Reconnaissance Level Fish and Fish Habitat Inventory in the Bulkley T.S.A.

(Working Unit #10 - Driftwood)

TRITON
Environmental Consultants Ltd.

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Reconnaissance Level Fish and Fish Habitat Inventory in the Bulkley T.S.A.

(Working Unit #10 - Driftwood)

Prepared for:

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1.0 INTRODUCTION

1.1 Background

Pacific Inland Resources Inc. retained Triton Environmental Consultants Ltd. (Triton) to conduct a reconnaissance - level fish and fish habitat inventory in 14 watersheds located in the Bulkley forest district in 1996 and 1997 (Figure 1). Existing information on fish distribution within the watersheds was summarized by SKR Consultants Ltd. Data from provincial and federal government sources such as the Stream Information Summary System (SISS) and the Fisheries Information Summary System (FISS) were reviewed.

This report summarizes historical and field data collected for working unit 10. Historical fisheries information is available for the Bulkley mainstem , the first 8 km of Driftwood Creek and for Reiseter Creek, up to and including the first of two large lakes in this system. Historical records indicate the presence of the following species in this unit:

- chinook (*Oncorhynchus tshawytscha*)
- coho (*O. kisutch*)
- pink (*O. gorbusha*)
- rainbow trout (*O.mykiss*)
- Dolly Varden (*Salvelinus malma*).

Sixty eight sites were sampled in the field component of this inventory and fish were caught at a total of 11 sites. The species sampled were:

- Dolly Varden (*S. malma*)
- Rainbow Trout (*O. mykiss*).

Two sites were classified as "Not a Creek" based on the absence of a defined channel in the sampling area and 13 sites were classified as non fish bearing. Stream classification is required under the Forest Practices Code (FPC) of British Columbia Act (Bill 40 - 1994) and the associated Operational Planning Regulation enacted in June 1995. Stream classification is used to determine the required width of riparian management areas.

1.2 Objectives

Triton's objectives were to describe fish distributions and habitat characteristics, and to provide stream classifications according to the Forest Practices Code. Fish and fish habitat operational inventories consist of:

- reconnaissance-level surveys aimed at characterizing fish habitat and distribution;
- identification of fish and fish habitat that require special designation under the Forest Practices Code (e.g. sensitive areas); and

- new, reinterpreted, or augmented data to meet Forest Practices Code requirements for classification of areas (e.g. fish stream classification).

2.0 STUDY AREA

2.1 Location

The Bulkley Forest District is located in north-central British Columbia and contains several major tributaries to the Babine and Bulkley Rivers. The 1:20,000 TRIM maps covering working unit 10 are:

- 93 L 085, 93 L 086, 93 L 095, 93 L 095, 93 L096 and 93 M 005 (see Figure 1).

The streams sampled in unit 10, all of which are tributaries to the Bulkley River, include:

- Driftwood Creek,
- Cygnet Creek,
- Maney Creek,
- Newitt Creek,
- Can Brook,
- Twin Creek,
- Reiseter Creek.

This unit covers roughly 370sq. km and comprises 4.7% of the study area. It includes the streams draining into the east side of the Bulkley River from Reiseter Creek up to Driftwood Creek.

2.2 Access

Road access is available for all tributaries in unit 10 which drain directly into the Bulkley River. The upper reaches of Driftwood Creek and its tributaries can be reached by a trail leading to Silver King Basin. With the exception of the lower reaches, Reiseter Creek cannot be accessed by either road or trail. As a result, most of the middle and upper reaches of Reiseter Creek and its tributaries require helicopter access. Sample sites in the lower reaches of most of the creeks sampled in this unit were accessed by truck, while the upper reaches were typically accessed by helicopter.

2.3 Resource Use

Farming, mining, logging and recreational land use in the Silver King Basin area occur in this working unit.

3.0 METHODS

3.1 Physical

Prior to the start of the field program 1:20,000 TRIM maps were used to estimate the location of reach breaks, as needed to identify potential sampling sites. The locations of these reach breaks were subsequently confirmed or modified during the field studies.

The survey was conducted by a ten person field crew working in five teams in 1996, and an eight person field crew working in four teams in 1997. Sites at the top of the watershed were sampled first to determine fish presence whenever possible. DFO/MELP Stream Inventory Survey forms were filled out for each site (Department of Fisheries and Oceans and Ministry of Environment, 1989). Channel widths were measured with meter sticks, hip chains and measuring tapes or were visually estimated where wading conditions were dangerous. Water depth was measured with a meter stick. Stream classification, whether fish bearing or non fish bearing, requires the measurement of a minimum of six channel widths. Stream gradients were measured with a Suunto clinometer. In order to allow for future verification of sampling sites, all sampling sites were permanently marked with unique flagging tape (blue and white striped) and the GPS locations of all sites were noted.

Photos were taken at each site to document field data and conditions. Canon Sure Shot A1 Prima AS-1 cameras were used for this purpose. The camera is equipped with a 32 mm lens. Photos were usually taken of both the upstream and downstream view of the stream and any characteristic features such as beaver dams, falls, notable cascades were documented. Photos were often taken of fish captured at the site. The film used was 200 ISO. All of the fish, feature and site photos are included with the sub basin description in the results and discussion section.

The report maps were generated using 1:20,000 scale TRIM base maps provided by MELP. Using ARC Info, these files were projected into UTM and coverages were created from the field sampling and stream classification data.

3.2 Biological

Triton obtained fish sampling permits from the appropriate DFO and MELP offices. Fish presence/absence was determined by electrofishing and/or minnow trapping and occasionally angling. Electrofishing was conducted, where possible, at all sites where fish presence had not been determined upstream or habitat characteristics were sufficiently different from other sites. A minimum area of approximately 100 m was sampled to ascertain fish presence. The effort, (shocking time and distance shocked) was recorded for each sample site. A variety of electroshocker models were used in this study including:

- Smithroot 12 B POW,
- Smithroot Type VII,

- Smithroot 15 A,
- Coffelt Mark 10.

The electroshockers were usually set at 60HZ at 6MS, however adjustments were made where appropriate. Salt was not used at any of the sample sites. The fork length of each fish collected was then measured and, whenever necessary, voucher specimens were collected and stored in a 10% formaldehyde solution in plastic bags. These specimens were delivered to the Smithers office of BC Environment.

The data collected from existing sources and during the field program were used to determine the riparian class as defined under the *Forest Practices Code*. **Table 1** shows the FPC definition of each riparian class. Draft procedures are also outlined in the guidebook to determine the riparian management areas (RMA) for lakes (L1 - L4), wetlands (W1 - W5) and fisheries sensitive zones.

4.0 PHYSICAL CHARACTERISTICS

4.1 Stream Flow

Relevant hydrological data were obtained from the Water Survey of Canada (WSC) and are summarized in Appendix 1. Records are available from two Water Survey of Canada (WSC) stations within Working Unit 10. These stations are Cygnet Creek at Adams Road (08EE021) and Cygnet Creek above Diversions (08EE024), which were only active for one year, 1978 and 1979, respectively.

Cygnet Creek at Adams Road has a drainage area of 10.4 km^2 and recorded a mean annual discharge (MAD) of 0.053 m^3/s, however this value is based on one incomplete year of data and therefore is not representative of the true MAD. The recorded minimum and maximum mean daily discharges were 0 m^3/s and 0.35 m^3/s, respectively.

Cygnet Creek above Diversions has a drainage area of 6.7 km^2 and recorded a mean annual discharge (MAD) of 0.07 m^3/s, however this value is based on one incomplete year of data and therefore is not representative of the true MAD. The recorded minimum and maximum mean daily discharges were 0 m^3/s and 0.41 m^3/s, respectively.

4.2 Water Quality

As agreed with the Contract Monitor, water samples were not collected for chemical analyses. The pH and conductivity were collected at a representative number of reaches. Conductivity was measured with a hand held LaMotte TDSTestr 3™ conductivity meter. The acceptable values of conductivity for electroshocking purposes must exceed 30 µS. The pH at each site was measured with a hand held LaMotte pHTestr 2™ pH meter. Turbidity was determined subjectively and it was stipulated by the ministry representative during the quality assurance phase of the project in 1996 that the depth of the deepest pool would be the default value in the database when the water was clear to the bottom. Thereafter, it was agreed that the description "clear to bottom" would suffice.

Water temperatures during field sampling ranged between 2.5 and 14°C. Table 2 summarizes the temperature, pH, conductivity and turbidity measures collected during the course of this project. The average water temperature was 8.25°C. The pH values ranged from 6.2 to 8.3, with an average pH of 7.25. The conductivity ranged from 20 to 440 (umhos/cm) with an average value of 230.

5.0 RESULTS AND DISCUSSION

The survey took place between July 25 and October 2, 1996 and July 7 and September 20, 1997. The flow stages during the sampling period ranged from dry to medium. A number of sites in this unit were dry or at low flow which resulted in reduced electroshocking opportunities.

A total of 68 sites were sampled, two of which were classified as "Not a creek" due to the absence of a defined channel. Fish were caught at 11 sites and the species sampled include Dolly Varden and rainbow trout. A total of 13 sites have been classified as non fish bearing. A number of sites in the Reiseter and Driftwood watersheds were classified as non fish bearing, due to the presence of significant barriers downstream of the sampling areas. These barriers are listed in Table 3. The summary information for all sites in working unit 10 is listed in Table 4. This table is organized alphabetically, by sub-basin and includes fish data, stream classifications and methods of sampling. The stream cards and accompanying photos are in the same order as this summary table and the appropriate cards and photos appear in this report after each sub-basin description. A summary of non fish bearing classifications established in this working unit are listed in Table 5 and a summary of the sites for which future sampling is recommended is provided in Table 6. Individual fish data for this working unit have been summarized in Appendix 2.

5.1 Can Brook (93 L 085)

5.1.1 Sensitive Habitats and Barriers

No sensitive habitats or significant barriers were noted on the Can Brook system. The mainstem of Can Brook is 2.0 km in length and flows northwest into Newitt Creek. The headwaters consist of two small lakes and a swamp and run at a moderate gradient. The gradient increases downstream to approximately 300 m from the mouth where it then decreases slightly. Can Brook was sampled at a road crossing . No tributaries to this small stream were noted in the field or on the map.

5.1.2 Fish Summary Tables and Stream Classification

No fish were caught at Can Brook, which was dry at the time of sampling, and no historical information pertaining to this creek exists. Future sampling is recommended.

The mainstem of Can Brook has been classified as an S4, based on the 1.0 m average channel width obtained at the sample site and the presence of fish habitat (see Table 4).

DFO/MoELP Stream Survey Form

Site Number: ARNE 4 **Reach No.: 1**

Can Br.

TRITON Environmental Consultants Ltd.

Location: ARNE 4, Unit 10, see C5. **Stream (Gaz.):** Can Brook **Watershed Code:** 460-2920-348-000-000-000-000-000-000-000-0

Map #: 93 L 085 **Reach Length (km):** 1.8 MW **Date:** 19-Sep-96 **Time:** 16:30 **Agency:** TEC **Access:** V2 **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6173 .60838 **Length surveyed (m):** 100.0 HC **Survey Crew:** AKL\ HK\ \ \ \ \ \ \ **Photos:** A-1-9,10 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	1.0	MS
	Av. Wet. Width (m):	0.0	GE
N	Av. Max Riffle Depth (cm):	0	GE
N	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	8.0	CL

Pool: 0 Riffle: 0 Run: 0 Other: 0

	% Side Channel:	0 GE
	% Debris Area:	0 GE
	%Stable:	0 GE

Specific Data

1.0 0.9 1.2 1.0 1.0 0.9

Bed Material

	Fines	Clay, silt, sand (<2mm):	95	95
	Gravels	Small (2-16mm):	0	0
		Large (16-64mm):		0
	Larges	Sm. cobble (64-128mm):		0
		Lge cobble (128-256mm):	5	5
		Bldr cobble (>256mm):		0
	Bedrock		0	0

D90 (cm): 0 Compaction: Low

Cover

Cover Total % : 70 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	30	0	0	70	0

Crown Closure % : 70 Aspect : W

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Reach Symbol

(Fish)

(RB)

I E 8.0 | 9010

(Width, Valley: Channel, Slope) (Bed Material)

Banks

Height (m): 0.3

% Unstable: 40

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: Dry Flood Signs Ht(m): 0.2

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1 S4

C2 LS = 3%, RS = 2%

C3 No fisheries sensitive zones were noted on site.

C4 This site was not electrofished as it was dry at the time of sampling.

C5 Lat N 54 53' 14.9", Long W 127 10' 16.7"

C6 No additional bank texture information.

C7 Water quality was not evaluated at this site. The mean air temperature on this day was 6.0°C

C8 Marginal fish habitat was observed at this site, which showed no signs of recently running water. Minimal riparian vegetation lines the banks of this stream.

C9 This site runs through rangeland and is frequented by livestock.

1 The channel becomes undefined 100m upstream of the mouth.

Photo #: A-1-9, 19-Sep-96
Site #: A4, Looking upstream in dry channel.

Photo #: A-1-10, 19-Sep-96
Site #: A4, Looking downstream.

5.2 Cygnet Creek (93 L 085)

5.2.1 Sensitive Habitat and Barriers

No sensitive habitats or significant barriers were identified in this sub basin. The Cygnet Creek mainstem is roughly 6.6 km in length, flows south from a swamp and is moderately steep downstream to reach 1. The gradient decreases downstream from the headwaters as Cygnet Creek begins to flow Southwest.. Road access and a number of buildings occur in reach 1. Cygnet Creek was sampled in reaches 1 and 2, and one of its tributaries was sampled in reach 1. No major obstructions were noted by the sampling crews.

5.2.2 Fish Summary Tables and Stream Classification

No fish were caught at the sampling sites and no historical information was noted. The Cygnet Creek mainstem was electroshocked, however the tributary was dry at the time of sampling. The survey crew spoke with a resident who said that fingerlings had been observed in the main creek. No historical information exists for this creek.

The mainstem of Cygnet Creek was classified as an S3 in reach 1, based on the channel width of 2.9 m obtained in the sampling area. Reach 2 of this creek was classified as an S4, based on a 60cm average channel width . One tributary to Cygnet Creek was sampled in this study and was classified as an S4. An additional tributary located farther upstream is likely to be an S4 (see Table 4).

DFO/MoELP Stream Survey Form

Site Number: RYAN 69 **Reach No.: 1**

Cygnet Cr.

TRITON Environmental Consultants Ltd.

Location: RYAN 69, Unit 10, see C5. **Stream (Gaz.):** Cygnet Creek **Watershed Code:** 460-3138-187-000-000-000-000-000-000-000-000-0

Map #: 93 L 085 **Reach Length (km):** 3.9 MW **Date:** 19-Sep-96 **Time:** 16:00 **Agency:** TEC **Access:** V2 **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6235 .697947 **Length surveyed (m):** 300.0 GE **Survey Crew:** RH \JL \ \ \ \ \ \ \ **Photos:** B-7-11,12 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.9	MS
Av. Wet. Width (m):	1.6	MS
Av. Max Riffle Depth (cm):	8	MS
Av. Max Pool Depth (cm):	15	MS
Gradient (%):	10.0	CL
Pool: 60 Riffle: 30 Run: 10 Other: 0		
% Side Channel:	0	GE
% Debris Area: 20		GE
%Stable:	60	GE

Specific Data

2.9	4.0	2.5	2.7	3.1	2.2
2.3	2.0	1.9	1.2	0.9	1.5
8	8				
11	19	16			

Cover

Cover Total % : 70 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	15	30	0	40	15

Crown Closure % : 75 Aspect : S

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	30	15
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	60	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		30
Bedrock		0	0

D90 (cm): 50 Compaction: Medium

Discharge

Wetted Width (m) :	1.4	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.04	F
Discharge (m3/s) :	0.00	F

Reach Symbol

(Fish)

(RB)

3 B 10.0 | 1360

(Width, Valley: Channel, Slope) (Bed Material)

Banks

Height (m): 0.4

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 2-5

Stage: L Flood Signs Ht(m): 0.4

Bars (%): 10 pH: Braided: N

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 19 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S3

C2 The side slopes were not measured at this site.

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model was 510 seconds over 300 meters. No fish were caught, however a local resident mentioned that fingerlings had been seen in the creek.

C5 Lat N 54 50' 47.2", Long W 127 04' 35.7"

C6 No additional bank texture information.

C7 DO, pH and conductivity were not measured at this site. The water was clear to the bottom. The mean air temperature on this day was 6.0°C

C8 No additional fish habitat information.

C9 Occasional small drops of approximately .4 - .8m in height, were noted at this site, none of which would be barriers at moderate flows.

Photo #: B-7-11, 1996/09/19
Site #: R 69, Looking downstream.

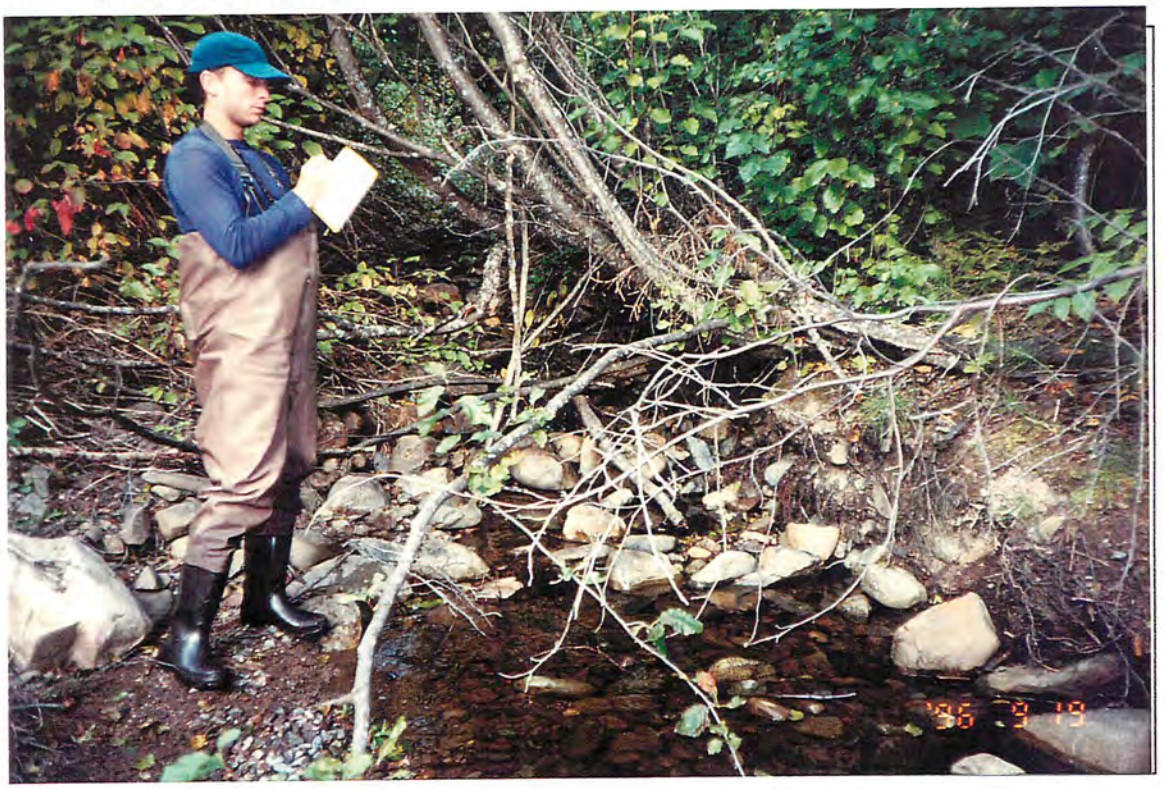

Photo #: B-7-12, 1996/09/19
Site #: R69, Looking upstream.

DFO/MoELP Stream Survey Form

Site Number: E195 **Reach No.: 2**

Cygnet Cr.

TRITON Environmental Consultants Ltd.

Location: E195, Unit 10, North of Driftwood Creek **Stream (Gaz.):** Cygnet Creek **Watershed Code:** 460-3138-187-000-000-000-000-000-000-000-000-0

Map #:	93 L 085	Reach Length (km):	2.8	MA	Date:	14-Aug-97	Time:	11:10	Agency:	TEC	Access:	H	Fish Card:	N	Field ☒ Historical ☐
U.T.M. :	9 .6241 .60839	Length surveyed (m):	100.0	GE	Survey Crew:	SJ \EM \ \ \ \ \ \ \					Photos:	E-19-7,8	Air Photos:		

Channel Characteristics

Av. Chan. Width (m):	0.6	MS
Av. Wet. Width (m):	0.4	MS
Av. Max Riffle Depth (cm):	0	GE
Av. Max Pool Depth (cm):	0	GE
Gradient (%):	9.0	CL
Pool: 0 Riffle: 0 Run: 100 Other: 0		
% Side Channel:	0-10	GE
% Debris Area:	0-5	GE
%Stable:	10	GE

Specific Data

0.4	0.7	0.7	0.8	0.5	0.6
0.2	0.5	0.5	0.2	0.5	0.4

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	80	10
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		50
Bedrock		0	0

D90 (cm): 45 Compaction: Medium

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	0	40	0	20	30

Crown Closure % : 20 Aspect : S

Discharge

C8	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Reach Symbol

(Fish)

(DV)

1 D 9.0 | 1180

(Width, Valley: Channel, Slope) (Bed Material)

Banks

Height (m): 0.3

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: L Flood Signs Ht(m): 0.15

Bars (%): 90 pH: 6.9 Braided: N

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 90

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
C4	NF			NA				VO

Comments

C1: S4

C2: LS = 5%, RS = 8%

C3: No fisheries sensitive zones noted.

C4: This site was not electrofished, the flow was too low at the time of sampling.

C5: No additional bank texture information.

C6: DO was not measured, the water was clear to the bottom. The mean air temperature on this day was 18.1.C.

C7: This reach has a number of large boulders in very narrow channel.

C8: The flow was too low to measure discharge at this site. Fish habitat is limited at this low flow stage.

Photo #: E-19-7, 14-Aug-97
Site #: E195, Looking upstream at the channel

Photo #: E-19-8, 14-Aug-97
Site #: E195, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: RYAN 70 **Reach No.: 1**

Trib. to Cygnet Cr.

TRITON Environmental Consultants Ltd.

Location: RYAN 70, Unit 10, see c5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-187-000-000-000-000-000-000-000-0

Map #:	93 L 085	Reach Length (km):	2.9	MW	Date:	19-Sep-96	Time:	17:15	Agency:	TEC	Access:	V2	Fish Card:	N	Field ☒ Historical ☐
U.T.M. :	9 .6238 .60792	Length surveyed (m):	200.0	GE	Survey Crew:	JL \RH \ \ \ \ \ \ \					Photos:	B-7-13,14	Air Photos:		

Channel Characteristics

	Av. Chan. Width (m):	1.3	MS
	Av. Wet. Width (m):	0.0	GE
N	Av. Max Riffle Depth (cm):	0	GE
N	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	14.0	CL
	Pool: 0 Riffle: 0 Run: 0 Other: 0		
	% Side Channel:	0-10	GE
	% Debris Area:	5-15	GE
	%Stable:	10	GE

Specific Data

1.3 1.2 1.4 1.5 1.2 1.3

Obstructions

C	Height (m)	Type	Location

Cover

Cover Total % : 70 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	10	0	0	75	15

Crown Closure % : 80 Aspect : SW

Bed Material

Fines	Clay, silt, sand (<2mm):	70	70
Gravels	Small (2-16mm):	15	5
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):		5
	Lge cobble (128-256mm):	15	10
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 13 Compaction: Medium

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Comments

C1	S4
C2	The side slopes were not measured at this site.
C3	No fisheries sensitive zones were noted at this site.
C4	This site was not electrofished as the channel was dry at the time of sampling.
C5	Lat N 54 50 40.5, Long W 127 04 19.2
C6	No additional bank texture information.
C7	Water quality was not evaluated at this site. The mean air temperature on this day was 6.0°C
C8	No additional fish habitat information.
C9	The channel was undefined in some areas. Above the road, more larges were noted in the substrate than below and the channel was narrower. The sampling site was located below the road crossing and ran through some agricultural land. The culvert at this crossing was in good condition at the time of sampling.

Reach Symbol

(Fish)

(RB)

1 D 14.0 | 7210

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: UC

Valley : Channel Ratio 10+

Stage: Dry Flood Signs Ht(m): 0.2

Bars (%): 0 pH: Braided: Y

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Photo #: B-7-13, 1996/09/19
Site #: R 70 Looking downstream.

Photo #: B-7-14, 1996/09/19
Site #: R 70, Looking upstream through alder and willow.

5.3 Driftwood Creek (93 L 085, 086, 096)

5.3.1 Sensitive Habitats and Barriers

No barriers were identified on the mainstem of Driftwood Creek, however a large number of the tributaries have steep gradient at the mouth associated with steep side slopes, which were noted throughout most of the creek length. A 20 m cascade was noted at site E282, one of the tributaries sampled in 1987.

The mainstem of Driftwood Creek measures 29.9 km on the 1:20 000 TRIM sheets. A total of 51 tributaries flow into this creek. The headwaters of Driftwood Creek include many small lakes and tributaries. Reach 1 flows through a relatively low gradient, heavily developed area. The valley becomes more confined and the gradient increases in reaches 2 and 3.

5.3.2 Fish Summary and Stream Classification

Fish sampling was conducted by electrofishing at 22 of the sites and by angling at 1 of the sites. Fish were either seen or caught at 5 sites in the Driftwood watershed. the species sampled include rainbow trout Dolly Varden (see Table 4). The historical records indicate that coho, chinook, Dolly Varden and rainbow trout have been found in Driftwood Creek.

The mainstem was sampled high up in the watershed and was classified as an S2 through reach 4. An S1 classification would certainly apply to most of the Driftwood Creek mainstem. A total of 21 sample sites, typically located on tributaries are associated with this creek (see Table 4).

The tributaries flowing into reaches 1 and 2 are typically S3 and S4 creeks, while those flowing into the upper reaches are typically S6 creeks.

DFO/MoELP Stream Survey Form

Site Number: ARNE 8 — Reach No.: 3

Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 8, Unit 10, At the foot bridge on upper Driftwood Creek, see C5. **Stream (Gaz.):** Driftwood Creek **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 086 **Reach Length (km):** 4.9 MW **Date:** 20-Sep-96 **Time:** 12:20 **Agency:** TEC **Access:** V4 **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 . 6298 . 60841 **Length surveyed (m):** 100.0 GE **Survey Crew:** AKL\HK\ \ \ \ \ \ **Photos:** A-1-17,18 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	10.4	MS
Av. Wet. Width (m):	7.8	MS
Av. Max Riffle Depth (cm):	35	
N Av. Max Pool Depth (cm):	0	
Gradient (%):	4.0	CL
Pool: 0 Riffle: 70 Run: 20 Other: 10		
% Side Channel:		GE
% Debris Area:	0-5	GE
%Stable:	25	GE

Specific Data

10.5	11.0	9.0	10.5	9.7	12.0
7.7	8.0	6.0	9.0	8.0	8.0
50	30	28	40	30	30

Cover

Cover Total % : 50 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	10	70	0	10	10

Crown Closure % : 3 Aspect : SW

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	10	2
	Large (16-64mm):		8
Larges	Sm. cobble (64-128mm):	90	20
	Lge cobble (128-256mm):		40
	Bldr cobble (>256mm):		30
Bedrock		0	0

D90 (cm): 100 Compaction: Medium

Discharge

Wetted Width (m) :	10.5	T
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.60	F
Discharge (m3/s) :	1.42	F

Banks

Height (m): 1.1

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 1.2

Bars (%): 5 pH: 7.3 Braided: N

Water Temp. (°C): 3.0 02 (ppm):

Turb. (cm): 50 Cond. (µmhos):

Reach Symbol

(Fish)

DV

10 C 4.0 | 0190

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
C4	DV	5	85-450	J	R			EL

Comments

C1 S2

C2 LS = 10%, RS = 2%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a Smithroot 15 A model, was 450 seconds over 250 square meters.

C5 Lat N 54 53' 13.4, Long W 126 58' 35.1"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The mean air temperature on this day was 4.9°C

C8 Some good rearing habitat, but only marginal spawning habitat was observed at this site.

C9 Cascades comprised 10% of the flow type at this site.

C10 The air temperature at this site was 2 degrees celcius.

Photo #: A-1-17, 20-Sep-96
Site #: A8, Looking downstream.

Photo #: A-1-18, 20-Sep-96
Site #: A8, Looking upstream.

DFO/MoELP Stream Survey Form

Site Number: E284

Reach No.: 4

Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: E284, Unit 10, South of the Silver King Basin. **Stream (Gaz.):** Driftwood Creek **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 086 | Reach Length (km): 3.8 MW | Date: 10-Sep-97 | Time: 13:30 | Agency: TEC | Access: V4 | Fish Card: N | Field ☒ | Historical ☐

U.T.M. : 9 .6342 .60846 | Length surveyed (m): 125.0 GE | Survey Crew: SJ \JL \ \ \ \ \ \ | Photos: E-27-12,13 | Air Photos:

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	6.5	MS	7.3	8.7	6.9	5.9	6.1	4.3
Av. Wet. Width (m):	5.9	MS	6.9	6.5	6.1	5.3	6.0	4.4
Av. Max Riffle Depth (cm):	12	MS	12	13	11	10	14	
Av. Max Pool Depth (cm):	66	MS	70	58	84	57	61	
Gradient (%):	11.0	CL						

Pool: 20 Riffle: 10 Run: 40 Other: 30

% Side Channel: 0 GE

% Debris Area: 0-5 GE

%Stable: 0 GE

Cover

Cover Total % : 35 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
50	0	40	0	0	10

Crown Closure % : 0 Aspect : SW

Discharge

Wetted Width (m) :	4.1	MS
Mean Depth (m) :	0.4	MS
Mean Velocity (m/s) :	0.78	F
Discharge (m3/s) :	0.96	F

Reach Symbol

(Fish)

(DV) (CT) (ST)

7 C 11.0 | 1171

(Width, Valley: Channel, Slope) (Bed Material)

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	70	10
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		50
Bedrock		10	10

D90 (cm): Compaction: High

Banks

Height (m): 0.2

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.7

Bars (%): 10 pH: 7.8 Braided: N

Water Temp. (°C): 7.5 02 (ppm):

Turb. (cm): Cond. (µmhos): 110

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S2

C2: LS = 20%, RS = 30%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model, set at I-4-400V, was 236 seconds over 100 meters.

C5: Fines and larges make up the bank texture at this site.

C6: DO was not measured, the water was clear to the bottom. The air temperature at this site was 15.C.

C7: This reach is moderately steep, has multiple cascades and step pools and large stretches of boulder runs. Deep pools and runs provide some good rearing habitat, while spawning habitat is limited. Abundant periphyton was noted in this reach.

Photo #: E-27-12, 10-Sep-97
Site #: E284, Looking upstream at the channel

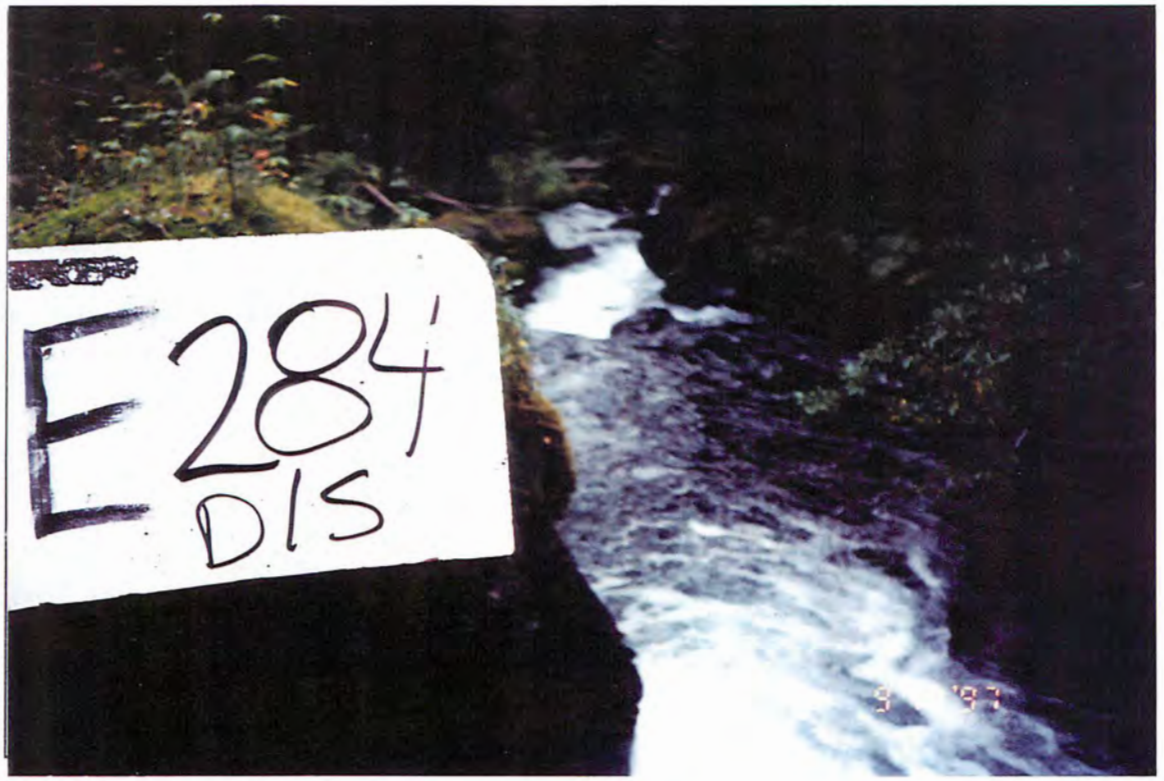

Photo #: E-27-13, 10-Sep-97
Site #: E284, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: E283 **Reach No.:** 1

Trib. to Drfitwood Cr.

TRITON Environmental Consultants Ltd.

Location: E283, Unit 10, South of Silver King Basin. **Stream (Gaz.):** Unnnamed **Watershed Code:** 050-1400-000-000-000-000-000-000-000-000-000-

Map #: 93 L 086 **Reach Length (km):** 0.5 MA **Date:** 10-Sep-97 **Time:** 12:45 **Agency:** TEC **Access:** V4 **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M.: 9 .6342 .60846 **Length surveyed (m):** 450.0 GE **Survey Crew:** SJ \JL \ \ \ \ \ \ **Photos:** E-27-10,11 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	0.8	MS
Av. Wet. Width (m):	0.6	MS
Av. Max Riffle Depth (cm):	3	MS
Av. Max Pool Depth (cm):	23	MS
Gradient (%):	16.0	CL
Pool: 10 Riffle: 5 Run: 85 Other: 0		
% Side Channel:	>40	GE
% Debris Area:	0-5	GE
%Stable:	30	GE

Specific Data

	0.6	1.7	0.3	0.2	0.9	1.3
	0.5	1.1	0.3	0.2	0.6	1.1
	4	3	3	2	3	
	22	31	18	21		

Cover

Cover Total % : 5 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	0	10	0	0	80

Crown Closure % : 60 Aspect : SE

Bed Material

Fines	Clay, silt, sand (<2mm):	40	40
Gravels	Small (2-16mm):	30	15
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):		10
	Lge cobble (128-256mm):	30	10
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 40 Compaction: Medium

Discharge

Wetted Width (m) :	0.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.44	F
Discharge (m3/s) :	0.02	F

Banks

Height (m): 0.1

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: L Flood Signs Ht(m): 0.2

Bars (%): 0 pH: 8.3 Braided: Y

Water Temp. (°C): 5.5 02 (ppm):

Turb. (cm): Cond. (µmhos): 440

Reach Symbol

(Fish)

NF

1 D 16.0 | 4330

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S6

C2 LS = 10%, RS = 9%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model set at I-5-400V, was 240 seconds over 125 meters.

C5 Fines and larges make up the bank texture at this site.

C6 DO was not measured, the water was clear to the bottom. The air temperature at this site was 14.C.

C7 This stream flows subsurface for 80% of the distance between the road crossing and the confluence with Driftwood Creek. Rearing habitat was noted from the mouth to .1 km. No spawning habitat was noted. The channel braids for most of the length surveyed.

Photo #: E-27-10, 10-Sep-97
Site #: E283, Looking upstream at the channel

Photo #: E-27-11, 10-Sep-97
Site #: E283, Looking downstream at the channel, note the moss covered substrate

DFO/MoELP Stream Survey Form

Site Number: RYAN 68 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: RYAN 68, Unit 10, 4.5 km up Driftwood Creek from Bulkley, see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 085 **Reach Length (km):** 2.3 MA **Date:** 27-Aug-96 **Time:** 14:40 **Agency:** TEC **Access:** V2 **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6233 .60795 **Length surveyed (m):** 300.0 GE **Survey Crew:** RH \JL \ \ \ \ \ \ \ **Photos:** B-7-9,10 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	1.3	MS
	Av. Wet. Width (m):	0.0	GE
N	Av. Max Riffle Depth (cm):	0	GE
N	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	8.0	CL
	Pool: 0 Riffle: 0 Run: 0 Other: 0		
	% Side Channel:	0-10	GE
	% Debris Area:	5-15	GE
	%Stable:	5	GE

Specific Data

1.5	1.2	1.1	1.2	1.7	1.4

Cover

Cover Total % : 50 GE

Pool	LOD	Bldr	ln Veg	O Veg	Ctbnk
0	15	5	0	55	25

Crown Closure % : 75 Aspect : S

Bed Material

Fines	Clay, silt, sand (<2mm):	30	30
Gravels	Small (2-16mm):	55	30
	Large (16-64mm):		25
Larges	Sm. cobble (64-128mm):	15	5
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		5
Bedrock		0	0

D90 (cm): 26 Compaction: Medium

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

Height (m): 0.1

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(RB)

1 D 8.0 | 3610

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: UC

Valley : Channel Ratio 10+

Stage: Dry Flood Signs Ht(m): 0.2

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				D

Comments

C1	S4
C2	The side slopes were not measured at this site.
C3	No fisheries sensitive zones were noted at this site.
C4	This site was not electrofished because the channel was dry at the time of sampling.
C5	Lat N 54 50' 50.6", Long W 127 04' 46.7"
C6	No additional bank texture information.
C7	Water quality was not measured at this site. The mean air temperature on this day was 13.7°C
C8	This site would provide good rearing and spawning habitat if there were water in the channel.

Photo #: B-7-9, 1996/09/19
Site #: RL9 Dry channel through aspen.

Photo #: B-7-10, 1996/09/19
Site #: RL8, Dry channel through alder.

DFO/MoELP Stream Survey Form

Site Number: RYAN 71 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: RYAN 71, Unit 10 , 800m from Driftwood Creek, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-000-0

Map #:	93 L 085	Reach Length (km):	2.5	MA	Date:	19-Sep-96	Time:	17:55	Agency:	TEC	Access:	V2	Fish Card:	N	Field ☒ Historical ☐
U.T.M. :	9 .6244 .61774	Length surveyed (m):	200.0	GE	Survey Crew:	RH UL \ \ \ \ \ \ \							Photos:	B-7-15,16	Air Photos:

Channel Characteristics

	Av. Chan. Width (m):	1.4	MS
	Av. Wet. Width (m):	0.0	GE
N	Av. Max Riffle Depth (cm):	0	GE
N	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	3.5	CL
	Pool: 0 Riffle: 0 Run: 0 Other: 0		
	% Side Channel:	0-10	GE
	% Debris Area:	5-15	GE
	%Stable:	20	GE

Specific Data

1.2 1.7 1.2 1.0 1.6 1.8

Cover

Cover Total % : 80 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	15	0	0	65	20

Crown Closure % : 60 Aspect : SW

Bed Material

Fines	Clay, silt, sand (<2mm):	70	70
Gravels	Small (2-16mm):	20	15
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	10	5
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 13 Compaction: Medium

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: Dry Flood Signs Ht(m): 0.2

N Bars (%): 0 pH: Braided: N

N Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

(RB)

1 D 3.5	7210
(Width, Valley: Channel, Slope)	(Bed Material)

Comments

C1 S4

C2 The side slopes were not measured at this site.

C3 No fisheries sensitive zones were noted at this site.

C4 This site was not electrofished as the channel was dry at the time of sampling.

C5 Lat N 54 49' 41.7", Long W 127 03' 48.3"

C6 No additional bank texture information.

C7 Water quality was not evaluated at this site. The mean air temperature on this day was 6.0°C

C8 Some fair habitat was noted above the road crossing at this site. Below the crossing however, the habitat is marginal.

C9 This site was sampled below the road. The culvert at the road and another smaller culvert 50m above the road, were plugged and impassable at the time of sampling.

Photo #: B-7-15, 1996/09/19
Site #: R7, Looking upstream.

Photo #: B-7-16, 1996/09/19
Site #: R7, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: ARNE 7 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 7, Unit 10, SE of Maney Cr. , Telkwa Hi Road, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 049-1300-000-000-000-000-000-000-000-000-0

Map #: 93 L 085 **Reach Length (km):** 2.5 MA **Date:** 19-Sep-96 **Time:** 18:10 **Agency:** TEC **Access:** V2 **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6212 .60796 **Length surveyed (m):** 200.0 HC **Survey Crew:** AKL\ HK\ \ \ \ \ \ \ **Photos:** A-1-15,16 **Air Photos:**

Channel Characteristics

C1	Av. Chan. Width (m):	0.9	MS
	Av. Wet. Width (m):	0.0	GE
N	Av. Max Riffle Depth (cm):	0	GE
N	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	3.0	CL
	Pool: 0 Riffle: 0 Run: 0 Other: 0		
	% Side Channel:	0	GE
	% Debris Area:	0	GE
	%Stable:	0	GE

Specific Data

1.0 0.9 0.8

Cover

Cover Total % : 25 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	0	0	60	40	0

Crown Closure % : 10 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	100	100
Gravels	Small (2-16mm):	0	0
	Large (16-64mm):		0
Larges	Sm. cobble (64-128mm):		0
	Lge cobble (128-256mm):	0	0
	Bldr cobble (>256mm):		0
Bedrock		0	0

N D90 (cm): 0 Compaction: High

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

Height (m): 0.3

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: Dry Flood Signs Ht(m): 0

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

NF

1 E 3.0 F

(Width, Valley: Channel. Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location
	0	C	1.5

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1 S6. Only 3 channel widths were taken because no other defined banks were found in this area.

C2 The side slopes were not measured at this site.

C3 No fisheries sensitive zones were noted.

C4 No electroshocking was carried out at this dry site.

C5 Lat N 54 50' 55.7", Long W 127 06' 44.3"

C6 Most of the banks in the survey area are undefined.

C7 Water quality was not evaluated at this site. The mean air temperature on this day was 6.0°C

C8 This site contains no fish habitat. The channel is intermittent and contains vegetation. The surrounding vegetationincludes willow, stinging nettle, black cottonwood, aspen, dogwood and grasses.

Photo #: A-1-15, 19-Sep-96
Site #: A7, Looking downstream.

Photo #: A-1-16, 19-Sep-96
Site #: A7, Looking upstream.

DFO/MoELP Stream Survey Form

Site Number: RYAN 72 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: RYAN 72, Unit 10, trib 1km from Driftwood Creek, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-000-0

Map #:	93 L 085	Reach Length (km):	1.0	GE	Date:	20-Sep-96	Time:	9:45	Agency:	TEC	Access:	V2	Fish Card:	N	Field ☒ Historical ☐
U.T.M. :	9 .6251 .60774	Length surveyed (m):	150.0	GE	Survey Crew:	RH \JL\ \ \ \ \ \ \					Photos:	B-7-17,18	Air Photos:		

Channel Characteristics

	Av. Chan. Width (m):	0.8	MS
	Av. Wet. Width (m):	0.0	GE
N	Av. Max Riffle Depth (cm):	0	GE
N	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	6.5	CL
	Pool: 0 Riffle: 0 Run: 0 Other: 0		
	% Side Channel:	0-10	GE
	% Debris Area:	5-15	GE
	%Stable:	5	GE

Specific Data

0.5 0.8 0.6 1.3 0.6 0.7

Cover

Cover Total % : 75 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	15	5	0	50	30

Crown Closure % : 85 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	40	40
Gravels	Small (2-16mm):	30	15
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	30	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 18 Compaction: Medium

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

Height (m): 0.2

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: Dry Flood Signs Ht(m): 0.2

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

(RB) (DV)

1 D 6.5 | 4330

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				D

Comments

C1	S4
C2	LS =2%, RS = 2%
C3	No fisheries sensitive zones were noted at this site.
C4	This site was not electrofished as it was dry at the time of sampling.
C5	Lat 54 49' 51.5", Long W 127 03' 9.2"
C6	No additional bank texture information.
C7	Water quality was not evaluated at this site. The mean air temperature on this day was 4.9°C
C8	No additional fish habitat information.
C9	A small amount of standing water was present in the channel at the time of sampling. The creek had recently dried up.
C10	The air temperature was 7.5 degrees celcius.

Photo #: B-7-17, 1996/09/20
Site #: R72, Looking upstream, meterstick across channel.

Photo #: B-7-18, 1996/09/20
Site #: R72, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: RYAN 78 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: RYAN 78, Unit 10, 30m off of Driftwood Creek, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-0

Map #:	93 L 085	Reach Length (km):	1.5	MA	Date:	20-Sep-96	Time:	15:35	Agency:	TEC	Access:	V2	Fish Card:	N	Field ☒ Historical ☐
U.T.M. :	9 .6281 .60795	Length surveyed (m):	150.0	GE	Survey Crew:	RH \JL \ \ \ \ \ \ \					Photos:	R-5-5,6,7	Air Photos:		

Channel Characteristics

Av. Chan. Width (m):	1.8	MS
Av. Wet. Width (m):	0.6	MS
Av. Max Riffle Depth (cm):	1	MS
Av. Max Pool Depth (cm):	7	MS
Gradient (%):	20.0	CL
Pool: 10 Riffle: 50 Run: 40 Other: 0		
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	75	GE

Specific Data

2.3	2.1	1.4	1.8	2.0	1.3
1.3	0.5	0.2	0.4	0.6	
1	0	1	1	0	1
7	7	6	8	6	10

Cover

Cover Total % : 75 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	10	5	0	75	10

Crown Closure % : 60 Aspect : S

Bed Material

Fines	Clay, silt, sand (<2mm):	20	20
Gravels	Small (2-16mm):	40	20
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	40	20
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 26 Compaction: Low

Discharge

Wetted Width (m) :	0.4	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.30	F
Discharge (m3/s) :	0.01	Fi

Banks

Height (m): 0.5

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: L Flood Signs Ht(m): 0.5

Bars (%): 5 pH: 7.4 Braided: N

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 10 Cond. (µmhos):

Reach Symbol

(Fish)

DV, RB

2 D 20.0 | 2440

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location
	1	CV	0.1

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	DV	3	100-130	J	R			EL
	RB	1	170	J	R			AG

Comments

C1 S3

C2 The side slopes were not measured at this site.

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking time was 200 seconds, and covered both the Driftwood Creek mainstem and the tributary to this mainstem.

C5 Lat N 54 50' 57.3", Long W 127 00' 20.5"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom. The mean air temperature on this day was 4.9°C

C8 This site provides rearing and potential spawning habitat.

C9 The culvert is situated 1m above the current water level. Fish passage through this culvert would be difficult except during high flow. This should be remedied.

Photo #: R-5-5, 1996/09/20
Site #: R78, Looking downstream, boulders and debris.

Photo #: R-5-6, 1996/09/20
Site #: R78, Looking upstream.

Photo #: R-5-7, 1996/09/20
Site #: R78, Looking upstream toward culvert.

DFO/MoELP Stream Survey Form

Site Number: RYAN 79 Reach No.: 1

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: RYAN 79, Unit 10, 200 m N of Driftwood Creek, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-0

Map #:	93 L 085	**Reach Length (km):**	2.0	MA	**Date:**	20-Sep-96	**Time:**	17:00	**Agency:**	TEC	**Access:**	V2	**Fish Card:**	N	Field ☒ Historical ☐
U.T.M. :	9 .6297 .60792	**Length surveyed (m):**	100.0	GE	**Survey Crew:**	RH \JL \ \ \ \ \ \ \					**Photos:**	R-5-8,9	**Air Photos:**		

Channel Characteristics

	Av. Chan. Width (m):	0.7	MS
	Av. Wet. Width (m):	0.0	GE
N	Av. Max Riffle Depth (cm):	0	GE
N	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	15.0	CL
	Pool: 0 Riffle: 0 Run: 0 Other: 0		
	% Side Channel:	0-10	GE
	% Debris Area:	5-15	GE
	%Stable:	5	GE

Specific Data

0.7 0.5 1.0 0.6 0.9 0.7

Cover

Cover Total % : 65 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	10	5	0	80	5

Crown Closure % : 25 Aspect : SE

Bed Material

	Fines	Clay, silt, sand (<2mm):	60	60
	Gravels	Small (2-16mm):	20	10
		Large (16-64mm):		10
	Larges	Sm. cobble (64-128mm):	20	10
		Lge cobble (128-256mm):		5
		Bldr cobble (>256mm):		5
	Bedrock		0	0

N D90 (cm): 25 Compaction: Medium

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

Height (m): 0.3

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 2-5

Stage: Dry Flood Signs Ht(m): 0.3

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

(DV)

1 B 15.0 | 6220

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1	S4
C2	LS = 15%, RS = 12%
C3	No fisheries sensitive zones were noted at this site.
C4	This site was not electrofished as it was dry at the time of sampling.
C5	Lat N 54 50' 45.5", Long W 127 00' 40.5"
C6	No additional bank texture information.
C7	Water quality was not evaluated at this site. The mean air temperature on this day was 4.9°C
C8	Overstream vegetation provides most of the cover for fish at this site.
C9	A drop from this tributary into the main creek is steep, but nicely stepped and would not be an obstacle at high flow.

Photo #: R-5-8, 1996/09/20
Site #: R79, Looking upstream.

Photo #: R-5-9, 1996/09/20
Site #: R79, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: ARNE 9 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 9, Unit 10, 200 m d/s of the Dritwood Creek foot bridge, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-0

Map #: 93 L 086 **Reach Length (km):** 1.3 MW **Date:** 20-Sep-96 **Time:** 13:30 **Agency:** TEC **Access:** FT **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6296 .60838 **Length surveyed (m):** 150.0 GE **Survey Crew:** AKL\ HK\ \ \ \ \ \ **Photos:** A-1-19,20 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	2.4	MS
	Av. Wet. Width (m):	0.8	MS
N	Av. Max Riffle Depth (cm):	0	MS
	Av. Max Pool Depth (cm):	14	MS
	Gradient (%):	26.0	CL

Pool: 20 Riffle: 0 Run: 0 Other: 80

% Side Channel: GE

% Debris Area: 10 GE

%Stable: 80 GE

Specific Data

2.0	3.0	1.8	1.9	2.6	3.3
0.8	1.1	0.4	0.6	1.0	1.2
15	20	10	13		

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	10	0
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	80	10
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		50
Bedrock		0	0

D90 (cm): 55 Compaction: Medium

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	20	80	0	0	0

Crown Closure % : 40 Aspect : SE

Discharge

Wetted Width (m) :	0.3	GE
Mean Depth (m) :	0.1	GE
Mean Velocity (m/s) :	0.40	F
Discharge (m3/s) :	0.01	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: L Flood Signs Ht(m): 0.2

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 5.0 02 (ppm):

Turb. (cm): 20 Cond. (µmhos):

Reach Symbol

(Fish)

NF

2 E 26.0 | 1180

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1 S6

C2 LS = 4%, RS = 8%

C3 No fisheries sensitive zones wre noted at this site.

C4 The electroshocking effort, using a Smithroot 15 A Model was 50 seconds in some pools. No fish were caught.

C5 Lat N 54 53' 03.9", Long W 126 58' 46.8"

C6 No additional bank texture information.

C7 DO, pH and conductivity were not measured at this site. The mean air temperature on this day was 4.9°C

C8 Very little fish habitat was observed at this site. The gradient would prevent fish passage upstream in this creek.

C9 The substrate is predominantly colluvium at this site.

Photo #: A-1-19, 20-Sep-96
Site #: A9, Looking upstream, moss-covered boulders.

Photo #: A-1-20, 20-Sep-96
Site #: A9, Looking downstream, blowdowns across channel.

DFO/MoELP Stream Survey Form

Site Number: ARNE 10 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 10, Unit 10, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 086 **Reach Length (km):** 0.8 MA **Date:** 20-Sep-96 **Time:** 14:30 **Agency:** TEC **Access:** V2 **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6302 .6082 **Length surveyed (m):** 200.0 GE **Survey Crew:** AKL\ HK\ \ \ \ \ \ \ **Photos:** A-1-21,22 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.8	MS
Av. Wet. Width (m):	1.5	MS
Av. Max Riffle Depth (cm):	8	MS
Av. Max Pool Depth (cm):	29	MS
Gradient (%):	12.0	CL
Pool: 10 Riffle: 70 Run: 20 Other: 0		
% Side Channel:		GE
% Debris Area:	10	GE
%Stable:	10	GE

Specific Data

4.8	3.5	3.7	3.9	3.0	3.6
2.4	1.1	1.8	0.7	0.8	2.1
6	11	8			
18	30	40			

Cover

Cover Total % : 10 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	30	20	0	50	0

Crown Closure % : 60 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	20	20
Gravels	Small (2-16mm):	50	20
	Large (16-64mm):		30
Larges	Sm. cobble (64-128mm):	30	10
	Lge cobble (128-256mm):		7
	Bldr cobble (>256mm):		13
Bedrock		0	0

D90 (cm): 30 Compaction: Medium

Discharge

Wetted Width (m) :	0.6	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.30	F
Discharge (m3/s) :	0.01	F

Banks

Height (m): 0.5

% Unstable: 80

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: L Flood Signs Ht(m): 0.6

Bars (%): 5 pH: Braided: N

Water Temp. (°C): 5.0 02 (ppm):

Turb. (cm): 40 Cond. (µmhos):

Reach Symbol

(Fish)

(DV)

4 E 12.0 | 2530

(Width, Valley: Channel, Slope) | (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1 S3

C2 The side slopes were not evaluated at this site.

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a Smithroot 15 A model, was 152 seconds over 100 square meters.

C5 Lat N 54 52' 05.2", Long W 126 58' 16.1"

C6 No additional bank texture information.

C7 DO, pH and conductivity were not evaluated at this site. The water was clear to the bottom. The mean air temperature on this day was 4.9°C

C8 Marginal fish habitat was observed in the sampling area. Thefirst 100 m of the stream could support fish. Beyond this point, the gradient exceeeds 20%.

C9 A number of 1m high step log falls were observed at this site. One of which is located 25 m from the confluence with the main creek and would obstruct fish passage upstream at this flow stage. Evidence of silt deposition was seen near the mouth of the stream.

C10 This site showed evidence of periodic high energy flows.

Photo #: A-1-21, 20-Sep-96
Site #: A10, Looking upstream, meterstick across channel.

Photo #: A-1-22, 20-Sep-96
Site #: A10, Looking downstream, alders across channel.

DFO/MoELP Stream Survey Form

Site Number: ARNE 11 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 11, Unit 10, Driftwood road, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-000-0

Map #:	93 L 086	**Reach Length (km):**	0.5	MA	**Date:**	20-Sep-96	**Time:**	15:36	**Agency:**	TEC	**Access:**	V2	**Fish Card:**	N	Field ☒ Historical ☐
U.T.M. :	9 .6300 .60813	**Length surveyed (m):**	200.0	GE	**Survey Crew:**	AKL\ HK\ \ \ \ \ \ \					**Photos:**	A-1-23, A-2-1	**Air Photos:**		

Channel Characteristics

Av. Chan. Width (m):	2.4	MS
Av. Wet. Width (m):	1.2	MS
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	12	MS
Gradient (%):	3.0	CL
Pool: 5 Riffle: 70 Run: 25 Other:	0	
% Side Channel:	10-40	GE
% Debris Area:	0-5	GE
%Stable:	10	GE

Specific Data

2.1	2.3	2.2	1.8	3.0	3.2
1.5	1.1	1.1	1.6	0.7	1.2
7	6	5	4		
12	13	15	10		

Bed Material

Fines	Clay, silt, sand (<2mm):	25	25
Gravels	Small (2-16mm):	50	20
	Large (16-64mm):		30
Larges	Sm. cobble (64-128mm):	25	15
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		5
Bedrock		0	0

D90 (cm): 27 Compaction: Medium

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	5	5	0	85	5

Crown Closure % : 80 Aspect : NW

Discharge

Wetted Width (m) :	0.9	MS
Mean Depth (m) :	0.0	MS
Mean Velocity (m/s) :	0.30	F
Discharge (m3/s) :	0.01	F

Banks

Height (m): 0.4

% Unstable: 80

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: L Flood Signs Ht(m): 0.4

Bars (%): 15 pH: Braided: N

Water Temp. (°C): 5.0 02 (ppm):

Turb. (cm): 15 Cond. (µmhos):

Reach Symbol

(Fish)

DV

2 E 3.0 | 3520

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	DV	2	40-80	J	R			EL

Comments

C1 S3

C2 The side slopes were not measured at this site.

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a Smithroot 15 A model was 171 seconds over 108 sqaure meters. The branchiostegal ray count on the 80 mm Dolly varden was 22.

C5 Lat N 54 51' 42.7, Long w 126 58' 28.4"

C6 No additional bank texture information.

C7 DO, pH, conductivity were not measured at this site. The water was clear to the bottom. The mean air temperature on this day was 4.9°C

C8 Good spawning and rearing habitat was observed at this site. This stream would provide excellent rearing refuge from Driftwood Creek.

C9 The culvert at the road crossing is not an obstruction.

Photo #: A-1-23, 20-Sep-96
Site #: A11, Looking upstream.

Photo #: A-2-1, 20-Sep-96
Site #: A11, Looking downstream.

DFO/MoELP Stream Survey Form **Site Number:** E276 **Reach No.: 2**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: E276, Unit 10, North of Driftwood Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** 049-9000-000-000-000-000-000-000-000-000-000-

Map #: 93 L 096 **Reach Length (km):** 3.2 MA **Date:** 09-Sep-97 **Time:** 10:27 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M.: 9 .6317 .60864 **Length surveyed (m):** 150.0 GE **Survey Crew:** SJ \JL \ \ \ \ \ \ \ **Photos:** E-26-17,18,19 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	5.1	MS
Av. Wet. Width (m):	5.2	MS
Av. Max Riffle Depth (cm):	8	MS
Av. Max Pool Depth (cm):	46	MS
Gradient (%):	7.0	CL
% Side Channel:	0	GE
% Debris Area:	0	GE
%Stable:	0	GE

Pool: 10 Riffle: 70 Run: 20 Other: 0

Specific Data

5.3	5.9	4.9	4.2	5.2	5.1
7.0	5.8	5.1	3.9	4.8	4.7
8	9	9	6	10	
60	58	48	28	36	

Cover

Cover Total %: 15 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	0	50	0	10	30

Crown Closure %: 0 Aspect: S

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	80	10
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		50
Bedrock		0	0

D90 (cm): 120 Compaction: Medium

Discharge

Wetted Width (m):	1.9	MS
Mean Depth (m):	0.3	MS
Mean Velocity (m/s):	0.74	F
Discharge (m3/s):	0.32	F

Reach Symbol

(Fish)

NF

5 C 7.0 | 1180

(Width, Valley: Channel, Slope) (Bed Material)

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 0 pH: 7.5 Braided: N

Water Temp. (°C): 5.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 90

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S5

C2 LS = 8%, RS = 14%

C3 No fisheries sensitive zones present.

C4 The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 260 seconds over 100 meters.

C5 Fines and larges make up the bank texture at this site.

C6 DO was not measured, the water was clear to the bottom. The air temperature at this site was 10.C.

C7 Deep wide pools, boulders and cutbanks provide cover for fish at this site. The dominant riparian species in the sampling area are subalpine fir and willow.

C8 This reach has been classified as non fish bearing because no fish were caught in the sampling area, which is located above a long cascade (over 40% slope).

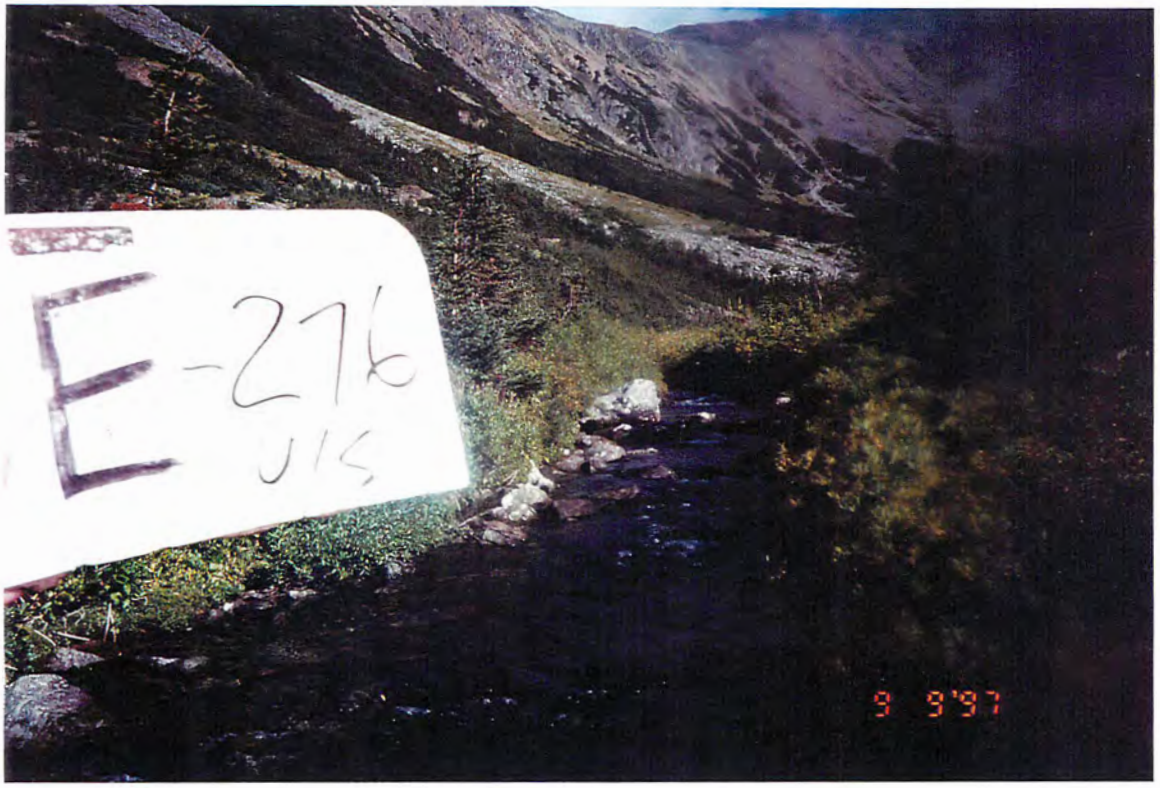

Photo #: E-26-17, 10-Sep-97
Site #: E276, Looking upstream at the channel

Photo #: E-26-18, 10-Sep-97
Site #: E276, Looking downstream at the channel

Photo #: E-26-19, 10-Sep-97
Site #: E276, Looking upstream at the channel

DFO/MoELP Stream Survey Form **Site Number:** E282 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: E282, Unit 10, Silver King Basin, Headwaters of Driftwood Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** 100-0700-000-000-000-000-000-000-000-000-000-

Map #: 93 L 096 **Reach Length (km):** 0.5 MW **Date:** 10-Sep-97 **Time:** 11:00 **Agency:** TEC **Access:** V4 **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .6350 .60861 **Length surveyed (m):** 150.0 GE **Survey Crew:** SJ \JL \ \ \ \ \ \ \ **Photos:** E-27-7,8,9 **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	5.1	MS	6.0	4.4	6.0	4.6	4.7	5.1
Av. Wet. Width (m):	4.4	MS	5.1	4.2	4.9	3.3	4.5	4.3
Av. Max Riffle Depth (cm):	6	MS	4	6	7	6	5	
Av. Max Pool Depth (cm):	46	MS	41	53	38	29	34	79
Gradient (%):	17.0	CL						

Pool: 25 Riffle: 5 Run: 45 Other: 25

% Side Channel: 0-10 GE

% Debris Area: 0 GE

%Stable: 0 GE

Cover

Cover Total % : 25 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
40	10	40	0	0	10

Crown Closure % : 0 Aspect : SE

Discharge

Wetted Width (m) :	2.6	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.52	F
Discharge (m3/s) :	0.20	F

Reach Symbol

(Fish)

(DV)

5 C 17.0 | 1171

(Width, Valley: Channel, Slope) (Bed Material)

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	70	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		40
Bedrock		10	10

D90 (cm): Compaction: High

Banks

Height (m): 0.4

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.6

Bars (%): 10 pH: 7.4 Braided: N

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 50

Obstructions

C	Height (m)	Type	Location
	20	C	0.5

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S2

C2 LS = 10%, RS = 8%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort using a Smithroot 12 B POW model, set at I-5-400V, was 482 seconds over 150 meters.

C5 Fines, larges and bedrock make up the bank texture at this site.

C6 DO was not measured, the water was clear to the bottom. The air temperature at this site was 11.C.

C7 The 20 m cascade listed in the obstructions section is located above the sampling area. Boulder and deep pool rearing cover was noted at this site. Limited spawning habitat was observed.

Photo #: E-27-7, 10-Sep-97
Site #: E282, Looking upstream at the channel, note boulders and cascades

Photo #: E-27-8, 10-Sep-97
Site #: E282, Looking downstream at the channel

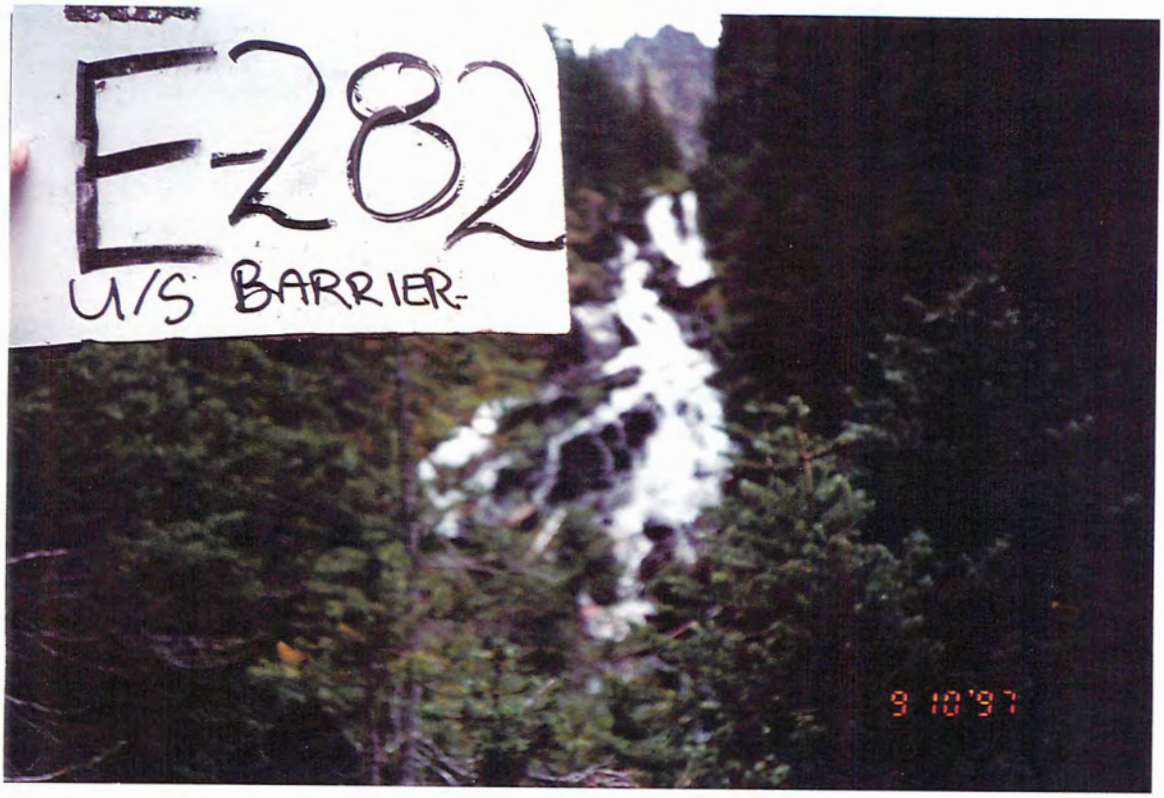

Photo #: E-27-9, 10-Sep-97
Site #: E282, Looking upstream at a cascade barrier above the sampling area

DFO/MoELP Stream Survey Form

Site Number: E285 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: E285, Unit 10, Southeast of Silver King Basin **Stream (Gaz.):** Unnamed **Watershed Code:** 050-0400-000-000-000-000-000-000-000-000-000-

Map #: 93 L 086 **Reach Length (km):** 1.8 MW **Date:** 10-Sep-97 **Time:** 14:20 **Agency:** TEC **Access:** V4 **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .6343 .60845 **Length surveyed (m):** 125.0 GE **Survey Crew:** SJ JL \ \ \ \ \ \ \ **Photos:** E-27-14,15 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.3	MS
Av. Wet. Width (m):	2.7	MS
Av. Max Riffle Depth (cm):	9	MS
Av. Max Pool Depth (cm):	46	MS
Gradient (%):	4.0	CL
Pool: 20 Riffle: 30 Run: 40 Other:	10	
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	0	GE

Specific Data

2.2	4.3	3.1	2.9	7.1	6.5
2.2	4.5	3.0	2.9	1.7	2.0
10	11	9	10	7	
54	43	39	61	47	34

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
40	0	40	0	0	20

Crown Closure % : 0 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	40	20
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	50	10
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		25
Bedrock		0	0

D90 (cm): 79 Compaction: High

Discharge

Wetted Width (m) :	3.3	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.60	F
Discharge (m3/s) :	0.30	F

Banks

Height (m): 0.2

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

(DV)

4 D 4.0 | 1450

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.5

Bars (%): 30 pH: 7.8 Braided: Y

Water Temp. (°C): 8.0 02 (ppm): 0.0

Turb. (cm): Cond. (µmhos): 60

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S3

C2 LS = 15%, RS = 10%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smitrhoot 12 B POW model, set at -5-400V, was 280 seconds over 100 meters.

C5 Fines and larges make up the bank texture at this site.

C6 DO was not measured, the water was clear to the bottom. The air temperature at this site was 15.C.

C7 Some good pool and boulder rearing cover was observed at this site. Spawning substrate was observed in runs and pools. Periphyton was abundant in the sampling area.

Photo #: E-27-14, 10-Sep-97
Site #: E285, Looking upstream at the channel

Photo #: E-27-15, 10-Sep-97
Site #: E285, Looking downstream at the channel

DFO/MoELP Stream Survey Form **Site Number:** E286 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: E286, Unit 10, North of Driftwood Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** 050-0000-000-000-000-000-000-000-000-000-000-

Map #: 93 L 086 **Reach Length (km):** 0.8 MW **Date:** 10-Sep-97 **Time:** 15:35 **Agency:** TEC **Access:** V4 **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M.: 9 .6332 .60850 **Length surveyed (m):** 100.0 GE **Survey Crew:** SJ \JL \ \ \ \ \ \ \ **Photos:** E-27-16,17 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	0.8	MS
Av. Wet. Width (m):	0.7	MS
Av. Max Riffle Depth (cm):	2	MS
Av. Max Pool Depth (cm):	18	MS
Gradient (%):	19.0	CL
Pool: 5 Riffle: 10 Run: 85 Other:	0	
% Side Channel:	>40	GE
% Debris Area:	0	GE
%Stable:	40	GE

Specific Data

1.0	0.3	0.7	0.9	0.2	1.6
0.6	0.5	0.6	0.4	0.4	1.4
2	3	2	1	1	
22	14	18	21	13	

Cover

Cover Total %: 10 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	0	10	0	0	80

Crown Closure %: 40 Aspect: S

Bed Material

Fines	Clay, silt, sand (<2mm):	60	60
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):		10
	Lge cobble (128-256mm):	20	10
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 17 Compaction: Low

Discharge

Wetted Width (m):	0.6	MS
Mean Depth (m):	0.1	MS
Mean Velocity (m/s):	0.30	F
Discharge (m3/s):	0.01	F

Banks

Height (m): 0.1

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: L Flood Signs Ht(m): 0.2

Bars (%): 20 pH: 8.1 Braided: Y

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 190

Reach Symbol

(Fish)

NF

1 D 19.0 | 6220

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S6

C2 LS = 5%, RS = 5%

C3 No fisheries sensitive zones present.

C4 The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 108 seconds over 100 meters. The shocking conditions were difficult due to the frequency of subterrainean flow.

C5 No additional bank texture information.

C6 DO was not measured, the water was clear to the bottom. The air temperature at this site was 15.C.

C7 This reach flows underground in several locations, for 60-70 m and 90-100 m. A section of 25% gradient was also noted.

C8 This reach has been classified as non fish bearing because it lacks sutaible fish habitat, has subterrainean flow and multiple sections of steep gradient.

Photo #: E-27-16, 10-Sep-97
Site #: E286, Looking upstream at the channel

Photo #: E-27-17, 10-Sep-97
Site #: E286, Looking downstream at the channel, note the moss lined banks

DFO/MoELP Stream Survey Form

Site Number: E287 **Reach No.: 1**

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: E287, unit 10, North of Driftwood Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** 049-9400-000-000-000-000-000-000-000-000-000-

Map #: 93 L 086 **Reach Length (km):** 0.3 MA **Date:** 10-Sep-97 **Time:** 16:30 **Agency:** TEC **Access:** V4 **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6325 .60847 **Length surveyed (m):** 150.0 GE **Survey Crew:** SJ \JL\ \ \ \ \ \ \ **Photos:** E-27-18,19 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.6	MS
Av. Wet. Width (m):	0.0	GE
Av. Max Riffle Depth (cm):	0	GE
Av. Max Pool Depth (cm):	0	GE
Gradient (%):	19.0	CL
N Pool: 0 Riffle: 0 Run: 0 Other: 0		
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	0	GE

Specific Data

2.1 1.9 1.3 1.4 1.5 1.1

Cover

Cover Total % : 25 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	30	70	0	0	0

Crown Closure % : 30 Aspect : S

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	30	15
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	60	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 90 Compaction: High

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

N Height (m): % Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

(DV)

2 D 19.0 | 1360

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: UC

Valley : Channel Ratio 10+

Stage: Dry Flood Signs Ht(m): 0.9

Bars (%): 100 pH: Braided: Y

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1 S3

C2 LS = 10%, RS = 8%

C3 No fisheries sensitive zones present.

C4 This dry site was not electrofished.

C5 Gravels and larges make up the bank texture at this site.

C6 Water quality could not be measured. The air temperature at this site was 16.C.

C7 This is a small, steep gradient reach that most likely does not support fish.

Photo #: E-27-18, 10-Sep-97
Site #: E287, Looking upstream at a dry channel

Photo #: E-27-19, 10-Sep-97
Site #: E287, Looking downstream at a dry channel

DFO/MoELP Stream Survey Form

Site Number: E288

Reach No.: 1

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: E288, Unit 10, North of Driftwood Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** 049-9000-000-000-000-000-000-000-000-000-000-

Map #: 93 L 086 **Reach Length (km):** 0.6 MW **Date:** 10-Sep-97 **Time:** 17:00 **Agency:** TEC **Access:** V4 **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6313 .60846 **Length surveyed (m):** 100.0 GE **Survey Crew:** SJ \JL \ \ \ \ \ \ \ **Photos:** E-27-20,21 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	6.9	MS
Av. Wet. Width (m):	5.6	MS
Av. Max Riffle Depth (cm):	14	MS
Av. Max Pool Depth (cm):	54	MS
Gradient (%):	15.0	CL
Pool: 20 Riffle: 10 Run: 40 Other:	30	
% Side Channel:	>40	GE
% Debris Area:	5-15	GE
%Stable:	0	GE

Specific Data

4.3	6.9	8.7	7.6	8.2	5.7
4.3	6.4	6.5	6.3	6.1	4.1
13	13	16	14	12	
54	82	39	47	53	49

Bed Material

Fines	Clay, silt, sand (<2mm):	20	20
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	60	10
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		40
Bedrock		0	0

D90 (cm): 89 Compaction: High

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
30	15	40	0	0	15

Crown Closure % : 10 Aspect : S

Discharge

Wetted Width (m) :	3.7	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.95	F
Discharge (m3/s) :	0.79	F

Banks

Height (m): 0.3

% Unstable: 30

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.9

Bars (%): 30 pH: 8.0 Braided: Y

Water Temp. (°C): 6.5 02 (ppm):

Turb. (cm): Cond. (µmhos): 110

Reach Symbol

(Fish)

(DV)

7 C 15.0 | 2260

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S2

C2 LS = 15%, RS = 20%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model set at I-5-400V, was 469 seconds over 150 meters.

C5 Fines, gravels and larges make up the bank texture at this site.

C6 DO was not measured, the water was clear to the bottom. The air temperature at this site was 15.C.

C7 Cascades make up 30% of the flow at this site. Rearing habitat is found in deep plunge pools and pocket pools.

Photo #: E-27-20, 10-Sep-97
Site #: E288, Looking upstream at the channel, note the small cascades

Photo #: E-27-21, 10-Sep-97
Site #: E288, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: E274 Reach No.: 3

Trib. to Driftwood Cr.

TRITON Environmental Consultants Ltd.

Location: E274, Unit 10, South of the Drfitwood Cr. headwaters **Stream (Gaz.):** Unnamed **Watershed Code:** 050-0500-000-000-000-000-000-000-000-000-000-

Map #: 93 L 086 **Reach Length (km):** 1.0 MW **Date:** 08-Sep-97 **Time:** 15:15 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6358 .60832 **Length surveyed (m):** 300.0 GE **Survey Crew:** SJ \JL \ \ \ \ \ \ \ **Photos:** E-26-9,10 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.0	MS
Av. Wet. Width (m):	0.8	MS
Av. Max Riffle Depth (cm):	5	MS
Av. Max Pool Depth (cm):	22	MS
Gradient (%):	9.0	CL
Pool: 10 Riffle: 5 Run: 80 Other: 5		
% Side Channel:	0-10	GE
% Debris Area:	0-5	GE
%Stable:	10	GE

Specific Data

1.1	0.9	0.8	1.9	0.7	0.9
0.9	0.9	0.8	0.9	0.6	0.9
5	4	5	6	5	
15	34	17	27	19	

Cover

Cover Total % : 15 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	0	30	0	10	40

Crown Closure % : 0 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	50	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		10
Bedrock		20	20

D90 (cm): Compaction: High

Discharge

Wetted Width (m) :	0.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.32	F
Discharge (m3/s) :	0.02	F

Banks

Height (m): 0.1

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

NF

I C 9.0 | 1252

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 10 pH: 7.8 Braided: N

Water Temp. (°C): 12.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 70

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S6

C2: LS = 10%, RS = 15%

C3: No fisheries sensitive zones.

C4: The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 387 seconds over 100 meters.

C5: Fines and larges make up the bank texture at this site.

C6: DO was not measured, the air temperature was 20.C.

C7: This reach flows out of two small lakes, over extremely steep gradient before joining Drfitwood Creek. Rearing habitat was noted in the stream and the lakes may provide overwintering habitat, however, they are high elevation lakes that would likely be subject to winter kill.

C8: This reach has been classified as non fish bearing because it is located above a section of extreme gradient, (>45%) and is too small to support a resident population.

Photo #: E-26-9, 08-Sep-97
Site #: E274, Looking upstream at the channel

Photo #: E-26-10, 08-Sep-97
Site #: E274, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: ARNE 12 **Reach No.: 1**

Trib. to Driftwwod Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 12, Unit 10, Driftwood road, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-000-0

Map #:	93 L 086	Reach Length (km):	0.9	MA	Date:	20-Sep-96	Time:	16:25	Agency:	TEC	Access:	V2	Fish Card:	N	Field ☒ Historical ☐
U.T.M. :	9 .6294 .60807	Length surveyed (m):	250.0	GE	Survey Crew:	AKL\ HK\ \ \ \ \ \ \			Photos:	A-2-2,3			Air Photos:		

Channel Characteristics

Av. Chan. Width (m):	2.6	MS
Av. Wet. Width (m):	0.8	MS
Av. Max Riffle Depth (cm):	3	MS
Av. Max Pool Depth (cm):	19	MS
Gradient (%):	2.0	CL
Pool: 10 Riffle: 40 Run: 50 Other:	0	
% Side Channel:		GE
% Debris Area:	5-15	GE
%Stable:	90	GE

Specific Data

2.4	3.5	4.0	2.2	2.6	1.0
1.1	1.0	0.7	0.8	0.9	0.4
4	3	1			
18	20				

Cover

Cover Total % : 70 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	10	10	0	80	0

Crown Closure % : 5 Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	50	50
Gravels	Small (2-16mm):	20	0
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	30	5
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		5
Bedrock		0	0

D90 (cm): 25 Compaction: Low

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

DV

3 E 2.0 | 5230

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: N/A

Valley : Channel Ratio N/A

Stage: L Flood Signs Ht(m): 0.1

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): 20 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	DV	2	30	J	R			VO

Comments

C1 S3

C2 The side slopes were not measured at this site.

C3 No fisheries sensitive zones were noted at this site.

C4 This site was not electrofished as very little habitat was available to shock. The Dolly Varden noted at this site were seen near the confluence with a side channel of Driftwood Creek.

C5 Lat N 54 51' 24.3", Long W 126 59' 25.4"

C6 No additional bank texture information.

C7 DO,pH, conductivity were not evaluated at this site. The water was clear to the bottom. The mean air temperature on this day was 4.9°C

C8 Some nice juvenile rearing habitat was observed at this site.

C9 The culvert at this site is not a barrier to fish passage upstream.

C10 Thick understory and minimal overstory occur at this site.

Photo #: A-2-2, 20-Sep-96
Site #: A12, Looking upstream.

Photo #: A-2-3, 20-Sep-96
Site #: A12, Looking downstream.

5.4 Maney Creek (93 L 085)

5.4.1 Sensitive Habitats and Barriers

No sensitive habitats or major barriers were noted however the TRIM sheet indicates somewhat steep gradient coupled with canyon like confinement in reach 1. The headwaters of Maney Creek are moderately steep and flow southwest, and eventually west, farther downstream. The gradient decreases downstream approximately 1.1 km from the confluence with the Bulkley River. At this point Maney Creek becomes quite confined and the gradient increases. The mainstem of Maney Creek was sampled in reach 1 at a road crossing , in a low gradient area. The three tributaries to Maney Creek were not sampled. Several road crossings and a cluster of buildings are associated with this creek.

5.4.2 Fish Summary Tables and Stream Classification

No fish were caught during the electroshocking trials and no historical records exist for Maney Creek. The water level was quite low at the time of sampling. Future sampling is recommended.

Maney Creek was sampled at a road crossing in reach 1 and in the steeper headwater region. It was classified as an S3, based on the 3.0m average channel width in reach 1 and an S4, based on an average channel width of 1.13m above. One tributary was sampled and classified as an S4, based on an average channel width of 57 cm, no fish were caught (see Table 4).

DFO/MoELP Stream Survey Form **Site Number:** ARNE 6 **Reach No.: 2**

Maney Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 6, Unit 10, see C5. **Stream (Gaz.):** Maney Creek **Watershed Code:** 460-3103-000-000-000-000-000-000-000-000-000-0

Map #:	93 L 085	Reach Length (km):	3.0	MW	Date:	19-Sep-96	Time:	17:30	Agency:	TEC	Access:	V2	Fish Card:	N	Field ☒ Historical ☐
U.T.M. :	9 .6194 .60806	Length surveyed (m):	100.0	GE	Survey Crew:	AKL\HK \ \ \ \ \ \ \					Photos:	A-1-13,14	Air Photos:		

Channel Characteristics

				Specific Data				
	Av. Chan. Width (m):	3.0	MS	3.0	2.6	3.1	3.4	2.9
	Av. Wet. Width (m):	0.7	MS	0.4	0.8	0.2	0.1	2.0
N	Av. Max Riffle Depth (cm):	0	MS					
N	Av. Max Pool Depth (cm):	8	MS	6	10	12	4	
	Gradient (%):	3.0	CL					

Pool: 80 Riffle: 0 Run: 20 Other: 0

% Side Channel:	0	GE
% Debris Area:	30	GE
%Stable:	60	GE

Cover

Cover Total % : 80 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	30	0	0	70	0

Crown Closure % : 50 Aspect : W

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Reach Symbol

(Fish)

(RB)

3 E 3.0 | 7210

(Width, Valley: Channel, Slope) (Bed Material)

Bed Material

Fines	Clay, silt, sand (<2mm):	70	70
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	10	5
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		
Bedrock		0	0

D90 (cm): 13 Compaction: Low

Banks

Height (m): 0.6

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: L Flood Signs Ht(m): 0.4

Bars (%): 10 pH: Braided: N

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 12 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1: S3

C2: The side slopes were not measured at this site.

C3: No fisheries sensitive zones were noted.

C4: The electroshocking effort, using a Smithroot 15 A model, was 15 seconds. No fish were caught and the shocking conditions were poor. The crew shocked the only available pool, found at the outlet of the culvert.

C5: Lat N 54 51' 29.6", Long W 127 08' 23.6"

C6: No additional bank texture information.

C7: DO, pH and conductivity were not measured at this site. The water was clear to the bottom. The mean air temperature on this day was 6.0°C

C8: Some good rearing habitat would be available at this site at higher flows. A great deal of LOD cover is present in the channel. No overwintering habitat was seen.

C9: The two culverts at the road crossing are not obstructions to fish passage upstream.

1: The understory vegetation is quite thick at this site and includes willow, alder and dogwood. The overstory is dominated by aspen.

Photo #: A-1-13, 19-Sep-96
Site #: A6, Looking downstream.

Photo #: A-1-14, 19-Sep-96
Site #: A6, Looking upstream.

DFO/MoELP Stream Survey Form **Site Number:** E196 **Reach No.:** 4

Maney Cr.

TRITON Environmental Consultants Ltd.

Location: E196, Unit 10, North of Drfitwood Cr. **Stream (Gaz.):** Maney Creek **Watershed Code:** 460-3103-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 085 **Reach Length (km):** 3.7 MA **Date:** 25-Nov-97 **Time:** 13:00 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6233 .60843 **Length surveyed (m):** 250.0 GE **Survey Crew:** SJ \EM\ \ \ \ \ \ \ **Photos:** E-19-9,10 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.1	MS
Av. Wet. Width (m):	0.4	MS
Av. Max Riffle Depth (cm):	2	MS
Av. Max Pool Depth (cm):	14	MS
Gradient (%):	8.0	CL
Pool: 5 Riffle: 10 Run: 85 Other: 0		
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	80	GE

Specific Data

0.4	0.5	0.4	1.8	2.5	1.2
0.3	0.4	0.2	0.2	0.6	0.8
1	3	2	2	1	
10	11	9	20	18	

Cover

Cover Total % : 70 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	0	10	0	0	80

Crown Closure % : 40 Aspect : S

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	80	40
	Large (16-64mm):		40
Larges	Sm. cobble (64-128mm):	10	10
	Lge cobble (128-256mm):		0
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 15 Compaction: Medium

Discharge

Wetted Width (m) :	0.2	MS
Mean Depth (m) :	0.0	MS
Mean Velocity (m/s) :	0.47	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.1

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: L Flood Signs Ht(m): 0.4

Bars (%): 10 pH: 6.9 Braided: N

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 40

Reach Symbol

(Fish)

(DV)

1 D 8.0 | 1810

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S4

C2 LS = 10%, RS = 15%

C3 No fisheries sensitive zones noted.

C4 This site was not electrofished, the flow was too low at the time of sampling.

C5 No additional bank texture information.

C6 DO was not measured, the water was clear to the bottom. The mean air temperature on this day was 18.1.C.

C7 This reach has little rearing habitat and appears to consist of groundwater in flow. Despite being surrounded by mature forest, very little LWD was observed in the sampling area.

Photo #: E-19-9, 14-Aug-97
Site #: E196, Looking downstream at the channel

Photo #: E-19-10, 14-Aug-97
Site #: E196, Looking upstream at the channel and riparian vegetation.

DFO/MoELP Stream Survey Form **Site Number: E197** **Reach No.: 2**

Trib. to Maney Cr.

TRITON Environmental Consultants Ltd.

Location: E197, Unit 10, North of Driftwood Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** 049-3700-000-000-000-000-000-000-000-000-000-

Map #: 93 L 085 **Reach Length (km):** 3.2 MA **Date:** 14-Aug-97 **Time:** 14:00 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 6226 60847 **Length surveyed (m):** 100.0 GE **Survey Crew:** SJ \EM \ \ \ \ \ \ \ **Photos:** E-19-11,12 **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	0.6	MS	0.5	0.4	0.5	0.8	0.8	0.5
Av. Wet. Width (m):	0.4	MS	0.2	0.4	0.2	0.8	0.5	0.5
Av. Max Riffle Depth (cm):	1	MS	2	2	1	1	1	
Av. Max Pool Depth (cm):	17	MS	20	15	9	20	15	23
Gradient (%):	10.0	CL						

Pool: 30 Riffle: 20 Run: 50 Other: 0

% Side Channel:	0-10	GE
% Debris Area:	0-5	GE
%Stable:	10	GE

Cover

Cover Total % : 10 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	10	40	0	20	30

Crown Closure % : 40 Aspect : S

Bed Material

Fines	Clay, silt, sand (<2mm):	40	40
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	40	20
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		5
Bedrock		0	0

D90 (cm): 18 Compaction: Medium

Discharge

Wetted Width (m) :	0.2	MS
Mean Depth (m) :	0.0	MS
Mean Velocity (m/s) :	0.36	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.1

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.2

Bars (%): 30 pH: 7.2 Braided: N

Water Temp. (°C): 11.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 40

Reach Symbol

(Fish)

(DV)

1 D 10.0 | 4240

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S4

C2 LS = 11%, RS = 5%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 277 seconds over 100 meters.

C5 No additional bank texture information.

C6 DO was not measured, the water was clear to the bottom. The mean air temperature on this day was 18.1.C.

C7 This small creek has very little cover for fish. The banks are low and stable. Little LOD was noted, despite the fact that the area was surrounded by mature forest.

Photo #: E-19-11, 14-Aug-97
Site #: E197, Looking upstream at the channel

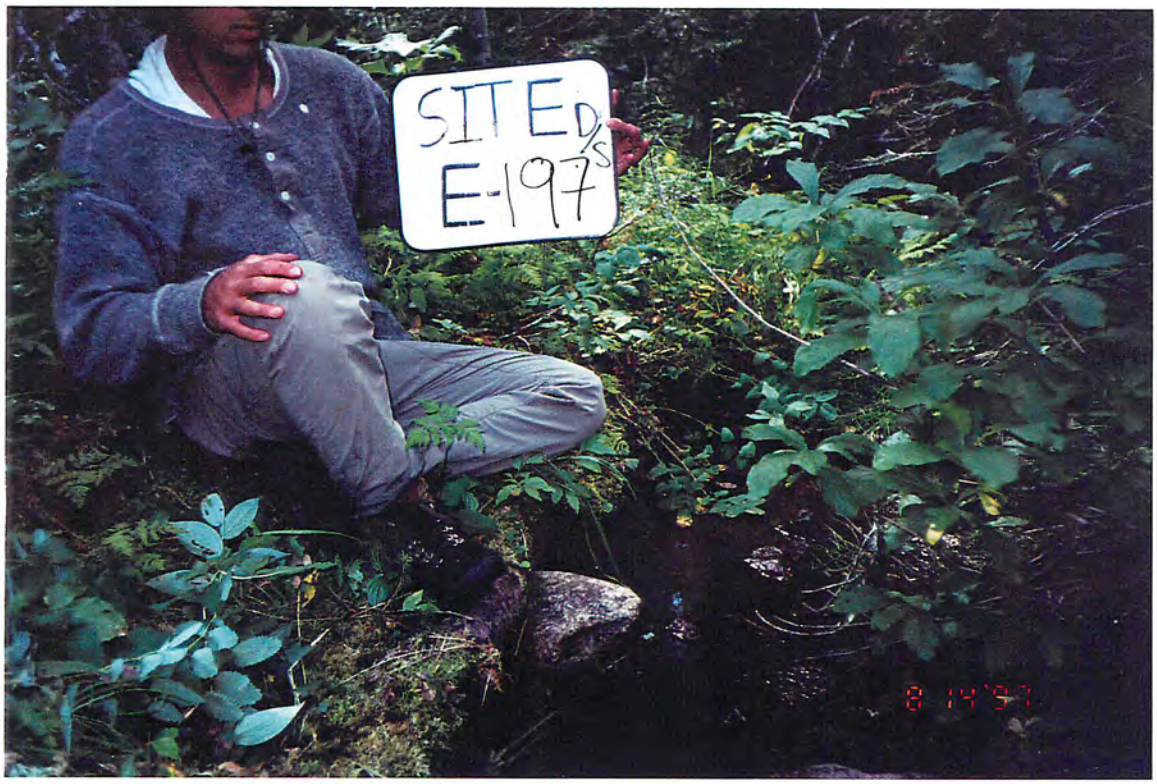

Photo #: E-19-12, 14-Aug-97
Site #: E197, Looking downstream at the channel

5.5 Newitt Creek (93 L 085)

5.5.1 Sensitive Habitats and Barriers

No sensitive habitats or barriers were noted in this system. The mainstem of Newitt Creek is 6.3 km in length and flows west into the Bulkley River. The headwaters of Newitt Creek are characterized by moderately steep to steep gradient. Reach 1 is characterized by moderate to low gradient, is surrounded by a small cluster of buildings and is crossed by a major road. The mainstem of Newitt Creek and two of its six tributaries were sampled in 1996.

5.5.2 Fish Summary Tables and Stream Classification

No fish were caught at the three sample sites on this system and no historical information exists for these areas. The low flows at the time of sampling made it difficult for the crew to effectively electroshock Newitt Creek, which appears to have some suitable spawning gravels and boulder cover. Future sampling is recommended.

The mainstem of Newitt Creek has been classified as an S3, based on a 3.3 m average channel width.
Two tributaries to Newitt Creek were sampled, both were classified as S4 based on average channel widths of .1.0 and 1.15m and no evidence of significant barriers to fish migration (see Table 4).

DFO/MoELP Stream Survey Form **Site Number:** ARNE 3 **Reach No.: 1**

Newitt Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 3, Unit 10, see C5 **Stream (Gaz.):** Newitt Creek **Watershed Code:** 460-2920-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 085 **Reach Length (km):** 4.6 MA **Date:** 19-Sep-96 **Time:** 16:10 **Agency:** TEC **Access:** V2 **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6172 .60838 **Length surveyed (m):** 250.0 GE **Survey Crew:** AHL\ HK\ \ \ \ \ \ \ **Photos:** A-1-7,8 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.3	MS
Av. Wet. Width (m):	0.6	MS
Av. Max Riffle Depth (cm):	2	MS
Av. Max Pool Depth (cm):	5	MS
Gradient (%):	7.0	CL
Pool: 20 Riffle: 40 Run: 40 Other:	0	
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	20	GE

Specific Data

2.4	2.7	4.0	4.2	4.0	2.3
0.6	0.5	0.9	0.7	0.5	0.6
2	1	2			
5					

Cover

Cover Total % : 10 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	5	55	0	40	0

Crown Closure % : 20 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	60	30
	Large (16-64mm):		30
Larges	Sm. cobble (64-128mm):	30	10
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 26 Compaction: Medium

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

Height (m): 1.0

% Unstable: 50

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: L Flood Signs Ht(m): 0.2

Bars (%): 10 pH: Braided: N

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 5 Cond. (µmhos):

Reach Symbol

(Fish)

(RB)

3 E 7.0 | 1630

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1 S3

C2 LS = 7%, RS = 3%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a Smithroot 15 A model was 50 seconds. No fish were caught and the low flow conditions were not suited to shocking.

C5 Lat N 54 53' 14.9", Long W 127 10' 22.3"

C6 No additional bank texture information.

C7 DO, pH, and conductivity were not measured at this site. The water was clear to the bottom. The mean air temperature on this day was 6.0°C

C8 Most of the riparian cover has been removed from this site, which runs through range land. No overwintering habitat was noted.

C9 Water is drawn from this creek for domestic purposes. Livestock use the stream.

Photo #: A-1-7, 19-Sep-96
Site #: A3, Looking upstream.

Photo #: A-1-8, 19-Sep-96
Site #: A3, Looking downstream.

DFO/MoELP Stream Survey Form **Site Number:** ARNE 2 **Reach No.: 1**

Trib. to Newitt Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 2, Unit 10, Telkwa Hi road, 400m South of Twin Cr. , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 049-4400-000-000-000-000-000-000-000-000-0

Map #: 93 L 085 **Reach Length (km):** 3.5 MA **Date:** 19-Sep-96 **Time:** 15:40 **Agency:** TEC **Access:** V2 **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6190 .60847 **Length surveyed (m):** 100.0 HC **Survey Crew:** AKL\ HK\ \ \ \ \ \ \ **Photos:** A-1-5,6 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	1.1	MS
	Av. Wet. Width (m):	0.0	GE
N	Av. Max Riffle Depth (cm):	0	GE
N	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	1.0	CL

Pool: 0 Riffle: 0 Run: 0 Other: 0

% Side Channel:	0	GE
% Debris Area:	20	GE
%Stable:		GE

Specific Data

1.2 0.9 0.8 1.3 1.5 1.2

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	0	0	0	100	0

Crown Closure % : 40 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	100	100
Gravels	Small (2-16mm):	0	0
	Large (16-64mm):		0
Larges	Sm. cobble (64-128mm):		0
	Lge cobble (128-256mm):	0	0
	Bldr cobble (>256mm):		0
Bedrock		0	0

N D90 (cm): 0 Compaction: Low

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

Height (m): 0.1

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: Dry Flood Signs Ht(m): 0.2

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

(RB)

I E 1.0 | F

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1: S4

C2: LS = 0%, RS = 0%

C3: No fisheries sensitive zones were noted at this site.

C4: This dry site was not electrofished.

C5: Lat N 54 53' 44.2, Long W 127 10' 33.2"

C6: No additional bank texture information.

C7: Water quality was not evaluated at this site. The mean air temperature on this day was 6.0°C

C8: Marginal fish habitat was observed at this site. In some areas, the channel is intermittent and undefined, running over the forest floor. No fluvial substrate was observed at this site.

Photo #: A-1-5, 19-Sep-96
Site #: A2, Looking upstream.

Photo #: A-1-6, 19-Sep-96
Site #: A2, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: BRUCE 97 **Reach No.: 0**

Not a creek

TRITON Environmental Consultants Ltd.

Location: BRUCE 97, Unit 10, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-2793-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 **Reach Length (km):** 0.0 **Date:** 26-Aug-96 **Time:** 10:45 **Agency:** TEC **Access:** V2 **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6189 .60904 **Length surveyed (m):** 100.0 GE **Survey Crew:** BM \DD \ \ \ \ \ \ \ **Photos:** B-6-24 **Air Photos:**

Channel Characteristics

N	Av. Chan. Width (m):	0.6	MS
N	Av. Wet. Width (m):	0.4	MS
N	Av. Max Riffle Depth (cm):		
N	Av. Max Pool Depth (cm):		
	Gradient (%):	0.0	CL
N	Pool: 0 Riffle: 0 Run: 0 Other: 0		
	% Side Channel:	>40	GE
	% Debris Area: 0		GE
	%Stable:		GE

Specific Data

Bed Material

N	Fines	Clay, silt, sand (<2mm):		
N	Gravels	Small (2-16mm):		
		Large (16-64mm):		
N	Larges	Sm. cobble (64-128mm):		
		Lge cobble (128-256mm):		
		Bldr cobble (>256mm):		
N	Bedrock			

D90 (cm): Compaction:

Cover

Cover Total % : 100 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	0	0	0	100	0

Crown Closure % : 100 Aspect : SW

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

N Height (m):

% Unstable: 0

N Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

N Confinement: N/A

N Valley : Channel Ratio N/A

Stage: L N Flood Signs Ht(m):

N Bars (%): pH: Braided:

N Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

NF

0 E

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1 NC

C2 LS = 3%, RS = 4%

C3 No fisheries sensitive zones were noted at this site.

C4 No electroshocking was carried out at this site.

C5 Lat N 54 56' 46", Long W 127 08' 30"

C6 No additional bank texture information.

C7 Water quality was not evaluated at this site.

C8 This site does not provide fish habitat.

C9 A cutblock exists on the "upstream " side of the road at this site. No established channel was observed in the cutblock, however, water was seen running through a skidder trail.

Photo #: B-6-24, 1996/08/26
Site #: B97, Not a creek.

DFO/MoELP Stream Survey Form

Site Number: RYAN 77

Reach No.: 0

Not a creek

TRITON Environmental Consultants Ltd.

Location: RYAN 77, Unit 10, d/s of Dritwood Canyon Park, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-3138-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 085 | Reach Length (km): 0.0 | Date: 20-Sep-96 | Time: 15:00 | Agency: TEC | Access: V2 | Fish Card: N | Field ☐ | Historical ☒

U.T.M. : 9 .6253 .60762 | Length surveyed (m): 150.0 GE | Survey Crew: RH \UL\ \ \ \ \ \ \ | Photos: R-5-4 | Air Photos:

Channel Characteristics

	Av. Chan. Width (m):	0.0	GE
	Av. Wet. Width (m):	0.0	GE
N	Av. Max Riffle Depth (cm):	0	GE
N	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	14.0	CL

Pool: 0 Riffle: 0 Run: 0 Other: 0

% Side Channel: GE

% Debris Area: 0 GE

%Stable:

Specific Data

Bed Material

	Fines	Clay, silt, sand (<2mm):	100	100
	Gravels	Small (2-16mm):	0	0
		Large (16-64mm):		0
	Larges	Sm. cobble (64-128mm):	0	0
		Lge cobble (128-256mm):		0
		Bldr cobble (>256mm):		0
	Bedrock		0	0

N D90 (cm): 0 Compaction: Low

Cover

N Cover Total % : 0

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N	0	0	0	0	0	0

N Crown Closure % : Aspect : SE

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Reach Symbol

(Fish)

NF

0 E 14.0 | F

(Width, Valley: Channel, Slope) (Bed Material)

Banks

N Height (m):

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: Dry Flood Signs Ht(m):

Bars (%): pH: Braided: N

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1	NC
C2	LS = 45%, RS = 5%
C3	No fisheries sensitive zones were noted at this site.
C4	This dry site was not electrofished.
C5	Lat N 54 49' 02.2", Long W 127 02' 59.8"
C6	No additional bank texture information.
C7	Water quality was not evaluated at this site.
C8	No fish habitat was observed at this site.
C9	No defined channel was seen in the area.

Photo #: R-5-4, 1996/09/20
Site #: R77

5.6 Reiseter Creek (93 L 095, 93 L 096, 93 M005)

5.6.1 Sensitive Habitats and Barriers

An extensive marsh surrounding the first of two large lakes in the upper reaches of this system was identified. In addition, Reiseter Creek has steep side slopes throughout most of its length, as does the large tributary flowing in from the south. A 10m cascade was noted in reach 3, which appears to delineate the upper limits of fish distribution in this creek (see Table 3). Fish were not caught above this cascade, and as a result the mainstem and all tributaries above this barrier have been classified as non fish bearing (see Table 6).

The mainstem of Reiseter Creek is 29.7 km in length and flows southwest from a large headwater lake. Two large lakes, one of which is known to support rainbow trout, are found in the upper reaches of Reiseter Creek. Several km downstream of these lakes, the stream begins to flow west into the Bulkley River.

5.6.2 Fish Summary Tables and Stream Classification

Rainbow trout were caught by electroshocking at 6 sites (see Table 4). Historical records indicate that rainbow trout are also present in the largest lake associated with this stream.

Reiseter Creek was classified as an S2 through reach 3, based on the 16.0 m, and 8.83 m average channel widths obtained in the different sampling areas and the presence of both fish and suitable fish habitat (see table 4).

DFO/MoELP Stream Survey Form

Site Number: ARNE 63 **Reach No.: 1**

Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 63, Unit 10, see C5. **Stream (Gaz.):** Reiseter Creek **Watershed Code:** 460-2793-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 **Reach Length (km):** 21.1 MW **Date:** 28-Sep-96 **Time:** 13:41 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6210 .60892 **Length surveyed (m):** 400.0 GE **Survey Crew:** AKL\BRL\ \ \ \ \ \ **Photos:** A-6-22,23,24,25 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	16.0	MS
Av. Wet. Width (m):	12.6	MS
Av. Max Riffle Depth (cm):	34	MS
Av. Max Pool Depth (cm):	101	MS
Gradient (%):	5.0	GE
Pool: 30 Riffle: 60 Run: 10 Other: 0		
% Side Channel:	0	GE
% Debris Area:	5-15	GE
%Stable:	20	GE

Specific Data

15.3	13.8	13.8	14.6	18.5	20.0
12.2	10.0	12.0	10.6	15.0	16.0
35	36	38	27		
58	140	180	27		

Cover

Cover Total % : 80 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	5	85	0	0	0

Crown Closure % : 10 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	10	2
	Large (16-64mm):		8
Larges	Sm. cobble (64-128mm):	80	10
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		50
Bedrock		10	10

D90 (cm): 60 Compaction: High

Discharge

Wetted Width (m) :	16.0	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	1.30	F
Discharge (m3/s) :	5.30	F

Banks

Height (m): 1.0

% Unstable: 40

Fines ☐ Gravels ☒ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 0-2

Stage: L Flood Signs Ht(m): 1.4

Bars (%): 2 pH: Braided: N

Water Temp. (°C): 5.0 02 (ppm):

Turb. (cm): 180 Cond. (µmhos): 90

Reach Symbol

(Fish)

RB

16 A 5.0 | 0181

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB	5	70-200	J	R			EL

Comments

C1 S2

C2 LS= 4%, RS= 6%

C3 No fisheries sensitive zones were noted in the sampling area.

C4 The electroshocking effort, using a 12 B POW model was 330 seconds over 100 sq.meters.

C5 Lat N 54 56' 06.30", Long W 127 06' 41.00"

C6 No additional bank texture information.

C7 DO measurements were not taken at this site. The water was clear to the bottom. The mean air temperature on this day was 10.5°C

C8 Excellent rearing habitat occurs at this site but spawning habitat is limited. Steep bedrock canyon walls were noted in some parts of this reach.

Photo #: A-6-22, 29-Sep-96
Site #: A63, Looking upstream.

Photo #: A-6-23, 29-Sep-96
Site #: A63, Looking downstream, blowdowns across streambed.

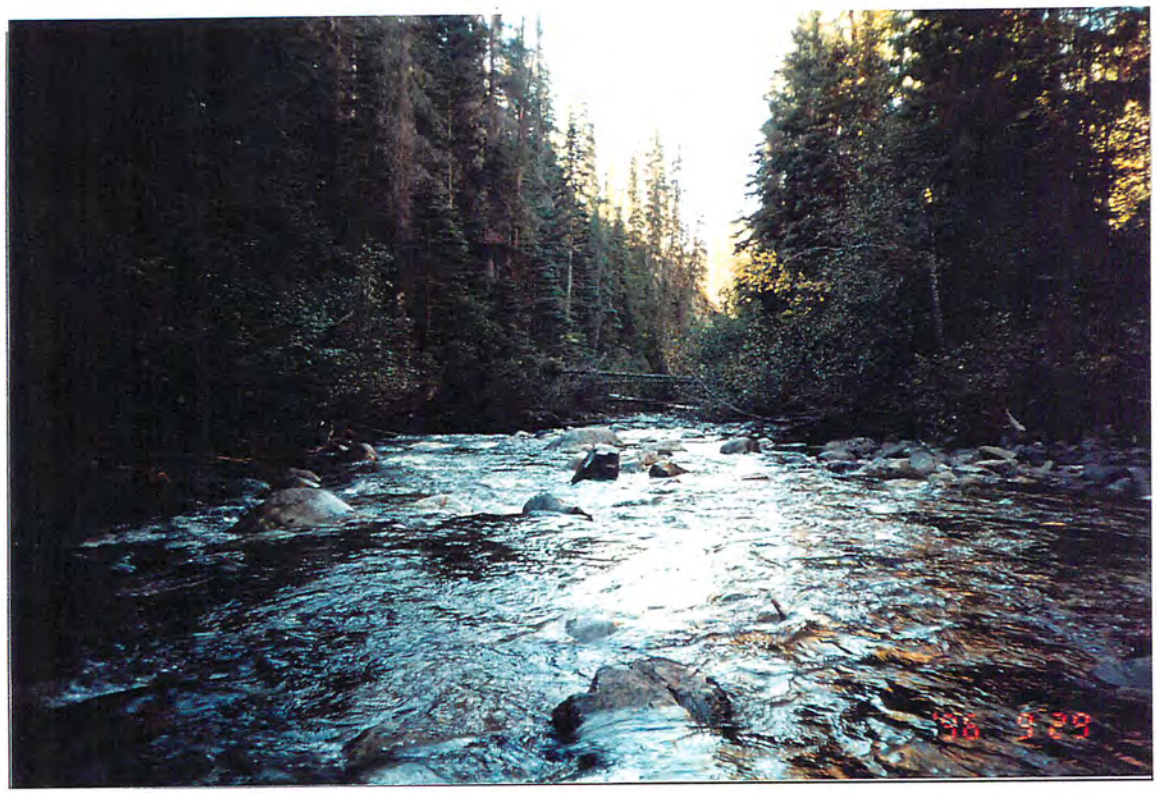

Photo #: A-6-24, 29-Sep-96
Site #: A63, Looking downstream.

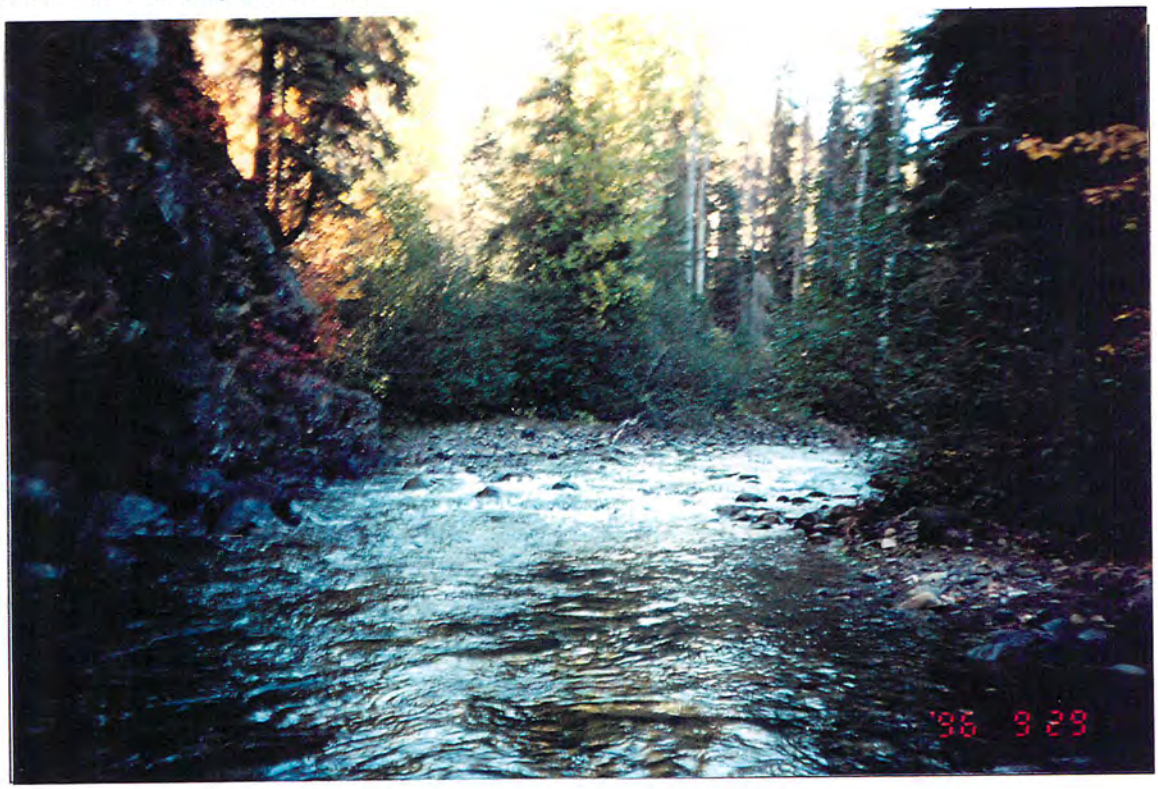

Photo #: A-6-25, 29-Sep-96
Site #: A63, Looking upstream.

DFO/MoELP Stream Survey Form **Site Number:** Y161 **Reach No.: 1**

Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y161, Unit 10; 8.4kmm NW of Silver King Basin **Stream (Gaz.):** Reiseter Creek **Watershed Code:** 460-2793-000-000-000-000-000-000-000-000-0

Map #: 93 L 096 **Reach Length (km):** 21.1 MA **Date:** 14-Aug-97 **Time:** 15:40 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6284 .60909 **Length surveyed (m):** 100.0 GE **Survey Crew:** JL \JP\ \ \ \ \ \ \ **Photos:** Y-18-11,12,13,14 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	9.7	MS
Av. Wet. Width (m):	9.4	MS
Av. Max Riffle Depth (cm):	12	MS
Av. Max Pool Depth (cm):	88	MS
Gradient (%):	3.0	CL
Pool: 10 Riffle: 30 Run: 60 Other:	0	
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	10	GE

Specific Data

12.7	9.8	9.2	8.1	5.8	12.4
10.6	9.6	8.7	7.2	11.9	8.4
14	10	12	15	13	9
100	72	80	85	94	96

Bed Material

Fines	Clay, silt, sand (<2mm):	20	20
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	60	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 100 Compaction: Medium

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	30	20	0	20	20

Crown Closure % : 20 Aspect : SE

Discharge

Wetted Width (m) :	7.9	MS
Mean Depth (m) :	0.6	MS
Mean Velocity (m/s) :	0.62	F
Discharge (m3/s) :	2.20	F

Banks

Height (m): 0.2

% Unstable: 30

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.6

Bars (%): 10 pH: 7.6 Braided: N

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): 82 Cond. (µmhos): 70

Reach Symbol

(Fish)

RB

10 C 3.0 | 2260

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	TR	60	20-30	F				VO
	RB	2	100-110	J				EL

Comments

C1 S2.

C2 LS=1%, RS=19%

C3 No fisheries sensitive zones noted.

C4 The electroshocking efort, using a Smithroot 12 B POW model set at 400V, was 562 seconds over 250 meters. The water velocity was high.

C5 No additional bank texture information.

C6 DO was not measured at this site. The air temperature at this site was 15.0 C.

C7 This stream is fast moving and slightly milky with rearing habitat in the form of cutbanks, side channels, riffles, runs and boulder cover. Spawning gravels were noted. Flood signs reveal that the inner channel is in a state of constant change. The fry were found in the shallow pools of shallow side channels.

Photo #: Y-18-11, 14/08/97
Site #: Y161, Looking upstream at the channel, leaning trees

Photo #: Y-18-12, 14/08/97
Site #: Y161, Looking downstream at the channel

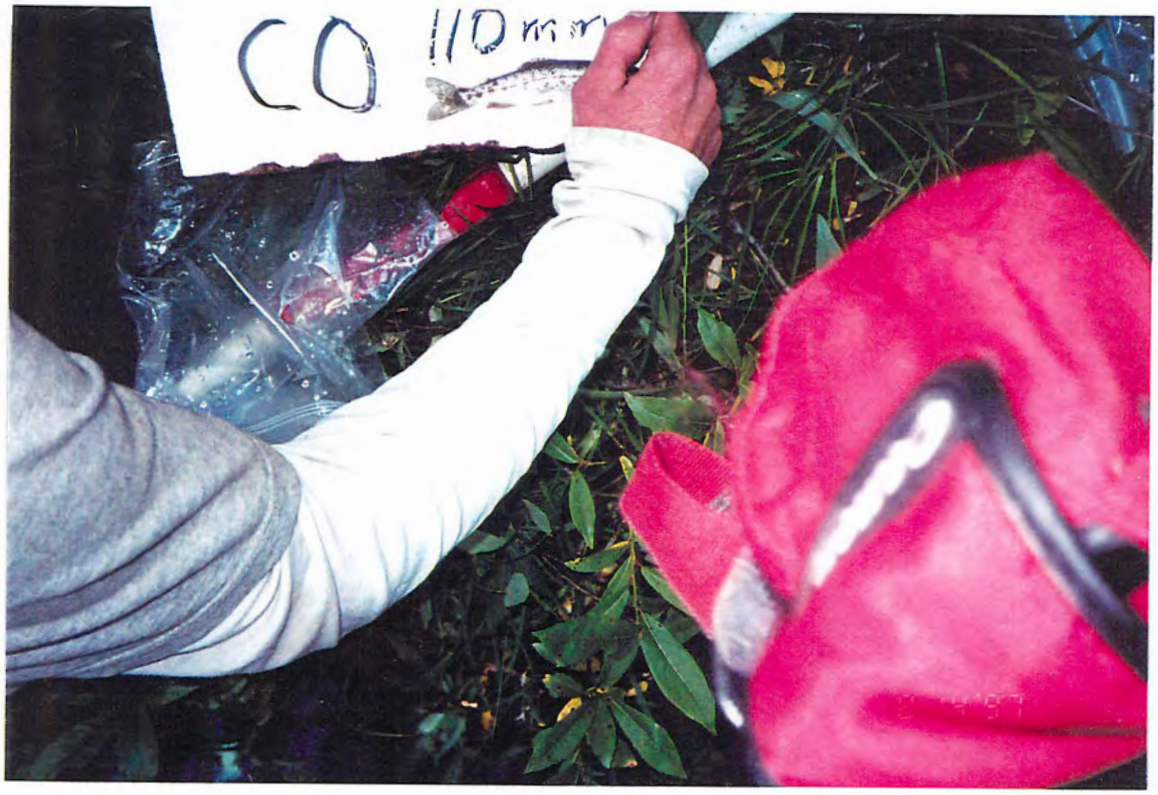

Photo #: Y-18-14, 14/08/97
Site #: Y161, Measuring RB (110mm) on fishboard . Mislabelled as CO

DFO/MoELP Stream Survey Form

Site Number: Y235 **Reach No.: 3**

Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y235, Unit 10 **Stream (Gaz.):** Reiseter Creek **Watershed Code:** 460-2793-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 096 **Reach Length (km):** 2.0 MW **Date:** 09-Sep-97 **Time:** 9:42 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 631522.6091928 **Length surveyed (m):** 300.0 GE **Survey Crew:** JP\FC\ \ \ \ \ \ \ **Photos:** Y-28-15,16,17,18 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	8.8	MS
Av. Wet. Width (m):	7.9	MS
Av. Max Riffle Depth (cm):	18	MS
Av. Max Pool Depth (cm):	66	MS
Gradient (%):	3.5	CL
Pool: 5 Riffle: 30 Run: 60 Other:	5	
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	30	GE

Specific Data

8.0	9.2	11.2	11.4	7.7	5.5
8.0	9.2	10.6	8.2	6.5	4.8
19	24	15	14	16	
37	53	110	66		

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	20	40	0	0	20

Crown Closure % : 5 Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	30	15
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	50	15
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		15
Bedrock		10	10

D90 (cm): Compaction: High

Discharge

Wetted Width (m) :	4.0	MS
Mean Depth (m) :	0.6	MS
Mean Velocity (m/s) :	0.60	F
Discharge (m3/s) :	1.08	F

Banks

Height (m): 0.2

% Unstable: 10

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m):

Bars (%): 15 pH: 6.5 Braided: Y

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): 30 Cond. (µmhos): 40

Reach Symbol

(Fish)

RB

9 C 4.0 | 1351

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location
	10	C	20.7

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB	1	200	A				EL
	RB	15	80-200	J				EL

Comments

C1: S2.

C2: LS=12%, RS=40%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model, was 139 seconds over 100 meters.

C5: No additional bank texture information.

C6: DO was not measured at this site. The air temperature at this site was 15.0 C.

C7: This stream has great cover including lots of boulders, deep runs and pools. Spawning gravels were noted.

Photo #: Y-28-15, 09/09/97
Site #: Y235, Looking upstream at the cascade, note pool below

Photo #: Y-28-16, 09/09/97
Site #: Y235, Looking downstream at the channel, note boulder cover

Photo #: Y-28-17, 09/09/97
Site #: Y235, Measuring fish on the fish board

Photo #: Y-28-18, 09/09/97
Site #: Y235, Measuring fish on the fish board

DFO/MoELP Stream Survey Form

Site Number: Y237

Reach No.: 1

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y237, Unit 10 **Stream (Gaz.):** Unnamed **Watershed Code:** 460-2793-000-000-000-000-000-000-000-000-0

Map #: 93 L 096 **Reach Length (km):** 0.7 MW **Date:** 09-Sep-97 **Time:** 12:45 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .633684.6091453 **Length surveyed (m):** 250.0 GE **Survey Crew:** JP \FC \ \ \ \ \ \ \ **Photos:** -28-21,22,,24,25, Y-29-7 **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	4.1	MS	3.9	3.9	3.9	4.5	3.8	4.8
Av. Wet. Width (m):	3.8	MS	3.9	3.9	3.9	4.3	2.3	4.8
Av. Max Riffle Depth (cm):	11	MS	5	13	19	13	5	
Av. Max Pool Depth (cm):	54	MS	53	45	67	52		
Gradient (%):	1.0	CL						

Pool: 15 Riffle: 20 Run: 65 Other: 0

% Side Channel: 10-40 GE

% Debris Area: 0-5 GE

%Stable: 10 GE

Cover

Cover Total % : 25 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
30	15	10	0	15	30

Crown Closure % : 0 Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	30	30
Gravels	Small (2-16mm):	40	20
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	30	20
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		5
Bedrock		0	0

D90 (cm): 20 Compaction: High

Discharge

Wetted Width (m) :	3.9	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.82	F
Discharge (m3/s) :	0.24	F

Banks

Height (m): 0.2

% Unstable: 10

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.2

Bars (%): 5 pH: 7.5 Braided: Y

Water Temp. (°C): 8.5 02 (ppm):

Turb. (cm): 30 Cond. (µmhos): 30

Reach Symbol

(Fish)

NF

4 D 1.0 | 3430

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S5.

C2: LS=8%, RS=10%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 500V, was 221 seconds over 250 meters The next tributary was fished for 120 seconds over 120 meters.

C5: No additional bank texture information.

C6: DO was not measured at this site. The air temperature at this site was 17.0 C.

C7 This stream is associated with the uppermost lake of the Reiseter Creek system. It is fed both by glacial run-off and some additional small clear streams. The three streams that feed into the top end of the lake are all braided and several side channels from the other large tributary feed into this channel.

Photo #: Y-28-21, 09/09/97
Site #: Y237, Looking upstream at the channel

Photo #: Y-28-22, 09/09/97
Site #: Y237, Looking upstream at the channel

Photo #: Y-28-24, 09/09/97
Site #: Y237, Looking upstream at the channel

Photo #: Y-28-25, 09/09/97
Site #: Y237, Looking downstream at the channel

Photo #: Y-29-7, 09/09/97
Site #: Y237, Looking upstream at the channel

DFO/MoELP Stream Survey Form

Site Number: Y238 **Reach No.: 6**

Resiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y238, Unit 10 **Stream (Gaz.):** Reiseter Creek **Watershed Code:** 460-2793-000-000-000-000-000-000-000-000-0

Map #: 93 L 096 **Reach Length (km):** 1.8 MW **Date:** 09-Sep-97 **Time:** 13:34 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .6338 .60914 **Length surveyed (m):** 120.0 GE **Survey Crew:** JP \FC \ \ \ \ \ \ **Photos:** Y-29-1,2 **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	3.5	MS	3.2	2.4	3.0	5.6	2.0	4.6
Av. Wet. Width (m):	2.9	MS	3.2	2.0	3.1	3.2	2.0	3.8
Av. Max Riffle Depth (cm):	12	MS	10	12	12	11	15	
Av. Max Pool Depth (cm):	41	MS	50	28	25	43	58	
Gradient (%):	5.0	CL						

Pool: 15 Riffle: 15 Run: 70 Other: 0

% Side Channel: 10-40 GE

% Debris Area: 0-5 GE

%Stable: 40 GE

Bed Material

Fines	Clay, silt, sand (<2mm):	30	30
Gravels	Small (2-16mm):	50	30
	Large (16-64mm):		20
	Sm. cobble (64-128mm):		15
Larges	Lge cobble (128-256mm):	20	5
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 13 Compaction: High

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
50	5	0	0	15	30

Crown Closure % : 0 Aspect : NW

Discharge

Wetted Width (m) :	1.7	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.59	F
Discharge (m3/s) :	0.15	F

Banks

Height (m): 0.1

% Unstable: 5

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.1

Bars (%): 0 pH: 7.5 Braided: Y

Water Temp. (°C): 8.5 02 (ppm):

Turb. (cm): 30 Cond. (µmhos): 20

Reach Symbol

(Fish)

NF

4 D 5.0 | 3520

(Width, Valley : Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S5.

C2: The side slopes were not measured.

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 600V, was 120 seconds over 120 meters.

C5: No additional bank texture information.

C6: DO was not measured at this site. The mean air temperature on this day was 14.2 C.

C7: This stream has great spawning gravel and is easily accessible. An An old beaver dam was noted at this site, but it is not a barrier.

Photo #: Y-29-1, 09/09/97
Site #: Y238, Looking upstream at the channel

Photo #: Y-29-2, 09/09/97
Site #: Y238, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: W188 Reach No.: 1

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: W188, Unit 10 **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-0013-100-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 **Reach Length (km):** 1.9 MA **Date:** 15-Aug-97 **Time:** 10:30 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6235 .60939 **Length surveyed (m):** 120.0 GE **Survey Crew:** KA \DD\ \ \ \ \ \ \ **Photos:** W-H-22,23 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.0	MS
Av. Wet. Width (m):	1.9	MS
Av. Max Riffle Depth (cm):	3	MS
Av. Max Pool Depth (cm):	27	MS
Gradient (%):	10.5	CL
Pool: 30 Riffle: 20 Run: 50 Other:	0	
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	50	GE

Specific Data

1.7	2.2	1.7	2.6	1.6	2.4
1.6	1.9	1.7	1.5	2.4	2.5
3	2	2	6	2	
21	23	36	25	32	27

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	20	20	0	10	30

Crown Closure % : 20 Aspect : NE

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	40	20
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	50	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 38 Compaction: Medium

Discharge

Wetted Width (m) :	1.3	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.06	F
Discharge (m3/s) :	0.01	F

Banks

Height (m): 0.1

% Unstable: 20

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

(DV) (RB)

2 C 10.5 | 1450

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 0 pH: 7.7 Braided: Y

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 120

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S3.

C2: LS=55%, RS=65%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 400V, was 638 seconds over 200 meters.

C5: No additional bank texture information.

C6: DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 15.0 C.

C7: This stream could provide rearing habitat in the form of pools, cutbank and LOD cover. The boulders are moss covered in some areas. The water is slightly tannin stained.

Photo #: W-H-22, 15-Aug-97
Site #: W188, Looking upstream at the channel

Photo #: W-H-23, 15-Aug-97
Site #: W188, Looking downstream at the channel

DFO/MoELP Stream Survey Form **Site Number: Y156** **Reach No.: 1**

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y156, Unit 10; 1.2km SE of Reiseter Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-0015-700-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 | Reach Length (km): 3.1 MA | Date: 14-Aug-97 | Time: 8:30 | Agency: TEC | Access: H | Fish Card: N | Field ☒ | Historical ☐

U.T.M. : 9 .6269 .60863 | Length surveyed (m): 100.0 GE | Survey Crew: JL \JP\ \ \ \ \ \ \ | Photos: Y-18-1,2 | Air Photos:

Channel Characteristics

Av. Chan. Width (m):	4.0	MS
Av. Wet. Width (m):	3.5	MS
N Av. Max Riffle Depth (cm):	0	MS
Av. Max Pool Depth (cm):	44	MS
Gradient (%):	2.0	CL
Pool: 20 Riffle: 0 Run: 80 Other: 0		
% Side Channel:	0	GE
% Debris Area:	5-15	GE
%Stable:	30	GE

Specific Data

3.9	4.4	4.1	3.9	4.2	3.7
3.2	3.7	3.2	3.6	3.9	3.5
40	43	39	44	47	50

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
55	10	0	30	5	0

Crown Closure % : 15 Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	100	100
Gravels	Small (2-16mm):	0	0
	Large (16-64mm):		0
Larges	Sm. cobble (64-128mm):	0	0
	Lge cobble (128-256mm):		0
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 0 Compaction: Low

Discharge

Wetted Width (m) :	2.9	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.14	F
Discharge (m3/s) :	0.09	F

Banks

Height (m): 0.2

% Unstable: 60

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 0 pH: 7.4 Braided: N

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 70

Reach Symbol

(Fish)

(RB)

4 D 2.0 | 1000

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S3.

C2: LS=4%, RS=5%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model set at 500V, was 120 seconds over 60 meters. No fish were caught. Had difficulty shocking due to low compaction and deep water.

C5: No additional bank texture information.

C6: DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 13.0 C.

C7: This is a low gradient, slow moving stream consisting of deep runs. Rearing cover is provided by deep runs, pools and instream vegetation. The substratate would not accomodate spawning. Minnow trapping is recommended.

Photo #: Y-18-1, 14/08/97
Site #: Y156, Looking upstream, note flood signs

Photo #: Y-18-2, 14/08/97
Site #: Y156, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: Y157 **Reach No.: 1**

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y157, Unit 10; 0.7km south of Reiseter Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-0015-600-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 Reach Length (km): 0.6 MA Date: 14-Aug-97 Time: 9:23 Agency: TEC Access: H Fish Card: N Field ☒ Historical ☐

U.T.M. : 9 .6258 .60867 Length surveyed (m): 100.0 GE Survey Crew: JL \JP\ \ \ \ \ \ \ Photos: Y-18-3,4 Air Photos:

Channel Characteristics

Av. Chan. Width (m):	2.3	MS
Av. Wet. Width (m):	1.6	MS
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	27	MS
Gradient (%):	3.0	CL
Pool: 20 Riffle: 30 Run: 50 Other:	0	
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	20	GE

Specific Data

2.2	2.1	2.0	2.6	2.2	2.4
1.8	2.2	1.7	1.5	1.0	1.5
6	6	7	4	6	4
27	25	31	25	25	28

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	15	35	0	5	25

Crown Closure % : 20 Aspect : N

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	30	15
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	60	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 70 Compaction: Medium

Discharge

Wetted Width (m) :	1.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.20	F
Discharge (m3/s) :	0.03	F

Banks

Height (m): 0.2

% Unstable: 20

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.2

Bars (%): 0 pH: 7.7 Braided: N

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 40

Reach Symbol

(Fish)

(RB)

2 D 3.0 | 1360

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S3.

C2 LS=7%, RS=5%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model set at 800V, was 523 seconds over 250 meters.

C5 No additional bank texture information.

C6 DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 11.0 C.

C7 This stream has clear brown water, with riffles over boulders creating runs and pools, providing excellent cover. There are spawning gravels in pools and ample cutbanks for cover.

Photo #: Y-18-3, 14/08/97
Site #: Y157, Looking upstream at the channel, note boulder cover

Photo #: Y-18-4, 14/08/97
Site #: Y157, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: Y158

Reach No.: 1

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y158, Unit 10; 0.7km south of Reiseter Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-0015-400-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 **Reach Length (km):** 0.6 MA **Date:** 14-Aug-97 **Time:** 11:20 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6250 .60864 **Length surveyed (m):** 100.0 GE **Survey Crew:** JL \JP\ \ \ \ \ \ \ **Photos:** Y-18-5,6 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	0.6	MS
Av. Wet. Width (m):	0.5	MS
Av. Max Riffle Depth (cm):	4	MS
Av. Max Pool Depth (cm):	13	MS
Gradient (%):	16.0	CL
Pool: 10 Riffle: 60 Run: 30 Other: 0		
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	10	GE

Specific Data

1.0	1.0	0.6	0.4	0.2	0.7
0.6	0.5	0.6	0.4	0.2	0.7
2	2	4	6	4	5
17	7	12	11	17	12

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	80	10
	Lge cobble (128-256mm):		60
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 25 Compaction: Medium

Cover

Cover Total % : 15 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
30	20	5	0	20	25

Crown Closure % : 15 Aspect : N

Discharge

Wetted Width (m) :	0.5	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.07	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.2

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: L Flood Signs Ht(m): 0.3

Bars (%): 0 pH: 7.1 Braided: N

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 50

Reach Symbol

(Fish)

(RB)

1 D 16.0 | 1180

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S4.

C2: LS=11%, RS=6%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model set at 400V, was 265 seconds over 300 meters. The crew had difficulty shocking due to low water level and lack of pools.

C5: No additional bank texture information.

C6: DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 14.0 C.

C7: This small stream would provide cover in the form of step-pools, cutbanks and large cobble. The stream bed does not contain much in the way of gravel for spawning. It disappears underground in several places.

Photo #: Y-18-5, 14/08/97
Site #: Y158, Looking upstream at the channel

Photo #: Y-18-6, 14/08/97
Site #: Y158, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: Y159 **Reach No.: 1**

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y159, Unit 10; 1.1km south of Reiseter Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-0015-200-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 **Reach Length (km):** 1.2 MA **Date:** 14-Aug-97 **Time:** 13:00 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6245 .60868 **Length surveyed (m):** 100.0 GE **Survey Crew:** JL \JP\ \ \ \ \ \ \ **Photos:** Y-18-7,8 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.2	MS
Av. Wet. Width (m):	1.7	MS
Av. Max Riffle Depth (cm):	4	MS
Av. Max Pool Depth (cm):	19	MS
Gradient (%):	7.0	CL
Pool: 10 Riffle: 70 Run: 10 Other: 10		
% Side Channel:	10-40	GE
% Debris Area:	>15	GE
%Stable:	15	GE

Specific Data

1.2	2.0	2.2	2.2	2.6	2.8
1.2	1.9	2.1	0.6	2.1	2.3
4	6	2	5	6	2
16	15	12	22	31	18

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	30	30	0	10	20

Crown Closure % : 20 Aspect : N

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	80	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		40
Bedrock		0	0

D90 (cm): 28 Compaction: Medium

Discharge

Wetted Width (m) :	0.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.25	F
Discharge (m3/s) :	0.01	F

Banks

Height (m): 0.1

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.1

Bars (%): 0 pH: 7.6 Braided: Y

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 80

Reach Symbol

(Fish)

(RB)

2 D 7.0 | 1180

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S3.

C2: LS=6%, RS=1%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model set at 400V, was 225 seconds over 200 meters. No fish were caught. The crew has ad difficulty shocking due to shallow water.

C5: No additional bank texture information.

C6: DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 15.0 C.

C7: This stream is a series of riffles over boulders creating rearing pools and cutbanks. There is very little spawning substrate. There is possible rearing at higher flows as this creek runs into a fish bearing stream.

Photo #: Y-18-7, 14/08/97
Site #: Y159, Looking upstream at the channel, note moss-covered substrate

Photo #: Y-18-8, 14/08/97
Site #: Y159, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: Y164

Reach No.: 2

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y164, Unit 10; 2.5km south of unit 10 boundary **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-1000-100-000-000-000-000-000-000-000-000-0

Map #: 93 L 096 **Reach Length (km):** 1.2 MA **Date:** 15-Aug-97 **Time:** 10:30 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6290 .60912 **Length surveyed (m):** 100.0 GE **Survey Crew:** JL \JP\ \ \ \ \ \ \ **Photos:** Y-18-19,20 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.5	MS
Av. Wet. Width (m):	1.1	MS
Av. Max Riffle Depth (cm):	2	MS
Av. Max Pool Depth (cm):	25	MS
Gradient (%):	6.0	CL
Pool: 20 Riffle: 20 Run: 60 Other: 0		
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	40	GE

Specific Data

1.9	1.4	1.4	1.9	1.2	1.2
0.9	0.9	1.4	1.6	1.2	0.8
1	2	1	3	2	2
29	32	26	25	17	22

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
30	10	0	0	10	50

Crown Closure % : 40 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	30	15
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	60	60
	Lge cobble (128-256mm):		0
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 9 Compaction: Medium

Discharge

Wetted Width (m) :	1.1	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.61	F
Discharge (m3/s) :	0.05	F

Banks

Height (m): 0.1

% Unstable: 30

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.1

Bars (%): 0 pH: 8.2 Braided: Y

Water Temp. (°C): 12.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 270

Reach Symbol

(Fish)

(RB)

2 C 6.0 | 1360

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S3.

C2: LS=12%, RS=6%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 200V, was 275 seconds over 150 meters.

C5: No additional bank texture information.

C6: DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 18.0 C.

C7: The stream is braided upstream of the sampling area and flows into a fish bearing stream. In reach 1, gradient of 31% may prevent fish migration.

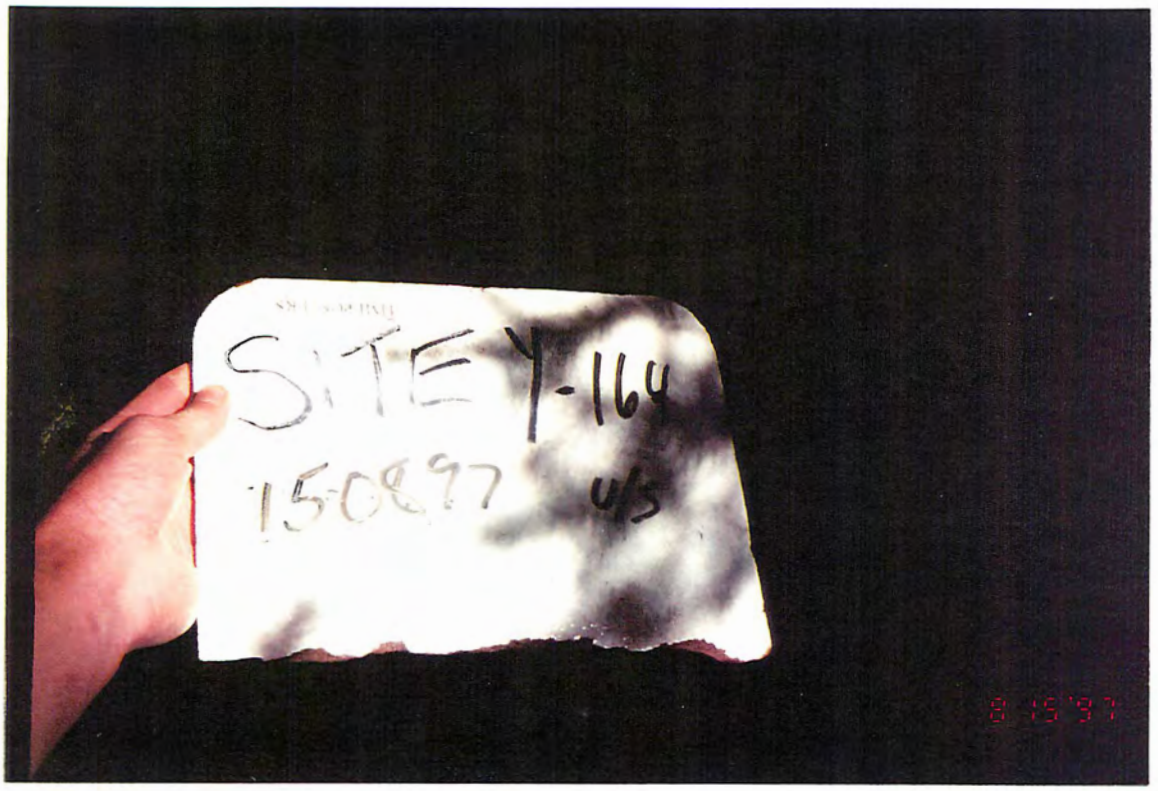

Photo #: Y-18-19, 15/08/97
Site #: Y164, Looking upstream at the channel

Photo #: Y-18-20, 15/08/97
Site #: Y164, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: Y236

Reach No.: 1

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y236, Unit 10 **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-1000-200-000-000-000-000-000-000-000-000-0

Map #: 93 L 096 **Reach Length (km):** 0.5 MW **Date:** 09-Sep-97 **Time:** 11:28 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .631417.60925 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP \FC \ \ \ \ \ \ **Photos:** Y-28-19,20, Y-29-10 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.4	MS
Av. Wet. Width (m):	3.0	MS
Av. Max Riffle Depth (cm):	12	MS
Av. Max Pool Depth (cm):	27	MS
Gradient (%):	6.0	CL
Pool: 5 Riffle: 25 Run: 70 Other: 0		
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	40	GE

Specific Data

4.3	4.4	4.0	3.9	5.6	4.0
4.1	4.0	2.2	3.4	1.7	2.6
6	9	17	21	5	
34	25	22	26	28	

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	20	50	0	0	20

Crown Closure % : 50 Aspect : SW

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	30	10
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	70	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		30
Bedrock		0	0

D90 (cm): 48 Compaction: High

Discharge

Wetted Width (m) :	1.8	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.29	F
Discharge (m3/s) :	0.08	F

Banks

Height (m): 0.4

% Unstable: 20

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.5

Bars (%): 5 pH: 8.0 Braided: N

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 100

Reach Symbol

(Fish)

(RB)

4 D 6.0 | 0370

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S3.

C2: LS=13%, RS=15%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 500V, was 164 seconds over 100 meters.

C5: No additional bank texture information.

C6: DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 16.0 C.

C7: This creek is dry for the first 50-100 meters. This channel has changed course or is mapped incorrectly at the lower end. The aspect changes to SE further upstream and there is some evidence of an old channel both on the ground and from the air.

Photo #: Y-28-19, 09/09/97
Site #: Y236, Looking upstream at the channel, boulder and LOD cover

Photo #: Y-28-20, 09/09/97
Site #: Y236, Looking downstream at the channel

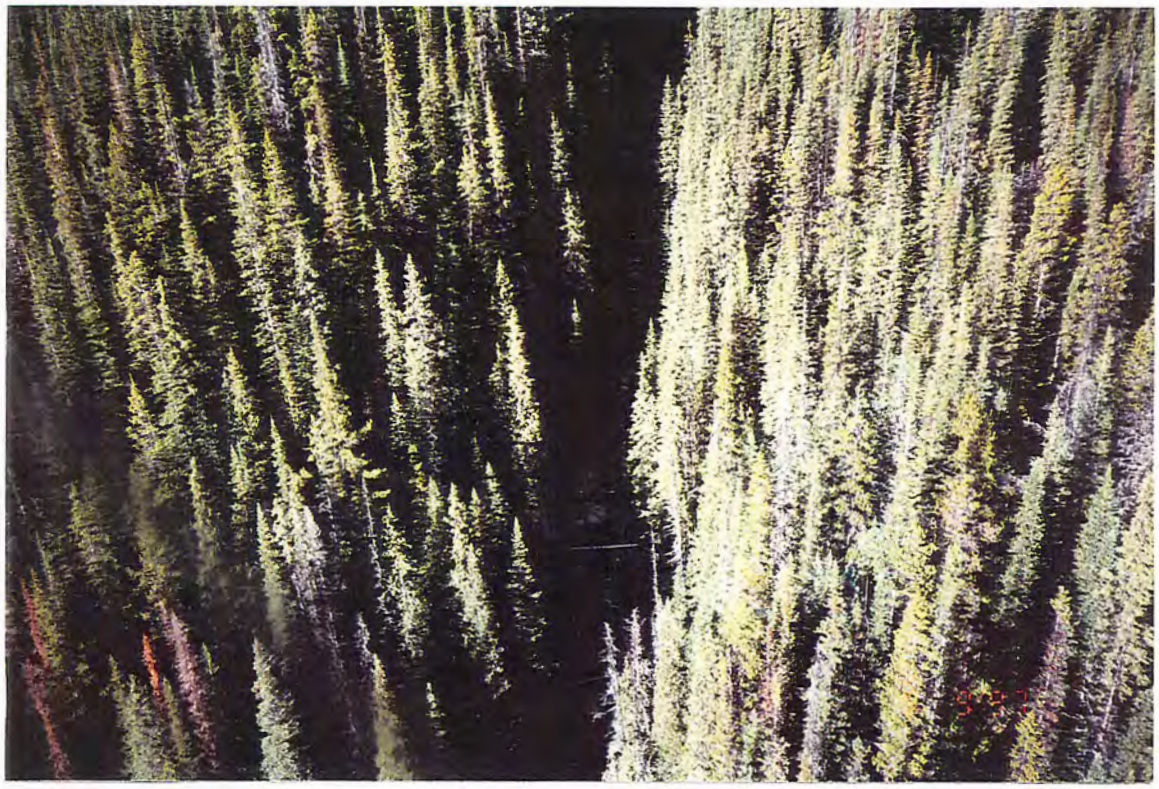

Photo #: Y-29-10, 09/09/97
Site #: Y236, Looking upstream at the channel

DFO/MoELP Stream Survey Form **Site Number:** Y239 **Reach No.: 1**

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y239, Unit 10 **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-1000-500-000-000-000-000-000-000-000-000-0

Map #: 93 L 096 **Reach Length (km):** 1.0 MW **Date:** 09-Sep-97 **Time:** 13:50 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .63365 .609154 **Length surveyed (m):** 150.0 GE **Survey Crew:** JP \FC\ \ \ \ \ \ \ **Photos:** Y-29-3,4 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	0.9	MS
Av. Wet. Width (m):	1.0	MS
Av. Max Riffle Depth (cm):	8	MS
Av. Max Pool Depth (cm):	16	MS
Gradient (%):	4.0	CL
Pool: 10 Riffle: 35 Run: 55 Other: 0		
% Side Channel:	0-10	GE
% Debris Area:	0-5	GE
%Stable:	95	GE

Specific Data

1.6	1.2	1.3	0.3	0.3	0.8
1.5	1.2	1.3	0.3	0.3	1.4
9	10	7	6		
14	19				

Cover

Cover Total % : 10 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
5	5	0	30	40	20

Crown Closure % : 5 Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	20	20
Gravels	Small (2-16mm):	40	20
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	40	20
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 6 Compaction: Medium

Discharge

Wetted Width (m) :	0.3	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.47	F
Discharge (m3/s) :	0.01	F

Banks

Height (m): 0.1

% Unstable: 10

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m):

Bars (%): 2 pH: 7.3 Braided: N

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 90

Reach Symbol

(Fish)

NF

1 D 4.0 | 2440

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S6.

C2 LS=5%, RS=5%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, uisng a Smithroot 12 B POW model set at I, 5, 600V, was 155 seconds over 150 meters.

C5 No additional bank texture information.

C6 DO was not measured at this site. The air temperature at this site was 17.0 C.

C7 This is a stable channel with some instream vegetation and LOD cover. Overstream vegetation provides most of the cover for fish at this site. Spawning gravels were noted.

Photo #: Y-29-3, 09/09/97
Site #: Y239, Looking upstream at the channel

Photo #: Y-29-4, 09/09/97
Site #: Y239, Looking downstream at the channel

DFO/MoELP Stream Survey Form **Site Number:** Y240 **Reach No.:** 1

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y240, Unit 10 **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-1000-300-000-000-000-000-000-000-000-000-0

Map #: 93 L 096 **Reach Length (km):** 2.4 MW **Date:** 09-Sep-97 **Time:** 14:49 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6320 .60919 **Length surveyed (m):** 200.0 GE **Survey Crew:** JP \FC\ \ \ \ \ \ \ **Photos:** Y-29-5,6 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.4	MS
Av. Wet. Width (m):	2.0	MS
Av. Max Riffle Depth (cm):	13	MS
Av. Max Pool Depth (cm):	44	MS
Gradient (%):	14.7	CL
Pool: 30 Riffle: 20 Run: 30 Other: 20		
% Side Channel:	0-10	GE
% Debris Area:	0-5	GE
%Stable:	30	GE

Specific Data

3.7	3.7	2.8	3.6	3.0	3.4
2.5	1.6	1.8	2.4	2.0	1.7
10	15	14	11	13	
52	36	45	34	54	

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
40	10	40	0	0	10

Crown Closure % : 50 Aspect : N

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	20	5
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	70	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		40
Bedrock		10	10

D90 (cm): Compaction: High

Discharge

Wetted Width (m) :	1.8	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.58	F
Discharge (m3/s) :	0.16	F

Banks

Height (m): 0.3

% Unstable: 10

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

NF

3 B 14.7 | 0271

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 5 pH: 8.2 Braided: N

Water Temp. (°C): 8.5 02 (ppm):

Turb. (cm): Cond. (µmhos): 130

Obstructions

C	Height (m)	Type	Location
	10	C	3.7

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S5.

C2 LS=20%, RS=35%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 500V & 600V, was 146 seconds over 200 meters.

C5 No additional bank texture information.

C6 DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 15.0 C.

C7 This stream is very steep, but it has step-pool habitat with lots of deep pools and lots of boulder cover. There is a 10 m cascade at the upper end of the site and several more were seen from the air.

Photo #: Y-29-5, 09/09/97
Site #: Y240, Looking upstream at the channel

Photo #: Y-29-6, 09/09/97
Site #: Y240, Looking downstream at the channel, note boulder cover

DFO/MoELP Stream Survey Form

Site Number: Y241

Reach No.: 1

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y241, Unit 10 **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-1000-400-000-000-000-000-000-000-000-000-0

Map #: 93 L 096 **Reach Length (km):** 2.3 MW **Date:** 09-Sep-97 **Time:** 15:35 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6324 .60922 **Length surveyed (m):** 150.0 GE **Survey Crew:** JP \FC\ \ \ \ \ \ \ **Photos:** Y-29-8,9 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.7	MS
Av. Wet. Width (m):	1.7	MS
Av. Max Riffle Depth (cm):	9	MS
Av. Max Pool Depth (cm):	33	MS
Gradient (%):	21.0	CL
Pool: 30 Riffle: 15 Run: 40 Other: 15		
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	40	GE

Specific Data

1.8	2.8	2.3	2.8	4.2	2.4
2.7	1.5	1.6	1.7	1.1	1.4
8	10	13	5	9	
61	29	19	26	30	

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	20	40	0	0	20

Crown Closure % : 50 Aspect : SW

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	20	5
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	70	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		40
Bedrock		10	10

D90 (cm): Compaction: High

Discharge

Wetted Width (m) :	1.2	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.37	F
Discharge (m3/s) :	0.03	F

Banks

Height (m): 0.4

% Unstable: 20

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 0 pH: 7.9 Braided: N

Water Temp. (°C): 8.5 02 (ppm):

Turb. (cm): Cond. (µmhos): 100

Reach Symbol

(Fish)

NF

3 B 21.0 | 0271

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S6.

C2: LS=50%, RS=25%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 500V, was 101 seconds over 150 meters.

C5: No additional bank texture information .

C6: DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 16.0 C.

C7: This stream has a lot of good cover in the form of deep pools, curbanks and boulders. It is however very steep and there are lots of cascades over boulders and bedrock. There are no spawning gravels. There is a 5 m cascade on the Reiseter mainstem, just upstream of the mouth of this tributary.

Photo #: Y-29-8, 09/09/97
Site #: Y241, Looking upstream at the channel, note boulder cover

Photo #:. Y-29-9, 09/09/97
Site #: Y241, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: Z143 **Reach No.: 1**

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Z143, Unit 10 **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-0014-600-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 **Reach Length (km):** 3.2 MA **Date:** 14-Aug-97 **Time:** 9:03 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .623345.6088679 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP \KG\ \ \ \ \ \ \ **Photos:** Z-19-3,4,5,6 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	5.5	MS
Av. Wet. Width (m):	3.6	MS
Av. Max Riffle Depth (cm):	10	MS
Av. Max Pool Depth (cm):	33	MS
Gradient (%):	8.0	CL
Pool: 15 Riffle: 25 Run: 50 Other:	10	
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	10	GE

Specific Data

5.4	5.5	5.0	6.8	5.4	4.7
5.0	4.2	2.6	3.6	3.2	2.9
10	11	5	14		
25	33	36	37		

Cover

Cover Total % : 45 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	15	45	0	20	10

Crown Closure % : 40 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	30	10
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	60	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 60 Compaction: Medium

Discharge

Wetted Width (m) :	2.9	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.89	F
Discharge (m3/s) :	0.39	F

Banks

Height (m): 0.4

% Unstable: 30

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

RB

6 B 8.0 | 1360

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: CO

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.6

Bars (%): 5 pH: 7.7 Braided: Y

Water Temp. (°C): 12.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 100

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB	3	74-117	NA				EL

Comments

C1 S2

C2 LS=45%, RS=50%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 500V, was 331 seconds over 100 meters.

C5 No additional bank texture information.

C6 DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 16 C.

C7 This reach has some good boulder and LOD rearing cover.

Photo #: Z-19-3, 14-Aug-97
Site #: Z143, Measuring fish with the meterstick

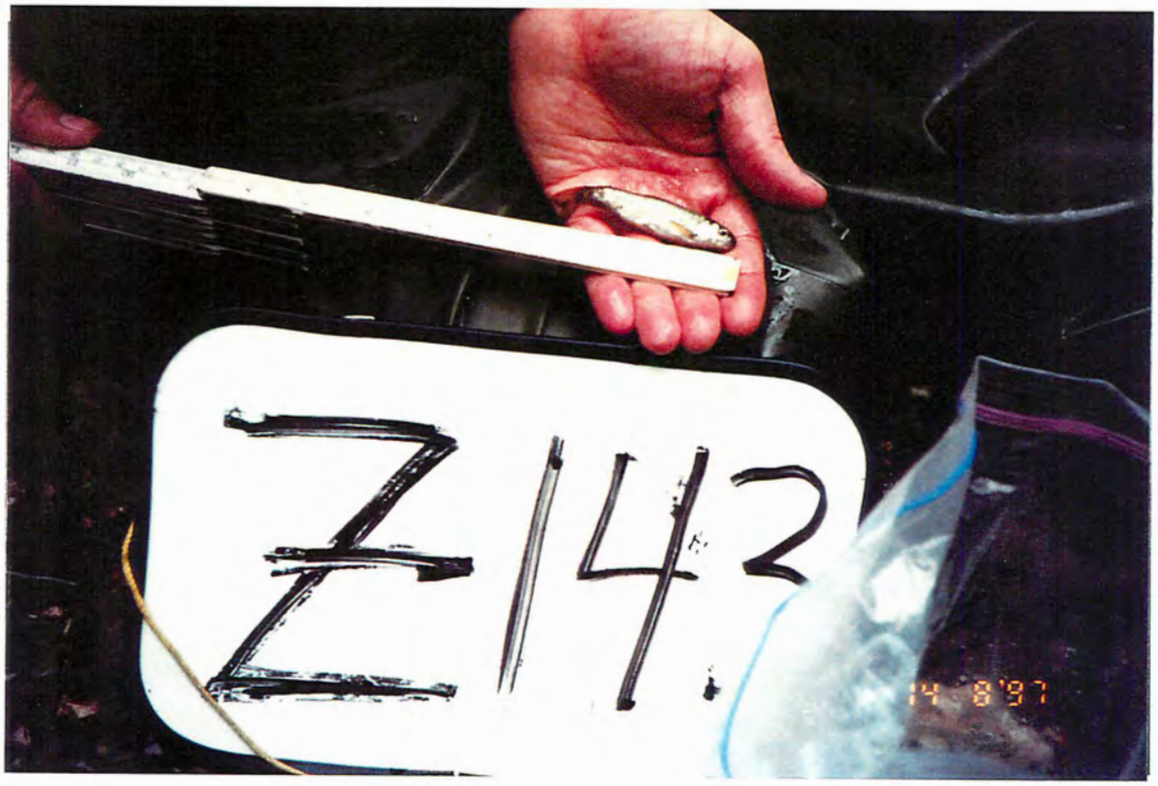

Photo #: Z-19-4, 14-Aug-97
Site #: Z143, Measuring fish with the meterstick

Photo #: Z-19-5, 14-Aug-97
Site #: Z143, Looking upstream at the channel

Photo #: Z-19-6, 14-Aug-97
Site #: Z143, Looking downstream at the channel

DFO/MoELP Stream Survey Form **Site Number: Z144** **Reach No.: 2**

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Z144, Unit 10 Stream (Gaz.): Unnamed Watershed Code: ILP-0014-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 Reach Length (km): 1.9 MA Date: 14-Aug-97 Time: 10:52 Agency: TEC Access: H Fish Card: N ☐ Field ☒ Historical ☐

U.T.M. : 9 .622628.6089543 Length surveyed (m): 200.0 GE Survey Crew: JP \KG\ \ \ \ \ \ \ Photos: Z-19-7,8 Air Photos:

Channel Characteristics

Av. Chan. Width (m):	4.5	MS
Av. Wet. Width (m):	2.7	MS
Av. Max Riffle Depth (cm):	11	MS
Av. Max Pool Depth (cm):	37	MS
Gradient (%):	5.0	CL
Pool: 10 Riffle: 20 Run: 65 Other:	5	
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	50	GE

Specific Data

5.6	5.1	4.9	3.0	3.7	4.6
1.8	3.0	3.1	2.6	3.7	2.0
7	9	16	14	8	
38	43	40	29	37	

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	30	10	0	30	10

Crown Closure % : 60 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	20	20
Gravels	Small (2-16mm):	60	30
	Large (16-64mm):		30
Larges	Sm. cobble (64-128mm):	20	10
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		5
Bedrock		0	0

D90 (cm): 23 Compaction: High

Discharge

Wetted Width (m) :	1.7	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.42	F
Discharge (m3/s) :	0.11	F

Banks

Height (m): 0.1

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 10 pH: 7.6 Braided: Y

Water Temp. (°C): 11.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 100

Reach Symbol

(Fish)

(RB)

5 C 5.0 | 2620

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S3

C2 LS=25%, RS=30%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 500V, was 523 seconds over 175 meters.

C5 No additional bank texture information

C6 DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 16 C.

C7 This stream has some great rearing habitat consisting of large cobble and LOD cover. No barriers were noted during an aerial survey, however, the map indicates steep gradient, possible resulting in cascades. Future sampling is recommended.

Photo #: Z-19-7, 14-Aug-97
Site #: Z144, Looking upstream at the channel

Photo #: Z-19-8, 14-Aug-97
Site #: Z144, Looking downstream at the channel

DFO/MoELP Stream Survey Form **Site Number: Z145** **Reach No.: 2**

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Z145, Unit 10 Stream (Gaz.): Unnamed Watershed Code: ILP-0014-500-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 Reach Length (km): 2.6 MA Date: 14-Aug-97 Time: 12:26 Agency: TEC Access: H Fish Card: N Field ☒ Historical ☐

U.T.M. : 9 .622800.6088918 Length surveyed (m): 100.0 GE Survey Crew: JP \KG\ \ \ \ \ \ \ Photos: Z-19-9,10 Air Photos:

Channel Characteristics

	Av. Chan. Width (m):	1.0	MS
	Av. Wet. Width (m):	0.9	MS
N	Av. Max Riffle Depth (cm):	0	MS
	Av. Max Pool Depth (cm):	15	MS
	Gradient (%):	2.0	CL
	Pool: 30 Riffle: 0 Run: 65 Other: 5		
	% Side Channel:	0-10	GE
	% Debris Area:	>15	GE
	%Stable:	60	GE

Specific Data

1.0	0.8	0.9	0.8	1.4	1.3
0.8	0.8	0.8	0.8	1.2	1.1
16	13	18	13	17	

Bed Material

Fines	Clay, silt, sand (<2mm):	90	90
Gravels	Small (2-16mm):	0	0
	Large (16-64mm):		0
Larges	Sm. cobble (64-128mm):	10	5
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 12 Compaction: Low

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	30	0	5	45	10

Crown Closure % : 60 Aspect : W

Discharge

Wetted Width (m) :	0.8	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.10	F
Discharge (m3/s) :	0.01	F

Reach Symbol

(Fish)

(RB)

1 D 2.0 | 9010

(Width, Valley: Channel, Slope) (Bed Material)

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: L Flood Signs Ht(m): 0.3

Bars (%): 0 pH: 7.6 Braided: N

Water Temp. (°C): 11.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 120

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S4. No riffles were noted at this site.

C2 LS=0%, RS=4%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 500V, was 125 seconds over 100 meters.

C5 No additional bank texture information.

C6 DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 17 C.

C7 This stream does not have great habitat. The substrate is unsuitable for spawning and there is no overwintering habitat. It could be used for rearing; LOD and cutbank cover is fairly abundant. Flew to the mouth, but visibility was greatly reduced due to dense vegetation cover and terrain. Future sampling is recommended.

Photo #: Z-19-9, 14-Aug-97
Site #: Z145, Looking upstream at the channel

Photo #: Z-19-10, 14-Aug-97
Site #: Z145, Looking downstream at the channel

DFO/MoELP Stream Survey Form **Site Number: Z146** **Reach No.: 1**

Trib to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Z146, Unit 10 Stream (Gaz.): Unnamed Watershed Code: ILP-0014-700-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 Reach Length (km): 0.7 MA Date: 14-Aug-97 Time: 14:23 Agency: TEC Access: H Fish Card: N Field ☒ Historical ☐

U.T.M. : 9 .625772.6088705 Length surveyed (m): 100.0 GE Survey Crew: JP\KG\ \ \ \ \ \ \ Photos: Z-19-11,12,13,14,15.16 Air Photos:

Channel Characteristics

Av. Chan. Width (m):	1.3	MS
Av. Wet. Width (m):	1.3	MS
Av. Max Riffle Depth (cm):	10	MS
Av. Max Pool Depth (cm):	29	MS
Gradient (%):	0.5	CL
Pool: 5 Riffle: 5 Run: 90 Other: 0		
% Side Channel:	0	GE
% Debris Area:	>15	GE
%Stable:	30	GE

Specific Data

1.3	2.1	1.6	1.7	0.6	0.6
1.3	2.2	1.6	1.5	0.6	0.6
12	10	7			
25	35	28			

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	10	0	15	35	30

Crown Closure % : 10 Aspect : N

Bed Material

Fines	Clay, silt, sand (<2mm):	80	80
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	10	5
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 24 Compaction: Low

Discharge

Wetted Width (m) :	0.8	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.22	F
Discharge (m3/s) :	0.01	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m):

Bars (%): 0 pH: 7.4 Braided: N

Water Temp. (°C): 14.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 150

Reach Symbol

(Fish)

(RB)

1 D 0.5 | 8110

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S4

C2: LS=0%, RS=9%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 400V, was 251 seconds over 100 meters.

C5: No additional bank information.

C6: DO was not measured at this site, the water was clear to bottom. The air temperature on this day was 24 C.

C7: An increase in gradient was noted after the stream leaves the meadow and enters the forest. The substrate changes to gravel and cobble. This reach is connected to a confirmed fish bearing reach.

C8: A toad and a mouse or a vole was observed at the site.

Photo #: Z-19-11, 14-Aug-97
Site #: Z146, Looking upstream at the channel

Photo #: Z-19-12, 14-Aug-97
Site #: Z146, Looking downstream at the channel

Photo #: Z-19-13, 14-Aug-97
Site #: Z146, Looking at a toad caught at the site

Photo #: Z-19-14, 14-Aug-97
Site #: Z146, Looking upstream at the channel

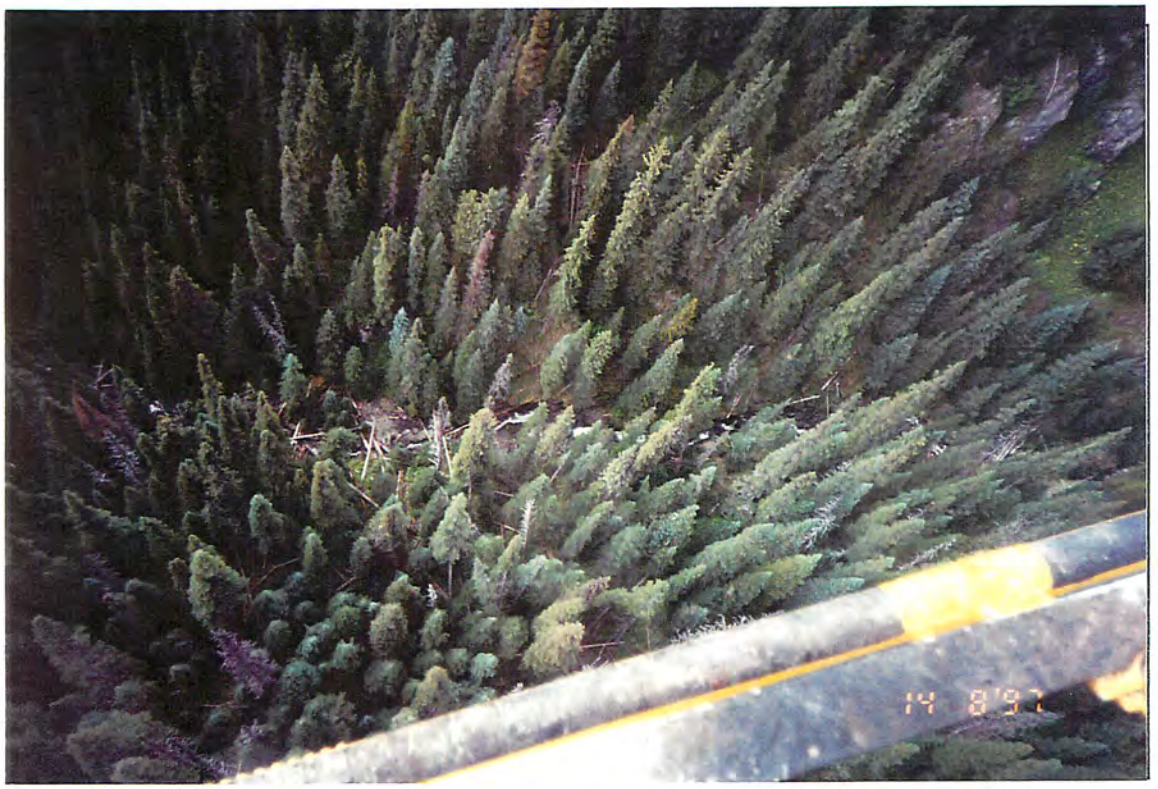

Photo #: Z-19-15, 14-Aug-97
Site #: Z146, Looking upstream at the channel

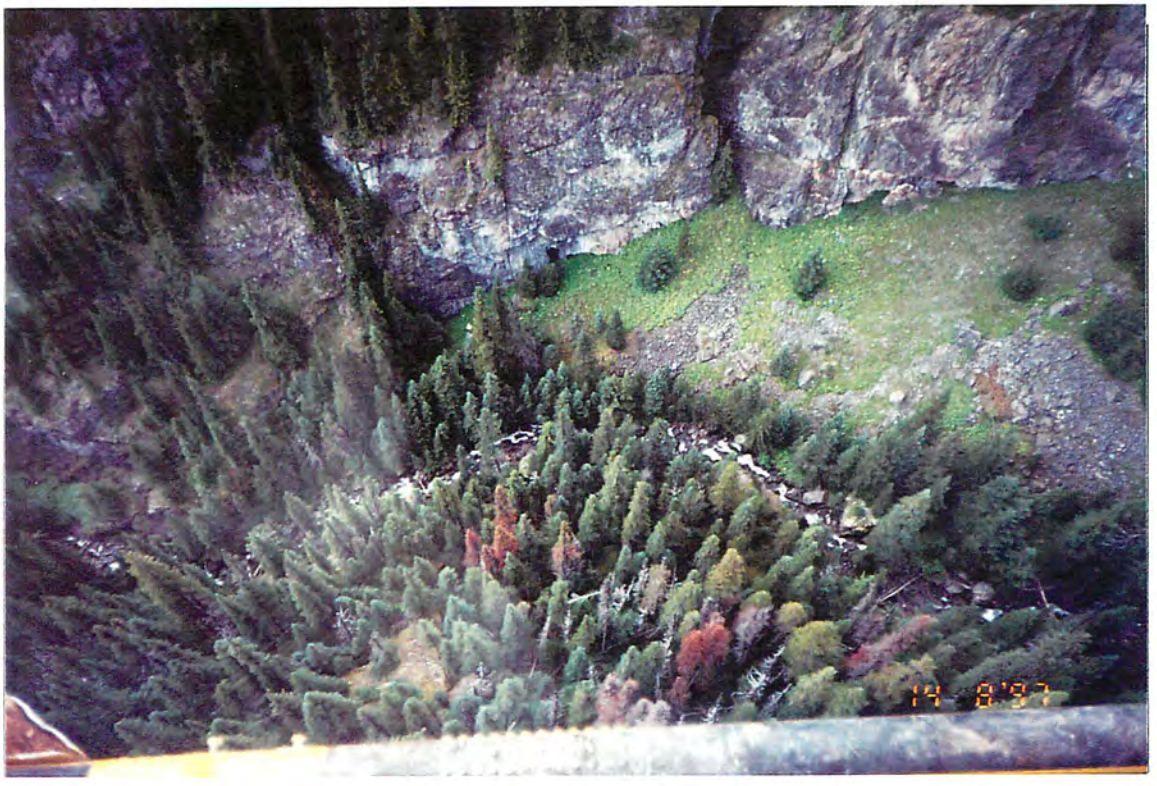

Photo #: Z-19-16, 14-Aug-97
Site #: Z146, Looking upstream at the channel

5.7 Unnamed Tributary to Reiseter Creek (93 L 095, 93 M 005)

5.7.1 Sensitive Habitat and Barriers

Some low gradient marshy areas were noted in the headwaters of this tributary, no barriers were observed by survey crews. One of the larger tributaries to the mainstem, was sampled in reaches 1 and 2, and was classified as an S2. This stream is roughly 14 km in length and has 42 tributaries. Reach 3 is suspected to be an S3 and reach 4 is suspected to be an S4 . This large tributary has moderate gradient and canyon like confinement, which decreases in reach 2. Reach 3 has low gradient and appears to be far less confined. The gradient begins a gradual increase to moderately steep gradient and approaches the upper limits of fish distribution in reach 4.

5.7.2 Fish Summary Tables and Stream Classification

Rainbow trout were caught by electroshocking at 3 sites, in reaches 1 and 3 of the mainstem and in one of the tributaries associated with reach 2.

This large tributary was classified as an S2 in reach one and an S3 in reach 3. A variety of tributaries feeding this creek range in size from S3 to S4. For the most part fish were not caught in these tributaries but they have been classified as fish bearing due to the presence of fish habitat (see Table 4).

A number of the tributaries associated with the upper reaches of Reiseter Creek, as well as the upper reaches of many tributaries to the main creek, have steep gradient and have been classified as non fish bearing. A large number of tributaries to Reiseter Creek have not been sampled. Some of these streams appear to be large S3's and/or small S2's.

DFO/MoELP Stream Survey Form

Site Number: ARNE 61 **Reach No.: 2**

Trib to Reiseter Creek

TRITON Environmental Consultants Ltd.

Location: ARNE 61, Unit 10, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-2793-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 **Reach Length (km):** 2.9 MW **Date:** 28-Sep-96 **Time:** 11:30 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 . 6215 . 60939 **Length surveyed (m):** 200.0 GE **Survey Crew:** AKL\BRL\ \ \ \ \ \ **Photos:** A-6:18-19 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	6.7	MS
Av. Wet. Width (m):	3.5	MS
Av. Max Riffle Depth (cm):	16	MS
Av. Max Pool Depth (cm):	36	MS
Gradient (%):	7.0	CL
Pool: 30 Riffle: 40 Run: 20 Other:	10	
% Side Channel:	0	GE
C9 % Debris Area:	0-5	GE
%Stable:	90	GE

Specific Data

6.5	7.9	6.1	7.7	5.8	5.9
4.2	3.4	4.0	4.1	3.0	2.1
18	18	12	18		
15	30	40	60		

Cover

Cover Total % : 80 GE

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
C8	25	5	65	0	5	0

Crown Closure % : 60 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	10	1
	Large (16-64mm):		7
Larges	Sm. cobble (64-128mm):	80	10
	Lge cobble (128-256mm):		30
	Bldr cobble (>256mm):		40
Bedrock		10	10

D90 (cm): 60 Compaction: Medium

Discharge

Wetted Width (m) :	2.0	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.50	F
Discharge (m3/s) :	0.13	f

Banks

Height (m): 1.0

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

(RB)

7 A 7.0 | 0181

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: CO

Valley : Channel Ratio 0-2

Stage: L Flood Signs Ht(m): 1

Bars (%): 10 pH: Braided: N

Water Temp. (°C): 3.5 02 (ppm):

Turb. (cm): 60 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S2

C2 The side slopes were not measured at this site.

C3 No fisheries sensitive zones were noted in the sampling area

C4 The electroshocking effort, using a 12 B POW model was 1100 secs over 700 sq. meters.

C5 Lat N 54 58' 37.80", Long W 127 06' 05.70"

C6 No additional bank texture information. Some bank erosion was noted in the sampling area.

C7 DO measurements were not taken at this site. The water was clear to the bottom. The mean air temperature on this day was 10.5°C

C8 Limited spawning bot good rearing were noted at this site. Boulder cover and cascade pool habitat were noted by the crew.

Photo #: A-6-18, 29-Sep-96
Site #: A61, Looking upstream.

Photo #: A-6-19, 29-Sep-96
Site #: A61, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: ARNE 62

Reach No.: 1

Trib to Reiseter Creek

TRITON Environmental Consultants Ltd.

Location: ARNE 62, Unit 10 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 001-2700-000-000-000-000-000-000-000-000-000-

Map #: 93 L 095 **Reach Length (km):** 2.2 MW **Date:** 28-Sep-96 **Time:** 11:36 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 . 6212 . 60939 **Length surveyed (m):** 200.0 GE **Survey Crew:** AKL\BR\ \ \ \ \ \ \ **Photos:** A-6:20-21 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	10.6	MS
Av. Wet. Width (m):	2.8	MS
Av. Max Riffle Depth (cm):	14	MS
Av. Max Pool Depth (cm):	28	MS
Gradient (%):	10.0	CL
Pool: 40 Riffle: 10 Run: 10 Other: 40		
% Side Channel:	0	GE
% Debris Area:	5-15	GE
%Stable:	70	GE

Specific Data

11.5	8.8	11.2	14.0	10.0	8.0
3.7	2.0	2.0	3.5	3.5	2.0
7	20	9	13	16	18
37	26	20	28	23	32

Cover

Cover Total % : 70 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	5	80	0	5	0

Crown Closure % : 60 Aspect : S

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	10	2
	Large (16-64mm):		8
Larges	Sm. cobble (64-128mm):	80	10
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		60
Bedrock		10	10

D90 (cm): 60 Compaction: High

Discharge

N Wetted Width (m) :

N Mean Depth (m) :

N Mean Velocity (m/s) :

N Discharge (m3/s) :

Banks

Height (m): 1.4

% Unstable: 60

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 0-2

Stage: L Flood Signs Ht(m): 1.4

Bars (%): 20 pH: Braided: N

Water Temp. (°C): 3.5 02 (ppm):

Turb. (cm): 37 Cond. (µmhos):

Reach Symbol

(Fish)

(RB)

11 A 10.0 | 0181

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				VO

Comments

C1 S2

C2 The side slopes were not measured at this site.

C3 No fisheries sensitive zones were noted in the sampling area

C4 This site was not electrofished.

C5 Lat N 54 58' 38.10", Long W 127 06' 22.60"

C6 No additional bank texture information.

C7 DO were not taken at this site. The water was clear to the bottom. The mean air temperature on this day was 10.5°C

C8 Good rearing but poor spawning habitat was noted in the sampling area. Cascades are plentiful at this site. Eroding banks and numerous snags across the stream indicate that this is a high energy system.

Photo #: A-6-20, 29-Sep-96
Site #: A62, Looking upstream, eroding mossy banks.

Photo #: A-6-21, 29-Sep-96
Site #: A62, Looking downstream toward confluence.

DFO/MoELP Stream Survey Form **Site Number:** ARNE 65 **Reach No.: 3**

Trib to Reiseter Creek

TRITON Environmental Consultants Ltd.

Location: ARNE 65, Unit 10 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 001-2300-000-000-000-000-000-000-000-000-000-

Map #: 93 L 095 **Reach Length (km):** 1.4 MW **Date:** 29-Sep-96 **Time:** 16:00 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .6242 .60953 **Length surveyed (m):** 1200.0 GE **Survey Crew:** AKL\BRL\ \ \ \ \ \ \ **Photos:** A-7:3,4 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.6	MS
Av. Wet. Width (m):	4.0	MS
Av. Max Riffle Depth (cm):	14	MS
Av. Max Pool Depth (cm):	37	MS
Gradient (%):	4.0	CL
Pool: 40 Riffle: 20 Run: 40 Other:	0	
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	80	GE

Specific Data

3.5	5.0	4.2	3.3	6.1	5.2
3.6	4.0	4.0	3.5	4.0	5.0
12	15	17	20	8	
40	32	33	44		

Cover

Cover Total % : 50 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	10	50	0	20	20

Crown Closure % : 5 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	5	5
Gravels	Small (2-16mm):	30	10
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	65	20
	Lge cobble (128-256mm):		25
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 30 Compaction: Medium

Discharge

Wetted Width (m) :	2.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.30	F
Discharge (m3/s) :	0.06	F

Banks

Height (m): 0.4

% Unstable: 5

Fines ☒ Gravels ☒ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

RB

5 C 4.0 | 0370

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: OC

Valley : Channel Ratio 5-10

Stage: L Flood Signs Ht(m): 0.4

Bars (%): 5 pH: Braided: N

Water Temp. (°C): 2.5 02 (ppm):

Turb. (cm): 44 Cond. (µmhos): 80

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
C8	RB	1	100	J	R			EL

Comments

C1 S3

C2 LS= 15%, RS= 20%

C3 No fisheries sensitive zones were noted in the sampling area.

C4 The site was electrofished at the confluence with A64, with a Smithroot 12 B POW model for 476 seconds.

C5 Lat N 54 59' 20.70", Long W 127 03' 31.80"

C6 No additional bank texture information

C7 DO measurements were not taken at this site. Tanic coloured water from meadows was observed. The mean air temperature on this day was 4.4°C

C8 Good rearing habitat, some stop logs with good plunge pool habitat, and some spawning gravels were noted at this site.

DFO/MoELP Stream Survey Form

Site Number: ARNE 60 **Reach No.: 1**

Trib to Reisiter Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 60, Unit 10, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 460-2793-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 **Reach Length (km):** 5.8 MW **Date:** 29-Sep-96 **Time:** 11:08 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6213 .60937 **Length surveyed (m):** 400.0 GE **Survey Crew:** AKL\BRL\ \ \ \ \ \ \ **Photos:** A-6-16-17 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	10.6	MS
Av. Wet. Width (m):	4.1	MS
Av. Max Riffle Depth (cm):	16	MS
Av. Max Pool Depth (cm):	30	MS
Gradient (%):	5.0	GE
Pool: 30 Riffle: 50 Run: 20 Other:	0	
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	90	GE

Specific Data

13.0	12.4	12.5	8.0	8.5	9.0
3.7	2.5	3.4	3.0	5.8	6.2
12	10	24	19	17	
25	37	27	23	40	

Cover

Cover Total % : 70 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	5	75	0	10	0

Crown Closure % : 50 Aspect : SW

Bed Material

Fines	Clay, silt, sand (<2mm):	5	5
Gravels	Small (2-16mm):	30	10
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	60	25
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		15
Bedrock		5	5

D90 (cm): 70 Compaction: Medium

Discharge

Wetted Width (m) :	3.6	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.40	F
Discharge (m3/s) :	0.22	F

Banks

Height (m): 1.0

% Unstable: 0

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 0-2

Stage: L Flood Signs Ht(m): 1

Bars (%): 20 pH: Braided: N

Water Temp. (°C): 3.5 02 (ppm):

Turb. (cm): 40 Cond. (µmhos): 100

Reach Symbol

(Fish)

RB

11 A 5.0 | 0361

(Width, Valley: Channel, Slope) | (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB			NA				EL

Comments

C1 S2

C2 The side slopes were not measured at this site.

C3 No fisheries sensitive zones were noted in the sampling area.

C4 This site was fished with a Smithroot 12 B POW model for 1100 seconds. Salmonids noticed while shocking

C5 Lat N 54 58' 38", Long W 127 06' 17"

C6 No additional bank texture information

C7 DO measurements were not taken at this site. The water was clear to the bottom. The mean air temperature on this day was 4.4°C

C8 Good rearing but poor spawning habitat were observed at this site. Boulder cover is substantial in the sampling area. Cascades were also noted by the crew.

Photo #: A-6-16, 29-Sep-96
Site #: A60, Looking downstream, boulder substrate.

Photo #: A-6-17, 29-Sep-96
Site #: A60, Looking upstream.

DFO/MoELP Stream Survey Form **Site Number:** ARNE 64 **Reach No.: 1**

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 64, Unit 10 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 001-3300-000-000-000-000-000-000-000-000-000-

Map #: 93 L 095 **Reach Length (km):** 1.7 MW **Date:** 29-Sep-96 **Time:** 15:20 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6238 .60950 **Length surveyed (m):** 200.0 GE **Survey Crew:** AKL\BRL\ \ \ \ \ \ **Photos:** A-7-1,2 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.0	MS
Av. Wet. Width (m):	1.7	MS
Av. Max Riffle Depth (cm):	10	MS
Av. Max Pool Depth (cm):	32	MS
Gradient (%):	6.0	CL
Pool: 20 Riffle: 50 Run: 30 Other:	0	
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	60	GE

Specific Data

1.4	2.0	2.0	2.9	2.3	1.5
1.1	2.3	2.2	1.7	1.8	1.3
4	12	11	12		
41	22				

Cover

Cover Total % : 45 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	15	50	0	10	25

Crown Closure % : 20 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	5	5
Gravels	Small (2-16mm):	20	5
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	75	20
	Lge cobble (128-256mm):		30
	Bldr cobble (>256mm):		25
Bedrock		0	0

D90 (cm): 45 Compaction: Medium

Discharge

Wetted Width (m) :	1.3	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.20	F
Discharge (m3/s) :	0.02	F

Banks

Height (m): 0.4

% Unstable: 0

Fines ☐ Gravels ☒ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 0-2

Stage: L Flood Signs Ht(m): 0.3

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 2.5 02 (ppm):

Turb. (cm): 41 Cond. (µmhos): 80

Reach Symbol

(Fish)

RB

2 A 6.0 | 1270

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB		100	J	R			EL

Comments

C1: S3

C2: LS=30%, RS=20%

C3: No fisheries sensitive zones were noted in the sampling area

C4: The electroshocking effort, using a 12 B POW model was 476 seconds over 175 sq. meters.

C5: Lat N 54 59' 11.40", Long W 127 03' 54.70"

C6: No additional bank texture information

C7: DO measurements were not taken at this site. The water was cear to the bottom. The mean air temperature on this day was 4.4°C

C8: Good rearing but poor spawning habitat occurs at this site. No obstructions were noted at the confluence with the mainstem.

Photo #: A-7-1, 29-Sep-96
Site #: A64, Looking upstream, willows and large cobble.

Photo #: A-7-2, 29-Sep-96
Site #: A64, Looking downstream, LOD cover.

Photo #: A-7-3, 29-Sep-96
Site #: A65, Looking upstream.

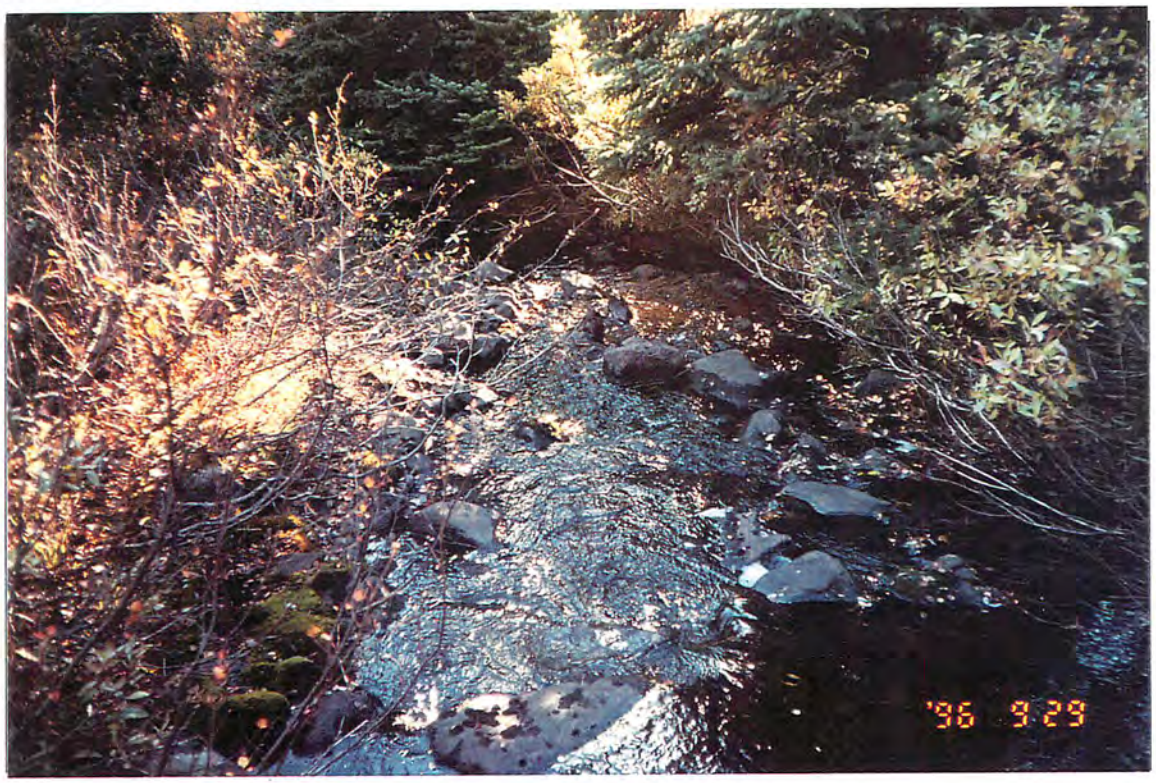

Photo #: A-7-4, 29-Sep-96
Site #: A65, Looking downstream.

Photo #: A-1-11, 19-Sep-96
Site #: A5, Looking downstream. LOD in dry channel.

Photo #: A-1-12, 19-Sep-96
Site #: A5, Looking upstream in mud channel.

DFO/MoELP Stream Survey Form

Site Number: ARNE 36 **Reach No.: 1**

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 36, Unit 10, large swamp at the headwaters, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 000-6700-000-000-000-000-000-000-000-000-0

Map #: 93 M 005 **Reach Length (km):** 1.0 MA **Date:** 24-Sep-96 **Time:** 15:29 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6223 .60977 **Length surveyed (m):** 150.0 HC **Survey Crew:** AKL\ HK\ \ \ \ \ \ \ **Photos:** A-4-11,12 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.4	MS
Av. Wet. Width (m):	1.2	MS
Av. Max Riffle Depth (cm):	4	MS
Av. Max Pool Depth (cm):	38	MS
Gradient (%):	11.0	CL
Pool: 50 Riffle: 20 Run: 30 Other: 0		
% Side Channel:		GE
% Debris Area:	0	GE
%Stable:	0	GE

Specific Data

1.4	1.6	1.2	1.4	1.0	1.5
1.4	1.2	1.0	1.3	1.1	1.2
6	7	3	2		
55	40	35	22		

Cover

Cover Total % : 25 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	0	50	0	25	25

Crown Closure % : 0 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	25	5
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	75	25
	Lge cobble (128-256mm):		25
	Bldr cobble (>256mm):		25
Bedrock		0	0

D90 (cm): 32 Compaction: Medium

Discharge

Wetted Width (m) :	0.2	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.26	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.4

% Unstable: 5

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: L Flood Signs Ht(m): 0.15

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 3.3 02 (ppm):

Turb. (cm): 55 Cond. (µmhos):

Reach Symbol

(Fish)

(RB)

1 E 11.0 | 0370

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S4

C2 LS = 40%, RS = 40%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a Smithroot 15 A model, was 652 seconds over 450 square meters. This is the combined fishing effort of sites A36 and A37.

C5 Lat N 55 00' 46.7", Long W 127 05' 28.7"

C6 Gravels and larges comprise the bank texture at this site.

C7 DO, pH, conductivity were not measured at this site. The water was clear to the bottom. The mean air temperature on this day was 5.5°C

C8 No spawning habitat, but some good step pool rearing habitat was observed at this site. This stream is located on a plateau area. 75m of a confined channel was seen downstream of the meadow. Upstream of this site, a network of seepages, derived form a meadow were seen.

Photo #: A-4-11, 25-Sep-96
Site #: A36, Looking upstream through willows.

Photo #: A-4-12, 25-Sep-96
Site #: A36, Looking downstream to confluence of A37.

DFO/MoELP Stream Survey Form **Site Number:** ARNE 37 **Reach No.: 2**

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 37, Unit 10, mainstem to site A36, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 001-2700-000-000-000-000-000-000-000-000-000-

Map #: 93 M 005 **Reach Length (km):** 2.5 MA **Date:** 24-Sep-96 **Time:** 16:01 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .62201 .60979 **Length surveyed (m):** 300.0 HC **Survey Crew:** AKL\ HK\ \ \ \ \ \ \ **Photos:** A-4-10,13,14 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.7	MS
Av. Wet. Width (m):	1.7	MS
Av. Max Riffle Depth (cm):	9	MS
Av. Max Pool Depth (cm):	40	MS
Gradient (%):	8.0	CL
Pool: 10 Riffle: 30 Run: 60 Other: 0		
% Side Channel:		GE
% Debris Area:	0	GE
%Stable:	0	GE

Specific Data

2.9	2.3	1.9	3.2	2.6	3.0
1.2	1.2	1.8	2.3	2.0	1.8
12	10	6			
39	42	39			

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	0	80	0	20	0

Crown Closure % : 0 Aspect : SW

Discharge

Wetted Width (m) :	0.8	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.56	F
Discharge (m3/s) :	0.03	F

Reach Symbol

(Fish)

(RB)

3 E 8.0 | 0163

(Width, Valley: Channel, Slope) (Bed Material)

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	10	0
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	60	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		20
Bedrock		30	30

D90 (cm): 60 Compaction: High

Banks

N Height (m): % Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: L N Flood Signs Ht(m): 0

Bars (%): 0 pH: 7.3 Braided: N

Water Temp. (°C): 4.0 02 (ppm):

Turb. (cm): 42 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S3

C2 LS = 80%, RS = 90%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 652 seconds over 450 square meters.

C5 Lat N 55 00' 46.7", Long W 127 05' 28.7"

C6 The banks at this site contain both larges and bedrock.

C7 DO, pH, conductivity were not measured at this site. The water was clear to the bottom. The mean air temperature on this day was 5.5°C

C8 Some excellent rearing, but no spawning or overwintering habitat was observed at this site. Downstream of the confluence with A36, stream/site A37, runs through an entrenched canyon. It is likely that there is some kind of barrier downstream of this site.

Photo #: A-4-10, 24-Sep-96
Site #: A37, Looking upstream.

Photo #: A-4-13, 25-Sep-96
Site #: A37, Looking upstream.

Photo #: A-4-14, 25-Sep-96
Site #: A37, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: E192 **Reach No.: 3**

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: E192, Unit 10, North of Driftwood Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** 001-5600-000-000-000-000-000-000-000-000-000-

Map #: 93 L 085 **Reach Length (km):** 1.4 MA **Date:** 14-Aug-97 **Time:** 8:15 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6261 .60842 **Length surveyed (m):** 100.0 GE **Survey Crew:** SJ \EM\ \ \ \ \ \ \ **Photos:** E-19-1,2 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.7	MS
Av. Wet. Width (m):	0.2	MS
Av. Max Riffle Depth (cm):	2	MS
Av. Max Pool Depth (cm):	14	MS
Gradient (%):	4.0	CL
Pool: 10 Riffle: 5 Run: 85 Other: 0		
% Side Channel:	10-40	GE
% Debris Area:	0-5	GE
%Stable:	80	GE

Specific Data

1.8	1.6	1.4	1.5	2.0	1.7
0.2	0.2	0.5	0.1	0.2	0.2
1	2	1	1	3	1
18	10	19	16	9	

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	0	70	0	20	10

Crown Closure % : 10 Aspect : N

Bed Material

Fines	Clay, silt, sand (<2mm):	30	30
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	60	5
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		50
Bedrock		0	0

D90 (cm): 8 Compaction: High

Discharge

Wetted Width (m) :	0.6	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.23	F
Discharge (m3/s) :	0.01	F

Banks

Height (m): 0.1

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: L Flood Signs Ht(m): 0.2

Bars (%): 0 pH: 6.9 Braided: N

Water Temp. (°C): 10.5 02 (ppm):

Turb. (cm): Cond. (µmhos): 40

Reach Symbol

(Fish)

(DV)

2 D 4.0 | 3160

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S3

C2 LS = 7%, RS = 2%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 200 seconds over 100 meters.

C5 No additional bank texture information.

C6 DO was not measured, the water was clear to the bottom. The mean air temperature on this day was 18.1.C.

C7 This reach has some very small, shallow pools but most of the cover consists of boulders and overhanging vegetation. The substrate changes in the sampling area from a boulder dominated substrate to a fine organic sustrate.

Photo #: E-19-1, 14-Aug-97
Site #: E192, Looking upstream at the channel

Photo #: E-19-2, 14-Aug-97
Site #: E192, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: E193

Reach No.: 1

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: E193, Unit 10, North of Driftwood Creek | **Stream (Gaz.):** Unnamed | **Watershed Code:** 049-5700-000-000-000-000-000-000-000-000-000-

Map #: 93 L 085 | **Reach Length (km):** 0.7 MA | **Date:** 14-Aug-97 | **Time:** 9:40 | **Agency:** TEC | **Access:** H | **Fish Card:** N | Field ☒ Historical ☐

U.T.M. : 9 .6261 .60843 | **Length surveyed (m):** 100.0 GE | **Survey Crew:** SJ \EM \ \ \ \ \ \ \ | **Photos:** E-19-3,4 | **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.3	MS
Av. Wet. Width (m):	1.0	MS
Av. Max Riffle Depth (cm):	2	MS
Av. Max Pool Depth (cm):	25	MS
Gradient (%):	2.0	CL
Pool: 30 Riffle: 15 Run: 55 Other: 0		
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	30	GE

Specific Data

0.9	2.0	0.7	1.1	1.3	1.7
0.9	1.9	0.3	0.6	0.9	1.4
4	2	3	3	1	1
31	28	18	26	23	

Cover

Cover Total % : 35 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
40	10	20	0	10	20

Crown Closure % : 15 | Aspect : E

Bed Material

Fines	Clay, silt, sand (<2mm):	20	20
Gravels	Small (2-16mm):	30	10
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	50	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 40 | Compaction: High

Discharge

Wetted Width (m) :	0.2	MS
Mean Depth (m) :	0.0	MS
Mean Velocity (m/s) :	0.51	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.3

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: L | Flood Signs Ht(m): 0.4

Bars (%): 5 | pH: 6.8 | Braided: N

Water Temp. (°C): 10.0 | 02 (ppm):

Turb. (cm): | Cond. (µmhos): 20

Reach Symbol

(Fish)

(DV)

1 D 2.0 | 2350

(Width, Valley: Channel, Slope) | (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S4

C2 LS = 7%, RS = 6%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 271 seconds over 100 meters.

C5 Fines and larges make up the bank texture at this site.

C6 DO was not measured, the water was clear to the bottom. The mean air temperature on this day was 18.1.C.

C7 This reach has quite a bit of LOD, undercut bank and boulder cover. both rearing and spawning habitat were noted.

Photo #: E-19-3, 14-Aug-97
Site #: E193, Looking upstream at the channel and a crew member electrofishing

Photo #: E-19-4, 14-Aug-97
Site #: E193, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: E198

Reach No.: 4

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: E198, Unit 10, North of Reiseter Creek

Stream (Gaz.): Unnamed

Watershed Code: 001-2300-000-000-000-000-000-000-000-000-000-

Map #: 93 L 095 **U.T.M.:** 9 .6257 .60946

Reach Length (km): 2.2 MA **Length surveyed (m):** 100.0 GE

Date: 15-Aug-97 **Time:** 8:30 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

Survey Crew: SJ \EM\ \ \ \ \ \ \ **Photos:** E-19-13,14 **Air Photos:**

Channel Characteristics

C1	Av. Chan. Width (m):	0.9	MS
C1	Av. Wet. Width (m):	0.7	MS
	Av. Max Riffle Depth (cm):	0	MS
	Av. Max Pool Depth (cm):	16	MS
	Gradient (%):	1.0	CL
	Pool: 0 Riffle: 0 Run: 100 Other: 0		
	% Side Channel:	0	GE
	% Debris Area:	0-5	GE
	%Stable:	0	GE

Specific Data

0.8	0.7	0.7	0.9	0.6	0.9
0.7	0.5	0.5	0.7	0.4	0.8
15	17	20	13	15	

Cover

Cover Total % : 5 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	0	0	100	0	0

Crown Closure % : 0 Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	100	100
Gravels	Small (2-16mm):	0	0
	Large (16-64mm):		0
Larges	Sm. cobble (64-128mm):	0	0
	Lge cobble (128-256mm):		0
	Blder cobble (>256mm):		0
Bedrock		0	0

N D90 (cm): 0 Compaction: Medium

Discharge

Wetted Width (m) :	0.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.03	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.25

Bars (%): 0 pH: 6.2 Braided: N

Water Temp. (°C): 10.5 02 (ppm):

Turb. (cm): Cond. (µmhos): 30

Reach Symbol

(Fish)

(DV)

I D 1.0 | F

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S4. Additional channel and wetted widths of 1.5m and 1.2m respectively were obtained at this site

C2 LS = 1%, RS = 1%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-500V, was 342 seconds over 100 meters.

C5 No additional bank texture information.

C6 DO was not measured, the water was clear to the bottom. The mean air temperature on this day was 17.9.C.

C7 This reach runs through a meadow, then underground. Some sections of the channel are undefined, others have a muddy substrate with sedges. This reach has marginal fish habitat and fish presence is deemed unlikely.

Photo #: E-19-13, 15-Aug-97
Site #: E198, Looking upstream at the channel, note the instream vegetation

Photo #: E-19-14, 15-Aug-97
Site #: E198, Looking downstream at the channel

DFO/MoELP Stream Survey Form

Site Number: E200

Reach No.: 2

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: E200, Unit 10, North of Reiseter Creek | **Stream (Gaz.):** Unnamed | **Watershed Code:** 001-2600-000-000-000-000-000-000-000-000-000-

Map #: 93 L 095 | **Reach Length (km):** 2.0 MA | **Date:** 15-Aug-97 | **Time:** 10:30 | **Agency:** TEC | **Access:** H | **Fish Card:** N | Field ☒ Historical ☐

U.T.M. : 9 .6229 .60930 | **Length surveyed (m):** 100.0 GE | **Survey Crew:** SJ \EM \ \ \ \ \ \ \ | **Photos:** E-19-17,18 | **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	0.7	MS
Av. Wet. Width (m):	0.7	MS
Av. Max Riffle Depth (cm):	3	MS
Av. Max Pool Depth (cm):	20	MS
Gradient (%):	5.0	CL
Pool: 30 Riffle: 30 Run: 40 Other:	0	
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	10	GE

Specific Data

0.6	0.7	0.4	1.0	0.9	0.8
0.5	0.6	0.2	1.3	0.8	0.7
2	3	3	3	2	
20	22	17	19	21	

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	10	15	0	10	65

Crown Closure % : 40 | Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	30	30
Gravels	Small (2-16mm):	30	15
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	40	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 20 | Compaction: Medium

Discharge

Wetted Width (m) :	0.5	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.04	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.2

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M | Flood Signs Ht(m): 0.2

Bars (%): 15 | pH: 7.3 | Braided: N

Water Temp. (°C): 9.0 | 02 (ppm):

Turb. (cm): | Cond. (µmhos): 110

Reach Symbol

(Fish)

(DV)

1 D 5.0 | 3340

(Width, Valley: Channel, Slope) | (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S4

C2 LS = 2%, RS = 3%

C3 No fisheries sensitive zones noted.

C4 The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-500V, was 207 seconds over 100 meters.

C5 No additional bank texture information.

C6 DO was not measured, the water was clear to the bottom. The mean air temperature on this day was 17.9.C.

C7 This reach has predominantly fine substrate, with some jagged, shale like cobble. No spawning habitat was noted in this reach, however cutbank rearing cover was observed. The banks are lined with herbs and shrubs.

Photo #: E-19-17, 16-Aug-97
Site #: E200, Looking upstream at the channel

Photo #: E-19-18, 16-Aug-97
Site #: E200, Looking downstream at the channel

DFO/MoELP Stream Survey Form **Site Number:** E277 **Reach No.: 3**

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: E277, Unit 10, south of Reiseter Creek **Stream (Gaz.):** Unnamed **Watershed Code:** 001-6100-000-000-000-000-000-000-000-000-000-

Map #: 93 L 096 **Reach Length (km):** 2.5 MA **Date:** 09-Sep-97 **Time:** 11:55 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6284 .608754 **Length surveyed (m):** 150.0 GE **Survey Crew:** SJ\JL\ \ \ \ \ \ \ **Photos:** E-26-20,21,21A **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.4	MS
Av. Wet. Width (m):	4.5	MS
Av. Max Riffle Depth (cm):	15	MS
Av. Max Pool Depth (cm):	64	MS
Gradient (%):	6.0	CL
Pool: 15 Riffle: 40 Run: 45 Other:	0	
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	10	GE

Specific Data

4.4	5.5	4.4	5.2	2.9	4.3
4.4	5.3	4.2	5.5	3.3	4.6
11	15	15	17	15	
68	67	73	50	62	

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	10	30	0	10	30

Crown Closure % : 15 Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	30	15
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	60	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 45 Compaction: Medium

Discharge

Wetted Width (m) :	3.0	MS
Mean Depth (m) :	0.4	MS
Mean Velocity (m/s) :	0.40	F
Discharge (m3/s) :	0.36	F

Banks

Height (m): 0.3

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

NF

4 D 6.0 | 1360

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 0 pH: 7.7 Braided: Y

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 70

Obstructions

C	Height (m)	Type	Location
	3	C	2.0

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1 S5

C2 LS = 6%, RS = 6%

C3 No fisheries sensitive zones present.

C4 The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 420 seconds.

C5 Fines and larges make up the bank texture at this site.

C6 DO was not measured, the water was clear to the bottom. The air temperature at this site was 15.C.

C7 Boulders, deep pools and cutbanks provide rearing cover at this site. Riparian vegetation includes cow parsnip, spruce, fir , willow, monkshood.

C8 This reach has been classified as non fish bearing because no fish were caught in the sampling area, which is located above a 3 m cascade.

Photo #: E-26-20, 10-Sep-97
Site #: E277, Looking upstream at the channel

Photo #: E-26-21, 10-Sep-97
Site #: E277, Looking downstream at the channel

Photo #: E-26-21A, 10-Sep-97
Site #: E277, Looking upstream at a series of cascade and falls barriers

DFO/MoELP Stream Survey Form **Site Number:** E278 **Reach No.: 5**

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: E278, Unit 10, South of the Reiseter mainstem **Stream (Gaz.):** Unnamed **Watershed Code:** 001-6100-000-000-000-000-000-000-000-000-000-

Map #: 93 L 096 **Reach Length (km):** 0.8 MA **Date:** 09-Sep-97 **Time:** 13:07 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6307 .60890 **Length surveyed (m):** 125.0 GE **Survey Crew:** SJ \JL \ \ \ \ \ \ \ **Photos:** E-26-23,24 **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	4.8	MS	4.2	4.7	5.1	5.3	5.6	4.1
Av. Wet. Width (m):	4.5	MS	3.8	3.9	5.0	5.1	5.2	3.7
Av. Max Riffle Depth (cm):	7	MS	6	7	9	8	7	
Av. Max Pool Depth (cm):	28	MS	31	22	24	32	29	
Gradient (%):	10.0	CL						

Pool: 10 Riffle: 40 Run: 50 Other: 0

% Side Channel: 0-10 GE

% Debris Area: 0 GE

%Stable: 0 GE

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
30	0	60	0	0	10

Crown Closure % : 0 Aspect : SW

Discharge

Wetted Width (m) :	2.5	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.49	F
Discharge (m3/s) :	0.28	F

Reach Symbol

(Fish)

NF

5 D 10.0 | 0172

(Width, Valley: Channel, Slope) (Bed Material)

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	70	10
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		40
Bedrock		20	20

N D90 (cm): Compaction: High

Banks

Height (m): 0.1

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.1

Bars (%): 0 pH: 7.8 Braided: Y

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 40

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S5

C2: LS = 3%, RS = 2%

C3: No fisheries sensitive zones.

C4: The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 199 seconds over 125 meters.

C5: Fines and larges make up the bank texture at this site.

C6: DO was not measured, the water was clear to the bottom. The air temperature at this site was 18.C.

C7: This site has some rearing habitat, but no spawning habitat. This reach has been classified as non fish bearing because no fish were caught in the sampling area, which is located above an impassable 700 m long stretch of cascades.

Photo #: E-26-23, 10-Sep-97
Site #: E278, Looking upstream at the channel

Photo #: E-26-24, 10-Sep-97
Site #: E278, Looking downstream at the channel

DFO/MoELP Stream Survey Form **Site Number:** Y160 **Reach No.: 1**

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: Y160, Unit 10; 1.0km south of Reiseter Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** ILP-0015-500-000-000-000-000-000-000-000-000-0

Map #: 93 L 095 Reach Length (km): 0.7 MA Date: 14-Aug-97 Time: 15:30 Agency: TEC Access: H Fish Card: N Field ☒ Historical ☐

U.T.M. : 9 .6242 .60869 Length surveyed (m): 100.0 AE Survey Crew: JL \JP\ \ \ \ \ \ \ Photos: Y-18-9,10 Air Photos:

Channel Characteristics

Av. Chan. Width (m):	0.5	AE
Av. Wet. Width (m):	0.0	AE
Av. Max Riffle Depth (cm):	0	AE
Av. Max Pool Depth (cm):	0	AE
Gradient (%):	17.0	AE
Pool: 0 Riffle: 0 Run: 0 Other: 0		
% Side Channel:	0	AE
% Debris Area:	0	AE
%Stable:	0	AE

Specific Data

Cover

N Cover Total % : 0 AE

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N	0	0	0	0	0	0

Crown Closure % : 30 Aspect : NE

Bed Material

	Fines	Clay, silt, sand (<2mm):	90	90
	Gravels	Small (2-16mm):	10	
		Large (16-64mm):		
	Larges	Sm. cobble (64-128mm):		0
N		Lge cobble (128-256mm):	0	0
		Bldr cobble (>256mm):		0
N	Bedrock		0	0

D90 (cm): 0 Compaction: Low

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

N Height (m): 0.0

% Unstable: 0

N Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(RB)

1 C 17.0 | 9100

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: OC

Valley : Channel Ratio 5-10

Stage: Dry N Flood Signs Ht(m):

N Bars (%): pH: Braided: N

N Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Comments

C1 S4. This was an aerial survey.

C2 The side slopes were not measured at this site.

C3 No fisheries sensitive zones noted.

C4 This site was not electroshocked.

C5 No additional bank texture information.

C6 Water quality was not evaluated at this site.

C7 This stream is mostly dry with some standing water. It is mostly a spring drainage stream. Fish habitat is minimal at this site.

Photo #: Y-18-10, 14/08/97
Site #: Y160, Aerial photo of S4 stream

DFO/MoELP Stream Survey Form **Site Number:** E194 **Reach No.: 1**

Trib. to Reisteter Cr.

TRITON Environmental Consultants Ltd.

Location: E194, Unit 10, North of Driftwood Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** 049-6200-000-000-000-000-000-000-000-000-000-

Map #: 93 L 085 **Reach Length (km):** 1.2 MA **Date:** 14-Aug-97 **Time:** 10:28 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6261 .60842 **Length surveyed (m):** 100.0 GE **Survey Crew:** SJ \EM \ \ \ \ \ \ \ **Photos:** E-19-5,6 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	0.8	MS
Av. Wet. Width (m):	0.3	MS
Av. Max Riffle Depth (cm):	2	MS
Av. Max Pool Depth (cm):	15	MS
Gradient (%):	2.0	CL
Pool: 10 Riffle: 10 Run: 80 Other: 0		
% Side Channel:	0-10	GE
% Debris Area:	0-5	GE
%Stable:	0	GE

Specific Data

0.9	1.1	1.6	0.4	0.3	0.7
0.3	0.4	0.3	0.2	0.1	0.3
1	2	2	1	2	
21	14	18	13	10	

Cover

Cover Total % : 5 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
90	0	0	10	0	0

Crown Closure % : 0 Aspect : N

Bed Material

Fines	Clay, silt, sand (<2mm):	70	70
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	20	0
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 24 Compaction: Low

Discharge

Wetted Width (m) :	0.2	MS
Mean Depth (m) :	0.0	MS
Mean Velocity (m/s) :	0.63	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.1

% Unstable: 20

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: L Flood Signs Ht(m): 0.3

Bars (%): 0 pH: 6.7 Braided: N

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 30

Reach Symbol

(Fish)

(DV)

1 D 2.0 | 7120

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S4

C2: LS = 4%, RS = 4%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 227 seconds over 100 meters.

C5: No additional bank texture information.

C6: DO was not measured, the water was clear to the bottom. The mean air temperature on this day was 18.1.C.

C7 This reach has little rearing or spawning habitat. Orange algae was noted in the channel.

Photo #: E-19-5, 14-Aug-97
Site #: E194, Looking downstream at the channel

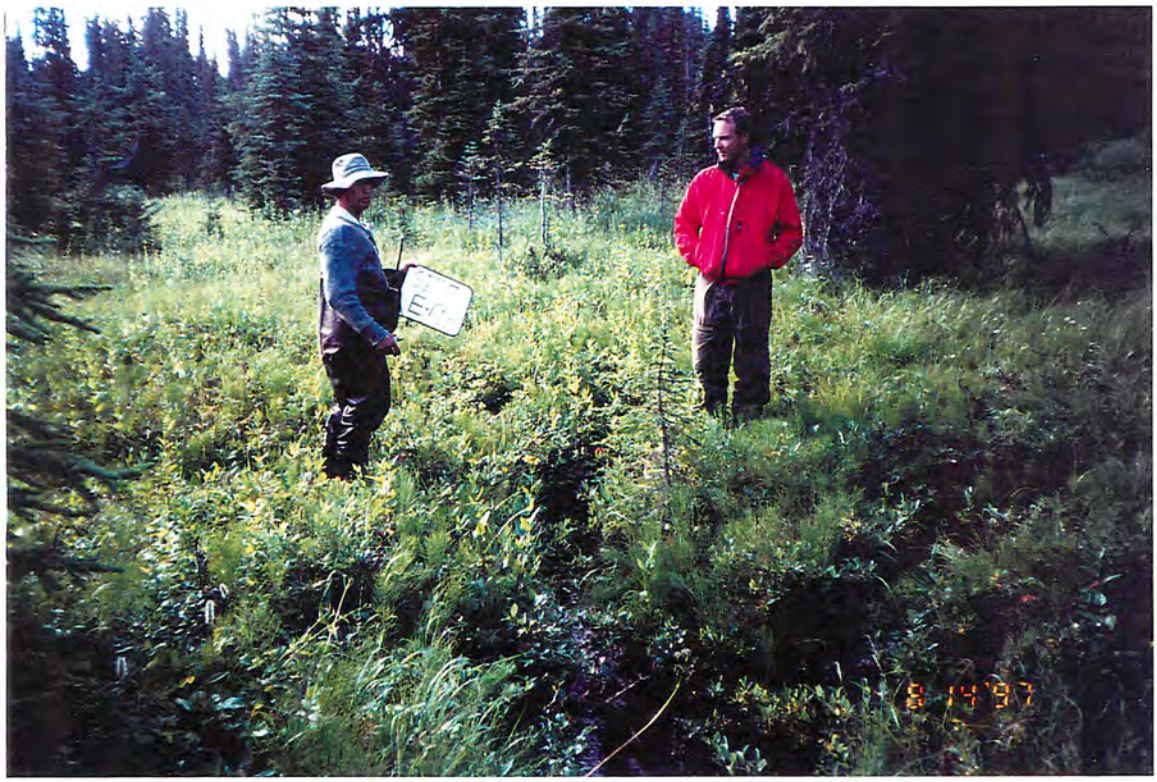

Photo #: E-19-6, 14-Aug-97
Site #: E194, Looking upstream at the channel

DFO/MoELP Stream Survey Form **Site Number:** E199 **Reach No.: 1**

Trib. to Reiseter Cr.

TRITON Environmental Consultants Ltd.

Location: E199, Unit 10, North of Reiseter Cr. **Stream (Gaz.):** Unnamed **Watershed Code:** 001-3400-000-000-000-000-000-000-000-000-000-

Map #: 93 L 095 **Reach Length (km):** 1.7 MA **Date:** 15-Aug-97 **Time:** 9:15 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .6251 .60951 **Length surveyed (m):** 100.0 GE **Survey Crew:** SJ \EM\ \ \ \ \ \ \ **Photos:** E-19-15,16 **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	2.2	MS	2.6	3.0	2.0	2.9	1.0	1.5
Av. Wet. Width (m):	2.2	MS	2.6	3.0	2.0	2.9	1.0	1.5
Av. Max Riffle Depth (cm):	4	MS	4	3	4	5	3	
Av. Max Pool Depth (cm):	69	MS	100	87	75	45	37	
Gradient (%):	1.0	CL						

Pool: 25 Riffle: 15 Run: 60 Other: 0

% Side Channel: 0-10 GE

% Debris Area: 5-15 GE

%Stable: 0 GE

Cover

Cover Total % : 15 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
15	15	10	0	15	45

Crown Closure % : 15 Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	30	30
Gravels	Small (2-16mm):	60	30
	Large (16-64mm):		30
Larges	Sm. cobble (64-128mm):	10	5
	Lge cobble (128-256mm):		3
	Bldr cobble (>256mm):		2
Bedrock		0	0

D90 (cm): 5 Compaction: Medium

Discharge

Wetted Width (m) :	0.8	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.44	F
Discharge (m3/s) :	0.02	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 5 pH: 7.4 Braided: N

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): Cond. (µmhos): 60

Reach Symbol

(Fish)

(DV)

2 D 1.0 | 3610

(Width, Valley: Channel, Slope) (Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S3

C2: LS = 1%, RS = 2%

C3: No fisheries sensitive zones noted.

C4: The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-500V, was 400 seconds over 100 meters.

C5: No additional bank texture information.

C6: DO was not measured, the water was clear to the bottom. The mean air temperature on this day was 17.9.C.

C7: This reach flows through a willow thicket, the cover for fish consists of cutbanks and a few deep pools. Spawning habitat was noted downstream of the sampling area.

Photo #: E-19-15, 15-Aug-97
Site #: E199, Looking upstream at the channel

Photo #: E-19-16, 15-Aug-97
Site #: E199, Looking downstream at the channel with dense willow cover

5.8 Tributaries to the Bulkley River (93 L 085, 93 L 094, 93 L 095)

5.8.1 Sensitive Habitats and Barriers

Roughly 11.2 km of the Bulkley mainstem run through unit 10. Two notable stretches of rapids occur in this area. Urban development is quite extensive around the Bulkley River in this working unit, which contains seven tributaries. The one unnamed tributary to the Bulkley that was sampled in this area has fairly steep gradient and is quite confined in reach one, suggesting possible barriers to fish migration.

5.8.2 Fish Summary Tables and Stream Classification

The historical records show that pink salmon spawn in this part of the Bulkley River and that coho, chinook, Dolly Varden and rainbow trout are found in Driftwood Creek, a large tributary to the Bulkley River. Fish were not caught during the electroshocking trial in the unnamed tributary to the Bulkley River, but were caught in some of the tributaries and in the mainstems of Driftwood and Reiseter Creeks.

The Bulkley River itself is an S1 in this area. The tributaries are typically S2 and S3 sized streams. The unnamed tributary sampled here has been classified as an S3 based on the 1.6 m average channel width. Although the habitat in this creek was described as very poor by the survey crew, no barriers to fish passage were found and the stream was classified as fish bearing. It was noted that livestock have full access to this stream.

DFO/MoELP Stream Survey Form

Site Number: ARNE 5 **Reach No.: 1**

Trib. to Bulkley R.

TRITON Environmental Consultants Ltd.

Location: ARNE 5, Unit 10, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 049-0300-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 085 **Reach Length (km):** 3.0 MA **Date:** 19-Sep-96 **Time:** 17:00 **Agency:** TEC **Access:** V2 **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .6189 .60812 **Length surveyed (m):** 150.0 HC **Survey Crew:** AKL\ HK\ \ \ \ \ \ \ **Photos:** A-1-11,12 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	1.6	MS
	Av. Wet. Width (m):	0.0	GE
N	Av. Max Riffle Depth (cm):	0	GE
N	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	3.0	CL
	Pool: 0 Riffle: 0 Run: 0 Other: 0		
	% Side Channel:	0	GE
	% Debris Area:	10	GE
	%Stable:	50	GE

Specific Data

2.0 1.1 1.5 1.6 2.5 1.0

Cover

Cover Total % : 55 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	85	0	5	10	0

Crown Closure % : 30 Aspect : W

Bed Material

	Fines	Clay, silt, sand (<2mm):	100	100
	Gravels	Small (2-16mm):	0	0
		Large (16-64mm):		0
	Larges	Sm. cobble (64-128mm):	0	0
		Lge cobble (128-256mm):		0
		Bldr cobble (>256mm):		0
	Bedrock		0	0

N D90 (cm): 0 Compaction: Medium

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				NA

Discharge

N	Wetted Width (m) :		
N	Mean Depth (m) :		
N	Mean Velocity (m/s) :		
N	Discharge (m3/s) :		

Banks

Height (m): 0.4

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: N/A

Valley : Channel Ratio N/A

Stage: L Flood Signs Ht(m): 0.4

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

(RB)

2 E 3.0 | F

(Width, Valley: Channel, Slope) (Bed Material)

Comments

C1: S3

C2: LS = 3%, RS = 1%

C3: No fisheries sensitive zones were noted at this site.

C4: The electroshocking effort, using a Smithroot 15 A model, was 50 seconds.

C5: Lat N 54 51' 49.4", Long W 127 08' 50.8"

C6: No additional bank texture information.

C7: Water quality was not evaluated at this site. The mean air temperature on this day was 6.0°C

C8: Very poor fish habitat was observed at this site. However, the riparian vegetation in this area has not been removed.

C9: The channel at this site is intermittent and frequented by livestock.

Photo #: A-1-11, 19-Sep-96
Site #: A5, Looking downstream. LOD in dry channel.

Photo #: A-1-12, 19-Sep-96
Site #: A5, Looking upstream in mud channel.

5.9 Twin Creek (93 L 085 and 93 L 095)

5.9.1 Physical

No sensitive habitats were noted by the field crew, however, a 10m falls was observed 180m upstream from the mouth of Twin Creek (see Table 3). No fish were caught above this falls. The mainstem of Twin Creek is 5.1 km in length and generally flows west into the Bulkley River. The headwaters are characterized by moderately steep gradient. The gradient decreases downstream through reach 1 and is quite low until approximately 180 m from the mouth, where the 10m falls was noted. Twin Creek was sampled in reach 1 at a road crossing. None of the seven tributaries to this creek were sampled.

5.9.2 Fish Summary Tables and Stream Classification

No fish were caught in Twin Creek , however the habitat is described as favorable below the road crossing. Overwintering habitat appears to be lacking above the 10 m falls noted on this stream.

Twin Creek has been classified as an S3, based on the 2.3m channel width and suitable fish habitat noted in the sampling area.

DFO/MoELP Stream Survey Form

Site Number: ARNE 1 **Reach No.: 2**

Twin Cr.

TRITON Environmental Consultants Ltd.

Location: ARNE 1, Unit 10, Telkwa Hi road, See C5. **Stream (Gaz.):** Twin Creek **Watershed Code:** 460-2888-000-000-000-000-000-000-000-000-000-0

Map #: 93 L 085 **Reach Length (km):** 2.8 MA **Date:** 19-Sep-96 **Time:** 14:20 **Agency:** TEC **Access:** V2 **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .6166 .60851 **Length surveyed (m):** 200.0 HC **Survey Crew:** AKL\ HK\ \ \ \ \ \ \ **Photos:** A-1-3,4 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.3	T
Av. Wet. Width (m):	1.1	T
Av. Max Riffle Depth (cm):	4	MS
Av. Max Pool Depth (cm):	28	MS
Gradient (%):	7.0	CL

Pool: 30 Riffle: 30 Run: 40 Other: 0

% Side Channel:	0	GE
% Debris Area:	25	GE
%Stable:	50	GE

Specific Data

1.8	2.5	2.3	2.0	3.0	2.4
0.8	1.4	1.1	1.0	1.2	1.0
3	4	6	3	3	4
40	25	40	25	12	

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	45	10	0	30	15

Crown Closure % : 60 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	5	5
Gravels	Small (2-16mm):	55	30
	Large (16-64mm):		25
Larges	Sm. cobble (64-128mm):	30	15
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		5
Bedrock		10	10

D90 (cm): 26 Compaction: Medium

Discharge

Wetted Width (m) :	1.1	MS
Mean Depth (m) :	0.0	MS
Mean Velocity (m/s) :	0.09	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 1.0

% Unstable: 5

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

(DV)

2 B 7.0 | 1531

(Width, Valley: Channel, Slope) (Bed Material)

Confinement: FC

Valley : Channel Ratio 2-5

Stage: L Flood Signs Ht(m): 1

Bars (%): 5 pH: Braided: N

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 40 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location
	1	C	0.3
	10	F	0.2

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	NF			NA				EL

Comments

C1: S3

C2: LS = 40%, RS = 50%

C3: No fisheries sensitive zones were noted at this site.

C4: The electroshocking effort, using a Smithroot 15 A model was 153 seconds over 82.5 square meters.

C5: Lat N 54 53' 59.2", Long W 127 10' 50.2"

C6: No additional bank texture information.

C7: DO, pH and conductivity were not measured at this site. The mean air temperature on this day was 6.0°C

C8: Some good habitat was noted downstream of the road crossing. However, no overwintering habitat was noted upstream of the 10 m falls on this creek, which prevent fish passage upstream.

C9: The gradient of the culvert is 7% and is assumed to be a barrier to fish passage upstream. A .9m drop occurs at the downstream end of the culvert.

1: The air temperature at this site was 12.5.C.

Photo #: A-1-3, 19-Sep-96
Site #: A1, Looking upstream.

Photo #: A-1-4, 19-Sep-96
Site #: A1, Looking downstream.

5.10 Fish Age, Growth And Other Observations

There is limited size data for fish sampling in working unit 10 because there were few sample sites. Data are summarized in Appendix 2 and length-frequency histograms are shown for Dolly Varden (Figure 2a) and rainbow trout (Figure 2b).

5.11 Rare And Endangered Species Summary

No rare or endangered species were encountered in this working unit.

5.12 Wildlife Observations

No wildlife observations were recorded by sampling crews working in unit 10.

5.13 Recommendations For Follow Up Sampling

A number of the sites in this working unit were classified as fish bearing despite the fact that no fish were caught in the sampling areas. Typically, these sites had suitable fish habitat and/or no observed barriers to fish migration. Additionally, a number of these sites were dry at the time of sampling. A list of sites for which future sampling is recommended is provided in Table 6.

6.0 CONCLUSION AND RECOMMENDATIONS

Salmonid species are present in the large mainstems of Driftwood and Reiseter and in the lower reaches of some of their tributaries. Both Driftwood and Reiseter Creek have steep side slopes, which limit fish distribution within each watershed. A number of barriers to fish passage, including falls, cascades and consistent, steep gradients were identified by sampling crews working in this unit.

Table 6 summarizes sample sites for which future sampling is recommended. In addition to this list, we recommend that the lower reaches of unsampled tributaries be sampled on a selective basis, to determine the extent of available habitat outside of the mainstems.

7.0 REFERENCES

Department of Fisheries & Oceans and Ministry of Environment. 1989. Fish Habitat Inventory & Information Program: Stream Survey Field Guide. Department of Fisheries & Oceans and Ministry of Environment.

Province of British Columbia. 1996. Resource Inventory Committee (RIC): Fish Sampling Manual (Originally called Fish Collection, Preservation, Measurement and Enumeration Manual, RIC Draft 1994).

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Province of British Columbia. 1993. Resource Inventory Committee (RIC): Field Key to the Freshwater Fishes of British Columbia.

Saimoto, R.S. 1996. Literature Review for Stream Inventory in the Bulkley Forest District.

LEGEND

- River / Stream
- Lakes
- Highway
- Railway
- 093M.000 UTM Mapsheet
- Watershed Boundary
- Study Areas (by mapsheet)

INSET MAP

BABINE RIVER WATERSHED

KISPIOX RIVER WATERSHED

BULKLEY RIVER WATERSHED

BABINE LAKE WATERSHED

BABINE RIVER WATERSHED

HAZELTON

SOUTH HAZELTON

SMITHERS

TELKWA

Skeena River, Nilkitkwa River, Babine River, Kispiox River, Nichyeskwa Cr., Shegunia River, Driftwood River, Suskwa River, Harold Price Cr., Kitwancool River, Skeena, Bulkley, Blunt Cr., Babine Lake, Kitseguecla River, Kitsuns Cr., Fulton River, Red Canyon Cr., Serb Cr., Telkwa River, Vmoetz, Clore River, Kitnayakwa River

093M.091 093M.092 093M.093 093M.094 093M.095 093M.096 093M.097 093M.098
093M.081 093M.082 093M.083 093M.084 093M.085 093M.086 093M.087 093M.088
093M.071 093M.072 093M.073 093M.074 093M.075 093M.076 093M.077 093M.078
093M.061 093M.062 093M.063 093M.064 093M.065 093M.066 093M.067 093M.068
093M.051 093M.052 093M.053 093M.054 093M.055 093M.056 093M.057 093M.058
103P.049 103P.050 093M.041 093M.043 093M.044 093M.045 093M.046 093M.047 093M.048
103P.039 103P.040 093M.031 093M.032 093M.033 093M.034 093M.035 093M.036 093M.037 093M.038
103P.029 103P.030 093M.021 093M.022 093M.023 093M.024 093M.025 093M.026 093M.027 093M.028
103P.019 103P.020 093M.011 093M.012 093M.013 093M.014 093M.015 093M.016 093M.017 093M.018
103P.010 093M.001 093M.002 093M.003 093M.004 093M.005 093M.006 093M.007 093M.008
103I.100 093L.091 093L.092 093L.093 093L.094 093L.095 093L.096 093L.097 093L.098
103I.090 093L.081 093L.082 093L.083 093L.084 093L.085 093L.086 093L.087 093L.088
103I.080 093L.071 093L.072 093L.073 093L.074 093L.075 093L.076 093L.077 093L.078
103I.070 093L.061 093L.062 093L.063 093L.064 093L.065 093L.066 093L.067 093L.068
103I.060 093L.051 093L.052 093L.053 093L.054 093L.055 093L.056 093L.057 093L.058
103I.050 093L.041 093L.042 093L.043 093L.044 093L.045 093L.046 093L.047 093L.048
103I.040 093L.031

FISH AND FISH HABITAT INVENTORY IN THE BULKLEY FOREST DISTRICT	Sources : 1 : 20,000 TRIM B.C. Watershed Atlas 1 : 50,000 M.O.E.L.P	5 0 5 10 15 20 Kilometers 1 : 500,000
PROJECT OVERVIEW MAP Project ID : 2565	Projection : UTM Zone 9 Datum : NAD83 Created : February, 1998	TRITON Environmental Consultants Ltd.

FIGURE 1

MAp 256506223

Figure 2a. Length-Frequency Histogram for Dolly Varden

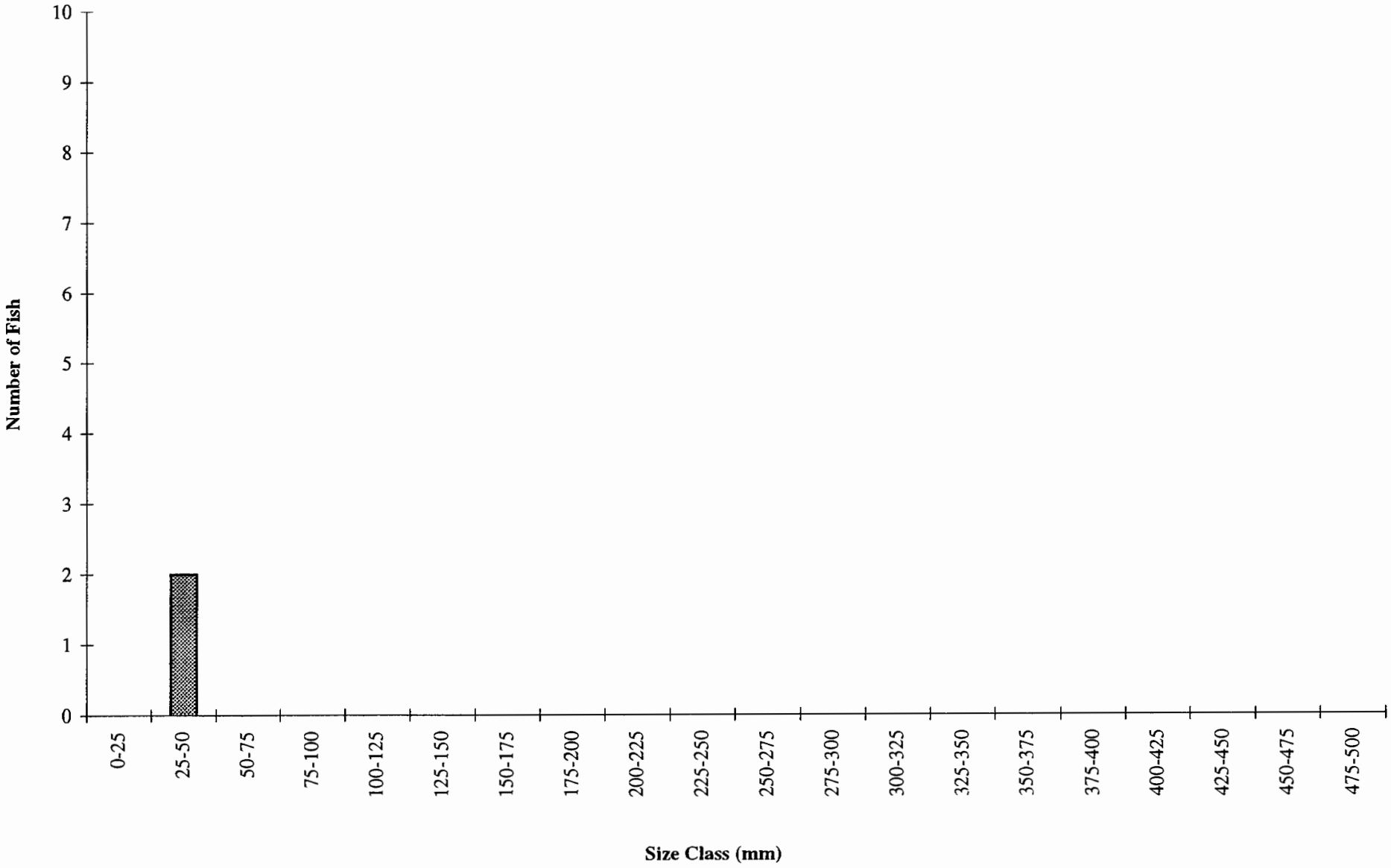


Figure 2b. Length-Frequency Histogram for Rainbow Trout

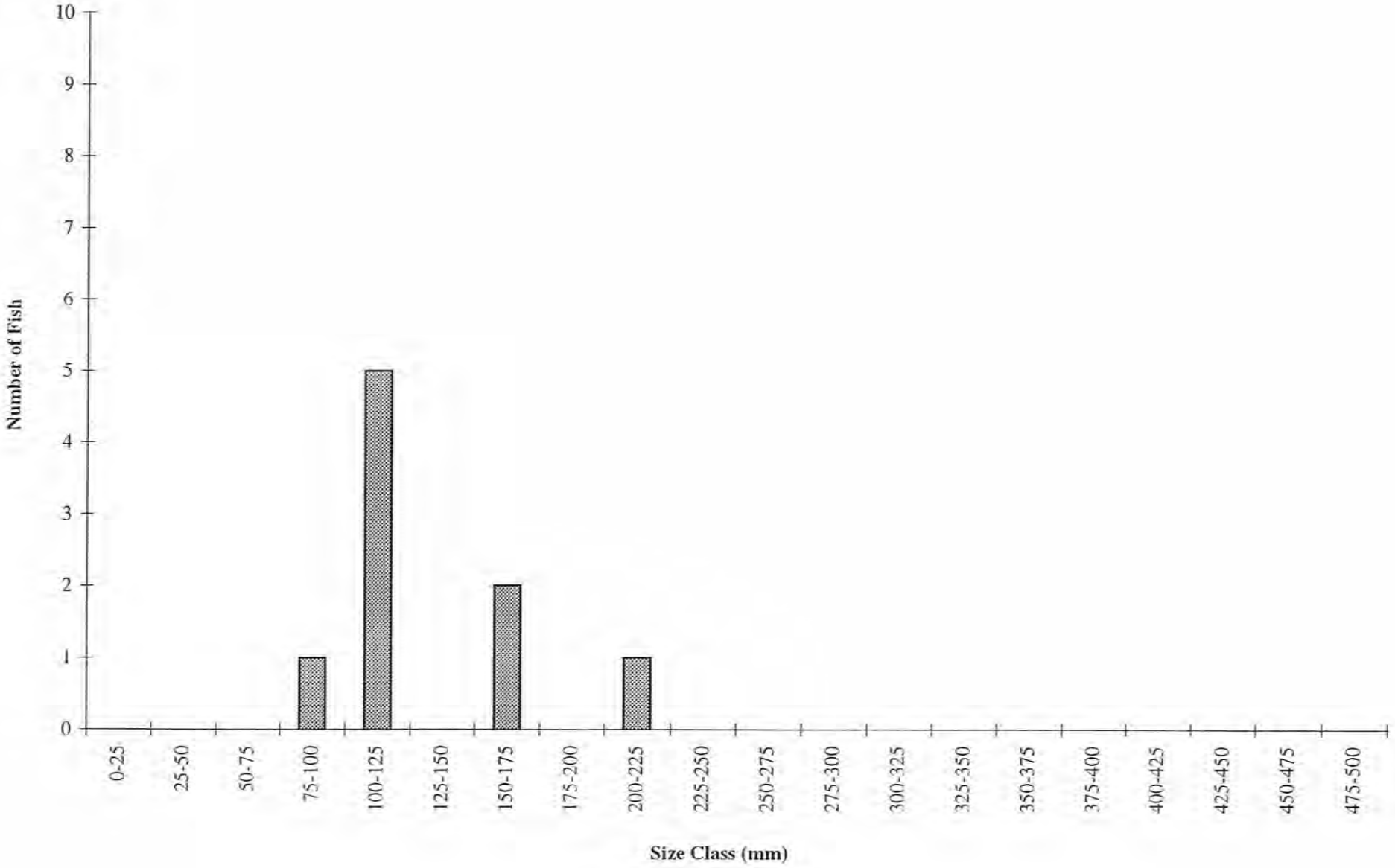


Table 1. Riparian Management Areas and Stream Classification

	Channel Width(m)	Reserve Zone	Management Zone Width	Total RMA Width
Fish Bearing				
S1	>20.0	50	20	70
S2	>5.0-20.0	30	20	50
S3	1.5-5.0	20	20	40
S4	<1.5	0	30	30
Non Fish Bearing				
S5	>=3.0	0	30	30
S6	<3.0	0	20	20

Table 2. Water Quality Data Collected in Working Unit 10 in 1996 and 1997

Watershed Code	Stream "Local"	Location	TRIM Number	UTM	Reach #	pH	Temp. (C)	Conductivity (umhos/cm)
460-3138-187-000-000-	Cygnet Cr.	RYAN 69, Unit 10, see C5.	93 L 085	9 .6235 .697947	1		8.00	
460-3138-187-000-000-	Cygnet Cr.	E195, Unit 10, North of Driftwood Creek	93 L 085	9 .6241 .60839	2	6.90	10.00	90.00
460-3138-000-000-000-	Driftwood Cr.	ARNE 8, Unit 10, At the foot bridge on upper Driftwood Creek, see C5.	93 L 086	9 . 6298 .60841	3	7.30	3.00	
460-3138-000-000-000-	Driftwood Cr.	E284, Unit 10, South of the Silver King Basin.	93 L 086	9 .6342 .60846	4	7.75	7.50	110.00
050-1400-000-000-000-	Trib. to Driftwood Cr.	E283, Unit 10, South of Silver King Basin.	93 L 086	9 .6342 .60846	1	8.30	5.50	440.00
049-2200-000-000-000-	Trib. to Driftwood Cr.	RYAN 72, Unit 10, trib 1km from Driftwood Creek, see C5.	93 L 085	9 .6251 .60774	1		7.00	
049-2900-000-000-000-	Trib. to Driftwood Cr.	RYAN 78, Unit 10, 30m off of Driftwood Creek, see C5.	93 L 085	9 .6281 .60795	1	7.40	8.00	
049-8200-000-000-000-	Trib. to Driftwood Cr.	ARNE 9, Unit 10, 200 m d/s of the Dritwood Creek foot bridge, see C5.	93 L 086	9 .6296 .60838	1		5.00	
049-7700-000-000-000-	Trib. to Driftwood Cr.	ARNE 10, Unit 10, see C5.	93 L 086	9 . 6302 .6082	1		5.00	
049-7500-000-000-000-	Trib. to Driftwood Cr.	ARNE 11, Unit 10, Driftwood road, see C5.	93 L 086	9 .6300 .60813	1		5.00	
049-9000-000-000-000-	Trib. to Driftwood Cr.	E276, Unit 10, North of Driftwood Cr.	93 L 086	9 .6317 .60864	2	7.48	5.00	90.00
100-0700-000-000-000-	Trib. to Driftwood Cr.	E282, Unit 10, Silver King Basin, Headwaters of Driftwood Cr.	93 L 096	9 .6350 .60861	1	7.42	9.00	50.00
050-0400-000-000-000-	Trib. to Driftwood Cr.	E285, Unit 10, Southeast of Silver King Basin	93 L 086	9 .6343 .60845	1	7.84	8.00	60.00
050-0000-000-000-000-	Trib. to Driftwood Cr.	E286, Unit 10, North of Driftwood Cr.	93 L 086	9 .6332 .60850	1	8.11	7.00	190.00
049-9000-000-000-000-	Trib. to Driftwood Cr.	E288, Unit 10, North of Driftwood Cr.	93 L 086	9 .6313 .60846	1	7.97	6.50	110.00
050-0500-000-000-000-	Trib. to Driftwood Cr.	E274, Unit 10, South of the Drfitwood Cr. headwaters	93 L 086	9 .6358 .60832	3	7.84	12.00	70.00
049-7200-000-000-000-	Trib. to Driftwood Cr.	ARNE 12, Unit 10, Driftwood road, see C5.	93 L 086	9 .6294 .60807	1		6.00	
460-3103-000-000-000-	Maney Cr.	ARNE 6, Unit 10, see C5.	93 L 085	9 .6194 .60806	2		8.00	
460-3103-000-000-000-	Maney Cr.	E196, Unit 10, North of Drfitwood Cr.	93 L 085	9 .6233 .60843	4	6.90	6.00	40.00
049-3700-000-000-000-	Trib. to Maney Cr.	E197, Unit 10, North of Driftwood Cr.	93 L 085	9 .6226 .60847	2	7.20	11.00	40.00
460-2920-000-000-000-	Newitt Cr.	ARNE 3, Unit 10, see C5	93 L 085	9 .6172 .60838	1		8.00	
460-2793-000-000-000-	Reiseter Cr.	ARNE 63, Unit 10, see C5.	93 L 095	9 .6210 .60892	1		5.00	90.00
460-2793-000-000-000-	Reiseter Cr.	Y161, Unit 10; 8.4kmm NW of Silver King Basin	93 L 096	9 .6284 .60909	1	7.60	10.00	70.00
460-2793-000-000-000-	Reiseter Cr.	Y235, Unit 10	93 L 096	9 .631522.6091928	3	6.54	10.00	40.00
460-2793-000-000-000-	Reiseter Cr.	Y237, Unit 10	93 L 096	9 .633684.6091453	1	7.45	8.50	30.00
460-2793-000-000-000-	Reiseter Cr.	Y238, Unit 10	93 L 096	9 .6338 .60914	6	7.47	8.50	20.00
001-3100-000-000-000-	Trib to Reiseter Cr.	W188, Unit 10	93 L 095	9 .6235 .60939	1	7.70	6.00	120.00
001-5700-000-000-000-	Trib to Reiseter Cr.	Y156, Unit 10; 1.2km SE of Reiseter Cr.	93 L 095	9 .6269 .60863	1	7.40	10.00	70.00
001-5600-000-000-000-	Trib to Reiseter Cr.	Y157, Unit 10; 0.7km south of Reiseter Cr.	93 L 095	9 .6258 .60867	1	7.70	10.00	40.00
001-5400-000-000-000-	Trib to Reiseter Cr.	Y158, Unit 10; 0.7km south of Reiseter Cr.	93 L 095	9 .6250 .60864	1	7.10	10.00	50.00
001-5200-000-000-000-	Trib to Reiseter Cr.	Y159, Unit 10; 1.1km south of Reiseter Cr.	93 L 095	9 .6245 .60868	1	7.60	10.00	80.00
100-0100-000-000-000-	Trib to Reiseter Cr.	Y164, Unit 10; 2.5km south of unit 10 boundary	93 L 096	9 .6290 .60912	2	8.20	12.00	270.00
100-0200-000-000-000-	Trib to Reiseter Cr.	Y236, Unit 10	93 L 096	9 .631417.60925	1	8.00	9.00	100.00
100-0500-000-000-000-	Trib to Reiseter Cr.	Y239, Unit 10	93 L 096	9 .63365 .609154	1	7.30	6.00	90.00
100-0300-000-000-000-	Trib to Reiseter Cr.	Y240, Unit 10	93 L 096	9 .6320 .60919	1	8.16	8.50	130.00
100-0400-000-000-000-	Trib to Reiseter Cr.	Y241, Unit 10	93 L 096	9 .6324 .60922	1	7.85	8.50	100.00

Watershed Code	Stream "Local"	Location	TRIM Number	UTM	Reach #	pH	Temp. (C)	Conductivity (umhos/cm)
001-4600-000-000-000-	Trib to Reiseter Cr.	Z143, Unit 10	93 L 095	9 .623345.6088679	1	7.70	12.00	100.00
001-4000-000-000-000-	Trib to Reiseter Cr.	Z144, Unit 10	93 L 095	9 .622628.6089543	2	7.60	11.00	100.00
001-4500-000-000-000-	Trib to Reiseter Cr.	Z145, Unit 10	93 L 095	9 .622800.6088918	2	7.60	11.00	120.00
001-4700-000-000-000-	Trib to Reiseter Cr.	Z146, Unit 10	93 L 095	9 .625772.6088705	1	7.40	14.00	150.00
001-2300-000-000-000-	Trib to Reiseter Cr.	ARNE 61, Unit 10, see C5.	93 L 095	9 . 6215 . 60939	2		3.50	
001-2700-000-000-000-	Trib to Reiseter Cr.	ARNE 62, Unit 10 , see C5.	93 L 095	9 . 6212 . 60939	1		3.50	
001-2300-000-000-000-	Trib to Reiseter Cr.	ARNE 65, Unit 10 , see C5.	93 L 095	9 .6242 .60953	3		2.50	80.00
001-2300-000-000-000-	Trib to Reiseter Cr.	ARNE 60, Unit 10, see C5.	93 L 095	9 .6213 .60937	1		3.50	100.00
000-6700-000-000-000-	Trib. to Reiseter Cr.	ARNE 36, Unit 10, large swamp at the headwaters, see C5.	93 M 005	9 .6223 .60977	1		3.30	
001-2700-000-000-000-	Trib. to Reiseter Cr.	ARNE 37, Unit 10, mainstem to site A36, see C5.	93 M 005	9 .62201 .60979	2	7.30	4.00	
001-3300-000-000-000-	Trib. to Reiseter Cr.	ARNE 64, Unit 10 , see C5.	93 L 095	9 .6238 .60950	1		2.50	80.00
001-5600-000-000-000-	Trib. to Reiseter Cr.	E192, Unit 10, North of Driftwood Cr.	93 L 085	9 .6261 .60842	3	6.90	10.50	40.00
049-5700-000-000-000-	Trib. to Reiseter Cr.	E193, Unit 10, North of Driftwood Creek	93 L 085	9 .6261 .60843	1	6.80	10.00	20.00
001-2300-000-000-000-	Trib. to Reiseter Cr.	E198, Unit 10, North of Reiseter Creek	93 L 095	9 .6257 .60946	4	6.20	10.50	30.00
001-3400-000-000-000-	Trib. to Reiseter Cr.	E199, Unit 10, North of Reiseter Cr.	93 L 095	9 .6251 .60951	1	7.40	8	60.00
001-2600-000-000-000-	Trib. to Reiseter Cr.	E200, Unit 10, North of Reiseter Creek	93 L 095	9 .6229 .60930	2	7.30	9.00	110.00
001-6100-000-000-000-	Trib. to Reiseter Cr.	E277, Unit 10, south of Reiseter Creek	93 L 096	9 .6284 .608754	3	7.73	8.00	70.00
001-6100-000-000-000-	Trib. to Reiseter Cr.	E278, Unit 10, South of the Reiseter mainstem	93 L 096	9 .6307 .60829	5	7.82	8.00	40.00

Table 3. Summary of Significant Barriers Observed in Working Unit 10 in 1996 and 1997

Watershed Code	Stream "Local"	Location	TRIM Number	UTM	Reach Number	Obstruction Height (m)	Type	Location (km from the mouth)
460-2793-000-	Reiseter Cr.	Y235, Unit 10	93 L 096	9 .631522.6091928	3	10.00	C	20.70
001-6100-000-	Trib. to Reiseter Cr.	E277, Unit 10, south of Reiseter Creek	93 L 096	9 .6284 .608754	3	3.00	C	2.00
100-0300-000-	Trib. to Reiseter Cr.	Y240, Unit 10	93 L 096	9 .6320 .60919	1	10.00	C	3.70
100-0700-000-	Trib. to Driftwood Cr.	E282, Unit 10, Silver King Basin, Headwaters of Driftwood Cr.	93 L 096	9 .6350 .60861	1	20.00	C	0.48
460-2888-000-	Twin Cr.	ARNE 1, Unit 10, Telkwa Hi road, See C5.	93 L 085	9 .6166 .60851	2	10.00	F	0.20

Table 4. Summary of Site Data collected in Working Unit 10 in 1996 and 1997

Watershed Code	Stream "Local"	Location	Map #	UTM	Reach Number	Survey Date	Agency	Average Channel Width (m)	Gradient (%)	Proposed Stream Class	Fish Species	Fishing Method
460-2920-348-	Can Br.	ARNE 4,	93 L 085	9 .6173	1	09/19/96	TEC	1.00	8.00	S4	(RB)	NA
460-3138-187-	Cygnet Cr.	RYAN 69,	93 L 085	9 .6235	1	09/19/96	TEC	2.90	10.00	S3	(RB)	EL
460-3138-187-	Cygnet Cr.	E195, Unit	93 L 085	9 .6241	2	08/14/97	TEC	0.62	9.00	S4	(DV)	VO
049-3200-000-	Trib. to Cygnet Cr.	RYAN 70,	93 L 085	9 .6238	1	09/19/96	TEC	1.32	14.00	S4	(RB)	NA
460-3138-000-	Driftwood Cr.	ARNE 8,	93 L 086	9 . 6298	3	09/20/96	TEC	10.45	4.00	S2	DV	EL
460-3138-000-	Driftwood Cr.	E284, Unit	93 L 086	9 .6342	4	09/10/97	TEC	6.53	11.00	S2	(DV) (CT)	EL
050-1400-000-	Trib. to Drfitwood Cr.	E283, Unit	93 L 086	9 .6342	1	09/10/97	TEC	0.83	16.00	S6	NF	EL
049-1400-000-	Trib. to Driftwood Cr.	RYAN 68,	93 L 085	9 .6233	1	08/27/96	TEC	1.35	8.00	S4	(RB)	NA
049-2000-000-	Trib. to Driftwood Cr.	RYAN 71,	93 L 085	9 .6244	1	09/19/96	TEC	1.42	3.50	S4	(RB)	NA
049-1300-000-	Trib. to Driftwood Cr.	ARNE 7,	93 L 085	9 .6212	1	09/19/96	TEC	0.90	3.00	S6	NF	NA
049-2200-000-	Trib. to Driftwood Cr.	RYAN 72,	93 L 085	9 .6251	1	09/20/96	TEC	0.75	6.50	S4	(RB) (DV)	NA
049-2900-000-	Trib. to Driftwood Cr.	RYAN 78,	93 L 085	9 .6281	1	09/20/96	TEC	1.82	20.00	S3	DV, RB	AG,EL
049-2800-000-	Trib. to Driftwood Cr.	RYAN 79,	93 L 085	9 .6297	1	09/20/96	TEC	0.73	15.00	S4	(DV)	NA
049-8200-000-	Trib. to Driftwood Cr.	ARNE 9,	93 L 086	9 .6296	1	09/20/96	TEC	2.43	26.00	S6	NF	NA
049-7700-000-	Trib. to Driftwood Cr.	ARNE 10	93 L 086	9 . 6302	1	09/20/96	TEC	3.75	12.00	S3	(DV)	NA
049-7500-000-	Trib. to Driftwood Cr.	ARNE 11,	93 L 086	9 .6300	1	09/20/96	TEC	2.43	3.00	S3	DV	EL
049-9000-000-	Trib. to Driftwood Cr.	E276, Unit	93 L 086	9 .6317	2	09/09/97	TEC	5.10	7.00	S5	NF	EL
100-0700-000-	Trib. to Driftwood Cr.	E282, Unit	93 L 096	9 .6350	1	09/10/97	TEC	5.13	17.00	S2	(DV)	EL
050-0400-000-	Trib. to Driftwood Cr.	E285, Unit	93 L 086	9 .6343	1	09/10/97	TEC	4.35	4.00	S3	(DV)	EL
050-0000-000-	Trib. to Driftwood Cr.	E286, Unit	93 L 086	9 .6332	1	09/10/97	TEC	0.78	19.00	S6	NF	EL
049-9400-000-	Trib. to Driftwood Cr.	E287, unit 10	93 L 086	9 .6325	1	09/10/97	TEC	1.55	19.00	S3	(DV)	NA
049-9000-000-	Trib. to Driftwood Cr.	E288, Unit	93 L 086	9 .6313	1	09/10/97	TEC	6.90	15.00	S2	(DV)	EL
050-0500-000-	Trib. to Driftwood Cr.	E274, Unit	93 L 086	9 .6358	3	09/08/97	TEC	1.05	9.00	S6	NF	EL
049-7200-000-	Trib. to Driftwood Cr.	ARNE 12,	93 L 086	9 .6294	1	09/20/96	TEC	2.60	2.00	S3	DV	VO
460-3103-000-	Maney Cr.	ARNE 6,	93 L 085	9 .6194	2	09/19/96	TEC	3.00	3.00	S3	(RB)	NA
460-3103-000-	Maney Cr.	E196, Unit	93 L 085	9 .6233	4	11/25/97	TEC	1.13	8.00	S4	(DV)	EL
049-3700-000-	Trib. to Maney Cr.	E197, Unit	93 L 085	9 .6226	2	08/14/97	TEC	0.57	10.00	S4	(DV)	EL
460-2920-000-	Newitt Cr.	ARNE 3,	93 L 085	9 .6172	1	09/19/96	TEC	3.27	7.00	S3	(RB)	NA
049-4400-000-	Trib. to Newitt Cr.	ARNE 2,	93 L 085	9 .6190	1	09/19/96	TEC	1.15	1.00	S4	(RB)	NA
001-2200-000-	Not a creek	BRUCE 97,	93 L 095	9 .6189	0	08/26/96	TEC	0.57	0.00	NC	NF	NA
049-2300-000-	Not a creek	RYAN 77,	93 L 085	9 .6253	0	09/20/96	TEC	0.00	14.00	NC	NF	NA
460-2793-000-	Reiseter Cr.	ARNE 63,	93 L 095	9 .6210	1	09/28/96	TEC	16.00	5.00	S2	RB	EL
460-2793-000-	Reiseter Cr.	Y161, Unit	93 L 096	9 .6284	1	08/14/97	TEC	9.67	3.00	S2.	CO (RB)	EL
460-2793-000-	Reiseter Cr.	Y235, Unit	93 L 096	9 .631522.60	3	09/09/97	TEC	8.83	3.50	S2.	RB	EL
460-2793-000-	Reiseter Cr.	Y237, Unit	93 L 096	9 .633684.60	1	09/09/97	TEC	4.13	1.00	S5.	NF	EL

Watershed Code	Stream "Local"	Location	Map #	UTM	Reach Number	Survey Date	Agency	Average Channel Width (m)	Gradient (%)	Proposed Stream Class	Fish Species	Fishing Method
460-2793-000-	Reiseter Cr.	Y238, Unit	93 L 096	9 .6338	6	09/09/97	TEC	3.47	5.00	S5.	NF	EL
001-3100-000-	Trib to Reiseter Cr.	W188, Unit	93 L 095	9 .6235	1	08/15/97	TEC	2.03	10.5	S3	(DV) (RB)	EL
001-5700-000-	Trib to Reiseter Cr.	Y156, Unit	93 L 095	9 .6269	1	08/14/97	TEC	4.03	2.00	S3.	(RB)	EL
001-5600-000-	Trib to Reiseter Cr.	Y157, Unit	93 L 095	9 .6258	1	08/14/97	TEC	2.25	3.00	S3.	(RB)	EL
001-5400-000-	Trib to Reiseter Cr.	Y158, Unit	93 L 095	9 .6250	1	08/14/97	TEC	0.64	16.00	S4.	(RB)	EL
001-5200-000-	Trib to Reiseter Cr.	Y159, Unit	93 L 095	9 .6245	1	08/14/97	TEC	2.17	7.00	S3.	(RB)	EL
100-0100-000-	Trib to Reiseter Cr.	Y164, Unit	93 L 096	9 .6290	2	08/15/97	TEC	1.50	6.00	S3.	(RB)	EL
100-0200-000-	Trib to Reiseter Cr.	Y236, Unit	93 L 096	9 .631417.60	1	09/09/97	TEC	4.37	6.00	S3.	(RB)	EL
100-0500-000-	Trib to Reiseter Cr.	Y239, Unit	93 L 096	9 .63365	1	09/09/97	TEC	0.91	4.00	S6.	NF	EL
100-0300-000-	Trib to Reiseter Cr.	Y240, Unit	93 L 096	9 .6320	1	09/09/97	TEC	3.37	15.00	S5.	NF	EL
100-0400-000-	Trib to Reiseter Cr.	Y241, Unit	93 L 096	9 .6324	1	09/09/97	TEC	2.72	21.00	S6.	NF	EL
001-4600-000-	Trib to Reiseter Cr.	Z143, Unit	93 L 095	9 .623345.60	1	08/14/97	TEC	5.47	8.00	S2	RB	EL
001-4000-000-	Trib to Reiseter Cr.	Z144, Unit	93 L 095	9 .622628.60	2	08/14/97	TEC	4.48	5.00	S3	(RB)	EL
001-4500-000-	Trib to Reiseter Cr.	Z145, Unit	93 L 095	9 .622800.60	2	08/14/97	TEC	1.03	2.00	S4.	(RB)	EL
001-4700-000-	Trib to Reiseter Cr.	Z146, Unit	93 L 095	9 .625772.60	1	08/14/97	TEC	1.32	0.50	S4	(RB)	EL
001-2300-000-	Trib to Reiseter Cr.	ARNE 61,	93 L 095	9 . 6215 .	2	09/28/96	TEC	6.65	7.00	S2	(RB)	EL
001-2700-000-	Trib to Reiseter Cr.	ARNE 62,	93 L 095	9 . 6212 .	1	09/28/96	TEC	10.58	10.00	S2	(RB)	VO
001-2300-000-	Trib to Reiseter Cr.	ARNE 65,	93 L 095	9 .6242	3	09/29/96	TEC	4.55	4.00	S3	RB	EL
001-2300-000-	Trib to Reiseter Cr.	ARNE 60,	93 L 095	9 .6213	1	09/29/96	TEC	10.57	5.00	S2	RB	EL
049-0300-000-	Trib. to Bulkley R.	ARNE 5,	93 L 085	9 .6189	1	09/19/96	TEC	1.62	3.00	S3	(RB)	NA
000-6700-000-	Trib. to Reiseter Cr.	ARNE 36,	93 M 005	9 .6223	1	09/24/96	TEC	1.35	11.00	S4	(RB)	EL
001-2700-000-	Trib. to Reiseter Cr.	ARNE 37,	93 M 005	9 .62201	2	09/24/96	TEC	2.65	8.00	S3	(RB)	EL
001-3300-000-	Trib. to Reiseter Cr.	ARNE 64,	93 L 095	9 .6238	1	09/29/96	TEC	2.02	6.00	S3	RB	EL
001-5600-000-	Trib. to Reiseter Cr.	E192, Unit	93 L 085	9 .6261	3	08/14/97	TEC	1.67	4.00	S3	(DV)	EL
049-5700-000-	Trib. to Reiseter Cr.	E193, Unit	93 L 085	9 .6261	1	08/14/97	TEC	1.28	2.00	S4	(DV)	EL
001-2300-000-	Trib. to Reiseter Cr.	E198, Unit	93 L 095	9 .6257	4	08/15/97	TEC	0.90	1.00	S4.	(DV)	EL
001-2600-000-	Trib. to Reiseter Cr.	E200, Unit	93 L 095	9 .6229	2	08/15/97	TEC	0.73	5.00	S4	(DV)	EL
001-6100-000-	Trib. to Reiseter Cr.	E277, Unit	93 L 096	9 .6284	3	09/09/97	TEC	4.45	6.00	S5	NF	EL
001-6100-000-	Trib. to Reiseter Cr.	E278, Unit	93 L 096	9 .6307	5	09/09/97	TEC	4.83	10.00	S5	NF	EL
001-5500-000-	Trib. to Reiseter Cr.	Y160, Unit	93 L 095	9 .6242	1	08/14/97	TEC	0.50	17.00	S4.	(RB)	NA
049-6200-000-	Trib. to Reisteter Cr.	E194, Unit	93 L 085	9 .6261	1	08/14/97	TEC	0.83	2.00	S4	(DV)	EL
001-3400-000-	Trib. to Reiseter Cr.	E199, Unit	93 L 095	9 .6251	1	08/15/97	TEC	2.17	1.00	S3	(DV)	EL
460-2888-000-	Twin Cr.	ARNE 1,	93 L 085	9 .6166	2	09/19/96	TEC	2.33	7.00	S3	(DV)	EL

Table 5. Summary of Non fish bearing Classifications Established in 1996 and 1997

Watershed Code	Stream "Local"	Location	TRIM Number	UTM	Reach #	Stream Class	Fishing Effort	Non fish bearing classification rationale
460-2793-000-	Reiseter Cr.	Y237, Unit 10	93 L 096	9 .633684.6091453	1	S5	The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 500V, was 221 seconds over 250 meters The next tributary was fished for 120 seconds over 120 meters.	This reach has been classified as non fish bearing beacuse it is located above an impassable 10m cascade, above which no evidence of a resident population was found.
460-2793-000-	Resiseter Cr.	Y238, Unit 10	93 L 096	9 .6338 .60914	6	S5	The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 600V, was 120 seconds over 120 meters.	This reach has been classified as non fish bearing beacuse it is located above an impassable 10m cascade, above which no evidence of a resident population was found.
100-0500-000-	Trib to Reiseter Cr.	Y239, Unit 10	93 L 096	9 .63365 .609154	1	S6	The electroshocking effort, uisng a Smithroot 12 B POW model set at I, 5, 600V, was 155 seconds over 150 meters.	This reach has been classified as non fish bearing beacuse it is located above an impassable 10m cascade, above which no evidence of a resident population was found.
100-0300-000-	Trib to Reiseter Cr.	Y240, Unit 10	93 L 096	9 .6320 .60919	1	S5	The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 500V & 600V, was 146 seconds over 200 meters.	This reach has been classified as non fish bearing beacuse it is located above an impassable 10m cascade, above which no evidence of a resident population was found.
100-0400-000-	Trib to Reiseter Cr.	Y241, Unit 10	93 L 096	9 .6324 .60922	1	S6	The electroshocking effort, using a Smithroot 12 B POW model set at I, 5, 500V, was 101 seconds over 150 meters.	This reach has been classified as non fish bearing beacuse it is located above an impassable 10m cascade, above which no evidence of a resident population was found.
001-6100-000-	Trib. to Reiseter Cr.	E277, Unit 10, south of Reiseter Creek	93 L 096	9 .6284 .608754	3	S5	The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 420 seconds.	This reach has been classified as non fish bearing because no fish were caught in the sampling area, which is located above a 3 m cascade.
001-6100-000-	Trib. to Reiseter Cr.	E278, Unit 10, South of the Reiseter mainstem	93 L 096	9 .6307 .60829	5	S5	The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 199 seconds over 125 meters.	This reach has been classified as non fish bearing because no fish were caught in the sampling area, located above an impassable 700 m long stretch of cascades.
050-1400-000-	Trib. to Driftwood Cr.	E283, Unit 10, South of Silver King Basin.	93 L 086	9 .6342 .60846	1	S6	The electroshocking effort, using a Smithroot 12 B POW model set at I-5-400V, was 240 seconds over 125 meters.	This stream flows subsurface for 80% of the distance between the road crossing and the confluence with Driftwood Creek. Rearing habitat was noted from the mouth to .1 km. No spawning habitat was noted. The channel braids for most of the length surveyed
049-9000-000-	Trib. to Driftwood Cr.	E276, Unit 10, North of Driftwood Cr.	93 L 086	9 .6317 .60864	2	S5	The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 260 seconds over 100 meters.	This reach has been classified as non fish bearing because no fish were caught in the sampling area, which is located above a long cascade (over 40% slope).
050-0000-000-	Trib. to Driftwood Cr.	E286, Unit 10, North of Driftwood Cr.	93 L 086	9 .6332 .60850	1	S6	The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 108 seconds over 100 meters. The shocking conditions were difficult due to the frequency of subterrainean flow.	This reach has been classified as non fish bearing because it lacks sutaible fish habitat, has subterrainean flow and multiple sections of steep gradient.
050-0500-000-	Trib. to Driftwood Cr.	E274, Unit 10, South of the Drfitwood Cr. headwaters	93 L 086	9 .6358 .60832	3	S6	The electroshocking effort, using a Smithroot 12 B POW model, set at I-5-400V, was 387 seconds over 100 meters.	This reach has been classified as non fish bearing because it is located above a section of extreme gradient, (>45%) and is too small to support a resident population.

Watershed Code	Stream "Local"	Location	TRIM Number	UTM	Reach #	Stream Class	Fishing Effort	Non fish bearing classification rationale
049-1300-000-	Trib. to Driftwood Cr.	ARNE 7, Unit 10, SE of Maney Cr. , Telkwa Hi Road, see C5.	93 L 085	9 .6212 .60796	1	S6	No electroshocking was carried out at this dry site.	This reach has been classified as non fish bearing because it has an intermittent channel which contains no suitable fish habitat.
049-8200-000-	Trib. to Driftwood Cr.	ARNE 9, Unit 10, 200 m d/s of the Dritwood Creek foot bridge, see C5.	93 L 086	9 .6296 .60838	1	S6	The electroshocking effort, using a Smithroot 15 A Model was 50 seconds in some pools.	This tributary was classified as non fish bearing because of steep gradient in the first 300 meters from the mouth, the lack of suitable fish habitat and the lack of evidence of a resident population.

resample

Table 6. Summary of Sites in Working Unit 10 for Which Future Sampling in Recommended

Watershed Code	Stream "Local"	Location	Map #	UTM	Reach #	Survey Date	Agency	Average Channel Width (m)	Gradient (%)	Proposed Stream Class	Fish Species	Fishing Method
460-2920-348-000-	Can Br.	ARNE 4, Unit 10,	93 L 085	9 .6173 .60838	1	09/19/96	TEC	1.00	8.00	S4	(RB)	NA
460-3138-187-000-	Cygnet Cr.	E195, Unit 10	93 L 085	9 .6241 .60839	2	08/14/97	TEC	0.62	9.00	S4	(DV)	VO
460-3138-187-000-	Cygnet Cr.	RYAN 69, Unit 10	93 L 085	9 .6235 .697947	1	09/19/96	TEC	2.90	10.00	S3	(RB)	EL
049-3200-000-000-	Trib. to Cygnet Cr.	RYAN 70, Unit 10	93 L 085	9 .6238 .60792	1	09/19/96	TEC	1.32	14.00	S4	(RB)	NA
460-3138-000-000-	Driftwood Cr.	E284, Unit 10	93 L 086	9 .6342 .60846	4	09/10/97	TEC	6.53	11.00	S2	(DV) (CT)	EL
049-2800-000-000-	Trib. to Driftwood Cr.	RYAN 79, Unit 10	93 L 085	9 .6297 .60792	1	09/20/96	TEC	0.73	15.00	S4	(DV)	NA
049-7700-000-000-	Trib. to Driftwood Cr.	ARNE 10	93 L 086	9 . 6302 .6082	1	09/20/96	TEC	3.75	12.00	S3	(DV)	NA
100-0700-000-000-	Trib. to Driftwood Cr.	E282, Unit 10	93 L 096	9 .6350 .60861	1	09/10/97	TEC	5.13	17.00	S2	(DV)	EL
050-0400-000-000-	Trib. to Driftwood Cr.	E285, Unit 10	93 L 086	9 .6343 .60845	1	09/10/97	TEC	4.35	4.00	S3	(DV)	EL
049-9400-000-000-	Trib. to Driftwood Cr.	E287, unit 10	93 L 086	9 .6325 .60847	1	09/10/97	TEC	1.55	19.00	S3	(DV)	NA
049-9000-000-000-	Trib. to Driftwood Cr.	E288, Unit 10	93 L 086	9 .6313 .60846	1	09/10/97	TEC	6.90	15.00	S2	(DV)	EL
049-1400-000-000-	Trib. to Driftwood Cr.	RYAN 68, Unit 10	93 L 085	9 .6233 .60795	1	08/27/96	TEC	1.35	8.00	S4	(RB)	NA
049-2000-000-000-	Trib. to Driftwood Cr.	RYAN 71, Unit 10	93 L 085	9 .6244 .61774	1	09/19/96	TEC	1.42	3.50	S4	(RB)	NA
049-2200-000-000-	Trib. to Driftwood Cr.	RYAN 72, Unit 10,	93 L 085	9 .6251 .60774	1	09/20/96	TEC	0.75	6.50	S4	(RB) (DV)	NA
460-3103-000-000-	Maney Cr.	E196, Unit 10	93 L 085	9 .6233 .60843	4	11/25/97	TEC	1.13	8.00	S4	(DV)	EL
460-3103-000-000-	Maney Cr.	ARNE 6, Unit 10,	93 L 085	9 .6194 .60806	2	09/19/96	TEC	3.00	3.00	S3	(RB)	NA
049-3700-000-000-	Trib. to Maney Cr.	E197, Unit 10	93 L 085	9 .6226 .60847	2	08/14/97	TEC	0.57	10.00	S4	(DV)	EL
460-2920-000-000-	Newitt Cr.	ARNE 3, Unit 10,	93 L 085	9 .6172 .60838	1	09/19/96	TEC	3.27	7.00	S3	(RB)	NA
049-4400-000-000-	Trib. to Newitt Cr.	ARNE 2, Unit 10	93 L 085	9 .6190 .60847	1	09/19/96	TEC	1.15	1.00	S4	(RB)	NA
001-3100-000-000-	Trib to Reiseter Cr.	W188, Unit 10	93 L 095	9 .6235 .60939	1	08/15/97	TEC	2.03	10.5	S3	(DV) (RB)	EL
001-5700-000-000-	Trib to Reiseter Cr.	Y156, Unit 10	93 L 095	9 .6269 .60863	1	08/14/97	TEC	4.03	2.00	S3.	(RB)	EL
001-5600-000-000-	Trib to Reiseter Cr.	Y157, Unit 10	93 L 095	9 .6258 .60867	1	08/14/97	TEC	2.25	3.00	S3.	(RB)	EL
001-5400-000-000-	Trib to Reiseter Cr.	Y158, Unit 10	93 L 095	9 .6250 .60864	1	08/14/97	TEC	0.64	16.00	S4.	(RB)	EL
001-5200-000-000-	Trib to Reiseter Cr.	Y159, Unit 10	93 L 095	9 .6245 .60868	1	08/14/97	TEC	2.17	7.00	S3.	(RB)	EL
100-0100-000-000-	Trib to Reiseter Cr.	Y164, Unit 10;	93 L 096	9 .6290 .60912	2	08/15/97	TEC	1.50	6.00	S3.	(RB)	EL
100-0200-000-000-	Trib to Reiseter Cr.	Y236, Unit 10	93 L 096	9 .631417.60925	1	09/09/97	TEC	4.37	6.00	S3.	(RB)	EL
001-4000-000-000-	Trib to Reiseter Cr.	Z144, Unit 10	93 L 095	9 .622628.6089543	2	08/14/97	TEC	4.48	5.00	S3	(RB)	EL
001-4500-000-000-	Trib to Reiseter Cr.	Z145, Unit 10	93 L 095	9 .622800.6088918	2	08/14/97	TEC	1.03	2.00	S4.	(RB)	EL
001-4700-000-000-	Trib to Reiseter Cr.	Z146, Unit 10	93 L 095	9 .625772.6088705	1	08/14/97	TEC	1.32	0.50	S4	(RB)	EL
001-2300-000-000-	Trib to Reiseter Cr.	ARNE 61, Unit 10	93 L 095	9 . 6215 . 60939	2	09/28/96	TEC	6.65	7.00	S2	(RB)	EL
001-2700-000-000-	Trib to Reiseter Cr.	ARNE 62, Unit 10	93 L 095	9 . 6212 . 60939	1	09/28/96	TEC	10.58	10.00	S2	(RB)	VO

resample

Watershed Code	Stream "Local"	Location	Map #	UTM	Reach #	Survey Date	Agency	Average Channel Width (m)	Gradient (%)	Proposed Stream Class	Fish Species	Fishing Method
049-0300-000-000-	Trib. to Bulkley R.	ARNE 5, Unit 10	93 L 085	9 .6189 .60812	1	09/19/96	TEC	1.62	3.00	S3	(RB)	NA
001-5600-000-000-	Trib. to Reiseter Cr.	E192, Unit 10	93 L 085	9 .6261 .60842	3	08/14/97	TEC	1.67	4.00	S3	(DV)	EL
049-5700-000-000-	Trib. to Reiseter Cr.	E193, Unit 10	93 L 085	9 .6261 .60843	1	08/14/97	TEC	1.28	2.00	S4	(DV)	EL
001-2300-000-000-	Trib. to Reiseter Cr.	E198, Unit 10	93 L 095	9 .6257 .60946	4	08/15/97	TEC	0.90	1.00	S4.	(DV)	EL
001-3400-000-000-	Trib. to Reiseter Cr.	E199, Unit 10,	93 L 095	9 .6251 .60951	1	08/15/97	TEC	2.17	1.00	S3	(DV)	EL
		North of Reiseter Cr.										
001-2600-000-000-	Trib. to Reiseter Cr.	E200, Unit 10	93 L 095	9 .6229 .60930	2	08/15/97	TEC	0.73	5.00	S4	(DV)	EL
000-6700-000-000-	Trib. to Reiseter Cr.	ARNE 36, Unit 10	93 M 005	9 .6223 .60977	1	09/24/96	TEC	1.35	11.00	S4	(RB)	EL
001-2700-000-000-	Trib. to Reiseter Cr.	ARNE 37, Unit 10	93 M 005	9 .62201 .60979	2	09/24/96	TEC	2.65	8.00	S3	(RB)	EL
001-5500-000-000-	Trib. to Reiseter Cr.	Y160, Unit 10	93 L 095	9 .6242 .60869	1	08/14/97	TEC	0.50	17.00	S4.	(RB)	NA
049-6200-000-000-	Trib. to Reiseter Cr.	E194, Unit 10	93 L 085	9 .6261 .60842	1	08/14/97	TEC	0.83	2.00	S4	(DV)	EL
460-2888-000-000-	Twin Cr.	ARNE 1, Unit 10	93 L 085	9 .6166 .60851	2	09/19/96	TEC	2.33	7.00	S3	(DV)	EL

APPENDIX 1

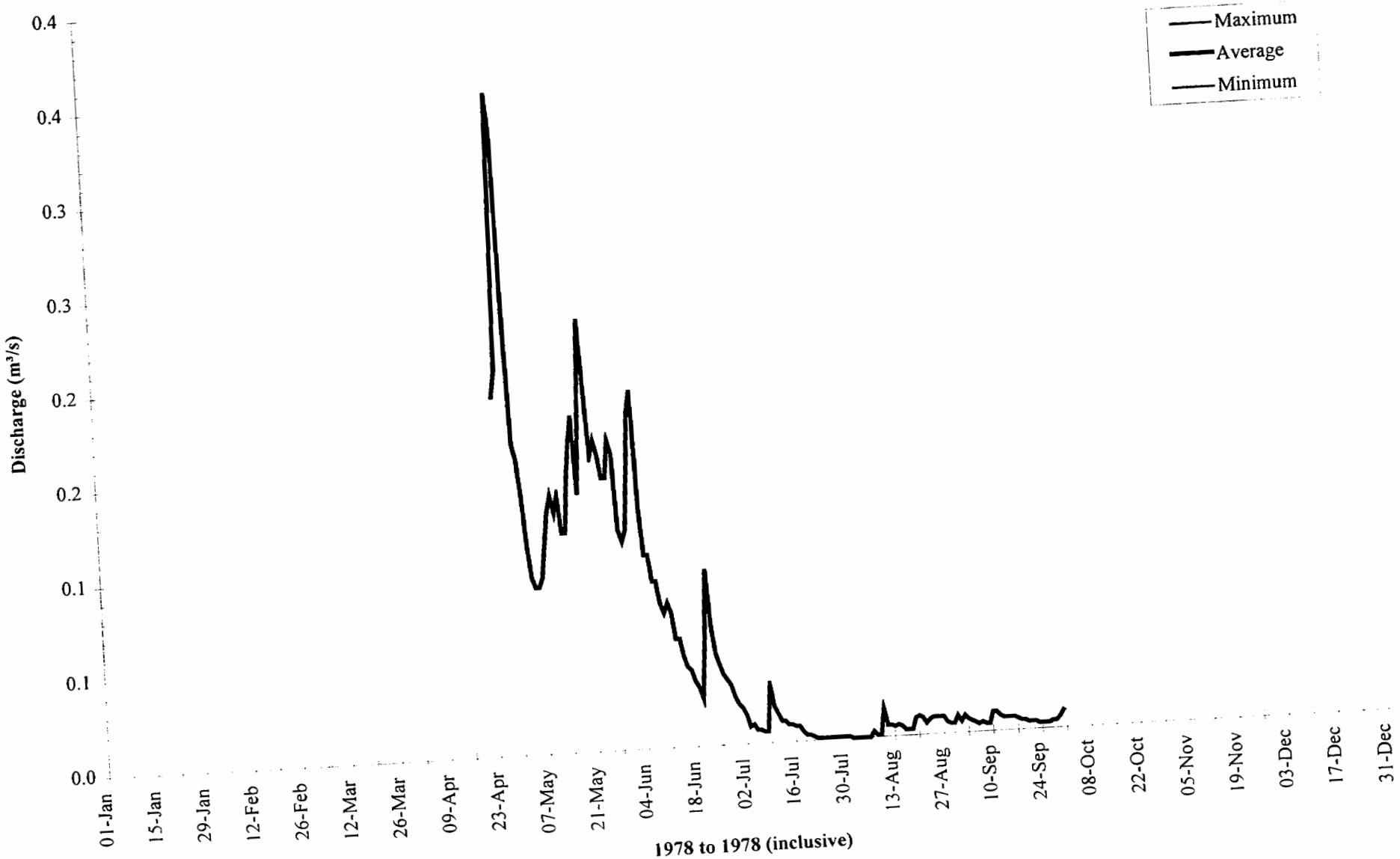
Hydrological Data

Station Number: 08EE021
Latitude: 54:50:54N
Longitude: 127:04:34W
Drainage Area (km²): 10.4
Station Name: CYGNET CREEK AT ADAMS ROAD

MAD: 0.053
Min Mean Daily (All Records): 0.000
Max Mean Daily (All Records): 0.351

	Max. Instantaneous Discharge	Max. Daily Discharge		Min. Daily Discharge	
1978		0.351	27-Apr	0.000	01-Aug

Mean Daily Discharges - CYGNET CREEK AT ADAMS ROAD, 1978 to 1978 (inclusive)

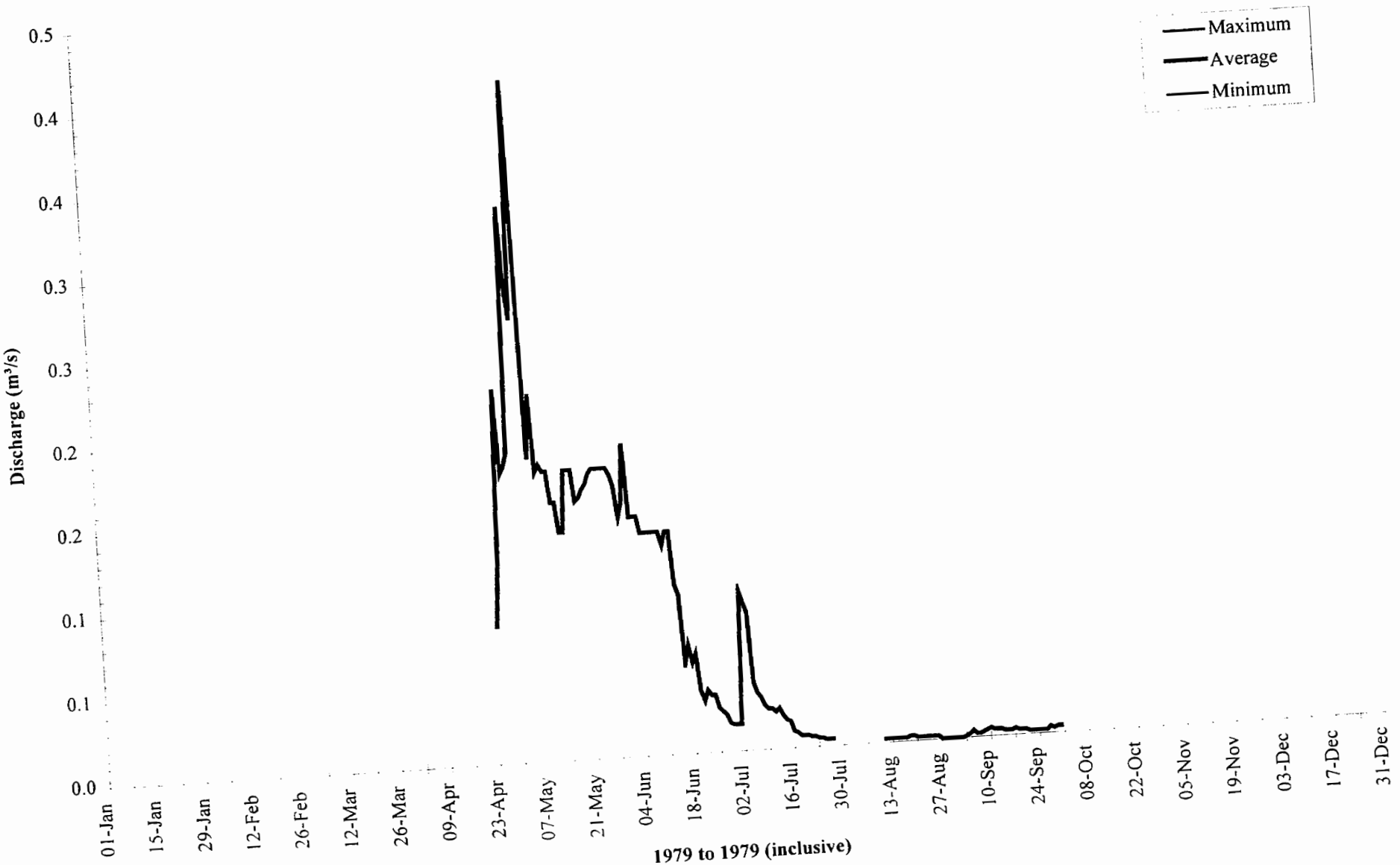


Station Number: 08EE024
Latitude: 54:51:05N
Longitude: 127:04:22W
Drainage Area (km²): 6.73
Station Name: CYGNET CREEK ABOVE DIVERSIONS

MAD: 0.070
Min Mean Daily (All Records): 0.000
Max Mean Daily (All Records): 0.408

	Max. Instantaneous Discharge	Max. Daily Discharge		Min. Daily Discharge	
1979		0.408	03-May	0.000	27-Aug

Mean Daily Discharges - CYGNET CREEK ABOVE DIVERSIONS, 1979 to 1979 (inclusive)



APPENDIX 2

Fish Data

Appendix 2. Summary of Fish Data Collected in Working Unit 10 in 1996 and 1997

Watershed Code	Stream "Local"	Location	TRIM Number	UTM	Reach Number	Fish Species	Number	Size Range (mm)	Life Phase	Fishing Method
460-3138-000-	Driftwood Cr.	ARNE 8, Unit 10, At the foot bridge on upper Driftwood Creek, see C5.	93 L 086	9 . 6298 .60841	3	DV	5.00	85-450	J	EL
049-2900-000-	Trib. to Driftwood Cr.	RYAN 78, Unit 10, 30m off of Driftwood Creek, see C5.	93 L 085	9 .6281 .60795	1	RB	1.00	170	J	AG
049-2900-000-	Trib. to Driftwood Cr.	RYAN 78, Unit 10, 30m off of Driftwood Creek, see C5.	93 L 085	9 .6281 .60795	1	DV	3.00	100-130	J	EL
049-7500-000-	Trib. to Driftwood Cr.	ARNE 11, Unit 10, Driftwood road, see C5.	93 L 086	9 .6300 .60813	1	DV	2.00	40-80	J	EL
049-7200-000-	Trib. to Driftwood Cr.	ARNE 12, Unit 10, Driftwood road, see C5.	93 L 086	9 .6294 .60807	1	DV	2.00	30	J	VO
460-2793-000-	Reiseter Cr.	ARNE 63, Unit 10, see C5.	93 L 095	9 .6210 .60892	1	RB	5.00	70-200	J	EL
460-2793-000-	Reiseter Cr.	Y161, Unit 10; 8.4kmm NW of Silver King Basin	93 L 096	9 .6284 .60909	1	RB	60.00	20-30	F	VO
460-2793-000-	Reiseter Cr.	Y161, Unit 10; 8.4kmm NW of Silver King Basin	93 L 096	9 .6284 .60909	1	RB	2.00	100-110	J	EL
460-2793-000-	Reiseter Cr.	Y235, Unit 10	93 L 096	9 .631522.6091928	3	RB	1.00	200	A	EL
460-2793-000-	Reiseter Cr.	Y235, Unit 10	93 L 096	9 .631522.6091928	3	RB	10.00	80-200	J	VO
460-2793-000-	Reiseter Cr.	Y235, Unit 10	93 L 096	9 .631522.6091928	3	RB	1.00	99	J	EL
460-2793-000-	Reiseter Cr.	Y235, Unit 10	93 L 096	9 .631522.6091928	3	RB	1.00	155	J	EL
460-2793-000-	Reiseter Cr.	Y235, Unit 10	93 L 096	9 .631522.6091928	3	RB	1.00	122	J	EL
460-2793-000-	Reiseter Cr.	Y235, Unit 10	93 L 096	9 .631522.6091928	3	RB	1.00	120	J	EL
460-2793-000-	Reiseter Cr.	Y235, Unit 10	93 L 096	9 .631522.6091928	3	RB	1.00	122	J	EL
001-4600-000-	Trib to Reiseter Cr.	Z143, Unit 10	93 L 095	9 .623345.6088679	1	RB	3.00	74-117	J	EL
001-2300-000-	Trib to Reiseter Cr.	ARNE 65, Unit 10 , see C5.	93 L 095	9 .6242 .60953	3	RB	1.00	100	J	EL
001-2300-000-	Trib to Reiseter Cr.	ARNE 60, Unit 10, see C5.	93 L 095	9 .6213 .60937	1	RB				EL
001-3300-000-	Trib. to Reiseter Cr.	ARNE 64, Unit 10 , see C5.	93 L 095	9 .6238 .60950	1	RB		100	J	EL

APPENDIX 3

Photodocumentation Summary

Appendix 3. Photodocumentation for Working Unit 10

Watershed Code	Stream "Local"	Reach #	Survey Crew	Location	Group	Roll	Frame	TRIM #	UTM Zone	Easting	Northing	Date	Direction	Aspect	Photo Type	Scale Item	Comments
4602920348000000000	Can Br.	1	AKL HK	A4	A	1	9	93 L 085	9	6173	60838	19/09/96	Up	W	Ch	notebook	Looking upstream in dry channel.
4602920348000000000	Can Br.	1	AKL HK	A4	A	1	10	93 L 085	9	6173	60838	19/09/96	Dn	W	Ch		Looking downstream.
4603138187000000000	Cygnet Cr.	2	SJ EM	E195	E	19	7	93 L 085	9	6241	60839	8/14/97	Up	N	Ch	photoboard, pilot	Looking upstream at the channel
4603138187000000000	Cygnet Cr.	2	SJ EM	E195	E	19	8	93 L 085	9	6241	60839	8/14/97	Dn	S	Ch	photoboard, pilot	Looking downstream at the channel
4603138000000000000	Driftwood Cr.	4	SJ JL	E284	E	27	12	93 L 086	9	6342	60846	9/10/97	Up	NE	Ch	photoboard	Looking upstream at the channel
4603138000000000000	Driftwood Cr.	4	SJ JL	E284	E	27	13	93 L 086	9	6342	60846	9/10/97	Dn	SW	Ch	photoboard	Looking downstream at the channel
4603138000000000000	Driftwood Cr.	3	AKL HK	A8	A	1	17	93 L 086	9	6298	60841	20/09/96	Dn	SW	Ch		Looking downstream.
4603138000000000000	Driftwood Cr.	3	AKL HK	A8	A	1	18	93 L 086	9	6298	60841	20/09/96	Up	SW	Ch		Looking upstream.
ILP0501400000000000	Trib. to Drfitwood Cr.	1	SJ JL	E283	E	27	11	93 L 086	9	6342	60846	9/10/97	Dn	SE	Ch	photoboard	Looking downstream at the channel, note the moss covered
ILP0501400000000000	Trib. to Drfitwood Cr.	1	SJ JL	E283	E	27	10	93 L 086	9	6342	60846	9/10/97	Up	NW	Ch	photoboard	Looking upstream at the channel
ILP0499000000000000	Trib. to Driftwood Cr.	2	SJ JL	E276	E	26	17	93 L 086	9	6317	60864	9/10/97	Up	NE	Ch	photoboard	Looking upstream at the channel
ILP0499000000000000	Trib. to Driftwood Cr.	2	SJ JL	E276	E	26	18	93 L 086	9	6317	60864	9/10/97	Dn	SW	Ch	photoboard	Looking downstream at the channel
ILP0499000000000000	Trib. to Driftwood Cr.	2	SJ JL	E276	E	26	19	93 L 086	9	6317	60864	9/10/97	Up	NE	Ch	photoboard	Looking upstream at the channel
ILP1000700000000000	Trib. to Driftwood Cr.	1	SJ JL	E282	E	27	7	93 L 096	9	6350	60861	9/10/97	Up	NW	Ch	photoboard, crew member	Looking upstream at the channel, note boulders and cascades
ILP1000700000000000	Trib. to Driftwood Cr.	1	SJ JL	E282	E	27	8	93 L 096	9	6350	60861	9/10/97	Dn	SE	Ch	photoboard	Looking downstream at the channel
ILP1000700000000000	Trib. to Driftwood Cr.	1	SJ JL	E282	E	27	9	93 L 096	9	6350	60861	9/10/97	Up	NW	Ch	photoboard	Looking upstream at a cascade barrier above the sampling
ILP0500400000000000	Trib. to Driftwood Cr.	1	SJ JL	E285	E	27	15	93 L 086	9	6343	60845	9/10/97	Dn	W	Ch	photoboard	Looking downstream at the channel
ILP0500400000000000	Trib. to Driftwood Cr.	1	SJ JL	E285	E	27	14	93 L 086	9	6343	60845	9/10/97	Up	E	Ch	photoboard	Looking upstream at the channel
ILP0500000000000000	Trib. to Driftwood Cr.	1	SJ JL	E286	E	27	17	93 L 086	9	6332	60850	9/10/97	Dn	S	Ch	photoboard	Looking downstream at the channel, note the moss lined
ILP0500000000000000	Trib. to Driftwood Cr.	1	SJ JL	E286	E	27	16	93 L 086	9	6332	60850	9/10/97	Up	N	Ch	photoboard	Looking upstream at the channel
ILP0499400000000000	Trib. to Driftwood Cr.	1	SJ JL	E287	E	27	19	93 L 086	9	6325	60847	9/10/97	Dn	S	Ch	photoboard	Looking downstream at a dry channel
ILP0499400000000000	Trib. to Driftwood Cr.	1	SJ JL	E287	E	27	18	93 L 086	9	6325	60847	9/10/97	Up	N	Ch	photoboard	Looking upstream at a dry channel
ILP0499000000000000	Trib. to Driftwood Cr.	1	SJ JL	E288	E	27	20	93 L 086	9	6313	60846	9/10/97	Up	N	Ch	photoboard	Looking upstream at the channel, note the small cascades
ILP0499000000000000	Trib. to Driftwood Cr.	1	SJ JL	E288	E	27	21	93 L 086	9	6313	60846	9/10/97	Dn	S	Ch	photoboard	Looking downstream at the channel
ILP0500500000000000	Trib. to Driftwood Cr.	2	SJ JL	E274	E	26	10	93 L 086	9	6358	60832	9/8/97	Dn	NA	Ch	photoboard	Looking downstream at the channel
ILP0500500000000000	Trib. to Driftwood Cr.	2	SJ JL	E274	E	26	9	93 L 086	9	6358	60832	9/8/97	Up	NA	Ch	photoboard	Looking upstream at the channel
4603138000000000000	Trib. to Driftwood Cr.	1	AKL HK	A7	A	1	15	93 L 085	9	6212	60796	19/09/96	Dn	W	Ve		Looking downstream.
4603138000000000000	Trib. to Driftwood Cr.	1	AKL HK	A7	A	1	16	93 L 085	9	6212	60796	19/09/96	Up	W	Ve		Looking upstream.
4603138000000000000	Trib. to Driftwood Cr.	1	AKL HK	A9	A	1	19	93 L 086	9	6296	60838	20/09/96	Up	SE	Ch		Looking upstream, moss-covered boulders.
4603138000000000000	Trib. to Driftwood Cr.	1	AKL HK	A9	A	1	20	93 L 086	9	6296	60838	20/09/96	Dn	SE	Ch		Looking downstream, blowdowns across channel.
4603138000000000000	Trib. to Driftwood Cr.	1	AKL HK	A10	A	1	21	93 L 086	9	6302	6082	20/09/96	Up	W	Ch	meterstick	Looking upstream, meterstick across channel.
4603138000000000000	Trib. to Driftwood Cr.	1	AKL HK	A10	A	1	22	93 L 086	9	6302	6082	20/09/96	Dn	W	Ch		Looking downstream, alders across channel.
4603138000000000000	Trib. to Driftwood Cr.	1	AKL HK	A11	A	1	23	93 L 086	9	6300	60813	20/09/96	Up	NW	Ch	notebook	Looking upstream.
4603138000000000000	Trib. to Driftwood Cr.	1	AKL HK	A11	A	2	1	93 L 086	9	6300	60813	20/09/96	Dn	NW	Ch		Looking downstream.
4603138000000000000	Trib. to Driftwood Cr.	1	RH JL	R78	R	5	5	93 L 085	9	6281	60795	20/09/96	Dn	S	Ch		Looking downstream, boulders and debris.
4603138000000000000	Trib. to Driftwood Cr.	1	RH JL	R78	R	5	6	93 L 085	9	6281	60795	20/09/96	Up	S	Ch	notebook	Looking upstream.
4603138000000000000	Trib. to Driftwood Cr.	1	RH JL	R78	R	5	7	93 L 085	9	6281	60795	20/09/96	Up	S	Ch	meterstick	Looking upstream toward culvert.
4603138000000000000	Trib. to Driftwood Cr.	1	RH JL	R79	R	5	8	93 L 085	9	6297	60792	20/09/96	Up	SE	Ve	Ryan	Looking upstream.
4603138000000000000	Trib. to Driftwood Cr.	1	RH JL	R79	R	5	9	93 L 085	9	6297	60792	20/09/96	Dn	SE	Ve	Ryan	Looking downstream.
4603138000000000000	Trib. to Driftwood Cr.	1	RH JL	R72	B	7	17	93 L 085	9	6251	60774	20/09/96	Up	W	Ch	meterstick	Looking upstream, meterstick across channel.

Watershed Code	Stream "Local"	Reach #	Survey Crew	Location	Group	Roll	Frame	TRIM #	UTM Zone	Easting	Northing	Date	Direction	Aspect	Photo Type	Scale Item	Comments
4603138000000000000	Trib. to Driftwood Cr.	1	RH JL	R72	B	7	18	93 L 085	9	6251	60774	20/09/96	Dn	W	Ch	hat	Looking downstream.
4603138000000000000	Trib. to Driftwood Cr.	1	AKL HK	A12	A	2	2	93 L 086	9	6294	60807	20/09/96	Up	NW	Ch		Looking upstream.
4603138000000000000	Trib. to Driftwood Cr.	1	AKL HK	A12	A	2	3	93 L 086	9	6294	60807	20/09/96	Dn	NW	Ch		Looking downstream.
4603103000000000000	Maney Cr.	2	SJ EM	E196	E	19	9	93 L 085	9	6233	60843	8/14/97	Dn	S	Ch	photoboard	Looking downstream at the channel
4603103000000000000	Maney Cr.	2	SJ EM	E196	E	19	10	93 L 085	9	6233	60843	8/14/97	Up	N	Ch	photoboard	Looking upstream at the channel and riparian vegetation.
4603103000000000000	Maney Cr.	1	AKLHK	A6	A	1	13	93 L 085	9	6194	60806	19/09/96	Dn	W	Ch		Looking downstream.
4603103000000000000	Maney Cr.	1	AKLHK	A6	A	1	14	93 L 085	9	6194	60806	19/09/96	Up	W	Ch		Looking upstream.
4602920000000000000	Newitt Cr.	1	AHL HK	A3	A	1	7	93 L 085	9	6172	60838	19/09/96	Up	W	Ch		Looking upstream.
4602920000000000000	Newitt Cr.	1	AHL HK	A3	A	1	8	93 L 085	9	6172	60838	19/09/96	Dn	W	Ch		Looking downstream.
4602793000000000000	Not a creek	0	BM DD	B97	B	6	24	93 L 095	9	6189	60904	26/08/96		SW	Ch	notebook	Not a creek.
4603138000000000000	Not a creek	0	RH JL	R77	R	5	4	93 L 085	9	6253	60762	20/09/96		SE	Ve		
4602793000000000000	Reiseter Cr.	1	JL JP	Y161, Unit	Y	18	11	93 L 096	9	6284	60909	8/14/97	Up	NW	Ch	photoboard	Looking upstream at the channel, leaning trees
4602793000000000000	Reiseter Cr.	1	JL JP	Y161, Unit	Y	18	12	93 L 096	9	6284	60909	8/14/97	Dn	SE	Ch	photoboard	Looking downstream at the channel
4602793000000000000	Reiseter Cr.	1	JL JP	Y161, Unit	Y	18	13	93 L 096	9	6284	60909	8/14/97	NA	NA	Fi	photoboard, crew member	NA
4602793000000000000	Reiseter Cr.	1	JL JP	Y161, Unit	Y	18	14	93 L 096	9	6284	60909	8/14/97	NA	NA	Fi	photoboard, crew member	Measuring RB (110mm) on fishboard . Mislabelled as CO
4602793000000000000	Reiseter Cr.	3	JP FC	Y235, Unit	Y	28	17	93 L 096	9	6.3E+12		9/9/97	NA	NA	Fi	photoboard, fishboard	Measuring fish on the fish board
4602793000000000000	Reiseter Cr.	3	JP FC	Y235, Unit	Y	28	16	93 L 096	9	6.3E+12		9/9/97	Dn	NW	Ch	photoboard	Looking downstream at the channel, note boulder cover
4602793000000000000	Reiseter Cr.	3	JP FC	Y235, Unit	Y	28	18	93 L 096	9	6.3E+12		9/9/97	NA	NA	Fi	photoboard, fishboard	Measuring fish on the fish board
4602793000000000000	Reiseter Cr.	3	JP FC	Y235, Unit	Y	28	15	93 L 096	9	6.3E+12		9/9/97	Up	SE	Ch	photoboard	Looking upstream at the cascade, note pool below
4602793000000000000	Reiseter Cr.	1	JP FC	Y237, Unit	Y	29	7	93 L 096	9	6.3E+12		9/9/97	Up	SE	Ch	crew member	Looking upstream at the channel
4602793000000000000	Reiseter Cr.	1	JP FC	Y237, Unit	Y	28	24	93 L 096	9	6.3E+12		9/9/97	Up	SE	Ch	photoboard, meterstick	Looking upstream at the channel
4602793000000000000	Reiseter Cr.	1	JP FC	Y237, Unit	Y	28	25	93 L 096	9	6.3E+12		9/9/97	Dn	NW	Ch	photoboard	Looking downstream at the channel
4602793000000000000	Reiseter Cr.	1	JP FC	Y237, Unit	Y	28	22	93 L 096	9	6.3E+12		9/9/97	Up	SE	Ch	NA	Looking upstream at the channel
4602793000000000000	Reiseter Cr.	1	JP FC	Y237, Unit	Y	28	21	93 L 096	9	6.3E+12		9/9/97	Up	SE	Ch	NA	Looking upstream at the channel
4602793000000000000	Reiseter Cr.	1	JP FC	Y237, Unit	Y	28	23	93 L 096	9	6.3E+12		9/9/97	NA	NA	NA	NA	NA
4602793000000000000	Reiseter Cr.	1	AKLBRL	A63	A	6	22	93 L 095	9	6210	60892	29/09/96	Up	W	Ch	Arne	Looking upstream.
4602793000000000000	Reiseter Cr.	1	AKLBRL	A63	A	6	23	93 L 095	9	6210	60892	29/09/96	Dn	W	Ch		Looking downstream, blowdowns across streambed.
4602793000000000000	Reiseter Cr.	1	AKLBRL	A63	A	6	24	93 L 095	9	6210	60892	29/09/96	Dn	W	Ch		Looking downstream.
4602793000000000000	Reiseter Cr.	1	AKLBRL	A63	A	6	25	93 L 095	9	6210	60892	29/09/96	Up	W	Ch		Looking upstream.
4602793000000000000	Resiseter Cr.	1	JP FC	Y238, Unit	Y	29	2	93 L 096	9	6338	60914	9/9/97	Dn	NW	Ch	photoboard, crew member	Looking downstream at the channel
4602793000000000000	Resiseter Cr.	1	JP FC	Y238, Unit	Y	29	1	93 L 096	9	6338	60914	9/9/97	Up	SE	Ch	photoboard, crew member	Looking upstream at the channel
ILP001570000000000	Trib to Reiseter Cr.	1	JL JP	Y156, Unit	Y	18	1	93 L 095	9	6269	60863	8/14/97	Up	SE	Ch	photoboard	Looking upstream, note flood signs
ILP001570000000000	Trib to Reiseter Cr.	1	JL JP	Y156, Unit	Y	18	2	93 L 095	9	6269	60863	8/14/97	Dn	NW	Ch	photoboard, crew member	Looking downstream at the channel
ILP001560000000000	Trib to Reiseter Cr.	1	JL JP	Y157, Unit	Y	18	4	93 L 095	9	6258	60867	8/14/97	Dn	N	Ch	photoboard, crew member	Looking downstream at the channel
ILP001560000000000	Trib to Reiseter Cr.	1	JL JP	Y157, Unit	Y	18	3	93 L 095	9	6258	60867	8/14/97	Up	S	Ch	photoboard, crew member	Looking upstream at the channel, note boulder cover
ILP001540000000000	Trib to Reiseter Cr.	1	JL JP	Y158, Unit	Y	18	5	93 L 095	9	6250	60864	8/14/97	Up	S	Ch	photoboard	Looking upstream at the channel
ILP001540000000000	Trib to Reiseter Cr.	1	JL JP	Y158, Unit	Y	18	6	93 L 095	9	6250	60864	8/14/97	Dn	N	Ch	photoboard	Looking downstream at the channel
ILP001520000000000	Trib to Reiseter Cr.	1	JL JP	Y159, Unit	Y	18	7	93 L 095	9	6245	60868	8/14/97	Up	S	Ch	photoboard	Looking upstream at the channel, note moss-covered
ILP001520000000000	Trib to Reiseter Cr.	1	JL JP	Y159, Unit	Y	18	8	93 L 095	9	6245	60868	8/14/97	Dn	N	Ch	photoboard	Looking downstream at the channel
ILP100010000000000	Trib to Reiseter Cr.	2	JL JP	Y164, Unit	Y	18	20	93 L 096	9	6290	60912	8/15/97	Dn	W	Ch	photoboard, crew member	Looking downstream at the channel
ILP100010000000000	Trib to Reiseter Cr.	2	JL JP	Y164, Unit	Y	18	19	93 L 096	9	6290	60912	8/15/97	Up	E	Ch	photoboard, crew member	Looking upstream at the channel
ILP100020000000000	Trib to Reiseter Cr.	1	JP FC	Y236, Unit	Y	29	10	93 L 096	9	6.3E+10		9/9/97	Up	NE	Ch	NA	Looking upstream at the channel
ILP100020000000000	Trib to Reiseter Cr.	1	JP FC	Y236, Unit	Y	28	19	93 L 096	9	6.3E+10		9/9/97	Up	NE	Ch	photoboard	Looking upstream at the channel, boulder and LOD cover

Watershed Code	Stream "Local"	Reach #	Survey Crew	Location	Group	Roll	Frame	TRIM #	UTM Zone	Easting	Northing	Date	Direction	Aspect	Photo Type	Scale Item	Comments
ILP100020000000000	Trib to Reiseter Cr.	1	JP FC	Y236, Unit	Y	28	20	93 L 096	9	6.3E+10		9/9/97	Dn	SW	Ch	photoboard	Looking downstream at the channel
ILP100050000000000	Trib to Reiseter Cr.	1	JP FC	Y239, Unit	Y	29	3	93 L 096	9	63365	609154	9/9/97	Up	SE	Ch	photoboard	Looking upstream at the channel
ILP100050000000000	Trib to Reiseter Cr.	1	JP FC	Y239, Unit	Y	29	4	93 L 096	9	63365	609154	9/9/97	Dn	NW	Ch	photoboard, crew member	Looking downstream at the channel
ILP100030000000000	Trib to Reiseter Cr.	1	JP FC	Y240, Unit	Y	29	6	93 L 096	9	6320	60919	9/9/97	Dn	N	Ch	crew member	Looking downstream at the channel, note boulder cover
ILP100030000000000	Trib to Reiseter Cr.	1	JP FC	Y240, Unit	Y	29	5	93 L 096	9	6320	60919	9/9/97	Up	S	Ch	photoboard	Looking upstream at the channel
ILP100040000000000	Trib to Reiseter Cr.	1	JP FC	Y241, Unit	Y	29	8	93 L 096	9	6324	60922	9/9/97	Up	NE	Ch	photoboard, crew member	Looking upstream at the channel, note boulder cover
ILP100040000000000	Trib to Reiseter Cr.	1	JP FC	Y241, Unit	Y	29	9	93 L 096	9	6324	60922	9/9/97	Dn	SW	Ch	photoboard, crew member	Looking downstream at the channel
ILP001460000000000	Trib to Reiseter Cr.	1	JP KG	Z143, Unit	Z	19	4	93 L 095	9	623345	6088679	8/14/97	NA	NA	Fi	meterstick	Measuring fish with the meterstick
ILP001460000000000	Trib to Reiseter Cr.	1	JP KG	Z143, Unit	Z	19	5	93 L 095	9	623345	6088679	8/14/97	Up	E	Ch	photoboard, crew member	Looking upstream at the channel
ILP001460000000000	Trib to Reiseter Cr.	1	JP KG	Z143, Unit	Z	19	3	93 L 095	9	623345	6088679	8/14/97	NA	NA	Fi	photoboard	Measuring fish with the meterstick
ILP001460000000000	Trib to Reiseter Cr.	1	JP KG	Z143, Unit	Z	19	6	93 L 095	9	623345	6088679	8/14/97	Dn	W	Ch	photoboard	Looking downstream at the channel
ILP001400000000000	Trib to Reiseter Cr.	2	JP KG	Z144, Unit	Z	19	7	93 L 095	9	622628	6089543	8/14/97	Up	E	Ch	photoboard	Looking upstream at the channel
ILP001400000000000	Trib to Reiseter Cr.	2	JP KG	Z144, Unit	Z	19	8	93 L 095	9	622628	6089543	8/14/97	Dn	W	Ch	photoboard	Looking downstream at the channel
ILP001450000000000	Trib to Reiseter Cr.	2	JP KG	Z145, Unit	Z	19	10	93 L 095	9	622800	6088918	8/14/97	Dn	W	Ch	photoboard	Looking downstream at the channel
ILP001450000000000	Trib to Reiseter Cr.	2	JP KG	Z145, Unit	Z	19	9	93 L 095	9	622800	6088918	8/14/97	Up	E	Ch	photoboard	Looking upstream at the channel
ILP001470000000000	Trib to Reiseter Cr.	1	JP KG	Z146, Unit	Z	19	15	93 L 095	9	625772	6088705	8/14/97	Up	S	Ch	NA	Looking upstream at the channel
ILP001470000000000	Trib to Reiseter Cr.	1	JP KG	Z146, Unit	Z	19	16	93 L 095	9	625772	6088705	8/14/97	Up	S	Ch	NA	Looking upstream at the channel
ILP001470000000000	Trib to Reiseter Cr.	1	JP KG	Z146, Unit	Z	19	11	93 L 095	9	625772	6088705	8/14/97	Up	S	Ch	photoboard, crew member	Looking upstream at the channel
ILP001470000000000	Trib to Reiseter Cr.	1	JP KG	Z146, Unit	Z	19	12	93 L 095	9	625772	6088705	8/14/97	Dn	N	Ch	photoboard	Looking downstream at the channel
ILP001470000000000	Trib to Reiseter Cr.	1	JP KG	Z146, Unit	Z	19	13	93 L 095	9	625772	6088705	8/14/97	NA	NA	O	NA	Looking at a toad caught at the site
ILP001470000000000	Trib to Reiseter Cr.	1	JP KG	Z146, Unit	Z	19	14	93 L 095	9	625772	6088705	8/14/97	Up	S	Ch	NA	Looking upstream at the channel
460279300000000000	Trib to Reiseter Creek	2	AKLBRL	A61	A	6	18	93 L 095	9	6215	60939	29/09/96	Up	W	Ch		Looking upstream.
460279300000000000	Trib to Reiseter Creek	2	AKLBRL	A61	A	6	19	93 L 095	9	6215	60939	29/09/96	Dn	W	Ch	Brian	Looking downstream.
460279300000000000	Trib to Reiseter Creek	1	AKLBR	A62	A	6	20	93 L 095	9	6212	60939	29/09/96	Up	S	Ch		Looking upstream, eroding mossy banks.
460279300000000000	Trib to Reiseter Creek	1	AKLBR	A62	A	6	21	93 L 095	9	6212	60939	29/09/96	Dn	S	Ch		Looking downstream toward confluence.
460279300000000000	Trib to Reiseter Creek	3	AKLBRL	A65	A	7	3	93 L 095	9	6242	60953	29/09/96	Up	W	Ch		Looking upstream.
460279300000000000	Trib to Reiseter Creek	3	AKLBRL	A65	A	7	4	93 L 095	9	6242	60953	29/09/96	Dn	W	Ch		Looking downstream.
460279300000000000	Trib to Reiseter Creek	1	AKLBRL	A60	A	6	16	93 L 095	9	6213	60937	29/09/96	Dn	SW	Ch		Looking downstream, boulder substrate.
460279300000000000	Trib to Reiseter Creek	1	AKLBRL	A60	A	6	17	93 L 095	9	6213	60937	29/09/96	Up	SW	Ch	shocker	Looking upstream.
460000000000000000	Trib. to Bulkley R.	1	AKL HK	A5	A	1	11	93 L 085	9	6189	60812	19/09/96	Dn	W	Ch		Looking downstream. LOD in dry channel.
460000000000000000	Trib. to Bulkley R.	1	AKL HK	A5	A	1	12	93 L 085	9	6189	60812	19/09/96	Up	W	Ch		Looking upstream in mud channel.