Reconnaissance Level Fish and Fish Habitat Inventory for the Kispiox Forest District

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Reconnaissance Level Fish and Fish Habitat Inventory for the Kispiox Forest District

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EXECUTIVE SUMMARY

Triton Environmental Consultants Ltd. was retained by Repap Smithers Inc. in partnership with the Ministry of Environment, Lands and Parks (MELP) in Smithers to conduct reconnaissance level fish and fish habitat inventories in the Kispiox Forest District. The information obtained from existing information was limited to several mainstem records and the majority of the study area is lacking known fish distribution data. The records indicate that Dolly Varden and rainbow trout are scattered throughout the study area. Coho and chinook salmon are found in the lower Shedin Creek and coho have been captured in Kuldo Creek. The general morphology of the watershed is defined by steep valley walls, icefields and mountainous regions. Existing data for the Skeena River above the Babine River confluence shows a typical average flow of 500 m^3/s in September. A total of 118 sites were sampled between September 10 and 18, 1996. Three sites were classified as "Not A Creek" due to the lack of a defined channel. Fish were captured at 30 sites, the species sampled include Dolly Varden, rainbow trout, Rocky Mtn. whitefish, lake chub, cutthroat trout, and pink salmon. It was originally thought that the majority of tributaries to the Skeena would be too steep to support fish populations, but rainbow trout and/or Dolly Varden were captured at seven sites that had gradients greater than 20%. A total of 44 sites were classified as S5 or S6, the basis for the non fish bearing status is summarized. The report also includes recommendations for resampling and notable fisheries sensitive sites.

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Appendix 4	Fish Collection Data
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1.0 INTRODUCTION

1.1 Background

Repap Smithers Inc. (Repap) retained Triton Environmental Ltd. (Triton) to conduct a reconnaissance level fish and fish habitat inventory in the Skeena mainstem tributaries (between Sicintine R. and Kuldo Cr., and between Deep Canoe Cr. and Babine R.), Tommy Jack, Upper Shedin, Kuldo, Deep Canoe, Sam Green and Lower Shedin watershed areas within the Kispiox Forest District.

1.2 Objectives

In partnership with MELP and Repap Smithers, Forest Renewal BC (FRBC) is implementing fish and fish habitat inventories to provide information required for resource planning. Triton's goals 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 species and habitat surveys to determine values and sensitivities in areas subject to or affected by forest harvesting;
- identification of fish and fish habitat values 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).

Stream classification is now required under the Forest Practices Code (FPC) of British Columbia Act (Bill 40 - 1994) and the associated Operational Planning Regulation enacted in June 1995. One of the objectives of the FPC is to integrate fisheries and forestry resource management in areas proposed or approved for logging to ensure that fish habitat is protected. Stream classification is designed to identify the presence of sensitive fish habitat and species, and to assist in the determination of the appropriate riparian management areas in order to develop a responsible management strategy required for Operational Plans.

2.0 STUDY AREA

2.1 Location and General Morphology

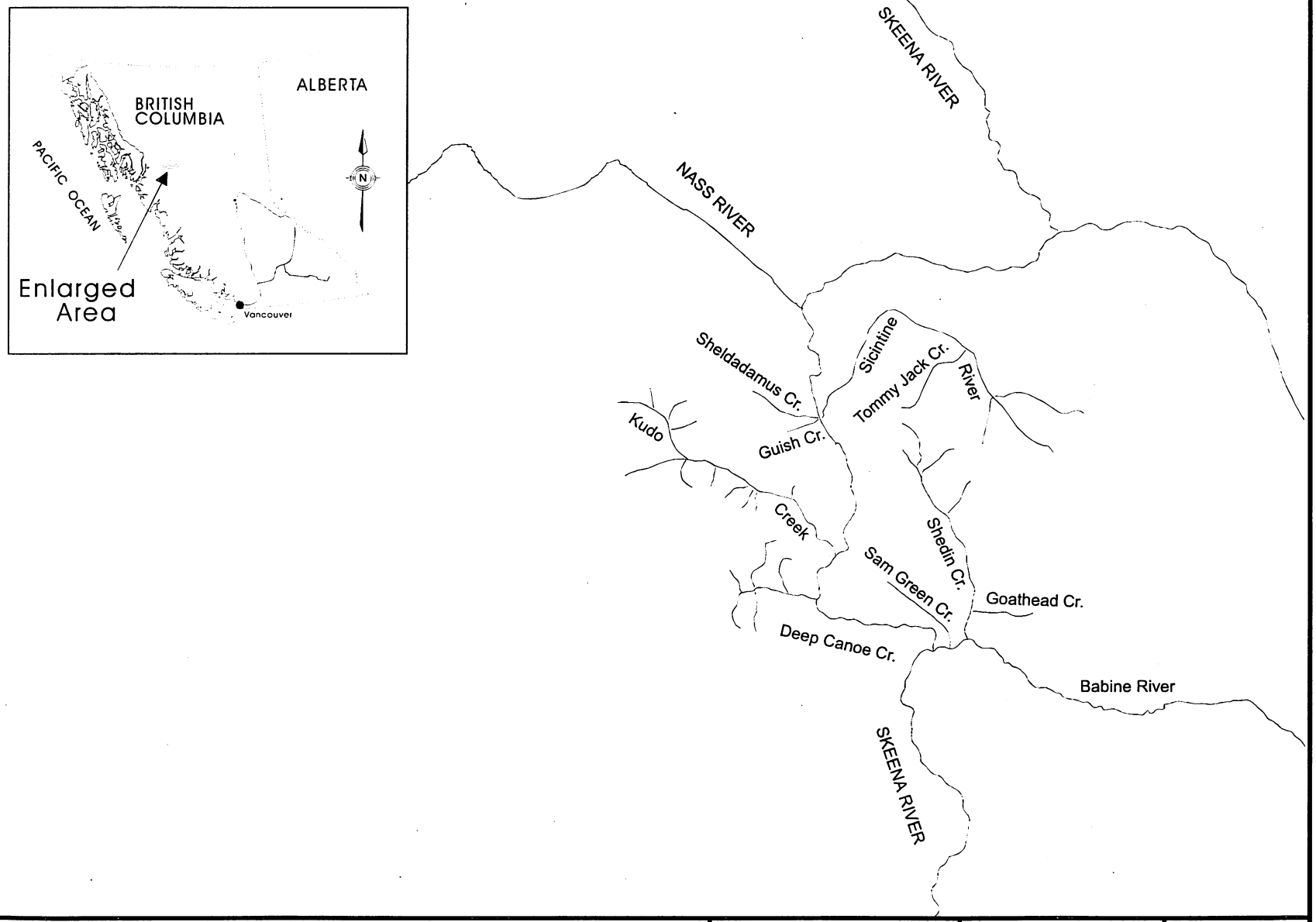
The Kispiox Forest District is located in north-central British Columbia and contains several major tributaries to the Skeena River including the Sicintine, Babine, Suskwa, Kispiox, Kitwanga and Kitseguecla rivers. The 1:20,000 TRIM maps that cover the study area are 93M071, 93M072, 93M073, 93M081, 93M091, 93M092, 94D001, 94D002, and 104A010. Due to the late date of the request for proposal, the watershed coverage focused on sections that are included in Repap's Five Year Development Plan.

The streams studied include Skeena mainstem tributaries (between Sicintine R. and Kuldo Cr., and between Deep Canoe Cr. and Babine R.) and partial or complete coverage of the Tommy Jack, Upper Shedin, Kuldo, Deep Canoe, Sam Green and Lower Shedin drainages (**Figure 1**). Deep Canoe Creek was not sampled due the increased sampling required as a result of fish presence in gradients >20%.

The Skeena mainstem on 1:50,000 mapsheets 93M012, 93M013, and 94D04 totals 92.7 km in length. Tributaries flowing into the Skeena River include Willowflat Creek, Guish Creek, Sheladamus Creek, Deep Canoe Creek and Kuldo Creek. A total of 40 tributaries that flow into the Skeena within the study area, with a total length of 220.6 km.

The Babine River mainstem on mapsheet 93M012 is 15 km. The elevation range of the watershed in this section is 305 m to 366 m. Shedin and Sam Green Creek both flow into the Babine River upstream of its confluence with the Skeena River.

The watersheds surveyed are located within the Interior Cedar Hemlock biogeoclimatic zone (Ketcheson et al. 1991). This low to middle elevation zone is the most productive in the interior and has cool/wet winters and warm/dry summers. Western hemlock, western red cedar, white-Engelmann spruce hybrids and subalpine fir are the dominant trees. At higher elevations, the biogeoclimatic zone is Engelmann Spruce-Subalpine Fir (Ketcheson et al. 1991). The landscape at higher elevations is open parkland with trees interspersed with meadow, heath, and grassland. Englemann spruce, subalpine fir and lodgepole pine are the dominant trees.



Kispiox Stream Inventory	Not to Scale	Map # 24880001	Created by: HDW 3\31\97 Revised by: Source: BC Rec. Atlas

FIGURE 1. LOCATION OF STREAMS INVENTORIED IN THE KISPIOX WATERSHED

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2.2 Access

Portions of the Kuldo Creek and Deep Canoe Creek watersheds are partially accessible by road. Access is from Highway 16 traveling to Hazelton then north from Kispiox on the Kuldo Creek Forest Service road. This allows access by truck to several sites. The majority of the sites were accessed via helicopter and foot; in many instances the access was quite difficult due to the steep terrain.

2.3 Resource Use

The dominant resource activity in the watersheds studied will be the proposed logging. No farming or ranching activities were observed. This area is difficult to access and is probably used only for recreational purposes such as hunting, fishing and camping.

2.4 Summary of Existing Information and Sources Consulted

The first task in stream classification was to collect existing information on fish distribution within the watersheds under investigation. Data from the provincial and federal government sources such as the Stream Information Summary System (SISS) and the evolving Fisheries Information Summary System (FISS) were researched for information. However, for the most part the streams that were investigated were 1st, 2nd, and 3rd order streams mapped at 1:20,000 scale, and these are not reported in the government databases.

In the 1970's, B.C. Hydro proposed to build the Cutoff Mountain Dam on the Skeena River immediately upstream of the confluence with the Babine River. A pre-feasibility study exists but any data collected is included on the FISS maps. References are made in the SISS records of a Transmission Route study.

The extent of existing information is minimal and summarized by watershed. The historical data is also discussed in Section 5.0 - Results and Discussion - as it relates to the fish sampling carried out during this study.

2.4.1 Tommy Jack Creek

Tommy Jack Creek flows northeast into the left bank of the Sicintine Creek. Dolly Varden were observed at approximately 3 km from the creek mouth.

2.4.2 Upper Shedin Creek and Lower Shedin Creek

Shedin Creek flows south into the Babine River, near its junction with Skeena River. Existing SISS information notes that coho salmon are present. Chinook salmon, Dolly Varden, Rocky Mtn. whitefish, and rainbow trout have been observed at 0.2 km. The SISS records show an 8 m falls located 3.5 km upstream that is impassable to all species. There is also a 20 m fall recorded at 12.0 km upstream. The stream summary catalogue for Subdistrict 4C has a distribution summary that notes rainbow trout at 15 and 26 km on the mainstem and rainbow trout in Damsumlo Lake.

2.4.3 Kuldo Creek

Kuldo Creek flows south-east into Skeena River, south of Kuldo. Cascades are located at 34.0 km, and a 15 m rock falls at 41.0 km is the first of two major barriers which are impassable. The other major barrier is not detailed in the records. Coho salmon were observed at 15 km and Dolly Varden have been observed throughout the system.

2.4.4 Sam Green Creek

Sam Green Creek flows into the Babine River just upstream of its confluence with the Skeena River. No specific information was found for Sam Green Creek except that Dolly Varden and rainbow trout were suspected species according to a record attached to the mouth of the creek.

2.4.5 Sheladamus Creek

No existing fish data was located.

2.4.6 Guish Creek

No existing fish data was located.

2.4.7 Willowflat Creek

No existing fish data was located.

2.4.8 Tributaries to the Skeena River

The Skeena River contains chinook, chum, coho, pink and sockeye salmon as well as Dolly Varden, Rocky Mountain whitefish, rainbow trout and steelhead.

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, determine the length of the reaches and 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 four person field crew working in two teams. Sites at the top of the watershed were done 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 a measuring tape and depths were measured with a meter stick. Stream classifications, whether fish bearing or non fish bearing, require the measurement of a minimum of six channel widths. Stream gradients were measured using 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 an automatic with 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. Photos were often taken of fish captured at the site. The film used was 200 ISO. **Appendix 1** documents these photos.

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. Copies of those permits are included in **Appendix 2**. Fish presence/absence was determined by electrofishing and/or minnow trapping. Electrofishing was conducted at all sites where it was deemed necessary. That is, where fish presence had not been determined upstream or habitat characteristics were sufficiently different from other sites.

A minimum area of approximately 100 m^2 was sampled where fish were present. The effort, or shocking time and distance shocked, was recorded for each sample site. Electrofishing was done by one person operating the shocking device and the second person collecting stunned fish with a dip net and placing them in a bucket. 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 the BC Environment.

3.3 Stream Flow and Water Quality

The hydrological records were reviewed from existing sources, namely Water Survey of Canada (WSC) records. An estimate of daily flows (m^3/s) was based on Water Survey of Canada Daily maxima, minima, and maximum instantaneous flows were also summarized from existing records if available. Mean annual discharge (m^3/s) was calculated from existing hydrological records.

As agreed with the Ministry Representative, water samples were not collected for chemical analyses. The parameters that were measured for each site, however, were turbidity, pH and conductivity. Conductivity was measured with a handheld LaMotte TDSTestr 3™ conductivity meter with a range of 0 to 1990 µS. The acceptable values of conductivity for electroshocking purposes must exceed 30 µS. The pH at each site was measured with a handheld 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 that the depth of the deepest pool would be the default value in the database when the water was clear to the bottom.

3.4 Reporting

The use of 1:20,000 scale TRIM maps meant that some of the first order (headwater) streams marked on the map were not necessarily stream channels. Under the FPC's Operational Planning Regulation (June 1995) a stream is defined as:

> "... a watercourse, having an alluvial sediment bed, formed when water flows on a perennial or intermittent basis between continuous definable banks;"

During the field classification, crews would define a watercourse as "not a creek" if there were no alluvial sediments and no continuous, definable banks. Watercourses that had a substrate that consisted entirely of organic material were not considered to have an alluvial sediment bed.

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** provides 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.

The summary table for all sites within the study area includes:

- the results of fish sampling;
- the average channel width (m);
- the average gradient (%); and
- the riparian class according to the FPC

A stream survey card and photograph(s) are presented for each sampling site following the order in which they are listed in the summary table. The stream survey data, for each site, is an electronic duplication of the stream survey forms completed in the field and provides additional information used by the field crew to designate a stream as non-fish bearing.

An S5 or S6 classification was based on electrofishing results, substrate composition, stream gradient, general fish habitat characteristics and location of barriers that may preclude fish use in the area. The absence of fish during sampling did not rule out an S1 to S4 designation. At sites where no fish were collected but there was no reason to conclude that fish would not use the segment of creek, the reach was classified as fish bearing and given the appropriate S1 to S4 classification. Additional sampling, at different times of the year, would be required to confirm that fish do not utilize a stream reach before an S5 or S6 final designation would be accepted. The rationale for S5 and S6 designations was summarized in conjunction with recommended sites for further sampling.

Table 1 Summary of the Forest Practices Code riparian classifications for streams.

Riparian Class	Fish Presence	Stream Width
S1	fish present and/or stream gradient <20%	>20 m
S2	fish present and/or stream gradient <20%	5 - 20 m
S3	fish present and/or stream gradient <20%	1.5 - 5 m
S4	fish present and/or stream gradient <20%	<1.5 m
S5	fish not present and/or stream gradient >20%	>3 m
S6	fish not present and/or stream gradient >20%	<3 m

4.0 RESULTS - PHYSICAL CHARACTERISTICS

4.1 Stream Flow

There was no recorded information available for any watersheds in the study area except for the mainstem Skeena River. Water Survey of Canada stations were located on the Skeena River above the Babine River confluence for the period between 1979 to 1994 (08EB005) and on the Skeena River at Glen Vowell between 1960 to 1985 (08EB003). The station at the Skeena River above Babine River encompasses a drainage of 12,400 km^2 while the station for the Skeena River at Glen Vowell measures the flow from a drainage area of 25,900 km^2.

Figure 2 compares average daily average flow for the period of record, 1970 to 1994, at the Water Survey of Canada station located on the Skeena River above the Babine River (WSC Station 08EB005). In the month of September at the time of sampling, the typical average flow is approximately 500 m^3/s on the Skeena at this location.

Figure 3 compares average daily average flow for the period of record, 1960 to 1985, at the Water Survey of Canada station located on the Skeena River at Glen Vowell (WSC Station 08EB003). In the month of September at the time of sampling, the typical average flow is approximately 1000 m^3/s on the Skeena at this location.

The discharges of the following main creeks were measured using the floating chip method and appear to be fairly comparable at sites where more than one reach was sampled.

Tommy Jack Creek
(Reach 3, Site B38): flow estimate of 0.03 m^3/s at an estimated high discharge level

Kuldo Creek
(Reach 3, Site B14): flow estimate of 12.5 m^3/s at an estimated medium discharge level.

Sam Green Creek
(Reach 1, Site B45): flow estimate of 1.8 m^3/s at an estimated medium discharge level
(Reach 6, Site B44): flow estimate of 0.4 m^3/s at an estimated medium discharge level

Sheladamus Creek
(Reach 2, Site A49): flow estimate of 1.3 m^3/s at an estimated medium discharge level

Figure 2. Skeena River above the Babine River, 1970 to 1994

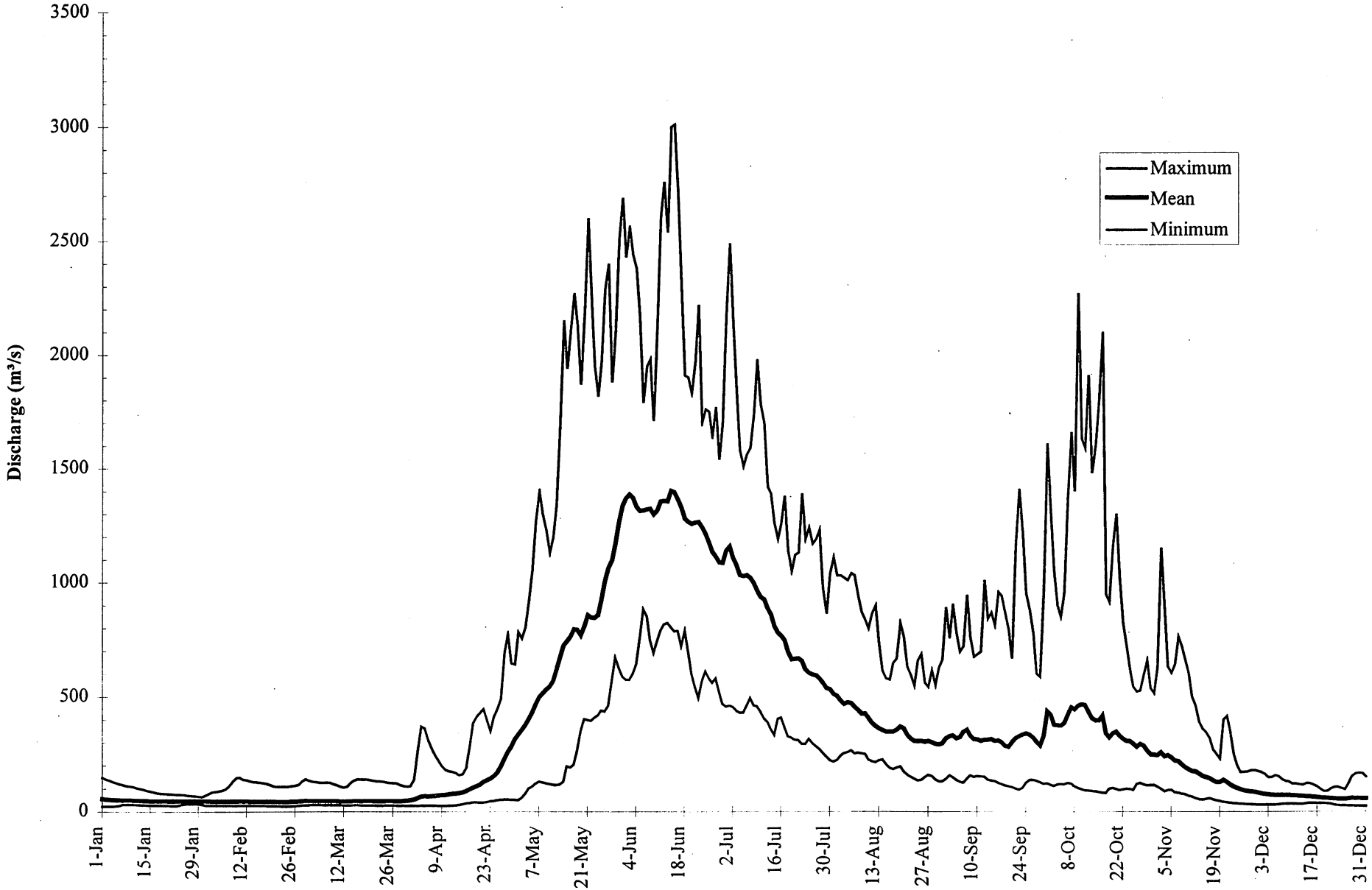
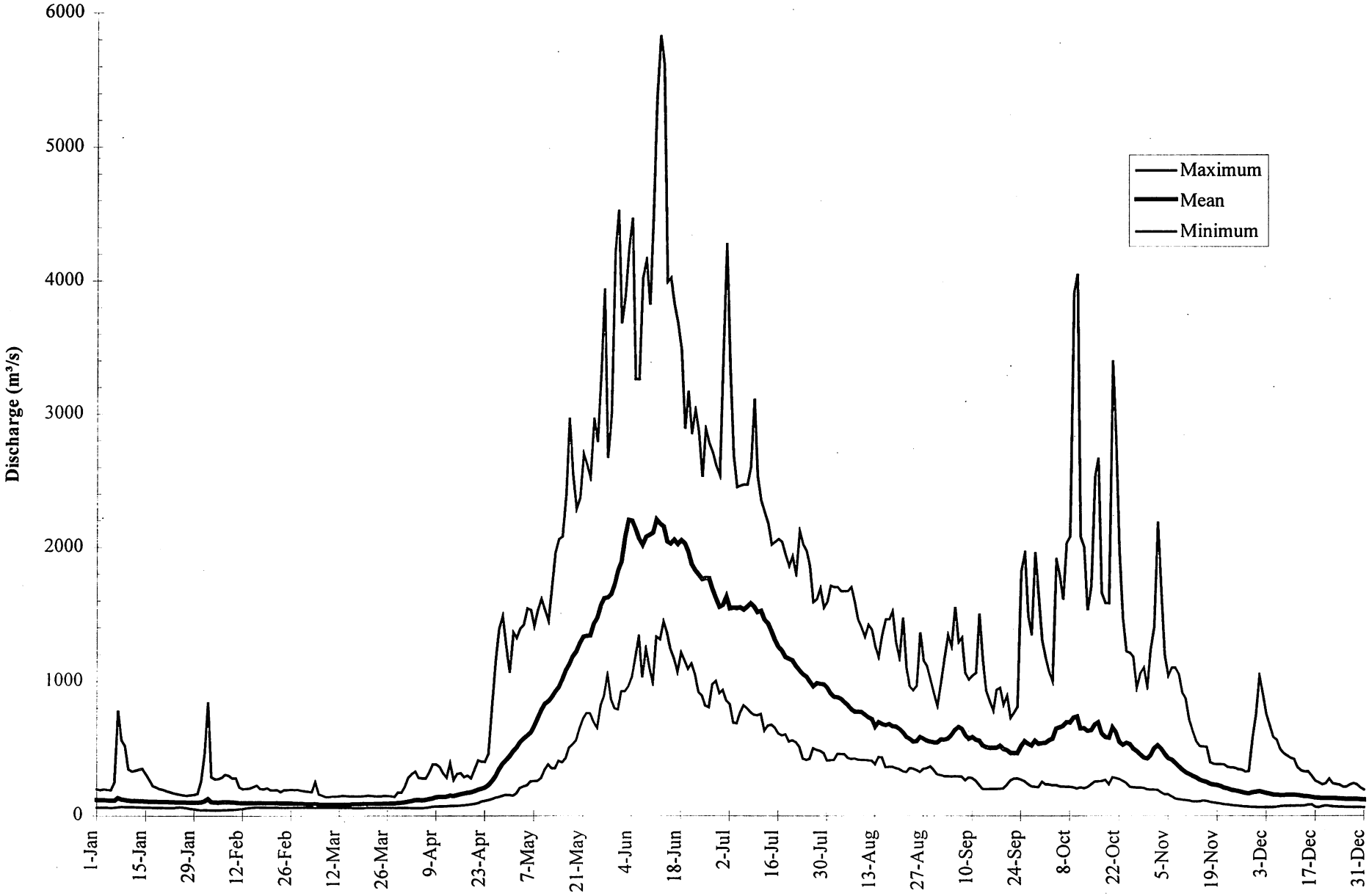


Figure 3. Skeena River at Glen Vowell, 1960 to 1985



Willowflat Creek

(Reach 1, Site B65): flow estimate of 1.2 m^3/s at an estimated medium discharge level.

(Reach 2, Site B64): flow estimate of 1.3 m^3/s at an estimated medium discharge level.

4.2 Water Quality

Water temperatures during this period ranged between 4 and 13°C. **Table 2** summarizes the temperature, pH, conductivity and turbidity measures collected during the course of this inventory project. The average water temperature was 8°C. pH values ranged from 6.6 to 9.3, with an average pH of 8.0. The turbidity values are not discussed here as the values were defaulted on request of the QA/QC monitor to the depth of the deepest pool when turbidity was recorded as clear to the bottom. This value is not considered indicative of the stream turbidity by Triton and will not be discussed further. The conductivity ranged from 10 to 270 (umhos/cm) with an average value of 80. The low values are considered questionable given the successful application of electrofishing to most sites and are considered to be a result of equipment error.

Table 2. Water Quality Data for the Kispiox Fish Habitat Inventory (values in italics are questionable).

Watershed Code	Stream Name "Local"	Site Number	pH	Temperature (°C)	Turbidity (cm)	Conductivity (umhos/cm)
400636255600000000000	Trib. to Tommy Jack Cr.	A23	8.1	6.0	48	90
400636255600000000000	Trib. to Tommy Jack Cr.	A24	8.3	7.0	27	140
400636255600000000000	Trib. to Tommy Jack Cr.	A25	8.2	8.0	26	120
400636255600000000000	Trib. to Tommy Jack Cr.	A26	8.2	7.0	22	140
400636255600000000000	Trib. to Tommy Jack Cr.	A27	7.7	6.0	37	90
400636255600000000000	Trib. to Tommy Jack Cr.	A28	8.0	6.0	15	110
400636255600000000000	Trib. to Tommy Jack Cr.	A30	8.0	6.0	14	100
400636255600000000000	Trib. to Tommy Jack Cr.	B40	8.0	7.0	60	
400636255600000000000	Trib. to Tommy Jack Cr.	B39	7.6	7.0	120	
400636255600000000000	Tommy Jack Cr.	B38	8.3	7.0	36	
480027800000000000000	Trib. to Shedin Cr.	B21	7.7	9.0	17	20
480027800000000000000	Shedin Cr.	B20	8.2	9.0	40	40
480027800000000000000	Trib. to Shedin Cr.	B28	7.6	9.0	34	30
480027800000000000000	Trib. to Shedin Cr.	B27	7.6	8.0	22	30
480027800000000000000	Trib. to Shedin Cr.	B23	8.4	8.5	42	60
480027800000000000000	Trib. to Shedin Cr.	B32		9.0	60	
480027865700000000000	Trib. to Damsumlo L.	B24	6.6	13.0	100	60
480027865700000000000	Trib. to Damsumlo L.	B25	6.9	10.0	35	20
480027800000000000000	Trib. to Shedin Cr.	B26	7.1	9.0	35	20
480027865700000000000	Trib. to Damsumlo L.	B29	8.1	8.5	60	60
480027800000000000000	Trib. to Shedin Cr.	B30	8.3	8.5	38	80
480027865700000000000	Trib. to Damsumlo L.	A22	6.9	9.0	53	*10*
480027865700000000000	Trib. to Damsumlo L.	A20	7.6	9.0	63	40
480027865700000000000	Trib. to Damsumlo L.	A21	7.6	9.0	82	40
480027865700000000000	Trib. to Damsumlo L.	A18	7.8	9.0	64	50
480027865700000000000	Trib. to Damsumlo L.	A19	8.0	9.0	29	*20*
480027800000000000000	Trib. to Shedin Cr.	B31	8.0	8.5	70	40
480027800000000000000	Trib. to Shedin Cr.	B22	8.2	9.0	50	40
480027800000000000000	Trib. to Shedin Cr.	B34	8.0	9.0	100	30
480027800000000000000	Shedin Cr.	B33	8.2	9.0	80	50
480027800000000000000	Trib. to Shedin Cr.	B35	8.2	7.0	26	40
480027800000000000000	Shedin Cr.	B36	8.2	6.5	100	40
480027800000000000000	Trib. to Shedin Cr.	B37	8.3	9.0	70	40
480027800000000000000	Trib. to Shedin Cr.	B56			40	
480027800000000000000	Trib. to Shedin Cr.	B55			40	
480027800000000000000	Trib. to Shedin Cr.	B52	7.1	9.0	80	
480027800000000000000	Trib. to Shedin Cr.	A32	8.0	6.0	40	70
480027800000000000000	Trib. to Shedin Cr.	B54			40	
480027800000000000000	Trib. to Shedin Cr.	B53			80	
480027800000000000000	Trib. to Shedin Cr.	A40				
480027800000000000000	Trib. to Shedin Cr.	B50	7.1	9.0	24	
480027800000000000000	Trib. to Shedin Cr.	B51				
480027800000000000000	Trib. to Shedin Cr.	A38	8.0	6.0	50	100
480027800000000000000	Trib. to Shedin Cr.	B49	8.7	7.0	50	
480027800000000000000	Trib. to Shedin Cr.	A39	8.0	8.0	24	70
400590300000000000000	Kuldo Cr.	B14	8.6	11.0	100	80
400590300000000000000	Trib. to Kuldo Cr.	B13	8.6	9.5	70	90
480012900000000000000	Sam Green Cr.	B45	8.4	7.0	100	
480012900000000000000	Trib. to Sam Green Cr.	B43	8.1	7.0	80	
480012900000000000000	Trib. to Sam Green Cr.	B42	8.0	6.5	70	
480012900000000000000	Trib. to Sam Green Cr.	B41	8.0	6.5	60	
480012900000000000000	Sam Green Cr.	B44	8.3	6.0	60	
400636600000000000000	Sheladamus Cr.	A50	8.2	9.0	55	60
400636600000000000000	Trib. to Sheladamus Cr.	A47	7.4	8.0	12	*10*
400636600000000000000	Sheladamus Cr.	A49	8.1	7.0	34	60

Table 2. Water Quality Data for the Kispiox Fish Habitat Inventory (values in italics are questionable).

Watershed Code	Stream Name "Local"	Site Number	pH	Temperature (°C)	Turbidity (cm)	Conductivity (umhos/cm)
400636600000000000000	Trib. to Sheladamus Cr.	A48	7.8		28	40
400636600000000000000	Sheladamus Cr.	B67	7.1	7.0	40	
400636000000000000000	Guish Cr.	B60	7.1	7.5	40	
400636000000000000000	Guish Cr.	B61	7.1	7.0	40	
400629400000000000000	Willowflat Cr.	B65	7.1	9.0	80	60
400629400000000000000	Willowflat Cr.	B64	7.6	9.0	60	
400000000000000000000	Trib. to Skeena R.	B46	8.7	9.0	40	
480027800000000000000	Trib to Shedin Cr.	B48			30	
400000000000000000000	Trib. to Skeena R.	A41	8.4	8.0	23	270
400000000000000000000	Trib. to Skeena R.	B58	8.9	8.0	29	
400000000000000000000	Trib. to Skeena R.	B59	8.4	8.5	47	
400000000000000000000	Trib. to Skeena R.	A45	8.2	8.0	26	140
400000000000000000000	Trib. to Skeena R.	A44	8.3	7.0	20	220
400000000000000000000	Trib. to Skeena R.	A43	7.4	4.0	60	250
400000000000000000000	Trib. to Skeena R.	A42	7.2	5.0	34	70
400000000000000000000	Trib. to Skeena R.	A46	8.1	8.0	21	140
400000000000000000000	Trib. to Skeena R.	B15	8.4	9.0	20	160
400000000000000000000	Trib. to Skeena R.	B16	9.3	7.0	18	220
400000000000000000000	Trib. to Skeena R.	B19	8.6	9.0	10	210
400000000000000000000	Trib. to Skeena R.	B18	8.3	10.0	15	50
400000000000000000000	Trib. to Skeena R.	B17	7.9	10.0	16	50
400000000000000000000	Swift Cr.	A17	8.1	9.0	53	100
400000000000000000000	Trib. to Skeena R.	A15	8.2	7.0	16	190
400000000000000000000	Trib. to Skeena R.	A14	8.0	9.0	34	150
400000000000000000000	Trib. to Skeena R.	A12	8.2	9.0	26	120
400000000000000000000	Trib. to Skeena R.	A11	8.2	12.0	22	70
400000000000000000000	Trib. to Skeena R.	B12	8.4	9.0	30	80
400000000000000000000	Nancy Cr.	B11	8.3	9.0	60	80
400000000000000000000	Nancy Cr.	B10	8.5	10.0	52	70
400000000000000000000	Trib. to Skeena R.	B2		8.0	82	
400000000000000000000	Trib. to Skeena R.	B4		9.5	74	
400000000000000000000	Trib. to Skeena R.	B3		9.0	20	
400000000000000000000	Trib. to Skeena R.	B1		8.0	66	
400000000000000000000	Trib. to Skeena R.	A9	8.3	8.0	150	40
400000000000000000000	Trib. to Skeena R.	A3		8.0	20	
400000000000000000000	Trib. to Skeena R.	A2		9.0	26	
400000000000000000000	Trib. to Skeena	A1		8.0	48	
400000000000000000000	Trib. to Skeena R.	A4		8.0	18	
400000000000000000000	Trib. to Skeena R.	A5		9.0	26	
400000000000000000000	Trib. to Skeena R.	A6	8.2	9.0	37	40
400000000000000000000	Trib to Skeena R.	A8	7.7	9.0	200	
400000000000000000000	Trib. to Skeena R.	A7	7.6	10.0	45	
400000000000000000000	Trib. to Skeena R.	A10	8.0	9.0	29	50
400000000000000000000	Trib. to Skeena R.	B6	8.1	9.0	100	40
400000000000000000000	Trib. to Skeena R.	B5		9.0	100	
400000000000000000000	Trib. to Skeena R.	B9	8.2	10.0	22	
400000000000000000000	Trib. to Skeena R.	B8	8.5	10.0	70	60
400000000000000000000	Trib. to Skeena R.	B7	8.2	9.0	70	50
400000000000000000000	Trib. to Skeena R.	B66	7.6	8.0	80	
400000000000000000000	Trib. to Skeena R.	B63	7.6	8.0	55	
400000000000000000000	Trib. to Skeena R.	B62	6.6	12.0	40	
400000000000000000000	Trib. to Skeena R.	A51	7.8	7.0		80

5.0 RESULTS AND DISCUSSION

The survey took place between September 10 and 18, 1996. The weather at the time of survey was variable with general overcast/rainy conditions with morning fog. The air temperatures ranged from 7 to 17°C. A total of 118 sites were sampled and only 3 sites were classified as "Not a creek" due to a lack of defined channel. The stage at the time of sampling was Medium-High which allowed for fish sampling at the majority of sites. An item of note was the difficult access into many sites. This resulted in a larger than normal percentage of sites that were surveyed from the air as denoted by AE (aerial estimate) in the methodologies section.

The summary information for all sites is listed in **Table 3**. The table is organized by watershed whenever possible. The stream summaries and accompanying photos are in the same order as the summary table. Photocopies of the original field cards are included in **Appendix 3**. **Figure 4** includes histograms of the fish species sampled during the study. Only species which had frequencies greater than 20 were included as a histogram with few fish is not informative. The fish collection data including site location and water temperature is summarized in **Appendix 4**.

5.1 Tommy Jack Creek (94D002)

5.1.1 Physical

The headwaters of Tommy Jack Creek lie on the slopes of Mount Tommy Jack and flows north and northeast into the Sicintine River. The watershed ranges in elevation from 840 m to 1400 m. Based on a 1:50,000 NTS map, Tommy Jack Creek has a mainstem length of 19 km long stream with six tributary streams. The total length of the tributaries studied is 25 km for an total length classified of 43 km.

Only the upper portion of Tommy Jack Creek was included within the scope of this survey. Twelve sites were sampled including the mainstem which has a gradient of 5%. Several falls and cascades were observed in the mainstem.

5.1.2 Fish

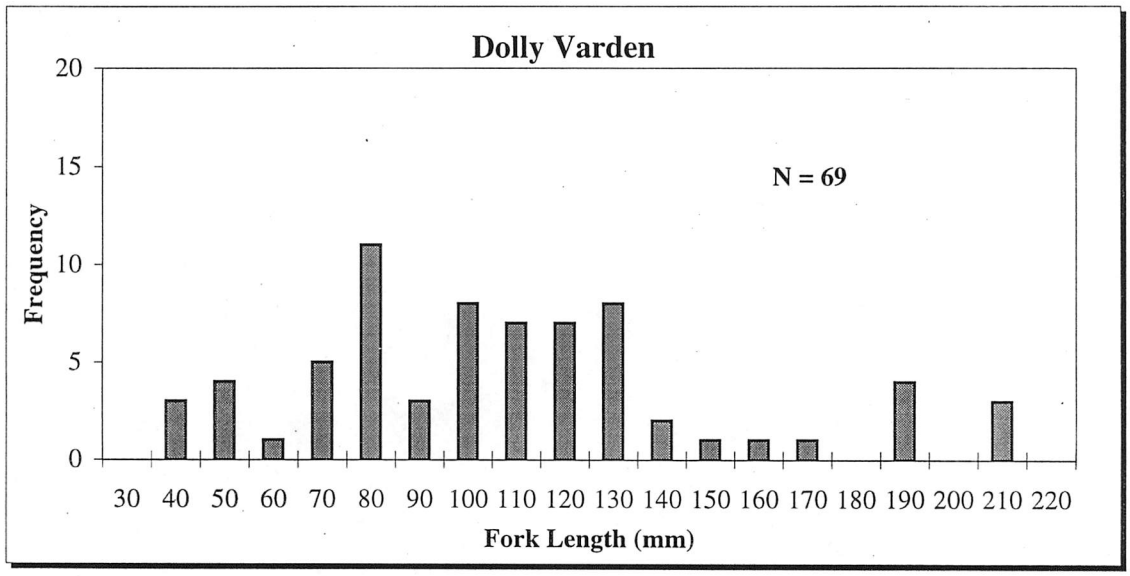
Fish sampling was conducted by electrofishing at the majority of the sites which resulted in the capture of fish at five sites. Dolly Varden were captured at A23, A24, and A25. Both Dolly Varden and rainbow trout were captured at A26 and A27. There is an

Table 3. Summary of sampling sites for the Kispiox Fish Habitat Inventory.

Watershed Code	Stream Name "Local"	Site Number	Channel Width (m)	Gradient (%)	Stream Classification	Fish Species	Sampling Method
40063625560000000	Trib. to Tommy Jack	A23	4.4	10	S3	DV	VO
40063625560000000	Trib. to Tommy Jack	A24	1.3	22	S4	DV	VO
40063625560000000	Trib. to Tommy Jack	A25	1.4	11	S3.	DV	EL
40063625560000000	Trib. to Tommy Jack	A26	1.9	5	S3	DV,RB	EL
40063625560000000	Trib. to Tommy Jack	A31	NA	0	NC.	NF	VO
40063625560000000	Trib. to Tommy Jack	A27	3.6	9	S3	DV,RB	EL
40063625560000000	Trib. to Tommy Jack	A28	1.3	11	S6	NF	EL
40063625560000000	Trib. to Tommy Jack	A29	NA	2	NC	NF	NA
40063625560000000	Trib. to Tommy Jack	A30	0.9	7	S4	(DV,RB)	EL
40063625560000000	Trib. to Tommy Jack	B40	10.2	12	S2	(DV,RB)	EL
40063625560000000	Trib. to Tommy Jack	B39	4.6	12	S5	NF	EL
40063625560000000	Tommy Jack Cr.	B38	3.8	5	S5	NF	EL
48002780000000000	Trib. to Shedin Cr.	B21	1.5	22	S6	NF	EL
48002780000000000	Shedin Cr.	B20	23.1	5	S1	(RB)	EL
48002780000000000	Trib. to Shedin Cr.	B28	1.0	1	S4	(RB)	EL
48002780000000000	Trib. to Shedin Cr.	B27	1.1	8	S4	(DV)	EL
48002780000000000	Trib. to Shedin Cr.	B23	2.8	7	S3	(RB)	EL
48002780000000000	Trib. to Shedin Cr.	B32	4.3	5	S5	NF	EL
48002786570000000	Trib. to Damsumlo L.	B24	2.5	1	S3	(RB)	EL
48002786570000000	Trib. to Damsumlo L.	B25	1.5	4	S3	(RB)	EL
48002780000000000	Trib. to Shedin Cr.	B26	0.9	4	S4	(DV,RB)	EL
48002786570000000	Trib. to Damsumlo L.	B29	2.4	2	S3	(DV,RB)	EL
48002780000000000	Trib. to Shedin Cr.	B30	2.0	6	S3	(DV,RB)	EL
48002786570000000	Trib. to Damsumlo L.	A22	2.0	7	S3	(RB)	EL
48002786570000000	Trib. to Damsumlo L.	A20	3.4	3	S3	(RB)	EL
48002786570000000	Trib. to Damsumlo L.	A21	4.9	2	S2	(DV,RB)	EL
48002786570000000	Trib. to Damsumlo L.	A18	4.2	2	S3	(RB)	EL
48002786570000000	Trib. to Damsumlo L.	A19	6.5	1	S2	(RB)	EL
48002780000000000	Trib. to Shedin Cr.	B31	3.9	2	S5	NF	EL
48002780000000000	Trib. to Shedin Cr.	B22	10.3	5	S5	NF	EL
48002780000000000	Trib. to Shedin Cr.	B34	2.6	4	S6	NF	EL
48002780000000000	Shedin Cr.	B33	14.5	2	S5	NF	EL
48002780000000000	Trib. to Shedin Cr.	B35	1.8	5	S6	NF	El
48002780000000000	Shedin Cr.	B36	9.0	7	S5	NF	EL
48002780000000000	Trib. to Shedin Cr.	B37	1.5	4	S6	NF	EL
48002780000000000	Trib. to Shedin Cr.	B49	6.3	18	S2	DV	EL
48002780000000000	Trib. to Shedin Cr.	B57	5.0	15	S3	(DV,RB)	VO
48002780000000000	Trib. to Shedin Cr.	B56	5.0	33	S3	(DV,RB)	VO
48002780000000000	Trib. to Shedin Cr.	B55	5.0	30	S3	(DV,RB)	VO
48002780000000000	Trib. to Shedin Cr.	B52	4.0	15	S3	(DV)	VO
48002780000000000	Trib. to Shedin Cr.	A32	18.7	4	S2	DV	EL
48002780000000000	Trib. to Shedin Cr.	B54	5.0	18	S2	(DV,RB)	VO
48002780000000000	Trib. to Shedin Cr.	B53	5.0	12	S3	(DV,RB)	VO
48002780000000000	Trib. to Shedin Cr.	A40	3.0	10	S3	(DV,RB)	VO
48002780000000000	Trib. to Shedin Cr.	B50	2.8	2	S3	DV	EL
48002780000000000	Trib. to Shedin Cr.	B51	3.0	1	S5	NF	NA
48002780000000000	Trib. to Shedin Cr.	A38	11.5	3	S2	DV	EL
48002780000000000	Trib. to Shedin Cr.	A36	10.0	7	S5	NF	VO
48002780000000000	Trib. to Shedin Cr.	A37	7.0	13	S5	NF	VO
48002780000000000	Trib. to Shedin Cr.	A34	2.0	60	S6	NF	VO
48002780000000000	Trib. to Shedin Cr.	A35	2.0	60	S6	NF	VO
48002780000000000	Trib. to Shedin Cr.	A33	5.0	60	S5	NF	VO
48002780000000000	Trib to Shedin Cr.	B48	21.2	8	S1	(DV)	EL
48002780000000000	Trib. to Shedin Cr.	A39	1.9	4	S3	DV	EL
40059030000000000	Kuldo Cr.	B14	50.0	2	S1	CH,DV	EL
40059030000000000	Trib. to Kuldo Cr.	B13	6.3	10	S5	NF	EL
48001290000000000	Sam Green Cr.	B45	25.3	8	S1	DV	EL
48001290000000000	Trib. to Sam Green Cr.	B43	8.7	14	S5	NF	EL
48001290000000000	Trib. to Sam Green Cr.	B42	5.5	18	S5	NF	EL
48001290000000000	Trib. to Sam Green Cr.	B41	2.1	12	S6	NF	EL

Table 3. Summary of sampling sites for the Kispiox Fish Habitat Inventory.

Watershed Code	Stream Name "Local"	Site Number	Channel Width (m)	Gradient (%)	Stream Classification	Fish Species	Sampling Method
48001290000000000	Sam Green Cr.	B44	10.2	8	S5	NF	EL
40063660000000000	Sheladamus Cr.	A50	13.2	4	S2	MW, SA	EL
40063660000000000	Trib. to Sheladamus	A47	1.1	42	S6	NF	VO
40063660000000000	Sheladamus Cr.	A49	11.7	3	S5	NF	EL
40063660000000000	Trib. to Sheladamus	A48	4.5	39	S5	NF	EL
40063660000000000	Sheladamus Cr.	B67	8.5	2	S5	NF	EL
40063600000000000	Guish Cr.	B60	4.9	8	S3	DV,RB	EL
40063600000000000	Guish Cr.	B61	6.6	9	S5	NF	EL
40062940000000000	Willowflat Cr.	B65	12.3	5	S2	DV,RB	EL
40062940000000000	Willowflat Cr.	B64	15.7	5	S5	NF	EL
40000000000000000	Trib. to Skeena R.	B46	4.1	22	S3	RB	EL
40000000000000000	Trib. to Skeena R.	B47	3.0	10	S3	(RB)	VO
40000000000000000	Trib. to Skeena R.	A41	3.1	13	S3	RB	EL
40000000000000000	Trib. to Skeena R.	B58	2.0	30	S6	NF	EL
40000000000000000	Trib. to Skeena R.	B59	3.8	17	S3	DV,RB	EL
40000000000000000	Trib. to Skeena R.	A45	3.4	26	S3	(DV,RB)	EL
40000000000000000	Trib. to Skeena R.	A44	8.3	9	S2	RB,DV	EL
40000000000000000	Trib. to Skeena R.	A43	8.3	22	S2	(DV,RB)	EL
40000000000000000	Trib. to Skeena R.	A42	1.3	4	S4	(DV,RB)	EL
40000000000000000	Trib. to Skeena R.	A46	5.0	11	S2.	RB,DV	EL
40000000000000000	Trib. to Skeena R.	B15	2.2	24	S3	DV,RB	EL
40000000000000000	Trib. to Skeena R.	B16	1.5	20	S6	NF	EL
40000000000000000	Trib. to Skeena R.	B19	2.0	15	S3	(RB)	EL
40000000000000000	Trib. to Skeena R.	B18	2.7	22	S3	LKC	MT
40000000000000000	Trib. to Skeena R.	B17	1.1	2	S4	LKC	EL
40000000000000000	Trib. to Skeena R.	A16	1.5	75	S6	NF	VO
40000000000000000	Swift Cr.	A17	3.9	22	S5	NF	EL
40000000000000000	Trib. to Skeena R.	A15	1.9	22	S6	NF	EL
40000000000000000	Trib. to Skeena R.	A14	2.1	3	S3	(DV,RB)	EL
40000000000000000	Trib. to Skeena R.	A13	NA	1	NC	NF	NA
40000000000000000	Trib. to Skeena R.	A12	3.7	26	S3	CT,DV,RB	EL
40000000000000000	Trib. to Skeena R.	A11	1.6	5	S3	(DV, RB)	EL
40000000000000000	Trib. to Skeena R.	B12	3.8	25	S3	DV	EL
40000000000000000	Nancy Cr.	B11	7.0	25	S2	DV, RB	EL
40000000000000000	Nancy Cr.	B10	6.2	17	S2	DV, (ST)	EL
40000000000000000	Trib. to Skeena R.	B2	6.0	12	S5	NF	EL
40000000000000000	Trib. to Skeena R.	B4	6.5	8	S2	CH,DV,PK	EL
40000000000000000	Trib. to Skeena R.	B3	3.2	3	S5	NF	EL
40000000000000000	Trib. to Skeena R.	B1	5.4	5	S5	NF	EL
40000000000000000	Trib. to Skeena R.	A9	6.2	10	S2	SA	VO
40000000000000000	Trib. to Skeena R.	A3	0.5	23	S6	NF	VO
40000000000000000	Trib. to Skeena R.	A2	1.3	23	S6	NF	EL
40000000000000000	Trib. to Skeena R.	A1	6.0	4	S2	(DV)	EL
40000000000000000	Trib. to Skeena R.	A4	0.6	18	S6	NF	EL
40000000000000000	Trib. to Skeena R.	A5	2.5	6	S3	(DV)	EL
40000000000000000	Trib. to Skeena R.	A6	2.6	9	S3	(DV,RB)	EL
40000000000000000	Trib. to Skeena R.	A8	2.4	1	S3.	(DV,RB)	EL
40000000000000000	Trib. to Skeena R.	A7	4.2	4	S3	(DV,RB)	EL
40000000000000000	Trib. to Skeena R.	A10	2.9	40	S6	NF	EL
40000000000000000	Trib. to Skeena R.	B6	3.8	10	S3	DV,RB	EL
40000000000000000	Trib. to Skeena R.	B5	3.4	3	S5	NF	EL
40000000000000000	Trib. to Skeena R.	B9	4.1	3	S3	(RB)	VO
40000000000000000	Trib. to Skeena R.	B8	12.1	4	S2	RB	EL
40000000000000000	Trib. to Skeena R.	B7	14.8	5	S2	(DV,RB)	EL
40000000000000000	Trib. to Skeena R.	B66	3.1	3	S3	(DV,RB)	VO
40000000000000000	Trib. to Skeena R.	B63	2.9	3	S6	NF	VO
40000000000000000	Trib. to Skeena R.	B62	1.4	2	S6	NF	EL
40000000000000000	Trib. to Skeena R.	A51	0.9	6	S6	NF	VO



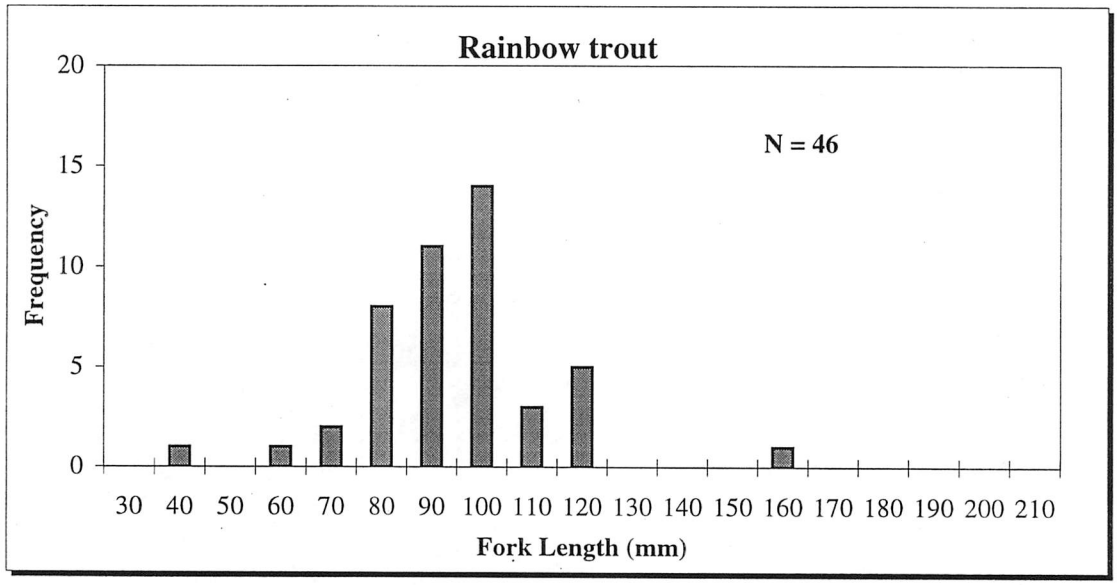


Figure 4. Fork length frequencies of two main salmonid species caught in the Skeena watershed. Data principally from Skeena River, Tommy Jack Creek and Shedin Creek, with some specimens from Willowflat Creek, Guish Creek, Kuldo Creek, Nancy Creek, and Sam Green Creek.

It appears that the Dolly Varden population is made up of at least two, possibly three, age groups, whereas the rainbow trout population is made up of individuals belonging to one age group.

unnamed lake upstream of B40 which has a low probability of resident fish but should be checked in future surveys.

5.1.3 Stream Classification

The mainstem of Tommy Jack Creek is classified as S2 based on an average channel width of 10.2 m at Site B40. No fish were captured in the mainstem but Dolly Varden and rainbow trout were captured in the tributaries.

5.1.4 Tributaries

The majority of tributaries sampled were S3. Dolly Varden were captured in 22% gradient at Site A24 which is an S4. A tributary at Site A30 is not shown on the TRIM map and is classified as S4. Site B39 is a headwater tributary that has a 10 m falls downstream and was considered to lack overwintering habitat. Site B38 is located in a reach above a 4m cascade and is classified as S5 due to the presence of an impassable barrier and lack of overwintering habitat.

DFO/MoELP Stream Survey Form

Site Number: A23 **Reach No.: 1**

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: A23 , Kispiox district, west of blocks 5 ,4 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 2.2 MW **Date:** 14-Sep-96 **Time:** 13:30 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5808 .62177 **Length surveyed (m):** 150.0 GE **Survey Crew:** GM \KG\ \ \ \ \ \ \ **Photos:** A-3-23,24 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.4	MS
Av. Wet. Width (m):	3.4	MS
Av. Max Riffle Depth (cm):	13	MS
Av. Max Pool Depth (cm):	38	MS
Gradient (%):	10.0	CL
Pool: 15 Riffle: 20 Run: 35 Other:	30	
% Side Channel:	0	GE
% Debris Area:	>15	GE
%Stable:	30	GE

Specific Data

5.4	3.8	3.8	3.7	4.6	4.9
5.0	3.0	2.1	2.4	3.7	4.2
5	15	21	14	12	
38	33	32	48		

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	10
	Lge cobble (128-256mm):		30
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 68 Compaction: High

Cover

Cover Total % : 65 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
25	30	35	0	10	0

Crown Closure % : 20 Aspect : NW

Discharge

Wetted Width (m) :	2.4	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.88	F
Discharge (m3/s) :	0.16	F

Banks

Height (m): 0.3

% Unstable: 20

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 1

Bars (%): 10 pH: 8 1 Braided: Y

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): 48 Cond. (µmhos): 90

Reach Symbol

(Fish)

DV

4 C 10.0 | 1360

(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	6	130	J				VO

Comments

C1 S3

C2 LS = 11%, RS = 9%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 428 seconds over 100 meters. The shocker settings were changed several times to attempt to catch fish with no success. 6 suspected Dolly Varden were observed at this site.

C5 Lat N 56 05' 54.8", Long W 127 42' 04.1"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 Some nice rearing habitat was observed at this site. Cascade pool habitat was predominant in the sampling area.

C9 Cascades comprise 30% of the flow type at this site.

C10 The air temperature at this site was 9 degrees celcius.

C11 Large rafted LOD indicates that this site may be washed out at high flow.

Photo #: A-3-23, 14-Sep-96
Site #: A23, Looking towards mouth of tributary from Tommy Jack Creek.

Photo #: A-3-24, 14-Sep-96
Site #: A23, Looking upstream.

DFO/MoELP Stream Survey Form

Site Number: A24

Reach No.: 1

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: A24 , Kisipox district, north of block 3, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 0.6 MA **Date:** 14-Sep-96 **Time:** 14:50 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5805 .62168 **Length surveyed (m):** 100.0 GE **Survey Crew:** GM\KG\ \ \ \ \ \ **Photos:** A-4-1,2 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.3	MS
Av. Wet. Width (m):	1.1	MS
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	21	MS
Gradient (%):	22.0	CL
Pool: 30 Riffle: 25 Run: 20 Other:	25	
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	80	GE

Specific Data

1.1	1.0	1.5	1.2	1.2	1.5
0.9	0.5	1.4	1.4	1.2	1.4
7	5	6	9	5	
27	15	22	23	20	19

Cover

Cover Total % : 55 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
25	35	15	5	10	10

Crown Closure % : 5 Aspect : N

Bed Material

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

D90 (cm): 31 Compaction: Medium

Discharge

Wetted Width (m) :	1.3	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.41	F
Discharge (m3/s) :	0.04	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 5 pH: 8.3 Braided: Y

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 27 Cond. (µmhos): 140

Reach Symbol

(Fish)

DV

1 D 22.0 | 1450

(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	1	120	J				VO

Comments

C1 S4

C2 LS = 8%, RS = 4%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 252 seconds over 100 meters. 1 suspected Dolly Varden was observed at this site.

C5 Lat N 56 05' 24.4", Long W 127 42' 21.3"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 Excellent step pool rearing habitat was observed at this site.

C9 The air temperature at this site was 9.5 degrees celcius.

Photo #: A-4-1, 14-Sep-96
Site #: A24, Cascade in background.

Photo #: A-4-2, 14-Sep-96
Site #: A24, Large organic debris parallel to flow.

DFO/MoELP Stream Survey Form

Site Number: A25 **Reach No.: 1**

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: A25 , Kisipiox district, north of block 3, see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 0.7 MA **Date:** 14-Sep-96 **Time:** 16:00 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5805 .62169 **Length surveyed (m):** 100.0 GE **Survey Crew:** GM\KG\ \ \ \ \ \ \ **Photos:** A-4-3,4,5,6 **Air Photos:**

Channel Characteristics

C1	Av. Chan. Width (m):	1.4	MS
	Av. Wet. Width (m):	1.3	MS
	Av. Max Riffle Depth (cm):	9	MS
	Av. Max Pool Depth (cm):	21	MS
	Gradient (%):	11.0	CL
	Pool: 20 Riffle: 40 Run: 35 Other:	5	
	% Side Channel:	10-40	GE
	% Debris Area:	5-15	GE
	%Stable:	70	GE

Specific Data

1.5	0.9	1.3	1.5	1.6	1.7
1.7	0.9	0.9	1.1	1.3	1.6
7	8	13	13	6	
17	17	20	23	26	

Cover

Cover Total % : 55 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
30	25	15	0	10	20

Crown Closure % : 30 Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):		10	10
Gravels	Small (2-16mm):	40		10
	Large (16-64mm):			30
Larges	Sm. cobble (64-128mm):	50		20
	Lge cobble (128-256mm):			15
	Bldr cobble (>256mm):			15
Bedrock			0	0

D90 (cm): 40 Compaction: High

Discharge

Wetted Width (m) :	1.5	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.40	F
Discharge (m3/s) :	0.05	F

Banks

Height (m): 0.1

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 5 pH: 8.2 Braided: Y

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 26 Cond. (µmhos): 120

Reach Symbol

(Fish)

DV

2 C 11.0 | 1450

(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	4	92-118	J				EL

Comments

C1 S3. Because the average channel width of 1.4 meters for this site is so close to the S4 /S3 cut off point, the classification has been upgraded.

C2 LS = 17%, RS =11%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 350 seconds over 100 meters.

C5 Lat N 56 05' 28.8", Long W 127 42' 22.2"

C6 The banks at this site contain both fines and larges.

C7 DO was not measured at this site.

C8 Some great rearing habitat and potential spawning habitat were observed at this site. LOD and pools are particularly important cover at this site.

C9 The air temperature at this site was 10 degrees celcius.

Photo #: A-4-3, 14-Sep-96
Site #: A25, Dolly Varden on anode.

Photo #: A-4-4, 14-Sep-96
Site #: A25, Looking downstream.

Photo #: A-4-5, 14-Sep-96
Site #: A25, Looking upstream.

Photo #: A-4-6, 14-Sep-96
Site #: A25, Dolly Varden in bags.

DFO/MoELP Stream Survey Form

Site Number: A26

Reach No.: 1

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: A26 , Kispiox district, north edge of block 2, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **U.T.M. :** 9 .5804 .62162 **Reach Length (km):** 1.0 MA **Length surveyed (m):** 100.0 GE **Date:** 14-Sep-96 **Time:** 17:10 **Survey Crew:** GM\KG\ \ \ \ \ \ \ **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐ **Photos:** A-4-8,9 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.9	MS
Av. Wet. Width (m):	1.4	MS
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	19	MS
Gradient (%):	5.0	CL
Pool: 15 Riffle: 45 Run: 30 Other:	10	
% Side Channel:	0-10	GE
% Debris Area: 25		GE
%Stable:	50	GE

Specific Data

1.5	1.9	2.0	1.9	2.5	1.5
1.2	1.4	1.4	1.3	1.6	1.2
6	5	6	7	5	
18	16	22	21		

Bed Material

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

D90 (cm): 28 Compaction: Medium

Cover

Cover Total % : 75 GE

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

Crown Closure % : 15 Aspect : NW

Discharge

Wetted Width (m) :	0.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.85	F
Discharge (m3/s) :	0.05	F

Banks

Height (m): 0.1
% Unstable: 30
Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

RB. DV

2 D 5.0 | 5320

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

Confinement: FC
Valley : Channel Ratio 10+
Stage: M Flood Signs Ht(m): 1.5
Bars (%): 10 pH: 8.2 Braided: Y
Water Temp. (°C): 7.0 02 (ppm):
Turb. (cm): 22 Cond. (µmhos): 140

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB	2	90-100	J				EL
	DV	1	90	J				EL

Comments

C1 S3

C2 LS = 5%, RS = 5%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was over 70 meters. (Seconds unavailable)

C5 Lat N 56 05' 03", Long W 127 42' 28.9"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 Some nice rearing habitat in the form of LOD, cutbanks and pools was observed at this site.

C9 Heavy siltation was observed in the first 25 meters of the sampling area. However, the remaining 75 meters contained more gravels.

C10 Cascades comprise 10% of the flow type at this site.

C11 The air temperature at this site was 9 degrees celcius.

Photo #: A-4-8, 14-Sep-96
Site #: A26, mossy log across channel.

Photo #: A-4-9, 14-Sep-96
Site #: A26, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: A31 Reach No.: 0

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: A31, Kispiox District, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 0.0 GE **Date:** 16-Sep-96 **Time:** 12:00 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 . 5803 . 62159 **Length surveyed (m):** 0.0 **Survey Crew:** JP \ KG \ \ \ \ \ \ **Photos:** None **Air Photos:**

Channel Characteristics

C1	Av. Chan. Width (m):	0.0	AE
	Av. Wet. Width (m):	0.0	AE
	Av. Max Riffle Depth (cm):	0	AE
	Av. Max Pool Depth (cm):	0	AE
N	Gradient (%):	0.0	AE

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

% Side Channel:

% Debris Area: 0

%Stable:

Specific Data

Bed Material

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

N D90 (cm): N Compaction: Low

Cover

N Cover Total % : 0 AE

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N						

N Crown Closure % : N Aspect :

Discharge

N Wetted Width (m) :

N Mean Depth (m) :

N Mean Velocity (m/s) :

N Discharge (m3/s) :

Banks

N Height (m):

% Unstable:

N Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

NF

E

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

Confinement: N/A

Valley : Channel Ratio N/A

Stage: Dry N Flood Signs Ht(m):

N Bars (%): 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 NC. This site MUST be groundtruthed to confirm the absence of a seasonally wet channel channel.

C2 The side slopes were not measured.

C4 This site was not electrofished.

C5 Lat N 56 04' 53.4", Long W 127 42' 35"

C6 Bank texture not applicable.

C7 Water quality not applicable.

C8 A defined channel was not observed.

DFO/MoELP Stream Survey Form

Site Number: A27

Reach No.: 1

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: A27 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 1.0 MA **Date:** 15-Sep-96 **Time:** 13:45 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5802 .62151 **Length surveyed (m):** 140.0 GE **Survey Crew:** KG \DD\ \ \ \ \ \ \ **Photos:** A-4-10,11 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.6	MS
Av. Wet. Width (m):	2.6	MS
Av. Max Riffle Depth (cm):	11	MS
Av. Max Pool Depth (cm):	26	MS
Gradient (%):	9.0	CL
Pool: 25 Riffle: 45 Run: 25 Other:	5	
% Side Channel:	10-40	GE
% Debris Area:	>15	GE
%Stable:	80	GE

Specific Data

2.8	3.2	5.4	3.1	4.1	3.1
2.3	2.6	2.5	2.6	3.2	2.6
12	13	12	9	11	
22	21	20	35	24	37

Bed Material

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

D90 (cm): 27 Compaction: Medium

Cover

Cover Total % : 60 GE

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

Crown Closure % : 25 Aspect : NW

Discharge

Wetted Width (m) :	2.4	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.30	F
Discharge (m3/s) :	0.05	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Hit(m): 0.5

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

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): 37 Cond. (µmhos): 90

Reach Symbol

(Fish)

DV, RB

4 C 9.0 | 1450

(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	11	40-124	J				EL
	RB	1	80	J				EL

Comments

C1 S3

C2 LS =25%, RS = 22%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 549 seconds over 100 meters. In addition to those fish caught through electrofishing, 8 suspected Dolly Varden char, ranging in size from 75 - 120 mm, were visually observed.

C5 Lat N 56 04' 27.6", Long W 127 42' 41.6".

C6 The banks were comprised predominantly of fines, with some small and large gravels.

C7 DO was not measured.

C8 Excellent rearing habitat was observed at this site. LOD and pools are particularly important cover elements at this site. Some spawning gravels were also noted.

C9 Cascades comprise 5% of the flow type at this site.

C10 The air temperature at this site was 8 degrees celcius.

Photo #: A-4-10, 15-Sep-96
Site #: A27, Looking upstream, blowdown across channel.

Photo #: A-4-11, 15-Sep-96
Site #: A27, Looking downstream, 2 logs across channel..

DFO/MoELP Stream Survey Form

Site Number: A28

Reach No.: 1

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: A28 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 3.0 MA **Date:** 15-Sep-96 **Time:** 14:30 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5800 .62152 **Length surveyed (m):** 200.0 GE **Survey Crew:** DD \KG\ \ \ \ \ \ \ **Photos:** A-4-12,13,14 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.3	MS
Av. Wet. Width (m):	1.0	MS
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	10	MS
Gradient (%):	10.5	CL
Pool: 20 Riffle: 35 Run: 40 Other:	5	
% Side Channel:	10-40	GE
% Debris Area:	>15	GE
%Stable:	70	GE

Specific Data

1.1	1.1	1.1	1.4	1.4	1.4
1.1	0.8	0.7	1.1	1.2	1.3
9	5	4	6	6	
7	8	11	10	15	

Cover

Cover Total % : 65 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
15	40	10	5	20	10

Crown Closure % : 25 Aspect : NW

Bed Material

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

D90 (cm): 29 Compaction: Medium

Discharge

Wetted Width (m) :	0.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.38	F
Discharge (m3/s) :	0.02	F

Banks

Height (m): 0.1

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

NF

1 D 10.5 | 2440

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

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.3

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

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): 15 Cond. (µmhos): 110

Obstructions

C	Height (m)	Type	Location
	2	F	0.0

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 = 4%, RS = 5%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 357 seconds over 100 meters.

C5 Lat N 56 04' 11.1", Long W 127 42' 53.7"

C6 No additional bank texture information.

C7 DO was not measured.

C8 Some very nice rearing habitat, with alot of LOD cover, was observed at this site. However, the falls at the mouth of this stream appear to prevent fish access upstream, resulting in the S6 classification.

C9 The air temperature at this site was 8.5 degrees celcius.

Photo #: A-4-12, 15-Sep-96
Site #: A28, There are falls at the mouth of the tributary.

Photo #: A-4-13, 15-Sep-96
Site #: A28, Wood debris over fine substrate..

Photo #: A-4-14, 15-Sep-96
Site #: A28, Falls at mouth of creek.

DFO/MoELP Stream Survey Form

Site Number: A29

Reach No.: 0

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: A29, Kispiox district, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 0.0 GE **Date:** 15-Sep-96 **Time:** 17:15 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 . 5798 . 62150 **Length surveyed (m):** 20.0 GE **Survey Crew:** DD \ KG \ \ \ \ \ \ **Photos:** A-4-15 **Air Photos:**

Channel Characteristics

C1	Av. Chan. Width (m):	0.0	GE
	Av. Wet. Width (m):	0.0	GE
	Av. Max Riffle Depth (cm):	0	GE
	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	2.0	GE

Pool: 100 Riffle: 0 Run: 0 Other: 0

% Side Channel:

% Debris Area: 0

%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

D90 (cm): 0 Compaction: Low

Cover

Cover Total % : 0 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk

Crown Closure % : 0 Aspect : E

Discharge

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

Banks

N Height (m):

% Unstable:

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 2.0 | 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	NC
C2	The side slopes were not measured at this site.
C3	This is a back channel of the Tommy Jack mainstem that does not appear to have harboured any flow for quite some time. Perhaps it could be used by fish for refuge at very high flows in the main creek.
C4	This site was not electrofished.
C5	Lat N 56 04' 53.4", Long W 127 42' 35"
C6	Bank texture not applicable.
C7	Water quality not applicable.
C8	This site does not provide significant fish habitat.

Photo #: A-4-15, 15-Sep-96
Site #: A29, Not a creek due to a lack of defined channel..

DFO/MoELP Stream Survey Form

Site Number: A30 **Reach No.:** 1

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: A30 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 0.4 MA **Date:** 15-Sep-96 **Time:** 17:25 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M.: 9 .5798 .62140 **Length surveyed (m):** 100.0 GE **Survey Crew:** KG \DD\ \ \ \ \ \ \ **Photos:** A-4-16,17 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	0.9	MS
Av. Wet. Width (m):	0.7	MS
Av. Max Riffle Depth (cm):	5	MS
Av. Max Pool Depth (cm):	11	MS
Gradient (%):	7.0	CL
Pool: 10 Riffle: 40 Run: 40 Other: 10		
% Side Channel:	10-40	GE
% Debris Area:	>15	GE
%Stable:	75	GE

Specific Data

0.8	0.7	0.5	0.9	1.6	0.6
0.8	0.4	0.4	0.7	1.6	0.4
2	4	4	5	8	
9	10	14	6	14	

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

D90 (cm): 32 Compaction: Medium

Cover

Cover Total %: 10 GE

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

Crown Closure %: 15 Aspect: NE

Discharge

Wetted Width (m):	0.7	MS
Mean Depth (m):	0.0	MS
Mean Velocity (m/s):	0.30	F
Discharge (m3/s):	0.00	F

Banks

Height (m): 0.1

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 0 pH: 8.0 Braided: Y

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): 14 Cond. (µmhos): 100

Reach Symbol

(Fish)

(RB) (DV)

1 D 7.0 | 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				EL

Comments

C1	S4
C2	LS = 1%, RS = 1%
C3	No fisheries sensitive zones were noted at this site.
C4	The electroshocking effort, using a 12 B POW model, was 155 seconds over 100 meters.
C5	Lat N 56 03' 52.2", Long 127 43' 05.9"
C6	No additional bank texture information.
C7	DO was not measured.
C8	Marginal rearing habitat was observed at this site. Future sampling at high flow is recommended to determine the presence or absence of fish at this site.
C9	Cascades comprise 10% of the flow type at this site.
C10	The air temperature at this site was 9 degrees celcius. This creek did not appear on the field map.

Photo #: A-4-16, 15-Sep-96
Site #: A30, Looking upstream.

Photo #: A-4-17, 15-Sep-96
Site #: A30, Small channel at base of tree..

DFO/MoELP Stream Survey Form

Site Number: B40 **Reach No.:** 2

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: B40 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 2.6 MA **Date:** 15-Sep-96 **Time:** 17:55 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5792 .62126 **Length surveyed (m):** 220.0 HC **Survey Crew:** JP \AL \ \ \ \ \ \ \ **Photos:** B-5-8,9 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	10.2	HC
Av. Wet. Width (m):	8.6	HC
Av. Max Riffle Depth (cm):	12	MS
Av. Max Pool Depth (cm):	71	MS
Gradient (%):	12.0	CL
Pool: 15 Riffle: 50 Run: 25 Other:	10	
% Side Channel:	0	GE
% Debris Area:	10	GE
%Stable:	60	GE

Specific Data

10.6	11.0	8.4	10.0	9.6	11.8
7.0	10.6	6.5	8.2	9.4	10.0
12	10	14			
100	60	52			

Cover

Cover Total % : 80 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	10	60	0	5	5

Crown Closure % : 0 Aspect : NE

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): 70 Compaction: Medium

Discharge

Wetted Width (m) :	8.5	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	1.10	F
Discharge (m3/s) :	2.10	F

Banks

Height (m): 0.6

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 0-2

Stage: H Flood Signs Ht(m): 1

Bars (%): 0 pH: 8.0 Braided: N

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 60 Cond. (µmhos):

Reach Symbol

(Fish)

(RB) (DV)

10 A 12.0 | 0370

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

Obstructions

C	Height (m)	Type	Location
	4	C	0.2
	4	C	0.3
C9	3	C	0.2
C9	1	C	0.3

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 = 50%, RS = 10%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 851 seconds, over 1100 square meters.

C5 Lat N 56 03' 08.6", Long W 127 43' 42"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom

C8 This reach may provide some rearing habitat.

C9 The creek was sampled upstream of a series of cascades which prevent fish passage upstream. The 3m cascade listed in the obstructions section is 40m upstream of the first 4m cascade (also listed in the obstructions section) on this creek.The reach contains a number of cascades roughly 1 meter high and some steep riffles. However, it is connected to a lake and as such future sampling is recommended.

C10 This site showed evidence of moderate to high debris transport potential.

C11 The air temperature at this site was 8 degrees celcius.

Photo #: B-5-8, 15-Sep-96
Site #: B40, Looking upstream.

Photo #: B-5-9, 15-Sep-96
Site #: B40, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B39 **Reach No.: 2**

Trib. to Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: B39 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 3.0 MA **Date:** 15-Sep-96 **Time:** 17:05 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 5792 62126 **Length surveyed (m):** 100.0 HC **Survey Crew:** JP \AL \ \ \ \ \ \ **Photos:** B-5-6,7 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.6	MS
Av. Wet. Width (m):	3.9	MS
Av. Max Riffle Depth (cm):	14	MS
Av. Max Pool Depth (cm):	60	MS
Gradient (%):	12.0	CL
Pool: 20 Riffle: 50 Run: 20 Other:	10	
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	40	GE

Specific Data

5.0	5.0	4.8	4.7	4.8	3.0
5.2	5.0	4.4	2.5	4.0	2.4
12	22	16	6		
30	42	50	120		

Cover

Cover Total % : 80 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
15	15	60	0	5	5

Crown Closure % : 10 Aspect : NE

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	40	20
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	60	20
	Lge cobble (128-256mm):		30
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 60 Compaction: Medium

Discharge

Wetted Width (m) :	2.3	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.67	F
Discharge (m3/s) :	0.23	F

Banks

Height (m): 0.6

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 2-5

Stage: H Flood Signs Ht(m): 1

Bars (%): 5 pH: 7.6 Braided: N

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 120 Cond. (µmhos):

Reach Symbol

(Fish)

NF

5 B 100 | 0460

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

Obstructions

C	Height (m)	Type	Location
	10	F	1.4

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 = 25%, RS = 40%

C3 No fisheries sensitive zones were noted at this site

C4 The electroshocking effort using a 12 B POW model was 626 seconds over 400 square meters.

C5 Lat N 56 03' 08.1". Long w 127 43' 41.5"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site The water was clear to the bottom.

C8 The 10 meter falls located downstream of the sampling area and the lack of overwintering habitat make the presence of fish at this site unlikely. As a result this reach has been classified as non fish bearing.

C9 The air temperature at this site was 7 degrees celcius.

Photo #: B-5-4, 15-Sep-96
Site #: B39, Aerial view of falls located downstream of site.

Photo #: B-5-6, 15-Sep-96
Site #: B39, Looking upstream.

Photo #: B-5-7, 15-Sep-96
Site #: B39, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B38

Reach No.: 3

Tommy Jack Cr.

TRITON Environmental Consultants Ltd.

Location: B38 , Kispiox district , see C5. **Stream (Gaz.):** Tommy Jack Creek **Watershed Code:** 400-6362-556-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 1.6 MA **Date:** 15-Sep-96 **Time:** 15:55 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5813 .62114 **Length surveyed (m):** 170.0 HC **Survey Crew:** JP \AL \ \ \ \ \ \ \ **Photos:** B-5-1,2 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.8	MS
Av. Wet. Width (m):	3.6	MS
Av. Max Riffle Depth (cm):	8	MS
Av. Max Pool Depth (cm):	32	MS
Gradient (%):	5.0	CL
Pool: 5 Riffle: 70 Run: 20 Other:	5	
% Side Channel:	0-10	GE
% Debris Area:	0-5	GE
%Stable:	80	GE

Specific Data

4.0	3.8	3.5	3.5	4.0	3.8
4.0	4.0	3.3	2.2	4.2	4.0
12	6	10	6		
27	36				

Cover

Cover Total % : 50 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
5	5	70	0	10	10

Crown Closure % : 10 Aspect : NE

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	30
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 50 Compaction: Medium

Discharge

Wetted Width (m) :	4.0	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.87	F
Discharge (m3/s) :	0.03	F

Banks

Height (m): 0.3

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 2-5

Stage: H Flood Signs Ht(m): 0.9

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

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 36 Cond. (µmhos):

Reach Symbol

(Fish)

NF

4 B 5.0 | 0370

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

Obstructions

C	Height (m)	Type	Location
	4	C	15.4

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 = 40%, RS = 30%

C3 No fisheries sensitive zones were noted at this site

C4 The electroshocking effort, using a 12 B POW model, was 1101 seconds over 665 meters squared.

C5 Lat N 56 02' 27.1", Long W 127 41' 44.3"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 No additional fish habitat information.

C9 This section of Tommy Jack Creek has been classified as non fish bearing because of a 4 meter cascade (located downstream of the sampling area), which is a barrier to fish passage upstream and a lack of lakes in the area that could support fish. Future sampling is not recommended.

C10 The air temperature at this site was 13 degrees celcius.

Photo #: B-5-1, 15-Sep-96
Site #: B38, Looking upstream.

Photo #: B-5-2, 15-Sep-96
Site #: B38, Looking downstream.

5.2 Upper Shedin Creek (93M092, 94D002)

It is noted that there is a gap in data collection between Upper and Lower Shedin Creek due to the limited scope of the inventory. Any future surveys should include TRIM mapsheets 93M082.

5.2.1 Physical

The headwaters of Shedin Creek flow south and enter into the Babine River near its junction with Skeena River. The watershed ranges in elevation from 330 m to 1320 m. Based on a 1:50,000 NTS map, Shedin Creek is a 45 km long stream with 32 tributary streams. The total length of the tributaries is 215 km for a total inventoried length of 260 km. It is noted that the middle of Shedin creek was not included in the study area.

Upper Shedin Creek was sampled as well as Damsumlo Lake and its tributaries. Twenty-three sites were sampled including the mainstem of Upper Shedin Creek. There is a 15 m falls downstream of all the sites sampled in the Upper Shedin as well as a 25 m falls near the headwaters. The watershed has several small lakes upstream of the 25 m falls that are above the treeline which are classified as non-fish bearing. The mainstem of Shedin Creek appears to have a high debris transport potential indicated by the large log jam observed at B20 in a side channel.

5.2.2 Fish

Despite fairly intensive electrofishing sampling at twenty three sites and minnow trapping in Damsumlo Lake, no fish were captured in this area. Damsumlo Lake has historical records of rainbow trout according to the SISS records although no fish were captured or visually observed. There are also historical records of rainbow trout at 15 and 26 km in Shedin Creek. It is recommended that the area be selectively re-sampled as it may be possible that the entire watershed above the 15 m falls is non-fish bearing. It is noted that there is a gap in the fish distribution data as the study did not include the entire Shedin watershed.

5.2.3 Stream Classification

The mainstem of Upper Shedin Creek is classified as S1 due to the historical records of rainbow trout within the study area. The mainstem of Upper Shedin Creek is considered to be non fish-bearing upstream of the 25 m falls due to the lack of overwintering habitat.

5.2.4 Tributaries

The tributaries at the headwaters of Upper Shedin are all located above barriers to fish passage and the majority lack suitable overwintering habitat.

DFO/MoELP Stream Survey Form

Site Number: B21

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B21 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 0.9 MA **Date:** 13-Sep-96 **Time:** 13:50 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5806 .62004 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-3-17,18 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.5	MS
Av. Wet. Width (m):	1.2	MS
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	16	MS
Gradient (%):	22.0	CL
Pool: 10 Riffle: 40 Run: 20 Other:	30	
% Side Channel:	0	GE
% Debris Area: 10		GE
%Stable:	60	GE

Specific Data

1.8	1.1	1.4	1.4	1.6	1.5
1.5	0.8	1.1	1.1	1.5	1.3
6	5				
16	17	16			

Cover

Cover Total % : 50 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	20	60	0	10	10

Crown Closure % : 15 Aspect : E

Bed Material

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

D90 (cm): 35 Compaction: Medium

Discharge

Wetted Width (m) :	1.3	MS
Mean Depth (m) :	0.0	MS
Mean Velocity (m/s) :	0.50	F
Discharge (m3/s) :	0.02	F

Banks

Height (m): 0.4

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

NF

2 B 22.0 | 0280

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

Confinement: CO

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.4

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

Water Temp. (°C): 9 0 02 (ppm):

Turb. (cm): 17 Cond. (µmhos): 20

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 = 60%, RS = 60%

C3 No fisheries sensitive zones were noted on site.

C4 The electroshocking effort, using a 12 B POW model was 222 seconds over 120 square meters.

C5 Lat N 55 56' 50.3", Long W 127 42' 46.8"

C6 Fairly steep, moss covered, defined banks were observed at this site.

C7 DO was not measured at this site.

C8 This site has been classified as an S6 because of the steep gradient and lack of suitable fish habitat. The absence of holding pools in particular was noted by the crew.

C9 The air temperature at this site was 10 degrees celcius.

Photo #: B-3-17, 13-Sep-96
Site #: B21, Looking upstream.

Photo #: B-3-18, 13-Sep-96
Site #: B21, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B20

Reach No.: 0

Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B20 , Kispiox district , see C5. **Stream (Gaz.):** Shedin Creek **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** MA **Date:** 13-Sep-96 **Time:** 13:00 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5806 .62006 **Length surveyed (m):** 200.0 HC **Survey Crew:** JP\DD\ \ \ \ \ \ \ **Photos:** B-3-14,15,16 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	23.1	HC
Av. Wet. Width (m):	14.6	HC
Av. Max Riffle Depth (cm):	17	MS
Av. Max Pool Depth (cm):	26	MS
Gradient (%):	5.0	CL
Pool: 10 Riffle: 80 Run: 10 Other:	0	
% Side Channel:	10-40	GE
% Debris Area:	>15	GE
%Stable:	40	GE

Specific Data

17.5	17.0	18.0	32.0	28.0	25.8
15.2	15.0	16.0	13.0	13.0	15.4
14	20	16			
14	20	32	40		

Cover

Cover Total % : 50 GE

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

Crown Closure % : 10 Aspect : S

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): 60 Compaction: Medium

Discharge

Wetted Width (m) :	15.4	HC
Mean Depth (m) :	0.2	HC
Mean Velocity (m/s) :	1.00	F
Discharge (m3/s) :	2.31	F

Banks

Height (m): 0.8

% Unstable: 20

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

(RB)

23 B 5.0 | 0370

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

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.8

Bars (%): 20 pH: 8.2 Braided: Y

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 40 Cond. (µmhos): 40

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	S1
C2	LS = 30%, RS =30%
C3	No fisheries sensitive zones were noted at this site.
C4	The electroshocking effort, using a 12 B POW model, was 1271 seconds over 1500 square meters.
C5	Lat N 55 56' 42", Long W 127 42' 39.9"
C6	No additional bank texture information
C7	DO was not measured.
C8	This creek is dominated by riffle habitat. and provides limited rearing cover for fish. Some spawning habitat was observed in the sampling area. Future sampling is recommended.
C9	The air temperature was 10 degrees celcius

Photo #: B-3-14, 13-Sep-96
Site #: B20, Shedin Creek.

Photo #: B-3-15, 13-Sep-96
Site #: B20, Shedin Creek.

Photo #: B-3-16, 13-Sep-96
Site #: B20, Log jam on side channel of Shedin Creek.

DFO/MoELP Stream Survey Form

Site Number: B28 **Reach No.:** 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B28 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 0.5 MA **Date:** 14-Sep-96 **Time:** 12:45 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 5792 62034 **Length surveyed (m):** 100.0 GE **Survey Crew:** GM \KG\ \ \ \ \ \ \ **Photos:** A-3-21,22 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.0	MS
Av. Wet. Width (m):	0.9	MS
N Av. Max Riffle Depth (cm):		MS
Av. Max Pool Depth (cm):	28	MS
Gradient (%):	1.0	CL
Pool: 10 Riffle: 0 Run: 90 Other: 0		
% Side Channel:	0	GE
% Debris Area:	>15	GE
%Stable:	5	GE

Specific Data

1.3	0.9	1.0	1.0	0.9	0.8
1.2	0.8	0.9	0.9	0.9	0.8
24	30	34	26		

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

Cover

Cover Total % : 30 GE

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

Crown Closure % : 0 Aspect : E

Discharge

Wetted Width (m) :	0.8	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.02	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(RB)

1 D 1.0 | F

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

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0

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

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 34 Cond. (µmhos): 30

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 = 11%, RS = 0%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model , was 86 seconds over 50 meters.

C5 Lat N 55 58' 05.7", Long W 127 43' 53.5"

C6 No additional bank texture information.

C7 DO was not measured at this site

C8 Very marginal rearing habitat was observed in the area. Perhaps it could be used for rearing and as such future sampling is recommended to determine the presence or absence of fish at this site.

C9 Cascades at the confluence of this tributary and Shedin Cr. may prevent passage of fish upstream.

C10 The air temperature at this site was 8 degrees celcius.

Photo #: A-3-21, 14-Sep-96
Site #: B28, Grass and willows, fine substrate.

Photo #: A-3-22, 14-Sep-96
Site #: B28, Very marginal rearing habitat..

DFO/MoELP Stream Survey Form

Site Number: B27

Reach No.: 2

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B27 , Kispiox district , see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 0.4 MA **Date:** 14-Sep-96 **Time:** 12:05 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5790 .62034 **Length surveyed (m):** 150.0 GE **Survey Crew:** GM \KG\ \ \ \ \ \ \ **Photos:** A-3-18,19,20 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.1	MS
Av. Wet. Width (m):	0.9	MS
Av. Max Riffle Depth (cm):	3	MS
Av. Max Pool Depth (cm):	19	MS
Gradient (%):	8.0	CL
Pool: 10 Riffle: 50 Run: 40 Other:	0	
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	85	GE

Specific Data

1.1	1.0	1.3	2.0	0.7	0.8
0.5	1.0	1.2	1.1	0.9	0.7
2	3	5	3	4	
20	22	15	20	18	

Cover

Cover Total % : 65 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
5	35	10	5	30	15

Crown Closure % : 30 Aspect : E

Bed Material

Fines	Clay, silt, sand (<2mm):	30	30
Gravels	Small (2-16mm):	30	10
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	40	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 26 Compaction: Medium

Discharge

Wetted Width (m) :	0.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.36	F
Discharge (m3/s) :	0.02	F

Banks

Height (m): 0.1

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: L Flood Signs Ht(m): 0.3

Bars (%): 5 pH: 7.6 Braided: Y

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 22 Cond. (µmhos): 30

Reach Symbol

(Fish)

(DV)

1 C 8.0 | 3340

(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 = 39%, RS = 36%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model was 130 seconds over 75 meters.

C5 Lat N 55 58' 05.7", Long W 127 43' 53.5"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 Some excellent rearing cover was observed at this site, however, instream detritus was abundant at both the top and bottom ends of this site.

C9 Cascades at the confluence of this stream and Shedin Creek may prevent fish passage upstream.

C10 The air temperature at this site was 8 degrees celcius.

Photo #: A-3-18, 14-Sep-96
Site #: B27, Looking upstream, 2 logs across creek.

Photo #: A-3-19, 14-Sep-96
Site #: B27, Looking downstream.

Photo #: A-3-20, 14-Sep-96
Site #: B27, Looking upstream, moss-covered log across channel..

DFO/MoELP Stream Survey Form

Site Number: B23

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B23 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 2.9 MW **Date:** 13-Sep-96 **Time:** 13:55 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M.: 9 .5780 .62055 **Length surveyed (m):** 150.0 HC **Survey Crew:** JP \DD \ \ \ \ \ \ \ **Photos:** B-3-25, B-4-1 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.8	GE
Av. Wet. Width (m):	2.2	MS
Av. Max Riffle Depth (cm):	5	MS
Av. Max Pool Depth (cm):	31	MS
Gradient (%):	7.0	CL
Pool: 10 Riffle: 50 Run: 30 Other:	10	
% Side Channel:	>40	GE
% Debris Area:	5-15	GE
%Stable:		GE

Specific Data

2.4	2.4	2.1	3.2	3.6	2.8
2.0	1.2	2.0	2.5	3.2	2.2
6	4				
20	42				

Bed Material

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

N D90 (cm): 26 Compaction: Medium

Cover

Cover Total %: 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	5	50	0	25	20

Crown Closure %: 15 Aspect: S

Discharge

Wetted Width (m):	1.6	MS
Mean Depth (m):	0.1	MS
Mean Velocity (m/s):	0.60	F
Discharge (m3/s):	0.07	F

Banks

Height (m): 0.3

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(RB)

3 C 7.0 | 0550

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

Confinement: FC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 10 pH: 8.4 Braided: Y

Water Temp. (°C): 8.5 02 (ppm):

Turb. (cm): 42 Cond. (µmhos): 60

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 = 10%, RS = 30%
C3	No fisheries sensitive zones were noted at this site.
C4	The electroshocking effort, using a 12 B POW model, was 572 seconds over 400 square meters.
C5	Lat N 55 59' 21", Long W 127 44' 53"
C6	No additional bank texture information
C7	DO was not measured at this site.
C8	This site contained predominantly riffle habitat and a fair sized side channel.
C9	The air temperature at this site was10 degrees celcius.

Photo #: B-3-25, 13-Sep-96
Site #: B23, Looking upstream.

Photo #: B-4-1, 13-Sep-96
Site #: B23, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B32

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B32 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 1.1 MA **Date:** 14-Sep-96 **Time:** 16:00 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5785 .62068 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-4-12,13 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.3	T
Av. Wet. Width (m):	3.4	T
Av. Max Riffle Depth (cm):	21	MS
Av. Max Pool Depth (cm):	52	MS
Gradient (%):	5.0	CL
Pool: 15 Riffle: 70 Run: 5 Other: 10		
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	30	GE

Specific Data

3.8	5.4	2.3	4.3	6.9	3.3
3.4	4.5	2.1	2.8	4.1	3.2
20	15	28	21		
48	43	58	60		

Cover

Cover Total % : 60 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	5	70	0	5	0

Crown Closure % : 5 Aspect : E

Bed Material

Fines	Clay, silt, sand (<2mm):	5	5
Gravels	Small (2-16mm):	25	10
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	65	15
	Lge cobble (128-256mm):		25
	Bldr cobble (>256mm):		25
Bedrock		5	5

D90 (cm): 40 Compaction: High

Discharge

Wetted Width (m) :	5.3	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.64	F
Discharge (m3/s) :	0.25	F

Banks

Height (m): 0.3

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0.2

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 9 0 02 (ppm):

Turb. (cm): 60 Cond. (µmhos):

Reach Symbol

(Fish)

NF

4 A 5.0 | 1261

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

Obstructions

C	Height (m)	Type	Location
C9	6	F	41.8
C9	25	F	42.7

Fish Summary

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

Comments

C1 S5

C2 LS = 110%, RS = 60%

C3 No fisheries sensitive zones were noted in the area.

C4 This site was not electroshocked however, the reach upstream of this site was electroshocked.

C5 Lat N 55 59' 51.0", Long W 127 44' 23.8"

C6 Larges made up part of the bank texture at this site.

C7 DO and pH were not measured at this site.The water was clear to the bottom.

C8 No fish were caught at this site which is located 1.2 km upstream of the 25m falls and 2.0 km upstream of the 6m falls. As a result this reach has been classified as non fish bearing.

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

C10 The air temperature was 10 degrees at this site.

Photo #: B-4-12, 14-Sep-96
Site #: B32, Looking upstream.

Photo #: B-4-13, 14-Sep-96
Site #: B32, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B24

Trib. to Damsumlo L.

Reach No.: 1

TRITON Environmental Consultants Ltd.

Location: B24 , Kispiox district , see C5.

Stream (Gaz.): Unnamed

Watershed Code: 480-0278-657-000-000-000-000-000-000-000-000-0

Map #: 93 M 092

U.T.M. : 9 .5790 .62008

Reach Length (km): 0.7 MW

Length surveyed (m): 200.0 HC

Date: 13-Sep-96 **Time:** 16:50 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

Survey Crew: JP \DD\ \ \ \ \ \ \ **Photos:** B-4-2,3 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	2.5	MS
	Av. Wet. Width (m):	2.5	MS
N	Av. Max Riffle Depth (cm):		MS
	Av. Max Pool Depth (cm):	82	MS
	Gradient (%):	0.5	CL
	Pool: 95 Riffle: 0 Run: 0 Other: 5		
	% Side Channel:	0-10	GE
	% Debris Area:	0-5	GE
	%Stable:	80	GE

Specific Data

0.8	2.0	3.0	3.5	3.0	2.5
0.8	2.0	3.0	3.5	3.0	2.5
70	80	80	100		

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

Cover Total % : 70 GE

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

Crown Closure % : 5 Aspect : SW

Discharge

Wetted Width (m) :	0.2	MS
Mean Depth (m) :	0.1	MS
C9 Mean Velocity (m/s) :	0.20	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.1

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 10+

Stage: H Flood Signs Ht(m): 0.2

Bars (%): 0 pH: 6.6 Braided: N

Water Temp. (°C): 13.0 02 (ppm):

Turb. (cm): 100 Cond. (µmhos): 60

Reach Symbol

(Fish)

(RB)

3 D 0.5 | F

(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 S3

C2 LS = 10%, RS = 10%

C3 No fisheries sensitive zones were noted at this site.

C4 400 square meters of this site were electrofished, using a 12 B POW model.

C5 Lat N 55 56' 52.5", Long W 127 44' 03.8"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 This stream, which is connected to Damsumlo Lake, may provide rearing habitat. A frog and some moose tracks were noted at this site.

C9 The discharge at this site was measured at a debris jam as there was no visible flow in any of the pools.

C10 The air temperature at this site was 10.5 degrees celcius.

Photo #: B-4-2, 13-Sep-96
Site #: B24, This stream is connected to Damsumlo Lake.

Photo #: B-4-3, 13-Sep-96
Site #: B24, Lilypads in water.

DFO/MoELP Stream Survey Form

Site Number: B25

Reach No.: 1

Trib. to Damsumlo L.

TRITON Environmental Consultants Ltd.

Location: B25 , Kispiox district, near block 36, see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-657-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 1.4 MW **Date:** 14-Sep-96 **Time:** 11:20 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M.: 9 .5788 .62031 **Length surveyed (m):** 220.0 GE **Survey Crew:** JP \DD \ \ \ \ \ \ \ **Photos:** B-4-4,5 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.5	MS
Av. Wet. Width (m):	1.3	MS
Av. Max Riffle Depth (cm):	3	MS
Av. Max Pool Depth (cm):	28	MS
Gradient (%):	4.0	CL
Pool: 20 Riffle: 5 Run: 75 Other:	0	
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	60	GE

Specific Data

1.3	1.8	1.6	1.6	1.0	1.6
1.3	1.8	1.6	1.4	0.8	0.9
3	2	3			
20	24	32	35		

Cover

Cover Total %: 70 GE

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

Crown Closure %: 50 Aspect: SW

Bed Material

Fines	Clay, silt, sand (<2mm):	50	50
Gravels	Small (2-16mm):	30	10
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	20	15
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 13 Compaction: Medium

Discharge

Wetted Width (m):	0.7	MS
Mean Depth (m):	0.1	MS
Mean Velocity (m/s):	0.30	F
Discharge (m3/s):	0.02	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(RB)

2 D 4.0 | 5320

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

Confinement: FC

Valley : Channel Ratio: 10+

Stage: M Flood Signs Ht(m): 0.2

Bars (%): 0 pH: 6.9 Braided: Y

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): 35 Cond. (µmhos): 20

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 = 15%, RS = 20%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 523 seconds over 250 square meters.

C5 Lat N 55 57' 56.5", Long W 127 44' 12.9"

C6 Small gravels were noted as part of the bank texture at this site.

C7 DO was not measured at this site.

C8 This stream could provide rearing habitat. Spawning habitat was not seen at this site.

C9 The air temperature at this site was 10.5 degrees celcius.

Photo #: B-4-4, 14-Sep-96
Site #: B25, Looking upstream.

Photo #: B-4-5, 14-Sep-96
Site #: B25, Looking downstream.

DFO/MoELP Stream Survey Form **Site Number: B26** **Reach No.: 1**

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B26 , Kispiox district , see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 0.9 MW **Date:** 14-Sep-96 **Time:** 11:20 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5805 .62168 **Length surveyed (m):** 150.0 GE **Survey Crew:** GM \KG\ \ \ \ \ \ \ **Photos:** None **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	0.9	MS
	Av. Wet. Width (m):	0.8	MS
N	Av. Max Riffle Depth (cm):		
N	Av. Max Pool Depth (cm):		
	Gradient (%):	4.0	CL
	Pool: 0 Riffle: 0 Run: 100 Other: 0		
	% Side Channel:	0-10	GE
	% Debris Area:	0	GE
	%Stable:	0	GE

Specific Data

0.9	0.9	1.0	0.9	0.8	1.0
0.7	0.7	0.9	0.7	0.7	0.9

Bed Material

Fines	Clay, silt, sand (<2mm):	90	90
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):		0
	Lge cobble (128-256mm):	0	0
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 2 Compaction: Medium

Cover

Cover Total % : 20 GE

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

Crown Closure % : 0 Aspect : S

Discharge

Wetted Width (m) :	0.7	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.06	F
Discharge (m3/s) :	0.01	F

Reach Symbol

(Fish)

(DV) (RB)

1 D 4.0 | 9100

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

Banks

Height (m): 1.0

% Unstable: 20

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0

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

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 35 Cond. (µmhos): 20

Obstructions

C	Height (m)	Type	Location
	1	C	0.2

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 = 2%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 257 seconds over 150 meters.

C5 Lat N 55 57' 41", Long W 127 44' 09"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 This site may provide rearing habitat.

C9 A .7 meter cascade was observed at this site. Outside of the cascade, the flow type consisted entirely of runs.

C10 The air temperature at this site was 9 degrees.

DFO/MoELP Stream Survey Form

Site Number: B29 **Reach No.:** 1

Trib. to Damsumlo L.

TRITON Environmental Consultants Ltd.

Location: B29 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-657-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 2.7 MA **Date:** 14-Sep-96 **Time:** 13:45 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5783 .62026 **Length surveyed (m):** 160.0 HC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-4-6,7 **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	2.4	MS	1.8	2.8	1.8	2.8	3.0	2.2
Av. Wet. Width (m):	2.1	MS	1.7	2.1	1.8	2.0	3.0	2.0
Av. Max Riffle Depth (cm):	9	MS	8	9	9	10		
Av. Max Pool Depth (cm):	51	MS	54	40	50	60		
Gradient (%):	1.5	CL						

Pool: 10 Riffle: 10 Run: 80 Other: 0

% Side Channel:	0-10	GE
% Debris Area:	0-5	GE
%Stable:	20	GE

Cover

C8 Cover Total % : 60 GE

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

Crown Closure % : 40 Aspect : SE

Discharge

Wetted Width (m) :	2.0	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.50	F
Discharge (m3/s) :	0.15	F

Reach Symbol

(Fish)

(RB, DV)

2 D 1.5 | 2800

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

Bed Material

Fines	Clay, silt, sand (<2mm):	20	20
Gravels	Small (2-16mm):	80	50
	Large (16-64mm):		30
Larges	Sm. cobble (64-128mm):	0	0
	Lge cobble (128-256mm):		0
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 2 Compaction: Medium

Banks

Height (m): 0.7

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 0 pH: 8.1 Braided: N

Water Temp. (°C): 8.5 02 (ppm):

Turb. (cm): 60 Cond. (µmhos): 60

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 = 2%, RS = 5%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW Model was 921 seconds over 700 square meters.

C5 Lat N 55 57' 39", Long W 127 44' 44.3"

C6 Some of the banks at this site show signs of slumping and are deeply cut.

C7 DO was not measured at this site.

C8 Some suitable rearing and spawning habitat are found at this site. Instream vegetation comprised less than 5% of the cover at this site, which was also deemed excellent moose habitat.

C9 This stream has a narrow well defined channel that connects to Damsumlo Lake.

C10 The air temperature at this site was 10 degrees celcius.

Photo #: B-4-6, 14-Sep-96
Site #: B29, Looking upstream.

Photo #: B-4-7, 14-Sep-96
Site #: B29, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B30

Reach No.: 2

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B30 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 2.9 MA **Date:** 14-Sep-96 **Time:** 15:00 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5773 .62043 **Length surveyed (m):** 350.0 GE **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-4-8,9 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.0	MS
Av. Wet. Width (m):	2.0	MS
Av. Max Riffle Depth (cm):	12	MS
Av. Max Pool Depth (cm):	32	MS
Gradient (%):	6.0	CL
Pool: 10 Riffle: 80 Run: 5 Other: 5		
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	60	GE

Specific Data

1.8	1.6	2.2	1.9	2.1	2.6
1.8	1.9	1.9	1.8	2.1	2.5
10	11	15			
32	27	38			

Obstructions

C	Height (m)	Type	Location
	1	C	2.0

Cover

Cover Total % : 60 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	15	60	0	5	10

Crown Closure % : 10 Aspect : SE

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	40	10
	Large (16-64mm):		30
Larges	Sm. cobble (64-128mm):	60	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 30 Compaction: Medium

Fish Summary

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

Discharge

Wetted Width (m) :	1.9	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.41	F
Discharge (m3/s) :	0.06	F

Banks

Height (m): 0.1

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Comments

C1 S3

C2 LS = 10%, RS = 50%

C3 No fisheries sensitive zones were noted in this area.

C4 The electroshocking effort, using a 12 B POW model was 913 seconds over 600 meters.

C5 Lat N 55 58' 30.4", Long W 127 45' 46.5"

C6 No additional bank texture information

C7 DO was not measured at this site.

C8 Excellent step pool habitat was observed at this site. LOD is also an important cover element at this site. A number of 50 cm cascades were scattered throughout this site.

C9 The air temperature at this site was 11 degrees celcius.

Reach Symbol

(Fish)

(RB, DV)

2 C 6.0 | 0460

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

Confinement: FC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.1

Bars (%): 5 pH: 8.3 Braided: N

Water Temp. (°C): 8.5 02 (ppm):

Turb. (cm): 38 Cond. (µmhos): 80

Photo #: B-4-8, 14-Sep-96
Site #: B30, Step pool habitat, looking upstream.

Photo #: B-4-9, 14-Sep-96
Site #: B30, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: A22 **Reach No.:** 1

Trib. to Damsumlo L.

TRITON Environmental Consultants Ltd.

Location: A22 , Kispiox district, north of Damsumlo lake , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-657-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 1.8 MA **Date:** 13-Sep-96 **Time:** 15:58 **Agency:** TEC **Access:** H **Fish Card:** N ☐ **Field** ☒ **Historical** ☐

U.T.M.: 9 .5775 .62000 **Length surveyed (m):** 225.0 GE **Survey Crew:** GM \KG \JP \ \ \ \ \ \ **Photos:** A-3-16,17 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.0	MS
Av. Wet. Width (m):	1.6	MS
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	24	MS
Gradient (%):	7.0	CL
Pool: 10 Riffle: 20 Run: 65 Other: 5		
% Side Channel:	0	GE
% Debris Area:	>15	GE
%Stable:	30	GE

Specific Data

2.1	2.2	2.3	2.3	1.8	1.4
1.5	1.6	1.7	1.8	1.4	1.3
10	7	4	5	5	
18	23	11	13	28	53

Cover

Cover Total % : 50 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	30	0	5	25	30

Crown Closure % : 80 Aspect : SW

Bed Material

Fines	Clay, silt, sand (<2mm):	60	60
Gravels	Small (2-16mm):	30	15
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	10	5
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 18 Compaction: Low

Discharge

Wetted Width (m) :	1.1	MS
Mean Depth (m) :	0.5	MS
Mean Velocity (m/s) :	0.79	F
Discharge (m3/s) :	0.33	F

Banks

Height (m): 0.1

% Unstable: 20

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(RB)

2 D 7.0 | 6310

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

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.2

Bars (%): 0 pH: 6.9 Braided: N

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 53 Cond. (µmhos): 10

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 = 1%, RS = 2%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model was 275 seconds over 150 meters.

C5 Lat N 55 56' 25", Long W 127 45' 15.2"

C6 No additional bank texture information.

C7 DO was not measured.

C8 Some good rearing habitat, including abundant LOD and cutbank cover, was observed at this site. The fine bed material makes the site unfavourable for spawning however.

C9 Many of the small cascades observed at this site are caused by LOD in the channel.

C10 The air temperature at this site was 12 degrees celcius.

Photo #: A-3-16, 13-Sep-96
Site #: A22, Looking downstream.

Photo #: A-3-17, 13-Sep-96
Site #: A22, Large organic debris in creek.

DFO/MoELP Stream Survey Form

Site Number: A20

Reach No.: 1

Trib. to Damsumlo L.

TRITON Environmental Consultants Ltd.

Location: A20 , Kispiox district, SE of block 34 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-657-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 1.7 MA **Date:** 13-Sep-96 **Time:** 15:20 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5763 .62012 **Length surveyed (m):** 180.0 GE **Survey Crew:** GM\KG\JP\ \ \ \ \ \ **Photos:** A-3-12, 13 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.4	MS
Av. Wet. Width (m):	3.4	MS
Av. Max Riffle Depth (cm):	14	MS
Av. Max Pool Depth (cm):	36	MS
Gradient (%):	3.0	CL
Pool: 10 Riffle: 25 Run: 65 Other: 0		
% Side Channel:	0	GE
% Debris Area:	5-15	GE
%Stable:	85	GE

Specific Data

3.7	3.6	3.8	3.5	3.1	2.5
3.0	3.6	3.8	3.6	3.7	2.7
12	13	17			
28	63	22	30	32	42

Cover

Cover Total % : 50 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	15	15	15	5	40

Crown Closure % : 15 Aspect : S

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	30
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 60 Compaction: High

Discharge

Wetted Width (m) :	2.6	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.84	F
Discharge (m3/s) :	0.33	F

Banks

Height (m): 0.2

% Unstable: 5

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(RB)

3 B 3.0 | 1360

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

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.4

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

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 63 Cond. (µmhos): 40

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 = 40%, RS = 30%

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

C4 The electroshocking effort using a 12 B POW model was 234 seconds over 75 meters.

C5 Lat N 55 57' 39.1", Long W 127 46' 43".

C6 No additional bank texture information.

C7 DO was not measured.

C8 Some good rearing habitat was observed at this site, with cutbank cover being particularily important.

C9 The air temperature at this site was 12 degrees celcius.

Photo #: A-3-12, 13-Sep-96
Site #: A20, Looking downstream.

Photo #: A-3-13, 13-Sep-96
Site #: A20, Looking upstream.

DFO/MoELP Stream Survey Form

Site Number: A21 **Reach No.: 2**

Trib. to Damsumlo L.

TRITON Environmental Consultants Ltd.

Location: A21 , Kispiox district ,SE of block 34 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-657-000-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 3.4 MA **Date:** 13-Sep-96 **Time:** 15:40 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5763 .62009 **Length surveyed (m):** 75.0 GE **Survey Crew:** GM \JP \KG \ \ \ \ \ \ **Photos:** A-3-14,15 **Air Photos:**

Channel Characteristics

C1	Av. Chan. Width (m):	4.9	T
	Av. Wet. Width (m):	4.4	T
N	Av. Max Riffle Depth (cm):	0	MS
	Av. Max Pool Depth (cm):	66	MS
	Gradient (%):	2.0	CL
	Pool: 30 Riffle: 0 Run: 70 Other: 0		
	% Side Channel:	0	GE
	% Debris Area:	0-5	GE
	%Stable:	5	GE

Specific Data

5.3	5.4	5.1	4.3	4.2	5.3
4.8	4.7	4.9	4.1	2.4	5.2
82	77	47	55		

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
30	5	10	15	5	35

Crown Closure % : 0 Aspect : S

Bed Material

Fines	Clay, silt, sand (<2mm):	50	50
Gravels	Small (2-16mm):	40	30
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	10	0
	Lge cobble (128-256mm):		0
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 66 Compaction: Medium

Discharge

Wetted Width (m) :	5.1	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.20	F
Discharge (m3/s) :	0.23	F

Banks

Height (m): 0.7

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 1

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

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 82 Cond. (µmhos): 40

Reach Symbol

(Fish)

(DV) (RB)

5 D 2.0 | 5410

(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 S2. This stream has been classified as an S2, despite the fact that the average channel width was calculated at 4.9m, because 4 of the 6 channel widths are over 5m. An S2 classification is more representative of the channel at this site than an S3.

C2 LS = 2%, RS = 5%

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

C4 The electroshocking effort, using a 12 B POW model, was 250 seconds over 75 meters.

C5 Lat N 55 57' 42.3", Long W 127 46' 43.4"

C6 No additional bank texture information.

C7 DO was not measured.

C8 This site offers some rearing habitat for Dolly Varden and rainbow trout. Future sampling is recommended to determine the presence or absence of fish at this site.

C9 The air temperature at this site was 12 degrees celcius.

Photo #: A-3-14, 13-Sep-96
Site #: A21, Potential rearing habitat.

Photo #: A-3-15, 13-Sep-96
Site #: A21,

DFO/MoELP Stream Survey Form

Site Number: A18

Reach No.: 1

Trib. to Damsumlo L.

TRITON Environmental Consultants Ltd.

Location: A18, Kispiox district,within proposed cutblock number 35, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-657-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 1.0 MW **Date:** 13-Sep-96 **Time:** 13:20 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .5755 .62031 **Length surveyed (m):** 150.0 GE **Survey Crew:** GM\KG\ \ \ \ \ \ \ **Photos:** A-3-9,10 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.2	T
Av. Wet. Width (m):	3.5	T
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	53	MS
Gradient (%):	2.0	CL
Pool: 15 Riffle: 30 Run: 55 Other:	0	
% Side Channel:	0	GE
% Debris Area:	0-5	GE
%Stable:	20	GE

Specific Data

3.9	6.5	5.0	3.1	4.3	2.3
2.3	5.1	4.5	2.9	4.0	2.4
8	5	4			
64	35	54	60		

Obstructions

C	Height (m)	Type	Location

Bed Material

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

D90 (cm): 8 Compaction: Medium

Fish Summary

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

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
30	5	0	5	10	50

Crown Closure % : 5 Aspect : E

Discharge

Wetted Width (m) :	3.1	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.39	F
Discharge (m3/s) :	0.09	F

Banks

Height (m): 0.5

% Unstable: 50

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(RB)

4 D 2.0 | 1540

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

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.6

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

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 64 Cond. (µmhos): 50

Comments

C1 S3

C2 LS = 1%, RS = 1%

C3 No fisheries sensitive zones were noted on site.

C4 The electroshocking effort, using a 12 B POW model was, 731 seconds over 170 meters.

C5 Lat N 55 57' 42.6", Long W 127 47' 24"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 Some nice spawning and rearing habitat was observed at this site. Cutbanks in particular provided cover for both adults and juveniles at this site.

C9 The air temperature at this site was 11 degrees celcius.

Photo #: A-3-10, 13-Sep-96
Site #: A18, Looking upstream.

Photo #: A-3-9, 13-Sep-96
Site #: A18, Looking downstream, gravel bar in creek.

DFO/MoELP Stream Survey Form

Site Number: A19 Reach No.: 2

Trib. to Damsumlo L.

TRITON Environmental Consultants Ltd.

Location: A19 , Kispiox district, W of cutblock 35, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-657-000-000-000-000-000-000-000-0

Map #: 93 M 092 **Reach Length (km):** 3.4 MW **Date:** 13-Sep-96 **Time:** 14:01 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5751 .62029 **Length surveyed (m):** 100.0 GE **Survey Crew:** GM\KG\ \ \ \ \ \ \ **Photos:** A-3-11 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	6.5	T
	Av. Wet. Width (m):	6.3	T
N	Av. Max Riffle Depth (cm):	0	MS
	Av. Max Pool Depth (cm):	14	MS
	Gradient (%):	1.0	CL
	Pool: 10 Riffle: 0 Run: 90 Other: 0		
	% Side Channel:	0	GE
	% Debris Area:	0	GE
	%Stable:	0	GE

Specific Data

7.6	5.8	5.9	6.8	6.4	6.7
7.4	5.6	5.7	6.2	6.3	6.5
29	9	10	9		

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	0	0	70	10	0

Crown Closure % : 5 Aspect : E

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

Wetted Width (m) :	5.9	T
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.02	F
Discharge (m3/s) :	0.03	F

Banks

Height (m): 0.1

% Unstable: 50

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.2

Bars (%): 0 pH: 8.0 Braided: N

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 29 Cond. (µmhos): 20

Reach Symbol

(Fish)

(RB)

7 D 1.0 | F

(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 S2

C2 LS = 2%, RS = 10%

C3 No fisheries sensitive zones were noted on site.

C4 The electroshocking effort, using a 12 B POW model, was 272 seconds over 175 meters.

C5 Lat N 55 57' 42.5, Long W 127 47' 28.6"

C6 No additional bank texture information.

C7 DO was not measured at this site. The water was clear to the bottom.

C8 This stream could provide rearing habitat for Dolly Varden and rainbow trout. Spawning habitat however, was not observed at this site. The 100% fines substrate is not conducive to spawning.

C9 The air temperature at this site was 11 degrees.

Photo #: A-3-11, 13-Sep-96
Site #: A19, Potential rearing habitat.

DFO/MoELP Stream Survey Form

Site Number: B31

Reach No.: 2

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B31 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 2.1 MA **Date:** 14-Sep-96 **Time:** 16:05 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .5786 .62068 **Length surveyed (m):** 200.0 GE **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-4-10,11 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.9	MS
Av. Wet. Width (m):	3.6	MS
Av. Max Riffle Depth (cm):	11	MS
Av. Max Pool Depth (cm):	49	MS
Gradient (%):	2.0	CL
Pool: 5 Riffle: 60 Run: 30 Other: 5		
% Side Channel:	0-10	GE
% Debris Area:	0-5	GE
%Stable:	80	GE

Specific Data

3.0	2.8	3.1	3.2	5.6	5.5
3.0	2.8	2.8	2.9	4.9	5.3
10	12	10			
70	28				

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):		40
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 26 Compaction: Medium

Cover

Cover Total % : 50 GE

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

Crown Closure % : 5 Aspect : SE

Discharge

Wetted Width (m) :	5.3	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.64	F
Discharge (m3/s) :	0.51	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: H Flood Signs Ht(m): 0.2

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

Water Temp. (°C): 8.5 02 (ppm):

Turb. (cm): 70 Cond. (µmhos): 40

Reach Symbol

(Fish)

NF

4 C 2.0 | 0370

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

Obstructions

C	Height (m)	Type	Location
C11	6	F	41.8
C11	25	F	42.7

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 = 60%
C3	No fisheries sensitive zones were noted at this site.
C4	The electroshocking effort, using a 12 B POW model was 754 seconds over 600 square meters.
C5	Lat N 55 00' 00", Long W 127 44' 23.8"
C6	No additional bank texture information.
C7	DO was not measured.
C8	Few pools are present in this shallow, predominanatly cobble substrate reach.
C9	The air temperature at this site was 9 degrees celcius.
C10	This creek was sampled near a meadow, upstream of a canyon. The creek divides into several branches, some of which are joined by small cascades up to .4 meters in height.
C11	This creek was sampled 1.8 km upstream of the 25m falls and 2.6 km upstream of the 6 m falls.

Photo #: B-4-10, 14-Sep-96
Site #: B31, Looking upstream.

Photo #: B-4-11, 14-Sep-96
Site #: B31, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B22

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B22 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **U.T.M. :** 9 .5797 .62069 **Reach Length (km):** 3.5 MW **Length surveyed (m):** 200.0 HC **Date:** 13-Sep-96 **Time:** 15:00 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐ **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B- 3-19,20 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	10.3	HC
Av. Wet. Width (m):	9.4	HC
Av. Max Riffle Depth (cm):	26	MS
Av. Max Pool Depth (cm):	42	MS
Gradient (%):	5.0	CL
Pool: 5 Riffle: 80 Run: 10 Other:	5	
% Side Channel:	10-40	GE
% Debris Area:	0-5	GE
%Stable:	80	GE

Specific Data

10.9	8.5	9.5	10.1	12.0	10.5
10.8	8.5	8.1	9.2	10.9	9.0
30	24	24	24		
50	35				

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	5	90	0	5	0

Crown Closure % : 0 Aspect : S

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):		30
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 80 Compaction: Medium

Discharge

Wetted Width (m) :	9.5	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	1.08	F
Discharge (m3/s) :	2.31	F

Banks

Height (m): 0.3

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

NF

10 D 5.0 | 0370

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

Confinement: FC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 5 pH: 8.2 Braided: Y

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 50 Cond. (µmhos): 40

Obstructions

C	Height (m)	Type	Location
C9	25	F	42.7

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 = 40%, RS = 60%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 870 seconds over 750 meters squared.

C5 Lat N 56 00' 01.8", Long W 127 43' 17.8"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 This is a fast running creek dominated by riffle habitat.

C9 No fish were caught in the sampling area, which occurs upstream of a 25 meter falls. As a result this reach has been classified as non fish bearing.

C10 The air temperature at this site was 9.5 degrees celcius.

Photo #: B-3-19, 13-Sep-96
Site #: B22, Falls downstream of site, aerial photo.

Photo #: B-3-20, 13-Sep-96
Site #: B22, Falls downstream of site, aerial photo.

Photo #: B-3-21, 13-Sep-96
Site #: B22, Looking upstream at site.

Photo #: B-3-22, 13-Sep-96
Site #: B22, Looking downstream at site.

DFO/MoELP Stream Survey Form

Site Number: B34

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B34 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 0.2 MA **Date:** 14-Sep-96 **Time:** 17:35 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5799 .62085 **Length surveyed (m):** 250.0 HC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-4-18,19 **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	2.6	MS	2.0	3.2	3.0	3.2	2.0	2.0
Av. Wet. Width (m):	2.5	MS	1.8	3.2	2.8	3.0	1.7	2.7
Av. Max Riffle Depth (cm):	7	MS	8	6				
Av. Max Pool Depth (cm):	60	MS	57	24	100			
Gradient (%):	4.0	CL						

Pool: 30 Riffle: 10 Run: 50 Other: 10

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

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	50
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 13 Compaction: Medium

Cover

Cover Total % : 60 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
15	0	5	10	60	10

Crown Closure % : 20 Aspect : E

Discharge

Wetted Width (m) :	1.5	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.52	F
Discharge (m3/s) :	0.12	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 10+

Stage: H Flood Signs Ht(m): 0.2

Bars (%): 0 pH: 8.0 Braided: Y

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 100 Cond. (µmhos): 30

Reach Symbol

(Fish)

NF

3 D 4 0 | 1360

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

Obstructions

C	Height (m)	Type	Location
	25	F	42.7

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 = 15%, RS = 15%

C3 No fisheries sensitive zones were observed at this site.

C4 The electroshocking effort, using a 12 B POW model, was 282 seconds over 150 square meters. 1 minnow trap was also set at the mouth of this creek. No fish were caught.

C5 Lat N 56 00' 56.3", Long W 127 43' 04.3"

C6 No additional bank texture information.

C7 DO was not measured.

C8 No fish were caught at this site, which is located above the 25 meter falls on Shedin Creek. As a result this stream has been given a non fish bearing classification.

C9 The air temperature at this site was 10 degrees celcius.

C10 This tributary drains a small alpine lake and runs into Shedin Creek.

C11 The air temperature at this site was 10 degrees celcius

Photo #: B-4-18, 14-Sep-96
Site #: B34, Looking upstream.

Photo #: B-4-19, 14-Sep-96
Site #: B34, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B33

Reach No.: 0

Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B33 , Kispiox district , see C5 **Stream (Gaz.):** Shedin Creek **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** MA **Date:** 14-Sep-96 **Time:** 17:10 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .5799 .62087 **Length surveyed (m):** 300.0 HC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-4-16,17 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	14.5	MS
Av. Wet. Width (m):	14.1	MS
Av. Max Riffle Depth (cm):	5	MS
Av. Max Pool Depth (cm):	60	MS
Gradient (%):	2.0	CL
Pool: 20 Riffle: 20 Run: 60 Other:	0	
% Side Channel:	0-10	GE
% Debris Area:	0	GE
%Stable:	0	GE

Specific Data

17.0	16.0	15.5	12.0	13.5	13.0
16.0	15.8	15.0	12.0	13.0	12.6
8	5	3	3	5	
80	60	40			

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
50	0	40	0	5	5

Crown Closure % : 0 Aspect : S

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	40	10
	Large (16-64mm):		30
Larges	Sm. cobble (64-128mm):		30
	Lge cobble (128-256mm):	50	15
	Bldr cobble (>256mm):		5
Bedrock		0	0

D90 (cm): 28 Compaction: High

Discharge

Wetted Width (m) :	15.9	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.39	F
Discharge (m3/s) :	1.40	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

NF

14 D 2.0 | 1450

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

Confinement: OC

Valley : Channel Ratio 10+

Stage: H Flood Signs Ht(m): 0.2

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

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 80 Cond. (µmhos): 50

Obstructions

C	Height (m)	Type	Location
	25	F	42.7

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 = 15%, RS = 10%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 390 seconds over 625 square meters. This site was also minnow trapped and still no fish were caught. Benthic invertebrates were observed at this site.

C5 Lat N 56 00' 59.7", Long W 127 43' 04.2"

C6 No additional bank texture information.

C7 DO was not measured.

C8 The creek flows from a shallow alpine lake in which fish would be subject to winter kill. The falls below would also prevent fish passage upstream. As a result this section of Shedin Creek has been classified as non fish bearing.

C9 The substrate of this site, is a cobble matrix held together by fines, and is quite embedded.

C10 The air temperature at this site was 10 degrees celcius.

Photo #: B-4-16, 14-Sep-96
Site #: B33, Wide and shallow channel flowing from an alpine lake.

Photo #: B-4-17, 14-Sep-96
Site #: B33, Wide and shallow channel with falls downstream.

DFO/MoELP Stream Survey Form

Site Number: B35

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B35 , Kispiox district , see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 1.8 MA **Date:** 15-Sep-96 **Time:** 13:20 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5804 .62089 **Length surveyed (m):** 130.0 GE **Survey Crew:** JP \AL\ \ \ \ \ \ \ **Photos:** B-4-20,21 **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	1.8	MS	2.0	1.7	1.4	2.1	2.3	1.2
Av. Wet. Width (m):	1.7	MS	1.9	1.6	1.3	2.0	2.2	1.2
Av. Max Riffle Depth (cm):	9	MS	10	12	6			
Av. Max Pool Depth (cm):	25	MS	26	24	26			
Gradient (%):	5.0	CL						
Pool: 10 Riffle: 30 Run: 55 Other:	5							
% Side Channel:	0	GE						
% Debris Area:	0-5	GE						
%Stable:		GE						

Cover

Cover Total % : 20 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	0	10	0	25	65

Crown Closure % : 5 Aspect : W

Discharge

Wetted Width (m) :	1.1	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.50	F
Discharge (m3/s) :	0.08	F

Reach Symbol

(Fish)

NF

2 C 5.0 | 0640

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

Bed Material

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

D90 (cm): 60 Compaction: Medium

Banks

Height (m): 0.3

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 5-10

Stage: H Flood Signs Ht(m): 0.3

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

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 26 Cond. (µmhos): 40

Obstructions

C	Height (m)	Type	Location
C8	25	F	42.7

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 = 15%, RS = 15%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort , using a 12 B POW model, was 328 seconds over 260 meters squared.

C5 Lat N 56 01' 07.8", Long W 127 42' 37"

C6 No additional bank texture information.

C7 DO was not measured.

C8 This site could provide rearing habitat and limited spawning habitat. However, there is a lack of overwintering habitat in this stream above the 25 meter falls. As such it is classified as non fish bearing.

C9 Cascades comprise 5% of the flow type at this site. A series of roughly .6 m cascades was observed in the sampling area.

C10 The air temperature at this site was 10 degrees.

Photo #: B-4-20, 15-Sep-96
Site #: B35, Looking upstream.

Photo #: B-4-21, 15-Sep-96
Site #: B35, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B36

Reach No.: 0

Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B36 , Kispiox district , see C5. **Stream (Gaz.):** Shedin Creek **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #:	94 D 002	**Reach Length (km):**		MA	**Date:**	15-Sep-96	**Time:**	14:00	**Agency:**	TEC	**Access:**	H	**Fish Card:**	N	Field ☒ Historical ☐
U.T.M. :	9 .5791 .62100	**Length surveyed (m):**	100.0	GE	**Survey Crew:**	JP \AL\ \ \ \ \ \ \	**Photos:**		B-4-22,23	**Air Photos:**					

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	9.0	MS	8.5	9.0	9.0	10.6	7.0	10.0
Av. Wet. Width (m):	8.4	MS	8.0	7.8	8.0	9.8	6.5	10.0
Av. Max Riffle Depth (cm):	24	MS	24	24				
Av. Max Pool Depth (cm):	90	MS	80	100				
Gradient (%):	7.0	CL						
Pool: 10 Riffle: 60 Run: 15 Other: 15								
% Side Channel:	0-10	GE						
% Debris Area:	0-5	GE						
%Stable:	20	GE						

Cover

Cover Total % : 70 GE

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

Crown Closure % : 0 Aspect : SE

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	20	0
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	60	15
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		25
Bedrock		10	10

D90 (cm): 90 Compaction: Medium

Discharge

Wetted Width (m) :	6.4	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	1.00	F
Discharge (m3/s) :	1.40	F

Banks

Height (m): 0.6

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

NF

9 A 7.0 | 1270

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

Confinement: CO

Valley : Channel Ratio 0-2

Stage: H Flood Signs Ht(m): 0.6

Bars (%): 5 pH: 8.2 Braided: N

Water Temp. (°C): 6.5 02 (ppm):

Turb. (cm): 100 Cond. (µmhos): 40

Obstructions

C	Height (m)	Type	Location
C9	2	C	48.7
	25	F	42.7

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 = 40%, RS = 60%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 443 seconds over 240 meters squared.

C5 Lat N 56 01' 43.5", Long W 127 43' 53"

C6 No additional bank texture information.

C7 DO was not measured.

C8 Some very nice deep pool cover was observed at this site. However, it is extremely unlikely that this site, which is located above a 25 meter falls, would support a resident population. As such a non fish bearing classification has been applied to this site. This creek was sampled in several places downstream.

C9 There are a number of cascades throughout the sampling area, which would not likely be impassable for adult fish. The 2m cascade noted in the obstructions section is located in the sampling area.

C10 The air temperature at this site was 10 degrees celcius.

Photo #: B-4-22, 15-Sep-96
Site #: B36, Looking upstream.

Photo #: B-4-23, 15-Sep-96
Site #: B36, Cascade in channel.

DFO/MoELP Stream Survey Form

Site Number: B37 **Reach No.:** 2

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B37 , Kispiox district , see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 94 D 002 **Reach Length (km):** 0.3 MA **Date:** 15-Sep-96 **Time:** 14:30 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .5790 .62103 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP \AL \ \ \ \ \ \ \ **Photos:** B- 4-24 **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):	36	MS
Gradient (%):	4.0	CL
Pool: 60 Riffle: 10 Run: 20 Other: 10		
% Side Channel:	0	GE
% Debris Area:	0	GE
%Stable:		

Specific Data

1.0	2.0	1.6	2.4	1.1	0.6
0.8	1.2	0.8	2.2	1.1	0.4
2	3				
22	22	23	42	70	

Bed Material

Fines	Clay, silt, sand (<2mm):	50	50
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		10	10

D90 (cm): 15 Compaction: Medium

Cover

Cover Total % : 50 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	0	15	5	50	10

Crown Closure % : 5 Aspect : SW

Discharge

Wetted Width (m) :	0.4	MS
Mean Depth (m) :	0.0	MS
Mean Velocity (m/s) :	0.30	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0 3

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

NF

2 C 4.0 | 5221

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

Confinement: OC

Valley : Channel Ratio 5-10

Stage: H Flood Signs Ht(m): 0.3

Bars (%): 0 pH: 8 3 Braided: N

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 70 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 S6

C2 LS = 40%, RS = 5%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 639 seconds over 425 square meters.

C5 Lat N 56 01' 53.1", Long W 127 43' 56.1"

C6 No additional bank texture information.

C7 DO was not measured.

C8 Reach 1 has a gradient of 50% and has cascades up to 5 meters in height. Reach 2 has a lower gradient and some pool habitat. It is also connected to a small, shallow lake. The entire area has been classified as non fish bearing as a result.

C9 The gradient at the mouth of this stream is 50%. 5m cascades were also observed in this reach.

C10 The air temperature at this site was 13 degrees celcius.

C11 A moose bedding area was noted at this site.

Photo #: B-4-24, 15-Sep-96
Site #: B37, Looking upstream.

5.3 Lower Shedin Creek (93M072, 93M073, 93M082)

5.3.1 Physical

The headwaters of Shedin Creek flow south into Babine River near its junction with Skeena River. It is noted that the middle of Shedin creek was not included in the study area. Lower Shedin Creek was sampled from the Babine River up to the edge of mapsheet 93MO82. There is an 8m falls/chute located 3.5km upstream which is considered to be an impassable barrier to fish migration. A total of 19 sites were sampled. The lower part of Shedin Creek is located in a fairly steep valley which is canyon-like for sections.

5.3.2 Fish

There are historical records for chinook, coho, Dolly Varden, Rocky Mtn. whitefish, and rainbow trout at the mouth of the creek. Upstream of the falls there are records of Dolly Varden and rainbow trout. Six sites were sampled for fish in the Lower Shedin Creek area. Five sites had fish and all were Dolly Varden. It is noted that an important rearing ground for Dolly Varden was observed at site B5O. A total of thirty-two juvenile Dolly Varden (fork length range 33-99 mm) were captured in forty-three seconds of electrofishing. It is possible that an underground spring exists in this reach as the channel appears and disappears for sections. An adult Dolly Varden captured at B49 had spawning coloration and the location is marked on the map.

5.3.3 Stream Classification

The mainstream of Lower Shedin Creek was not actually sampled due to known fish distribution. The classification is based on B20 which is classified a considerable distance upstream and had an average channel width of 23.1 m. The access to sites on the Lower Shedin was fairly poor and the area was under heavy cloud cover at the time of sampling.

It is noted that the field crew planned to sample Goathead Creek but, based on a check of the GPS readings of sites A38, A35, A36, A37, A33, and B48, it appears that the watershed immediately to the north was sampled. The GPS coordinates are gathered at each site to allow a check on location and the discrepancy in site location was noted during Triton's internal QA/QC check. Both watersheds have many similar characteristics including a headwater lake with a steep falls, a deep canyon, and a major

tributary that branches to the north. A thorough review of the field notes, cards, photos and aerial photographs (which have poor coverage of this area) supports the re-assigned locations. It is hoped that this watershed can be re-sampled again in 1997 to confirm the location of the sites. The confirmation of the waterhed location may be possible from a site and photo review by a forester who has worked in the watershed.

DFO/MoELP Stream Survey Form

Site Number: B49

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B49, Kispiox District, just above an 8 m chute on Shedin Creek, see C5.

Stream (Gaz.): Unnamed

Watershed Code: 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072 | **Reach Length (km):** 0.7 MA | **Date:** 17-Sep-96 | **Time:** 12:40 | **Agency:** TEC | **Access:** H | **Fish Card:** N | Field ☒ Historical ☐

U.T.M. : 9 5873 61781 | **Length surveyed (m):** 110.0 HC | **Survey Crew:** JP \DD\ \ \ \ \ \ \ | **Photos:** B-6-11,12,13,14 | **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	6.3	MS	11.2	8.4	6.6	2.5	3.5	5.8
Av. Wet. Width (m):	3.6	MS	5.2	5.0	3.0	2.5	2.7	3.2
Av. Max Riffle Depth (cm):	12	MS	10	12	13			
Av. Max Pool Depth (cm):	46	MS	42	40	47	50	50	
Gradient (%):	18.0	CL						

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

% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	40	GE

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	50	10
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		25
Bedrock		30	30

D90 (cm): 90 Compaction: Medium

Cover

Cover Total % : 60 GE

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

Crown Closure % : 20 Aspect : E

Discharge

Wetted Width (m) :	2.0	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.50	F
Discharge (m3/s) :	0.15	F

Banks

Height (m): 1.0

% Unstable: 40

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 1.5

Bars (%): 10 pH: 8.7 Braided: Y

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 50 Cond. (µmhos):

Reach Symbol

(Fish)

DV

6 A 18.0 | 0253

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

Obstructions

C	Height (m)	Type	Location
	20	F	0.7
	30	F	1.0

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
C4	DV	5	108-210	A				EL

Comments

C1 S2

C2 LS = 80%, RS = 80%

C3 No fisheries sensitive zones were noted in the area.

C4 The electroshocking effort, using a 12 B POW model was 390 seconds over 240 meters squared. Six Dolly Varden ranging in size from 80-210 mm in length were visually observed at this site.

C5 Lat N 55 44' 29.6", Long W 127 36' 28.3"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the stream bottom.

C8 No additional fish habitat information. A series of 1 meter high cascades was observed at this site.

C9 An aerial reconnaisance was done of the creek upstream of reach 1. A 5m cascade was seen approximately 200 meters upstream. A 20 and 30 meter falls were also observed at roughly 700 and 1000 meters from the mouth. No overwintering habitat exists above the falls and as such the chances of a resident population inhabiting the area are low. Above the falls the stream was classified as an S5.

C11 Dolly Varden were caught in an area that had a 20% gradient, below the falls. One of the Dolly Varden caught at this site was in spawning colouration.

C12 Orange flagging was seen in the area where the fish were caught. Perhaps a road has been planned at this site The air temperature at this site was 11 degrees celcius.

Photo #: B-6-11, 17-Sep-96
Site #: B49, 20-30 m falls from air.

Photo #: B-6-12, 17-Sep-96
Site #: B49, Falls from air.

Photo #: B-6-13, 17-Sep-96
Site #: B49, Looking upstream.

Photo #: B-6-14, 17-Sep-96
Site #: B49, Looking downstream.

Photo #: B-6-15, 17-Sep-96
Site #: B49, Dolly Varden in bag.

DFO/MoELP Stream Survey Form

Site Number: B57

Reach No.: 2

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B57 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072 **Reach Length (km):** 0.9 MA **Date:** 17-Sep-96 **Time:** 16:30 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5871 .61796 **Length surveyed (m):** 600.0 AE **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** None **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	5.0	AE
	Av. Wet. Width (m):	2.0	AE
N	Av. Max Riffle Depth (cm):		
N	Av. Max Pool Depth (cm):		
	Gradient (%):	15.0	MA
N	Pool: 0 Riffle: 0 Run: 0 Other: 0		
N	% Side Channel:	0	
	% Debris Area:	0	
	%Stable:		

Specific Data

Cover

N Cover Total % :

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N						

N Crown Closure % : Aspect : E

Bed Material

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

N D90 (cm): N 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:

N Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

N Confinement: N/A

N Valley : Channel Ratio N/A

N Stage: M N Flood Signs Ht(m):

N Bars (%): pH: Braided:

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

(RB) (DV)

5 E 15.0 | 0262

(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	S3
C2	LS = 60%, RS = 60%
C3	No fisheries sensitive zones were noted in the area.
C4	No electroshocking was carried out at this site as it was evaluated from the air.
C5	Lat N 55 45' 18", Long W 127 36' 50"
C6	No additional bank texture information.
C7	Water quality measurements were not taken at this site.
C8	No additional fish habitat information.
C9	This channel width at this site is smaller than that of B50 and this stream is likely an S3.

DFO/MoELP Stream Survey Form

Site Number: B56

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B56 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072 **Reach Length (km):** 1.6 MA **Date:** 17-Sep-96 **Time:** 16:20 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 5878 61802 **Length surveyed (m):** 500.0 AE **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** None **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	5.0	AE
Av. Wet. Width (m):	2.0	AE
Av. Max Riffle Depth (cm):	20	AE
Av. Max Pool Depth (cm):	40	AE
Gradient (%):	33.0	MA
Pool: 20 Riffle: 50 Run: 20 Other:	10	
% Side Channel:	0-10	AE
% Debris Area:	5-15	AE
%Stable:	30	AE

Specific Data

Cover

N Cover Total % :

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N						

N Crown Closure % : Aspect : E

Bed Material

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

C6 D90 (cm): 26 N Compaction: High

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

Discharge

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

Banks

N Height (m):

N % Unstable:

N Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

N Confinement: N/A

N Valley : Channel Ratio N/A

N Stage: M N Flood Signs Ht(m):

N Bars (%): pH: Braided:

Water Temp. (°C): 02 (ppm):

Turb. (cm): 40 Cond. (µmhos):

Reach Symbol

(Fish)

(RB) (DV)

5 E 33.0 | 0262

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

Comments

C1 S3

C2 LS = 60%, RS = 60%

C3 No fisheries sensitive zones were noted in this area.

C4 No electroshocking was carried out at this site as it was evaluated from the air.

C5 Lat N 55 45' 37 7", Long W 127 36 20.1"

C6 No additional bank texture information.

C7 Water quality was not measured at this site.

C8 No additional fish habitat information.

C9 This site is smaller than B50

DFO/MoELP Stream Survey Form

Site Number: B55

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B55 , Kispiox district , see C5.

Stream (Gaz.): Unnamed

Watershed Code: 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072 **U.T.M. :** 9 .5879 .61807

Reach Length (km): 2.2 MA **Length surveyed (m):** 1000.0 AE

Date: 17-Sep-96 **Time:** 16:10 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

Survey Crew: JP \DD\ \ \ \ \ \ \ **Photos:** None **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	5.0	AE
Av. Wet. Width (m):	2.0	AE
Av. Max Riffle Depth (cm):	20	AE
Av. Max Pool Depth (cm):	40	AE
Gradient (%):	30.0	MA
Pool: 20 Riffle: 50 Run: 20 Other:	10	
% Side Channel:	0-10	AE
% Debris Area:	5-15	AE
%Stable:	30	AE

Specific Data

Cover

N Cover Total % :

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N						

N Crown Closure % : Aspect : E

Bed Material

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

C6 D90 (cm): 26 N Compaction: High

Discharge

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

Banks

Height (m): 0.8

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0.8

Bars (%): 20 pH: Braided: N

N Water Temp. (°C): 02 (ppm):

Turb. (cm): 40 Cond. (µmhos):

Reach Symbol

(Fish)

(RB) (DV)

5 A 30.0 | 0262

(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	S3
C2	LS = 70%, RS = 70%
C3	No fisheries sensitive zones were noted at this site.
C4	Electroshocking was not carried out at this site as it was evaluated from the air.
C5	Lat N 55 45' 50.3", Long W 127 35' 51"
C6	No additional bank texture information. The D90 was estimated as this site was evaluated from the air.
C7	Water quality measurements were not taken at this site.
C8	This site has potential rainbow trout and Dolly Varden habitat.
C9	This site is directly connected to Shedin Creek and there are no obvious barriers to fish passage.
C10	The channel width at this site is smaller than that of B50. Perhaps this stream is an S3.

DFO/MoELP Stream Survey Form

Site Number: B52 **Reach No.:** 2

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B52 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-0

Map #: 93 M 072 **U.T.M. :** 9 .5872 .61838 **Reach Length (km):** 4.1 MA **Length surveyed (m):** 800.0 AE **Date:** 17-Sep-96 **Time:** 15:40 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐ **Survey Crew:** JP\DD\ \ \ \ \ \ \ **Photos:** None **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.0	AE
Av. Wet. Width (m):	3.0	AE
Av. Max Riffle Depth (cm):	20	AE
Av. Max Pool Depth (cm):	80	AE
Gradient (%):	15.0	MA
Pool: 20 Riffle: 40 Run: 30 Other: 10		
% Side Channel:	0-10	AE
% Debris Area:	5-15	AE
%Stable:	20	AE

Specific Data

Cover

Cover Total % : 60 AE

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

Crown Closure % : 10 Aspect : E

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	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		10
Bedrock		0	0

D90 (cm): 30 N Compaction: High

Discharge

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

Banks

Height (m): 0.8
% Unstable: 10
Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Reach Symbol

(Fish)

(DV)

4 A 15.0 | 1450

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

Confinement: CO
Valley : Channel Ratio 0-2
Stage: M Flood Signs Ht(m): 0.8
Bars (%): 30 pH: 7.1 Braided: N
Water Temp. (°C): 9.0 02 (ppm):
Turb. (cm): 80 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				VO

Comments

C1 S3

C2 LS = 80%, RS = 80%

C3 No fisheries sensitive zones were noted at this site.

C4 No electroshocking was carried out at this site as it was evaluated from the air.

C5 Lat N 55 47' 33", Long W 127 36' 43"

C6 No additional bank texture information.

C7 DO, turbidity and conductivity were not measured at this site.

C8 This creek seems to have no barriers to fish passage and contains suitable Dolly Varden rearing habitat.

C9 Upstream of site B50 the creek moves into a pond and goes underground. It resurfaces downstream and creates an important Dolly Varden rearing area The creek moves in a fairly defined channel that cuts across a plateau. A number of gravel bars were noted in the channel. Some one meter high cascades were noted in the sampling area.

C10 The access in the upper reach is poor. However, ground truthing is recommended for next year to determine whether an S2 or S3 classification is appropriate

C11 The air temperatrure at this site was 12 degrees

C12 The channel width at this site is comparable to that of B50.

DFO/MoELP Stream Survey Form

Site Number: A32 **Reach No.: 1**

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: A32 , Kispiox district , see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 082 **Reach Length (km):** 0.5 MA **Date:** 16-Sep-96 **Time:** 11:52 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5874 .61854 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP \KG \ \ \ \ \ \ **Photos:** A-4-18,19 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	18.7	T
Av. Wet. Width (m):	8.0	T
Av. Max Riffle Depth (cm):	22	MS
Av. Max Pool Depth (cm):	40	MS
Gradient (%):	4.0	CL
Pool: 15 Riffle: 35 Run: 50 Other:	0	
% Side Channel:	>40	GE
% Debris Area:	>15	GE
%Stable:	65	GE

Specific Data

17.0	14.1	21.3	15.7	19.9	24.3
7.1	7.2	5.9	7.1	10.8	10.1
24	20	22	17	29	
41	40	64	27	26	

Cover

Cover Total % : 55 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
25	40	20	0	5	10

Crown Closure % : 10 Aspect : NE

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	10
	Lge cobble (128-256mm):		30
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 31 Compaction: High

Discharge

Wetted Width (m) :	11.3	T
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.72	F
Discharge (m3/s) :	1.22	F

Banks

Height (m): 0.4

% Unstable: 20

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

DV

19 B 4.0 | 1360

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

Confinement: FC

Valley : Channel Ratio 2-5

Stage: L Flood Signs Ht(m): 0.7

Bars (%): 60 pH: 8.0 Braided: Y

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): 40 Cond. (µmhos): 70

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	DV	5	75-132	J	R			EL

Comments

C1 S2

C2 LS = 20%, RS = 4%

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

C4 The electroshocking effort, using a 12 B POW model was 282 seconds over 100 meters.

C5 Lat N 55 48' 25.6", Long W 127 36' 19.3"

C6 No additional bank texture information.

C7 DO measurements were not taken at this site. The water was clear to the bottom.

C8 Excellent rearing cover, comprised of deep pools, LOD and many side channels was observed at this site.

C9 The air temperature at this site was 8 degrees celcius.

Photo #: A-4-18, 16-Sep-96
Site #: A32, Large cobble/gravel bars.

Photo #: A-4-19, 16-Sep-96
Site #: A32, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B54

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B54 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **U.T.M. :** 9 5880 61810 **Reach Length (km):** 0.6 MA **Length surveyed (m):** 600.0 AE **Date:** 17-Sep-96 **Time:** 16:00 **Agency:** TEC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Access:** H **Fish Card:** N Field ☒ Historical ☐ **Photos:** None **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	5.0	AE
Av. Wet. Width (m):	2.0	AE
Av. Max Riffle Depth (cm):	20	AE
Av. Max Pool Depth (cm):	40	AE
Gradient (%):	18.0	MA
Pool: 20 Riffle: 50 Run: 20 Other:	10	
% Side Channel:	0	AE
% Debris Area:	5-15	AE
%Stable:	30	AE

Specific Data

Cover

Cover Total % : 60 AE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	20	60	0	10	0

Crown Closure % : 10 Aspect : E

Bed Material

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

C6 D90 (cm): 26 N Compaction: High

Obstructions

C	Height (m)	Type	Location
C9	10	C	0.8

Fish Summary

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

Discharge

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

Banks

Height (m): 0.8

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Reach Symbol

(Fish)

(RB) (DV)

5 A 18 0 | 0262

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

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0.8

Bars (%): 20 pH: Braided: N

N Water Temp. (°C): 02 (ppm):

Turb. (cm): 40 Cond. (µmhos):

Comments

C1 S2 (see C9) .

C2 LS = 60%, RS = 60%

C3 No fisheries sensitive zones were noted at this site.

C4 No electroshocking was carried out at this site.

C5 Lat N 55 46' 00", Long W 127 35' 50.7"

C6 No additional bank texture information. The D90 was estimated as this site was evaluated from the air.

C7 Water quality was not measured at this site.

C8 No additional fish habitat information.

C9 There are no obvious barriers to fish passage upstream into reach 1, however a 10 meter chute was observed farther upstream that would most likely limit fish distribution. Sampling is recommended next year as access to this site was very poor. This site could be be an S3, ground truthing is required.

C11 The channel width at this site is smaller than that of B50.

DFO/MoELP Stream Survey Form

Site Number: B53

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B53 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **U.T.M. :** 9 .5882 .61816 **Reach Length (km):** 2.0 MA **Length surveyed (m):** 600.0 AE **Date:** 17-Sep-96 **Time:** 15:45 **Agency:** TEC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Access:** H **Fish Card:** N Field ☒ Historical ☐ **Photos:** None **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	5.0	AE
Av. Wet. Width (m):	3.0	AE
Av. Max Riffle Depth (cm):	20	AE
Av. Max Pool Depth (cm):	80	AE
Gradient (%):	12.0	MA
Pool: 20 Riffle: 60 Run: 20 Other:	0	
% Side Channel:	0-10	AE
% Debris Area:	5-15	AE
%Stable:	20	AE

Specific Data

Cover

Cover Total % : 60 AE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk

Crown Closure % : 20 Aspect : E

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):		20
	Bldr cobble (>256mm):		0
Bedrock		0	0

C6 D90 (cm): 14 N Compaction: High

Discharge

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

Banks

Height (m): 0.6

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.6

Bars (%): 20 pH: Braided: Y

N Water Temp. (°C): 02 (ppm):

Turb. (cm): 80 Cond. (µmhos):

Reach Symbol

(Fish)

(RB) (DV)

5 C 12.0 | 2440

(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	S3
C2	LS = 10%, RS = 10%
C3	No fisheries sensitive zones were noted at this site.
C4	No electroshocking was carried out at this site as it was evaluated from the air.
C5	Lat N 55 46' 20", Long W 127 35' 37"
C6	No additional bank texture information. The D90 was estimated as this site was evaluated from the air.
C7	Water quality was not measured at this site.
C8	No additional fish habitat information.
C9	200 meters upstream the creek splits into S3 tributaries, with channel widths of roughly 3 meters. Below the junction of the two S3 tributaries the stream runs on a fairly flat plateau, travelling under alder and devils club.
C10	This reach appears to accessible to fish and as such sampling is recommended next year to confirm the presence of fish.
C12	The channel width at this site is comparable to that of B50.

DFO/MoELP Stream Survey Form

Site Number: A40 **Reach No.:** 2

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: A40 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **Reach Length (km):** 1.0 MA **Date:** 16-Sep-96 **Time:** 17:50 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M.: 9 .5887 .61816 **Length surveyed (m):** 1000.0 AE **Survey Crew:** KG \JP\ \ \ \ \ \ \ **Photos:** A-5-14,15,16,17 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	3.0	AE
	Av. Wet. Width (m):	2.6	AE
N	Av. Max Riffle Depth (cm):		
N	Av. Max Pool Depth (cm):		
	Gradient (%):	10.0	MA
	Pool: 10 Riffle: 15 Run: 50 Other: 25		
N	% Side Channel:		AE
N	% Debris Area:	5-15	AE
	%Stable:		

Specific Data

Cover

Cover Total % : 30 AE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	30	20	0	15	15

Crown Closure % : 35 Aspect : E

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	15
		Lge cobble (128-256mm):		15
		Bldr cobble (>256mm):		10
	Bedrock		0	0

C6 D90 (cm): 26 N Compaction: Medium

Discharge

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

Banks

N Height (m): % Unstable:

N Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(DV)

3 C 10.0 | 2440

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

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M N Flood Signs Ht(m):

N Bars (%): pH: Braided:

N Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location
C9	1	C	0.1
C9	2	C	0.1

Fish Summary

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

Comments

C1 S3

C2 The side slopes were not taken at this site. Access to the sampling area was difficult and as such the site was evaluated from the air.

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

C4 No electroshocking was carried out at this site.

C5 Lat N 55 46' 18.9", Long W 127 35' 09.8"

C6 No addtional bank texture information. The D90 was estimated for this site, which was evaluated from the air.

C7 Water quality measurements were not taken at this site.

C8 This site appears to contain some nice fish habitat above the chutes. Boulder and LOD cover were seen at this site.

C9 The first 100 meters of this site had a steep gradient and contains several 1 meter chutes and a single two meter chute.

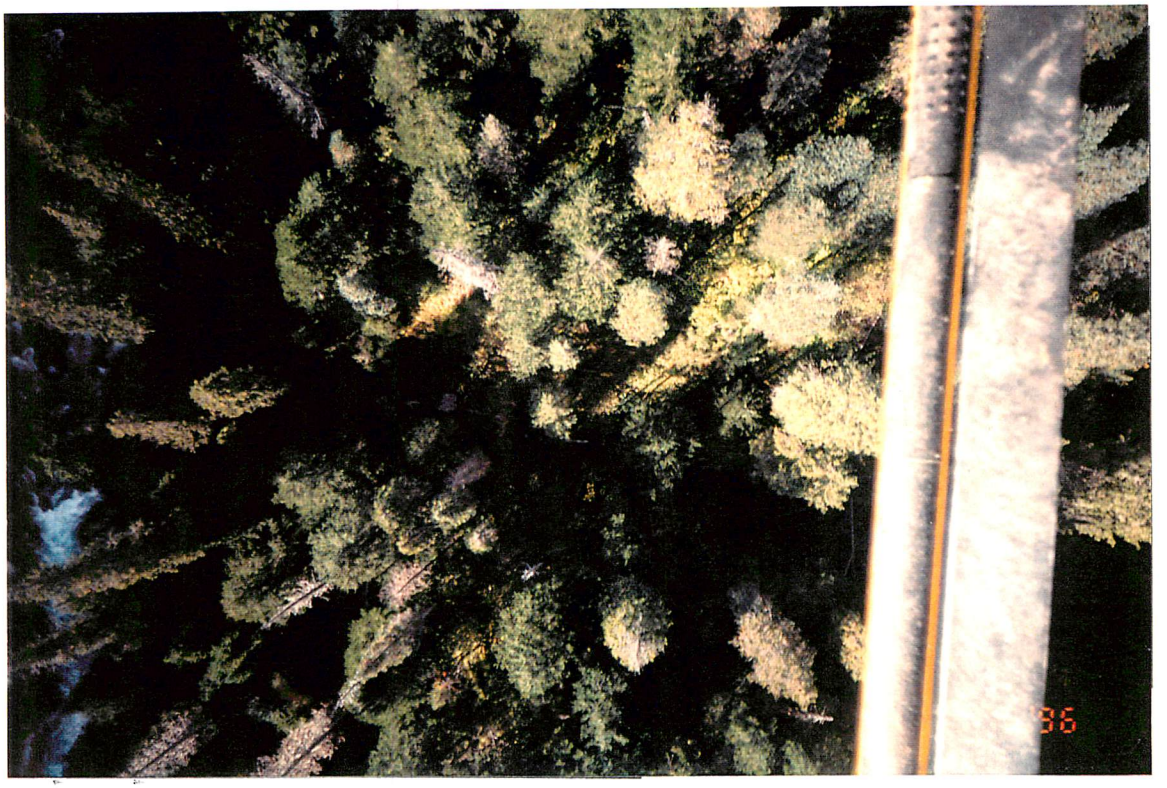


Photo #: A-5-15, 16-Sep-96
Site #: A40, Aerial photo, creek at top of photo.

Photo #: A-5-17, 16-Sep-96
Site #: A40, Aerial photo, creek below.

DFO/MoELP Stream Survey Form

Site Number: B50

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B50 , Kispiox district , downstream, of block 14, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **Reach Length (km):** 0.6 MA **Date:** 17-Sep-96 **Time:** 14:05 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 5885 61822 **Length surveyed (m):** 400.0 HC **Survey Crew:** JP\DD\ \ \ \ \ \ \ **Photos:** B- 6-16,17,20 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.8	MS
Av. Wet. Width (m):	2.3	MS
Av. Max Riffle Depth (cm):	7	MS
Av. Max Pool Depth (cm):	23	MS
Gradient (%):	2.0	CL
Pool: 25 Riffle: 25 Run: 50 Other: 0		
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	60	GE

Specific Data

2.0	2.3	2.5	2.6	3.2	4.0
2.0	2.3	1.6	1.9	2.2	3.5
7	8	6			
24	22				

Bed Material

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

D90 (cm): 13 Compaction: Medium

Cover

Cover Total % : 40 GE

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

Crown Closure % : 50 Aspect : SE

Discharge

Wetted Width (m) :	1 6	MS
Mean Depth (m) :	0 1	MS
Mean Velocity (m/s) :	0 45	F
Discharge (m3/s) :	0 05	F

Banks

Height (m): 0.6

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.8

Bars (%): 5 pH: 7.1 Braided: Y

Water Temp. (°C): 9 0 02 (ppm):

Turb. (cm): 24 Cond. (µmhos):

Reach Symbol

(Fish)

DV

3 D 2.0 | 4240

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

Obstructions

C	Height (m)	Type	Location
	3	F	

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
C4	DV	32	33-99	J				EL

Comments

C1 S3

C2 LS= 10%, RS = 10%

C3 Fisheries sensitive zones were noted at this site.

C4 The electroshocking effort using a 12 B POW model, was 43 seconds. In addition to the many juveniles caught at this site, a 104mm, adult Dolly Varden was caught.

C5 Lat N 55 46' 38.4", Long W 127 35' 20.6"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom

C8 This is a notable rearing site.

C9 The air temperature at this site was 12 degrees celcius.

C10 The first section of this creek flows into Shedin Creek. The crew walked 233m u/s from the mouth and observed that the channel branches. One branch moves into Shedin Creek and the other becomes a dry channel, which could support fish at high flow. A small pond was noted 200 m upstream . The bottom appears to move underground as the channel disappears from view.

Photo #: B-6-16, 17-Sep-96
Site #: B50, Dolly Varden in bag.

Photo #: B-6-17, 17-Sep-96
Site #: B50, Dry channel near Shedin Creek.

Photo #: B-6-20, 17-Sep-96
Site #: B50, Aerial photo of cascades.

DFO/MoELP Stream Survey Form

Site Number: B51

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B51 , Kispiox district , see C5

Stream (Gaz.): Unnamed

Watershed Code: 480-0278-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **U.T.M. :** 9 .5883 .61832

Reach Length (km): 0.9 MA **Length surveyed (m):** 252.0 HC

Date: 17-Sep-96 **Time:** 15:12 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

Survey Crew: JP\DD\ \ \ \ \ \ \ **Photos:** B- 6-18, 19 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	3.0	MS
	Av. Wet. Width (m):	0.0	MS
N	Av. Max Riffle Depth (cm):		
N	Av. Max Pool Depth (cm):		
	Gradient (%):	1.0	CL
N	Pool: 0 Riffle: 0 Run: 0 Other: 0		
N	% Side Channel:	0	GE
	% Debris Area:	10	GE
	%Stable:	100	GE

Specific Data

3.0 3.0

Cover

N Cover Total % :

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N						

Crown Closure % : 80 Aspect : N

Bed Material

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

D90 (cm): 18 Compaction: High

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: OC

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):

Reach Symbol

(Fish)

NF

3 D 1 0 | 8020

(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	S5
C2	LS = 0%, RS = 20%
C3	No fisheries sensitive zones were noted at this site.
C4	No electroshocking was carried out at this site as the channel was dry.
C5	Lat N 55 47' 10.9", Long W 127 35' 30.8"
C6	No additional bank texture information.
C7	Water quality measurements were not taken at this site.
C8	No additional fish habitat information.
C9	This area appears to have been a pond at one point. This site contained areas where the channel was defined and areas where it was not. Suitable fish habitat was not observed and as a result a non fish bearing classification was assigned. Future sampling is recommended at high flow.
C10	The mapping of this area was inaccurate and the crew spent two hours trying to figure the area out.

Photo #: B-6-19, 17-Sep-96
Site #: B51, Area appears to have contained standing water in the past.

Photo #: B-6-18, 17-Sep-96
Site #: B51, Channel only marginally defined.

DFO/MoELP Stream Survey Form

Site Number: A38

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: A38 , Kispiox district , see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **U.T.M. :** 9 .5910 .61835 **Reach Length (km):** 2.2 MA **Length surveyed (m):** 100.0 GE **Date:** 16-Sep-96 **Time:** 13:38 **Agency:** TEC **Survey Crew:** JP\KG\ \ \ \ \ \ **Access:** H **Fish Card:** N Field ☒ Historical ☐ **Photos:** A-5-9,10,11 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	11.5	HC
Av. Wet. Width (m):	7.6	HC
Av. Max Riffle Depth (cm):	22	MS
Av. Max Pool Depth (cm):	38	MS
Gradient (%):	3.0	CL
Pool: 20 Riffle: 35 Run: 40 Other:	5	
% Side Channel:	10-40	GE
% Debris Area:	5-15	GE
%Stable:	25	GE

Specific Data

10.9	12.3	8.3	8.5	14.3	14.6
7.3	8.3	7.3	8.5	7.8	6.6
15	22	35	28		
50	30	20	46	45	

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	40	10
	Large (16-64mm):		30
Larges	Sm. cobble (64-128mm):	50	10
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 57 Compaction: High

Cover

Cover Total % : 65 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
15	15	45	0	5	20

Crown Closure % : 5 Aspect : W

Discharge

Wetted Width (m) :	7.2	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.84	F
Discharge (m3/s) :	1.36	F

Banks

Height (m): 0.7

% Unstable: 20

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

DV

12 B 3.0 | 1450

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

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 1.2

Bars (%): 25 pH: 8.0 Braided: Y

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): 50 Cond. (µmhos): 100

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	DV	3	65-99	J	R			EL

Comments

C1 S2

C2 LS = 55%, RS = 39%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 275 seconds over 100 meters.

C5 Lat N 55 47' 16.6", Long W 127 32' 54.7"

C6 A large section of unstable banks was noted in the sampling area. The banks at this site are comprised of both gravels and larges.

C7 DO measurements were not taken at this site. The water was clear to the bottom.

C8 Boulder cover predominates at this site. Some nice rearing cover occurs in the sampling area, including some deep pools.

C9 The air temperature at this site was 9 degrees celcius.

Photo #: A-5-10, 16-Sep-96
Site #: A38, Looking across channel.

Photo #: A-5-11, 16-Sep-96
Site #: A38, Looking downstream.

Photo #: A-5-9, 16-Sep-96
Site #: A38, Dolly Varden in bag.

DFO/MoELP Stream Survey Form

Site Number: A36

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: A36 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **U.T.M. :** 9 .5935 . 61834 **Reach Length (km):** 1.8 MA **Length surveyed (m):** 1800.0 AE **Date:** 16-Sep-96 **Time:** 13:20 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐ **Survey Crew:** JPK\G \ \ \ \ \ \ \ **Photos:** A-4-23 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	10.0	AE
	Av. Wet. Width (m):	6.0	AE
N	Av. Max Riffle Depth (cm):		
N	Av. Max Pool Depth (cm):		
	Gradient (%):	7.0	MA
C9	Pool: 0 Riffle: 20 Run: 10 Other: 70		
C9	% Side Channel:	0	
C9	% Debris Area:	0	
	%Stable:		

Specific Data

Bed Material

N	Fines	Clay, silt, sand (<2mm):	0	0
N	Gravels	Small (2-16mm):	0	0
		Large (16-64mm):		0
N	Larges	Sm. cobble (64-128mm):	0	0
		Lge cobble (128-256mm):		0
		Bldr cobble (>256mm):		0
C6	Bedrock		100	100

N D90 (cm): N Compaction: High

Cover

N Cover Total % : 10 AE

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N						

N Crown Closure % : Aspect : S

Discharge

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

Banks

N Height (m): % Unstable:

N Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

N Confinement: UC

N Valley : Channel Ratio 10+

N Stage: M N Flood Signs Ht(m):

N Bars (%): pH: Braided:

N Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

NF

4 7.0

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

Obstructions

C	Height (m)	Type	Location
	60	F	1.5
	25	F	0.0

Fish Summary

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

Comments

C1 S5

C2 The side slopes were not measured at this site as it was evaluated from the air.

C3 No fisheries sensitive zones were noted at this site.

C4 No electroshocking was carried out at this site.

C5 Lat N 55 47' 46.2", Long W 127 30' 31".

C6 No additional bank texture information. The bed material noted during the aerial survey of this stream appeared to be dominated by bedrock. A ground survey is required to accurately catalogue all the particle classes present in the stream.

C7 Water quality was not measured at this site.

C8 This stream was classed as non fish bearing. The large falls on this system would prevent fish access from the main creek and it is unlikely that a resident population would reside between the two large falls on this stream.

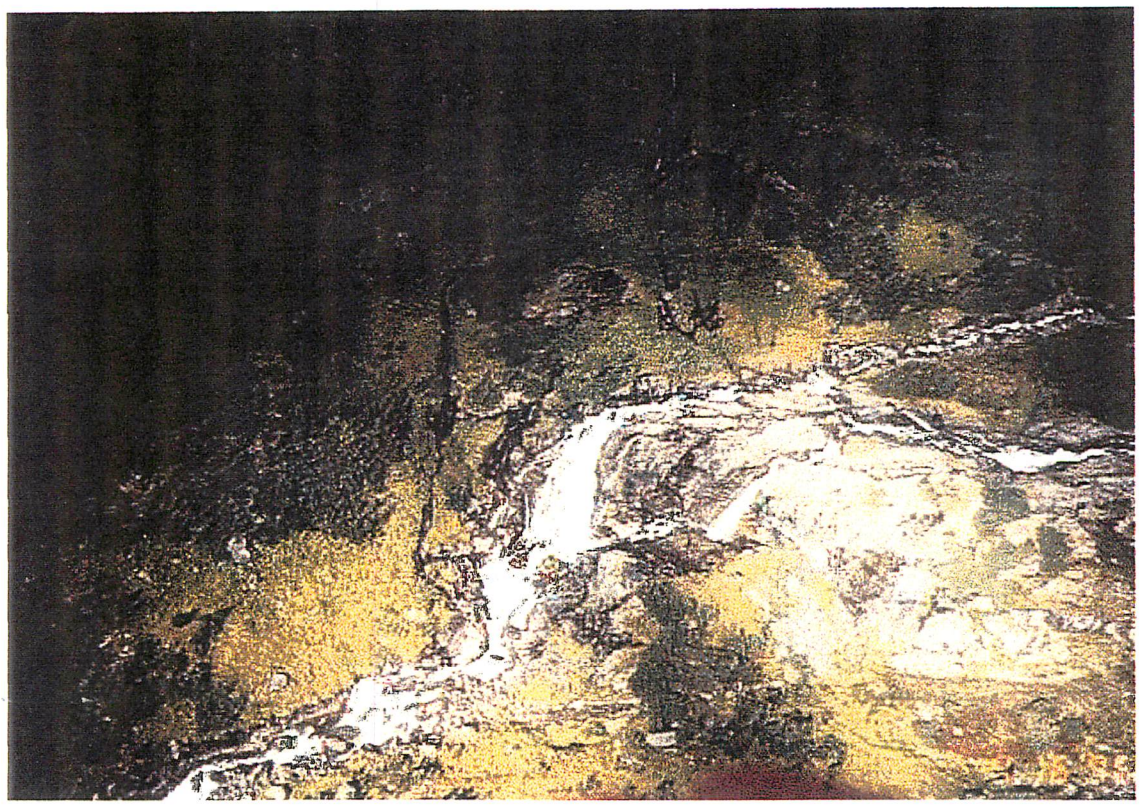


Photo #: A-4-23, 16-Sep-96
Site #: A36, Falls on tributary to mainstem

DFO/MoELP Stream Survey Form

Site Number: A37

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: A37 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **U.T.M. :** 9 .5940 .61838 **Reach Length (km):** 0.8 MA **Length surveyed (m):** 840.0 AE **Date:** 16-Sep-96 **Time:** 13:30 **Agency:** TEC **Survey Crew:** JP\KG\ \ \ \ \ \ **Access:** H **Fish Card:** N Field ☒ Historical ☐ **Photos:** A-5-1 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	7.0	AE
	Av. Wet. Width (m):	5.0	AE
N	Av. Max Riffle Depth (cm):		
N	Av. Max Pool Depth (cm):		
	Gradient (%):	13.0	MA
N	Pool: 10 Riffle: 40 Run: 30 Other: 20		
N	% Side Channel:		
N	% Debris Area: 0		
	%Stable:		

Specific Data

Cover

N Cover Total % : 30 AE

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N						

N Crown Closure % : 20 N 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	20
		Lge cobble (128-256mm):		20
		Bldr cobble (>256mm):		20
	Bedrock		0	0

N D90 (cm): 27 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:

N Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: OC

Valley : Channel Ratio 5-10

Stage: M N Flood Signs Ht(m):

N Bars (%): pH: Braided: Y

N Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

NF

7 C 13.0 | 1360

(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 S5

C2 The side slopes were not measured at this site as it was evaluated from the air.

C3 No fisheries sensitive zones were noted at this site.

C4 No electroshocking was carried out at this site.

C5 Lat N 55 47' 26.4", Long W 127 30' 03."

C6 No additional bank texture information.

C7 Water quality measurements were not made at this site.

C8 This stream occurs above a large falls. In addition, the gradient in reach 2 of this stream is far too steep to accomodate fish. As a result this stream has been classified as non fish bearing.

C9 Cascades were noted on this creek.

Photo #: A-5-1, 16-Sep-96
Site #: A37, Aerial photo of creek.

DFO/MoELP Stream Survey Form

Site Number: A34 **Reach No.: 1**

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: A34 , Kispiox district , see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **Reach Length (km):** 0.5 MA **Date:** 16-Sep-96 **Time:** 13:15 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M.: 9 .5937 . 61837 **Length surveyed (m):** 500.0 AE **Survey Crew:** KG \JP\ \ \ \ \ \ \ **Photos:** A-4-23 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	2.0	AE
	Av. Wet. Width (m):	1.5	AE
N	Av. Max Riffle Depth (cm):	0	AE
N	Av. Max Pool Depth (cm):	0	AE
	Gradient (%):	60.0	AE
	Pool: 0 Riffle: 0 Run: 0 Other: 100		
	% Side Channel:	0	AE
	% Debris Area: 0		AE
	%Stable:		

Specific Data

Cover

N Cover Total % : 0 AE

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N						

Crown Closure % : 0 Aspect : SW

Bed Material

	Fines	Clay, silt, sand (<2mm):	0	0
	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		100	100

N D90 (cm): 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)

NF

2 D 60 0 | R

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

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m):

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				VO

Comments

C1 S6

C2 The side slopes were not evaluated at this site.

C3 No fisheries sensitive zones were present at this site.

C4 No electroshocking was carried out at this site as it was evaluated from the air.

C5 Lat N 55 47' 23.4", Long W 127 30' 20.4"

C6 No additional bank texture information.

C7 Water quality was not evaluated at this site.

C8 No fish habitat exists at this site. The gradient is too steep to accomodate fish.

C9 The flow types at this site are chutes and cascades.

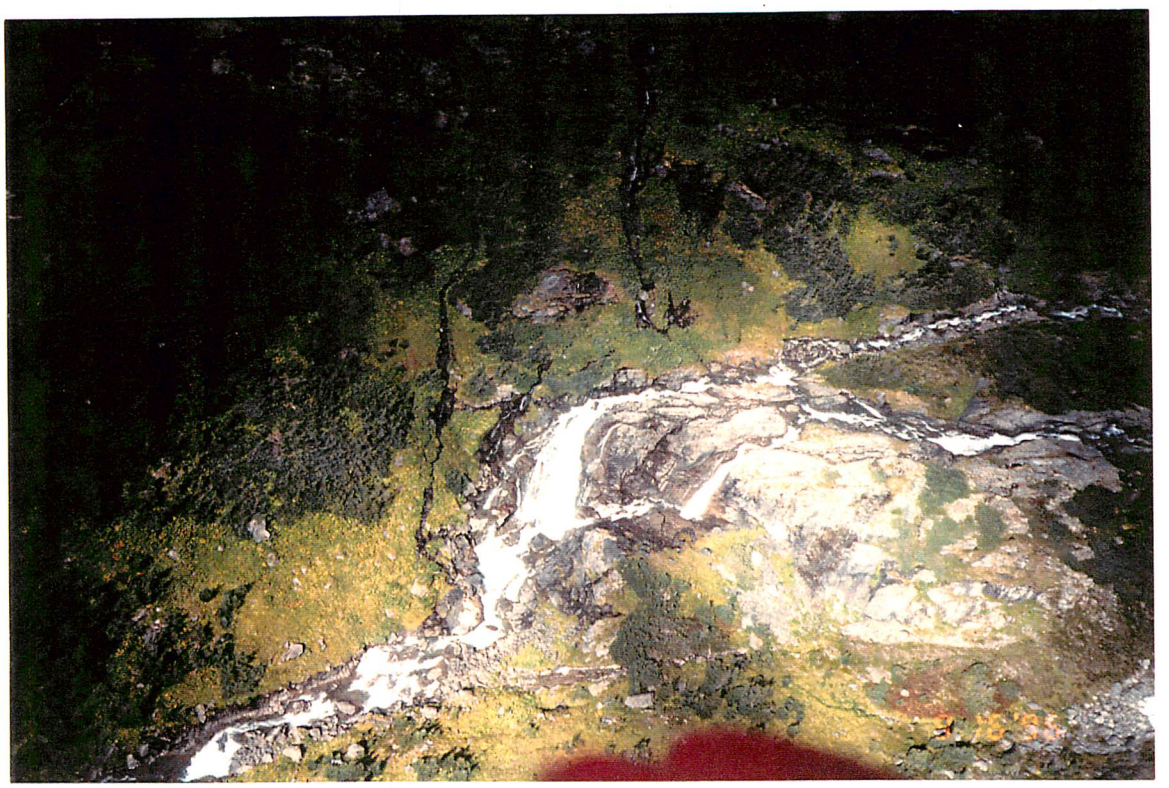


Photo #: A-4-23, 16-Sep-96
Site #: A34, Steep gradient , aerial photo of confluence at falls.

DFO/MoELP Stream Survey Form

Site Number: A35

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: A35 , Kispiox district , see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **Reach Length (km):** 0.6 MA **Date:** 16-Sep-96 **Time:** 13:15 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5938 . 61837 **Length surveyed (m):** 600.0 AE **Survey Crew:** KG \JP\ \ \ \ \ \ \ **Photos:** A-4-23 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.0	AE
Av. Wet. Width (m):	1.5	AE
Av. Max Riffle Depth (cm):	0	AE
Av. Max Pool Depth (cm):	0	AE
Gradient (%):	60.0	AE
Pool: 0 Riffle: 0 Run: 0 Other:	100	
% Side Channel:	0	AE
% Debris Area:	0	AE
%Stable:		

Specific Data

Cover

Cover Total % : 0 AE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk

Crown Closure % : 0 Aspect : SW

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
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		100	100

N D90 (cm): Compaction: High

Discharge

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

Banks

Height (m): % Unstable: 0

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m):

Bars (%): 0 pH: Braided: N

Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

NF

2 D 60.0 | R

(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				VO

Comments

C1 S6

C2 The side slopes were not measured at this site as it was evaluated from the air.

C3 No fisheries sensitive zones are present at this site.

C4 This site was not electrofished.

C5 Lat N 55 47' 23.3", Long W 127 30' 14.6"

C6 No additional bank texture information.

C7 Water quality was not evaluated at this site.

C8 This site provides no fish habitat. The gradient is too steep to accomodate fish

C9 The flow types of this stream are chutes and cascades.

Photo #: A-4-23, 16-Sep-96
Site #: A35, Steep gradient, aerial photo of confluence at falls.

DFO/MoELP Stream Survey Form

Site Number: A33

Reach No.: 1

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: A33 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 | U.T.M.: 9 .5950 .61822 | Reach Length (km): 0.9 MA | Length surveyed (m): 900.0 AE | Date: 16-Sep-96 | Time: 12:50 | Agency: TEC | Access: H | Fish Card: N | Field ☒ | Historical ☐ | Survey Crew: JP\KG\ \ \ \ \ \ \ | Photos: A -4-21,22 | Air Photos:

Channel Characteristics

	Av. Chan. Width (m):	5.0	AE
	Av. Wet. Width (m):	3.5	AE
N	Av. Max Riffle Depth (cm):		
N	Av. Max Pool Depth (cm):		
	Gradient (%):	60.0	MA
N	Pool: 0 Riffle: 0 Run: 0 Other:	100	
N	% Side Channel:	0	
	% Debris Area:	>15	AE
	%Stable:		

Specific Data

Bed Material

N	Fines	Clay, silt, sand (<2mm):	0	0
N	Gravels	Small (2-16mm):	0	0
		Large (16-64mm):		0
N	Larges	Sm. cobble (64-128mm):	0	0
		Lge cobble (128-256mm):		0
		Bldr cobble (>256mm):		0
C6	Bedrock		100	100

N D90 (cm): N Compaction: High

Cover

N Cover Total % : 10 AE

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

N Crown Closure % : Aspect : NW

Discharge

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

Reach Symbol

(Fish)

NF

5 E 27.0 | R

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

Banks

N Height (m):

% Unstable: 20

N Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

N Confinement: UC

N Valley : Channel Ratio 10+

N Stage: M N Flood Signs Ht(m):

N Bars (%): 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				VO

Comments

C1	S5
C2	The side slopes were not measured at this site as it was evaluated from the air.
C3	No fisheries sensitive zones were noted.
C4	No electroshocking was carried out.
C5	Lat N 55 46' 34", Long W 127 29 07.7"
C6	No additional bank texture information. From the aerial survey it appeared that bedrock made up the bed material of this stream. However, the mouth may contain cobble, gravels and so on, that could not be seen because they were covered by woody debris.
C7	Water quality measurements were not taken.
C8	The very steep gradient at this site precludes the presence of fish.
C9	At the mouth of the stream a large amount of woody debris appeared to be present in the channel. Access to this stream was difficult.

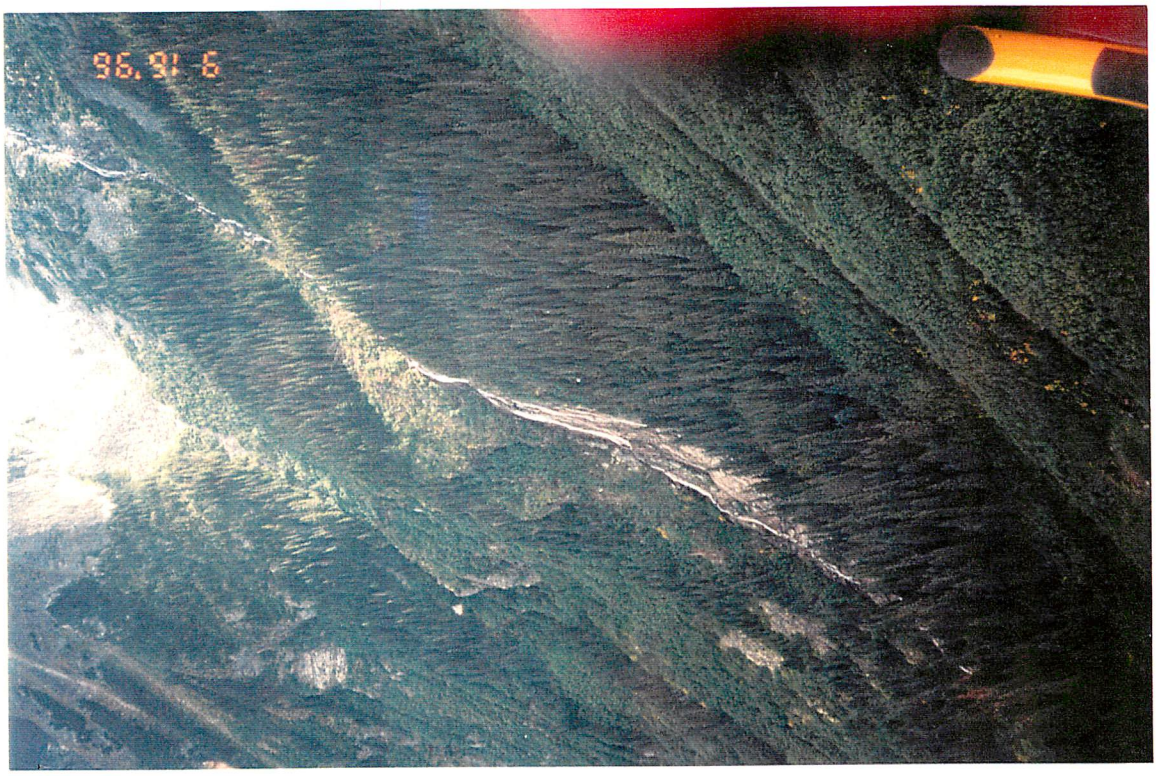


Photo #: A-4-21, 16-Sep-96
Site #: A33, Aerial photo of stream.

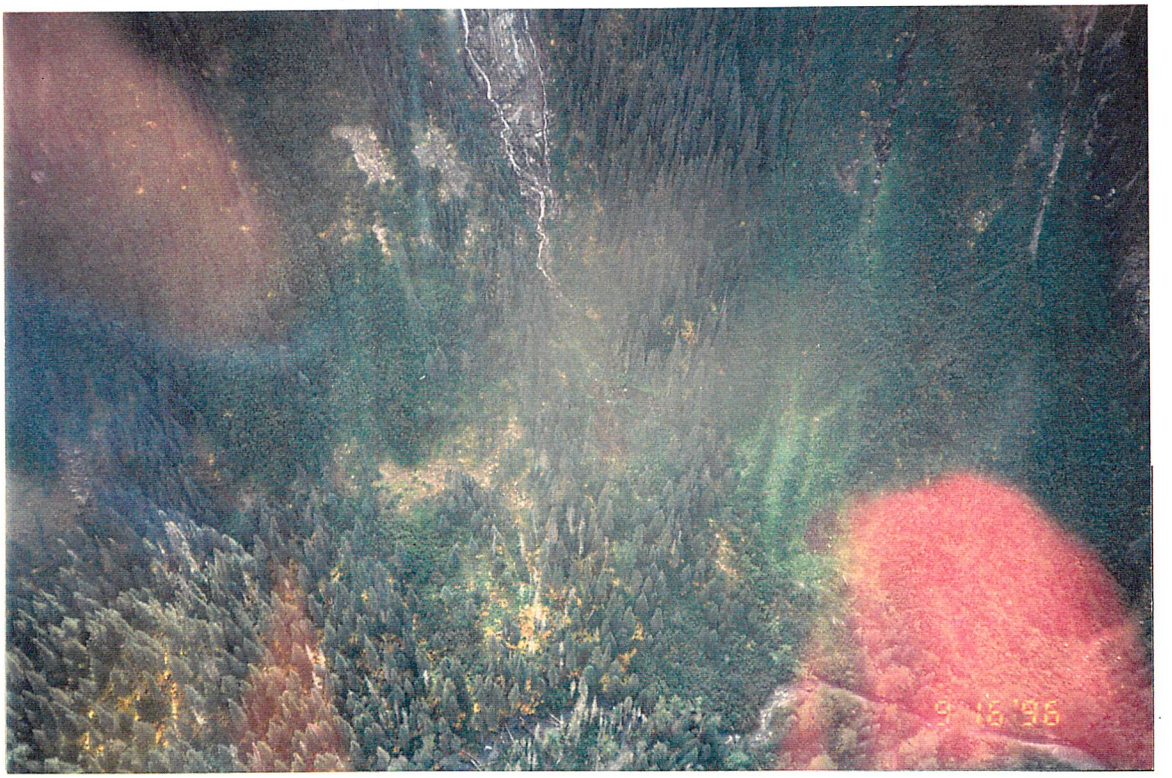


Photo #: A-4-22, 16-Sep-96
Site #: A33, Aerial photo of stream.

DFO/MoELP Stream Survey Form

Site Number: B48

Reach No.: 3

Trib to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: B48 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **Reach Length (km):** 5.9 MA **Date:** 16-Sep-96 **Time:** 18:55 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5952 .61822 **Length surveyed (m):** 120.0 GE **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-6-9,10 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	21.2	HC
Av. Wet. Width (m):	4.2	HC
Av. Max Riffle Depth (cm):	15	MS
Av. Max Pool Depth (cm):	26	MS
Gradient (%):	8.0	CL
Pool: 10 Riffle: 60 Run: 20 Other: 10		
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	10	GE

Specific Data

22.5	18.0	20.4	30.0	15.0
3.5	3.7	4.7	4.0	5.2
12	22	12		
22	30			

Cover

Cover Total % : 60 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	5	90	0	5	0

Crown Closure % : 10 Aspect : W

Bed Material

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

D90 (cm): 80 Compaction: Medium

Discharge

Wetted Width (m) :	3.6	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.80	F
Discharge (m3/s) :	0.43	F

Banks

Height (m): 0.4

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.6

Bars (%): 30 pH: Braided: Y

Water Temp. (°C): 02 (ppm):

Turb. (cm): 30 Cond. (µmhos):

Reach Symbol

(Fish)

(DV)

21 B 8.0 | 0280

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

Obstructions

C	Height (m)	Type	Location
	80	F	7.2

Fish Summary

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

Comments

C1 S1

C2 LS = 50%, RS = 60%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 390 seconds over 400 square meters.

C5 Lat N 55 46' 33.1", Long W 127 28' 55.3"

C6 No additional bank texture information.

C7 DO, water temperature and conductivity were not measured at this site. The water was clear to the bottom.

C8 No additional fish habitat information.

C9 The sampling site was located in the only accessible location. The area appears to be washed out at high water. The majority of the reach has a much narrower channel. There is a remote possibility of a resident population and as such future sampling is recommended. A moose and some mountian goats were observed in the area.

C10 The air temperature at this site was 8 degrees celcius.

Photo #: B-6-10, 16-Sep-96
Site #: B48, Looking downstream.

Photo #: B-6-9, 16-Sep-96
Site #: B48, Looking upstream.

DFO/MoELP Stream Survey Form

Site Number: A39 **Reach No.: 1**

Trib. to Shedin Cr.

TRITON Environmental Consultants Ltd.

Location: A39 , Kispiox district , see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0278-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 073 **Reach Length (km):** 1.2 MA **Date:** 16-Sep-96 **Time:** 15:07 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .5895 .61842 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP \KG \ \ \ \ \ \ \ **Photos:** A-5-12,13 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.9	MS
Av. Wet. Width (m):	1.9	MS
Av. Max Riffle Depth (cm):	10	MS
Av. Max Pool Depth (cm):	16	MS
Gradient (%):	4.0	CL
Pool: 30 Riffle: 20 Run: 40 Other: 10		
% Side Channel:	0	GE
% Debris Area:	>15	GE
%Stable:	30	GE

Specific Data

1.4	1.6	1.8	2.2	3.0	1.4
1.2	1.4	1.6	1.8	2.8	2.5
13	10	14	8	9	5
24	22	14	10	15	12

Bed Material

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

D90 (cm): 7 Compaction: Medium

Cover

Cover Total % : 40 GE

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

Crown Closure % : 20 Aspect : S

Discharge

Wetted Width (m) :	1.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.76	F
Discharge (m3/s) :	0.10	F

Banks

Height (m): 0.3

% Unstable: 60

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 0 pH: 8.0 Braided: N

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 24 Cond. (µmhos): 70

Reach Symbol

(Fish)

DV

2 D 4.0 | 4510

(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	9	43-100	J	R			EL

Comments

C1 S3

C2 LS= 2%, RS = 3%

C3 A very large fisheries sensitive zone, in the form of a marsh, is connected to this creek.

C4 The electroshocking effort, using a 12 B POW model, was 661 seconds over 100 meters.

C5 Lat N 55 47' 36.2", Long W 127 25' 44.2"

C6 There is a high perecentage of unstable banks at this site. The fine material from the banks is collecting in the deep pools.

C7 DO was not measured.

C8 Great rearing habitat and some spawning habitat were observed at this site. Cutbanks and pools contribute substantially to the cover.

C9 The air temperature at this site was 9 degrees celcius.

Photo #: A-5-12, 16-Sep-96
Site #: A39, Gravel bar in creek.

Photo #: A-5-13, 16-Sep-96
Site #: A39, Sampling by electrofishing.

5.4 Kuldo Creek

5.4.1 Physical

Kuldo Creek flows south-east into Skeena River. The watershed ranges in elevation from 366 m to 460 m and has a mainstem length of 10.5 km measured to the edge of NTS map 93M13. Twelve tributaries were inventoried with a length of 51 km for a total inventoried length of 62 km. Reach 1 is fairly open and wide before entering the canyon that is Reach 2. The tributary that is marked by B13 has a 7 m falls which is impassable to all species. Only two sites were sampled in Kuldo Creek.

5.4.2 Fish

The mainstem of Kuldo Creek has historical records for coho, Dolly Varden, and chinook. Spawning habitat was noted for chinook and Dolly Varden in Reach 3 at site B14. Two sites were sampled by electrofishing, the mainstem site B14 was found to contain both chinook and Dolly Varden at the time of sampling.

5.4.3 Stream Classification

The mainstem of Kuldo Creek is an S1 with an average channel width of 50 m.

5.4.4 Tributaries

The main tributary sampled at B13 was classified as S5 due to presence of the impassable barrier and lake of overwhelming habitat. The other tributaries noted were all too steep (>30%) to support fish populations.

DFO/MoELP Stream Survey Form

Site Number: B14

Reach No.: 3

Kuldo Cr.

TRITON Environmental Consultants Ltd.

Location: B14 , Kispiox district , see C5. **Stream (Gaz.):** Kuldo Creek **Watershed Code:** 400-5903-000-000-000-000-000-000-000-000-000-0

Map #:	93 M 081	**Reach Length (km):**	9.0	MA	**Date:**	12-Sep-96	**Time:**	15:10	**Agency:**	TEC	**Access:**	H	**Fish Card:**	N	Field ☒ Historical ☐
U.T.M. :	9 .5642 .61921	**Length surveyed (m):**	200.0	GE	**Survey Crew:**	JP\DD\ \ \ \ \ \ \					**Photos:**	B-2-25,26,27	**Air Photos:**		

Channel Characteristics

Av. Chan. Width (m):	50.0	GE
Av. Wet. Width (m):	37.5	GE
Av. Max Riffle Depth (cm):	20	GE
Av. Max Pool Depth (cm):	100	GE
Gradient (%):	2.0	CL
Pool: 10 Riffle: 80 Run: 10 Other:	0	
% Side Channel:		GE
% Debris Area:	5	GE
%Stable:	70	GE

Specific Data

70.0	45.0	40.0	45.0	40.0	60.0
40.0	40.0	30.0	40.0	40.0	35.0
22	20	18			

Cover

Cover Total % : 70 GE

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

Crown Closure % : 0 Aspect : SE

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	30
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		20
Bedrock		0	0

D90 (cm): 40 Compaction: Low

Discharge

C1	Wetted Width (m) :	12.0	HC
	Mean Depth (m) :	0.5	MS
	Mean Velocity (m/s) :	0.11	
	Discharge (m3/s) :	12.50	

Banks

Height (m): 1.0

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

CH DV

50 A 2.0 | 0370

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

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 1

Bars (%): 30 pH: 8.6 Braided: Y

Water Temp. (°C): 11.0 02 (ppm):

Turb. (cm): 100 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
C4	CH	1	78	J	R			EL
C4	DV	1	122	A				EL

Comments

C1 SI

C2 LS = 20%, RS = 60%.

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

C4 The electroshocking effort, using a 12 B POW model, was 103 seconds over 20 square meters. In addition to the fish caught by electroshocking, 1, 80mm chinook and 20, 100 to 120 mm Dolly Varden were observed. The electroshocking was carried out in a side channel of the main creek.

C5 Lat N 55 52' 13.1", Long W 127 58' 25.4"

C6 No additional bank texture information.

C7 DO was not taken at this site. The water was clear to the bottom.

C8 Spawning and rearing habitat were noted in the sampling area.

C9 The air temperature was 17 degrees celcius.

C10 The discharge was calculated by taking 3 measurements of the side channel and 3 measurements of the mainstem and adding the calculated discharges together.

C11 The air temperature at this site was 17 degrees celcius.

Photo #: B-2-25, 12-Sep-96
Site #: B14, Looking across Kuldo Creek.

Photo #: B-2-26, 12-Sep-96
Site #: B14, Looking upstream on Kuldo Creek.

Photo #: B-2-27, 12-Sep-96
Site #: B14, Dolly Varden in bag.

DFO/MoELP Stream Survey Form

Site Number: B13

Reach No.: 2

Trib. to Kuldo Cr.

TRITON Environmental Consultants Ltd.

Location: B13 , Kispiox district , see C5.

Stream (Gaz.): Unnamed

Watershed Code: 400-5903-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081

U.T.M. : 9 .5665 .61910

Reach Length (km): 0.8 MA

Length surveyed (m): 160.0 HC

Date: 12-Sep-96 **Time:** 12:50 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

Survey Crew: JP\DD\ \ \ \ \ \ \ **Photos:** B-2-21,22,23,24 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	6.3	HC
Av. Wet. Width (m):	2.5	HC
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	51	MS
Gradient (%):	10.0	CL
Pool: 10 Riffle: 50 Run: 5 Other:	35	
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	40	GE

Specific Data

8.0	5.7	7.4	6.4	4.0	6.0
2.1	2.0	2.1	3.7	2.1	2.9
7	6	6			
40	70	43			

Cover

Cover Total % : 60 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
15	30	40	0	10	5

Crown Closure % : 20 Aspect : S

Bed Material

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

D90 (cm): 32 Compaction: Medium

Discharge

Wetted Width (m) :	1.9	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.50	F
Discharge (m3/s) :	0.07	F

Banks

Height (m): 0.4

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 20 pH: 8.6 Braided: Y

Water Temp. (°C): 9.5 02 (ppm):

Turb. (cm): 70 Cond. (µmhos): 90

Reach Symbol

(Fish)

NF

6 B 10.0 | 1531

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

Obstructions

C	Height (m)	Type	Location
	7	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 S5

C2 LS = 60%, RS = 60%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 764 seconds over 440 square meters. The lake upstream of this site was minnow trapped and no fish were caught.

C5 Lat N 55 51' 35.3", Long W 127 56' 16"

C6 No additional bank texture information.

C7 DO was not taken at this site.

C8 The steep gradient and 7 meter falls would prevent fish access into this stream from Kuldo Creek. A resident population may be present upstream of the barrier system. However, overwintering habitat may be insufficient at this site, hence the S5 classification. Future sampling above the barrier system is recommended.

C9 The air temperature at this site was 15.5 degrees celcius.

Photo #: B-2-21, 12-Sep-96
Site #: B13, Falls from air.

Photo #: B-2-22, 12-Sep-96
Site #: B13, Falls from air.

Photo #: B-2-23, 12-Sep-96
Site #: B13, Looking upstream.

Photo #: B-2-24, 12-Sep-96
Site #: B13, Looking downstream.

5.5 Sam Green Creek

5.5.1 Physical

Sam Green Creek flows southeast into the Babine River just upstream of its confluence with the Skeena River. The elevation of the watershed ranges from 320 to 1555 m and it has a mainstem length of 17.5 km. The watershed had 32 tributaries with a total length of 58 km. The inventoried length totals 75 km. It is extremely canyon-like and had very limited access throughout most of its length. Five sites were sampled in Sam Green Creek, four of them were upstream of a series of falls ranging from 10 to 20 m in height. The entire upper portion of the watershed has cascades and falls scattered throughout.

5.5.2 Fish

There was no historical fish information for Sam Green Creek. Five sites were sampled for fish, only one site B45 had fish present. B45 was located on the mainstem downstream of the falls and contained adult Dolly Varden. Upstream of the falls, no fish were captured and the reaches are considered to be non fish bearing due to the lack of overwintering habitat.

5.5.3 Stream Classification

The mainstem of Sam Green is S1 in the lower reach based on an average channel width of 25 m. Upstream of the impassable falls, the main creek is S5, with the majority of smaller tributaries were classified as S6.

DFO/MoELP Stream Survey Form

Site Number: B45

Reach No.: 1

Sam Green Cr.

TRITON Environmental Consultants Ltd.

Location: B45 , Kispiox district , East of cutblock 2 , mainstem sample , see C5.

Stream (Gaz.): Sam Green Creek

Watershed Code: 480-0129-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072

U.T.M. : 9 .5838 . 61772

Reach Length (km): 6.0 MA

Length surveyed (m): 140.0 HC

Date: 16-Sep-96 **Time:** 15:45 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

Survey Crew: JP \DD\ \ \ \ \ \ \

Photos: B-6-1,2,3 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	25.3	HC
Av. Wet. Width (m):	11.0	HC
Av. Max Riffle Depth (cm):	21	MS
Av. Max Pool Depth (cm):	90	MS
Gradient (%):	8.0	CL
Pool: 10 Riffle: 50 Run: 30 Other: 10		
% Side Channel:	10-40	GE
% Debris Area:	>15	GE
%Stable:	0	GE

Specific Data

26.2	23.4	24.8	24.0	25.2	28.0
12.0	7.4	7.4	14.6	10.4	14.0
24	22	18			
50	100	120			

Cover

Cover Total % : 80 GE

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

Crown Closure % : 10 Aspect : SE

Bed Material

Fines	Clay, silt, sand (<2mm):	5	5
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	75	10
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		45
Bedrock		0	0

D90 (cm): 110 Compaction: Medium

Discharge

Wetted Width (m) :	7 5 MS
Mean Depth (m) :	0 4 MS
Mean Velocity (m/s) :	0 80 F
Discharge (m3/s) :	1 80 F

Banks

Height (m): 0.8

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Reach Symbol

(Fish)

DV

25 A 8.0 | 0280

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

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 2

Bars (%): 20 pH: 8.4 Braided: Y

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 100 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	4	98-210	A				EL

Comments

C1 SI

C2 LS = 70%, RS = 80%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 215 seconds over 120 meters squared.

C5 Lat N 55 44' 13.3", Long W 127 40' 25.3"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 LOD and boulder cover are prevalent at this site.

C9 This site is located just below a 20 meter falls. The channel shows evidence of a high potential for debris transport There are a number of 2 -3 meter cascades downstream of the sampling site that are not preventing fish access.

C10 The air temperature at this site was 9 degrees celcius

C11 The percent fines at this site is slightly less than 5%.

Photo #: B-6-1, 16-Sep-96
Site #: B45, Dolly Varden captured in Sam Green Creek.

Photo #: B-6-2, 16-Sep-96
Site #: B45, Downstream view, note high potential for debris transport.

Photo #: B-6-3, 16-Sep-96
Site #: B45, Dolly Varden captured by electrofishing.

DFO/MoELP Stream Survey Form

Site Number: B43

Reach No.: 2

Trib. to Sam Green Cr.

TRITON Environmental Consultants Ltd.

Location: B43 , Kispiox district , main part of branch , see C5.

Stream (Gaz.): Unnamed

Watershed Code: 480-0129-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072

U.T.M. : 9 5815 61828

Reach Length (km): 0.9 MA

Length surveyed (m): 160.0 HC

Date: 16-Sep-96 **Time:** 13:20 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

Survey Crew: JP \DD\ \ \ \ \ \ \

Photos: B-5-18,19,20 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	8.7	HC
Av. Wet. Width (m):	4.1	HC
Av. Max Riffle Depth (cm):	11	MS
Av. Max Pool Depth (cm):	63	MS
Gradient (%):	14.0	CL
Pool: 10 Riffle: 40 Run: 10 Other:	40	
% Side Channel:	0-10	GE
% Debris Area:	0	GE
%Stable:	0	GE

Specific Data

8.0	8.0	7.8	10.0	8.0	10.5
2.0	2.9	6.0	4.2	3.6	6.0
10	10	12			
40	80	70			

Cover

Cover Total % : 30 GE

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

Crown Closure % : 0 Aspect : S

Bed Material

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

D90 (cm): 90 Compaction: Medium

Discharge

Wetted Width (m) :	2.8	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	1.00	F
Discharge (m3/s) :	0.21	F

Banks

Height (m): 0.6

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

NF

9 A 14.0 | 0145

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

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0.6

Bars (%): 5 pH: 8.1 Braided: Y

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 80 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location
	10	F	2.9

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 = 70%, RS = 70%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 543 seconds over 480 meters squared. This stream was sampled above a 10 meter falls.

C5 Lat N 55 47' 05", Long W 127 41' 60"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 There is a very low probability of the presence of a resident population above the 10 meter falls on this stream and as such this reach has been classified as non fish bearing. An additional 8 and 4 meter cascade was also noted..

C9 There are large sections of exposed bedrock in this reach, over which water sheets. This site was sampled just above the falls. The crew walked down to a 10 m falls and took a photo and a GPS Lat N 55 46' 58", Long w 127 41' 59.6"

C10 The air temperature at this site was 7 degrees celcius.

Photo #: B-5-18a, 16-Sep-96
Site #: B43, Looking down on 10 m falls, meterstick on ledge.

Photo #: B-5-18b, 16-Sep-96
Site #: B43, Looking upstream.

DFO/MoELP Stream Survey Form

Site Number: B42

Reach No.: 1

Trib. to Sam Green Cr.

TRITON Environmental Consultants Ltd.

Location: B42 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0129-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072 **Reach Length (km):** 0.4 MA **Date:** 16-Sep-96 **Time:** 12:10 **Agency:** TEC **Access:** FT **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5814 .61831 **Length surveyed (m):** 503.0 HC **Survey Crew:** JP \DD \ \ \ \ \ \ \ **Photos:** B-5-15,16 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	5.5	MS
Av. Wet. Width (m):	2.0	MS
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	67	MS
Gradient (%):	18.0	CL
Pool: 10 Riffle: 40 Run: 0 Other: 50		
% Side Channel:	0-10	GE
% Debris Area:	0	GE
%Stable:	0	GE

Specific Data

7.0	4.5	5.0	4.2	4.5	8.0
2.5	1.2	1.0	1.5	1.1	5.0
6					
70	60	70			

Cover

Cover Total % : 40 GE

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

Crown Closure % : 0 Aspect : E

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	20	0
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	70	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		40
Bedrock		10	10

D90 (cm): 90 Compaction: Medium

Discharge

Wetted Width (m) :	1.3	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.50	F
Discharge (m3/s) :	0.05	F

Banks

Height (m): 0.4

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 2-5

Stage: H Flood Signs Ht(m): 0.5

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

Water Temp. (°C): 6.5 02 (ppm):

Turb. (cm): 70 Cond. (µmhos):

Reach Symbol

(Fish)

NF

6 A 18.0 | 0271

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

Obstructions

C	Height (m)	Type	Location
C10	5	F	0.1
C10	4	F	0.1
C10	1	C	0.3

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 = 50%, RS = 70%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 746 seconds over 600 square meters.

C5 Lat N 55 47' 06.5", Long W 127 41' 58.9"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 No additional fish habitat information.

C9 The entire reach was sampled from the junction of B41 and the S5 creek. A 4 meter falls was noted 442 meters downstream from the junction of B41 and B42. Many fossils were noted in this area as well as some slightly unstable talus slopes.

C10 A series of 1 meter cascades are scattered throughout this site. There are sections of exposed bedrock in this stream over which water runs in sheets. The 5m falls is located 115m from the mouth of this stream and the 4m falls is located 58m from the mouth of this stream. These falls, which would prevent fish access upstream, and the lack of overwintering habitat, have resulted in the classification of this reach as non fish bearing.

C11 The air temperature at this site was 7 degrees celcius.

Photo #: B-5-15, 16-Sep-96
Site #: B42, Looking upstream.

Photo #: B-5-16, 16-Sep-96
Site #: B42, Looking downstream.

Photo #: B-5-17, 16-Sep-96
Site #: B42, 4 m falls that are a barrier to fish passage.

DFO/MoELP Stream Survey Form

Site Number: B41 **Reach No.:** 2

Trib. to Sam Green Cr.

TRITON Environmental Consultants Ltd.

Location: B41 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 480-0129-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072 **Reach Length (km):** 1.4 MA **Date:** 16-Sep-96 **Time:** 11:30 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .5810 .61832 **Length surveyed (m):** 130.0 HC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-5-12,13,14 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.1	MS
Av. Wet. Width (m):	1.8	MS
Av. Max Riffle Depth (cm):	7	MS
Av. Max Pool Depth (cm):	30	MS
Gradient (%):	12.0	CL

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

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

Specific Data

1.7	1.9	2.7	2.3	1.6	2.5
1.3	1.7	2.3	2.2	1.3	2.0
5	5	9	5	9	8
20	21	21	30	28	60

Cover

Cover Total % : 60 GE

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

Crown Closure % : 0 Aspect : E

Bed Material

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

D90 (cm): 30 Compaction: Medium

Discharge

Wetted Width (m) :	1.2	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.30	F
Discharge (m3/s) :	0.05	F

Banks

Height (m): 0.2

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

NF

2 C 12.0 | 0361

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

Confinement: FC

Valley : Channel Ratio 5-10

Stage: H Flood Signs Ht(m): 0.2

Bars (%): 10 pH: 8.0 Braided: N

Water Temp. (°C): 6.5 02 (ppm):

Turb. (cm): 60 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location
	4	F	0.1
	5	F	0.1
C10	7	C	
C10	5	C	
C10	3	C	

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 = 30%, RS = 50%,

C3 No fisheries sensitive zones were present at this site.

C4 The electroshocking effort, using a 12 B POW model was 328 seconds over 200 meters squared.

C5 Lat N 55 47' 15.5", Long W 127 42' 29.8"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 The 7, 5 and 3m cascades, as well as the lack of overwintering habitat have resulted in this stream being classed as non fish bearing.

C9 The air temperature at this site was 7 degrees celcius.

C10 A branch of this tributary, entering at the sampling site, runs at a gradient of 40%. This stream was sampled above and below a 7m cascade. A 5m and a 3m cascade were noted in the section of the creek that runs at a 20% gradient.

Photo #: B-5-12, 16-Sep-96
Site #: B41, Looking upstream.

Photo #: B-5-13, 16-Sep-96
Site #: B41, Looking downstream.

Photo #: B-5-14, 16-Sep-96
Site #: B41, Falls that serve as a barrier to fish passage.

DFO/MoELP Stream Survey Form

Site Number: B44 **Reach No.: 6**

Sam Green Cr.

TRITON Environmental Consultants Ltd.

Location: B44 , Kispiox district , see C5. **Stream (Gaz.):** Sam Green Creek **Watershed Code:** 480-0129-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072 **Reach Length (km):** 3.3 MA **Date:** 16-Sep-96 **Time:** 14:40 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5774 .61823 **Length surveyed (m):** 350.0 HC **Survey Crew:** JP\DD\ \ \ \ \ \ \ **Photos:** B-5-22,23,24 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	10.2	MS
Av. Wet. Width (m):	5.0	MS
Av. Max Riffle Depth (cm):	11	MS
Av. Max Pool Depth (cm):	45	MS
Gradient (%):	8.0	CL
Pool: 5 Riffle: 50 Run: 30 Other:	15	
% Side Channel:	10-40	GE
% Debris Area:	0-5	GE
%Stable:	10	GE

Specific Data

10.9	7.2	6.0	18.0	11.5	7.5
4.8	5.0	4.0	6.0	4.5	6.0
12	10	12			
40	36	60			

Cover

Cover Total % : 60 GE

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

Crown Closure % : 0 Aspect : SE

Bed Material

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

D90 (cm): 35 Compaction: Medium

Discharge

Wetted Width (m) :	4.1	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.60	F
Discharge (m3/s) :	0.37	F

Banks

Height (m): 0.6

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

NF

10 B 8.0 | 0271

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

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.6

Bars (%): 20 pH: 8.3 Braided: Y

Water Temp. (°C): 6.0 02 (ppm):

Turb. (cm): 60 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location
	20	F	5.3
	5	F	6.6
	10	F	7.4
	8	F	8.4

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 = 40%, RS = 40%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 881 seconds over 1400 square meters.

C5 Lat N 55 46' 48.6, Long W 127 46' 08.8"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 No additional fish habitat information.

C9 There are several falls downstream of the site which bar fish passage upstream. There is also a low probability of a resident fish population. As a result this stream has been classified as non fish bearing. Future sampling is recommended despite the S5 classification.

C10 There are some sections of bedrock in the creek and some small sections of eroding banks at this site which is just below an alpine meadow.

C11 The air temperature at this site was 7 degrees celcius.

Photo #: B-5-22, 16-Sep-96
Site #: B44, Looking upstream.

Photo #: B-5-23, 16-Sep-96
Site #: B44, Looking downstream.

Photo #: B-5-24, 16-Sep-96
Site #: B44, Falls downstream which are a barrier to fish passage.

5.6 Sheladamus Creek

5.6.1 Physical

Sheladamus Creek is a glacier fed system with a mainstem length of 14.6 km and flows east into the Skeena river. The creek is located in a steep valley. The watershed elevation ranges from 430 m to 1326 m. The watershed has 24 tributaries with a total length of 49.5 km. A total of five sites were sampled. A 10 m impassable falls is located 0.9 km upstream, and Reach 2 is located within a canyon. The upper part of the watershed (Reach 3) contains wetland habitat. The valley walls are extremely steep.

5.6.2 Fish

No historical fish data was located during the review of existing data. Four of the sites were sampled by electrofishing but fish were only captured at site A5O in Reach 1. An adult Rocky mountain whitefish and juvenile salmon were present. Above the impassable falls at 0.9 km, no fish were captured and a potential lack of overwintering habitat was noted.

5.6.3 Stream Classification

The lower reach of Sheladamus Creek is classified as S2 based on an average channel width of 13 m and the presence of fish. The mainstem upstream of the falls is classified as S5 based on the absence of fish, and the potential lack of overwintering habitat. It is recommended that future sampling be carried out above the falls to confirm the absence of resident fish populations.

DFO/MoELP Stream Survey Form

Site Number: A50 **Reach No.: 1**

Sheladamus Cr.

TRITON Environmental Consultants Ltd.

Location: A50 , Kispiox district , see C5. **Stream (Gaz.):** Sheladamus Creek **Watershed Code:** 400-6366-000-000-000-000-000-000-000-000-000-0

Map #: 94 D 001 **Reach Length (km):** 0.9 MW **Date:** 18-Sep-96 **Time:** 16:18 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5646 .62115 **Length surveyed (m):** 60.0 GE **Survey Crew:** JP\KG\ \ \ \ \ \ \ **Photos:** A-6-23, A-7-1 **Air Photos:**

Channel Characteristics

C9	Av. Chan. Width (m):	13.2	GE
	Av. Wet. Width (m):	6.9	GE
	Av. Max Riffle Depth (cm):	19	MS
	Av. Max Pool Depth (cm):	41	MS
	Gradient (%):	4.0	CL
	Pool: 15 Riffle: 30 Run: 15 Other: 40		
	% Side Channel:	0-10	GE
	% Debris Area:	5-15	GE
	%Stable:	30	GE

Specific Data

12.0	13.0	12.0	15.0	13.0	14.0
5.0	6.0	9.0	6.5	7.0	8.0
16	20	17	19	21	
55	22	34	52	44	

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
15	20	40	0	20	5

Crown Closure % : 20 Aspect : NE

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	15	5
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	55	15
	Lge cobble (128-256mm):		25
	Bldr cobble (>256mm):		15
Bedrock		20	20

D90 (cm): 85 Compaction: High

Discharge

C9	Wetted Width (m) :		
C9	Mean Depth (m) :		
C9	Mean Velocity (m/s) :		
C9	Discharge (m3/s) :		

Banks

Height (m): 1.5

% Unstable: 30

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0

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

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 55 Cond. (µmhos): 60

Reach Symbol

(Fish)

MW, SA

13 A 4.0 | 1162

(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
	MW	1	340	A				EL
	SA	1	57	J	R			EL

Comments

C1 S2

C2 LS = 74%, RS = 78%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model was 217 seconds over 50 meters.

C5 Lat N 56 02' 41.7", Long W 127 57' 51.9"

C6 No additional bank texture information.

C7 DO was not measured.

C8 Rearing and spawning habitat were noted at this site.

C9 The wading conditions at this site were dangerous. As such channel and wetted widths were estimated and discharge could not be measured.

C10 The air temperature at this site was 12 degrees celcius.

Photo #: A-6-23, 18-Sep-96
Site #: A50, Confluence at A50 site.

Photo #: A-7-1, 18-Sep-96
Site #: A50, Looking a channel bottom.

DFO/MoELP Stream Survey Form

Site Number: A47 **Reach No.:** 1

Trib. to Sheladamus Cr.

TRITON Environmental Consultants Ltd.

Location: A47 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6366-000-000-000-000-000-000-000-000-000-0

Map #: 94 D001 **Reach Length (km):** 0.2 MA **Date:** 18-Sep-96 **Time:** 10:56 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5629 .62115 **Length surveyed (m):** 140.0 GE **Survey Crew:** JP \KG\ \ \ \ \ \ \ **Photos:** A-6-16,17 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.1	MS
Av. Wet. Width (m):	0.8	MS
Av. Max Riffle Depth (cm):	4	MS
Av. Max Pool Depth (cm):	8	MS
Gradient (%):	42.0	CL
Pool: 10 Riffle: 15 Run: 10 Other:	65	
% Side Channel:	0	GE
% Debris Area:	>15	GE
%Stable:	40	GE

Specific Data

0.7	0.9	0.8	1.3	1.5	1.4
0.5	0.4	0.6	0.6	1.2	1.2
5	2	4	4	5	4
7	12	8	7	6	10

Bed Material

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

D90 (cm): 44 Compaction: High

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	20	25	0	45	0

Crown Closure % : 70 Aspect : N

Discharge

Wetted Width (m) :	0.8	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.32	F
Discharge (m3/s) :	0.02	F

Banks

Height (m): 0.3

% Unstable: 40

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.5

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

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 12 Cond. (µmhos): 10

Reach Symbol

(Fish)

NF

1 C 42.0 | 1270

(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				VO

Comments

C1 S6

C2 LS = 58%, RS = 56%

C3 No fisheries sensitive zones were noted in the area.

C4 No attempt was made to electroshock this stream as it was too shallow and was clearly not fish habitat.

C5 Lat N 56 02' 42.2", Long W 127 59' 27.1"

C6 No additional bank texture information.

C7 DO was not measured.

C8 This stream has been classified as an S6 because it does not contain suitable fish habitat and has a steep gradient at the mouth, which would impede fish passage upstream.

C9 The air temperature at this site was 9 degrees celcius.

Photo #: A-6-16, 18-Sep-96
Site #: A47, Small cascade.

DFO/MoELP Stream Survey Form

Site Number: A49 **Reach No.:** 2

Sheladamus Cr.

TRITON Environmental Consultants Ltd.

Location: A49 , Kispiox district , see C5. **Stream (Gaz.):** Sheladamus Creek **Watershed Code:** 400-6366-000-000-000-000-000-000-000-000-000-0

Map #: 94 D 001 **Reach Length (km):** 6.3 MA **Date:** 18-Sep-96 **Time:** 12:55 **Agency:** TEC **Access:** FT **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5627 .62117 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP\KG\ \ \ \ \ \ **Photos:** A-6-20,21 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	11.7	HC
Av. Wet. Width (m):	9.8	HC
Av. Max Riffle Depth (cm):	20	MS
Av. Max Pool Depth (cm):	32	MS
Gradient (%):	3.0	CL
Pool: 10 Riffle: 60 Run: 15 Other:	15	
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	30	GE

Specific Data

8.2	10.7	11.7	11.7	12.2	15.5
7.2	9.9	10.5	8.3	11.1	12.0
12	28	29	17	14	20
33	34	30	37	31	30

Cover

Cover Total % : 40 GE

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

Crown Closure % : 10 Aspect : E

Bed Material

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

D90 (cm): 74 Compaction: High

Discharge

Wetted Width (m) :	9.4	HC
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.63	F
Discharge (m3/s) :	1.33	F

Banks

Height (m): 0.8

% Unstable: 30

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 1.2

Bars (%): 10 pH: 8.1 Braided: Y

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 34 Cond. (µmhos): 60

Reach Symbol

(Fish)

NF

12 B 3.0 | 1261

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

Obstructions

C	Height (m)	Type	Location
C9	10	F	0.9

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 = 41%, RS = 44%

C3 No fisheries sensitive zones were noted on site.

C4 The electroshocking effort, using a 12 B POW model, was 466 seconds over 100 meters. Suitable fish habitat is abundant in this reach, but no fish were caught in the electrofishing trial.

C5 Lat N 56 02' 44.8", Long W 127 59' 26.6"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 Some very nice boulder, pool and LOD rearing cover exists at this site. Spawning habitat was also noted. However, no fish were caught in the electroshocking trial.

C9 Future sampling is recommended at this site despite the S5 classification. No fish were caught in the sampling area, located above the 10 meter falls on this creek. As a result this reach has been given a non fish bearing classification.

C10 The air temperature at this site was 9 degrees celcius.

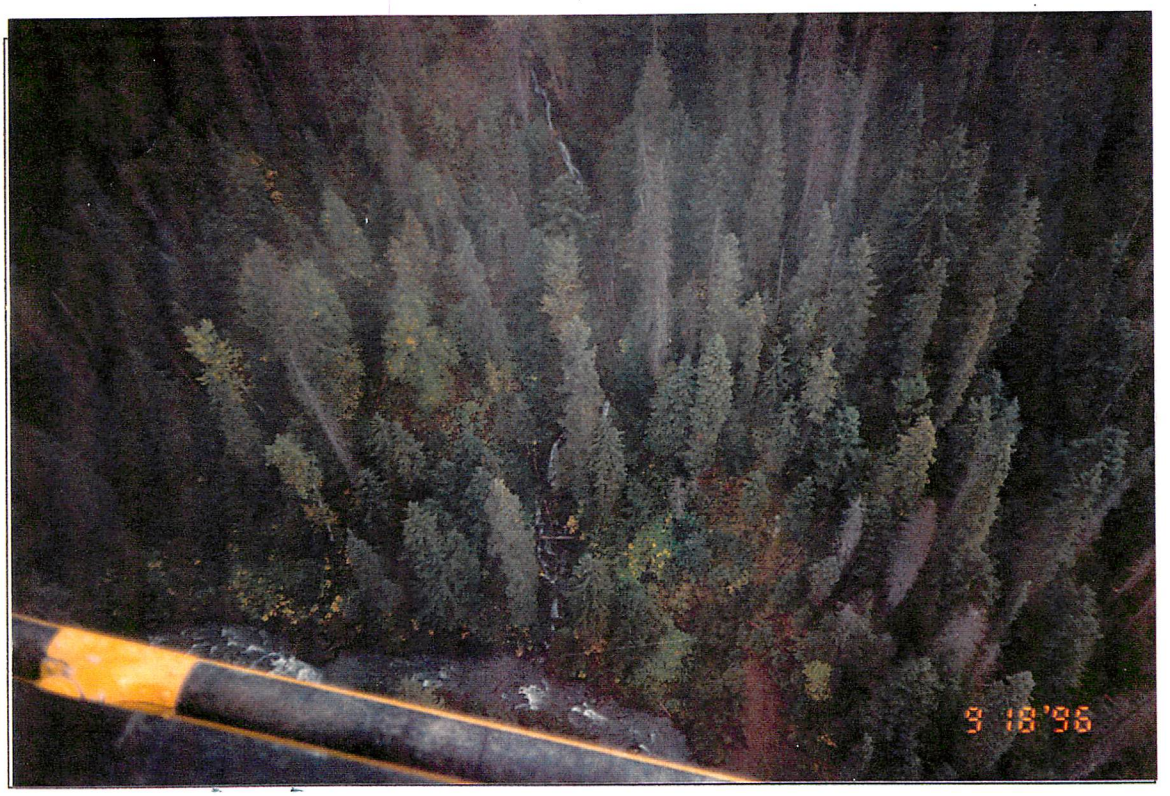


Photo #: A-6-13, 18-Sep-96
Site #: A49, Tributary coming in.

Photo #: A-6-20, 18-Sep-96
Site #: A49, Looking upstream.

Photo #: A-6-21, 18-Sep-96
Site #: A49, Looking downstream.

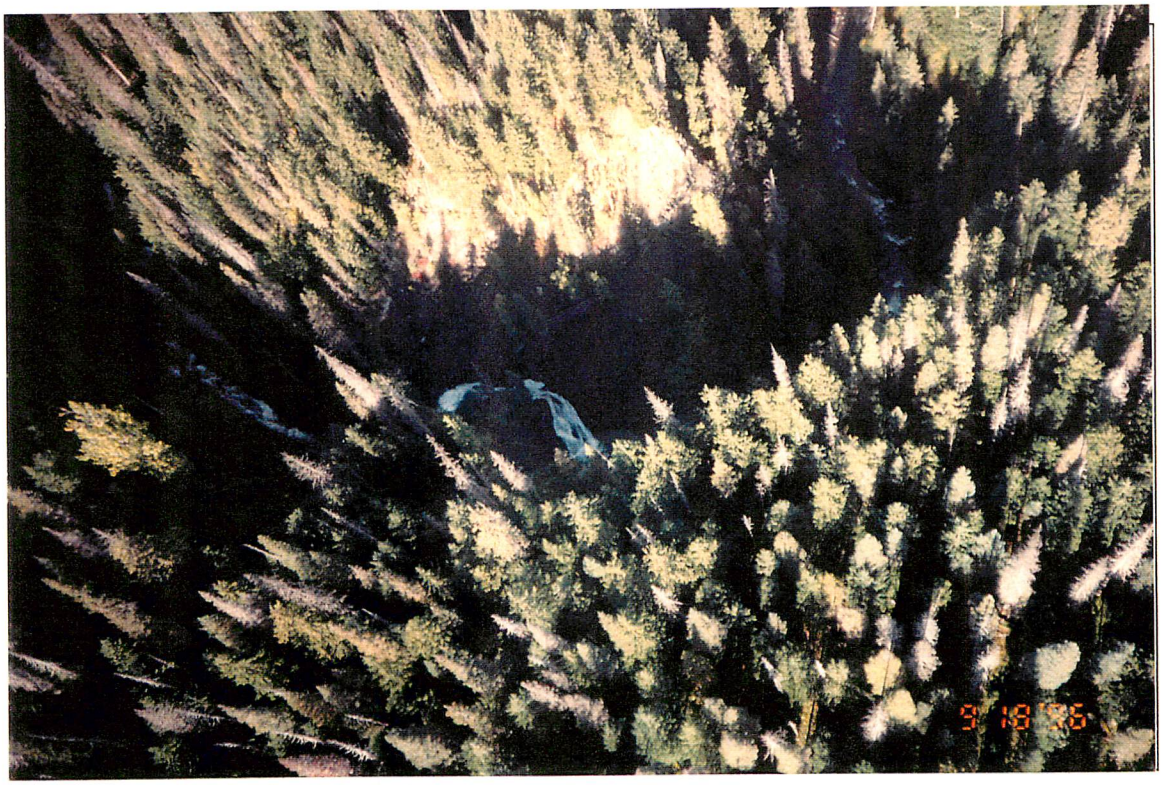


Photo #: A-6-22, 18-Sep-96
Site #: A49, 10 m falls - downstream from site A49..

DFO/MoELP Stream Survey Form

Site Number: A48 **Reach No.:** 1

Trib. to Sheladamus Cr.

TRITON Environmental Consultants Ltd.

Location: A48 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-6366-000-000-000-000-000-000-000-000-000-0

Map #: 94 D001 **Reach Length (km):** 0.2 MA **Date:** 18-Sep-96 **Time:** 12:13 **Agency:** TEC **Access:** FT **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5625 .62119 **Length surveyed (m):** 80.0 GE **Survey Crew:** JP\KG\ \ \ \ \ \ \ **Photos:** A-6-14,18,19 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.5	T
Av. Wet. Width (m):	2.7	T
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	18	MS
Gradient (%):	39.0	CL
C9 Pool: 20 Riffle: 10 Run: 10 Other:	60	
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	20	GE

Specific Data

4.4	4.3	4.0	5.3	4.9	4.2
3.2	2.9	2.0	2.5	2.5	3.0
3	9	10	6	2	
17	28	11	23	12	

Bed Material

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

D90 (cm): 72 Compaction: High

Cover

Cover Total % : 15 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
5	35	40	0	20	0

Crown Closure % : 5 Aspect : SW

Discharge

Wetted Width (m) :	3.8	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	1.00	F
Discharge (m3/s) :	0.29	F

Banks

Height (m): 0.4

% Unstable: 20

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Confinement: EN

Valley : Channel Ratio 0-2

Stage: L Flood Signs Ht(m): 2

Bars (%): 0 pH: 7.8 Braided: Y

Water Temp. (°C): 02 (ppm):

Turb. (cm): 28 Cond. (µmhos): 40

Reach Symbol

(Fish)

NF

4 A 39.0 | 1126

(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 = 42%, RS = 51%

C3 No fisheries sensitive zones were noted in the area.

C4 The electroshocking effort, using a 12 B POW model was 35 seconds over 5 meters. The steep gradient and very slippery exposed, wet bedrock made shocking very difficult. In addition there were very few places in the sampling area that could have been used by fish.

C5 Lat N 56 02' 54.1", Long w 127 59' 37.3"

C6 No additional bank texture information.

C7 DO and water temperature were not measured at this site. The water was clear to the bottom.

C8 This stream was given a non fish bearing classification because of the steep gradient and lack of suitable fish habitat observed in the sampling area. Water was sheeting over bedrock at the mouth of the stream.

C9 60%, of the flow type at this site was comprised of cascades and chutes.

C10 The air temperature at this site was 9 degrees celcius.

Photo #: A-6-14, 18-Sep-96
Site #: A48, Photo location on map.

Photo #: A-6-18, 18-Sep-96
Site #: A48, Cascade.

Photo #: A-6-19, 18-Sep-96
Site #: A48, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B67

Reach No.: 2

Sheladamus Cr.

TRITON Environmental Consultants Ltd.

Location: B67 , Kispiox district , upstream of some swamps , see C5.

Stream (Gaz.): Sheladamus Creek

Watershed Code: 400-6366-000-000-000-000-000-000-000-000-000-0

Map #: 104A010 **U.T.M. :** 9 .5582 .62129

Reach Length (km): 6.3 MA **Length surveyed (m):** 200.0 HC

Date: 18-Sep-96 **Time:** 15:45 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

Survey Crew: JP \DD \ \ \ \ \ \ \ **Photos:** B-7-19,20 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	8.5	HC
Av. Wet. Width (m):	7.7	HC
Av. Max Riffle Depth (cm):	21	MS
Av. Max Pool Depth (cm):	35	MS
Gradient (%):	2.0	CL
Pool: 10 Riffle: 60 Run: 30 Other:	0	
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	20	GE

Specific Data

12.3	6.0	9.0	8.0	8.0	7.8
12.1	4.6	8.0	7.6	7.4	6.6
20	20	22			
40	30				

Cover

Cover Total % : 60 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
5	5	50	0	40	0

Crown Closure % : 30 Aspect : E

Bed Material

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

D90 (cm): 42 Compaction: Medium

Discharge

Wetted Width (m) :	5.5	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.87	F
Discharge (m3/s) :	0.72	F

Banks

Height (m): 0.4

% Unstable: 30

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

NF

9 D 2.0 | 1270

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

Confinement: OC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 10 pH: 7.1 Braided: Y

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 40 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location
	10	F	0.8

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 = 70%, RS = 80%

C3 No fisheries sensitive zones were noted at this site.

C4 The electrofishing effort was not recorded at this site.

C5 Lat N 56 04' 01.9", Long W 128 05' 22.7"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 Some good spawning and rearing habitat was observed at this site. However, the 10 meter falls below the sampling area would prevent fish passage into this reach. In addition, the lack of overwintering habitat in the area makes the presence of a resident population unlikely. As a result the reach has been classified as non fish bearing. Future sampling should be considered for this site.

C9 This creek was evaluated upstream of a marshy pond area. The valley bottom is heavily overgrown by willow, which made helicopter access difficult.

C10 The air temperature at this site was 8 degrees celcius.

C11 Excellent moose habitat was observed at this site.

Photo #: B-7-19, 18-Sep-96
Site #: B67, Looking upstream.

Photo #: B-7-20, 18-Sep-96
Site #: B67, Looking downstream.

5.7 Guish Creek

5.7.1 Physical

Guish Creek flows east into the Skeena River. The mainstem has a classified length of 6 km and four tributaries add an additional length of 2.4 km. The elevation ranges from 420 to 1250 m. Two sites were sampled, one in the lower reach at B60, and one site B61 upstream of a 7 m, 3 m, and two 6 m falls. The first reach is fairly short with a reach length of 0.1 km. The second reach is located on a low gradient bench-like section before reach three increases in gradient.

5.7.2 Fish

No previous data for fish was found for Guish Creek. The sites above and below the impassable falls were sampled to determine fish distribution. Dolly Varden and rainbow trout were captured by electrofishing at site B60. No fish were captured upstream of the falls at site B61 and the upper reaches are thought to lack overwintering habitat.

5.7.3 Stream Classification

The lower reach of Guish Creek is classified as an S3 due to the presence of fish and an average channel width of 5 m. Upstream of the falls, the mainstem is classified as S5 and the tributaries are S6 due to the lack of fish populations.

DFO/MoELP Stream Survey Form

Site Number: B60

Guish Cr.

Reach No.: 1

TRITON Environmental Consultants Ltd.

Location: B60 , Kispiox district , north side of block 22, see C5 **Stream (Gaz.):** Guish Creek **Watershed Code:** 400-6360-000-000-000-000-000-000-000-000-000-0

Map #: 94 D 001 **Reach Length (km):** 0.1 MA **Date:** 18-Sep-96 **Time:** 10:20 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M.: 9 .5648 .62111 **Length surveyed (m):** 127.0 HC **Survey Crew:** JP\DD\ \ \ \ \ \ \ **Photos:** B-6-26, B-7-1,2 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.9	MS
Av. Wet. Width (m):	4.2	MS
Av. Max Riffle Depth (cm):	12	MS
Av. Max Pool Depth (cm):	40	MS
Gradient (%):	8.0	CL
Pool: 10 Riffle: 40 Run: 35 Other: 15		
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	40	GE

Specific Data

4.2	3.9	6.5	5.0	4.7	5.2
4.0	3.7	3.5	4.5	4.5	5.0
12	10	14			
40	40				

Cover

Cover Total %: 60 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
25	10	50	0	5	10

Crown Closure %: 15 Aspect: E

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):		15
	Bldr cobble (>256mm):		20
Bedrock		10	10

D90 (cm): 60 Compaction: Medium

Discharge

Wetted Width (m):	4.3	MS
Mean Depth (m):	0.2	MS
Mean Velocity (m/s):	0.60	F
Discharge (m3/s):	0.39	F

Banks

Height (m): 1.2

% Unstable: 30

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 1

Bars (%): 10 pH: 7.1 Braided: N

Water Temp. (°C): 7.5 02 (ppm):

Turb. (cm): 40 Cond. (µmhos):

Reach Symbol

(Fish)

RB DV

5 A 8.0 | 1351

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

Obstructions

C	Height (m)	Type	Location
	1	C	0.0
	2	C	0.1
	7	F	0.1

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	DV	1	130	A				EL
C4	RB	2	65-80	J				EL

Comments

C1 S3

C2 LS = 70%, RS = 70%

C3 No fisheries sensitve zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model was 410 seconds over 500 meters squared. In addition to the juvenile rainbow trout caught, an adult rainbow trout 120 mm in length was also caught and was clipped to obtain a DNA sample.

C5 Lat N 56 02' 26.2", Long W 127 57' 39.8"

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 No additional fish habitat information.

C9 The falls on this stream are a barrier to fish passage upstream. However, the bottom part of this reach is crowded with rainbow trout.The crew attempted to get above the falls but could not.

C6 The bedrock canyon walls are somewhat unstable. Talus buildup was noted in this area.

C10 The air temperature at this site was 9 degrees celcius.

Photo #: B-6-26, 18-Sep-96
Site #: B60, Looking upstream.

Photo #: B-7-1, 18-Sep-96
Site #: B60, Cascades.

Photo #: B-7-2, 18-Sep-96
Site #: B60, Looking downstream.

Photo #: B-7-2a, 18-Sep-96
Site #: B60, Rainbow trout.

DFO/MoELP Stream Survey Form

Site Number: B61 **Reach No.:** 3

Guish Cr.

TRITON Environmental Consultants Ltd.

Location: B61 , Kispiox district , see C5 **Stream (Gaz.):** Guish Creek. **Watershed Code:** 400-6360-000-000-000-000-000-000-000-000-000-0

Map #: 94 D001 **Reach Length (km):** 1.0 MA **Date:** 18-Sep-96 **Time:** 12:03 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5631 .62102 **Length surveyed (m):** 150.0 HC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-7-3,4 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	6.6	MS
Av. Wet. Width (m):	4.7	MS
Av. Max Riffle Depth (cm):	9	MS
Av. Max Pool Depth (cm):	36	MS
Gradient (%):	9.0	CL
Pool: 10 Riffle: 80 Run: 5 Other: 5		
% Side Channel:	10-40	GE
% Debris Area:	5-15	GE
%Stable:	80	GE

Specific Data

9.4	8.5	6.0	5.2	6.0	4.6
7.1	5.4	3.5	4.0	5.8	2.3
6	12	10			
32	40				

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	30
	Lge cobble (128-256mm):		25
	Bldr cobble (>256mm):		5
Bedrock		0	0

D90 (cm): 26 Compaction: Medium

Cover

Cover Total % : 60 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
15	25	50	0	5	5

Crown Closure % : 10 Aspect : E

Discharge

Wetted Width (m) :	3.7	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.67	F
Discharge (m3/s) :	0.37	F

Banks

Height (m): 0.8

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.8

Bars (%): 40 pH: 7.1 Braided: Y

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 40 Cond. (µmhos):

Reach Symbol

(Fish)

NF

7 C 9.0 | 1360

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

Obstructions

C	Height (m)	Type	Location
	7	F	0.1
	3	F	0.9
	6	F	1.3
	6	F	1.4

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 = 15%, RS = 20%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model was 894 seconds over 800 meters squared.

C5 Lat N 56 01' 59.3", Long w 127 59' 12"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 This site provides some suitable fish habitat. A series of logs across the stream has created a number of pools. However, the probability of a resident population is low at this site. Sampling, at maximum voltage, was also carried out above the falls in this area to check for a resident population. Fish were not caught above the falls. The series of falls and the low probability of a resident population has resulted in the classification of this reach as non fish bearing. Future sampling is recommended to confirm the absence of fish at this site.

C9 The air temperature at this site was 10 degrees celcius.

Photo #: B-7-3, 18-Sep-96
Site #: B61, Looking upstream.

Photo #: B-7-4, 18-Sep-96
Site #: B61, Looking downstream.

5.8 Willowflat Creek

5.8.1 Physical

Willowflat Creek is a tributary to the Skeena River and flows east. Reach 1 is fairly low gradient and short, with a 10 m falls located 500 m upstream. Two sites were sampled in Willowflat Creek; B65 downstream of the falls and B64 upstream of the impassable barrier. There is another falls 20 m in height upstream of B64. The majority of Willowflat Creek upstream of Reach 1 is located in a steep canyon.

5.8.2 Fish

No historical data exists for Willowflat Creek. Both sites were sampled by electrofishing, with Dolly Varden and rainbow trout captured only in the lower reach. It is concluded that the series of impassable falls and the lack of overwintering habitat upstream result in the absence of fish.

5.8.3 Stream Classification

Reach 1 of Willowflat Creek is classified as fish bearing and is S2 based on an average channel width of 12 m. Upstream of the falls, Willowflat Creek is classified as S5 based on the absence of fish.

DFO/MoELP Stream Survey Form

Site Number: B65 **Reach No.: 1**

Willowflat Cr.

TRITON Environmental Consultants Ltd.

Location: B65 , Kispiox district , see C5. **Stream (Gaz.):** Willowflat Creek **Watershed Code:** 400-6294-000-000-000-000-000-000-000-000-000-0

Map #: 94 D 001 **Reach Length (km):** 0.5 MA **Date:** 18-Sep-96 **Time:** 16:45 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5661 .62075 **Length surveyed (m):** 160.0 HC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-7-13,14,15,16 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	12.3	HC
Av. Wet. Width (m):	6.1	HC
Av. Max Riffle Depth (cm):	22	MS
Av. Max Pool Depth (cm):	75	MS
Gradient (%):	5.0	CL
Pool: 5 Riffle: 60 Run: 35 Other: 0		
% Side Channel:	0-10	GE
% Debris Area:	0-5	GE
%Stable:	20	GE

Specific Data

12.0	12.0	11.5	13.0	15.2	10.2
4.9	8.0	6.0	8.0	4.5	5.3
23	20				
70	80				

Cover

Cover Total % : 60 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	10	70	0	5	5

Crown Closure % : 5 Aspect : E

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): 40 Compaction: Medium

Discharge

Wetted Width (m) :	5.9	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	0.87	F
Discharge (m3/s) :	1.15	F

Banks

Height (m): 1.0

% Unstable: 40

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

RB DV

12 B 5.0 | 1360

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

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 1.5

Bars (%): 10 pH: 7.1 Braided: Y

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 80 Cond. (µmhos): 60

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB	10	60-80	J	R			EL
	DV	2	120-170	A				EL

Comments

C1 S2

C2 LS = 20%, RS = 70%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model was 305 seconds over 400 square meters.

C5 Lat N 56 00' 30.5", Long W 127 56' 24.3"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 Fish access and habitat is present in this stream up to the falls.

C9 The sampling area was located downstream of the falls . A large number of fish appear to be using this area. Gravel terraces run along the creek for the first 120 meters. The creek then becomes narrow.

C10 Spawning colouration was seen on the Dolly Varden at this site.

C11 The air temperature at this site was 12 degrees celcius.

Photo #: B-7-13, 18-Sep-96
Site #: B65, Looking upstream.

Photo #: B-7-14, 18-Sep-96
Site #: B65, Looking downstream.

Photo #: B-7-15, 18-Sep-96
Site #: B65, Rainbow trout captured by electrofishing.

Photo #: B-7-16, 18-Sep-96
Site #: B65, Barrier to fish passage that is upstream of site.

DFO/MoELP Stream Survey Form

Site Number: B64 **Reach No.: 2**

Willowflat Cr.

TRITON Environmental Consultants Ltd.

Location: B64 , Kispiox district , see C5. **Stream (Gaz.):** Willowflat Creek **Watershed Code:** 400-6294-000-000-000-000-000-000-000-000-000-0

Map #: 94 D 001 **Reach Length (km):** 4.3 MA **Date:** 18-Sep-96 **Time:** 15:40 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5656 .62074 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-7-9,10,11,12 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	15.7	HC
Av. Wet. Width (m):	7.5	HC
Av. Max Riffle Depth (cm):	22	MS
Av. Max Pool Depth (cm):	89	MS
Gradient (%):	5.0	CL
Pool: 30 Riffle: 40 Run: 20 Other:	10	
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	40	GE

Specific Data

19.4	16.4	12.7	10.6	15.0	20.2
8.7	9.0	4.3	4.0	10.0	9.3
24	20	22			
70	46	150			

Bed Material

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

D90 (cm): 80 Compaction: Medium

Cover

Cover Total % : 60 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	10	70	0	5	5

Crown Closure % : 20 Aspect : E

Discharge

Wetted Width (m) :	4.5	MS
Mean Depth (m) :	0.3	MS
Mean Velocity (m/s) :	1.30	F
Discharge (m3/s) :	1.32	F

Banks

Height (m): 1.3

% Unstable: 20

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 1

Bars (%): 20 pH: 7.6 Braided: Y

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 60 Cond. (µmhos):

Reach Symbol

(Fish)

NF

16 A 5.0 | 0271

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

Obstructions

C	Height (m)	Type	Location
	3	F	0.7
	7	F	0.6
	10	F	0.5

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 = 35%, RS = 35%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 293 seconds over 240 meters squared.

C5 Lat N 56 00' 27.7", Long W 127 56' 54.7"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was cloudy.

C8 The water was running quite fast at this site, however it does contain some pool and LOD cover.

C9 An aerial reconnaisance of this creek revealed that it splits into three branches, and a 20 meter falls is located upstream of this sampling site on the main creek. The creek runs between 2 proposed cutblocks. Flagging tape, indicating a proposed road was seen just above the falls. Sampling was carried out above and below the 3 meter cascade, which fish are suspected to be able to move past. Below the road crossing, the channel becomes canyon like, containing a bedrock substrate. A 10 meter falls was observed 50 meters downstream of the road crossing. No fish were caught at this site, which is located above a 7 meter falls. As such this reach is classified as non fish bearing.

C10 Future sampling is recommended to determine the presence or absence of fish at this site.

C11 The air temperature at this site was 14 degrees celcius.

Photo #: B-7-10, 18-Sep-96
Site #: B64, Looking downstream.

Photo #: B-7-11, 18-Sep-96
Site #: B64, 3 m cascade.

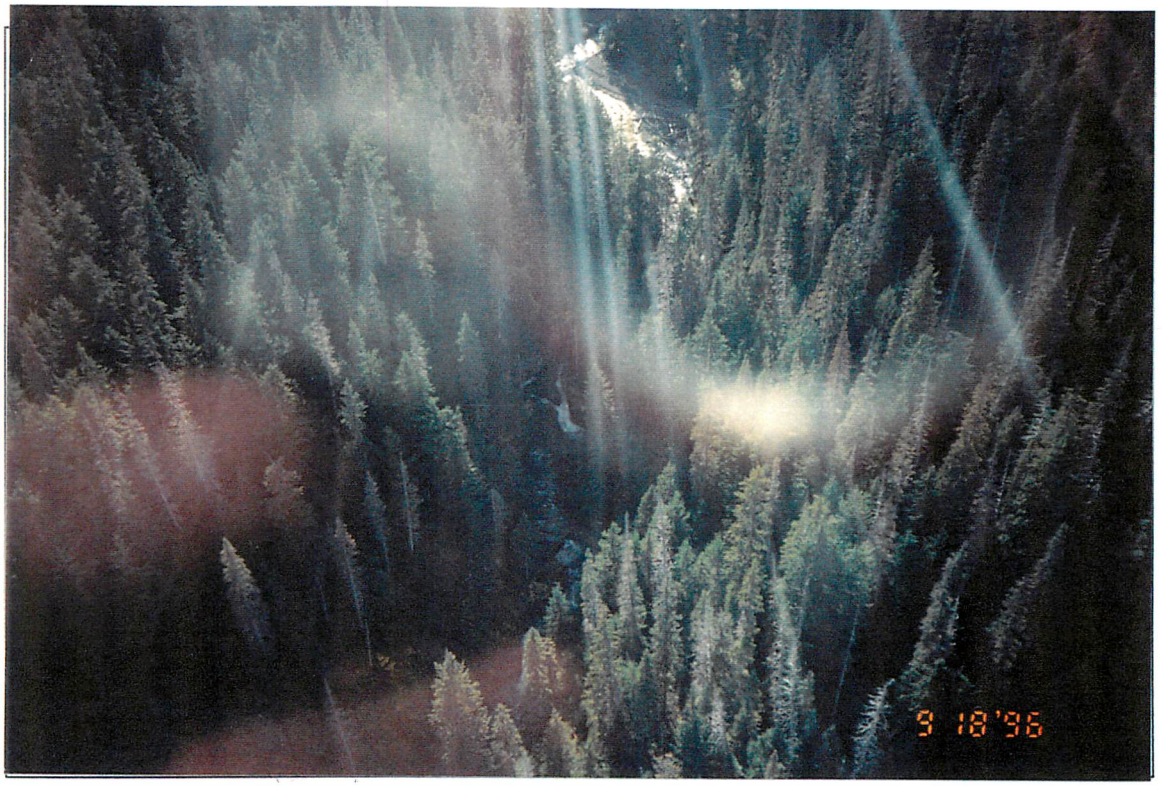


Photo #: B-7-12, 18-Sep-96
Site #: B64, Falls from aerial photo.

Photo #: B-7-9, 18-Sep-96
Site #: B64, Looking downstream.

5.9 Tributaries to Skeena River

The Skeena mainstem on 1:50,000 mapsheets 93M012, 93M013, and 94D04 totals 92.7 km in length. There are numerous tributaries that flow into the Skeena River and for ease of presentation, the unnamed tributaries are listed by site and TRIM mapsheet number. In the study area, the Skeena River is located within a very steep valley and nineteen tributaries were sampled.

5.9.1 Site B46 (93M072)

This tributary is located to the west of the confluence of the Skeena and Babine Rivers. The creek has a very short lower reach with a gradient of 22% and a 20 m chute located 125 m upstream of the mouth. The lower reach was sampled by electrofishing and rainbow trout were present. The lower reach is classified as S3 and is accessible to the Skeena River.

5.9.2 Site B47 (93M072)

The tributary marked by B47 was very similar in profile to B46 and was assessed from the air due to the lack of access. The lower reach is accessible to Skeena River and is thought to provide fish habitat. Therefore, the lower reach up to the gradient break is classified as S3.

5.9.3 Site A41 (93M072)

The tributary marked by A41 has a longer lower reach than the previous two sites but it also becomes steeper upstream. The lower reach was sampled by electrofishing and found to contain rainbow trout. The classification is S3 based on the presence of fish habitat.

5.9.4 Site B58 (93M071)

This tributary was sampled by electrofishing and was classified as non fish-bearing due to the steep gradient (30%) and the presence of several falls and cascades. Large sections of blowdown were observed during the aerial reconnaissance.

5.9.5 Site B59 (93M071)

This tributary was sampled by electrofishing and juvenile rainbow trout and Dolly Varden were captured, as well as an adult rainbow trout. The gradient of the lower reach is 17% and fish were present basically in every pool until the gradient increased to 30%. This is an example of step pool habitat providing suitable fish habitat at gradients near the 20% gradient cut-off.

5.9.6 Site A45 (93M071)

Sampling by electrofishing did not capture any fish in the lower reach which has an gradient of 26%. Two debris jams were noted in this stream at 80 and 90 m from the mouth but they are expected to blow out at high water and are not permanent barriers. The gradient at the mouth of this creek may not prevent fish access at high water and future sampling was recommended. The reach is classified as S3 based on the potential for fish presence.

5.9.7 Site A44, A43, A42 (93M071)

This tributary has a 3 m cascade near the mouth of the creek but it is not a barrier to fish passage as both Dolly Varden and rainbow trout were captured by electrofishing in the lower reach. The creek was flown upstream and no major obstructions were noted. Two sites were sampled upstream at A42 and A43. Both upstream sites were sampled by electrofishing but no fish were captured. Site A43 was blocked by wood and rock debris from a recent slide which prevents fish access. It is expected that the habitat upstream of the slide contains potential rearing habitat if a new channel is carved around the slide debris. A42 was considered to have potential rearing habitat and future sampling is recommended.

5.9.8 Site A46 (93M071)

The tributary marked by A46 was given a S2 classification because the average channel width is 5 m, which makes it a borderline width. An S2 classification was chosen as the stream is fish-bearing. Seven fish, adult Dolly Varden and rainbow trout, were captured by electrofishing within the first 60 m of the creek. No fish were caught beyond the log jams at this point, suggesting that it is a barrier to fish passage upstream at low to moderate flows.

5.9.9 Site B15 (93M081)

This tributary has steep sections with gradients of 40% near its confluence with the Skeena River. The gradient in the first reach of this stream varies from 20-30%. The second reach of this creek occurs on a bench, and has a gradient of less than 20%. This stream is classified as an S3 up to the steep gradient of the mountain side. Fish sampling was conducted in the lower reach and both rainbow trout and Dolly Varden were captured in gradients of 24%.

5.9.10 Site B16 (93M081)

No fish were caught through electroshocking in this tributary, which has a gradient of 20% and flows into a larger tributary with steep gradient at the confluence with the Skeena River. Some unusually high conductivity and pH readings were recorded at this site. Road construction was noted upstream of the survey site at the time of sampling.

5.9.11 Site B19 (93M081)

Heavy siltation associated with road construction was noted in the tributary sampled at B19. Electrofishing was difficult at this site because of the high levels of instream sediment. This stream flows into a larger tributary which has steep gradient at the confluence with the Skeena River.

5.9.12 Site B18 (93M081)

Steep gradient characterizes the first 100m of this tributary, which flows out of a fish bearing lake. One hundred and eighty lake chub were caught in two gee traps during this inventory project.

5.9.13 Site B17 (93 M 081)

Steep gradient was noted at the mouth of this stream which flows out of a fish bearing lake. No fish were caught during the electrofishing trial, however, lake chub were successfully trapped in the lake upstream.

5.9.14 Site A16 (93M081)

An impassable 10m falls was observed at the mouth of this small stream, which is characterized by steep gradient and has been classified as non fish bearing.

5.9.15 Site A17 (93M081)

Two falls and a cascade were noted in the first 100m of this tributary, which has a gradient of 22%. The cascade at the mouth would prevent fish passage into this tributary. No evidence of a resident population was encountered through electroshocking.

5.9.16 Site A15 (93 M081)

The electroshocking trial yielded no fish at this site, which does contain some nice stepped pool habitat. The 3m cascade noted at the mouth appears to limit fish passage upstream. In addition, multiple 1m cascades were observed in the sampling area and the culvert at the road crossing runs at an 18% gradient.

5.9.17 Site A14 (93 M081)

.Reach 1 of this tributary appears to have quite steep gradient, however low gradient and excellent fish habitat were noted in reach 2. Reach 3 of this tributary has steep gradient and has been classified as non fish bearing. Despite the fact that no fish were caught through electroshocking in the sampling area, reaches 1 and 2 have been classified as fish bearing with recommendations for future sampling.

5.9.18 Site A13 (93M081)

A side channel to the Skeena River and no other channel, was noted at this site. This side channel would provide refuge from high flows in the Skeena.

5.9.19 Site A12 (93M091)

Three species, Dolly Varden, rainbow trout and cutthroat, were captured in 26% gradient at this site. A 1.5 m cascade located 10 m upstream of the mouth of the creek was not a barrier to fish passage.

5.9.20 Site A11 (93M091)

This site was classified as potentially fish bearing although two methods of sampling, electroshocking and minnow trapping, did not catch any fish. The creek is expected to provide rearing habitat if it is accessible and future sampling is recommended.

5.9.21 Site B12 (93M091)

A Dolly Varden was captured in 25% gradient at this tributary where 60% of the flow is cascades. The substrate is predominantly cobble and boulder.

5.9.22 Site B11 and B10 - Nancy Creek (93M091)

Two sites were sampled in Nancy Creek. Site B11 was classified as S2 due to the presence of rainbow trout and Dolly Varden and a channel width of 7 m. The gradient varied from 20 - 30% at the site with fish caught in pools in the steep gradient areas and both above and below the 1.5 m cascade. Site B10 was located in Reach 2 which is also an S2 as Dolly Varden were captured by electroshocking.

5.9.23 Site B2 (93M091)

This tributary is classified as S5 based on the average channel width of 12 m and the absence of fish. An active cutblock was noted on the left bank of the stream in the sampling area. The bridge crossing at this site does not appear to have negatively impacted the stream and no siltation was observed at the time of sampling. Upstream of the road, the creek enters into a canyon with a 5 m falls.

5.9.24 Site B4, B1 and B3 (93M091)

This tributary to the Skeena is classified as S2 based on an average channel width of 6.4 m and the presence of pink salmon, chinook and Dolly Varden. Spawning pink salmon were visually observed in pools 50 m upstream and can access the creek up to the 8 m falls. Two sites were sampled upstream of the 8 m falls, B1 and B3, and neither were found to contain fish with an intensive electroshocking effort for the two sites combined totaling 1374 seconds covering 2240 m^2 of habitat. The two upper branches run through and beside an active logging cutblock.

5.9.25 Sites A1 through A9 (93M091)

Sites A2 through A8 are located on various tributaries found upstream of a 7 m falls and a 3 m falls on the main tributary. The tributaries associated with sites A2, A3 and A4 have been classified as non fish bearing because of unsuitable habitat and a lack of evidence of resident populations. Sites A1, A5, A6, A7 and A8 have been classified as fish bearing because of favourable habitat present in the streams and in the large attached Smokee Lake. Site A1 located at the mouth of the main tributary was classified as fish bearing despite the presence of a 3m cascade, as a visual observation of a fish was made. The main tributary is characterized by canyon like confinement for the first 3km. Beyond this point the valley widens out considerably. It is recommended that inventory sampling be conducted in Smokee Lake to confirm the absence of a resident fish population.

5.9.26 Site A10 (93M091)

The first kilometer of this tributary is characterized by steep gradient and multiple cascades. No fish were caught during the electroshocking trial and suitable habitat is lacking. The attached lake was gee trapped and no fish were caught.

5.9.27 Sites B5 and B6 (93M091)

This stream is quite confined for approximately 1km. A 5 m falls separates reaches one and two on this tributary. Road building activities were noted at site B5 and some short term impacts like the introduction of debris into the channel were observed. No fish were caught through electrofishing on the tributary sampled at B5. Dolly Varden were caught at site B6 located downstream of the 5m falls on this system.

5.9.28 Sites B7 and B8 (93M091)

This tributary is somewhat confined in reaches 1 and 2. Site B7 is located in reach 3 which is located above 4 falls and is quite confined. No fish were caught in this reach however the habitat is favourable and the area has been classified as fish bearing with recommendations for future sampling. Site B8 is located below the falls barriers and rainbow trout are present.

5.9.29 Site B9 (93M091)

This tributary is characterized by low gradient, except an estimated 150m stretch in which a 4m falls is located. Above this falls the tributary has been classified as non fish bearing. Below the falls at site B9, the stream has been classified as fish bearing with recommendations for future sampling.

5.9.30 Site B66 (94D001)

This tributary was classified as potentially fish bearing based on aerial estimates due to the lack of access. No barriers to fish passage from the Skeena River were present in the first 400 m. It is expected that fish access this tributary to the 5 m cascade at the beginning of reach 2.

5.9.31 Site B63 (94D001)

Reach 1 of this stream is accessible from the Skeena River. Reach 2 runs at a steep gradient and contains a 5 m cascade and some bedrock substrate. Fish sampling was conducted in Reach 2 however no fish were captured and the reach was given a non fish bearing classification.

5.9.32 Site B62 (94D001)

The first reach of this creek occurs on an bench and does not appear to be directly connected to the Skeena River. A small lake is located at the headwater and the area is classified as non fish bearing although future sampling of the lake is recommended.

5.9.33 Site A51 (94D001)

This was an ephemeral creek which was classified as S6 as there was no suitable fish habitat. The channel did not contain any gravels, cobble or boulders. Steep gradient was observed near the mouth of the creek.

DFO/MoELP Stream Survey Form

Site Number: B46

Reach No.: 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B46 , Kispiox district , see C5.

Stream (Gaz.): Unnamed

Watershed Code: 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072

U.T.M. : 9 .5788 .61772

Reach Length (km): 0.3 MA

Length surveyed (m): 200.0 GE

Date: 16-Sep-96 **Time:** 17:00 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

Survey Crew: JP \DD\ \ \ \ \ \ \ **Photos:** B-6-4,5 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	4.1	MS
Av. Wet. Width (m):	2.3	MS
Av. Max Riffle Depth (cm):	15	MS
Av. Max Pool Depth (cm):	31	MS
Gradient (%):	22.0	CL
Pool: 20 Riffle: 30 Run: 10 Other:	40	
% Side Channel:	10-40	GE
% Debris Area:	>15	GE
%Stable:	40	GE

Specific Data

2.5	5.2	5.1	3.8	3.9	4.0
1.4	3.1	2.3	2.0	1.5	3.5
24	10	10			
40	32	21			

Cover

Cover Total % : 80 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	20	60	0	5	5

Crown Closure % : 60 Aspect : E

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	70	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		40
Bedrock		0	0

D90 (cm): 30 Compaction: Medium

Discharge

Wetted Width (m) :	1.2	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.47	F
Discharge (m3/s) :	0.04	F

Banks

Height (m): 1.0

% Unstable: 10

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

RB

4 A 22 0 | 1270

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

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0 8

Bars (%): 20 pH: 8 7 Braided: Y

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 40 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location
	1	C	0.0
	20	C	0.1

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB	1	90	J	R			EL

Comments

C1 S3

C2 LS = 70%, RS = 55%

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

C4 The electroshocking effort, using a 12 B POW model, was 652 seconds over 400 meters squared.

C5 Lat N 55 43' 57.5", Long W 127 44' 45.5"

C6 No additional bank texture information.

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 Boulder and LOD cover are prevalent at this site.

C9 The fish was caught in a section of the stream that had a 25% gradient. 125 meters upstream of the site , a 20 m high and a 30-40m high chute are found in the stream. Sampling above the chute yielded no fish. A series of .6 - .8 meter cascades was also noted at this site.

C10 The air temperature at this site was 11 degrees celcius.

C11 Yellow flagging was present at this site.

Photo #: B-6-4, 16-Sep-96
Site #: B46, Looking upstream.

Photo #: B-6-5, 16-Sep-96
Site #: B46, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B47

Reach No.: 1

Trib. to Skeeena R.

TRITON Environmental Consultants Ltd.

Location: B47 , Kispiox district , see C5.

Stream (Gaz.): Unnamed

Watershed Code: 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072

U.T.M. : 9 5767 6 1766

Reach Length (km): 0.1 MA

Length surveyed (m): 100.0 AE

Date: 16-Sep-96 **Time:** 18:12 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

Survey Crew: JP \DD\ \ \ \ \ \ \

Photos: B-6-7 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.0	AE
Av. Wet. Width (m):	2.0	AE
Av. Max Riffle Depth (cm):	20	AE
Av. Max Pool Depth (cm):	60	AE
Gradient (%):	10.0	AE
Pool: 30 Riffle: 50 Run: 10 Other: 10		
% Side Channel:	0-10	AE
% Debris Area:	>15	AE
%Stable:	20	AE

Specific Data

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	50	45	0	5	0

Crown Closure % : 0 Aspect : N

Bed Material

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

N D90 (cm): 28 N 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: 10

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.5

Bars (%): 40 pH: Braided: Y

N Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Reach Symbol

(Fish)

(RB)

3 B 10.0 | 1531

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

Obstructions

C	Height (m)	Type	Location
C9	20	C	0.0

Fish Summary

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

Comments

C1 S3

C2 LS=60%, RS = 60%

C3 No fisheries sensitive zones were noted in this area.

C4 No electroshocking was carried out at this site as it was evaluated from the air

C5 Lat N 55 43' 49", Long W 127 46' 29"

C6 No additional bank texture information.

C7 DO and conductivity measurements were not taken at this site. The water was clear to the bottom.

C8 Boulder and LOD cover are prevalent at this site. The large amount of gravel noted at this site could provide spawning habitat. This site could also provide rearing refuge from the Skeena River

C9 The stream is only accessible to fish for the first 80 meters. At this point the gradient becomes too steep. The channel is fan shaped at the confluence. Photo B-6-6 is of the 20 chute observed in this reach.

C10 The air temperature at this site was 8 degrees celcius.

Photo #: B-6-7, 16-Sep-96
Site #: B47, Aerial view of confluence with Skeena River.

DFO/MoELP Stream Survey Form

Site Number: A41 **Reach No.: 1**

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A41 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 072 **Reach Length (km):** 1.4 MA **Date:** 16-Sep-96 **Time:** 18:30 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5756 .61769 **Length surveyed (m):** 100.0 GE **Survey Crew:** KG \JP\ \ \ \ \ \ \ **Photos:** A-5-18,19,20 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.1	MS
Av. Wet. Width (m):	2.5	MS
Av. Max Riffle Depth (cm):	9	MS
Av. Max Pool Depth (cm):	21	MS
Gradient (%):	13.0	CL
Pool: 15 Riffle: 35 Run: 35 Other:	15	
% Side Channel:	0	GE
% Debris Area:	5-15	GE
%Stable:	60	GE

Specific Data

4.0	3.1	3.0	2.9	2.6	2.9
2.9	2.5	2.6	2.7	2.3	2.0
6	8	14	9	8	
23	20	20	21	19	

Cover

Cover Total % : 45 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
15	20	35	0	10	20

Crown Closure % : 45 Aspect : SE

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	10
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		30
Bedrock		0	0

D90 (cm): 48 Compaction: High

Discharge

Wetted Width (m) :	1.7	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.90	F
Discharge (m3/s) :	0.11	F

Banks

Height (m): 0.3

% Unstable: 35

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

RB

3 B 13.0 | 1360

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

Confinement: CO

Valley : Channel Ratio 2-5

Stage: L Flood Signs Ht(m): 0.5

Bars (%): 5 pH: 8.4 Braided: N

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 23 Cond. (µmhos): 270

Obstructions

C	Height (m)	Type	Location

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB	1	97	J	R			EL

Comments

C1 S3

C2 LS = 52%, RS = 29%

C3 No fisheries sensitive zones were noted in this area.

C4 The electroshocking effort, using a 12 B POW model, was 331 seconds over 80 meters.

C5 Lat N 55 43' 51.5", Long W 127 47' 49.6"

C6 No additional bank texture information.

C7 DO was not measured.

C8 Some nice rearing habitat was observed in the sampling area. Boulder cover was particularily prominent at this site.

C9 The air temperature was 8 degrees celcius.

Photo #: A-5-18, 16-Sep-96
Site #: A41, Rainbow trout in bag.

Photo #: A-5-19, 16-Sep-96
Site #: A41, Looking downstream..

Photo #: A-5-20, 16-Sep-96
Site #: A41, Looking upstream.

DFO/MoELP Stream Survey Form

Site Number: B58

Reach No.: 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B58 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 071 **Reach Length (km):** 1.6 MA **Date:** 17-Sep-96 **Time:** 17:30 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5744 .61773 **Length surveyed (m):** 30.0 GE **Survey Crew:** JP \DD \ \ \ \ \ \ **Photos:** B-6-21,22 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.0	MS
Av. Wet. Width (m):	1.2	MS
Av. Max Riffle Depth (cm):	13	MS
Av. Max Pool Depth (cm):	28	MS
Gradient (%):	30.0	CL
Pool: 5 Riffle: 10 Run: 5 Other:	80	
% Side Channel:		GE
% Debris Area:	0	GE
%Stable:	0	GE

Specific Data

2.2	2.0	3.0	1.0	2.0	1.5
0.8	2.0	1.7	0.4	1.4	1.1
8	18	12	14	13	
28	29				

Bed Material

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

D90 (cm): 80 Compaction: High

Cover

Cover Total % : 0 GE

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

Crown Closure % : 80 Aspect : SE

Discharge

Wetted Width (m) :	1.2	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.75	F
Discharge (m3/s) :	0 14	F

Banks

Height (m): 0.4

% Unstable: 0

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Confinement: EN

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 0 pH: 8.9 Braided: Y

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 29 Cond. (µmhos):

Reach Symbol

(Fish)

NF

2 A 30.0 | 0019

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

Obstructions

C	Height (m)	Type	Location
C9	2	F	0.0
	3	F	0.0
	3	C	0.0

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 = 80%, RS = 80%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 78 seconds over 50 meters.

C5 Lat N 55 44' 06.1", Long W 127 48' 53.4"

C6 No additional bank texture information.

C7 DO and conductivity wre not measured at this site. The water was clear to the bottom.

C8 This stream has been classified as non fish bearing because of the steep gradient, lack of overwintering habitat and the presence of falls and cascades near the mouth. An aerial reconnaisance revealed that large sections of blowdown occur in this area.

C9 The 1.5 meter falls listed in the obstruction section is located 20 meters from the mouth and the 2.5 meter falls also listed is located 25 meters from the mouth. The 3 meter cascade is located 3 meters from the mouth of the stream.

C10 The air temperature at this site was 12 degrees celcius.

Photo #: B-6-21, 17-Sep-96
Site #: B58, Looking upstream at cascade and falls.

Photo #: B-6-22, 17-Sep-96
Site #: B58, Looking at confluence with Skeena River.

DFO/MoELP Stream Survey Form

Site Number: B59

Reach No.: 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B59 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 071 **U.T.M. :** 9 5729 61769 **Reach Length (km):** 0.2 MA **Length surveyed (m):** 175.0 GE **Date:** 17-Sep-96 **Time:** 18:10 **Agency:** TEC **Survey Crew:** JP\DD\ \ \ \ \ \ \ **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐ **Photos:** B-6-23,24,25 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.8	MS
Av. Wet. Width (m):	1.9	MS
Av. Max Riffle Depth (cm):	10	MS
Av. Max Pool Depth (cm):	40	MS
Gradient (%):	17.0	CL
Pool: 30 Riffle: 45 Run: 5 Other: 20		
% Side Channel:	0-10	GE
% Debris Area:	30	GE
%Stable:	20	GE

Specific Data

5.0	4.0	2.7	3.3	3.4	4.4
1.6	1.7	2.1	1.8	2.2	1.8
8	11	12			
47	37	35			

Cover

Cover Total % : 50 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	40	35	0	0	5

Crown Closure % : 20 Aspect : NW

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): 90 Compaction: Medium

Discharge

Wetted Width (m) :	1.6	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.56	F
Discharge (m3/s) :	0.07	F

Banks

Height (m): 0.6

% Unstable: 20

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

RB DV

4 B 17.0	0370
(Width, Valley: Channel, Slope)	(Bed Material)

Confinement: CO

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.6

Bars (%): 30 pH: 8.4 Braided: Y

Water Temp. (°C): 8.5 02 (ppm):

Turb. (cm): 47 Cond. (µmhos):

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
C4	RB	4	79-96	J				EL
	DV	2	76-122	J				EL

Comments

C1 S3

C2 LS = 40%, RS =40%

C3 No fisheries sensitive zones were noted at the site.

C4 The electroshocking effort, using a 12 B POW model was 290 seconds. In addition to the fish listed in the fish summary, one adult rainbow trout, measuring 118 mm in length was also captured.

C5 Lat N 55 43' 56.8", Long 127 50' 23.8"

C6 No additional bank texture information

C7 DO and conductivity were not measured at this site. The water was clear to the bottom.

C8 Step pool habitat was prevalent at this site. Dolly varden and rainbow trout were present in every pool in the sampling area. The gradient of the creek increases to 20 - 30% at approximately 175 meters into the site. Fish were not caught after this point.

C9 A one meter cascade noted at 100 meters, was created by LOD and therofore is not a permanent obstruction.

C10 The air temperature at this site was 12 degrees celcius.

Photo #: B-6-23, 17-Sep-96
Site #: B59, Looking downstream.

Photo #: B-6-24, 17-Sep-96
Site #: B59, Looking upstream.

Photo #: B-6-25, 17-Sep-96
Site #: B59, Rainbow trout in bag.

DFO/MoELP Stream Survey Form

Site Number: A45 **Reach No.:** 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A45 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 071 **Reach Length (km):** 0.6 MA **Date:** 17-Sep-96 **Time:** 17:40 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5718 .61769 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP\KG\ \ \ \ \ \ \ **Photos:** A-6-8,9 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.4	T
Av. Wet. Width (m):	2.3	T
Av. Max Riffle Depth (cm):	9	MS
Av. Max Pool Depth (cm):	20	MS
Gradient (%):	26.0	CL
Pool: 15 Riffle: 30 Run: 20 Other:	35	
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	40	GE

Specific Data

2.8	2.0	3.8	3.4	3.0	5.2
1.8	1.4	1.9	1.9	1.8	4.9
4	6	11	16	9	
23	18	20	15	26	

Cover

Cover Total % : 50 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
5	15	30	0	25	25

Crown Closure % : 20 Aspect : NE

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	10
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		30
Bedrock		0	0

D90 (cm): 33 Compaction: High

Discharge

Wetted Width (m) :	2.5	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.85	F
Discharge (m3/s) :	0.32	F

Banks

Height (m): 0.4

% Unstable: 50

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(RB)

3 B 26.0 | 1360

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

Confinement: FC

Valley : Channel Ratio 2-5

Stage: L Flood Signs Ht(m): 0.7

Bars (%): 10 pH: 8.2 Braided: Y

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 26 Cond. (µmhos): 140

Obstructions

C	Height (m)	Type	Location
C8	1	X	0.1
C8	1	X	0.1

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 = 9%, RS = 24%

C3 No fisheries sensitive zones were noted on site.

C4 The electroshocking effort, using a 12 B POW model was 300 seconds over 100 meters.

C5 Lat N 55 44' 27.6", Long W 127 51' 55.1"

C6 No additional bank texture information.

C7 DO was not measured.

C8 This site could provide rearing habitat. Some nice boulder and cutbank cover was noted at this site.

C9 Two debris jams were noted in this stream at 80 and 90 meters from the mouth. They would most likely be blown out at high water and are therefore not permanent barriers. The gradient at the mouth of this creek may not prevent fish access at high water. Future sampling is recommended for this site.

C10 The air temperature at this site was 13 degrees celcius.

Photo #: A-6-8, 17-Sep-96
Site #: A45, Log jam above cascade.

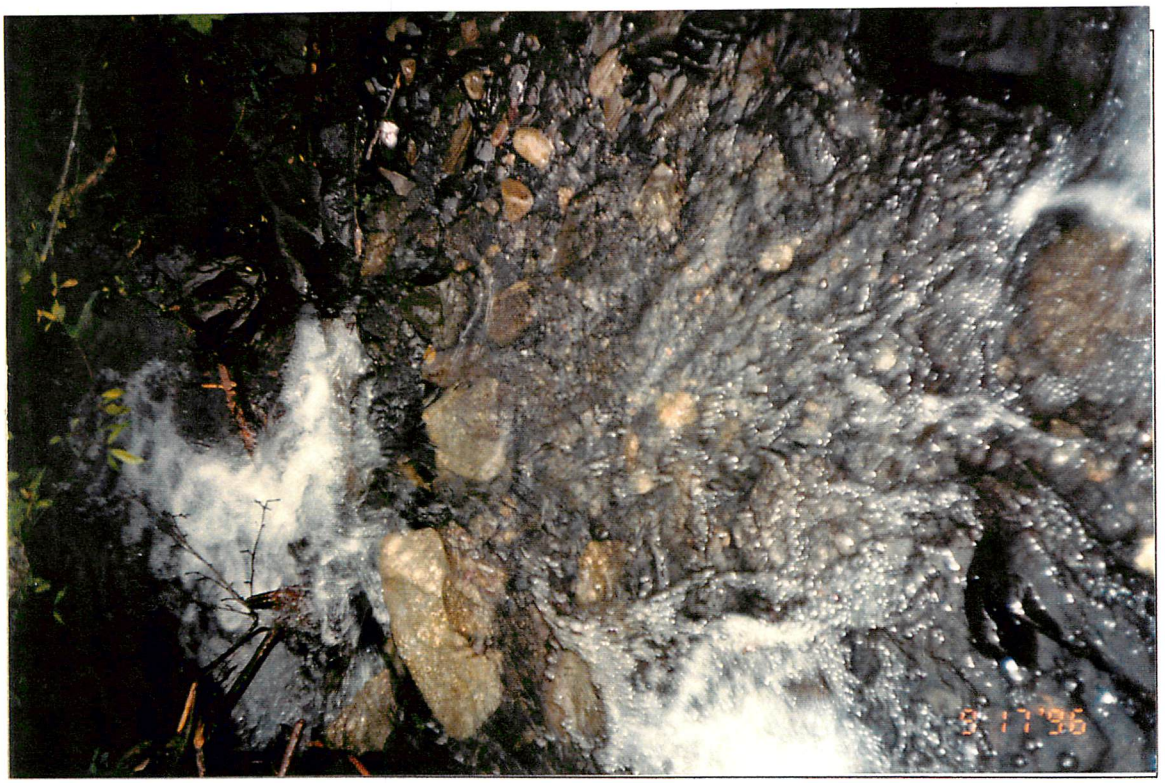


Photo #: A-6-9, 17-Sep-96
Site #: A45, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: A44 **Reach No.:** 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A44 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 071 **Reach Length (km):** 5.6 MA **Date:** 17-Sep-96 **Time:** 16:28 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5713 .61778 **Length surveyed (m):** 200.0 GE **Survey Crew:** JP \KG \ \ \ \ \ \ \ **Photos:** A-6-5,6,7 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	8.3	HC
Av. Wet. Width (m):	6.7	HC
Av. Max Riffle Depth (cm):	25	MS
Av. Max Pool Depth (cm):	15	MS
Gradient (%):	9.0	CL
Pool: 10 Riffle: 30 Run: 10 Other:	50	
% Side Channel:	0	GE
% Debris Area:	>15	GE
%Stable:	40	GE

Specific Data

7.5	6.0	5.3	6.3	11.8	13.1
6.3	5.8	4.4	6.1	9.1	8.2
33	17	14	30	18	37
17	12	13	16	13	20

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	25	35	0	15	15

Crown Closure % : 30 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	20
	Lge cobble (128-256mm):		20
	Bldr cobble (>256mm):		40
Bedrock		0	0

D90 (cm): 148 Compaction: High

Discharge

Wetted Width (m) :	8.6	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.50	F
Discharge (m3/s) :	0.32	F

Banks

Height (m): 0.5

% Unstable: 20

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.2

Bars (%): 5 pH: 8.3 Braided: N

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 20 Cond. (µmhos): 220

Reach Symbol

(Fish)

RB DV

8 B 9.0 | 1180

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

Obstructions

C	Height (m)	Type	Location
C9	3	C	0.0

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	DV	2	64-79	J	R			EL
	RB	1	153	A	R			EL

Comments

C1 S2

C2 LS = 16%, RS = 22%

C3 No fisheries sensitive zones were noted on site.

C4 The electroshocking effort, using a 12 B POW model, was 511 seconds over 150 meters.

C5 Lat N 55 44' 25.9", Long W 127 52' 00.5"

C7 DO was not measured.

C8 A large amount of boulder and LOD cover was observed at this site. Some excellent rearing habitat was found at this site.

C9 A 3 meter cascade was noted at the confluence of this stream with the Skeena. It is obviously not a barrier to fish passage.

C10 The air temperature at this site was 6 degrees celcius.

Photo #: A-6-5, 17-Sep-96
Site #: A44, Cascade at confluence which is not a barrier to fish passage.

Photo #: A-6-6, 17-Sep-96
Site #: A44, Looking upstream.

Photo #: A-6-7, 17-Sep-96
Site #: A44, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: A43 **Reach No.:** 2

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A43 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 071 **Reach Length (km):** 2.3 MA **Date:** 17-Sep-96 **Time:** 14:36 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5721 .61828 **Length surveyed (m):** 100.0 GE **Survey Crew:** JP \KG\ \ \ \ \ \ \ **Photos:** A-6-3,4 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	8.3	T
Av. Wet. Width (m):	5.7	T
Av. Max Riffle Depth (cm):	18	MS
Av. Max Pool Depth (cm):	36	MS
Gradient (%):	22.0	CL
Pool: 30 Riffle: 20 Run: 15 Other:	35	
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	65	GE

Specific Data

5.6	8.2	8.2	9.6	7.0	10.9
4.3	6.8	7.0	7.7	5.1	3.2
8	21	15	27	17	
60	38	28	40	13	

Cover

Cover Total % : 55 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
25	25	25	0	10	15

Crown Closure % : 10 Aspect : SW

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	20	5
	Large (16-64mm):		15
Larges	Sm. cobble (64-128mm):	40	10
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		20
Bedrock		30	30

D90 (cm): 155 Compaction: High

Discharge

Wetted Width (m) :	4.1	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.60	F
Discharge (m3/s) :	0.37	F

Banks

Height (m): 1.6

% Unstable: 30

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

(DV) (RB)

8 A 22.0 | 1243

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

Confinement: EN

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 2

Bars (%): 15 pH: 7.4 Braided: Y

Water Temp. (°C): 4.0 02 (ppm):

Turb. (cm): 60 Cond. (µmhos): 250

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 LS = 36%, RS = 34%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model was 423 seconds over 100 meters.

C5 Lat N 55 47' 17.9", Long W 127 51' 00.9"

C6 A fairly large percentage of the banks in the sampling area were unstable. Larges and bedrock made up the bank texture at this site.

C7 DO was not measured.

C8 This site could provide rearing habitat. Some deep pools and a large amount of LOD were observed in the channel. Future sampling is recommended to determine the presence or absence of fish.

C9 Woody and rocky slide debris was observed in the channel at the top end of the sampling site. Water was running through the rocks and woody debris, however, this material in the channel will prevent fish access upstream until it is blown out or a new channel is carved around it.

C10 The air temperature at this site was 6 degrees celcius.

C11 Cascades were prevalent at this site.

Photo #: A-6-3, 17-Sep-96
Site #: A43, Looking downstream.

Photo #: A-6-4, 17-Sep-96
Site #: A43, Looking upstream.

DFO/MoELP Stream Survey Form

Site Number: A42

Reach No.: 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A42 , Kispiox district , south of a meadow , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 071 **U.T.M. :** 9 .5708 .61834 **Reach Length (km):** 1.1 MW **Length surveyed (m):** 100.0 GE **Date:** 17-Sep-96 **Time:** 12:05 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐ **Survey Crew:** JP\KG\ \ \ \ \ \ \ **Photos:** A-6-1,2 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.3	MS
Av. Wet. Width (m):	1.1	MS
Av. Max Riffle Depth (cm):	7	MS
Av. Max Pool Depth (cm):	14	MS
Gradient (%):	4.0	CL
Pool: 15 Riffle: 25 Run: 60 Other:	0	
% Side Channel:	10-40	GE
% Debris Area:	5-15	GE
%Stable:	70	GE

Specific Data

1.7	1.6	1.2	0.9	1.3	0.9
1.8	1.4	1.0	0.7	1.0	0.9
9	6	7	5	6	
8	9	34	7	10	

Bed Material

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

D90 (cm): 28 Compaction: Low

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
5	35	10	5	10	35

Crown Closure % : 30 Aspect : S

Discharge

Wetted Width (m) :	0.8	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.05	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.1

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

(DV) (RB)

1	D	4.0	2440
(Width, Valley: Channel, Slope)			(Bed Material)

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0 2

Bars (%): 10 pH: 7.2 Braided: Y

Water Temp. (°C): 5.0 02 (ppm):

Turb. (cm): 34 Cond. (µmhos): 70

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 = 5%. RS = 5%

C3 No fisheries sensitive zones were noted in the area.

C4 The electrofishing effort, using a 12 B POW model was 196 seconds over 110 meters.

C5 Lat N 55 47' 29.3", Long W 127 52' 14.9"

C6 No additional bank texture information.

C7 DO was not measured.

C8 This site could be used for rearing by rainbow trout and Dolly Varden and as such future sampling is recommended to determine the presence or absence of fish.

C9 The air temperature at this site was 11 degrees celcius.

Photo #: A-6-1, 17-Sep-96
Site #: A42, Looking downstream.

Photo #: A-6-2, 17-Sep-96
Site #: A42, Potential rearing habitat.

DFO/MoELP Stream Survey Form

Site Number: A46 **Reach No.:** 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A46 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 071 **U.T.M. :** 9 .5698 .61778 **Reach Length (km):** 1.0 MA **Length surveyed (m):** 100.0 GE **Date:** 17-Sep-96 **Time:** 18:39 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐ **Survey Crew:** JP\KG\ \ \ \ \ \ \ **Photos:** A-6-10,11,12 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	5.0	T
Av. Wet. Width (m):	1.9	T
Av. Max Riffle Depth (cm):	11	MS
Av. Max Pool Depth (cm):	17	MS
Gradient (%):	11.0	CL
Pool: 15 Riffle: 35 Run: 10 Other:	40	
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	20	GE

Specific Data

3.5	3.8	3.9	7.4	7.2	4.3
1.3	2.4	1.6	2.8	1.4	2.1
7	11	9	10	16	14
14	16	20	17	18	

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):		15
	Lge cobble (128-256mm):	70	25
	Bldr cobble (>256mm):		30
Bedrock		0	0

D90 (cm): 87 Compaction: High

Cover

Cover Total % : 65 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
15	10	30	0	35	10

Crown Closure % : 15 Aspect : NW

Discharge

Wetted Width (m) :	1.5	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.54	F
Discharge (m3/s) :	0.12	F

Reach Symbol

(Fish)

RB DV

5 B 11.0 | 1270

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

Banks

Height (m): 0.3

% Unstable: 35

Fines ☐ Gravels ☒ Larges ☐ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.2

Bars (%): 10 pH: 8.1 Braided: N

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 21 Cond. (µmhos): 140

Obstructions

C	Height (m)	Type	Location
	1	X	0.1
	1	X	0.1

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	DV	3	105-155	A				EL
	RB	4	81-105	A				EL

Comments

C1 S2. This reach has been given an S2 classification because it has an average channel width of 5.0m, which makes it a borderline S2/S3. An S2 classification would afford this fish bearing stream a greater degree of protection.

C2 LS = 12%, RS = 16%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort using a 12 B POW model was 479 seconds over 180 meters.

C5 Lat N 55 44' 33":, Long W 127 53' 13.7"

C6 No additional bank texture information.

C7 DO was not measured.

C8 Some nice rearing habitat was observed at this site, with some good boulder and over stream vegetation cover.

C9 The fish at this site were caught in the first 60 meters of the sampling area. No fish were caught beyond the first log jam encountered at this site, suggesting that it is a barrier to fish passage upstream at low to moderate flow.

C10 The air temperature at this site was 13 degrees celcius.

Photo #: A-6-10, 17-Sep-96
Site #: A46, Sampling by electrofishing at confluence.

Photo #: A-6-11, 17-Sep-96
Site #: A46, Looking upstream.

Photo #: A-6-12, 17-Sep-96
Site #: A46, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B15

Reach No.: 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B15 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081 **Reach Length (km):** 0.2 MA **Date:** 12-Sep-96 **Time:** 16:00 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .5694 .61904 **Length surveyed (m):** 200.0 GE **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-2-28, B-3-1,2 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.2	MS
Av. Wet. Width (m):	1.8	MS
Av. Max Riffle Depth (cm):	9	MS
Av. Max Pool Depth (cm):	19	MS
Gradient (%):	24.0	CL
Pool: 20 Riffle: 20 Run: 0 Other: 60		
% Side Channel:		GE
% Debris Area:	25	GE
%Stable:	40	GE

Specific Data

2.8	2.9	1.6	2.4	1.7	1.6
2.1	2.3	1.3	2.2	1.6	1.5
8	6	12			
16	20	22			

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	10	0
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):		20
	Lge cobble (128-256mm):	90	20
	Bldr cobble (>256mm):		50
Bedrock		0	0

D90 (cm): 80 Compaction: Medium

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	15	60	0	10	5

Crown Closure % : 60 Aspect : W

Discharge

Wetted Width (m) :	1.0	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.68	F
Discharge (m3/s) :	0.10	F

Banks

Height (m): 0.5

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 5 pH: 8.4 Braided: N

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 20 Cond. (µmhos): 160

Reach Symbol

(Fish)

RB DV

2 A 24 0 | 0190

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

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB	2	92-93	J	R			EL
	DV	1	76	J	R			EL

Comments

C1 S3

C2 LS = 50%, RS = 50%

C3 No fisheries sensitive zones were noted at the site.

C4 The electroshocking effort, using a 12 B POW model was 267 seconds over 120 square meters.

C5 Lat N 55 51' 14.9", Long W 127 53' 29"

C6 No additonal bank texture information.

C7 DO was not measured at this site. The water was clear to the bottom

C8 Those areas containing step pool habitat at this site also contained fish.

C9 The gradient near the confluence of this stream with the Skeena River reaches 40%. The gradient in the first reach of this stream varies from 20 -30%. The second reach of this stream which occurs on a bench, has a gradient of less than 20%. This stream is classified as an S3 up to the steep gradient of the mountain side.

C10 The air temperature at this site was 15 degrees celcius.

Photo #: B-2-28, 12-Sep-96
Site #: B15, Looking upstream.

Photo #: B-3-1, 12-Sep-96
Site #: B15, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B16

Reach No.: 2

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B16 , Kispiox district ,see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081 **Reach Length (km):** 0.8 MA **Date:** 12-Sep-96 **Time:** 18:00 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5705 .6 901 **Length surveyed (m):** 250.0 HC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-3-4,5 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1 5	MS
Av. Wet. Width (m):	1.4	MS
Av. Max Riffle Depth (cm):	10	MS
Av. Max Pool Depth (cm):	14	MS
Gradient (%):	20 0	CL
Pool: 5 Riffle: 55 Run: 0 Other:	40	
% Side Channel:	10-40	GE
% Debris Area:	0-5	GE
%Stable:		GE

Specific Data

1.6	1.5	1.4	1.5	0.9	1.8
1.5	1.4	1.4	1.5	0.8	1.8
8	12	10			
11	18				

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	20	10
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	80	20
	Lge cobble (128-256mm):		30
	Bldr cobble (>256mm):		30
Bedrock		0	0

D90 (cm): 50 Compaction: High

Cover

Cover Total % : 30 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
0	5	45	0	20	30

Crown Closure % : 40 Aspect : SW

Discharge

Wetted Width (m) :	1 5	MS
Mean Depth (m) :	0 2	MS
Mean Velocity (m/s) :	1 10	F
Discharge (m3/s) :	0 25	F

Banks

Height (m): 0.4

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

NF

2 C 20.0 | 0280

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

Confinement: FC

Valley : Channel Ratio 5-10

Stage: H Flood Signs Ht(m): 0.3

Bars (%): 0 pH: 9.3 Braided: Y

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 18 Cond. (µmhos): 220

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 were noted on site.

C4 The electroshocking effort, using a 12 B POW model, was 206 seconds over 105 square meters.

C5 Lat N 55 51' 04,6", Long W 127 52' 26".

C6 No additional bank texture information.

C7 DO was not measured at this site. The water was clear to the bottom.Some unusually high pH and conductivity readings were obtained at this site. Road construction was noted upstream of the sampling area

C8 Fish were not caught at this site which was at high flow at the time of sampling. The steep gradient in this reach would preclude the presence of fish, hence the non fish bearing classification.

C9 The air temperature at this site was 15 degrees celcius.

Photo #: B-3-4, 12-Sep-96
Site #: B16, Looking upstream.

Photo #: B-3-5, 12-Sep-96
Site #: B16, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B19 **Reach No.: 2**

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B19 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081 **Reach Length (km):** 2.4 MW **Date:** 13-Sep-96 **Time:** 11:30 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 5710 61914 **Length surveyed (m):** 150.0 HC **Survey Crew:** JP\DD\ \ \ \ \ \ \ **Photos:** None. **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.0	MS
Av. Wet. Width (m):	1.6	MS
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	20	MS
Gradient (%):	15.0	CL
Pool: 10 Riffle: 40 Run: 30 Other: 20		
% Side Channel:	0-10	GE
% Debris Area:	20	GE
%Stable:	20	GE

Specific Data

2.0	2.2	2.3	2.0	1.4	1.8
1.1	2.0	2.0	1.4	1.4	1.6
6	5	6			
18	23	15	22		

Cover

Cover Total % : 40 GE

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

Crown Closure % : 20 Aspect : S

Discharge

Wetted Width (m) :	1.3	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.26	F
Discharge (m3/s) :	0.05	F

Reach Symbol

(Fish)

(RB)

2 B 15.0 | 3250

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

Bed Material

Fines	Clay, silt, sand (<2mm):	30	30
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		0	0

D90 (cm): 50 Compaction: High

Banks

Height (m): 0.2

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.2

Bars (%): 0 pH: 8.6 Braided: Y

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 10 Cond. (µmhos): 210

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 = 20%, RS = 30%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 487 seconds over 300 square meters.

C5 Lat N 55 52' 39.3", Long W 127 53' 51.7"

C6 No additional bank texture information.

C7 DO was not measured

C8 No additional fish habitat information.

C9 This creek has been heavily impacted by siltation, associated with the construction of a logging road upstream of the sampling area. Sampling was difficult at this site because of the instream sediment. This creek was sampled where it branches , below the road construction. It was also sampled upstream of the road.

C10 The air temperature at this site was11 degrees celcius.

DFO/MoELP Stream Survey Form

Site Number: B18

Reach No.: 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B18 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081 **Reach Length (km):** 0.1 MA **Date:** 13-Sep-96 **Time:** 10:15 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5689 .61929 **Length surveyed (m):** 120.0 GE **Survey Crew:** JP\DD\ \ \ \ \ \ \ **Photos:** B-3-9,10 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.7	MS
Av. Wet. Width (m):	0.4	MS
Av. Max Riffle Depth (cm):	2	MS
Av. Max Pool Depth (cm):	9	MS
Gradient (%):	22.0	CL
Pool: 30 Riffle: 40 Run: 0 Other: 30		
% Side Channel:	0	GE
% Debris Area:	5	GE
%Stable:	100	GE

Specific Data

2.0	2.0	3.2	3.0	3.8	2.2
0.2	0.4	0.7	0.5	0.2	0.3
2	3	3	2	2	
8	15	7	8	9	

Bed Material

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

N D90 (cm): 15 Compaction: High

Cover

Cover Total % : 20 GE

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

Crown Closure % : 20 Aspect : NE

Discharge

Wetted Width (m) :	0.3	MS
Mean Depth (m) :	0.0	MS
Mean Velocity (m/s) :	0.16	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.4

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Confinement: FC

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0.4

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

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): 15 Cond. (µmhos): 50

Reach Symbol

(Fish)

(RB) LKC

3 A 22.0	2035
(Width, Valley: Channel, Slope)	(Bed Material)

Obstructions

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
C4	LKC	180	100	J				MT

Comments

C1 S3

C2 LS = 25%, RS = 30%

C3 No fisheries sensitive zones were noted at this site.

C4 This site was not electrofished, however, the small attached lake was minnow trapped. See fish summary for results.

C5 Lat N 55 52' 38.8", Long W 127 53' 51.7"

C6 No additional bank texture information.

C7 DO was not measured.

C8 No additional fish habitat information. Steep gradient was noted in the first 100 meters from the mouth of this stream.

C9 The air temperature at this site was 11 degrees celcius.

Photo #: B-3-10, 13-Sep-96
Site #: B18, Looking upstream.

Photo #: B-3-9, 13-Sep-96
Site #: B18, Water flowing over bedrock.

DFO/MoELP Stream Survey Form

Site Number: B17 **Reach No.: 2**

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B17 , Kispiox district , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081 **Reach Length (km):** 0.5 MW **Date:** 13-Sep-96 **Time:** 9:30 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5689 .61929 **Length surveyed (m):** 120.0 HC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-3-6,7,8 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.1	MS
Av. Wet. Width (m):	0.8	MS
Av. Max Riffle Depth (cm):	2	MS
Av. Max Pool Depth (cm):	15	MS
Gradient (%):	2.0	CL
Pool: 60 Riffle: 20 Run: 20 Other:	0	
% Side Channel:	0	GE
% Debris Area:	15	GE
%Stable:	20	GE

Specific Data

1.4	0.9	1.0	1.2	0.8	1.1
0.9	0.8	0.8	0.6	0.4	1.0
2	2	1			
14	16				

Cover

Cover Total % : 70 GE

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

Crown Closure % : 10 Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	50	50
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	40	30
	Lge cobble (128-256mm):		10
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 13 Compaction: Medium

Discharge

Wetted Width (m) :	0.3	MS
Mean Depth (m) :	0.0	MS
Mean Velocity (m/s) :	0.16	F
Discharge (m3/s) :	0.00	F

Banks

Height (m): 0.3

% Unstable: 0

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

LKC (RB)

1 C 2 0 | 4240

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

Confinement: FC

Valley : Channel Ratio 5-10

Stage: L Flood Signs Ht(m): 0.3

Bars (%): 5 pH: 7.9 Braided: Y

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): 16 Cond. (µmhos): 50

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 = 15%, RS = 15%
C3	No fisheries sensitive zones were noted in the sampling area.
C4	The electroshocking effort, using a 12 B POW model was 280 seconds over 100 square meters. Todd Mahon reported the capture of lake chub in the attached lake.
C5	Lat N 55 52' 35.1", Long W 127 53' 52.8"
C6	No additional bank texture information.
C7	DO was not measured.
C8	No additional fish habitat information.
C9	The first reach of this stream, which connects to the Skeena River, has a steep gradient and was dry at the time of sampling and does not appear to support fish.
C10	The air temperature at this site was 11 degrees celcius.

Photo #: B-3-6, 13-Sep-96
Site #: B17, Meterstick across channel.

Photo #: B-3-7, 13-Sep-96
Site #: B17, Channel ingrown with grasses.

Photo #: B-3-8, 13-Sep-96
Site #: B17, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: A16

Reach No.: 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A16 , Kispiox district ,east of block 10 , see c5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081 **Reach Length (km):** 1.1 MA **Date:** 13-Sep-96 **Time:** 10:50 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5683 6.1933 **Length surveyed (m):** 100.0 AE **Survey Crew:** GM \KG\ \ \ \ \ \ \ **Photos:** A-3-2,3,4 **Air Photos:**

Channel Characteristics

	Av. Chan. Width (m):	1.5	AE
	Av. Wet. Width (m):	1.5	AE
N	Av. Max Riffle Depth (cm):		
N	Av. Max Pool Depth (cm):		
	Gradient (%):	75.0	AE
	Pool: 0 Riffle: 0 Run: 0 Other:	100	
	% Side Channel:	0	AE
	% Debris Area:	0	
	%Stable:		

Specific Data

Cover

N Cover Total % : 0 AE

	Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
N						

Crown Closure % : 0 Aspect : SE

Bed Material

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

N D90 (cm): 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)

NF

2 D 75.0 | R

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

Confinement: UC

Valley : Channel Ratio 10+

Stage: M N Flood Signs Ht(m):

N Bars (%): pH: Braided: N

N Water Temp. (°C): 02 (ppm):

Turb. (cm): Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location
	10	F	0.0

Fish Summary

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

Comments

C1 S6

C2 The side slopes were not measured at this site as it was evaluated from the air.

C3 No fisheries sensitive zones were noted at this site.

C4 No electroshocking was carried out at this site.

C5 Lat N 55 52' 49.2", Long W 127 54' 29.6"

C6 No additional bank texture information.

C7 No water quality measurements were taken at this site.

C8 The falls at the mouth of this stream are an obstruction to fish passage upstream. As a result the stream was classified as an S6.

Photo #: A-3-3, 13-Sep-96
Site #: A16, Falls into Skeena, upstream view. Falls are an obstruction to fish passage.

DFO/MoELP Stream Survey Form

Site Number: A17

Reach No.: 2

Swift Cr.

TRITON Environmental Consultants Ltd.

Location: A17 , Kispiox district ,east of block 10 , see C5. **Stream (Gaz.):** Swift Creek **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081 **Reach Length (km):** 1.5 MA **Date:** 13-Sep-96 **Time:** 11:00 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 .5681 .61943 **Length surveyed (m):** 100.0 GE **Survey Crew:** GM\KG\ \ \ \ \ \ \ **Photos:** A-3-6,7,8 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.9	MS
Av. Wet. Width (m):	3.0	MS
Av. Max Riffle Depth (cm):	13	MS
Av. Max Pool Depth (cm):	28	MS
Gradient (%):	22.0	CL
Pool: 15 Riffle: 55 Run: 10 Other:	20	
% Side Channel:	0-10	GE
% Debris Area:	5-15	GE
%Stable:	10	GE

Specific Data

3.6	4.1	3.9	2.9	4.5	4.8
2.7	3.8	2.5	2.7	3.5	2.7
6	15	19	12		
16	23	53	21		

Cover

Cover Total % : 50 GE

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

Crown Closure % : 5 Aspect : SE

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	10	5
	Large (16-64mm):		5
Larges	Sm. cobble (64-128mm):	60	15
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		30
Bedrock		30	30

D90 (cm): 60 Compaction: High

Discharge

Wetted Width (m) :	2.8	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	1.23	F
Discharge (m3/s) :	0.26	F

Banks

Height (m): 0.4

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 0.5

Bars (%): 0 pH: 8.1 Braided: N

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 53 Cond. (µmhos): 100

Reach Symbol

(Fish)

NF

4 C 22.0 | 0163

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

Obstructions

C	Height (m)	Type	Location
	3	F	0.1
C9	2	F	0.1
	5	C	0.0

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 = 45%, RS = 73%

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

C4 The electroshocking effort, using a 12 B POW model, was 113 seconds over 40 meters.

C5 Lat N 55 53' 21.6", Long W 127 54' 40.2"

C6 No additional bank texture information.

C7 DO was not measured at this site. The water was clear to the bottom.

C8 The cascades noted at the confluence of this stream with the Skeena River would be significant barriers to fish passage. A large falls was observed at the road crossing at this site. The 3 meter falls is located 100 meters from the mouth and the 2 meter falls is located 70 meters from the mouth. As a result this stream has been given a non fish bearing classification.

C9 The air temperature at this site was 14 degrees celcius.

Photo #: A-3-6, 13-Sep-96
Site #: A17, Looking upstream at 5 m falls.

Photo #: A-3-7, 13-Sep-96
Site #: A17, Looking downstream.

Photo #: A-3-8, 13-Sep-96
Site #: A17, Upstream view of Skeena river, falls on left are a barrier to fish passage.

DFO/MoELP Stream Survey Form

Site Number: A15

Reach No.: 2

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A15 , Kispiox district , North of block 1 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081 **U.T.M. :** 9 .5692 .61939 **Reach Length (km):** 1.0 MW **Length surveyed (m):** 120.0 GE **Date:** 13-Sep-96 **Time:** 9:00 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐ **Survey Crew:** GM\KG\ \ \ \ \ \ \ **Photos:** A-2-22,23,24 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.9	MS
Av. Wet. Width (m):	1.7	MS
Av. Max Riffle Depth (cm):	8	MS
Av. Max Pool Depth (cm):	13	MS
Gradient (%):	22.0	CL
Pool: 5 Riffle: 60 Run: 15 Other:	20	
% Side Channel:	0	GE
% Debris Area: 30		GE
%Stable:	50	GE

Specific Data

1.5	1.9	2.7	2.2	1.3	1.6
1.1	1.5	2.5	1.7	1.4	1.8
7	10	8	7	6	
12	16	11	14		

Cover

Cover Total % : 40 GE

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

Crown Closure % : 15 Aspect : NW

Bed Material

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

D90 (cm): 68 Compaction: High

Discharge

Wetted Width (m) :	1.4	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.99	F
Discharge (m3/s) :	0.10	F

Banks

Height (m): 0.7

% Unstable: 20

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Reach Symbol

(Fish)

NF

2 C 22.0 | 1342

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

Confinement: CO

Valley : Channel Ratio 5-10

Stage: M Flood Signs Ht(m): 1

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

Water Temp. (°C): 7.0 02 (ppm):

Turb. (cm): 16 Cond. (µmhos): 190

Obstructions

C	Height (m)	Type	Location
C8	3	C	0.1

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 = 40%, RS = 40%

C3 No fisheries sensitive zones were noted on site.

C4 The electroshocking effort, using a 12 B POW model was , 444 seconds over 170 meters (20 meters upstream and 150 meters downstream).

C5 Lat N 55 53' 10", Long W 127 53' 30.5"

C6 No additional bank texture information.

C7 DO was not taken at this site. The water was clear to the bottom.

C8 Some nice step pool habitat was noted at this site, upstream of the road crossing. However, the 3 meter cascade 100 meters from the confluence with the Skeena and the series of cascades (some up to 1 meter in height) downstream of the road crossing will impede fish passage upstream. In addition the culvert at this road crossing runs at an 18% gradient. As a result this reach has been given a non fish bearing classification.

C9 The flow type becomes dominated by cascades, some up to 1 meter high, approximately 100 meters downstream of the site.

C10 The air temperature at this site was 11 degrees celcius.

Photo #: A-2-22, 13-Sep-96
Site #: A15, Looking u/s from culvert.

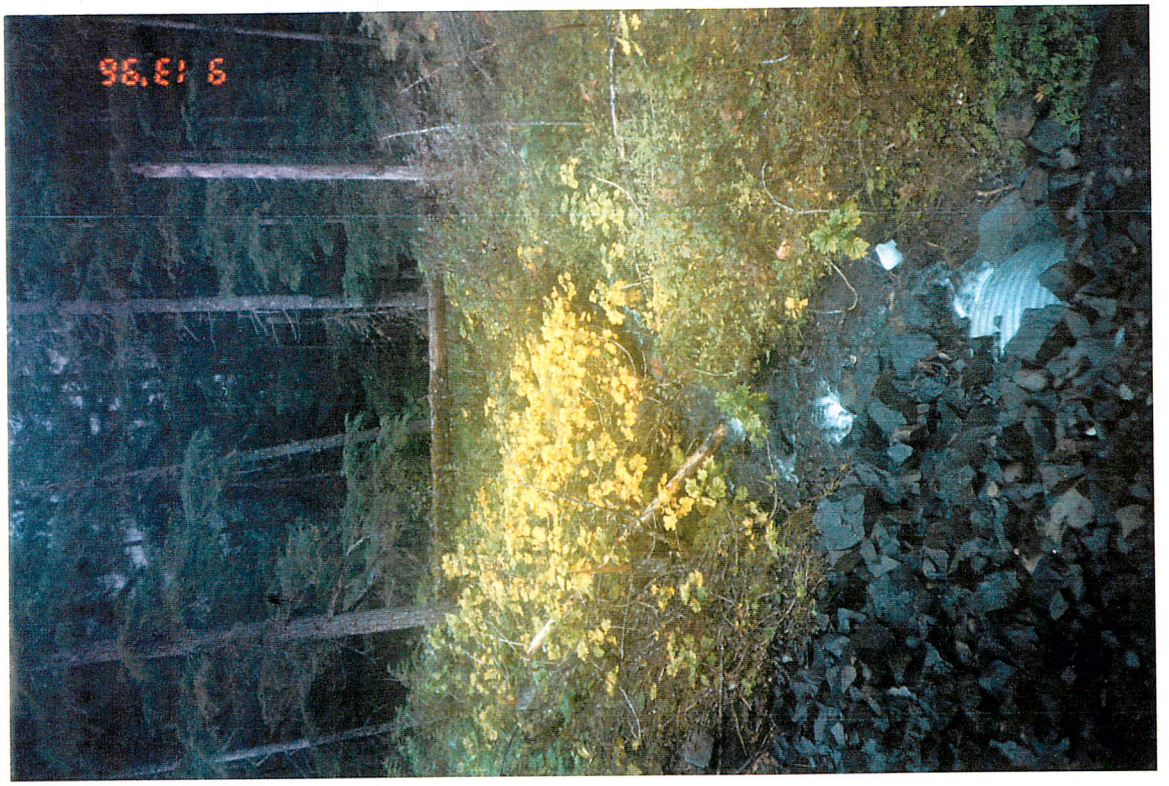


Photo #: A-2-23, 13-Sep-96
Site #: A15, Looking downstream from culvert.

Photo #: A-2-24, 13-Sep-96
Site #: A15, Culvert parallel to flow.

DFO/MoELP Stream Survey Form

Site Number: A14

Reach No.: 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A14 , Kispiox district, South end of block 2 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081 **Reach Length (km):** 0.2 MA **Date:** 12-Sep-96 **Time:** 17:35 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5695 .61946 **Length surveyed (m):** 126.0 GE **Survey Crew:** GM \KG \ \ \ \ \ \ **Photos:** A-2-19,20,21 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	2.1	MS
Av. Wet. Width (m):	1.6	MS
Av. Max Riffle Depth (cm):	11	MS
Av. Max Pool Depth (cm):	21	MS
Gradient (%):	3.0	CL
Pool: 20 Riffle: 35 Run: 45 Other: 0		
% Side Channel:	10-40	GE
% Debris Area:	>15	GE
%Stable:	75	GE

Specific Data

2.2	2.6	2.3	2.0	1.7	2.0
2.0	1.6	1.0	1.8	1.1	1.8
18	13	9	9	6	
34	25	20	10	17	

Cover

Cover Total % : 55 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
5	25	0	5	30	35

Crown Closure % : Aspect : W

Bed Material

Fines	Clay, silt, sand (<2mm):	50	50
Gravels	Small (2-16mm):	30	20
	Large (16-64mm):		10
Larges	Sm. cobble (64-128mm):	20	15
	Lge cobble (128-256mm):		5
	Bldr cobble (>256mm):		0
Bedrock		0	0

D90 (cm): 15 Compaction: Medium

Discharge

Wetted Width (m) :	0.6	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.58	F
Discharge (m3/s) :	0.03	F

Banks

Height (m): 0.2

% Unstable: 15

Fines ☒ Gravels ☐ Larges ☐ Bedrock ☐

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.45

Bars (%): 15 pH: 8.0 Braided: Y

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 34 Cond. (µmhos): 150

Reach Symbol

(Fish)

(RB) (DV)

2 D 3.0 | 5320

(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 S3

C2 LS = 12%, RS = 10%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort using a 12 B POW model , was 164 seconds over 100 meters.

C5 Lat N 55 53' 27.4", Long W 127 53' 19.5"

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 Some good rearing habitat, including alot of cutbank cover, was observed in the sampling area. Future fish sampling is recommended.

C9 The culvert at this site is in good condition, with the exception of some slight slumping noted in the centre.

C10 The air temperature at this site was 14 degrees celcius.

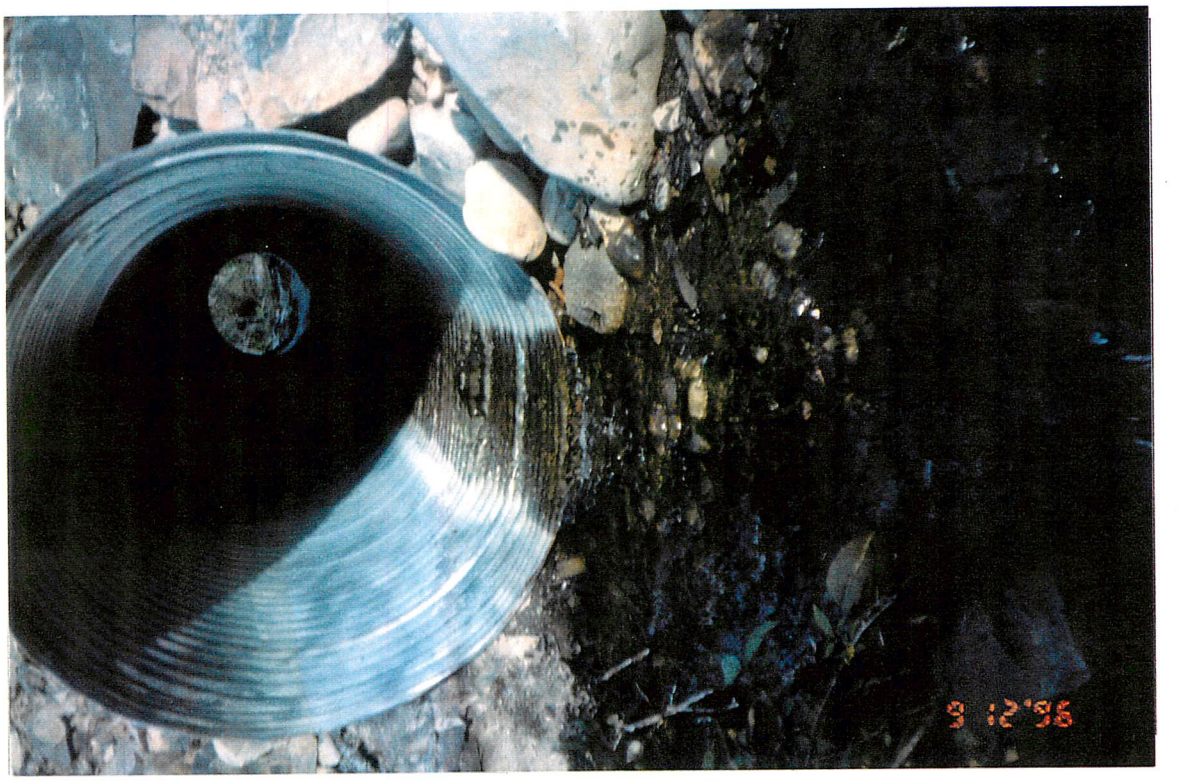


Photo #: A-2-19, 12-Sep-96
Site #: A14, Upstream view through culvert.

Photo #: A-2-21, 12-Sep-96
Site #: A14, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: A13

Reach No.: 0

Trib. to the Skeena R.

TRITON Environmental Consultants Ltd.

Location: A13, Kispiox District, SW corner of block 2, see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 081 **Reach Length (km):** 0.0 GE **Date:** 12-Sep-96 **Time:** 17:00 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M. : 9 . 5699 . 61954 **Length surveyed (m):** 50.0 GE **Survey Crew:** GM\KG\ \ \ \ \ \ **Photos:** A-2-16,17,18 **Air Photos:**

Channel Characteristics

C1	Av. Chan. Width (m):	0.0	GE
	Av. Wet. Width (m):	0.0	GE
	Av. Max Riffle Depth (cm):	0	GE
	Av. Max Pool Depth (cm):	0	GE
	Gradient (%):	0.5	GE
	Pool: 0 Riffle: 0 Run: 0 Other: 0		
	% Side Channel:		GE
	% Debris Area:	0	GE
	%Stable:		

Specific Data

Cover

C1 Cover Total % : 100 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk

Crown Closure % : 40 Aspect : S

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

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): % Unstable:

N Fines ☐ Gravels ☐ Larges ☐ Bedrock ☐

N Confinement: N/A

N Valley : Channel Ratio N/A

Stage: Dry 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 0.5 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	NC. A 5m wide side channel to the Skeena River was theonly channel noted at this site.
C2	The side slopes were not measured.
C3	This is a fisheries sensitive zone.
C4	This site was not electrofished.
C5	Lat N 55 53' 56.8", Long W 127 52' 51"
C6	Bank texture not applicable.
C7	Water quality not applicable.
C8	The side channel noted in this area could be used as refuge during high flows.

Photo #: A-2-16, 12-Sep-96
Site #: A13, Tree roots exposed by high flows.

Photo #: A-2-17, 12-Sep-96
Site #: A13, Dry channel.

Photo #: A-2-18, 12-Sep-96
Site #: A13, Trickle flow observed in exposed section.

DFO/MoELP Stream Survey Form

Site Number: A12

Reach No.: 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A12 , Kispiox district , North of Fawn Creek , See C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 091 **Reach Length (km):** 1.5 MW **Date:** 12-Sep-96 **Time:** 15:15 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .5706 .61967 **Length surveyed (m):** 100.0 GE **Survey Crew:** GM\KG\ \ \ \ \ \ \ **Photos:** A-2-12, 13,14,15 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.6	MS
Av. Wet. Width (m):	2.2	MS
Av. Max Riffle Depth (cm):	8	MS
Av. Max Pool Depth (cm):	22	MS
Gradient (%):	26.0	CL
Pool: 25 Riffle: 20 Run: 35 Other: 20		
% Side Channel:	10-40	GE
% Debris Area:	5-15	GE
%Stable:	90	GE

Specific Data

3.2	3.3	3.9	3.5	3.4	4.6
2.3	2.0	2.8	1.2	2.5	2.4
6	12	10	6	7	
16	23	25	22	26	

Cover

Cover Total % : 80 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	10	40	0	15	15

Crown Closure % : 35 Aspect : NW

Bed Material

Fines	Clay, silt, sand (<2mm):	10	10
Gravels	Small (2-16mm):	30	10
	Large (16-64mm):		20
Larges	Sm. cobble (64-128mm):	50	10
	Lge cobble (128-256mm):		15
	Bldr cobble (>256mm):		25
Bedrock		10	10

D90 (cm): 50 Compaction: Medium

Discharge

Wetted Width (m) :	1.6	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	1.04	F
Discharge (m3/s) :	0.12	F

Banks

Height (m): 0.2

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

DV RB CT

4 B 26.0 | 1351

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

Confinement: FC

Valley : Channel Ratio 2-5

Stage: L Flood Signs Ht(m): 0.9

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

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 26 Cond. (µmhos): 120

Obstructions

C	Height (m)	Type	Location
C9	2	C	0.0

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	DV	1	110	J	R			EL
	RB	4	32-105	J	R			EL
	CT	1	154	J	R			EL

Comments

C1 S3

C2 LS = 16%, RS = 37%

C3 No fisheries sensitive zones were noted on site.

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

C5 Lat N 55 54' 38", Long W 127 52' 14.1".

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 This creek provides both rearing and spawning habitat.

C9 Cascades comprise 20% of the flow type at this site. The 1.5m cascade located 10 meters upstream from the mouth, is not a barrier to fish passage upstream.

C10 The air temperature was 16 degrees celcius.

Photo #: A-2-12, 12-Sep-96
Site #: A12, Cascade that is not a barrier to fish passage.

Photo #: A-2-13, 12-Sep-96
Site #: A12, Rainbow trout captured by electrofishing.

Photo #: A-2-14, 12-Sep-96
Site #: A12, Looking d/s at confluence with Skeena River.

Photo #: A-2-15, 12-Sep-96
Site #: A12, Looking d/s at confluence with Skeena River.

DFO/MoELP Stream Survey Form

Site Number: A11

Reach No.: 2

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: A11 , Kispiox district, NW of block 5 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 091 **Reach Length (km):** 0.2 MW **Date:** 12-Sep-96 **Time:** 13:20 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M.: 9 .5707 .61980 **Length surveyed (m):** 200.0 GE **Survey Crew:** GM\KG\ \ \ \ \ \ \ **Photos:** A-2-7,8,9,10,11 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	1.6	MS
Av. Wet. Width (m):	1.2	MS
Av. Max Riffle Depth (cm):	9	MS
Av. Max Pool Depth (cm):	18	MS
Gradient (%):	5.0	CL
Pool: 20 Riffle: 20 Run: 50 Other:	10	
% Side Channel:	0-10	GE
% Debris Area:	>15	GE
%Stable:	80	GE

Specific Data

1.9	1.5	1.5	1.2	1.0	2.4
1.7	0.9	1.1	1.1	0.9	1.7
6	10	11	11	7	
13	20	21	22	12	

Cover

Cover Total %: 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
5	30	10	5	30	20

Crown Closure %: 90 Aspect: W

Bed Material

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

D90 (cm): 30 Compaction: Medium

Discharge

Wetted Width (m):	1.3	MS
Mean Depth (m):	0.2	MS
Mean Velocity (m/s):	0.11	F
Discharge (m3/s):	0.02	F

Banks

Height (m): 0.2

% Unstable: 5

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

(DV) (RB)

2 D 5.0 | 2332

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

Confinement: UC

Valley : Channel Ratio 10+

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 15 pH: 8.2 Braided: Y

Water Temp. (°C): 12.0 02 (ppm):

Turb. (cm): 22 Cond. (µmhos): 70

Obstructions

C	Height (m)	Type	Location
	4	F	0.4
	3	F	0.5

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 = 24%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model was 64 seconds over 20 meters. 2 minnow traps set in a neaby lake, with a soak time of 27 hours, yielded no fish.

C5 Lat N 55 55' 21", Long W 127 52' 09".

C6 No additional bank texture information.

C7 DO was not measured at this site.

C8 This site would provide rearing habitat for fish if it were accessible. Future sampling is recommended.

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

C10 The air temperature at this site was 14 degrees celcius.

Photo #: A-2-10, 12-Sep-96
Site #: A11, 2.5 m high falls.

Photo #: A-2-11, 12-Sep-96
Site #: A11, Flagging tape in tree over channel

Photo #: A-2-9, 12-Sep-96
Site #: A11, 3 m falls.

DFO/MoELP Stream Survey Form

Site Number: B12

Reach No.: 1

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B12 , Kispiox district ,west of block 11 ,see C5 **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 091 **Reach Length (km):** 0.8 MA **Date:** 12-Sep-96 **Time:** 10:10 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5692 .61990 **Length surveyed (m):** 150.0 GE **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-2-19, 20 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	3.8	MS
Av. Wet. Width (m):	1.6	MS
Av. Max Riffle Depth (cm):	10	MS
Av. Max Pool Depth (cm):	21	MS
Gradient (%):	25.0	CL
Pool: 20 Riffle: 20 Run: 0 Other:	60	
% Side Channel:	0	GE
% Debris Area:	15	GE
%Stable:	20	GE

Specific Data

2.0	5.0	4.0	3.8	3.4	4.6
1.3	1.7	1.8	1.3	1.3	2.4
12	10	8			
16	18	30			

Cover

Cover Total % : 50 GE

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

Crown Closure % : 30 Aspect : E

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): 80 Compaction: Low

Discharge

Wetted Width (m) :	1.4	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.38	F
Discharge (m3/s) :	0.04	F

Banks

Height (m): 0.4

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0.4

Bars (%): 10 pH: 8.4 Braided: Y

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 30 Cond. (µmhos): 80

Reach Symbol

(Fish)

DV

4 A 25.0 | 0370

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

Obstructions

C	Height (m)	Type	Location
	5	C	0.5

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	DV	1	188	J	R			EL

Comments

C1 S3

C2 LS = 50%, RS = 50%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 398 seconds over 100 meters.

C5 Lat N 55 55' 54.5", Long W 127 53' 32.6"

C6 No additional bank texture information.

C7 DO was not measured at this site. The water was clear to the bottom.

C8 This site has limited holding habitat.

C9 60% of the flow type at this site is comprised of cascades. A 5 meter cascade was observed downstream of the road crossing at this site. The gradient reaches 30% above this cascade.

C10 A small section of the stream, near the confluence with the Skeena River, contains bedrock.

C11 The air temperature at this site was 14 degrees celcius.

Photo #: B-2-19, 12-Sep-96
Site #: B12, Looking upstream.

Photo #: B-2-20, 12-Sep-96
Site #: B12, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B11

Reach No.: 1

Nancy Cr.

TRITON Environmental Consultants Ltd.

Location: B11 , Kispiox district ,see C5.

Stream (Gaz.): Nancy Creek

Watershed Code: 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 091 **Reach Length (km):** 0.1 MA **Date:** 12-Sep-96 **Time:** 9:05 **Agency:** TEC **Access:** H **Fish Card:** N ☐ Field ☒ Historical ☐

U.T.M.: 9 .5693 .61993 **Length surveyed (m):** 50.0 GE **Survey Crew:** JP \DD \ \ \ \ \ \ \ **Photos:** B-2-16,17,18 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	7.0	MS
Av. Wet. Width (m):	3.4	MS
Av. Max Riffle Depth (cm):	6	MS
Av. Max Pool Depth (cm):	28	MS
Gradient (%):	25.0	CL
Pool: 20 Riffle: 60 Run: 0 Other: 20		
% Side Channel:	10-40	GE
% Debris Area:	5	GE
%Stable:	70	GE

Specific Data

5.2	9.0	7.2	6.2	7.0	7.2
2.5	3.2	3.6	3.8	4.2	2.8
6	6	8	6		
12	18	22	60		

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
20	15	55	0	10	0

Crown Closure % : 5 Aspect : E

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): 80 Compaction: Medium

Discharge

Wetted Width (m) :	3.1	MS
Mean Depth (m) :	0.1	MS
Mean Velocity (m/s) :	0.63	F
Discharge (m3/s) :	0.15	F

Banks

Height (m): 0.2

% Unstable: 50

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

RB, DV

7 B 25.0 | 0370

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

Confinement: FC

Valley : Channel Ratio 2-5

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 30 pH: 8.3 Braided: Y

Water Temp. (°C): 9.0 02 (ppm):

Turb. (cm): 60 Cond. (µmhos): 80

Obstructions

C	Height (m)	Type	Location
	2	C	0.1

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	RB	6	79-91	J	R			EL
	DV	1	170	J	R			EL

Comments

C1 S2

C2 LS = 30% , RS = 30%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 321 seconds over 50 meters.

C5 Lat N 55 56' 06.9". Long W 127 53' 26.6".

C6 No additional bank texture information.

C7 DO was not measured at this site. The water was clear to the bottom.

C8 No additional fish habitat information.

C9 The gradient varies from 20 -30 % at this site. Fish were caught in pools in the steep gradient areas and were also caught above and below the 1.5 meter cascade.

C10 The air temperature at this site was13 degrees celcius.

Photo #: B-2-16, 12-Sep-96
Site #: B11, Fish captured by electrofishing.

Photo #: B-2-17, 12-Sep-96
Site #: B11, Looking upstream.

Photo #: B-2-18, 12-Sep-96
Site #: B11, Looking downstream towards confluence with Skeena River.

DFO/MoELP Stream Survey Form

Site Number: B10

Reach No.: 2

Nancy Cr.

TRITON Environmental Consultants Ltd.

Location: B10 , Kispiox district , see C5.

Stream (Gaz.): Nancy Creek

Watershed Code: 400-0000-000-000-000-000-000-000-000-000-000-0

Map #: 93 M 091 **Reach Length (km):** 2.0 MW **Date:** 11-Sep-96 **Time:** 19:20 **Agency:** TEC **Access:** H **Fish Card:** N Field ☒ Historical ☐

U.T.M. : 9 .5689 .61992 **Length surveyed (m):** 200.0 HC **Survey Crew:** JP \DD\ \ \ \ \ \ \ **Photos:** B-2-14,15 **Air Photos:**

Channel Characteristics

			Specific Data					
Av. Chan. Width (m):	6.2	MS	4.0	4.0	8.5	7.0	6.0	7.5
Av. Wet. Width (m):	2.1	MS	2.0	1.4	2.5	3.0	2.0	1.8
Av. Max Riffle Depth (cm):	8	MS	8	8	6	10	0	0
Av. Max Pool Depth (cm):	37	MS	30	24	42	52	0	0
Gradient (%):	17.0	CL						

Pool: 10 Riffle: 50 Run: 5 Other: 35

% Side Channel: GE

% Debris Area: 20 GE

%Stable: 60 GE

Bed Material

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

D90 (cm): 40 Compaction: Medium

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
10	20	60	0	5	5

Crown Closure % : 5 Aspect : E

Discharge

Wetted Width (m) :	1.8	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.41	F
Discharge (m3/s) :	0.11	F

Banks

Height (m): 0.3

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Confinement: CO

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0.3

Bars (%): 10 pH: 8.5 Braided: Y

Water Temp. (°C): 10.0 02 (ppm):

Turb. (cm): 52 Cond. (µmhos): 70

Reach Symbol

(Fish)

DV (ST)

6 A 17.0 | 0280

(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	1	188	A				EL

Comments

C1 S2

C2 LS = 70%, RS = 70%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model was 257 seconds over 75 meters.

C5 Lat N 55 56' 00" Long W 127 53' 51.0"

C6 No additional bank texture information.

C7 DO was not measured.

C8 Limited spawning and no overwintering habitat occur at this site.

C9 This is a fairly steep creek with a number 80 cm high cascades. The gradient averages 20%, however some sections run at an even higher gradient.

C10 The air temperature at this site was 15 degrees celcius.

Photo #: B-2-14, 11-Sep-96
Site #: B10, Looking upstream.

Photo #: B-2-15, 11-Sep-96
Site #: B10, Looking downstream.

DFO/MoELP Stream Survey Form

Site Number: B2

Reach No.: 2

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B2 , Kispiox district , south side of block 11 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #:	93 M 091	**Reach Length (km):**	1.2	MA	**Date:**	10-Sep-96	**Time:**	14:15	**Agency:**	TEC	**Access:**	H	**Fish Card:** N Field ☒ Historical ☐
U.T.M. :	9 .5689 .61997	**Length surveyed (m):**	250.0	GE	**Survey Crew:**	JP \DD\ \ \ \ \ \ \	**Photos:**	B-1-4,5,6,7	**Air Photos:**				

Channel Characteristics

Av. Chan. Width (m):	6.0	MS
Av. Wet. Width (m):	3.1	MS
Av. Max Riffle Depth (cm):	9	MS
Av. Max Pool Depth (cm):	65	MS
Gradient (%):	12.0	CL
Pool: 5 Riffle: 65 Run: 5 Other: 25		
% Side Channel:	0	GE
% Debris Area:	20	GE
%Stable:	70	GE

Specific Data

6.4	5.6	4.0	6.0	5.5	8.4
1.5	2.3	3.0	4.5	3.8	3.2
6	6	8	14	12	0
45	54	80	82	0	0

Bed Material

Fines	Clay, silt, sand (<2mm):	0	0
Gravels	Small (2-16mm):	40	10
	Large (16-64mm):		30
Larges	Sm. cobble (64-128mm):		15
	Lge cobble (128-256mm):	50	20
	Bldr cobble (>256mm):		15
Bedrock		10	10

D90 (cm): 30 Compaction: Medium

Cover

Cover Total % : 40 GE

Pool	LOD	Bldr	In Veg	O Veg	Ctbnk
5	15	70	0	5	5

Crown Closure % : 20 Aspect : E

Discharge

Wetted Width (m) :	1.4	MS
Mean Depth (m) :	0.2	MS
C7 Mean Velocity (m/s) :	1.00	FI
Discharge (m3/s) :	0.21	FI

Reach Symbol

(Fish)

NF

6 A 12.0 | 0451

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

Banks

Height (m): 3.0

% Unstable: 20

Fines ☐ Gravels ☐ Larges ☐ Bedrock ☒

Confinement: EN

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 1

Bars (%): 30 pH: Braided: Y

Water Temp. (°C): 8.0 02 (ppm):

Turb. (cm): 82 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location
	1	C	0.3
	2	F	0.4
	5	F	0.1
	5	F	0.4

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 = 70%, RS = 70%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 942 seconds over 750 square meters.

C5 Lat N 55 56' 15.9" Long W 127 53' 49.2"

C6 No additional bank texture information.

C7 DO, pH and conductivity were not measured at this site.

C8 An active cutblock was noted on the left bank of the stream in the sampling area. An RMA of 5-10 meters lines the stream. The bridge crossing at this site does not appear to have negatively impacted on the stream. No evidence of siltation was seen in the sampling area. Upstream of the bridge, the creek enters a defined canyon with bedrock walls. A 5m falls was seen 150m upstream of the bridge at this site. The creek is confined, with the exception of a 70m area in the vicinity of the bridge, at which the valley widens. At the bottom end of reach 1, downstream of the falls, bedrock is prevalent and no spawning habitat exists.

C9 This stream has been classified as non fish bearing because of the series of falls and cascades on this creek, which would prevent fish passage upstream.

C10 The air temperature at this site was 15 degrees celcius.

Photo #: B-1-4, 10-Sep-96
Site #: B2, Looking upstream.

Photo #: B-1-5, 10-Sep-96
Site #: B2, Looking downstream.

Photo #: B-1-6, 10-Sep-96
Site #: B2, Looking across at road crossing.

Photo #: B-1-7, 10-Sep-96
Site #: B2, 5 m falls.

DFO/MoELP Stream Survey Form

Site Number: B4 **Reach No.: 1**

Trib. to Skeena R.

TRITON Environmental Consultants Ltd.

Location: B4 , Kispiox district , downstream of block 11 , see C5. **Stream (Gaz.):** Unnamed **Watershed Code:** 400-0000-000-000-000-000-000-000-000-000-0

Map #: 93 M 091 **Reach Length (km):** 0.4 MA **Date:** 10-Sep-96 **Time:** 16:20 **Agency:** TEC **Access:** H **Fish Card:** N **Field** ☒ **Historical** ☐

U.T.M. : 9 .5694 .62000 **Length surveyed (m):** 200.0 GE **Survey Crew:** JP\DD\ \ \ \ \ \ \ **Photos:** B-1-12,13, 14,15,16 **Air Photos:**

Channel Characteristics

Av. Chan. Width (m):	6.4	MS
Av. Wet. Width (m):	5.0	MS
Av. Max Riffle Depth (cm):	15	MS
Av. Max Pool Depth (cm):	57	MS
Gradient (%):	8.0	CL
Pool: 10 Riffle: 50 Run: 10 Other: 30		
% Side Channel:		GE
% Debris Area:	10	GE
%Stable:	60	GE

Specific Data

6.5	6.2	6.2	8.2	5.3	6.0
4.5	6.0	6.0	5.5	3.3	4.6
22	14	10	12	0	0
56	38	60	74	0	0

Cover

Cover Total % : 70 GE

Pool	LOD	Bldr	In Veg	O Veg	Clbnk
10	15	60	0	10	5

Crown Closure % : 15 Aspect : E

Bed Material

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

D90 (cm): 52 Compaction: Medium

Discharge

Wetted Width (m) :	3.3	MS
Mean Depth (m) :	0.2	MS
Mean Velocity (m/s) :	0.58	F
Discharge (m3/s) :	0.29	F

Banks

Height (m): 0.6

% Unstable: 10

Fines ☐ Gravels ☐ Larges ☒ Bedrock ☐

Reach Symbol

(Fish)

DV, PK,CH

7 A 8.0 | 1351

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

Confinement: FC

Valley : Channel Ratio 0-2

Stage: M Flood Signs Ht(m): 0.6

Bars (%): 20 pH: Braided: N

Water Temp. (°C): 9.5 02 (ppm):

Turb. (cm): 74 Cond. (µmhos):

Obstructions

C	Height (m)	Type	Location
	8	F	0.2
	0	C	0.1

Fish Summary

C	Species	Number	Size Range (mm)	Life Phase	Use 1	Use 2	Use 3	Method
	PK	20	400-600	A	S			VO
	DV	1	105	A	S			EL
	CH	1	57	J	R			EL

Comments

C1 S2

C2 LS = 70%, RS = 70%

C3 No fisheries sensitive zones were noted at this site.

C4 The electroshocking effort, using a 12 B POW model, was 234 seconds over 250 square meters. Several fish were electroshocked before the crew visually observed 6 spawning salmon in a pool 50m upstream.

C5 Lat N 55 56' 27.0" Long W 127 53' 19 8"

C6 No additional bank texture information.

C7 DO, pH and conductivity were not measured at this site. The water was clear to the bottom.

C8 Limited rearing habitat was noted in all of this reach. Spawning habitat however does occur at this site. There are no barriers to the Skeena River in the bottom end of the reach.

C9 The bottom 20 meters of the reach are fairly confined and steep. A gravel/cobble substrate was observed in this section. Several cottonwood trees line the banks of this stream.

C10 The air temperature at this site was 16 degrees celcius.

Photo #: B-1-12, 10-Sep-96
Site #: B4, Looking upstream.

Photo #: B-1-13, 10-Sep-96
Site #: B4, Looking downstream at confluence with Skeena River.

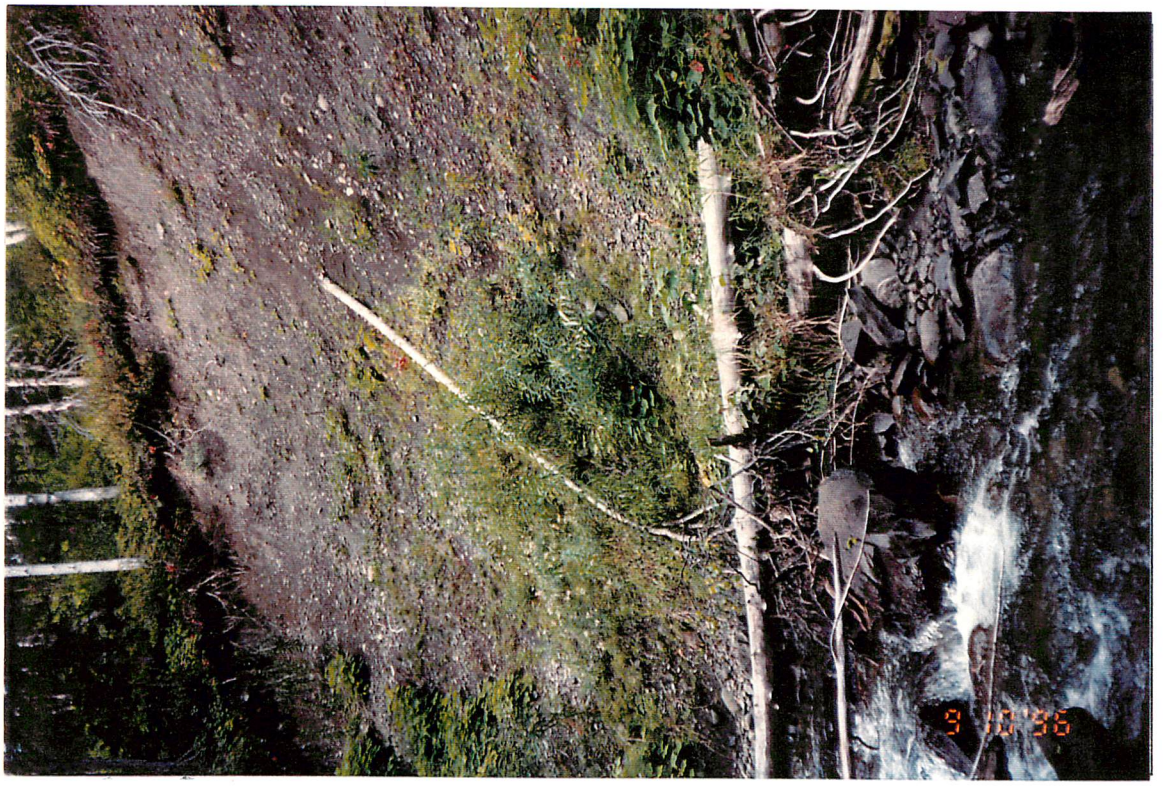


Photo #: B-1-14, 10-Sep-96
Site #: B4, Small section of slumping bank.

Photo #: B-1-15, 10-Sep-96
Site #: B4, 8 m falls.