

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

• Subdrainages in the Babine Lake Watershed (WSC 480-***)**

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Project Reference Information

MELP Project Number	BFP-C016-001-1999
FRBC Project Number	0000105
FRBC Activity Number	10437
FDIS Project Number	06-UNRS-100000074-1998
FDIS Project WSC	480
FRBC Region	Smithers Region
MELP Region	06
FW Management Unit	6-6
DFO Sub-District	4D
Forest Region	Prince Rupert
Forest District	Lakes Forest District
Forest Licensee and Tenure #	Babine Forest Products Company Forest Licences A-16823 and A-16825

Watershed Information

See table on following page.

Sampling Design Summary

Total Number of Reaches	563
Random Sampling Sites	4
Discretionary Sample Sites	72
Total Sample Sites	76
Total Sample Sites (%)	13
Field Sampling Dates	July 16 to October 26, 1998

Subdrainage Watershed Reference Information¹

Sub-Unit	Watershed Name	Subdrainage Watershed Code/ ILP	UTM at Mouth	Watershed Area (km ²)	Total of all Stream Lengths (km)	Stream Order	NTS Map(s)	TRIM Maps	BEC Zone	Fish Species Present
BABL Watershed Group										
Pendleton Sub-Unit										
		480-818600	10.318419.605419 ₀	106.8	136.0		93 K/12, 93 K/5	93K.061, 93K.051, 93K.052, 93K.041, 93K.042	SBS	CAS, CO, RB, SK
		480-825200	10.319900.605320 ₇			2		93K.061, 93K.051	SBS	CAS, CO, RB
		52509	10.321240.605116 ₀			3		93K.051, 93K.052	SBS	CO, RB
		480-849100	10.323062.604763 ₁			1		93K.052	SBS	
		480-851000	10.323170.604698 ₃			3		93K.051, 93K.052	SBS	CAS, CO, RB
		480-855200	10.323931.604612 ₉			3		93K.052	SBS	
		480-856600	10.324009.604574 ₆			1		93K.052	SBS	
		480-858600	10.324373.604535 ₆			2		93K.052	SBS	
						3		93K.051, 93K.052, 93K.041, 93K.042	SBS	
	Cross C.	480-863300	10.325144.604437 ₁			4		93K.052, 93K.042	SBS	CO, RB, SK
		52539	10.326260.604250 ₀			1		93K.052, 93K.042	SBS	
Taltapin - Tributaries to Taltapin Lake and Pinkut Creek below Taltapin Lake										
	Pinkut C.	480-927700	10.340510.603593 ₉	142.0	231.2	6	93 K/6, 93 K/5	93K.043 93K.044 93K.033 93K.034 93K.024	SBS	RB
	Gullwing			5.5	5.6					

¹ Watershed Area and stream order have been determined for the entire subdrainage watershed, while total of all stream lengths refers only to those parts of the watershed that fell within the project boundaries under the scope of this contract. Watershed information for the Pendleton sub-unit area have been grouped, with relevant information on each surveyed tributary has been listed in this table. The Pinkut watershed has been listed as just one watershed, although only tributaries to Pinkut Creek (and not the mainstem) were only included in the project area under the scope of this contract. Specific information on project boundaries is presented in the report.

Abbreviations Used in this Report

BGC	biogeoclimatic zone	m	meter
C	clear (not turbid)	mm	millimeter
C.	creek	M	moderate flow or moderate turbid
CAS	prickly sculpin (<i>Cottus asper</i>)	MELP	Ministry of Environment, Lands and Parks
CD	compact disc	M/L	mainline
CO	coho salmon (<i>Oncorhynchus kisutch</i>)	MT	minnow trap
Cond.	conductivity	NA	not applicable
CW	channel width	NFC	no fish captured
DFO	Department of Fisheries and Oceans	NFP	no fish present
Dist.	distance	NS	not sampled
Dpth	depth	NTS	National Topographic Survey
d/s	downstream	PCC	peamouth chub (<i>Mylocheilus caurinus</i>)
EF	electrofishing	Prop	proposed
ESSF	Engelman Spruce-Subalpine Fir BGC	R.	river
FDIS	Field Data Information System	RB	rainbow trout (<i>O. mykiss</i>)
FISS	Fisheries Information Summary System	Rd	road
FPC	Forest Practices Code	Rip	riparian
FRBC	Forest Renewal of British Columbia	sec	seconds
Grad	slope gradient	SBS	Sub-Boreal Spruce BGC
H	high flow	SK	sockeye salmon (<i>O. nerka</i>)
Hz	Hertz	S6 - S2	riparian classes
ILP	Interim Locational Point	T	turbid
Info.	information	TRIM	Terrain Resource Information Management
km	kilometer	Turb	turbidity
L	low flow or lightly turbid	u/s	upstream
L.	lake	UTM	Universal Transverse Mercator coordinates
LKC	lake chub (<i>Couesius plumbeus</i>)	V	volts
LSU	longnose sucker (<i>Catostomus catostomus</i>)	WSC	watershed code
LWD	Large Woody Debris	µs	microseconds

Contractor Information

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Acknowledgments

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List of Attachments Available at MELP Office

Attachment I Planning Document

- i) Phase Completion Report
- ii) Project budget break-down by phase
- iii) Project sampling design plan
- iv) Hardcopy and digital Reach Table
- v) Hardcopy and digital Lake Table
- vi) Hardcopy and digital copy of the random sample table
- vii) List of air photographs

Attachment II Hardcopy FISS Update Data Forms and Maps

Attachment III Photodocumentation

- i) Photodocumentation Form 1
- ii) Photo Summary Report printout from FDIS Database
- iii) Indexed Photo Album with labeled photographs
- iv) Indexed Album of all negatives uniquely labeled in plastic sleeves
- v) 2 Indexed Copies of Photo CD's with numbered images and thumbnail references in each CD jacket

Attachment IV Field Data

- i) site cards, lake forms, fish collection forms, individual fish data forms and field notes
- ii) field working maps
- iii) paper sounding trace from E-lines

Attachment V Fish Scales

- i) labeled envelope with scales
- ii) scales mounts

Attachment VI Digital Data

1. Introduction

1.1 Project Scope and Objectives

The objective of this project was to conduct a Reconnaissance (1:20,000) Fish and Fish Habitat Inventory in several subdrainages in the Babine Lake watershed. This included tributaries to Babine Lake within the Pendleton Sub-unit, tributaries to Pinkut Creek in the Taltapin Sub-unit and three small tributaries to the Babine Lake in the Gullwing Sub-unit (see “Subdrainage Watershed Reference Information” at the beginning of this report). The watershed inventory boundaries are defined in more detail in the corresponding section in the Results and Discussion section of this report.

1.2 Location

The surveyed subdrainages are located in the southern section of the Babine Lake watershed, north of Burns Lake within the Lakes Forest District. All streams are within the Babine Lake (BABL) high level watershed group. The location map on the following page provides the general location of each of the study area watersheds.

1.2.1 Access

Most of the reaches within these watersheds were located within well-roaded areas, with vehicle access being the predominant method of access for reach sampling. Boat access from Babine Lake was required in the lower reaches of a few of the streams within the Pendleton sub-unit, in addition to some of the lower reaches of tributaries to Taltapin Lake. Individual reaches were usually accessed by foot from nearby logging roads and cutblock spur roads. Access to each watershed within this project area is explained in more detail in its corresponding section in Results and Discussion.

1.3 Logistics

The major problem encountered throughout the course of the sampling that was common to all drainages within the project area was the effect of extreme low water levels on sampling effectiveness. Intermittent or dry channels were common, the very low water levels a result of the unusually dry summer. These conditions often precluded effective fish sampling. The presence and accessibility of fish habitat at higher flow conditions was usually considered in determining potential fish use in these situations. In addition, problems were encountered with the pH and conductivity meters used in the field sampling in that they failed or were producing questionable readings. Their use was abandoned about two thirds into the field sampling so that numerous sample sites lack this water chemistry data. No other logistical problems were encountered.

2. Resource Information

Resource use within this area is dominated by forestry activities within the study area watersheds. Logging was prevalent in the upper reaches of tributaries in the Pendleton sub-unit, and in the lower reaches of tributaries in the Taltapin sub-unit. More specific comments on resource use as it relates to each surveyed subdrainage are provided in the results section of this report.

3. Methods

Methodology used throughout this project were consistent with the standards and methods as defined in the “Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures (May 1998)” manual and all standards referenced therein.

Site Numbering Convention

Site numbers for this project have been assigned in an upstream ascending order for all sampled reaches under the scope of this contract. Sampled reaches covered by this report include Sites 227 through 302. The structure of this report follows this same convention. Site numbers have been included in all tables that provide specific reach sampling information and on all photographs and photodocumentation indices.

Usage of ILP Numbers

A naming convention for all ILP’s has also been used in order to simplify stream referencing for this project, for streams requiring watershed codes. All 5-digit ILP numbers that have been assigned are unique within the entire project area. This was done to avoid confusion in ILP referencing throughout the project and having to reference the ILP map number each time the ILP is referenced. Every ILP created uses the last two digits of its ILP map, combined with its number on the map. That is, the first ILP on TRIM mapsheet 93K.052 would be ILP 52001. There was no overlap of mapsheet numbers among the different TRIM map series (i.e. 93E vs. 93F. vs. 93K vs. 93 L series). Relevant TRIM maps for each report are listed in the Project Reference Information of the reports. All streams with gazetted names will be referred to by those names in this report while all unnamed streams will be referred to by their watershed code or ILP number.

NVC (No Visible Channel) Reaches

There were generally two types of situations in which site assessment in the field revealed no visible channel. They include reaches where no channel was present (or not a stream by FPC definition) or wetland-type reaches where there was no defined channel present, just wet, spongy ground where flow was generally percolating through the ground. These different types of NVC reaches were noted in the comments on the site cards and are summarized with all non fish-bearing reaches in the “Fish-Bearing Status: section of this report. It is expected that NVC channels would receive a “Non Classified Drainage (NCD) FPC classification.

Appendix I Layout - FDIS Site Cards, Fish Forms and Photographs

FDIS site card and fish form reports, as well as representative photographs for each sampled reach, are presented in Appendix I, arranged by site number. They are arranged as site card, followed by the corresponding fish form - the representative photos have been reduced in size so that multiple sites can be presented on one page. The pages of photos are placed in the appendix following their corresponding site cards and fish forms. Each photo is labelled with roll, frame, watershed code/ILP, reach and site numbers so that each photo can be easily cross-referenced in either the photo binder or the photo CD's.

Field Equipment

The following is a list of field equipment used throughout reach sampling.

- 2 Smith-Root model 12B P.O.W. Backpack Electrofishers
- 50 Gee-type minnow traps
- 2 Hanna pHep 3 waterproof pH meters
- 2 Hanna DIST WP 3 conductivity meters
- 2 Suunto clinometers, alcohol thermometers, Silva compasses
- 2 Pentax Zoom 90WR cameras
- assorted other equipment including tight chains, hip chains, stop nets, dip nets, fishing rods, magnifying lenses
- 2 4X4 trucks equipped with Level 1 First Aid kits and 4 personal First Aid kits, as per WCB requirements
- 12'6" inflatable Quicksilver boat with Mariner 20 HP jet

4. Results and Discussion

The following sections present information for each subdrainage as identified in the Project Reference Information section of this report. Biophysical information for these subdrainages is provided in tabular format in Subdrainage Watershed Reference Information at the beginning of this report. The discussion sections have been broken down into three groups, based on the sub-unit in which the specific streams are located. The sub-units covered by this report include the Pendleton, Taltapin and Gullwing. The Fish Bearing Status section groups the data for all surveyed reaches within all subdrainages covered by this report.

4.1 Subdrainages in the Pendleton Sub-Unit: Tributaries to Babine Lake - Sites 227-245, 302

The tributaries surveyed within this area are all located between Twain Creek (WSC 480-816400) and Donalds Creek (WSC 480-881300) on the southwest shore of Babine Lake. All tributary watersheds were within the overall project boundary under the scope of this contract.

4.1.1 Access

Access from Burns Lake to these watersheds is as follows:

- Drive north on the Babine Lake road (toward landfill) to the junction with the Augier Main at km 18.4
- Turn left at the Augier Main and stay right at the junction at the 47km board. This is now the Pendleton Bay road.
- Follow this road for 5.5km to the Boat launch at Pendleton Bay.
- Most tributaries were accessed by boat from this location

4.1.2 Resource Use

Resource use within the area is dominated by logging and recreational activities, with resorts located along the shore of Babine Lake. Although Babine Lake is a popular recreational angling destination, the watersheds within the project area are too small to support any angling use.

4.1.3 Habitat and Fish Distribution

Tributaries to Babine Lake in this area were generally seasonal with limited access and marginal habitat for fish due to persistent dewatering or were too steep for fish use. Only a few of the larger tributaries were accessible to fish or provided any significant fish habitat. The most notable fish habitat is present in 480-818600, 480-825200, 480-849100 and Cross Creek (480-863300), where coho and sockeye salmon, rainbow trout and prickly sculpin were present. These creeks provided good overall salmonid rearing and spawning habitat in the lower reaches, but were still subject to fish access problems from Babine Lake during low flow periods and low lake levels. In addition, potential rearing habitat within these drainages is significantly reduced during extreme and recurring low water levels. Good rearing habitat is also available in 480-858600, but presence of a large beaver dam at the mouth of this creek may be limiting fish use of this system.

A 6m high falls barrier is present on 480-825200 at the end of reach 1.1, 492m upstream from the mouth. These falls are impassable to all fish species and mark the upper limit of fish distribution in this watershed.

A 3m high cascade barrier is present on 480-849100 at the end of reach 1.1, 0.48km upstream from the mouth. This cascade is impassable to all fish species and mark the upper limit of fish distribution in this watershed. However, one tributary (480-849100-15000) enters this stream below this barrier and is a major flow contributor to the system. This stream provides good salmonid rearing habitat and is used by rainbow trout.

Cross Creek is a relatively large watershed providing excellent habitat for resident, adfluvial and anadromous fish species. However, most of the habitat is isolated above a 9m falls barrier located at the end of reach 2.1, 1.62km upstream from the mouth. No fish species were found above these falls either in this inventory or in any of the upstream reaches surveyed in 1996.

4.1.4 Fish Age, Size and Life History

Of the fish-bearing reaches, rainbow trout was the most common and abundant species encountered within these watersheds. Other species such as coho and sockeye salmon and prickly sculpin were present in several systems but generally inhabited only the first reaches of a few of the direct tributaries to Babine Lake. These species were much less abundant than rainbow trout (See Table 1). Sockeye salmon were only present in Cross Creek (spent) while juvenile coho salmon were present in 480-818600, 480-825200, 480-849100 and in Cross Creek. Both fluvial and adfluvial populations of rainbow trout may inhabit all fish bearing reaches. The streams may be used for rearing by juvenile rainbow trout from Babine Lake, as well as by fluvial populations. All captured fish appeared healthy and did not exhibit any external signs of disease.

The following table presents data for fish species encountered in this watershed.

Table 1: Summary of length-at-age data from fish sampled within Pendleton Sub-Unit

Stream Name	Watershed Code	Spp.	Stage	Number of Fish	Mean Length (mm)	Range of Lengths (mm)
	Various direct tributaries to Babine L.	RB	J	105	59.5	34-126
			A	11	153.5	119-185
		CAS	J	3	45.0	39-53
			A	1	58.0	58
		CO SK	J	32	61.9	49-77
			A	4	513.8	450-550

Further information on sampled reaches is available in the tables in Section 4.4. and in Appendix I.

4.2 Subdrainages in the Taltapin Sub-Unit (Lower Pinkut Creek Tributaries - Watershed Code 480-927700) - Sites 246-298

Pinkut Creek is a large (6th order) watershed that flows generally north into the south shore of Babine Lake north-northeast of Burns Lake. Only a small portion of the watershed was covered in this inventory under the scope of this contract. The mainstem of Pinkut Creek was not included in this inventory. The project boundary within this sub-unit included one tributary to Babine Lake (WSC 480-925100) located approximately 1km west of Pinkut Creek, all tributaries to Pinkut Creek below Taltapin Lake, north shore tributaries to Taltapin Lake, and south shore tributaries to Taltapin Lake between Finch (WSC 480-927700-25300) and Henrietta (WSC 480-927700-23400) creeks. The Marlin Creek watershed (WSC 480-927700-23300) on the north side of Taltapin Lake was not within the project boundary.

4.2.1 Access

Access from Burns Lake to the Pinkut Creek watersheds is as follows:

- Drive north on the Babine Lake road (toward landfill) to the junction with the Augier Main at km 18.4
- Turn right at the junction onto the Augier main and follow this road for 10km to the junction with Taltapin road at the 26km board
- Turn left onto Taltapin road and follow this road for 11km at which point this road crosses Pinkut Creek within the project area at the 37km board. Reaches within this watershed were generally accessed via the Taltapin, Grizzly, Fisheries and Anderson roads and from various spur roads

4.2.2 Resource Use

Resource use within the area is dominated by logging and recreational activities. Many campsites are located throughout the watershed near Taltapin Lake and along Pinkut Creek. Taltapin Lake is a popular recreational angling destination. Streams within the project area are too small to support any angling use.

4.2.3 Habitat and Fish Distribution

Rainbow trout was the only species found within this project area and of the 53 surveyed reaches, they were present in only two tributaries to Pinkut Creek. These include reach 1 and reach 3 of 480-927700-03700 and in the first reach of 480-927700-11300. The best habitat for fish was accordingly found within these reaches. Of these, excellent rainbow trout rearing habitat is present in the first reach of 480-927700-03700. No significant rainbow trout spawning habitat was found in any of the surveyed reaches.

All remaining inferred fish-bearing reaches possessed only marginal to fair fish habitat, with most habitat at the time of the survey available in deeper isolated pools. Most reaches were intermittent offering only seasonal use by fish from Pinkut Creek or Taltapin Lake. Fish distribution limits on surveyed tributaries were usually due to an overall lack of any fish habitat or fisheries potential at any water level. Tributaries on the south side of Taltapin Lake were very small and generally too steep for fish use.

An 8m high falls barrier is present on 480-927700-08000 at the end of reach 0.1, 90m upstream from the mouth. These falls are impassable to all fish species and mark the upper limit of fish distribution in this tributary.

A 6m high falls barrier is present on 480-927700-17200 at the end of reach 2.1, 2.14km upstream from the mouth. These falls are impassable to all fish species and mark the upper limit of fish distribution in this tributary.

A 30m high cascade barrier is present on 480-927700-22500 at the end of reach 0.1, 0.53km upstream from the mouth. This cascade is impassable to all fish species and mark the upper limit of fish distribution in this watershed.

4.2.4 Fish Age, Size and Life History

Fish were present in only three of the sampled reaches in this watershed and because of the lack of data, it is difficult to accurately determine the life histories of the fish species encountered, except as it relates to the reaches sampled. Reach 1 and reach 3 of 480-927700-03700 provide moderate fish habitat. Rearing may occur by both fluvial and adfluvial rainbow trout populations, but given the stream's small size and the availability of better habitat in Pinkut Creek, fish likely overwinter in Pinkut Creek.

The following table presents data for fish species encountered in this watershed.

Table 2: Summary of length-at-age data from fish sampled in the Taltapin Sub-Unit (WSC 480-927700)

Stream Name	Watershed Code	Spp.	Stage	Number of Fish	Mean Length (mm)	Range of Lengths (mm)
Pinkut C.	480-927700	RB	J	10	63.4	38-128

Further information on sampled reaches is available in the tables in Section 4.4. and in Appendix I.

4.3 Subdrainages in the Gullwing Sub-Unit: Tributaries to Babine Lake - Sites 299-301

These three drainages are small systems that flow south into the north shore of Babine Lake, north-northeast of Burns Lake. Two of the streams are located approximately 3km northwest of Boling Point while the third system is located approximately 700m west of Gullwing Creek (WSC 480-953800).

4.3.1 Access

Access to these drainages was by boat across Babine Lake. Directions to the boat launch location on the lake from Burns Lake is as follows:

- Drive north on the Babine Lake road (toward landfill) to the junction with the Augier Main at km 18.4
- Turn right at the junction onto the Augier main and follow this road for 10km to the junction with Taltapin road at the 26km board
- Turn left onto Taltapin road and follow this road for 2km to Fisheries road, located at the Pinkut Creek bridge at the 28km board
- Turn left down Fisheries road and follow it to the end, staying to the right at the junction with the spawning channel access road. Drive down to the boat launch at Babine Lake. The streams are located on the opposite shore of Babine Lake.

4.3.2 Resource Use

Resource use within the area is very low with only some logging planned in the headwater areas of these drainages.

4.3.3 Habitat and Fish Distribution

These three watersheds were very small (two 2nd order, one 1st order) and possessed no usable fish habitat. No channel was present in any of the surveyed reaches in this area. No fish species were found and no fisheries habitat potential existed.

4.3.4 Fish Age, Size and Life History

No fish use occurs within any of these drainages. Further information on sampled reaches is available in the tables in Section 4.4. and in Appendix I.

4.4 Fish Bearing Status

The following three sections summarize the fish-bearing status for all surveyed reaches within the Babine Lake watershed. The first section summarizes all surveyed reaches, the second section presents information for all non fish-bearing reaches, while the third section identifies reaches where follow-up sampling should be conducted.

4.4.1 Summary of all Surveyed Reaches

Table 3 on the following pages summarizes all surveyed reaches in all subdrainages in the Babine Lake Watershed. In addition to confirmed fish-bearing reaches, non fish-bearing reaches and reaches requiring follow-up sampling have also been identified and summarized in this table. They are also discussed in further detail in the “Non Fish-bearing Reaches” and “Follow-up Sampling required” sections of this report.

4.4.2 Non Fish Bearing Reaches

Table 4 summarizes all reaches that have been assigned a non fish-bearing FPC classification. Justification for the non fish-bearing classification is provided in the comments section of the table.

Table 3: Summary of data from all surveyed reaches in subdrainages of Babine Lake watershed

Stream name	Watershed Code/ ILP	Reach	Site	Species	Channel		Proposed Riparian Class	Follow-up Sampling ² (Y, N or blank)	Comments
					Width	Gradient			
BABL Watershed Group									
Pendleton Sub-Unit									
	480-818600	1.0	227	CAS CO	2.0	1.5	S3		
	480-818600	2.0	228	RB	3.8	10.8	S3		
	480-825200	1.1	229	CO RB	4.2	12.5	S3		
	480-825200	2.0	230		3.2	6.8	S5	N	
	52509	1.0	231		NVC	NVC	NVC	N	
	480-849100	1.0	232	CAS CO RB	3.1	3.0	S3		
	480-849100	1.1	233	RB	2.9	10.5	S3		
	480-849100	2.0	302		2.5	9.5	S6	N	
	480-849100-03600	1.0	234	RB	1.8	8.0	S3		
	480-849100-03600	2.0	235	RB	1.9	2.3	S3		
	480-851000	1.0	236		1.7	26.8	S6	N	
	480-855200	1.0	237		0.6	10.0	S6	N	
	480-856600	1.0	238		1.3	2.8	S4	Y	
	480-858600	1.0	239		2.9	2.8	S3	Y	
	480-858600	2.0	240		2.7	6.3	S3	Y	
	480-858600-15000	1.0	241		1.6	8.5	S3	Y	
Cross C.	480-863300	2.0	242	CO RB SK	5.4	3.0	S2		
Cross C.	480-863300	2.1	243	RB	6.1	2.2	S2		
Cross C.	480-863300	4.0	244		4.7	9.3	S5	N	
	52539	1.0	245		1.2	44.3	S6	N	
Taltapin Sub-unit									
	480-925100	0.1	246		1.0	4.1	S4	Y	
	480-925100	1.0	247		0.7	18.0	S4	Y	
	43501	1.0	248		NVC	NVC	NVC	N	
	480-927700-02800	1.0	249		NVC	NVC	NVC	N	
	480-927700-03700	1.0	250	RB	1.7	3.9	S3		

² Blank cell indicates confirmed fish presence with no follow up sampling required

“N” indicates a non fish-bearing reach- See “Non fish-bearing reaches” section

“Y” indicates an inferred fish-bearing reach with low probability of fish use - See “Follow-up Sampling Required” section

“Y” indicates an inferred fish-bearing reach with high probability of fish use - See “Follow-up Sampling Required” section

Stream name	Watershed Code/ ILP	Reach	Site	Species	Channel		Proposed Riparian Class	Follow-up Sampling ² (Y, N or blank)	Comments
					Width	Gradient			
	480-927700-03700	3.0	251		1.9	3.3	S3		
	480-927700-03700	4.0	252	RB	2.1	0.5	S3	Y	
	480-927700-03700	8.0	253		2.2	1.1	S3	Y	
	480-927700-03700-13600	3.0	254		0.9	1.1	S6	N	
	480-927700-03700-14900	1.0	255		0.8	2.0	S6	N	
	480-927700-03900	1.0	256		n/a	0.7	S4	Y	
	480-927700-03900	2.0	257		0.9	1.8	S4	Y	
	480-927700-03900	4.0	258		n/a	0.5	S6	N	
	480-927700-03900	5.1	259		n/a	0.9	S6	N	
	480-927700-08000	0.1	260		1.9	8.3	S3	Y	
	480-927700-08000	2.0	261		1.8	5.3	S6	N	
	43518	1.0	262		NVC	NVC	NVC	N	
	33510	1.0	263		NVC	NVC	NVC	N	
	480-927700-11300	1.0	264	RB	1.4	2.8	S4		
	480-927700-11300	2.0	265		0.3	0.6	S4	Y	
	33517	1.0	266		NVC	NVC	NVC	N	
	33518	1.0	267		NVC	NVC	NVC	N	
	480-927700-13400	1.0	268		1.3	4.0	S4	Y	
	480-927700-13400	2.0	269		0.9	3.5	S6	N	
	33519	1.0	270		0.9	2.8	S6	N	
	33525	1.0	271		NVC	NVC	NVC	N	
	33526	1.0	272		NVC	NVC	NVC	N	
	33527	1.0	273		0.6	5.5	S6	N	
	34501	1.0	274		0.9	4.3	S6	N	
	34503	1.0	275		NVC	NVC	NVC	N	
	34504	1.0	276		1.3	2.5	S4	Y	
	34505	1.0	277		0.5	7.8	S4	Y	
	480-927700-17200	1.0	278		1.0	4.8	S4	Y	
	480-927700-17200	2.1	279		1.4	20.8	S4	Y	
	480-927700-17200	3.0	280		1.3	12.3	S6	N	
	480-927700-20500	1.0	281		1.5	4.0	S4	Y	
	480-927700-22300	1.0	282		2.0	2.5	S3	Y	
	34539	2.0	283		0.6	5.8	S6	N	
	34540	1.0	284		0.7	24.0	S6	N	Mapped wrong, but real channel too steep
	480-927700-22500	0.1	285		1.7	4.5	S3	Y	
	480-927700-22500	1.0	286		1.8	24.3	S6	N	

Stream name	Watershed Code/ ILP	Reach	Site	Species	Channel		Proposed Riparian Class	Follow-up Sampling ² (Y, N or blank)	Comments
					Width	Gradient			
	480-927700-22600	2.0	287		1.5	17.5	S6	N	
	34547	1.0	288		NVC	NVC	NVC	N	
	480-927700-23000	1.0	289		0.9	3.5	S6	N	Mapped reach = NVC
	34551	1.0	290		0.8	3.8	S4	Y	
	24500	1.0	291		0.5	23.5	S6	N	
	480-927700-23100	1.0	292		1.1	7.5	S4	Y	
	24503	1.0	293		0.5	24.0	S6	N	
	24504	1.0	294		NVC	NVC	NVC	N	
	24505	1.0	295		0.5	22.5	S6	N	
	24506	1.0	296		NVC	NVC	NVC	N	
	24508	1.0	297		0.6	4.5	S6	N	
	34566	1.0	298		0.7	15.0	S6	N	
Gullwing Sub-unit (Small North Babine Tributaries)									
	43522	1.0	299		NVC	29.7	NVC	N	
	43525	1.0	300		NVC	37.5	NVC	N	
	44503	1.0	301		NVC	NVC	NVC	N	

Table 4 Summary of data from surveyed non-fish-bearing reaches in subdrainages of the Babine Lake Watershed

Stream name	Watershed Code/ ILP	Reach	Site	Gradient (%)	Electrofishing Specifications				Comments
					Dist (m)	Time (s)	Cond (uS)	Temp (C.)	
BABL Watershed Group									
Pendleton Sub-unit									
	480-825200	2.0	230	6.8	526	537	87	7.0	Good habitat but isolated by 6m falls barrier at end of reach 1.1 downstream
	52509	1.0	231	NO VISIBLE CHANNEL					No channel present at mapped location.
	480-849100	2.0	302	9.5	320	185	142	7.0	Intermittent channel. Habitat isolated by 3m high cascade barrier at end of reach 1.1 downstream
	480-851000	1.0	236	26.8	420	209	137	6.2	Too steep for fish use. Intermittent , channel disperses at mouth and is inaccessible. Subject to high flow events.
	480-855200	1.0	237	10.0	150	94	214	7.0	Tiny, intermittent , shallow and moderately steep with no fish habitat or fish potential.
Cross C.	480-863300	4.0	244	9.3	500	372	251	7.0	Good habitat but isolated above 9m falls at end of reach 2.1 of Cross C. downstream. No fish present above falls. Only LKC found above falls (1 fish) in numerous reaches surveyed in 1996 inventory.
	52539	1.0	245	44.3					Too steep for fish use. Channel totally dry with no resident potential. Almost vertical drop of 30m d/s from road crossing in this reach.
Taltapin Sub-unit									
	43501	1.0	248	NO VISIBLE CHANNEL					No channel present at mapped location. No fish habitat or fisheries potential.
	480-927700-02800	1.0	249	NO VISIBLE CHANNEL					No channel present at mapped location. No fish habitat or fisheries potential.
	480-927700-03700-13600	3.0	254	1.1	153	9	141	7.5	Intermittent, seasonal, shallow channel over fines with no fish habitat or fisheries potential
	480-927700-03700-14900	1.0	255	2.0	196	15	167	8.0	No fish habitat or fisheries potential. Only couple stagnant pools present in site, otherwise totally dry over fines.
	480-927700-03900	4.0	258	0.5	137	38	83	9.0	Stagnant water in BD impoundments, flow below dam is trickle over fines with no suitable fish habitat or fisheries potential. Also, BD's and wetlands d/s preclude use of this reach by RB.
	480-927700-03900	5.1	259	0.9	44	13	81	9.0	Shallow flooded wetland reach with no usable fish habitat. Also, BD's and wetlands d/s preclude use of this reach by RB.
	480-927700-08000	2.0	261	5.3	711	459	291	6.5	Good habitat but isolated above 8m falls at end of reach 0.1. No fish present above falls.
	43518	1.0	262	NO VISIBLE CHANNEL					No channel present. No fluvial substrate or channel banks. No fish habitat or fisheries potential.

Stream name	Watershed Code/ ILP	Reach	Site	Gradient (%)	Electrofishing Specifications				Comments
					Dist (m)	Time (s)	Cond (uS)	Temp (C.)	
	33510	1.0	263		NO VISIBLE CHANNEL				No channel present. No fluvial substrate or channel banks. No fish habitat or fisheries potential.
	33517	1.0	266		NO VISIBLE CHANNEL				No channel present. No fluvial substrate or channel banks. No fish habitat or fisheries potential.
	33518	1.0	267		NO VISIBLE CHANNEL				No channel present. No fluvial substrate or channel banks. No fish habitat or fisheries potential.
	480-927700-13400	2.0	269	3.5					No fish habitat or fisheries potential. Channel dry, seasonal, meltwater flow over fines, mosses, organics.
	33519	1.0	270	2.8					No fish habitat or fisheries potential. Dry, seasonal vegetated channel with only fines/organic substrate - flows into intermittent channel d/s
	33525	1.0	271		NO VISIBLE CHANNEL				No channel present - dry gully with occasional wet periods during runoff. No continuous channel banks or substrate. No fish habitat or fisheries potential.
	33526	1.0	272		NO VISIBLE CHANNEL				No channel present - banks, substrate discontinuous, vegetated. Likely small runoff flow with no fish habitat or fisheries potential.
	33527	1.0	273	5.5	120	29	235	8.0	Intermittent, seasonal, shallow trickle over fines, mosses. No fish habitat or fisheries potential.
	34501	1.0	274	4.3					Channel small, dry most of the year. Substrate fines, moss. No fish habitat or fisheries potential.
	34503	1.0	275		NO VISIBLE CHANNEL				No channel present - no fluvial substrate or continuous banks. May carry water during runoff, but no fish habitat or fisheries potential.
	480-927700-17200	3.0	280	12.3	244	256	307	5.5	Moderate habitat but isolated above 6m falls barrier at end of reach 2.1 downstream.
	34539	2.0	283	5.8					No fish habitat or fisheries potential. Tiny, shallow, intermittent trickle over fines, organics, dirt.
	34540	1.0	284	24.0					No channel present at mapped location - mapped wrong. Channel is steep runoff with no potential for fish use.
	480-927700-22500	1.0	286	24.3	240	287	221	5.5	Too steep for fish use and isolated above 30m high cascade barrier at end of reach 0.1 downstream
	480-927700-22600	2.0	287	17.5	1160	588	233	7.0	Moderate/high gradient with little instream cover. Channel inaccessible at mouth (observed, no site). No usable fish habitat or fisheries potential.
	34547	1.0	288		NO VISIBLE CHANNEL				Open wetland reach with no defined channel present - moist ground. No fish habitat or fisheries potential.
	480-927700-23000	1.0	289	3.5	520	120	188	6.5	No channel present at mapped location - mapped wrong. Dry/intermittent channel with isolated stagnant pools with no fish habitat or fisheries potential.
	24500	1.0	291	23.5	120	41	241	5.5	Shallow, steep trickle down valley wall into Taltapin Lake with no fish habitat or fisheries potential.

Stream name	Watershed Code/ ILP	Reach	Site	Gradient (%)	Electrofishing Specifications				Comments
					Dist (m)	Time (s)	Cond (uS)	Temp (C.)	
	24503	1.0	293	24.0	13	10	267	6.0	No channel present at mapped location - mapped wrong
	24504	1.0	294		NO VISIBLE CHANNEL				Lake flood channel at mouth, but no defined channel present in reach.
	24505	1.0	295	22.5					Too steep for fish use - tiny dry channel with no fish habitat or fisheries potential.
	24506	1.0	296		NO VISIBLE CHANNEL				Discontinuous channel present at mouth for 50m then no channel present at all. No fish habitat or fisheries potential.
	24508	1.0	297	4.5					Intermittent, seasonal, shallow trickle over organics with no fish habitat or fisheries potential.
	34566	1.0	298	15.0					Dry, seasonal, steep channel with no fish habitat or fisheries potential.
Gullwing Sub-unit (Small North Babine Tributaries)									
	43522	1.0	299	29.7	NO VISIBLE CHANNEL				No channel present - steep, dry, vegetated gully with no fish habitat or fisheries potential.
	43525	1.0	300	37.5	NO VISIBLE CHANNEL				No channel present - steep, dry, vegetated gully with no fish habitat or fisheries potential.
	44503	1.0	301		NO VISIBLE CHANNEL				No channel present - dry, vegetated gully with no fish habitat or fisheries potential.

4.4.3 Follow-up Sampling Required

Table 5 on the following page summarizes the need for follow-up sampling in reaches where fish presence has been inferred. The table doesn't include inferred fish-bearing reaches where fish presence was confirmed in upstream reaches. A level of confidence has also been included in the table to facilitate prioritization of the follow-up sampling process. Each reach has been assigned a priority number of either 1 or 2 where,

- **Priority 1:** unlikely fish use (marginal fish habitat at any time)
- **Priority 2:** likely fish use (fish habitat available or potentially available, easily accessible)

It is anticipated that follow-up sampling in Priority 1 reaches will result in a confirmation of fish absence in a reach, while sampling in Priority 2 reaches have a high probability of confirming fish presence. However, some discretion should be used in the follow-up sampling process. In some reaches, sampling conditions were not conducive to the capture of fish and more successful attempts at sampling may be made in bordering reaches that weren't sampled but may offer better habitat and thus a better probability of confirming fish presence in the system.

Table 5: Follow-up sampling required for classification of inferred fish-bearing reaches in subdrainages of the Babine Lake Watershed

Stream name	Watershed Code/ ILP	Reach	Site	Timing	Method	Priority	Comments
BABL Watershed Group							
Pendleton Sub-Unit							
	480-856600	1.0	238	June	EF	1	Resample for RB, CO at higher flow. Accessible to fish from Babine Lake, but channel totally dry.
	480-858600	1.0	239	June	EF	2	Resample for RB, CO. Likely fish use, but BD at mouth may be blocking current fish use of system by Babine Lake populations.
	480-858600	2.0	240	June	EF	2	See comment for site 239
	480-858600-15000	1.0	241	June	EF	1	See comment for site 239
Taltapin Sub-Unit							
	480-925100	0.1	246	June	EF	1	Unlikely fish use due to lack of habitat, but recommend sampling lake in reach 3 to determine if resident populations are present upstream in the watershed.
	480-925100	1.0	247	June	EF	1	See comment for site 246.
	480-927700-03700	4.0	252	June	MT	2	Resample for RB to determine upper distribution limit. BD downstream may obstruct fish movement and preclude use by RB of the upper watershed.
	480-927700-03700	8.0	253	June	MT	1	Poor habitat but resample for RB at higher flow. See comment for site 252.
	480-927700-03900	1.0	256	June	MT	1	Marginal habitat but resample for RB at higher flow. BD in reach may obstruct fish movement and preclude use by RB of the upper watershed
	480-927700-03900	2.0	257	June	MT	1	Marginal habitat but resample for RB at higher flow. See comment for site 256.
	480-927700-08000	0.1	260	June	EF	2	Resample for RB at higher flow, but likely fish use and only accessible to falls at end of reach, 88m from mouth
	480-927700-11300	2.0	265	June	MT	1	Resample for RB at higher flow. RB in site 264, reach is accessible but marginal habitat.
	480-927700-13400	1.0	268	June	EF	1	Resample for RB at higher flow. Accessible to RB from Pinkut C., but marginal habitat
	34504	1.0	276	June	EF	2	Resample for RB at higher flow. Accessible from Pinkut C. with potentially good habitat.
	34505	1.0	277	June	EF	1	Marginal habitat but accessible - resample for RB at higher flow.
	480-927700-17200	1.0	278	June	EF	2	Resample for RB. Moderate potential habitat at higher flow, but accessible only to end of reach 2.1.
	480-927700-17200	2.1	279	June	EF	1	See comment for site 278.
	480-927700-20500	1.0	281	June	EF	1	Resample for RB at higher flow. Accessible from Pinkut C. with potential rearing/spawning habitat in spring
	480-927700-22300	1.0	282	June	EF	1	Resample for RB at higher flow. Potential seasonal use by RB.
	480-927700-22500	0.1	285	June	EF	1	Resample for RB at higher flow. Potential seasonal use by RB, but only to cascade at end of reach.

Stream name	Watershed Code/ ILP	Reach	Site	Timing	Method	Priority	Comments
	34551	1.0	290	June	MT	1	Resample for RB above landslide to establish whether it blocks fish passage, resident RB above
	480-927700-23100	1.0	292	June	EF	1	Resample for RB at higher flow. Potential seasonal use by RB

5. Project Area Bibliography

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Fish presence and distribution information within the project area was also obtained from FISS maps within the Smithers MELP regional library. These maps included: 93K/5, 93K/6, 93K/12.

6. Appendices

6.1 Appendix I: FDIS Site Card and Fish Form Reports and Representative Photographs

6.2 Appendix II: Hardcopy maps

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

**Subdrainages in the
Babine Lake Watershed**

- **Appendix I: FDIS Site Card and Fish Form Reports
and Representative Photographs**

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

**Subdrainages in the
Babine Lake Watershed**

- **Appendix II: Hardcopy Maps**