



**ANALYSIS AND PRIORITY IDENTIFICATION OF EXISTING FISH PASSAGE DATA:
BULKLEY RIVER WATERSHED**



Prepared for:

**Ministry of Environment
Ecosystem Branch**

PO Box 9338 Stn Prov Govt
Victoria BC, V8W 9M1

Prepared by:

Masse Environmental Consultants Ltd

812 Vernon Street
Nelson, BC, V1L 4G4

March 31, 2018

Cover Photo: View of outlet of crossing barrier PSCIS 124420 on a tributary to Station Creek
(Photo credit: Marlim 2014)

EXECUTIVE SUMMARY

Fish passage impediments created by road crossing structures in British Columbia are a significant challenge that can have a substantial cumulative impact on local fish populations by reducing access to critical habitat and fragmenting populations. Closed bottom road crossing structures (culverts) can present barriers to fish migration due to increased water velocity, turbulence, a vertical drop at the culvert outlet and/or maintenance issues. Rehabilitation and replacement of crossing structure barriers can provide access to currently isolated high value habitats.

For this project, existing fish passage information in the Bulkley River watershed located near Smithers, British Columbia was reviewed in order to prioritize and rank culverts for further assessment and/or rehabilitation. A literature and Provincial Stream Crossing Inventory System (PSCIS) database review was conducted and rehabilitation opportunities were analyzed within the context of a GIS generated Fish Habitat Model of the known or potential fish habitat located upstream.

Past fish passage assessment reports for the Bulkley River watershed were first reviewed to identify crossing structure barriers previously ranked as high or moderate priorities for rehabilitation. All previously prioritized crossings underwent a detailed review. To attempt to identify previously un-prioritized crossing structure barriers located on potentially high value streams, road crossing structure barriers that met any of the following criteria in the PSCIS database and/or the Fish Habitat Model also underwent a detailed review.

- Stream crossing barriers and potential barriers on streams with confirmed fish presence upstream of the structure.
- Stream crossing barriers and potential barriers on streams documented as $\geq 1.5\text{m}$ wide with linear lengths of modelled upstream habitat $<20\%$ gradient for $>100\text{ m}$.
- Stream crossing barriers and potential barriers located on streams classified as 3rd order or higher.
- Stream crossing barriers and potential barriers located on streams with $>1\text{ ha}$ of modelled wetland and/or lake habitat upstream of the structure.
- Stream crossing barriers and potential barriers on streams with habitat value rated as "high" in past fish passage assessment data.

Previously identified crossings that are barriers to fish passage in the Bulkley watershed were prioritized based on past assessment information, available fisheries data as well as estimated upstream habitat quality and quantity. The results provide a planning tool to help guide further assessment and restoration of crossings. It should be noted that the methodology used for this analysis is one of many possible approaches that incorporates assumptions about the value of fish habitat based on inferred quantities as well as somewhat subjective interpretations of habitat quality.

A detailed review and prioritization ranking was conducted for 397 crossings structures identified as requiring a detailed assessment. The crossing structure located on Highway 16 and Station Creek (PSCIS ID 124420) has been the subject of extensive assessments and has had the natural limits of potential fish distribution delineated with several rehabilitation design options explored in detail. Eighty-three crossings were rated as high priority for follow up with habitat confirmation assessments and potentially fish inventories. One hundred and thirty-six crossings were rated as moderate priority for follow up with habitat confirmation assessments and potentially fish inventories. One hundred and fifty crossings were rated as low priority for follow up with habitat confirmation assessments and potentially fish inventories and 27 crossings were rated as "no fix".

To date Phase 1 - Fish Passage Assessments have been conducted in large parts of the major potential fish bearing Bulkley River watershed areas north of Houston. Although assessments have been conducted on select tributaries to the Bulkley River upstream and south of Houston, along Highway 16 and the CN Rail Line by Wilson and Rabnett (2007), there is currently no fish passage information available within the PSCIS database for this southern most portion of the watershed. This area of the watershed is of particular conservation concern due to high levels of channel and riparian impacts related to transportation corridor development, forest road culverts, agricultural development, urbanization and mining (Schell 2003, Tredger 1982).

Within the Bulkley River watershed, 3455 crossings were modelled as unassessed. Of these, 2779 crossings are predicted to occur on modelled fish habitat, while the remaining 676 are predicted to be located on modelled non-fish habitat (above sections of stream >100m long with gradient >20%).

Assessments of unassessed crossings according to MoE (2011) protocols on stream reaches modelled as fish bearing or potentially fish bearing is recommended. A focus on the watershed areas south of Houston is considered the highest priority as this area has been identified as having high fisheries values, particularly in the lake headed tributary systems such as Buck Creek, and McQuarrie Creeks (Schell 2003, Tredger 1982).

As a step towards the restoration of fish passage rehabilitation priorities in the Bulkley River watershed, Phase 2: Habitat confirmation checks conducted according to protocols developed by the FPTWG (2011) are recommended for the crossings rated as high priority. Habitat confirmation checks gather detailed field and background data on habitat quality and quantity, fisheries values, land use issues and regional fisheries concerns, and incorporate this information into a standardized reporting format to further refine priority rankings and focus design (Phase 3) efforts towards the best candidates for rehabilitation (Phase 4).

This project was funded by the Ministry of Environment & Climate Change Strategy - Ecosystem Branch, and would not have been possible without the highly skilled GIS, data analysis, modelling and mapping support of Simon Norris from Hillcrest Geographics.

This report was prepared by:

A handwritten signature in black ink, appearing to read 'Allan Irvine', with a long horizontal flourish extending to the right.

Allan Irvine, B.Sc., R.P.Bio.

Masse Environmental Consultants Ltd

Reviewed by:

A handwritten signature in blue ink, appearing to read 'Ico de Zwart', with a stylized, looped structure.

Ico de Zwart, Ph.D., R.P.Bio.

Masse Environmental Consultants Ltd

812 Vernon St, Nelson, BC, V1L 4G4

TABLE OF CONTENTS

Executive Summary.....	i
Table of Contents.....	iv
List of Figures.....	iv
List of Tables.....	iv
1 Introduction.....	1
2 Background.....	1
3 Objectives.....	2
4 Study Area.....	2
4.1 Fisheries.....	5
5 Methods.....	8
6 Results.....	11
7 Discussion and Conclusion.....	14
8 References.....	16

LIST OF FIGURES

Figure 1. Map of study area.....	3
Figure 2. Bulkley River near Smithers (Station #08EE005 - Lat 54.769718 Lon -127.133331). Available daily discharge data from 1946 to 2015 plotted in R with fasstr (Goetz and Schwarz NA).	4
Figure 3. Bulkley River near Houston (Station #08EE003 - Lat 54.39938 Lon -126.719414). Available daily discharge data from 1930 to 2016 plotted in R with fasstr (Goetz and Schwarz NA).	5

LIST OF TABLES

Table 1. Fish species present in the Bulkley River watershed (FISS 2018).....	7
Table 2. Fish species present in largest tributary watersheds in the Bulkley River watershed (FISS 2018). ..	8
Table 3. Habitat Value Criteria.	9
Table 4. Stream gradient threshold and average gradient categories generated from the Fish Habitat Model and associated channel type.	10
Table 5. Summary of PSCIS crossings within the Bulkley River watershed.	11
Table 6. Summary of crossings that underwent a detailed review and associated prioritization ranking. Maps provided as Appendix 1.	12
Table 7. Summary of high priority crossing identified through habitat assessment.....	13
Table 8. Summary of modelled unassessed crossings within the Bulkley River watershed.	14

LIST OF APPENDICES

Appendix 1. High Priority Crossings

Appendix 2. Moderate Priority Crossings

Appendix 3. Low Priority Crossings

Appendix 4. Crossings with No Fix Recommended

Appendix 5. PSCIS Barrier and Potential Barrier Crossings on Potential Fish Habitat

Appendix 6. Key to Attachment 2 - Digital Summary of PSCIS and Modelled Crossings

Attachment 1. Maps

Attachment 2. Digital Summary File of PSCIS and Modelled Crossing Characteristics

1 INTRODUCTION

The health and viability of freshwater fish populations depends on access to suitable spawning, high water refuge, rearing and overwintering habitat. Watershed connectivity is important to accommodate population abundance fluctuations and the flow of genes that provide resilience against environmental stressors such as floods, landslides and extreme climate events.

Fish passage impediments created by road crossing structures in British Columbia are a significant challenge that can have a substantial cumulative impact on local fish populations by reducing access to critical habitat and fragmenting populations. Estimates based on fish passage data collected to date indicate that there are over 170,000 closed bottom culverts in the province that impede fish passage (FPTWG 2014). Closed bottom road crossing structures (culverts) can present barriers to fish migration due to increased water velocity, turbulence, a vertical drop at the culvert outlet and/or maintenance issues. Rehabilitation and replacement of crossing structure barriers can provide access to currently isolated high value habitats.

For this project, existing fish passage information in the Bulkley River watershed, near Smithers, British Columbia, was reviewed in order to prioritize and rank culverts for follow up in preparation for further assessment and restoration. A literature and Provincial Stream Crossing Inventory System (PSCIS) database review was conducted and rehabilitation opportunities were analyzed within the context of a GIS generated Fish Habitat Model of the known or potential fish habitat located upstream.

2 BACKGROUND

As a result of high-level direction from the provincial government, a Fish Passage Strategic Approach protocol has been developed for British Columbia to ensure that the greatest opportunities for restoration of fish passage are pursued. A Fish Passage Technical Working Group has been formed to coordinate the protocol and data is continuously amalgamated within PSCIS. Currently, British Columbia Timber Sales (BCTS) administers most of the fish passage assessment, design and remediation contracts with the majority of funding typically provided by the Land Based Investment Strategy (LBIS). The strategic approach protocol involves a four phase process as described in (FPTWG 2011):

- Phase 1: Fish Passage Assessment – Fish stream crossings within watersheds with high fish values are assessed to determine barrier status of structures and document a general assessment of adjacent habitat quality and quantity.
- Phase 2: Habitat Confirmation – Assessments of crossings prioritized for follow up in Phase 1 studies are conducted to confirm quality and quantity of habitat upstream and down as well as to scope for other potential nearby barriers that could affect the practicality of remediation.
- Phase 3: Design – Site plans and designs are drawn for priority crossings where high value fish habitat has been confirmed.
- Phase 4: Remediation – Implementation of reconnection of isolated habitats through replacement, rehabilitation or removal of prioritized crossing structure barriers.

To date, within the Bulkley River watershed, over 1600 fish passage assessments (Phase 1) have been conducted at crossing structures and are entered in the PSCIS database. The assessments were completed using standardized protocols (Mckinnon 2007, MoE 2009, MoE 2011), and were most often funded through the LBIS. However, LBIS funding is typically not available for the habitat confirmation, design and remediation phases on forest roads built after 1996, or on non-forestry related roads such as highways, local, private and historic roads. The Ecosystem Branch of the Ministry of Environment and Climate Change Strategy has funded the review of existing PSCIS information and other background literature to prioritize and rank crossing rehabilitation opportunities in select watersheds with high fisheries values for follow up with habitat confirmation assessments.

3 OBJECTIVES

The objective of this project was to review existing fish passage information in the Bulkley River watershed in order to prioritize and rank crossing rehabilitation opportunities for follow up with habitat confirmation assessments.

4 STUDY AREA

The study area is the Bulkley River watershed with the exception of the Morice River watershed, a large tributary that makes up the southwest portion of the watershed (Figure 1). The Bulkley River watershed is within the traditional territory of the Gitksan and Wet'suwet'en people and home to the Hagwilget Village and Moricetown communities. The valley bottom has seen extensive settlement over the past hundred years with major population centers including the Village of Hazelton, the Town of Smithers, the Village of Telkwa and the District Municipality of Houston. The watershed is within the Skeena, Stikine, and the Nadina Natural Resource Districts.

The Bulkley River is an 8th order stream that drains an area of 7,762 km² in a generally northerly direction from Bulkley Lake on the Nechako Plateau to its confluence with the Skeena River at Hazelton. The Skeena River flows 285 km in a western direction to the Pacific Ocean. The Bulkley River watershed drains the eastern slopes of the Hazelton Mountains and a portion of the Nechako Plateau to the south. At the south end of the watershed, flowing in an eastern direction into the Bulkley River just north of Houston is the Morice River. Although the Morice is a large watershed (4,379 km²) and the largest tributary to the Bulkley River, at the time of reporting it had only one inventoried stream crossing structure in the PSCIS database and was not included in the scope of this study.

Flows in the Bulkley River watershed typically peak due to snow melt from May – July with another less intense spike due to rain, and rain on snow events, from October – November (Figure 2 - 3). Lowest flows in the mainstem Bulkley River near Smithers occur from January – April. In the upper Bulkley watershed (upstream of the Morice River confluence) draining from the Nechako Plateau there is a slightly more pronounced low flow period occurring typically between August and October. Numerous water licenses are held within the watershed with a potential over-allocation of flows identified during low flow periods (ILMB 2007). Changes to the climate systems are causing impacts to natural and human systems on all continents with alterations to hydrological systems caused by changing precipitation or melting snow and ice increasing the frequency and magnitude of extreme events such as floods as droughts (IPCC 2014, Environment and Climate Change Canada 2016). These changes are resulting in modifications to the quantity and quality of water resources throughout British Columbia and are likely to compound issues related to drought and flooding in the Bulkley River watershed.

As a major access corridor to northwestern British Columbia, Highway 16 and the Canadian National Railway are major linear developments that run along the Bulkley River within and adjacent to the floodplain with numerous crossing structures blocking fish access to important fish habitats. Additionally, as the valley bottom contains some of the most productive land in the area there has been extensive conversion of riparian ecosystems to hayfields and pastures leading to alterations in flow regimes, increases in water temperatures, reduced streambank stability, loss of overstream cover and channelization (ILMB 2007, Wilson and Rabnett 2007).

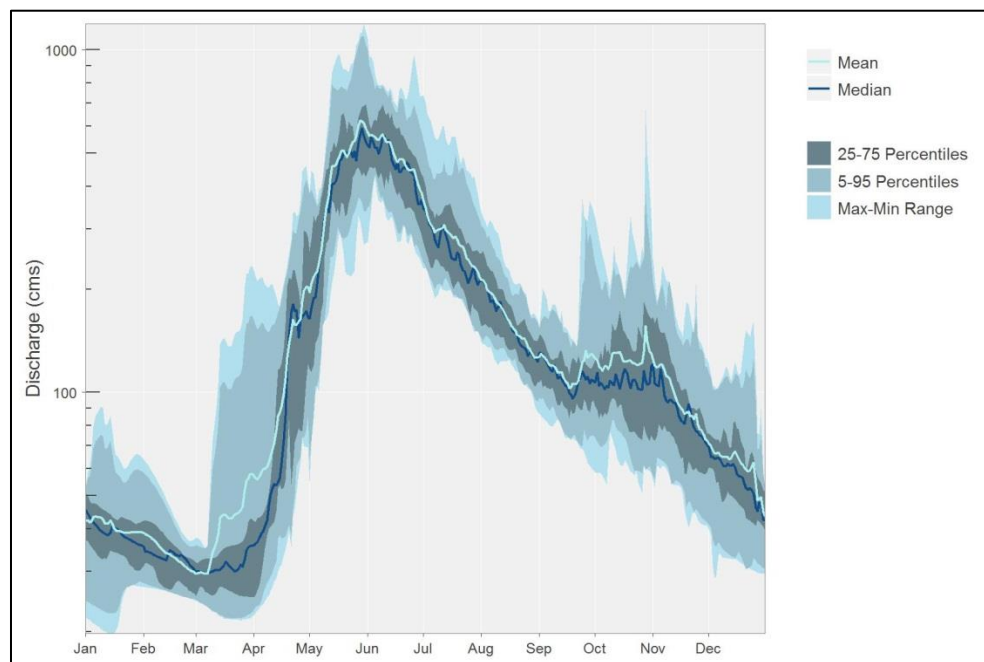


Figure 2. Bulkley River near Smithers (Station #08EE005 - Lat 54.769718 Lon -127.133331). Available daily discharge data from 1946 to 2015 plotted in R with fasstr (Goetz and Schwarz NA).

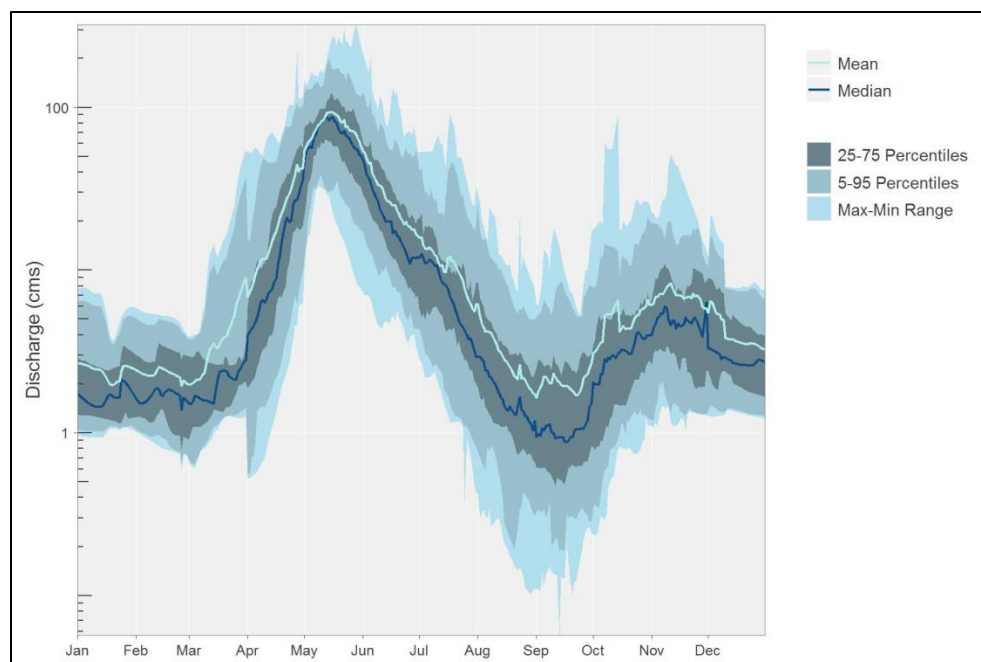


Figure 3. Bulkley River near Houston (Station #08EE003 - Lat 54.39938 Lon -126.719414). Available daily discharge data from 1930 to 2016 plotted in R with fasstr (Goetz and Schwarz NA).

4.1 Fisheries

Numerous fish species are present within the Bulkley River watershed, including all five species of salmon native to the North Pacific Basin: chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), sockeye salmon (*O. nerka*), chum salmon (*O. keta*) and pink salmon (*O. gorbuscha*) (Table 1). Steelhead (*O. mykiss*) are also in the watershed. Resident populations of bull trout (*Salvelinus confluentus*) and cutthroat trout, *clarkia* subspecies (*O. clarkii clarkii*), which are both considered species at risk (special concern) provincially are also present (FISS 2018). The ten largest tributary watersheds in the study area contain anadromous fish species and are 5th – 7th order streams with watershed areas ranging from near 200 km² (ex. Tenas Creek watershed) to the over 1300 km² Suskwa River watershed (Table 2).

Approximately 11.3 km downstream of the Bulkley Lake outlet and just upstream of Watson Creek, the upper Bulkley falls is an approximately 4 m high narrow rock sill that crosses the Bulkley River, producing a steep cascade section. This obstacle to fish passage is recorded as an almost complete barrier to fish passage for salmon during low water flows. Coho have not been observed beyond the falls since 1972 (Wilson and Rabnett 2007).

Summaries of Skeena and Bulkley River salmonid species life history, biology and stock status are well documented in Schell (2003), Wilson and Rabnett (2007) and Gottesfeld *et. al* (2002). Wilson and Rabnett (2007) discuss chinook, pink, sockeye, coho, steelhead and indigenous freshwater Bulkley River fish stocks within the context of key lower and upper Bulkley River habitats such as the Suskwa River,

Station Creek, Harold Price Creek, Telkwa River and Buck Creek. Key areas within the upper Bulkley River watershed with high fishery values, are documented in Schell (2003), are the upper Bulkley mainstem, Buck Creek, Dungate Creek, Barren Creek, McQuarrie Creek, Byman Creek, Richfield Creek, Johnny David Creek, Aitken Creek and Emerson Creek.

Traditionally, the salmon stocks in the Bulkley River were the principal food source for the Gitksan and Wet'suwet'en people with numerous fishing areas located within the lower Bulkley drainage (from the confluence of the Skeena to the confluence with the Telkwa River) and the upper Bulkley drainage which includes the mainstem Bulkley River and tributaries upstream of the Telkwa River confluence (Wilson and Rabnett 2007).

Within the lower Bulkley drainage the principle Gitksan and Wet'suwet'en fishing areas were located on four mainstem locations: Hagwilget Canyon downstream of Hagwilget Village, Hagwilget Canyon at the village, Bulkley mainstem upstream of the Suskwa confluence and Moricetown Canyon. Historically, one of the largest aboriginal fisheries on the Skeena was located within the Hagwilget Canyon. The majority of the sites that traditionally fished within the canyon are no longer utilized since the Department of Fisheries blasted the rocks that concentrated the fish close to the canyon walls in the winter of 1958-59 (Wilson and Rabnett 2007).

Within the upper Bulkley drainage, Wet'suwet'en salmon fisheries were located within seven principal areas: Telkwa River confluence, at 3 km northwest of Barrett, the Morice River confluence, at the mouth of Buck Creek, at Bulkley Falls, at the outlet of Bulkley Lake, and at the outlet of Maxan Lake.

Renowned as a world class recreational steelhead and coho fishery, the Bulkley River receives some of the heaviest angling pressure in the province. In response to longstanding angler concerns with respect to overcrowding, quality of experience and conflict amongst anglers, an Angling Management Plan was drafted for the river following the initiation of the Skeena Quality Waters Strategy process in 2006 and an extensive multi-year consultation process. The plan introduces a number of regulatory measures with the intent to provide Canadian resident anglers with quality steelhead fishing opportunities. Regulatory measures introduced with the Angling Management Plan include prohibited angling for non-guided non-resident aliens on Saturdays and Sundays, Sept 1 - Oct 31 within the Bulkley River, angling prohibited for non-guided non-resident aliens on Saturdays and Sundays, all year within the Suskwa River and angling prohibited for non-guided non-resident aliens Sept 1 - Oct 31 in the Telkwa River (FLNRO 2018, FLNRO 2013, FLNRO 2017).

Table 1. Fish species present in the Bulkley River watershed (FISS 2018).

Scientific name	Species name	Species
<i>Catostomidae</i>	Sucker (General)	SU
<i>Catostomus catostomus</i>	Longnose Sucker	LSU
<i>Catostomus commersoni</i>	White Sucker	WSU
<i>Catostomus</i>	Largescale Sucker	CSU
<i>Catostomus platyhynchus</i>	Northern Mountain Sucker	MSU
<i>Coregoninae</i>	Whitefish (General)	WF
<i>Coregonus clupeaformis</i>	Lake Whitefish	LW
<i>Cottidae</i>	Sculpin (General)	CC
<i>Cottus aleuticus</i>	Coastrange Sculpin (formerly Aleutian)	CAL
<i>Cottus asper</i>	Prickly Sculpin	CAS
<i>Cottus bairdii</i>	Mottled Sculpin	CBA
<i>Couesius plumbeus</i>	Lake Chub	LKC
<i>Cyprinidae</i>	Dace (General)	DC
<i>Cyprinidae</i>	Minnow (General)	C
<i>Gasterosteus sp</i>	Ninespine Stickleback	NSB
<i>Hybognathus hankinsoni</i>	Brassy Minnow	BMC
<i>Lampetra tridentata</i>	Pacific Lamprey	PL
<i>Lota lota</i>	Burbot	BB
<i>Mylocheilus caurinus</i>	Peamouth Chub	PCC
<i>Oncorhynchus clarki</i>	Coastal Cutthroat Trout	CCT
<i>Oncorhynchus clarki spp.</i>	Cutthroat Trout (Anadromous)	ACT
<i>Oncorhynchus gorbusha</i>	Pink Salmon	PK
<i>Oncorhynchus keta</i>	Chum Salmon	CM
<i>Oncorhynchus kisutch</i>	Coho Salmon	CO
<i>Oncorhynchus mykiss</i>	Rainbow Trout	RB
<i>Oncorhynchus mykiss</i>	Steelhead	ST
<i>Oncorhynchus mykiss</i>	Steelhead (Summer-run)	SST
<i>Oncorhynchus nerka</i>	Kokanee	KO
<i>Oncorhynchus nerka</i>	Sockeye Salmon	SK
<i>Oncorhynchus</i>	Chinook Salmon	CH
<i>Petromyzontidae</i>	Lamprey (General)	L
<i>Phoxinus eos</i>	Northern Redbelly Dace	RDC
<i>Prosopium coulteri</i>	Pygmy Whitefish	PW
<i>Prosopium sp</i>	Giant Pygmy Whitefish	GPW
<i>Prosopium williamsoni</i>	Mountain Whitefish	MW
<i>Ptychocheilus</i>	Northern Pikeminnow	NSC
<i>Rhynchithys cataractae</i>	Longnose Dace	LNC
<i>Rhynchithys falcatus</i>	Leopard Dace	LDC
<i>Richardsonius balteatus</i>	Redside Shiner	RSC
<i>Salmonidae</i>	Cutthroat Trout	CT
<i>Salmonidae</i>	Salmon (General)	SA
<i>Salvelinus alpinus</i>	Arctic Char	AC
<i>Salvelinus confluentus</i>	Bull Trout	BT
<i>Salvelinus fontinalis</i>	Brook Trout	EB
<i>Salvelinus malma</i>	Dolly Varden	DV

Table 2. Fish species present in largest tributary watersheds in the Bulkley River watershed (FISS 2018).

Stream name	Watershed code	Stream order	Area (km ²)	Species
Suskwa River	400-431358-079962	7	1323	BB, BT, CAS, CC, CCT, CH, CO, CT, DV, EB, L, LKC, LNC, LSU, LT, LW, MW, PK, PW, RB, RSC, ST, WSU
Telkwa River	400-431358-415251	7	1203	BT, CH, CO, CT, DV, MW, PCC, PK, RB, ST, SU
Harold Price Creek	400-431358-079962-441999	6	778	BB, BT, CAS, CCT, CH, CO, CT, DV, EB, L, LKC, LNC, LSU, LT, LW, MW, PK, PW, RB, RSC, ST, WSU
Buck Creek	400-431358-623573	5	568	BB, BT, CAS, CH, CO, CSU, CT, DV, KO, L, LNC, LSU, MW, PCC, PK, RB, RSC, SK, SST, ST, SU, WSU
Maxan Creek	400-431358-918528	5	371	BB, CAS, CH, CO, CSU, DV, L, LKC, LNC, LSU, LT, MW, NSC, PCC, RB, RSC, SK, ST
Canyon Creek	400-431358-319200	6	259	CO, CT, DV, EB, RB, ST
Blunt Creek	400-431358-079962-441999-443832	5	250	BB, BT, CAS, CCT, CO, CT, DV, EB, LNC, MW, PW, RB, ST
Natlan Creek	400-431358-079962-274790	6	231	CO, DV, RB
Howson Creek	400-431358-415251-382286	6	228	CO, CT, DV, PCC, PK, RB, ST
Tenas Creek	400-431358-415251-107412	6	186	BT, CH, CO, DV, MW, PK, RB, ST

5 METHODS

To identify priorities for crossing structure rehabilitation, a literature and PSCIS database review was conducted for the Bulkley River watershed and data was analyzed within the Fish Habitat Model developed by Hillcrest Geographics and the BC Ministry of Environment (MoE 2016). The Fish Habitat Model identifies potential stream crossing locations and models known and potential fish habitat based on gradient. Gradient is calculated at intervals along a stream of at least 100 m to delineate segments based on a set of user provided gradient thresholds (MoE 2016). Following segment delineation, the average gradient of each segment is calculated and used to symbolize potential fish habitat as riffle/cascade, step-pool, step-pool very steep according to a set of average stream slope categories (0-5%, 6-13% and 13 – 20%).

Past fish passage assessment reports for the Bulkley River watershed were first reviewed to identify crossing structure barriers previously ranked as high or moderate priorities for rehabilitation. All previously prioritized crossings underwent a detailed review. To identify previously un-prioritized crossing structure barriers located on potentially high value streams, road crossing structures that met any of the following criteria in the Fish Habitat Model and/or PSCIS database also underwent a detailed review.

- Stream crossing barriers and potential barriers on streams with confirmed fish presence upstream of the structure.

- Stream crossing barriers and potential barriers on streams documented as $\geq 1.5\text{m}$ wide with linear lengths of modelled upstream habitat $<20\%$ gradient for $>100\text{ m}$.
- Stream crossing barriers and potential barriers located on streams classified as 3rd order or higher.
- Stream crossing barriers and potential barriers located on streams with $>1\text{ ha}$ of modelled wetland and/or lake habitat upstream of the structure.
- Stream crossing barriers and potential barriers on streams with habitat value rated as “high” in past fish passage assessment data. Habitat value ratings are assigned during fish passage assessments and are defined in the *Field Assessment for Determining Fish Passage Status of Closed Bottom Structures* (MoE 2011, Table 3).

Table 3. Habitat Value Criteria.

Habitat Value	Fish Habitat Criteria
High	• The presence of high value spawning or rearing habitat (e.g., locations with abundance of suitably sized gravels, deep pools, undercut banks, or stable debris), which are critical to the fish population.
Medium	• Important migration corridor. • Presence of suitable spawning habitat. • Habitat with moderate rearing potential for the fish species present.
Low	• The absence of suitable spawning habitat, and habitat with low rearing potential (e.g., locations without deep pools, undercut banks, or stable debris, and with little or no suitably sized spawning gravels for the fish species present).

Adapted from: MoE 2011

Crossing structures that underwent the detailed review were ranked for further assessment as either high priority, moderate priority, low priority, or “no fix”, based on past assessment information, available fisheries data as well as upstream potential habitat quantity and quality. A combination of some or all of the following information was incorporated into this prioritization ranking:

- Contractor crossing prioritization in past fish passage assessment reports and data.
- Available fisheries data - Fish species present or suspected at the crossing location.
- Habitat quantity:
 - Stream width as documented in the PSCIS database as well as at nearby sample sites documented within the Fisheries Information Summary System (FISS).
 - Linear length of modelled upstream potential habitat ($<20\%$). Consideration was given to the “net” amount of habitat available upstream which is defined as habitat upstream of the crossing uninterrupted by subsequent barrier road crossing structures.
 - Area of modelled wetland and/or lake habitat upstream of the structure connected to crossing location by contiguous modelled gradients $<20\%$.
- Habitat quality:

- Past crossing assessment and nearby FISS stream sample site comments regarding habitat quality, slope information in PSCIS/FISS databases and project reports as well as apparent habitat quality in site photos.
- Modelled threshold gradient and average gradient outputs of upstream potential habitat generated by the Fish Habitat Model were also reviewed which is discussed in more detail below.

Gradient is a key factor in fish distribution and channel type. high value rearing, overwintering and spawning habitat is often located within channel types with lower gradients, while high gradient sections typically present upstream migration barriers and less available habitat. For this reason, waterbody segments in the Bulkley River watershed were delineated and categorized into gradient categories using the Fish Habitat Model. The model outputs were used to identify potential gradient barriers as well as to help prioritize rehabilitation opportunities by estimating the slope and quantity of potential fish habitat upstream of a crossing.

The Fish Habitat Model utilized stream segments from the GIS stream layer (1:20,000) of the Freshwater Atlas for its gradient analysis (MoE 2016). For this project, the gradient categories detailed in Table 4 were utilized to delineate and classify habitat. The model starts at the mouth of a stream and iterates through each vertex of the stream flow line, calculating the gradient between the given vertex and the next vertex at least 100 m upstream. It delineates additional stream segments at locations where the gradient exceeded the defined thresholds. Following delineation, the average gradient of each stream layer segment located within potential fish habitat was calculated with results classified according to the channel type categories. Finally, for potential habitat upstream of each crossing, stream lengths were summed within the average gradient categories with total areas of wetland and lake habitat also calculated.

Table 4. Stream gradient threshold and average gradient categories generated from the Fish Habitat Model and associated channel type.

*Gradient Range	Channel Type
0 – 5%	Riffle and cascade pool
6 – 13%	Step pool
14 – 20%	Step pool - very steep
>20%	Non fish habitat

*Rounded to the nearest percent

Gradient threshold and average gradient categories were rounded to the nearest percent. Segments downstream of sections up to 13% grade were delineated and classified according to channel type groupings adapted from the British Columbia Channel Assessment Procedure Guidebook which include riffle and cascade pool and step-pool (FPC 1996, Table 4). Stream segments with sections containing gradients from 14 – 20% were classified as step pool - very steep. Stream segments upstream of any

section of at least 100 m with an average gradient >20% were considered non fish habitat. Although fish have been reported to utilize habitat with gradients up to 30% (Baxter 1999), a cutoff of 20% was used as the goal was to identify and prioritize crossing rehabilitation opportunities. Stream segments with gradients between 20-30% are extremely steep and do not typically provide high value spawning or rearing habitat.

6 RESULTS

In the Bulkley River watershed, 1640 crossing structure assessments are catalogued within the PSCIS database (Table 5). Of these, 1019 crossings are located on modelled fish habitat. For these crossings, 524 are documented as barriers and 99 are assessed as potential barriers. Georeferenced maps of the watershed are provided as Attachment 1.

Table 5. Summary of PSCIS crossings within the Bulkley River watershed.

PSCIS Stream Crossings	Barrier	Potential	Passable	*Unknown	Total
Modelled as on potential fish habitat	524	99	185	211	1019
Modelled as on non-fish habitat	204	27	26	118	375
No modelling data (not on mapped stream)	137	23	33	53	246
Total	865	149	244	382	1640

*most commonly fords and passable

A detailed review and prioritization ranking was conducted for 397 crossings structures identified as requiring further assessment according to the criteria identified in the methodology (Attachment 1, Table 6). Of these, eighty-three crossings were rated as high priority for follow up with habitat confirmation assessments and potentially fish inventories (Appendix 1). One hundred and thirty-six crossings were rated as medium priority for follow up with habitat confirmation assessments and potentially fish inventories (Appendix 2). One hundred and fifty crossings were rated as low priority for follow up with habitat confirmation assessments and potentially fish inventories (Appendix 3) and 27 crossings were rated as “no fix” (Appendix 4). Available links to photos stored in the PSCIS database are provided in the “Stream” column of priority tables. Details of PSCIS crossings on habitat modelled as fish bearing or potentially fish bearing is included in Appendix 5.

Table 6. Summary of crossings that underwent a detailed review and associated prioritization ranking. Maps provided as Attachment 2.

Category	Number of Crossings	Location	Comments
High priority crossings	83	Appendix 1	Habitat confirmation and potential fish inventory recommended as high priority.
Moderate priority crossings	153	Appendix 2	Fish habitat confirmation with potential fish inventory recommended as moderate priority.
Low priority crossings	133	Appendix 3	Fish habitat confirmation with potential fish inventory recommended as low priority.
No fix	27	Appendix 4	Likely non-fish bearing or passable. Follow up not recommended
Total	397		

Wilson and Rabnett (2007) report that the crossing structure located on Highway 16 and Station Creek (PSCIS ID 124420) has been the subject of numerous assessments and designs with respect to the rehabilitation of fish passage, and they rated this crossing as the highest priority for rehabilitation in the Bulkley River watershed (Table 7). Gitxsan Watershed Authorities report that Xsan Xsagiibil was a fishing site located at the mouth of Station Creek (Xsi Gwin Sagiibla (Wilson and Rabnett 2007). Identified as a high priority for additional assessments by Rabnett and Williams (2004), SKR (2006) conducted a detailed inspection, offered rehabilitation design options and identified the natural limits of potential fish distribution to support rehabilitation efforts. At the time of this report, fish passage at the crossing had not yet been remediated due to complexities and costs associated with rehabilitation designs (Lana Miller, Resource Restoration Biologist, DFO, pers. comm.).

Table 7. Summary of high priority crossing identified through habitat assessment.

PSCIS ID	Report ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Width (m)	Priority	Comments
124420	78	Station Creek	Hwy 16	586630 6122416	9.0	8.9	High	Rated as highest priority for rehabilitation in the watershed by Wilson and Rabnett (2007). SKR (2006) conducted a detailed inspection, offered rehabilitation design options and identified the natural limits of potential fish distribution to support rehabilitation efforts. Gitxsan Watershed Authorities report that Xsan Xsagiibil was a fishing site located at the mouth of Station Creek (Xsi Gwin SagiiblaX).

In the Bulkley River watershed, 4,449 crossings were modelled using the fish habitat model. Of these, 3,455 are not associated with assessed crossings in the PSCIS database (Table 8), and 2,779 crossings are predicted to occur on modelled fish habitat. The remaining 676 are predicted to be located on modelled non-fish habitat (above sections of stream >100m long with gradient >20%).

Table 8. Summary of modelled unassessed crossings within the Bulkley River watershed.

Crossings	Number
On observed or modelled potential fish habitat	2779
On modelled non-fish habitat	676
Total	3455

A detailed digital summary of all PSCIS barrier and potential barrier crossings as well as unassessed modelled crossings on streams modelled as observed fish bearing or potentially fish bearing is provided within Attachment 2. A key to the data included in Attachment 2 is detailed in Appendix 6.

7 DISCUSSION AND CONCLUSION

Previously identified crossings that are barriers to fish passage in the Bulkley watershed were prioritized based on past assessment information, available fisheries data as well as estimated upstream habitat quality and quantity. The results provide a planning tool to help guide further assessment and restoration of crossings. It should be noted that the methodology used for this analysis is one of many possible approaches that incorporates assumptions about the value of fish habitat based on limited data, inferred quantities as well as somewhat subjective interpretations of habitat quality.

A detailed review and prioritization ranking was conducted for 397 crossings structures identified as requiring a detailed assessment. Eighty-three crossings were rated as high priority for follow up with habitat confirmation assessments and potentially fish inventories. One hundred and thirty-six crossings were rated as medium priority for follow up with habitat confirmation assessments and potentially fish inventories. One hundred and fifty crossings were rated as low priority for follow up with habitat confirmation assessments and potentially fish inventories and 27 crossings were rated as “no fix”. The crossing structure located on Highway 16 and Station Creek (PSCIS ID 124420) has been the subject of extensive assessments and has had the natural limits of potential fish distribution delineated with several rehabilitation design options explored in detail.

To date Phase 1 - Fish Passage Assessments have been conducted in large parts of the major potential fish bearing Bulkley River watershed areas north of Houston. Although assessments have been conducted on select tributaries to the Bulkley River upstream and south of Houston, along Highway 16 and the CN Rail Line by Wilson and Rabnett (2007), there is currently no fish passage information available within the PSCIS database for this southern most portion of the watershed. This area of the watershed is of particular conservation concern due to high levels of channel and riparian impacts related

to transportation corridor development, forest road culverts, agricultural development, urbanization and mining (Schell 2003, Tredger 1982).

Within the Bulkley River watershed, 3455 crossings were modelled as unassessed. Of these, 2779 crossings are predicted to occur on modelled fish habitat, while the remaining 676 are predicted to be located on modelled non-fish habitat (above sections of stream >100m long with gradient >20%).

Assessments of unassessed crossings according to MoE (2011) protocols on stream reaches modelled as fish bearing or potentially fish bearing is recommended. A focus on the watershed areas south of Houston is considered the highest priority as this area has been identified as having high fisheries values, particularly in the lake headed tributary systems such as Buck Creek, and McQuarrie Creeks (Schell 2003, Tredger 1982).

As a step towards the restoration of fish passage rehabilitation priorities in the Bulkley River watershed, Phase 2: Habitat confirmation checks conducted according to protocols developed by the FPTWG (2011) are recommended for the crossings rated as high priority. Habitat confirmation checks gather detailed field and background data on habitat quality and quantity, fisheries values, land use issues and regional fisheries concerns, then incorporate this information into a standardized reporting format to further refine priority rankings and focus design (Phase 3) and remediation (Phase 4) efforts towards the best candidates for rehabilitation.

8 REFERENCES

- Baxter, J. 1999. Fish Use of High Gradient Streams in the Kootenay Region. Report prepared for Ministry of Environment, Lands and Parks Fisheries Branch, Victoria, BC. Accessed online March 17, 2018 at <http://a100.gov.bc.ca/pub/acat/public/viewReport.do?reportId=2224>.
- [COSEWIC] Committee on the Status of Endangered Wildlife in Canada. 2002. COSEWIC Assessment and Status Report on the Coho Salmon (*Oncorhynchus kisutch*) Interior Fraser Population in Canada. Accessed online March 20, 2017 at http://www.registrelep-sararegistry.gc.ca/virtual_sara/files/cosewic/sr_coho_salmon_e.pdf.
- [DRTI] Department of Recreation and Travel Industry – Fish and Wildlife Branch. 1958. Bathymetry of Tyhee Lake. Accessed online February 2, 2018 at <http://a100.gov.bc.ca/pub/fidq/downloadBathymetricMap.do?filename=00324001.pdf>.
- [DRTI] Department of Recreation and Travel Industry – Fish and Wildlife Branch. 1970. Bathymetry of Hidden Lake. Accessed online February 2, 2018 at <http://a100.gov.bc.ca/pub/fidq/downloadBathymetricMap.do?filename=00077001.pdf>.
- [DRTI] Department of Recreation and Travel Industry – Fish and Wildlife Branch. 1982. Bathymetry of Dunalter Lake. Accessed online February 5, 2018 at <http://a100.gov.bc.ca/pub/fidq/downloadBathymetricMap.do?filename=00243201.pdf>.
- Ecofor. 2010. Bulkley/Fulton Watershed Fish Passage Culvert Assessment Program Prepared for Tweedsmuir Forest Ltd. Prince George, BC.
- Environment and Climate Change Canada. 2016. Climate data and scenarios for Canada: Synthesis of recent observation and modelling results. ISBN: 978-0-660-04262-6. Accessed March 3, 2018 at http://publications.gc.ca/collections/collection_2016/eccc/En84-132-2016-eng.pdf
- [Fins] Fins Consulting Ltd. 2005. 2005 Stream Assessment for Select Areas and Road Crossings within Nadina Forest District. Prepared for Ministry of Forests. Burns Lake, BC.
- [FISS] Fisheries Information Summary System. 2017. Project funded by BC Fisheries and Fisheries and Oceans Canada. Website accessed March 21, 2017 at <http://www.env.gov.bc.ca/fish/fiss/>.
- [FLNRO] Ministry of Forests, Lands and Natural Resource Operations. 2013a. Bulkley River Angling Management Plan. Accessed online February 5, 2018 at <http://www.env.gov.bc.ca/fw/fish/guide/docs/amp/skeena-amp-bulkley-river.pdf>

- [FLNRO] Ministry of Forests, Lands and Natural Resource Operations. 2013b. Overview of Angling Management Plans for the Skeena Watershed. Accessed online February 5, 2018 at http://www.env.gov.bc.ca/skeena/fish/AMPs/Context_AMP.pdf
- [FLNRO] Ministry of Forests, Lands and Natural Resource Operations & Rural Development. 2017. Freshwater Fishing Regulations Synopsis – Region 6 – Skeena. Accessed online February 5, 2018 at http://www.env.gov.bc.ca/fw/fish/regulations/docs/1719/fishing_synopsis_2017-19_region6.pdf
- [FPC] Forest Practices Code of British Columbia Act. 1996. Channel Assessment Procedure Guidebook.
- [FPTWG] Fish Passage Technical Working Group. 2014. Fish Passage Strategic Approach: Protocol for Prioritizing Sites for Fish Passage Remediation. Accessed March 3, 2018 at <https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/fish-fish-habitat/fish-passage/strategic20approach20july202014.pdf>
- Goetz, J and C.J. Schwarz. NA. fasstr: Tools for Streamflow Data Analyses, Summaries, and Visualization. R package version 0.1.0. <https://github.com/bcgov/fasstr>
- Gottesfeld, A. K. Rabnett, P.Hall. 2002. Conserving Skeena Fish Populations and their Habitat. Skeena Stage 1 Watershed-based Fish Sustainability Plan. Skeena Fisheries Commission. Accessed March 3, 2018 at http://skeenawild.org/images/uploads/Conserving_Skeena_Fish_Populations_and_Their_Habitat.pdf
- [ILMB] Ministry of Agriculture and Lands - Integrated Land Management Bureau. 2007. Morice Land and Resource Management Plan. Accessed online February 12, 2018 at https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/skeena-region/morice-lrmp/morice_lrmp_july2007.pdf .
- [IPCC] Intergovernmental Panel on Climate Change. 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.
- [MarLim] MarLim Ecological Consulting Ltd. 2013. EN13TAB010 - Fish Passage Culvert Investigations - Babine TSA. [http://a100.gov.bc.ca/pub/acat/public/advancedSearch.do?keywords=\[PSCIS820\]&searchKeyType=searchAll&sortColumn=title](http://a100.gov.bc.ca/pub/acat/public/advancedSearch.do?keywords=[PSCIS820]&searchKeyType=searchAll&sortColumn=title)

- [MarLim] MarLim Ecological Consulting Ltd. 2014. EN13TAB010 - Fish Passage Culvert Investigations - Babine TSA 2013.
[http://a100.gov.bc.ca/pub/acat/public/advancedSearch.do?keywords=\[PSCIS820\]&searchKeyType=searchAll&sortColumn=title](http://a100.gov.bc.ca/pub/acat/public/advancedSearch.do?keywords=[PSCIS820]&searchKeyType=searchAll&sortColumn=title)
- [MarLim] MarLim Ecological Consulting Ltd. 2015. EN15TAH414 - Fish Passage Culvert Investigations 2014 Babine TSA. Accessed February 2018 at
[http://a100.gov.bc.ca/pub/acat/public/advancedSearch.do?keywords=\[PSCIS2580\]&searchKeyType=searchAll&sortColumn=title](http://a100.gov.bc.ca/pub/acat/public/advancedSearch.do?keywords=[PSCIS2580]&searchKeyType=searchAll&sortColumn=title)
- [MarLim] MarLim Ecological Consulting Ltd. 2016. Fish Passage Culvert Investigations 2015-16. Babine TSA Contract # EN15TAH414 [PSCIS2580]. Accessed February 2018 at
[http://a100.gov.bc.ca/pub/acat/public/advancedSearch.do?keywords=\[PSCIS2580\]&searchKeyType=searchAll&sortColumn=title](http://a100.gov.bc.ca/pub/acat/public/advancedSearch.do?keywords=[PSCIS2580]&searchKeyType=searchAll&sortColumn=title)
- [MoE] Ministry of Environment. 1985. Duckwing Lake Depths in Meters. Accessed Feb 9, 2018 at
<http://a100.gov.bc.ca/pub/fidq/downloadBathymetricMap.do?filename=00026501.pdf>
- [MoE] Ministry of Environment. 2009. Field Assessment for Fish Passage Determination of Closed Bottom Structures, 3rd Edition. BC Ministry of Environment, Victoria BC.
- [MoE] Ministry of Environment. 2011. Field Assessment for Determining Fish Passage Status of Closed Bottom Structures, 4th Edition, August 2011. BC Ministry of Environment, Victoria BC.
- [MoE] Ministry of Environment. 2016. Fish Passage GIS Analysis Version 2.2 – Methodology and Output Data Specifications.
- Rabnett, K. and L. Williams. 2004. Highway #16 Fish Passage Assessment in Middle Skeena Watershed. Unpublished report prepared by Gitksan Watershed Authority for Department of Fisheries and Oceans and Pacific Salmon Commission. Accessed March 1, 2018 at
<http://data.skeenasalmon.info/lv/dataset/raabnett-williams-2004-middle-skeena-fish-passage-pdf>
- Reavie, E.D. and Smol, P.S. 1997. Paleolimnological assessment of the eutrophication history of Tyhee Lake, British Columbia. Prepared for BC Environment. Funded by the Pacific Salmon Commission northern Fund with in kind funding contributed by Skeena Fisheries Commission. Accessed online February 26, 2018 at <http://www.psc.org/publications/fund-backgrounders-final-reports/#540-habitat-1501116651> .
- Schell, C. 2003. A Brief Overview of Fish, Fisheries and Aquatic Habitat Resources in the Morice TSA. Accessed online February 26, 2018 at https://www.for.gov.bc.ca/hfd/library/ffip/Schell_C2003.pdf

[SKR] SKR Consultants Ltd. 2006. Fish Passage – Culvert Inspection where Yellowhead Highway 16 crosses Station (alias Mission) Creek. Contract 356CS0561. Prepared for Ministry of Transportation Northern Region. Prince George, BC.

Tredger, C.D. 1982. Upper Bulkley River Reconnaissance with Reference to Juvenile Steelhead Carrying Capacity. Fish Habitat Improvement Section. Accessed Jan 2018 at <http://www.env.gov.bc.ca/wld/documents/fisheriesrpts/RN207.pdf>

[Triton] Triton Environmental Consultants Ltd. 2001. Reconnaissance 1:20,000 Fish and Fish Habitat Inventory of the Telkwa River Watershed WSC 400-422700. Prepared for Pacific Inland Resources Ltd. Smithers, BC.

Wilson, T. and K. Rabnett. 2007. Fish Passage Assessment of Highway 16 and CN Rail in the Bulkley Watershed. Skeena Fisheries Commission. Accessed online February 26, 2018 at <http://www.psc.org/publications/fund-backgrounders-final-reports/#540-habitat-1501116651>

Appendix 1

High Priority Crossings

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species upstream	Road Tenure	Habitat Value	Comments
3042	093L114	Barren Ck	Barren	654451 6042827	5.2	7.9	3		DND	High	Prioritized (Ecofor 2010). FISS sample sites indicate good spawning habitat upstream near lake. CO downstream.
3065	093L120	0	North Rd	668504 6056340	4.6		1	RB	DND	Medium	Prioritized (Ecofor 2010). Extensive wetlands upstream.
3070	093L114	Trib to Perow Ck	Michell Bay FSR	660446 6048640	3.7		3		DND	Medium	Prioritized (Ecofor 2010). Larger channel widths. Unassessed crossings near mouth.
3091	093L114	Trib to McQuarrie Ck	Michell Bay FSR	656855 6048636	19.5	9.8	3.6		DND	High	Prioritized (Ecofor 2010). McQuarrie Ck is important steelhead rearing area (Tredger 1987). Lake heads system which likely stabilizes flow levels.
3139	093L114	Trib to Mcquarrie Ck	Michell Bay FSR	656657 6048544	19.6	46.1	2.8		DND	Medium	McQuarrie Ck is important steelhead rearing area (Tredger 1987). Lake heads system which likely stabilizes flow levels.
57788	093L114	Vallee Ck	Barrett Hat Rd	644715 6050569			3.1			High	UTM of crossing is off. Suspect UTM 9U 644719 6040576.
57834	093L123	Lyon Ck	Private/Old Babine Lake FSR	629234 6075848	7.9		4.2	DV		High	Larger stream. Habitat rated high value and appears so in photos.
57835	093L123	Badley Ck	Private/Old Babine Lake FSR	629363 6075638	9.3		3	DV		High	Nice gravels in photos.
57836	093L123	Lyon Ck	Old Babine Lake FSR	629325 6076040	7.7		4.1	DV	MoTI	High	Habitat rated high value and appears so in photos.
57837	093L123	Badley Ck	Old Babine Lake FSR	629771 6075988	5.8		3.6	DV	Local	High	Larger stream drains from Babine Mountains Park.
57925	093L122	trib to Toboggan Ck	Owens Rd	610301 6085055	11.8		1.6	CO,RB	MoTI	High	Coho stream. FISS has sample site at crossing with channel width near 5 m. Appears to be large channel in photo.
57944	093L122	Toboggan Ck	Hwy 16	607712 6089383	99.3	188.1	15	CC,CH,CO,CT, DV,KO,L,LSU, MW,OS,PK,RB, SK,SST,ST	MoTI	High	Prioritized (Wilson and Rabnett 2007). Large salmon stream.
57958	093L122	Schippers Ck	Kitsequel a Rd	601283 6089952	10.8		4.7	DV	MoTI	High	CT, CO and ST downstream. Larger channel width.
58043	093L122	trib to Toboggan Ck	R 10836 608A	608546 6087539	16.8		1.5	CO,CT		Medium	Coho stream near hatchery.
58067	093L122	Gramophone Ck	Telkwa High Rd	609726 6092873	25.1	32.5	6.2	RB,ST	MoTI	High	Prioritized (Marlim 2013). Large stream.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species upstream	Road Tenure	Habitat Value	Comments
58068	093L122	Wiggs Ck	Telkwa High Rd	609660 6093554	18.4	118.5	3	RB	Local	High	Prioritized (Marlim 2013). Perched culvert. Duckwing Lake upstream with depths to 35 m (MoE 1985).
58139	093L118	Gonakwa Ck	Unnamed	631056 6074362	15	14.7	2.9	CT,RB		High	Prioritized (Marlim 2013). Nice looking stream with good flows in photos.
58158	093L118	McDowell Ck	Hwy 16	628044 6060527	21.3	72.2	2	RB	MoTI	High	Prioritized (Wilson and Rabnett 2007). Good potential salmon and steelhead rearing habitat.
58159	093L118	McDowell Ck	Woodmere Nursery Rd	627643 6060449	21.8	72.2	1.6	CO,RB		High	Prioritized (Marlim 2013). Fry observed at outlet. Habitat upstream at PSCIS crossing 123544 looks like high value.
58161	093L118	Lacroix Ck	Hwy 16	633419 6057451	35.3	186.1	2.2	BB,CAS,CT,KO ,LSU,NSC,PCC, RB,RSC	MoTI	High	Prioritized (Wilson and Rabnett 2007). Just below Lacroix Lk (Round Lk.). Numerous unassessed crossings downstream. Lacroix Ck dam downstream but may be passable. Should be checked.
58235	093L123	Kathlyn Ck	Hwy 16	616207 6074118	31.1	151.1	5	BB,CAS,CC,CO ,CT,DV,L,LSU, MW,NSC,OS,P CC,PK,RB,RSC ,SA,ST,WSU	MoTI	High	Prioritized (Wilson and Rabnett 2007). Large low gradient stream. Appears to be good salmonid rearing habitat.
58242	093L118	Kathlyn Ck	Hwy 16	616948 6073204	39.8	151.6	5.7	BB,CAS,CC,CO ,CT,DV,L,LNC, LSU,MW,NSC, OS,PCC,PK,RB ,RSC,SA,ST,SU ,WF,WSU	Arterial	High	Prioritized (Wilson and Rabnett 2007). Large stream in Smithers.
58245	093L122	Simpson Ck	Lake Kathlyn Rd (from South end)	615381 6075124			4.2		MoTI	High	Not pinned to stream. Assessment comments and photos indicate high habitat value.
58253	093L122	Club Ck	Rod and Gun Access Rd from Kroecker Rd	613909 6077240	3.4		2.6	CO,CT		High	Just outside of Smithers and upstream of Kathlyn Lk. Larger channel width.
58258	093L122	Simpson Ck	Nelson Rd	614279 6075193	1.2		2.1	CO,CT,DV,MW ,OS,RB	MoTI	High	Prioritized (Marlim 2013). FISS shows channel width >5 m adjacent to culvert.
58263	093L122	Simpson Ck	Driveway to 40640 Nelson Rd	614504 6075375	1.4		1.5	CO,CT,DV,MW ,OS,RB		High	FISS shows channel width >5 m upstream.
58264	093L122	Simpson Ck	Nelson Rd	614281 6074931			4.6		MoTI	High	Not pinned to stream. Perched culvert. Anadromous species nearby.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species upstream	Road Tenure	Habitat Value	Comments
58271	093L123	Kathlyn Ck	Henry Rd	615889 6074576	28.8	149.8	5.7	BB,CAS,CC,CO,CT,DV,L,LSU,MW,NSC,OS,PCC,RB,RSC,SA,ST,WSU	Local	High	Large stream with lake upstream and salmon present.
58272	093L118	Chicken Lk Ck	Railway Avenue	616530 6072577	2.3		4		Local	High	Prioritized (Wilson and Rabnett 2007). In Smithers. Larger stream with good rearing habitat and CO/CT just downstream.
58290	093L118	Chicken Lk Ck	Zobnick Rd	616404 6072652	1.3		2.4		MoTI	High	In Smithers. Larger stream with good rearing habitat and CO/CT just downstream.
58291	093L118	Chicken Lk Ck	Alfred Ave (from Toronto Street)	616565 6072688	2.4		3.3		Local	High	In Smithers. Larger stream with good rearing habitat and CO/CT just downstream.
58360	093L123	Cygnets Ck	Telkwa High Rd (from Old Babine Lake Rd)	622537 6078562	7.4		3	DV,RB	MoTI	High	Prioritized (Marlim 2013). Perched culvert. Salmon downstream nearby.
123340	093L113	trib to Bulkley R	R05237	639484 6039159	1.5		2.1		CFP	High	Rate high value habitat with beaver pond wetland habitat upstream. Near to the mainstem of the Bulkley.
123346	093L113	trib to Bulkley R	Walcott FSR	639723 6039415	2.9		0.9		DND	High	Rate high value habitat with beaver pond wetland habitat upstream. Near to the mainstem of the Bulkley.
123375	093L114	Thompson Ck	Hwy 16	642497 6048191	34.9	31.2	1.6	CT,DV,RB	MoTI	Medium	Prioritized (Wilson and Rabnett 2007). Stream appears constricted within agricultural area.
123377	093L113	Thompson Ck	Walcott Rd	641626 6049390	38.3	31.2	3.6	CT,DV,RB	Local	High	Agricultural area.
123380	093L114	Thompson Ck	Private Rd	642971 6048238	34.4	31.2	1.6	CT,DV,RB		Medium	4th order stream with cutthroat upstream.
123381	093L114	Thompson Ck	Private Rd	642939 6048204	34.5	31.2	1.6	CT,DV,RB		Medium	4th order stream with cutthroat upstream.
123392	093L118	Lemieux Ck	Quick School Rd	638560 6054801	73	19.2	2.1	CT,DV,RB,SU	Local	High	Large potential habitat gain.
123393	093L118	Lemieux Ck	Hwy 16	638500 6054717	73.1	19.2	2.9	CT,DV,LNC,NSC,RB,SU	MoTI	High	Prioritized (Wilson and Rabnett 2007). Low gradient stream.
123416	093L118	Lemieux Ck	Morden Rd	638345 6057939	28.7		6.8	CT,DV,RB,SU	Local	High	Large stream. Appears channelized in photos.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species upstream	Road Tenure	Habitat Value	Comments
123418	093L118	Lemieux Ck	Private Rd	638617 6058657	27.8		2.6	CT,DV,RB,SU		High	Larger stream. Many unassessed modelled crossings.
123426	093L118	Robin Ck	Hwy 16	636971 6056680	75.4	51.2	3.2	BT,CT,RB,TR	MoTI	High	Prioritized (Wilson and Rabnett 2007). 4th order stream.
123429	093L118	de Jong Ck	Round Lake Rd	637529 6059363	17.4		2	CT	MoTI	High	Prioritized (Marlim 2014). Cutthroat stream.
123445	093L118	Tyhee Ck	Hwy 16	627238 6061456	24.6	379.8	2.1	BB,C,CAS,CC, CH,CM,CO,CT, GPW,LSU,MW, NSC,PCC,PK,P W,RB,RDC,RS C,SA,SK,ST,SU	MoTI	High	Prioritized (Wilson and Rabnett 2007). Perched culverts with Tyhee Lake upstream. Naturally productive lake (mesotrophic) but has eutrophied in recent time due to human inputs (Reavie and Smol 1997). Trib to Bulkley R. near confluence with Telkwa River.
123446	093L118	Tyhee Ck	Tyhee Lake Rd	627527 6061771	24.1	379.8	1.9	BB,C,CAS,CC, CH,CM,CO,CT, GPW,LSU,MW, NSC,PCC,PK,P W,RB,RDC,RS C,SA,SK,ST,SU	Local	High	Tyhee Lk upstream is naturally productive (mesotrophic) but has eutrophied in recent time due to human inputs (Reavie and Smol 1997). Trib to Bulkley R. near confluence with Telkwa River.
123463	093L118	Victor Ck	Tyhee Lake Rd	627570 6064562	1.8		1.5		Local	High	Adjacent to Tyhee Lk with lake depths to 22 m (DRTI 1958). Could provide good rearing for salmon downstream.
123481	093L118	Powers Ck	Morgan Rd	619894 6063683	6.1	3.3	2.1	RB	Local	High	Perched culvert. Habitat rated high value and appears so in photos.
123482	093L118	trib to Powers Ck	Unnamed	619177 6064183	8.4		1.8			Medium	Habitat appears high value in photos with upstream FISS sample sites showing channel widths >3m.
123485	093L118	Powers Ck	Unnamed	619707 6064032	6.5	3.3	2.2	RB		High	Culvert washed out at time of survey. Removed already?
123486	093L118	Powers Ck	Unnamed	619723 6064094	18.5	7.3	5.6	CO,RB	MoTI	High	Good gravels upstream in photos. Larger stream.
123488	093L118	Seymour Ck	Unnamed	619997 6068074	8	131	1.9	ACT,CAS,CO,C SU,CT,LSU,NS C,PCC,RB,RSC ,SU	MoTI	High	Prioritized (Wilson and Rabnett 2007). Contractor comments indicate passable but looks like barrier for some life stages/species.
123491	093L118	Seymour Ck	Unnamed	619959 6068291	8.2	131	3.5	ACT,CAS,CO,C SU,CT,LSU,NS C,PCC,RB,RSC ,SU	Local	High	Contractor comments indicate passable but looks like barrier for some life stages/species.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species upstream	Road Tenure	Habitat Value	Comments
123492	093L118	Seymour Ck	Unnamed	619932 6068408	8.3	131	5	ACT,CAS,CO,C SU,CT,LSU,NS C,PCC,RB,RSC ,SU		High	Large outlet drop.
123495	093L118	Seymour Ck	Unnamed	620053 6069493	10.2	131	2.4	ACT,CAS,CH,C O,CSU,CT,LNC ,LSU,NSC,PCC, RB,RSC,SU	Local	High	Within Town of Smithers.
123501	093L118	Seymour Ck	Stenset Rd	619238 6067488	6.7	131	2.2	ACT,CAS,CO,C SU,CT,LSU,NS C,PCC,RB,RSC ,SU	Restrict ed	High	Contractor comments indicate passable but looks like barrier for some life stages/species.
123511	093L118	Trib to Helps Ck	Unnamed	624610 6057183	21.5		3.7	CT,RB		High	Looks like culvert could be limit of fish distribution. Nice gravels in photos.
123558	093L117	trib to Pine Ck	Hudson Bay FSR	612079 6066905	3.6	3.5	3		MoTI	High	Larger stream with wetlands upstream and downstream.
123567	093L117	trib to Pine Ck	McDonnell FSR	610617 6067548	1.2		4.3		DSS	High	Prioritized (Marlim 2014). Large stream with higher potential habitat gain.
123570	093L117	Miller Ck	McDonnell FSR	607525 6067555	2.2		5.3	DV	DSS	High	Larger stream just upstream from known anadromous Pine Creek.
123575	093L117	Millar Ck	700 Rd	607615 6067375	2.4		3.3	DV	DSS	High	Larger stream just upstream from known anadromous Pine Creek.
123741	093L122	Meed Ck	8000 Rd	612442 6090259	7.7		4.6		FSR	High	Larger stream width.
123743	093L122	Meed Ck	Telkwa High Rd	612101 6090132	8		5.3		MoTI	High	Prioritized (Marlim 2014). Large outlet drop. Close to Bulkley R. mainstem. Provides access to potential salmon rearing area in wetland upstream.
123770	093M102	John Brown Ck	Hwy 16	606630 6097190	40.3		11.3	BT,CH,CT,DV, RB	Arterial	High	Prioritized (Wilson and Rabnett 2007). Large stream.
123775	093M102	Tributary to Corya Ck	Hwy 16	606436 6099733	5.7	53.3	3.7		MoTI	Low	Only culvert barrier between Corya Ck and 40+ hectare lake.
123776	093M102	Corya Ck	Hwy 16	606463 6100147	30.7		21.8	DV,RB	MoTI	High	Prioritized (Wilson and Rabnett 2007). Very large stream.
123777	093M102	Graphite Ck	Campbell Rd	607128 6101110	7.1	51.1	2.7		MoTI	Medium	Smaller stream but habitat rated as high value at upstream crossing and extensive wetlands.
123787	093M103	trib to Blunt Ck	R09533 222-1	620156 6105758	1.1	4.2	8.3		WFM	High	Prioritized (Marlim 2014). Large stream.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species upstream	Road Tenure	Habitat Value	Comments
123794	093M103	trib to Blunt Ck	Blunt Creek FSR	616100 6106763	2.4	6	2.6	DV	FSR	High	Salmon noted nearby. Larger channel with small lake upstream.
123795	093M103	trib to Blunt Ck	Blunt Creek FSR	615760 6106892			2.1		DSS	High	Not pinned to stream. Salmon noted upstream.
124430	093M106	Two Mile Ck	Silver Standard	587366 6128292	13.4	21.9	2.7	CT,LNC,RB,SP	MoTI	High	Good flows, width in photos.
124434	093M106	Two Mile Ck	Unnamed	587635 6127234	14.6	21.9	3.4	CT,LNC,RB,SP		High	Next to Village of Hazelton. Dam owned by municipality upstream.
124447	093M107	Mudflat Ck	Hwy 16	597427 6119279	13.9		6.8	CT,DV,RB	MoTI	High	Higher elevation watershed. Check for culvert on Suskwa FSR.
124466	093M102	trib to Corduroy Ck	R10108-2	604530 6117693	2.2		2.6	SP	RRL	High	Prioritized (Marlim 2014). Assessment comments and photos indicate high habitat value.
124487	093M102	Porphyry Ck	Hwy 16	603073 6113363	16.9		7.1	DV,RB	MoTI	High	Prioritized (Wilson and Rabnett 2007). Large stream. Culverts with large outlet drop.
124500	093L118	Helps Ck	Walcott FSR	627552 6058697	37.8	70.8	3.7	CT,DV,LNC,LS U,RB	Local	Medium	Larger stream with habitat rated as high value upstream.
124502	093L118	trib to Bulkley R	Lawson Rd	632070 6054348	8.7	25.2	2.3		MoTI	Medium	Smaller stream but lots of wetlands upstream.
124505	093L118	trib to Bulkley R	Unnamed	631913 6053759	7.9	25.2	2.5			High	Smaller stream but large wetlands upstream.
195288	093L113	Gibson Ck	Snider Rd	640899 6051559	12	20.6	2.6	CT,RB	Local	High	"Perched culvert immediately adjacent to coho stream (Deep Creek). Wider channel width noted at upstream crossing.
195289	093L113	Deep Ck	Hwy 16	639869 6051747	96.7	206.7	5.3	C,CH,CM,CO,C T,DV,PK,RB,S A,SK,ST	MoTI	High	Prioritized (Wilson and Rabnett 2007). Confirm if passable for all life stages at all flows.
195290	093L113	0	Hwy 16	640014 6051697	13.6	25.6	1.3	CT,RB	MoTI	Medium	Large outlet drop. Assessment comments indicate passable but does not appear that way in photos or data. Tributary to Deep Ck with large wetland area upstream.
195292	093L118	Trib to Deep Ck	Unnamed	641866 6053489	2.1		3.8	RB		Medium	Salmon observed adjacent to site (FISS). Larger stream. Nice gravels in photos.
195559	093L118	Four Ck	120 Rd	620053 6054093	12.5		9.7	DV,TR	Local	High	Very large channel width. Contractor indicates passable but does not appear so in photos.

¹Habitat Gain – a modelled estimate of continuous linear distance of fish habitat (<20% gradient) located immediately upstream of the crossing. ²EE = Engelmann Enterprises Ltd., CCR = Canyon Creek Resources Ltd., CFP = Canadian Forest Products Ltd., DSS = District Manager Skeena Stikine, DTL = Driftwood Timber Ltd, DND = District Manager Nadina, KRT = Kispiox River Timber Ltd., MoTI = Ministry of Transportation and Infrastructure, RRL = Rob's Restaurant Ltd., SSI = Silvicon Services Inc., TSMS = Timber Sales Manager Skeena, WFM = West Fraser Mills Ltd.

Appendix 2

Moderate Priority Crossings

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
3045	093L114	Trib to Bulkley R	North Rd	651400 6032337	5.6		1.5		DND	Medium	Prioritized (Ecofor 2010). Within Houston. Smaller stream with many unassessed crossings modelled downstream.
3048	093L120	Robert Hatch Ck	Robert Hatch	669680 6056904	4.8	53.1	1.3		DND	High	Prioritized (Ecofor 2010). Small stream.
3053	093L114	Trib to Byman Ck	Byman	662291 6052289	4	5.4	1.4		DND	Medium	Prioritized (Ecofor 2010). Smaller stream with crossing 63 (Wilson and Rabnett 2007) on highway near mouth.
3054	093L114	Jonny David Ck	North Rd	664881 6052688	24.3	71	3.3	RB	DND	Medium	Prioritized (Ecofor 2010). Many small tributaries upstream.
3066	093L119	Trib to Johnny David Ck	Michell Bay FSR	666073 6055224	5.1		1.8		DND	Low	Large linear distance of stream with no culverts downstream.
3073	093L114	West McInnes Ck	North Rd	660871 6040440	5.6	7.3	1.5		DND	Medium	Prioritized (Ecofor 2010). Smaller stream with 4 modelled but unassessed crossings downstream.
3074	093L120	Trib to Robert Hatch Ck	Robert Hatch	670105 6056389	1.1		1.6		DND	Low	Habitat appears moderate value in photos.
3076	093L119	Trib to Byman Ck	Byman	659056 6053815	2.4	6.8	1.2		DND	Medium	Prioritized (Ecofor 2010). Modelled step pool habitat. Smaller stream.
3082	093L114	Trib to Hidden Lk	Hidden Lk FSR	651657 6042495	2.5	8.7	1.1		DND	Medium	Prioritized (Ecofor 2010). 75% backwatered in July. Hidden Lk downstream with depths to 30' (DRTI 1970).
3087	093L114	Trib to McKilligan Ck	North Rd	653507 6034667	0.5		7.4		DND	Low	Just outside Houston. Smaller potential habitat gain but very large channel width.
6272	093M108	Unnamed	352 Rd	628586 6120549	1.7		1.6		WFM	Medium	Small stream with <700 m habitat on map. Modelled quantity of habitat seems off.
6273	093M108	Camp Ck	3000 Rd	627303 6121743	7	50	2.2	CT,DV,LKC,RB ,RSC,TR	DSS	High	Contractor has highlighted as "moderate priority".
57772	093L113	trib to Emerson Ck	Emerson FSR (R05246)	637416 6033512	3.9		2.2		CFP	Low	Habitat appears decent in photos.
57784	093L114	Trib to Mathews Ck	Hwy 16	646357 6034018	6.9		2.4		MoTI	Medium	Perched culvert. Appears dry in photos.
57787	093L114	Vallee Ck	Summit Lake Rd	647460 6040143	4.8	17.8	2.5	CAL,CT,LSU,R B	MoTI	Medium	Perched culverts. Assessment comments and photos indicate mod habitat.
57793	093L113	Vallee Ck	Walcott Rd	641460 6044049	31.8	63.3	6.4	CAL,CT,LSU,R B	Local	High	Low flows in photos. Mostly backwatered and no outlet drop. Likely passable to most species and life stages.
57800	093L114	Mathews Ck	Seinen Rd	646065 6033294	9.7	10.7	3.2			Medium	Stream mostly dewatered in photos taken early September.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
57843	093L123	trib to Gonakwa Ck	Old Babine Lake FSR	634434 6074896	0.2		1.8		MoTI	High	Small potential habitat gain.
57855	093L118	trib to Canyon Ck	Old Babine Lake FSR	637997 6072344	0.2		1.6		MoTI	High	Habitat appears decent in photos. Small potential habitat gain.
57873	093L118	trib to Canyon Ck	Private	635362 6070750	13.7		5.4	DV,RB		Low	"Perched culvert just upstream of Burnt Cabin Bog Ecological Reserve. Habitat value rated low with low flows in photos.
57921	093L122	trib to Toboggan Ck	Private	609497 6083661	4.7		0.7			High	Small stream. Assessment comments indicate passable but looks like potential barrier to some species/life stages. Duplicate of 57922.
57922	093L122	trib to Toboggan Ck	Private	609527 6083676	4.7		1			High	Small stream. Assessment comments indicate passable but looks like potential barrier to some species/life stages.
57941	093L122	Beavery Ck	Hwy 16	606459 6091437	5.1		1.6		MoTI	Medium	Small stream appears dewatered in photos.
57948	093L122	Beavery Ck	Kitsequel a Loop	606339 6091447	5		2.2		Local	Medium	Small stream appears dewatered in photos.
58017	093L122	trib to Toboggan Ck	branch off R10836 608A-5 at 0.5km	604363 6086678	0.2		2.1		WFM	Medium	Small potential habitat gain.
58045	093L123	trib to Tamara Brook	Bill Main	631096 6077599			1.7			High	Not pinned to stream. High in the watershed.
58055	093L122	trib to Trout Ck	R08762 608-1	599563 6086868			1.2		WFM	High	Not pinned to stream in model. Smaller stream with steep gradients not far upstream.
58073	093L122	trib to Bulkley R	Hwy 16	606070 6095422	5.3	1.5	1.9	CO,CT	MoTI	High	Perched culvert immediately adjacent to the Bulkley River. Modelled as step pool habitat upstream.
58090	093L122	trib to Wiggs Ck	R09533 230-2	611150 6095520	0.9		2.7		WFM	Medium	Upstream of extensive wetlands.
58116	093L113	trib to Bulkley R	Unnamed	635966 6042874	7.5	5.1	2.7			High	High in the watershed with numerous small tribs upstream. CO downstream.
58128	093L118	trib to Gonakwa Ck	R10553-2	633893 6074521			1.8		DTL	High	Not pinned to stream. Appears passable to small fish at time of survey.
58141	093L122	trib to Toboggan Ck	6300	607404 6083200	1.5		3			High	Models as quite steep soon upstream.
58144	093L122	trib to Trout Ck	6300	595410 6085745	1.2		0	CT		High	Crossing under beaver dam.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
58151	093L118	McDowell Ck	Woodmere	629754 6061125	19.3	72.2	1.2	RB	MoTI	Medium	Smaller stream.
58154	093L118	trib to McDowell	Woodmere	631335 6061217	1.1		1.5		MoTI	Low	Dorsay Lk upstream.
58162	093L118	Seymour Ck	Unnamed	619889 6070644	15.4	141.5	1.9	ACT,CAS,CH,C O,CSU,CT,DV, EB,LKC,LNC,L SU,NSC,PCC,R B,RSC,SU	Local	Medium	Pacific Street. Smaller stream with numerous culvert barriers upstream.
58213	093L122	trib to Simpson Ck	Nelson Rd	614260 6075386	1.8		1.1	CT,SA	Local	Low	Small stream but good flow.
58238	093L117	trib to Kathlyn Ck	Muir Rd	615221 6073874	0.8		1.7		MoTI	Medium	Just outside of Smithers. Smaller stream. Perched culverts.
58247	093L122	trib to Kathlyn Lk	Driveway off Lake Kathlyn Rd at 1.9km from south end	614338 6075936	4.9		1.5			Medium	Assessment comments indicate spawning upstream. Smaller stream with step-pool habitat modelled ~250 m upstream.
123351	093L113	trib to Bulkley R	Grantham Rd	637729 6043860	3.4		1.2		Local	High	Modelled step pool habitat. Smaller stream.
123355	093L113	trib to Bulkley R	Unnamed	636996 6044484	2.4		1.2			High	Modelled step pool habitat. Smaller stream.
123371	093L118	trib to Bulkley R	Unnamed	636162 6053920			0.9		MoTI	High	Small unmapped stream close to Bulkley R. Assessments comments indicate potentially manmade channel.
123382	093L114	Thompson Ck	McNeil Rd	644682 6045594	26.3	31.2	1.6	CT,DV,RB		High	Channelized stream through agricultural field.
123391	093L118	trib to Robin Ck	Hwy 16	638641 6054575	13.7	7.2	1.5		MoTI	Medium	Perched culvert. Smaller stream with wetlands and small lakes upstream.
123399	093L119	Trib to Gardner Ck	H. Kerr Rd	642168 6057719	6		1.5		MoTI	Medium	Perched culvert. Stream splits to 4 tribs just upstream.
123401	093L119	Gardner Ck	H. Kerr Rd	642147 6058213	5.5		1		MoTI	High	Smaller stream with modelled step pool gradients.
123402	093L119	Gardner Ck	Private Rd	642482 6058392	5.2		1			High	Smaller stream with modelled step pool gradients.
123403	093L119	Gardner Ck	Private Rd	642910 6058615	4.6		1.7			Medium	Smaller stream with modelled step pool gradients.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
123410	093L118	Gardner Ck	Meicklem Rd	639786 6056365	17.4		1.6		MoTI	High	Smaller stream appear channelized through private land.
123415	093L118	trib to Lemieux Ck	Morden Rd	638195 6057940			2		MoTI	High	Unmapped stream through field.
123419	093L118	trib to Lemieux Ck	Morden Rd	639241 6057956	10.7		1.8		MoTI	High	Culvert appears passable to most species/life stages in photos taken in May. Small channel widths recorded in FISS 700 m upstream.
123434	093L118	Lacroix Ck	Bree Rd	632950 6061136	17.7	5.1	2.8	RB	Local	High	Agricultural area with mostly steeper gradients modelled upstream.
123442	093L118	trib to Lacroix Ck	Woodmere Rd	633111 6062645	5.5	4.9	1.3		Local	High	Smaller stream with modelled step pool gradients.
123444	093L118	trib to Lacroix Ck	Woodmere Rd	632756 6062633	2.1		0.8		Local	High	Small stream in agricultural area with upstream habitat modelled as step-pool.
123452	093L118	trib to McDowell Ck	Hislop Rd	631109 6067419	0.4		1.3			High	Smaller stream. Habitat looks good in photos. George Lk dam downstream.
123460	093L118	trib to Tyhee Lk	Lake Rd	626775 6065867			1.1		MoTI	High	Not pinned to stream. Smaller stream with low habitat gain.
123493	093L118	Bigelow Ck	Tatlow Rd	619465 6069785	3.4		1	DV,EB,LKC	Local	Medium	Within Smithers. Small stream but close to known salmon streams. Dam upstream below Bigalow Lk.
123494	093L118	Bigelow Ck	Tatlow Rd E	619589 6069783	3.5		1.2	DV,EB,LKC	Local	Medium	Within Smithers. Small stream but close to known salmon streams. Dam upstream below Bigalow Lk.
123499	093L118	Seymour Ck	Unnamed	619673 6070345	15	141.5	1.6	ACT,CAS,CH,C O,CSU,CT,DV, EB,LKC,LNC,L SU,NSC,PCC,R B,RSC,SU		High	Smaller stream with numerous culvert barriers upstream.
123503	093L118	trib to Seymour Ck	Whistler Rd	618185 6066376	2.3	23.3	2.4		MoTI	High	Modelled step pool habitat upstream.
123513	093L118	trib to Help Ck	Unnamed	625108 6056547	16.7		1.2	RB		High	Small stream with many smaller tributaries upstream.
123528	093L117	trib to Telkwa R	Unnamed	598879 6053115	1.7		1.1		WFM	High	Smaller stream. Assessment comments and photos (May) indicate good habitat value.
123533	093L119	trib to Lemieux Ck	Canyon Creek FSR	643607 6062030	1.4		1		DSS	High	Small stream modelled as step-pool habitat.
123544	093L118	McDowell Ck	Unnamed	628269 6060655	21	72.2	2.9	RB		High	Stream appears shallow and small in photos. Culvert barriers upstream. Many small tributaries.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
123568	093L117	trib to Pine Ck	McDonnell FSR	610460 6067588	1.2		2		DSS	High	Smaller stream.
123576	093L117	trib to Pine Ck	Unnamed	607481 6067218			1.1			High	Smaller unmapped stream. CO nearby.
123577	093L117	trib to Pine Ck	700 Rd	607623 6067157			1.2		DSS	High	Smaller unmapped stream. CO nearby.
123599	093L117	trib to Telkwa R	R09521 1000-3D	601068 6053573	0.6		2.4			High	Step pool habitat.
123628	093L118	trib to Help Ck	R09521 100-1	624054 6053178	0.2		1.9		WFM	High	Steep stream with small modelled habitat gain.
123633	093L118	trib to Help Ck	Powerline	623633 6056086	0.7		2			High	High in the watershed.
123634	093L118	trib to Help Ck	Unnamed	623603 6056054	0.6		1.8			High	Small stream with <700 m habitat on map.
123635	093L118	trib to Help Ck	Powerline	624463 6055879	1.3		2.3	RB		High	Stream width under 1.5 m at FISS sample site just upstream.
123636	093L118	trib to Help Ck	Unnamed	624422 6055819	1.2		1.9	RB		High	Average channel width <1.5 at adjacent FISS sample site.
123637	093L118	trib to Help Ck	Unnamed	624636 6055833	0.7		2			High	Smaller stream with gravels in photos that appear suitable for spawning.
123639	093L118	trib to Help Ck	Powerline	624595 6055775	0.7		2.1			High	Smaller stream with gravels in photos that appear suitable for spawning.
123646	093L118	trib to Help Ck	Unnamed	625103 6055617	4.1		1.7			High	Smaller stream.
123647	093L118	trib to Help Ck	Unnamed	625113 6055657	4.1		1			High	Smaller stream.
123648	093L118	trib to Help Ck	Unnamed	625266 6055572			2.9			High	Not pinned to stream. Suspect lower habitat value during lower flow period.
123649	093L118	trib to Help Ck	Unnamed	625274 6055595			2.9			High	Not pinned to stream. Suspect lower habitat value during lower flow period.
123662	093L118	trib to Canyon Ck	Babine Lake FSR	641205 6074326	0.4		1.8	DV	MoTI	High	Perched culvert. Smaller potential habitat gain.
123667	093L118	trib to Canyon Ck	Babine Lake FSR	640430 6072031	0.9		1.4		Local	High	Smaller stream splits to 2 tribs just upstream.
123671	093L118	Dahlie Ck	Hwy 16	618978 6071197	8.2		2.6			Medium	Prioritized (Wilson and Rabnett 2007). In Smithers. Numerous unassessed crossings.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
123673	093L118	Dahlie Ck	Railway Ave.	618118 6070674	7.1		3.2		Local	Medium	In Smithers. Numerous unassessed crossings.
123675	093L118	Dahlie Ck	Dhalie Rd	617646 6070109	6.3		2.8		MoTI	High	Assessment comments indicate passable but inlet drop and other metrics indicate barrier. Numerous unassessed crossings downstream in Smithers.
123676	093L118	Dahlie Ck	Unnamed	619388 6071844	9		2		Local	High	Within Town of Smithers. Numerous fixes potentially required for significant habitat gains.
123678	093L118	Dahlie Ck	Unnamed	619285 6071731	8.8		1.9		Collector	High	Within Town of Smithers. Numerous fixes potentially required for significant habitat gains.
123679	093L112	trib to Telkwa R	R09521 1018	604777 6050538	2		1.4	DV	WFM	High	Assessment comments indicate passable but appears to be barrier to some life stages/species in photos. FISS sample point just upstream has channel width <4m.
123696	093L123	trib to Driftwood Ck	Driftwood Rd	629319 6080664	0.4		1.8	DV	MoTI	Medium	Smaller potential habitat gain.
123700	093L123	trib to Driftwood Ck	Driftwood Rd	628021 6079554	2.6		1.9	DV,RB	Local	High	Prioritized (Marlim 2014). Babine Mountains Park just upstream. Step-pool habitat.
123746	093L118	trib to Powers Ck	R11260 1	616148 6063441	0.8		1.6		Janette Daly	Medium	High in the watershed.
123760	093L118	Vandenberg Ck	Good Rd	622605 6065529	0.4		2.9		MoTI	High	Large system with dam upstream.
123761	093L118	trib to Bulkley R	Hwy 16	621248 6066654	2.6		1		MoTI	High	Large system but small stream widths at crossing and dam upstream.
123772	093M102	trib to Corya Ck	Unnamed	604343 6098251	2.5		1.9			Medium	Habitat looks good for rearing and potentially spawning in photos.
123773	093M102	trib to Corya Ck	Unnamed	603910 6098594	1.5		2.4			High	Steep step pool habitat upstream.
123778	093M102	Graphite Ck	Hwy 16	605391 6103204	3.5	3.4	1.4		MoTI	High	Smaller stream. Extensive wetlands downstream.
123782	093M103	trib to Blunt Ck	R09533 218	616210 6108101	3		1.6	DV	WFM	High	CT downstream. Smaller stream (FISS width 1.2 m downstream).
123785	093M103	trib to Blunt Ck	R09533 218	615304 6107325	3.7	13.6	0.9	DV	WFM	High	Fish and wetlands upstream. FISS sample site just downstream has 1.6 m channel width.
123789	093M103	trib to Blunt Ck	Blunt Creek FSR	618303 6106550			2.2		FSR	High	Not pinned to stream. Suspect side channel of stream with bridge on it.
123793	093M103	trib to Blunt Ck	Blunt Creek FSR	617611 6106255	2.6		5.7	DV	FSR	High	Model indicates steep gradients at ~300 m upstream. Large stream. Assessment comments indicated passable but does not appear so in photos.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
123799	093M103	trib to Blunt Ck	R09533 217-1	615730 6105919	0.9	4.7	1.6		WFM	High	Smaller stream with steep habitat modelled.
123803	093M102	trib to Bulkley R	Hwy 16	603162 6108700	1.9		1.5		MoTI	High	Assessment comments indicate passable but appears to be barrier to some life stages/species in photos.
123805	093M102	Atrill Ck.	Hwy 16	605535 6105420	9	74.3	1.7		MoTI	High	Culvert appears passable (backwatered) in photos taken in June.
123806	093L113	trib to Bulkley R	Unnamed	636562 6044598	2		0.8			High	Modelled step pool habitat. Smaller stream.
124171	093L118	trib to Powers Ck	Unnamed	619859 6062796	1.4		2			Medium	Steeper step pool habitat upstream. Dry at time of survey (early July)
124172	093L118	Powers Ck	Unnamed	620457 6062296	1.5		2.5		WFM	Medium	Low flows in photos (August).
124174	093L118	Powers Ck	Unnamed	619870 6063335	5.3	3.3	2.5			Medium	Stream appears small with limited flow in photos.
124178	093L113	trib to Bulkley R	Unnamed	639055 6042994	8.9		1.9			High	Assessment comments indicate landowner is intending to replace culvert with bridge.
124188	093M102	trib to Corya Ck	Unnamed	605035 6098394	3.2		2.4			Low	Stream dry at time of survey (August). Habitat upstream rated high priority.
124468	093M102	trib to Corduroy Ck	R10108-3	604635 6117867			2.6		RRL	High	Not pinned to stream. Small potential habitat gain due to steep gradients.
124470	093M107	trib to Bulkley R	Suskwa-Morice town FSR	602248 6120584	2.3		5		TSMS	Medium	Small watershed.
124501	093L118	trib to Bulkley R	Walcott FSR	630661 6055713	9.2		3.8	DV,RB	Local	High	Passage rehabilitated for larger fish with baffles.
124510	093L118	Vandervan Ck	Deception Lake FSR	637140 6063400	13	1.8	1.4	BT,RB	DSS	High	Duplicate of pscis crossing 124511. Contractor indicates passable but appears to be barrier in photos.
124511	093L118	Vandervan Ck	Deception Lake FSR	637142 6063360	13	1.8	1.4	BT,RB		High	Smaller stream. Duplicate of pscis crossing 124510. Contractor indicates passable but appears to be barrier in photos.
195235	093M102	trib to Corduroy Ck	Unnamed	605834 6117083	2.9		2.7			High	Stream splits into three just upstream of crossing. Longest tributary has 4 unassessed modelled crossings upstream.
195339	093L112	trib to Telkwa R	R09521 103	607209 6050724	1.2		2.8		DSS	High	Step pool stream with perched culvert.
195340	093L112	trib to Telkwa R	R09521 103	606889 6050621	4.9	5.7	4.1		DSS	High	Perched culvert with modelled step pool habitat. Lower flows in early October photos and much smaller channel widths at a FISS site upstream.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
195344	093L112	trib to Telkwa R	R09521 103	608454 6049535	2.5	5.7	1.7		DSS	Medium	Perched culvert. Stream models as very steep. Low flows in photos from October.
195378	093L117	trib to Pine Ck	R09521 710	609032 6063198	1.6		1.7		WFM	Medium	Dry in photos taken in September. Assessment comments indicate passable but appears to be barrier to some life stages/species.
195401	093L117	trib to Pine Ck	703 Rd	609139 6063636	1.1	3.5	1.8		DSS	High	Dry in photos taken in September. Assessment comments indicate passable but appears to be barrier to some life stages/species.
195409	093L117	trib to Pine Ck	R09521 710-1	611031 6060356			2		WFM	High	Not pinned to stream. Models are very steep.
195410	093L117	trib to Pine Ck	R09521 710	610936 6060826	1.6		1.6		WFM	High	Labelled intermittent in freshwater atlas and dry in photos.
195411	093L117	trib to Pine Ck	R09521 710	610891 6060874	1.6		1.7		WFM	Medium	Labelled intermittent in freshwater atlas and dry in photos.
195421	093L113	Four Ck.	R09521 120-1	619328 6051225	8.5		1.4	DV	WFM	Medium	Assessment comments indicate passable but appears as barrier in photos. Small channel width with smaller channel size for nearby FISS sample site.
195515	093L117	trib to Telkwa R	R09521 1000	594517 6052303	2.9		2.1	DV	WFM	Medium	Prioritized (Marlim 2015). Steeper stream splits just upstream of crossing.
195543	093L112	trib to Telkwa R	R09521 1018-2	598602 6051343	0.7		1.1		DSS	Medium	Prioritized (Marlim 2015). Steep smaller stream.
195546	093L112	trib to Tenas Ck	R09521 103-1	613644 6048692	0.1		1.5	DV	DSS	High	Prioritized (Marlim 2015). Small modelled habitat gain. Steep.
195574	093L113	trib to Cabinet Ck	R09521 120-7	621420 6048348	2.9		1.3	DV,RB	WFM	Medium	Large outlet drop. Smaller stream but appears to have good habitat in photos.
195923	093L114	Dunalter Ck	Unnamed road	645354 6037825	3	22.8	0.4	CT,LSU,RB		Low	At outlet of 18 m deep Dunalter Lk (DRTI 1982). Stream appears mostly dewatered downstream so could provide access to lake for residence when required.
195924	093L119	trib to Deep Ck	S Deep Creek Rd	648711 6056732	0.8	11.8	1.6		DSS	High	Step pool habitat modelled upstream.
195932	093L118	deJong Ck	Unnamed road	639542 6063176	5.8		2.6			High	Habitat modelled step pool.
195934	093L114	Trib to Stock Ck	Barrett station Rd	645128 6034596	15.8	81.1	1.2	CT,LSU,RB	MoTI	High	Small stream with low flows in photos.
195943	093L114	Stock Ck	Seinen Rd	645439 6035047	23.1	31.2	4.6		MoTI	Medium	Stream is dry in photos.

Analysis and Priority Identification for Fish Existing Passage Data – Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
195944	093L114	Stock Ck	Hwy 16 W	645934 6035552	22.4	31.2	3.8			Medium	Stream mostly dry in photos with low elevation watershed.
195954	093L118	Vandervan Ck	Unnamed road	637091 6062411	24.5	44.7	3	BT,RB		High	FISS also shows CT records downstream. Higher in the watershed with many small tribs upstream.
195955	093L118	de Jong Ck	Unnamed road	638521 6062159	12.4		3.1			High	Fish observed. Perched culvert. Numerous unassessed crossing upstream within 3 tributaries.
195956	093L118	Robin Ck	Unnamed road	640188 6060829	12.2		2.4	RB,TR		Medium	Stream dewatered in photos taken mid-august.

¹Habitat Gain – a modelled estimate of continuous linear distance of fish habitat (<20% gradient) located immediately upstream of the crossing. ²EE = Engelmann Enterprises Ltd., CCR = Canyon Creek Resources Ltd., CFP = Canadian Forest Products Ltd., DSS = District Manager Skeena Stikine, DTL = Driftwood Timber Ltd, DND = District Manager Nadina, KRT = Kispiox River Timber Ltd., MoTI = Ministry of Transportation and Infrastructure, RRL = Rob's Restaurant Ltd., SSI = Silvicon Services Inc., TSMS = Timber Sales Manager Skeena, WFM = West Fraser Mills Ltd.

Appendix 3

Low Priority Crossings

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
123697	093L123	Driftwood Ck	Driftwood Rd	629209 6080573	20.5		1.8	DV	MoTI	Low	Model has crossing pinned to Driftwood Ck. Smaller tributary with short distance modelled fish habitat.
124443	093M106	Two Mile Ck	Silver Standard	587677 6126545	16.3	21.9	1.9	CT,LNC,RB,SP	MoTI	Low	Low habitat value in contractors comments and appears low in photos. However, habitat rated "high" at upstream PSCIS crossing.
195552	093L114	trib to Telkwa R	R09521 103	616911 6056075	15.4	1.2	1.5		WFM	Medium	"Habitat appears low value with minimal flow in photos.
124463	093L118	Bunker Ck	Hwy 16	597191 6119846	10.7	54.9	1.5		MoTI	High	Prioritized (Wilson and Rabnett 2007). Assessment comments and photos indicate passable to most species/life stages.
123739	093M107	Gramophone Ck	R11343 1	614503 6095153	10.5	11.8	0.6			Low	Contractor indicates seasonal stream and no action required.
123389	093L122	trib to Robin Ck	Larch Rd	638939 6053633	10.2	11	1	RB	MoTI	Low	Small stream.
124433	093L118	Two Mile Ck	Unnamed	588429 6129530	9.7	21.9	0.6	CT,RB	MoTI	Low	Very small stream. Rated low habitat value and appears so in photos.
57876	093M106	trib to Canyon Ck	Private/Ba bine Lake Rd	636124 6069274	9.2		1.5			Low	Assessment comments and photos indicate fish habitat value poor.
124492	093L118	trib to Telkwa R	Telkwa River Rd	610146 6054631	9.2		1.3		DSS	Low	Small stream. Habitat rated low and appears so in photos. Unlikely that channel connects wetland to Telkwa for extended periods.
123387	093L117	trib to Robin Ck	Greene Rd	639847 6054601	8.6		0.5		Local	Low	Assessment comments and photos indicate low habitat value.
3046	093L118	Trib to Bulkley R	North Rd	649619 6029989	8.5		1.7		DND	Low	Stream dry in photos and rated low habitat value.
123744	093L109	trib to Bulkley R	Palmeson Rd	610376 6088741	8.3	26	1.6			Low	Assessment comments indicate no action required and appears passable in photos.
123427	093L122	trib to Round Lk	Woodmere Rd	634832 6059233	8.3		1		Local	Low	Very small stream with poor habitat.
123674	093L118	Dahlie Ck	Unnamed	618060 6070582	7		2.8			Medium	Crossing appears passable (backwatered) in photos taken in June.
123428	093L114	trib to Round Lk	Round Lake Rd	635041 6059481	6.7		0.8		Local	Low	Small stream rated low habitat value.
57801	093L118	Vallee Ck	Hwy 16	646110 6039268	6.6	19.7	1.5	CAL,CT,LSU,R B	MoTI	Medium	Very small channel and habitat value rated low at crossing ~600 m upstream.

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
195498	093L118	Burbridge Ck	Deception Creek FSR	641798 6065611	6.6	5.8	1.9		DSS	High	Assessment comments and photos indicate passable for most life stages at most flows.
195963	093L114	Dunalter Ck	Unnamed road	645517 6035406	6.5	22.8	1.1	CT,LSU,RB	Local	Medium	Small stream dewatered in photos.
195356	093L119	trib to Telkwa R	Unnamed	616265 6053833	6.5		1.8		WFM	Medium	Small stream dewatered in photos from October.
123365	093L114	trib to Bulkley R	Lawson FSR	636755 6049091	6.3		1.1		MoTI	High	Small stream with very narrow channel widths recorded in FISS upstream.
123422	093L118	trib to Lemieux Ck	Morden Rd	639730 6057802	6.1		1.1		Local	High	Small stream.
57786	093L113	Vallee Ck	Anderson Rd	646598 6039385	6	17.8	0.6	CAL,CT,LSU,RB	Local	Low	Assessment comments and photos indicate low value habitat.
57802	093L118	trib to Canyon Ck	Billeter Rd	621184 6072970	5.8	20.7	1.5	EB	Local	Medium	Drains Call Lk. Small stream with intermittent flows and low habitat values rated at numerous crossings.
195965	093L114	Dunalter Ck	Unnamed road	645711 6036237	5.6	22.8	1.1	CT,LSU,RB		Medium	Small stream dewatered in photos.
58287	093L118	Simpson	Proctor Junction	615398 6074965	5.6		0.6	CO,CT,DV,MW,OS,RB,SA,ST	MoTI	Low	Pinned to wrong stream.
57914	093L114	trib to Glass Ck	Hwy 16	613743 6080562	5.5	20.2	0.8		MoTI	Low	Small low elevation drainage.
58322	093L122	Trib to Canyon Ck	Old Babine Lk Rd	622935 6074562	5.4		0.4			Low	Assessment comments indicate falls downstream of site with no fish access
58323	093L122	0		622946 6074574	5.4		0.4			Low	Assessment comments indicate falls downstream of site with no fish access
57912	093L123	trib to Glass Ck	Raceway Rd	614089 6080422	5.1	20.2	0.9		MoTI	Low	Small low elevation drainage.
57883	093L123	trib to Canyon Ck	Babine lake Rd	636757 6071525	4.9		1.8	RB	Collector	High	Smaller dewatering stream.
123559	093L122	trib to Pine Ck	Hudson Bay FSR	611907 6066844	4.7		1.6	DV	MoTI	High	Assessment comments and photos indicate passable to juvenile
123364	093L118	trib to Bulkley R	Unnamed	636453 6048631	4.6		1.4			High	Small stream with very narrow channel widths recorded upstream.
123363	093L120	trib to Bulkley R	Unnamed	636441 6048615	4.6		1.4			High	Small stream with very narrow channel widths recorded in FISS.
195957	093L117	0	Unnamed road	639709 6060989	4.4		2.1			Low	Small intermittent stream. Assessments indicate likely passable for some species/life stages.

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
123518	093L113	trib to Help Ck	Power Line	604480 6052429	4.4		1.8	DV	Trail	High	Triton 2001 report indicate non fish bearing just upstream due to cascade.
195475	093L113	trib to Bulkley R	Unnamed	631951 6052138	4.1	2.5	1.1			Medium	Photos and assessment comments indicate passable
57878	093L118	trib to Canyon Ck	Babine lake Rd	635617 6071525	3.9		4.4	DV	Collector	High	Small stream with habitat value rated low.
3079	093L117	0	Hidden Lake	650538 6044797	3.8		2.2		DND	High	Prioritized (Ecofor 2010). Assessment comments and photos indicate passable. Fins 2005 report fish downstream.
57933	093L113	trib to Toboggan Ck	Hwy 16	610732 6085907	3.6	30	0.6		MoTI	Low	Very small stream with habitat rated low.
3059	093L118	Trib to Barren Ck	Barren	655560 6043591	3.6		1.4		DND	Low	Smaller stream with habitat rated low value in assessment comments.
58370	093L114	Cygnat Ck	Adams Rd	623406 6079516	3.1		3		Local	High	Prioritized (Marlim 2013). Very steep habitat modelled upstream.
57956	093L122	trib to Schippers Ck	Private Rd 400m d/h of km 4 Kitsequel a Rd	601957 6089822	3.1		3.2	CT		Medium	Dry when assessed at end of September.
124166	093L114	trib to Corya Ck	Unnamed	605369 6100880	3		3.8			Low	Assessment comments and photos indicate poor habitat value.
124165	093L118	trib to Corya Ck	Schmid Rd	605333 6100883	3		1.1			Low	Assessment comments and photos indicate poor habitat value.
195953	093L112	trib to Stock Ck	R089212	650503 6037350	3		0.6		EE	Medium	Very small stream.
124461	093L113	trib to Bulkley R	Ross Lake Rd	592666 6123063	2.9	25.7	0.6	LKC,RB	MoTI	Low	Within New Hazelton. Assessment comments and photos indicate poor habitat value.
57804	093L118	trib to Canyon Ck	Antler Rd	621424 6072382	2.8	20.7	1.4	EB	MoTI	Low	Drains Call Lk. Small stream with intermittent flows and low habitat values rated at numerous crossings.
123584	093L123	trib to Bulkley R	Walcott Rd	641684 6047016	2.8	5.7	1		MoTI	Low	Small stream with habitat rated low value.
58361	093L122	trib to Driftwood Ck	Telkwa High Rd (from Old Babine Lake Rd)	622460 6078644	2.7		3.2		MoTI	Low	Stream appears dry and low value habitat in photos taken in late October.

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
57949	093M102	trib to Bulkley R	Private off of Kitsequel a Loop	605935 6091061	2.6		2.1			Medium	Stream appears dry in photos taken in late September with 0.6 m high falls located at 1.6 km.
123372	093M102	trib to Lacroix Ck	Unnamed	634876 6056566	2.6	5.4	1.2		MoTI	Low	Upstream habitat poor value with stream spread out over pasture area.
123792	093L119	trib to Blunt Ck	Blunt Creek FSR	617663 6106252	2.6		1.2	DV	FSR	Medium	Unmapped stream or UTM is off.
123390	093L114	trib to Robin Ck	Larch Rd	633609 6054566	2.6		1.5			Medium	Chute (~20% and 9m high) just upstream in FISS.
123373	093L117	trib to Lacroix Ck	Quick West Rd	634874 6056682	2.5	5.4	0.9		Local	Low	Upstream habitat poor value with stream spread out over pasture area.
123771	093M107	trib to Corya Ck	Unnamed	604364 6098219	2.5		0.9			Low	Likely unmapped tributary. Very small.
57805	093L118	trib to Canyon Ck	Berry Rd	621647 6072086	2.4	20.7	1	EB	Local	Low	Drains Call Lk. Small stream with intermittent flows and low habitat values rated at numerous crossings.
123367	093L113	trib to Bulkley R	Lawson FSR	637072 6049916	2.4	8.4	1.1		Local	Low	Small stream. Assessment comments and photos indicate poor habitat value.
123527	093L123	trib to Telkwa R	Telkwa FSR	598865 6052813	2.3		1.3		DSS	High	Assessment comments and photos indicate passable due to backwatering.
57806	093L122	trib to Canyon Ck	Lowland Rd	621776 6071880	2.2	20.7	0.9	EB	Local	Low	Drains Call Lk. Small stream with intermittent flows and low habitat values rated at numerous crossings.
3090	093L118	Trib to Byman Ck	Perow	664065 6049420	2.1		0.9		DND	Low	Photos and data indicate poor habitat value.
124456	093L118	Waterfall Ck	Unnamed	589612 6122535	2		0.5	CT		Low	Within New Hazelton. Assessment data and photos indicate poor habitat value.
58257	093M103	trib to Kathlyn Lk	Hwy 16	615895 6077199	2		1.1		MoTI	Low	Assessment comments and photos indicate poor habitat value.
58092	093L118	trib to Wiggs Ck	R09533 230-2	611487 6095252	1.9		0.7		WFM	Medium	Very small stream appears dewatered in photos.
57807	093L118	trib to Canyon Ck	Private Rd off of Highland	622049 6071660	1.8	20.7	0.6	EB	MoTI	Low	Drains Call Lk. Small stream with intermittent flows and low habitat values rated at numerous crossings.
58261	093M102	trib to Simpson Ck	Husky Rd	614241 6075376	1.7		0.8	CT,SA	MoTI	Medium	Small stream dry in photos.
58223	093L118	trib to Trout Ck	Branch off of 6008 Rd	600463 6088147	1.7		0.7			Low	Assessment comments indicate no fish habitat present, no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
57808	093L113	trib to Canyon Ck	Upland Rd	622205 6071559	1.7	20.7	0.8	EB	Local	Low	Drains Call Lk. Small stream with intermittent flows and low habitat values rated at numerous crossings.
57809	093L117	trib to Canyon Ck	Private Rd off of Upland	622220 6071514	1.6	20.7	1.3	EB	MoTI	Low	Drains Call Lk. Small stream with intermittent flows and low habitat values rated at numerous crossings.
195938	093L118	trib to Canyon Ck	R11559 2-1	633999 6066823	1.5	7	1		SSI	Medium	Small steeper stream.
124424	093L114	trib to Waterfall Ck	Railway	589485 6122990	1.4		3.8	CO,DV	Railway	Medium	Photos indicate backwatered and passable.
57773	093M107	trib to Emerson Ck	Emerson FSR (R05246)	636672 6034174	1.3		1.9		CFP	Medium	Stream appears dry in photos taken in September.
124163	093L123	trib to Corya Ck	Unnamed	604255 6101960	1.3		2.1			Low	Assessment comments and photos indicate poor habitat value.
57789	093L122	trib to Vallee Ck	Barrett Hat Rd	644735 6041241	1.3		2.5		MoTI	Low	Assessment comments and photos indicate poor habitat value.
124422	093L118	trib to Waterfall Ck	Hwy 16	589497 6123163	1.2		5.2	CO,DV	MoTI	Medium	Photos indicate passable. Backwatered with low flow velocities likely.
57927	093L122	trib to Toboggan Ck	Railway along Pope Rd	609755 6086508	1.2		1.5			Low	Assessment comments and photos indicate poor quality habitat.
57917	093L122	trib to Glass Ck	Hwy 16	611725 6083520	1.2		1.2	CO,RB	MoTI	Low	Assessment comments and photos indicate poor habitat value.
57822	093L118	trib to Canyon Ck	Old Babine Lake Rd	622213 6074133	1.1		0		MoTI	Low	Assessment comments and photos indicate poor habitat value.
57953	093L118	Beavery Ck	Kitsequecl a Rd	605056 6091904	1.1		2.2		Local	Medium	Dry in photos from end of September and classified as "intermittent" in freshwater atlas.
57894	093L118	trib to Canyon Ck	R01944 Q	638649 6071454	1		2.1		CCR	Low	Assessment comments and photos indicate poor habitat value.
123435	093L118	Lemieux Ck	Canyon Creek FSR	644017 6061611	1		1.7		DSS	Medium	Small stream with very steep gradient recorded at crossing.
57798	093L114	trib to Vallee Ck	Hwy 16	646290 6040677	0.9		0.9		MoTI	Low	Assessment comments and photos indicate poor habitat value.
124448	093M107	trib to Mudflat Ck	Hwy 16	597756 6119239	0.9		2.2		MoTI	Low	Steep smaller stream.
124423	093L113	trib to Waterfall Ck	Railway	589770 6123268	0.9		2	DV	Railway	Medium	Prioritized (Wilson and Rabnett 2007). Photos indicate passable. Backwatered with low flow velocities likely.

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
123409	093M102	trib to Lemieux Ck	Hill Rd	642943 6058026	0.9		0.8		Keith Hodson	High	Very small stream.
124480	093L114	trib to Sharpe Ck	R119912	605194 6112050	0.9		0.8	DV	Rene Schlatter	Low	Assessment comments and photos indicate poor habitat value.
58059	093M107	trib to Trout Ck	R08762 608-1	598443 6085802	0.8		1.6		DSS	Medium	Small stream.
124494	093L122	trib to Telkwa R	Telkwa River Rd	607242 6053133	0.8	1.4	1.3		DSS	Low	Assessment comments and photos indicate poor habitat value.
123706	093L122	trib to Driftwood Ck	Unnamed	625023 6077495	0.7		1.6		Local	Low	Assessment comments and photos indicate poor habitat value. FISS sample site adjacent has channel width <1 m.
123684	093L118	trib to Telkwa R	R09521 1018	602047 6050560	0.7		1.7		DSS	Low	Assessment comments indicate low habitat value and no action required
57952	093L122	trib to Bulkley R	Kitsequel a Rd	605117 6092009	0.7		1.5		Local	Low	Stream appears dry in photos taken in late September. Assessment comments and photos indicate poor habitat value.
123451	093L118	trib to McDowell Ck	Hislop Rd	630663 6067510	0.7	5	1.3			Medium	Smaller stream.
195301	093L119	Trib to Vandervan Ck	R11232 3	640966 6065478	0.6		0.7		Richard Boonstra	Medium	Very small stream.
58268	093L114	trib to Kathlyn Ck	Corner of Lund Ave and Elgin Street	616090 6074805	0.6		0.2		MoTI	Low	Assessment comments and photos indicate poor fish habitat.
58255	093M107	trib to Kathlyn Lk	Driveway off Lake Kathlyn road	614755 6077168	0.6		1.6			Low	Assessment comments and photos indicate low habitat value.
123569	093M107	trib to Pine Ck	McDonnell FSR	609501 6067581	0.6		0.6		DSS	High	No fish captured at nearby sample site (Triton 2001).
195497	093L119	Burbridge Ck	R11232 1	640752 6065727	0.5		0.9		Richard Boonstra	Medium	Small stream.
195433	093M102	Trib to Goathorn Ck	R09521 120-1A	623396 6050658	0.4		2.2		WFM	High	Downstream FISS site indicates habitat poor and subject to disturbances. No fish present upstream of road (FISS).
123695	093L119	trib to Driftwood Ck	Driftwood Rd	629915 6081268	0.4		2.6	DV	MoTI	High	Small potential habitat gain.
57919	093L122	trib to Elliot Ck	Owens Rd	610584 6083893	0.4		1.1		MoTI	Low	Assessment comments and photos indicate poor habitat value.

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
57851	093L119	trib to Canyon Ck	Old Babine Lake FSR	636808 6072751	0.4		3.2	DV	Local	Low	Small potential habitat gain.
58004	093L117	trib to Trout Ck	Private at 12.6 km Kitsequel a rd	595738 6088849	0.4		1.7			Medium	Culvert appears embedded and potential passable to most life stages/species in photos. Stream dry in late September.
57950	093L123	trib to Bulkley R	Kitsequel a Rd	605709 6092056	0.4		3		MoTI	Low	Assessment comments and photos indicate poor habitat value.
195236	093L112	trib to Telkwa R	R09521 116	607127 6053412	0.4		1.6		WFM	High	Steep small stream.
195577	093L122	trib to Cabinet Ck	R09521 120-1	620594 6047931	0.3		1.4		WFM	High	Assessment comments indicate passable but appears to be barrier to some life stages/species in photos.
123497	093L118	trib to Seymour Ck	Tatlow Rd E	619838 6069413	0.3		4.8			Low	In Smithers. Culvert 100 % backwatered and passable in photos.
58256	093L118	trib to Kathlyn Lk	Yellich Rd	616319 6078101	0.3		0.5		Local	Low	Assessment comments and photos indicate poor habitat value.
124460	093L123	trib to Station Ck	Unnamed	590845 6121475	0.3		1.2			High	Assessment comments indicate passable but appears barrier for young life stages and small species. Habitat gain likely less than 250 m.
57813	093L122	trib to Canyon Ck	Billeter Rd	623961 6073357	0.3		1.6		MoTI	Low	Assessment comments and photos indicate poor habitat value.
123798	093L117	trib to Blunt Ck	R09533 217-1	616034 6105949	0.3	1.4	1.1		WFM	Low	Very small stream with habitat rated low value.
57886	093L118	trib to Canyon Ck	R01944 12 (Woodlot 100)	637023 6070211	0.2		1.5		CCR	Low	Assessment comments and photos indicate poor habitat value.
124453	093L113	trib to Bulkley R	Birch Rd	592820 6122590	0.2		1.4		Local	Low	Assessment comments and photos indicate poor habitat value.
195384	093L123	trib to Pine Ck	R09521 710-1	612063 6057989	0.2		1.6		WFM	Low	Assessment comments and photos indicate poor habitat value.
57899	093L114	0	Yellich Rd	616458 6079895	0.2		1.6		MoTI	Low	Small low elevation drainage.
3089	093L122	0	Findley	660982 6057305	0.2		1.5		DND	Low	Small modelled habitat gain.
3094	093L118	0	Spur road off Barren	655090 6043795	0.2		1.5		DND	Low	Assessment comments and photos indicate poor habitat value.

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
124197	093L122	trib to Boulder Ck	Unnamed	598189 6108690	0.2		6.3			Medium	Bull trout system with good habitat and large channel. Likely too steep even for bull trout at ~150 m upstream.
123464	093L122	trib to Tyhee Lk	Babine Lake Rd	628035 6068045	0.2		2		Collector	Medium	Small modelled habitat gain.
123565	093L117	trib to Pine Ck	Hudson Bay Mountain Rd	611156 6068270	0.1		1.9		Local	High	Prioritized (Marlim 2014). Small amount of steep habitat modelled upstream.
58007	093L113	trib to Trout Ck	Branch off R10836 608A at 1.3 km	600666 6087358	0.1		3			Low	Small modelled habitat gain.
123506	093L118	trib to Seymour Ck	Ptarmigan Rd	617663 6065878	0.1	23.3	1.4		DSS	High	Less than 100m habitat <20% on map. Modelling likely incorrect.
57924	093L123	trib to Toboggan Ck	Pope Rd	611082 6083990			0.9		MoTI	High	Not pinned to stream. Small channel. Appears passable to smaller fish (5 - 10 cm) in photos.
58021	093M107	trib to Owen Ck	branch off R10836 608A-5 at 0.5km	606298 6085891			1			High	Prioritized (Marlim 2013). Not pinned to stream. Adjacent to habitat modelled as too steep for fish.
58125	093L118	trib to Gonakwa Ck	R10553-2	633356 6075045			1.4		DTL	High	Small stream - high in the watershed.
58126	093M103	trib to Gonakwa Ck	R10553-2	633415 6074961			1.3		DTL	High	Small stream - high in the watershed.
123712	093L118	trib to Driftwood Ck	Adams Rd	623384 6049463			1.6			High	UTM is off. Cannot find where crossing should be.
123573	093M107	trib to Pine Ck	Hudson Bay Mountain Rd	611864 6066828			1.6		MoTI	High	Assessment comments and photos indicate passable.
123400	093L117	trib to Lemieux Ck	H. Kerr Rd	642166 6057779			1		MoTI	High	Prioritized (Marlim 2014). Not pinned to stream. Small channel and steeper stream.
123423	093L123	trib to Robin Ck	Morden Rd	638167 6056578			0.9		MoTI	High	Not pinned to stream. Smaller stream with low habitat gain.
123448	093L119	trib to Victor Ck	Unnamed	629028 6065337			1.1			High	Not pinned to stream. Adjacent to habitat modelled as too steep for fish.
123505	093L114	trib to Seymour Ck	Ptarmigan Rd	617941 6066162			1			High	Unmapped stream. Small channel and steep.

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
124486	093M102	China Ck	Hwy 16	610814 6117190			4			High	UTM off. Suspect 9U 644719 6040576. Very steep just upstream.
195221	093L118	trib to Bulkley R	R03710 2	607069 6112474			1.3		KRT	High	Not pinned to stream. Adjacent to habitat modelled as too steep for fish.
195522	093L117	trib to Telkwa R	Unnamed	593522 6053426			1.4		WFM	High	Not pinned to stream. Adjacent to habitat modelled as too steep for fish.

¹Habitat Gain – a modelled estimate of continuous linear distance of fish habitat (<20% gradient) located immediately upstream of the crossing. ²EE = Engelmann Enterprises Ltd., CCR = Canyon Creek Resources Ltd., CFP = Canadian Forest Products Ltd., DSS = District Manager Skeena Stikine, DTL = Driftwood Timber Ltd, DND = District Manager Nadina, KRT = Kispiox River Timber Ltd., MoTI = Ministry of Transportation and Infrastructure, RRL = Rob's Restaurant Ltd., SSI = Silvicon Services Inc., TSMS = Timber Sales Manager Skeena, WFM = West Fraser Mills Ltd.

Appendix 4

Crossings with No Fix Recommended

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
124504	093L10	Coffin Ck	Walcott FSR	634323 6054587	38.3	189.5	4.2	CSU,CT,DV,LSU,MW,RB,RSC	MoTI	High	Prioritized (Wilson and Rabnett 2007). Passable.
123699	093L14	Driftwood Ck	Driftwood Rd	628262 6079731	24.7		0.6	DV,RB	MoTI	Low	Assessment comments indicate no action require. Appears to be pinned to Driftwood Ck by model but is small unmapped tributary.
124427	093M05	Two Mile Ck	Hwy 62	587346 6125073	20.3	23.1	2.6	CT,LNC,RB,SP	MoTI	High	Passable.
123345	093L07	trib to Bulkley R	Walcott FSR	642538 6033162	13.1		4.8	CO,RB	DND	High	Contractor and photos indicate passage.
123496	093L14	0	Unnamed	619876 6069753	10.6	131	3.5	ACT,CAS,CH,CO,CSU,CT,LNC,LSU,NSC,PCC,RB,RSC,SU		High	Contractor's comments and photos indicate passable.
123498	093L14	Seymour Ck	Unnamed	619859 6069293	9.4	131	2.7	ACT,CAS,CO,CSU,CT,LSU,NSC,PCC,RB,RSC,SU		High	Contractor and photos indicate passable at flows during time of survey.
123740	093L14	Meed Ck	8000 Rd	612454 6090190	7.7		1.6		FSR	Medium	Contractor's comments and photos indicate passable...
58210	093L14	trib to Trout Ck	Branch off of 6008 Rd at 1.0km-toward east	599769 6087920	6.6		1.5	CT,SP		High	Culvert appears passable in photos.
124459	093M04	trib to Station Ck	Unnamed	590831 6121810	4.7	21.1	1.6			Medium	Hazleton. Photos and assessment comments indicate passable.
58228	093L14	trib to Schippers Ck	Branch off Lake Kitsequec la Rd at 6.9 km	600823 6089408	3.4		0.9			Medium	Assessment comments and photos indicate passable.
58066	093L14	trib to Gramophone Ck	Telkwa High Rd	609996 6092214	3.4	3.4	1.3		MoTI	Low	Assessment comments indicate no habitat present.

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
57978	093L14	Trout Ck	Kitsequec la Rd	597229 6088419	2.9		3.5	CT	Local	Medium	Assessment comments and photos indicate passable.
123520	093L11	trib to Help Ck	Power Line	604172 6053384	2.8		1.7			High	Triton 2001 report indicate non fish bearing downstream due to cascade.
58211	093L14	trib to Trout Ck	Branch off of 6008 Rd at 1.0km-toward east	600187 6088041	2.6		1.7			Medium	Appears passable in photos.
124479	093M03	trib to Bulkley R	Suskwa-Moricetown FSR	605879 6109306	2.1		1.5		TSMS	Low	Assessment comments and photos indicate passable.
57765	093L07	Trib to Bulkley R	Emerson FSR	639399 6035241	1.4		2.2		CFP	Low	Data from adjacent FISS sample site and assessment comments indicate non classified drainage and non-fish bearing.
57827	093L14	trib to Canyon Ck	Telkwa Rd	623697 6074710	1.4		1.6		Local	Medium	Assessment comments indicate falls downstream of site with no fish access
124421	093M04	trib to Waterfall Ck	11th Avenue	589478 6123044	1.3		5.2	CO,DV	Local	Medium	Photos indicate passable.
195366	093L11	trib to Telkwa R	R09521 103	612188 6052605	1		2.7		DSS	Low	Non fish bearing (Triton 2001)
58260	093L14	Kathlyn Ck	Nelson Rd	614065 6075633	1		2.7	CT	Local	High	Assessment comments and photos indicate passable.
57778	093L07	trib to Bulkley R	R05237.08	636678 6040781	0.6		1.2			Medium	FISS sample site downstream indicates non-fish bearing.
58216	093L14	trib to Trout Ck	Branch off of 6008 Rd	601205 6088649	0.5		4.6			Low	Assessment comments indicate no fish habitat present with no action required
57945	093L14	Cow Ck	Hwy 16	606611 6091871	0.4		1.7		MoTI	High	Assessment comments indicate Falls just upstream of the culvert are a barrier to further access.
57946	093L14	Cow Ck	Kitsequec la Loop	606462 6092039	0.1		0		MoTI	Medium	Assessment comments indicate Falls immediately downstream of crossing prevent fish access.
123370	093L10	trib to Bulkley R	Lawson FSR	637634 6051657			0.9		Local	High	Not pinned to stream. Adjacent to habitat modelled as too steep for fish.

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Comments
123561	093L14	trib to Pine Ck	Hudson Bay Mountain Rd	612847 6069229			1.6		Local	High	Very steep.
123688	093L11	trib to Bulkley R	R09521 118	604101 6049802			1.5		WFM	High	Assessment comments and photos indicate passable.

¹Habitat Gain – a modelled estimate of continuous linear distance of fish habitat (<20% gradient) located immediately upstream of the crossing. ²EE = Engelmann Enterprises Ltd., CCR = Canyon Creek Resources Ltd., CFP = Canadian Forest Products Ltd., DSS = District Manager Skeena Stikine, DTL = Driftwood Timber Ltd, DND = District Manager Nadina, KRT = Kispiox River Timber Ltd., MoTI = Ministry of Transportation and Infrastructure, RRL = Rob's Restaurant Ltd., SSI = Silvic Services Inc., TSMS = Timber Sales Manager Skeena, WFM = West Fraser Mills Ltd.

Appendix 5

PSCIS Barrier and Potential Barrier Crossings on Potential Fish Habitat

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
3041	093L114	Unnamed	Barren	655260 6043622	0.4		1.5		DND	Medium	Ecofor 2010	
3042	093L114	Barren Ck	Barren	654451 6042827	5.2	7.9	3		DND	High	Ecofor 2010	
3045	093L114	Trib to Bulkley R	North Rd	651400 6032337	5.6		1.5		DND	Medium	Ecofor 2010	
3046	093L109	Trib to Bulkley R	North Rd	649619 6029989	8.5		1.7		DND	Low		
3047	093L119	Unnamed	Findley	663205 6057340	3		1.2		DND	Low		
3048	093L120	Robert Hatch Ck	Robert Hatch	669680 6056904	4.8	53.1	1.3		DND	High	Ecofor 2010	
3051	093L119	Unnamed	Byman	660612 6053668	0.2		1		DND	Low		
3052	093L114	Unnamed	Byman	664164 6052750	1.9		0.5		DND	Low		
3053	093L114	Trib to Byman Ck	Byman	662291 6052289	4	5.4	1.4		DND	Medium	Ecofor 2010	
3054	093L114	Jonny David Ck	North Rd	664881 6052688	24.3	71	3.3	RB	DND	Medium	Ecofor 2010	
3056	093L114	Unnamed	North Rd	662251 6050984	1.1		1		DND	Low		
3059	093L114	Trib to Barren Ck	Barren	655560 6043591	3.6		1.4		DND	Low		
3062	093L114	Unnamed	North Rd	651246 6032226	8.1	1.4	1.4		DND	Medium	Ecofor 2010	
3063	093L109	Unnamed	North Rd	650001 6030115	4		1.1		DND	Low		
3064	093L120	Robert Hatch Ck	Robert Hatch	669661 6056917	4.8	53.1	1.4		DND	Low		
3065	093L120	Unnamed	North Rd	668504 6056340	4.6		1	RB	DND	Medium	Ecofor 2010	
3066	093L119	Trib to Johnny David Ck	Michell Bay FSR	666073 6055224	5.1		1.8		DND	Low		
3069	093L114	Unnamed	North Rd	661941 6050479	0.3		1		DND	Low		

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
3070	093L114	Trib to Perow Ck	Michell Bay FSR	660446 6048640	3.7		3		DND	Medium	Ecofor 2010	
3071	093L114	McInnes Ck	North Rd	661119 6042031	4.2		1.3		DND	Low		
3072	093L115	Unnamed	Holmes	674855 6053512	4.5		0.6		DND	Low		
3073	093L114	West McInnes Ck	North Rd	660871 6040440	5.6	7.3	1.5		DND	Medium	Ecofor 2010	
3074	093L120	Trib to Robert Hatch Ck	Robert Hatch	670105 6056389	1.1		1.6		DND	Low		
3075	093L119	Unnamed	North Rd	660134 6055060	0.3		0.9		DND	Low		
3076	093L119	Trib to Byman Ck	Byman	659056 6053815	2.4	6.8	1.2		DND	Medium	Ecofor 2010	
3078	093L114	Unnamed	North Rd	662145 6050849	1.4		0.7		DND	Low		
3079	093L114	Unnamed	Hidden Lake	650538 6044797	3.8		2.2		DND	High	Ecofor 2010	Passable if fish present, no concerns
3080	093L114	Unnamed	Hidden Lake	651110 6044871	0.4		0.6		DND	Low		Passable if fish present, no concerns
3082	093L114	Trib to Hidden Lk	Hidden Lk FSR	651657 6042495	2.5	8.7	1.1		DND	Medium	Ecofor 2010	Replace, culvert rotting out
3083	093L114	Unnamed	McInnes	657895 6042784	0.2		0.7		DND	Low		
3084	093L114	Unnamed	Barren	652585 6041707	0.6		1		DND	Low		
3086	093L114	Unnamed	North Rd	658173 6037720	1.5		1.1		DND	Low		
3087	093L114	Trib to McKilligan Ck	North Rd	653507 6034667	0.5		7.4		DND	Low		
3089	093L119	Unnamed	Findley	660982 6057305	0.2		1.5		DND	Low		
3090	093L114	Trib to Byman Ck	Perow	664065 6049420	2.1		0.9		DND	Low		
3091	093L114	Trib to McQuarrie Ck	Michell Bay FSR	656855 6048636	19.5	9.8	3.6		DND	High	Ecofor 2010	

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
3093	093L114	Unnamed	Hidden East	652231 6044306	0.7		0.8		DND	Medium		Passable if fish present, no concerns
3094	093L114	Unnamed	Spur road off Barren	655090 6043795	0.2		1.5		DND	Low		
3116	093L119	Unnamed	Findley	665637 6056017	0.7		0.9		DND	Low		
3139	093L114	Trib to Mcquarrie Ck	Michell Bay FSR	656657 6048544	19.6	46.1	2.8		DND	Medium		
6272	093M108	Unnamed	352 Rd	628586 6120549	1.7		1.6		WFM	Medium		Culvert outfall drop (0.65 m with 0.18 m deep outfall pool) is a barrier to all fish. No staging possible for jumping. Culvert slope (10.9%) creates a barrier to all fish.
6273	093M108	Camp Ck	3000 Rd	627303 6121743	7	50	2.2	CT,DV,LKC,RB ,RSC,TR	DSS	High		Moderate priority due to beaver dam which is causing a partial barrier and blockage of culvert. Culvert is also undersized based on Q100 estimate.
57762	093L113	trib to Emerson Ck	R165402 (left Junction)	638410 6030477	1.7		1.2			Low		Channel primarily filled with moss, poor fish habitat present
57765	093L113	Trib to Bulkley R	Emerson FSR	639399 6035241	1.4		2.2		CFP	Low		No fish habitat present, no action required
57769	093L113	trib to Emerson Ck	R05237.04 (left junction)	637778 6032220	1.6		1.3		CFP	Low		Tree fallen in front of inlet - needs to be removed
57770	093L113	trib to Emerson Ck	R05237.04 (left junction)	637578 6033106	2.1		1.4		CFP	Low		Remove culvert and deactivate road
57772	093L113	trib to Emerson Ck	Emerson FSR (R05246)	637416 6033512	3.9		2.2		CFP	Low		Replace with larger, embedded culvert, or an OBS
57773	093L113	trib to Emerson Ck	Emerson FSR (R05246)	636672 6034174	1.3		1.9		CFP	Medium		No fish habitat present, but culvert is rusted out and needs to be replaced

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
57778	093L113	trib to Bulkley R	R05237.08	636678 6040781	0.6		1.2			Medium		Culvert is completely flattened, no passage possible
57780	093L113	trib to Bulkley R	Unnamed	636716 6043414	1		0.6			Low		No fish habitat present, no action required
57783	093L114	Mathews Ck	Hwy 16	646501 6033893	1.4		1.3		MoTI	Medium		Good habitat upstream of culvert
57784	093L114	Trib to Mathews Ck	Hwy 16	646357 6034018	6.9		2.4		MoTI	Medium		Moderate habitat present
57785	093L114	trib to Vallee Ck	Hwy 16	646192 6040863	0.2		1.2		MoTI	Low		No fish habitat present, no action required
57786	093L114	Vallee Ck	Anderson Rd	646598 6039385	6	17.8	0.6	CAL,CT,LSU,R B	Local	Low		Very low habitat value, no action required
57787	093L114	Vallee Ck	Summit Lake Rd	647460 6040143	4.8	17.8	2.5	CAL,CT,LSU,R B	MoTI	Medium		If culvert is proven a barrier, replace with larger, embedded culvert
57789	093L114	trib to Vallee Ck	Barrett Hat Rd	644735 6041241	1.3		2.5		MoTI	Low		Channel very undefined, no fish habitat present, no action required
57792	093L114	trib to Vallee Ck	Private	644400 6042534	0.5		0.8			Low		No fish habitat present, culvert is squashed on upstream end and may need to be replaced
57793	093L113	Vallee Ck	Walcott Rd	641460 6044049	31.8	63.3	6.4	CAL,CT,LSU,R B	Local	High		Fish observed both upstream and downstream of culvert. If proven to be a barrier, replace with OBS
57795	093L113	trib to Bulkley R	Private off of Grouse Rd	640990 6040660	1		0.9			Low		No fish habitat present, no action required
57797	093L113	trib to Bulkley R	Private off of Grouse Rd	640520 6042368	1.6		0.6			Low		No fish habitat present, culvert is starting to rust out and may need to be replaced
57798	093L114	trib to Vallee Ck	Hwy 16	646290 6040677	0.9		0.9		MoTI	Low		No fish habitat present, no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
57800	093L114	Mathews Ck	Seinen Rd	646065 6033294	9.7	10.7	3.2			Medium		Landowner said stream flow has increased significantly with logging upstream. Landowner is currently replacing the crossing with a larger culvert, as it is in danger of washing his driveway away as it currently exists.
57801	093L114	Vallee Ck	Hwy 16	646110 6039268	6.6	19.7	1.5	CAL,CT,LSU,R B	MoTI	Medium		Fish observed downstream, good habitat present upstream.
57802	093L118	trib to Canyon Ck	Billeter Rd	621184 6072970	5.8	20.7	1.5	EB	Local	Medium		Replace with larger, embedded culvert if proven a barrier to fish
57803	093L118	trib to Canyon Ck	Highland Rd	621593 6072901	1.9		0		Local	Low		No visible channel upstream or downstream, culvert is rusting out and may need to be replaced
57804	093L118	trib to Canyon Ck	Antler Rd	621424 6072382	2.8	20.7	1.4	EB	MoTI	Low		No visible channel upstream or downstream of culvert, no action required
57805	093L118	trib to Canyon Ck	Berry Rd	621647 6072086	2.4	20.7	1	EB	Local	Low		No fish habitat present, no action required
57806	093L118	trib to Canyon Ck	Lowland Rd	621776 6071880	2.2	20.7	0.9	EB	Local	Low		No fish habitat present, no action required
57807	093L118	trib to Canyon Ck	Private Rd off of Highland	622049 6071660	1.8	20.7	0.6	EB	MoTI	Low		No fish habitat present, no action required
57808	093L118	trib to Canyon Ck	Upland Rd	622205 6071559	1.7	20.7	0.8	EB	Local	Low		No fish habitat present, no action required
57809	093L118	trib to Canyon Ck	Private Rd off of Upland	622220 6071514	1.6	20.7	1.3	EB	MoTI	Low		No fish habitat present, no action required
57813	093L118	trib to Canyon Ck	Billeter Rd	623961 6073357	0.3		1.6		MoTI	Low		No fish habitat present, no action required
57814	093L123	trib to Canyon Ck	Newens Rd	619931 6074757	0.7	1.3	0.8		MoTI	Low		No fish habitat present, but culvert is rusted out and needs to be replaced

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
57816	093L123	trib to Canyon Ck	Snake Rd	620420 6074643	6.5		1.2		Local	Low		No fish habitat present, no action required
57817	093L123	trib to Canyon Ck	Snake Rd	620227 6075074	1.5		1.2		MoTI	Low		No fish habitat present, no action required
57818	093L123	trib to Canyon Ck	Snake Rd	620093 6075134	1.7		0.8			Low		No fish habitat present, no action required
57819	093L123	trib to Canyon Ck	Snake Rd	620169 6075165	1.6		0.6		MoTI	Low		No fish habitat present, no action required
57821	093L123	trib to Canyon Ck	Snake Rd	620745 6074541	0.6		0.4			Medium		Pond both upstream and downstream of culvert. If proven a barrier to fish, replace with OBS
57822	093L118	trib to Canyon Ck	Old Babine Lake Rd	622213 6074133	1.1		0		MoTI	Low		No fish habitat present, no action required
57826	093L123	trib to Canyon Ck	Telkwa Rd	623707 6074711	1.4		1.6		Local	Medium		Upstream of falls, no fish access possible, no action required
57827	093L123	trib to Canyon Ck	Telkwa Rd	623697 6074710	1.4		1.6		Local	Medium		Upstream of falls, no fish access possible, no action required
57832	093L123	trib to Gonakwa Ck	Old Babine Lake FSR	628641 6075771	3.2		1.1		Local	Low		No fish access to site, no action required
57834	093L123	Lyon Ck	Private/Old Babine Lake FSR	629234 6075848	7.9		4.2	DV		High		If culvert is proven to be a barrier, replace with OBS. Culvert U-shaped in middle, and inlet is very steeply sloped
57835	093L123	Badley Ck	Private/Old Babine Lake FSR	629363 6075638	9.3		3	DV		High		Old bridge has collapsed, and new culvert is not in channel. Remove debris and replace with new OBS
57836	093L123	Lyon Ck	Old Babine Lake FSR	629325 6076040	7.7		4.1	DV	MoTI	High		Currently 2 stacked culverts, bottom one is blocked.
57837	093L123	Badley Ck	Old Babine Lake FSR	629771 6075988	5.8		3.6	DV	Local	High		If culvert is proven a barrier, replace with OBS
57838	093L123	Tamara Brook	Old Babine Lake FSR	630180 6075803	1		1.2		Local	Medium		No fish habitat present, no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
57839	093L123	Tamara Brook	Private/Old Babine Lake FSR	630360 6075854	0.8		0.7			Medium		If culvert is proven a barrier, replace with larger, embedded culvert
57843	093L123	trib to Gonakwa Ck	Old Babine Lake FSR	634434 6074896	0.2		1.8		MoTI	High		If culvert is proven a barrier, replace with larger, embedded culvert
57847	093L118	trib to Gonakwa Ck	Old Babine Lake FSR	635853 6073458	0.3		1.1		Local	Medium		If culvert is proven a barrier, replace with larger, embedded culvert
57848	093L118	Trib to Canyon Ck	Smithers Snowmobile Association Access Rd	636566 6073195	0.1		0.8			Low		No fish habitat present, no action required
57851	093L118	trib to Canyon Ck	Old Babine Lake FSR	636808 6072751	0.4		3.2	DV	Local	Low		If culvert is a barrier to fish, replace with OBS
57852	093L118	trib to Canyon Ck	Old Babine Lake FSR	637133 6072716	0.1		0.7		Local	Low		Very low habitat value, no action required
57855	093L118	trib to Canyon Ck	Old Babine Lake FSR	637997 6072344	0.2		1.6		MoTI	High		Remove debris
57856	093L118	trib to Canyon Ck	Old Babine Lake FSR	638733 6071792	0.7		0.5		MoTI	Low		No fish habitat present, no action required
57861	093L118	trib to Canyon Ck	McDowell Main	632630 6070096	0.7		0.5		DSS	Low		No fish habitat present, no action required
57862	093L118	trib to Canyon Ck	McDowell Main	632501 6068946	0.5		0.1			Low		No fish habitat present, no action required
57864	093L118	trib to Canyon Ck	McDowell Main	633245 6069444	1.7		0.6		DSS	Low		Channel is very steep, if culvert is a barrier to fish, replace with larger, embedded culvert
57865	093L118	trib to Canyon Ck	McDowell Main	634107 6068251	0.8		0.8		SSI	Low		No fish habitat present, no action required
57870	093L118	trib to Canyon Ck	Babine lake Rd	634974 6071335	1.2		1.1		Collector	Low		No fish habitat present, no action required
57871	093L118	trib to Canyon Ck	Private	634978 6070618	2		0.8			Low		If culvert is proven a barrier, replace with larger, embedded culvert

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
57872	093L118	trib to Canyon Ck	90m u/s from "Marlim 286791"	635006 6070709	1.9		1.2			Low		Inlet completely embedded in mud, evidence of flooding - needs to be replaced with structure capable of handling runoff flows
57873	093L118	trib to Canyon Ck	Private	635362 6070750	13.7		5.4	DV,RB		Low		If fish present, replace with OBS
57874	093L118	trib to Canyon Ck	Private/Babine Lake Rd	635811 6069786	5.4		1.4			Medium		If culvert is proven a barrier, replace with larger, embedded culvert
57875	093L118	trib to Canyon Ck	Private/Babine Lake Rd	635881 6069705	1.5		0.8			Low		No fish habitat present, no action required
57876	093L118	trib to Canyon Ck	Private/Babine Lake Rd	636124 6069274	9.2		1.5			Low		No fish habitat present, but road edges are slumping over culvert inlet and outlet and this should be fixed for drainage purposes
57878	093L118	trib to Canyon Ck	Babine lake Rd	635617 6071525	3.9		4.4	DV	Collector	High		Currently 2 culverts next to each other, but water only flowing through 1
57879	093L118	trib to Canyon Ck	R01944	637046 6071733	1.1		1		CCR	Low		Very low habitat value, log/debris pile over top of channel downstream of culvert that should be removed and channel restored if fish present
57880	093L118	trib to Canyon Ck	R01944	637148 6071722	3.3		0.6	RB		Low		Remove culvert and deactivate road
57883	093L118	trib to Canyon Ck	Babine lake Rd	636757 6071525	4.9		1.8	RB	Collector	High		Culvert approximately 50m downstream of upstream channel, water flows through ditch to culvert
57884	093L118	trib to Canyon Ck	R01944 12 (Woodlot 100)	636601 6070469	4.3		1.1		CCR	Medium		If culvert is a barrier to fish, use weirs to backwater
57885	093L118	trib to Canyon Ck	R01944 D (Woodlot 100)	636481 6069997	0.9		0.7		CCR	Low		If culvert is a barrier to fish, use weirs to backwater

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
57886	093L118	trib to Canyon Ck	R01944 12 (Woodlot 100)	637023 6070211	0.2		1.5		CCR	Low		No fish habitat present, no action required
57887	093L118	trib to Canyon Ck	R01944 (Woodlot 100)	637256 6070974	1.2		0.9		CCR	Low		Backwater if fish present and culvert is proven a barrier
57888	093L118	trib to Canyon Ck	R01944 (Woodlot 100)	637310 6070943	2.1		0.5		CCR	Low		Backwater if fish present and culvert is proven a barrier
57892	093L118	trib to Canyon Ck	R01944 P	637835 6071360	0.7		1.1		CCR	Low		If culvert is a barrier to fish, use weirs to backwater
57894	093L118	trib to Canyon Ck	R01944 Q	638649 6071454	1		2.1		CCR	Low		No fish habitat present, no action required
57896	093L118	trib to Canyon Ck	R10553-3 A	638145 6071188	0.2		0.6		DTL	Low		No fish habitat present, no action required
57898	093L118	trib to Canyon Ck	Babine lake Rd	638669 6071538	1		0.9		Collector	Medium		If culvert is a barrier to fish, use weirs to backwater
57899	093L123	Unnamed	Yellich Rd	616458 6079895	0.2		1.6		MoTI	Low		Culvert is in very poor condition and should be replaced
57912	093L122	trib to Glass Ck	Raceway Rd	614089 6080422	5.1	20.2	0.9		MoTI	Low		If culvert is a barrier to fish, use weirs to backwater
57914	093L122	trib to Glass Ck	Hwy 16	613743 6080562	5.5	20.2	0.8		MoTI	Low		No fish habitat present, no action required
57915	093L122	trib to Toboggan Ck	Hwy 16	612463 6081951	1.3		0		MoTI	Low		No fish habitat present, culvert inlet is above the level of the ground, and should be replaced
57916	093L122	trib to Glass Ck	Hwy 16	611791 6083115	0.8		0.9		MoTI	Medium		ESC measures were in place at outlet
57917	093L122	trib to Glass Ck	Hwy 16	611725 6083520	1.2		1.2	CO,RB	MoTI	Low		No fish habitat present, culvert very damaged at inlet and should be replaced for drainage purposes
57919	093L122	trib to Elliot Ck	Owens Rd	610584 6083893	0.4		1.1		MoTI	Low		No fish habitat present, no action required

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
57921	093L122	trib to Toboggan Ck	Private	609497 6083661	4.7		0.7			High		Observed fish swimming through culvert, no action required
57922	093L122	trib to Toboggan Ck	Private	609527 6083676	4.7		1			High		Observed fish swimming through culvert, no action required
57925	093L122	trib to Toboggan Ck	Owens Rd	610301 6085055	11.8		1.6	CO,RB	MoTI	High		Fish observed upstream of the culvert
57926	093L122	trib to Toboggan Ck	Pope Rd	609709 6086529	1.2		1.3		Local	Low		No fish habitat present, but culvert is very damaged and needs to be replaced
57927	093L122	trib to Toboggan Ck	Railway along Pope Rd	609755 6086508	1.2		1.5			Low		No fish habitat present, no action required
57931	093L122	trib to Toboggan Ck	Hwy 16	611244 6084681	0.7		0.9		MoTI	Low		If culvert is a barrier to fish, use weirs to backwater
57933	093L122	trib to Toboggan Ck	Hwy 16	610732 6085907	3.6	30	0.6		MoTI	Low		Culvert is very damaged and should be replaced
57934	093L122	trib to Toboggan Ck	Private	610684 6087257	0.1		1.3			Low		No fish habitat present, no action required
57935	093L122	trib to Toboggan Ck	Private	610703 6087237	0.1		1.3			Low		No fish habitat present, no action required
57936	093L122	trib to Toboggan Ck	Hwy 16	610330 6087246	0.5		0.9		MoTI	Low		No fish habitat present, no action required
57937	093L122	trib to Toboggan Ck	Private	610299 6087221	0.6		0.7			Low		No fish habitat present, no action required
57940	093L122	trib to Bulkley R	Hwy 16	606583 6091034	3.8		1.4		MoTI	Medium		If culvert is a barrier to fish, use weirs to backwater
57941	093L122	Beavery Ck	Hwy 16	606459 6091437	5.1		1.6		MoTI	Medium		If culvert is a barrier to fish, use weirs to backwater
57942	093L122	trib to Bulkley R	Hwy 16	606471 6091527	1.3		1.4		MoTI	Medium		If culvert is proven to be a barrier to fish, replace with a larger, embedded culvert
57943	093L122	trib to Toboggan Ck	Private	612500 6082046	1.2		0.8			Low		No fish habitat present, no action required

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
57944	093L122	Toboggan Ck	Hwy 16	607712 6089383	99.3	188.1	15	CC,CH,CO,CT, DV,KO,L,LSU, MW,OS,PK,RB ,SK,SST,ST	MoTI	High	Wilson and Rabnett 2007	Very good habitat, should have a bridge in place
57945	093L122	Cow Ck	Hwy 16	606611 6091871	0.4		1.7		MoTI	High		Falls just upstream of the culvert are a barrier to further access, no action required. Railway tie in channel leaching a lot of creosote - removed from channel
57946	093L122	Cow Ck	Kitsequecla Loop	606462 6092039	0.1		0		MoTI	Medium		Falls immediately downstream of crossing prevent fish access, no action required
57947	093L122	trib to Bulkley R	Kitsequecla Loop	606240 6091668	1.1		1.3		MoTI	Medium		Debris in culvert from sinkhole just below road. Needs to be replaced
57948	093L122	Beavery Ck	Kitsequecla Loop	606339 6091447	5		2.2		Local	Medium		If culvert is a barrier to fish, use weirs to backwater
57949	093L122	trib to Bulkley R	Private off of Kitsequecla Loop	605935 6091061	2.6		2.1			Medium		If culvert is proven to be a barrier to fish, replace with a larger, embedded culvert
57950	093L122	trib to Bulkley R	Kitsequecla Rd	605709 6092056	0.4		3		MoTI	Low		No fish habitat present, no action required
57952	093L122	trib to Bulkley R	Kitsequecla Rd	605117 6092009	0.7		1.5		Local	Low		No fish habitat present, no action required
57953	093L122	Beavery Ck	Kitsequecla Rd	605056 6091904	1.1		2.2		Local	Medium		If culvert is proven to be a barrier to fish, replace with a larger, embedded culvert
57954	093L122	trib to Bulkley R	Kitsequecla Rd	604723 6091151	1.4		1.3		Local	Medium		If culvert is proven to be a barrier to fish, replace with a larger, embedded culvert
57955	093L122	trib to Schippers Ck	Kitsequecla Rd	602469 6090388	0.8		1.1		Local	Low		No habitat present, no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
57956	093L122	trib to Schippers Ck	Private Rd 400m d/h of km 4 Kitsequecla Rd	601957 6089822	3.1		3.2	CT		Medium		Replace if habitat upstream - dry at assessment
57958	093L122	Schippers Ck	Kitsequecla Rd	601283 6089952	10.8		4.7	DV	MoTI	High		If culvert is proven a barrier, replace with a larger, embedded culvert
57971	093L122	trib to Schippers Ck	Private at 7.3 km Kitsequecla Rd	596802 6091051	0.2		0.7		Schipper s Creek Contracti ng Ltd.	Low		No habitat present, no action required
57972	093L122	trib to Schippers Ck	Private at 7.3 km Kitsequecla Rd	596818 6091010	0.2		0.4		Schipper s Creek Contracti ng Ltd.	Low		No habitat present, no action required
57974	093L122	trib to Schippers Ck	Kitsequecla Rd	599521 6089109	1.1		0.9		Local	Medium		If culvert is proven a barrier, use weirs to backwater
57975	093L122	trib to Schippers Ck	Private at 8.1 km Kitsequecla Rd	599643 6089166	1.2		0.7			Medium		If culvert is proven a barrier, use weirs to backwater
57977	093L122	trib to Trout Ck	Kitsequecla Rd	597359 6088463	0.7		1		MoTI	Low		No habitat present, no action required
57978	093L122	Trout Ck	Kitsequecla Rd	597229 6088419	2.9		3.5	CT	Local	Medium		Observed fish swimming through culvert, no action required
57982	093L122	trib to Trout Ck	Kitsequecla Rd	595796 6088476	0.8		0.8		Local	Low		No habitat present, no action required
57988	093L122	trib to Schippers Ck	Kitsequecla East	596305 6091734	0.5		0.6		WFM	Low		No habitat present, no action required
57997	093L122	trib to Trout Ck	Kitsequecla-Trout	599252 6088537	0.4		0.8		TSMS	Low		No habitat present, no action required
58002	093L122	trib to Trout Ck	R10836 608A	600314 6087393	1.4		0.7		WFM	Low		No habitat present, no action required
58004	093L122	trib to Trout Ck	Private at 12.6 km Kitsequecla rd	595738 6088849	0.4		1.7			Medium		If culvert is proven a barrier, replace with a larger, embedded culvert

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
58006	093L122	trib to Trout Ck	R10836 608A	600493 6087458	0.3		0.4		WFM	Low		Potential, backwater if proven a barrier
58007	093L122	trib to Trout Ck	Branch off R10836 608A at 1.3 km	600666 6087358	0.1		3			Low		Remove culvert, and deactivate road
58008	093L122	trib to Trout Ck	R10836 608A	601597 6087528	0.3		1		WFM	Low		No habitat present, no action required
58011	093L122	trib to Trout Ck	Branch from R10836 608A at 3.4 km	602558 6087446	1.1		0.6			Low		No habitat present, no action required
58014	093L122	trib to Trout Ck	R10836 608A	603628 6087668	1.5		0.6			Low		No habitat present, no action required
58017	093L122	trib to Toboggan Ck	branch off R10836 608A-5 at 0.5km	604363 6086678	0.2		2.1		WFM	Medium		If culvert is proven a barrier, replace with a larger, embedded culvert
58018	093L122	trib to Toboggan Ck	branch off R10836 608A-5 at 0.5km	604328 6086720	0.3		0.6		WFM	Medium		If culvert is proven a barrier, replace with a larger, embedded culvert
58019	093L122	trib to Toboggan Ck	branch off R10836 608A-5 at 0.5km	605061 6086150	0.1		0.9		WFM	Low		No habitat present, no action required
58030	093L122	trib to Toboggan Ck	R10836 608A-B-2	605360 6087217	3.5		1.4			Low		Potential, backwater if proven a barrier
58032	093L122	trib to Toboggan Ck	R10836 608A-B-2	606315 6087031	3.7		1.5		WFM	Medium		Potential, backwater if proven a barrier
58033	093L122	trib to Owens Ck	R10836 608A-B-2	607269 6086453	0.7		0.6		WFM	Low		No habitat present, no action required
58035	093L122	trib to Toboggan Ck	left branch of R10836 608A at 2 km	605868 6087988	0.5		0.7			Low		Remove culvert, and deactivate road

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
58036	093L122	trib to Toboggan Ck	left branch of R10836 608A at 2 km	605833 6088202	0.3		0.6			Low		Remove culvert, and deactivate road
58040	093L122	trib to Toboggan Ck	R 10836 608A	607575 6087842	4.5		0.6			Low		No habitat present, no action required
58042	093L122	trib to Toboggan Ck	N/A, 50m u/s of 286330	607242 6088047	4.2		1.1			Medium		Remove culvert, and deactivate road
58043	093L122	trib to Toboggan Ck	R 10836 608A	608546 6087539	16.8		1.5	CO,CT		Medium		If culvert is proven a barrier, replace with a larger, embedded culvert
58046	093L123	trib to Tamara Brook	Bill Main	631257 6077598	0		0.9		Jay Baker	Low		No habitat present, no action required
58050	093L118	trib to Gonakwa Ck	R10553 1A	635968 6072564	1.1		1		DTL	Low		No habitat present, no action required
58051	093L118	trib to Gonakwa Ck	R10553 1B	635046 6073243	0.2		1.4		DTL	Low		No habitat present, no action required
58057	093L122	trib to Trout Ck	R08762 608-1	599121 6086124	1.9		0.8		DSS	Low		No habitat present, no action required
58059	093L122	trib to Trout Ck	R08762 608-1	598443 6085802	0.8		1.6		DSS	Medium		If culvert is proven a barrier, replace with a larger, embedded culvert
58060	093L122	trib to Trout Ck	R08762 608-1	598001 6085780	0.6		0.6		DSS	Low		No habitat present, no action required
58064	093L122	Wiggs Ck	R09533 230-1	612235 6094499	0.2		0.9			Low		No habitat present, no action required
58066	093L122	trib to Gramophone Ck	Telkwa High Rd	609996 6092214	3.4	3.4	1.3		MoTI	Low		No habitat present, no action required
58067	093L122	Gramophone Ck	Telkwa High Rd	609726 6092873	25.1	32.5	6.2	RB,ST	MoTI	High	Marlim 2013	Replace with OBS
58068	093L122	Wiggs Ck	Telkwa High Rd	609660 6093554	18.4	118.5	3	RB	Local	High	Marlim 2013	replace with OBS
58069	093M102	trib to Bulkley R		606562 6098120	0.4		0.8			Low		No habitat present, no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
58070	093M102	trib to Bulkley R	Fisherman road	606924 6097985	1.1		0.6		Local	Low		No habitat present, no action required
58072	093M102	trib to Bulkley R	Moricetown Rd Loop	606654 6098161	0.6		0.8		MoTI	Low		Bottom rusted out, should be replaced - no habitat, no fisheries action required
58073	093L122	trib to Bulkley R	Hwy 16	606070 6095422	5.3	1.5	1.9	CO,CT	MoTI	High		If culvert is proven a barrier, use weirs to backwater
58078	093L122	trib to Trout Ck	R08762 608-1	596409 6085655	0.8		0.9		DSS	Medium		If culvert is proven a barrier, use weirs to backwater
58085	093M102	trib to Wiggs Ck	R09533 230-20	611583 6098600	0.2		0.4		WFM	Low		No habitat present, no action required
58090	093L122	trib to Wiggs Ck	R09533 230-2	611150 6095520	0.9		2.7		WFM	Medium		If culvert is proven a barrier, use weirs to backwater
58092	093L122	trib to Wiggs Ck	R09533 230-2	611487 6095252	1.9		0.7		WFM	Medium		If culvert is proven a barrier, use weirs to backwater
58099	093L113	trib to Emerson Ck	R0523704	636481 6031800	0.4		1.3		CFP	Low		Remove culvert, and deactivate road
58103	093L113	trib to Emerson Ck	R05246-A	637176 6033729	2.8		1		CFP	Medium		Remove culvert, and deactivate road
58107	093L113	trib to Bulkley R	Unnamed	633944 6043285	0.4		0.8			Low		No fish access from d/s, remove if road no longer in use
58108	093L113	trib to Bulkley R	Unnamed	633944 6042963	1.9		0.8			Medium		Remove culvert, and deactivate road
58116	093L113	trib to Bulkley R	Unnamed	635966 6042874	7.5	5.1	2.7			High		Remove culvert, and deactivate road
58139	093L118	Gonakwa Ck	Unnamed	631056 6074362	15	14.7	2.9	CT,RB		High	Marlim 2013	Culvert is blown out, and should be replaced with an embedded culvert
58141	093L122	trib to Toboggan Ck	6300	607404 6083200	1.5		3			High		Culvert is not carrying water, log crossing adjacent to culvert is not sufficient. Remove and replace with a properly embedded culvert.
58144	093L122	trib to Trout Ck	6300	595410 6085745	1.2		0	CT		High		Beaver pond has buried culvert, should be removed

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
58151	093L118	McDowell Ck	Woodmere	629754 6061125	19.3	72.2	1.2	RB	MoTI	Medium		Culvert is starting to rust out and may need replacing.
58152	093L118	trib to Bulkley R	Hubert	630517 6059816	1.8		0.3		MoTI	Low		Inlet and outlet need to be cleared of vegetation, inlet is rusted out, may need to be replaced
58153	093L118	trib to Bulkley R	Unnamed	630711 6059802	1.3		0.4			Low		No fish access, no action required
58154	093L118	trib to McDowell	Woodmere	631335 6061217	1.1		1.5		MoTI	Low		Fish access unlikely, vegetation should be cleared from inlet and outlet
58155	093L118	trib to Lacroix	Woodmere	633572 6062662	0.5		0.6		MoTI	Low		Channel primarily receives ditch drainage, vegetation should be cleared from inlet and outlet
58156	093L118	trib to Round Lk	Round lake Rd	633273 6059279	1.5		0.5		MoTI	Low		No upstream fish habitat present, no action required
58157	093L118	trib to McDowell	Unnamed	629963 6061156	1		1.4			Low		Vegetation should be cleared from inlet and outlet, otherwise culvert looks to be passable if fish present
58158	093L118	McDowell Ck	Hwy 16	628044 6060527	21.3	72.2	2	RB	MoTI	High	Wilson and Rabnett 2007	Culvert should be replaced with properly embedded structure if it is proven to be a barrier
58159	093L118	McDowell Ck	Woodmere Nursery Rd	627643 6060449	21.8	72.2	1.6	CO,RB		High	Marlim 2013	Culvert should be replaced with properly embedded structure, fry observed at outlet
58160	093L118	trib to Bulkley R	Hwy 16	630669 6058919	4.6		1		MoTI	Medium		Culvert should be replaced with properly embedded structure
58161	093L118	Lacroix Ck	Hwy 16	633419 6057451	35.3	186.1	2.2	BB,CAS,CT,KO,LSU,NSC,PCC, RB,RSC	MoTI	High	Wilson and Rabnett 2007	Some baffles present in CV - Install OBS if proven a barrier
58162	093L118	Seymour Ck	Unnamed	619889 6070644	15.4	141.5	1.9	ACT,CAS,CH,C O,CSU,CT,DV, EB,LKC,LNC,L SU,NSC,PCC,R B,RSC,SU	Local	Medium		Beaver dam is creating a barrier at the inlet and should be removed

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
58210	093L122	trib to Trout Ck	Branch off of 6008 Rd at 1.0km-toward east	599769 6087920	6.6		1.5	CT,SP		High		If culvert is proven a barrier install a single, embedded culvert
58211	093L122	trib to Trout Ck	Branch off of 6008 Rd at 1.0km-toward east	600187 6088041	2.6		1.7			Medium		If culvert is proven a barrier install a larger, embedded culvert
58213	093L122	trib to Simpson Ck	Nelson Rd	614260 6075386	1.8		1.1	CT,SA	Local	Low		Culvert is damaged and restricting flow, needs to be replaced
58216	093L122	trib to Trout Ck	Branch off of 6008 Rd at 0.6 km-running along north side of Trout Creek	601205 6088649	0.5		4.6			Low		No fish habitat present, no action required
58223	093L122	trib to Trout Ck	Branch off of 6008 Rd at 0.6 km-running along north side of Trout Creek	600463 6088147	1.7		0.7			Low		No fish habitat present, no action required. NOTE: mapped crossing 286309 had identical UTM locations as 286308 - same crossing
58225	093L122	trib to Schippers Ck	Branch off Lake Kitsequecla Rd at 8 km	599363 6089119	0.3		1.3			Low		Very low habitat value, but culvert is damaged and may need to be replaced
58226	093L122	trib to Schippers Ck	Branch off Lake Kitsequecla Rd at 8 km	598960 6089180	0.1		0.6			Low		No fish habitat present, no action required
58227	093L122	trib to Schippers Ck	Branch off Lake Kitsequecla Rd at 8 km	598456 6089122	0.2		0.9			Low		No upstream habitat present, no action required
58228	093L122	trib to Schippers Ck	Branch off Lake Kitsequecla Rd at 6.9 km	600823 6089408	3.4		0.9			Medium		Culvert should be passable, no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
58234	093L122	trib to Kathlyn Lk	Middle Rd	615406 6077502	1.9		0.8		Local	Low		No fish habitat present, no action required
58235	093L123	Kathlyn Ck	Hwy 16	616207 6074118	31.1	151.1	5	BB,CAS,CC,CO,CT,DV,L,LSU,MW,NSC,OS,PCC,PK,RB,RSC,SA,ST,WSU	MoTI	High	Wilson and Rabnett 2007	If culvert is proven a barrier install a larger, embedded culvert NOTE: mapped site 286634 was found to be the same structure as 286633
58238	093L117	trib to Kathlyn Ck	Muir Rd	615221 6073874	0.8		1.7		MoTI	Medium		If culvert is proven a barrier install a larger, embedded culvert
58239	093L117	trib to Kathlyn Ck	Boyle Rd	614541 6073846	0.1		0.6		Local	Low		No upstream habitat present, no action required
58242	093L118	Kathlyn Ck	Hwy 16	616948 6073204	39.8	151.6	5.7	BB,CAS,CC,CO,CT,DV,L,LNC,LSU,MW,NSC,OS,PCC,PK,RB,RSC,SA,ST,SU,WF,WSU	Arterial	High	Wilson and Rabnett 2007	If culvert is proven to be a barrier, install OBS
58247	093L122	trib to Kathlyn Lk	Driveway off Lake Kathlyn Rd at 1.9km from south end	614338 6075936	4.9		1.5			Medium		Property owners say fish do pass the culvert and spawn upstream of it. If proven to be a barrier, install larger, embedded culvert
58250	093L122	trib to Kathlyn Ck	Private road off of Glacier Gulch Rd at 2.2km	612051 6076650	0		0.5			Low		If culvert is proven a barrier, backwater it using weirs
58252	093L122	trib to Club Ck	Rod and Gun Access Rd from Kroeker Rd	614024 6077494	0		1			Low		No fish habitat present, no action required
58253	093L122	Club Ck	Rod and Gun Access Rd from Kroeker Rd	613909 6077240	3.4		2.6	CO,CT		High		If culvert is proven a barrier install a larger, embedded culvert

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
58255	093L122	trib to Kathlyn Lk	Driveway off Lake Kathlyn road at 0.8 km from north end	614755 6077168	0.6		1.6			Low		No fish habitat present, no action required
58256	093L123	trib to Kathlyn Lk	Yellich Rd	616319 6078101	0.3		0.5		Local	Low		No upstream habitat present, no action required
58257	093L123	trib to Kathlyn Lk	Hwy 16	615895 6077199	2		1.1		MoTI	Low		No fish access, downstream channel flows through ditch only, no action required
58258	093L122	Simpson Ck	Nelson Rd	614279 6075193	1.2		2.1	CO,CT,DV,MW,OS,RB	MoTI	High	Marlim 2013	cv too small for channel, replace with embedded, larger cv
58260	093L122	Kathlyn Ck	Nelson Rd	614065 6075633	1		2.7	CT	Local	High		potential, remove and install OBS if barrier, but cv is newly installed, should be passable
58261	093L122	trib to Simpson Ck	Husky Rd	614241 6075376	1.7		0.8	CT,SA	MoTI	Medium		sign on road indicates fish presence, should be replaced with larger, embedded cv if fish present
58263	093L122	Simpson Ck	Driveway to 40640 Nelson Rd	614504 6075375	1.4		1.5	CO,CT,DV,MW,OS,RB		High		Appears passable at site, if proven barrier, replace with OBS (Currently 2 cv's)
58266	093L123	trib to Kathlyn Ck	Elgin Rd	616292 6074568	0.5		0.4		MoTI	Low		Corroded for ~25% of culvert, should be replaced
58267	093L123	trib to Kathlyn Ck	Elgin Rd	616281 6074986	0.3		0.7		Local	Low		No fish habitat present, no action required
58268	093L123	trib to Kathlyn Ck	Corner of Lund Ave and Elgin Street	616090 6074805	0.6		0.2		MoTI	Low		No fish habitat present, no action required
58271	093L123	Kathlyn Ck	Henry Rd	615889 6074576	28.8	149.8	5.7	BB,CAS,CC,CO,CT,DV,L,LSU,MW,NSC,OS,PCC,RB,RSC,SA,ST,WSU	Local	High		Only partially embedded, may need to install 2.7m OBS if proven a barrier

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
58272	093L118	Chicken Lk Ck	Railway Avenue	616530 6072577	2.3		4		Local	High	Wilson and Rabnett 2007	Boulders at inlet should be removed
58287	093L122	Simpson	Proctor Junction	615398 6074965	5.6		0.6	CO,CT,DV,MW ,OS,RB,SA,ST	MoTI	Low		No fish access, no action required
58290	093L118	Chicken Lk Ck	Zobnick Rd	616404 6072652	1.3		2.4		MoTI	High		Replace with OBS if proven a barrier
58291	093L118	Chicken Lk Ck	Alfred Ave (from Toronto Street)	616565 6072688	2.4		3.3		Local	High		Replace with OBS if proven a barrier
58292	093L118	trib to Kathlyn Ck	Astlairs Place	617421 6072983	0.1		0.7		Strata	Low		No habitat upstream, no action required (crossing has 2 culverts)
58293	093L118	trib to Kathlyn Ck	Astlairs Place	617357 6073026	0.2		1.5		Strata	Medium		No habitat upstream, no action required
58322	093L123	Trib to Canyon Ck	Old Babine Lk Rd	622935 6074562	5.4		0.4			Low		Falls downstream of site, no fish access
58323	093L123	Unnamed		622946 6074574	5.4		0.4			Low		Falls downstream of site, no fish access
58325	093L123	trib to Reiserer Ck	9000-1E	622768 6096006	0		0.3		WFM	Low		Channel poorly defined, intermittent - no habitat, no action required
58326	093L123	trib to Reiserer Ck	9000-1E	622720 6095784	1.2		0.6		WFM	Low		Channel poorly defined, intermittent - no habitat, no action required
58360	093L123	Cygnat Ck	Telkwa High Rd (from Old Babine Lake Rd)	622537 6078562	7.4		3	DV,RB	MoTI	High	Marlim 2013	Currently 2 culverts, blocking fish passage
58361	093L123	trib to Driftwood Ck	Telkwa High Rd (from Old Babine Lake Rd)	622460 6078644	2.7		3.2		MoTI	Low		No fish access, but culvert is too small for flow and needs to be replaced as road is failing at inlet
58366	093L123	trib to Driftwood Ck	Gilbert Rd	624224 6077419	4.4		0.6		MoTI	Low		No fish habitat present, culvert needs to be cleaned out

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
58367	093L123	trib to Driftwood Ck	Adams Rd	624184 6077581	5.7		0.5		Local	Low		No fish habitat present, no action required
58368	093L123	trib to Driftwood Ck	Adams Rd	624132 6077824	1.6		0		Local	Low		No fish habitat present, no action required
58369	093L123	trib to Driftwood Ck	Adams Rd	623825 6078784	0.4		0		Local	Low		No fish habitat present, no action required
58370	093L123	Cygnat Ck	Adams Rd	623406 6079516	3.1		3		Local	High	Marlim 2013	Culvert too small for stream
123340	093L113	trib to Bulkley R	R05237	639484 6039159	1.5		2.1		CFP	High		No action required - Beaver activity has created a stable environment with excellent rearing habitat and seasonal access
123344	093L113	trib to Bulkley R	Walcott FSR	640559 6032145	0.3		0.6		57 Holdings Ltd	Medium		Very shallow, seasonal channel with good gravels and pools - culvert needs to be cleaned
123345	093L113	trib to Bulkley R	Walcott FSR	642538 6033162	13.1		4.8	CO,RB	DND	High		Excellent spawning habitat present, there should be no access issues at this site - no action required
123346	093L113	trib to Bulkley R	Walcott FSR	639723 6039415	2.9		0.9		DND	High		Good habitat present, replace with a properly embedded culvert or OBS if proven a barrier
123347	093L113	trib to Bulkley R	Walcott FSR	638893 6041172	1		1.1		Local	Medium		Good habitat present, replace with a properly embedded culvert or OBS if proven a barrier
123350	093L113	trib to Bulkley R	Walcott FSR	637676 6043689	0.6		0.8		Local	Medium		Moderate habitat present, replace with a properly embedded culvert if proven a barrier
123351	093L113	trib to Bulkley R	Grantham Rd	637729 6043860	3.4		1.2		Local	High		Good habitat present, replace with a properly embedded culvert or OBS if proven a barrier

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123352	093L113	trib to Bulkley R	Walcott FSR	637632 6044015	3.2		1.3		MoTI	High		Good habitat present, culverts should be replaced with OBS if fish present/proven a barrier - 2 culverts present
123353	093L113	trib to Bulkley R	Unnamed	637710 6044746	1.6		0.6			Low		Channel goes subsurface immediately upstream of crossing - remove if road is deactivated
123355	093L113	trib to Bulkley R	Unnamed	636996 6044484	2.4		1.2			High		Culvert is a barrier, should be removed and the road deactivated
123357	093L113	trib to Bulkley R	Walcott FSR	638116 6044799	3.8		0.5		MoTI	Medium		Very low habitat value present, access unlikely - no action required
123363	093L113	trib to Bulkley R	Unnamed	636441 6048615	4.6		1.4			High		Channel too big for CV, another has been installed 10m d/s (M13-33) - replace both with a properly embedded CV and restore channel
123364	093L113	trib to Bulkley R	Unnamed	636453 6048631	4.6		1.4			High		See M13-32
123365	093L113	trib to Bulkley R	Lawson FSR	636755 6049091	6.3		1.1		MoTI	High		Replace with a larger, embedded CV if fish present
123367	093L113	trib to Bulkley R	Lawson FSR	637072 6049916	2.4	8.4	1.1		Local	Low		Culvert quite damaged and too small for runoff levels - should be replaced for drainage purposes
123372	093L118	trib to Lacroix Ck	Unnamed	634876 6056566	2.6	5.4	1.2		MoTI	Low		Low habitat value, lots of fines from upstream pasture - no action required
123373	093L118	trib to Lacroix Ck	Quick West Rd	634874 6056682	2.5	5.4	0.9		Local	Low		Low habitat value, lots of fines from upstream pasture - no action required - 2 culverts present
123375	093L114	Thompson Ck	Hwy 16	642497 6048191	34.9	31.2	1.6	CT,DV,RB	MoTI	Medium	Wilson and Rabnett 2007	Grate on CV inlet, embed larger CV if fish present

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123377	093L113	Thompson Ck	Walcott Rd	641626 6049390	38.3	31.2	3.6	CT,DV,RB	Local	High		Install baffles in culverts, or replace with OBS - 2 culverts present
123380	093L114	Thompson Ck	Private Rd	642971 6048238	34.4	31.2	1.6	CT,DV,RB		Medium		Good upstream habitat, but value decreases downstream through farmland
123381	093L114	Thompson Ck	Private Rd	642939 6048204	34.5	31.2	1.6	CT,DV,RB		Medium		Good upstream habitat, but value decreases downstream through farmland
123382	093L114	Thompson Ck	McNeil Rd	644682 6045594	26.3	31.2	1.6	CT,DV,RB		High		Either backwater channel and install baffles, or replace with OBS - 3 culverts present
123387	093L118	trib to Robin Ck	Greene Rd	639847 6054601	8.6		0.5		Local	Low		Channel is intermittent upstream, low habitat value - no action required - 2 culverts present
123389	093L118	trib to Robin Ck	Larch Rd	638939 6053633	10.2	11	1	RB	MoTI	Low		Upstream channel intermittent - no action required
123390	093L118	trib to Robin Ck	Larch Rd	633609 6054566	2.6		1.5			Medium		Embed larger CV if fish present
123391	093L118	trib to Robin Ck	Hwy 16	638641 6054575	13.7	7.2	1.5		MoTI	Medium		Embed larger CV if fish present - 2 culverts present
123392	093L118	Lemieux Ck	Quick School Rd	638560 6054801	73	19.2	2.1	CT,DV,RB,SU	Local	High		Embed larger CV if fish present
123393	093L118	Lemieux Ck	Hwy 16	638500 6054717	73.1	19.2	2.9	CT,DV,LNC,NS C,RB,SU	MoTI	High	Wilson and Rabnett 2007	Embed larger CV if fish present
123398	093L119	trib to Robin Ck	H. Kerr Rd	642189 6056726	1.4		0.9		MoTI	Low		Seasonal channel with no fish habitat - no action required
123399	093L119	Trib to Gardner Ck	H. Kerr Rd	642168 6057719	6		1.5		MoTI	Medium		Seasonal channel with poor access - no action required
123401	093L119	Gardner Ck	H. Kerr Rd	642147 6058213	5.5		1		MoTI	High		Embed larger CV or install OBS if fish present
123402	093L119	Gardner Ck	Private Rd	642482 6058392	5.2		1			High		Embed larger CV if fish present

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123403	093L119	Gardner Ck	Private Rd	642910 6058615	4.6		1.7			Medium		Embed larger CV if fish present
123406	093L119	trib to Lemieux Ck	Private Rd	642102 6059024	0.7		0.5			Low		Poor habitat value - no action required
123407	093L119	trib to Lemieux Ck	Hill Rd	642953 6057703	0.9		1.4		DSS	High		Embed larger CV if fish present
123408	093L119	trib to Lemieux Ck	Hill Rd	642947 6057883	0.8		1.3		DSS	High		Embed larger CV if fish present
123409	093L119	trib to Lemieux Ck	Hill Rd	642943 6058026	0.9		0.8		Keith Hodson	High		Embed larger CV if fish present
123410	093L118	Gardner Ck	Meicklem Rd	639786 6056365	17.4		1.6		MoTI	High		Embed larger CV if fish present
123411	093L118	trib to Robin Ck	Quick East Rd	638204 6054852	2.9		0		MoTI	Low		Channel is stagnant - no action required
123413	093L118	trib to Robin Ck	Hwy 16	638100 6055053	2.6		0		MoTI	Low		Channel is primarily drainage, no habitat present - no action required
123416	093L118	Lemieux Ck	Morden Rd	638345 6057939	28.7		6.8	CT,DV,RB,SU	Local	High		Embed larger CV or install OBS if fish present
123418	093L118	Lemieux Ck	Private Rd	638617 6058657	27.8		2.6	CT,DV,RB,SU		High		Embed larger CV or install OBS - Landowner says fish are present
123419	093L118	trib to Lemieux Ck	Morden Rd	639241 6057956	10.7		1.8		MoTI	High		Embed larger CV or install OBS if fish present
123420	093L118	trib to Lemieux Ck	Morden Rd	639674 6057970	0.4		0.4		Local	Low		No habitat present - no action required
123422	093L118	trib to Lemieux Ck	Morden Rd	639730 6057802	6.1		1.1		Local	High		Embed larger CV if fish present
123426	093L118	Robin Ck	Hwy 16	636971 6056680	75.4	51.2	3.2	BT,CT,RB,TR	MoTI	High	Wilson and Rabnett 2007	Embed larger CV or install OBS if fish present - hole in CV inlet
123427	093L118	trib to Round Lk	Woodmere Rd	634832 6059233	8.3		1		Local	Low		No fish habitat or access - right cv is buried at outlet - no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123428	093L118	trib to Round Lk	Round Lake Rd	635041 6059481	6.7		0.8		Local	Low		No access from d/s, big hole in bottom of CV ~1m from inlet, water flowing underneath -should be replaced
123429	093L118	de Jong Ck	Round Lake Rd	637529 6059363	17.4		2	CT	MoTI	High	Marlim 2014	Embed larger CV or install OBS if fish present - 2 culverts present
123431	093L118	trib to Lacroix Ck	Hwy 16	635489 6057497	1.4		0.9		MoTI	Low		No fish habitat or access - no action required
123434	093L118	Lacroix Ck	Bree Rd	632950 6061136	17.7	5.1	2.8	RB	Local	High		Embed larger CV or install OBS if fish present
123435	093L119	Lemieux Ck	Canyon Creek FSR	644017 6061611	1		1.7		DSS	Medium		Embed larger CV if fish present
123436	093L118	trib to Round Lk	Canyon Creek FSR	636188 6062738	1		0.6		DSS	Low		No good habitat present - no action required
123437	093L118	trib to Round Lk	Unnamed	636120 6061960	1.8		0.6		Local	Low		No good habitat present - culvert damaged at inlet and outlet and should be replaced for drainage purposes
123440	093L118	trib to Lacroix Ck	Private Rd	633371 6064644	1.5	4.9	1			Medium		Embed larger CV if fish present
123442	093L118	trib to Lacroix Ck	Woodmere Rd	633111 6062645	5.5	4.9	1.3		Local	High		Replace with OBS if fish present - appears to have issues with floodwater 3rd CV is installed higher up bank as well (M13-134)
123444	093L118	trib to Lacroix Ck	Woodmere Rd	632756 6062633	2.1		0.8		Local	High		Crossing has 1/2 CV at outlet, big fish barrier - embed larger cv or install OBS if fish present
123445	093L118	Tyhee Ck	Hwy 16	627238 6061456	24.6	379.8	2.1	BB,C,CAS,CC,CH,CM,CO,CT,GPW,LSU,MW,NSC,PCC,PK,PW,RB,RDC,RS,SA,SK,ST,SU	MoTI	High	Wilson and Rabnett 2007	Fish observed in d/s channel - replace with OBS, or backwater and install baffles in CVs if proven a barrier

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123446	093L118	Tyhee Ck	Tyhee Lake Rd	627527 6061771	24.1	379.8	1.9	BB,C,CAS,CC, CH,CM,CO,CT, GPW,LSU,MW ,NSC,PCC,PK, PW,RB,RDC,R SC,SA,SK,ST,S U	Local	High		Round CV that has been squashed to Oval, some baffles in CV and used to be a grate at the inlet (fallen over in channel) - no concerns
123451	093L118	trib to McDowell Ck	Hislop Rd	630663 6067510	0.7	5	1.3			Medium		Embed larger CV if fish present
123452	093L118	trib to McDowell Ck	Hislop Rd	631109 6067419	0.4		1.3			High		Embed larger CV if fish present
123455	093L118	trib to Tyhee Lk	Tyhee Lake Rd	625563 6066480	2.6		0.8		MoTI	Low		No good habitat present - no action required
123456	093L118	trib to Tyhee Lk	Unnamed	625564 6066575	2.5		0.9			Low		No good habitat present - no action required
123457	093L118	trib to Tyhee Lk	Unnamed	626462 6066083	4		1.2			Low		No good habitat present - no action required
123458	093L118	trib to Tyhee Lk	Unnamed	626616 6066145	3.8		0.8			Low		No good habitat present - no action required
123459	093L118	trib to Tyhee Lk	Tyhee Lake Rd	626740 6066173	3.7		0.6		MoTI	Low		No habitat or access - no action required
123463	093L118	Victor Ck	Tyhee Lake Rd	627570 6064562	1.8		1.5		Local	High		Embed larger CV if fish present
123464	093L118	trib to Tyhee Lk	Babine Lake Rd	628035 6068045	0.2		2		Collector	Medium		Embed larger CV if fish present
123480	093L118	trib to Powers Ck	Unnamed	619775 6063612	0.3		0.4			Low		No fish habitat or access present - no action required
123481	093L118	Powers Ck	Morgan Rd	619894 6063683	6.1	3.3	2.1	RB	Local	High		Backwater culvert and install baffles, or install a properly embedded culvert
123482	093L118	trib to Powers Ck	Unnamed	619177 6064183	8.4		1.8			Medium		Backwater culvert and install baffles, or install a properly embedded culvert
123483	093L118	trib to Powers Ck	Unnamed	619183 6064354	0.5		1.4			Medium		Install a properly embedded culvert if fish present
123484	093L118	trib to Powers Ck	Unnamed	619556 6064058	1.9		0.5			Low		No fish habitat or access present - no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123485	093L118	Powers Ck	Unnamed	619707 6064032	6.5	3.3	2.2	RB		High		Remove culvert - has been mostly washed out and is damaged
123486	093L118	Powers Ck	Unnamed	619723 6064094	18.5	7.3	5.6	CO,RB	MoTI	High		Install an OBS, or backwater using weirs and install baffles
123487	093L118	trib to Powers Ck	Unnamed	619768 6064241	1.3		0.6		MoTI	Low		No fish habitat or access present - no action required
123488	093L118	Seymour Ck	Unnamed	619997 6068074	8	131	1.9	ACT,CAS,CO,C SU,CT,LSU,NS C,PCC,RB,RSC ,SU	MoTI	High	Wilson and Rabnett 2007	Debris at inlet should be cleared, but culvert is passable - no action required
123491	093L118	Seymour Ck	Unnamed	619959 6068291	8.2	131	3.5	ACT,CAS,CO,C SU,CT,LSU,NS C,PCC,RB,RSC ,SU	Local	High		Culvert is passable, no action required
123492	093L118	Seymour Ck	Unnamed	619932 6068408	8.3	131	5	ACT,CAS,CO,C SU,CT,LSU,NS C,PCC,RB,RSC ,SU		High		Install an OBS
123493	093L118	Bigelow Ck	Tatlow Rd	619465 6069785	3.4		1	DV,EB,LKC	Local	Medium		Install a properly embedded culvert if fish present
123494	093L118	Bigelow Ck	Tatlow Rd E	619589 6069783	3.5		1.2	DV,EB,LKC	Local	Medium		Install a properly embedded culvert if fish present
123495	093L118	Seymour Ck	Unnamed	620053 6069493	10.2	131	2.4	ACT,CAS,CH,C O,CSU,CT,LNC ,LSU,NSC,PCC ,RB,RSC,SU	Local	High		Backwater culvert and install baffles, or install a properly embedded culvert
123496	093L118	Unnamed	Unnamed	619876 6069753	10.6	131	3.5	ACT,CAS,CH,C O,CSU,CT,LNC ,LSU,NSC,PCC ,RB,RSC,SU		High		Culvert is passable, no action required
123497	093L118	trib to Seymour Ck	Tatlow Rd E	619838 6069413	0.3		4.8			Low		No fish habitat or access present - no action required
123498	093L118	Seymour Ck	Unnamed	619859 6069293	9.4	131	2.7	ACT,CAS,CO,C SU,CT,LSU,NS C,PCC,RB,RSC ,SU		High		Inlet is damaged but culvert should be passable - no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123499	093L118	Seymour Ck	Unnamed	619673 6070345	15	141.5	1.6	ACT,CAS,CH,C O,CSU,CT,DV, EB,LKC,LNC,L SU,NSC,PCC,R B,RSC,SU		High		Unable to see inside culverts, but will be passable unless plugged in middle - no action required
123501	093L118	Seymour Ck	Stenset Rd	619238 6067488	6.7	131	2.2	ACT,CAS,CO,C SU,CT,LSU,NS C,PCC,RB,RSC ,SU	Restrict ed	High		Culvert is passable, no action required
123503	093L118	trib to Seymour Ck	Whistler Rd	618185 6066376	2.3	23.3	2.4		MoTI	High		Install an OBS, or backwater using weirs and install baffles
123504	093L118	trib to Seymour Ck	Unnamed	618563 6065639	0.6		1.1			Medium		Culvert is passable, no action required
123506	093L118	trib to Seymour Ck	Ptarmigan Rd	617663 6065878	0.1	23.3	1.4		DSS	High		Install a properly embedded culvert or OBS
123509	093L118	trib to Powers Ck	Wood Creek FSR	616816 6064020	2.6		0.6		Wetzin'k wa Communi ty Forest Corporat ion	Medium		Install a properly embedded culvert if fish present
123510	093L118	trib to Seymour Ck	Unnamed	617740 6065710	0.1		0.4			Low		Drainage only - No action required
123511	093L118	Trib to Helps Ck	Unnamed	624610 6057183	21.5		3.7	CT,RB		High		Install a properly embedded culvert if fish present
123513	093L118	trib to Help Ck	Unnamed	625108 6056547	16.7		1.2	RB		High		Remove culvert - has been mostly washed out and is damaged
123517	093L118	trib to Help Ck	Power Line	623178 6056166	0.9		1.3			Medium		Remove culvert or replace with properly embedded structure if fish present
123518	093L117	trib to Help Ck	Power Line	604480 6052429	4.4		1.8	DV	Trail	High		Install a properly embedded culvert if fish present
123520	093L117	trib to Help Ck	Power Line	604172 6053384	2.8		1.7			High		Install a properly embedded culvert if fish present
123524	093L117	trib to Telkwa R	Unnamed	603133 6054907	0.2		0.3		WFM	Low		No fish habitat or access present - no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123527	093L117	trib to Telkwa R	Telkwa FSR	598865 6052813	2.3		1.3		DSS	High		Culvert is passable, no action required
123528	093L117	trib to Telkwa R	Unnamed	598879 6053115	1.7		1.1		WFM	High		Remove culvert or replace with properly embedded structure if fish present
123532	093L119	trib to Lemieux Ck	Canyon Creek FSR	643880 6061731	0.4		0.7		DSS	Low		Install a properly embedded culvert if fish present
123533	093L119	trib to Lemieux Ck	Canyon Creek FSR	643607 6062030	1.4		1		DSS	High		Install a properly embedded culvert if fish present
123535	093L119	trib to Lemieux Ck	Canyon Creek FSR	643494 6062211	0.6		0.8		Recreation	Medium		Culvert is passable, no action required
123537	093L119	trib to Robin Ck	Canyon Creek FSR	643206 6062865	0.5		0.9		DSS	Low		No fish habitat or access present - no action required
123538	093L119	Robin Ck	Canyon Creek FSR	643142 6063102	0.2		0.7		DSS	Low		No fish habitat or access present - no action required
123539	093L119	trib to Robin Ck	Canyon Creek FSR	643059 6063325	0.2		0.8		DSS	Low		No fish habitat or access present - no action required
123541	093L119	trib to Robin Ck	Canyon Creek FSR	642839 6063835	1.2		0.5		DSS	Low		No fish habitat or access present - no action required
123544	093L118	McDowell Ck	Unnamed	628269 6060655	21	72.2	2.9	RB		High		Remove culvert or replace with properly embedded structure if fish present
123553	093L117	trib to Pine Ck	HB 9112 04	613732 6067815	1.3		0.7		DSS	Low		No fish habitat or access present - no action required
123558	093L117	trib to Pine Ck	Hudson Bay FSR	612079 6066905	3.6	3.5	3		MoTI	High		Culvert may be passable, install properly embedded CV or OBS if proven a barrier
123559	093L117	trib to Pine Ck	Hudson Bay FSR	611907 6066844	4.7		1.6	DV	MoTI	High		Culvert is passable, no action required
123565	093L117	trib to Pine Ck	Hudson Bay Mountain Rd	611156 6068270	0.1		1.9		Local	High	Marlim 2014	Install a properly embedded culvert or OBS if fish present
123567	093L117	trib to Pine Ck	McDonnell FSR	610617 6067548	1.2		4.3		DSS	High	Marlim 2014	Install an OBS if fish present
123568	093L117	trib to Pine Ck	McDonnell FSR	610460 6067588	1.2		2		DSS	High		Install a properly embedded culvert or OBS if fish present

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123569	093L117	trib to Pine Ck	McDonnell FSR	609501 6067581	0.6		0.6		DSS	High		Install a properly embedded culvert or OBS if fish present
123570	093L117	Miller Ck	McDonnell FSR	607525 6067555	2.2		5.3	DV	DSS	High		Remove all structures and replace with a bridge.
123575	093L117	Millar Ck	700 Rd	607615 6067375	2.4		3.3	DV	DSS	High		Install a properly embedded culvert or OBS if fish present
123584	093L113	trib to Bulkley R	Walcott Rd	641684 6047016	2.8	5.7	1		MoTI	Low		No fish habitat present - no action required
123589	093L117	trib to Telkwa R	Unnamed	601617 6053178	0.9		0.7			Low		Inlet is damaged but culvert should be passable - no action required
123590	093L117	trib to Telkwa R	Unnamed	601564 6053310	0.7		1.1			Low		Low habitat value - no action required
123593	093L117	trib to Telkwa R	R09521 1000-3D	601154 6053752	0.4		0.8		WFM	Medium		Culvert is passable, no action required
123599	093L117	trib to Telkwa R	R09521 1000-3D	601068 6053573	0.6		2.4			High		Install a properly embedded culvert or OBS if fish present
123628	093L118	trib to Help Ck	R09521 100-1	624054 6053178	0.2		1.9		WFM	High		Remove culvert and deactivate road
123633	093L118	trib to Help Ck	Powerline	623633 6056086	0.7		2			High		Remove culvert and deactivate road
123634	093L118	trib to Help Ck	Unnamed	623603 6056054	0.6		1.8			High		Remove culvert and deactivate road
123635	093L118	trib to Help Ck	Powerline	624463 6055879	1.3		2.3	RB		High		Remove culvert and deactivate road
123636	093L118	trib to Help Ck	Unnamed	624422 6055819	1.2		1.9	RB		High		Remove culvert and deactivate road
123637	093L118	trib to Help Ck	Unnamed	624636 6055833	0.7		2			High		Remove culvert and deactivate road
123639	093L118	trib to Help Ck	Powerline	624595 6055775	0.7		2.1			High		Remove culvert and deactivate road
123642	093L118	trib to Help Ck	Unnamed	624957 6055678	6.2		1.2			Medium		Remove culvert and deactivate road
123643	093L118	trib to Help Ck	Unnamed	624952 6055655	6.2		1.4			Medium		Remove culvert and deactivate road

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123646	093L118	trib to Help Ck	Unnamed	625103 6055617	4.1		1.7			High		Remove culvert and deactivate road
123647	093L118	trib to Help Ck	Unnamed	625113 6055657	4.1		1			High		Remove culvert and deactivate road
123662	093L118	trib to Canyon Ck	Babine Lake FSR	641205 6074326	0.4		1.8	DV	MoTI	High		Replace with properly embedded CV, or OBS if fish present
123663	093L118	trib to Canyon Ck	Babine Lake FSR	640964 6073581	0		1.5		MoTI	Medium		No fish passage or access concerns, no action required
123664	093L118	trib to Canyon Ck	Babine Lake FSR	640901 6073357	0.7		0.6		MoTI	Low		No action required
123667	093L118	trib to Canyon Ck	Babine Lake FSR	640430 6072031	0.9		1.4		Local	High		Replace with properly embedded CV, or OBS if fish present
123671	093L118	Dahlie Ck	Hwy 16	618978 6071197	8.2		2.6			Medium	Wilson and Rabnett 2007	Backwater or install weirs and baffles
123673	093L118	Dahlie Ck	Railway Ave.	618118 6070674	7.1		3.2		Local	Medium		Install shorter CV's
123674	093L118	Dahlie Ck	Unnamed	618060 6070582	7		2.8			Medium		Replace with properly embedded CV, or OBS if fish present
123675	093L118	Dahlie Ck	Dhalie Rd	617646 6070109	6.3		2.8		MoTI	High		No fish passage or access concerns, no action required
123676	093L118	Dahlie Ck	Unnamed	619388 6071844	9		2		Local	High		Backwater or install weirs and baffles
123678	093L118	Dahlie Ck	Unnamed	619285 6071731	8.8		1.9		Collector	High		Replace with properly embedded CV, or OBS if fish present
123679	093L112	trib to Telkwa R	R09521 1018	604777 6050538	2		1.4	DV	WFM	High		No fish passage or access concerns, no action required
123680	093L112	trib to Telkwa R	R09521 1018	604165 6050511	1.3		1.5		WFM	Medium		Seasonal channel - no action required
123682	093L112	trib to Telkwa R	R09521 1018	602355 6050612	1.1		1.2		DSS	Low		No habitat - drainage
123684	093L112	trib to Telkwa R	R09521 1018	602047 6050560	0.7		1.7		DSS	Low		No action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123686	093L112	trib to Bulkley R	R09521 118	604255 6050150	0.9		0.9		WFM	Medium		Replace with properly embedded CV, or OBS if fish present
123691	093L118	trib to Bulkley R	Unnamed	619620 6073049	0.7		1.1		Local	Low		Seasonal channel - unplug CV
123695	093L123	trib to Driftwood Ck	Driftwood Rd	629915 6081268	0.4		2.6	DV	MoTI	High		Replace with properly embedded CV, or OBS if fish present
123696	093L123	trib to Driftwood Ck	Driftwood Rd	629319 6080664	0.4		1.8	DV	MoTI	Medium		Backwater
123697	093L123	Driftwood Ck	Driftwood Rd	629209 6080573	20.5		1.8	DV	MoTI	Low		Unplug CV
123699	093L123	Driftwood Ck	Driftwood Rd	628262 6079731	24.7		0.6	DV,RB	MoTI	Low		No action required
123700	093L123	trib to Driftwood Ck	Driftwood Rd	628021 6079554	2.6		1.9	DV,RB	Local	High	Marlim 2014	Replace with properly embedded CV, or OBS if fish present
123705	093L123	trib to Driftwood Ck	Unnamed	624330 6077294	4.3		0.6			Low		Remove CV if road is no longer in use
123706	093L123	trib to Driftwood Ck	Unnamed	625023 6077495	0.7		1.6		Local	Low		No action required - no habitat
123707	093L123	trib to Driftwood Ck	Unnamed	624988 6077568	2.6		0.4		MoTI	Low		No action required - no habitat
123708	093L123	trib to Driftwood Ck	Adams Rd	623824 6079134	0.2		1.3		Local	Medium		No action required
123709	093L123	trib to Driftwood Ck	Adams Rd	623343 6079870	0.6		0.8		MoTI	Low		No action required - no habitat
123710	093L123	trib to Driftwood Ck	Unnamed	623446 6079992	0.5		1.1			Low		No action required - no habitat
123711	093L123	trib to Driftwood Ck	Unnamed	623203 6079377	1.5		1.4			Low		Replace with properly embedded CV, or OBS if fish present
123713	093L123	trib to Bulkley R	Telkwa High Rd	623321 6077524	8.4		1.2		Local	Low		No action required
123739	093L122	Gramophone Ck	R11343 1	614503 6095153	10.5	11.8	0.6			Low		No action required - seasonal

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123740	093L122	Meed Ck	8000 Rd	612454 6090190	7.7		1.6		FSR	Medium		No fish passage or access concerns, no action required
123741	093L122	Meed Ck	8000 Rd	612442 6090259	7.7		4.6		FSR	High		Replace with properly embedded CV, or OBS if fish present
123743	093L122	Meed Ck	Telkwa High Rd	612101 6090132	8		5.3		MoTI	High	Marlim 2014	Replace with OBS
123744	093L122	trib to Bulkley R	Palmeson Rd	610376 6088741	8.3	26	1.6			Low		No action required - no habitat
123746	093L118	trib to Powers Ck	R11260 1	616148 6063441	0.8		1.6		Janette Daly	Medium		Replace with properly embedded CV, or OBS if fish present
123760	093L118	Vandenberg Ck	Good Rd	622605 6065529	0.4		2.9		MoTI	High		Embed larger culvert if fish present
123761	093L118	trib to Bulkley R	Hwy 16	621248 6066654	2.6		1		MoTI	High		Embed larger culvert if fish present
123764	093L123	trib to Reiserer Ck	9000 Rd	624915 6088530	0.9		0.6		WFM	Medium		Access very unlikely - no action required
123770	093M102	John Brown Ck	Hwy 16	606630 6097190	40.3		11.3	BT,CH,CT,DV, RB	Arterial	High	Wilson and Rabnett 2007	Culverts likely seasonally passable, install baffles to improve passage
123771	093M102	trib to Corya Ck	Unnamed	604364 6098219	2.5		0.9			Low		Embed larger culvert if fish present
123772	093M102	trib to Corya Ck	Unnamed	604343 6098251	2.5		1.9			Medium		Embed larger culvert if fish present
123773	093M102	trib to Corya Ck	Unnamed	603910 6098594	1.5		2.4			High		Remove culvert and deactivate road
123775	093M102	Tributayr to Corya Ck	Hwy 16	606436 6099733	5.7	53.3	3.7		MoTI	Low		Road has slumped over both inlet and outlet - material needs to be removed
123776	093M102	Corya Ck	Hwy 16	606463 6100147	30.7		21.8	DV,RB	MoTI	High	Wilson and Rabnett 2007	Install baffles if culvert is a fish barrier
123777	093M102	Graphite Ck	Campbell Rd	607128 6101110	7.1	51.1	2.7		MoTI	Medium		Embed larger culvert if fish present
123778	093M102	Graphite Ck	Hwy 16	605391 6103204	3.5	3.4	1.4		MoTI	High		Culvert likely passable, if barrier install larger, embedded culvert

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
123782	093M103	trib to Blunt Ck	R09533 218	616210 6108101	3		1.6	DV	WFM	High		Remove culvert and deactivate road
123785	093M103	trib to Blunt Ck	R09533 218	615304 6107325	3.7	13.6	0.9	DV	WFM	High		Embed larger culvert if fish present
123787	093M103	trib to Blunt Ck	R09533 222-1	620156 6105758	1.1	4.2	8.3		WFM	High	Marlim 2014	Remove culvert and deactivate road
123792	093M103	trib to Blunt Ck	Blunt Creek FSR	617663 6106252	2.6		1.2	DV	FSR	Medium		Passable if fish present - no action required
123793	093M103	trib to Blunt Ck	Blunt Creek FSR	617611 6106255	2.6		5.7	DV	FSR	High		Passable if fish present - no action required
123794	093M103	trib to Blunt Ck	Blunt Creek FSR	616100 6106763	2.4	6	2.6	DV	FSR	High		Replace with larger, embedded culvert or OBS if fish present
123797	093M102	trib to Blunt Ck	Blunt Creek FSR	614768 6107059	0.1		0.4		DSS	Low		Passable if fish present - no action required
123798	093M103	trib to Blunt Ck	R09533 217-1	616034 6105949	0.3	1.4	1.1		WFM	Low		No habitat or access - no action required
123799	093M103	trib to Blunt Ck	R09533 217-1	615730 6105919	0.9	4.7	1.6		WFM	High		Backwater and install baffles if fish present
123803	093M102	trib to Bulkley R	Hwy 16	603162 6108700	1.9		1.5		MoTI	High		Passable if fish present - no action required
123805	093M102	Atrill Ck.	Hwy 16	605535 6105420	9	74.3	1.7		MoTI	High		Beaver cage needs to be cleaned
123806	093L113	trib to Bulkley R	Unnamed	636562 6044598	2		0.8			High		Remove crossing and deactivate road
124163	093M102	trib to Corya Ck	Unnamed	604255 6101960	1.3		2.1			Low		Fish access unlikely - no action required
124165	093M102	trib to Corya Ck	Schmid Rd	605333 6100883	3		1.1			Low		No fish habitat present - no action required
124166	093M102	trib to Corya Ck	Unnamed	605369 6100880	3		3.8			Low		2 culverts present, crossing dry at assessment. Left culvert blocked seasonal access only.
124167	093M102	trib to Corya Ck	Unnamed	606049 6100146	1.4		1.1			Low		Small channel with lots of fines - embed larger culvert if fish present

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
124168	093M102	trib to Corya Ck	Unnamed	605935 6100158	1.3		1			Low		Culvert under railway, passable if water/fish present
124171	093L118	trib to Powers Ck	Unnamed	619859 6062796	1.4		2			Medium		Dry at assessment, no residual pools - passable if fish present
124172	093L118	Powers Ck	Unnamed	620457 6062296	1.5		2.5		WFM	Medium		Mapped/unnumbered site, good seasonal habitat but no residual pools - embed culvert if fish present
124173	093L118	trib to Powers Ck	Unnamed	620316 6062301	0.1		1.2		WFM	Low		Mapped/unnumbered site, upstream channel poorly defined - no action required
124174	093L118	Powers Ck	Unnamed	619870 6063335	5.3	3.3	2.5			Medium		Right culvert badly damaged, rearing potential when water present - embed larger cv if fish present
124176	093L119	Gardener Ck	Unnamed	643059 6058630	3.6		1		Keith Hodson	Low		No fish habitat present - no action required
124178	093L113	trib to Bulkley R	Unnamed	639055 6042994	8.9		1.9			High		Excellent habitat, culvert washing out, landowner intends to replace with bridge - OBS if fish present
124188	093M102	trib to Corya Ck	Unnamed	605035 6098394	3.2		2.4			Low		Culvert too small for peak flow, but likely not a barrier to fish at normal flows.
124197	093M102	trib to Boulder Ck	Unnamed	598189 6108690	0.2		6.3			Medium		Culvert is blocked, and too small for channel - should be removed.
124420	093M106	Station Ck	Hwy 16	586606 6122365	26.3	52.1	5.1	CO,CT,DV,PK, RB,SP,ST		High		Replace with properly embedded culvert or OBS
124421	093M107	trib to Waterfall Ck	11th Avenue	589478 6123044	1.3		5.2	CO,DV	Local	Medium		Beaver dam in left culvert should be removed
124422	093M107	trib to Waterfall Ck	Hwy 16	589497 6123163	1.2		5.2	CO,DV	MoTI	Medium		Beaver debris building up, should be removed
124423	093M107	trib to Waterfall Ck	Railway	589770 6123268	0.9		2	DV	Railway	Medium	Wilson and Rabnett 2007	Beaver dam in right culvert should be removed

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
124424	093M107	trib to Waterfall Ck	Railway	589485 6122990	1.4		3.8	CO,DV	Railway	Medium		Inlet grate needs to be cleaned
124427	093M106	Two Mile Ck	Hwy 62	587346 6125073	20.3	23.1	2.6	CT,LNC,RB,SP	MoTI	High		Passable, no concerns - no action required
124430	093M106	Two Mile Ck	Silver Standard	587366 6128292	13.4	21.9	2.7	CT,LNC,RB,SP	MoTI	High		Inlet grate needs to be cleaned
124433	093M106	Two Mile Ck	Unnamed	588429 6129530	9.7	21.9	0.6	CT,RB	MoTI	Low		Remove and replace with ford
124434	093M106	Two Mile Ck	Unnamed	587635 6127234	14.6	21.9	3.4	CT,LNC,RB,SP		High		Replace with properly embedded culvert or OBS
124443	093M106	Two Mile Ck	Silver Standard	587677 6126545	16.3	21.9	1.9	CT,LNC,RB,SP	MoTI	Low		Embed culvert if fish present
124447	093M107	Mudflat Ck	Hwy 16	597427 6119279	13.9		6.8	CT,DV,RB	MoTI	High		Replace with OBS, outlet is washing out badly - Could become a major issue for the highway
124448	093M107	trib to Mudflat Ck	Hwy 16	597756 6119239	0.9		2.2		MoTI	Low		Replace with OBS if fish present
124453	093M107	trib to Bulkley R	Birch Rd	592820 6122590	0.2		1.4		Local	Low		Access unlikely - no action required
124454	093M107	trib to Bulkley R	Unnamed	592785 6123909	2.4		1.4			Low		No habitat present - no action required
124455	093M107	trib to Bulkley R	Ross Lake Rd	594183 6123847	1		1		MoTI	Low		Hole in bottom of culvert outlet - replace
124456	093M107	Waterfall Ck	Unnamed	589612 6122535	2		0.5	CT		Low		Replace with properly embedded culvert if fish present
124459	093M107	trib to Station Ck	Unnamed	590831 6121810	4.7	21.1	1.6			Medium		Passable, no concerns - no action required
124460	093M107	trib to Station Ck	Unnamed	590845 6121475	0.3		1.2			High		Passable, no concerns - no action required
124461	093M107	trib to Bulkley R	Ross Lake Rd	592666 6123063	2.9	25.7	0.6	LKC,RB	MoTI	Low		No habitat present - no action required
124463	093M107	Bunker Ck	Hwy 16	597191 6119846	10.7	54.9	1.5		MoTI	High	Wilson and Rabnett 2007	Passable if fish present - no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
124466	093M102	trib to Corduroy Ck	R10108-2	604530 6117693	2.2		2.6	SP	RRL	High	Marlim 2014	Replace with OBS
124470	093M107	trib to Bulkley R	Suskwa-Moricetown FSR	602248 6120584	2.3		5		TSMS	Medium		Passable if fish present - no action required
124472	093M107	trib to Bulkley R	Suskwa-Moricetown FSR	602900 6119217	0.6		1		TSMS	Low		Embed culvert if fish present
124475	093M102	trib to Corduroy Ck	R101086	604125 6114330	1.6		1.1		RRL	Low		Remove
124479	093M102	trib to Bulkley R	Suskwa-Moricetown FSR	605879 6109306	2.1		1.5		TSMS	Low		Passable if fish present - no action required
124480	093M102	trib to Sharpe Ck	R119912	605194 6112050	0.9		0.8	DV	Rene Schlatter	Low		No habitat present - no action required
124484	093M107	Layard Ck	Unnamed	602454 6121662	0.1		1.2			Low		No habitat present - no action required
124485	093M107	trib to Bulkley R	Unnamed	602409 6121671	0.4		0.8			Low		No habitat present - no action required
124487	093M102	Porphyry Ck	Hwy 16	603073 6113363	16.9		7.1	DV,RB	MoTI	High	Wilson and Rabnett 2007	Replace culverts with OBS
124492	093L117	trib to Telkwa R	Telkwa River Rd	610146 6054631	9.2		1.3		DSS	Low		No habitat present - no action required
124493	093L117	trib to Telkwa R	Telkwa River Rd	608933 6053765	4.1		1.2		DSS	Low		Embed culvert if fish present
124494	093L117	trib to Telkwa R	Telkwa River Rd	607242 6053133	0.8	1.4	1.3		DSS	Low		Culvert is plugged, should be cleared
124500	093L118	Helps Ck	Walcott FSR	627552 6058697	37.8	70.8	3.7	CT,DV,LNC,LS U,RB	Local	Medium		Beaver debris building up, should be removed
124501	093L118	trib to Bulkley R	Walcott FSR	630661 6055713	9.2		3.8	DV,RB	Local	High		PASSABLE - Excellent habitat, baffles in culvert, no concerns
124502	093L118	trib to Bulkley R	Lawson Rd	632070 6054348	8.7	25.2	2.3		MoTI	Medium		Replace culverts with OBS, right culvert is completely plugged

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
124504	093L118	Coffin Ck	Walcott FSR	634323 6054587	38.3	189.5	4.2	CSU,CT,DV,LS U,MW,RB,RSC	MoTI	High	Wilson and Rabnett 2007	Passable, no concerns - no action required
124505	093L118	trib to Bulkley R	Unnamed	631913 6053759	7.9	25.2	2.5			High		Replace with embedded culvert or OBS
124507	093L118	trib to Bulkley R	Unnamed	631327 6052832	0.7		1.3		WFM	Low		No habitat present - no action required
124510	093L118	Vanderven Ck	Deception Lake FSR	637140 6063400	13	1.8	1.4	BT,RB	DSS	High		Passable, no concerns - no action required
124511	093L118	Vanderven Ck	Deception Lake FSR	637142 6063360	13	1.8	1.4	BT,RB		High		Passable, no concerns - no action required
195235	093M102	trib to Corduroy Ck	Unnamed	605834 6117083	2.9		2.7			High		Substantial logging debris, replace with OBS
195236	093L117	trib to Telkwa R	R09521 116	607127 6053412	0.4		1.6		WFM	High		CV is a barrier, replace with OBS
195237	093L117	trib to Telkwa R	R09521 116	607544 6055187	0.7		0.8		WFM	Low		Seasonal channel, should be passable as is
195250	093L118	trib to Canyon Ck	Canyon Creek FSR	640581 6070005	1.5		0.5		Recreation	Low		Replace with properly embedded CV if fish present
195259	093L114	trib to McQuarrie Ck	Hidden Lake FSR	651057 6044830	0.4		0.6		DND	Low		Passable if fish present, no concerns
195266	093L119	trib to Deep Ck	R1876 701	644824 6054476	0.3		0.6		Andy Meints Contracting Ltd	Low		Passable if fish present, no concerns
195267	093L119	trib to Deep Ck	R1876 701	644931 6054553	0.2		0.8		Andy Meints Contracting Ltd	Medium		Passable if fish present, no concerns
195274	093L119	trib to Deep Ck	Deep Creek FSR	644869 6059664	0.1		0.8		DSS	Low		Passable if fish present, no concerns
195275	093L119	trib to Deep Ck	Deep Creek FSR	644612 6060260	0.3		0.7		DSS	Medium		Passable if fish present, no concerns
195277	093L118	Trib to Vanderven Ck	R02960 1	637185 6066178	2.7		0.6		CCR	Low		Likely passable at high water
195278	093L118	Vanderven Ck	Unnamed	636943 6065863	3.2		0.5			Low		Likely passable at high water

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
195279	093L118	Trib to Vandervan Ck	R02960 1	637187 6065737	2.2		0.5		CCR	Low		Passable if fish present, no concerns
195280	093L118	Trib to Vandervan Ck	R02960 4	638390 6065873	0.7		0.6		CCR	Medium		Passable if fish present, no concerns
195284	093L118	Trib to Vandervan Ck	R02960 1	637164 6064745	2.6		1	BT	CCR	Medium		Passable if fish present, no concerns
195288	093L113	Gibson Ck	Snider Rd	640899 6051559	12	20.6	2.6	CT,RB	Local	High		Passable if fish present, no concerns
195289	093L113	Deep Ck	Hwy 16	639869 6051747	96.7	206.7	5.3	C,CH,CM,CO,C T,DV,PK,RB,S A,SK,ST	MoTI	High	Wilson and Rabnett 2007	Passable if fish present, no concerns
195290	093L113	Unnamed	Hwy 16	640014 6051697	13.6	25.6	1.3	CT,RB	MoTI	Medium		Passable if fish present, no concerns
195292	093L118	Trib to Deep Ck	Unnamed	641866 6053489	2.1		3.8	RB		Medium		Replace with OBS
195294	093L118	trib to Bulkley R	Quick West Rd	635891 6054657	0.5		1		Local	Low		Outlet bent, needs to be cut back to allow fish access
195301	093L118	Trib to Vandervan Ck	R11232 3	640966 6065478	0.6		0.7		Richard Boonstra	Medium		Passable if fish present, no concerns
195339	093L112	trib to Telkwa R	R09521 103	607209 6050724	1.2		2.8		DSS	High		Replace with OBS and restore channel
195340	093L112	trib to Telkwa R	R09521 103	606889 6050621	4.9	5.7	4.1		DSS	High		Replace with OBS, water overflowing CV inlet
195344	093L112	trib to Telkwa R	R09521 103	608454 6049535	2.5	5.7	1.7		DSS	Medium		Replace with OBS if fish present
195348	093L117	trib to Telkwa R	R10836 1003-5-1	611475 6052125	0.6		1.2		DSS	Low		Fish access unlikely, no action required
195349	093L117	trib to Telkwa R	R10836 1003-5-1	611446 6051736	0.2		0.4		WFM	Low		Fish access unlikely, no action required
195355	093L117	trib to Telkwa R	Unnamed	614774 6053715	0.8		0.3		WFM	Low		Fish access unlikely, no action required
195356	093L118	trib to Telkwa R	Unnamed	616265 6053833	6.5		1.8		WFM	Medium		Good habitat, likely seasonal access - replace
195363	093L117	trib to Telkwa R	R09521 103-1	614515 6052680	0.6		1.1		DSS	Low		Passable if fish present, no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
195364	093L117	trib to Telkwa R	R09521 103-1	614544 6054043	0.6		0.5		WFM	Low		Fish presence unlikely, culvert damaged - replace
195365	093L117	trib to Telkwa R	R09521 103	612307 6052722	2.2		1.1		DSS	Low		Fish presence unlikely, culvert damaged - replace
195366	093L117	trib to Telkwa R	R09521 103	612188 6052605	1		2.7		DSS	Low		Passable if fish present, no action required
195371	093L112	trib to Telkwa R	R09521 118-1	605232 6048903	0.2		1.3		WFM	Medium		Remove and restore channel
195377	093L117	trib to Pine Ck	R09521 710	609068 6063061	1		0.6		WFM	Low		Passable if fish present, no action required
195378	093L117	trib to Pine Ck	R09521 710	609032 6063198	1.6		1.7		WFM	Medium		Passable if fish present, no action required
195379	093L117	trib to Pine Ck	R09521 710	609036 6063255	0.3		1		WFM	Low		Likely passable at high water, replace if barrier
195380	093L117	trib to Pine Ck	R09521 710	609048 6063339	2.9		1		WFM	Medium		Culvert out of line with natural channel - replace
195381	093L117	trib to Pine Ck	R09521 710-1	611679 6057559	1.3		1.2		WFM	Medium		Likely passable at high water, replace if barrier
195384	093L117	trib to Pine Ck	R09521 710-1	612063 6057989	0.2		1.6		WFM	Low		Outlet damaged - replace
195385	093L117	trib to Pine Ck	R09521 710 D	612854 6057794	1.2		1.3		WFM	Medium		Passable if fish present, no action required
195401	093L117	trib to Pine Ck	703 Rd	609139 6063636	1.1	3.5	1.8		DSS	High		Passable if fish present, no action required
195410	093L117	trib to Pine Ck	R09521 710	610936 6060826	1.6		1.6		WFM	High		Replace with OBS if fish present
195411	093L117	trib to Pine Ck	R09521 710	610891 6060874	1.6		1.7		WFM	Medium		Replace with OBS if fish present
195420	093L113	Trib to Goathorn Ck	R09521 120-5	618944 6049250	1.3		0.7		WFM	Medium		Passable if fish present, no concerns
195421	093L113	Four Ck.	R09521 120-1	619328 6051225	8.5		1.4	DV	WFM	Medium		Passable if fish present, no concerns
195422	093L113	Trib to Goathorn Ck	R09521 120-4	617916 6050709	0.8		0.9		DSS	Low		Likely passable at high water
195423	093L113	Trib to Goathorn Ck	R09521 120-4	618500 6050739	0.5		0.6		WFM	Low		Likely passable at high water

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
195424	093L113	Trib to Goathorn Ck	R09521 120-3	618280 6051809	3.1		0.7		WFM	Medium		Replace with a properly embedded CV
195433	093L113	Trib to Goathorn Ck	R09521 120-1A	623396 6050658	0.4		2.2		WFM	High		Replace with OBS if fish present
195446	093L117	trib to Telkwa R	Telkwa River Rd	611782 6055459	0.2		1.1		DSS	Medium		Replace with properly embedded CV with beaver stops
195447	093L117	trib to Telkwa R	Telkwa River Rd	615830 6056714	0.1		0.6		DSS	Medium		Replace with properly embedded CV with beaver stops
195450	093L118	trib to Tenas Ck	Unnamed	616440 6052558	0.6		0.8			Medium		Remove old crossing and BD, restore channel
195451	093L118	trib to Tenas Ck	R09521 120-2	618003 6052526	3.9		0.7		WFM	Low		Passable if fish present, no concerns
195458	093L117	trib to Telkwa R	R09521 710-1	611111 6057250	0.5		0.6		WFM	Low		Passable if fish present, no concerns
195467	093L118	trib to Bulkley R	Unnamed	629225 6054458	1.8		0.6			Low		Passable if fish present, no concerns
195469	093L118	trib to Bulkley R	Unnamed	630674 6054048	1.5		0.5			Low		Remove and restore channel as a ford
195475	093L113	trib to Bulkley R	Unnamed	631951 6052138	4.1	2.5	1.1			Medium		Passable if fish present, no concerns
195480	093L118	trib to Bulkley R	Lawson Rd	628646 6058137	3.2		1		Local	Medium		Likely passable at high water
195488	093L117	trib to Pine Ck	703 Rd	609057 6063444	0.1		0.5		WFM	Low		Culvert out of line with natural channel - replace
195494	093L119	Burbridge Ck	Deception Lake FSR	642246 6065222	2.1		0.7		DSS	Low		Replace with embedded CV if fish present
195495	093L118	trib to Burbridge Ck	R11232 7	639757 6067160	0.4		0.7		Richard Boonstra	Medium		Replace with embedded CV if fish present
195497	093L118	Burbridge Ck	R11232 1	640752 6065727	0.5		0.9		Richard Boonstra	Medium		Replace with embedded CV if fish present
195498	093L119	Burbridge Ck	Deception Creek FSR	641798 6065611	6.6	5.8	1.9		DSS	High		Passable if fish present, no action required
195499	093L118	trib to Burbridge Ck	Deception Creek FSR	641563 6066870	0.2		0.7		Recreation	Low		Passable if fish present, no action required

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
195500	093L119	trib to Burbridge Ck	Deception Creek FSR	641746 6066180	0.5		0.7		DSS	Low		Passable if fish present, no action required
195501	093L119	trib to Burbridge Ck	Deception Creek FSR	641730 6066498	0.7		0.8		DSS	Medium		Replace with embedded CV if fish present
195503	093L118	trib to Burbridge Ck	Deep Creek FSR	641556 6067168	0		0.8		Recreation	Medium		Passable if fish present, no action required
195504	093L118	trib to Burbridge Ck	Deep Creek FSR	641555 6067817	1		1.4		DSS	Medium		Culvert out of line with natural channel - replace
195508	093L117	trib to Sinclair Ck	R09521 128	595742 6053571	0.7		0.6		WFM	Low		Replace with embedded CV if fish present
195511	093L117	trib to Telkwa R	Telkwa River Rd	597238 6053369	1		1.4		DSS	Low		Fish access unlikely, no action required
195515	093L117	trib to Telkwa R	R09521 1000	594517 6052303	2.9		2.1	DV	WFM	Medium	Marlim 2015	Replace with OBS if fish present
195532	093L117	trib to Telkwa R	R09521 103-3	612306 6053116	4		1		DSS	Low		Replace with embedded CV if fish present
195536	093L117	trib to Telkwa R	Unnamed	615284 6055162	0.5		0.6			Medium		Replace with properly embedded culvert
195537	093L117	trib to Telkwa R	Unnamed	615248 6055191	0.5		0.6		WFM	Medium		Replace with properly embedded culvert
195538	093L117	trib to Telkwa R	R09521 103	615200 6055171	0.4		1.2		WFM	Medium		Replace with OBS if fish present
195539	093L117	trib to Telkwa R	R09521 103	611485 6052265	0.7		0.9		DSS	Medium		Replace with properly embedded culvert
195543	093L112	trib to Telkwa R	R09521 1018-2	598602 6051343	0.7		1.1		DSS	Medium	Marlim 2015	Replace with properly embedded culvert
195545	093L117	trib to Telkwa R	Telkwa River Rd	599769 6052572	1.3		1		DSS	Medium		Likely passable at high water
195546	093L112	trib to Tenas Ck	R09521 103-1	613644 6048692	0.1		1.5	DV	DSS	High	Marlim 2015	Replace with OBS if fish present
195549	093L112	trib to Tenas Ck	R09521 103-1	614110 6050343	0.9		0.6		DSS	Medium		Culvert should be properly embedded
195550	093L112	trib to Tenas Ck	R09521 103-1	614349 6050439	3.3	4.5	1.2		DSS	Medium		Passable if fish present, no concerns
195552	093L118	trib to Telkwa R	R09521 103	616911 6056075	15.4	1.2	1.5		WFM	Medium		Replace with OBS if fish present

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
195558	093L118	Trib to Goathorn Ck	Unnamed	619679 6054938	1.1		0.6			Medium		Remove culvert and restore channel
195559	093L118	Four Ck	120 Rd	620053 6054093	12.5		9.7	DV,TR	Local	High		Passable if fish present, no concerns
195566	093L113	Four Ck	R09521 120-5	618567 6049048	1.4		0.7		DSS	Medium		Passable if fish present, no concerns
195570	093L113	trib to Cabinet Ck	R09521 120-7	622260 6047426	1.4		1		DSS	Low		Passable if fish present, no concerns
195571	093L113	trib to Cabinet Ck	R09521 120-7A	622066 6047829	2		1.1		DSS	Medium		Likely passable at high water
195572	093L113	trib to Cabinet Ck	R09521 120-7	621807 6048228	2.4		1.1		WFM	Medium		Replace with properly embedded CV or OBS
195574	093L113	trib to Cabinet Ck	R09521 120-7	621420 6048348	2.9		1.3	DV,RB	WFM	Medium		Replace with properly embedded CV or OBS
195577	093L113	trib to Cabinet Ck	R09521 120-1	620594 6047931	0.3		1.4		WFM	High		Passable if fish present, no concerns
195578	093L113	Trib to Goathorn Ck	R09521 120-5C	618896 6048664	0.7		0.8		WFM	Medium		Passable if fish present, no concerns
195579	093L113	Trib to Goathorn Ck	R09521 120-5	618234 6049229	1.3		1.2		DSS	Medium		Passable if fish present, no concerns
195923	093L114	Dunalter Ck	Unnamed road	645354 6037825	3	22.8	0.4	CT,LSU,RB		Low		Plastic CV preventing access to lake, controlled flow
195924	093L119	trib to Deep Ck	S Deep Creek Rd	648711 6056732	0.8	11.8	1.6		DSS	High		Potentially passable at high water
195932	093L118	deJong Ck	Unnamed road	639542 6063176	5.8		2.6			High		Culvert is partially crushed
195934	093L114	Trib to Stock Ck	Barrett station Rd	645128 6034596	15.8	81.1	1.2	CT,LSU,RB	MoTI	High		Currently 2 CVs, no access at low water
195935	093L114	Trib to Stock Ck	Houston Airport Rd	645104 6034612	15.7	81.1	1.3	CT,LSU,RB	Local	High		No access at low water
195936	093L118	trib to Canyon Ck	R11559 2-1	634641 6066801	0.2		0.6		SSI	Medium		Culvert likely passable if fish present
195938	093L118	trib to Canyon Ck	R11559 2-1	633999 6066823	1.5	7	1		SSI	Medium		Culvert likely passable if fish present
195943	093L114	Stock Ck	Seinen Rd	645439 6035047	23.1	31.2	4.6		MoTI	Medium		No access, install OBS and restore channel

Analysis and Priority Identification for Fish Existing Passage Data - Bulkley River Watershed

PSCIS ID	Map ID	Stream	Road	UTM (9U)	Habitat Gain (km)	Lake/ Wetland (ha)	Stream Width (m)	Species Upstream	Road Tenure	Habitat Value	Prioritized	Assessment Comments (PSCIS Database)
195944	093L114	Stock Ck	Hwy 16 W	645934 6035552	22.4	31.2	3.8			Medium		CV length: 170m, Fill Depth: 35m estimate
195946	093L114	trib to McQuarrie Ck	Hidden Lake FSR	650498 6044743	0.4		0.5		DND	Low		Culvert placed too high, good channel present
195952	093L114	trib to Stock Ck	R089212	650441 6037322	0.9		0.8		EE	Medium		Culvert sloped backwards
195953	093L114	trib to Stock Ck	R089212	650503 6037350	3		0.6		EE	Medium		Culvert sloped backwards
195954	093L118	Vandervan Ck	Unnamed road	637091 6062411	24.5	44.7	3	BT,RB		High		Currently 2 CVs, 1 blocked - fish OBS u/s and d/s of CV
195955	093L118	de Jong Ck	Unnamed road	638521 6062159	12.4		3.1			High		Fish observed both u/s and d/s of CV
195956	093L118	Robin Ck	Unnamed road	640188 6060829	12.2		2.4	RB,TR		Medium		Currently 2 CVs, replace with OBS
195957	093L118	Unnamed	Unnamed road	639709 6060989	4.4		2.1			Low		Culvert likely passable if fish present
195960	093L118	trib to Robin Ck	Unnamed road	639111 6062559	2.3		0.8			Low		Low habitat value, replace if fish present
195962	093L118	trib to Robin Ck	Unnamed road	638780 6062351	2.7		0.5			Low		Replace with larger CV if fish present
195963	093L114	Dunalter Ck	Unnamed road	645517 6035406	6.5	22.8	1.1	CT,LSU,RB	Local	Medium		CV controlled by valve at lake - old dam
195965	093L114	Dunalter Ck	Unnamed road	645711 6036237	5.6	22.8	1.1	CT,LSU,RB		Medium		Limited flow from lake upstream
195967	093L114	trib to Gibsons Ck	Unnamed road	642475 6051372	0.6		1.1			Medium		Replace with larger CV if barrier
195968	093L119	trib to Deep Ck	Unnamed road	642917 6053726	0.9		1.4	RB		Medium		Replace with properly embedded CV
195976	093L113	trib to Coffin Lk	Unnamed road	632206 6048717	0.2		1			Low		Remove and properly deactivate road

*Assessment comment from PSCIS database

Appendix 6

Key to Attachment 2 - Digital Summary of PSCIS and Modelled Crossings

Table heading	Column Name (BC data distribution)	Details/attribute	Source/URL
crossing_id / stream_crossing_id	stream_crossing_id	Unique crossing ID	Fish Habitat Model / pscis-assessments
map_tile	map_tile	1:50,00 mapsheet	nts-50k-grid-digital-baseline-mapping-at-1-50-000-nts
stream_name	gnis_name	The BCGNIS (BC Geographical Names Information System) name associated with the GNIS feature id	freshwater-atlas-stream-network
stream_order	stream_order	The calculated modified Strahler order.	freshwater-atlas-stream-network
road_name	road_name_full or rfi_highway_description or road_section_id	Dependent on logic incorporating distance of modelled crossing to associated road layers and presence absence of forest tenure information	digital-road-atlas-dra-master-partially-attributed-roads ministry-of-transportation-mot-road-features-inventory-rfi forest-tenure-road-segment-lines
fish_habitat_threshold_type_atc rossing		Stream threshold category of stream at crossing (ex. FISH HABITAT - INFERRED - 055-135PCT = no fish habitat downstream of crossing with gradient > 13.5% for more than 100m)	Fish Habitat Model freshwater-atlas-stream-network
habitat_gain_threshold_sub035		Total linear length (m) of inferred or observed fish habitat upstream of the crossing that does not exceed 3.5% gradient for more than 100 m.	Fish Habitat Model freshwater-atlas-stream-network
habitat_gain_threshold_sub05		Linear length (m) of inferred or observed fish habitat upstream of the crossing that does not exceed 5.5% gradient (cascade) for more than 100 m.	Fish Habitat Model freshwater-atlas-stream-network
habitat_gain_threshold_sub13		Linear length (m) of inferred or observed fish habitat upstream of the crossing that does not exceed 13.5% gradient (step-pool) for more than 100 m.	Fish Habitat Model freshwater-atlas-stream-network
habitat_gain_threshold_sub20		Linear length(m) of inferred or observed fish habitat upstream of the crossing that does not exceed 20.5% gradient (step pool – very steep) for more than 100 m.	Fish Habitat Model freshwater-atlas-stream-network
*slope		Derived slope of stream at crossing	Fish Habitat Model freshwater-atlas-stream-network
upstr_len_slope_0_035		Linear length (m) of inferred or observed fish habitat upstream of the crossing with average gradient ≤3.5% (riffle).	Fish Habitat Model freshwater-atlas-stream-network
upstr_len_slope_035_055		Linear length (m) of inferred or observed fish habitat upstream of the crossing with average gradient from 3.5 - 5.5% (cascade).	Fish Habitat Model freshwater-atlas-stream-network

Table heading	Column Name (BC data distribution)	Details/attribute	Source/URL
upstr_len_slope_055_135		Linear length (m) of inferred or observed fish habitat upstream of the crossing with average gradient 5.5 - 13.5% (step-pool).	Fish Habitat Model freshwater-atlas-stream-network
upstr_len_slope_135_205		Linear length(m) of inferred or observed fish habitat upstream of the crossing with average gradient 13.5 - 20.5% (step pool – very steep).	Fish Habitat Model freshwater-atlas-stream-network
upstr_len_slope_sub_205		Total linear length(m) of inferred or observed fish habitat upstream of the crossing with average gradient < 20.5%.	Fish Habitat Model freshwater-atlas-stream-network
lake_area_ha	area_ha	Total area of lake habitat upstream of crossing and stream segments modelled with habitat threshold <20.5%.	Fish Habitat Model freshwater-atlas-stream-network freshwater-atlas-lakes
wetland_area_ha	area_ha	Total area of wetland habitat upstream of crossing and stream segments modelled with habitat threshold <20.5%.	Fish Habitat Model freshwater-atlas-stream-network freshwater-atlas-wetlands
spp_upstream	species_code	Codes for fish species located on stream segments upstream of the subject crossing.	known-bc-fish-observations-and-bc-fish-distributions
road_tenure	road_class client_name	Dependent on logic incorporating distance of modelled crossing to associated road layers and presence absence of forest tenure information as well as presence of key words in attribute names (ex. FSR is output when "FSR" contained within DRA layer attribute "road_name_full" when DRA layer attribute "road_class" = "resource".	digital-road-atlas-dra-master-partially-attributed-roads ministry-of-transportation-mot-road-features-inventory-rfi forest-tenure-road-segment-lines
upstr_crossing_ids		Unique identifiers for all modelled or PSCIS crossings located upstream of the subject modelled crossing on stream segments modelled as <20.5% threshold.	Fish Habitat Model
dnstr_crossing_ids		Unique identifiers for all modelled or PSCIS crossings located downstream of the subject modelled crossing.	Fish Habitat Model
*habitat_value_code	habitat_value_code	Habitat value code assigned during PSCIS assessment.	pscis-assessments
*Prioritized		Reference to assessment report where crossing was prioritized.	
*assessment_comment	assessment_comment	Assessment comments recorded in database from PSCIS assessment.	pscis-assessments
*image_view_url	image_view_url	Link to photos taken during PSCIS assessment.	pscis-assessments

*PSCIS summary only