

Reconnaissance (1:20,000) Fish and Fish Habitat Inventory in the Morice River Watershed

WSC: ⁴⁶⁰~~780~~-600600-00000

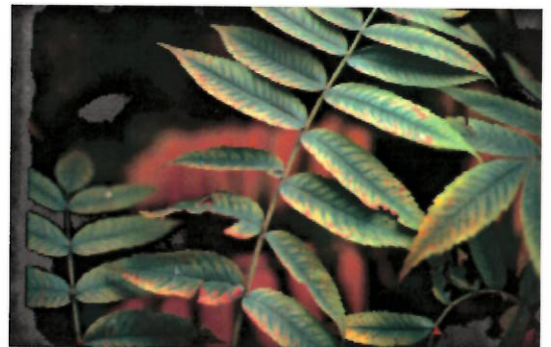


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Reconnaissance (1:20,000) Fish and Fish Habitat Inventory in the Upper Morice Watershed

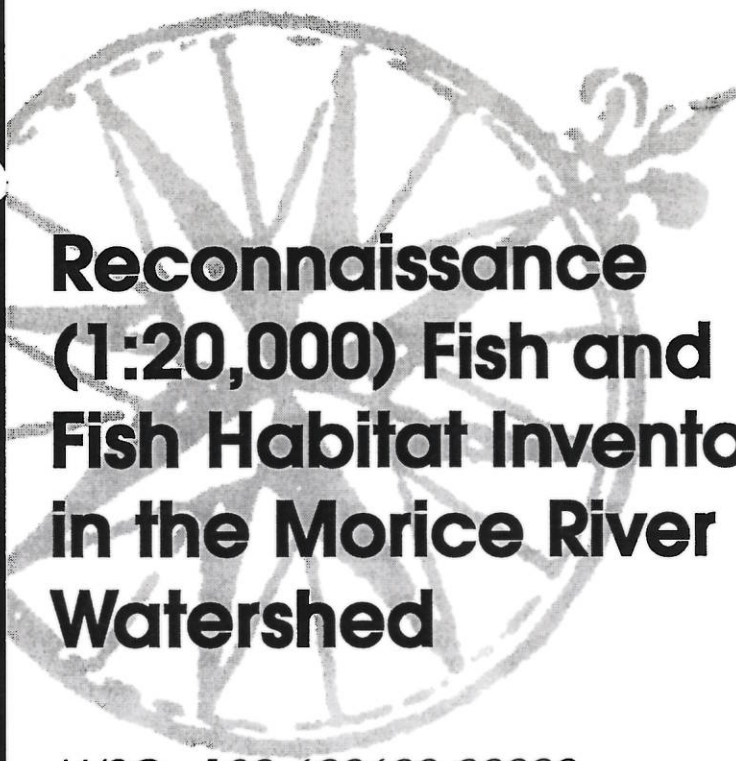
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Reconnaissance (1:20,000) Fish and Fish Habitat Inventory in the Morice River Watershed

WSC: 180-600600-00000

Prepared for:

Northwood Pulp and Timber Ltd.

PO Box 158
Houston, BC
V0J 2N0

January 2000

Prepared by:



TRITON

Environmental Consultants Ltd.

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PROJECT REFERENCE INFORMATION

FDIS Project Number:	06-MORR-0103-0103-1999
MELP Project Number:	NWD_C151_010_2000
FRBC Project Number:	10448
FRBC Region:	Skeena-Bulkley Region
MELP Region:	06
MELP District:	Skeena
FW Management Unit:	6-9
Fisheries Planning Unit:	North Coast
DFO Sub-district:	4D
Forest Region:	Prince Rupert
Forest District:	Morice
Forest Licensee and Tenure #:	Northwood Pulp and Timber Ltd., Morice TSA 20
First Nation Traditional Area:	Wet'suwet'en Nation, Broman Lake Band, Skin Tyee Band

WATERSHED INFORMATION

Watershed Group:	Morice River
Watershed Code:	180-600600-00000-00000-0000
UTM at Mouth:	NA
Watershed Area:	644 km ²
Total of All Stream Lengths:	986.49 km
Stream Order:	NA
NTS Map:	93L/02, 93L/03, 93L/04, 93L/13, 93L/14
TRIM Map:	93L.003, 93L.004, 93L.005, 93L.006, 93L.014, 93E.095, 93L.013, 93L.015, 93E.094, 93L.016, 93E.092, 93E.093, 93E.082, 93E.083, 93L.024
BGC Zone:	SBS
Air Photos:	BCC96050 #91-105, #171-185 BCC96071 #66-79 BCC96123 #162-184 BCC96138 #29-53, #180-202 BCC96156 #53-72, #134-156 BCC96148 #60-83



SAMPLE DESIGN SUMMARY

Total number of Reaches:	1421
Random Sampling Sites:	61
Biased Sampling Sites:	157
Fish Sampling Sites:	10
Total Sampling Sites:	228
Field Sampling Dates:	August 10 - October 6, 1999
Fish Species Captured During Survey:	BT; CAL; CAS; CH; CO; CT; DV; LKC; LNC; LSU; MW; NSC; PL; RB; RSC; WSU

CONTRACTOR INFORMATION

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DISCLAIMER

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

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

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LIST OF APPENDICES

Appendix I	Reach Cards/Site Cards/Fish Collection Forms and Photographs
Appendix II	Project Overview Map
Appendix III	Project Maps
Appendix IV	Fisheries Interpretive Maps

LIST OF ATTACHMENTS AVAILABLE AT MELP REGIONAL OFFICE

Attachment I	Planning Document
Attachment II	Field Notes
Attachment III	Collected Fish Aging Structures
Attachment IV	Voucher DNA Sample Table
Attachment V	Photodocumentation
Attachment VI	Digital Data
Attachment VII	Hardcopy FISS Update Data Forms



ACKNOWLEDGMENTS

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

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1.0 INTRODUCTION

Triton Environmental Consultants Ltd. (Triton, Terrace) was retained by Northwood Pulp and Timber Ltd. (Northwood) to conduct a Reconnaissance (1:20,000 scale) Fish and Fish Habitat Inventory in Northwood's Morice South operating area which is located within the Morice Timber Supply Area (T.S.A. 20).

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

1.1 Study Objectives

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

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

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

2.0 STUDY AREA

2.1 Location

Northwood's Morice South operating area is comprised of 3 major watersheds and smaller tributaries to the Morice River (WSC 460-600600); Nanika River, (WSC 460-600600-64400), Lamprey Creek (WSC 460-600600-36400), and McBride Creek (WSC



460-600600-63200). The study area includes tributaries entering from the south bank of the Morice River (between Lamprey Creek and the Nanika River) which is part of the Skeena River drainage. The Morice Study Area is outlined in Figure 1, and is located approximately 40 km southwest of Houston, B.C.

The Study Area is situated in the Central Interior Ecoprovince. The watershed lies in the broad rolling plateau that comprises the Fraser Plateau Ecoregion, in the Bulkley Ranges, and Nechako Plateau Ecosections.

Demarchi (1996) describes the climate within the Central Interior Ecoprovince:

The area has a typically continental climate: cold winters, warm summers, and a precipitation maximum in late spring or early summer. The area lies in a rainshadow leeward of the Coast Mountains. There is intense surface heating and convective showers in summer and in winter there are frequent outbreaks of Arctic air.

The biogeoclimatic zonation for the Study Area is predominantly Sub-boreal Spruce (Demarchi, 1996). Engelmann Spruce - Subalpine Fir zones occur on the middle slopes and Alpine Tundra Zones occur on the upper mountain slopes (Demarchi, 1996).

2.2 Access

Houston, the closest community to the study area, is situated approximately 40 km to the northeast of the study area. Sampling sites within the watershed were accessed by both road and air.

Directions from Houston to the Study Area are as follows:

- From Houston drive south 27 km on the Morice River Forest Service Road (FSR). At 27 km turn right (west) and stay on the Morice River FSR .
- Drive 17 km west on the Morice River FSR into the Study Area.
- Sample sites were accessed off the Morice West FSR, Morice River FSR, Nanika FSR, Bill Nye FSR and associated spur roads.

Sites located in the study area that did not possess road networks were accessed by helicopter.

3.0 RESOURCE INFORMATION

Resource values within the Sub-boreal Spruce (SBS) biogeoclimatic zone include forest harvesting. Northwood has current logging operations within the study area. Most of the SBS has low capability for agriculture due to adverse climate, topography, bedrock,

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Yukon Territory



**STUDY
AREA**

Legend

-  Sample Site Location
-  Boundary
-  River/Stream
-  River/Stream Intermittent
-  Lake
-  Marsh/Swamp
-  Glacier
-  Paved Road
-  Gravel Road

Map Information

Projection: UTM
Zone: 9
Datum: Nad83
Source: Digital Trim 1:20000
1:6,000,000 MOELP BC Base Map

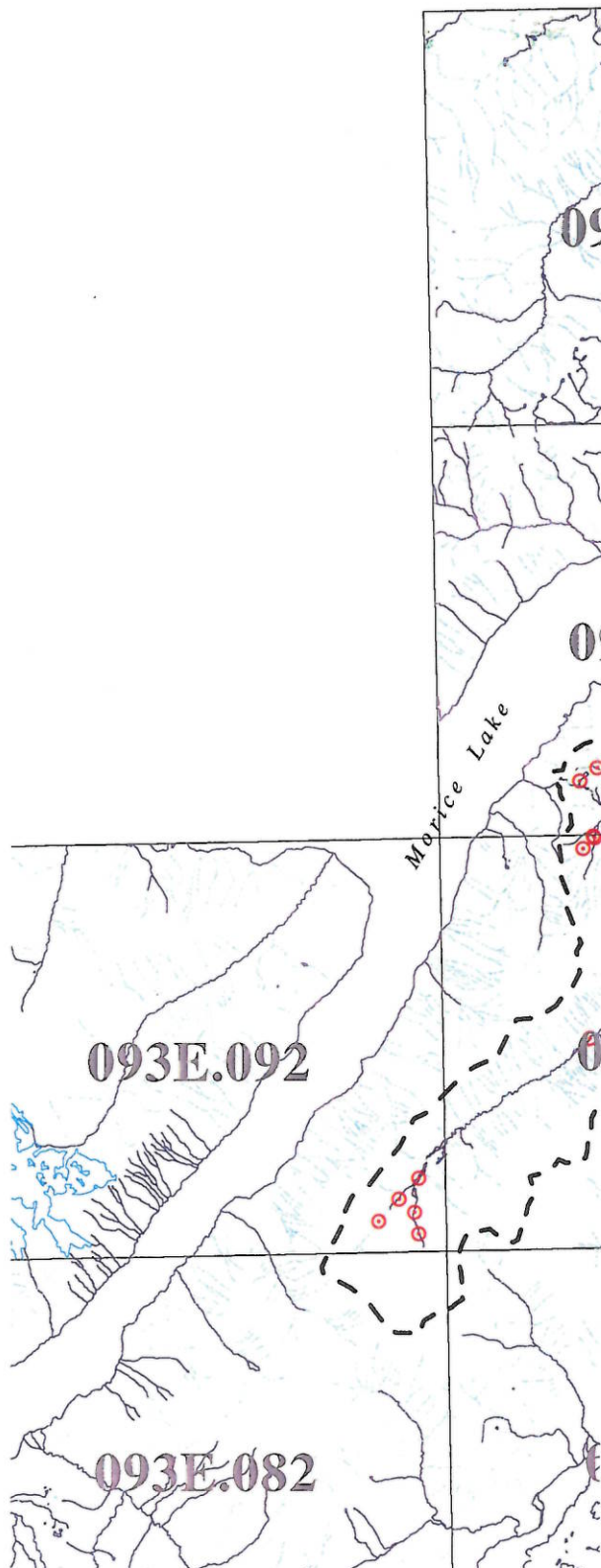
1 : 200,000

2000 0 2000 4000 6000 Meters

Upper Morice River Stream Inventory

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

OVERVIEW MAP





stoniness or poor drainage. Fur harvest from this zone is among the highest in the province.

The traditional area of the Wet'suwet'en Nation, Broman, Lake Band, and Skin Tyee Band lie in and adjacent to the study area. Culturally modified trees have been identified within the study area adjacent to Con Lake at the base on Nadina Mountain (Norcan, 1998).

In addition, the surrounding forested areas are used for hunting, hiking, snowmobiling, camping, and cross-country skiing (Meidinger & Pojar, 1991). The Nanika-Kidprice canoe route starts and finishes within the study area. Short portage trails, starting at Lamprey Lake, link 4 lakes (Lamprey, Anzac, Stepp, and Kidprice) together. The route can be finished by traveling down the Nanika River to Morice Lake.

The study area is located within the Central Interior ecoprovince which supports moose (*Alces alces*), caribou (*Rangifer tarandus*), mule deer (*Odocoileus hemionus hemionus*), whitetail deer (*O. virginianus*) and mountain goat (*Oreamnos americanus*) habitats. In addition, black bears (*Ursus americanus*), wolves (*C. lupis*), fisher (*Martes pennanti*), and lynx (*Lynx canadensis*) are widely distributed throughout the ecoprovince. Common herptiles include the western garter snake (*Thamnophis elegans*), the spotted frog (*Rana pretiosa*) and the western toad (*Bufo boreas*) (Campbell et al., 1990).

No existing water quality data was identified during the pre-field planning stages.

4.0 METHODS

The 1:20,000 Scale Fish Stream Identification inventory was completed in six phases:

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

The methods employed for each phase of the project followed those outlined in the *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures, April 1998* (Anonymous 1998). Alterations were made to the project plan in Phase 4 and are outlined in the sections below.



4.1 Phase 4: Field Data Collection

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

4.1.1 Pre-field Preparation

Stream reaches to be inventoried were identified by two methods: random sites generated by the FDIS planning tool and biased sites identified by Northwood and Triton. The latter sites are selected to address gaps in the random sampling plan, fish distribution and stream reaches potentially affected by forest planning and harvesting activities. The final sample sites incorporated into the contract were reviewed by John Brockley (Northwood), Todd Mahon (FRBC Coordinator), Paul Giroux (FIS, MELP Skeena Region 6), and Triton (Terrace) to ensure the sample sites meet the requirements of Northwood, MELP and the FDIS planning model.

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

4.1.2 Field Procedures

All sampling procedures followed those outlined in the *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures, April 1998* (Anonymous 1998) and the *Forest Practices Code Fish Stream Identification Guidebook*, (Anonymous 1995).

Field work was conducted by three field crews each consisting of two people. In watersheds where road access was available, the crews used 4X4 pick-up trucks or ATV's to travel from site to site. In watersheds where road access was unavailable transportation was provided by Westland Helicopter's Bell Jet Ranger helicopter.

Prior to the commencement of field activities each crew was equipped with the following:

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

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

Fish sampling within stream reaches was conducted using three primary sampling techniques: electrofishing, minnow trapping, and visual observation. Electrofishing is the most efficient method of sampling in shallow stream habitats and was the preferred sampling method for all habitat types in small streams and shallow water habitats. In these habitats and where using an additional sampling method would not provide additional information (i.e. species, relative abundance), it was the only fish sampling technique employed. In a few cases, minnow traps baited with salmon roe were employed in streams of greater depth and in ponded habitats. Visual observation was also used when other methods failed to catch fish. A combination of techniques were employed where the use of only one method would not have effectively sampled all habitats and in areas that were not suited to electroshocking (deep pools, wetlands, etc.). Where appropriate, and where return visits were practical, minnow traps baited with salmon roe were set and allowed to soak for a 24 hour period.

4.1.3 Field Data Compilation

Following each field day, field crews met to compile field notes, review field data and summarize the field findings onto hard copy maps. This system ensured that all information was thoroughly documented, allowing for preliminary stream classifications and changes to the sampling plan to be made. Field crews were in constant contact with Paul Giroux (Fisheries Inventory Specialist) and Andy Witt (Forest Ecosystem Specialist) when the originally proposed plan needed modifications. In most cases sites downstream of known fish bearing reaches were moved to reduce sampling redundancy, address potential barriers, identify species composition, establish fish distribution and provide additional sampling data.



5.0 RESULTS

5.1 Existing Information

FISS (1995a) records indicate that rainbow trout (*Oncorhynchus mykiss*), cutthroat trout (*O. clarkii*), coho (*O. kisutch*), pink (*O. gorbuscha*), chinook (*O. tshawytscha*), sockeye (*O. nerka*), lake chub (*Couesius plumbeus*), longnose sucker (*Catostomus columbianus*), longnose dace (*Rhinichthys cataractae*), Dolly Varden (*Salvelinus malma*), lake trout (*Salvelinus namaycush*), and Rocky Mountain whitefish (*Prosopium williamsoni*) are present in the Nanika River drainage. FISS (1995a) records indicate that the McBride Creek drainage contains: redbside shiner (*Richardsonius balteatus*), prickly sculpin (*Cottus asper*), Burbot (*Lota lota*), Largescale sucker (*Catostomus macrocheilus*), peamouth chub (*Mylocheilus caurinus*), Rocky Mountain whitefish, longnose dace, lake whitefish (*Coregonus clupeaformis*), lake trout, chinook, coho, cutthroat trout, and Dolly Varden. FISS (1995a) also indicates that the Lamprey Creek drainage contains: cutthroat trout, rainbow trout, coho, chinook, Dolly Varden, Rocky Mountain whitefish, prickly sculpin, lake chub, redbside shiner, burbot, peamouth chub, longnose dace, and longnose sucker.

MoELP Skeena Region 6 Smithers files support the species identified in the FISS (1995a) records and include white sucker (*Catostomus commersoni*) and Pacific lamprey (*Lampetra tridentata*) as being present within the Study Area.

5.2 Survey Information

Table 1 provides an overview of the survey information compiled for the Morice Study Area.

Table 1. Summary Survey Information for the Study Area.

Major Watershed Code:	180-600600-00000-00000-0000-0000-000-000-000-000-			
Watershed Name:	Morice River			
Drainage:	Morice River→Bulkley River→Skeena River			
NTS Maps:	93L/02, 93L/03, 93L/04, 93L/13, 93L/14			
TRIM Maps:	93L.003	93L.013	93E.092	93E.082
	93L.004	93L.014	93E.093	93L.024
	93L.005	93L.015	93E.094	93E.083
	93L.006	93L.016	93E.095	
Total Number of Lakes:	25			
Total Number of Reaches:	1421			
Stream Field Sampling Dates:	August 10 - October 6, 1999			
Number of Random Sites Sampled:	61			
Number of Bias Sites Sampled:	157			
Number of Fish Sampling Sites:	10			
Total Number of Sampling Sites:	228			



5.3 Field Data

5.3.1 Site Cards

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

5.3.2 Fish Collection Cards

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

5.4 Survey Comments

5.4.1 Logistics

Weather conditions were variable over the field sampling dates. Heavy rain caused some turbidity and high water in several sample sites. Field crews often made the decision to sample streams which were not affected by the high runoff. The turbid streams were then revisited when sampling conditions were favorable. Frequent precipitation over the sampling dates helped reduce the number of dry/intermittent streams. The number of dry intermittent streams was relatively low for this time of year (43 of 218 sample sites were classified as dry/intermittent). Poor driving conditions were encountered on secondary roads and crews often had to use winches to make it through muddy sections of road. The use of an ATV was employed when road conditions were not drivable or walking distances were too great. No sites were dropped from the sample plan due to lack of access.

5.4.2 Fish Comments

Fish were captured in 81 of 228 sample locations. Table 2 provides a summary of the of the reaches in which fish were captured. Rainbow trout, bull trout (*Salvelinus confluentus*), coastrange sculpin (*Cottus aleuticus*), prickly sculpin, chinook, coho, cutthroat trout, Dolly Varden, lake chub, northern squawfish (*Ptycheilus oregonensis*), mountain whitefish, longnose sucker, pacific lamprey, white suckers, redbside shiner, and longnose dace were captured in the study area. Length frequency distributions are provided in the figures below for sport species with adequate numbers for graphic representation. Length vs age is also demonstrated in the following figures for the sport species from which ageing data was collected.





00-2380
00-5200
00-26
00-064
1401

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00-5110

Table 2. Fish Capture Locations with the Upper Morice

Site	WSC/ILP	Reach	Order	Species	Stage	Number	Minimum Length (mm)	Maximum Length (mm)
342	66200-3100	2	1	CT	F	4	24	36
				CT	J	2	67	76
344	63200-75900	1	2	CT	F	1	31	31
				CT	J	3	120	137
348	36400-88900	2	1	CT	F	4	34	46
				CT	J	2	71	89
350	600600-36400	24	1	RB	J	7	79	100
				CT	F	5	31	39
				CT	J	2	71	89
351	600600-63200	13	2	CT	J	7	64	86
392	36400-72600	6	1	CT	F	4	29	33
				CT	J	5	48	57
394	72600-5970	6	1	CT	J	6	42	73
398	63200-66200	3	2	CT	J	7	59	123
399	1405	1	2	DV	J	3	125	142
				CT	F	2	31	33
				CT	J	3	46	69
405	1393	1	2	DV	J	3	98	121
406	1278	1	2	CO	F	1	42	42
422	62200-2180	2	2	CT	J	9	48	95
425	36400-00800	5	2	CT	F	20	35	46
				CT	J	4	69	82
466	36400-39700	17	3	LKC	J	3	27	67
				WSU	J	6	75	161
475	36400-39700	1	4	RB	J	8	78	152
				DV	J	4	78	92
				CT	J	2	150	155
				PL	J	20	45	83
668	36400-64100	16	3	RSC	A	2	55	71
				CAL	A	1	86	86
				LKC	J	4	15	82
669	1034	1	2	LKC	J	6	24	27
670	1038	1	1	CT	J	4	42	66
672	36400-64100	9	3	CT	J	3	38	73
				RSC	J	2	42	47
674	36400-64100	13	3	RB	F	8	41	51
675	64400-18300	6	4	CT	J	4	87	123
				CH	J	12	54	114
				RSC	A	8	80	105
				LNC	J	1	55	55
				CAL	J	1	86	86
677	1269	2	3	CT	J	5	35	67
				DV	J	1	61	61
678	64400-18300	9	3	CT	J	2	65	71
679	1268	1	2	CT	F	2	25	29
				CT	J	2	59	70
681	1273	3	1	CT	J	4	60	69
682	1221	1	2	CT	J	1	120	120
685	1500	2	4	DV	J	8	43	183
				CT	J	4	120	143
690	1246	1	1	DV	J	1	85	85
				CT	J	1	85	85
691	18300-3800	2	3	DV	J	10	85	145
				CT	J	7	30	128
692	63200-09800	1	2	DV	J	1	70	70
693	63200-09800	3	2	DV	J	1	75	75
900	64400-28100	2	3	RB	J	8	86	221
				BT	J	14	42	172
				MW	A	4	256	415
901	64400-28100	9	3	DV	J	9	122	177



Figure 2. Length frequency distribution for rainbow trout captured in the study area (n=97).

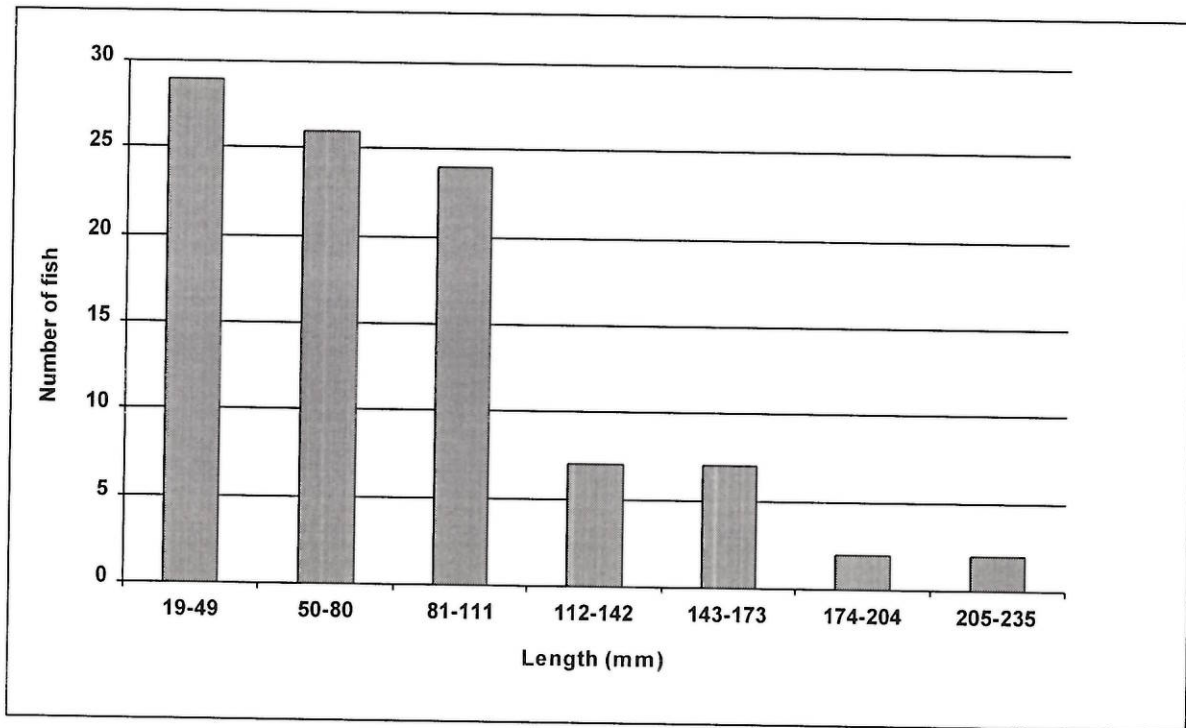


Figure 3. Length frequency distribution for cutthroat trout captured in the study area (n=186).

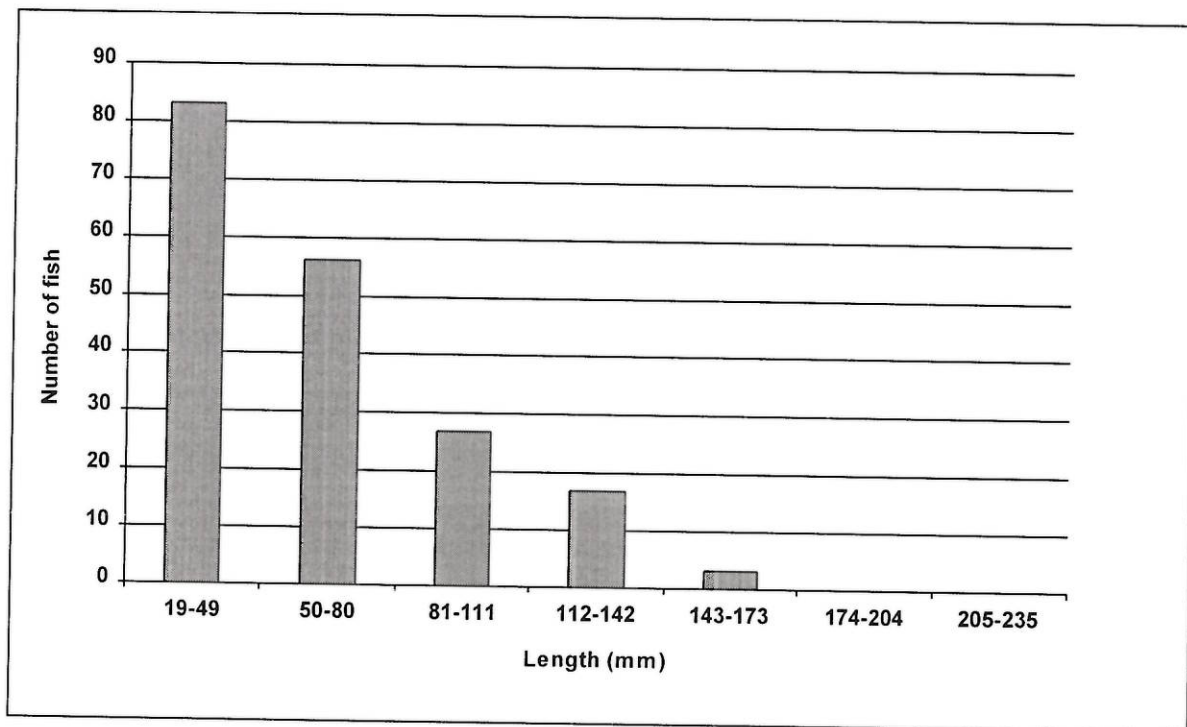




Figure 4. Length frequency distribution for bull trout captured in the study area (n=14).

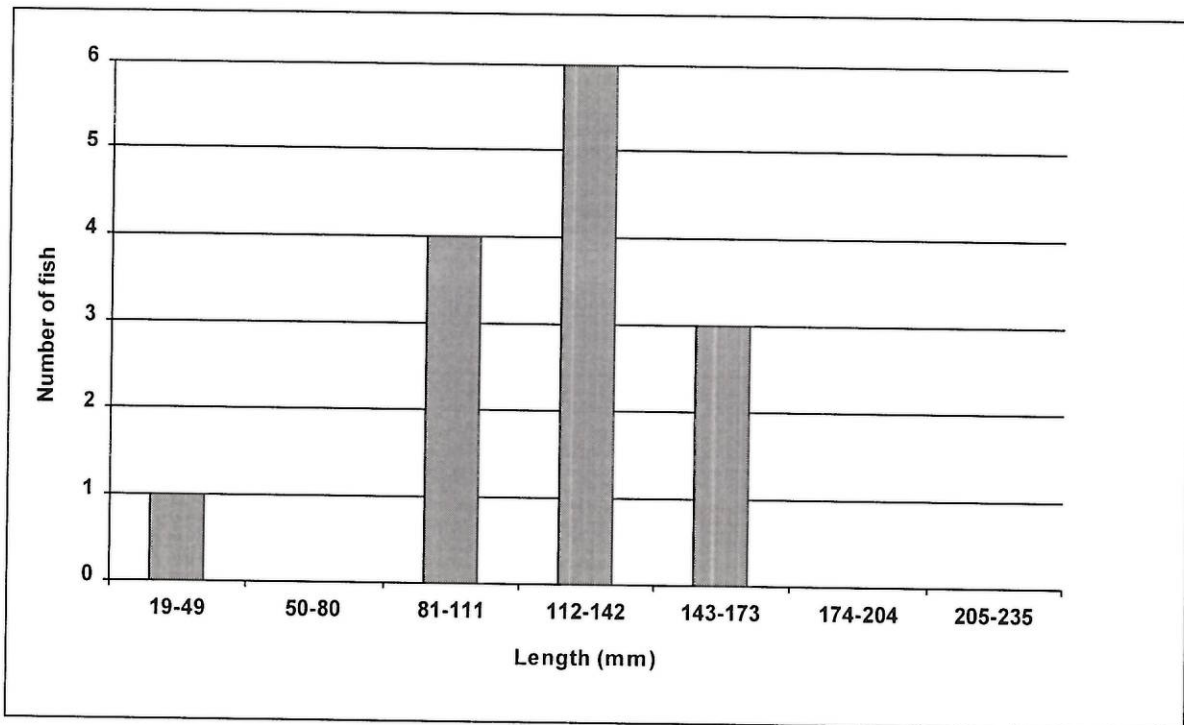


Figure 5. Length frequency distribution for Dolly Varden captured in the study area (n=151).

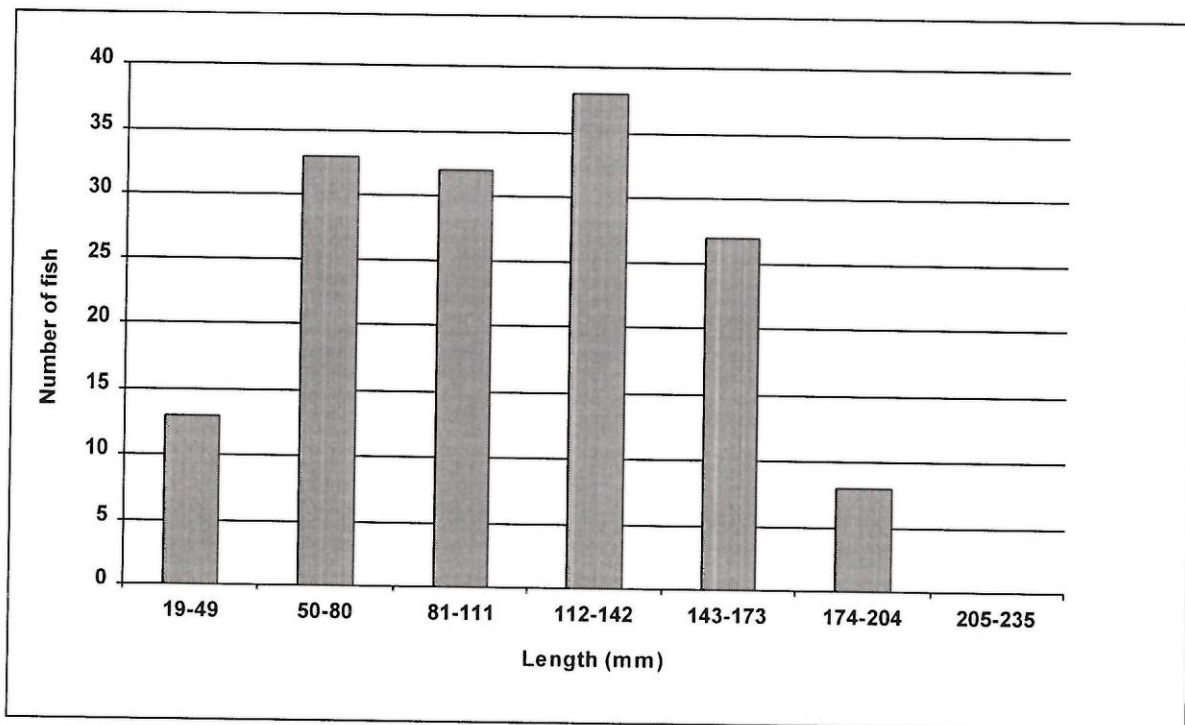




Figure 6. Length frequency distribution for chinook captured in the study area (n=14).

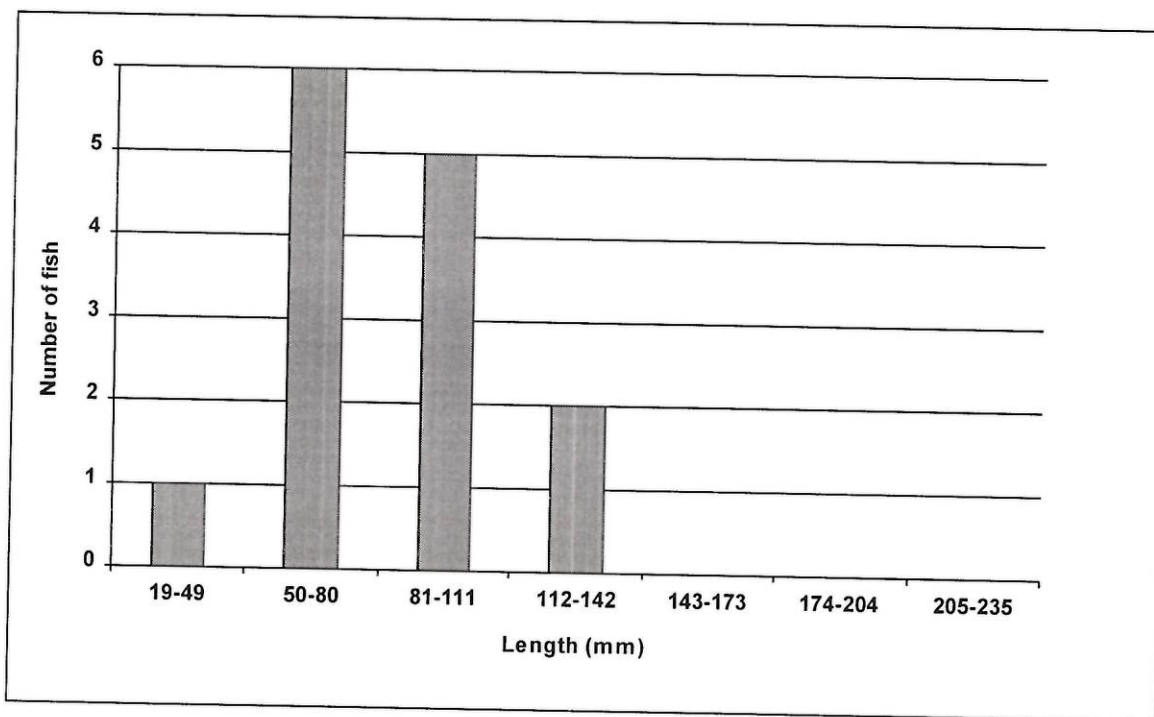


Figure 7. Length vs Age for rainbow trout captured within the Study Area (n=34).

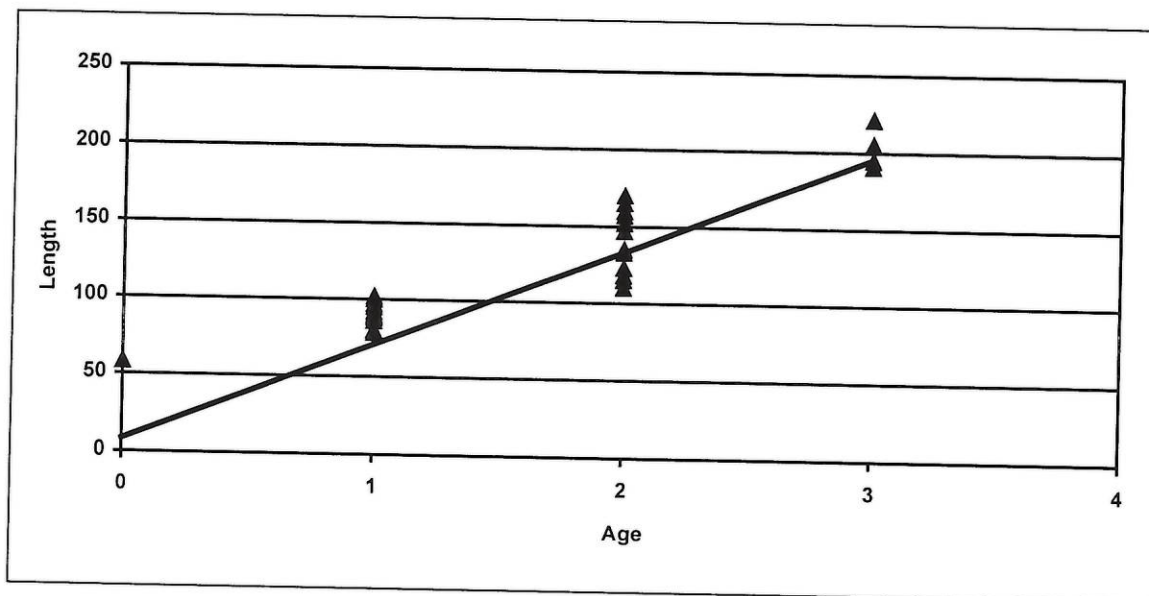




Figure 8. Length vs Age for cutthroat trout captured within the Study Area (n=16).

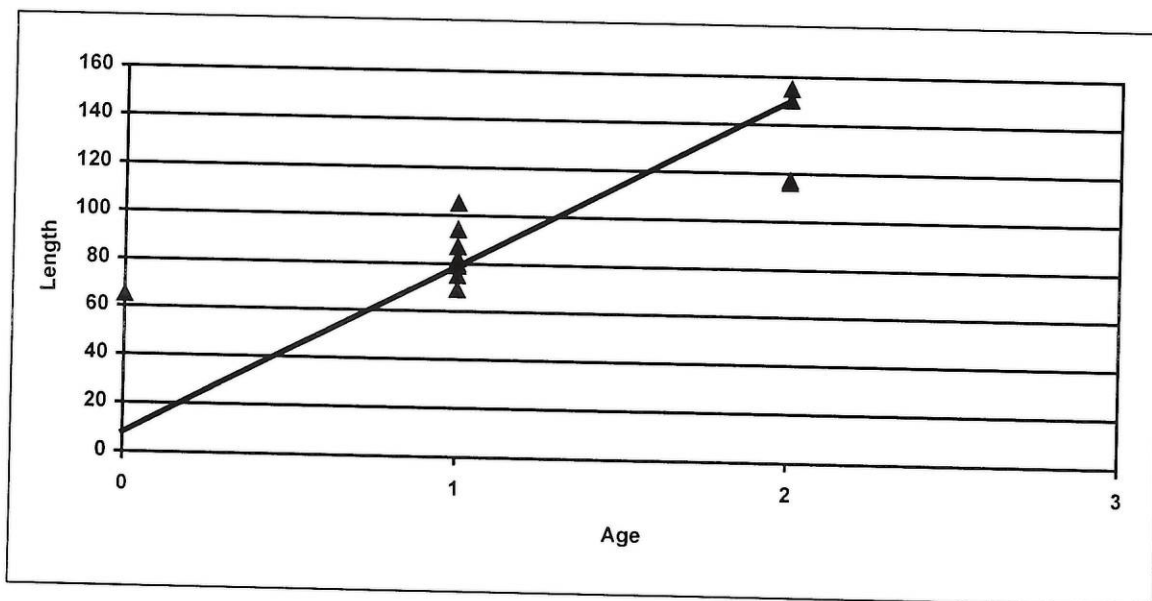


Figure 9. Length vs Age for Dolly Varden captured within the Study Area (n=9).

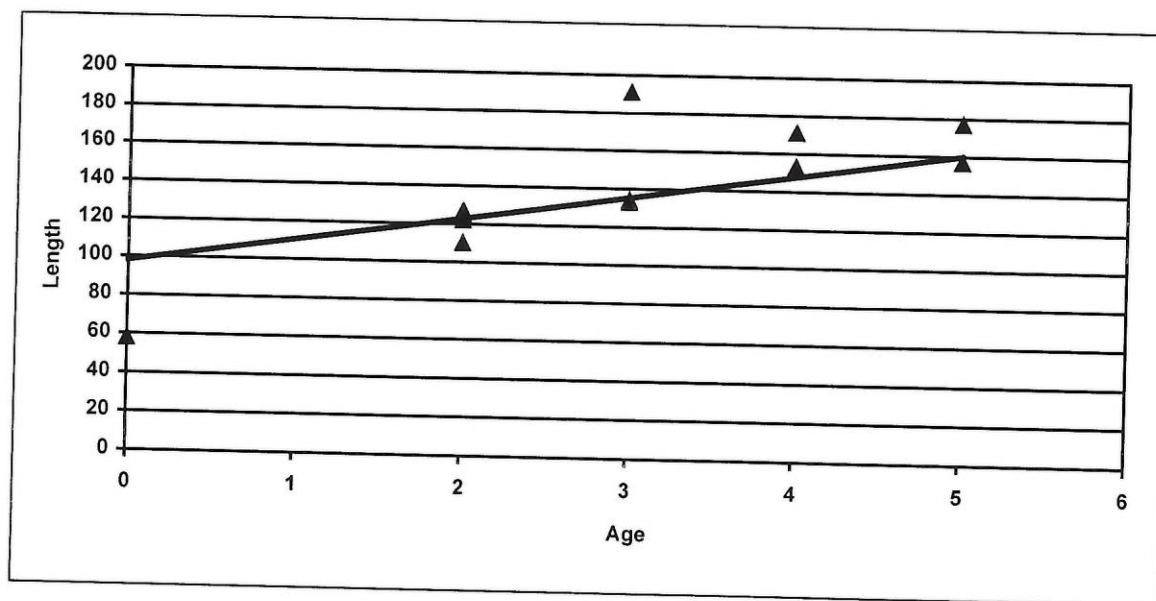
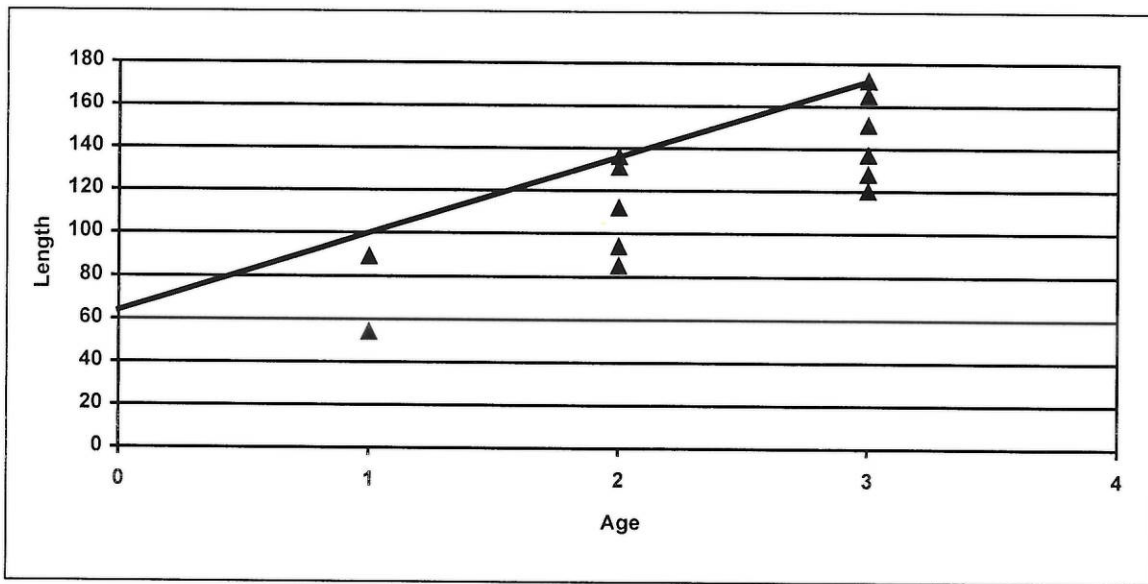




Figure 10. Length vs Age for bull trout captured within the Study Area (n=13).



Rainbow trout

Rainbow trout, captured during this survey, were found to utilize small to moderately large streams, which have moderate flows, gravel substrates, riffle pool morphology and shallow depths. Spawning for rainbow trout usually occurs from mid-April to late June with fry emergence occurring from mid-June to mid-August (Scott & Crossman 1985).

White sucker

The white sucker captured within the Morice study area were all associated with the resident lake populations within the Pimpernel Creek drainage. The highest concentrations of white sucker were found adjacent to overwintering habitats provided by large wetlands and lakes. No white sucker were captured in any of the tributary streams to Pimpernel Creek, which suggests that the white sucker are confined to areas adjacent to the perennial fish habitat provided by the lakes and wetlands.

White sucker are generally characterized as inhabiting shallow warm lakes and some slower stream habitats. White sucker reach sexual maturity between 5 and 8 years and tend to spawn in slow shallow water with gravel substrates during the spring (early May to June). Adults do not create redds and deposit their eggs freely to adhere to gravel substrates or to drift downstream to suitable substrates in slower water. The eggs hatch in about 2 weeks with the fry emerging from the gravel in another 1-2 weeks. White sucker have been known to live for up to 17 years (Scott & Crossman 1985).



Redside shiner

The redside shiner captured within the Morice study area were captured in stream habitats immediately below small shallow lakes. Although the lake habitats were not sampled it would be safe to infer that the stream residents likely downseed from upstream headwater lakes. All of the redside shiner captured within the streams were found to be adults which were most likely taking advantage of the adjacent stream habitats during the summer months.

Redside shiner can tolerate a wide range of temperatures and trophic conditions and area generally known inhabit lakes, small ponds, and moderately fast streams. Redside shiner live up to 7 years and reach sexual maturity in approximately 3 years. Spawning takes place in streams or lakes in the early summer (May to early August). No nest is built and the eggs are released to adhere to gravel, vegetation or other suitable substrates. The eggs hatch in 1-2 weeks and the fry emerge from the gravel 1-2 weeks later (Scott & Crossman 1985).

Cutthroat trout

Cutthroat were captured in a variety of habitats throughout the study area. They were most often found in the smaller streams adjacent to overwintering habitat provided by larger mainstems and lakes. The majority of the cutthroat captured were fry and juveniles which indicates they likely utilizing the small stream habitat for juvenile rearing and, or refuge. Adults were only captured in the larger mainstems (usually third order or larger).

Cutthroat live to a maximum of 10 years and can reach sexual maturity in as little as 2 years. Spawning takes place in the spring (February to May) in streams with adequate gravel substrates. Redds are constructed and the eggs hatch within 6-7 weeks. Fry emerge from the redds in 1-2 weeks (Scott & Crossman 1985).

Pacific lamprey

Pacific lamprey ammocoete's were captured in two locations (Lamprey Creek and McBride Creek) within the study area. In both cases the lampreys were captured in the sandy/muddy substrates occurring in the back eddies of moderate sized pools. The lamprey captured, responded poorly to electrofishing effort and often settings on the electrofisher needed to be changed to draw them out of the fine substrates.

The ammocoete's stream habitat usually consists of sandy or muddy substrates adjacent to riffles. Ammocoetes spend 5-6 years in the freshwater stream habitat before transforming into parasitic adult lampreys and migrating downstream to the sea in the spring or early summer. After 12-20 months as parasites they migrate back to freshwater in the summer to early fall (July to September). The lampreys hide under rocks resting until spawning in the spring (April to July) (Scott & Crossman 1985).

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Dolly Varden

Within the Morice study area Dolly Varden were found in habitats ranging from high energy glacial streams to low gradient stagnant pools. Fry and juvenile Dolly Varden were found to inhabit the smaller secondary streams adjacent to overwintering habitat (larger mainstems and lakes), and the larger (mature) Dolly Varden were found in mainstem and larger tributary habitats.

Dolly Varden reach sexual maturity in 3-6 years and spawn in streams with cobble/gravel substrates and moderate flows. The fry hatch in the spring and reside (3-4 years) in the stream they were spawned until reaching a size large enough to move downstream into larger bodies of water. Northern and high elevation populations are often stunted and rarely exceed 30 cm. Dolly Varden are a relatively long lived species reaching ages of 10-12 years (Scott & Crossman 1985).

Mountain whitefish

The mountain whitefish captured within the study area were found in two different habitats types. One capture location was located immediately upstream of the Nanika River in a high energy glacial stream. This capture location produced large adult whitefish that may have come up from the Nanika River to spawn in the smaller tributary stream. The second capture location was McBride Creek which is characterized by low gradient sections with abundant beaver activity. This McBride Creek fish likely downseeded from the upstream population in McBride Lake.

Within the Skeena drainage mountain whitefish are most abundant in shallow eutrophic lakes. Mountain whitefish reach sexual maturity in 3-4 years and are late fall to early winter spawners. Spawning takes place over gravel or cobble substrates and no nest is built. The maximum age for mountain whitefish is reported at 17 or 18 years (Scott & Crossman 1985).

Longnose sucker

Longnose suckers were captured in several locations within the study area. They are common throughout the Skeena drainage occurring in lakes and streams. Longnose sucker reach sexual maturity at 5-7 years and spawn in the spring in streams or on shallow lakeshore habitat. The fry hatch in approximately 2 weeks and remain in the gravel for an additional 1-2 weeks before emerging into the stream habitat (Scott & Crossman 1985). Within the McBride Creek drainage longnose sucker were captured in the slow water adjacent to beaver dams and ponds. Longnose sucker were also found in the slower stream habitat below a large wetland complex located on a large tributary to the Nanika River. No adult longnose sucker were captured which indicates they are most likely utilizing the lake and pond habitats within these systems.

[illegible]

Longnose dace

Longnose dace are known to inhabit swift flowing streams with boulder or gravel substrates and are often present near inshore habitats of lakes containing boulder and gravel bottoms. Relatively little is known about the spawning characteristics of the longnose dace although spawning is considered to take place in the spring or early summer (May to July) within stream riffles containing gravel substrates (Scott & Crossman 1985). One longnose dace was captured below a small lake located on a tributary to the Nanika River. This fish was a juvenile found to be utilizing the rearing habitat adjacent to the lake.

Coastrange sculpin

Two (2) streams located directly below lakes contained coastrange sculpins. These fish are most likely from the lake population and are utilizing the available habitat adjacent to the lake. The coastrange sculpin is known to inhabit the fast water of streams containing gravel/cobble substrates and the shallow inshore areas of lakes. Coastrange sculpin spawn in the spring (February to mid June) underneath rocks. The eggs are attached to rock's surface in an adhesive mass (Scott & Crossman 1985).

Prickly sculpin

Prickly sculpin were captured in stream habitats within the study area. The prickly sculpin is known to inhabit the quiet, slower flowing portions of streams and the shoreline areas of lakes. Spawning takes place in the spring from mid March to mid July. Streams containing boulder/cobble and flat rock substrates seem to be the preferred habitat for spawning. The eggs are attached in an adhesive mass to the underside of a boulder or flat rock. Prickly sculpin were captured in a small tributary immediately upstream of Collins Lake and within McBride Creek. Both fish were found rearing in slow stagnant water containing woody debris.

Northern squawfish

One (1) northern squawfish was captured at the outlet of a small lake. This fish was most likely associated with an upstream lake population. Northern squawfish are mainly a lake species but are often found in the slower moving water of streams and sloughs. Sexual maturity is reached in approximately 6 years and spawning takes place in the shallows on gravelly lake shore substrates and in stream habitats adjacent to lakes (May to July). Northern squawfish are a long lived species with a life expectancy of 15-20 years.

Coho salmon

Coho juveniles were captured in the Nanika River drainage. Coho are fall to early winter (October to January) spawners and spawning habitat can be characterized as smaller rivers and tributaries containing gravelly substrates. Coho fry emerge from the gravel in

the spring and early summer (March to July) and juveniles usually remain in freshwater habitat for 1-2 years before migrating (downstream) to the ocean for 1 to 3 years. Coho juveniles were captured in a side channel to the Nanika river. These fish were observed and captured while rearing in this channel at the mouth of a small tributary. Coho were also captured below a large wetland complex in a larger tributary to the Nanika River. Both capture locations had good cover and provide good rearing habitat for these juveniles. It is unlikely that mature coho are spawning at these capture locations due to fine substrates. These coho juveniles likely moved upstream to these habitats, from the mainstem, to rear until outward migration.

Chinook Salmon

Chinook juveniles were captured in the Nanika River drainage. Chinook salmon are late summer to late fall spawners (August to October). Spawning habitat can be characterized as the larger rivers and tributaries containing moderate to large gravels. The fry emerge from the gravel in the spring and rear for up to 1 year in the freshwater before migrating to the ocean for 2-5 years. Chinook juveniles were captured in a larger tributary to the Nanika River. It is most likely that the adult chinook are spawning in the Nanika River and the juveniles are rearing within this smaller tributary until outward migration.

Bull trout

Bull trout were captured in a large tributary to the Nanika River. Bull trout are known to occupy a wide spectrum of habitat types. Bull trout often occupy unproductive habitats where rainbow and cutthroat do not thrive. Within the study area there is the possibility of 3 different bull trout life histories:

- the stream resident that spends its entire life within small headwater streams, often above physical barriers;
- the large river type which spends its adult life within large rivers and spawns in smaller tributaries. The large river offspring rear in these smaller tributaries until they grow large enough to compete within the large river habitat; and,
- the lake type, which spends its adult life in a lake habitat and uses the tributary streams for rearing and spawning.

Bull trout are fall spawners and reach maturity in 3 to 7 years. It is believed that the bull trout captured within the glacial tributary to the Nanika River are of the large river type. In this tributary (WSC 64400-28100) only juvenile bull trout were captured immediately upstream of the Nanika River. Further sample sites upstream of Reach 3, indicated that only Dolly Varden were present. Bull trout adults most likely use the lower reaches of this stream for spawning and the juveniles rear in this stream until large enough to survive in the Nanika River mainstem.



Lake chub

Several lake chub were captured within the study area. Lake chub were found within the Pimpinel Creek drainage below "Con Lake" and below another small lake within a large tributary to Lamprey Creek. This species was associated with low gradient habitat adjacent to suitable overwintering areas (i.e. upstream or downstream of small lakes and ponds). The lake chub is a large minnow, commonly reaching sizes in excess of 102 mm. Studies indicate that the fish mature in their third or fourth year and probably seldom survived beyond 5 years, females lake chub are known to grow faster and live longer than the males. Lake chub usually undergo a spawning migration from lakes to tributary streams early in the spring. In British Columbia, the lake chub range extends from the Columbia and Fraser to the Skeena, Peace and Liard (Scott & Crossman 1985).

Quantitative abundance figures were not generated in this study as sampling methods to determine abundance were not utilized.

Field crews were constantly on the lookout for high value sport fishing opportunities within the study area. Sport fishing is conducted within the study area on several of the lakes and in the mainstem Morice and Nanika Rivers. High value sport fishing exists just outside the study area on the Morice and Bulkley Rivers, which are world famous for steelhead angling.

5.4.3 Fish Habitat

Fish were captured in 1st to 4th order streams and fish distribution was generally associated with perennial fish habitat. Perennial habitat includes the presence of overwintering, spawning, and rearing habitat. Instream overwintering habitat was identified as containing residual pool depths greater than 0.5 m. Other overwintering habitat included wetlands and lakes with depths greater than 0.5 m. Spawning habitat was characterized by the presence of suitable spawning substrates and adequate flows. Rearing habitat was characterized as containing water where fish can live and grow.

Fish bearing 1st order streams were not located far from perennial fish habitat. Habitat quality within these 1st order reaches was generally poor with smaller average channel widths and low water flows. Field observations indicated that the small channel widths and ephemeral nature of these streams likely limit or prevent their ability to sustain fish populations, particularly throughout the year. It is unlikely that these reaches are used by fish, unless they flow into a major system (i.e. 3rd or 4th order), due to the short duration of water flows and lack of suitable fish habitat.

No fish were captured in reaches with an average channel width of less than 0.57 m, or with an average gradient greater than 11.3%. Fish bearing 1st order streams had an average channel width of 1.58 m. Fish-bearing 2nd order streams had an average channel width of 3.18 m. Fish-bearing 3rd and 4th order streams had average channel widths of 7.91 m and 6.74 m respectively.

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Significant fisheries values within the project area are largely associated with the limited occurrence of high quality spawning and rearing habitats for rainbow trout. Nanika River, Lamprey Creek, Nado Creek (WSC 460-600600-57600), and McBride Creek provide these high quality spawning and rearing habitats. The prevalence of very shallow stream habitat and low overall habitat complexity, appear to be the primary limiting factors for spawning and rearing habitats. The general lack of deep pool habitats and perennial flow in tributary streams limits the occurrence of suitable habitats for resident trout.

In 2 cases non sport fish species were captured above a physical barrier to upstream fish migration. One (1) northern squawfish was captured in a lake outlet above a 3.5 m falls on a tributary (WSC 460-600600-57600-31800, Site 336) to Nado Creek. Extensive electrofishing within this stream produced only 1 northern squawfish although numerous fish were observed in the small lake located upstream of the site. Lake chub and white sucker were also captured above a 25 m falls on Pimpernel Creek (WSC 460-600600-36400-39700). Pimpernel Creek is a moderately large 4th order drainage containing 2 small lakes. No sport fish species were captured above these falls with adequate stream sampling and a secondary lake survey of Con Lake (Reach 18 of Pimpernel Creek). Lake chub and white sucker are primarily found in lake habitats although they will inhabit larger streams and ponds. The lake chub and white sucker within this system were only captured in the mainstem of Pimpernel Creek and in Con Lake. Several tributary streams to Pimpernel Creek above the falls were sampled and in all cases no fish were caught.

Fish species were captured in 81 of the 124 reaches classified as fish-bearing (Table 3). Fifty-six (56) reaches in the fish bearing classification table were classified as fish bearing by default. Twenty-eight (28) of these reaches were identified as accessible from downstream fish bearing waters and could be utilized for a portion of the year. It was determined that fish can access these reaches (from downstream fish bearing waters) and further sampling is not recommended.

The fish bearing status of streams may be directly supported by sampling data or indirectly inferred based on fish captures in associated reaches, or habitat quality and the occurrence or lack of barriers to fish passage. For example, if the habitats within a given reach are suitable for rearing and/or spawning but no fish were captured and no barriers were observed, the reach would be classed as fish bearing. If the habitats were inadequate to provide suitable rearing habitat, or where barriers prevent fish from accessing and utilizing the reach, it would be classified as non-fish bearing.

Inferred fish bearing status was given to reaches not sampled with the following criteria:

- 1) The average stream gradient was less than 20 % (through map interpretation) and access to fish bearing waters is present.

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Table 3. Upper Morice Fish Bearing Table

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Species	Stream Class	Follow-up Sampling (y or n)	Comments
241	64400-28100	5	30.5	7.5	DV	S1	n	Moderate spawning, rearing, and overwintering habitat.
243	64400-28100	11	14.1	8	DV	S2/S5	n	Falls (4 m) and a cascade (3 m) prevent upstream fish migration. Sampling upstream of the falls confirms non fish bearing status.
246	1419	3	3.02	8	DV	S3/S5	n	Cascade (6 m) prevents upstream fish migration. Sampling upstream of the cascade confirms non fish bearing status.
250	64100-2380	4	0.82	1.5	RB	S4	n	Poor rearing. No spawning or overwintering habitat.
251	39700-0440	2	0.89	5	NFC	S4*	n	No permanent barriers identified. Fish stream based on access.
253	1169	2	1.3	4.5	NFC	S4*	y	No permanent barriers identified. Fish stream based on access.
256	600600-53900	1	2.75	7	CT	S3/S5	n	Falls (20 m) prevent upstream fish migration.
258	5020-0640	5	1.38	7	NFC	S4*	y	No permanent barriers to upstream fish migration were identified. Fish bearing based on access.
261	1180	9	1.18	3	NFC	S4*	y	No permanent barriers to upstream fish migration were identified. Fish stream based on access.
266	36400-26300	2	3.37	8	DV	S3/S6	n	Cascade (2 m) prevents upstream fish migration. Fish were captured below the cascade.
270	1150	1	0.92	20.3	NFC	S4*/S6	n	Lower 50 m of this reach is fish bearing based on access. Gradient prevents fish access to the remainder of the stream.
271	1158	2	0.65	26.5	NS	S4*/S6	n	Lower 20 m of this reach is fish bearing based on access. The remainder of this reach is non fish bearing (high gradient prevents access).
273	1442	1	0.72	5.8	NS	S4*	n	Fish stream based on access.
279	50200-0640	1	1.72	4.3	CT	S3	n	Good rearing habitat. No spawning habitat or overwintering habitat.
301	1401	1	1.98	1.9	DV	S3	n	Excellent spawning habitat. Moderate rearing habitat. No overwintering habitat.
302	64400-22700	2	3.77	3	DV	S3	n	Good spawning and rearing habitat. Overwintering habitat present.
304	1500	3	6.58	1.3	RB, DV	S2	n	Excellent spawning habitat. Moderate rearing habitat. Overwintering habitat present.
305	64400-18300	4	3.57	2.8	CO, CH, DV, RB, LSU	S3	n	Excellent rearing habitat. Poor spawning habitat. Overwintering habitat present.
307	1276	3	1.39	21.5	RB	S4/S6	n	Falls (1.9 m) prevent upstream fish migration into this reach. The portion of stream below the falls is fish bearing based on access.
314	11700-5110	3	3.42	6.5	CT	S3	n	Fair rearing habitat. Poor spawning habitat. No overwintering habitat.
315	1011	1	1.45	1	CAS, LSU	S4*	n	Non sport fish captured. Sport fish access is possible.
316	600600-63200	8	5.38	1.3	CT, RB, CAS, MW, LSU, PL	S2	n	Excellent spawning and rearing habitat. Overwintering habitat present.
317	63200-29100	3	0.96	4	NFC	S4*	y	No permanent barriers identified. Fish stream based on access.
318	1420	2	2.62	13	NFC	S3*	y	Fish stream based on access. Gradient is low enough to allow fish access.
319	11700-5660	4	2.38	21.25	DV	S3/S6	n	Above road crossing the gradient becomes too steep to allow fish passage.



Table 3. Upper Morice Fish Bearing Table

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Species	Stream Class	Follow-up Sampling (y or n)	Comments
320	4190-1340	1	1.15	1.8	NFC	S4*	n	Fish may access this reach during high flows.
325	1485	1	1.58	3.3	NS	S3*	n	Fish stream based on access.
326	62200-2180	3	2.4	1.3	RSC	S3*	y	Non sport fish captured. Upstream lake may contain sport fish. Fish stream based on access.
329	1185	1	0.86	11	NS	S4*/S6	n	The lower 100 m of stream is fish bearing based on access. Above that point the fish habitat deteriorates until there is no possibility of fish use.
330	1478	2	1.49	3.5	NFC	S4*	y	Fish stream based on access.
331	600600-57600	5	3.89	2.5	RB	S3	n	Excellent spawning and rearing habitat. Overwintering habitat present.
332	1180	5	4.01	2.8	CAS	S3*	y	Fish may access this reach from Collins Lake. Non sport fish captured.
336	57600-31800	3	1.48	4	NSC	S4*	y	Non sport fish were captured within reach. Fish stream based on access.
340	66200-1840	4	1.33	1.3	CT	S4	n	Fair spawning and rearing habitat. Poor overwintering habitat.
341	63200-66200	2	5.28	1.3	CT, DV	S2	n	Excellent spawning habitat. Moderate rearing habitat. Overwintering habitat present.
342	66200-3100	2	1.01	2.5	CT	S4	n	Poor rearing and spawning habitat. No overwintering habitat.
344	63200-75900	1	3.61	4	CT	S3	n	Moderate spawning and rearing habitat. No overwintering habitat.
345	63200-75900	3	1.45	5.5	NFC	S4*	y	Fish stream based on access. Culvert in Reach 1 may block fish access.
348	36400-88900	2	1.44	4.8	CT	S4	n	Good rearing habitat. Fair spawning habitat. No overwintering habitat.
349	1054	1	1.16	3.3	NFC	S4*	n	Fish stream based on access. Beaver activity downstream may have temporarily blocked access to this reach.
350	600600-36400	24	2.82	3.5	RB, CT	S3	n	Excellent rearing habitat. Moderate spawning habitat. No overwintering habitat.
351	600600-63200	13	2.14	3.5	CT	S3	n	Excellent spawning habitat. Moderate rearing habitat. No overwintering habitat.
392	36400-72600	6	1.21	4.4	CT	S4/S6	n	400 m upstream of road crossing the gradient becomes too high (22%) to allow fish passage. Fish captured in lower portion of reach.
394	72600-5970	6	1.4	2.8	CT	S4	n	Moderate rearing habitat. Poor spawning habitat. No overwintering habitat.
398	63200-66200	3	3.49	4.3	CT	S3/S5	n	Falls (8 m) are a barrier to upstream fish migration. Fish captured easily below falls.
399	1405	1	2.14	2	DV, CT	S3	n	Moderate spawning and rearing habitat. No overwintering habitat identified.
405	1393	1	1.68	11.3	DV	S3	n	Moderate rearing habitat. Poor spawning habitat. No overwintering habitat. Fish caught in lower portion of this reach.
406	1278	1	2.62	16.5	CO	S3/S6	n	The lower 20 m of this stream is fish bearing. Cascade (4 m) and falls (12 m) prevent upstream fish access.
407	1027	2	1.3	5.3	NFC	S4*/S6	n	Cascade (2.4 m) prevents upstream fish migration. Fish bearing below the cascade based on access.
408	1500	9	1.53	1.3	NFC	S3*	n	Fish stream based on access. Beaver activity in the area has caused temporary barriers to upstream fish migration. Fish were observed rising downstream of this reach in a beaver pond.
410	1196	1	1.33	2.8	NFC	S4*	y	No barriers to upstream fish migration were identified. Fish stream based on access.
411	63200-62200	5	2.46	2.4	NFC	S3*	y	No barriers to upstream fish migration were identified. Fish stream based on access.

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Table 3. Upper Morice Fish Bearing Table

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Species	Stream Class	Follow-up Sampling (y or n)	Comments
412	63200-62200	3	3.36	2.8	NFC	S3*	y	No barriers to upstream fish migration were identified. Fish stream based on access.
414	1239	1	1.99	20.3	NFC	S3*/S6	n	The lower 150 m of this stream is fish bearing based on access. Above that point gradient prevents upstream fish migration.
416	64400-09200	1	1.5	2.5	NFC	S3*	n	Fish stream based on access. No barriers to upstream fish migration were observed.
419	62200-2180	5	1.29	4.1	NFC	S4*	n	Fish bearing stream based on access. Fish were observed rising in downstream lake. No barriers to upstream fish migration were identified.
420	1484	1	0.75	2.5	NFC	S4*	n	Fish stream based on access. No barriers to upstream fish migration were observed.
422	62200-2180	2	NA	NA	CT	NA	n	Fish sampling site.
424	36400-00800	7	1.53	2.9	NFC	S3*	y	Fish stream based on access. Fish captured in downstream reach. No barriers to fish passage observed.
425	36400-00800	5	1.55	1.8	CT	S3	n	Moderate rearing and spawning habitat. No overwintering habitat
437	1275	1	1.2	4	NFC	S4*	n	Fish stream based on access. Fish may use this stream during higher flows.
440	1014	1	1.18	1.3	NS	S4*	n	Fish may access this reach from McBride Lake.
441	1012	1	0.59	1.9	NS	S4*/S6	n	Lower portion of reach below the road crossing can be classified as fish bearing based on access. Above the road crossing habitat is too poor to sustain fish.
442	1501	1	0.87	3	NFC	S4*	y	Fish bearing based on access. Upstream lake should be resampled to confirm fish absence.
456	1204	1	1.81	9.5	NFC	S3*	n	Fish bearing stream based on access. No barriers to fish migration were identified.
457	600600-54900	4	1.22	5.5	NFC	S4*	y	Fish bearing stream based on access. Possible fish use during higher flows.
466	36400-39700	17	NA	NA	LKC, WSU	NA	n	Fish sampling site.
467	1183	1	1.37	1.8	NFC	S4*	n	Culvert has blocked fish access upstream.
475	36400-39700	1	NA	NA	RB, DV, CT, PL	NA	n	Fish sampling site.
667	1046	1	0.75	4.5	NS	S4*/S6	n	The lower 30 m of this stream is fish bearing based on access. Above that point the channel deteriorates and has no connectivity to the downstream portion.
668	36400-64100	16	1.55	1.6	RSC, CAL, LKC	S3*	y	Non sport fish captured. Fish bearing based on access.
669	1034	1	1.42	0.8	LKC	S4*	y	Non sport fish captured. Fish bearing based on access.
670	1038	1	1.2	4	CT	S4	n	Moderate spawning and rearing habitat. Poor overwintering habitat.
672	36400-64100	9	3.8	1.1	CT, RSC	S3	n	Low spawning potential. Moderate rearing habitat. High quality overwintering habitat.
674	36400-64100	13	2.7	3.3	RB	S3	n	Moderate spawning habitat. High quality rearing habitat. Poor overwintering habitat.
675	64400-18300	6	7.31	0.3	RSC, CT, CH, LNC, CAL	S2	n	High quality overwintering and rearing habitat. Spawning habitat present.
676	64400-18300	10	1.1	4	NFC	S4*	n	Fish stream based on access. No permanent barriers observed.
677	1269	2	6.73	5.3	CT, DV	S2	n	Abundant spawning and rearing habitat. Overwintering habitat present.



Table 3. Upper Morice Fish Bearing Table

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Species	Stream Class	Follow-up Sampling (y or n)	Comments
678	64400-18300	9	1.37	4	CT	S4	n	Good rearing and spawning habitat. Moderate overwintering habitat.
679	1268	1	1.97	4.5	CT	S3	n	Moderate spawning, rearing and overwintering habitat.
681	1273	3	1.32	4.5	CT	S4	n	Moderate spawning habitat. Good rearing potential. No overwintering habitat present.
682	1221	1	3.25	10.5	CT	S3	n	Good overwintering and rearing habitat present. Moderate spawning habitat.
684	1221	1	2.78	4.5	NFC	S3*	y	A small cascade (0.8 m) may prevent upstream fish migration. Fish bearing until resampling is conducted above the cascade.
685	1500	2	NA	NA	DV, CT	NA	n	Fish sampling site.
690	1246	1	1.58	4.9	DV, CT	S3	n	Moderate spawning and rearing habitat. No overwintering habitat.
691	18300-3800	2	8.3	3	DV, CT	S2	n	High to moderate rearing habitat. Spawning and overwintering habitat present.
692	63200-09800	1	1.66	0.6	DV	S3	n	No spawning or overwintering habitat. Poor rearing habitat.
693	63200-09800	3	1.7	1	DV	S3	n	No spawning or overwintering habitat. Moderate rearing habitat.
699	1009	1	2	0.9	NFC	S3*/S6	n	Fish bearing based on access. The channel dissipates to nothing within the top 1/3 of this reach. This section is non fish bearing based on channel characteristics and no available fish habitat.
701	64400-09200	2	2.17	8.3	NFC	S3*/S6	n	Cascade (5 m) prevents fish access to the upper portion of this reach. Fish bearing based on access below the cascade.
702	4190-1340	3	1.02	4.8	NFC	S4*	y	Fish stream based on access. Potential fish use in upstream lake.
704	1447	2	1.92	3.4	NFC	S3*	n	Fish bearing based on possible fish access through adjacent wetland during periods of high flow.
801	1479	1	1.51	2.5	NFC	S3*	n	Fish stream based on access. Potential spawning habitat during high flows.
802	600600-57600	10	1.82	5.5	NFC	S3*	y	Fish bearing based on access. No permanent barriers to upstream fish migration were identified.
806	600600-57600	10	1.51	6.8	NFC	S3*/S6	n	Cascade (4 m) prevents upstream fish migration. Fish bearing based on access below the cascade. Non fish bearing above the cascade.
900	64400-28100	2	NA	NA	RB, BT, MW	NA	n	Fish sampling site.
901	64400-28100	9	NA	NA	DV	NA	n	Fish sampling site.



2) Stream sections below a headwater lake.

High gradient, cascades and falls were the dominant physical barriers to upstream fish migration in the study area. Other features affecting fish habitat in the study area included beaver dams, dewatered stream sections, bridges, general crossings, fisheries sensitive zone, debris jams, and culverts (Table 4).

5.4.4 Rehabilitation Opportunities

Eleven (11) culverts (Table 4) were identified as barriers or partial barriers to upstream fish migration. In most cases a culvert outlet was perched above the outlet pool creating a barrier at low flows. One (1) culvert was placed at an angle that is too high, creating a water velocity barrier to upstream fish migration. One (1) culvert was blocked with debris blocking upstream fish migration. Removal of the debris would restore fish access through this culvert. Restoration of the natural watercourses through culvert removal is also a possible restoration option where road access is no longer needed. Culvert replacement or outflow pool modification can be used to restore access where road access is required. Outflow pools can be backflooded through the use of a water control structure or weir. Backflooding may improve fish access by raising the water levels at the outlet of the culvert. Increased water levels at the outlet will minimize jump height and allow for a greater pool and standing wave height.

A bridge crossing (Table 4) was identified as being in poor shape during the time of the survey. The use of rock armoring around this crossing site would limit the amount of sediment entering the stream during higher flows. Possible restoration for this site includes, the establishment of vegetation around the crossing site and possible bridge removal after harvesting activities.

A collapsed wooden bridge (Table 4) was identified as a partial barrier to upstream fish migration. Removal of this crossing structure would restore fish access to this reach under all flow conditions.

Beaver activity is relatively extensive in the project area and may act to limit or reduce habitat values for salmonids, however remedial action is not appropriate in this case. Trapping beaver, blowing dams etc., are short term solutions that would not generate any long-term benefits to fish.

5.4.5 Fisheries Sensitive Zones

A side channel located at the bottom of ILP 1278 (Reach 1) contains sensitive coho rearing habitat. ILP 1278 flows directly into this side channel and then into the Nanika River. Off channel rearing and cover is abundant within the side channel and juvenile coho were present in high densities in the channel and at the mouth of ILP 1278.



[illegible]



Table 4. Features within the Upper Morice

Site	ILP/ WSC	Reach #	Feature Type	Feature Height (m)	Feature Length (m)	Comment
438	1277	1	CV	1.2	10	Culvert.
467	1183	1	CV	0.5	12	Culvert inlet is blocked.
668	36400-64100	16	BD	0.4	NS	Beaver dam.
678	64400-18300	9	F	1.2		Falls.
682	1221	1	C	0.8	0	Cascade.
687	64400-18300	11	FLD	NS	200	Dewatered channel.
687	64400-18300	11	X	1	NS	LWD barrier.
688	1263	1	FLD	3	20	
688	1263	1	C	0.6	0	Cascade.
688	1263	1	C	2	1	Cascade.
688	1263	1	C	4	1	Cascade.
701	64400-09200	2	C	5	5	Cascade.
701	64400-09200	2	C	0.5	0	Cascade.
806	600600-57600	10	C	4	3	Cascade.

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5.4.6 Additional Sampling Recommendations

Thirty-one (31) reaches were recommended for additional sampling (Table 5). Additional sampling will clarify fish presence/absence and establish if any barriers exist in downstream reaches. No sport fish were captured in reaches recommended for additional sampling.

Many of the reaches selected for additional sampling represent small tributaries with limited habitat values, and most exhibit ephemeral flows. Based on additional sampling efforts in the past, these reaches often provide limited values for salmonids, and even under optimal conditions, fish are often present at low densities and are not always captured. The reaches selected for additional sampling were required by default due to a lack of water, or negative sampling results. The lack of barriers and gradients less than 20% also increased the additional sampling number. As it is not practical, or necessary, to resample every reach selected in the additional sampling table, additional sampling sites should be selected strategically to optimize additional sampling results.

The timing of additional sampling efforts is critical to ensuring optimal conditions and maximizing the potential for fish to occur. In particular, additional sampling should be conducted in the spring immediately following peak runoff, which usually occurs in the early part of May. Reaches classified as fish bearing and selected for additional sampling could also be deferred by accepting this default classification, however the reaches selected for additional sampling would contribute valuable information to aid in determining fish presence and distribution for future stream classification work.

5.4.7 Non-Fish Bearing Status

A non-fish bearing status was assigned to 125 of the 218 sample sites within the study area (Table 6). A non-fish bearing classification has been assigned to all sampled reaches within the non-fish bearing table. Non-fish bearing classifications are associated with reaches that lack suitable habitat to sustain salmonids or are inaccessible to fish. Non-fish bearing status was assigned to reaches where:

- The stream was labeled a non-visible channel containing no potential fish habitat;
- The stream was deemed inaccessible from fish bearing waters and did not have perennial fish habitat;
- Gradient prevented upstream fish migration and the stream did not have perennial fish habitat upstream;
- Permanent barriers (cascades, falls, etc.) prevented upstream fish migration and the stream did not have perennial fish habitat upstream;

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100



Table 5. Upr. Morice Additional Sampling Summary

Site	ILP/WSC	Reach	Width (m)	Gradient (%)	Species	Stream Class	Comments	Additional Sampling Recommendations
420	1484	1	0.75	2.5	NFC	S4*	Fish stream based on access. No barriers to upstream fish migration were observed.	Additional sampling of unnamed lake in Reach 4 to confirm presence or absence of fish.
424	36400-00800	7	1.53	2.9	NFC	S3*	Fish stream based on access. Fish captured in downstream reach. No barriers to fish passage observed.	Second pass sampling to confirm fish presence or absence.
442	1501	1	0.87	3	NFC	S4*	Fish bearing based on access. Upstream lake should be resampled to confirm fish absence.	Second pass sampling to confirm fish presence or absence.
457	600600-54900	4	1.22	5.5	NFC	S4*	Fish bearing stream based on access. Possible fish use during higher flows.	Additional sampling in Reach 1 or 2 to assess fish access to this reach.
668	36400-64100	16	1.55	1.6	RSC, CAL, LKC	S3*	Non sport fish captured. Fish bearing based on access. Potential sport fish use in upstream lake.	Additional sampling of unnamed lake in Reach 17 to confirm the presence or absence of sport fish.
669	1034	1	1.42	0.8	LKC	S4*	Non sport fish captured. Fish bearing based on access. Potential sport fish use in upstream lake.	Additional sampling of unnamed lake in Reach 17 (WSC 36400-64100) to confirm presence or absence of sport fish.
684	1221	1	2.78	4.5	NFC	S3*	A small cascade (0.8 m) may prevent upstream fish migration. Fish bearing until adequate resampling is conducted above the cascade.	Second pass sampling to confirm fish presence or absence.
702	4190-1340	3	1.02	4.8	NFC	S4*	Fish stream based on access. Potential fish use of upstream lake.	Additional sampling of Reach 2 to assess fish access to this reach.
802	600600-57600	10	1.82	5.5	NFC	S3*	Fish bearing based on access. No permanent barriers to upstream fish migration were identified.	Additional sampling of Reach 9 to assess fish access to this reach.

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- No fish habitat was present;
- The stream lacked a continuous definable channel.

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

- The average stream gradient was greater than or equal to 20% (through map interpretation) with no headwater lake present;
- Reaches above a stream section with an gradient greater than or equal to 20% (through map interpretation) with no headwater lake present.

Often the non fish bearing status of stream reaches with average gradients less than 20% is supported by evidence concerning the accessibility to potential fish bearing water. Obvious barriers such as falls, cascades and high gradient sections are measured and adequate sampling is conducted above the potential barrier to confirm that the portion of stream above the barrier is non fish bearing. Many of the headwater reaches and smaller streams reaches draw from such a small watershed area that they lack sufficient discharge volume required to develop significant channels and habitat complexity. These reaches are often ephemeral, containing shallow water depths, subsurface flows, lack of significant pools and have a predominance of organic and fine substrates.

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

Reaches that are classified as NVC (NCD, non RIC term used by the timber industry) are not streams due to the fact that they do not possess the criteria necessary to classify them as such. The reaches classified as NVC are largely drainages that are mapped incorrectly and no stream exists where the map indicates. They may also be watercourses which lack evidence of surface scour, contain no continuous definable channel, lack alluvium deposits, and exhibit no evidence of extensive ponding. Wetlands with extensive ponding and wetlands that lack surface water are both considered NVC as they do not possess stream channels or properties of streams. It should be recognized that a NVC classification does not necessarily mean that the reach is not fish bearing unless otherwise stated. For example, a ponded wetland reach could sustain fish but be classified NVC due to the lack of a continuous definable channel and fluvial substrates. In cases where ponded wetland reaches (NVC) are identified as fish bearing they should not be treated as streams because they do not meet the criteria of a stream. They should be managed to



maintain the integrity of the fisheries resources identified within that reach. In most cases the level of concern is low with respect to protecting fish habitats sustained within NVC reaches due to the poor habitat values (for salmonids) associated with wetland habitats. However, the maintenance of fish passage is a concern.

6.0 STREAM CLASSIFICATION SUMMARY

Table 7 provides a summary of stream inventory information collected during the project.



Table 6. *U. r. r.* Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications					Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type		
134	1079	2	0.35	2.5	S6	99/08	NA	NA	NA	Low	NA	NA	NA	Heavily vegetated channel, small catchment, subsurface flows, isolated pools (few) and an intermittent discontinuous channel in lower end. Stream lacks evidence of surface flow through heavily vegetated sections.	Spawning: None, 100% Fine substrates, no gravel accumulations, highly ephemeral and insufficient discharge. Rearing: None, no riffle, run or pool habitat during all flows. Overwintering: None, no pools, high BOD due to organic substrates.
135	1078	2	NA	6.5	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
137	1144	2	0.84	18.5	S6	99/08	NA	NA	NA	Low	NA	NA	NA	Channel is heavily braided and discontinuous. No fish habitat present and system is extremely flashy. Gradient break/cascade in downstream reach is >30%/50 m (over bedrock).	Spawning: None, high gradient. Rearing: None, high gradient, no flows, flashy with no resting pools. Overwintering: None, no pools.
138	1148	3	0.32	12.2	S4*/S6	99/08	NA	NA	NA	Low	NA	NA	NA	High gradient and small channel width combined with 30-40 cm substrate sizes creates numerous impassable barriers at all flow stages. Stream flows subsurface through boulders for >40 m in several sections (site length 800 m).	Spawning: None, predominantly large cobbles and boulders. Rearing: Limited, to a few interstitial cracks between boulders and cobbles, no open water habitat. Overwintering: None, no pools present in stream.
139	1150	1	0.27	20	S6	99/08	NA	NA	NA	Low	NA	NA	NA	Gradient prevents fish access to this reach. No spawning, rearing or overwintering habitat. Sampling downstream (Site 270) indicates that this section of stream is non fish bearing.	Spawning: None, 100% fine, organic substrates with no accumulation of gravel. Rearing: None, channel is choked with vascular plants, no pools and gradients >20%. Overwintering: None, no pools.

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Table 6. Upper Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications						Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type	Effort		
140	1151	2	0.34	20.8	S6	99/08	NA	NA	NA	Low	NA	NA	NA	NA	Gradient prevents fish access to this reach. No spawning, rearing or overwintering habitat. Heavily braided and vegetated channel with sections of subsurface flows.	Spawning: None, gradients too steep. Rearing: None, no riffles, runs or pools, extremely flashy. Overwintering: None, no pools.
141	1152	1	1.35	16.5	S4/S6	99/08	NA	NA	NA	Low	NA	NA	NA	NA	Lower 600 m is fish bearing based on gradient only. Above that point stream becomes NVC. High gradient sections (17%) and a heavily vegetated (choked) channel limit access.	Spawning: Possible in lower end (based on substrates only), though access and gradients do not support spawning in this stream type. Rearing: None, no pools or resting habitat present. Overwintering: None, no pools.
142	1498	4	0.5	11.5	S6	99/08	NA	NA	NA	Low	NA	NA	NA	NA	Small catchment only 200 m of mapped stream above this reach. Subsurface flows and limited connectivity throughout reach. Numerous (>20) debris jams and sediment wedges located throughout (.5 m drops).	Spawning: Limited to a few patches of gravel. Rearing: None, small 20-30 cm2 pools, no resting/holding water, flashy and unstable. Overwintering: None, no evidence of pools.
143	36400-27600	3	1.52	21.8	S6	99/08	NA	NA	NA	Low	NA	NA	NA	NA	No spawning, rearing, or overwintering habitat. Gradient prevents access to this reach.	Spawning: None, gradients too steep. Rearing: None, no riffles, runs or pools, extremely flashy. Overwintering: None, no pools.
144	1499	3	0.6	19.3	S6	99/08	NA	NA	NA	Low	NA	NA	NA	NA	No connectivity to fish bearing water. Gradient up to 22%/100 m and channel characteristics prevent fish access to this reach.	Spawning: None, angular substrates. Rearing: None, stream is highly ephemeral. Channel has moss covered rocks and is heavily choked with vascular vegetation. Overwintering: None, no pools.

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Table 6. Upriver Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications					Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type		
145	1499	4	0.93	23	S6	99/08	NA	NA	NA	Low	NA	NA	NA	No spawning, rearing, or overwintering habitat. Gradient prevents access to this reach.	Spawning: None, gradients too steep. Rearing: None, no riffles, runs or pools, extremely flashy. Overwintering: None, no pools.
146	1177	2	0.47	4.5	S6	99/08	NA	NA	NA	Low	NA	NA	NA	No spawning, rearing, or overwintering habitat. Small catchment (400 m of mapped stream above this reach), subsurface flows and a discontinuous channel. Reach is located 1600 m from fish bearing water.	Spawning: None, no accumulations of gravel, 100% fine substrates over cobble base. Stream has carved its way through soil. Rearing: None, stream flows through vegetation and becomes subsurface. Overwintering: None, no pools.
149	1087	2	NA	6	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	No visible channel.	Vegetated seepage area.
150	1086	1	0.42	6	S6	99/08	280	140	80	Med	Clr	9	NA	Stream does not flow into sport fish bearing waters. Falls (25 m) on Pimpemel Creek prevent upstream sport fish migration.	Sampling upstream of falls confirms non fish bearing status (non-sport fish).
151	1089	2	3.02	4.8	S5	99/08	1200	1621	80	Low	Clr	10	NA	Stream does not flow into sport fish bearing waters. Falls (25 m) on Pimpemel Creek prevent upstream sport fish migration.	Sampling upstream of falls confirms non fish bearing status (non-sport fish).
152	36400-39700	5	5.73	4.5	S5	99/08	1140	1450	90	Med	Clr	14	NA	Falls (25 m) in Reach 4 prevent upstream sport fish migration. Non sport fish captured.	Sampling upstream of falls confirms non fish bearing status (non-sport fish).
153	36400-39700	7	4.58	4.5	S5	99/08	630	950	90	Med	Clr	14	MT	Falls (25 m) in Reach 4 prevent upstream sport fish migration. Non sport fish captured.	Sampling upstream of falls confirms non fish bearing status (non-sport fish).
154	39700-3240	3	1.79	7.5	S6	99/08	300	786	80	Med	Clr	12	MT	Stream does not flow into sport fish bearing waters. Falls (25 m) on Pimpemel Creek prevent upstream sport fish migration.	Sampling upstream of falls confirms non fish bearing status (non-sport fish).



Table 6. U₁ Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications					Other Methods		Comments	Additional Rationale	
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type			Effort
155	39700-2910	4	2.9	6.2	S6	99/08	1800	1068	90	Med	Clr	13	NA	NA	Stream does not flow into sport fish bearing waters. Falls (25 m) on Pimpinel Creek prevent upstream sport fish migration.	Sampling upstream of falls confirms non fish bearing status (non-sport fish).
156	36400-39700	4	7	7.5	S2/S5	99/08	800	709	90	Med	Clr	14	NA	NA	Falls (25 m) are a barrier to upstream sport fish migration. Adequate sampling indicates only non sport fish are present above the falls.	Sampling upstream of falls confirms non fish bearing status (non-sport fish).
159	36400-39700	17	2.59	4.5	S6	99/08	490	465	80	Med	Clr	14	MT	6	Falls (25 m) in Reach 4 prevent upstream sport fish migration. Non sport fish captured.	Sampling upstream of falls confirms non fish bearing status (non-sport fish).
160	39700-6230	2	2.43	5.5	S6	99/08	850	942	90	Med	Clr	14	NA	NA	Stream does not flow into sport fish bearing waters. Falls (25 m) on Pimpinel Creek prevent upstream sport fish migration.	Sampling upstream of falls confirms non fish bearing status (non-sport fish).
161	36400-39700	11	6.58	1.5	S5	99/08	200	300	80	Med	Clr	14	MT	15	Falls (25 m) in Reach 4 prevent upstream sport fish migration. Non sport fish captured.	Sampling upstream of falls confirms non fish bearing status (non-sport fish).
162	1160	4	NA	7.8	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	NA	No evidence of surface scour or ponding.	
163	600600-38000	2	2.6	20.5	S6	99/08	700	655	80	Med	Clr	14	NA	NA	Gradient break (25% & 30%/50 m) immediately upstream of the Morice River prevents upstream fish migration to this reach.	Sampling upstream of gradient (700 m) confirms non fish bearing status.
168	1467	1	0.62	17.8	S4*/S6	99/08	200	110	90	Med	Clr	12	NA	NA	Lower 100 m of reach is fish bearing based on gradient only. The remainder of this stream is non fish bearing based on gradient >20% and channel characteristics. Isolated pools and residual pool depths <10 cm. Total stream length is 900 m.	Sampling upstream of gradient (200 m) confirms non fish bearing status.

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Table 6. Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications					Other Methods		Comments	Additional Rationale	
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type			Effort
169	1466	1	0.51	4.5	S6	99/08								Subsurface flows (no overland connection in areas), isolated pools, small catchment, braided channel, organic substrates, vegetated channel and no connectivity to fish bearing water. No visible channel.	Spawning: None, no significant accumulation of gravels, primarily fine substrates. Rearing: Poor, isolated, shallow stagnant pools with algae growth. Overwintering: None, no pools deep enough. Vegetated seepage area.	
170	1463	2	NA	NA	NVC	99/08	NA	NA	NA	Low	NA	NA	NA			
171	1459	1	1.35	22	S6	99/08	300	531	70	Med	Clr	12	NA			NA
234	1037	4	0.61	2.5	S6	99/09	150	180	70	Med	Clr	9	NA	NA	Reach 1 (Site 671) of this stream has no visible channel and no connectivity to fish bearing water. Sampling at Site 234 (Reach 4) indicates this reach is non fish bearing. No visible channel.	Spawning: None, no accumulation of gravels, fine substrates mixed with organics (needles). Rearing: Poor, low flows and subsurface sections. Overwintering: None, no pools in reach. Vegetated seepage area.
235	1068	3	NA	48.3	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA		
239	1489	3	10.43	5	S2/S5	99/09	890	723	110	Med	Lt	3	NA	NA		
242	1489	4	6.52	3.5	S5	99/09	800	430	120	Med	Lt	3	NA	NA	Cascade (30/80 m) in Reach 3 prevents upstream fish migration. Within cascade there is a 12 m falls. 100-200 mm DV captured below cascade.	Sampling upstream of cascade (1700 m) confirms non fish bearing status. Sampling upstream of cascade (1700 m) confirms non fish bearing status.
243	64400-28100	11	14.1	8	S2/S5	99/09	780	310	110	Med	Clr	4	NA	NA		
244	64400-28100	12	7.3	8	S5	99/09	200	380	110	Med	Clr	4	NA	NA		
245	1419	5	0.73	20.3	S6	99/09	200	480	110	Med	Clr	8	NA	NA	Cascade (6/8 m) in Reach 3 prevents upstream fish migration. 100-200 mm DV captured below cascade.	Sampling upstream of cascade (1000 m) confirms non fish bearing status. Sampling upstream of cascade (1000 m) confirms non fish bearing status.

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Table 6. L., r Morice Non Fish Bearing Status

Site	WSC/JLP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications						Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type	Effort		
246	1419	3	3.02	8	S3/S5	99/09	400	342	110	Med	Clr	8	NA	NA	Cascade (6/8 m) prevents upstream fish migration. 100-200 mm DV captured below cascade.	Sampling upstream of cascade (4 sites) confirms non fish bearing status.
248	1422	1	3.83	8.5	S5	99/09	100	210	110	Med	Clr	8	NA	NA	Cascade (6/8 m) downstream (Site 246) prevents upstream fish migration to this reach. 100-200 mm DV captured below cascade.	Sampling upstream of cascade (4 sites) confirms non fish bearing status.
249	600600-53900	1	2.45	6.5	S6	99/09	300	820	70	Low	Clr	9	NA	NA	Falls (20 m) in lower portion of this reach prevent upstream fish migration.	Sampling upstream of falls confirms non fish bearing status.
252	1085	2	0.41	2	S6	99/09	NA	NA	NA	Low	NA	NA	NA	NA	No spawning, rearing or overwintering habitat. Isolated pools, vegetated channel and subsurface flows. No connectivity to fish bearing water.	Spawning: None. 100% fine, organic substrates with no accumulations of gravel. Rearing: None, channel is choked with vascular plants (carex), and pools are isolated by subsurface flows. Overwintering: None, no pools.
254	1169	3	1.53	18	S6	99/09	NA	NA	NA	NA	NA	NA	NA	NA	High gradient (25%/50 m). Numerous small cascades over boulder habitat. No open water habitat. No fish captured downstream with extensive electrofishing effort.	Spawning: None, gradients too high, system is flashy and substrates are highly angular (boulders and cobbles). Rearing: None, no pools or resting areas. Overwintering: None, no pools.
255	1470	2	0.65	26.5	S6	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No spawning, rearing, or overwintering habitat. Gradient prevents upstream fish migration.	Spawning: None, gradients too high, system is flashy and substrates are not suitable (too large). Rearing: None, no pools or resting areas. Overwintering: None, no pools.



Table 6. Upper Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications						Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type	Effort		
256	600600-53900	1	2.75	7	S3/S5	99/09	900	1220	110	Low	Clr	9	NA	NA	Falls (20 m) prevent upstream fish migration. 100-200 mm CT captured downstream of falls.	Sampling upstream of falls (2 sites) confirms non fish bearing status.
257	1136	2	NA	4	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
259	1439	2	NA	17.5	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
264	36400-26300	3	1.38	7.5	S6	99/09	600	537	30	Med	Clr	7	NA	NA	Bedrock cascade (2/1 m) in Reach 2 prevents upstream fish migration. 100-200 mm DV captured downstream of barrier.	Sampling upstream of cascade (4 sites) confirms non fish bearing status.
265	1146	1	0.9	15	S6	99/09	120	127	20	Low	Clr	9	NA	NA	Bedrock cascade (2/1 m) downstream (Site 266) prevents fish access to this reach.	Sampling upstream of cascade (4 sites) confirms non fish bearing status.
266	36400-26300	2	3.37	8	S3/S6	99/09	600	437	30	Low	Clr	7	NA	NA	Bedrock cascade (2/1 m) downstream (Site 266) prevents fish access to this reach.	Sampling upstream of cascade (4 sites) confirms non fish bearing status.
267	1147	1	1.65	21.8	S6	99/09	200	189	30	Low	Clr	7	NA	NA	Bedrock cascade (2/1 m) downstream (Site 266) prevents fish access to this reach.	Sampling upstream of cascade (4 sites) confirms non fish bearing status.
268	1446	2	0.67	38.5	S6	99/09	NA	NA	NA	Low	NA	NA	NA	NA	Gradient prevents fish access to this reach.	Dry intermittent channel.
269	41800-41700	2	1.87	32	S6	99/09	NA	NA	NA	Low	Clr	NA	NA	NA	Gradient prevents fish access to this reach.	Dry intermittent channel.
270	1150	1	0.92	20.3	S4*/S6	99/09	200	183	30	Low	Clr	8	NA	NA	Lower 50 m of this reach is fish bearing based on access.	Gradient prevents fish access to the remainder of the reach.
271	1158	2	0.65	26.5	S4*/S6	99/09	NA	NA	NA	Low	Clr	NA	NA	NA	Lower 20 m of this reach is fish bearing based on access.	Gradient prevents fish access to the remainder of the reach.
274	1441	1	NA	2.3	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.

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Table 6. Current Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications					Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type		
275	1462	1	1.03	8.5	S6	99/09	NA	NA	NA	Low	Clr	NA	NA	Subsurface flows and isolated pools. No connectivity to fish bearing water, channel fans out into sphagnum filled depressions with no overland connection. Upper portion of reach below road contains a 50%/50 m gradient section.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs. Overwintering: None, no pools.
276	36400-36600	1	0.87	10	S6	99/09	NA	NA	NA	Low	Clr	NA	NA	Lower section of stream is a wet boggy mat with no definable channel or overland flow. Numerous isolated pools, subsurface flows, fine organic substrates and a poorly defined channel.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs. Overwintering: None, no pools.
277	1175	2	0.46	6.8	S6	99/09	NA	NA	NA	Low	NA	NA	NA	No spawning, rearing or overwintering habitat. Channel filled with moss and vascular plants. No connectivity to fish bearing water. Ephemeral stream reach located 1200 m from known fish bearing water.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs. Overwintering: None, no pools.
278	1176	3	0.35	7	S6	99/09	NA	NA	NA	Low	NA	NA	NA	No salmonid habitats present. Highly ephemeral stream, channel contains moss, leaf litter and fines. No connectivity to fish bearing water (discontinuous channel). Reach is located 700 m from known fish bearing water.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs. Overwintering: None, no pools.

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Table 6. U. Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications					Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type		
303	1406	1	0.82	2.5	S6	99/08	NA	NA	NA	Low	NA	NA	NA	No spawning, rearing or overwintering habitat. Heavily vegetated and intermittent channel with isolated pools which fan out into sphagnum filled depressions. No connectivity to fish bearing water.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs. Overwintering: None, no pools.
306	95959	1	NA	NA	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
307	1276	3	1.39	21.5	S4/S6	99/08	400	294	50	Low	Clr	8	NA	Falls (1.9 m) prevent upstream fish migration into this reach. The portion of stream below the falls is fish bearing based on access.	Sampling upstream of falls (300 M) confirms non fish bearing status.
308	18300-0720	2	2.36	27.3	S6	99/08	200	145	50	Low	Clr	8	NA	Gradient prevents access to this reach.	Sampling upstream of gradient confirms non fish bearing status.
309	1231	2	1.2	11.8	S6	99/08	NA	NA	NA	Low	Clr	NA	NA	Gradient (42%/60 m) prevents upstream fish migration to this reach.	No fish habitat present upstream of gradient section. Highly ephemeral stream.
310	1227	2	NA	NA	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
311	1220	2	0.89	10.5	S6	99/08	300	236	40	Med	Clr	8	NA	No connectivity to fish bearing water (discontinuous channel with no surface or subsurface connection). Channel fans out at the toe of the slope becoming heavily vegetated with accumulations of detrital materials. Sampling confirms non-fish status.	Spawning: None, channel is heavily vegetated and highly ephemeral. Rearing: Poor, lack of channel development, no riffle, run habitat, isolated pools. Overwintering: None, no pools.



Table 6. U. Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications					Other Methods		Comments	Additional Rationale	
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type			Effort
312	1217	3	0.48	3.4	S6	99/08	300	269	50	Med	Lt	10	NA	NA	No connectivity to fish bearing water. Channel fans out into a vegetated depression. Downstream reach (Reach 1) is classified as non fish bearing. Sampling confirms non-fish status (300 m site length).	Spawning: None, channel is heavily vegetated and highly ephemeral. Rearing: Poor, lack of channel development, no riffle, run habitat, isolated pools. Overwintering: None, no pools.
313	63200-09800	7	NA	NA	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
319	11700-5660	4	2.38	21.25	S3/S6	99/08	300	363	90	Med	Clr	10	NA	NA	Above road crossing the gradient becomes too steep to allow fish passage.	Sampling upstream of gradient confirms non fish bearing status.
321	1007	2	NA	NA	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
322	1006	2	NA	NA	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
323	1002	1	NA	NA	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
324	1013	1	NA	NA	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
327	1193	1	NA	NA	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
328	1188	1	NA	NA	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
333	57600-18800	3	0.99	1.3	S6	99/08	NA	NA	NA	Low	NA	NA	NA	NA	No spawning, rearing, or overwintering habitat. No access or suitable fish habitat. Downstream meadow prevents upstream fish passage. No possible fish passage through dry sedge filled meadow.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs. Overwintering: None, no pools.



Table 6. U₁ Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications						Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type	Effort		
334	1208	1	0.72	3.5	S6	99/08	NA	NA	NA	Low	Clr	NA	NA	NA	No connectivity to fish bearing water. Discontinuous channel in the lower portion of this reach. Channel fans out and seeps into sphagnum filled depressions before entering a dry sedge filled meadow.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.
335	1209	4	1.33	20.3	S6	99/08	NA	NA	NA	Low	NA	NA	NA	NA	Gradient and falls (2 m) prevent fish access.	Highly ephemeral stream with no fish habitat.
337	1211	2	NA	NA	NVC	99/08	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
338	1213	2	0.78	1.8	S6	99/08	NA	NA	NA	Low	NA	NA	NA	NA	No connectivity to fish bearing water (discontinuous channel). No spawning, rearing or overwintering habitat. Downstream site (339) is non fish bearing.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.
339	1213	1	0.73	1.8	S6	99/08	NA	NA	NA	Low	NA	NA	NA	NA	No connectivity to fish bearing water (discontinuous channel). Channel fans out into sphagnum filled depressions (bog) with no overland flow or connection. Highly ephemeral stream with a vegetated channel and fine substrates.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.
343	63200-66200	6	0.89	2.5	S6	99/09	400	297	60	Low	Clr	10	NA	NA	Falls (8 m) in Reach 3 prevent upstream fish migration. 100-300 mm CT/DV captured downstream of falls.	Sampling upstream of falls (5 sites) confirms non fish bearing status.
346	66200-5580	1	1.6	1.5	S6/NVC	99/08	400	421	50	Med	Clr	10	NA	NA	Falls (8 m) downstream prevent upstream fish migration.	Sampling upstream of falls (5 sites) confirms non fish bearing status.



Table 6. U_T - Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications						Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type	Effort		
347	1050	2	1.4	2.1	S6	99/08	400	467	60	Med	Clr	10	NA	NA	No connectivity to fish bearing water. Habitat not suitable for fish. Subsurface flows and sections of discontinuous channel covered with sphagnum moss. Highly ephemeral stream with a vegetated channel and fine substrates.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.
392	36400-72600	6	1.21	4.4	S4/S6	99/08	400	316	60	Med	Clr	8	NA	NA	400 m upstream of road crossing gradient becomes too high (22%/100 m) to allow fish passage.	Sampling upstream of gradient confirms non fish bearing status.
393	1028	2	0.84	1.8	S6/ NVC	99/09	150	315	50	Low	Clr	8	NA	NA	The lower 100 m of this reach has a definable channel (barely classifiable) with no connectivity to fish bearing water. Channel flows into a sphagnum filled depression (bog) becoming a seepage. The remainder of the reach is classified as NVC.	Spawning: None, 100% Fine substrates, no gravel accumulations, highly ephemeral and insufficient discharge. Rearing: None, no riffle, run or pool habitat during all flows. Overwintering: None, no pools, high BOD due to organic substrates.
395	1039	6	NA	1.3	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
396	66200-5930	5	1.49	1.8	S6	99/09	400	431	70	Low	Clr	8	NA	NA	Stream does not flow into fish bearing water. Downstream falls (8 m) in mainstem prevents upstream fish migration.	Sampling upstream of falls confirms non fish bearing status.
397	63200-66200	4	2.8	4.9	S6	99/09	600	727	60	Low	Clr	9	NA	NA	Stream does not flow into fish bearing water. Downstream falls (8 m) in mainstem prevents upstream fish migration.	Sampling upstream of falls confirms non fish bearing status.
398	63200-66200	3	3.49	4.3	S3/S5	99/09	500	1123	70	Med	Clr	8	NA	NA	Stream does not flow into fish bearing water. Downstream falls (8 m) in mainstem prevents upstream fish migration.	Sampling upstream of falls confirms non fish bearing status.



Table 6. Ureter Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications					Other Methods		Comments	Additional Rationale	
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type			Effort
400	1237	3	0.56	4.5	S6	99/09	300	237	60	Low	Clr	7	NA	NA	Highly ephemeral stream with small catchment. No spawning or overwintering habitat. Sections of subsurface flow, isolated pools, fine substrates and sphagnum filled depressions (discontinuous). Reach is located 600 m from known fish bearing water.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: Poor, lack of channel development, small isolated pools, heavily vegetated channel. Overwintering: None, no pools.
401	1287	1	NA	20.5	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
402	64400-27000	2	3.03	10.3	S5	99/09	400	420	30	Low	Clr	7	NA	NA	A high gradient section (25% for 100 m) immediately above the Nanika River prevents fish access to this reach.	Sampling upstream of gradient confirms non fish bearing status.
403	64400-27800	2	2.81	11.1	S6	99/09	200	328	30	Low	Clr	6	NA	NA	A high gradient section (25% for 100 m) in Reach 1 prevents fish access to this reach.	Sampling upstream of gradient confirms non fish bearing status.
404	1394	1	1.28	11.8	S6	99/09	300	353	40	Low	Clr	7	NA	NA	A high gradient section (26% for 100 m) prevents fish access to this reach.	Sampling upstream of gradient confirms non fish bearing status.
406	1278	1	2.62	16.5	S3/S6	99/09	200	209	30	Med	Clr	8	NA	NA	The lower 20 m of this stream is fish bearing. A cascade (4/4 m) and falls (12 m), prevent upstream fish access. Juvenile coho, captured downstream of falls.	Sampling upstream of barrier confirms non fish bearing status.
407	1027	2	1.3	5.3	S4*/S6	99/09	200	131	50	Low	Clr	7	NA	NA	Bedrock cascade (2.4/2 m) prevents upstream fish migration. Fish bearing below the cascade based on access (Habitat suitable for 100-200 mm salmonids).	Sampling upstream of barrier (150 m) confirms non fish bearing status.
409	31800	8	NA	1.8	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.



Table 6. U.S. Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications						Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type	Effort		
414	1239	1	1.99	20.3	S3*/S6	99/09	300	609	60	Low	Clr	7	NA	NA	The lower 150 m of this stream is fish bearing based on access. Above that point gradient prevents upstream fish migration.	Sampling upstream of gradient confirms non fish bearing status.
415	1278	2	2.62	10.5	S6	99/09	400	415	70	Low	Clr	7	NA	NA	Falls (12 m) in Reach 1 prevent upstream fish migration.	Sampling upstream of barrier (2 sites) confirms non fish bearing status.
417	1217	1	1.27	1.5	S6	99/09	NA	NA	NA	Low	NA	NA	NA	NA	Habitat not suitable for fish. Highly ephemeral stream, with a heavily vegetated channel, fine substrates and no connectivity to fish bearing water (discontinuous channel). Extensive upstream and downstream electrofishing with no fish captured.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.
418	1000	1	NA	2.5	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
421	1484	2	0.59	8	S6	99/09	NA	NA	NA	Low	NA	NA	NA	NA	No connectivity to Reach 1. Poorly defined channel with subsurface flows and isolated pools. Heavily vegetated channel with a high accumulation of fines. 300 m site in downstream reach 1 captured no fish with extensive electrofishing effort.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.
423	600600-53900	2	2.61	4.8	S6	99/09	400	622	70	Low	Clr	7	NA	NA	Falls (20 m) in Reach 1 prevent upstream fish migration.	Sampling upstream of barrier confirms non fish bearing status.
427	1156	3	NA	1.8	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
428	1152	2	NA	2.3	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No visible channel.	No evidence of surface scour or ponding.
429	1157	1	0.51	44.5	S6	99/09	NA	NA	NA	Low	NA	NA	NA	NA	Gradient is too high to allow fish access to this reach.	No fish habitat present within reach.



Table 6. Morice Non Fish Bearing Status

Site	WSC/LP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications						Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type	Effort		
436	1235	2	1.41	15	S6	99/09	200	328	60	Low	Clr	6	NA	NA	Falls (1.8 m) and high gradient (30%) prevent fish access to this reach.	Sampling upstream of barrier confirms non fish bearing status.
438	1277	1	1.38	5	S6	99/09	100	106	90	Low	Clr	6	NA	NA	The channel fans out into a sphagnum filled depression in the lower portion of the reach. No definable channel in this section. No evidence of surface flow at discontinuity.	Spawning: Poor, highly ephemeral stream. Rearing: None, lack of channel diversity, limited pools, riffles or runs. Overwintering: None, no pools.
439	1228	2	0.44	5	S6	99/09	NA	NA	NA	Low	NA	NA	NA	NA	Poorly defined channel with sections of heavily vegetated discontinuous channel, and isolated pools. No connectivity to fish bearing water. Habitat too poor to sustain fish. No evidence of surface flow at discontinuity.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.
441	1012	1	0.59	1.9	S4*/S6	99/09	NA	NA	NA	Low	NA	NA	NA	NA	Lower portion of reach below the road can be classified as fish bearing based on access. Above the road, habitat is too poor to sustain fish. No evidence of surface flow at discontinuous sections.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.
455	1475	1	1.1	16	S6/ NVC	99/09	NA	NA	NA	Low	NA	NA	NA	NA	Upper portion of reach can be classified as no visible channel. Lower portion of reach has no connectivity to the Morice River. Channel fans out into a vegetated depression. Ephemeral stream with only 150 m of definable channel.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.

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Table 6. U. Morice Non Fish Bearing Status

Site	WSC/ILP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications						Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond. (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type	Effort		
667	1046	1	0.75	4.5	S4*/S6	99/09	NA	NA	NA	Low	Clr	NA	NA	NA	The lower 50 m is fish bearing based on access. Above that point the channel deteriorates and has no connectivity to fish bearing water. Fine substrates, sphagnum filled depressions with no evidence of surface flow at discontinuity.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.
671	1037	1	NA	4.5	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No evidence of surface scour or ponding.	No evidence of surface scour or ponding.
673	1039	3	NA	1.3	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No evidence of surface scour or ponding.	No evidence of surface scour or ponding.
680	1272	1	0.28	13.5	S6	99/09	NA	NA	NA	Low	NA	NA	NA	NA	High gradient and small channel size. Highly ephemeral stream with heavily vegetated channel. 100% organic substrates and no spawning, rearing or overwintering habitat present. Discontinuous, intermittent channel with subsurface sections.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: None, no pools.
683	1222	1	0.35	13.5	S6	99/09	100	200	20	Low	Clr	7	NA	NA	High Gradient (32%) drop into mainstem prevents upstream fish migration. Sections of subsurface flow and isolated pools upstream of gradient break.	Sampling upstream of gradient confirms non fish bearing status.
687	64400-18300	11	7.15	13.5	S5	99/09	150	311	90	Med	Clr	6	NA	NA	Channel is dewatered for 200 m in the downstream portion of this reach. Sampling above the dewatered section confirms non fish presence.	No fish were captured in one site 500 m downstream. All reaches upstream of this site have gradient >20%.
688	1263	1	3.01	18	S5	99/09	200	257	40	Med	Clr	6	NA	NA	Cascades (4/1 m, 2/5 m and 6/3 m) and downstream dewatered section, prevent fish migration upstream into this reach.	Sampling upstream of cascades confirms non fish bearing status.



Table 6. Upriver Morice Non Fish Bearing Status

Site	WSC/JLP	Reach	Width (m)	Gradient (%)	Stream Class	Date	Electrofishing Specifications						Other Methods		Comments	Additional Rationale
							Dist. (m)	Time (s)	Cond (uS)	Stage (vis)	Turb. (vis)	Temp. (C)	Type	Effort		
689	1264	1	1.33	23.5	S6	99/09	100	327	40	Med	Clr	6	NA	NA	Gradient prevents fish access to this reach.	Sampling upstream of gradient confirms non fish bearing status.
699	1009	1	2	0.9	S3*/S6	99/09	200	717	20	Med	Clr	8	NA	NA	Channel becomes discontinuous within the top 1/3 of this reach. This section is non fish bearing based on channel characteristics (heavily vegetated channel with organic substrates). The lower section is fish bearing based on access only.	Spawning: None, no accumulations of gravels, insufficient discharge and highly ephemeral. Rearing: (u/s of 100 m) None, lack of channel development, no pools, riffles or runs, heavily vegetated channel. Overwintering: (u/s of 100 m) None, no pools.
700	64400-09200	3	1.75	6.1	S6	99/09	100	198	30	Low	Clr	6	NA	NA	Cascade (5/5 m) in reach 2 prevents fish access to this reach.	Sampling upstream cascade (2 sites) confirms non fish bearing status.
701	64400-09200	2	2.17	8.3	S3*/S6	99/09	700	556	30	Med	Clr	6	NA	NA	Cascade (5/5 m) prevents fish access to the upper portion of this reach. Fish bearing based on access below the cascade. Habitat suitable for 100-200 mm salmonids.	Sampling upstream of cascade confirms non fish bearing status.
703	600600-41800	5	NA	1.8	NVC	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No evidence of surface scour or ponding.	No evidence of surface scour or ponding.
806	600600-57600	10	1.51	6.8	S3*/S6	99/10	300	530	40	Med	Clr	6	NA	NA	Cascade (4/3 m) prevents upstream fish migration. Fish bearing based on access below the cascade. Habitat suitable for 100-200 mm salmonids.	Sampling upstream of cascade confirms non fish bearing status.
2340	1065	1	1	4.5	S6	99/09	NA	NA	NA	NA	NA	NA	NA	NA	No spawning, rearing or overwintering habitat. Subsurface flows, isolated pools discontinuous sections of channel, and numerous small cascades downstream of reach.	30-40, .5/1m cascades over debris jam and piles create numerous impassable barriers. 30-40, 10-20 m subsurface sections. Substrates are moss and debris covered.



Table 7. Upper Morice Stream Classification Summary

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
131	1071	2	93L.005	1.65	4.5	RB	S3	Good spawning and rearing habitat. No overwintering habitat.
132	39700-0440	1	93L.015	2.08	7.5	DV	S3	Poor spawning and rearing habitat. No overwintering habitat.
133	36400-39700	3	93L.015	7.15	5.5	RB	S2	Good spawning, rearing and overwintering habitat.
134	1079	2	93L.015	0.35	2.5	NS	S6	No spawning, rearing, or overwintering habitat. Subsurface flows and limited connectivity.
135	1078	2	93L.015	NA	6.5	NA	NVC	No visible channel. No evidence of surface scour or ponding.
136	36400-26300	2	93L.015	2.85	5.8	DV	S3	Cascade (2 m) prevents upstream fish migration. Fish were captured below the cascade at Site 266. Sampling upstream of cascade confirms non fish bearing status.
137	1144	2	93L.015	0.84	18.5	NS	S6	Subsurface flows. Vegetated channel. No fish habitat present.
138	1148	3	93L.015	0.32	12.2	NS	S4*/S6	Fish may access the lower portion of this reach. No fish habitat and no connectivity in upper portion of reach.
139	1150	1	93L.015	0.27	20	NS	S6	Gradient prevents fish access to this reach. No spawning, rearing or overwintering habitat.
140	1151	2	93L.015	0.34	20.8	NS	S6	Gradient prevents fish access to this reach. No spawning, rearing or overwintering habitat.
141	1152	1	93L.015	1.35	16.5	NS	S4*/S6	Lower 600 m is fish bearing based on access. Above that point habitat becomes too poor to sustain fish.
142	1498	4	93L.015	0.5	11.5	NS	S6	No fish habitat present. Subsurface flows and no connectivity to fish bearing water.
143	36400-27600	3	93L.015	1.52	21.8	NS	S6	No spawning, rearing, or overwintering habitat. Gradient prevents access to this reach.
144	1499	3	93L.015	0.6	19.3	NS	S6	No connectivity to fish bearing water. Gradient and channel characteristics prevent fish access to this reach.
145	1499	4	93L.015	0.93	23	NS	S6	No spawning, rearing, or overwintering habitat. Gradient prevents access to this reach.
146	1177	2	93L.015	0.47	4.5	NS	S6	No spawning, rearing, or overwintering habitat. Small catchment, ephemeral stream, and intermittent channel. No connectivity to fish bearing water.
147	50200-0640	3	93L.015	2.05	4	NS	S3*	No permanent barriers to upstream fish migration were identified. Fish stream based on access.
148	1154	1	93L.015	1.38	4	NFC	S4*	No permanent barriers to upstream fish migration were identified. Fish stream based on access.
149	1087	2	93L.005	NA	6	NA	NVC	No visible channel. Vegetated seepage area.
150	1086	1	93L.005	0.42	6	NFC	S6	Stream does not flow into sport fish bearing waters. Falls (25 m) on Pimpernel Creek prevent upstream sport fish migration.
151	1089	2	93L.005	3.02	4.8	NFC	S5	Stream does not flow into sport fish bearing waters. Falls (25 m) on Pimpernel Creek prevent upstream sport fish migration.
152	36400-39700	5	93L.005	5.73	4.5	WSU	S5	Falls (25 m) in Reach 4 prevent upstream sport fish migration. Non sport fish captured.
153	36400-39700	7	93L.005	4.58	4.5	WSU	S5	Falls (25 m) in Reach 4 prevent upstream sport fish migration. Non sport fish captured.
154	39700-3240	3	93L.005	1.79	7.5	NFC	S6	Stream does not flow into sport fish bearing waters. Falls (25 m) on Pimpernel Creek prevent upstream sport fish migration.
155	39700-2910	4	93L.015	2.9	6.2	NFC	S6	Stream does not flow into sport fish bearing waters. Falls (25 m) on Pimpernel Creek prevent upstream sport fish migration.



Table 7. Upper Morice Stream Classification Summary

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
156	36400-39700	4	93L.005	7	7.5	RB	S2/S5	Falls (25 m) are a barrier to upstream sport fish migration. Sampling indicates only non sport fish are present above the falls.
157	1497	2	93L.015	1.21	14.5	NFC	S4*	No permanent barriers to upstream fish migration were identified. Fish stream based on access.
158	36400-00800	2	93L.015	2.43	4.5	NFC	S3	Fish captured in upstream reach. Fish bearing based on access.
159	36400-39700	17	93L.006	2.59	4.5	WSU	S6	Falls (25 m) in Reach 4 prevent upstream sport fish migration. Non sport fish captured.
160	39700-6230	2	93L.006	2.43	5.5	NFC	S6	Stream does not flow into sport fish bearing waters. Falls (25 m) on Pimpernel Creek prevent upstream sport fish migration.
161	36400-39700	11	93L.005	6.58	1.5	LKC, WSU	S5	Falls (25 m) in Reach 4 prevent upstream sport fish migration. Non sport fish captured.
162	1160	4	93L.015	NA	7.8	NA	NVC	No visible channel. No fish habitat present.
163	600600-38000	2	93L.015	2.6	20.5	NFC	S6	Gradient break immediately upstream of the Morice River prevents upstream fish migration to this reach.
164	1454	3	93L.014	3.05	10.5	DV	S3	Good spawning and rearing habitat. No overwintering habitat present.
165	1453	3	93L.014	3.67	11.3	DV	S3	Good rearing habitat. Spawning habitat present. No overwintering habitat.
166	1452	2	93L.014	2.8	16	NS	S3*	No permanent barriers to upstream fish migration were identified. Fish stream based on access.
167	1469	2	93L.014	2.27	8	NFC	S3*	No permanent barriers to upstream fish migration were identified. Fish stream based on access.
168	1467	1	93L.014	0.62	17.8	NFC	S4*/S6	Lower 100 m of this reach is fish bearing based on access. The remainder of this stream is non fish bearing based on gradient and channel characteristics.
169	1466	1	93L.014	0.51	4.5	NS	S6	Subsurface flows, braided channel, and no connectivity to fish bearing water.
170	1463	2	93L.014	NA	NA	NA	NVC	No visible channel. Vegetated gully with no evidence of surface scour.
171	1459	1	93L.014	1.35	22	NFC	S6	Gradient prevents fish access to this reach.
232	1031	2	93L.005	1.35	4.5	CT	S4	Moderate spawning and rearing habitat. No overwintering habitat.
233	1033	1	93L.005	0.57	4	CT	S4	Poor spawning and rearing habitat. No overwintering habitat.
234	1037	4	93L.005	0.61	2.5	NFC	S6	No fish access to this reach. Reach 1 has no visible channel and no connectivity to fish bearing water.
235	1068	3	93L.005	NA	48.3	NA	NVC	No visible channel. Dry gully.
236	36400-59800	2	93L.005	0.82	3.5	NFC	S4*	No permanent barriers were identified. Fish stream based on access.
237	600600-36400	28	93L.004	1	4	NS	S4*	No permanent barriers were identified. Fish stream based on access.
238	1427	6	93L.004	1.72	5.5	CT	S3	Moderate spawning and rearing habitat. Poor overwintering habitat.
239	1489	3	93E.092	10.43	5	DV	S2/S5	Cascade (30 m) prevents upstream fish migration. Sampling upstream of the cascade confirms non fish bearing status.
240	64400-28100	4	93E.093	36.1	7.5	DV	S1	Moderate spawning, rearing, and overwintering habitat.
241	64400-28100	5	93E.093	30.5	7.5	DV	S1	Moderate spawning, rearing, and overwintering habitat.
242	1489	4	93E.092	6.52	3.5	NFC	S5	Cascade (30 m) in Reach 3 prevents upstream fish migration.



Table 7. Upper Morice Stream Classification Summary

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
243	64400-28100	11	93E.092	14.1	8	DV	S2/S5	Falls (4 m) and a cascade (3 m) prevent upstream fish migration. Sampling upstream of the falls confirms non fish bearing status.
244	64400-28100	12	93E.092	7.3	8	NFC	S5	Falls (4 m) and a cascade (3 m) in Reach 11 prevent upstream fish migration.
245	1419	5	93L.004	0.73	20.3	NFC	S6	Cascade (6 m) in Reach 3 prevents upstream fish migration.
246	1419	3	93L.004	3.02	8	DV	S3/S5	Cascade (6 m) prevents upstream fish migration. Sampling upstream of the cascade confirms non fish bearing status.
247	1419	4	93L.004	NA	NA	NFC	NA	Fish sampling site.
248	1422	1	93L.004	3.83	8.5	NFC	S5	Cascade (6 m) downstream prevents upstream fish migration to this reach.
249	600600-53900	1	93L.014	2.45	6.5	NFC	S6	Falls (20 m) in lower portion of this reach prevent upstream fish migration. Sampling upstream of falls confirms non fish bearing status upstream of falls.
250	64100-2380	4	93L.005	0.82	1.5	RB	S4	Poor rearing. No spawning or overwintering habitat.
251	39700-0440	2	93L.005	0.89	5	NFC	S4*	No permanent barriers identified. Fish stream based on access.
252	1085	2	93L.005	0.41	2	NS	S6	No spawning, rearing, or overwintering habitat. No connectivity to fish bearing water.
253	1169	2	93L.015	1.3	4.5	NFC	S4*	No permanent barriers identified. Fish stream based on access.
254	1169	3	93L.015	1.53	18	NS	S6	No spawning, rearing, or overwintering habitat.
255	1470	2	93L.014	0.65	26.5	NS	S6	No spawning, rearing, or overwintering habitat. Gradient prevents upstream fish migration.
256	600600-53900	1	93L.014	2.75	7	CT	S3/S5	Falls (20 m) prevent upstream fish migration. Sampling upstream of falls confirms non fish bearing status.
257	1136	2	93L.015	NA	4	NA	NVC	No visible channel. Vegetated gully. Seepage area.
258	5020-0640	5	93L.015	1.38	7	NFC	S4*	No permanent barriers to upstream fish migration were identified. Fish bearing based on access.
259	1439	2	93L.015	NA	17.5	NA	NVC	No visible channel. No evidence of surface scour or ponded water. Seepage area.
260	1443	3	93L.015	0.71	5	NS	S4*	No permanent barriers to upstream fish migration were identified. Fish bearing based on access.
261	1180	9	93L.015	1.18	3	NFC	S4*	No permanent barriers to upstream fish migration were identified. Fish stream based on access.
264	36400-26300	3	93L.015	1.38	7.5	NFC	S6	Cascade (2 m) in Reach 2 prevents upstream fish migration.
265	1146	1	93L.015	0.9	15	NFC	S6	Cascade (2 m) downstream prevents fish access to this reach.
266	36400-26300	2	93L.015	3.37	8	DV	S3/S6	Cascade (2 m) prevents upstream fish migration. Fish were captured below the cascade. Sampling upstream of the cascade confirms non fish bearing status.
267	1147	1	93L.015	1.65	21.8	NFC	S6	Gradient prevents fish from accessing this reach.
268	1446	2	93L.014	0.67	38.5	NFC	S6	Gradient prevents fish access to this reach. Dry intermittent channel.
269	41800-41700	2	93L.014	1.87	32	NFC	S6	Gradient prevents fish access to this reach. Dry intermittent channel.
270	1150	1	93L.015	0.92	20.3	NFC	S4*/S6	Lower 50 m of this reach is fish bearing based on access. Gradient prevents fish access to the remainder of the stream.
271	1158	2	93L.015	0.65	26.5	NS	S4*/S6	Lower 20 m of this reach is fish bearing based on access. The remainder of this reach is non fish bearing. High gradient prevents access.



Table 7. Upper Morice Stream Classification Summary

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
272	1443	1	93L.014	1.23	6.5	NS	S4*	No permanent barriers to upstream fish migration were identified. Fish bearing based on access.
273	1442	1	93L.014	0.72	5.8	NS	S4*	Fish stream based on access.
274	1441	1	93L.014	NA	2.3	NA	NVC	No visible channel. No potential fish habitat. Vegetated depression.
275	1462	1	93L.014	1.03	8.5	NFC	S6	No spawning, rearing or overwintering habitat. No connectivity to fish bearing water.
276	36400-36600	1	93L.015	0.87	10	NS	S6	No spawning, rearing or overwintering habitat. No connectivity to fish bearing water.
277	1175	2	93L.015	0.46	6.8	NS	S6	No spawning, rearing or overwintering habitat. No connectivity to fish bearing water.
278	1176	3	93L.015	0.35	7	NS	S6	No spawning, rearing or overwintering habitat. No connectivity to fish bearing water.
279	50200-0640	1	93L.015	1.72	4.3	CT	S3	Good rearing habitat. No spawning or overwintering habitat.
301	1401	1	93E.093	1.98	1.9	DV	S3	Excellent spawning habitat. Moderate rearing habitat. No overwintering habitat.
302	64400-22700	2	93L.003	3.77	3	DV	S3	Good spawning and rearing habitat. Overwintering habitat present.
303	1406	1	93L.003	0.82	2.5	NS	S6	No spawning, rearing or overwintering habitat. No connectivity to fish bearing water.
304	1500	3	93L.003	6.58	1.3	RB, DV	S2	Excellent spawning habitat. Moderate rearing habitat. Overwintering habitat present.
305	64400-18300	4	93L.003	3.57	2.8	CO, CH, DV, RB, LSU	S3	Excellent rearing habitat. Poor spawning habitat. Overwintering habitat present.
306	95959	1	93L.003	NA	NA	NA	NVC	No visible channel. This site is part of a wetland complex and not a stream. No flows at any time. No fish habitat.
307	1276	3	93L.003	1.39	21.5	RB	S4/S6	Falls (1.9 m) prevent upstream fish migration into this reach. The portion of stream below the falls is fish bearing based on access.
308	18300-0720	2	93L.003	2.36	27.3	NFC	S6	Gradient prevents access to this reach.
309	1231	2	93L.003	1.2	11.8	NFC	S6	Gradient (42% for 60 m) prevents upstream fish migration to this reach.
310	1227	2	93L.003	NA	NA	NA	NVC	No visible channel. No potential fish habitat. Vegetated gully.
311	1220	2	93L.003	0.89	10.5	NFC	S6	No connectivity to fish bearing water. Channel fans out at the toe of the slope.
312	1217	3	93L.003	0.48	3.4	NFC	S6	No connectivity to Nanika River downstream. Ephemeral stream with a vegetated channel.
313	63200-09800	7	93L.004	NA	NA	NA	NVC	No visible channel. No potential fish habitat. Vegetated seepage.
314	11700-5110	3	93L.004	3.42	6.5	CT	S3	Fair rearing habitat. Poor spawning habitat. No overwintering habitat.
315	1011	1	93L.004	1.45	1	CAS, LSU	S4*	Non sport fish captured. Sport fish access is possible.
316	600600-63200	8	93L.004	5.38	1.3	CT, RB, CAS, MW, LSU, PL	S2	Excellent spawning and rearing habitat. Overwintering habitat present.
317	63200-29100	3	93L.004	0.96	4	NFC	S4*	No permanent barriers identified. Fish stream based on access.
318	1420	2	93L.004	2.62	13	NFC	S3*	Fish stream based on access. Gradient is low enough to allow fish access.
319	11700-5660	4	93L.004	2.38	21.25	DV	S3/S6	Above road crossing the gradient becomes too steep to allow fish passage.
320	4190-1340	1	93L.004	1.15	1.8	NFC	S4*	Fish may access this reach during high flows.

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Table 7. Upper Morice Stream Classification Summary

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
321	1007	2	93L.004	NA	NA	NA	NVC	No visible channel or evidence of surface scour. Vegetated seepage. No potential fish habitat.
322	1006	2	93L.013	NA	NA	NA	NVC	No visible channel or evidence of surface scour. Vegetated seepage. No potential fish habitat.
323	1002	1	93L.013	NA	NA	NA	NVC	No visible channel or evidence of surface scour. Vegetated seepage. No potential fish habitat.
324	1013	1	93L.004	NA	NA	NA	NVC	No visible channel or evidence of surface scour. Vegetated seepage. No potential fish habitat.
325	1485	1	93L.004	1.58	3.3	NS	S3*	Fish stream based on access.
326	62200-2180	3	93L.004	2.4	1.3	RSC	S3*	Non sport fish captured. Upstream lake may contain sport fish. Fish stream based on access.
327	1193	1	93L.004	NA	NA	NA	NVC	Stream does not exist. No potential fish habitat.
328	1188	1	93L.004	NA	NA	NA	NVC	No visible channel. No potential fish habitat. Vegetated gully with no evidence of surface scour.
329	1185	1	93L.004	0.86	11	NS	S4*	Fish stream based on access.
330	1478	2	93L.014	1.49	3.5	NFC	S4*	Fish stream based on access.
331	600600-57600	5	93L.014	3.89	2.5	RB	S3	Excellent spawning and rearing habitat. Overwintering habitat present.
332	1180	5	93L.014	4.01	2.8	CAS	S3*	Fish may access this reach from Collins Lake. Non sport fish captured.
333	57600-18800	3	93L.014	0.99	1.3	NS	S6	No spawning, rearing, or overwintering habitat. No access or suitable fish habitat.
334	1208	1	93L.014	0.72	3.5	NS	S6	No connectivity to fish bearing water. There is no continuous channel in the lower portion of this reach.
335	1209	4	93L.014	1.33	20.3	NS	S6	Gradient prevents fish access. Ephemeral stream.
336	57600-31800	3	93L.014	1.48	4	NSC	S4*	Non sport fish were captured within reach. Fish stream based on access.
337	1211	2	93L.014	NA	NA	NA	NVC	No visible channel or evidence of surface scour. No potential fish habitat.
338	1213	2	93L.014	0.78	1.8	NS	S6	No connectivity to fish bearing water. No spawning, rearing or overwintering habitat.
339	1213	1	93L.014	0.73	1.8	NS	S6	No connectivity to fish bearing water. No spawning, rearing or overwintering habitat.
340	66200-1840	4	93L.004	1.33	1.3	CT	S4	Fair spawning and rearing habitat. Poor overwintering habitat.
341	63200-66200	2	93L.004	5.28	1.3	CT, DV	S2	Excellent spawning habitat. Moderate rearing habitat. Overwintering habitat present.
342	66200-3100	2	93L.004	1.01	2.5	CT	S4	Poor rearing and spawning habitat. No overwintering habitat.
343	63200-66200	6	93L.004	0.89	2.5	NS	S6	Falls (8 m) in Reach 3 prevents upstream fish migration. Adequate sampling above the falls indicates this portion of stream is non fish bearing.
344	63200-75900	1	93L.004	3.61	4	CT	S3	Moderate spawning and rearing habitat. No overwintering habitat.
345	63200-75900	3	93L.004	1.45	5.5	NFC	S4*	Fish stream based on access. Culvert in Reach 1 may block upstream fish migration.
346	66200-5580	1	93L.004	1.6	1.5	NFC	S6/ NVC	Falls (8 m) downstream prevent upstream fish migration. The upper 200 m of this reach is a vegetated seepage with no definable channel.
347	1050	2	93L.004	1.4	2.1	NFC	S6	No connectivity to fish bearing water. Habitat not suitable for fish.
348	36400-88900	2	93L.004	1.44	4.8	CT	S4	Good rearing habitat. Fair spawning habitat. No overwintering habitat.
349	1054	1	93L.004	1.16	3.3	NFC	S4*	Fish stream based on access. Beaver activity downstream may have temporarily blocked access to this reach.
350	600600-36400	24	93L.004	2.82	3.5	RB, CT	S3	Excellent rearing habitat. Moderate spawning habitat. No overwintering habitat.



Table 7. Upper Morice Stream Classification Summary

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
351	600600-63200	13	93L.004	2.14	3.5	CT	S3	Excellent spawning habitat. Moderate rearing habitat. No overwintering habitat.
392	36400-72600	6	93L.005	1.21	4.4	CT	S4/S6	400 m upstream of road crossing the gradient becomes too high (22%) to allow fish passage. Fish captured in lower portion of reach.
393	1028	2	93L.005	0.84	1.8	NFC	S6/ NVC	The lower 100 m of this reach has a definable channel although there is no connectivity to fish bearing water. The remainder of the reach can be classified as no visible channel with no potential fish habitat.
394	72600-5970	6	93L.005	1.4	2.8	CT	S4	Moderate rearing habitat. Poor spawning habitat. No overwintering habitat.
395	1039	6	93L.005	NA	1.3	NA	NVC	No visible channel. No potential fish habitat. No evidence of surface scour or fluvial substrates.
396	66200-5930	5	93L.004	1.49	1.8	NFC	S6	Stream does not flow into fish bearing water. Sampling above falls (8 m) in mainstem (downstream) confirms non fish bearing status.
397	63200-66200	4	93L.004	2.8	4.9	NFC	S6	Falls (8 m) in Reach 3 prevent upstream fish migration. Sampling upstream of the falls confirms non fish bearing status.
398	63200-66200	3	93L.004	3.49	4.3	CT	S3/S5	Falls (8 m) are a barrier to upstream fish migration. Fish captured below falls.
399	1405	1	93E.093	2.14	2	DV, CT	S3	Moderate spawning and rearing habitat. No overwintering habitat identified.
400	1237	3	93E.093	0.56	4.5	NFC	S6	Ephemeral stream. No spawning or overwintering habitat. Sections of subsurface flow. Isolated pools.
401	1287	1	93E.093	NA	20.5	NA	NVC	No visible channel. No potential fish habitat. Vegetated seepage. No evidence of ponding or surface scour.
402	64400-27000	2	93E.093	3.03	10.3	NFC	S5	A high gradient section (25%/100 m) immediately above the Nanika River prevents fish access to this reach.
403	64400-27800	2	93E.093	2.81	11.1	NFC	S6	High gradient section (25%/100 m) in Reach 1 prevents fish access to this reach.
404	1394	1	93E.093	1.28	11.8	NFC	S6	A high gradient section (26 %) prevents fish access to this reach.
405	1393	1	93E.093	1.68	11.3	DV	S3	Moderate rearing habitat. Poor spawning habitat. No overwintering habitat. Fish caught in lower portion of this reach.
406	1278	1	93E.093	2.62	16.5	CO	S3/S6	The lower 20 m of this stream is fish bearing. A cascade (4 m) and falls (12 m) prevent upstream fish access. Sampling above the falls confirms non fish bearing status.
407	1027	2	93L.004	1.3	5.3	NFC	S4*/S6	Cascade (2.4 m) prevents upstream fish migration. Fish bearing below the cascade based on access.
408	1500	9	93L.004	1.53	1.3	NFC	S3*	Fish stream based on access. Beaver activity in the area has caused temporary barriers to upstream fish migration. Fish were observed downstream of this reach in a beaver pond.
409	57600-31800	8	93L.014	NA	1.8	NA	NVC	No visible channel. No potential fish habitat. Rooted vegetation across depression. No connectivity to fish bearing water. No evidence of surface scour.
410	1196	1	93L.004	1.33	2.8	NFC	S4*	No barriers to upstream fish migration were identified. Fish stream based on access.
411	63200-62200	5	93L.014	2.46	2.4	NFC	S3*	No barriers to upstream fish migration were identified. Fish stream based on access.



Table 7. Upper Morice Stream Classification Summary

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
412	63200-62200	3	93L.004	3.36	2.8	NFC	S3*	No barriers to upstream fish migration were identified.
413	63200-62200	4	93L.004	NA	NA	NFC	NA	Fish stream based on access.
								Fish sampling site
414	1239	1	93E.093	1.99	20.3	NFC	S3*/S6	The lower 150 m of this stream is fish bearing based on access. Above that point gradient prevents upstream fish migration.
415	1278	2	93E.093	2.62	10.5	NFC	S6	Falls (12 m) in Reach 1 prevent upstream fish migration.
416	64400-09200	1	93L.003	1.5	2.5	NFC	S3*	Fish stream based on access. No barriers to upstream fish migration were observed.
417	1217	1	93L.003	1.27	1.5	NS	S6	Habitat not suitable for fish. Ephemeral stream with no spawning habitat.
418	1000	1	93L.003	NA	2.5	NA	NVC	No visible channel. Vegetated seepage. No potential fish habitat.
419	62200-2180	5	93L.014	1.29	4.1	NFC	S4*	Fish bearing stream based on access. Fish were observed rising in downstream lake. No barriers to upstream fish migration were identified.
420	1484	1	93L.014	0.75	2.5	NFC	S4*	Fish stream based on access. No barriers to upstream fish migration were observed.
421	1484	2	93L.014	0.59	8	NS	S6	No connectivity to Reach 1. Poorly defined channel and subsurface flows. Habitat not suitable for fish.
422	62200-2180	2	93L.004	NA	NA	CT	NA	Fish sampling site.
423	600600-53900	2	93L.014	2.61	4.8	NFC	S6	Falls (20 m) in Reach 1 prevent upstream fish migration. Sampling above the falls confirms non fish bearing status.
424	36400-00800	7	93L.015	1.53	2.9	NFC	S3*	Fish stream based on access. Fish captured in downstream reach. No barriers to fish passage observed.
425	36400-00800	5	93L.015	1.55	1.8	CT	S3	Moderate rearing and spawning habitat. No overwintering habitat
427	1156	3	93L.015	NA	1.8	NA	NVC	No visible channel. No evidence of surface scour or potential fish habitat. Vegetated seepage.
428	1152	2	93L.015	NA	2.3	NA	NVC	No visible channel. No evidence of surface scour or potential fish habitat. Vegetated seepage.
429	1157	1	93L.015	0.51	44.5	NS	S6	Gradient is too high to allow fish access to this reach.
436	1235	2	93E.093	1.41	15	NFC	S6	Falls (1.8 m) and high gradient (30%) prevent fish access to this reach.
437	1275	1	93L.003	1.2	4	NFC	S4*	Fish stream based on access. Fish may use this stream during higher flows.
438	1277	1	93L.003	1.38	5	NFC	S6	The channel fans out in the lower portion of the reach. No connectivity to fish bearing water.
439	1228	2	93L.003	0.44	5	NS	S6	Poorly defined channel with sections of subsurface flow. No connectivity to fish bearing water. Habitat too poor to sustain fish.
440	1014	1	93L.004	1.18	1.3	NS	S4*	Fish may access this reach from McBride Lake.
441	1012	1	93L.004	0.59	1.9	NS	S4*/S6	Lower portion of reach below the road crossing can be classified as fish bearing based on access. Above the road crossing habitat is too poor to sustain fish.
442	1501	1	93L.004	0.87	3	NFC	S4*	Fish bearing based on access. Upstream lake should be sampled to confirm fish absence.
455	1475	1	93L.014	1.1	16	NS	S6/ NVC	Upper portion of reach can be classified as no visible channel. Lower portion of reach has no connectivity to the Morice River. Ephemeral stream with only 150 m of definable channel.
456	1204	1	93L.014	1.81	9.5	NFC	S3*	Fish bearing stream based on access. No barriers to fish migration were identified.



Table 7. Upper Morice Stream Classification Summary

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
457	600600-54900	4	93L.014	1.22	5.5	NFC	S4*	Fish bearing stream based on access. Possible fish use during higher flows.
465	36400-39700	19	93L.016	NA	NA	NFC	NA	Fish sampling site.
466	36400-39700	17	93L.006	NA	NA	LKC, WSU	NA	Fish sampling site.
467	1183	1	93L.014	1.37	1.8	NFC	S4*	Culvert has blocked fish access. The remainder of this reach is fish bearing based on access.
475	36400-39700	1	93L.015	NA	NA	RB, DV, CT, PL	NA	Fish sampling site.
476	1501	2	93L.004	NA	NA	NFC	NA	Fish sampling site. Lake was sampled with 6 minnow traps.
667	1046	1	93L.005	0.75	4.5	NS	S4*/S6	The lower 30 m of this stream is fish bearing based on access. Above that point the channel deteriorates and has no connectivity to the downstream portion.
668	36400-64100	16	93L.005	1.55	1.6	RSC, CAL, LKC	S3*	Non sport fish captured. Fish bearing based on access.
669	1034	1	93L.005	1.42	0.8	LKC	S4*	Non sport fish captured. Fish bearing based on access.
670	1038	1	93L.005	1.2	4	CT	S4	Moderate spawning and rearing habitat. Poor overwintering habitat.
671	1037	1	93L.005	NA	4.5	NA	NVC	No visible channel. No potential fish habitat. No evidence of surface scour or connectivity to fish bearing water.
672	36400-64100	9	93L.005	3.8	1.1	CT, RSC	S3	Low spawning potential. Moderate rearing habitat. High quality overwintering habitat.
673	1039	3	93L.005	NA	1.3	NA	NVC	No visible channel. No potential fish habitat. No evidence of surface scour or connectivity to fish bearing water.
674	36400-64100	13	93L.005	2.7	3.3	RB	S3	Moderate spawning habitat. High quality rearing habitat. Poor overwintering habitat.
675	64400-18300	6	93L.003	7.31	0.3	RSC, CT, CH, LNC, CAL	S2	High quality overwintering and rearing habitat. Spawning habitat present.
676	64400-18300	10	93L.003	1.1	4	NFC	S4*	Fish stream based on access. No permanent barriers observed.
677	1269	2	93L.003	6.73	5.3	CT, DV	S2	Abundant spawning and rearing habitat. Overwintering habitat present.
678	64400-18300	9	93L.003	1.37	4	CT	S4	Good rearing and spawning habitat. Moderate overwintering habitat.
679	1268	1	93L.003	1.97	4.5	CT	S3	Moderate spawning, rearing and overwintering habitat.
680	1272	1	93L.003	0.28	13.5	NS	S6	No fish access to this reach. vegetated channel with no spawning, rearing, or overwintering habitat present.
681	1273	3	93L.003	1.32	4.5	CT	S4	Moderate spawning habitat. Good rearing potential. No overwintering habitat present.
682	1221	1	93L.003	3.25	10.5	CT	S3	Good overwintering and rearing habitat present. Moderate spawning habitat.
683	1222	1	93L.003	0.35	13.5	NFC	S6	High Gradient (32%) drop into mainstem prevents upstream fish migration. No connectivity within stream. Sections of subsurface flow and isolated pools.
684	1221	1	93L.003	2.78	4.5	NFC	S3*	A small cascade (0.8 m) may prevent upstream fish migration. Fish bearing until adequate resampling is conducted above the cascade.
685	1500	2	93L.003	NA	NA	DV, CT	NA	Fish sampling site.



Table 7. Upper Morice Stream Classification Summary

Site	ILP/WSC	Reach	Map Number	Width (m)	Gradient (%)	Species	Stream Class	Comments
687	64400-18300	11	93E.093	7.15	13.5	NFC	S5	Channel is dewatered for 200 m in the downstream portion of this reach. No fish access through this section. Sampling above the dewatered section indicates fish cannot access this reach.
688	1263	1	93E.093	3.01	18	NFC	S5	Cascades (4 m, 2 m and .6 m) along with dewatering at the stream mouth prevent fish migration upstream into this reach.
689	1264	1	93E.093	1.33	23.5	NFC	S6	Gradient prevents fish access to this reach.
690	1246	1	93E.093	1.58	4.9	DV, CT	S3	Moderate spawning and rearing habitat. No overwintering habitat.
691	18300-3800	2	93E.093	8.3	3	DV, CT	S2	High to moderate rearing habitat. Spawning and overwintering habitat present.
692	63200-09800	1	93L.003	1.66	0.6	DV	S3	No spawning or overwintering habitat. Poor rearing habitat.
693	63200-09800	3	93L.003	1.7	1	DV	S3	No spawning or overwintering habitat. Moderate rearing habitat.
699	1009	1	93L.003	2	0.9	NFC	S3*/S6	Fish bearing based on access. The channel dissipates to nothing within the top 1/3 of this reach. This section is non fish bearing based on channel characteristics and no available fish habitat.
700	64400-09200	3	93L.003	1.75	6.1	NFC	S6	Cascade (5 m) in reach 2 prevent fish access to this reach.
701	64400-09200	2	93L.003	2.17	8.3	NFC	S3*/S6	Cascade (5 m) prevents fish access to the upper portion of this reach. Fish bearing based on access below the cascade.
702	4190-1340	3	93L.003	1.02	4.8	NFC	S4*	Fish stream based on access. Potential fish use in upstream lake.
703	600600-41800	5	93L.014	NA	1.8	NA	NVC	No visible channel. No potential fish habitat. No connectivity to fish bearing water.
704	1447	2	93L.014	1.92	3.4	NFC	S3*	Fish bearing based on possible fish access through adjacent wetland during periods of high flow.
801	1479	1	93L.014	1.51	2.5	NFC	S3*	Fish stream based on access. Potential spawning habitat during high flows.
802	600600-57600	10	93L.014	1.82	5.5	NFC	S3*	Fish bearing based on access. No permanent barriers to upstream fish migration were identified.
806	600600-57600	10	93L.014	1.51	6.8	NFC	S3*/S6	Cascade (4 m) prevents upstream fish migration. Fish bearing based on access below the cascade. Non fish bearing above the cascade.
900	64400-28100	2	93E.093	NA	NA	RB, BT, MW	NA	Fish sampling site.
901	64400-28100	9	93E.092	NA	NA	DV	NA	Fish sampling site.
2340	1065	1	93L.005	1	4.5	NS	S6	No spawning, rearing, or overwintering habitat. Subsurface flows and numerous small cascades throughout reach.



7.0 REFERENCES

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[illegible]



Site/Reach Card

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

Reach 2.0
Site # 131

ILP # 1071
ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 2.70 Elevation (m): upstream 935 downstream 870 UTM (Zone/East/North/ method)
Gradient (%) 2.4 Order 1 Magnitude 1 BGC Zone SBS 9 623648 599494 GIS
Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplain ☐
Confinement Occasionally Confined Exposed/Eroded NONE Width (m)
Coupling Decoupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name unnamed
Survey Date 1999/08/10 Time 08:50 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 623078 5994348 GIS
Site Length (m) 300 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.005 NID # 13001

CHANNEL

							Average	Method(s)
Channel Widths (m)	1.7	1.2	1.3	1.6	2.0	2.1	1.6	T
Wetted Widths (m)	1.1	0.3	0.4	0.2	0.2	0.1	0.4	T
Resid. Pool Depths (m)	0.13	0.20	0.17	0.05			0.14	MS

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	4.0	3.0	5.0	5.0	4.2	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	0.5	0.6	0.7		0.6	T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	Trace	None	None	None	Dominant	Trace

Crown Closure
1-20%

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 9 Methoc T3 pH 7.2 Method P2 EMS #
Conductivity 70 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5%larger) 10
MATERIAL Subdominant Gravels D (cm) (moveable) 30

Channel Pattern Sinuous
Coupling Decoupled
Confinement Unconfined
Islands None

Morphology Code
RP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

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Site/Reach Card

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

Reach 2.0

ILP # 1071

Site # 131

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs ☐	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	Good - gravels present, spring flows will increase habitat; access from downstream lake is good, spawning stream for (Bill Nye Lake)
Rearing Habitat	Good, overhanging vegetation and pools with adequate depth for fry and juvenile trout (limited adu rearing)
OverWinter Habitat	None, there are no pools deep enough for overwintering

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13 Fr 1 CD 2110 Im 360 STD U	Upstream view of site 131, showing small pool where fish were captured.		
Roll 13 Fr 2 CD 2110 Im 361 STD D	Downstream view of site 131, showing side bar with small isolated pool downstream.		

WILDLIFE

Group	Observations
BIR	Grouse

COMMENTS

Form	Section	Comments
SITE	CHANNEL	C1, S3.
SITE	CHANNEL	C2, Rainbow trout easily captured
SITE	SITE CARD	C6, 007183
SITE	CHANNEL	Contributes significant recruitment to Bill Nye Lake;
SITE	CHANNEL	Preserve downstream fisheries values
SITE	CHANNEL	Cows have trampled through creek



FDIS Fish Form

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

Reach # 2.0

ILP # 1071

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream S SITE/METHOD Waterbody ID

Permit 34770-20 Date: 1999/08/10 To: 1999/08/10 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
131	93L.005	13001	9 623078 5994348	EF	1	9.0	70	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
131	EF	1	1	1999/08/10	08:50	1999/08/10	10:08

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
131	EF	1	1	O	540	300.0	1.5	400	60	6	S.R

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
131	EF	1	1	RB	F	1+	5 20 30	R	

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age	Vch#	Genetic	Photograph	Comment
				(mm)	(g)			Str / Smpl# /		Str / Smpl#	Roll Fr.	
131	EF	1	1	RB	20		U	U				
131	EF	1	1	RB	30		U	U				
131	EF	1	1	RB	25		U	U				
131	EF	1	1	RB	30		U	U				
131	EF	1	1	RB	20		U	U				

COMMENTS

Section	Comments
WATERBODY	Good accumulations of gravels





Photo #: 13 - 2

Downstream view of site 131, showing side bar with small isolated pool downstream.



Photo #: 13 - 1

Upstream view of site 131, showing small pool where fish were captured.

[illegible]

Site/Reach Card

Watershed Code 460-600600-36400-39700-0440-0000-000-000-000-000-000

Reach 1.0
Site # 132

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .72 Elevation (m): upstream 802 downstream 758 UTM (Zone/East/North/ method)
Gradient (%) 6.1 Order 2 Magnitude 2 BGC Zone SBS 9 622754 5996595 GIS
Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Straight Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/10 Time 10:30 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 622751 5997008 GIS
Site Length (m) 400 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.015 NID # 13002

CHANNEL

	1.6	1.8	2.1	2.3	2.1	2.6	Average	Method(s)
Channel Widths (m)	1.6	1.8	2.1	2.3	2.1	2.6	2.1	T
Wetted Widths (m)	0.4	1.1	0.2	0.1	0.1	0.5	0.4	T
Resid. Pool Depths (m)	0.20	0.15	0.20	0.10	0.10	0.40	0.19	MS

No Vis.Ch. ☐ Dewatered ☐ Gradients (%) 8.0 8.0 7.0 7.0 7.5 C, C
Intermittent ☐ Tributaries ☐ Bankfull Depth (m) 0.7 0.6 0.7 0.7 T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	Trace	Trace	None	None	Dominant	None

Crown Closure
21-40%

Instream Vegetation
☒ None ☐ Moss
☐ Algae ☐ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 8 Method T3 pH 7.0 Method P2 EMS #
Conductivity 70 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5%larger) 50
MATERIAL Subdominant Boulders D (cm) (moveable) 15

Channel Pattern Sinuous
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars
☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-36400-39700-0440-0000-000-000-000-000-000

Reach 1.0

Site # 132

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE**HABITAT QUALITY**

FSZs

Side Chan ☒Flood/Beaver ☒Tribes ☒Flood Chan ☒Slough ☒**Name****Comments**

Spawning Habitat Poor; gravels and suitable flows are difficult to find; large gravel/cobble present

Rearing Habitat Limited; there are only a few shallow, isolated pools present

OverWinter Habitat None; site is ephemeral

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13 Fr 3 CD 2110 Im 362 STD U	Upstream view of site 132, showing isolated pool above debris jam.		
Roll 13 Fr 4 CD 2110 Im 363 STD D	Downstream view of site 132, showing channel with root wad and other debris.		

WILDLIFE**COMMENT**

Form	Section	Comments
SITE	CHANNEL	C1; S3
SITE	CHANNEL	C2; fish presence confirmed by capture of DV
SITE	SITE CARD	C6; 00921
SITE	CHANNEL	system is flashy with limited habitat complexity, fish are present in low densities
SITE	CHANNEL	non permanent barriers limit upstream access (root wads, debris jams, isolated pools)



FDIS Fish Form

Watershed Code 460-600600-36400-39700-0440-0000-000-000-000-000-000

Reach # 1.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream S		SITE/METHOD				Waterbody ID						
Permit 34770-20	Date: 1999/08/10	To: 1999/08/10	Crew: JH/EM		Resample ☐							
Site	NID MAP	NID	UTM:Zone/East/North/ Mthd		MTD/NO	Temp	Cond	Turbid	Comment			
132	93L.015	13002	9	622751	5997008	EF 1	8.0	70	C			
GEAR SETTINGS												
Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment					
132	EF 1	1	1999/08/10	10:30	1999/08/10	11:30						
NET/TRAP SPECIFICATIONS												
ELECTROFISHER SPECIFICATIONS												
Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model	
132	EF 1	1	O	591	400.0	2.0	600	60	6	SR	12-B	
FISH SUMMARY												
Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment			
132	EF	1 1	DV	J	1	3	80 110	R				
INDIVIDUAL FISH DATA												
Site	MTD/NO	H/P	Species	Length (mm)	Weight (g)	Sex	Mat	Str / Smpl# / Age	Vch#	Genetic Str/ Smpl#	Photograph Roll Fr.	Comment
132	EF 1	1	DV	110		U	U				13 5	
132	EF 1	1	DV	80		U	U					
132	EF 1	1	DV	80		U	U					
COMMENTS												





Photo #: 13 - 4
Downstream view of site 132, showing channel with root wad and other debris.



Photo #: 13 - 3
Upstream view of site 132, showing isolated pool above debris jam.





Photo #: 13 - 5
Site 132, photo of a 110 mm dolly varden.



Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 3.0

Site # 133

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .87 Elevation (m): upstream 780 downstream 756 UTM (Zone/East/North/ method)

Gradient (%) 2.8 Order 4 Magnitude 60 BGC Zone SBS 9 623368 5996675 GIS

Setting Valley Floor Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid

Open water A Wetland ☐

Mass Movement Medium impact; some debris

Active Floodplain ☐

Confinement Frequently Confined

Exposed/Eroded NONE

Width (m)

Coupling Partially Coupled

Islands NONE

Beaver Dam(s) ☐

Channel Pattern Sinuous

Landuse None/natural

LWD jam(s) ☐

Riparian Vegetation Mixed C/D

Valley Flat No valley flat on either bank

(C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name PIMPERNEL CREEK

Local Name Pimpernel Creek

Survey Date 1999/08/10 Time 12:00

Agency: C151

Crew JH/EM

Access V2

MAP UTM (Zone/East/North/Method) 9 623265 5996759 GIS

Site Length (m) 870

Method HC

Fish Card ☒ Incomplete ☐

NID Map 93L.015

NID # 13003

CHANNEL

							Average	Method(s)
Channel Widths (m)	7.8	6.9	6.8	6.7	7.2	7.5	7.1	T
Wetted Widths (m)	3.5	4.8	4.1	4.3	5.2	5.1	4.5	T
Resid. Pool Depths (m)	0.50	0.80	0.30	0.10	0.20	0.50	0.40	MS

No Vis.Ch. ☐
Intermittent ☐

Dewatered ☐
Tributaries ☐

Gradients (%) 5.0 5.0 7.0 6.0 5.7 C, C
Bankfull Depth (m) 0.7 1.0 0.7 0.8 T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	Sub-Dominant	Trace	Trace	Trace	Dominant	None

Crown Closure
21-40%

LEFT BANK

Shape Undercut

Riparian Veg. Mixed C/D

Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape Undercut

Riparian Veg. Mixed C/D

Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 9 Method T3

pH 7.3 Method P2

EMS #

Conductivity 60 Method S3

Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Gravels
MATERIAL Subdominant Cobble

D95(cm) (only 5%larger) 50

D (cm) (moveable) 12

Channel Pattern Irregular, Wandering

Coupling Partially Coupled

Confinement Occasionally Confined

Islands None

Morphology Code
RP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 3.0

Site # 133

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE**HABITAT QUALITY**

FSZs	Side Chan ☒	Flood/Beaver ☒
Tribs. ☒	Flood Chan ☒	Slough ☒

Name	Comments
Spawning Habitat	Good spawning habitat; high accumulations of gravel/cobbles (small) suitable for spawning and perennial flows
Rearing Habitat	Good rearing habitat, moderate gradient, high habitat complexity
OverWinter Habitat	Good overwintering habitat; deep pools and log jams, and small plunge pools > 80 cm deep

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13 Fr 6 CD 2110 Im 365 STD U	Upstream view of Site 133, showing fish capture location with side bar.		
Roll 13 Fr 7 CD 2110 Im 366 STD D	Downstream view of site 133, with small pool and woody debris.		

WILDLIFE**COMMENT**

Form	Section	Comments
SITE	CHANNEL	C1; S2 stream classification
SITE	CHANNEL	C2; Fish easily captured in all habitat types; good riffle/pool complexes with adequate cover, flows and substrate
SITE	SITE CARD	C6; 007190
SITE	SITE CARD	Actually sampled 1200 m



FDIS Fish Form

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach # 3.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream **S** SITE/METHOD Waterbody ID

Permit 34770-20 Date: 1999/08/10 To: 1999/08/10 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
133	93L.015	13003	9 623265 5996759	EF	1	9.0	60	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
133	EF 1	1	1999/08/10	12:00	1999/08/10	12:40	

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
133	EF 1	1	O	177	200.0	7.0	600	60	6	SR	12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
133	EF 1	1	RB	J	1+	5	60 110	R	

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age	Vch#	Genetic	Photograph	Roll Fr.	Comment
				(mm)	(g)			Str / Smpl# / Age		Str/ Smpl#			
133	EF	1	1	RB	110		U	U				13 8	
133	EF	1	1	RB	80		U	U					
133	EF	1	1	RB	60		U	U					
133	EF	1	1	RB	70		U	U					
133	EF	1	1	RB	90		U	U					

COMMENTS





Photo #: 13 - 7
Downstream view of site 133, with small pool and woody debris.



Photo #: 13 - 6
Upstream view of Site 133, showing fish capture location with side bar.





Photo #: 13 - 8
Site 133, photo of a 110 mm rainbow trout.



Site/Reach Card

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

Reach 2.0
Site # 134

ILP # 1079
ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type N

Length (km) 1.41 Elevation (m): upstream 929 downstream 800 UTM (Zone/East/North/ method)
Gradient (%) 9.2 Order 2 Magnitude 2 BGC Zone SBS 9 624617 599743 GIS
Setting Valley Wall Bars ☒ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplain ☐
Confinement Unconfined Exposed/Eroded NONE Width (m)
Coupling Decoupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous (D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/10 Time 13:00 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 623894 5997272 GIS
Site Length (m) 470 Method GE Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13004

CHANNEL

							Average	Method(s)
Channel Widths (m)	0.2	0.3	0.4	0.7	0.2	0.3	0.3	T
Wetted Widths (m)							n/a	
Resid. Pool Depths (m)							n/a	

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	3.0	2.0	3.0	2.0	2.5	C, C
Intermittent ☒	Tributaries ☐	Bankfull Depth (m)	0.3	0.2	0.3		0.3	T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD	Abundant	Dist.	Evenly Distributed
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
None	None	None	None	None	ub-Dominant	Dominant	

Crown Closure
1-20%

Instream Vegetation
☐ None ☐ Moss
☐ Algae ☒ Vasc.

LEFT BANK
Shape Undercut
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage
Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK
Shape Undercut
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage
Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Methoc pH Method EMS #
Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Fines D95(cm) (only 5%larger)
MATERIAL Subdominant D (cm) (moveable)
Channel Pattern Regular Meanders
Coupling Decoupled
Confinement Unconfined
Islands None

Morphology Code

Bars
☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 2.0

ILP # 1079

Site # 134

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs ☐	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	None; 100% fines, no gravel accumulations, highly ephemeral and insufficient discharge
Rearing Habitat	No riffle/run/pool habitat in any flows in this reach, lack of channel development, and organic substrates
OverWinter Habitat	None; no pools, organic substrates, high BOD

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13 Fr 9 CD 2110 Im 368 STD U	Site 134, view upstream at small isolated pool, and organic substrate.		
Roll 13 Fr 10 CD 2110 Im 369 STD D	Site 134, view downstream of a small stagnant pool (one of three found).		

WILDLIFE

Group	Observations
BIR	Bald eagle

COMMENTS

Form	Section	Comments
SITE	CHANNEL	C1; S6.
SITE	CHANNEL	C2; No suitable habitat present
SITE	CHANNEL	Subsurface flows in sections, a few isolated pools, 100% wetland type substrates, limited connectivity, fluvial substrates
SITE	COVER	Vascular plants growing in intermittent and poorly defined channel
SITE	CHANNEL	The stream has a small catchment area limiting flows





Photo #: 13 - 10

Site 134, view downstream of a small stagnant pool (one of three found).



Photo #: 13 - 9

Site 134, view upstream at small isolated pool, and organic substrate.



Site/Reach Card

Watershed Cod 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Reach 2.0

ILP # 1078

Site # 135

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) 1.24 Elevation (m): upstrea 910 downstream 810 UTM (Zone/East/North/ method)

Gradient (%) 8.1 Order 1 Magnitude 1 BGC Zone SBS 9 624445 599706 GIS

Setting Valley Wall

Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ BraidOpen water A Wetland ☐

Mass Movement Medium impact; some debris

Active Floodplai ☐

Confinement Confined

Exposed/Eroded NONE

Width (m)

Coupling Partially Coupled

Islands NONE

Beaver Dam(s) ☐

Channel Pattern Sinuous

Landuse

LWD jam(s) ☐

Riparian Vegetation Mixed C/D

Valley Flat No valley flat on either bank

(C)ontinuous ☐
(D)iscontinuous ☒**SITE**

Gazetted Name

Local Name Unnamed

Survey Date 1999/08/10

Time 13:40

Agency: C151

Crew JH/EM

Access V2

MAP UTM (Zone/East/North/Method) 9 623857 5997045 GIS

Site Length (m) 280

Method HC

Fish Card ☐ Incomplete ☐

NID Map 93L.015

NID # 13005

CHANNELNo Visible Channe ☒

Gradient(s) (%) 6.0 6.0 8.0 7.0

Vegetation

Veg. Stage

FEATURE**HABITAT QUALITY**

FSZs

Side Chan ☒Flood/Beave ☒Tribes ☒Flood Cha ☒Sloug ☒**PHOTO DOCUMENTATION**

Film

Compact Disc

Lens / Dir. Comments

Roll 13 Fr 11 CD 2110 Im 370 STD U Site 135, upstream view of completely vegetated "channel".

COMMENT

Form	Section	Comments
SITE	CHANNEL	C1, NVC
SITE	CHANNEL	C2, No evidence of surface scour, surface flows or ponding
SITE	SITE CARD	No evidence of channel





Photo #: 13 - 11

Site 135, upstream view of completely vegetated "channel".



Site/Reach Card

Watershed Code 460-600600-36400-26300-0000-0000-000-000-000-000-000

Reach 2.0

Site # 136

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) 1.48 Elevation (m): upstream 878 downstream 752 UTM (Zone/East/North/ method)
 Gradient (%) 8.5 Order 2 Magnitude 5 BGC Zone SBS 9 624627 5999289 GIS
 Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement High impact; active debris to Active Floodplain ☐
 Confinement Confined Exposed/Eroded NONE Width (m)
 Coupling Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Irregular, Wandering Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Valley Flat No valley flat on either bank (C)ontinuous N
 (D)iscontinuous

SITE

Gazetted Name Local Name
 Survey Date 1999/08/10 Time 14:38 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 623984 5999876 GIS
 Site Length (m) 940 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.015 NID # 13006

CHANNEL

							Average	Method(s)
Channel Widths (m)	3.9	3.4	2.9	2.9	3.5	3.4	3.3	T
Wetted Widths (m)	0.4	0.5	0.3	0.1	0.2	0.3	0.3	T
Resid. Pool Depths (m)	0.10	0.10	0.20	0.10	0.20	0.10	0.13	MS

No Vis.Ch. ☐ Dewatered ☐ Gradients (%) 6.0 5.0 6.0 6.0 5.7 C, C
 Intermittent ☐ Tributaries ☐ Bankfull Depth (m) 0.4 0.5 0.4 0.4 T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	Trace	Trace	Trace	None	Dominant	None

Crown Closure
 1-20%

LEFT BANK

Shape Undercut
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape Undercut
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 9 Method T3 pH 7.0 Method P2 EMS #
 Conductivity 60 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5%larger) 50
 MATERIAL Subdominant Boulders D (cm) (moveable) 20
 Channel Pattern Irregular Meanders
 Coupling Coupled
 Confinement Confined
 Islands None
 Morphology Code
 RP
 Bars
☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid
 Abandoned channels ☐ B1 SWD ☐ D1 Extensive riffles ☐ C1 Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-36400-26300-0000-0000-000-000-000-000-000

Reach 2.0

Site # 136

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE

HABITAT QUALITY

FSZs

Side Chan ☒

Flood/Beaver ☒

Tribs. ☒

Flood Chan ☒

Slough ☒

Name	Comments
Spawning Habitat	Good spawning habitat; though the gravel may be too angular and large for small fish to move
Rearing Habitat	Good rearing habitat; riffle/pool type habitat, but no pools present >50 cm deep
OverWinter Habitat	Limited overwintering habitat; pools are small and shallow

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13 Fr 12 CD 2110 Im 371 STD U	Site 136, view upstream at small riffle section with side bar.		
Roll 13 Fr 13 CD 2110 Im 372 STD D	Site 136, view downstream of a small pool with debris.		

WILDLIFE

COMMENT

Form	Section	Comments
SITE	CHANNEL	C1; S3.
SITE	CHANNEL	C2; No permanent barriers located, good habitat
SITE	SITE CARD	C6; 009940
SITE	CHANNEL	900m section of stream shocked with no fish present above non permanent barrier
SITE	CHANNEL	15 m subsurface section limits upstream passage, but is non permanent, habitat upstream of section is similar to that downstream where fish were found



FDIS Fish Form

Watershed Code 460-600600-36400-26300-0000-0000-000-000-000-000-000

Reach # 2.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream S SITE/METHOD Waterbody ID

Permit 34770-20 Date: 1999/08/10 To: 1999/08/10 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
136	93L.015	13006	9 623984 5999876	EF	1	9.0	60	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
136	EF	1	1	1999/08/10	14:33	1999/08/10	15:30

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
136	EF	1	1	O	1200	940.0	3.5	600	60	6	SR 12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
136	EF	1	1	DV	A	2+	3	100	110 R

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Str / Smpl# /	Age	Vch#	Genetic	Photograph	Roll	Fr.	Comment
				(mm)	(g)						Str/ Smpl#				
136	EF	1	1	DV	100		U	U					13	14	
136	EF	1	1	DV	110		U	U							
136	EF	1	1	DV	100		U	U							

COMMENTS





Photo #: 13 - 13
Site 136, view downstream of a small pool with debris.



Photo #: 13 - 12
Site 136, view upstream at small riffle section with side bar.

[illegible]



Photo #: 13 - 14
Site 136, photo of a 100 mm dolly varden.

Site/Reach Card

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

Reach 2.0

ILP # 1144

Site # 137

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) 1.21 Elevation (m): upstream 918 downstream 800 UTM (Zone/East/North/ method) 9 625003 599989 GIS
 Gradient (%) 9.8 Order 1 Magnitude 1 BGC Zone SBS
 Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
 Confinement Occasionally Confined Exposed/Eroded NONE Width (m)
 Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Irregular, Wandering Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
 (D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/11 Time 07:30 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 624339 6000125 GIS
 Site Length (m) 525 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13007

CHANNEL

	Average						Method(s)
Channel Widths (m)	0.8	1.0	0.6	1.1	0.8	0.7	T
Wetted Widths (m)	n/a						
Resid. Pool Depths (m)	n/a						

No Vis.Ch. ☐ Dewatered ☐
 Intermittent ☒ Tributaries ☐
 Gradients (%) 18.0 17.0 17.0 22.0 18.5 C, C
 Bankfull Depth (m) 0.5 0.4 0.3 0.4 T

Stage ☒ Low
☐ Med.
☐ High

COVER -	Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg
Trace	ub-Dominant	None	None	None	Dominant
					Instream Veg
					Trace

Crown Closure
 21-40%

Instream Vegetation

☐ None ☐ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Methoc pH Method EMS #
 Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Gravels D95(cm) (only 5%larger) 20
 MATERIAL Subdominant Fines D (cm) (moveable) 5

Channel Pattern Irregular, Wandering
 Coupling Partially Coupled
 Confinement Occasionally Confined
 Islands None

Morphology Code
 RP

Bars
☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid

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Site/Reach Card

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

Reach 2.0

ILP # 1144

Site # 137

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs

Side Chan ☐Flood/Beave ☐Tribes ☐Flood Cha ☐Sloug ☐

Name	Comments
Spawning Habitat	Possible spawning habitat: gravel size is adequate, but flows may be limiting
Rearing Habitat	Poor rearing habitat; high gradient, low flows, heavily vegetated channel, no resting pools and is a flashy system
OverWinter Habitat	No overwintering habitat available.

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13 Fr 15 CD 2110 Im 374 STD U	Site 137, upstream view of heavily overgrown channel.		
Roll 13 Fr 16 CD 2110 Im 375 STD D	Site 137, downstream view of heavily overgrown channel.		

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; No habitat available
SITE	CHANNEL	Channel is heavily overgrown with vegetation, and difficult to find with some sections subsurface

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Photo #: 13 - 16
Site 137, downstream view of heavily overgrown channel.



Photo #: 13 - 15
Site 137, upstream view of heavily overgrown channel.



Site/Reach Card

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

Reach 3.0

Site # 138

ILP # 1148

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .57 Elevation (m): upstream 820 downstream 757 UTM (Zone/East/North/ method) 9 624262 600062 GIS
 Gradient (%) 11.1 Order 1 Magnitude 1 BGC Zone SBS
 Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
 Confinement Frequently Confined Exposed/Eroded NONE Width (m)
 Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Irregular, Wandering Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
 (D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/11 Time 09:30 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 623984 6000993 GIS
 Site Length (m) 570 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13008

CHANNEL

	0.4	0.3	0.2	0.4	0.3	0.3	Average	Method(s)
Channel Widths (m)	0.4	0.3	0.2	0.4	0.3	0.3	0.3	T
Wetted Widths (m)							n/a	
Resid. Pool Depths (m)							n/a	

No Vis.Ch. ☐ Dewatered ☐
 Intermittent ☒ Tributaries ☐
 Gradients (%) 12.0 12.0 12.0 13.0 12.2 C, C
 Bankfull Depth (m) 1.1 1.2 1.1 1.1 T

Stage ☒ Low
☐ Med.
☐ High

COVER -	Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg
Trace	Trace	None	None	None	Dominant
					ub-Dominant

Crown Closure
 21-40%

LEFT BANK
 Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage
 Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK
 Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage
 Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Methoc pH Method EMS #
 Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5%larger) 50
 MATERIAL Subdominant Boulders D (cm) (moveable) 20

Channel Pattern Irregular, Wandering
 Coupling Partially Coupled
 Confinement Occasionally Confined
 Islands None

Morphology Code

Bars

☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid

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Site/Reach Card

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

Reach 3.0

ILP # 1148

Site # 138

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs

Side Chan ☐Flood/Beave ☐Tribes ☐Flood Cha ☐Sloug ☐

Name	Comments
Spawning Habitat	None, small patches of gravel present between large cobble/boulders
Rearing Habitat	Limited, fish could access pool rearing habitat which may be present during run-off conditions, but no resting pools
OverWinter Habitat	None, no pools are present

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13 Fr 17 CD 2110 Im 376 STD U	Site 138, looking upstream at typical habitat within the reach.		
Roll 13 Fr 18 CD 2110 Im 377 STD D	Site 138, looking downstream at the sampling area, with hard hat for reference.		

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1, S4/S6.
SITE	CHANNEL	C2, stream is flashy with 12-13% gradient, access based on gradient only for reach 1; non-fish bearing u/s of Reach 1 based on habitats present
SITE	SITE CARD	Its possible that this was second pass for sampling - there was flagging tape present from Reach 1 to 3
SITE	CHANNEL	Stream was walked to the confluence of WSC 600600-36400: 30-40 cm channel, 30-40 cm D95, with sections of cobble (D95 of 10-30 cm) access through this section would be impossible for the size of fish likely accessing this reach.
SITE	SITE CARD	Actual site length was 835 m

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Photo #: 13 - 18

Site 138, looking downstream at the sampling area, with hard hat for reference.



Photo #: 13 - 17

Site 138, looking upstream at typical habitat within the reach.



Site/Reach Card

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

Reach 1.0
Site # 139

ILP # 1150
ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) .85 Elevation (m): upstream 847 downstream 723 UTM (Zone/East/North/ method)
Gradient (%) 14.6 Order 1 Magnitude 1 BGC Zone SBS 9 624643 600120 GIS
Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/11 Time 10:40 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 624260 6001485 GIS
Site Length (m) 300 Method T Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13009

CHANNEL

							Average	Method(s)
Channel Widths (m)	0.3	0.2	0.3	0.3	0.2	0.3	0.3	T
Wetted Widths (m)							n/a	
Resid. Pool Depths (m)							n/a	

No Vis.Ch. ☐ Dewatered ☐
Intermittent ☒ Tributaries ☐
Gradients (%) 18.0 18.0 19.0 25.0 20.0 C, C
Bankfull Depth (m) 0.8 0.7 0.8 0.8 T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD	None	Dist.
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
None	None	None	None	None	Dominant	ub-Dominant

Crown Closure
41-70%

Instream Vegetation
☐ None ☐ Moss
☐ Algae ☐ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage
Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage
Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Methoc pH Method EMS #
Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Fines D95(cm) (only 5% larger) 5
MATERIAL Subdominant Gravels D (cm) (moveable) 2
Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars
☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid

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Site/Reach Card

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

Reach 1.0

ILP # 1150

Site # 139

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs

Side Chan ☐Flood/Beave ☐Tribes ☐Flood Cha ☐Sloug ☐

Name	Comments
Spawning Habitat	No spawning habitat present; several sections of swampy wetland type habitat with seepage and subsurface flows
Rearing Habitat	None; heavily overgrown channel choked with vascular plants, no pools and a gradient >20%
OverWinter Habitat	None

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13	Fr 19 CD 2110 Im 378	STD U	Site 139, view upstream of typical channel with hardhat for reference.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; No fish habitat present and gradient >20%; sections of the site are subsurface
SITE	CHANNEL	Ephemeral drainage channel, and has been harvested to banks





Photo #: 13 - 19

Site 139, view upstream of typical channel with hard-hat for reference.



Site/Reach Card

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

Reach 2.0
Site # 140

ILP # 1151
ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) 1.08 Elevation (m): upstream 870 downstream 720 UTM (Zone/East/North/ method)
Gradient (%) 13.9 Order 1 Magnitude 1 BGC Zone SBS 9 625172 600168 GIS
Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/11 Time 11:15 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 624688 6002125 GIS
Site Length (m) 176 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13010

CHANNEL

							Average	Method(s)
Channel Widths (m)	0.3	0.4	0.3	0.4	0.3	0.3	T	
Wetted Widths (m)							n/a	
Resid. Pool Depths (m)							n/a	

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	22.0	19.0	22.0	20.0	20.7	C, C
Intermittent ☒	Tributaries ☐	Bankfull Depth (m)	0.4	0.4	0.4	0.4	0.4	T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD	None	Dist.
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	None	None	None	None	Dominant	ub-Dominant

Crown Closure
1-20%

Instream Vegetation

☐ None ☒ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Method pH Method EMS #
Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Gravels D95(cm) (only 5%larger) 30
MATERIAL Subdominant Cobble D (cm) (moveable) 5

Channel Pattern Irregular, Wandering

Coupling Partially Coupled

Confinement Occasionally Confined

Islands None

Morphology Code
RP

Bars

☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 2.0

ILP # 1151

Site # 140

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	None, gravel is present, but flashy nature of stream and habitat characteristics limit use
Rearing Habitat	None, no resting or rearing habitats present
OverWinter Habitat	None, no suitable pools present to provide overwintering habitat; stream is dry during extremely heavy rain event

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13	Fr 20 CD 2110	Im 379 STD U	Site 140, upstream view of channel with hardhat for reference.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; No fish habitat present and gradients >20%
SITE	CHANNEL	Stream has previously been harvested to bank and across
SITE	CHANNEL	Subsurface flows and intermittent channel, also heavily overgrown and vegetated
SITE	CHANNEL	Channel is braided and small sediment wedges are additional barriers





Photo #: 13 - 20
Site 140, upstream view of channel with hard-hat for reference.

[illegible]

Site/Reach Card

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

Reach 1.0
Site # 141

ILP # 1152
ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.16 Elevation (m): upstream 812 downstream 715 UTM (Zone/East/North/ method)
Gradient (%) 8.4 Order 2 Magnitude 1 BGC Zone SBS 9 625305 600264 GIS
Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Decoupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Irregular, Wandering Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/11 Time 12:40 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 625170 6002538 GIS
Site Length (m) 250 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13011

CHANNEL

	1.4	1.5	1.3	1.2	1.5	1.2	Average	Method(s)
Channel Widths (m)							1.3	T
Wetted Widths (m)							n/a	
Resid. Pool Depths (m)							n/a	

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	17.0	17.0	16.0	15.0	16.2	C, C
Intermittent ☒	Tributaries ☐	Bankfull Depth (m)	0.5	0.6	0.6		0.6	T

Stage ☒ Low
☐ Med.
☐ High

COVER -	Total	Moderate	LWD	None	Dist.
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg
Trace	None	None	None	None	Dominant
					ub-Dominant

Crown Closure
1-20%

Instream Vegetation

☐ None ☐ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Method pH Method EMS #
Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5%larger) 80
MATERIAL Subdominant Gravels D (cm) (moveable) 10

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars

☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid

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Site/Reach Card

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

Reach 1.0

ILP # 1152

Site # 141

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs

Side Chan ☐Flood/Beave ☐Tribes ☐Flood Cha ☐Sloug ☐**Name****Comments**

Spawning Habitat Possibly good, access from fish bearing waters is likely only under ideal flow conditions

Rearing Habitat None, no pools or resting habitats are present

OverWinter Habitat None, no pools are deep enough to provide any overwintering habitat

PHOTO DOCUMENTATION**Film****Compact Disc****Lens / Dir.****Comments**

Roll 13 Fr 21 CD 2110 Im 380 STD U Site 141, upstream view of heavy cobble section of stream, with hard hat for scale.

WILDLIFE**Group****Observations****COMMENTS****Form****Section****Comments**

SITE	CHANNEL	C1; S4/S6.
SITE	CHANNEL	C2; Based on access and gradient only; Ideal classification would be S4 up to 600 m, s6 upstream of 600 m
SITE	CHANNEL	Stream has been harvested to banks and across in lower 600 m
SITE	CHANNEL	There are several high gradient sections; heavily overgrown channel, flashy, debris piles and accumulation
SITE	CHANNEL	Fish bearing classification based on the possibility that fish may access this stream during ideal conditions (possibly 1/50 years)
SITE	CHANNEL	Fish rearing based solely on gradient.

[illegible]



Photo #: 13 - 21

Site 141, upstream view of heavy cobble section of stream, with hard hat for scale.

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Site/Reach Card

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

Reach 4.0

ILP # 1498

Site # 142

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.12 Elevation (m): upstream 1100 downstream 890 UTM (Zone/East/North/ method) 9 626035 600049 GIS
 Gradient (%) 18.8 Order 1 Magnitude 1 BGC Zone SBS
 Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
 Confinement Frequently Confined Exposed/Eroded NONE Width (m)
 Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
 (D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/11 Time 13:28 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 625493 6000887 GIS
 Site Length (m) 340 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13012

CHANNEL

							Average	Method(s)
Channel Widths (m)	0.4	0.4	0.6	0.5	0.5	0.6	0.5	T
Wetted Widths (m)							n/a	
Resid. Pool Depths (m)							n/a	

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	12.0	11.0	12.0	10.0	11.2	C, C
Intermittent ☒	Tributaries ☐	Bankfull Depth (m)	0.4	0.3	0.3		0.3	T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD	None	Dist.
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
ub-Dominant	None	None	None	None	Dominant	Trace

Crown Closure
 1-20%

Instream Vegetation

☐ None ☐ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Method pH Method EMS #
 Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Fines D95(cm) (only 5%larger) 40
 MATERIAL Subdominant Gravels D (cm) (moveable) 8

Channel Pattern Irregular, Wandering
 Coupling Partially Coupled
 Confinement Occasionally Confined
 Islands None

Morphology Code
 RP

Bars

☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 4.0

ILP # 1498

Site # 142

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs ☐	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	Limited spawning habitat available is poor; gravels sparse.
Rearing Habitat	None, small 20-30 cm deep residual pool, subsurface flows, with no resting or holding pools. System is flashy and unstable.
OverWinter Habitat	None; no pools of sufficient size present.

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13	Fr 22 CD 2110	Im 381 STD U	Site 142, upstream view of stream section within cutblock.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; no fish habitat is present and access is not possible.
SITE	CHANNEL	Stream has been logged to bank and across, and degraded crown closure has resulted in an increase of understory.
SITE	CHANNEL	No electroshockable water present, although there are small cascades created by logging debris.
SITE	CHANNEL	Channel is heavily scoured





Photo #: 13 - 22
Site 142, upstream view of stream section within cutblock.

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Site/Reach Card

Watershed Code 460-600600-36400-27600-0000-0000-000-000-000-000-000

Reach 3.0
Site # 143

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .36 Elevation (m): upstream 880 downstream 778 UTM (Zone/East/North/ method)
Gradient (%) 28.3 Order 2 Magnitude 3 BGC Zone SBS 9 622230 6000496 GIS
Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name
Survey Date 1999/08/12 Time 07:00 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 622386 6000527 GIS
Site Length (m) 360 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13013

CHANNEL

							Average	Method(s)
Channel Widths (m)	1.8	1.6	1.7	1.3	1.1	1.6	1.5	T
Wetted Widths (m)							n/a	
Resid. Pool Depths (m)							n/a	

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	20.0	25.0	20.0	22.0	21.7	C, C
Intermittent ☒	Tributaries ☐	Bankfull Depth (m)	1.0	1.1	1.0	1.0	1.0	T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD None	Dist.
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg
None	None	None	None	None	Dominant
					Sub-Dominant

Crown Closure
1-20%

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature	Method	pH	Method	EMS #
Conductivity	Method	Turbidity	☐ Turbid ☐ Medium ☐ Light ☐ Clear	Method

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5% larger) 80
MATERIAL Subdominant Boulders D (cm) (moveable) 30

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars
☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1

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Site/Reach Card

Watershed Code 460-600600-36400-27600-0000-0000-000-000-000-000-000

Reach 3.0

Site # 143

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE**HABITAT QUALITY**

FSZs

Side Chan ☐Flood/Beaver ☐Tribes. ☐Flood Chan ☐Slough ☐**Name****Comments**

Spawning Habitat

None, fish could not move cobbles present

Rearing Habitat

None, high gradients, limited resting places, flashy system

OverWinter Habitat

None, limited pools

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 13 Fr 23 CD 2110 Im 382 STD U	Site 143, upstream view of section of stream within cutblock (heavy vegetation).		
Roll 13 Fr 24 CD 2110 Im 383 STD U	Site 143, upstream view of stream above road crossing showing highly angular rock.		

WILDLIFE**COMMENT**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; gradients, unnatural flow patterns, and alteration of stream channel
SITE	CHANNEL	Stream may have been dug out for road building materials
SITE	CHANNEL	Stream is heavily overgrown and choked with vegetation, as removal of the canopy has allowed heavy understory growth
SITE	CHANNEL	Channel looks like it has been dry for some time, possible upstream beaver activity
SITE	SITE CARD	Actually sampled 430 m

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Photo #: 13 - 23
Site 143, upstream view of section of stream within cutblock (heavy vegetation).



Photo #: 13 - 24
Site 143, upstream view of stream above road crossing showing highly angular rock.

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Site/Reach Card

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

Reach 3.0

ILP # 1499

Site # 144

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .95 Elevation (m): upstream 860 downstream 750 UTM (Zone/East/North/ method)

Gradient (%) 11.6 Order 2 Magnitude 3 BGC Zone SBS 9 621669 599879 GIS

Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid

Open water A Wetland ☐

Mass Movement Medium impact; some debris

Active Floodplain ☐

Confinement Frequently Confined

Exposed/Eroded NONE

Width (m)

Coupling Partially Coupled

Islands NONE

Beaver Dam(s) ☐

Channel Pattern Sinuous

Landuse None/natural

LWD jam(s) ☐

Riparian Vegetation Mixed C/D

Valley Flat No valley flat on either bank

(C)ontinuous (D)iscontinuous N

SITE

Gazetted Name

Local Name

Survey Date 1999/08/12

Time 08:00

Agency: C151

Crew JH/EM

Access V2

MAP UTM (Zone/East/North/Method) 9 621947 5998415 GIS

Site Length (m) 940

Method HC

Fish Card ☐ Incomplete ☐

NID Map 93L.015

NID # 13014

CHANNEL

Channel Widths (m) 1.0 0.8 0.4 0.6 0.3 0.5 Average 0.6 Method(s) T

Wetted Widths (m)

n/a

Resid. Pool Depths (m)

n/a

No Vis.Ch. ☐

Dewatered ☐

Gradients (%) 18.0 20.0 12.0 22.0

18.0 C, C

Intermittent ☒

Tributaries ☐

Bankfull Depth (m) 0.4 0.3 0.4

0.4 T

Stage ☒ Low

☐ Med.

☐ High

COVER -

Total

Moderate

LWD None

Dist.

SWD

LWD

Boulder

Cutbank

Deep Pool

Over Veg

Instream Veg

None

None

None

None

None

Dominant

ub-Dominant

Crown Closure

1-20%

LEFT BANK

Shape V - shaped (steep sloping or vertical)

Riparian Veg. Mixed C/D

Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble

☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)

Riparian Veg. Mixed C/D

Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble

☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature

Methoc

pH

Method

EMS #

Conductivity

Method

Turbidity

☐ Turbid

☐ Medium

☐ Light

☐ Clear

Method

MORPHOLOGY

BED Dominant Fines

D95(cm) (only 5% larger) 20

MATERIAL Subdominant Gravels

D (cm) (moveable) 4

Channel Pattern Irregular, Wandering

Coupling Partially Coupled

Confinement Occasionally Confined

Islands None

Morphology Code

RP

Bars

☒ None ☐ Mid

☐ Side ☐ Span

☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 3.0

ILP # 1499

Site # 144

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs ☐	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	Limited, gravels present but angular, poor morphology, and highly ephemeral
Rearing Habitat	None, no water present, channel is primarily moss covered
OverWinter Habitat	None, no pools present

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14	Fr 1 CD 2112 Im 1	STD D	Site 144, view downstream at heavily overgrown channel and typical gravel substrates.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; non fish bearing 400m downstream of road crossing, based on gradients and lack of connectivity; no fish access possible based on channel characteristics.
SITE	CHANNEL	Stream is flashy (angular rocks), with sections of >20% gradient immediately downstream of road crossing.
SITE	CHANNEL	Channel is intermittent in low gradient section, run-off channel only, water likely present 2 weeks/year.





Photo #: 14 - 1

Site 144, view downstream at heavily overgrown channel and typical gravel substrates.

[illegible]

Site/Reach Card

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

Reach 4.0
Site # 145

ILP # 1499
ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .41 Elevation (m): upstream 875 downstream 860 UTM (Zone/East/North/ method)
Gradient (%) 3.7 Order 2 Magnitude 2 BGC Zone SBS 9 621860 599913 GIS
Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Occasionally Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name
Survey Date 1999/08/12 Time 09:10 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 621836 5998976 GIS
Site Length (m) 410 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13015

CHANNEL

	0.8	1.1	0.9	1.0	1.1	0.7	Average	Method(s)
Channel Widths (m)							0.9	T
Wetted Widths (m)							n/a	
Resid. Pool Depths (m)							n/a	

No Vis.Ch.	Dewatered	Gradients (%)	25.0	22.0	22.0	23.0	23.0	C, C
Intermittent ☒	Tributaries ☐	Bankfull Depth (m)	0.3	0.4	0.4	0.4	0.4	T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD	None	Dist.
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
None	None	None	None	None	Dominant	ub-Dominant

Crown Closure
1-20%

Instream Vegetation
☐ None ☒ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Method pH Method EMS #
Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Fines D95(cm) (only 5% larger) 20
MATERIAL Subdominant Gravels D (cm) (moveable) 5

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars

☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 4.0

ILP # 1499

Site # 145

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs ☐	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	None, vascular plants choke channel
Rearing Habitat	None, spring runoff channel only, gradient >20%
OverWinter Habitat	None, no pools available

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14	Fr 2 CD 2112 Im 2	STD U	Site 145, view upstream showing heavily overgrown channel with moss covered rocks.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; non-fish bearing based on gradients and habitat characteristics and professional judgement
SITE	CHANNEL	Channel is straight, meltwater channel, flashy system and lacks connectivity downstream
SITE	CHANNEL	Majority of crown has been removed, resulting in increased understory cover
SITE	SITE CARD	Actual site length is 610 m





Photo #: 14 - 2

Site 145, view upstream showing heavily overgrown channel with moss covered rocks.



Site/Reach Card

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

Reach 2.0
Site # 146

ILP # 1177
ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) .74 Elevation (m): upstream 900 downstream 840 UTM (Zone/East/North/ method)
Gradient (%) 8.1 Order 1 Magnitude 3 BGC Zone SBS 9 619522 599889 GIS
Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Decoupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Shrubs Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/12 Time 11:50 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 620037 5998669 GIS
Site Length (m) 300 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13016

CHANNEL

							Average	Method(s)
Channel Widths (m)	0.4	0.4	0.6	0.5	0.4	0.6	0.5	T
Wetted Widths (m)							n/a	
Resid. Pool Depths (m)							n/a	

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	5.0	4.0	5.0	4.0	4.5	C, C
Intermittent ☒	Tributaries ☐	Bankfull Depth (m)	0.5	0.2	0.4		0.4	T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD	None	Dist.	
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
None	None	None	None	None	Dominant	ub-Dominant	

Crown Closure
1-20%

Instream Vegetation

☐ None ☒ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Methoc pH Method EMS #
Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Fines D95(cm) (only 5%larger) 50
MATERIAL Subdominant Gravels D (cm) (moveable) 5

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars

☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 2.0

ILP # 1177

Site # 146

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs

Side Chan ☐Flood/Beave ☐Tribes ☐Flood Cha ☐Sloug ☐

Name	Comments
Spawning Habitat	None, no gravels, all fines and cobbles, stream has carved its way through soil
Rearing Habitat	None, dry, access would be difficult during the spring as stream flows through rootwads, underground and over small cascades
OverWinter Habitat	None

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14	Fr 3 CD 2112 Im 3	STD U	Site 146, upstream view of typical overgrown channel.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; Non fish bearing based on habitat characteristics, small catchment, flashy nature and intermittent channel.
SITE	CHANNEL	Channel is difficult to find in many places, subsurface, intermittent channel, heavily choked with vegetation.





Photo #: 14 - 3

Site 146, upstream view of typical overgrown channel.

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Site/Reach Card

Watershed Code 460-600600-36400-50200-0640-0000-000-000-000-000-000

Reach 3.0
Site # 147

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .98 Elevation (m): upstream 838 downstream 814 UTM (Zone/East/North/ method)
Gradient (%) 2.5 Order 2 Magnitude 3 BGC Zone SBS 9 620209 5998463 GIS
Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement High impact; active debris to Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m) ☐
Coupling Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/12 Time 12:45 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 620344 5998331 GIS
Site Length (m) 540 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13017

CHANNEL

Channel Widths (m)	2.1	2.4	1.9	2.0	2.1	1.8	Average	Method(s)
Channel Widths (m)	2.1	2.4	1.9	2.0	2.1	1.8	2.0	T
Wetted Widths (m)							n/a	
Resid. Pool Depths (m)							n/a	

No Vis.Ch. ☐ Dewatered ☐
Intermittent ☒ Tributaries ☐
Gradients (%) 4.0 4.0 5.0 3.0 4.0 C, C
Bankfull Depth (m) 1.1 1.0 1.1 1.1 T

Stage ☒ Low
☐ Med.
☐ High

COVER -	Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Sub-Dominant	Trace	Trace	Trace	Trace	Dominant	Trace

Crown Closure
1-20%

LEFT BANK
Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage
Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK
Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage
Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

Instream Vegetation
☐ None ☐ Moss
☐ Algae ☒ Vasc.

WATER

Temperature Method pH Method EMS #
Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5% larger) 40
MATERIAL Subdominant Gravels D (cm) (moveable) 12
Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None
Morphology Code RP
Abandoned channels ☐ B1 SWD ☐ D1 Extensive riffles ☐ C1 Homog. bed ☐ S1
Bars
☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

[illegible]

Site/Reach Card

Watershed Code 460-600600-36400-50200-0640-0000-000-000-000-000-000

Reach 3.0

Site # 147

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE

HABITAT QUALITY

FSZs ☐	Side Chan ☒	Flood/Beaver ☒
Tribs. ☒	Flood Chan ☒	Slough ☒

Name	Comments
Spawning Habitat	Potential spawning habitat in lower section of reach, but no spawning habitat in upper section due to large substrates
Rearing Habitat	Limited, but possible in the lower section for juveniles/fry
OverWinter Habitat	None, but possible overwintering habitat in downstream wetland

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14 Fr 4 CD 2112 Im 4 STD U	Site 147, upstream view of typical gravel substrates with hard hat for reference.		
Roll 14 Fr 5 CD 2112 Im 5 STD D	Site 147, downstream view of typical substrate (fines/gravels/cobbles).		

WILDLIFE

COMMENT

Form	Section	Comments
SITE	CHANNEL	C1; S3
SITE	CHANNEL	C2; fish bearing by default if fish are present in the downstream wetland, as the gradient and habitat are suitable
SITE	CHANNEL	morphology and substrates and small sediment wedges may limit upstream access
SITE	CHANNEL	Lower section of reach may support salmonids if access is possible, RESAMPLE

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Photo #: 14 - 5
Site 147, downstream view of typical substrate (fines/gravels/cobbles).

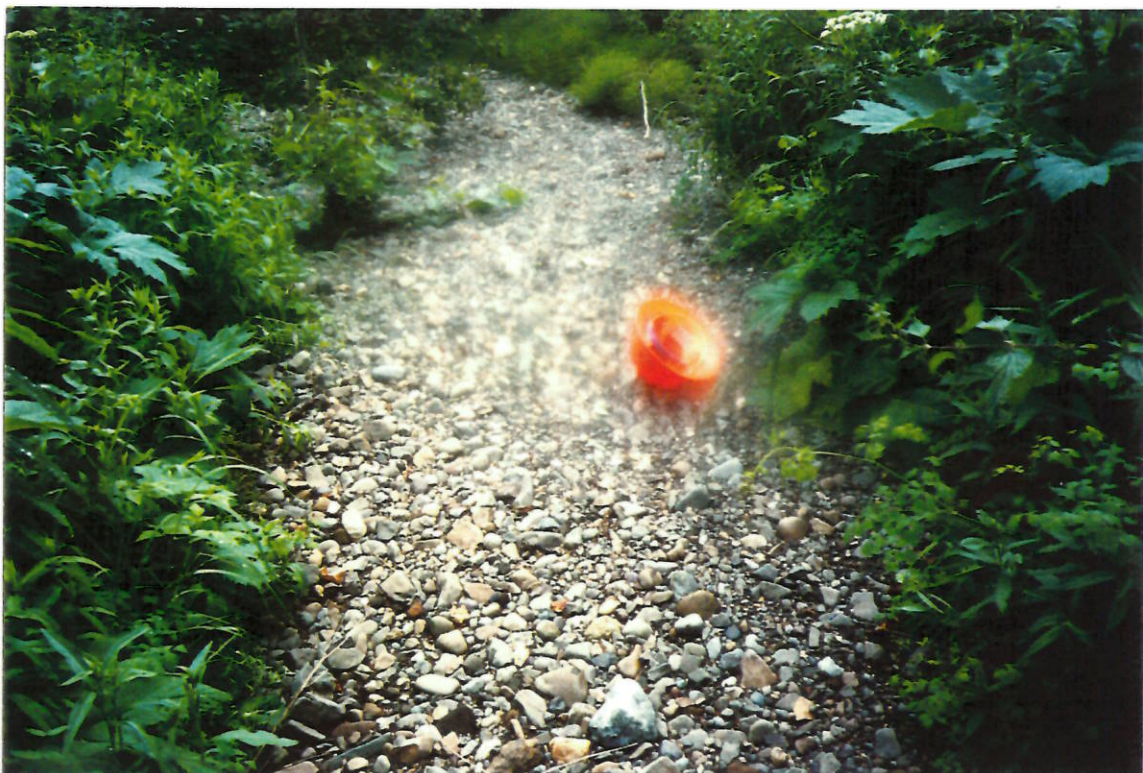


Photo #: 14 - 4
Site 147, upstream view of typical gravel substrates with hard hat for reference.

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Site/Reach Card

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

Reach 1.0
Site # 148

ILP # 1154
ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) .40 Elevation (m): upstream 760 downstream 717 UTM (Zone/East/North/ method)
Gradient (%) 10.8 Order 1 Magnitude 1 BGC Zone SBS 9 623262 600149 GIS
Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Straight Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/12 Time 14:30 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 623334 6001458 GIS
Site Length (m) 340 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.015 NID # 13018

CHANNEL

							Average	Method(s)
Channel Widths (m)	1.6	1.5	1.3	1.2	1.5	1.2	1.4	T
Wetted Widths (m)	0.3	0.4	0.4	0.3	0.3	0.3	0.3	T
Resid. Pool Depths (m)	0.10	0.10	0.15	0.20	0.10	0.10	0.12	MS

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	5.0	3.0	6.0	6.0	5.0	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	1.1	1.0	0.9		1.0	T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
None	Trace	None	None	None	Dominant	ub-Dominant	

Crown Closure
1-20%

Instream Vegetation

☐ None ☒ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 9 Methoc T3 pH 7.0 Method P2 EMS #
Conductivity 70 Method S2 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Gravels D95(cm) (only 5%larger) 10
MATERIAL Subdominant Cobble D (cm) (moveable) 4

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

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Site/Reach Card

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

Reach 1.0

ILP # 1154

Site # 148

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES

Type CV	Height 1.0	Method T	Length 9	Method T
Comments Hanging wood culvert (1.8 m drop)				
Photograph	Roll 14	Frame 6	UTM (Zone/East/North/ Method)	9 623424 600138 GIS

HABITAT QUALITY

FSZs	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	Poor. Some spawning habitat is available under different flow regimes
Rearing Habitat	Poor. Some rearing habitat is available for fry or juvenile RB, from downstream fish bearing areas
OverWinter Habitat	None.

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14 Fr 6 CD 2112 Im 6 STD U	Site 148, upstream view of hanging culvert barrier.		
Roll 14 Fr 7 CD 2112 Im 7 STD D	Site 148, downstream view of typical riffle/pool habitat with limited value for salmonids.		

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S4 (default)
SITE	CHANNEL	C2; fish bearing based on downstream conditions (gradient and a lack of barriers)
SITE	CHANNEL	C6; 007183
SITE	CHANNEL	good candidate for resampling, before ripping up road
SITE	CHANNEL	Culvert is a barrier to fish migration;
SITE	CHANNEL	Stream was extensively electroshocked downstream of culvert but no fish were captured despite good access from fish bearing mainstem, which has low fish densities despite good habitat and good flows (WAPS)

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FDIS Fish Form

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

Reach # 1.0

ILP # 1154

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream S SITE/METHOD Waterbody ID

Permit 34770-20 Date: 1999/08/12 To: 1999/08/12 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
148	93L.015	13018	9 623334 6001458	EF	1	9.0	70	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
148	EF	1	1	1999/08/12	14:30	1999/08/12	15:00

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model	
148	EF	1	1	O	641	340.0	1.5	600	60	6	SR	12-B

FISH SUMMARY

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

INDIVIDUAL FISH DATA

COMMENTS

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Photo #: 14 - 7

Site 148, downstream view of typical riffle/pool habitat with limited value for salmonids.



Photo #: 14 - 6

Site 148, upstream view of hanging culvert barrier.

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Site/Reach Card

Watershed Cod 000-000000-00000-00000-0000-0000-000-000-000-000-000

Reach 2.0

ILP # 1087

Site # 149

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTESSample Type ☒ R

Length (km) .20 Elevation (m): upstrea 1100 downstream 1060 UTM (Zone/East/North/ method)
Gradient (%) 20.0 Order 1 Magnitude 1 BGC Zone SBS 9 626580 599356 GIS
Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement High impact; active debris tor Active Floodplai ☐
Confinement Confined Exposed/Eroded NONE Width (m)
Coupling Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinous ☒ N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/13 Time 08:00 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 626708 5993623 GIS
Site Length (m) 200 Method GE Fish Card ☐ Incomplete ☐ NID Map 93L.005 NID # 13019

CHANNELNo Visible Channe ☒

Gradient(s) (%) 7.0 5.0 7.0 5.0

Vegetation

Veg. Stage

FEATURE**HABITAT QUALITY**

FSZs

Side Chan ☒Flood/Beave ☒Tribes ☒Flood Cha ☒Sloug ☒**PHOTO DOCUMENTATION**

Film	Compact Disc	Lens / Dir.	Comments
Roll 14	Fr 8 CD 2112	Im 8 STD U	Site 149, view upstream of seepage area upstream of road crossing.

COMMENT

Form	Section	Comments
SITE	CHANNEL	C1; NVC
SITE	CHANNEL	C2; No visible channel present; harvesting activities may have altered natural morphology
SITE	CHANNEL	Site is a heavily vegetated seepage area, water is present in ditches, but disappears into cutblock
SITE	CHANNEL	The upper section of reach 1 was sampled as well
SITE	SITE CARD	Actual site length was 250 m

1. The first part of the document is a list of names and their corresponding dates. The names are: John, Mary, and Peter. The dates are: 1/1/1900, 2/1/1900, and 3/1/1900. The list is as follows:

Name	Date
John	1/1/1900
Mary	2/1/1900
Peter	3/1/1900



Photo #: 14 - 8

Site 149, view upstream of seepage area upstream of road crossing.

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Site/Reach Card

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

Reach 1.0
Site # 150

ILP # 1086
ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) .88 Elevation (m): upstream 1039 downstream 995 UTM (Zone/East/North/ method)
Gradient (%) 5.0 Order 1 Magnitude 1 BGC Zone SBS 9 626448 599424 GIS
Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Irregular Meanders Landuse Logging, with reserves LWD jam(s) ☐
Riparian Vegetation Shrubs Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/13 Time 09:05 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 626845 5994110 GIS
Site Length (m) 280 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.005 NID # 13020

CHANNEL

							Average	Method(s)
Channel Widths (m)	0.4	0.3	0.5	0.3	0.4	0.6	0.4	T
Wetted Widths (m)	0.3	0.2	0.4	0.3	0.3	0.4	0.3	T
Resid. Pool Depths (m)	0.10	0.10	0.30	0.20	0.10	0.30	0.18	MS

No Vis.Ch. ☐ Dewatered ☐ Gradients (%) 5.0 5.0 6.0 7.0 5.7 C, C
Intermittent ☐ Tributaries ☐ Bankfull Depth (m) 0.4 0.5 0.4 0.4 T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Trace	Trace	None	None	None	Dominant	ub-Dominant	

Crown Closure
1-20%

Instream Vegetation

☐ None ☒ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Shrubs
Riparian Stage Shrub/herb stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Shrubs
Riparian Stage Shrub/herb stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 9 Methoc T3 pH 6.8 Method P2 EMS #
Conductivity 80 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Fines D95(cm) (only 5% larger) 30
MATERIAL Subdominant Gravels D (cm) (moveable) 4

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars

☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid

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Site/Reach Card

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

Reach 1.0

ILP # 1086

Site # 150

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs ☐	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	Poor, limited by flows, substrates and channel size
Rearing Habitat	Poor, stream flows subsurface in many spots, pools are shallow with limited flows, choked with vegetation
OverWinter Habitat	None

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14	Fr 9 CD 2112 Im 9	STD U	Site 150, upstream view of small channel flowing through cutblock.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1;
SITE	CHANNEL	C2; Possible downstream barrier may limit fish access (Perched culvert at confluence) confirmed
SITE	CHANNEL	C2; Stream has poor habitat values, access through reach only possible under ideal conditions
SITE	CHANNEL	small rootwads and sediment jams create small (30cm) cascades
SITE	CHANNEL	Based on stream size, there are probably barriers for fish access to this reach
SITE	CHANNEL	C6; 009939

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FDIS Fish Form

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

Reach # 1.0

ILP # 1086

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream S SITE/METHOD Waterbody ID

Permit 34770-20 Date: 1999/08/13 To: 1999/08/13 Crew: JH/EM Resample ☐

Site NID MAP NID UTM:Zone/East/North/ Mthd MTD/NO Temp Cond Turbid Comment

150 93L.005 13020 9 626845 5994110 EF 1 9.0 80 C

GEAR SETTINGS

Site MTD/NO H/P Date In Time In Date Out Time Out Comment

150 EF 1 1 1999/08/13 09:05 1999/08/13 10:00

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site MTD/NO H/P Encl Sec. Length Width Volts Hz Pulse Make Model

150 EF 1 1 O 140 280.0 0.4 600 60 6 SR 12-B

FISH SUMMARY

Site MTD/NO H/P Species Stage Age Total # Lgth (Min/Max) Activity Comment

150 EF 1 1 NFC 0

INDIVIDUAL FISH DATA

COMMENTS

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Photo #: 14 - 9

Site 150, upstream view of small channel flowing through cutblock.

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Site/Reach Card

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

Reach 2.0
Site # 151

ILP # 1089
ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .90 Elevation (m): upstream 1012 downstream 980 UTM (Zone/East/North/ method)
Gradient (%) 3.6 Order 2 Magnitude 3 BGC Zone SBS 9 627327 599384 GIS
Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Irregular, Wandering Landuse Logging, with reserves LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/13 Time 11:30 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 627147 5994571 GIS
Site Length (m) 900 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.005 NID # 13021

CHANNEL

							Average	Method(s)
Channel Widths (m)	2.5	3.5	3.1	3.0	3.1	2.9	3.0	T
Wetted Widths (m)	2.1	2.4	2.5	2.9	2.3	2.1	2.4	T
Resid. Pool Depths (m)	0.30	0.40	0.35	0.35	0.60	0.65	0.44	MS

No Vis.Ch. ☐ Dewatered ☐ Gradients (%) 7.0 4.0 3.0 5.0 4.7 C, C
Intermittent ☐ Tributaries ☐ Bankfull Depth (m) 1.0 1.2 1.1 1.1 T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Trace	ub-Dominant	Trace	Trace	Trace	Dominant	None	

Crown Closure
21-40%

Instream Vegetation
☒ None ☐ Moss
☐ Algae ☐ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 10 Methoc T3 pH 6.9 Method P2 EMS #
Conductivity 80 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Gravels D95(cm) (only 5% larger) 60
MATERIAL Subdominant Cobble D (cm) (moveable) 10

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 2.0
Site # 151ILP # 1089
ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**FSZs ☐ Side Chan ☐ Flood/Beave ☐
Tribes ☐ Flood Cha ☐ Sloug ☐

Name	Comments
Spawning Habitat	Good, Gravels, flows, substrates, and perennial flows
Rearing Habitat	Good. Cover, flows, substrates, diverse habitats, moderate gradients and perennial flows
OverWinter Habitat	Possible. A few large pools (>80 cm deep) may provide some overwintering habitats

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14 Fr 10 CD 2112 Im 10 STD U	Site 151, upstream of Pimpernel Creek.		
Roll 14 Fr 11 CD 2112 Im 11 STD D	Site 151, downstream view towards Pimpernel Creek.		

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S5 stream classification
SITE	CHANNEL	C2; No barriers located.
SITE	CHANNEL	no fish captured immediately upstream of Pimpernel, CSU captured in Pimpernel at confluence with minimal effort, no RB or DV
SITE	CHANNEL	Stream was walked from Reach 2 of ILP1089 to Pimpernel Creek; several small cascades (non permanent barriers) were located; fish were not captured upstream of Pimpernel, despite lack of barriers and excellent habitat available.
SITE	SITE CARD	Actual site length was 1200 m



FDIS Fish Form

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

Reach # 2.0

ILP # 1089

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE/METHOD	Waterbody ID
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Permit 34770-20 Date: 1999/08/13 To: 1999/08/13 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
151	93L.005	13021	9 627147 5994571	EF	1	10.0	80	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
151	EF	1	1	1999/08/13	11:30	1999/08/13	12:30

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model	
151	EF	1	1	O	1621	1200.0	3.0	600	60	6	SR	12-B

FISH SUMMARY

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

INDIVIDUAL FISH DATA

COMMENTS





Photo #: 14 - 11
Site 151, downstream view towards Pimpernel Creek.



Photo #: 14 - 10
Site 151, upstream of Pimpernel Creek.



Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 5.0
Site # 152

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .90 Elevation (m): upstream 918 downstream 900 UTM (Zone/East/North/ method)
Gradient (%) 2.0 Order 4 Magnitude 58 BGC Zone SBS 9 626638 5995637 GIS
Setting Valley Floor Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Irregular, Wandering Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name PIMPERNEL CREEK Local Name Pimpernel Creek
Survey Date 1999/08/13 Time 12:40 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 626538 5995661 GIS
Site Length (m) 900 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.005 NID # 13022

CHANNEL

							Average	Method(s)
Channel Widths (m)	5.3	4.8	5.6	6.0	7.2	5.5	5.7	T
Wetted Widths (m)	4.5	3.1	3.9	2.0	2.9	3.1	3.2	T
Resid. Pool Depths (m)	0.60	0.45	0.40	0.55	0.30	0.45	0.46	MS

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	5.0	4.0	6.0	4.0	4.7	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	1.0	1.4	1.2		1.2	T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Sub-Dominant	Dominant	Trace	Trace	Trace	Trace	None

Crown Closure
1-20%

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

Instream Vegetation

☒ None ☐ Moss
☐ Algae ☐ Vasc.

WATER

Temperature 14 Method T3 pH 7.5 Method P2 EMS #
Conductivity 90 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5% larger) 100
MATERIAL Subdominant Gravels D (cm) (moveable) 30

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1

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Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 5.0

Site # 152

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE**HABITAT QUALITY**

FSZs	Side Chan ☒	Flood/Beaver ☒
Tribs. ☒	Flood Chan ☒	Slough ☒

Name	Comments
Spawning Habitat	Limited. Cobbles are angular, stream seems flashy, cobble may be too large for small salmonids (100 - 200 mm) to move
Rearing Habitat	Limited resting habitat; long riffle / run sections
OverWinter Habitat	Possible. several large pools (>50 cm deep) located, but no pools >80cm deep present

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14 Fr 12 CD 2112 Im 12 STD D	Site 152, downstream view of riffle/run section with abundant cobble.		
Roll 14 Fr 13 CD 2112 Im 13 STD U	Site 152, upstream view of pool with good rearing habitat and cover.		

WILDLIFE**COMMENT**

Form	Section	Comments
SITE	CHANNEL	C1;S5
SITE	CHANNEL	C2;Falls
SITE	CHANNEL	C6; 009930
SITE	CHANNEL	CSU captured in extremely low densities ; DV/RB were captured in downstream reaches (possible velocity barrier)
SITE	CHANNEL	Approximately half of the reach is pool/riffle complex
SITE	SITE CARD	Actually sampled 1150 m



FDIS Fish Form

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach # 5.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream S SITE/METHOD Waterbody ID

Permit 34770-20 Date: 1999/08/13 To: 1999/08/13 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/ Mthd	MTD/NO	Temp	Cond	Turbid	Comment
152	93L.005	13022	9 626538 5995661	EF 1	14.0	90	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
152	EF 1	1	1999/08/13	12:40	1999/08/13	13:50	

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
152	EF 1	1	O	1450	1140.0	6.0	600	60	6	SR	12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
152	EF 1	1	WSU	J		16	50 60	R	

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age	Vch#	Genetic	Photograph	Comment
				(mm)	(g)			Str / Smpl# / Age		Str/ Smpl#	Roll Fr.	
152	EF	1	1	WSU	60		U	U			14 14	
152	EF	1	1	WSU	60		U	U				
152	EF	1	1	WSU	60		U	U				
152	EF	1	1	WSU	50		U	U				
152	EF	1	1	WSU	60		U	U				
152	EF	1	1	WSU	50		U	U				
152	EF	1	1	WSU	50		U	U				
152	EF	1	1	WSU	60		U	U				
152	EF	1	1	WSU	60		U	U				
152	EF	1	1	WSU	50		U	U				
152	EF	1	1	WSU	55		U	U				
152	EF	1	1	WSU	50		U	U				
152	EF	1	1	WSU	50		U	U				
152	EF	1	1	WSU	60		U	U				
152	EF	1	1	WSU	55		U	U				
152	EF	1	1	WSU	60		U	U				

COMMENTS





Photo #: 14 - 14
Site 152, photo of a 60 mm white sucker.



Photo #: 14 - 13
Site 152, upstream view of pool with good rearing habitat and cover.

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Photo #: 14 - 12

Site 152, downstream view of riffle/run section with abundant cobble.



Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 7.0
Site # 153

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 2.01 Elevation (m): upstream 972 downstream 933 UTM (Zone/East/North/ method)
Gradient (%) 1.9 Order 4 Magnitude 48 BGC Zone SBS 9 628437 5995537 GIS
Setting Valley Floor Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m) ☐
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Irregular, Wandering Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous ☒ (D)iscontinuous ☐

SITE

Gazetted Name PIMPERNEL CREEK Local Name Pimpernel Creek
Survey Date 1999/08/13 Time 14:00 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 627798 5995676 GIS
Site Length (m) 630 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.005 NID # 13023

CHANNEL

							Average	Method(s)
Channel Widths (m)	4.6	5.4	4.1	3.9	4.9	4.6	T	
Wetted Widths (m)	3.2	3.1	2.9	3.4	4.1	3.4	T	
Resid. Pool Depths (m)	0.40	0.55	0.50	0.60	0.50	0.50	MS	

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	5.0	4.0	5.0	4.0	4.5	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	1.1	1.0	1.3	1.1	T	

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Trace	Trace	Trace	Dominant	Sub-Dominant	Trace	None	

Crown Closure
1-20%

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 14 Method T3 pH 7.7 Method P2 EMS #
Conductivity 90 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5%larger) 80
MATERIAL Subdominant Gravels D (cm) (moveable) 20

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars
☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 7.0

Site # 153

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE**HABITAT QUALITY**

FSZs

Side Chan ☒Flood/Beaver ☒Tribes ☒Flood Chan ☒Slough ☒

Name	Comments
Spawning Habitat	Good. Abundant gravels, perennial flows, moderate gradients
Rearing Habitat	Good. Abundant riffle/run, diverse habitats, moderate gradients
OverWinter Habitat	Limited. No deep pools

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14 Fr 15 CD 2112 Im 15 STD U	Site 153, view upstream of typical pool and gravel bar, with hat for scale.		
Roll 14 Fr 16 CD 2112 Im 16 STD D	Site 153, downstream view of pool with log (LWD) on bank.		

WILDLIFE**COMMENT**

Form	Section	Comments
SITE	CHANNEL	C1; S5
SITE	CHANNEL	C2; Falls
SITE	CHANNEL	C6; 019852
SITE	CHANNEL	All habitat types were shocked extensively with only CSU captured; possible downstream velocity barrier; possibly only fish present in upstream lake
SITE	CHANNEL	Substrates are angular



FDIS Fish Form

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach # 7.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE / METHOD	Waterbody ID
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Permit 34770-20 Date: 1999/08/13 To: 1999/08/15 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
153	93L.005	13023	9 627798 5995676		EF 1	14.0	90	C	
153	93L.005	13023	9 627798 5995676		MT 5	14.0	90	C	
153	93L.005	13023	9 627798 5995676		MT 4	14.0	90	C	
153	93L.005	13023	9 627798 5995676		MT 3	14.0	90	C	
153	93L.005	13023	9 627798 5995676		MT 2	14.0	90	C	
153	93L.005	13023	9 627798 5995676		MT 1	14.0	90	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
153	EF 1	1	1999/08/13	14:00	1999/08/13	14:30	
153	MT 1	1	1999/08/13	14:35	1999/08/15	15:40	
153	MT 2	1	1999/08/13	14:35	1999/08/15	15:41	
153	MT 3	1	1999/08/13	14:35	1999/08/15	15:42	
153	MT 4	1	1999/08/13	14:40	1999/08/15	15:43	
153	MT 5	1	1999/08/13	14:40	1999/08/15	14:44	

NET/TRAP SPECIFICATIONS

Site	MTD/NO.	H/P	Net Type	Length	Depth	Mesh	Setting	Habitat
153	MT 1	1			0.5		BT	NA
153	MT 2	1			0.4		BT	NA
153	MT 3	1			0.5		BT	NA
153	MT 4	1			0.6		BT	NA
153	MT 5	1			0.3		BT	NA

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
153	EF 1	1	O	950	630.0	5.0	600	60	6	SR	12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
153	EF 1	1	WSU	J		8	45 60	R	
153	MT 1	1	WSU	J		5	40 70	R	
153	MT 2	1	WSU	J		5	50 80	R	
153	MT 3	1	WSU	J		8	40 70	R	
153	MT 4	1	WSU	J		3	60 80	R	
153	MT 5	1	WSU	J		9	50 90	R	

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length (mm)	Weight (g)	Sex	Mat	Str / Smp# / Age	Vch#	Genetic Str/ Smp#	Photograph Roll Fr.	Comment
153	EF 1	1	WSU	60		U	U					
153	EF 1	1	WSU	55		U	U					
153	EF 1	1	WSU	60		U	U					
153	EF 1	1	WSU	45		U	U					



FDIS Fish Form

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach # 7.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

153	EF	1	1	WSU	50	U	U
153	EF	1	1	WSU	50	U	U
153	EF	1	1	WSU	60	U	U
153	EF	1	1	WSU	45	U	U
153	MT	1	1	WSU	70	U	U
153	MT	1	1	WSU	60	U	U
153	MT	1	1	WSU	45	U	U
153	MT	1	1	WSU	50	U	U
153	MT	1	1	WSU	40	U	U
153	MT	2	1	WSU	80	U	U
153	MT	2	1	WSU	50	U	U
153	MT	2	1	WSU	60	U	U
153	MT	2	1	WSU	50	U	U
153	MT	2	1	WSU	70	U	U
153	MT	3	1	WSU	50	U	U
153	MT	3	1	WSU	40	U	U
153	MT	3	1	WSU	50	U	U
153	MT	3	1	WSU	50	U	U
153	MT	3	1	WSU	70	U	U
153	MT	3	1	WSU	60	U	U
153	MT	3	1	WSU	50	U	U
153	MT	3	1	WSU	40	U	U
153	MT	4	1	WSU	60	U	U
153	MT	4	1	WSU	80	U	U
153	MT	4	1	WSU	65	U	U
153	MT	5	1	WSU	60	U	U
153	MT	5	1	WSU	60	U	U
153	MT	5	1	WSU	50	U	U
153	MT	5	1	WSU	80	U	U
153	MT	5	1	WSU	70	U	U
153	MT	5	1	WSU	50	U	U
153	MT	5	1	WSU	70	U	U
153	MT	5	1	WSU	90	U	U
153	MT	5	1	WSU	60	U	U

COMMENTS





Photo #: 14 - 16
 Site 153, downstream view of pool with log (LWD) on bank.



Photo #: 14 - 15
 Site 153, view upstream of typical pool and gravel bar, with hat for scale.



Site/Reach Card

Watershed Code 460-600600-36400-39700-3240-0000-000-000-000-000-000

Reach 3.0
Site # 154

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 2.15 Elevation (m): upstream 1070 downstream 990 UTM (Zone/East/North/ method)
Gradient (%) 3.7 Order 2 Magnitude 59 BGC Zone SBS 9 628935 5993542 GIS
Setting Valley Floor Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m) ☐
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Irregular, Wandering Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous ☒ (D)iscontinuous ☐

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/14 Time 07:30 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 628147 5994317 GIS
Site Length (m) 300 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.005 NID # 13024

CHANNEL

							Average	Method(s)
Channel Widths (m)	1.8	1.6	1.2	1.3	2.5	2.3	1.8	T
Wetted Widths (m)	1.4	1.4	1.2	1.0	1.1	1.4	1.2	T
Resid. Pool Depths (m)	0.40	0.20	0.15	0.30	0.25	0.20	0.25	MS

No Vis.Ch. ☐ Dewatered ☐
Intermittent ☐ Tributaries ☐
Gradients (%) 7.0 7.0 8.0 8.0 7.5 C, C
Bankfull Depth (m) 0.8 0.9 0.7 0.8 T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Sub-Dominant	Trace	None	Trace	None	Dominant	None	

Crown Closure
1-20%

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 12 Method T3 pH 7.4 Method P2 EMS #
Conductivity 80 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Gravels D95(cm) (only 5%larger) 65
MATERIAL Subdominant Cobble D (cm) (moveable) 5

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars
☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-36400-39700-3240-0000-000-000-000-000-000

Reach 3.0

Site # 154

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE**HABITAT QUALITY**

FSZs

Side Chan ☒Flood/Beaver ☒Tribes ☒Flood Chan ☒Slough ☒

Name	Comments
Spawning Habitat	Limited. Good gravels for larger salmonids (angular), small pockets may support 100-200 mm fish
Rearing Habitat	Good. Pools, riffle/run, good cover provided by LWD, cutbanks, and overhanging vegetation
OverWinter Habitat	Possible. A few pools were found that may have some overwintering potential (~50-60 cm max depth)

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14 Fr 17 CD 2112 Im 17 STD U	Site 154, upstream view of good rearing habitat with cover.		
Roll 14 Fr 18 CD 2112 Im 18 STD D	Site 154, downstream view of typical rearing habitat, with LWD.		

WILDLIFE**COMMENT**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; Falls
SITE	CHANNEL	C6; 19851
SITE	CHANNEL	Stream has very good habitat complexity, there is good access throughout reach
SITE	CHANNEL	however, downstream barrier may be present; no fish captured downstream, and only low density of CSU in the mainstem downstream



FDIS Fish Form

Watershed Code 460-600600-36400-39700-3240-0000-000-000-000-000-000

Reach # 3.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE/METHOD	Waterbody ID
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Permit 34770-20 Date: 1999/08/14 To: 1999/08/15 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
154	93L.005	13024	9 628147 5994317		EF 1	12.0	80	C	
154	93L.005	13024	9 628147 5994317		MT 1	12.0	80	C	
154	93L.005	13024	9 628147 5994317		MT 2	12.0	80	C	
154	93L.005	13024	9 628147 5994317		MT 3	12.0	80	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
154	EF 1	1	1999/08/14	07:30	1999/08/14	08:50	
154	MT 1	1	1999/08/14	08:30	1999/08/15	18:40	
154	MT 2	1	1999/08/14	08:30	1999/08/15	18:50	
154	MT 3	1	1999/08/14	08:30	1999/08/15	19:00	

NET/TRAP SPECIFICATIONS

Site	MTD/NO.	H/P	Net Type	Length	Depth	Mesh	Setting	Habitat
154	MT 1	1			0.4		BT	L
154	MT 2	1			0.3		BT	L
154	MT 3	1			0.4		BT	L

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
154	EF 1	1	O	786	300.0	2.0	600	60	6	SR	12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
154	EF	1	1	NFC		0			
154	MT	1	1	NFC		0			
154	MT	2	1	NFC		0			
154	MT	3	1	NFC		0			

INDIVIDUAL FISH DATA

COMMENTS





Photo #: 14 - 18
Site 154, downstream view of typical rearing habitat, with LWD.



Photo #: 14 - 17
Site 154, upstream view of good rearing habitat with cover.



Site/Reach Card

Watershed Code 460-600600-36400-39700-2910-0000-000-000-000-000-000

Reach 4.0
Site # 155

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Length (km) .75 Elevation (m): upstream 1070 downstream 1020 UTM (Zone/East/North/ method) Sample Type N

Gradient (%) 6.7 Order 2 Magnitude 3 BGC Zone SBS 9 627781 5997595 GIS

Setting Valley Floor Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid

Open water NS Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplain ☐

Confinement Frequently Confined Exposed/Eroded Unknown, Not visible Width (m)

Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐

Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐

Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous ☐
(D)iscontinuous ☐

SITE

Gazetted Name Local Name Unnamed

Survey Date 1999/08/14 Time 09:00 Agency: C151

Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 627466 5997389 GIS

Site Length (m) 750 Method GE Fish Card ☒ Incomplete ☐ NID Map 93L.015 NID # 13025

CHANNEL

							Average	Method(s)
Channel Widths (m)	3.2	4.1	2.6	1.4	2.5	3.6	2.9	T
Wetted Widths (m)	2.0	2.3	2.0	1.4	2.1	2.8	2.1	T
Resid. Pool Depths (m)	0.30	0.50	0.20	0.20	0.50	0.80	0.42	MS

No Vis.Ch. ☐ Dewatered ☐ Gradients (%) 7.0 5.0 8.0 5.0 6.2 C, C
Intermittent ☐ Tributaries ☐ Bankfull Depth (m) 1.0 1.1 1.4 1.2 T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Abundant	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Trace	Trace	Trace	Trace	Sub-Dominant	Dominant	None	

Crown Closure
21-40%

Instream Vegetation

☒ None ☐ Moss
☐ Algae ☐ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 13 Method T3 pH 7.3 Method P2 EMS #

Conductivity 90 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5% larger) 80
MATERIAL Subdominant Gravels D (cm) (moveable) 10

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars
☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-36400-39700-2910-0000-000-000-000-000-000

Reach 4.0

Site # 155

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE**HABITAT QUALITY**

FSZs

Side Chan ☒Flood/Beaver ☒Tribes ☒Flood Chan ☒Slough ☒

Name	Comments
Spawning Habitat	Excellent. Various substrate sizes and riffle/run complexes provide spawning habitats for all salmonid species of various sizes
Rearing Habitat	Good. Rearing habitat present will support all age classes and species. Pools/riffles/runs typical
OverWinter Habitat	Good. Several pools of various depths provide adequate rearing and overwintering habitats (50-80 cm max pool depth)

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14 Fr 19 CD 2112 Im 19 STD U			Site 155, upstream view of pool with good spawning / rearing habitat.
Roll 14 Fr 20 CD 2112 Im 20 STD D			Site 155, downstream view of pool with all habitat types.

WILDLIFE**COMMENT**

Form	Section	Comments
SITE	CHANNEL	C1;S6
SITE	CHANNEL	C2; Falls
SITE	CHANNEL	C6; NA
SITE	CHANNEL	Stream was sampled extensively in reaches 1,3,4 and no fish were captured; stream was walked to confluence with Pimpernel Creek
SITE	CHANNEL	LWD/rootwad provide stability, good gravel recruitment, and well shaded
SITE	CHANNEL	Possibly the best DV habitat JH has seen in the Morice Forest District!
SITE	SITE CARD	Actually recorded sampling 1800 m



FDIS Fish Form

Watershed Code 460-600600-36400-39700-2910-0000-000-000-000-000-000

Reach # 4.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream S SITE/METHOD Waterbody ID

Permit 34770-20 Date: 1999/08/14 To: 1999/08/14 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
155	93L.015	13025	9 627466 5997389	EF	1	13.0	90	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
155	EF 1	1	1999/08/14	09:00	1999/08/14	10:40	

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
155	EF 1	1	O	1068	1800.0	3.0	600	60	6	SR	12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
155	EF 1	1	NFC			0			CSU caught in mainstem (below sampled trib)

INDIVIDUAL FISH DATA

COMMENTS

[illegible]



Photo #: 14 - 20
Site 155, downstream view of pool with all habitat types.



Photo #: 14 - 19
Site 155, upstream view of pool with good spawning / rearing habitat.



Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 4.0
Site # 156

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Length (km) 3.03 Elevation (m): upstream 900 downstream 780 UTM (Zone/East/North/ method) 9 625897 5995913 GIS
Gradient (%) 4.0 Order 4 Magnitude 59 BGC Zone SBS
Setting Valley Floor Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m) ☐
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Irregular Meanders Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N (D)iscontinuous

SITE

Gazetted Name PIMPERNEL CREEK Local Name Pimpernel Creek
Survey Date 1999/08/14 Time 11:00 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 625237 5996274 GIS
Site Length (m) 800 Method GE Fish Card ☒ Incomplete ☐ NID Map 93L.005 NID # 13026

CHANNEL

	Average						Method(s)
Channel Widths (m)	6.4	7.2	6.9	6.5	7.9	7.1	7.0 T
Wetted Widths (m)	5.3	5.9	5.9	6.5	7.1	5.4	6.0 T
Resid. Pool Depths (m)	0.80	0.90	0.40	0.50	0.95	0.80	0.72 MS
No Vis.Ch. ☐	Gradients (%)						8.0 8.0 7.0 7.0 7.5 C, C
Dewatered ☐	Bankfull Depth (m)						1.5 1.4 1.3 1.4 T
Intermittent ☐							

Stage ☐ Low
☒ Med.
☐ High

Crown Closure
21-40%

Instream Vegetation

☒ None ☐ Moss
☐ Algae ☐ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 14 Method T3 pH 7.4 Method P2 EMS #
Conductivity 90 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble
MATERIAL Subdominant Boulders

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 4.0

Site # 156

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE

Type F Height 25.0 Method GE Length 1 Method GE
 Comments Falls, barrier to fish migration
 Photograph Roll 14 Frame 23 UTM (Zone/East/North/ Method) 9 625321 5996237 GIS

HABITAT QUALITY

FSZs ☐ Side Chan ☒ Flood/Beaver ☒
 Tribs. ☒ Flood Chan ☒ Slough ☒

Name	Comments
Spawning Habitat	Good habitat upstream and downstream of 25 m falls
Rearing Habitat	Good habitat upstream and downstream of 25 m falls
OverWinter Habitat	Good habitat upstream and downstream of 25 m falls

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 14 Fr 21 CD 2112 Im 21 STD U	Site 156, upstream view of excellent rearing habitat with large D95 and LWD.		
Roll 14 Fr 22 CD 2112 Im 22 STD D	Site 156, downstream view of riffle/run habitat with good cover.		
Roll 14 Fr 23 CD 2112 Im 23 STD U	Site 156, Pimpernel Falls (barrier to upstream migration).		
Roll 14 Fr 25 CD 2112 Im 25 STD U	Site 156, Blaze on tree at Pimpernel creek falls.		

WILDLIFE

COMMENT

Form	Section	Comments
SITE	CHANNEL	C1; S2/S5
SITE	CHANNEL	C2; Falls
SITE	CHANNEL	C6; 019856
SITE	CHANNEL	Densities of CSU decrease significantly further downstream (~1/200 m)
SITE	CHANNEL	Population likely in upstream lakes
SITE	CHANNEL	High densities of RBT downstream of falls; fish easily captured with minimal effort



FDIS Fish Form

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach # 4.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE/METHOD				Waterbody ID	
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Permit 34770-20 Date: 1999/08/14 To: 1999/08/14 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
156	93L.005	13026	9 625237 5996274		EF 1	14.0	90	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
156	EF 1	1	1999/08/14	11:00	1999/08/14	12:45	

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
156	EF 1	1	O	709	800.0	7.0	600	60	6	SR	12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
156	EF 1	1	RB	J	1+	10	50 110	R	

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length (mm)	Weight (g)	Sex	Mat	Str / Smpl# / Age	Vch#	Genetic Str/ Smpl#	Photograph Roll Fr.	Comment
156	EF 1	1	RB	110		U	U	SC 203 2+			14 24	
156	EF 1	1	RB	100		U	U					
156	EF 1	1	RB	50		U	U					
156	EF 1	1	RB	65		U	U					
156	EF 1	1	RB	105		U	U					
156	EF 1	1	RB	95		U	U	SC 206 1+				
156	EF 1	1	RB	70	.0	U	U					
156	EF 1	1	RB	55		U	U					
156	EF 1	1	RB	65		U	U					
156	EF 1	1	RB	85		U	U					

COMMENTS





Photo #: 14 - 25
 Site 156, Blaze on tree at Pimpernel creek falls.



Photo #: 14 - 22
 Site 156, downstream view of riffle/run habitat with good cover.





Photo #: 14 - 24
Site 156, photo of a 110 mm rainbow trout.



Photo #: 14 - 23
Site 156, Pimpernel Falls (barrier to upstream migration).





Photo #: 14 - 21

Site 156, upstream view of excellent rearing habitat with large D95 and LWD.



Site/Reach Card

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

Reach 2.0
Site # 157

ILP # 1497
ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.01 Elevation (m): upstream 920 downstream 793 UTM (Zone/East/North/ method)
Gradient (%) 12.6 Order 1 Magnitude 1 BGC Zone SBS 9 622447 600232 GIS
Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/14 Time 13:10 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 623312 6001919 GIS
Site Length (m) 840 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.015 NID # 13027

CHANNEL

							Average	Method(s)
Channel Widths (m)	1.3	1.2	1.9	0.8	0.6	1.4	1.2	T
Wetted Widths (m)	0.9	0.6	0.9	0.4	0.2	0.2	0.5	T
Resid. Pool Depths (m)	0.10	0.20	0.10	0.10	0.20	0.05	0.12	MS

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	15.0	15.0	14.0	13.0	14.2	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	0.6	0.4	0.5		0.5	T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Trace	Trace	None	None	None	Dominant	ub-Dominant	

Crown Closure
21-40%

Instream Vegetation
☐ None ☒ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 12 Methoc T3 pH 7.0 Method P2 EMS #
Conductivity 80 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Gravels D95(cm) (only 5%larger) 40
MATERIAL Subdominant Cobble D (cm) (moveable) 5

Channel Pattern Irregular, Wandering
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 2.0
Site # 157

ILP # 1497
ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES

Type CV Height 1.0 Method T Length 7 Method T
Comments Partial barrier (but default fish bearing)
Photograph Roll 15 Frame 3 UTM (Zone/East/North/ Method) 9 623572 600171 GIS

HABITAT QUALITY

FSZs ☐ Side Chan ☐ Flood/Beave ☐
Tribes ☐ Flood Cha ☐ Sloug ☐

Name	Comments
Spawning Habitat	Possible spawning habitat, a few patchy sections are present upstream of Lamprey
Rearing Habitat	Poor. Abundant cover, but flows are limited
OverWinter Habitat	None. No pools >30cm deep

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 15 Fr 1 CD 2112 Im 26 STD U	Site 157, View upstream of dry channel with gravels.		
Roll 15 Fr 2 CD 2112 Im 27 STD D	Site 157, View downstream of dry channel with good cover.		
Roll 15 Fr 3 CD 2112 Im 28 STD U	Site 157, view upstream of partial barrier at road crossing (0.8 m drop).		

WILDLIFE

COMMENTS

Form	Section	Comments
SITE	CHANNEL	C1; S4
SITE	CHANNEL	C2; Fish bearing by default as no permanent barriers located.
SITE	CHANNEL	C6; 019857
SITE	CHANNEL	Stream was walked from top of reach 2 to confluence of Lamprey, and all available habitat was electroshocked.
SITE	CHANNEL	Several small cascades over root wads and debris jams may limit access; and the culvert at the road crossing is a partial barrier.
SITE	CHANNEL	Stream was walked from road crossing to Lamprey and no barriers were located; no fish were captured in this stream, but fish were easily captured in the mainstem.



FDIS Fish Form

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

Reach # 2.0

ILP # 1497

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream S SITE / METHOD Waterbody ID

Permit 34770-20 Date: 1999/08/14 To: 1999/08/14 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
157	93L.015	13027	9 623312 6001919	EF	1	12.0	80	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
157	EF 1	1	1999/08/14	13:10	1999/08/14	15:00	

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
157	EF 1	1	O	828	840.0	1.0	0600	60	6	SR	12-B

FISH SUMMARY

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

INDIVIDUAL FISH DATA

COMMENTS





Photo #: 15 - 1
Site 157, View upstream of dry channel with gravels.



Photo #: 15 - 3
Site 157, view upstream of partial barrier at road crossing (0.8 m drop).

[illegible]



Photo #: 15 - 2

Site 157, View downstream of dry channel with good cover.

[illegible]

Site/Reach Card

Watershed Code 460-600600-36400-00800-0000-0000-000-000-000-000-000

Reach 2.0

Site # 158

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.54 Elevation (m): upstream 784 downstream 690 UTM (Zone/East/North/ method)
 Gradient (%) 6.1 Order 2 Magnitude 5 BGC Zone SBS 9 626464 6005168 GIS
 Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplain ☐
 Confinement Frequently Confined Exposed/Eroded NONE Width (m)
 Coupling Decoupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
 (D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/14 Time 15:30 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 625461 6005438 GIS
 Site Length (m) 650 Method GE Fish Card ☒ Incomplete ☐ NID Map 93L.015 NID # 13028

CHANNEL

							Average	Method(s)
Channel Widths (m)	2.1	2.5	1.7	2.8	3.1	2.4	2.4	T
Wetted Widths (m)	1.3	1.7	1.1	1.4	1.6	1.5	1.4	T
Resid. Pool Depths (m)	0.10	0.15	0.30	0.16	0.20	0.25	0.19	MS

No Vis.Ch. ☐ Dewatered ☐ Gradients (%) 4.0 6.0 4.0 5.0 4.7 C, C
 Intermittent ☐ Tributaries ☐ Bankfull Depth (m) 1.0 1.1 0.8 1.0 T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Trace	Sub-Dominant	None	Trace	Trace	Dominant	Trace	

Crown Closure
 21-40%

Instream Vegetation

☐ None ☐ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 12 Method T3 pH 6.9 Method P2 EMS #
 Conductivity 80 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Gravels D95(cm) (only 5%larger) 30
 MATERIAL Subdominant Fines D (cm) (moveable) 5

Channel Pattern Irregular, Wandering
 Coupling Partially Coupled
 Confinement Occasionally Confined
 Islands None

Morphology Code
 RP

Bars
☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1

[illegible]

Site/Reach Card

Watershed Code 460-600600-36400-00800-0000-0000-000-000-000-000-000

Reach 2.0

Site # 158

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE

HABITAT QUALITY

FSZs	Side Chan ☒	Flood/Beaver ☒
Tribs. ☒	Flood Chan ☒	Slough ☒

Name	Comments
Spawning Habitat	Possible, for 100-150 mm RB/DB/CT; spring flows may increase spawning potential and access
Rearing Habitat	Excellent off channel rearing for juveniles and fry from Lamprey Creek, good rearing habitat for Coho
OverWinter Habitat	None, no pools >50cm present

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 15 Fr 4 CD 2112 Im 29 STD U	Site 158, upstream view of typical non-permanent barrier found within reach.		
Roll 15 Fr 5 CD 2112 Im 30 STD U	Site 158, upstream view of typical habitat, heavily overgrown.		

WILDLIFE

COMMENT

Form	Section	Comments
SITE	CHANNEL	C1; S3 (default)
SITE	CHANNEL	C2; Fish bearing based on access and lack of barriers
SITE	CHANNEL	C6; 019855
SITE	CHANNEL	channel is heavily overgrown with vascular vegetation and difficult to find (braided sections)
SITE	CHANNEL	LWD and small debris jams create several non-permanent barriers and may limit upstream access from Lamprey, but create good habitat complexity for rearing fry/juveniles, with small plunge pools

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FDIS Fish Form

Watershed Code 460-600600-36400-00800-0000-0000-000-000-000-000-000-000

Reach # 2.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream S SITE/METHOD Waterbody ID

Permit 34770-20 Date: 1999/08/14 To: 1999/08/14 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
158	93L.015	13028	9 625461 6005438	EF	1	12.0	80	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
158	EF 1	1	1999/08/14	15:30	1999/08/14	16:40	

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
158	EF 1	1	O	571	650.0	2.0	600	60	6	SR	12-B

FISH SUMMARY

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

INDIVIDUAL FISH DATA

COMMENTS

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Photo #: 15 - 4

Site 158, upstream view of typical non-permanent barrier found within reach.



Photo #: 15 - 5

Site 158, upstream view of typical habitat, heavily overgrown.

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Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 17.0

Site # 159

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) .69 Elevation (m): upstream 1035 downstream 1004 UTM (Zone/East/North/ method)
 Gradient (%) 4.5 Order 3 Magnitude 10 BGC Zone SBS 9 633925 5995997 GIS
 Setting Valley Floor Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplain ☐
 Confinement Occasionally Confined Exposed/Eroded NONE Width (m)
 Coupling Decoupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Shrubs Valley Flat No valley flat on either bank (C)ontinuous N
 (D)iscontinuous

SITE

Gazetted Name PIMPERNEL CREEK Local Name Pimpernel Creek
 Survey Date 1999/08/15 Time 08:15 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 633627 5995887 GIS
 Site Length (m) 490 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.006 NID # 13029

CHANNEL

							Average	Method(s)
Channel Widths (m)	2.5	2.1	2.7	2.3	3.0	2.9	2.6	T
Wetted Widths (m)	1.7	1.5	1.8	2.1	2.6	2.4	2.0	T
Resid. Pool Depths (m)	0.20	0.10	0.15	0.20	0.15	0.20	0.17	MS

No Vis.Ch. ☐ Dewatered ☐ Gradients (%) 4.0 4.0 5.0 5.0 4.5 C, C
 Intermittent ☐ Tributaries ☐ Bankfull Depth (m) 0.5 0.6 0.8 0.6 T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	Trace	None	Dominant	None	Sub-Dominant	Trace

Crown Closure
 1-20%

Instream Vegetation

☐ None ☒ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Shrubs
 Riparian Stage Shrub/herb stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Shrubs
 Riparian Stage Shrub/herb stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 14 Method T3 pH 7.2 Method P2 EMS #
 Conductivity 80 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Fines D95(cm) (only 5%larger) 40
 MATERIAL Subdominant Cobble D (cm) (moveable) 10

Channel Pattern Irregular, Wandering
 Coupling Decoupled
 Confinement Unconfined
 Islands None

Morphology Code
 RP

Bars
☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 17.0

Site # 159

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE**HABITAT QUALITY**

FSZs	Side Chan ☒	Flood/Beaver ☒
Tribs. ☒	Flood Chan ☒	Slough ☒

Name	Comments
Spawning Habitat	Limited, wetland type substrates (organic fines); with only a few gravel sections
Rearing Habitat	Good, pool/riffle/run type sequences present, good cover provided by undercut banks/ LWD/ overstream vegetation
OverWinter Habitat	None, possible overwintering habitat present in upstream and downstream lakes

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 15 Fr 6 CD 2112 Im 31 STD U	Site 159, upstream view of small pool with undercut banks.		
Roll 15 Fr 7 CD 2112 Im 32 STD D	Site 159, downstream view of small riffle section with undercut banks.		

WILDLIFE**COMMENT**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; Falls
SITE	CHANNEL	C6; 019854
SITE	CHANNEL	open waterbodies downstream; sedges and willows in wetland,
SITE	CHANNEL	possible fish presence in upstream and downstream lakes
SITE	CHANNEL	habitat is suitable to salmonids; but no fish present with extensive electrofishing of all habitat types

[illegible]

FDIS Fish Form

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach # 17.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE / METHOD	Waterbody ID
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Permit 34770-20 Date: 1999/08/15 To: 1999/08/16 Crew: JH/EM, Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
159	93L.006	13029	9 633627 5995887	EF	1	14.0	80	C	
159	93L.006	13029	9 633627 5995887	MT	1	14.0	80	C	
159	93L.006	13029	9 633627 5995887	MT	2	14.0	80	C	
159	93L.006	13029	9 633627 5995887	MT	3	14.0	80	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
159	EF 1	1	1999/08/15	08:15	1999/08/15	10:00	
159	MT 1	1	1999/08/15	08:15	1999/08/16	18:30	
159	MT 2	1	1999/08/15	08:15	1999/08/16	18:30	
159	MT 3	1	1999/08/15	08:15	1999/08/16	18:35	

NET/TRAP SPECIFICATIONS

Site	MTD/NO.	H/P	Net Type	Length	Depth	Mesh	Setting	Habitat
159	MT 1	1			0.5		BT	L
159	MT 2	1			0.4		BT	L
159	MT 3	1			0.5		BT	L

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
159	EF 1	1	O	465	490.0	2.5	600	60	6	SR	12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
159	EF	1	1	NFC		0			
159	MT	1	1	NFC		0			
159	MT	2	1	WSU	J	2	60 65	R	
159	MT	3	1	NFC		0			

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length (mm)	Weight (g)	Sex	Mat	Str / Smpl# / Age	Vch#	Genetic Str/ Smpl#	Photograph Roll Fr.	Comment
159	MT	2	1	WSU	65	U	U					
159	MT	2	1	WSU	60	U	U					

COMMENTS





Photo #: 15 - 7

Site 159, downstream view of small riffle section with undercut banks.



Photo #: 15 - 6

Site 159, upstream view of small pool with undercut banks.



Site/Reach Card

Watershed Code 460-600600-36400-39700-6230-0000-000-000-000-000-000

Reach 2.0
Site # 160

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.36 Elevation (m): upstream 1098 downstream 990 UTM (Zone/East/North/ method)
Gradient (%) 7.9 Order 2 Magnitude 3 BGC Zone SBS 9 632316 5996389 GIS
Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Decoupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/15 Time 11:15 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 632183 5995628 GIS
Site Length (m) 850 Method GE Fish Card ☒ Incomplete ☐ NID Map 93L.006 NID # 13030

CHANNEL

							Average	Method(s)
Channel Widths (m)	3.1	2.4	1.9	2.4	3.2	1.9	2.5	T
Wetted Widths (m)	1.6	1.1	1.8	0.8	1.5	1.1	1.3	T
Resid. Pool Depths (m)	0.20	0.30	0.50	0.30	0.20	0.40	0.32	MS

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	5.0	6.0	4.0	6.0	5.2	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	1.1	0.9	1.0		1.0	T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	Trace	None	Sub-Dominant	Trace	Dominant	Trace

Crown Closure
21-40%

LEFT BANK

Shape Undercut
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape Undercut
Riparian Veg. Mixed C/D
Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 14 Method T3 pH 7.4 Method P2 EMS #
Conductivity 90 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5%larger) 30
MATERIAL Subdominant Gravels D (cm) (moveable) 10

Channel Pattern Irregular, Wandering
Coupling Decoupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars
☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-36400-39700-6230-0000-000-000-000-000-000

Reach 2.0

Site # 160

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE**HABITAT QUALITY**

FSZs

Side Chan ☒Flood/Beaver ☒Tribes ☒Flood Chan ☒Slough ☒**Name****Comments**

Spawning Habitat

Good spawning habitat present. Gravels and riffle/run habitat suitable to salmonids

Rearing Habitat

Good. Cover, LWD and undercut banks dominant, cobble substrates good for juveniles

OverWinter Habitat

None. No pools >50 cm

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 15 Fr 8 CD 2112 Im 33 STD U	Site 160, upstream view of riffle/rune complex with riparian cover.		
Roll 15 Fr 9 CD 2112 Im 34 STD D	Site 160, downstream view of typical riffle/run complex upstream of unnamed lake.		

WILDLIFE**COMMENT**

Form	Section	Comments
SITE	CHANNEL	C1;S6
SITE	CHANNEL	C2;Falls
SITE	CHANNEL	C6; 19862
SITE	CHANNEL	Extreme electrofishing effort in all habitat types
SITE	CHANNEL	No barriers present, good access from downstream lake, but no fish present even at outlet to lake
SITE	CHANNEL	No fish observed rising in lake; lake appears to be shallow (<2m deep throughout); recommend sampling lake but it seems unlikely this lake supports salmonids



FDIS Fish Form

Watershed Code 460-600600-36400-39700-6230-0000-000-000-000-000-000

Reach # 2.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE / METHOD				Waterbody ID					
Permit	34770-20	Date:	1999/08/15	To:	1999/08/15	Crew:	JH/EM	Resample	☐		
Site	NID MAP	NID	UTM:Zone/East/North/ Mthd		MTD/NO	Temp	Cond	Turbid	Comment		
160	93L.006	13030	9	632183 5995628	EF 1	14.0	90	C			
GEAR SETTINGS											
Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment				
160	EF 1	1	1999/08/15	11:15	1999/08/15	12:30					
NET/TRAP SPECIFICATIONS											
ELECTROFISHER SPECIFICATIONS											
Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
160	EF 1	1	O	942	850.0	2.5	600	60	6	SR	12-B
FISH SUMMARY											
Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment		
160	EF	1 1	NFC			0					
INDIVIDUAL FISH DATA											
COMMENTS											





Photo #: 15 - 9

Site 160, downstream view of typical riffle/run complex upstream of unnamed lake.



Photo #: 15 - 8

Site 160, upstream view of riffle/run complex with riparian cover.



Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000

Reach 11.0

Site # 161

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .55 Elevation (m): upstream 984 downstream 983 UTM (Zone/East/North/ method)
 Gradient (%) 0.2 Order 4 Magnitude 36 BGC Zone SBS 9 630427 5995468 GIS
 Setting Valley Floor Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☒ Mass Movement Low or no impact to channel; Active Floodplain ☐
 Confinement Unconfined Exposed/Eroded NONE Width (m)
 Coupling Decoupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Regular Meanders Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
 (D)iscontinuous

SITE

Gazetted Name PIMPERNEL CREEK Local Name Pimpernel Creek
 Survey Date 1999/08/15 Time 12:50 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 630417 5995301 GIS
 Site Length (m) 550 Method GE Fish Card ☒ Incomplete ☐ NID Map 93L.005 NID # 13031

CHANNEL

							Average	Method(s)
Channel Widths (m)	5.5	6.8	6.1	7.6	7.1	6.4	6.6	T
Wetted Widths (m)	5.4	3.5	2.9	5.4	7.0	6.3	5.1	T
Resid. Pool Depths (m)	0.30	0.30	0.50	0.40	0.50	0.80	0.47	MS

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	2.0	1.0	3.0	1.0	1.7	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	1.1	1.2	1.4		1.2	T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	Trace	Trace	Trace	Dominant	Sub-Dominant	Trace

Crown Closure
 1-20%

LEFT BANK
 Shape Undercut
 Riparian Veg. Mixed C/D
 Riparian Stage Mature forest
 Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK
 Shape Undercut
 Riparian Veg. Mixed C/D
 Riparian Stage Mature forest
 Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

Instream Vegetation
☐ None ☐ Moss
☐ Algae ☒ Vasc.

WATER

Temperature 14 Method T3 pH 7.5 Method P2 EMS #
 Conductivity 80 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Fines D95(cm) (only 5%larger) 100
 MATERIAL Subdominant Cobble D (cm) (moveable) 40

Channel Pattern Irregular, Wandering
 Coupling Decoupled
 Confinement Unconfined
 Islands None

Morphology Code
 RP

Bars
☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach 11.0

Site # 161

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE

HABITAT QUALITY

FSZs

Side Chan ☒

Flood/Beaver ☒

Tribs. ☒

Flood Chan ☒

Slough ☒

Name

Comments

Spawning Habitat	Limited, gravels are suitable for large salmonids (eg chinook)
Rearing Habitat	Good, deep pools, sloughy channels, cover, instream vegetation
OverWinter Habitat	Limited, no deep pools > 80-100 cm were encountered, BOD in upstream lake may limit fish

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 15 Fr 10 CD 2112 Im 35 STD U	Site 161, upstream view towards unnamed lake.		
Roll 15 Fr 11 CD 2112 Im 36 STD D	Site 161, downstream view of typical stream habitat.		

WILDLIFE

COMMENT

Form	Section	Comments
SITE	CHANNEL	C1;S5
SITE	CHANNEL	C2;Falls
SITE	CHANNEL	C6; 19864
SITE	CHANNEL	Several different species of minnows were visually observed, possible suckers, chub
SITE	CHANNEL	Wetland type substrates upstream and downstream of riffle/run section with cobble; stream is a series of wetlands/ponds
SITE	CHANNEL	CSU caught after 10 minutes MT set
SITE	SITE CARD	Actually sampled 800 m



FDIS Fish Form

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach # 11.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE / METHOD				Waterbody ID
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Permit 34770-20 Date: 1999/08/15 To: 1999/08/15 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
161	93L.005	13031	9 630417 5995301		EF 1	14.0	80	C	
161	93L.005	13031	9 630417 5995301		MT 1	14.0	80	C	
161	93L.005	13031	9 630417 5995301		MT 2	14.0	80	C	
161	93L.005	13031	9 630417 5995301		MT 3	14.0	80	C	
161	93L.005	13031	9 630417 5995301		MT 4	14.0	80	C	
161	93L.005	13031	9 630417 5995301		MT 5	14.0	80	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
161	EF 1	1	1999/08/15	12:50	1999/08/15	13:10	
161	MT 1	1	1999/08/15	12:50	1999/08/17	16:55	
161	MT 2	1	1999/08/15	12:55	1999/08/17	17:00	
161	MT 3	1	1999/08/15	12:55	1999/08/17	17:05	
161	MT 4	1	1999/08/15	13:00	1999/08/17	17:10	
161	MT 5	1	1999/08/15	13:00	1999/08/17	17:15	

NET/TRAP SPECIFICATIONS

Site	MTD/NO.	H/P	Net Type	Length	Depth	Mesh	Setting	Habitat
161	MT 1	1			0.4		BT	L
161	MT 2	1			0.4		BT	L
161	MT 3	1			0.3		BT	L
161	MT 4	1			0.4		BT	L
161	MT 5	1			0.5		BT	L

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
161	EF 1	1	O	300	200.0	6.5	600	60	6	SR	12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
161	EF 1	1	WSU	J		5	60 80	R	
161	MT 1	1	WSU	J		8	60 90	R	
161	MT 2	1	WSU	J		5	60 80	R	
161	MT 3	1	WSU	J		3	50 60	R	
161	MT 4	1	WSU	J		5	50 80	R	
161	MT 5	1	WSU	J		3	60 80	R	
161	MT 1	1	LKC	J		2	50 90	R	
161	MT 3	1	LKC	J		2	40 80	R	
161	MT 4	1	LKC	J		2	50 60	R	

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length (mm)	Weight (g)	Sex	Mat	Age	Vch#	Genetic Str/ Smpl#	Photograph Roll Fr.	Comment
161	EF 1	1	WSU	60		U	U				15 12	



FDIS Fish Form

Watershed Code 460-600600-36400-39700-0000-0000-000-000-000-000-000

Reach # 11.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

161	EF	1	1	WSU	70	U	U
161	EF	1	1	WSU	70	U	U
161	EF	1	1	WSU	60	U	U
161	EF	1	1	WSU	80	U	U
161	MT	1	1	WSU	90	U	U
161	MT	1	1	WSU	80	U	U
161	MT	1	1	WSU	60	U	U
161	MT	1	1	WSU	70	U	U
161	MT	1	1	LKC	50	U	U
161	MT	1	1	LKC	90	U	U
161	MT	1	1	LKC	60	U	U
161	MT	1	1	LKC	50	U	U
161	MT	1	1	WSU	60	U	U
161	MT	1	1	WSU	80	U	U
161	MT	1	1	WSU	70	U	U
161	MT	1	1	WSU	90	U	U
161	MT	2	1	WSU	60	U	U
161	MT	2	1	WSU	70	U	U
161	MT	2	1	WSU	70	U	U
161	MT	2	1	WSU	60	U	U
161	MT	2	1	WSU	80	U	U
161	MT	3	1	WSU	60	U	U
161	MT	3	1	WSU	50	U	U
161	MT	3	1	WSU	50	U	U
161	MT	4	1	WSU	80	U	U
161	MT	4	1	WSU	60	U	U
161	MT	4	1	WSU	60	U	U
161	MT	4	1	WSU	50	U	U
161	MT	4	1	WSU	60	U	U
161	MT	5	1	WSU	70	U	U
161	MT	5	1	WSU	60	U	U
161	MT	5	1	WSU	80	U	U
161	MT	1	1	LKC	50	U	U
161	MT	1	1	LKC	90	U	U
161	MT	3	1	LKC	80	U	U
161	MT	3	1	LKC	40	U	U
161	MT	4	1	LKC	50	U	U
161	MT	4	1	LKC	60	U	U

COMMENTS

Section

WATERBODY

Comments

Difficult water to electrofish; CSU observed in MT#1 after 5 min set





Photo #: 15 - 12
Site 161, photo of a 60 mm white sucker.



Photo #: 15 - 11
Site 161, downstream view of typical stream habitat.





Photo #: 15 - 10
Site 161, upstream view towards unnamed lake.



Site/Reach Card

Watershed Cod 000-000000-00000-00000-0000-000-000-000-000-000-000

Reach 4.0

ILP # 1160

Site # 162

ILP Map # 93L.015

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.63 Elevation (m): upstrea 800 downstream 707 UTM (Zone/East/North/ method)

Gradient (%) 5.7 Order 1 Magnitude 1 BGC Zone SBS 9 623529 600379 GIS

Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ BraidOpen water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplai ☐Confinement Frequently Confined Exposed/Eroded NONE Width (m)Coupling Decoupled Islands NONE Beaver Dam(s) ☐Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous (D)iscontinuous ☒ N**SITE**

Gazetted Name Local Name Unnamed

Survey Date 1999/08/15 Time 14:10 Agency: C151

Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 624365 6004205 GIS

Site Length (m) 100 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.015 NID # 13032**CHANNEL**No Visible Channe ☒

Gradient(s) (%) 8.0 8.0 7.0

Vegetation

Veg. Stage

FEATURE**HABITAT QUALITY**

FSZs

Side Chan ☒Flood/Beave ☒Tribes ☒Flood Cha ☒Sloug ☒**PHOTO DOCUMENTATION**

Film Compact Disc Lens / Dir. Comments

Roll 15 Fr 13 CD 2112 Im 38 STD U Site 162, view upslope of vegetated depression (no visible channel).

COMMENT

Form Section Comments

SITE CHANNEL C1; NVC

SITE CHANNEL C2; vegetated gully, harvested across, no connectivity, some surface and subsurface sections





Photo #: 15 - 13

Site 162, view upslope of vegetated depression (no visible channel).



Site/Reach Card

Watershed Code 460-600600-38000-00000-0000-0000-000-000-000-000-000

Reach 2.0

Site # 163

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.27 Elevation (m): upstream 860 downstream 720 UTM (Zone/East/North/ method)
 Gradient (%) 11.0 Order 1 Magnitude 1 BGC Zone SBS 9 622529 6003480 GIS
 Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
 Confinement Entrenched Exposed/Eroded NONE Width (m) ☐
 Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Sinuous Landuse Logging, with reserves LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous ☒
 (D)iscontinuous ☐

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/15 Time 14:30 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 623138 6004284 GIS
 Site Length (m) 700 Method GE Fish Card ☒ Incomplete ☒ NID Map 93L.015 NID # 13033

CHANNEL

							Average	Method(s)
Channel Widths (m)	2.1	3.9	1.4	2.7	2.1	3.4	2.6	T
Wetted Widths (m)	1.4	1.8	1.0	1.3	1.9	1.1	1.4	T
Resid. Pool Depths (m)	0.10	0.10	0.30	0.20	0.40	0.20	0.22	MS

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	15.0	25.0	26.0	16.0	20.5	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	1.5	1.0	1.4		1.3	T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Trace	Sub-Dominant	Trace	None	None	Dominant	Trace	

Crown Closure
 41-70%

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 14 Method T3 pH 7.2 Method P2 EMS #
 Conductivity 80 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Gravels D95(cm) (only 5%larger) 80
 MATERIAL Subdominant Cobble D (cm) (moveable) 30

Channel Pattern Sinuous
 Coupling
 Confinement
 Islands None

Morphology Code
 CP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid

Abandoned channels ☐ B1

SWD ☐ D1

Extensive riffles ☐ C1

Homog. bed ☐ S1



Site/Reach Card

Watershed Code 460-600600-38000-00000-0000-0000-000-000-000-000-000

Reach 2.0

Site # 163

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Eroding banks ☐ B2	LWD ☐ D2	Minimal pool area ☐ C2	Sediment fingers ☐ S2
Avulsions ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bars ☐ C3	Sediment wedges ☐ S3
		Mult. chan./braids ☐ C4	Extensive bars ☐ S4
Beaver dams ☐ O1		Dist. stone lines ☐ C5	Extensive scour ☐ S5

FEATURE

Type CV	Height 1.0	Method T	Length 8	Method T
Comments Perched culvert (2m)				
Photograph Roll 15	Frame 14	UTM (Zone/East/North/ Method)	9 623095	6004750 GIS

HABITAT QUALITY

FSZs	Side Chan ☒	Flood/Beaver ☒
Tribs. ☒	Flood Chan ☒	Slough ☒

Name	Comments
Spawning Habitat	Limited, small patchy sections of gravel will provide some spawning habitat for 100-200mm salmonids
Rearing Habitat	Good rearing habitats for all salmonid, CT and RB habitat available throughout
OverWinter Habitat	None, no pools of sufficient size

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 15	Fr 14 CD 2112	Im 39 STD U	Site 163, upstream view of perched culvert 50 m upstream of Morice River.
Roll 15	Fr 15 CD 2112	Im 40 STD D	Site 163, downstream view of typical habitat towards Morice River.

WILDLIFE

COMMENT

Form	Section	Comments
SITE	SITE CARD	missed coupling and confinement
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2; Non fish bearing based on gradients (25/30%) immediately upstream of Morice River
SITE	CHANNEL	C6; 009927



FDIS Fish Form

Watershed Code 460-600600-38000-00000-0000-0000-000-000-000-000-000

Reach # 2.0

ILP #

ILP Map #

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE/METHOD	Waterbody ID
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Permit 34770-20 Date: 1999/08/15 To: 1999/08/15 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/ Mthd	MTD/NO	Temp	Cond	Turbid	Comment
163	93L.015	13033	9 623138 6004284	EF 1	14.0	80	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
163	EF 1	1	1999/08/15	14:30	1999/08/15	15:15	

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
163	EF 1	1	O	655	700.0	2.0	600	60	6	SR	12-B

FISH SUMMARY

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

INDIVIDUAL FISH DATA

COMMENTS

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Photo #: 15 - 15
 Site 163, downstream view of typical habitat towards Morice River.



Photo #: 15 - 14
 Site 163, upstream view of perched culvert 50 m upstream of Morice River.



Site/Reach Card

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

Reach 3.0
Site # 164

ILP # 1454
ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.54 Elevation (m): upstream 920 downstream 740 UTM (Zone/East/North/ method)
Gradient (%) 11.7 Order 2 Magnitude 2 BGC Zone SBS 9 612533 600410 GIS
Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
Confinement Frequently Confined Exposed/Eroded NONE Width (m)
Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous N
(D)iscontinuous

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/16 Time 08:00 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 612939 6004809 GIS
Site Length (m) 780 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.014 NID # 13034

CHANNEL

							Average	Method(s)
Channel Widths (m)	2.9	2.7	2.3	3.9	3.4	3.1	3.0	T
Wetted Widths (m)	1.8	2.5	2.1	3.1	2.1	2.7	2.4	T
Resid. Pool Depths (m)	0.25	0.15	0.20	0.30	0.30	0.40	0.27	MS

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	10.0	10.0	11.0	12.0	10.7	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	1.1	1.3	1.4		1.3	T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Trace	ub-Dominant	Trace	Trace	Trace	Dominant	Trace	

Crown Closure
41-70%

Instream Vegetation
☐ None ☒ Moss
☐ Algae ☐ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
Riparian Veg. Mixed C/D
Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 12 Methoc T3 pH 7.2 Method P2 EMS #
Conductivity 80 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5%larger) 80
MATERIAL Subdominant Gravels D (cm) (moveable) 30

Channel Pattern Sinuous
Coupling Partially Coupled
Confinement Occasionally Confined
Islands None

Morphology Code
RP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 3.0

ILP # 1454

Site # 164

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs ☐	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	Good. Gravels/cobbles of various sizes provide good spawning substrates for different sizes / age of DV.
Rearing Habitat	Good. Cover and pools are present throughout reach, and LWD provides good habitat complexity
OverWinter Habitat	None, but the upstream lake/wetland may provide overwintering habitat.

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 15 Fr 17 CD 2112 Im 42 STD U			Site 164, upstream view of typical DV habitat, deep pool with good cover.
Roll 15 Fr 18 CD 2112 Im 43 STD U			Site 164, upstream view of relatively high gradient section where DV were present.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S3
SITE	CHANNEL	C2; DV captured with minimal effort throughout reach.
SITE	CHANNEL	C6; 007185
SITE	CHANNEL	Strongly confined section provides good CP habitat.
SITE	CHANNEL	Densities of fish low (~1/50m), and there are several non-permanent barriers (sediment wedges, debris piles) which limit access;
SITE	CHANNEL	however, DV captured in Step-pool/cascade-pool habitat 600-700 m upstream from road crossing; DV tend not to hold in open water, but in riffle/run with heavy cover near large pools.
SITE	CHANNEL	Angular rock / flashy system; braided in some sections.



FDIS Fish Form

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

Reach # 3.0

ILP # 1454

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream S SITE/METHOD Waterbody ID

Permit 34770-20 Date: 1999/08/16 To: 1999/08/16 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
164	93L.014	13034	9 612939	6004809	EF 1	12.0	80	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
164	EF 1	1	1999/08/16	07:00	1999/08/16	09:00	

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
164	EF 1	1	O	464	780.0	3.0	500	60	6	SR	12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
164	EF	1	1	DV	J	1+	5 50	70	R
164	EF	1	1	DV	J	2+	2 80	90	R

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Str / Smpl# /	Age	Vch#	Genetic	Photograph	Roll Fr.	Comment
				(mm)	(g)				Age		Str / Smpl#	Roll Fr.		
164	EF	1	1	DV	90		U	U					15 16	
164	EF	1	1	DV	80		U	U						
164	EF	1	1	DV	70		U	U						
164	EF	1	1	DV	60		U	U						
164	EF	1	1	DV	50		U	U						
164	EF	1	1	DV	60		U	U						
164	EF	1	1	DV	70		U	U						

COMMENTS





Photo #: 15 - 16
Site 164, photo of a 90 mm dolly varden.



Photo #: 15 - 18
Site 164, upstream view of relatively high gradient section where DV were present.

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Photo #: 15 - 17

Site 164, upstream view of typical DV habitat, deep pool with good cover.



Site/Reach Card

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

Reach 3.0

ILP # 1453

Site # 165

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.31 Elevation (m): upstream 900 downstream 740 UTM (Zone/East/North/ method)
 Gradient (%) 12.2 Order 1 Magnitude 1 BGC Zone SBS 9 614100 600431 GIS
 Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
 Confinement Occasionally Confined Exposed/Eroded NONE Width (m)
 Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous ☒ N
 (D)iscontinuous ☐

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/16 Time 09:10 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 613775 6004814 GIS
 Site Length (m) 400 Method GE Fish Card ☒ Incomplete ☐ NID Map 93L.014 NID # 13035

CHANNEL

							Average	Method(s)
Channel Widths (m)	3.4	4.1	2.4	2.9	4.7	4.5	3.7	T
Wetted Widths (m)	1.1	1.5	2.3	2.7	2.1	1.0	1.8	T
Resid. Pool Depths (m)	0.40	0.30	0.10	0.40	0.30	0.40	0.32	MS

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	10.0	10.0	12.0	13.0	11.2	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	0.8	0.7	0.7		0.7	T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	ub-Dominant	Trace	Trace	Trace	Dominant	Trace

Crown Closure
 41-70%

Instream Vegetation

☐ None ☒ Moss
☐ Algae ☐ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 13 Methoc T3 pH 7.2 Method P2 EMS #
 Conductivity 90 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5% larger) 70
 MATERIAL Subdominant Gravels D (cm) (moveable) 25

Channel Pattern Sinuous
 Coupling Partially Coupled
 Confinement Frequently Confined
 Islands None

Morphology Code
 RP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 3.0

ILP # 1453

Site # 165

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs ☐	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	Patchy sections with good gravel sizes.
Rearing Habitat	Good. Cover, LWD, Boulders, pools, overstream vegetation create various habitat complexities.
OverWinter Habitat	Possible upstream or downstream but there is no overwintering habitat within the site.

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 15 Fr 19 CD 2112 Im 44 STD U	Site 165, upstream view of typical riffle section.		
Roll 15 Fr 20 CD 2112 Im 45 STD D	Site 165, downstream view of typical riffle section, heavily overgrown.		

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S3
SITE	CHANNEL	C2; DV easily captured
SITE	CHANNEL	C6; 019858
SITE	CHANNEL	Stream is similar to 1454; flashy, angular rocks with rafted debris,
SITE	CHANNEL	Small S4 (possible) RMA on right bank



FDIS Fish Form

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

Reach # 3.0

ILP # 1453

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE/METHOD				Waterbody ID	
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Permit 34770-20 Date: 1999/08/16 To: 1999/08/16 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
165	93L.014	13035	9 613775 6004814	EF	1	13.0	90	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
165	EF	1	1	1999/08/16	09:10	1999/08/16	10:30

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
165	EF	1	1	O	520	400.0	4.0	500	60	6	SR 12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
165	EF	1	1	DV	F	0+	4 30	35	R
165	EF	1	1	DV	J	2+	4 80	95	R

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length (mm)	Weight (g)	Sex	Mat	Age	Str / Smpl# / Age	Vch#	Genetic	Str/ Smpl#	Photograph	Roll Fr.	Comment
165	EF	1	1	DV	30		U	U						15	21
165	EF	1	1	DV	35		U	U							
165	EF	1	1	DV	30		U	U							
165	EF	1	1	DV	35		U	U							
165	EF	1	1	DV	90		U	U							
165	EF	1	1	DV	80		U	U							
165	EF	1	1	DV	90		U	U							
165	EF	1	1	DV	95		U	U							

COMMENTS





Photo #: 15 - 21
Site 165, photo of a 30 mm dolly varden.



Photo #: 15 - 19
Site 165, upstream view of typical riffle section.





Photo #: 15 - 20

Site 165, downstream view of typical riffle section, heavily overgrown.



Site/Reach Card

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

Reach 2.0

ILP # 1452

Site # 166

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.51 Elevation (m): upstream 940 downstream 720 UTM (Zone/East/North/ method)
 Gradient (%) 14.6 Order 1 Magnitude 1 BGC Zone SBS 9 615523 600456 GIS
 Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
 Confinement Frequently Confined Exposed/Eroded NONE Width (m) ☐
 Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous ☒
 (D)iscontinuous ☐

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/16 Time 10:45 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 615871 6005545 GIS
 Site Length (m) 400 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.014 NID # 13036

CHANNEL

	Average	Method(s)
Channel Widths (m) 2.7 3.1 2.1 2.7 2.4 3.8	2.8	T
Wetted Widths (m)	n/a	
Resid. Pool Depths (m)	n/a	

No Vis.Ch. ☐	Dewatered ☐	Gradients (%) 16.0 17.0 15.0	16.0	C, C
Intermittent ☒	Tributaries ☐	Bankfull Depth (m) 1.1 1.0 1.1	1.1	T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Trace	Trace	ub-Dominant	Trace	None	Dominant	None	

Crown Closure
 41-70%

Instream Vegetation

☒ None ☐ Moss
☐ Algae ☐ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Methoc pH Method EMS #
 Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominan Cobble D95(cm) (only 5%larger) 800
 MATERIAL Subdominant Boulders D (cm) (moveable) 40

Channel Pattern Sinuous
 Coupling Partially Coupled
 Confinement Frequently Confined
 Islands None

Morphology Code
 CP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 2.0

ILP # 1452

Site # 166

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs

Side Chan ☐Flood/Beave ☐Tribes ☐Flood Cha ☐Sloug ☐**Name****Comments**

Spawning Habitat

Limited, only patchy sections of gravel present around boulders.

Rearing Habitat

Good, access questionable through large boulder patches in lower section of reach, and gradients >16%.

OverWinter Habitat

None, no pools >30 cm located in site

PHOTO DOCUMENTATION**Film****Compact Disc****Lens / Dir.****Comments**

Roll 15 Fr 22 CD 2112 Im 47 STD U Site 166, upstream view of typical riffle section with heavy cover.

Roll 15 Fr 23 CD 2112 Im 48 STD D Site 166, downstream view of flashy section of stream with large D95.

WILDLIFE**COMMENTS****Form****Section****Comments**

SITE CHANNEL

C1; S3*

SITE CHANNEL

C2;

SITE CHANNEL

Access may be difficult due to large D95 size (2.5 m channel, 3 m D95); large substrates (boulders 40-70 cm).

SITE CHANNEL

Culvert is perched 60 cm at road crossing, road has altered natural drainage patterns.

SITE CHANNEL

Several other small barriers present, including small cascades.

SITE CHANNEL

Second pass sampling would confirm fish absence.





Photo #: 15 - 23

Site 166, downstream view of flashy section of stream with large D95.



Photo #: 15 - 22

Site 166, upstream view of typical riffle section with heavy cover.



Site/Reach Card

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

Reach 2.0

ILP # 1469

Site # 167

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.29 Elevation (m): upstream 877 downstream 778 UTM (Zone/East/North/ method)
 Gradient (%) 7.7 Order 2 Magnitude 3 BGC Zone SBS 9 608299 600427 GIS
 Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
 Confinement Frequently Confined Exposed/Eroded NONE Width (m)
 Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous ☒ N
 (D)iscontinuous ☐

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/17 Time 07:20 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 607584 6004719 GIS
 Site Length (m) 1200 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.014 NID # 13037

CHANNEL

	2.7	1.9	2.3	3.0	1.4	2.3	Average	Method(s)
Channel Widths (m)	2.7	1.9	2.3	3.0	1.4	2.3	2.3	T
Wetted Widths (m)	1.0	0.5	1.4	0.3	1.2	0.7	0.8	T
Resid. Pool Depths (m)	0.40	0.20	0.40	0.50	0.10	0.30	0.32	MS

No Vis.Ch. ☐ Dewatered ☐ Gradients (%) 8.0 8.0 9.0 7.0 8.0 C, C
 Intermittent ☐ Tributaries ☐ Bankfull Depth (m) 1.5 1.2 1.1 1.3 T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	ub-Dominant	Trace	Trace	Trace	Dominant	Trace

Crown Closure
 1-20%

Instream Vegetation
☐ None ☒ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 11 Methoc T3 pH 7.0 Method P2 EMS #
 Conductivity 70 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Fines D95(cm) (only 5%larger) 80
 MATERIAL Subdominant Cobble D (cm) (moveable) 15

Channel Pattern Sinuous
 Coupling Partially Coupled
 Confinement Occasionally Confined
 Islands None

Morphology Code
 RP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 2.0

ILP # 1469

Site # 167

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES

Type CV	Height 1.0	Method T	Length 8	Method T
Comments Culvert perched by 1 m				
Photograph Roll 16	Frame 1	UTM (Zone/East/North/ Method)	9 607684	600461 GIS

HABITAT QUALITY

FSZs	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	Poor. Patchy sections, trout accessing this reach may have trouble moving gravel of average size (5 cm).
Rearing Habitat	Good. Pools with good cover, LWD provides habitat complexity.
OverWinter Habitat	None.

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 16 Fr 1 CD 2112 Im 49 STD U			Site 167, upstream view of perched culvert at road crossing.
Roll 16 Fr 2 CD 2112 Im 50 STD D			Site 167, downstream view of steam within cutblock.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S3*
SITE	CHANNEL	C2;
SITE	CHANNEL	C6; 019860
SITE	CHANNEL	Moderate velocity; easily accessible during high flows, difficult access at lower flows.
SITE	CHANNEL	Habitat is much different downstream of cutblock, stream is heavily overgrown with vegetation and choked with debris piles.
SITE	CHANNEL	Access may be limited by lack of surface water and dry cobble sections.
SITE	CHANNEL	Stream lacks resting pools in lower section of Reach (~1 / 40m).



FDIS Fish Form

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

Reach # 2.0

ILP # 1469

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE / METHOD		Waterbody ID	
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Permit 34770-20 Date: 1999/08/16 To: 1999/08/16 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
167	93L.014	13037	9 607584 6004719	EF	1	11.0	70	C	

GEAR SETTINGS							
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Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
167	EF 1	1	1999/08/16	07:20	1999/08/16	08:50	

NET/TRAP SPECIFICATIONS											
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ELECTROFISHER SPECIFICATIONS											
------------------------------	--	--	--	--	--	--	--	--	--	--	--

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
167	EF 1	1	O	680	1200.0	2.0	600	60	6	SR	12-B

FISH SUMMARY										
--------------	--	--	--	--	--	--	--	--	--	--

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

INDIVIDUAL FISH DATA										
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COMMENTS										
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Photo #: 16 - 2
Site 167, downstream view of steam within cutblock.



Photo #: 16 - 1
Site 167, upstream view of perched culvert at road crossing.

1. The first part of the document is a title page. It contains the title of the document, the author's name, and the date of the document. The title is "The First Part of the Document". The author's name is "John Doe". The date is "January 1, 2023".

Site/Reach Card

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

Reach 1.0

ILP # 1467

Site # 168

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) .37 Elevation (m): upstream 760 downstream 736 UTM (Zone/East/North/ method) 9 607066 600518 GIS
 Gradient (%) 6.5 Order 1 Magnitude 1 BGC Zone SBS
 Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplain ☐
 Confinement Frequently Confined Exposed/Eroded NONE Width (m)
 Coupling Decoupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous ☒ (D)iscontinuous ☐

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/16 Time 09:00 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 606943 6005190 GIS
 Site Length (m) 200 Method HC Fish Card ☒ Incomplete ☒ NID Map 93L.014 NID # 13038

CHANNEL

	0.4	0.5	0.3	0.6	0.8	1.1	Average	Method(s)
Channel Widths (m)	0.4	0.5	0.3	0.6	0.8	1.1	0.6	T
Wetted Widths (m)	0.1	0.1	0.1	0.1	0.4	0.6	0.2	T
Resid. Pool Depths (m)	0.05	0.05	0.05	0.10	0.05	0.10	0.07	MS

No Vis.Ch. ☐ Dewatered ☐ Gradients (%) 20.0 16.0 17.0 18.0 17.7 C, C
 Intermittent ☐ Tributaries ☐ Bankfull Depth (m) 0.4 0.5 0.3 0.4 T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	Trace	Dominant	Trace	None	ub-Dominant	Trace

Crown Closure
 21-40%

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

Instream Vegetation

☐ None ☒ Moss
☐ Algae ☒ Vasc.

WATER

Temperature 12 Methoc T3 pH 6.8 Method P2 EMS #
 Conductivity 90 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5%larger) 90
 MATERIAL Subdominant Fines D (cm) (moveable) 1

Channel Pattern Irregular, Wandering

Coupling

Confinement

Islands None

Morphology Code
 CP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 1.0

ILP # 1467

Site # 168

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
	Beaver dam ☐ O1	Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs

Side Chan ☐Flood/Beave ☐Tribes ☐Flood Cha ☐Slough ☐**Name****Comments**

Spawning Habitat

None, no spawning habitat is present, fish could not move substrates present in reach (average size substrate = 30 cm).

Rearing Habitat

Rearing habitat is available for fry; 20 - 30 cm² pools, but accessing these pools would be impossible over substrate.

OverWinter Habitat

None

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 16 Fr 3 CD 2112 Im 51 STD U	Site 168, upstream view of moss covered rocks, showing lack of salmonid habitat.		
Roll 16 Fr 4 CD 2112 Im 52 STD D	Site 168, downstream view of typical moss covered rocks, with hard hat for reference.		

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S4 / S6 (first 300 m of reach 1/ upstream).
SITE	CHANNEL	C2; based on gradients/ habitat characteristics.
SITE	CHANNEL	C6; 19859
SITE	CHANNEL	Small isolated pools were shocked extensively.
SITE	CHANNEL	Stream is highly ephemeral, reach 2 is non-fishbearing based on gradients and habitat characteristics.
SITE	CHANNEL	Possible fish access to lower section of reach 1, stream becomes low gradient and heavily braided through this section.



FDIS Fish Form

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

Reach # 1.0

ILP # 1467

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE / METHOD	Waterbody ID
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Permit 34770-20 Date: 1999/08/16 To: 1999/08/16 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/ Mthd	MTD/NO	Temp	Cond	Turbid	Comment
168	93L.014	13038	9 606943 6005190	EF 1	12.0	90	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
168	EF 1	1	1999/08/16	09:00	1999/08/16	10:30	

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
168	EF 1	1	O	110	200.0	0.5	600	60	6	SR	12-B

FISH SUMMARY

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

INDIVIDUAL FISH DATA

COMMENTS





Photo #: 16 - 4

Site 168, downstream view of typical moss covered rocks, with hard hat for reference.



Photo #: 16 - 3

Site 168, upstream view of moss covered rocks, showing lack of salmonid habitat.



Site/Reach Card

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

Reach 1.0

ILP # 1466

Site # 169

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) 1.07 Elevation (m): upstream 890 downstream 785 UTM (Zone/East/North/ method) 9 608829 600577 GIS
 Gradient (%) 9.8 Order 1 Magnitude 1 BGC Zone SBS
 Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplain ☐
 Confinement Occasionally Confined Exposed/Eroded NONE Width (m)
 Coupling Decoupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Irregular, Wandering Landuse Logging, with reserves LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous ☒ (D)iscontinuous ☐

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/16 Time 11:00 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 608002 6005915 GIS
 Site Length (m) 350 Method HC Fish Card ☐ Incomplete ☐ NID Map 93L.014 NID # 13039

CHANNEL

Channel Widths (m)	0.3	0.6	0.4	0.5	0.8	Average	Method(s)
Wetted Widths (m)						0.5	T
Resid. Pool Depths (m)						n/a	
						n/a	

No Vis.Ch. ☐ Dewatered ☐
 Intermittent ☒ Tributaries ☐
 Gradients (%) 4.0 5.0 3.0 5.0 4.2 C, C
 Bankfull Depth (m) 0.4 0.3 0.2 0.3 T

Stage ☒ Low
☐ Med.
☐ High

COVER -		Total	Moderate	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	None	None	None	None	Dominant	ub-Dominant

Crown Closure
 1-20%

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Pole-sapling stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature Methoc pH Method EMS #
 Conductivity Method Turbidity ☐ Turbid ☐ Medium ☐ Light ☐ Clear Method

MORPHOLOGY

BED Dominant Fines D95(cm) (only 5% larger) 20
 MATERIAL Subdominant Cobble D (cm) (moveable) 2

Channel Pattern Irregular, Wandering
 Coupling Decoupled
 Confinement Unconfined
 Islands None

Morphology Code
 RP

Bars

☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 1.0

ILP # 1466

Site # 169

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs	Side Chan ☐	Flood/Beave ☐
Tribs ☐	Flood Cha ☐	Sloug ☐

Name	Comments
Spawning Habitat	Poor. A few patchy sections may provide some spawning habitat, but substrates are primarily fine
Rearing Habitat	Poor. Limited riffle/run habitat, isolated shallow stagnant pools.
OverWinter Habitat	None.

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 16 Fr 5	CD 2112 Im 53	STD U	Site 169, upstream view of typical stream channel, with axe for reference.
Roll 16 Fr 6	CD 2112 Im 54	STD D	Site 169, downstream view of typical stream channel, with axe for reference.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S6
SITE	CHANNEL	C2 entire stream has been harvested to banks and across; muddy substrates, small catchment, heavily vegetated channel, limited connectivity, heavily braided, subsurface flows
SITE	CHANNEL	WAPS





Photo #: 16 - 6

Site 169, downstream view of typical stream channel, with axe for reference.



Photo #: 16 - 5

Site 169, upstream view of typical stream channel, with axe for reference.



Site/Reach Card

Watershed Cod 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

Reach 2.0

ILP # 1463

Site # 170

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .69 Elevation (m): upstrea 940 downstream 800 UTM (Zone/East/North/ method)
Gradient (%) 20.3 Order 1 Magnitude 1 BGC Zone SBS 9 609411 600629 GIS
Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
Open water A Wetland ☐ Mass Movement Low or no impact to channel; Active Floodplai ☐
Confinement Confined Exposed/Eroded NONE Width (m)
Coupling Decoupled Islands NONE Beaver Dam(s) ☐
Channel Pattern Irregular, Wandering Landuse None/natural LWD jam(s) ☐
Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous ☐ (D)iscontinuous ☒

SITE

Gazetted Name Local Name Unnamed
Survey Date 1999/08/16 Time 12:15 Agency: C151
Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 609055 6006693 GIS
Site Length (m) 100 Method GE Fish Card ☐ Incomplete ☐ NID Map 93L.014 NID # 13040

CHANNELNo Visible Channe ☒

Gradient(s) (%)

Vegetation

Veg. Stage

FEATURE**HABITAT QUALITY**

FSZs

Side Chan ☒Flood/Beave ☒Tribes ☒Flood Cha ☒Sloug ☒**PHOTO DOCUMENTATION**

Film Compact Disc Lens / Dir. Comments
Roll 16 Fr 7 CD 2112 Im 55 STD D Site 170, downslope view of vegetated gully.

COMMENT

Form	Section	Comments
SITE	CHANNEL	C1; NVC
SITE	CHANNEL	C2; vegetated gully
SITE	CHANNEL	Watercourse lacks scour, has been heavily overgrown and altered by cutblock, lacks connectivity; gradients >20% downstream in reach1





Photo #: 16 - 7
Site 170, downslope view of vegetated gully.



Site/Reach Card

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

Reach 1.0

ILP # 1459

Site # 171

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) .29 Elevation (m): upstream 860 downstream 795 UTM (Zone/East/North/ method)
 Gradient (%) 22.4 Order 1 Magnitude 2 BGC Zone SBS 9 609878 600667 GIS
 Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
 Confinement Frequently Confined Exposed/Eroded NONE Width (m)
 Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Mixed C/D Valley Flat No valley flat on either bank (C)ontinuous (D)iscontinuous N

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/08/16 Time 14:30 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 609896 6006815 GIS
 Site Length (m) 290 Method GE Fish Card ☒ Incomplete ☐ NID Map 93L.014 NID # 13041

CHANNEL

	1.8	1.9	1.3	0.8	1.4	0.9	Average	Method(s)
Channel Widths (m)	1.8	1.9	1.3	0.8	1.4	0.9	1.3	T
Wetted Widths (m)	1.6	1.7	0.8	0.8	1.2	0.7	1.1	T
Resid. Pool Depths (m)	0.20	0.60	0.10	0.50	0.30	0.40	0.35	MS

No Vis.Ch. ☐	Dewatered ☐	Gradients (%)	25.0	20.0	21.0	22.0	22.0	C, C
Intermittent ☐	Tributaries ☐	Bankfull Depth (m)	0.9	1.1	0.8	0.9	0.9	T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
ub-Dominant	Trace	None	None	None	Dominant	Trace	

Crown Closure
 21-40%

Instream Vegetation

☐ None ☒ Moss
☐ Algae ☐ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Mixed C/D
 Riparian Stage Mature forest

Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 12 Methoc T3 pH 7.2 Method P2 EMS #
 Conductivity 70 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5%larger) 160
 MATERIAL Subdominant Gravels D (cm) (moveable) 20

Channel Pattern Irregular, Wandering

Coupling Partially Coupled

Confinement Occasionally Confined

Islands None

Morphology Code
 CP

Bars

☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 1.0

ILP # 1459

Site # 171

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs

Side Chan ☐Flood/Beave ☐Tribes ☐Flood Cha ☐Sloug ☐**Name****Comments**

Spawning Habitat

Limited. Suitably sized substrates lacking.

Rearing Habitat

Mostly plunge pool type habitat, no access possible in reach, gradients and small cascades throughout, heavy debris torrent, flashy system.

OverWinter Habitat

None

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 16 Fr 8 CD 2112 Im 56 STD U	Site 171, upstream view of CP type habitat, upstream of road crossing.		
Roll 16 Fr 9 CD 2112 Im 57 STD D	Site 171, downstream view of CP type habitat, heavily overgrown.		

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1;S6
SITE	CHANNEL	C2; non fish bearing based on gradients, and extensive electrofishing efforts.
SITE	CHANNEL	C6; 010361
SITE	CHANNEL	Heavy vegetation, small 50-60 cm cascades created by boulders and LWD, resulting in good pool habitats
SITE	SITE CARD	Actual site length = 300



FDIS Fish Form

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

Reach # 1.0

ILP # 1459

ILP Map # 93L.014

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE/METHOD		Waterbody ID
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Permit	34770-20	Date:	1999/08/16	To:	1999/08/16	Crew:	JH/EM	Resample	☐
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Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
171	93L.014	13041	9 609896 6006815	EF	1	12.0	70	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
171	EF	1	1	1999/08/16	14:30	1999/08/16	15:30

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
171	EF	1	1	O	531	300.0	1.5	600	60	6	SR 12-B

FISH SUMMARY

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

INDIVIDUAL FISH DATA

COMMENTS





Photo #: 16 - 9

Site 171, downstream view of CP type habitat, heavily overgrown.



Photo #: 16 - 8

Site 171, upstream view of CP type habitat, upstream of road crossing.



Site/Reach Card

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

Reach 2.0

ILP # 1031

Site # 232

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type R

Length (km) .45 Elevation (m): upstream 1036 downstream 996 UTM (Zone/East/North/ method)
 Gradient (%) 8.9 Order 2 Magnitude 2 BGC Zone SBS 9 620098 598840 GIS
 Setting Valley Wall Bars ☐ None ☒ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
 Confinement Frequently Confined Exposed/Eroded NONE Width (m)
 Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Sinuous Landuse None/natural LWD jam(s) ☐
 Riparian Vegetation Shrubs Valley Flat No valley flat on either bank (C)ontinuous ☒ (D)iscontinuous ☐

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/09/12 Time 08:50 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 619971 5988575 GIS
 Site Length (m) 100 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.005 NID # 13102

CHANNEL

	1.5	1.0	1.8	1.1	1.3	1.4	1.3	Average	Method(s)
Channel Widths (m)	1.5	1.0	1.8	1.1	1.3	1.4	1.3	1.4	T
Wetted Widths (m)	1.2	1.0	1.4	1.0	1.2	1.0	1.3	1.2	T
Resid. Pool Depths (m)	0.35	0.30	0.29	0.25	0.27	0.35		0.30	MS

No Vis.Ch. ☐ Dewatered ☐ Gradients (%) 4.0 5.0 4.0 5.0 4.5 C, C
 Intermittent ☐ Tributaries ☐ Bankfull Depth (m) 1.0 0.8 0.9 0.9 T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Abundant	LWD Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg
Trace	ub-Dominant	None	ub-Dominant	Trace	Dominant	Trace

Crown Closure
 21-40%

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Shrubs
 Riparian Stage Shrub/herb stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Shrubs
 Riparian Stage Shrub/herb stage

Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 7 Methoc T3 pH 6.7 Method P2 EMS #
 Conductivity 65 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Gravels D95(cm) (only 5%larger) 30
 MATERIAL Subdominant Cobble D (cm) (moveable) 5

Channel Pattern Irregular, Wandering
 Coupling Partially Coupled
 Confinement Occasionally Confined
 Islands None

Morphology Code
 RP

Bars
☐ None ☐ Mid
☒ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 2.0

ILP # 1031

Site # 232

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES**HABITAT QUALITY**

FSZs

Side Chan ☐Flood/Beave ☐Tribes ☐Flood Cha ☐Sloug ☐

Name	Comments
Spawning Habitat	Moderate. Numerous accumulations of gravels and perennial flows.
Rearing Habitat	Moderate. Abundant cover, pools/riffles/runs suitable for juvenile or fry.
OverWinter Habitat	None. However, overwintering habitat is available in the wetland downstream.

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 21 Fr 22 CD 2112 Im 189 STD U			Site 232, upstream view of fish capture location.
Roll 21 Fr 23 CD 2112 Im 190 STD D			Site 232, downstream view of section of stream with moderate rearing habitats.

WILDLIFE**COMMENTS**

Form	Section	Comments
SITE	CHANNEL	C1; S4
SITE	CHANNEL	C2; CT fry captured throughout site
SITE	CHANNEL	C6; 019885
SITE	CHANNEL	fish captured within cutblock with no RMA/RMz in several sections; de-activated road has created small debris/sediment jam
SITE	CHANNEL	stream provides moderate spawning habitat for downstream lake; high recruitment; no adults captured



FDIS Fish Form

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

Reach # 2.0

ILP # 1031

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE / METHOD				Waterbody ID
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Permit 34770-20 Date: 1999/09/12 To: 1999/09/12 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/	Mthd	MTD/NO	Temp	Cond	Turbid	Comment
232	93L.005	13102	9 619971	5988575	EF 1	7.0	65	C	

GEAR SETTINGS

Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
232	EF 1	1	1999/09/12	08:50	1999/09/12	09:35	

NET/TRAP SPECIFICATIONS

ELECTROFISHER SPECIFICATIONS

Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
232	EF 1	1	O	215	100.0	1.5	600	60	6	SR	12-B

FISH SUMMARY

Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
232	EF 1	1	CT	F	0+	6	25 30	R	

INDIVIDUAL FISH DATA

Site	MTD/NO	H/P	Species	Length (mm)	Weight (g)	Sex	Mat	Str / Smpl# / Age	Vch#	Genetic Str/ Smpl#	Photograph Roll Fr.	Comment
232	EF 1	1	CT	30		U	U				21 21	
232	EF 1	1	CT	25		U	U					
232	EF 1	1	CT	30		U	U					
232	EF 1	1	CT	25		U	U					
232	EF 1	1	CT	25		U	U					
232	EF 1	1	CT	30		U	U					

COMMENTS



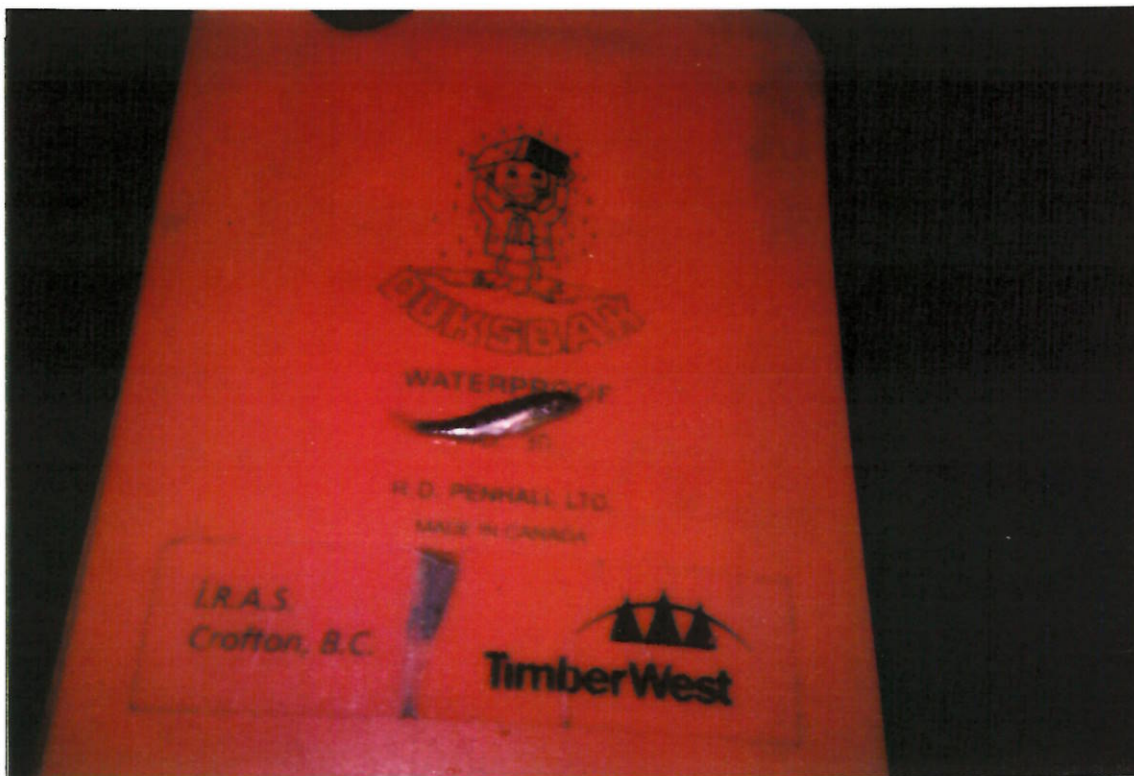


Photo #: 21 - 21
 Site 232, photo of a 30 mm cutthroat trout.



Photo #: 21 - 22
 Site 232, upstream view of fish capture location.





Photo #: 21 - 23

Site 232, downstream view of section of stream with moderate rearing habitats.



Site/Reach Card

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

Reach 1.0

ILP # 1033

Site # 233

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

REACH ATTRIBUTES

Sample Type B

Length (km) .79 Elevation (m): upstream 1017 downstream 994 UTM (Zone/East/North/ method)
 Gradient (%) 2.9 Order 1 Magnitude 1 BGC Zone SBS 9 620320 598903 GIS
 Setting Valley Wall Bars ☐ None ☐ Side ☐ Diagonal ☐ Mid ☐ Span ☐ Braid
 Open water A Wetland ☐ Mass Movement Medium impact; some debris Active Floodplain ☐
 Confinement Frequently Confined Exposed/Eroded NONE Width (m)
 Coupling Partially Coupled Islands NONE Beaver Dam(s) ☐
 Channel Pattern Irregular, Wandering Landuse None/natural LWD Jam(s) ☐
 Riparian Vegetation Shrubs Valley Flat No valley flat on either bank (C)ontinuous ☐ (D)iscontinuous ☒

SITE

Gazetted Name Local Name Unnamed
 Survey Date 1999/09/12 Time 09:40 Agency: C151
 Crew JH/EM Access V2 MAP UTM (Zone/East/North/Method) 9 620045 5988766 GIS
 Site Length (m) 240 Method HC Fish Card ☒ Incomplete ☐ NID Map 93L.005 NID # 13103

CHANNEL

							Average	Method(s)
Channel Widths (m)	0.6	0.4	0.9	0.4	0.5	0.5	0.6	T
Wetted Widths (m)	0.4	0.3	0.4	0.3	0.5	0.5	0.4	T
Resid. Pool Depths (m)	0.05	0.10	0.05	0.07	0.08	0.05	0.07	MS

No Vis.Ch. ☐ Dewatered ☐
 Intermittent ☐ Tributaries ☐
 Gradients (%) 4.0 4.0 3.0 5.0 4.0 C, C
 Bankfull Depth (m) 0.5 0.5 0.5 0.5 0.5 T

Stage ☐ Low
☒ Med.
☐ High

COVER -		Total	Moderate	LWD	Few	Dist.	Clumped
SWD	LWD	Boulder	Cutbank	Deep Pool	Over Veg	Instream Veg	
Trace	ub-Dominant	None	Trace	None	Dominant	ub-Dominant	

Crown Closure
 41-70%

Instream Vegetation
☐ None ☒ Moss
☐ Algae ☒ Vasc.

LEFT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Shrubs
 Riparian Stage Shrub/herb stage
 Texture ☒ Fines ☐ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

RIGHT BANK

Shape V - shaped (steep sloping or vertical)
 Riparian Veg. Shrubs
 Riparian Stage Shrub/herb stage
 Texture ☐ Fines ☒ Gravel ☐ Cobble
☐ Boulder ☐ Rock ☐ Man Made

WATER

Temperature 7 Methoc T3 pH 6.8 Method P2 EMS #
 Conductivity 70 Method S3 Turbidity ☐ Turbid ☐ Medium ☐ Light ☒ Clear Method GE

MORPHOLOGY

BED Dominant Cobble D95(cm) (only 5% larger) 40
 MATERIAL Subdominant Fines D (cm) (moveable) 4

Channel Pattern Irregular, Wandering
 Coupling Partially Coupled
 Confinement Occasionally Confined
 Islands None

Morphology Code
 RP

Bars

☒ None ☐ Mid
☐ Side ☐ Span
☐ Diag. ☐ Braid



Site/Reach Card

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

Reach 1.0

ILP # 1033

Site # 233

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Abandoned channel ☐ B1	SWD ☐ D1	Extensive riffle ☐ C1	Homog. be ☐ S1
Eroding bank ☐ B2	LWD ☐ D2	Minimal pool are ☐ C2	Sediment finger ☐ S2
Avulsion ☐ B3	LWD Jam(s) ☐ D3	Elevated mid chan bar ☐ C3	Sediment wedge ☐ S3
		Mult. chan./braid ☐ C4	Extensive bar ☐ S4
Beaver dam ☐ O1		Dist. stone line ☐ C5	Extensive sco ☐ S5

FEATURES

HABITAT QUALITY

FSZs

Side Chan ☐

Flood/Beave ☐

Tribs ☐

Flood Cha ☐

Sloug ☐

Name	Comments
Spawning Habitat	Poor. (<5%) Patchy accumulations of gravels, mostly smaller gravel mixed with fines.
Rearing Habitat	Poor, (<20%) small pools with good cover, but access between is questionable in some areas
OverWinter Habitat	None, but downstream wetland provides some overwintering habitat

PHOTO DOCUMENTATION

Film	Compact Disc	Lens / Dir.	Comments
Roll 21 Fr 24 CD 2112 Im 191 STD U	Site 233, upstream view of typical habitat found throughout reach.		
Roll 21 Fr 25 CD 2112 Im 192 STD D	Site 233, downstream view of reach		

WILDLIFE

COMMENTS

Form	Section	Comments
SITE	CHANNEL	C1; S4
SITE	CHANNEL	C2; fish access possible from downstream fish bearing waters.
SITE	CHANNEL	C6; 008541
SITE	CHANNEL	Fish were easily captured in downstream confluence with larger trib, although no fish were captured in this stream further than 40 m upstream of the confluence.



FDIS Fish Form

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

Reach # 1.0

ILP # 1033

ILP Map # 93L.005

Project Name Morice River Fish Inventory - 1999

Project Code 1710

Lake / Stream	S	SITE/METHOD	Waterbody ID
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Permit 34770-20 Date: 1999/09/12 To: 1999/09/12 Crew: JH/EM Resample ☐

Site	NID MAP	NID	UTM:Zone/East/North/ Mthd	MTD/NO	Temp	Cond	Turbid	Comment
233	93L.005	13103	9 620045 5988766	EF 1	7.0	70	C	

GEAR SETTINGS							
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Site	MTD/NO	H/P	Date In	Time In	Date Out	Time Out	Comment
233	EF 1	1	1999/09/12	09:40	1999/09/12	10:20	

NET/TRAP SPECIFICATIONS											
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ELECTROFISHER SPECIFICATIONS											
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Site	MTD/NO	H/P	Encl	Sec.	Length	Width	Volts	Hz	Pulse	Make	Model
233	EF 1	1	O	214	240.0	0.5	600	60	6	SR	12-B

FISH SUMMARY											
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Site	MTD/NO	H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	Activity	Comment
233	EF 1	1	CT	F	0+	3	25 30	R	

INDIVIDUAL FISH DATA													
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Site	MTD/NO	H/P	Species	Length	Weight	Sex	Mat	Age	Genetic	Photograph	Roll Fr.	Comment
				(mm)	(g)			Str / Smpl# / Age		Str/ Smpl#		
233	EF 1	1	CT	30		U	U					
233	EF 1	1	CT	25		U	U					
233	EF 1	1	CT	25		U	U					

COMMENTS													
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