
Reconnaissance (1:20,000) Fish and Fish Habitat Stream Inventory of “West Kitsuns Creek”

Watershed Code: 450-318200-18200-45700

**Kispiox Forest District Fish and
Fish Habitat Inventory Project**

Final Report

Prepared for:

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June 1998

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PROJECT REFERENCE INFORMATION

Project Code:	06-KISP-3068-0002-1998
Proponent:	Ministry of Environment, Lands and Parks
Inventory Program:	Forest Renewal BC
Contract Number:	Section of CSK 3068, Skeena Region
FRBC Project Number:	SB96120

WATERSHED INFORMATION

Stream Names:	"West Kitsuns Creek"
Watershed Codes:	450 318200 18200 45700
TRIM map sheet	93L.091
Total Number of Reaches:	94
Number of Reaches/Sites Sampled:	5
Fish Species Present:	No Fish Present
Biogeoclimatic Zone(s):	ESSF
Survey Dates:	September 15, 1997.
MELP Region:	Skeena Region (6)
Management Units:	6-9
Forest District:	Kispiox Forest District
Forest Licensee:	Skeena Cellulose Ltd.

CONTRACTOR INFORMATION

Survey Agency:	Triton Environmental Consultants Box 88, Terrace, B.C., V8G 4A2 (250) 635-1494 C172
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Project Manager:	Arne Lorenz, B.Sc.
Field Crew:	Arne Lorenz, B.Sc., Sam Buchanan, D. Tech., Lloyd Dallyn and Chris Collins
Data Entry:	Lloyd Dallyn and Sam Buchanan, D. Tech.
Inventory Mapping:	Shannon Shields, B.A., and Michele Patterson, D. Tech.

DISCLAIMER

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

ACKNOWLEDGMENTS

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

We would like to thank Todd Mahon, Skeena Cellulose Inc. representative who was the contract administrator and provided valuable input throughout the contract, and Paul Giroux, Fisheries Inventory Specialist, Ministry of Environment, Lands and Parks, Skeena Region, who acted as contract monitor and provided technical expertise as well as valuable input throughout the project.

TABLE OF CONTENTS

1. INTRODUCTION1

1.1 Project Objectives1

1.2 Study Area1

1.3 Review of Existing Information.....4

2. METHODS4

2.1 Changes To Methodology.....5

 2.1.1 Phase 25

 2.1.2 Phase 45

 2.1.3 Phase 55

 2.1.4 Phase 65

2.2 Field Assessments5

2.3 Fish Sampling7

3. INVENTORY DATA7

3.1 Survey Information7

 3.1.1 Problems.....7

3.2 Fish Distribution7

3.3 Fish Habitat.....7

3.4 Rehabilitation/Enhancement Opportunities8

3.5 Follow-up Sampling.....8

3.6 Other Concerns/Interest Points8

3.7 Non-Fish Bearing Reaches8

4. REFERENCES10

LIST OF FIGURES

Figure 1. Project overview map.....3

LIST OF TABLES

Table 1. Watershed working areas within the Kispiox Forest District 2

Table 2. Non-Fish Bearing Reach Reports for the West Kitsuns Creek Watershed 9

APPENDICES

- Appendix A - Inventory Map
- Appendix B - Stream Site Data from FDIS and Fish Collection Data
- Appendix C - Photograph Captions and Contact Sheets

1. INTRODUCTION

1.1 Project Objectives

Triton Environmental Consultants Ltd. was contracted by the British Columbia Ministry of Environment, Lands and Parks, Fisheries Branch to conduct stream inventories in select watersheds within the Kispiox Forest District. Information was collected on the biological and physical stream characteristics, fish species assemblage, and fish distribution. The purpose of the Reconnaissance (1:20 000) Fish and Fish Habitat Inventory is to describe watershed-wide fish distributions and habitat characteristics for the project area.

1.2 Study Area

The project area is within the Kispiox Forest District in northwestern central British Columbia (Figure 1). The project area covered 11 discrete working areas (Table 1). This report includes Project Working Area #3: West Kitsuns Creek Tributary (Table 1). The West Kitsuns Creek Tributary flows north into an unnamed creek (tributary to Kitsuns Creek) approximately 54 km northwest of Smithers (Figure 1). Access to this area was by helicopter from Hazelton, B.C..

Table 1. Watershed working areas within the Kispiox Forest District

Working Area #	Working Area	Stream Network	Watershed Code
1	Shedin Creek	Unnamed Creeks, Sperry Creek, Rosenthal Creek, Damsumlo Creek ⇒ Shedin Creek ⇒ Babine River ⇒ Skeena River ⇒ Pacific Ocean	480 027800
2	Goathead Creek	Unnamed Creeks ⇒ Goathead Creek ⇒ Shedin Creek ⇒ Babine River ⇒ Skeena River ⇒ Pacific Ocean	480 027800 11600
3	West Kitsuns Creek	Unnamed Creeks ⇒ Unnamed Creek ⇒ Kitsuns Creek ⇒ Kitsegucla River ⇒ Skeena River ⇒ Pacific Ocean	450 318200 18200 45700
4	Kitsuns Creek	Unnamed Creek ⇒ Kitsuns Creek ⇒ Kitsegucla River ⇒ Skeena River ⇒ Pacific Ocean	450 318200
5	Larkworthy Creek	Unnamed Creeks ⇒ Larkworthy Creek ⇒ Skeena River ⇒ Pacific Ocean	400 593800
6	Cranberry River Tributaries	Unnamed Creeks ⇒ Cranberry River ⇒ Nass River ⇒ Pacific Ocean	530-000000
7	Carrigan Creek Tributaries	Unnamed Creeks ⇒ Carrigan Creek ⇒ Skeena River ⇒ Pacific Ocean	400 519600
8	Skeena River Tributaries (S. of Larkworthy Cr.)	Unnamed Creeks ⇒ Skeena River ⇒ Pacific Ocean	400-
9	Deep Canoe Creek	Unnamed Creeks ⇒ Deep Canoe Creek ⇒ Skeena River ⇒ Pacific Ocean	400 574200
10	Skeena River Tributaries (S. of Sicintine R.)	Unnamed Creeks ⇒ Skeena River ⇒ Pacific Ocean	400
11	Moonlit Creek	Unnamed Creeks ⇒ Moonlit Creek ⇒ Kitwanga River ⇒ Skeena River ⇒ Pacific Ocean	400 694900 48600

Figure 1. Project overview map

1.3 Review of Existing Information

The Fisheries Information Summary System (FISS) Map 93L/13 has no fisheries information for the unnamed tributary to Kitsuns Creek.

2. METHODS

Standard methodology as outlined in Reconnaissance (1:20 000) Fish and Fish Habitat Inventory: Standards and Procedures (RIC 1997) for performing stream inventories were followed. The reconnaissance level fish and fish habitat inventory is a sample-based survey covering whole watersheds as defined from 1:20,000 scale maps and air photos. The project includes 6 phases as listed below:

- Phase 1: Data Review: A review of all available background information was completed. All known fisheries information is summarized in this report; new data were transcribed onto the 1:20,000 TRIM maps, and 1:50,000 NTS maps to update Fisheries Information Summary System (FISS) database (DFO).
- Phase 2: Classification and Sampling Design: A comprehensive map and air photo review was completed for all waterbodies identified on 1:20,000 TRIM maps. Reach characteristics (gradient, order, pattern, confinement) were recorded for all streams within the project area and recorded on the Reach Table (RIC,1997). The Reach Table was used to generate a sample size (a subset of reaches to be sampled) within the working area based on RIC guidelines. The Reach Totals and Sample Size Sheet (RIC, 1997) was generated which provides a summary of the number of reaches of each type (based on gradient class, size and pattern/confinement) to be sampled. Detailed Reach Forms were completed for selected reaches to be sampled.
- Phase 3: Project Plan: A field sampling plan was developed to sample sites in a variety of stream gradients and stream orders. The purpose of the plan was to describe watershed wide fish distribution, not necessarily to sample all potential fish bearing reaches. Data from Phases 1 and 2, and the Project Plan were presented to and approved by Paul Giroux, MELP Fisheries Inventory Specialist.

Phase 4: Field Inventory: Field sampling of selected sites was completed on September 15, 1997.

Phase 5: Data Entry and Analysis: Field sampling data (including site cards, fish cards, and photodocumentation) were entered into the FDIS database. 1:50,000 scale NTS maps of the study area were updated with new information as per the FISS Data Compilation and Mapping Procedures (DFO, 1997).

Phase 6: Reporting and Final Mapping: Field and office data were mapped using Arc View and Arc Info software, photographs were scanned and printed, and draft and final reports were completed.

2.1 Changes To Methodology

2.1.1 Phase 2

The required number of sample sites as determined by the Reach Sampling Summary were chosen with bias (rather than randomly) to incorporate biological concerns (fish distribution) and access issues.

2.1.2 Phase 4

All sample site locations (except for no visible channel sites) were marked in the field with flagging tape and with the ILP and site numeric identifier (NID) on a steel tag fixed to a blaze on a tree.

2.1.3 Phase 5

Photographic data were edited when entered into FDIS from the original field data forms to reduce duplication of photographs and to eliminate poor quality photographs. Field data forms remain unaltered as a permanent record for the sample site. All photos were taken with 35mm slide film, and scanned using a Nikon LS-1000 film scanner. Slides were scanned at 300 dpi, and saved as *.JPG files (.8 compression). Stored photo files are ~300kb, and uncompress to ~5mg each. Digital photos were printed as thumbnails using Corel Mosaic. All site photos were copied to CD, 2 copies have been sent to MELP Smithers, and Triton will retain 1 copy on file.

2.1.4 Phase 6

The inventory and interpretative maps were combined to produce one map. The working area is indicated by blue coloured stream lines. Fish presence is represented by light red

highlighting over stream lines (sampled: solid or inferred: dashed) and no fish presence is represented by light blue highlighting over stream lines (sampled: solid or inferred: dashed). Stream classifications are provided for sampled reaches only. Stream summary symbols provide the following information for each sampled site:

- sample site ID,
- fish species presence, not sampled or no fish caught,
- stream or wetland,
- reach confinement,
- reach gradient,
- reach pattern,
- site gradient,
- site channel width,
- site morphology,
- site dominant substrate type,
- site disturbance(s) if applicable, and
- stream classification.

2.2 Field Assessments

The West Kitsuns Tributary was surveyed on September 15, 1997. Field assessments followed procedures outlined in Reconnaissance (1:20 000) Fish and Fish Habitat Inventory: Standards and Procedures (RIC, 1997). Generally, the process we followed in the field was to:

- assess the watershed during a helicopter overflight to confirm reach boundaries, identify access points, and photograph reaches at a watershed scale.
- assess each reach on the ground by completing a standard site card, sampling for fish presence, completing a fish collection card and photographing representative habitats.
- identify key features such as barriers to fish migration, spawning locations and bridges; photograph and recorded features on site cards with a unique numeric identifier (NID).

Sample site lengths were equal to the greater of 100m or 10 bankfull widths. Stream widths were determined by measuring the channel width with a tape measure, or by visual estimate. At least 6 channel width measurements were made within each reach, each one at least one channel width distance apart. These measurements were averaged to determine the average channel width. Stream gradients were measured using a clinometer. Stream morphology was determined using the *Channel Assessment Procedures Guidebook* (MOF 1996). Depths were measured using a folding meter stick. Water quality (pH and conductivity) was assessed using a Hannah pHTestr2™ and

TDSTestr3™. Turbidity was assessed by ground estimate. Habitat quality was assessed for rearing, spawning, overwintering and cover, each of these habitat types was rated as either Good, Fair, Moderate or Poor. Wildlife observations were noted.

2.3 Fish Sampling

Fish presence was determined by electrofishing at least 100m² or the equivalent of 10 bankfull widths of habitat in each reach using a Smith Root Model 12B electroshocker. Captured fish were measured (nose-fork length) and keyed out to species using the *Field Key to the Freshwater Fishes of British Columbia* (McPhail and Carveth, 1994). Fish collection forms were completed for each site where fish sampling occurred.

3. INVENTORY DATA

3.1 Survey Information

A total of 94 reaches were identified within the West Kitsuns Creek working area. A total of 5 sample sites were visited for inventory purposes.

Project inventory maps are presented in Appendix A - Inventory Map. Individual site card information and fish collection data is presented in Appendix B - Stream Site Data from FDIS and Fish Collection Data. Individual site photographs and contact sheets are presented in Appendix C - Photograph Captions and Contact Sheets.

3.1.1 Problems

Watershed codes were not available at the time of mapping and have therefore not been included. All streams were identified with a numeric interim locational point (ILP), ILP's are used throughout this report to identify specific streams.

3.2 Fish Distribution

No fish are present in the "West Kitsuns Creek" sub-basin. A 4m waterfall barrier on an unnamed tributary stream to Kitsuns Creek downstream of the confluence with West Kitsuns Creek limit fish distribution (Biolith 1997).

3.3 Fish Habitat

Potential fish habitat exists in the mainstem of this tributary and presumably in low gradient reaches immediately adjacent to the mainstem. A major right bank tributary was sampled and was found to be steep and would not provide suitable fish habitat.

3.4 Rehabilitation/Enhancement Opportunities

The West Kitsuns Creek Watershed has had no land use activity and does not require rehabilitation nor does it require enhancement.

3.5 Follow-up Sampling

No follow-up sampling is recommended for “West Kitsuns Creek” as this sub-basin is barren of fish. The sampling rate and locations of sites determined fish distribution at the 1:20,000 level for the entire watershed.

3.6 Other Concerns/Interest Points

There are no concerns or interest points for this working area.

3.7 Non-Fish Bearing Reaches

Non-fish bearing reach reports are provided for relevant reaches including intermittent streams (Table 2). The most downstream reach of a stream which was determined to be non-fish bearing is identified in the report. All subsequent reaches upstream are non-fish bearing by default and are not identified separately. No reports are provided for the TRIM anomaly of a no visible channel - a channel that appears on a TRIM map but was not found in the field.

Table 2. Non-Fish Bearing Status Report for the "West Kitsuns Creek" Watershed

Initial Sampling Date	Follow-up Sampling Date	Watershed Code or ILP Number	Stream Name	Reach Number	Site Number	Map Sheet Number	Capture Method (electrofishing settings)	Area Covered (m ²)	Sampling Effort	Cond. (µS)	Water Temp. (deg. Celsius)	Flow Stage (VO)	Turbidity (VO)	Known Fish Presence (u/s-d/s)	Obstructions to Fish Migration	Seasonal Habitat Availability	Seasonal Fish Use
15/09/1997	-	450-318200 18200-0457	Unnamed	1	1083	93L.091	EF, 400/70/6	374	522 seconds	110	6	Low	Clear	DV, BT in unnamed tributary to Kitsuns Creek downstream of barrier	4m waterfall barrier downstream on the mainstem unnamed trib to Kitsuns Creek	All	None

4. REFERENCES

Biolith Scientific Consultants Ltd. 1997. Reconnaissance Level Stream Inventory in the Kispiox Forest District. Prepared for B.C. Ministry of Environment, Lands and Parks.

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Appendix A - Inventory Map

Appendix B - Stream Site Data from FDIS and Fish Collection Data

Appendix C - Photograph Captions and Contact Sheets

Photo Date	Watershed/ Working area	Stream Name or ILP	ILP Mapsheet	Card Site #	Site or Feature NID	NID Mapsheet #	Roll #	Frame #	CD#	Folder	Image	Focal Length (St, Wd, Te)	Dir (Up, Dn, Xs, Fish, Ae)	Comments (Description and/or scale item)
97-Sep-15	West Kitsuns	00001	93L.091	1083	01083	93L.091	101	1	KISPIOX	101	1	St	Up	Mouth of creek.
97-Sep-15	West Kitsuns	00001	93L.091	1083	02101	93L.091	101	2	KISPIOX	101	2	St	Up	Debris jam/falls at 30m upstream
97-Sep-15	West Kitsuns	00001	93L.091	1083	01083	93L.091	101	3	KISPIOX	101	3	St	Dn	Boulder/cobble riffles.
97-Sep-15	West Kitsuns	00001	93L.091	1083	01083	93L.091	101	4	KISPIOX	101	4	St	Up	Failing right bank, debris jam.
97-Sep-15	West Kitsuns	00001	93L.091	1084	01084	93L.091	101	5	KISPIOX	101	5	St	Dn	Eroding left bank, logs on right bank, riffle.
97-Sep-15	West Kitsuns	00001	93L.091	1084	01084	93L.091	101	6	KISPIOX	101	6	St	Up	Elevated banks both sides.
97-Sep-15	West Kitsuns	00166	93L.091	1085	01085	93L.091	101	7	KISPIOX	101	7	St	Up	Stepped pool, person on right.
97-Sep-15	West Kitsuns	00166	93L.091	1085	01085	93L.091	101	8	KISPIOX	101	8	St	Dn	Downstream to confluence with LP 0001.
97-Sep-15	West Kitsuns	00166	93L.091	1085	01085	93L.091	101	9	KISPIOX	101	9	St	Up	Anode pole on right, logs across channel.
97-Sep-15	West Kitsuns	00166	93L.091	1085	01085	93L.091	101	10	KISPIOX	101	10	St	Up	Abundant woody debris across channel.
97-Sep-15	West Kitsuns	00001	93L.091	1086	1086	93L.091	101	11	KISPIOX	101	11	St	Up	Trees in channel, eroding bank, boulder steps.
97-Sep-15	West Kitsuns	00001	93L.091	1086	1086	93L.091	101	12	KISPIOX	101	12	St	Dn	Boulder steps to confluence with mainstem in background.
97-Sep-15	West Kitsuns	00001	93L.091	1087	01087	93L.091	101	13	KISPIOX	101	13	St	Ae	Aerial view of Reach 4.
97-Sep-15	West Kitsuns	00001	93L.091	1087	01087	93L.091	101	14	KISPIOX	101	14	St	Ae	Aerial view of Reach 4.
97-Sep-15	West Kitsuns	00001	93L.091	1087	01087	93L.091	101	15	KISPIOX	101	15	St	Up	Step pool, short falls.
97-Sep-15	West Kitsuns	00001	93L.091	1087	01087	93L.091	101	16	KISPIOX	101	16	St	Up	Log across channel, SWD jam in bottom left corner.
97-Sep-15	West Kitsuns	00001	93L.091	1087	01087	93L.091	101	17	KISPIOX	101	17	St	Dn	2 people on left, mossy boulder.