

**ISLE PIERRE FISH AND FISH HABITAT INVENTORY (1996),
SPRING SAMPLING AND ADDITIONAL
SAMPLING SITES (1997)**

Canadian Forest Products Ltd.

Westworth Associates Environmental Ltd.
Edmonton, Alberta

February, 1998

Disclaimer

Re: Westworth Associates Environmental Ltd. 1998. “Isle Pierre Reconnaissance Fish and Fish Habitat Inventory (1996), Spring Sampling and Additional Sampling Sites (1997).” Canadian Forest Products Ltd. 180p. (*referred to as the spring sampling report*)

and

Westworth, Brusnyk & Associates Ltd. 1998. “A (1996) Reconnaissance-Level Fish and Fish Habitat Inventory of Portions of the Chilako and Nechako River Watersheds.” Canadian Forest Products Ltd. Isle Pierre Division. (*referred to as the 1996 report and project maps*)

The 1997 spring sampling work was done to 1) resample some 1996 sites and 2) finish parts of the 1996 sample plan that were not completed. Later, the 1996 project maps were updated with the results of this spring sampling effort. Some information presented in Tables 1 and 2 of the spring sampling report is incorrect. As well, some information in these tables is incorrect, or missing, on the associated 1996 project maps.

The attached “Revisions to Table 1” and “Revisions to Table 2” document **in bold text** clarifications and changes to Tables 1 and 2 and the 1996 maps. Users are advised to consider the information in these revised tables as correct and approved by the Ministry, and should note that some RMA stream classifications have now been changed from those in the spring sampling report and 1996 maps. Only data records of concern are included in the Disclaimer Tables. Other information presented in Tables 1 and 2 of the spring sampling report and on the 1996 maps was previously approved by the Ministry.

Readers are advised to disregard the reach numbers presented on the maps within the spring sampling report; refer instead to the reach numbers on the 1996 project maps, 1997 spring sampling data cards and database.

Revisions to Table 1 (Westworth Isle Pierre 1997) Sites previously sampled, revisited during the spring of 1997.

Watercourse Name/Code	RSS #	TRIM	UTM (Zone 10)	Sample Date	Fish Presence 1997	Fish Species Presence in Downstream Reach	Downstream Reach classification	New Stream Classification	Classification that appears on Maps	Comments/Corrections
Naltesby Lake Tributary (Grizzly Lake): WSC # 180-0690-580										
180-0690-580-867-499	25	093G.062	453205.5944305	6/21/97	0	0	S4	S4	None	The map symbol should say NFC (MT set) , not NVC channel
180-0690-580-919	26	093G.062	451554.5944305	6/21/97	0	RB	S4	NVC		Comments indicate that there is no defined channel (NVC).
180-0690-580-855	27	093G.062	453272.5942745	6/21/97	0	RB, LKC	S3	NVC	P-S3	Comments indicate a gully with NVC.
Chilako River Tributary # 4 : WSC # 180-0690-231										
180-0690-231	1	093G.065	491100.5946820	7/10/97	LKC	Chilako R	NA	S3	P-S2	This site was first sampled at a location that was not representative of the reach putting it into an S2 classification. The 97 sample is more appropriate (default S3). Site symbol width should be 2.7 not 5.5 metres.
Lumpy Lake (Chilako River Tributary # 8) WSC# 180-0690-580-191										
180-0690-580-191-454	6	93G.063	472264.5939066	6/25/97	0	RB	S4	S3	P-S3	Channel widths varies from S4 to S3 over two sample efforts. Default classification is S3.
180-0690-580-191-624	10	93G.064	475472.5942279	7/10/97	RB	RB	S3	S4	P-S4	The map symbol (NS) should read RB and should be attached lower in the reach. This site is an S4.
Chilako Tributary # 9: WSC # 180-0690-636										
180-0690-636	1	093G.053	464512.593798	6/26/97	SU/LKC	NA	Chilako	S3	P-S3	Site symbol indicates NFC, should read SU and LKC.
180-0690-636-380-999-003	17	093G.053	466854.5934783	6/26/97	LKC	NA	Lake	S4	P-S4	Site symbol should indicate that LKC were caught, not NS.
Clucluz Creek Tributary: WSC 180-1913										
180-1913-752-118	7	093G.072	456929.5950325	6/24/97	RB	RB	S3	S4	P-S4	NS on site symbol should read RB. S4 stream.
180-1913-798-597-122	63	093G.061	445314.5949671	6/24/97	0	RB	S3	S4	P-S4	Map symbol should read NFC, and it should be relocated to proper location. The map symbol appears near site 62. The S4 classification is correct.

Revisions to Table 2 (Westworth Isle Pierre) Sites initiated in 1996, completed in 1997.

Sub-Watersheds in the Isle Pierre operating area, initiated in 1996, completed in 1997.										
Naltesby Lake Tributary (Grizzly Lake): WSC 180-0690-580										
Watercourse Name/Code	RSS #	TRIM	UTM (Zone 10)	Sample Date	Fish Presence 1997	Fish Species Presence in Downstream Reach	Downstream Reach classification	New Stream Classification	Classification that appears on Maps	Comments
180-0690-580-769	7	093G.062	455897.5941267	8/24/97	RB/LKC	RB	S3	S3	None	Sample symbol not placed on map as required. The UTM for this site should be 10. 455774.5941263. This is an S3 stream.
180-0690-580-766	21	093G.062	455793.5940186	8/24/97	NA	RB	S3	NVC	None	Sample site symbol not placed on the map as required. The site should be at UTM 10. 455628.5940262, and the classification should be NVC, not UC.
180-0690-580-751	18	093G.062	457049.5941468	8/24/97	NA	RB	S3	NVC	NVC	The map symbol is correct, Table 2 in the report is not; classification should be NVC.
180-0690-580-714	6	093G.062	458049.5940084	8/24/97	NA	RB	S3	S4	None	There is no information for this site on the map.
Norman Creek Tributary: WSC 180-1913-284										
180-1913-284-948	17	093G.073	470211.5960410	8/25/97	NA	RB	S3	NVC	None	No information was presented on map; it should read NVC.
180-1913-284-503	15	903G.083	465337.5962695	8/30/97	NA	RB	S3	S4	None	No information is presented on the map.
180-1913-284	5	903G.083	463649.5966539	8/25/97	RB/LKC/WSU	RB	S3	S3	None	No information was presented on maps for this site.
180-1913-284-627	21	903G.073	467059.5961212	8/25/97	NA	RB	S3	S4	None	No information was presented on the maps.
180-1913-284-564	16	903G.083	465999.5961850	8/25/97	NA	RB	S3	S4	None	No information was presented on maps. UTM should be 10.465803.5961894.
180-1913-284	22	903G.083	466297.5961824	8/25/97	LKC/WSU	RB	S3	S3	None	No information presented on maps.
Norman Lake Tributary: WSC 180-0690-205-648										
180-0690-205-648	18	093G.074	473802.5951959	7/20/97	RB	RB	S3	S3	None	No information presented on maps.
Cluculz Creek Tributary: WSC 180- 1913										
180-1913	49	093G.071	446209.5956839	7/12/97	RB	RB	S4	S4	None	This site is an S4 (RB caught), but has no mapped information regarding stream class or sample site. The UTM for this site should be 10.446432.5956845.

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1.0 INTRODUCTION

During 1996, the Isle Pierre reconnaissance fish and fish habitat inventory (Westworth Associates Environmental Ltd.) provided Canadian Forest Products Ltd. with an extensive information data base for existing fisheries within the Chilako and Nechako River watersheds. Particular sample sites had defined channels with distinct stream beds, but with little or no water, hence their value as useful fish habitats and their stream classifications were in doubt.

With the presence of spring spawning salmonids, within these watersheds, additional fish sampling during the spring was recommended for reaches that had no flows or very low flows during the summer and fall of 1996.

During the 1996 reconnaissance fish and fish habitat inventory, some of the sub-watershed sampling was not completed due to the onset of winter and cold water temperatures. This report incorporates information on thirteen sites that were completed in 1997. The information contained in this report was based upon the July 1996 sampling design and the October 1997 reconnaissance fish and fish habitat inventory report.

1.1 Objectives

The overall objective of the project was to collect additional fish presence information for the reconnaissance-level fish and fish habitat inventory that was collected in 1996 for the Chilako and Nechako River watersheds. The purpose of the project was to conduct secondary fish sampling for the purpose of fish-stream identification as described in the Forest Practices Code "Fish Stream Identification Guidebook" and identified during 1996 reconnaissance fisheries inventory activities. Specific objectives of the project were to:

- conduct spring sampling and reconnaissance fish and fish habitat site inventories according to the Ministry of Environment, Lands and Parks (MoELP) requirements for accurate determination of watercourse type and fish presence/absence as outlined in various RIC standards and procedures manuals; and
- compile results of the field work in an approved RIC and FRBC/MoELP acceptable format so that the information can be used to prescribe riparian management reserves and management zones and to facilitate forest harvesting plans that protect fisheries resource values in the watershed.

2.0 STUDY AREA

2.1 Location

Canadian Forest Products Ltd., Isle Pierre Division, has a mill that is located approximately 56 kilometres west of the City of Prince George and located adjacent to the Nechako River. The Isle Pierre Division operates a dimensional sawmill that is located to the north of the study area. The operating area includes portions of FWMUs 7-11 and 7-12 and although all weather and seasonal roads and trails are present, ground access is not as well developed as other operating divisions of CANFOR.

The study area is located in the Prince George Forest District of central British Columbia (Figure 1). This region of the province is bisected by two major utility-transportation corridors (Highways 97 and 16, and railway, pipeline and transmission line rights-of-way). Prince George is the major business centre in the community having a population of 75,000 people. Forestry is the number one industry in the area. Other major land uses in the region include various outdoor recreation and tourism activities (e.g., snowmobiling, horseback riding, camping, hiking, hunting and fishing), trapping, and cattle ranching.

The Chilako River, which forms part of the southern boundary of the Isle Pierre area, is the major watercourse in the area, although a number of smaller watercourses are also present. Cluculz Lake and Norman Lake are the largest lakes in the study area.

2.2 Access

Access to the Isle Pierre area watershed is Highway 16 west of Prince George and a series of forestry roads that are located south of Cluculz and Bednesti lakes.

Access during the fisheries inventory was largely accomplished by 4-wheel drive vehicle, all-terrain vehicle (ATV), or on foot. Helicopter access was restricted by the lack of suitable landing locations but sites requiring helicopter access were accumulated for cost saving purposes and will be completed in 1997 or 1998. Figure 2 shows the tributaries, 13 sub-watersheds, reach sample sites and access in the Isle Pierre operating area which is covered by the Chilako and Nechako drainage areas.

Figure 1. Location of the Isle Pierre Division (CANFOR) harvesting area in the Chilako and Nechako River Watersheds.

Figure 2. Sub-watersheds within Isle Pierre Division (CANFOR) that were sampled in spring 1997.

2.3 Resource Use

Road development in the area has been primarily associated with timber harvesting. CANFOR has operated in the Isle Pierre area since 1969, after acquiring the mill from Lloyd Bros. who built the mill in 1960-61. The CANFOR, Isle Pierre Division operating area comprises 148,000 ha, of which 74,000 ha are merchantable timber. Approximately 23,000 ha of this area has been logged. As a result of the road access, the fish, wildlife, and recreational resources have been used more completely. A number of camping areas and tourist facilities have been developed in the general area.

3.0 METHODS

3.1 Reach Sample Site Selection

Sampling sites for 1997 were based upon the 1996 sampling plan. The 1996 reach sample sites were identified on all separate watercourses (tributaries) that appeared on 1:50,000 scale NTS maps. This was completed with no field verification at the preliminary phase of the study. These reach sampling sites were random selections within the reach, however, reaches were chosen strategically to provide an effective inventory of fish distribution within the study area. Subsequent field examination resulted in some changes in the number of reaches that were selected for sampling. Each sampling site:

- was representative of the river/stream reach in which it is located;
- provided pertinent biological and hydraulic information of relevance to the study (e.g., channel morphometry, flow characteristics, and presence of critical fish habitat); and
- was sufficiently large to provide a range of riverine habitats, yet small enough to permit efficient sampling using a variety of methods. This allowed field crews a significant amount of operational flexibility once in the field. The significance and importance of indicating fish absence was well understood, and the study team ensured that recommendations for any other seasonal sampling were documented.

The spring sampling sites were identified during the 1996 fish and fish habitat inventory. Typically, these sites contained fish habitat characteristics that could provide suitable fish habitat, however, were limited due to very low flows or no flows. Stream banks and stream beds were observed, and field personnel concluded that these sites could potentially be fish bearing when sufficient flows occurred.

The fish and fish habitat sampling was unfinished for sub-watersheds from 1996, which were reaches that were identified in the sampling design and plan completed in July of 1996.

3.2 Field Sampling Program

3.2.1 Spring Sampling

Spring sampling was scheduled to begin as soon as approval was provided to proceed. This work was scheduled for June and early July, 1997. The following procedures and guidelines were used after each specific site was located.

1. A site of length equal to 10 bankfull channel widths, or 100 lineal metres (whichever was greater) was sampled for fish. Sampling covered all available habitat types, using two sampling techniques appropriate to the anticipated species and habitats present. Electrofishing, minnow traps, and visual observations were standard methods used at each site. Sampling methods and results were recorded on the standard fish collection forms.

2. If no fish were found in the initial sample site, a second site of length equal to 10 bankfull channel widths, or 100 lineal metres, whichever was greater, in an additional portion of the reach was sampled, again covering all habitat types. The most appropriate sampling methods were employed.
3. Evidence of a non-fish bearing stream reach was to be reported as a “Non-Fish Bearing Reach Report,” which included the following information:
 - a) date and time of sampling events, including initial and any follow up sampling efforts;
 - b) fish sampling methods employed:
 - capture methods used (electroshocker make, model and settings; trap types; etc.),
 - sampling area covered,
 - sampling effort (number of traps, baits, electrofishing seconds, etc.),
 - whether the sample site was open (no stop nets), closed (upstream and downstream stopnets), or partially closed (specify whether upstream or downstream stopnets);
 - c) habitat conditions during sampling (specific conductance, flow stage, temperature, turbidity); and
 - d) supporting evidence:
 - known upstream and downstream fish species presence,
 - type and location of obstructions to fish migrations
 - seasonal habitat availability, and
 - seasonal fish use of stream and off-channel habitats.

3.2.2 Reconnaissance Fish and Fish Habitat Inventory – Completion of Sub-Watersheds

The stream inventory guidelines as outlined in Schedule A of the Request for Detailed Proposal formed the basis of the field sampling protocol. In addition, RIC standards and procedures were followed in situations that required specific clarification. Additional measurement standards or deviations from the standards were coordinated with provincial agencies. Aquatic habitat parameters that were inventoried, and the basic equipment that each field crew used were the same as those identified and described in the Reconnaissance Fish and Fish Habitat Inventory For the Chilako and Nechako Watersheds in the Isle Pierre Area, Canfor, 1996, prepared by Westworth Associates Environmental Ltd.

4.0 RESULTS

4.1 Spring Sampling

Twenty-eight reaches were sampled in 12 sub-watersheds to determine if fish were present during the spring period. Of the 28 sites, two of the channels were left unclassified as they appeared to be drainages rather than intermittent watercourses (Table 1). Rainbow trout (*Oncorhynchus mykiss*) were found in five of these reaches and other fish species including lake chub (*Conesius plumbeus*), suckers (*Catostomus sp.*), were found in three other sites. Thus, a total of eight sites of the 28 had fish species sampled in the spring.

All except for two of the spring sampling sites were classified as fish-bearing. The two unclassified sites were drainages that had no defined stream banks or stream bed.

None of the spring sample sites were classified as non-fish bearing streams.

The changes to the stream classifications were updated on the 1:20,000 TRIM maps for the Isle Pierre Area, 1996. The fish summary forms provide the detailed information (Appendix 7.1). Site cards were incorporated into this report because they provide information about the nature of the reaches sampled in the spring. This additional work was not required by this contract; however, it was completed and the results were provided because of their pertinence and significance considering that several of these sampling sites were dry or nearly dry in the previous year (1996).

Photographs were taken during the second pass (spring) sampling of which some were used in the preparation of the 1996 inventory report. These photographs were not provided as part of the second pass sampling report and were only used to complete the deficiencies in the 1996 inventory.

Table 1. Summary of the reach sample sites examined in the spring of 1997 in the Nechako, Chilako watersheds of the Isle Pierre Area, Canfor.

Watercourse Name/Code	RSS#	Sampling Date	Sampling Effort	Fish Presence 1997	Fish Species Present in Downstream Reach	Downstream Reach Classification	Channel Width (m)	Wetted Width (m)	¹ New Stream Classification
Naltesby Lake Tributary (Grizzly Lake): WC# 180-0690-580									
180-0690-580-867-499	25	6/21/97	MT 22 hours	0	0	S4	0.9	0.3	S4
180-0690-580-919	26	6/21/97	N/A	0	RB	S4	N/A	N/A	UC
180-0690-580-855	27	6/21/97	N/A	0	RB, LKC	S3	N/A	N/A	UC
180-0690-580-867	28	6/21/97	EL 260s, 130m MT 24 hours	0	RB, LKC	S3	0.4	0.4	S4

Watercourse Name/Code	RSS#	Sampling Date	Sampling Effort	Fish Presence 1997	Fish Species Present in Downstream Reach	Downstream Reach Classification	Channel Width (m)	Wetted Width (m)	¹ New Stream Classification
Eulatazella Lake Tributary (West): WC# 180-1913-655									
180-1913-655	2	6/20/97	EL 185s, 200m MT 20 hours	0	RB	S4	1.0	0.5	S4
180-1913-655-201	4	6/20/97	EL 225s, 200m MT 18 hours	0	RB, PCC	S4	0.5	0.2	S4
Eulatazella Lake Tributary (East): WC# 180-1913-683									
180-1913-683-351-999-001	8	6/19/97	EL 261s, 200m MT 22 hours	0	0	S4	1.3	0.7	S4
Norman Lake Tributary: WC# 180-0690-205-648									
180-0690-205-648-999-001	18A	7/20/97	N/A	0	RB	S3	0.3	0	S4
180-0690-205-648-999-002	18B	7/20/97	N/A ²	N/A	RB	S3	0.8	0.6	S4
180-0690-205-648-680	9	7/19/97	El 353s, 200m MT 18 hours	RB	RB	S3	1.5	1.2	S3
Chuk Lake Tributary: WC# 180-0690-205-604									
180-0690-205-604	5	6/23/97	EL 135s, 200m MT 20 hours	RB	RB	S3	0.8	0.6	S4
180-0690-205-604-291	2	7/15/97	EL 344s, 200m MT 18 hours	0	RB	S3	1.0	0.7	S4
Chilako River Tributary #1: WC# 180-0690-205									
180-0690-205-076-092	4	7/19/97	EL 300s, 200m MT 21 hours	0	RB	S3	0.9	0.5	S4
180-0690-205-076-229-446	8	6/25/97	EL 250s, 200m MT 21 hours	0	RB	S3	1.0	0.5	S4
Chilako River Tributary #4: WC# 180-0690-231									
180-0690-231	1	7/10/97	EL 234s, 100m MT 21 hours	LKC	Chilako River	N/A	2.7	1.0	S3
180-0690-231-294	2	7/14/97	EL 230s, 200m MT 18 hours	0	LKC	S3	0.9	0.8	S4

Watercourse Name/Code	RSS#	Sampling Date	Sampling Effort	Fish Presence 1997	Fish Species Present in Downstream Reach	Downstream Reach Classification	Channel Width (m)	Wetted Width (m)	¹ New Stream Classification
Chilako River Tributary #5: WC# 180-0690-272									
180-0690-272	1	7/8/97	EL 234s, 200m MT 21 hours	RB	N/A	Chilako River	1.4	1.2	S4
180-0690-272-090	2	7/8/97	EL 253s, 200m MT 26 hours	0	RB	S4	1.0	0.7	S4
Lumpy Lake (Chilako River Tributary #8): WC# 180-0690-580-191									
180-0690-580-191-454	6	6/25/97	EL 532s, 200m MT 20 hours	0	RB	S4	1.3	0.9	S4
180-0690-580-191-624	10	7/10/97	EL 265s, 200m MT 15 hours	RB	RB	S3	0.9	0.8	S4
180-0690-580-191-838	18	7/10/97	EL 532s 200m MT 21 hours	0	RB	S2	1.8	1.0	S3
Chilako River Tributary #9: WC# 180-0690-636									
180-0690-636	1	6/26/97	EL 420s, 200m MT 24 hours	SU LKC	N/A	Chilako River	1.8	1.5	S3
180-0690-636-380-999-003	17	6/26/97	EL 150s, 100m MT 24 hours	LKC	N/A	Lake	0.7	0.7	S4
Chilako River Tributary #18: WC# 180-0690-883									
180-0690-883-073	2	6/27/97	EL 500s, 200m MT 26 hours	0	RB	S3	1.4	1.1	S4
Cluculz Creek Tributary: WC# 180-1913									
180-1913-752-118	7	6/24/97	EL 150s, 200m MT 20 hours	RB	RB	S3	1.2	1.0	S4
180-1913-798-597-122	63	6/24/97	EL 150s, 200m MT 24 hours	0	RB	S3	0.9	0.7	S4
180-1913-812	31	7/16/97	EL 343s, 200m MT 17 hours	0	RB	S2	1.2	1.0	S4
180-1913-881	12	6/24/97	EL 227s, 200m MT 20 hours	0	RB	S2	0.9	0.9	S4

¹Stream Classification: S1 - >20.0m wide/fish
S2 - >5.0m < 20.0m wide/fish
S3 - 1.5m < 5.0m wide/fish
S4 - <1.5 wide/fish

S5 - >3.0m wide/ no fish
S6 - <3.0m wide/ no fish
UC - Unclassified

² See site card for description.

4.2 Reconnaissance Fish and Fish Habitat Inventory of the Sub-Watersheds Not Completed in 1996

In discussions with the British Columbia Ministry of Environment, Lands and Parks, it was decided that four sub-watersheds, not completed in 1996, would be sampled during the 1997 field season according to the 1996 inventory guidelines. The sites were located within those sub-watersheds that had more than 50% of the sampling sites completed in the 1996 field season. In order to complete the 1996 sampling of these sub-watersheds, thirteen sample sites were required during the 1997 field season.

4.2.1 Naltesby Lake Tributary (Grizzly Lake) (WC #180-0690-580) (Sites 6, 7, 18 and 21)

Naltesby Lake Tributary (Grizzly Lake) (WC #180-0690-580) included four sites (sites 6, 7, 18, and 21), which were completed in August of 1997 (Table 2). Naltesby Lake Tributary (Grizzly Lake) (WC #180-0690-580) appeared to be one of the most productive fish habitats in the Isle Pierre operating area. This sub-watershed contains many of the biophysical characteristics, such as deep pools and cutbanks, which constitute productive fish habitat.

The fish and fish habitat inventory information for each of these four sites is summarized in Table 2. This includes RSS number, sampling date, sampling effort, fish presence, fish species presence in downstream reach, downstream reach classification, channel width, wetted width, and the suggested RMA class. This table is followed by data collected from each of the sites completed in the sub-watersheds. The data for each site (Appendix 7.3.1) includes the digital printout of the field data, site card, fish collection form (where applicable), and relevant photographs (Photographs 1 to 14). The information has been marked on a 1:60,000 scale map (Appendix 7.2.1).

4.2.2 Norman Creek Tributary (WC #180-1913-284)(Sites 5, 15, 16, 17, 21 and 22)

Norman Creek Tributary (WC #180-1913-284) included six sites (sites 5, 15, 16, 17, 21, and 22) which were completed in August of 1997 (Table 2). Having many narrow, shallow, and nearly stagnant channels, Norman Creek Tributary was considered to have limitations in the quality of fish habitat. The majority of bed material was composed of fine organic material, as a result of the gentle slopes and extensive bog wetlands.

The fish and fish habitat inventory information for each of these six sites is summarized in Table 2. This includes RSS number, sampling date, sampling effort, fish presence, fish species presence in downstream reach, downstream reach classification, channel width, wetted width, and the suggested RMA class. This table is followed by data collected from each of the sites completed in the sub-watersheds. The data for each site (Appendix 7.3.2) includes the digital printout of the field data, site card, fish collection form (where applicable), and relevant photographs (Photographs 15 to 34). The information has been marked on a 1:60,000 scale map (Appendix 7.2.2).

4.2.3 Norman Lake Tributary (WC #180-0690-205-648)(Site 18)

Norman Lake Tributary (WC #180-0690-205-648) included one site (Site 18), which was completed in July of 1997 (Table 2). This sub-watershed contains many of the biophysical characteristics, such as spawning gravel and flowing water, which constitute productive fish habitat. Thus, Norman Lake Tributary is considered to be one of the most productive fish habitats in the Isle Pierre operating area.

The fish and fish habitat inventory information for Site 18 is summarized in Table 2. This includes RSS number, sampling date, sampling effort, fish presence, fish species presence in downstream reach, downstream reach classification, channel width, wetted width, and the suggested RMA class. The table is followed by data collected from this site. The data for this site (Appendix 7.3.3) includes the digital printout of the field data, site card, fish collection form (where applicable), and relevant photographs (Photographs 35 to 37). The information has been marked on a 1:60,000 scale map (Appendix 7.2.3).

4.2.4 Cluculz Creek Tributary (WC #180-1913)(Sites 49 and 70)

Cluculz Creek Tributary (WC #180-1913) included two sites (sites 49 and 70) which were completed in June and July of 1997 (Table 2). The portion surveyed of the Cluculz Creek sub-watershed was located upstream of Eulatazella Lake. This was the largest of the sub-watersheds surveyed in the 1996 field season. Fish habitat varied from poor ratings with habitats containing little or no water to sites that displayed many of the biophysical characteristics associated with productive fish habitat (eg. spawning gravel, adequate water flow and depths, and fish cover).

The fish and fish habitat inventory information for each of the two sites is summarized in Table 2. This includes RSS number, sampling date, sampling effort, fish presence, fish species presence in downstream reach, downstream reach classification, channel width, wetted width, and the suggested RMA class. This table is followed by data collected from each of the sites completed in the sub-watersheds. The data for each site (Appendix 7.3.4) includes the digital printout of the field data, site card, fish collection form (where applicable), and relevant photographs (Photographs 38 to 43). The information has been marked on a 1:60,000 scale map (Appendix 7.2.4).

Table 2. Summary of the reconnaissance fish and fish habitat inventory of the sub-watersheds in the Isle Pierre operating area, initiated in 1996, and completed in 1997.

Watercourse Name/Code	RSS#	Sampling Date	Sampling Effort	Fish Presence 1997	Fish Species Present in Downstream Reach	Downstream Reach Classification	Channel Width (m)	Wetted Width (m)	¹ New Stream Classification
Naltesby Lake Tributary (Grizzly Lake): WC# 180-0690-580									
180-0690-580-769	7	8/24/97	EL 500s, 200m MT 21 hours	RB LKC	RB	S3	1.6	1.6	S3

Watercourse Name/Code	RSS#	Sampling Date	Sampling Effort	Fish Presence 1997	Fish Species Present in Downstream Reach	Downstream Reach Classification	Channel Width (m)	Wetted Width (m)	¹ New Stream Classification
180-0690-580-766	21	8/24/97	N/A	N/A	RB	S3	0	0	UC
180-0690-580-751	18	8/24/97	N/A	N/A	RB	S3	0	0	UC
180-0690-580-714	6	8/24/97	N/A	N/A	RB	S3	0.6	0.4	S4
Norman Creek Tributary: WC# 180-1913-284									
180-1913-284-948	17	8/25/97	N/A	N/A	RB	S3	0	0	UC
180-1913-284-503	15	8/30/97	N/A	N/A	RB	S3	0.3	0.1	S4
180-1913-284	5	8/25/97	EL 390s, 100m MT 21.5 hours	RB LKC WSU	RB	S3	2.1	2.0	S3
180-1913-284-627	21	8/25/97	N/A	N/A	RB	S3	0.4	0.1	S4
180-1913-284-564	16	8/25/97	N/A	N/A	RB	S3	0.5	0	S4
180-1913-284	22	8/25/97	EL 150s, 200m MT 19 hours	LKC WSU	RB	S3	1.9	1.3	S3
Norman Lake Tributary: WC# 180-0690-205-648									
180-0690-205-648	18	7/20/97	EL 100m, 230s MT 21 hours	RB	RB	S3	1.6	1.4	S3
Cluculz Creek Tributary WC #180-1913									
180-1913	49	7/12/97	EL 234s, 300m MT 15 hours	RB	RB	S4	1.1	0.9	S4
180-1913	70	7/16/97	EL too dangerous, MT 20 hours	0	RB	S2	3.5	3.5	S3

¹Stream Classification:

- S1 - >20.0m wide/fish
- S2 - >5.0m < 20.0m wide/fish
- S3 - 1.5m < 5.0m wide/fish
- S4 - <1.5 wide/fish
- S5 - >3.0m wide/ no fish
- S6 - <3.0m wide/ no fish
- UC - Unclassified

5.0 DISCUSSION AND CONCLUSIONS

5.1 Spring Sampling

The spring sampling at 28 sites, taken from the 1996 reconnaissance fish and fish habitat inventory, provided new information regarding fish distribution. In the late summer and fall of 1996, these sites had very low flows or no flows at all, and, as a result, were either not sampled for fish or no fish were found. Assessment of these sites from the 1996 field program, recommended spring sampling.

Of the 28 sites examined, five were found to contain rainbow trout and another three were found to contain other fish species. This suggests that there is merit in undertaking spring sampling to provide more extensive information on the distribution of fish. Seasonal sampling may have some utility in reconnaissance fish and fish habitat inventories, especially where spring spawning fish occur in headwater sections of a watershed.

5.2 Reconnaissance Fish and Fish Habitat Inventory

Thirteen sites from four sub-watersheds that were not completed in 1996, were sampled in 1997. The information contributes to the existing database that was gathered in 1996. These sites were not completed in 1996 due to the onset of winter and freezing conditions.

The collection of fish and fish habitat inventory information from one year to the next does not pose any difficulties as long as the data collection and methods are similar. With changing standards and inventory guidelines, some problems could arise in comparing the information. The 1996 guidelines were used for these thirteen sites, thus, consistency was maintained.

6.0 RECOMMENDATIONS

From the spring fish sampling and completion of thirteen sites in four sub-watersheds of the Isle Pierre Reconnaissance Fish and Fish Habitat Inventory (1996), the following recommendations are provided:

1. All of this new information should be added to the base maps (1:20,000 scale TRIM maps), which should be digitized.
2. In order that a complete fish and fish habitat inventory is obtained, spring fish sampling should be continued in headwaters streams where spring spawning fish have been found. Seasonal fish sampling is also recommended in obtaining more thorough fish distribution information.

7.0 APPENDICIES

7.1 Fish summary forms for the 1997 spring sampling sites in the Isle Pierre operating area, Canfor.

7.2 Maps for the Isle Pierre Reconnaissance Fish and Fish Habitat Inventory (1996), Spring Sampling and Additional Sampling (1997)

7.2.1 Naltesby Lake Tributary (Grizzly Lake) (W.C. #180-0690-580) Fish and Fish Habitat Inventory Map (1:60,000 scale)

**7.2.2 Norman Creek Tributary (WC #180-1913-284) Fish and Fish Habitat
Inventory Map (1:60,000 scale)**

**7.2.3 Norman Lake Tributary (WC #180-0690-205-648) Fish and Fish Habitat
Inventory Map (1:60,000 scale)**

**7.2.4 Cluculz Creek Tributary (WC #180-1913) Fish and Fish Habitat Inventory
Map (1:60,000 scale)**

7.3 Field Data for the Reconnaissance Fish and Fish Habitat Inventory of the Sub-Watersheds Not Completed in 1996

7.3.1 Field Data for the Naltesby Lake Tributary (Grizzly Lake) (W.C. #180-0690- 580), Sites 6, 7, 18 and 21

Photograph 1. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-769, Site 7, upstream.

Photograph 2. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-769, Site 7, downstream.

Photograph 3. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-769, Site 7, bed.

Photograph 4. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-769, Site 7, rainbow trout.

Photograph 5. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-769, Site 7, lake chub.

Photograph 6. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-766, Site 21, upstream.

Photograph 7. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-766, Site 21, downstream.

Photograph 8. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-766, Site 21, bed.

Photograph 9. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-751, Site 18, upstream.

Photograph 10. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-751, Site 18, downstream.

Photograph 11. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-751, Site 18, bed.

Photograph 12. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-714, Site 6, upstream.

Photograph 13. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-714, Site 6, downstream.

Photograph 14. Naltesby Lake Tributary (Grizzly Lake), 180-0690-580-714, Site 6, bed.

7.3.2 Field Data for the Norman Creek Tributary (WC #180-1913-284), Sites 5, 15, 16, 17, 21 and 22

Photograph 15. Norman Creek Tributary, 180-1913-284-948, Site 17, upstream.

Photograph 16. Norman Creek Tributary, 180-1913-284-948, Site 17, downstream.

Photograph 17. Norman Creek Tributary, 180-1913-284-948, Site 17, bed.

Photograph 18. Norman Creek Tributary, 180-1913-284-503, Site 15, upstream.

Photograph 19. Norman Creek Tributary, 180-1913-284-503, Site 15, downstream.

Photograph 20. Norman Creek Tributary, 180-1913-284-503, Site 15, bed.

Photograph 21. Norman Creek Tributary, 180-1913-284, Site 5, upstream.

Photograph 22. Norman Creek Tributary, 180-1913-284, Site 5, downstream.

Photograph 23. Norman Creek Tributary, 180-1913-284, Site 5, bed.

Photograph 24. Norman Creek Tributary, 180-1913-284, Site 5, rainbow trout.

Photograph 25. Norman Creek Tributary, 180-1913-284-627, Site 21, upstream.

Photograph 26. Norman Creek Tributary, 180-1913-284-627, Site 21, downstream.

Photograph 27. Norman Creek Tributary, 180-1913-284-627, Site 21, bed.

Photograph 28. Norman Creek Tributary, 180-1913-284-564, Site 16, upstream.

Photograph 29. Norman Creek Tributary, 180-1913-284-564, Site 16, downstream.

Photograph 30. Norman Creek Tributary, 180-1913-284-564, Site 16, bed.

Photograph 31. Norman Creek Tributary, 180-1913-284, Site 22, upstream.

Photograph 32. Norman Creek Tributary, 180-1913-284, Site 22, downstream.

Photograph 33. Norman Creek Tributary, 180-1913-284, Site 22, bed.

Photograph 34. Norman Creek Tributary, 180-1913-284, Site 22, lake chub.

7.3.3 Field Data for the Norman Lake Tributary (WC #180-0690-205-648), Site 18

Photograph 35. Norman Lake Tributary, 180-0690-205-648, Site 18, upstream.

Photograph 36. Norman Lake Tributary, 180-0690-205-648, Site 18, downstream.

Photograph 37. Norman Lake Tributary, 180-0690-205-648, Site 18, bed.

7.3.4 Field Data for the Cluculz Creek Tributary (WC #180-1913), Sites 49 and 70

Photograph 38. Cluculz Creek Tributary, 180-1913, Site 49, upstream.

Photograph 39. Cluculz Creek Tributary, 180-1913, Site 49, downstream.

Photograph 40. Cluculz Creek Tributary, 180-1913, Site 49, bed.

Photograph 41. Cluculz Creek Tributary, 180-1913, Site 70, upstream.

Photograph 42. Cluculz Creek Tributary, 180-1913, Site 70, downstream.

Photograph 43. Cluculz Creek Tributary, 180-1913, Site 70, bed.