

**Reconnaissance (1:20 000) Fish and Fish Habitat
Inventory (Phase 4-6) of
The Findlay Creek Watershed**

WSC: 349-578200

Prepared for:

Tembec

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PROJECT REFERENCE INFORMATION

MELP Project Number	KBM98204
FRBC Activity Number	18891
FDIS Project Codes	3738, 3917
FRBC Region	Kootenay/Boundary
MELP Region	04, Nelson
MELP District	Kootenay
FW Management Unit	4-26
Fisheries Planning Unit	N/a
DFO Sub-District	Southern Interior
Forest Region	Nelson
Forest District	Cranbrook
Forest Licensee and Tenure #	Tembec
First Nations Claim Area	N/a

WATERSHED INFORMATION

Watershed Group	SMAR and COLR
Watershed Name and Code	Findlay Creek: 349-587200 Whitetail Creek: 300-992500-30700
UTM at mouth	Findlay Creek : 11.586815.5549670 Whitetail Creek: 11.569330.5566380
Watershed Area	Findlay Creek: 433.49 km ² Whitetail Creek: 30.07 km ²
Total of All Stream Lengths	Findlay Creek: 1838.12 km Whitetail Creek: 40.3 km
Stream Order	Findlay Creek: 6 th Whitetail Creek: 4 th
NTS Map	082K01, F16, J04
TRIM Map	082J.001, 002, 011 082K.009, 010, 020, 030
BEC Zone	IDF, MS, ESSF, AT
Air Photos	BC 7820: 12-26, 34-51, 131-140, 157-160, 245-251 BC 7819: 180-189, 201-212 BC 7817: 12-19, 74-79

DISCLAIMER

This product has been accepted as being in accordance with approved standards within the limits of Ministry quality assurance procedures. Users are cautioned that interpreted information on this product developed for the purposes of the Forest Practices Code Act and Regulations, for example stream classifications, is subject to review by a statutory decision maker for the purposes of determining whether or not to approve an operational plan.

ACKNOWLEDGEMENTS

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Special thanks are due to Leigh Mercer and Barry Benson of Crestbrook Forest Industries Ltd., Albert Chirico of MELP, and Sylvie Masse for completing the Quality Assurance. Thanks also to Jim and Adele Drozduk of Canadian Helicopters in Fernie, BC.

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1 INTRODUCTION

1.1 Project Scope and Objectives

On behalf of Crestbrook Forest Industries (CFI), now known as Tembec, Kokanee Forests Consulting Ltd. (Kokanee) was commissioned to conduct Phases 4-6 of a reconnaissance level stream inventory of the Findlay Creek Watershed. Field work was conducted from August 23 to September 14, 2000. Field assessments were based upon the recommendations and conclusions provided in the Pre-Field Project Plan provided by Kokanee (2000). These assessments were carried out in accordance with the standards outlined in the Resource Inventory Committee Manual (Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures).

The objectives of the Reconnaissance Fish and Fish Habitat Inventory are to:

- provide Licensees, Ministries, Private Land Owners, and others with baseline data and a reference tool;
- provide a description of fish presence in specific stream reaches adjacent to planned forest harvesting activities;
- describe watershed-wide fish distributions and habitat characteristics throughout the selected watersheds; and
- assist forest licensees in meeting their fisheries obligations as per the Forest Practices Code.

Phases 1-3 of the Inventory Project was also completed by Kokanee. Streams requiring sampling for fish presence were identified based on the Five Year Forest Development plan produced by CFI and reaches selected by the Fisheries Database Information System (FDIS). Several biased sites were added in the watershed based on recommendations made by the Ministry Representative and CFI.

In addition to those reaches selected in the Findlay Creek watershed, 8 sites were also selected in the adjacent watershed of Whitetail Creek. Whitetail Creek flows north into Dutch Creek. Several of the tributaries to Whitetail Lake were selected as no fish distribution information was available for those streams.



1.2 Study Area and Location

The study area encompasses 463.56 km² east of Canal Flats (Figure 1). The headwaters of Findlay Creek and several major tributaries are located within the East Purcell Wilderness Conservancy. The Phase 1-3 of this project included streams within the park but those sample sites were deleted and field sampling was not conducted within park boundaries.

The majority of drainages are located in the ESSF (Englemann Spruce/Sub-alpine fir) and MS (Montane Spruce) biogeoclimatic zones with the lower reaches on the valley flat located within the IDF (Interior Douglas Fir). All drainages are located within the Purcell Mountain Range.

1.2.1 Access

Directions to Findlay Creek from Canal Flats are as follows:

- Travel west along Highway 95 from Canal Flats for about 1.5 km and just over the railway tracks, turn left onto Thunderhill Road. Follow this road until it merges with Findlay Creek Forest Service Road (FSR).
- From the Findlay FSR, several drainages can be accessed. The main roads branching off are the Skookumchuk FSR, Lavington Creek FSR, and Whitetail Lake FSR. Doctor Creek FSR is a continuation of the Findlay FSR at kilometer 19km.

Access to the Whitetail Lake and its tributaries is via the Findlay/Whitetail FSR located at about 16 km on the Findlay Creek FSR.



Figure 1. Overview map of the location of the Findlay and Whitetail Creek study area.



2 RESOURCE INFORMATION

There are a variety of resources available within the watersheds selected for sampling:

- i.) There are no known First Nations interests within these drainages.
- ii.) The primary resource use within all drainages is forest management for timber extraction. Old mining trails exist but there are no known current mining operations within the study area. There is an educational forestry centre located at Blue Lake on the Findlay/Whitetail Lake FSR. Several educational programs for children and teens are offered there throughout the year.
- iii.) There are several recreation opportunities. There are several non-developed campsites within these drainages with several ATV roads and hunting opportunities. Because the watershed borders the wilderness conservancy, there is a restriction on mechanical vehicles at the park boundary. Access within the park boundaries with the use of ATV, 4x4, or helicopter is prohibited. Hunting within the park is permitted with a licensed guided outfitter.
- iv.) There is no available information found regarding water quality data.
- v.) There were numerous wildlife sightings throughout each drainage. The most prevalent of these were whitetail and mule deer, elk, moose, and bear.
- vi.) Historical information regarding fish presence was collected and presented in the planning report (Kokanee, 2000) (Table 1).

Table 1. Historical information on fish presence within the selected drainages.

Stream Name	Fish Species	Dates *
Findlay Creek	Bull trout (<i>Salvelinus confluentus</i>) Westslope cutthroat trout (<i>Oncorhynchus clarki lewisi</i>) Rainbow trout (<i>Oncorhynchus mykiss</i>) Eastern brook trout (<i>Salvelinus fontinalis</i>)	FISS
Whitetail Lake Tributaries	Bull trout, Eastern brook trout, rainbow trout, mountain whitefish (<i>Prosopium williamsoni</i>)	FISS

* FISS = Fisheries Information Summary System
CRII = Corporate Resource Inventory Initiative

3 METHODS

3.1 Project Plan & Alterations

Initial work, such as review of all existing information, preparation of fisheries information maps, location of stream features and selection of sample sites was completed under a previous contract by Kokanee (August, 2000)). In addition to those selected in Findlay Creek, 8 sample sites were added in the adjacent Whitetail Creek watershed to determine fish distribution within the tributaries to Whitetail Lake.

A total of 68 sample sites were selected including 39 biased sites. Upon completion of Phase 4, the actual number of sample sites was 66 including 39 biased sites. Three sites were deleted and 1 secondary site was added to provide further fish distribution information. These sites were deleted due to access considerations (see Logistics, page 7).

Due to the size of this study area, stream classifications, sampling and reach symbols will not be placed on those reaches located inside the Purcell Conservancy as per the recommendations of the Ministry Representative at the end of Phase 3 (A. Chirico, pers. comm., 2000).

A complete overflight of the entire study area was conducted in Phase 2 prior to field sampling. All sites were visited however upon closer inspection, 3 helicopter sites did not have appropriate landing sites and therefore were not sampled.

3.2 Reconnaissance Standards

Field sampling was carried out in accordance with the methodology presented in the 1999 "Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures". Two sampling methods, electrofishing along with minnow traps or angling were used throughout the study. Electrofishing was carried out using a Model 15-c Smith Root electrofisher powered by a Honda EX350 gas generator as well as a Dirigo battery powered electrofisher. Two to four minnow traps were placed in strategic locations within the site and retrieved the following day. For the hike-in and helicopter sites, electrofishing was the most suitable sampling method.

Photographs were taken of each sample site and significant features. A copy of each stream reach/site summary form and corresponding photographs are presented in Appendix 1. All negatives were scanned onto compact discs (CD) with high resolution index prints enclosed in the CD's jacket (Attachment IV).

In addition to fish and fish habitat data, voucher specimens were collected and stored in accordance with the 1997 "Fish Sampling Manual". Specimens were collected when diseased, unidentifiable, or non-suspected specimens were sampled. These were forwarded to the Ministry Representative for identification.



3.3 Sampling Equipment

All sampling equipment specifications are listed below:

Smith Root Model 15-C backpack electroshocker

Honda 350 Generator

Dirigo Battery Powered Electroshocker

Gee minnow traps baited with dry catfood

Kodak S Series 35 mm camera

Hanna Ph 3 meter

Oakion TDSTestr Conductivity Probe

Handheld thermometer



4 RESULTS AND DISCUSSION

4.1 Logistics

There were some minor access problems encountered. Upon closer inspection, three of the helicopter sites did not have appropriate landing sites even though they were reviewed quickly during the overflight. One road was found to be impassible and changed to a helicopter site but no landing spot was found. Some road access sites that were noted in the planning report were only accessible by ATV (Whitetail Lake Tributaries). For the majority of the sites, access was correctly recorded.

Warm temperatures and dry summer conditions were dominant throughout the survey. No days were lost due to rain and water levels were found to be low to moderate. Several dry sites and no visible channels (NVC) were encountered and would provide no fish habitat during spring frehet. Only 2 dry sites will require follow-up sampling to determine fish presence.

Conductivity levels were found to be moderate to high (up to 700 microseimens/cm) throughout the sampling area. Salt blocks were used at 3 sites where conductivity levels were less than 30 microseimens/cm.



4.2 Habitat and Fish Distribution

4.2.1 Findlay Creek

Findlay Creek provides excellent habitat for bull trout, Eastern brook trout, rainbow trout, and westslope cutthroat trout. While no sampling was conducted on the mainstem of Findlay Creek, Eastern brook, rainbow and westslope cutthroat trout were found in several tributaries. The majority of the smaller, unnamed tributaries have moderate gradients in the lower reaches providing possible fish habitat but become too steep after Reach 2. Other streams are very steep as they enter Findlay mainstem due to the canyons present in the lower section of the watershed and fish cannot access several of these streams. Several large waterfalls on mainstem of Findlay may be barriers to upstream movement for adfluvial populations from Kootenay River but due to the size of the drainage, there are several resident populations within the watershed.

Within the tributaries to Findlay, excluding Doctor Creek, the most abundant fish species sampled was westslope cutthroat trout. The majority of these were sampled in Reach 2 of Deer Creek and in Tributary 349-572800-41300. This species was located in those reaches with suitable cover, moderate gradients, and cool temperatures. However, contrary to this, the greatest number of fish were captured in Reach 2 of Deer Creek which contained very little cover and high temperatures and conductivity. This habitat was very poor and very unlikely to support fish.

Rainbow trout were found in other tributaries that had stocked lakes or flowed directly into Findlay. These reaches had moderate gradients with abundant cover from undercut banks and large woody debris (LWD). These provide excellent rearing habitat but little overwintering habitat due to the lack of deep pools.

One small tributary to Lavington Creek was sampled and was found to contain Eastern brook trout. The mainstem of Lavington Creek was not sampled but is known to support both westslope cutthroat trout and Eastern brook trout.

No bull trout were captured in any tributaries to Findlay Creek. The mainstem of Findlay Creek is known to support bull trout populations, but due to the limitations of this survey, none were sampled.

The greatest limiting factor to fish distribution within the Findlay Creek watershed is the presence of several barriers. Cascades, waterfalls, and debris jams are present along the major tributaries and restrict the movement of the populations into several tributaries (Table 2). Those streams that are accessible, have steep gradients in their upper reaches that prevent further upstream migration within each tributary.

Table 2. Summary of historic and new barriers to fish migration in the Findlay Creek Watershed.

Stream Name	Watershed Code	Trim Map	Reach	Nid	Type*	Height**	Verified in Field	Comment
Findlay Creek Tributary	349-572800-41600	082K.020	2	10052	F	3	Y	falls below site
Findlay Creek	349-572800-00000	082J.011	5.0	5618	F	n/a	Y	Mainstem falls but no sampling done here.
Findlay Creek	349-572800-00000-	082J.011	5.0	5619	F	n/a	N	
Findlay Creek	349-572800-00000-	082J.011	5.0	5620	C	n/a	N	
Findlay Creek	349-572800-00000-	082J.011	5.0	5621	F	n/a	N	
Findlay Creek	349-572800-00000-	082J.011	5.0	5623	F	0	N	
Findlay Creek	349-572800-00000-	082J.011	5.0	5624	F	3	N	
Findlay Creek	349-572800-00000-	082J.011	5.0	5625	F	2	N	
Findlay Creek	349-572800-00000-	082J.011	5.0	5626	F	2	N	
Findlay Creek	349-572800-00000-	082J.011	5.0	5627	F	1	N	
Findlay Creek	349-572800-00000-	082J.011	7.0	5628	F	1	N	
Findlay Creek	349-572800-00000-	082J.011	7.0	5629	C	1	N	
Findlay Creek	349-572800-00000-	082J.011	9.0	5630	C	n/a	N	
Findlay Creek	349-572800-00000-	082J.011	10.0	7000	C	n/a	N	
Findlay Creek	349-572800-00000-	082J.011	10.0	7001	F	2	N	
Findlay Creek	349-572800-00000-	082J.011	10.0	7002	F	5	N	

F = falls, C= cascade

** n/a not available

4.2.2 Doctor Creek

Doctor Creek is the largest tributary to Findlay Creek. It is known to support populations of bull trout and westslope cutthroat trout. Four of its headwater lakes have been stocked with westslope cutthroat trout. The mainstem contains several small barriers and appears to restrict upstream movement but resident adults reside in the stream between these barriers. Few fish were sampled in the mainstem and several tributaries without stocked lakes were too steep and did not contain fish. No bull trout were sampled however they may be present in Reaches 1-7.

The greatest number of westslope cutthroat trout were sampled in Tributary 349-572800-29300-55300. While no fish were sampled in Reach 3, Reaches 6 and 7 had several adults. These reaches had abundant cover in forms of LWD, undercut banks and some overstream vegetation. Reach 3 also had these characteristics but it is likely that during the spring freshet, several fish are swept downstream as there are few tributaries to

provide refuge habitat. Once they are swept downstream into Doctor Creek, it is difficult for them to return to Reach 3 because of steep sections in Reach 2.

Few fish were sampled in the mainstem of Doctor Creek. These reaches contained abundant cover in the form of LWD, boulders and undercut banks. The moderate gradients and sections of good spawning gravels provide good habitat however, due to the presence of several small barriers, only a few large adults were found between the barriers. Due to the lack of competition, adequate food supply, and cover, these fish were larger than those adults found in the tributary with greater numbers.

The distribution of westslope cutthroat trout is limited by the presence of several upstream migration barriers (Table 3). These features along with high spring flows, limit the movement of this species throughout the drainage.

Table 3. Summary of historic and new barriers to fish migration in the Doctor Creek Watershed.

Stream Name	Watershed Code	Trim Map	Reach	NID	Type*	Height	Verified in Field	Comment
Doctor Creek	349-572800-29300	082K.010	9	5637	C	na	N	Possible barrier to bull trout migration
Doctor Creek	349-572800-29300	082K.010	11	10075	X	2	Y	jam
Doctor Creek	349-572800-29300-39800	082K.020	5	10029	F	1.1	Y	view of falls created by LWD
Doctor Creek	349-572800-29300-44800	082K.010	2	100127	X	2	Y	view of jam creating falls
Doctor Creek	349-572800-29300-44800	082K.010	6	10062	F	1	Y	falls over bedrock
Doctor Creek	349-572800-29300-55300	082K.010	3	10024	C	2	Y	view of chute
Doctor Creek	349-572800-29300-55300-4530	082K.010	4	10071	C	50	Y	from air, photo would not have turned out.
Doctor Creek	349-572800-29300-62100	082K.010	1	10020	F	1	Y	falls above road crossing
Doctor Creek	349-572800-29300-66800	082K.010	2	10014	C	4	Y	chute
Doctor Creek	349-572800-29300-79700	082K.010	1	10009	C	3	Y	below site

* F = falls, C = cascade, X = debris jam

4.2.3 Whitetail Lake Tributaries

Whitetail Creek flows out of Whitetail Lake into Dutch Creek. The lake is known to support populations of Eastern brook trout, rainbow trout, bull trout and mountain whitefish. The only tributary containing fish was 330-992500-30700-48100. The first reach of this tributary had low gradients, abundant spawning gravel, and suitable cover providing excellent habitat for the numerous Eastern brook trout fry present. Most of the other tributaries were dry/intermittent channels that provide little fish habitat.

No barriers to fish distribution were identified except for the low flows present. The mainstem of Whitetail Creek was completely dry at the time of sampling and must be re-visited in the spring to determine its stream classification.



4.3 Fish Stage, Size and Life History

Fork length and maturity level of all fish sampled was recorded on the individual fish data forms. The life stage (fry, juvenile, or adult) for each individual was determined from its length measurements and physical characteristics.

4.3.1 Findlay Creek

Within the Findlay Creek watershed, a total of 23 westslope cutthroat trout were sampled. A length-frequency histogram was created and all life stages were present (Figure 9). Within the sample group there was almost equal numbers of juveniles and adults. The average lengths of juveniles and adults were 86.09 and 167.56 mm (Table 5). Based on the small size of the adults captured, it is possible that these are resident populations within the tributaries to Findlay Creek. No sampling of Findlay Creek mainstem was conducted and no large adfluvial westslope cutthroat trout were sampled.

A total of 11 rainbow trout were also sampled in the Findlay Creek tributaries. No fry were captured and the number of adults and juveniles captured is similar. The low numbers of fish sampled and lack of fry captured makes it difficult to predict the status of this population and to create a length-frequency histogram.

A total of 8 Eastern brook trout were also captured in a stream immediately downstream of Bear Lake. This stream flows into Lavington Creek and the lake was stocked with brook trout.

Table 4. Summary of life stage and length data from fish sampled within the Findlay Creek Watershed, 23 August to 14 September, 2000.

Watershed	Watershed Code	Spp.**	Stage *	Mean Length (mm)	Number of Fish	Range of Lengths (mm)
Findlay Creek	349-572800-00000	EB	J	105	1	105
			F	57.29	7	50-66
Findlay Creek	349-572800-00000	RB	A	107.6	5	100-129
			J	95.8	6	80-106
Findlay Creek	349-572800-00000	WCT	A	167.56	9	123-239
			J	86.09	11	72-100
			F	43.67	3	40-46

* A= adult, J= juvenile, F= fry

** EB = Eastern brook trout, RB = rainbow trout, WCT = westslope cutthroat trout



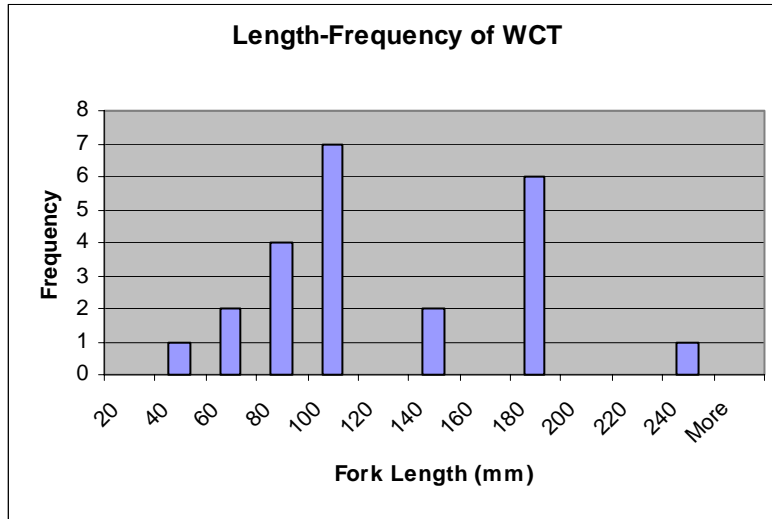


Figure 2. Length-frequency histogram of sampled westslope cutthroat trout in the Findlay Creek Watershed, 23 August to 14 September, 2000.



4.3.2 Doctor Creek

A total of 25 westslope cutthroat trout were sampled in Doctor Creek and its tributaries. The average length of the adults captured was 147.2 mm (Table 5). The low numbers of fish sampled and lack of fry and juveniles captured makes it difficult to predict the status of this population. It is likely that fish from stocked lakes have moved downstream and are unable to migrate back upstream due to steep gradients and cascades found in some reaches. The adults captured in the mainstem of Doctor Creek were larger in length than those sampled in the upper reaches of the tributaries. They may be larger due to lack of competition and greater food supply.

No bull trout were sampled upstream of Reach 8. They may have been present in the lower reaches but no sampling was conducted. It is possible that fluvial bull trout from Findlay Creek use the lower reaches of Doctor Creek for spawning.

Table 5. Summary of life stage and length data from fish sampled in the Doctor Creek Watershed, 23 August to 14 September, 2000.

Watershed	Watershed Code	Spp.**	Stage *	Mean Length (mm)	Number of Fish	Range of Lengths (mm)
Doctor Creek	349-572800-29300	WCT	A	147.2	25	100-220

* A= adult

** WCT = westslope cutthroat trout

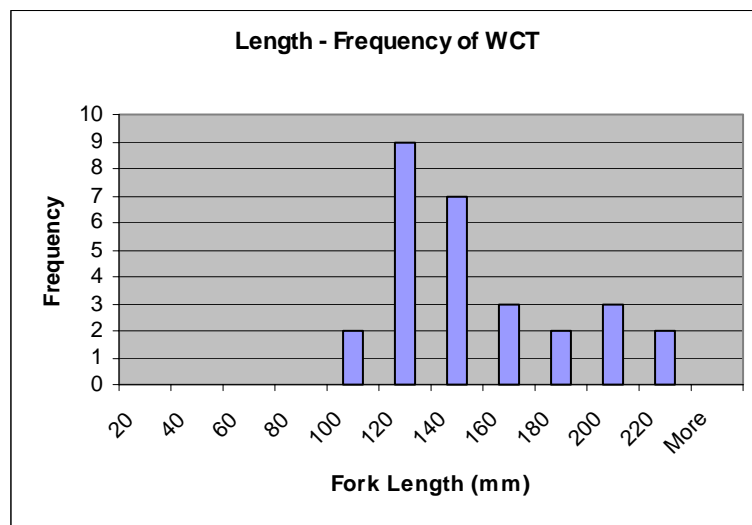


Figure 3. Length - frequency histogram of sampled westslope cutthroat trout in the Doctor Creek Watershed, 23 August to 14 September, 2000.

4.3.3 Whitetail Lake Tributaries

A total of 22 Eastern brook trout were sampled in one tributary to Whitetail Lake. Juvenile and fry life stages were present in almost even numbers. The average lengths of juveniles and fry captured are 94.86 and 48.88 mm respectively (Table 6). The absence of adults in this reach may be due to the presence of an introduced population from the lake that uses this reach for spawning and rearing. This would explain the high ratio of fry and juveniles to adults sampled.

The length-frequency histogram shows the presence of fry (40-60mm) and juvenile (60-116mm) life stages (Figure 4).

Table 6. Summary of life stage and length data from fish sampled in the Whitetail Lake Tributaries, 23 August to 14 September, 2000.

Watershed	Watershed Code	Spp.**	Stage *	Mean Length (mm)	Number of Fish	Range of Lengths (mm)
Whitetail Lake Tributary	300-992500-30700-48100	EB	J	94.86	14	67-116
			F	48.88	8	40-60

* J= juvenile, F= fry

** EB = Eastern brook trout

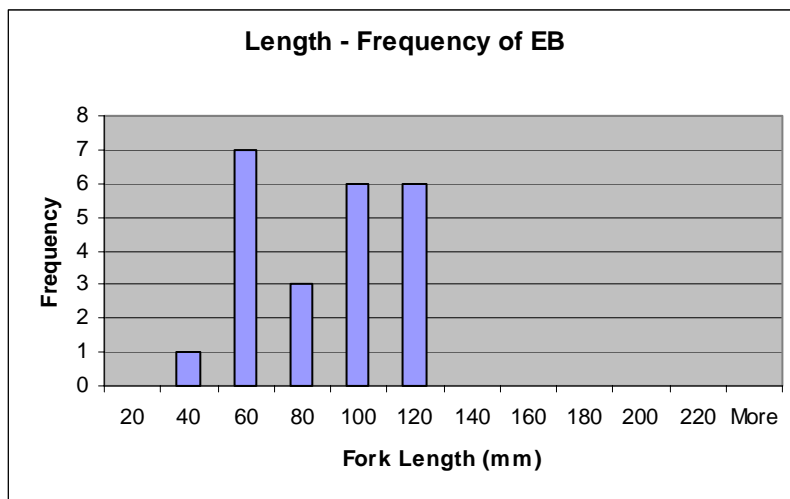


Figure 4. Length-frequency histogram of sampled Eastern brook trout in the Whitetail Lake Tributaries, 23 August to 14 September, 2000.

4.4 Significant Features and Fisheries Observations

4.4.1 Fish and Fish Habitat

The only noteworthy spawning area identified during this survey was that of Whitetail Lake tributary, 300-992500-308700-48100. Reach 1 of this stream contains numerous brook trout fry due to its gravel substrate and low gradients. It may be useful to other species but only brook trout were captured.

Due to historical information, critical spawning areas for bull trout are probably located within the mainstem reaches of Findlay Creek. No bull trout were sampled during this survey. During the helicopter overflight, some mainstem reaches appear to have large areas of spawning gravels and some LWD for cover. Several sections of stream seem to lack complexity and LWD as historical harvesting has occurred to stream banks or canyons are present, therefore reducing LWD recruitment.

Recreational angling within the watershed is prevalent. Several campsites are located near the mainstem of Findlay Creek. There is a catch and release restriction on trout and char in the upper reaches of Findlay Creek from the Lavington Creek bridge to the Doctor Creek bridge. Angling on Whitetail Lake is also very popular with local fisherman and visiting recreationalists. Angling of its tributaries is not permitted (MELP, 2000).

4.4.2 Habitat Protection Concerns

4.4.2.1 Fisheries Sensitive Zones

An area located in Reach 7 of Doctor Creek appears to be a fisheries sensitive zone. No sampling was conducted in this reach but numerous side channels were noted from the road.

4.4.2.2 Fish Above 20 % Gradients

Reach 2 of Valentine Creek (349-572800-41300) has a gradient of 19.5 % and was found to contain rainbow trout and westslope cutthroat trout. The rainbow trout were located in the lower part of the site where the gradient was slightly lower. The majority of fish bearing reaches within the entire study area had gradients of less than 15 %.



4.4.2.3 Restoration and Rehabilitation Opportunities

Few restoration and rehabilitation opportunities were identified. The mainstem of Findlay Creek seems to lack stream complexity in several reaches but may be naturally occurring. Some historical harvesting has occurred next to lower reaches and rangeland is present along the lower valley flats. The majority of the watershed is located within the park boundaries where no work would be necessary.

No erosion or sedimentation problems were identified. Several old roads have already been deactivated and due to climate and soils, replanting of trees in riparian areas wouldn't significantly alter or improve the habitat. The lower valleys are very dry and are comprised of rangeland. No problem culverts were identified. Several had already been pulled or were located on streams with little to no available habitat.



4.5 Fish Bearing Status

Each reach containing a sample site has been classified as either fish (Tables 7-9) or non-fish bearing (Tables 10-12). The following tables summarize the results from the field study showing sampling methods used, fish presence or absence and the designated stream riparian classification.

4.5.1 Fish Bearing Reaches

Table 7. Summary of data from surveyed fish bearing reaches in the Findlay Creek Watershed, 23 August to 14 September, 2000.

Stream Name	WSC/ILP	Reach	Site	Species*	Channel		Proposed Riparian Class	Comments
					Width (m)	site gradient (%)		
Lavington Creek Tributary	72	3	5	EB	2.1	2.1	S3	EB fry and juveniles present. (Too shallow for traps)
Deer Creek	349-592800-23300	2	32	WCT	3.8	1	S3	No pools, strong sulphurous smell, cow remains found in stream, no LWD.
Deer Creek	349-592800-23300	7	33	RB	1	5	S4	Stocked Blue Lake below this reach.
Findlay Creek Tributary	349-572800-39600	3	61	WCT	3.9	12	S3	Good habitat (step pool, variety of cover). No traps due to hike in.
Valentine Creek Tributary	349-572800-41300	2	64	RB, WCT	3.2	20	S3	RB caught in lower portions and WCT in upper portions of reach. No traps (hike in)

* EB = Eastern brook trout, RB = rainbow trout, WCT = westslope cutthroat trout



Table 8. Summary of data from surveyed fish bearing reaches in the Doctor Creek Watershed, 23 August to 14 September, 2000.

Stream Name	WSC/ILP	Reach	Site	Species*	Channel		Proposed Riparian Class	Comments
					Width (m)	site gradient (%)		
Doctor Creek Tributary	250	1.1	10	WCT	3.8	10	S3	Add new reach. Becomes very steep (40%). Shocked all of R1.1 (90m length). No traps due to heli.
Doctor Creek	349-572800-29300	9	37	WCT	10.2	5	S2	Abundant food, good habitat overall.
Doctor Creek	349-572800-29300	11	38	WCT	10.5	8	S2	Jams are barriers, most fish from stocked lake end up down stream and cannot return.
Doctor Creek	349--572800-29300	14	39	WCT	10.1	7	S2	Non-functioning LWD in abundance. Undercut bank due to low flow. Only two fish seen while shocking.
Doctor Creek Tributary	349-572800-29300-55300	6	47	WCT	4.2	10	S3	Good cover (pools formed by boulders). No traps (helicopter).
Doctor Creek Tributary	349-572800-29300-55300	7	48	WCT	4.8	10	S3	Large fish found in white water. Little LWD cover due to alpine location. No traps (helicopter).

* WCT = westslope cutthroat trout

Table 9. Summary of data from surveyed fish bearing reaches in the Whittail Lake Tributaries, 23 August to 14 September, 2000.

Stream Name	WSC/ILP	Reach	Site	Species*	Channel		Proposed Riparian Class	Comments
					Width (m)	site gradient (%)		
Whittail Lake Tributary	300-992500-30700-48100	1	23	EB	2	6	S3	Good spawning habitat. EB juveniles and fry present.

* EB = eastern brook trout



4.5.2 Non-Fish Bearing Reaches

Sample sites with confirmed fish absence based on current sampling standards were classified as non-fish bearing. Some sites were dry and did not have enough water in the channel to be adequately sampled. If they also lacked suitable fish habitat potential, these sites were given a non-fish bearing designation (Tables 10-12). Some sites, which had the potential to be fish bearing but were not sampled this year, have been identified as sites requiring follow-up sampling (Table 13).



Table 10. Summary of data from surveyed non-fish bearing reaches in the Findlay Creek Watershed, 23 August to 14 September, 2000.







Table 11. Summary of data from surveyed non-fish bearing reaches in the Doctor Creek Watershed, 23 August to 14 September, 2000.







Table 12. Summary of data from surveyed non-fish bearing reaches in the Whitetail Lake Tributaries, 23 August to 14 September, 2000.



4.5.3 Follow-up Sampling Required

Two sample sites will require follow-up sampling to determine fish presence/absence and the correct stream riparian classification (Table 13).

Table 13. Follow-up sampling required for classification of non-fish bearing reaches in the study area.

Stream Name	WSC/ILP	Reach(es)	Timing	Methods*	Comments
Findlay Creek Tributary	349-572800-39600	8	July	EF, MT	May have flow in spring, rainbow trout in lake above.
Whitetail Creek	330-992500-30700	1	July	EF, MT	May have flow in spring but was completing dry during sampling.

* EF = electrofishing, MT = minnow traps



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APPENDIX 1
FDIS SUMMARY AND PHOTOGRAPHS



Kokanee Forests Consulting Ltd.

File: 00-957
February, 2001

Fish and Fish Habitat Inventory
Tembec

**APPENDIX 2
HARDCOPY MAPS
(Under separate cover)**



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February, 2001

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