Name Spawning Habitat Rearing Habitat	D MF 3 3.6 None 31.0 Si D DC JIN	Dominant D (cm) Modera Low - a	t: G): 1.00	B I	Subdom Morph with mod undercut no deep p	Method Method Method Method R. C. C. C. R.P.	od: T4 od: P2 od: GE I OR F BITA ean gravimited by nited by PH	PHOLDISTURB INDICA B T QU vel patch y steep gi steep gi	R BANCE TORS ars: Cones, limite gradient radient S	Rec Co T	RB SHP Texture RIP STG eq #: ond.: 40 urb.: T B1 C2 SIDI	B2 B	G L L Sassassassassassassassassassassassassass	C C5 S	B	Meth Meth	hod: S hod: G	3 E B B

West Babine Study Area

Reach #

ILP Map#

ILP#

Site

3.0

093M.027

10155

2	Comments
Section	Comments
CHANNEL	Stream has been traversed by PIR staff
CHANNEL	No Fish Captured
CHANNEL	21-28% gradients
CHANNEL	Stream follows block boundary

West Babine Study Area

Watershed Code:

000-000000-00000-0000-0000-000-000-000-000-000-000

Reach #

ILP Map #

ILP#

3.0

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100	11120			933 4	A PERSON	F 2	NATE	KBUU	1-1796		0,445,03	197,50	18		
Gaz	zetted Nam	e:							Loca	al: No	one				
F	Project Cod	e: 480-	000000-0	00000-00000	-0000-0000-	-000-000	-000-000-	0-000							
	WS Cod	e: 000-	000000-0	00000-00000	-0000-0000-	-000-000	-000-000-	000-000							
W	aterbody I	D:					ILP Map #	: 093M.0	27		ILP#:	10155	R	each #: 3	
	Project I	D: 5098	3						Lake/Str	eam:	S	La	ke Fron	m Date:	
F	ish Permit	#: 14	5086K	Date	e: 2001/07/	12	To: 20	01/07/12	Age	ency:	C172	Crew:	JH/JA	Resar	nple:
N.	1	e y		111	LEVALA	SI	TE / I	METH	O D	1	-11-11	Maleka	0.6%		- Macin
Site#	NID Map	NIE)#	UTM:Zone/E	ast/North/M	thd	MTD/NO	Temp	Cond	Turb		- Carrier	Cor	mment	4-07
452	093M.02	7 400	52		1.4	GPU	EF 1	6	40	C	2				
3,07		Jit is	1	File	- Ale	A. G	EAR	SETT	INGS	1	WALL TE	() Cartia	CHARL.	于极为	La grand
Site#	MTD/NC	H/P	Date	In Time	In Date	Out	Time Out				(Comment	0.00	NAME OF TAXABLE	1
452	EF 1	1	2001/07	7/12 08:3	30 2001/	07/12	09:10	1		-		-	_		
	1		46-28	C.	ELECT	ROF	ISHE	RSPE	CIFI	CAT	TIONS	1.00		4	1170
Site#	MTD	NO	H/P	Encl	Sec	Ler	ngth	Width	Volt	age	Frequenc	y Pu	lse	Make	Mode
452	EF	1	1	0	120	20	0.00	0.9	60	0	-1	_	5	SMITH	12B
-		Q10-20	37 00	× 40000	100	FIG	SH SU	I M M A	DV	Desir	L DATE	andres.	and the second	ROOT	
Site#	MTD/	NO	H/P	Species	Stope			Contract.	1250		A Good of the	OFF THE		Design of the second	STATE OF
452	EF I	4	101	NFC	Stage	Age	Tota	# Lgt	h (Min/Ma	ix)	FishAct		(Comment	



Site #452, downstream photo of riffle/pools typical throughout sample site. Roll #13, Frame #14, Date: 2001/07/12

Site #452, upstream photo of riffle/pools typical throughout sample site. Roll #13, Frame #13, Date: 2001/07/12

FDIS Reach Card

West Babine Study Area

Reach # ILP Map #

ILP#

1.0

093M.027

10119

		PROJECT		
Stream Name (gaz.):		0-0000-000-000-000-000-000	Project Code: 509	8
		WATERSHED		1. 30 - 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Reach Watershed Code: ILP Map #: 093M.027 Air Photos LINE: SRS30C6299 #: 82	000-000000-00000-00000-0000 ILP #: 10119 Gaz.: Local:	0-0000-000-000-000-000-000 Reach #: 1.0 Names		NID #: 10168 ITM(Zone/East/North/Method) 10.646727.6124907 GIS Imple Type: R Wetland: ☐
10-1-1-1-1	111 V4-W	SURVEY INFO		
Date: 2001/02/01		Agency: C172	C	Crew: SH
		ATTRIBUTES		
Length (km): .74 DS Elev.: 972 US Elev: 1017	Gradient: 6.08 Order: 2 Magnitude: 2 BGC Zone: SBS	Setting: VF Open water: A Confinement: OC Coupling: DC	DISTURBANCE INDICATORS C1 C2 C3	D1 B1 B2 B3 D1 D2 D3 C4 C5 S1 S2 S3 S4 S5
Valley Flat: B Active Floodplain Visible Channel Pattern: SI	C/D: C : Est. Width:	Mas	Islands: N N SIDE DIAG s Movement: L iparian Veg.: M	MID SPAN BR Exposed/Eroded: NS Landuse: NS
MA	PS			
Map Type Ma	p# Year			

093M.027

TRIM

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

000-00000-00000-00000-0000-0000-000-000-000-000-000

1.0

093M.027

Gaz	zetted Name									Loca	al: N	one					
F	Project Code	: 480-0	0-00000	0000-00	000-000	0-000-000-00	00-000	-000-0	0-00								
	WS Code	: 000-0	0-00000	0000-00	000-000	0-0000-000-00											
W	Vaterbody ID Project ID						ILP	Map #:	093M.0)27 Lake/Str	eam.	ILP#:	101	19 R		1 -	
	Project ID	. 5096							_	Lake/Sti	Carri.	3	_	Lake 1101	Date.		
F	ish Permit#	145	145086K Date: 2001/0				2 To: 2001/07/12				Agency: C172			Crew: JH/JA Resample:			
	Flat .	101	T.	3.5	-12/0	S	ITE	/ N	ETH	OD	the.	- mit fr	West	- Jerte	All The said	が東西部	
Site#	NID Map	NID	#	UTM:Zo	ne/East/	North/Mthd	MTE	D/NO	Temp	Cond	Turt	oid			Comment		
453	093M.027	400	53			GPU	EF	1	6	30	С						
F		Simo	3.4%		TO L	Α.	GE/	AR S	ETT	INGS		Para William	31	THE SECOND	A STATE OF THE STA	外部 基础。	
Site#	MTD/NO	H/P	Date		Time In	Date Out		e Out			Comment						
453	EF 1	1	2001/0		09:58	2001/07/12		:30									
		1		1	C. EL	ECTRO	FIS	HER	SP	ECIFI	CA	TIONS					
Site#	MTD/N	10	H/P	E	ncl		Length	_	Width	Vol	_	Frequen	су	Pulse	Make	Mode	
453	EF	1	1		0	200	150.0		0.9	60	00	T-		5	SMITH ROOT	12B	
10.		江野	精體則			r F	ISH	SU	MMA	RY	The s	7 40	PART !		DIAMSE		
Site#	MTD/N	10	H/P	Speci	es S	tage Ag	e	Total	# Lo	th (Min/M	ax)	FishAct			Comment		
453	EF	1	- 1	NFC				0									
	11-	100		Wa	LAU.		CC	MM	ENT	S	Enth.			1000	Visit be less	A HILL	
Section				Comments													

FDIS Reach Card

West Babine Study Area

Reach # ILP Map #

ILP#

, 三年5年 图象			PROJECT	A TABLES THE	- Sulfability		
Stream	n Name (gaz.):	Babine River Fish Inventor BABINE RIVER 480-000000-00000-00000	ry - 2001 -0000-0000-000-000-000-000-000	Project Code: 5098			
8/18/24	A SHA	Section of the sectio	WATERSHED	Period Ballonia	(4) (4) (4) (4) (4) (4) (4) (4) (4) (4)		
Reach Wal ILP Map #: Air Phot LINE: SRS30C62 #: 119	tos	480-504200-00000-00000- ILP #: Gaz.: Local:	-0000-0000-000-000-000-000-000 Reach #: 19.0 Names	NID Map #: 093M.017	NID #: 10435 UTM(Zone/East/North/Method) 10.645563.6114676 GIS Sample Type: B Wetland:		
N///			SURVEY INFO	TEN MARKET TO SERVE	以生效性,这类实验的 。		
Date: 2001/02	2/01		Agency: C172	10000000000000000000000000000000000000	Crew: SH		
	hates/ar		ATTRIBUTES	一种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种			
Length (km): DS Elev.: US Elev:	944	Gradient: 10.6 Order: 2 Magnitude: 2 BGC Zone: SB	Open water: A Confinement: FC	DISTURBANCE INDICATORS C1 C2	O1 B1 B2 B3 D1 D2 D3 C3 C4 C5 S1 S2 S3 S4 S5		
Valley Flat: Active Flood Channel Pa	dplain Visible:	C/D: Est. Width:		Islands: N N SIDE DIAG Movement: H parian Veg.: M	MID SPAN BR Exposed/Eroded: NS Landuse: NS		
11145 - 3	MA	PS	10				
Map Type TRIM	Map 093M.01	1,00					

FDIS Fish Card

West Babine Study Area

Reach #

ILP Map #

ILP#

Watershed Code:

19.0

H. TY		世襲	導號	IT IN		100		WATE	RBO	DY		N.		鄉四鄉		
Gazetted Name: Project Code:		: 480-0								ocal: 1	None					
WS Code: Waterbody ID: Project ID:			04200-0	0000-00000	000-0000-0000-000-000-000-000-000 ILP Map #:			ILP#: Lake/Stream: S		ILP#:	Reach #: 19 - Lake From Date:					
F	ish Per	mit #:	145	086K	Date	Date: 2001/07/11		To: 2001/07/11		1 A	gency:	C17	2	Crew: JH/JA	Resa	mple:
TO THE	100	elu:	1			11 (4)	S	ITE /	MET	HOD	2.4	198	10 AC	ATC		1000000
Site#	NID	Мар	NID	#	JTM:Zone/E	ast/North/M	thd	MTD/NC	Temp	Cond	Tu	rbid		Cor	mment	-
947	093M	1.017	9004	47			GPU		5	30		0				
超清楚	學學			1100	279	时的原	A	GEAR	SET	TING	S	鐵塘	PARTY.		200	
Site#	MTD	/NO	H/P	Date	In Time	In Date	Out	Time Ou	t				C	omment		
947	EF	1	1	2001/07				13:35								
MES.	E A	and the			C.	ELECT	RO	FISHE	RSF	ECIF	ICA	TI	ONS			
Site#	I N	ITD/N	10	H/P	Encl	Sec	L	ength	Width	V	oltage	F	requency	Pulse	Make	Model
947	EF		1	1	0	250		100.0	2.0		600		-11	5	SMITH ROOT	12B
NINA	福門		10.07		100		F	ISH S	UMM	ARY	THE STATE OF			Maria de la compansión de	NEW TOP	
Site#	N	ITD/N	10	H/P	Species	Stage	Age	e To	tal# L	gth (Min/	Max)	Fis	hAct		Comment	
947	EF	\Box	1	1	NFC				0							
湯加				Shape	157-1		344	COM	MENI	S	用 家	11 3	の関係	11 27 11 11	101	JET Z
	Sec	ion								Com	ments					
	WATER	BOD	Y	Low	densities de	ownstream li	kely lin	nit access								
WATERBODY			Stre	am was RE	CCIED 3x w	ith no b	parriers ob	served		_			-			
	- K. 13. 10.			1		44 44 64 6		A CONTRACTOR	-			_				

APPENDIX II

Phase Completion Reports

Phase I-III Completion Report Phase IV Completion Report Phase V-VI Completion Report

PROJECT PHASE COMPLETION REPORT - PHASE I-III

FRBC Multi-Year Agreement Number:

0000102

MELP Project Number:

SCI_C172_010_2001

FRBC Activity Number: FDIS Project Code:

716432 5098

Project Name:

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

Inventory in selected tributaries within the Babine and Suskwa

River watersheds

Project Type:

1:20,000 Scale Reconnaissance

Report Date:

April 15, 2001

Proponent:

Skeena Cellulose Inc.
Pacific Inland Resources Ltd.

T

Company/Agency:

Triton Environmental Consultants Ltd.

Contact Person:
Contact Phone:

Jason Harris

Contact E-Mail:

(250) 635-1494 jharris@triton-env.com

MELP Project Monitor:

FRBC Coordinator:

Paul Giroux

Todd Mahon

Jay Baker

Table 1. List of Deliverables Submitted (Phase I)

Deliverable Product	Received	Approved (QA)
Bibliography (hardcopy and digital)		
List of Contacts (hardcopy and digital)		
Interim Maps with;		
 watershed boundaries 		
 waterbodies with ILP's or watershed codes 		
 reach breaks with NIDS 		
lakes with NIDS		
 proposed sample sites 		
Reach tables (digital FDIS)		
Project Plan (hardcopy and digital)		
Lake tables (digital FDIS)		
Phase completion report (hardcopy and digital)		

Table 2. Activity Log (Phase I-III)

Date	Activity	Time Spent
Jan 10-Apr 15	Assign ILP's, delineate watershed boundaries	220 h
Jan 10-Apr 15	Completing Reach Tables and Quality Control	50 h
Jan 10-Apr 15	Completing Interim Maps and Quality Control	22.5 h
Jan 10-Apr 15	Lakes planning and lakes information tables	20.5 h
Jan 10-Apr 15	Completing Basin Classification, Reach Breaks, Lakes Classification and Quality Control	266.5 h
Jan 10-Apr 15	Create contact list, bibliography, etc.	84 h
Jan 10-Apr 15	Project Plan development	71 h
Jan 10-Apr 15	Interim Maps/Sample Site Locations	98 h

Summary of Work Completed

A meeting was conducted with Todd Mahon (contract monitor) to obtain information regarding the project specifications and project area.

A background data review was conducted to establish existing information within the Nichyeskwa, West Babine, Nilkitkwa and Harold Price watersheds. These reports were obtained from the Ministry of Environment Land and Parks (MELP) office in Smithers, the Bulkley Forest District office in Smithers, Skeena Cellulose in Smithers, Pacific Inland Resources in Smithers, various consultants and the BC Conservation Data Centre. A bibliography listing these reports was completed.

In the process of data collection and compilation consultants and government agencies were contacted. A list of contacts made during this process was completed.

FISS maps were reviewed and compared with the data collected during the background review. Information that was not included on the FISS maps, as well as new information gathered in Phase 4, will be transcribed to a corresponding 1:50,000 scale National Topographic Scale (NTS) map at Phase 5.

The project area boundaries were delineated on TRIM maps and all streams, wetlands and lakes were assigned, waterbody identifiers or ILP's. Watershed codes and ILP's were assigned using Arcview and FDIS.

Twenty-five working TRIM map sheets are being used for the project.

Detailed map and air photo analysis was conducted in order to identify and classify sub-basins within the study area; to determine reach breaks; and to determine individual reach characteristics for all watercourses, lakes and wetlands. The delineation of sub-basins was based on stream order and hierarchy within the watershed.

All connected wetlands were identified and added to the interim maps. Wetlands with defined or partly defined channels, which convey flow, were included in the stream portion of the sampling plan. While wetlands without defined channels, or those with extensive ponding were included in the lake portion of the sampling plan.

All watercourses within the study area were divided into reaches and physical features affecting fish habitat suitability (including gradient, confinement, channel pattern and riparian vegetation) were identified.

All lakes within the study area were assigned to lake groups.

The focus of Phase 3 was to develop the detailed sampling plan and produce the planning report. The number of sample sites proposed and a brief rational for sample site selection is provided in the project plan.

Planning for the field-sampling portion of this project followed a balanced approach between MELP requirements and licensee (PIR and SCI) operational needs. Initial sample site selection was undertaken using the FDIS random generator. Further discretionary sites were added to the initial randomly generated sampling sites. Discretionary sites were selected using the following criteria:

- MELP's Reach Sampling Summary table for each watershed;
- existing fish species distribution data;
- strategies to determine fish distribution within each watershed; and
- licensee operational needs.

Revisions to the stream sampling plan (increased number of site, alternate site locations) will be revised at the beginning of Phase 4, which is scheduled to commence in the summer of 2001.

Table 3. Project Area Statistics

Inventory Area	Nichyeskwa	West Babine	Nilkitkwa	Harold Price
Project Area (Ha)	34704.24 ha	23088.63 ha	40229.91 ha	31285.38 ha
Number of TRIM maps	8	7	11	9
Largest watershed (stream) order	5	4	5	6
Number of 3rd order basins	35	8	26	17
Km of streams	712.85 kms	371.97 kms	668.03 kms	588.13 kms
Number of stream reaches	923	409	823	659
Number of lakes	13	14	18	14

Table 4. Sample Site Summary

Inventory Area	Nichyeskwa	West Babine	Nilkitkwa	Harold Price
Number of Reaches	923	409	823	659
Number of Reaches <30%	812	403	745	444
Number of Reaches <20%	735	392	641	346
Number of Reaches to be Sampled	56	36	35	32
Number of Reaches Previously Sampled	92	72	137	83
Percent of Inventory Reaches Previously Sampled	10%	18%	17%	13%
Percent of Inventory Reaches Sampled (Total)	16%	26%	21%	17%

Progress and Problems Summary

Phase I-III was completed as scheduled. Watershed codes were assigned to a significant portion of the streams within each watershed. Searching through the watershed atlas was time consuming and much slower than using ILP's for stream delineation. The use of watershed codes will allow easier access to data management and possibly increase turnaround time for watershed code assignment from MELP.

Detailed reach planning was not conducted during the planning phases, as it is anticipated (based on previous experience) that several reaches will be moved during pre-field meetings with the licensee, ministry representatives and during the sampling program. We anticipate several changes to the sampling plan, and as discussed with Paul Giroux these changes will significantly alter the original sample site selection. Detailed reach planning forms will be completed during phase 5 and will be submitted as a deliverable for this phase.

No lakes were specifically selected for sampling, therefore no detailed lakes forms were completed. After discussions with Paul Giroux, lakes to be sampled will be selected after the conclusion of the stream sampling program. Lakes sampling will then focus on attaining information that will be of value to both MELP (watershed wide fish distribution) and the licensee (headwater lakes which support fish in ephemeral systems).

Next Phase Project Plans and Constraints

FISS updates will be provided with Phase V of the project as opposed to Phase III. At that time new information gathered from the field can be incorporated into FISS.

Phase IV (field) is scheduled to commence in the summer of 2001.

Summary of Phase 1-3 Costs

Professional Fees

\$34,797.00

Disbursements

\$1,702.00

Costs as per original budget

Contract Monitor Acceptance

Report Submitted By: Jason Harris	Date: April 15, 2001
Phase Completion Approved:	Date:
Comments:	

PROJECT PHASE COMPLETION REPORT

PHASE 4

• MELP Project Number:

PIR C172 010 2002

• Contract Name:

Fish and Fish Habitat Inventory in selected tributaries within

the Babine and Suskwa River watersheds (Bulkley Forest

District)

• FRBC Project Number:

01FRBC14

FRBC Region

Skeena-Bulkley Region

MELP Region

Skeena 06

• FDIS Project Code:

5098

• Forest District

Bulkley Forest District

• Project Type:

1:20 000 Reconnaissance

• Report Date:

February 1, 2001

• Proponent:

Pacific Inland Resources Ltd.

• Company/Agency:

Triton Environmental Consultants Ltd.

• Contact Person:

Jason Harris

• Contact Phone:

(250) 635-1494

• Contact E-Mail:

jharris@triton-env.com

• MELP Project Monitor:

Matt Jessop Jay Baker

FRBC Coordinator:Proponent QA Monitor:

Chris Schell

List of Deliverables Submitted

Deliverable Product	Received	Approved
Site Cards	Delivered as attachment to Final Report	
Fish Collection Forms/Individual Fish Data Forms	Delivered as attachment to Final Report	
Additional Sampling Table	Delivered as attachment to Final Report	
Phase Completion Report		
Phase 2 Quality Assurance	Delivered as attachment to Final Report	

At Matt Jessop's request, some of the above listed items will be delivered at project completion (as attachments to the final report or appendices).

Activity Log

<u>Date</u>	Activity
July 3, 2001 –	Gear up, travel, fieldwork and gear down for stream inventory in the Bulkley
August 13, 2001	Forest District.

Summary of Work Completed

Total number of stream reaches sampled:

149

Summary of Phase Costs

Professional Fees

\$21,464.00

Disbursements

\$28,065.00

Progress and Problems Summary

Phase 4 was completed as scheduled. Sampling during late summer periods allowed crews to assess habitat during low flow conditions and gave a good representation of stream habitats throughout the year.

Identification of obstructions/barriers was critical to describing and assessing fisheries distribution within the sampled watersheds. Field crews tried to identify obstructions/barriers while on site, by either using a helicopter recce of the stream or by strategically moving sample sites while still in the field.

Field crews were in constant contact with Paul Giroux (Fisheries Inventory Specialist) and Jay Baker (FRBC contract monitor) when the originally proposed plan needed modifications. Modifications of the original plan were used to provide additional fisheries information for the working area.

Next Phase Project Plans and Constraints

The project will now proceed with data compilation and reporting.

Contract Monitor Acceptance

Report Submitted By: Jason Harris	Date: October 15, 2001
Phase Completion Approved:	Date:
Comments:	

PROJECT PHASE COMPLETION REPORT

PHASE 5/6

MELP Project Number:

PIR C172 010 2002

Contract Name:

Fish and Fish Habitat Inventory in selected tributaries within

the Babine and Suskwa River watersheds (Bulkley Forest

District)

FRBC Project Number:

01FRBC14

FRBC Region

Skeena-Bulkley Region

MELP Region

Skeena 06

FDIS Project Code:

5098

Forest District

Bulkley Forest District 1:20 000 Reconnaissance

Project Type:

Report Date:

February 1, 2002

Proponent:

Pacific Inland Resources Ltd.

Company/Agency:

Triton Environmental Consultants Ltd.

Contact Person:

Jason Harris

Contact Phone:

(250) 635-1494

Contact E-Mail:

jharris@triton-env.com

MELP Project Monitor:

Matt Jessop Jay Baker

FRBC Coordinator: Proponent QA Monitor:

Chris Schell

List of Deliverables Submitted

Deliverable Product	Received	Approved (QA)
FDIS Site Cards (in watershed reports)		
FDIS Fish Collection Forms (in watershed reports)		
FDIS Database (as attachment)		
Planning Document (as attachment)		
Field Notes (as attachment)		
Fish Ageing Structures (as attachment)		
Photodocumentation (as attachment)		
Digital Data (as attachment)		
FISS update data (as attachment)		
Final Reports (hardcopy and digital)		
Project Overview Map		
Interpretive Maps		
Project Maps		

Activity Log

Date	Activity	Time Spent
October - November 2001	site card entry	
November – December 2001	fish collection form entry	
November – December 2001	photo development/scanning/printing	
November – December 2001	watershed reporting	
January – February 2002	mapping project/interpretive/overview	

Summary of Work Completed

Total number of stream reaches processed:

149

Summary of Phase I-III Costs

Professional Fees	\$34,610.00
Disbursements	\$1,702.00

Summary of Phase IV Costs

Professional Fees	\$21,464.00
Disbursements	\$28,065.00

Summary of Phase V Costs

Professional Fees	\$15,181.00
Disbursements	\$1,380.00

Summary of Phase VI Costs

Professional Fees	\$41,581.00
Disbursements	\$6,017.00

Progress and Problems Summary

The reporting and mapping procedures followed those outlined in the *Reconnaissance* (1:20,000) *Inventory Standards* and includes additional data not otherwise required. The digitally produced maps include all information as per RIC standards and the contract. These maps include: watershed codes; ILP's; stream names; waterbody identifiers; stream networks; reach breaks; fish sampling/site card locations; fisheries sensitive zones; fish species; and features.

All data entered into FDIS was audited using MELP's QA/QC tool prior to inclusion into the watershed reports.

Next Phase Project Plans and Constraints

Nid to UTM conversions will be completed post QA/QC.

Triton will complete digital mapping QA internally after QA/QC has been completed.

Contract Monitor Acceptance

Report Submitted By: Jason Harris	Date: January 15, 2002
Phase Completion Approved:	Date:
Comments:	

October 15, 2000

Todd Mahon, Wildfor Consultants FRBC Coordinator, Skeena Cellulose Inc., Carnaby Operations #10 North Boundary Rd. South Hazelton, B.C., V0J 2R0

Re: Stage 1 QA on phases 1-3 pre-field planning for fish and fish habitat inventory within selected tributaries within the Babine and Suskwa River watersheds.

Todd:

The stage 1 quality assurance (QA) review of the 1:20k stream inventory program conducted by Triton Environmental Consultants Ltd. for SCI Carnaby 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.

The list of deliverables, the list of contacts, and the list of references were essentially complete. ILPs tables were all fine though I noted a few, very minor tributaries that were missed during ILP designation. These are listed on the last page of this package. The stream and lake checks found only one minor error.

The sampling plan was based on FDIS random samples plus a number of bias samples placed strategically to determine the upstream limits of fish distribution. Historical information was used extensively in sampling planning. Though sampling rates for many of the project areas are below RIC standards, when historical samples are included in the calculation, overall sampling rates increase to acceptable levels under RIC and regional guidelines. As historical information is a fundamental part of this project, it is important that it is dealt with appropriately. I have reviewed similar Triton projects (Telkwa- 2000, for PIR) and have made comments with respect to dealing with historical data during phases 5-6. I would ask Triton to review my comments during the completion of this project.

Overall, this project has no significant errors and has passed QA. 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
QA/QC Monitor
Fish and Fish Habitat Inventory

cc. Jason Harris, Triton Environmental Consulting Ltd., Smithers, BC

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: SCI Carnaby F&FHI 2000-2001 - Tributaries in the Babine and Suskwa

FRBC project number: 000102 MELP project number: SCI-C172-010-2001

Submitted by: Triton Environmental Consultants Ltd

QA review by: Chris Schell Review date: April, 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	
3. Overview map	Y	Y	
4. FISS map	-	-	To be submitted with phase 5-6
5. Existing data review			
• list of references	Y	Y	
• list of contacts	Y	Y	
 new FISS information summary and products 	-	-	To be submitted with phase 5-6
6. ILP data*			
ILP data sheets	n	Y	
ILP maps	Y	n	
• ILP information sent to ministry	Y	Y	
7. Interim maps*	Y	-	
8. FDIS database	-	Y	
9. Sampling design sheets	Y	Y	
10. Aerial video record (optional)	na	па	
11. Project plan	Y	Y	

Approved:

 \mathbf{Y}

Comments:

Recommended actions:

^{*} 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: SCI Carnaby F&FHI 2000-2001 – Tributaries in the Babine and Suskwa

FRBC project number: 000102 MELP project number: SCI-C172-010-2001

Submitted by: Triton Environmental Consultants Ltd

QA review by: Chris Schell Review date: April, 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	
t	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:	N	To be submitted during phase 5-6
	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.		

Api	roved:	\mathbf{Y}

Comments:

Recommended actions:

FI Project name:	SH INVENTORY QUALITY ASS SCI Carnaby F&FHI 2000-2001	URANCE CHECK FORM - Tributaries in the Babine and Suskwa
FRBC project number:	000102	MELP project number: SCI-C172-010-2001
Submitted by:	Triton Environmental Consultants	Ltd
QA review by:	Chris Schell Review date:	April, 2001

FORM 1D COMBINED CHECK OF STREAM REACH DATA – PAGE 1 OF 4

List of reaches checked (FDIS /maps/air photos) 1-6: Harold Price, 7-10: Nichyeskwa

	1	2	3		4		5		6			7		8	9	10	
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Submitted by:	Triton Environ	men	tal C	onsi	ıltan	ts Lt	<u>d</u> Apri	1 20	<u></u>			
QA review by:	Chris Schell		Revi	ew d	ate:		Apri	1, 20	<u> </u>			
FORM 1D CONT	INUED – PAGI	2 C	F 4							_	,	
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FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: SCI Carnaby F&FHI 2000-2001 - Tributaries in the Babine and Suskwa

FRBC project number: 000102 MELP project number: SCI-C172-010-2001

Submitted by: Triton Environmental Consultants Ltd

QA review by: Chris Schell Review date: April, 2001

FORM 1D COMBINED CHECK OF STREAM REACH DATA – PAGE 3 OF 4

List of reaches checked (FDIS /maps/air photos) 1-6: Nichyeskwa, 7-10: West Babine

	1	2	3			4		5 6		6 7			7	8	9	10	
NID	10264	10113	107	77	10395		10669		9	10745		104	191	10287	10194	10115	
Map #	93m.057	93m.056	93m	93m.047		n.04:	5 93	93m.046		93m.046		93m.018		93m.027	93m.027	93m.027	
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Note: Any error identified in a shaded cell constitutes a failure.

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Submitted by:	Triton Environmental Consultants I Chris Schell Review date:	_td

FORM 1D CONTINUED - PAGE 4 OF 4

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BCG zone			<u> </u>		<u> </u>						
Setting		<u> </u>			<u> </u>			 			
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Disturbance indicators		<u> </u>				<u> </u>	<u> </u>	<u> </u>	<u> </u>	 	
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Exposed/Eroded								 	1_	 	
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Total errors										<u> </u>	<u> </u>

Fr	SH INVENTORY QUALITY ASS	URANCE CHECK FORM									
Project name:	SCI Carnaby F&FHI 2000-2001 - Tributaries in the Babine and Suskwa										
FRBC project number:	000102	MELP project number: SCI-C172-010-2001									
Submitted by:	Triton Environmental Consultants	Ltd									
QA review by:	Chris Schell Review date:	April, 2001									

FORM 1D

COMBINED CHECK OF STREAM REACH DATA - PAGE 3 OF 4

List of reaches checked (FDIS /maps/air photos) 1-4: West Babine, 5-10: Nilkitkwa

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	1	2	3			4		5		6			7	8	9	10
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NID # and N	D map # c	r , or e	se gruns, sign	.):					E					1.50		rain en
UTM (option	al, but no e	errors allov	ved;	,	2.1%	137		10				1	<u>.</u> .			
do not includ	e in markir	ng scheme)						(1997) (1917)			1.4	8.3				1
TRIM map no	umber	2.4.						7.7	7			344		1		
Reach numbe	-		Services of	(3),207.5	Κ.,		-		3.5				1			
Reach break 1	* *		* :	. :	Ø. y . 50					2.5		1928		\$1 Sec. 8 . 4		केत्रिक्ष है।
Reach map sy					_	<u> </u>	-	-	-	-			<u> </u>	-		
Map status	——————————————————————————————————————				<u> </u>	-	<u> </u>	_	ļ				ļ	 		
Order							_	X	 	<u> </u>	ļ	ļ.,		EDIC	•	1 2
Upstream/Do		-1						^	_	<u> </u>		ļ		FDIS sa	ys 1, maps	shows 2
	wiisiream e	elevation —				<u> </u>		ļ								
Length								<u> </u>								
Pattern																
Confinement				?												
AN/BR																
Basin type																
Total errors	_			0	0	0	0	1	0	0	0	0	0			
Shaded cell e	rrors														· .	·
	Features			1	2	3	4	5	6	7	8	9	10		Comment	
NID and NID		er	, 	-		,		-			0	7	10		Comment	• · · · · · · · · · · · · · · · · · · ·
Map symbol															· · · · · · · · · · · · · · · · · · ·	
Total errors	w															
Shaded cell en							-									
STRAGE CEIL 61	rors															to pay in life

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

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name: SCI Carnaby F&FHI 2000-2001 - Tributaries in the Babine and Suskwa

FRBC project number: 000102 MELP project number: SCI-C172-010-2001

Submitted by: Triton Environmental Consultants Ltd

QA review by: Chris Schell Review date: April, 2001

FORM 1D CONTINUED - PAGE 4 OF 4

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											

QA Summary

	Allr	eaches	Feature	s San	Sampled reaches		
Number of reaches sampled		30	0		27		
Number of marks (N reaches sampled × attributes)	N×15	450	N×2	N×13	351		
Maximum errors acceptable (12% of marks)		54	na		42		
Number of errors found		1	-		-		
Is the number of errors acceptable (Y/N)		Y	-		-		
Number of errors in zero-tolerance attributes	1	0	-		-		

Approved: Y

Comments:

Reaches to be sampled did not have a reach form completed during phase 1-3. I will check reach cards of sampled reaches during phase 5-6 checks.

Recommended actions:

FRBC project i	_	SCI Carn 000102						_							72-010-20	01
Submitted by:	-	Triton Env	riroi	ıme	ntal	Cons	sulta	nts I	_td							_
QA review by:	_	Chris Sche				iew				ril, 20	001					-
FORM 1E	Combin	ED CHE	CK I	OF I	Pri	E-FII	ELD	La	KE l	NFC)RM/	ATI	ON — 1	PAGE 1 ()F 1	
	1	2		3	T	4		4	 5	T -	6	Π	7	8	9	10
ILP # or	ILP	ILP	02	2022	:	ILF	,	019	947	00	485	\vdash	ILP	ILP	00046	00096
WBID	20041	30007	B.	ABF	١.	1073	39	ВА	BR	BA	\BR	2	0033	20025	BULK	BULK
Reach #	6	1		9		2			1		7	1	2	2	8	2
Map #	93m.038	93m.038	931	n.04	8 9	3m.()46	93m	.057	93n	1.017	93m.027 9		93m.027	93m.025	93m.02
At	ttribute			1	2	3	4	5	6	7	8	9	10	····	Commen	ts
Official name						1		†							 	****
Alias or local nar	me	·														
WSC and waterb	ody identi	ifier "or"	7,75		110	100		1 70							1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	es in the second
ILP number and ILP map number							1 -				- 195	eg ar i		4 + 1 + 1	· Marking	
NID # and NID map #				1000							100	7 V			1.6190	
Reach number													<u> </u>			
Basin type															···	
Group					-											
Class (P/S)																
Genesis														-	· ··· · · · · · · · · · · · · · · · ·	
Surface area																
Magnitude																
Biogeoclimatic zo	one															
Wetland																
Total errors for ea	ach lake															
QA Summary	· · · · · · · · · · · · · · · · · · ·															
									-							_
Number of lakes s	campled								+.	^			Lak	(es		_
Number of marks		sampled v	attr	ibut	-c)					0 I×13	1 1	30		·		-
Maximum errors a					-s)				→-	5.6	1	30				-
lumber of errors		(12/0 ULI	11al	~ <i>)</i>			_		0							_
s the number of e		ptable (V/	N)						Y							-
lumber of errors		<u>- ` ` </u>		tes	•				0					····		-
		uivo ull		~~												

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Pro	iect	name:

SCI Carnaby F&FHI 2000-2001 - Tributaries in the Babine and Suskwa

FRBC project number: 000102

MELP project number: SCI-C172-010-2001

Submitted by:

Triton Environmental Consultants Ltd

QA review by:

Review date: Chris Schell

April, 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?	Y	
For low gradient or small/medium sized streams, is the sample size of reaches ≥ 8?	Y	Including the information from previously sampled reaches.
For higher gradient (20–30%) or large sized streams, is the minimum sample size 2 and maximum 25?	Y	Not for large size streams, but these have already be sampled.
Are discretionary reach samples included?		
above or below barriers	Y	
adjacent to identified cutblocks	?	
major inlets and outlets to secondary lakes	na	
of inlets and outlets to primary lakes	na	
 to achieve connectivity within sub-basins for fish distribution and identification of upstream limits. 	Y	with the extensive information already available from historical data
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?	N	
Does the distribution of sample sites adequately represent all basin types and basin connectivities.	Y	Yes, when combined with historical data.
Is the overall sampling rate (sample number vs total number of reaches) acceptable?	Y	Yes, when combined with historical data.
Does the sample design adequately cover the requirements for a reconnaissance inventory?	Y	

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

Approved: Comments: - **Y**

Recommended actions:

Project name:	ISH INVENTORY QUALITY ASS SCI Carnaby F&FHI 2000-2001	SURANCE CHECK FORM — Tributaries in the Babine and Suskwa			
FRBC project number		MELP project number: SCI-C172-010-200			
Submitted by:	Triton Environmental Consultants	Ltd			
QA review by:	Chris Schell Review date:	April, 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?	NA	No lakes sampling planned.
Is there at least one lake from each lake group identified that will be sampled?		
Will at least 20% of all identified secondary lakes be sampled?		
Is justification provided for those lakes that will not be sampled?		
Are lakes proposed for sampling outlined on TRIM maps with solid and dashed green lines?		
Are planning tables complete with gear and voucher requirements indicated?		
Does the sample design adequately cover the requirements for a reconnaissance inventory? If no, the sampling design is rejected.	an en	

Approved: Comments:

Y

No lake sampling is planned.

Recommended actions:

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

SCI Carnaby F&FHI 2000-2001 – Tributaries in the Babine and Suskwa MELP project number: SCI-C172-010-2001

Project name: FRBC project number: 000102

Submitted by:

Triton Environmental Consultants Ltd

QA review by:

April, 2001 Review date: Chris Schell

PROJECT PLAN - PAGE 1 OF 1

	Acceptable (Y/N)	Comment
G. 11 inventory procedures?	Y	
Does the project plan cover field inventory procedures?	Y	
Does the project plan cover data compilation?	Y	
Does the plan cover reporting requirements?	Y	
Does the plan cover reporting by Does the plan include proposed staff for field phase? Has existing data been considered and used in the	Y	extensively
	Y	
Have sampling intentions of relevant WKF projects of		
	Y	
Has the plan integrated the sampling of lake and stream habitats, in particular, with any aerial over flights and		
sampling of lake tributaries? Have requirements for effective sampling methods in	Y	
Have requirements for effective sampling relation to stream reach and lake types been addressed? Have requirements for biological and water samples	na	
t a monerly considered:	Y	
water sampling particularly in primary lakes	Y	
• fish voucher specimens	Y	
.tamples	Y	
Does and should the plan incorporate any special rish species level inventory needs on a provincial or regional	1	
-1-2	na	
Are budget and schedule adequate to complete the project as planned?	o Y	Project plan passes
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.		

Approved:

Y

Comments:

Recommended actions:

Have a nice day.

Project name:		ENTORY QUALITY ASSURANCE CHECK FORM Tributaries in the Babine and Suskwa
FRBC project number:		MELP project number: SCI-C172-010-2001
Submitted by:	Triton Environmental Consultants Lt	
QA review by:	Chris Schell Review date:	April, 2001

⁻ missing ILP - a small tributary flowing into -62500-76400 (93m.055)
- missing ILP - a small tributary flowing into -422000-5900 R6 (93m.026)
- missing ILP - a small tributary flowing into -5900-81400 R2 (93m.026)

September 14, 2001

Jay Baker, Silvicon Services Inc. FRBC Co-ordinator, Pacific Inland Resources Ltd. PO Box 3130 Smithers, BC, V0J 2N0

Jay:

The stage 2 quality assurance (QA) audits of the 1:20k stream inventory field data collection performed by Triton Environmental 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.

All crews passed the stage 2 QA audit with no comments. All demonstrated a proficient knowledge of how to collect and record data for the site card and fish collection form to full RIC standards. Fish collection effort and technique was also to standards and safety measures were maintained.

This letter concludes the stage 2 QA audit and reporting. If you have any questions regarding the information presented in this letter 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. Jason Harris, Triton Environmental Consulting Ltd., Terrace, BC

FIELD AUDIT: CREW INFORMATION, PERMITS AND SAFETY Information The members' names and believe to the contract or plan believe	_	·		N		nventory – 20 ect number:		
Area of contract or plan other) Chris Schell	Contractor: T	riton Environme	ntal Consul	ting L	td.			
rew members' names Listed in contract (bio, geo, or plan) Listed in contract (bio, geo, or plan) Level 1 Transport- Crew member leader Harris Y Bio – tech Y Y Y Y Anaka Y Bio – tech Y Y Y Y Anaka Y Bio – tech Y Y Y Y Taft Y Bio – tech Y Y Y Y Anaka Y Bio – tech Y Y Y Y Taft Y Bio – tech Y Y Y Y Anaka Y Bio – tech Y Y Y Y Toft Y Bio – tech Y Y Y Y Anaka Y Bio – tech Y Y Y Y Toft Y Bio – tech Y Y Y Toft Y Bio – tech Y Y Y Y Toft Y Bio – tech Y Y Y Toft Y						d audit date:/	August, 2001	
Listed in contract or plan Cibio, geo, other) Crew Crew leader	FORM 2A FIELD AU	DIT: CREW IN	FORMATIC	on, Pi	ERMITS A	ND SAFETY		
Harris Y Bio - tech Y Y Y Y Dore Y Bio - tech Y Y Y Anaka Y Bio - tech Y Y Y Taft Y Bio - tech Y Y Y Taft Y Bio - tech Y Y Y Tomments about crew and/or certifications: Coup Item	Crew members' names	Listed in contract	experti (bio, ge	se o,	Fi	rst aid	Electro	fishing
Anaka Y Bio - tech Y Y Y Y Taft Y Bio - tech Y Y Y Taft Y N Tomments about crew and/or certifications: Toup Item Specify problem The plan Safety plan in place Y Is safety plan in place Y Is safety plan followed Is safety:	(Level 1	_		
Anaka Y Bio - tech Y Y Y Taft Y Bio - tech Y Y Y mments about crew and/or certifications: its and safety equipment oup Item Specify problem Specify problem Specify problem MELP fish collection permit Y DFO fish collection permit Y plan Safety plan in place Y Is safety plan followed Y mments about permits and safety: If any obvious WCB regulations are contravened, the QA team must immediately inform the	Jason Harris	Y	Bio – te	ch	Y	Y		Y
Taft Y Bio - tech Y Y Y Y mments about crew and/or certifications: its and safety equipment oup Item Specify problem Specify problem WELP fish collection permit Y DFO fish collection permit Y plan Safety plan in place Y Is safety plan followed Y Is safety plan followed mments about permits and safety: If any obvious WCB regulations are contravened, the QA team must immediately inform the	Jason Dore		Bio - te	ch	Y	l		Y
its and safety equipment Toup Item Specify problem Specify problem MELP fish collection permit DFO fish collection permit Plan Safety plan in place Is safety plan followed MELP fish collection permit Y Plan Safety plan followed Y Is safety plan followed MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan in place Is safety plan followed Y MELP fish collection permit Y Plan Safety plan	Jesse Anaka	Y	Bio – te	ch	Y	Y		Y
its and safety equipment oup	David Taft	Y	Bio – te	ch	Y	Y		Y
MELP fish collection permit DFO fish collection permit Plan Safety plan in place Is safety plan followed MELP fish collection permit Y Is safety plan in place Y Is safety plan followed Y Meditable fish collection permit Y Is safety plan in place Y If any obvious WCB regulations are contravened, the QA team must immediately inform the	Group	Item				Spec	ify problem	
DFO fish collection permit plan Safety plan in place Is safety plan followed y mments about permits and safety: If any obvious WCB regulations are contravened, the QA team must immediately inform the				Y	N			
plan Safety plan in place Y Is safety plan followed Y Is safety plan followed Y Is safety plan followed If any obvious WCB regulations are contravened, the QA team must immediately inform the	Permits MELP fish	collection permit		Y	11			
Is safety plan followed Y mments about permits and safety: If any obvious WCB regulations are contravened, the QA team must immediately inform the	DFO fish c	ollection permit		Y				
mments about permits and safety: If any obvious WCB regulations are contravened, the QA team must immediately inform the	· -	-		Y				
If any obvious WCB regulations are contravened, the QA team must immediately inform the	Is safety pl	an followed		Y				
	QA comments about permit	s and safety:						
							diately info	rm the
Audit Confirmation								

Project name: Pacific FRBC project number:	Inland I	Resour	ces Ltd. 1:2	0k Aquatic Inve	ITY ASSURANCE C entory – 2001 number:				
Contractor: <u>Triton</u>			Consulting I	Ltd.	dit date: August, 200				
Field audit by: <u>Chris S</u>	Citeii		te identifiei	ila Pielu auc	in date. August, 200				
				SITE CARD PR	ROCEDURES CHEC	K – PAGE 1 OF 2	т.		
Materials present in field	Y	N	Notes		_			otable	
Site cards	Y	<u> </u>			Group	Item	Tech.	Data	Notes
Field reference materials	Y				Site selection	Representative site	Y	Y	
Field maps	Y				Reference	Stream name (Gaz)	Y	Y	
	1					Alias	Y	Y	
The tourstand	1	rated	Proper	Notes		WSD code or	Y	Y	
List equipment used		/N)	use (Y/N)	Notes		ILP # and ILP map #	Y	Y	
pH – electronic meter	I .	Y	Y			Map NID and NID map #	Y	Y	
Conductivity - electronic meter	l	Y	Y			Field UTM (and method) Reach number	Y	Y	
Temperature – alcohol therm.	,	Ý	Y			Site number	Y	Y	
						Site length (and method)	Y	Y	
						Access	Y	Y	
						Date, time	$\frac{1}{Y}$	Y	
						Agency	Y	Y	
						Crew	Y	Y	
	 					Fish form	Y	Y	
			L	<u> </u>	Channel	Equipment	Y	Y	
						Channel widths	Y	Y	
						Wetted widths	Y	Y	
					I ST. 4			·	
Notes:					Notes:				

FORM 2B

CONTINUED - PAGE 2 OF 2

		Acce	Acceptable			
Group	<u> Item</u>	Tech.	Data	Note		
Channel	Residual pool depth	Y	Y			
(continued)	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			
		•				

		Accer	table	
Group	Item	Tech.	Data	Notes
Morphology	Islands	Y	Y	
(cont.)	Bars	Y	Y	
	Coupling	Y	Y	
	Confinement	Y	Y	
Water	Equipment -	Y	Y	
	Temperature	Y	Y	
	pН	Y	Y	
	Conductivity	Y	Y	
	Turbidity	Y	Y	
Features	NID map #, NID	Y	Y	
	Туре	Y	Y	
	Height, length	Y	Y	
	Photo	Y	Y	
Habitat	Keywords	Y	Y	
quality	Relevant comments	Y	Y	†
	FSZ	Y	Y	
Photodocu-	Roll #	Y	Y	
mentation	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

Project name: Pacific I FRBC project number:	nland F	Resourc	FISH INV	FORY QUALITY A Aquatic Inventory - ELP project number	2001				
Contractor: <u>Triton E</u>	nviron	mental	Consulting	•					
Field audit by: <u>Chris Sc</u>	<u>hell</u>	Si	te identifiei	Field audit date	e: August, 200	1			
					·				
FORM 2D FIELD AUDIT: 1	FISH C	OLLE	CTION				Accer	otable	
CHECK - PAGE	1 OF 3	}				mpling technique	Y	N	Notes
Materials present in field	Y	N	Notes	1	Lakes	Number and duration of gill nets set	na		
Fish collection forms	Y	114	Notes			Number and duration of	na		,
Individual fish data forms	Y					minnow traps set	""		
Field data reference	Y					Other	na		1,000
Field key to freshwater fishes	Y			-	Streams	Site selection and length	Y		
of BC						Number and duration of minnow traps set	Y		
Approved electroshocker	Y					Other			
Ancillary fish capture equipment buckets, dip nets, stop net)	Y				Electrofisher	Tilt/safety switch	Y		
Measuring board/ruler	Y			Í	function	Main power switch	Y		
Weigh scale	- Y					Anode deadman's switch	Y		
Fish samples (e.g., scale	Y					Quick release harness	Y		
envelopes, tissue vials)						Anode clean	Y		
Voucher containers,	Y			Ī	Electrofishing	Safe operation and signals	Y		
preservative, labels				t	echniques	Site coverage – all habitats	Y		
						Effective fish capture	Y		····
						Impact on fish	Y		
					Fish handling	Impacts on fish	Y		
Notes:				Т	Notes:				

CONTINUED - PAGE 2 OF 3

	,	Acce	otable	
Sa	impling technique	Y	N	Notes
Fish	Correct identification	Y		
identification	Correct use of fish key	Y		
	Unidentified fish procedure	Y		/
Fish samples	Age sampling, labeling	na		
	Voucher storage, labeling	na		

,		Accer	table	
Group	Item	Tech.	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	<u> </u>
	Method, method no.	Y	Y	
	Temp, cond., turbidity	Y	Y	

			Acceptable		
Group	Item	Tech.	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	Site #	Y	Y		
specifications	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	Site #	Y	Y		
specifications	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 collection form #	Y	Y		
fish data	Site #	Y	Y		

Notes:	Notes:

Field Audit Confirmation:

Field audit leader: Chris Schell

For field crew: All

FORM 2D

CONTINUED - PAGE 3 OF 3

		Acce	ptable	
Group	Item	Tech.	Data	Notes
Individual	Method, method no.	Y	Y	
fish data	Haul/Pass	Y	Y	
continued	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:

Field.	Audit	Confirma	tion
--------	-------	----------	------

Field audit leader: Chris Schell For field crew: All

Notes:

March 4, 2002

Jay Baker, Sylvicon Services FRBC Co-ordinator, Pacific Inland Resources Ltd. PO Box 3130, Smithers, BC, VOJ 1N0

Jay,

The stage 3 quality assurance (QA) review of the final deliverables for the 1:20k stream inventory sampling program performed by Triton Environmental Consulting Ltd. for Pacific Inland Resources Ltd. has been completed. Resources Inventory Committee standard QA forms were completed during the audit and are included with this letter.

The list of deliverables check found everything present. The check of all the digital QA's found only one error worth comment, which is noted on the QA form. The card/FDIS/map check found vanishing few typological errors and no systematic problems. I noted a few very minor issues while checking the reports, which are otherwise fine. The FISS update deliverables and photodocumentation package was complete and to standards.

The maps were generally to standards and complete. They show a large amount of historical information, but some of this is confusing. The most obvious problems are for symbols pointing to streams that are not on the TRIM coverage. Some of these have comments explaining that they point to non-TRIM streams, but many do not, and they need it. Another problem is with symbols that have coding for inferred fish species. These create a confusing situation on the map; a historical symbol showing what appears to be fish presence, pointing to a stream coded as confirmed non-fish bearing. One answer may be to show in the legend that these are inferred fish species only, but this may still create confusion with users who are not very familiar with fish inventory. I feel a better answer may be to replace all historical inferred fish codes with NFC.

I would ask Triton to respond to each of my comments, and once we have agreed how each issue is gong to be addressed, I can give QA approval to this project. 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

cc. Jason Harris, Triton Environmental Consultants Ltd., Triton, BC

	FISH INVENTORY QUALITY ASSURANCE CHECK FORM								
Project name: FRBC project number:	PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002 01FRBC14 MELP project number: PIR-C172-010-2002								
Contractor: QA review by:	Triton Environmental Consultants I Chris Schell	.td. Review date: February, 2002							

FORM 3A

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

	Hardcopy	Digital	Comments	
Watershed	Watershed report	Y	Y	
reporting	Appendices			
	I. FDIS summary and photographs	na	Y	
	II. Hardcopy maps	Y	Y	
	Attachments			
	I. Pre-field planning document	Y	Y	
	II. Field notes and forms	Y	na	
	III. Fish aging structures	na	na	
	IV. Fish samples and vouchers	na	na	
	V. Photodocumentation	Y	Y	
	VI. Digital data	Y	Y	
	VII. FISS update data	Y	па	
	VIII. Aerial photography	na	na	
Individual lake	Lake report			No lake reporting.
reporting	Appendices			
(for each lake)	I. Lake survey form			
	II. Water chemistry data			
	III. Fish collection forms			
	IV. Tributary summary			
	V. Photographs			
	VI. Bathymetric map			
	Attachments	-		
	I. Photodocumentation			
	II. Digital data			
	III. FISS update data			
	IV. Phase completion reports			
	V. Field notes and forms			
	VI. Aerial photography			
	VII. Fish ageing structures			
	VIII. Fish samples and vouchers			

	FISH INVENT	ORY O	JALITY	Assurance Check Form					
Project name:									
FRBC project number:	PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002 OIFRBC14 MELP project number: PIR-C172-010-2002								
Contractor:	Triton Environmental Consultants Ltd.								
QA review by:	Chris Schell			Review date: February, 2002					
FORM 3B DIGITA	L DATA CHEC	CKING -	PAGE :	1 of 1					
For each FDIS file pr	ovided:								
FDIS filename:		1							
		Acce	ptable						
			1	Comments					
	.	Y	N						
Conversions done:		<u> </u>	ļ						
· ILP to WSC		Y	ļ	Not completed, but not expected.					
NID-UTM		Y		completed					
• Update bathymetry		na	na						
FDIS QA report attached		37	ļ						
Acceptable error report	ort	Y		see comment below					
For each FDIS file and	digital map file s	set:							
ARCView fish QA tool	1	T		1					
		Acce	ptable						
·	Filename		· · · · · · · · · · · · · · · · · · ·	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		only historical operational sites on unmaped streams and lakes failed this test					
Copy of ARCView fish QA tool error report attached									

One error report worth considering, Triton marked D3 or S3 disturbance indicator, but did not mark the LWD jam or sediment wedge as a feature, even though the feature must be there because it was the reason for the disturbance indicator. Triton's comment "Ground truth data is different than planning data." does not address the error as there is no planning data involved in this error.

Y

Acceptable error

report

FISH INVENTORY QUALITY ASSURANCE CHECK FORM

Project name:

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell

Review date: February, 2002

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 1 OF 6

1-6 West Babine, 7-10 Nilkitkwa

	1	2	3	4	5	6	7	8	9	10
Site #	60	66	410	415	448	452	10	45	166	430
NID map #	93M.027	93M.027	93M.027	93M.027	93M.027	93M.027	93M.037	93M.058	93M.037	93M.058
NID#	20060	20066	40010	40015	40048	40052	10010	20045	10166	40030

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							X				
	Residual pool depth	1, 2											
	Gradient	1, 2, 3, 4											
	Bankfull depth	1, 2											
	Stage	1, 2											
	No Vis. Ch., DW, and Dry/Int.	1, 2, 3, 4											
	Tribs	1, 2, 3, 4											
Cover	Total cover	1, 2											
	Cover elements	1, 2											
	Functional LWD (amount, distribution)	1, 2											
	Crown closure	1, 2											i
	Instream vegetation	1, 2											
	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 -	Flood signs	1, 2											
morpho	Bed material	1, 2, 3											
logy	D95, D	1, 2											
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3											
	Pattern	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	General comments	1, 2											
quality	Fisheries sensitive zones	1, 2											
Photo-	Roll#	1, 2											
documen-	Frame #	1, 2										1	
tation	Focal length	1, 2	П										
	Direction	1, 2											
	Comments	1, 2											
Wildlife	Group	1, 2	П						\Box		1		
	Observations	1, 2	П								一		· · · · · · · · · · · · · · · · · · ·
Comments	General comments	1, 2								\exists			
Total errors	:								X	٦	T		1

Comments:

7) two typos 2.3 instead of 2.6

_	_		
Pro	iect	name	•

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

IFRBC14 MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell F

Review date: February, 2002

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 3 OF 6

1-2 Nilkitkwa, 3-9 Harold Price, 10 Nichyeskwa

	1	2	3	4	5	6	7	8	9	10
Site #	436	458	13	47	50	54	72	437	441	2
NID map #	93M.058	93M.037	93M.016	93M.025	93M.025	93M.016	93M.026	93M.025	93M.026	93M.046
NID#	40036	40058	10013	20047	20050	10054	10072	40037	40041	10002

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	Ī										
	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											
	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	Γ										
	Water chemistry requisition #	1, 2											
	Conductivity, turbidity	1, 2											
Channel -	Flood signs	1, 2											
morpho	Bed material	1, 2, 3											
logy	D95, D	1, 2							_				
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3				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											
	Photo, comments	1, 2, 3, 4											
	UTM	1, 2											
Habitat	General comments	1, 2											
quality	Fisheries sensitive zones	1, 2											
Photo-	Roll #	1, 2											
documen-	Frame #	1, 2											
tation	Focal length	1, 2											
	Direction	1, 2											
	Comments	1, 2											
Wildlife	Group	1, 2											
	Observations	1, 2											
Comments	General comments	1, 2											
Total errors	S:		1		T	1					П		1

Comments:

4) Disturbance indicators present on the card and in FDIS are missing from the site summary symbol on the map.

Pro	iect	nai	me:

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

MELP project number: PIR-C172-010-2002 FRBC project number: 01FRBC14

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Review date: February, 2002 Chris Schell

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS -PAGE 5 OF 6

	1	2	3	4	5	6	7	8	9	10
Site #	7	19	25	38	402	419	422	30	26	9
NID map #	93M.046	93M.055	93M.056	93M.057	93M.046	93M.056	93M.056	93M.046	93M.056	93M.047
NID#	10007	30019	10025	10038	40002	40019	40022	10030	10026	10009

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		Where to						_		_			Error
section	Attribute	check	1	2	3	4	5	6	7	8	9	10	locations
Header	Stream name	1, 2, 3, 4											
	Watershed code or ILP map # and ILP #	1, 2, 3, 4				L							
	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											
	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 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	Г										· ·
	Water chemistry requisition #	1, 2											
	Conductivity, turbidity	1, 2			Х								
Channel -	Flood signs	1, 2											
morpho	Bed material	1, 2, 3											
logy	D95, D	1, 2											
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3											
	Pattern	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	П										
	Photo, comments	1, 2, 3, 4											
	UTM	1, 2											· · · · · · · · · · · · · · · · · · ·
Habitat	General comments	1, 2											
quality	Fisheries sensitive zones	1, 2											
Photo-	Roll #	1, 2											····
documen-	Frame #	1, 2	П										
tation	Focal length	1, 2	П										
	Direction	1, 2	П										
	Comments	1, 2	П										
Wildlife	Group	1, 2	П										
	Observations	1, 2	П										······································
Comments	General comments	1, 2	П										·, " ·, ·
Total errors	s:	· ·	Γ	Т	X						٦		1

Summary o	f stream	site in	formation	check:
-----------	----------	---------	-----------	--------

Number of marks (# cards * 52): 1560	Maximum number of errors acceptable (5%): 52
Number of errors found: 3	Is the number of errors acceptable: Yes

Comments:

3) card has lightly, FDIS has clear turbidity

Project name:

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: <u>01FRBC14</u>

MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell

Review date: February, 2002

FORM 3E

CONSISTENCY CHECK: FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP - PAGE 1 OF 6

1-6 West Babine, 7-10 Nilkitkwa

	1	2	3	4	5	6	7	8	9	10
Site #	60	66	410	415	448	452	10	45	166	430
NID map #	93M.027	93M.027	93M.027	93M.027	93M.027	93M.027	93M.037	93M.058	93M.037	93M.058
NID#	20060	20066	40010	40015	40048	40052	10010	20045	10166	40030

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			-					Г			
	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	Г										
	Conductivity	1, 2, 3, 4									X		
Fish summary	Method, method no.	1, 2											
	Haul/Pass (H/P)	1, 2	Г										
	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	Method, method no.	1, 2											
specifications	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher	Method, method no.	1, 2											
specifications	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2	 										
	Make, model	1, 2											
	I	Total:	0	0	0	0	0	0	0	0	1	0	1

Comments:

9) typo - 50 on the card, 5 in FDIS

Project name:

PİR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell Review date: February, 2002

FORM 3E

CONSISTENCY CHECK: FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP,—PAGE 3 OF 6

1-2 Nilkitkwa, 3-9 Harold Price, 10 Nichyeskwn

	1	2	3	4	5	6	7	8	9	10
Site #	436	458	13	47	50	54	72	437	441	2
NID map #	93M.058	93M.037	93M.016	93M.025	93M.025	93M.016	93M.026	93M.025	93M.026	93M.046
NID#	40036	40058	10013	20047	20050	10054	10072	40037	40041	10002

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	Г										
	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 4 OF 6

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Gear	Method, method no.	1, 2											
specifications	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2	T										
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher	Method, method no.	1, 2											
specifications	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											
	<u> </u>	Total:	0	0	0	0	0	0	0	0	0	0	

Comments:

Project name:

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell Review date: February, 2002

FORM 3E

CONSISTENCY CHECK: FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP,—PAGE 5 OF 6

	1	2	3	4	5	6	7	8	9	10
Site #	7	19	25	38	402	419	422	30	26	9
NID map #	93M.046	93M.055	93M.056	93M.057	93M.046	93M.056	93M.056	93M.046	93M.056	93M.047
NID#	10007	30019	10025	10038	40002	40019	40022	10030	10026	10009

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			Γ								-
	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				ļ							
	Stage, total #	1, 2											
	Min. length	1, 2									<u> </u>		
	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	Method, method no.	1, 2											
specifications	Haul	1, 2	Π										
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2						-					
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher	Method, method no.	1, 2											
specifications	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											
		Total:	0	0	0	0	0	0	0	0	0	0	-

Number of marks (# cards * 36):720	Maximum number of errors acceptable (5%): 36
Number of errors found:1	Is the number of errors acceptable: Yes

Comments:

FRBC projec Contractor: QA review by	t number	· UIIICD	C14	ance Fish	and	Fisi										C172-01	0-2002
Contractor: QA review by		T-ites F		-tal Camar		- .4 T			. Р.	oj.				•		<u> </u>	
QA Teview by		Chris Sc		ntal Consu	iitar	its L		evie	w d	ate	• Fe	hn	arv	, 200	12		
	·	<u>CIR13 5C</u>	JICII				_						,		<u></u> _		
FORM 3F	Consi	STENCY	Снеск	: Indivii	DUA	AL F	`IS	нD	AT.	A (CAR	D,	FD	IS -	– I	PAGE 1	of 1
	1	2	3	4	_	5	T	6	<u> </u>	T	7			8		9	10
Site #	60	410	415	10		47	1	50)	T	54			72	1	437	9
NID map #	93M.027	93M.027	93M.027	93M.037	931	M.02	5	93M	.025	9.	3M.()16	93	M.02	6	93M.025	93M.047
NID#	20060	40010	40015	10010	20	0047		200	50		1005	4	1	0072		40037	10009
Record error FDIS, as speci				· · ·		re is	inc	consi	ster	су	amo	ong	1) i	ndiv	idu		
Group		Item		Where check		1	2	3	4	5	6	7	8	9	10	Err locat	
Individual	Site #			1, 2													
fish data	Method	l, method	no.	1, 2													
	Haul/Pa	ass		1, 2													
					-												
	Species	3		1, 2							1					1	
	Species Length	3		1, 2													
	<u> </u>				<u> </u>		•										
	Length			1, 2													
	Length Weight			1, 2													
	Length Weight Sex	У		1, 2 1, 2 1, 2													
	Length Weight Sex Maturit	y ucture		1, 2 1, 2 1, 2 1, 2													
	Length Weight Sex Maturit Age str	y ucture		1, 2 1, 2 1, 2 1, 2 1, 2													
	Length Weight Sex Maturit Age str	cy ucture mple #		1, 2 1, 2 1, 2 1, 2 1, 2 1, 2				X									
	Length Weight Sex Maturit Age str Age sar Age Vouche	cy ucture mple #		1, 2 1, 2 1, 2 1, 2 1, 2 1, 2 1, 2				X									
	Length Weight Sex Maturit Age str Age sar Age Vouche Genetic	y ucture mple #		1, 2 1, 2 1, 2 1, 2 1, 2 1, 2 1, 2 1, 2				X									

Project name	ct name:	iect	Proi	
--------------	----------	------	------	--

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: <u>01FRBC14</u>

MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell

Review date: February, 2002

FORM 3K

WATERSHED REPORT - PAGE 1 OF 4

FORM 3K V	VATERSHED REPORT – PAGE 1 OF 4			Report section	Attribute	Accept. (Y/N)	Notes
		Accept.		Introduction			
Report section	on Attribute	(Y/N)	Notes	Project scope, objectives	1:20 000, 1:5000, lakes, etc.	Y	
Title page	Proper title	N	1	Location	Description	Y	
	Watershed code below title	Y		Overview map	8.5 × 11" or 11 × 17"	Y	
	Prepared for	Y		•	Outline of study area	Y	
	Prepared by	Y	 		Inset map showing relation to BC	Y	
				•	Sample site locations	Y	
	Signature of R.P.Bio	Y		-	1:20 000 map grid	Y	
Reference informa	ation Project reference information	N	2		Major communities	Y	
	Watershed information	Y			TRIM/FC aquatic features	na	
	Sampling design summary	Y		Access	Description	Y	
	Contractor information	Y		Resource Information	First Nations	Y	
Disclaimer	Standard wording disclaimer	Y		•	Land use, logging, recreation, etc.	Y	
Acknowledgemen	ts	Y		•	Impacts and uses by wildlife	Y	
Table of contents	Page numbering correct	Y		•	Existing water quality data	Y	
	Report outline follows standard	Y			Previous fish presence	Y	
Lists	List of Tables	Y		Methods	Reference to RECCE standards	Y	
Lists					Reference to project plan	Y	
	List of Figures	Y			Deviations from RIC standards	Y	
	List of Attachments	Y			Deviations from project plan	Y	
	List of Appendices	Y			List of sampling equipment used	Y	

Notes:

- 1) Don't use study areas to describe project areas, use watersheds
- 2) Tenure #?

FORM 3K

CONTINUED – PAGE 2 OF 4

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	Table defining each sub-drainage	Y	
biophysical information	Sub-drainages not sampled but included in the planning document	Y	
	Previous sampling reference	Y	
Habitat and fish	Characteristics of fish habitats	Y	-
distribution	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	
	Length-frequency histograms	Y	
	Histograms have the same x-axis	Y	
	Table: Summary of length-at-age.	na	
	Data presented by species	Y	
	Data presented by sub-drainage	na ·	
	Age classes appear correct	na	
Significant features and	Fish and fish habitat		
fisheries observations	Critical habitats	Y	
	Special populations	Y	
	Wild stocks	Y	
	Rare stocks or species	Y	
	High value sport fishing	Y	
	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	N	1
	Table: Summary of fish bearing reaches	Y	

Notes:

1) NCD is a FPCode term, not just a forest industry term.

Form 3k

CONTINUED – PAGE 3 OF 4

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	Y	
	According to CBE style manual	Y	

Stream Report Appendices

Report section	Report section Attribute		Notes
Appendix I.	In ascending order by WSC	Y	
FDIS summary and	Grouped by site	Y	
photographs	FDIS reach card printouts	Y	
	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.	"E" size plots	Y	
Hardcopy maps –	Folded in pocket in report	N	
General	UTM projection	Y	
	1:20 000 map grid	Y	
	1:20 000 scale	Y	
	Complete title box	Y	
	Complete legend box	Y	1
· · · · · · · · · · · · · · · · · · ·	Source information box	Y	

Stream Report Appendices - cont.

Report section	Attribute	(Y/N)	Notes
Appendix II.	Inset map box	Y	
Hardcopy maps -	Fish species box	Y	
General (cont.)	100 m contour lines	Y	
	WSCs or ILPs for all sampled streams	Y	
	WSCs or ILPs for all 3 rd order or higher streams	Y	
	WSCs or ILPs for every other 1 st and 2 nd order stream	Y	
	WBIDs for all lakes	Y	
	Sample site locations	Y	
Project map	All site data symbols attached to sites	Y	
	Lake summary symbols	Y	
	Reach data symbols on all reaches <30% gradient and all reaches containing sites	Y	
	Features, obstructions, 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	Y	
	Stream class	Y	

Accept.

Notes:

¹⁾ the second code in the historical sample symbol is not identified. See last page for more mapping comments.

FORM 3K

CONTINUED – PAGE 4 OF 4

Stream Report Attachments

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

Report section	Attribute	Accept. (Y/N)	Notes
Attachment V.	Negative #s match digital	N	1
Photodocumentation	Prints in plastic sleeves	Y	
(cont.)	Prints labelled	Y	
Attachment VI.	Budget breakdown by phase	na	
Digital data	Project sampling design	Y	
	References, contacts list	Y	•
	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 data forms and maps	Y	
FISS update data	Copies of reference material	Y	
	Data on forms match FDIS	Y	
Attachment VIII.	Purchased aerial photos	na	
Aerial photography	Aerial video tape	na	

Notes:

1) negatives are not entered into FDIS

93M.046 480-370100-23000 why are reaches 2&3 solid red? 93M.056 335200-55500 why are reach 6&7 solid red?

Either the significance of the brackets and stars in the historical sample site symbol needs to be in the legend, or this site needs to be changed or removed to avoid confusion.

- 93M.046 contradictory historical sites showing DV in what is now a solid blue stream (R1 of -29400-36900).
 - hisorical sites on Nichyeskwa Creek are missing S-Classes
 - R3 of -29400-57200 is also a problem (no inferred brackets around DV??)
 - R2 of 10117 is also a problem
- 93M.047 (480-341600) historical symbol stating RB captured, but stream is coded FB-inferred.
- 93M.055 R2—60300-40100 (DV) on a solid blue stream
 R2-10375 historical symbol says NVC but the stream is solid blue instead of purple
- 93M.056 a number of historical symbols shoeing (DV) in solid blue streams
- 93M.057 10320, 10319, 10318 three steams with no sample sites but they're all solid purple.

 upstream of site 38, a (DV) on a solid blue stream
- $93M.017-R1,\,10037,\,historical\,site\,off\,of\,a\,TRIM\,stream\,line\,with\,no\,comment.$
 - a number of (DV) in solid blue streams
- 93M,027 480-430700 R11, shouldn't read extend to the cascades, not just to the site?
 - lots of hisorical sites claiming (DV) in solid blue streams, and historical sites off of TRIM
 - 480-456200 R2, shouldn't this be solid blue?
- 93M.037 - lots of hisorical sites claiming (DV) in solid blue streams, and historical sites off of TRIM
- 93M.048 10184, -34100-62500 why are these creeks NVC with no sites on them?
 - -378200-42500 historical NVC site but creek is dashed red
- 93M.058 -378200-64300 R 5 and tribs. Why are these creeks NVC with no sample sites?

March 4, 2002

Jay Baker, Sylvicon Services FRBC Co-ordinator, Pacific Inland Resources Ltd. PO Box 3130, Smithers, BC, VOJ 1N0

Jay,

The stage 3 quality assurance (QA) review of the final deliverables for the 1:20k stream inventory sampling program performed by Triton Environmental Consulting Ltd. for Pacific Inland Resources Ltd. has been completed. Resources Inventory Committee standard QA forms were completed during the audit and are included with this letter.

The list of deliverables check found everything present. The check of all the digital QA's found only one error worth comment, which is noted on the QA form. The card/FDIS/map check found vanishing few typological errors and no systematic problems. I noted a few very minor issues while checking the reports, which are otherwise fine. The FISS update deliverables and photodocumentation package was complete and to standards.

The maps were generally to standards and complete. They show a large amount of historical information, but some of this is confusing. The most obvious problems are for symbols pointing to streams that are not on the TRIM coverage. Some of these have comments explaining that they point to non-TRIM streams, but many do not, and they need it. Another problem is with symbols that have coding for inferred fish species. These create a confusing situation on the map; a historical symbol showing what appears to be fish presence, pointing to a stream coded as confirmed non-fish bearing. One answer may be to show in the legend that these are inferred fish species only, but this may still create confusion with users who are not very familiar with fish inventory. I feel a better answer may be to replace all historical inferred fish codes with NFC.

I would ask Triton to respond to each of my comments, and once we have agreed how each issue is gong to be addressed, I can give QA approval to this project. 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

cc. Jason Harris, Triton Environmental Consultants Ltd., Triton, BC

FISH INVENTORY QUALITY ASSURANCE CHECK FORM		
Project name: FRBC project number		Fish and Fish Habitat Inventory Program, 2001-2002 MELP project number: PIR-C172-010-2002
Contractor:	Triton Environmental C	onsultants Ltd.
QA review by:	Chris Schell	Review date: February, 2002

FORM 3A

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

	Deliverable		Digital	Comments
Watershed	Watershed report	Y	Y	
reporting	Appendices			
	I. FDIS summary and photographs	na	Y	
	II. Hardcopy maps	Y	Y	
	Attachments			
	I. Pre-field planning document	Y	Y	
	II. Field notes and forms	Y	na	
	III. Fish aging structures	na	na	
	IV. Fish samples and vouchers	na	na	
	V. Photodocumentation	Y	Y	
	VI. Digital data	Y	Y	
	VII. FISS update data	Y	na	
	VIII. Aerial photography	na	na	
Individual lake	Lake report			No lake reporting.
eporting	Appendices			
for each lake)	I. Lake survey form			
	II. Water chemistry data			
	III. Fish collection forms			
	IV. Tributary summary			
	V. Photographs			
	VI. Bathymetric map			
	Attachments			
	I. Photodocumentation			
	II. Digital data			
	III. FISS update data			
	IV. Phase completion reports			
	V. Field notes and forms			
	VI. Aerial photography			
	VII. Fish ageing structures			
	VIII. Fish samples and vouchers			

FISH INVENTORY QUALITY ASSURANCE CHECK FORM Project name: PÍR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002 FRBC project number: 01FRBC14 MELP project number: PIR-C172-010-20 Contractor: Triton Environmental Consultants Ltd. QA review by: Chris Schell Review date: February, 2002 FORM 3B DIGITAL DATA CHECKING - PAGE 1 OF 1 For each FDIS file provided:
FRBC project number: 01FRBC14 MELP project number: PIR-C172-010-20 Contractor: Triton Environmental Consultants Ltd. QA review by: Chris Schell Review date: February, 2002 FORM 3B DIGITAL DATA CHECKING – PAGE 1 OF 1 For each FDIS file provided:
Contractor: Triton Environmental Consultants Ltd. QA review by: Chris Schell Review date: February, 2002 FORM 3B DIGITAL DATA CHECKING - PAGE 1 OF 1 For each FDIS file provided:
QA review by: Chris Schell Review date: February, 2002 FORM 3B DIGITAL DATA CHECKING - PAGE 1 OF 1 For each FDIS file provided:
FORM 3B DIGITAL DATA CHECKING - PAGE 1 OF 1 For each FDIS file provided:
For each FDIS file provided:
For each FDIS file provided:
FDIS filename:
Acceptable
Comments
YN
Conversions done:
ILP to WSC Y Not completed, but not expected.
NID-UTM Y
Update bathymetry
FDIS QA report attached
Acceptable error report Y see comment below
For each FDIS file and digital map file set:
ARCView fish QA tool
Acceptable
Filename Comments
YN
Digital map files
Metadata table
Map attributes table various Y
FDIS data check
Sequential reach Y
numbering:
Point locations on Y only historical operational sites on unmaped
TRIM streams: streams and lakes failed this test
Copy of ARCView fish
QA tool error report attached
Acceptable error Y

One error report worth considering, Triton marked D3 or S3 disturbance indicator, but did not mark the LWD jam or sediment wedge as a feature, even though the feature must be there because it was the reason for the disturbance indicator. Triton's comment "Ground truth data is different than planning data." does not address the error as there is no planning data involved in this error. Comment in FDIS QA has been changed. No feature was recorded in the field.

report

Project	name:
1101000	Marine.

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

MELP project number: <u>PIR-C172-010-2002</u>

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell Review date: February, 2002

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 1 OF 6

1-6 West Babine, 7-10 Nilkitkwa

	1	2	3	4	5	6	7	8	9	10
Site #	60	66	410	415	448	452	10	45	166	430
NID map #	93M.027	93M.027	93M.027	93M.027	93M.027	93M.027	93M.037	93M.058	93M.037	93M.058
NID#	20060	20066	40010	40015	40048	40052	10010	20045	10166	40030

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							X				
	Residual pool depth	1, 2											
	Gradient	1, 2, 3, 4											
	Bankfull depth	1, 2											
	Stage	1, 2											
	No Vis. Ch., DW, and Dry/Int.	1, 2, 3, 4											
	Tribs	1, 2, 3, 4											
Cover	Total cover	1, 2											
	Cover elements	1, 2											
	Functional LWD (amount, distribution)	1, 2											
	Crown closure	1, 2											
	Instream vegetation	1, 2											
	Bank shape, texture, riparian vegetation	1, 2											

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 -	Flood signs	1, 2											
morpho	Bed material	1, 2, 3											
logy	D95, D	1, 2											
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3											
	Pattern	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	General comments	1, 2											<u></u>
quality	Fisheries sensitive zones	1, 2											
Photo-	Roll #	1, 2											
documen-	Frame #	1, 2											
tation	Focal length	1, 2											-
	Direction	1, 2											
	Comments	1, 2	П										······································
Wildlife	Group	1, 2	П										
	Observations	1, 2											·
Comments	General comments	1, 2											
Total errors	s:	•	Π						X		П		1

Comments:

⁷⁾ two typos 2.3 instead of 2.6 Corrected

Project name:

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell

Review date: February, 2002

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 3 OF 6

1-2 Nilkitkwa, 3-9 Harold Price, 10 Nichyeskwa

	1	2	3	4	5	6	7	8	9	10
Site #	436	458	13	47	50	54	72	437	441	2
NID map #	93M.058	93M.037	93M.016	93M.025	93M.025	93M.016	93M.026	93M.025	93M.026	93M.046
NID#	40036	40058	10013	20047	20050	10054	10072	40037	40041	10002

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	Ť	-	۲	Ť	٦	Ť	<u>'</u> -	Ť			Tocations
	Watershed code or ILP map # and ILP #	1, 2, 3, 4				\vdash				-			
	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											
	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	Π										
	Water chemistry requisition #	1, 2											
	Conductivity, turbidity	1, 2									П		
Channel -	Flood signs	1, 2											
morpho	Bed material	1, 2, 3											
logy	D95, D	1, 2											
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3				X							
	Pattern	1, 2, 3	П										
	Islands, bars, coupling	1, 2											
	Confinement	1, 2, 3											
Features	NID map # and NID #	1, 2	П										
	Type, height/length	1, 2, 3, 4											
	Photo, comments	1, 2, 3, 4	П										
	UTM	1, 2											· ·
Habitat	General comments	1, 2	П										
quality	Fisheries sensitive zones	1, 2	П										
Photo-	Roll #	1, 2											
documen-	Frame #	1, 2											
tation	Focal length	1, 2											
	Direction	1, 2											
	Comments	1, 2	П										
Wildlife	Group	1, 2	П										
	Observations	1, 2	П										
Comments	General comments	1, 2	\sqcap										
Total errors	:		Γ,	Γ.,		1		T	\exists	П	7		1

Comments:

4) Disturbance indicators present on the card and in FDIS are missing from the site summary symbol on the map. <u>Corrected.</u>

Project name:

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell R

Review date: February, 2002

FORM 3C

CONSISTENCY CHECK: STREAM CARDS, FDIS, PROJECT, INTERPRETIVE MAPS – PAGE 5 OF 6

	1	2	3	4	5	6	7	8	9	10
Site #	7	19	25	38	402	419	422	30	26	9
NID map #	93M.046	93M.055	93M.056	93M.057	93M.046	93M.056	93M.056	93M.046	93M.056	93M.047
NID#	10007	30019	10025	10038	40002	40019	40022	10030	10026	10009

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											
	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 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	Π		X								
Channel -	Flood signs	1, 2											
morpho	Bed material	1, 2, 3											
logy	D95, D	1, 2											
	Morphology	1, 2, 3											
	Disturbance indicators	1, 2, 3											
	Pattern	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									П		
Habitat	General comments	1, 2											
quality	Fisheries sensitive zones	1, 2											
Photo-	Roll #	1, 2											
documen-	Frame #	1, 2									П		·
tation	Focal length	1, 2											
	Direction	1, 2	П										
	Comments	1, 2	П								П		
Wildlife	Group	1, 2									П		
	Observations	1, 2											
Comments	General comments	1, 2											
Total error	s:		T	Т	X				П	\Box	٣		1

Summary of stream site information check:

Number of marks (# cards * 52):1560	Maximum number of errors acceptable (5%): 52
Number of errors found: 3	Is the number of errors acceptable: Yes

Comments:

3) card has lightly, FDIS has clear turbidity Corrected.

Pro	iect	no	me:
FFU	ieci	пи	me.

PÍR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell

Review date: February, 2002

FORM 3E

CONSISTENCY CHECK: FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP – PAGE 1 OF 6

1-6 West Babine, 7-10 Nilkitkwa

	1	2	3	4	5	6	7	8	9	10
Site #	60	66	410	415	448	452	10	45	166	430
NID map #	93M.027	93M.027	93M.027	93M.027	93M.027	93M.027	93M.037	93M.058	93M.037	93M.058
NID#	20060	20066	40010	40015	40048	40052	10010	20045	10166	40030

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											
	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	Method, method no.	1, 2											
specifications	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher	Method, method no.	1, 2											
specifications	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2	\top										
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2	1	_									
	Make, model	1, 2	†										
	<u> </u>	Total:	0	0	0	0	0	0	0	0	1	0	1

Comments:

⁹⁾ typo - 50 on the card, 5 in FDIS Corrected.

D	
Project	name:

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

FRBC14 MELP project number: PIR-C172-010-2002

Contractor: QA review by: Triton Environmental Consultants Ltd.
Chris Schell R

Review date: February, 2002

FORM 3E

CONSISTENCY CHECK: FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP,—PAGE 3 OF 6

1-2 Nilkitkwa, 3-9 Harold Price, 10 Nichyeskwn

	1	2	3	4	5	6	7	8	9	10
Site #	436	458	13	47	50	54	72	437	441	2
NID map #	93M.058	93M.037	93M.016	93M.025	93M.025	93M.016	93M.026	93M.025	93M.026	93M.046
NID#	40036	40058	10013	20047	20050	10054	10072	40037	40041	10002

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 4 OF 6

Group	Item	Where to check	1	2	3	4	5	6	7	8	9	10	Error locations
Gear	Method, method no.	1, 2											
specifications	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2											
Electrofisher	Method, method no.	1, 2											
specifications	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											
" "		Total:	0	0	0	0	0	0	0	0	0	0	

Comments:

Project name:

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

FRBC14 MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell

Review date: February, 2002

FORM 3E

CONSISTENCY CHECK: FISH COLLECTION FORM, FDIS, PROJECT MAP, INTERPRETIVE MAP,—PAGE 5 OF 6

	1	2	3	4	5	6	7	8	9	10
Site#	7	19	25	38	402	419	422	30	26	9
NID map #	93M.046	93M.055	93M.056	93M.057	93M.046	93M.056	93M.056	93M.046	93M.056	93M.047
NID#	10007	30019	10025	10038	40002	40019	40022	10030	10026	10009

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	П										
	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				Г							
Fish summary	Method, method no.	1, 2											
	Haul/Pass (H/P)	1, 2											
	Species	1, 2, 3, 4											
	Stage, total #	1, 2					Г						
	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	Method, method no.	1, 2											
specifications	Haul	1, 2											
	Date, time in/out	1, 2											
	Net type, lgth, dpth	1, 2											
	Mesh size	1, 2											
	Set, habitat	1, 2	1						-				
Electrofisher	Method, method no.	1, 2											
specifications	Pass	1, 2											
	Time in, time out	1, 2											
	EF sec.	1, 2											
	Length, width	1, 2											
	Enclosure	1, 2											
	Voltage, freq., pulse	1, 2											
	Make, model	1, 2											
	-	Total:	0	0	0	0	0	0	0	0	0	0	

Number of marks (# cards * 36): _720	Maximum number of errors acceptable (5%): <u>36</u>
Number of errors found:1	Is the number of errors acceptable: Yes

Comments:

	: t number:	PIR's R	econnaiss	RY QUA		ish	Н	abita	at Ir	nvei	itor	y Pı	ogr	am,	20	01-2002 -C172-01	0-2002
Contractor: QA review by	. r•	Triton E Chris Sc		ntal Consu	ıltants			evie	w d	ate	. F	ebri	ıarv	20	002		
QA review by	/; 	Chris Sc	nen				Ne	EVIC	w u	alc		יוטונ	iai y	, 20	02		,
FORM 3F	Consi	STENCY	Снеск	: Indivi	DUAI	L F	ISI	н D	ΑT	A (CAF	w,	FD	IS	-]	PAGE 1	OF 1
	1	2	3	4	5	5	T	6	<u> </u>		7			8		9	10
Site #	60	410	415	10	4	7	1	5	0	\dagger	54			72		437	9
NID map #	93M.027	93M.027	93M.027	93M.037	93M	.025	5 9	93M	.025	9	93M.016			M.0	26	93M.025	93M.04
NID#	20060	40010	0010 40015 10010 20047 20050 10054				1	007	2	40037	10009						
FDIS, as speci	ineu for ea		ic.	Where			_		,	_	_	_	_			Err	
Group		Item		check		1	2	3	4	5	6	7	8	9	10	locat	ions
Individual	Site #			1, 2		4		<u> </u>			_			_	_		
fish data	Method	i, method	no.	1, 2		_				_			_			<u> </u>	
	77 1/2				- 1	- 1		1 1		ı							
	Haul/Pa			1, 2						_				_	<u> </u>		
	Species			1, 2													
	Species Length	3		1, 2													
	Species Length Weight	3		1, 2 1, 2 1, 2													
	Species Length Weight Sex	;		1, 2 1, 2 1, 2 1, 2													
	Species Length Weight Sex Maturit	у		1, 2 1, 2 1, 2 1, 2 1, 2													
	Species Length Weight Sex Maturit Age str	y ucture		1, 2 1, 2 1, 2 1, 2 1, 2 1, 2													
	Species Length Weight Sex Maturit Age str	y ucture		1, 2 1, 2 1, 2 1, 2 1, 2 1, 2 1, 2													
	Species Length Weight Sex Maturit Age str Age sar	y ucture nple #		1, 2 1, 2 1, 2 1, 2 1, 2 1, 2 1, 2 1, 2				X									
	Species Length Weight Sex Maturit Age str Age sar Age Vouche	y ucture nple #		1, 2 1, 2 1, 2 1, 2 1, 2 1, 2 1, 2 1, 2				X									
	Species Length Weight Sex Maturit Age str Age sar Age Vouche Genetic	y ucture nple #		1, 2 1, 2 1, 2 1, 2 1, 2 1, 2 1, 2 1, 2				x									

Dwo	inat	-	me:	
PFO	ieci	nя	me:	

PIR's Reconnaissance Fish and Fish Habitat Inventory Program, 2001-2002

FRBC project number: 01FRBC14

MELP project number: PIR-C172-010-2002

Contractor:

Triton Environmental Consultants Ltd.

QA review by:

Chris Schell

Review date: February, 2002

FORM 3K

WATERSHED REPORT – PAGE 1 OF 4

FORM 3K WATER	RSHED REPORT – PAGE 1 OF 4			Report section	Attribute	Accept. (Y/N)	Notes
		Accept.		Introduction			
Report section	Attribute	(Y/N)	Notes	Project scope, objectives	1:20 000, 1:5000, lakes, etc.	Y	
Title page	Proper title	N	1	Location	Description	Y	
	Watershed code below title	Y		Overview map	8.5 × 11" or 11 × 17"	Y	
	Prepared for	Y			Outline of study area	Y	
	Prepared by	Y	ļ		Inset map showing relation to BC	Y	
					Sample site locations	Y	
	Signature of R.P.Bio	Y			1:20 000 map grid	Y	
Reference information	Project reference information	N	2		Major communities	Y	
	Watershed information	Y			TRIM/FC aquatic features	na	
	Sampling design summary	Y		Access	Description	Y	
	Contractor information	Y		Resource Information	First Nations	Y	
Disclaimer	Standard wording disclaimer	Y		•	Land use, logging, recreation, etc. Y		
Acknowledgements		Y		•	Impacts and uses by wildlife	Y	
Table of contents	Page numbering correct	Y	<u> </u>	•	Existing water quality data	Y	
	Report outline follows standard	Y			Previous fish presence	Y	
T :-4-	List of Tables	Y		Methods	Reference to RECCE standards	Y	
Lists		<u> </u>		•	Reference to project plan	Y	
	List of Figures	Y			Deviations from RIC standards	Y	
	List of Attachments	Y			Deviations from project plan	Y	
	List of Appendices	Y			List of sampling equipment used	Y	

Notes:

- 1) Don't use study areas to describe project areas, use watersheds Changed on all.
- 2) Tenure # Added to all?

Form 3K

CONTINUED – PAGE 2 OF 4

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	Table defining each sub-drainage	Y	
biophysical information	Sub-drainages not sampled but included in the planning document	Y	
	Previous sampling reference	Y	
Habitat and fish	Characteristics of fish habitats	Y	
distribution	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	
	Length-frequency histograms	Y	
	Histograms have the same x-axis	Y	
	Table: Summary of length-at-age.	na	
	Data presented by species	Y	
	Data presented by sub-drainage	na ·	
	Age classes appear correct	na	
Significant features and	Fish and fish habitat		
fisheries observations	Critical habitats	Y	
	Special populations	Y	
	Wild stocks	Y	
	Rare stocks or species	Y	
	High value sport fishing	Y	
	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	N	1
	Table: Summary of fish bearing reaches	Y	

Notes

1) NCD is a FPCode term, not just a forest industry term. Addressed and corrected in all areas.

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	Y	
	According to CBE style manual	Y	

Stream Report Appendices

Report section	Attribute	Accept. (Y/N)	Notes
Appendix I.	In ascending order by WSC	Y	
FDIS summary and	Grouped by site	Y	
photographs	FDIS reach card printouts	Y	
	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.	"E" size plots	Y	
Hardcopy maps -	Folded in pocket in report	N	
General	UTM projection	Y	
	1:20 000 map grid	Y	
	1:20 000 scale	Y	
	Complete title box	Y	
	Complete legend box	Y	1
	Source information box	Y	

Stream Report Appendices - cont.

Report section	Attribute	Accept. (Y/N)	Notes
Appendix II.	Inset map box	Y	
Hardcopy maps –	Fish species box	Y	-
General (cont.)	100 m contour lines	Y	
	WSCs or ILPs for all sampled streams	Y	
	WSCs or ILPs for all 3 rd order or higher streams	Y	
	WSCs or ILPs for every other 1 st and 2 nd order stream	Y	
	WBIDs for all lakes	Y	
	Sample site locations	Y	
Project map	All site data symbols attached to sites	Y	
	Lake summary symbols	Y	
	Reach data symbols on all reaches <30% gradient and all reaches containing sites	Y	
	Features, obstructions, 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	Y	
	Stream class	Y	

Notes:

1) the second code in the historical sample symbol is not identified. <u>Corrected</u> See last page for more mapping comments. FORM 3K

CONTINUED - PAGE 4 OF 4

Stream Report Attachments

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

Report section	Attribute	Accept. (Y/N)	Notes
Attachment V.	Negative #s match digital	N	1
Photodocumentation	Prints in plastic sleeves	Y	
(cont.)	Prints labelled	Y	
Attachment VI.	Budget breakdown by phase	na	
Digital data	Project sampling design	Y	
	References, contacts list	Y	•
	Table of vouchers collected	Y	in FDIS
	Table of DNA collected	Y	in FDIS
	Photo summary report	Y	in FDIS
	Report tables, figures	Y	<u>.,, . , . ,</u>
	Report text	Y	· · · · · · · · · · · · · · · · · · ·
	FDISDAT.MDB	Y	
	Mapping files (plot files)	Y	
	Mapping files (metadata and map features files)	Y	
Attachment VII.	FISS data forms and maps	Y	
FISS update data	Copies of reference material	Y	
	Data on forms match FDIS	Y	
Attachment VIII.	Purchased aerial photos	na	
Aerial photography	Aerial video tape	na	

Notes:

1) negatives are not entered into FDIS Corrected for all areas.

93M.046 480-370100-23000 why are reaches 2&3 solid red? No barriers observed between fish capture and upstream reach.
93M.056 335200-55500 why are reach 6&7 solid red? No barriers observed during recce flight between d/s fish and u/s lake.

Either the significance of the brackets and stars in the historical sample site symbol needs to be in the legend, or this site needs to be changed or removed to avoid confusion.

- 93M,046 contradictory historical sites showing DV in what is now a solid blue stream (R1 of -29400-36900). Changed to NFC.
 - hisorical sites on Nichyeskwa Creek are missing S-Classes No stream class provided with Hist. data.
 - R3 of -29400-57200 is also a problem (no inferred brackets around DV??) Changed to NFC.
 - R2 of 10117 is also a problem Changed to NFC.
- 93M.047 (480-341600) historical symbol stating RB captured, but stream is coded FB-inferred. Changed to FB.
- 93M.055 R2—60300-40100 (DV) on a solid blue stream <u>Changed to NFC.</u>
 R2-10375 historical symbol says NVC but the stream is solid blue instead of purple <u>Recommendation appreciated.</u>
- 93M.056 a number of historical symbols shoeing (DV) in solid blue streams Changed to NFC.
- 93M.057 10320, 10319, 10318 three steams with no sample sites but they're all solid purple. Added Hist. ref. upstream of site 38, a (DV) on a solid blue stream Changed to NFC.
- 93M.017 R1, 10037, historical site off of a TRIM stream line with no comment. <u>Added comment.</u>
 a number of (DV) in solid blue streams Changed to NFC.
- 93M.027 480-430700 R11, shouldn't read extend to the cascades, not just to the site? Changed.
 - lots of hisorical sites claiming (DV) in solid blue streams, and historical sites off of TRIM Changed to NFC.
 - 480-456200 R2, shouldn't this be solid blue? Stream could potentially flow down adjacent trib.
- 93M.037 - lots of hisorical sites claiming (DV) in solid blue streams, and historical sites off of TRIM Changed to NFC and added 'off' TRIM comment'.
- 93M.048 10184, -34100-62500 why are these creeks NVC with no sites on them? Added Hist. ref. -378200-42500 historical NVC site but creek is dashed red Potential NCD/FSZ.
- 93M.058 -378200-64300 R 5 and tribs. Why are these creeks NVC with no sample sites? Added Hist. ref.
- Added (RB) Suspected fish species present to legend.

March 11, 2002

Reference: 3201.03/WPT-1242

Chris Schell Consulting Ltd.

PO Box 4695, Smithers, BC, V0J 2N0

Attention: Chris Schell

Dear Sir:

Re: Fish Inventory Draft Submissions for the Reconnaissance (1:20,000

scale) Fish and Fish Habitat Inventory within PIR's Babine and

Suskwa Planning Areas.

Please find enclosed draft deliverables for the Reconnaissance (1:20,000 scale) Fish and Fish Habitat Inventory within PIR's Babine and Suskwa Planning Areas. As outlined in the General Services Agreement for FRBC Stream Inventories the following draft deliverables are included:

Draft Report

Appendix I Reach Cards/Site Cards/Fish Collection Forms and

Photographs

Appendix II Phase Completion Reports

Appendix III Quality Assurance Forms and Correspondence

Appendix IV Phase I-III Project Plan (with attachments)

Appendix V Project/Interpretive Maps

Attachment I Planning Document

Triton Environmental Consultants Ltd., April 2001. Phase I-III Pre-field Project Planning Report Reconnaissance (1:20,000) Fish and Fish Habitat Inventory in selected tributaries within the Babine and Suskwa River watersheds. Prepared for Skeena Cellulose Inc.

Attachment II Field Notes

Site Cards/Fish Collection Forms

Attachment III

Photodocumentation

Photo Summary Report

Photo CD

Prints in Plastic Sleeves Negatives in Plastic Sleeves

Attachment IV

Digital Data

Watershed Report Files

FDIS Files Mapping Files

Attachment V

FISS Update Data FISS Update Forms FISS Update Maps

Should you have any questions or require additional information, please contact me.

Yours truly,

Triton Environmental Consultants Ltd.

Jason Harris

Project Manager

From:

"Jessop, Matthew SRM:EX" < Mathew.Jessop@gems4.gov.bc.ca>

To:

"Jason Harris" < JHarris@triton-env.com>

Date:

2/19/02 11:33AM

Subject:

Bulkley TSA Non-fish bearing status reports

Hello Jason,

This message indicates my approval of the Non-Fish Bearing Status Reports for Fish and Fish Habitat Inventory work done by Triton Environmental Consultants Ltd in the Harold Price, Nichyeskwa, Nilkitkwa and West Babine watersheds in the Bulkley Forest District during the 2001/2002 field season.

Thank you, Matt.

Matthew Jessop Fisheries Inventory Specialist Ministry of Sustainable Resource Management Skeena Region Bag 5000, Smithers, BC, V0J 2N0 Phone: (250) 847-7538

Phone: (250) 847-7538 Fax: (250) 847-7217

Mathew.Jessop@gems4.gov.bc.ca http://srmwww.gov.bc.ca/ske/fshinv/

CC:

"Larden, Troy WLAP:EX" < Troy.Larden@gems1.gov.bc.ca>

March 12, 2002

Jay Baker, Sylvicon Services FRBC Co-ordinator, Pacific Inland Resources Ltd. PO Box 3130, Smithers, BC, VOJ 1N0

RE: Triton's response to stage 3 (phase 5-6) QA review of reconnaissance (1:20k) fish and fish habitat inventory for Pacific Inland Resources Ltd.

Jay,

I have completed my review of Triton's reply to my QA. They have responded to each of my comments, points by point. A this point in time all outstanding issues have been addressed. This letter is to inform you that this project has passed QA review.

Sincerely,

Chris Schell MSc, RPBio

cc. Jason Harris, Triton Environmental Consultants Ltd., Triton, BC

APPENDIX IV

Phase I-III Project Plan (with Attachments)

Phase I-III Completion Report
Bibliography
Contact List
FDIS Reach Sampling Summary
Sample Site Selection
Digital Data

PHASES I-III PRE-FIELD PROJECT PLANNING REPORT

Reconnaissance (1:20,000) Fish and Fish Habitat Inventory in selected tributaries within the Babine and Suskwa River watersheds

Babine River WSC 480-310670 - 480-518400 Suskwa River WSC 460-081700-43900 - 460-081700-43900-50400

Prepared for:

Skeena Cellulose Inc. Carnaby Operations #10 North Boundary Rd. South Hazelton, B.C. VOJ 2R0

April 2001

Prepared by:



#300-4546 Park Avenue Terrace, BC V8G 1V4 Tel: (250) 635 1494 Fax: (250) 635-1495 March 31, 2001

Reference: 3200WP#T-1125

Chris Schell Consultants Ltd.

PO Box 2695

Smithers BC, V0J 2N0

Attention: Chris Schell

Dear Mr. Schell:

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

tributaries within the Babine and Suskwa River watersheds Phase I-III

Deliverables

Please find attached project deliverables for Phases I-III (planning phases) as outlined in the General Services Agreement for FRBC Stream Inventory.

The attached report is organized as follows:

Phase I-III Pre-Field Project Planning Report

Appendix I: Project Phase Completion Report - Phase I-III

Appendix II: Bibliography

Appendix III: List of Key Contacts and Information Sources
Appendix IV: West Babine Reach Sampling Summary Report

(with sample selection)

Appendix V: Nilkitkwa Reach Sampling Summary Report

(with sample selection)

Appendix VI: Harold Price Reach Sampling Summary Report

(with sample selection)

Appendix VII: Nichyeskwa Reach Sampling Summary Report

(with sample selection)

Phase I-III Interim Maps (tube)

Phase I-III Digital Deliverables (CD)

Should you have any questions or comments please do no hesitate to contact me at (250) 635-1494.

Yours truly,

Triton Environmental Consultants Ltd.

Jason Harris

enclos.

PHASE I - III PRE-FIELD PROJECT PLANNING REPORT

Reconnaissance (1:20,000) Fish and Fish Habitat Inventory in selected tributaries within the Babine and Suskwa River watersheds

FRBC Multi-Year Agreement Number: 0000102

MELP Project number: SCI_C172_010_2001

FRBC Activity Number: 716432 FDIS Project Code: 5098

Project Name: Reconnaissance (1:20,000) Fish and Fish

Habitat Inventory in selected tributaries within the Babine and Suskwa River

watersheds

Project Type: 1:20,000 Reconnaissance

Report Date: April 15, 2001

Proponent: Skeena Cellulose Inc.

Pacific Inland Resources Ltd.

Company/Agency: Triton Environmental Consultants Ltd.

Contact Person: Jason Harris
Contact Phone: (250) 635-1494

Contact E-Mail: jharris@triton-env.com

Ministry Representative: Paul Giroux FRBC Coordinator Todd Mahon Jay Baker

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LIST OF DIGITAL PRODUCTS

List of References List of Contacts Project Planning Report Phase Completion Report pir_sci_bibliography_2001.doc pir_sci_contacts_2001.doc pir_sci_project_plan_2001.doc pir_sci_phase_comp_123_2001.doc

West Babine Digital Data

West Babine Stream ILP Data Sheet West Babine Lake ILP Data Sheet West Babine Wetland ILP Data Sheet West Babine FDIS West Babine Overview Map west_babine_stream_ilp.dbf west_babine_lake_ilp.dbf west_babine_wetland_ilp.dbf FDISDAT.mdb west_babine.pdf

Nilkitkwa Digital Data

Nilkitkwa Stream ILP Data Sheet Nilkitkwa Lake ILP Data Sheet Nilkitkwa Wetland ILP Data Sheet Nilkitkwa FDIS Nilkitkwa Overview Map nilkitkwa_stream_ilp.dbf nilkitkwa_lake_ilp.dbf nilkitkwa_wetland.dbf FDISDAT.mdb nilkitkwa.pdf

Harold Price Digital Data

Harold Price Stream ILP Data Sheet Harold Price Lake ILP Data Sheet Harold Price Wetland ILP Data Sheet Harold Price FDIS Harold Price Overview Map harold_price_stream_ilp.dbf harold_price_lake_ilp.dbf harold_price_wetland_ilp.dbf FDISDAT.mdb harold_price.pdf

Nichyeskwa Digital Data

Nichyeskwa Stream ILP Data Sheet Nichyeskwa Lake ILP Data Sheet Nichyeskwa Wetland ILP Data Sheet Nichyeskwa FDIS Nichyeskwa Overview Map nichyeskwa_stream_ilp.dbf nichyeskwa_lake_ilp.dbf nichyeskwa_wetland_ilp.dbf FDISDAT.mdb nichyeskwa.pdf

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Appendix I: Project Phase Completion Report - Phase I-III

Appendix II: Bibliography

Appendix III: List of Key Contacts and Information Sources

Appendix IV: West Babine Reach Sampling Summary Report

(with sample selection)

Appendix V: Nilkitkwa Reach Sampling Summary Report

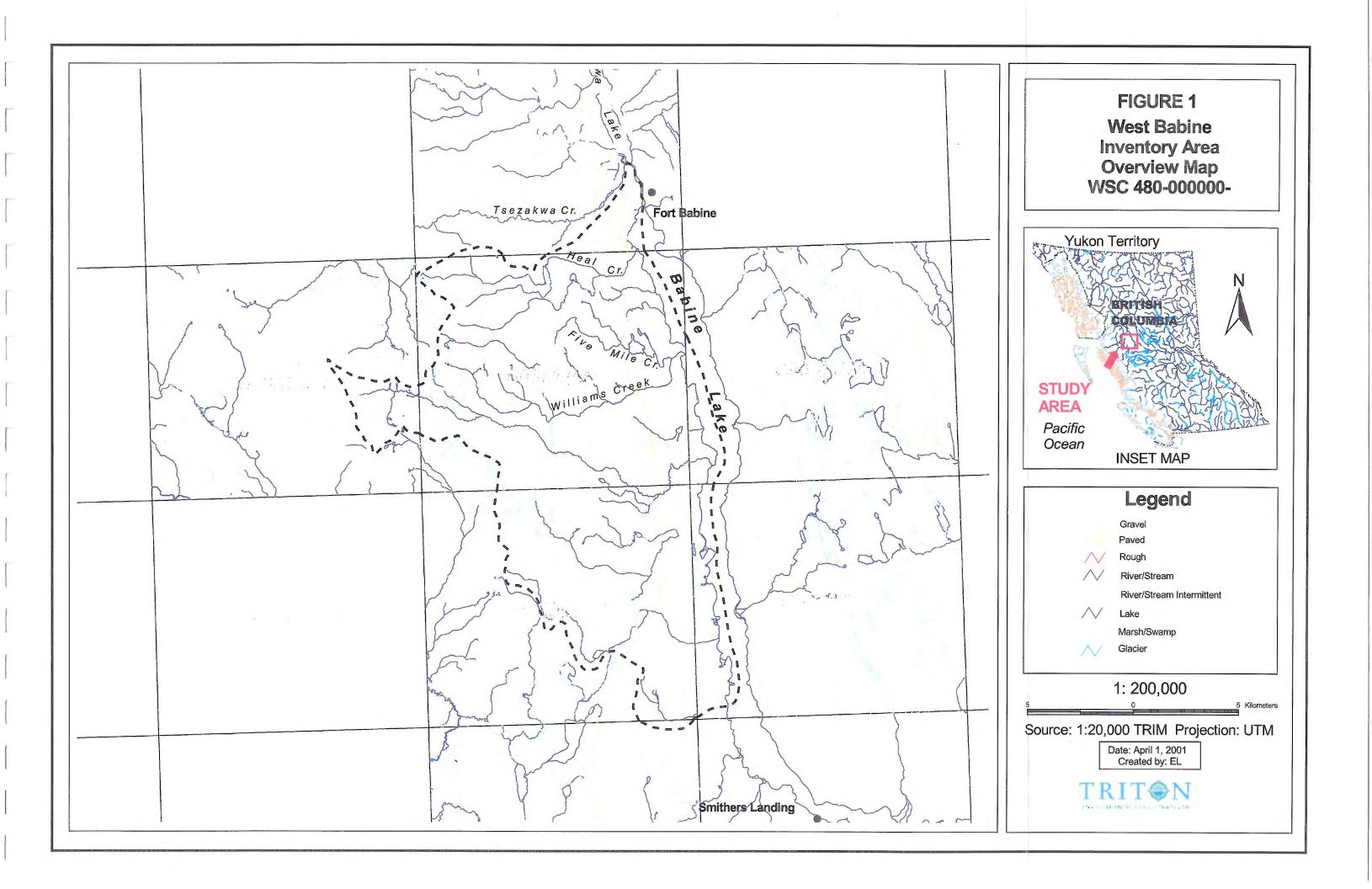
(with sample selection)

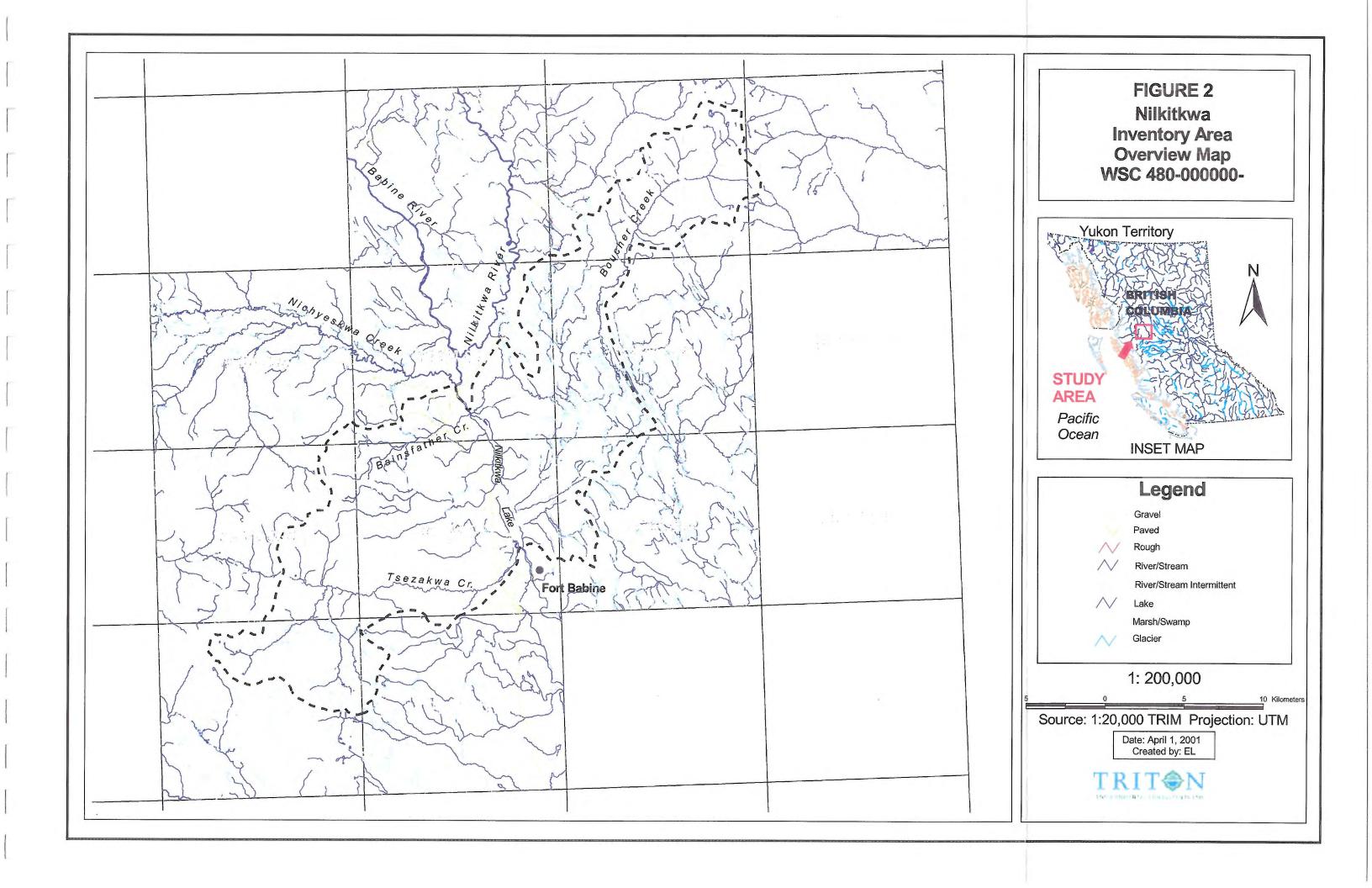
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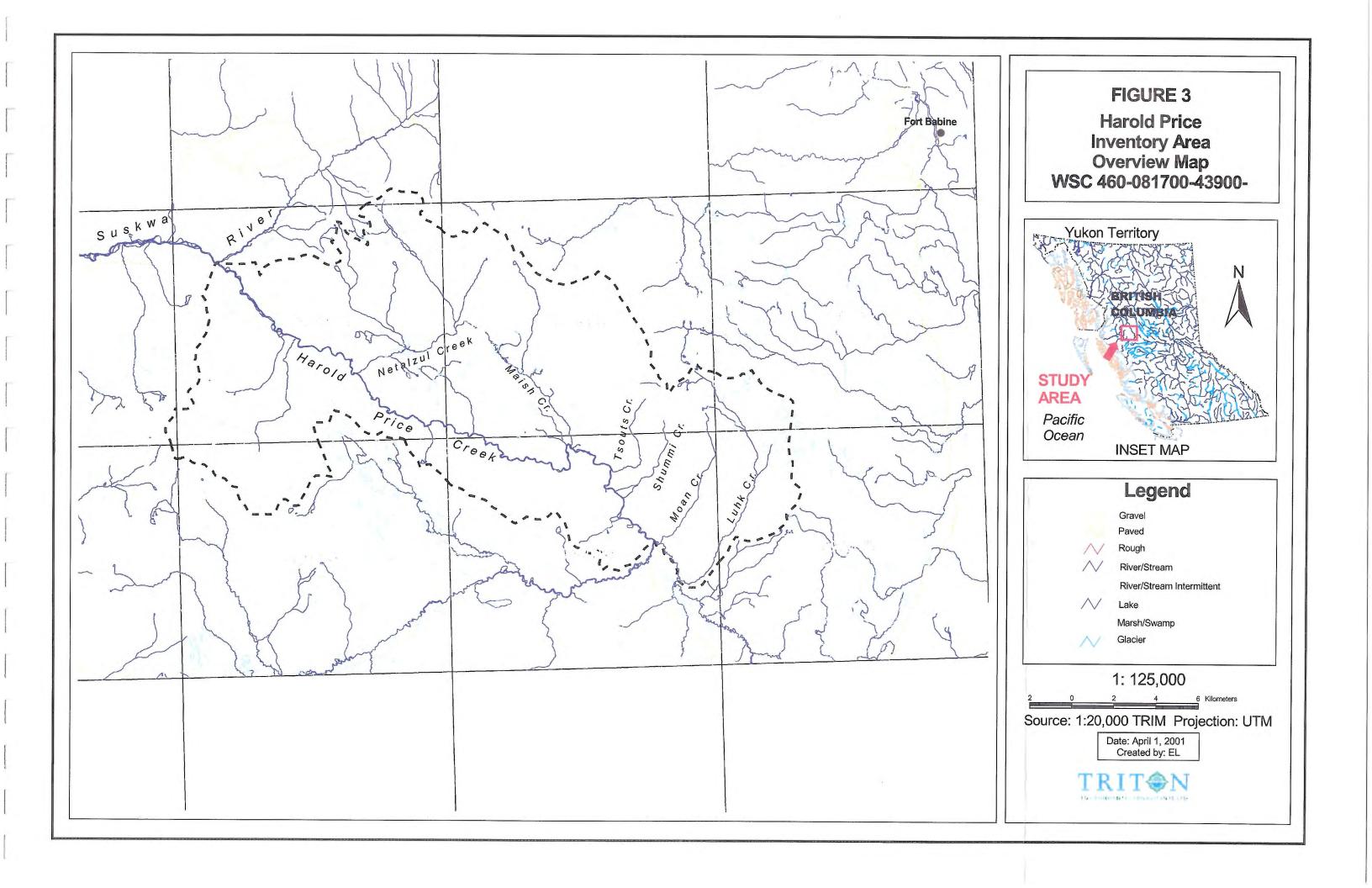
(with sample selection)

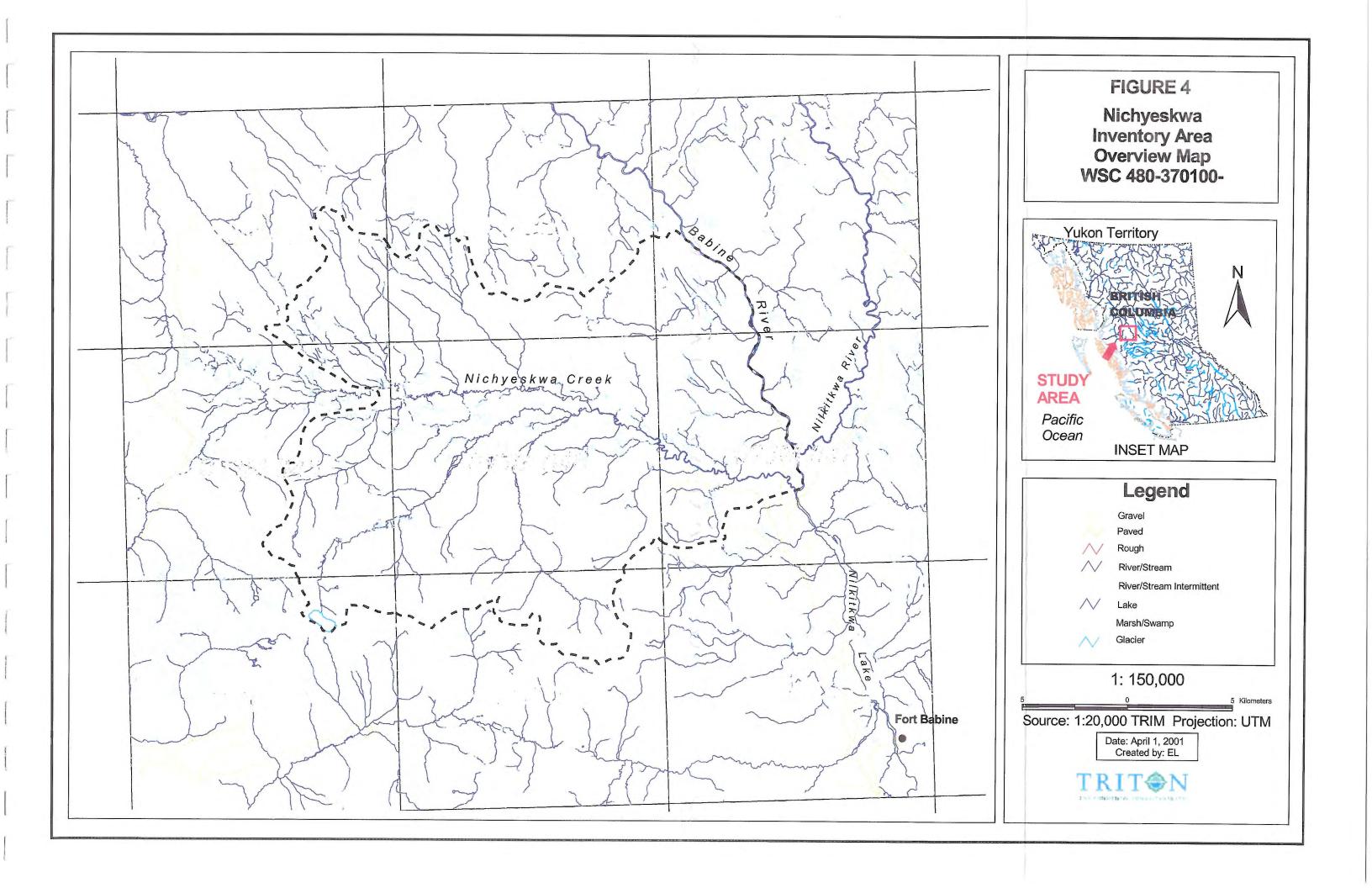
Appendix VII: Nichyeskwa Reach Sampling Summary Report

(with sample selection)









1.0 INTRODUCTION

Triton Environmental Consultants Ltd. was retained by Skeena Cellulose Inc., Smithers (SCI) and Pacific Inland Resources Ltd., Smithers (PIR) in partnership with Forest Renewal British Columbia (FRBC) and Ministry of Environment Lands and Parks (MELP) to conduct a reconnaissance level fish and fish inventory in selected tributaries within the Babine and Suskwa River watersheds. This report summarizes work completed in Phases I-III and outlines the project plan for Phases IV-VI.

1.1 Summary of Work Completed

A summary of work completed for each phase is outlined in the attached Phase Completion Report (Appendix I). This summary includes:

- contractor information;
- list of deliverables submitted;
- activity log;
- summary of work completed;
- summary of phase costs;
- progress and problems summary; and
- next phase project plans and constraints.

2.0 STUDY AREA AND ACCESS

The Babine and Suskwa River study areas are located around the village of Fort Babine. The West Babine study area includes all tributaries located along the west shore of Babine Lake between WSC 480-430700 and WSC 480-518400. The Nilkitkwa study area includes the Boucher watershed (WSC 480-378200) as well as all tributaries between WSC 480-372500 and WSC 480-413200 flowing into Nilkitwa Lake. The Harold Price study area includes all tributaries to Harold Price Creek from Luhk Creek (WSC 460-081700-43900-50400) to the Harold Price/Suskwa River confluence. The Nichyeskwa study area includes all tributaries in the lower Nichyeskwa Creek watershed from WSC 480-370100-60500 to the Babine River confluence.

2.1 List of Trim Maps

The 1:20,000 TRIM sheets covering this project area include:

West Babine Working Area

93M.007 93M.017 93M.018 93M.026 93M.027 93M.028 93M.037

Nilkitkwa Working Area

93M.026	93M.027	93M.036	93M.037	93M.038	93M.046
93M.047	93M.048	93M.057	93M.058	93M.059	

Harold Price Working Area

93M.014	93M.015	93M.016	93M.017	93M.024	93M.025
93M.026	93M.027	93M.035			

Nichyeskwa Working Area

93M.035	93M.036	93M.045	93M.046	93M.047	93M.055
93M.056	93M.057				

2.2 Working areas and major Sub-basins within the project area

The sub-basins to be sampled in the project area include:

West Babine Working Area

Five Mile Creek	(WSC 480-452300)
Heal Creek	(WSC 480-430700)

Unnamed tributaries to Babine Lake (WSC 480-548800 – WSC 480-627900)

Williams Creek (WSC 480-452300-13942)

Nilkitkwa Working Area

Bairnsfather Creek	(WSC 480-378100)
Boucher Creek	(WSC 480-378200)
Tsezakwa Creek	(WSC 480-422000)

Harold Price Working Area

Camp Creek	(WSC 460-081700-43900-23800)
Harold Price Creek	(WSC 460-081700-43900)
Luhk Creek	(WSC 460-081700-43900-50400)
Maish Creek	(WSC 460-081700-43900-33900)
Moan Creek	(WSC 460-081700-43900-46600)
Netalzul Creek	(WSC 460-081700-43900-13700)
Paask Creek	(WSC 460-081700-43900-33900-0770)
Shummi Creek	(WSC 460-081700-43900-39700)
Tsouts Creek	(WSC 460-081700-43900-37500)

Nichyeskwa Working Area

Nichyeskwa Creek

(WSC 480-370100 – WSC 480-370100-60500)

2.3 Access

Road access is fairly extensive throughout the West Babine working area, and also in the lower reaches of the Harold Price and Nichyeskwa working areas. Several roads are located throughout the Nilkitkwa working area with the exception of upper Boucher Creek. The upper reaches of many of the sub-basins will be accessed by helicopter where road networks are not present.

3.0 BACKGROUND REVIEW

An extensive background review was completed for the project area. Data sources reviewed include:

- consultants reports;
- SCI planning and stream class information;
- PIR planning and stream class information;
- previous inventory data;
- FISS data base and maps; and
- DFO/MELP Fish Habitat Inventory and Information Program (FHIIP or SISS) catalogue for Sub-district 4D Smithers (Volume 2) Bulkley.

A complete list of references and contacts used during the background review is provided in Appendix I. The background review indicated that the following species are present within project area:

- coho salmon (Oncorhynchus kisutch);
- pink salmon (O. gorbuscha);
- chinook salmon (O. tshawytscha);
- kokanee/sockeye salmon (O. nerka);
- steelhead/rainbow trout (O. mykiss);
- cutthroat trout (O. clarki);
- Dolly Varden char/Bull Trout (Salvelinus malma);
- lake trout (S. namaycush);
- largescale sucker (Catostomus macrocheilus);
- longnose sucker (*C. columbianus*);
- white sucker (C. commersoni);
- northern pikeminnow (*Ptychocheilus oregonensis*);
- peamouth chub (Mylocheilus caurinus);
- redside shiner (*Richardsonius balteatus*);
- longnose dace (*Rhinichthys cataractae*);
- mountain whitefish (*Prosopium williamsoni*);

- pygmy whitefish (*P. coulteri*);
- lake whitefish (Coregonus clupeaformis);
- burbot (Lota lota);
- prickly sculpin (Cottus asper);
- lamprey (Lampetra macrostoma); and
- Arctic lamprey (*L. japonica*).

4.0 DEVIATION FROM RIC STANDARDS

4.1 Planning Phases

Sample site selection was based on satisfying the types of stream reaches identified in the Sample Size Summary table (as generated by the FDIS random generated planning tool).

Prior sampling, fish presence and historical features have been added to the planning maps and the FDIS database. These sites were used to modify the sampling plan and avoid redundancy in sampling efforts.

As discussed with Paul Giroux, all sites located in Special Management Zones and Full Protection Areas (shaded gray in contract) will be eliminated from the plan. Random sites downstream of confirmed fish and upstream of End of Fish Use (EFU) will be removed or relocated (as discretionary sites) to support further fish distribution information.

Discretionary site selection focused on obtaining comprehensive fish distribution data from the major sub-basins within the study area. Discretionary sites were selected to achieve connectivity within sub-basins and identify upstream limits for fish distribution. Major inlets of primary and secondary lakes, as well as reaches that may contain barriers were potential candidates for discretionary sites. Forest development planning and the operational needs of the licensee were also considered when selecting sites.

Randomly selected reaches are shown on the interim maps with a green highlighter and green label dots. Randomly selected reaches that have been moved are shown with a green highlighter that has been crossed out (no label dot). Discretionary sites are shown with a green dashed line and red label dot. Label dots were used to allow for easier identification of sites.

FISS data will be compiled, edited and submitted at the completion of phase 6. FISS updates will include existing information found during the data search and new site information captured during the field inventory.

Detailed reach planning was not conducted during the planning phases, as it is anticipated (based on previous experience) that several reaches will be moved during pre-field meetings with the licensee, ministry representatives and during the sampling program. We anticipate several changes to the sampling plan, and as discussed with Paul Giroux,

SCI and PIR these changes will significantly alter the original sample site selection. Detailed reach planning forms will be completed during phase 5 and will be submitted as a deliverable for phase 6.

5.0 PROJECT PLAN

5.1 Phase 4: Field Data Collection (Streams)

Following is an outline of our approach to the fieldwork, clarification of specific sampling methodologies, and an estimate of the effort required. The following sections describe the methodologies and approaches to complete field sampling, data collection and reporting.

5.1.1 Pre-Field Preparation

Pre-field preparations will entail both office activities and logistics planning in coordination with members of the project team, the Implementation Contractor, SCI and PIR. Fish collection permits will be obtained from the Ministry of Environment, Lands and Parks (MELP) and the Department of Fisheries and Oceans (DFO) prior to commencement of field activities.

Pre-field preparations will include a crew talk and pre-field training. During the crew talk, safety issues and procedures will be reviewed. All staff will be required to complete pre-field training to review standards and procedures. Crew members who are not involved in the planning phases will be informed about project specific logistics and requirements. The crew talk and pre-field training will provide a means to ensure that all inventory cards are completed in a standardized manner by all crews and that crews are aware of QA/QC requirements.

5.1.2 Equipment

Triton possesses the majority of field equipment necessary to complete the project. Rental vehicles (4X4 trucks) and hand held radios will be secured prior to the commencement of Phase 4 (Field work).

Each crew will be equipped with a Smith-Root Model 12A backpack electrofisher and other standard field gear (Abney level, hip chain, tape measure, VHF radio, first aid kit, etc.).

5.1.3 Field Assessment

Two person field crews will conduct fieldwork. Crew mobilization will take place using a variety of methods depending on the access available in each watershed. In watersheds where road access is available, crews will drive to the sample sites. In watersheds where road access is unavailable crews will be transported by helicopter to the sample sites.

Field crews will be supplied with forest cover maps, TRIM planning maps and aerial photographs to assist in locating and accessing reaches of interest. Reaches will be largely accessed using compass bearings, hip chains and GPS units. Fluorescent pink flagging tape labeled with TECL (Triton Environmental Consultants Ltd.) will be used to mark the surveyed section of stream.

5.1.4 Fish Species Sampling

Fish sampling efforts will focus on reaches of <20% gradient (>20% at the FRBC Coordinator, Regional Inventory Specialist and Project Manager's discretion (i.e. suspected bull trout, regionally significant species presence)) and will follow the procedures outlined in the *Reconnaissance Fish and Fish Habitat Inventory: Standards and Procedures* (May, 1998) and the *Forest Practice Code's* Fish Stream Identification Guidebook. A minimum 100 m of stream length or a length equal to 10 bankfull widths (whichever is greater) will be sampled in each reach identified for sampling. In addition, intermittent fish sampling may be conducted during travel between sample sites (in an upstream direction), upstream and downstream of barriers and within habitat features (pools, debris jams etc.) that may be utilized by fish.

The presence, relative abundance and diversity of fish species will generally be evaluated through electroshocking at least 100 linear meters of stream length. In areas where return visits are practical, minnow traps baited with salmon roe will be set and allowed to remain for a 24-hour period. This sampling method will be used to supplement electroshocking data, or in areas that are not suited to electroshocking (deep pools, wetlands, and active spawning areas). Other sampling methods, such as snorkeling, beach seining, and angling may be used where necessary, or where requested by the Project Monitor.

All fish sampling data will be recorded on Fish Collection Forms. The following data and samples will be recorded and collected for fish caught at each sampling site:

- species (keyed out using RIC's Field Key to Freshwater Fishes of BC).
 Special attention will be given to documenting species at risk in Region 6;
- length to the nearest mm (fork length or total length depending on species) determined for 30 random samples of each fish species captured including the longest and shortest fish;
- life stage;

• a representative sample of any abnormal or unidentified fish or a species of fish out of its normal range will be preserved and submitted to the Implementation Contractor.

5.1.5 Habitat (Site) Description

A reach description will be completed for each reach (at fish sampling sites), consistent with the Site Description form and entered into MELP's MS Access database as part of Phase 5. Each sampling site length will be 100 m, or >10 bankfull widths whichever is greater. The following data will be collected at each site:

- site length
- stream gradient
- 6 individual channel and wetted width measurements
- estimates of the percentage areas of the different habitat units
- estimates of bed material size, by size class
- compaction of bed materials
- measurements of stream cover / riparian vegetation and large organic debris
- measurements of bank instability
- channel confinement
- percentage of stream bars
- air temperature
- water temperature
- conductivity (ambient)
- major features (fish passage barriers, log jams, LWD, beaver dams, clay slides, etc.)
- obvious fish habitat limitations or restoration opportunities
- preliminary identification of obvious Fisheries Sensitive Zones as per Fish-stream Identification Guidebook specifications.

5.1.6 Water Quality

Triton will sample water quality parameters in the field at each sample site. Parameters will be measured in the field in order to reduce laboratory costs and shipping and receiving requirements. Specifically, Triton proposes to measure air and water temperature using standard field thermometers, pH and conductivity using hand held meters, and turbidity using visual estimates.

5.1.7 Wildlife Observations

Wildlife observations will be noted and specific details recorded. Amphibians, aquatic invertebrates and macrophytes will be described and identified to Order or Family (where practical). Photographs will be taken for further documentation and confirmation. Wildlife observations will be recorded on the Site Card with emphasis placed on species considered rare, endangered or threatened as defined by the Conservation Data Centre.

5.1.8 Photographic Documentation

Photographs will be taken, recorded and presented as per the RIC Guide to Photodocumentation (March, 1996). Photographs will be taken of each sample site (including upstream and downstream perspectives), of each feature identified and of representative or unidentifiable fish species. Photographs will be documented on Site Cards and Fish Collection Forms.

5.1.9 Inventory Area Specific Sampling

Through completion of Phases 1-3 we have identified specific reaches to sample in each working area. Sample sizes are outlined in Table 1.

Table 1. Sample Site Summary by Inventory Area.

Inventory Area	West Babine	Nilkitkwa	Harold Price	Nichyeskwa
No. of Reaches	409	823	659	923
No. of Reaches <30%	403	745	444	812
No. of Reaches <20%	392	641	346	735
No. of Sites	36	35	32	56
No. of Historical Sites	72	137	83	92
% of Reaches Previously Sampled	18%	17%	13%	10%
% of Reaches Sampled (Total)	26%	21%	17%	16%

The criterion for sample site selection was discussed with MELP's Fisheries Inventory Specialist, Mr. Paul Giroux. In order to achieve Reconnaissance (1:20,000) Fish and Fish Habitat Inventory objectives discretionary sites were selected using the following criteria:

- where it is necessary to determine fish presence within a sub-basin;
- to address Local Area Agreements and fisheries distribution within the project area;
- inlets and outlets of lakes where it is necessary to determine fish presence within a sub-basin;
- lower order reaches that are likely to delineate the upper limits of fish distribution;
- within or adjacent to proposed cutblocks;
- above and below potential barriers; and
- around the 20% gradient break.

5.1.10 Non Fish Bearing Reaches

The fish bearing status of streams may be directly supported by sampling data or indirectly inferred based on fish captures in associated reaches, or habitat quality and the occurrence or lack of barriers to fish passage. Should a barrier be located, sampling will focus on covering perennial and non-perennial habitat types above that barrier. Sampling in perennial habitats will follow the Guidelines for Local Area Agreement Preparation–Skeena Region (version 2). This will include sampling perennial habitats above barriers

with adequate intensities, stream order u/s of barrier x 2 = number of required sites. This intensity should allow field crews to cover all spawning, rearing and overwintering habitat types within that particular stream. Minnow traps and small gill nets will be set overnight in possible overwintering wetlands and where practical, primary or secondary lakes sampling methods will be conducted. If no perennial habitats are present within a stream and a barrier is located (no connectivity, cascades, falls etc.) sampling intensity of stream order u/s of barrier = number of required sites.

Identification of barriers in the field is critical to describing and assessing fisheries distribution within a particular watershed or stream. Field crews will try to identify these barriers while on site, by either using a helicopter recce of the stream or by strategically moving sample sites while still in the field. Field crews will be in constant contact with Paul Giroux should the proposed plan need modifications or altering. At the end of each field day crews will meet to discuss data and color code interpretive maps. This color coding of maps will allow field crews to identify unanswered questions regarding distribution and make proper changes while still in the field.

For all reaches with non-fish bearing classification a written explanation supporting the classification will be submitted (Non-Fish Bearing Classification Report) in the final report. The explanation will focus on sampling methods utilized during the field program, and water quality parameters, including conductivity and turbidity.

5.1.11 Lakes Sampling

Lakes have not been specifically selected for sampling. After discussions with Paul Giroux (Regional Fisheries Inventory Specialist), SCI and PIR, lakes to be sampled will be selected after the conclusion of the stream-sampling program. Lakes sampling will then focus on attaining information that will be of value to both MELP (watershed wide fish distribution) and the licensee (headwater lakes which support fish).

Should lake sampling be required the following plan will be used.

5.2 Lakes Plan

5.2.1 Phase 4: Field Data Collection

Following is an outline of our approach to the fieldwork, clarification of specific sampling methodologies, and an estimate of the effort required. The following sections describe the methodologies and approaches to complete field sampling, data collection and reporting for primary and secondary lake inventories.

5.2.2 Pre-Field Preparation

Pre-field preparations will entail both office activities and logistical planning. Fish collection permits will be obtained from MELP and DFO as part of pre-field planning.

5.2.3 Equipment

Triton possesses most of the field equipment necessary to complete a lake project. A rental vehicle (4X4 truck) and programmable VHF hand held radios will be secured prior to the commencement of field work. Additional lakes sampling equipment is owned by Triton including, Zodiacs and outboard motors, Van Dorn bottles, depth sounders, electroshockers and cameras.

5.2.4 Field Assessment

A 2-person field crew will conduct fieldwork for lakes. Crew mobilization will take place using a variety of methods, which will maximize the efficiency of the field program depending on specific access available at each lake. For lakes with road access, the field crew will utilize a 4X4-crew cab pickup truck. For sites in which road access is unavailable the field crew will be mobilized by helicopter.

The field crew will be equipped with a Smith-Root Model 12A backpack electrofisher, gill nets, minnow traps and other standard field gear (zodiac and motor, clinometer, hip chain, tape measure, Van Dorn bottle, VHF radio, first aid kit, etc.). Utilizing a combination of these methodologies will ensure that field efficiency is maximized and the project target is attained.

5.2.5 Fish Species Sampling: Primary Lakes

Multi-panel floating and sinking gill nets will be the principal fish sampling method utilized in primary lakes, along with minnow traps and angling. Gill nets (floating and sinking) to be used will follow specifications for standard nets used in reconnaissance level lake inventories in B.C. Gill nets will be set with the smallest mesh size at the shallow end of the net set and secured to a point on shore. Gill nets and minnow traps will be allowed to fish overnight for a minimum period of 8 hours. Gill nets will be set in the evening and monitored for approximately 30 - 45 minutes for an indication of catch success. Professional judgment will be applied to reduce the netting effort if early indications of net catch suggest excessive fish mortality will result from a standard two net or overnight set. The depth sounder will be operated while setting gill nets to provide a record of bottom substrates and the presence of submerged logs or snags.

Baited (boraxed salmon roe) minnow traps will be set around the perimeter of the lake within shallow shoal areas. Water depths at trap sites will be between 0.3 m and 1.5 m and the trap entrances will be placed parallel to shore or submerged cover. Styrofoam

floats will be attached to the traps with a 1.5 m length of string. Minnow traps will be allowed to fish overnight for a minimum of 8 hours.

Inlet and outlet streams will be sampled using an electroshocker to determine fish species presence and relative abundance.

5.2.6 Fish Species Sampling: Secondary Lakes

Secondary lakes are intended to be quick (1 day) surveys of fish species presence or absence. Gill nets will be set initially upon arrival to a lake and allowed to fish while the field crew completes their limnological sampling and other tasks. Minnow traps will also be set for the day during secondary lake surveys. Fish sampling in streams will not be conducted for secondary lakes unless downstream or upstream reaches are sampled during the concurrent stream inventory.

5.2.7 Fish Species Sampling: General

All fish sampling data will be recorded on waterproof Fish Collection Forms. The following data and samples will be recorded and collected for fish caught at each sampling site:

- species (keyed out using RIC's Field Key to Freshwater Fishes of BC). Special attention will be given to documenting species at risk;
- life stage;
- wet weight (in grams);
- a representative sample of any abnormal or unidentified fish or a species of fish out of its normal range will be preserved and submitted to the Implementation Contractor as will all non-game fish captured from each 2nd 4th order watershed.

Non-lethal aging structures will be removed from a subsample of fish captured in lakes (generally 30 of each species) to determine the age of cohorts present in the lake. Aquatic insects, invertebrates and amphibians will be identified, enumerated and released. Unidentified invertebrates will be retained and preserved in buffered 10% formalin.

A reach description will be completed for one reach of the major inlet and outlet streams to each primary lake consistent with the Site Description form and entered into MELP's MS Access database as part of Phase 5. Each sampling site length will be 100 m, or >10 bankfull widths whichever is greater. The following data will be collected at each site:

- site length
- stream gradient
- 6 individual channel and wetted width measurements
- estimates of the percentage areas of the different habitat units
- estimates of bed material size, by size class
- compaction of bed materials

- measurements of stream cover / riparian vegetation and large organic debris
- measurements of bank instability
- channel confinement
- percentage of stream bars
- air temperature
- water temperature
- conductivity (ambient)
- major features (fish passage barriers, log jams, LWD, beaver dams, clay slides, etc.)
- obvious fish habitat limitations or restoration opportunities
- preliminary identification of obvious Fisheries Sensitive Zones as per Fish-stream Identification Guidebook specifications.

For secondary lakes a visual survey of each inlet and outlet will be conducted to determine the presence of potential habitats that are important to fish.

For all inlet and outlet reaches with non-fish bearing classification a written explanation supporting the classification will be submitted. The written explanation will be included in the final report. The discussion will focus on sampling methods utilized during the field program, water quality parameters including conductivity and turbidity and recommendations for follow-up sampling.

5.2.8 Lake Habitat Descriptions

Bathymetric soundings will be conducted using a Lowrance X-16 electronic depth sounder. The transducer will be mounted on the transom of a 3 m Achilles inflatable boat powered by a short-leg 9.9 hp Johnson outboard. This combination of boat and motor will allow transects to be conducted in water as shallow as .30 m in depth, resulting in accurate estimates of distance at transect start and end points. Depths within shoal areas and weed beds will be measured with a measuring pole.

An E-line transect will be performed along the main (long) axis of the lake to determine the maximum depth in the main basin of the lake. Upon completion of the e-line transect, a shoreline perimeter cruise will be conducted to record lakeshore features, surrounding terrain, vegetation and aquatic plant descriptions.

Full bathymetric surveys will only be required on primary lakes. Transects will be conducted in a straight line, perpendicular to the shoreline and towards an easily identifiable feature on the opposite shoreline (i.e. point, snag etc.). A constant speed will be maintained for the duration of each transect (~1 m/sec). Speed will be estimated using a floating object tossed in the water ahead and to one side of the boat and timed as it passes beside the boat from bow to stern. Echograms will be marked with a single solid line to represent the start of each transect and double solid lines to indicate end points. Measurement of lake surface area and drainage area will be determined using a Placom KP-90N digital planimeter.

5.2.9 Water Quality

Triton field crews will sample water quality parameters in the field at each limnology station. EMS numbers will be acquired from MELP prior to the commencement of fieldwork in primary lakes. Parameters will be measured in the field in order to reduce laboratory costs and shipping and receiving requirements. On primary lakes, water samples will be sent to a certified laboratory for analysis. Parameters analyzed will follow the Lake and Stream Inventory manual and will be discussed on a case by case basis with the Regional Fisheries Inventory Specialist.

Specifically, Triton proposes to measure field air and water temperature using standard field thermometers, pH and conductivity using hand held meters, and turbidity using visual estimates.

Lake limnological sampling will also include a dissolved oxygen/temperature profile, to be completed with a YSI DO probe. A secchi depth measurement to be taken at the deepest point within the lake. Conductivity and pH will be measured from just below the surface and above the lake bottom. Water samples within the lake will be collected with a Van Dorn bottle.

5.2.10 Wildlife Observations

Wildlife observations will be noted and specific details recorded. Amphibians will be identified in the field. Abundant invertebrates will be described and field identified to Order or Family (where practical), as will aquatic macrophytes. Photographs will be taken for further documentation and confirmation. Wildlife observations will be recorded on the lake survey form with emphasis placed on species considered rare, endangered or threatened as defined by the Conservation Data Center.

5.2.11 Photographic Documentation

Triton will make extensive use of photography throughout the project. For lakes, a series of panoramic pictures will be taken from the geographic center of the lake. Pictures will also be taken which highlight geographic features, surrounding country and aquatic vegetation. Other photographs taken on lakes will include evidence of recreational use, wildlife features and fish species (if captured).

Photographs will be documented on lake survey form and Triton's photodocumentation form. The photos will be presented in the report in a manner that meets RIC standards.

6.0 PHASE 5 – DATA COMPILATION

The office portion of Phase 5 will entail entering hardcopy field notes and field forms into requisite electronic database forms including lake forms, site cards, fish collection forms and photodocumentation Form 1. ILP's, submitted during the initial phases will be

converted to watershed codes and NID's will be converted to UTM coordinates for mapping and georeferencing purposes. Photographs taken during the field will be developed, captioned and coupled with lake forms and site cards where applicable. Additional photographs will be indexed in referenced binders with photodocumentation cards and negatives. Bathymetric and lake outline mapping will be completed during Phase 5.

7.0 PHASE 6 - REPORTING AND MAPPING

The final report will follow the outline provided in the Reconnaissance (1:20,000) Inventory Standards and will include data analyses, fisheries values, stream and riparian classifications and management recommendations. This report will contain fish bearing and non fish bearing classification reports and a table supporting each will include sampling methods (and effort), habitat conditions, barriers to fish passage and water quality parameters.

For all reaches with a non fish bearing classification a written explanation supporting the classification will be submitted (Non Fish Bearing Classification Report). The written explanation will be included in the site descriptions provided in the final report. The discussion will focus on sampling methods utilized during the field program, water quality parameters including conductivity, turbidity and recommendations.

All final map work will be produced using GIS software program. Maps produced digitally will include all information as per the requirements outlined in the Reconnaissance (1:20,000) Inventory Standards. The hybridized project/interpretative maps will include: watershed codes (ILP's); stream names; waterbody identifiers; reach breaks; fish sampling sites; fish species; features; stream classification; annotated fish distribution and historical data. Overview maps will accompany the final reports and will show sampling site locations.

7.1 Existing Data

Existing data (i.e. Tsezakwa Inventory 1997/98) will be incorporated into the report where applicable and for ease of reference. The results from previous sampling will be used to establish fish presence and distribution throughout the watershed and to facilitate and/or confirm stream Riparian Management Area classifications.

Historical inventory data will be annotated on the inventory maps and will be linked via a unique site number to the original report.

8.0 PROJECT TIMELINES

Completion of Phase I to III Activities March 31, 2001

Completion of Phase IV Activities October 31, 2001

Completion of Phase IV Deliverables January 15, 2002

Completion of Draft Phase V and VI Deliverables March 31, 2002

9.0 PROPOSED STAFF

Project Director Dave Gordon

Project Manager Jason Harris

GIS Coordinator Dave Warburton

GIS Technician Lori Logan

Crew Supervisor Jason Dorey

Crew Member Edward Lem

Crew Member Shawn Geisbrecht

Crew Member Dave Taft

10.0 EQUIPMENT LIST

Fish Collection/Crew

Fish Collection/Crew
1 electrofisher
1 large battery
1 small battery
1 charger
2 anode poles
2 cathodes
3 pairs of linesman gloves
Fish Collection Permit
I small net
measuring board
recovery bucket
10 minnow traps
bait
4 bottle of alcohol
voucher jars
Fish Collection Methods and Procedures
1 bottle of clove oil
scale envelopes
DNA vials
razorblade knife
ziplock bags
fishing license

Misc

RIC inventory standards	
contract	
fish identification key	
project contact list	
winch	
jack-all	
tire iron	
spare tire	
shovel	
axe	
Swede saw	
горе	
tarps	
planning maps	
timesheets	
expense claim forms	
daytimers	
1 flashlight	

Field Gear/Crew

2 compass	first aid kit	hip chain	bug dope
2 clino	2 wool blankets	string	2 scale rules
2 field books	waders	flagging tape	metric thermometer
site cards	wading boots	1 axe	pH meter
fish forms	aquaseal	file	conductivity
individual fish data	color film	caulks	two way radio
duksbak	waterproof camera	caulk wrench	radio frequencies

11.0 CONTINGENCY PLAN

It is critical that sampling be approached strategically, rather than (or in addition to) strictly site based. Crews will work from the approved plan, but if modifications to the plan lead to an increased knowledge of fish distribution (within the watershed) changes to the plan will be made. In cases where sampling could not be conducted, or where conditions for sampling were unfavorable, the field crews will make a number of assumptions in selecting new sites.

The following criteria will be considered when adding or moving sites:

- the establishment of fish presence within a catchment or basin (the intent here is not to chase EFU in every tributary);
- the identification of upstream limits of fish distribution;
- the investigation of barriers to fish passage; and
- the investigation of potential overwintering habitat. The identification and confirmation of barriers to fish passage have significant implications, where entire portions of sub-basins could be confirmed as non-fish bearing, pending the sampling of any potential overwintering habitats upstream of the barrier.

Strategic selection and professional judgement to relocate sites within the watershed will allow maximum sampling efficiency and it will also allow crews to assess barriers and fisheries values throughout the watershed.

APPENDIX I Project Phase Completion Report – Phase I-III

3200.01WP#T-1121

Triton Environmental Consultants Ltd.

PROJECT PHASE COMPLETION REPORT - PHASE I-III

FRBC Multi-Year Agreement Number:

0000102

MELP Project Number:

SCI_C172_010_2001

FRBC Activity Number: FDIS Project Code:

716432 5098

Project Name:

Reconnaissance (1:20,000 scale) Fish and Fish Habitat Inventory in selected tributaries within the Babine and Suskwa

River watersheds

Project Type:

1:20,000 Scale Reconnaissance

Report Date:

April 15, 2001

Proponent:

Skeena Cellulose Inc.

Pacific Inland Resources Ltd.

Company/Agency:

Triton Environmental Consultants Ltd.

Contact Person:

Jason Harris

Contact Phone: Contact E-Mail:

(250) 635-1494 jharris@triton-env.com

MELP Project Monitor:

Paul Giroux

FRBC Coordinator:

Todd Mahon

Jay Baker

Table 1. List of Deliverables Submitted (Phase I)

Deliverable Product	Received	Approved (QA)
Bibliography (hardcopy and digital)		
List of Contacts (hardcopy and digital)		
Interim Maps with;		
watershed boundaries		
waterbodies with ILP's or watershed codes		İ
reach breaks with NIDS		
lakes with NIDS		
proposed sample sites		
Reach tables (digital FDIS)		
Project Plan (hardcopy and digital)		
Lake tables (digital FDIS)		
Phase completion report (hardcopy and digital)		

Table 2. Activity Log (Phase I-III)

Date	Activity	Time Spent
Jan 10-Apr 15	Assign ILP's, delineate watershed boundaries	220 h
Jan 10-Apr 15	Completing Reach Tables and Quality Control	50 h
Jan 10-Apr 15	Completing Interim Maps and Quality Control	22.5 h
Jan 10-Apr 15	Lakes planning and lakes information tables	20.5 h
Jan 10-Apr 15	Completing Basin Classification, Reach Breaks, Lakes Classification and Quality Control	266.5 h
Jan 10-Apr 15	Create contact list, bibliography, etc.	84 h
Jan 10-Apr 15	Project Plan development	71 h
Jan 10-Apr 15	Interim Maps/Sample Site Locations	98 h

Summary of Work Completed

A meeting was conducted with Todd Mahon (contract monitor) to obtain information regarding the project specifications and project area.

A background data review was conducted to establish existing information within the Nichyeskwa, West Babine, Nilkitkwa and Harold Price watersheds. These reports were obtained from the Ministry of Environment Land and Parks (MELP) office in Smithers, the Bulkley Forest District office in Smithers, Skeena Cellulose in Smithers, Pacific Inland Resources in Smithers, various consultants and the BC Conservation Data Centre. A bibliography listing these reports was completed.

In the process of data collection and compilation consultants and government agencies were contacted. A list of contacts made during this process was completed.

FISS maps were reviewed and compared with the data collected during the background review. Information that was not included on the FISS maps, as well as new information gathered in Phase 4, will be transcribed to a corresponding 1:50,000 scale National Topographic Scale (NTS) map at Phase 5.

The project area boundaries were delineated on TRIM maps and all streams, wetlands and lakes were assigned, waterbody identifiers or ILP's. Watershed codes and ILP's were assigned using Arcview and FDIS.

Twenty-five working TRIM map sheets are being used for the project.

Detailed map and air photo analysis was conducted in order to identify and classify sub-basins within the study area; to determine reach breaks; and to determine individual reach characteristics for all watercourses, lakes and wetlands. The delineation of sub-basins was based on stream order and hierarchy within the watershed.

All connected wetlands were identified and added to the interim maps. Wetlands with defined or partly defined channels, which convey flow, were included in the stream portion of the sampling plan. While wetlands without defined channels, or those with extensive ponding were included in the lake portion of the sampling plan.

All watercourses within the study area were divided into reaches and physical features affecting fish habitat suitability (including gradient, confinement, channel pattern and riparian vegetation) were identified.

All lakes within the study area were assigned to lake groups.

The focus of Phase 3 was to develop the detailed sampling plan and produce the planning report. The number of sample sites proposed and a brief rational for sample site selection is provided in the project plan.

Planning for the field-sampling portion of this project followed a balanced approach between MELP requirements and licensee (PIR and SCI) operational needs. Initial sample site selection was undertaken using the FDIS random generator. Further discretionary sites were added to the initial randomly generated sampling sites. Discretionary sites were selected using the following criteria:

- MELP's Reach Sampling Summary table for each watershed;
- existing fish species distribution data;
- strategies to determine fish distribution within each watershed; and
- licensee operational needs.

Revisions to the stream sampling plan (increased number of site, alternate site locations) will be revised at the beginning of Phase 4, which is scheduled to commence in the summer of 2001.

Table 3. Project Area Statistics

Inventory Area	Nichyeskwa	West Babine	Nilkitkwa	Harold Price
Project Area (Ha)	34704.24 ha	23088.63 ha	40229.91 ha	31285.38 ha
Number of TRIM maps	8	7	11	9
Largest watershed (stream) order	5	4	5	6
Number of 3rd order basins	35	8	26	17
Km of streams	712.85 kms	371.97 kms	668.03 kms	588.13 kms
Number of stream reaches	923	409	823	659
Number of lakes	13	14	18	14

Table 4. Sample Site Summary

Inventory Area	Nichyeskwa	West Babine	Nilkitkwa	Harold Price
Number of Reaches	923	409	823	659
Number of Reaches <30%	812	403	745	444
Number of Reaches <20%	735	392	641	346
Number of Reaches to be Sampled	56	36	35	32
Number of Reaches Previously Sampled	92	72	137	83
Percent of Inventory Reaches Previously Sampled	10%	18%	17%	13%
Percent of Inventory Reaches Sampled (Total)	16%	26%	21%	17%

Progress and Problems Summary

Phase I-III was completed as scheduled. Watershed codes were assigned to a significant portion of the streams within each watershed. Searching through the watershed atlas was time consuming and much slower than using ILP's for stream delineation. The use of watershed codes will allow easier access to data management and possibly increase turnaround time for watershed code assignment from MELP.

Detailed reach planning was not conducted during the planning phases, as it is anticipated (based on previous experience) that several reaches will be moved during pre-field meetings with the licensee, ministry representatives and during the sampling program. We anticipate several changes to the sampling plan, and as discussed with Paul Giroux these changes will significantly alter the original sample site selection. Detailed reach planning forms will be completed during phase 5 and will be submitted as a deliverable for this phase.

No lakes were specifically selected for sampling, therefore no detailed lakes forms were completed. After discussions with Paul Giroux, lakes to be sampled will be selected after the conclusion of the stream sampling program. Lakes sampling will then focus on attaining information that will be of value to both MELP (watershed wide fish distribution) and the licensee (headwater lakes which support fish in ephemeral systems).

Next Phase Project Plans and Constraints

FISS updates will be provided with Phase V of the project as opposed to Phase III. At that time new information gathered from the field can be incorporated into FISS.

Phase IV (field) is scheduled to commence in the summer of 2001.

Summary of Phase 1-3 Costs Professional Fees \$34,

\$34,797.00

Disbursements

\$1,702.00

Costs as per original budget

Contract Monitor Acceptance

Report Submitted By: Jason Harris	Date: April 15, 2001
Phase Completion Approved:	Date:
Comments:	

APPENDIX II

Bibliography

Bibliography

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APPENDIX III List of Key Contacts and Information Sources Triton Environmental Consultants Ltd. 3200.01WP#T-1121

List of Key Contacts and Information Sources for Pacific Inland Resources Stream Inventory Project

Name	Company/Agency	Title	Contact Numbers	Date	Comments
Alan Baxter	Pacific Inland Resources Ltd.	Operations Assistant	(250) 847-2656	Ongoing	 guidance throughout project requested relevant PIR fisheries info.
Jay Baker	Silvicon Services Inc.	FRBC Co-ordinator	(250) 847-3680 p (250) 847-2530 f	Ongoing	guidance throughout project
Todd Mahon	Skeena Cellulose Inc.	FRBC Co-ordinator	(250) 846-5449	Ongoing	 guidance throughout project requested relevant SCI fisheries info.
Paul Giroux	MELP (Smithers)	Regional Inventory Specialist	(250) 847-7294 p (250) 847-7591 f	Ongoing	guidance throughout project
Sig Hatlevik	MELP (Smithers)	Fisheries Technician	(250) 847-7291	Ongoing	requested info. regarding project area
Dana Atagi	MELP (Smithers)	Fisheries Biologist	(250) 847-7290	Ongoing	requested info. regarding project area
Ron Tetreau	MELP (Smithers)	Fisheries Technician	(250) 847-7294	Ongoing	requested info. regarding project area
Gord Wolfe	MELP (Smithers)	Fisheries Technician	(250) 847-7290	Ongoing	requested info. regarding project area
Jeff Lough	MELP (Smithers)	Restoration Technician	(250) 847-7757	Ongoing	requested info. regarding WRP reports and current projects within study area
Scott Northrup	DFO (Nanaimo)	Habitat Biologist	(250) 756-7275	Ongoing	contacted for info. regarding completed inventories within the study area
Regina Saimoto	SKR Environmental Consultants Ltd.	Biologist	(250) 847-4674	Ongoing	requested info. pertaining to work completed in the study area
Jim Trask	Triton Environmental Consultants Ltd. (Prince George)	Consultant	(250) 562-9155	Ongoing	 requested info. pertaining to work completed in the study area guidence throughout project
James Cuell	MELP (Smithers)	Forest Ecosystem Specialist	(250) 847-6330	Ongoing	requested info. regarding project area
Chris Schell	Consultant	Fisheries Biologist	(250) 847-0180	Ongoing	RIC Inventory expert guidance throughout project
Dave Bustard	Consultant	Fisheries Biologist	(250) 847-2963	Ongoing	familiar with fisheries resources throughout the study area
Lindsay	Maps BC (Victoria)	Mapping Technician	(250) 387-3022 f		flight lines/aerial photographs
Jan	Nanaimo Maps and Charts		(250) 754-2313		trim map request

List of Key Contacts and Information Sources for Pacific Inland Resources Stream Inventory Project

Name	Company/Agency	Title	Contact Numbers	Date	Comments
Beth Rogers	BC Data Conservation Center	Data Manager	(250) 356-0928		data search
Adam Lewis	Triton Environmental Consultants Ltd. (Richmond)	Operations Manager	(604) 279-2093	Ongoing	familiar with fisheries resources throughout the study area (Bulkley Inventory)
Steve Jennings	Triton Environmental Consultants Ltd. (Terrace)	Biologist	(250) 635-1494	Ongoing	• familiar with fisheries resources throughout the study area (1-5,000 Inventory)
Eamon Miyagi	Triton Environmental Consultants Ltd. (Richmond)	Senior Fisheries Technician	(604) 279-2093	Ongoing	familiar with fisheries resources throughout the study area (Bulkley Inventory)
Dave Warburton	Triton Environmental Consultants Ltd. (Prince George)	GIS Co-ordinator	(250) 562-9155	Ongoing	requested existing inventory maps and databases
Karla Graf	Triton Environmental Consultants Ltd. (Richmond)	Data Co-ordinator	(604) 279-2093	Ongoing	familiar with fisheries resources throughout the study area (Bulkley Inventory)
Dave Taft	Triton Environmental Consultants Ltd. (Terrace)	Local Legend	(250) 635-1494	Ongoing	familiar with fisheries and wildlife resources throughout the study area
Pierce Clegg	Babine Norlakes Lodge	Fishing Guide	(250) 847-6160	Ongoing	familiar with fish and wildlife resources throughout the study area
Ralph Kozman	Silvicon Services Inc.	Fisheries Biologist	(250) 847-3680	Ongoing	guidance throughout project
Lynn Miers	MELP (Victoria)	Data Administrator	(250) 387-9564	Ongoing	FDIS database request and ongoing support
Sean Cheesman	MELP (Victoria)	GIS Technicians	(250) 387-2579	Ongoing	WSC submission and RIC requirements
Tom Pendray	DFO (Smithers)	District Habitat Officer	(250) 847-4723	Ongoing	Familiarity with study area
Brenda Donas	DFO (Smithers)	Community Advisor	(250) 847-5298	Ongoing	Familiarity with study area
Bonnie	Pacific Inland Resources Ltd.	GIS Tech	(250) 847-2656	Ongoing	requested info. pertaining to core eco-system and wildlife management areas

APPENDIX IV

West Babine Reach Sampling Summary Report (with sample selection)

SAMPLE_	TYPE	WSHD_CODE	ILP	REACH_ID	NID	NID_MAP
R		000-000000-00000-0000	10141	1.0	10236	093M.027
R		480-439800-00000-0000		1.0	10119	093M.027
R		000-00000-00000-0000	10143	1.0	10134	093M.027
R		000-00000-00000-0000	10159	1.0	10115	093M.027
R		480-452300-13942-0000		7.0	10150	093M.027
R		000-000000-00000-0000	10155	3.0	10109	093M.027
R		480-430700-44400-0000		6.0	10106	093M.027
R		480-430700-44400-0000		4.0	10104	093M.027
R	1	000-00000-0000-0000	10038	1.0	10375	093M.017
R	(0000-00000-00000-0000	10123	1.0	10194	093M.027
R	- 1	0000-000000-00000-0000	10163	1.0	10118	093M.027
R	(0000-000000-00000-0000	10138	1.0	10229	093M.027
R	1 (000-000000-00000-0000	10119	1.0	10168	093M.027
R	4	180-456200-00000-0000		2.0	10239	093M.027
R	4	180-430700-21000-7210		3.0	10095	093M.027
R	(0000-000000-00000-0000	10162	4.0	10254	093M.027
R	(000-000000-00000-0000	10161	2.0	10257	093M.027
R	(000-000000-00000-0000	10017	1.0	10343	093M.017
R	4	180-430700-21000-0000		12.0	10081	093M.027
R	(000-000000-00000-0000	10008	1.0	104160	093M.017
R	4	80-504200-00000-0000		18.0	10434 (093M.017
R	4	180-504200-67300-0000		4.0	104480	093M.017
R		000-000000-00000-0000	10009	1.0	10487	093M.018
R		000-000000-00000-0000	10006	1.0	10491 (093M.018
R		000-000000-00000-0000	10130	1.0	10208	093M.027
B B B		80-430700-21000-7210		4.0	100960	093M.027
В		80-430700-76500-0000		1.0	10111(93M.027
В		80-452300-13942-0000		3.0	101460	93M.027
В		80-452300-13942-0000		6.0	10149 (93M.027
В		80-452300-13942-3207		6.0	10164 (93M.027
В		80-430700-00000-0000		12.0	100670	93M.027
В		80-452300-13942-3871		1.0	10184 (93M.027
В		80-452300-13942-4884		1.0	10187 (93M.027
В		80-464400-00000-0000		6.0	10248 (93M.027
В		80-488800-10300-0000		7.0	103700	93M.017
В	4	80-452300-13942-3207		7.0	101650	93M.027

复			SMALL		I.	EDIUM			LARG	Ė
RADIEN	FORM	Total	Sample	Actual	Total Sa	ımpl A	ctual -	Total	Sample	Actual
1	ST/SI	77	11	4	79	11	3	5	2	0
<=4	IM/ME	1	1	1	9	2	2	0	0	0
	AN/BR	0	0	0	0	0	0	0	0	U
2	ST/SI	89	12	8	41	10	7	1	1	0
4 and <=8	IM/ME	0	0	0	0	0	0	0	0	0
	AN/BR	0	0	0	0	0	0	0	0	0
3	ST/SI	72	11	6	18	4	5	0	0	0
>8 and <=20	IM/ME	0	0	0	0	0	0	0	0	0
0 and <=20	AN/BR	0	0	0	0	0	0	0	0	0
4	ST/SI	9	2	1	2	2	2	0	0	0
>20 and <=30	IM/ME	0	0	0	0	0	0	0	0	0
20 and <-30	AN/BR	0	0	0	0	0	0	0		
5	ST/SI	6	0	0	0	0	0	0	0	0
>30	IM/ME	0	0	0	0	0	0	0	0	0
	AN/BR	0	0	0	0	0	0	0	0	0
		mple Total Group 3	: 69 Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
					e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
					e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
Reach Total:			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5
			Group 4		e % 16.9	Act	tual Tot	al: 3	9 Actu	al %: 9.5

Appendix V Nilkitkwa Reach Sampling Summary Report (with sample selection) Triton Environmental Consultants Ltd. 3200.01WP#T-1121

	II.		SMALL							E
GRADIEN	FORM	Total	Sample	Actual	Total	Sampl	Actual	Total	Sample	Actual
1	ST/SI	134	13	5	72	11	2	20	2	0
<=4	IM/ME	16	4	1	18	4	1	7	2	0
-	AN/BR	0	0	0	1	1	1	4	2	2
2	ST/SI	88	12	4	46	10	7	2	2	0
>4 and <=8	IM/ME	1	1	1	2	2	0	0	0	0
	AN/BR	0	0	0	0	0	0	0	0	0
3	ST/SI	160	13	4	70	11	6	0	0	0
>8 and <=20	IM/ME	0	0	0	0	0	0	0	0	0
>0 and <-20	AN/ĄR	0	0	0	0	0	0	0	0	0
4	ST/SI	83	8	2	21	2	2	0	0	0
	IM/ME	0	0	0	0	0	0	0	0	0
>20 and <=30	AN/BR	0	0	0	0	0	0	0	0	0
5	ST/SI	72	0	0	6	0	0	0	0	0
>30	IM/ME	0	0	0	0	0	0	0	0	0
	AN/BR	0	0	0	0	0	0	0	0	0
Reach Total:		nple Tota			e % 12	-	ctual Tot		8 Actua	_

Group 1 Group 2 Group 3 Group 4



SAMPLE_TYP	WSHD_CODE	ILP	REACH_ID	NID	NID_MAP
В	480-378200-70400-0		1.0	10052	093M.058
В	480-422000-1 500 0-0		2.0	10712	093M.037
В	480-378200-6 430 0-0		5.0	10019	093M.058
В	480-378200-00000-0		16.0	10034	093M.058
В	000-000000-00000-0	10314	1.0	10084	093M.058
В	480-378200-8 06 00-1		2.0	10165	093M.058
В	480-378200-8 530 0-0		1.0	10092	093M.058
В	480-378200-85 3 00-0		2.0	10093	093M.058
R	480-372500-00 00 0-0		4.0	10275	093M.047
R	480-409700-3 040 0-0		3.0	10806	093M.038
R .	480-409700-30 4 00-0		1.0	10804	093M.038
R	0-000000-00000-0	10007	1.0	10792	093M.038
R '	0-000000-00000-0	10064	1.0	10759	093M.037
R	480-422000-15 00 0-0		1.0	10711	093M.037
R	000-000000-00000-0	10033	1.0	10649	093M.037
R	000-000000-00000-0	10034	1.0	10650	093M.037
R	000-000000-00000-0	10223	1.0	10290	093M.047
R .	480-378200-00 8 00-0		2.0	10325	093M.047
R ·	480-410600-20800-0		1.0	10681	093M.037
R	000-000000-00000-0	10035	1.0	10652	093M.037
R .	480-422000-20 00 0-0		1.0	10714	093M.037
R (000-000000-00000-0	10225	1.0	10293	093M.047
R (000-000000-00000-0	10227	1.0	10300	093M.047
R I	0-00000-00000-0	10006	1.0	10576	093M.037
R 4	480-378200 - 00 8 00-0		1.0	10324	093M.047
R (0-00000-00000-0	10292	1.0	10191	093M.058
R (0-00000-00000-0	10200	2.0	10395	093M.048
R 4	480-378200-26700-0		12.0	10005	093M.058
R (0-00000-00000-0	10240	1.0	10006	093M.058
R (0-00000-00000-0	10244	1.0	10023	093M.058
R 4	480-378200-70400-0		3.0	10054	093M.058
R (0-00000-00000-0	10261	1.0	10065	093M.058
R (000-000000-00000-0	10317	1.0	10090	093M.058
R 4	480-378200-85800-0		2.0	10115	093M.058
R (0-00000-00000-0	10214	1.0	10314	093M.047

APPENDIX VI Harold Price Reach Sampling Summary Report (with sample selection) Triton Environmental Consultants Ltd. 3200.01WP#T-1121

						SI		-		
			SMALL			MEDIU	M		LARC	E
RADIEN	FORM	Total	Sample	Actual	Total	Sampl	Actual	Total	Sample	Actual
1	ST/SI	29	7	1	22	5	1	10	2	0
<=4	IM/ME	1	1	0	4	2	1	5	2	0
	AN/BR	0	0	0	0	0	0	0	0	0
2	ST/SI	44	10	3	29	7	3	4	2	0
>4 and <=8	IM/ME	2	2	1	0	0	0	0	0	0
	AN/BR	0	0	0	0	0	0	0	0	0
3	ST/SI	130	13	9	62	11	8	3	2	0
>8 and <=20	IM/ME	1	1	1	0	0	0	0	0	0
/ (AN/BR	0	0	0	0	0	0	0	0	0
4	ST/SI	77	7	1	21	2	3	0	0	0
20 and <=30	IM/ME	0	0	0	0	0	0	0	0	0
20 and <-30	AN/BR	0	0	0 ,	0	0	0 .	0	0	0
5	ST/SI	199	0	0	16	0	0	0	0	0
>30	IM/ME	0	0	0	0	0	0 :	0	0	0
	AN/BR	0	0	0	0	0	0	0	0	0
each Total:	659 S an	ple Total	: 76	Sample	% 11.	5 A	ctual Tota	al: 32	Actua	1%: 4.

Group 1 Group 2 Group 3 Group 4



SAMPLE_TYP	PE WSHD_CODE	ILP	REACH_ID	NID	NID_MAP
В	460-081700-43900-13700-2030-552		1.0	10119	093M.025
В	460-081700-43900-13700-4730-000		2.0	10334	093M.026
В	460-081700-43900-07500-0000-000		3.0	10177	093M.025
В	000-00000-00000-0000-0000-000	10005	1.0	10681	093M.016
В	460-081700-43900-33900-0770-000		3.0	10363	093M.026
В	460-081700-43900-13700-2030-141		3.0	10105	093M.025
В	460-081700-43900-13700-2030-000		5.0	10100	093M.025
В	000-000000-00000-00000-0000-000	10106	2.0	10441	093M.026
В	460-081700-43900-13700-2030-000		4.0	10099	093M.025
В	460-081700-43900-07500-4820-000		1.0	10191	093M.025
В	460-081700-43900-46600-0000-000		2.0	10678	093M.016
R	460-081700-43900-13700-0000-000		13.0	10000	093M.035
R '	460-081700-43900-07500-4820-334		2.0	10201	093M.025
R	460-081700-43900-13700-3750-000		1.0	10135	093M.025
R	460-081700-43900-13700-3750-000		2.0	10136	093M.025
R	460-081700-43900-23800-0000-000		4.0	10301	093M.026
R	460-081700-43900-23800-0000-000		6.0	10303	093M.026
R	460-081700-43900-23800-3200-000		2.0	10316	093M.026
R	460-081700-43900-33900-3700-000		3.0	10383	093M.026
R	000-00000-00000-00000-0000-000	10105	4.0	10438	093M.026
R	460-081700-43900-33900-3700-595		1.0	10404	093M.026
R	460-081700-43900-33900-6160-000		2.0	10446	093M.026
R	460-081700-43900-33900-6160-000		4.0	10448	093M.026
R	460-081700-43900-37500-0000-000		2.0	10661	093M.016
R	000-00000-00000-0000-0000-000	10007	1.0	10687	093M.016
R	000-00000-00000-0000-0000-000	10113	1.0	10470	093M.026
R	000-00000-00000-0000-0000-000	10011	2.0	10675	093M.016
R	000-00000-00000-0000-0000-000	10119	2.0	10308	093M.026
R	000-00000-00000-0000-0000-000	10018	3.0	10350	093M.026
R	000-00000-00000-0000-0000-000	10037	3.0	10346	093M.026
R	000-00000-00000-0000-0000-000	10162	3.0	10110	093M.025
R	460-081700-43900-33700-0000-000		4.0	10347	093M.026

APPENDIX VII Nichyeskwa Reach Sampling Summary Report (with sample selection) Triton Environmental Consultants Ltd. 3200.01WP#T-1121

No.			SMALL			MEDIUM			LARGI	
GRADIEN	FORM	Total S	Sample	Actual	Total	Sampl A	ctual	Total	Sample	Actual
1	ST/SI	155	13	4	97	12	11	6	2	0
	IM/ME	18	4	1	19	4	1	9	2	0
<=4	AN/BR	0	0	0	5	2	2	3	2	0
2	ST/SI	137	13	4	45	10	11	7	2	1
>4 and <=8	IM/ME	7	2	1	0	0	0	0	0	0
	AN/BR	0	0	0	1	1	1	1	1	1
3	ST/SI	153	13	3	71	11	13	0	0	0
	IM/ME	0	0	0	0	. 0	0	0	0	0
>8 and <=20	,AN/BR	0	0	0	1	1	1	0	0	0
	ST/SI	59	5	0	18	2	4	0	0	0
4	IM/ME	0	0	0	0	0	0	0	0	0
>20 and <=30	AN/BR	0	0	0	0	0	0	0	0	0
5	ST/SI	106	0	0	5	0	0	0	0	0
>30	IM/ME	0	0	0	0	0	0	0	0	0
	AN/BR	0	0	0	0	0	0	0	0	0
Reach Total:	923 S a	mple Total	: 102	Sample	% 11.	1 Ac	tual Tota	1: 59	Actua	al %: 6.4
	-			3	1			-		
Group 1 G	roup 2	Group 3	Group	4						

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SAMPLE TYP	WSHD_CODE	ILP	REACH_ID	NID	NID_MAP
В	480-370100-3 950 0-0	<u>.</u>	2.0	10155	093M.056
В	480-370100-29400-5		1.0	10669	093M.046
В	480-370100-29400-3		7.0	10631	093M.046
В	480-370100-29400-0		2.0	10617	093M.046
В	000-000000-0 000 0-0	10146	2.0	10523	093M.046
В	000-000000-0 000 0-0	10086	4.0		093M.046
В	480-370100-29400-0		8.0	10395	093M.045
В	480-370100-60300-4		1.0	10026	093M.055
В	000-000000-0 000 0-0	10161	2.0	10536	093M.046
В	480-335200-55 50 0-7		5.0	10128	093M.056
В	480-335200-55 5 00-7		4.0	10127	093M.056
В	480-351200-2 900 0-0		5.0	10887	093M.047
В '	480-356800-00 00 0-0		1.0	10849	093M.047
В	480-310670-0 000 0-0		2.0	10265	093M.057
В	480-310670-00 00 0-0		1.0		093M.057
В	480-370100-60300-4		2.0		093M.055
В	480-370100-2 940 0-5		3.0	11111	093M.036
В	480-370100-62500-0		1.0	10290	093M.045
В	480-370100-29400-0		11.0	10398	093M.045
В	480-370100-60300-0		4.0	10014	093M.055
В	000-000000-0 000 0-0	10309	1.0	10100	093M.056
В	480-370100-62500-3		3.0		093M.045
В	480-370100-29400-0		13.0	11014	093M.035
В	480-370100-57600-0		6.0		093M.045
R	480-356800-29125-0		1.0		093M.047
R	480-370100-39500-0		3.0		093M.056
R	480-370100-57600-1		7.0	10335	093M.045
R	480-370100-39500-0		3.0		093M.056
R	480-370100-39500-0		4.0	10157	093M.056
R	480-351200-00000-0		3.0		093M.047
R	480-370100-08000-3		3.0	10788	093M.047
R	480-370100-08000-0		4.0	10784	093M.047
R	480-370100-01100-0		1.0		093M.047
R	480-370100-60300-0		5.0		093M.055
R	480-370100-60300-7		3.0		093M.055
R	480-321200-00000-0		1.0	10251	093M.057
R	480-351200-42400-0		6.0	10871	093M.047
R	480-370100-60300-8		1.0	10044	093M.055
R	480-370100-29400-5		1.0	11110	093M.036
R	480-370100-29400-0		9.0	10396	093M.045
R	480-370100-29400-0		1.0		093M.036
R	480-370100-57600-1		2.0	10330	093M.045
R	480-370100-60300-0		2.0	10282	093M.045
i	000-000000-00000-0	10307	2.0	10093	93M.056
1	000-000000-00000-0	. 10121	2.0	10651	093M.046
1	000-000000-00000-0	10161	4.0	10174 (93M.056
R	000-000000-00000-0	10103	1.0	106020	93M.046

SAMPLE TYP	WSHD_CODE	ILP	REACH_ID	NID	NID_MAP
R	480-370100-29400-3		5.0	10629	093M.046
R	480-370100-57600-1		4.0	10332	093M.045
R	480-335200-36200-0		1.0	10235	093M.057
R	000-000000-00000-0	10143	1.0	10515	093M.046
R	000-000000-00000-0	10087	1.0	10512	093M.046
R	480-370100-62500-6		1.0	10067	093M.055
R	000-000000-00000-0	10085	3.0	10494	093M.046
R	480-370100-39500-5		2.0	10185	093M.056
R	000-000000-00000-0	10309	2.0	10101	093M.056

APPENDIX V

Project/Interpretive Maps

(map tube submitted with copy of report)