Secondary Lake Inventory of
Unnamed Lake

Watershed Code: 480-502100
Waterbody Identifier: 00433BABL

Located 13.0 km west of the outlet of Morrison Lake
and 13.3 km north of the Smithers Landing on Babine Lake

Prepared for

Houston Forest Products Co.
Box 5000
Houston, B.C.
V0J 1Z0

Prepared by

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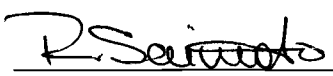
Approved by:



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March 31st, 2001

PROJECT SUMMARY SHEET

PROJECT REFERENCE INFORMATION

MELP Project #:	HFP-SKR-001-2001
FRBC Project #	000108
FRBC Activity #:	10447
FDIS Project #:	06-BABL-000001172-1999
MELP Region:	Skeena Region (06)
MELP District:	not applicable
FW Management Unit:	06-08
Fisheries Planning Units:	not applicable
DFO Subdistrict:	Prince Rupert (6)
Forest Region:	Prince Rupert
Forest District:	Morice Forest District
Forest Licensee:	Houston Forest Products
Tenure Number:	FLA – 16827
First Nations Claim Area:	Lake Babine Nation

WATERSHED INFORMATION

Watershed Group	BABL - Babine Lake Group
Watershed Code	480-502100
Waterbody Identifier	00433BABL
UTM at Lake Outlet	9.658001.6118686
Order at Lake Outlet	3
Number of Inlets	2
Drainage Area	10.71 km^2
Magnitude	15
Elevation	943 m
NTS Map (1:50,000)	93M/2
TRIM Map	093M.018
BEC Zone	SBS
Air Photos	30BCC93039 No. 127

LAKE SAMPLING SUMMARY

Lake Survey Type	Secondary (1999 and 2000 RIC Standards)
Water Surface Area	8 ha
Max. Depth	9.5 m
Secchi Depth	3 m
Lake Length	600 m
Number of Islands	0
Species Present in Lake	no fish

CONTRACTOR INFORMATION

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DISCLAIMER

This product has been accepted as being in accordance with the approved standards within the limits of the 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

Funding for this project was provided by Forest Renewal B.C., and administered by Houston Forest Products Co., Houston, B.C.. The contract was monitored by Deidre Quinlan (Houston Forest Products Co.). Melissa Todd and Deidre Quinlan (Houston Forest Products Co.) were invaluable in their support throughout this project. Editorial comments on drafts of this report were provided by Ron Saimoto (SKR Consultants Ltd.), Chris Schell (QA/QC Monitor), and Paul Giroux (B.C. Environment).

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ATTACHMENTS AVAILABLE AT MELP OFFICE

Photograph Kodak CD's (2 sets)
Indexed negatives
Photodocumentation (in watershed report)
FDIS information (in watershed report)
Digital reports
Digital FDIS database

1.0 INTRODUCTION

A secondary lake inventory (RIC 1999, 2000) was conducted on an Unnamed Lake located approximately 13 km west of the outlet of Morrison Lake and 13.3 km north of Smithers Landing on Babine Lake, B.C.. This lake survey was part of a reconnaissance level (1:20,000) fish and fish habitat reconnaissance inventory project conducted in the Babine Lake watershed for Houston Forest Products Co. (HFP) in the summer and fall of 2000 (SKR 2001). The project was funded by Forest Renewal B.C. (FRBC). This report summarizes the results of the secondary lake inventory of Unnamed Lake (WSC 480-502100, WBID 00433BABL, ILP 51086).

1.1 OBJECTIVES

The main objectives of the secondary lake inventory project conducted on Unnamed Lake (WBID 00433BABL, ILP 51086) were:

- to review and summarize historical fisheries information for the lake,
- to determine fish species present in the lake, and
- to describe fish habitat characteristics.

1.2 LOCATION

Unnamed Lake (WBID 00433BABL, ILP 51086) is located in the Skeena Region (B.C. Ministry of Environment, Lands and Parks), and in the Morice Forest District, Prince Rupert Forest Region within north-central British Columbia. The lake is part of a third order system, which drains directly into east shore of Babine Lake, and is thus part of the Skeena River drainage (Figure 1). The lake is located within the moist cold subzone Sub-Boreal Spruce biogeoclimatic zone (SBSmc) (MoF 1988, Meidinger and Pojar 1991).

1.3 ACCESS

Unnamed Lake (WBID 00433BABL, ILP 51086) can by accessed by road to within 200meters of the lake. To access the lake, travel 7.5 km south of Granisle on the Granisle Highway to cross Babine Lake with a private barge operated by CanFor and HFP. A barge permit must be obtained prior to crossing the lake. Once across Babine Lake, follow the Jinx Forest Service Road (FSR) for 9 km and turn left onto the Hagan FSR. Proceed along the Hagan FSR for 42 km then turn onto the Morrison Main FSR. At 7.25 km turn left onto the West Main FSR and proceed for 12.5 km. At 12.5 km turn right onto a deactivated road which is passable to the first stream crossing. The lake is located 200meters northeast of the stream crossing.

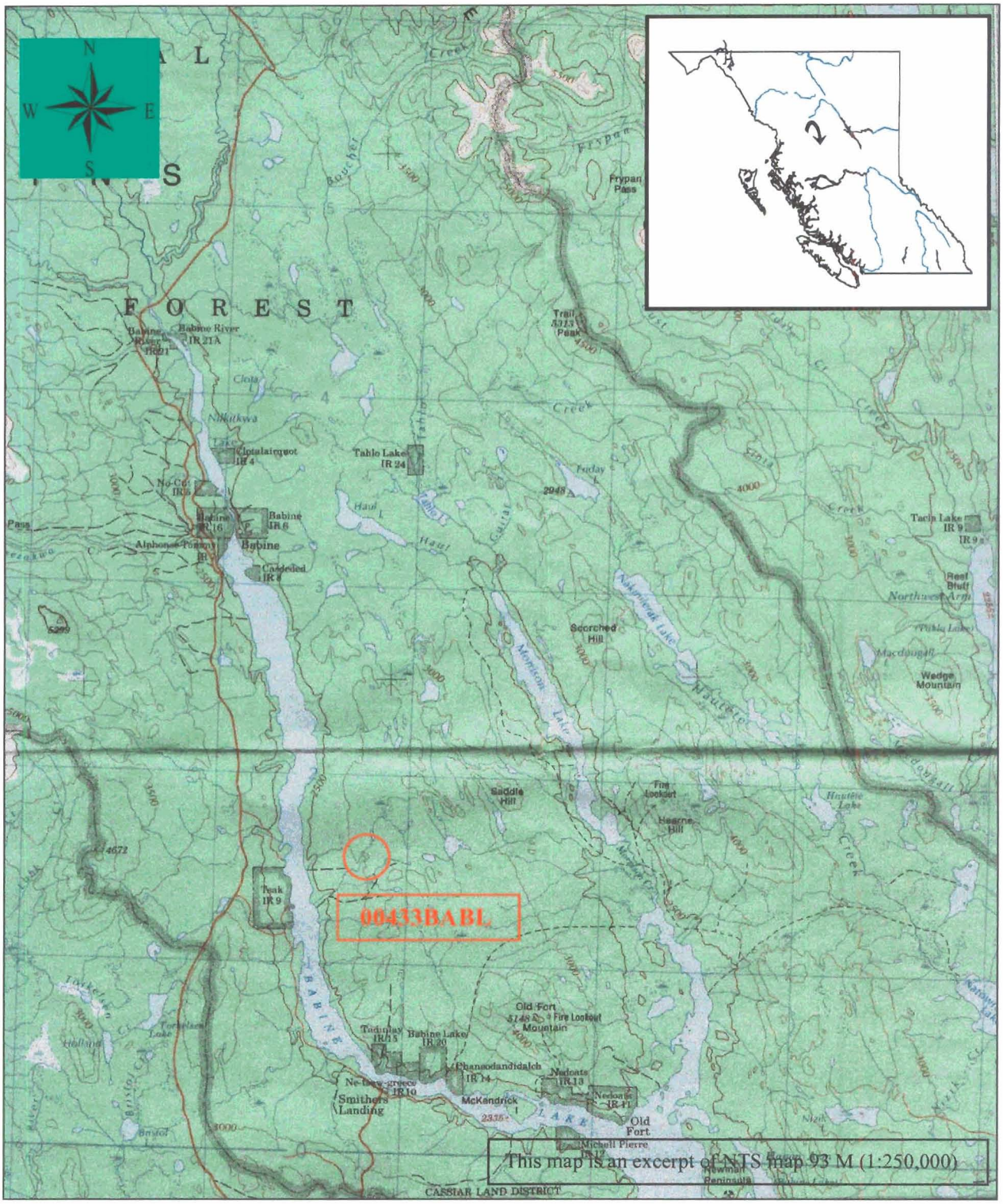


Figure 1. Overview map of the location of Unnamed Lake (WBID 00433BABL, ILP 51086) located about 13 km west of the outlet of Morrison Lake and 13.3 km north of Smithers Landing.

2.0 RESOURCE USE

The Unnamed Lake (WBID 00433BABL, ILP 51086) drainage basin is located within the Morrison Landscape Unit, which is public land and as such is utilized by several sectors.

1. First Nations issues and interests in the study area:
   - The Babine Lake Nation has claimed portions of the Morrison Landscape Unit as part of their traditional territories, and are currently in stage four the treaty negotiation process (B.C. Treaty Commission 2000).
2. Development and land use: forestry, mining, recreation:
   - The study area falls into forest licence FLA-16827 (HFP). No timber harvest has been proposed within 1 km of the lake shore over the next five years (HFP 1999). A harvest areas is located about 80 metres west of the lake, and a second harvest area is located about 200 metres east of the lake. In addition, harvested areas are located within 1 km north and south of the lake (HFP 1999).
   - No mineral tenures are located in the area (Ministry of Employment and Investment 2000).
   - The northern portion of the lake is located in trapline territory 608T025, while the southern tip of the lake is located in trapline territory 608T024. The entire lake is located in guide outfitter territory 608G003 (HFP 1999).
   - No B.C. Forest Service Recreation (BCFSR) sites or trails exist in the study area (MoF 1997).
3. Other developments, concerns or points of interest:
   - No Protected Areas Strategies (PAS) study sites are known to exist in the vicinity of Unnamed Lake (WBID 00433BABL, ILP 51086) (Land Use Coordination Office 2000).
   - No water licences or community watersheds are noted to be located in the vicinity of Unnamed Lake (WBID 00433BABL, ILP 51086) (B.C. Environment pers. comm. 2000b).
4. Existing water quality data:
   - No existing water quality data was available for this lake at the time of survey (Giroux, pers. comm. 1999).
5. Previous presence of fish in systems of interest:
   - Fish presence documented near Unnamed Lake (WBID 00433BABL, ILP 51086) is summarized in Table 1.

Table 1. A summary of fish previously documented present in Unnamed Creek (480-501200).

Species	Code	Location	Reference
rainbow trout *Oncorhynchus mykiss*	RB	downstream of 5 metre falls at top of reach 3	FISS
coho *O. kisutch*	CO	downstream of 5 metre falls at top of reach 3	FISS
cutthroat trout *O. clarki*	CT	in tributary ILP 10210 (downstream of 5 metre falls)	SKR 2001

3.0 METHODS

3.1 LAKE ASSESSMENT

The secondary lake inventory of Unnamed Lake (480-502100 WBID 00433BABL, ILP 51086) was conducted on July 26th – 27th, 2000. The lake was selected for inventory during phases I-III of the fish and fish habitat reconnaissance inventory project (SKR 1999) since the lake has a surface area of greater than 5 ha, and is located upstream of a 5 metre waterfall in reach 3 of the mainstem, upstream of which no fish have been documented (SKR 1997, 1998). Secondary lake inventory was utilized to assess fish presence and habitat value. Fish Data Information System (FDIS) lake survey form and fish collection cards were completed during the lake survey, following Resource Inventory Committee Standards (RIC 1998, 1999), and data were entered into the FDIS database. A list of sampling equipment used during this 1:20,000 secondary lake inventory is presented in Table 2.

Table 2. List of sampling equipment used during the 1:20,000 secondary lake inventory of Unnamed Lake (480-502100, WBID 00433 BABL, ILP 51086), July 26th – 27th, 2000.

Parameter	Intensity/Location	Method
date and time	as needed	wrist watch
water temperature profile	at deep station	Oxyguard Mark II oxygen & temperature metre with 30 m cable
oxygen profile	at deep station	Oxyguard Mark II oxygen & temperature metre with 30 m cable
water sampling (at depths)	at deep station	LaMotte van Doren Bottle
pH	at deep station	Oaktron pHTestr2
Secchi depth	at deep station	Secchi disk
conductivity	at deep station	Hanna HI 9033, Oaktron TDSTestr 3
Hydrogen sulphide	at deep station	LaMotte kit
fish presence	see Figure 2	minnow traps, sinking experimental monofillament Gillnet
photography	see Figure 3	Canon Sureshot A1
GPS	as needed	Garmen GPS 45
depth	transect along e-line	Lowrance X-16 echosounder mounted on a 3.3 m Polaris inflatable boat, sounding speed was ~ 1m/sec

3.2 DATA ANALYSIS

Physical and biological data collected during the secondary lake inventory of Unnamed Lake (WBID 00338 BABL, ILP 51069) were used to calculate shoreline development (a lake morphometry parameter) and Fulton's Condition Factor for fish captured in the lake.

3.2.1 Shoreline Development

Shoreline development (D_L) was calculated to compare the lake circumference to that of a circle with the same surface area (D_L =1) (Equation 1, Wetzel 1983). The general shape of the lake and the irregularity of the shoreline (e.g. points and bays) are reflected in D_L. Lakes with greater D_L commonly have a more pronounced littoral community in proportion to the lake volume (Wetzel 1983). The littoral area is the frequently the most productive area of the lake, and metabolic activities in the littoral and wetland areas of small and shallow lakes generally govern the productivity of the lake. An index of shoreline development is useful in that it reflects the

potential for greater development of littoral communities area (as defined by the area vegetated by submergent and emergent macrophytes) in proportion to the volume of the lake (Wetzel 1983, Cole 1994).

Equation 1. $D_L = L / 2\sqrt{(\pi A)}$ where D_L = Shoreline development
L = Length of shoreline (m)
A = Surface area of the lake (m^2)

3.2.2 Fulton's Condition Factor

Fulton's condition factor (K) was calculated where possible for all fish, and means were generated for age one and age ≥ 3 classes. Fulton's condition factor (Equation 2) is useful as and indicator of fish condition where growth is isometric, and/or if the fish to be compared are of approximately the same length (Ricker 1975, Bagenal 1978).

Equation 2. $K = 10^5 (w / l^3)$ where K = Fulton's condition factor
w = weight (g)
l = length (mm)

4.0 RESULTS AND DISCUSSION

Unnamed Lake (480-502100, WBID 00443BABL, ILP 51086) was surveyed on July 26th – 27th, 2000. The following sections describe physical, chemical and biological characteristics of the lake, as determined from the secondary lake survey, following the outline presented in the "Buba Lake Example Report" (B.C. Environment 2000).

4.1 LOGISTICS

No logistical problems were encountered during the 1:20,000 secondary lake inventory of Unnamed Lake (480-502100, WBID 00433 BABL, ILP 51086).

4.2 SURROUNDING COUNTRY

The lake is located among gently sloped terrain with some gentle rolling hills, particularly to the west of the lake (Figures 2 and 3). The terrain surrounding the lake generally has low topographic relief. The majority of the surrounding country is forested, with harvested areas visible to the west of the lake. The harvest areas to the south and east of the lake are not visible from the lake itself due to the low topographic relief of the terrain, and the presence of a reserve zone between the lake and these harvested areas. The forested vegetation surrounding the lake consists of spruce with some pine, and the harvested areas were replanted with pine. A black bear was observed at the bluff due east of the deep station, and several unidentified waterfowl were noted on the lake at the time of the survey.

4.3 IMMEDIATE SHORELINE

Unnamed Lake (WBID 00433BABL, ILP 51086) is generally elliptical in shape with a southern aspect. The shoreline is relatively uniform with few points and bays (Figure 4). Shoreline development (D_L) was calculated to be 1.38, primarily due to the elongated shape of the lake. The majority of the lake is surrounded by a large wetland. Thus, riparian vegetation along the immediate shoreline of the lake consisted of a 5 to 10 metre wide band of grasses and sedges and mature forest along the east and west shore of the lake. Wetland vegetation, including the occasional black spruce, predominates at the southern and northern ends of the lake, and extends part way along the inlet and outlet streams.

Figure 2. Panoramic views of the shoreline of Unnamed Lake (WBID 00433BABL) looking north (above) and east (below).

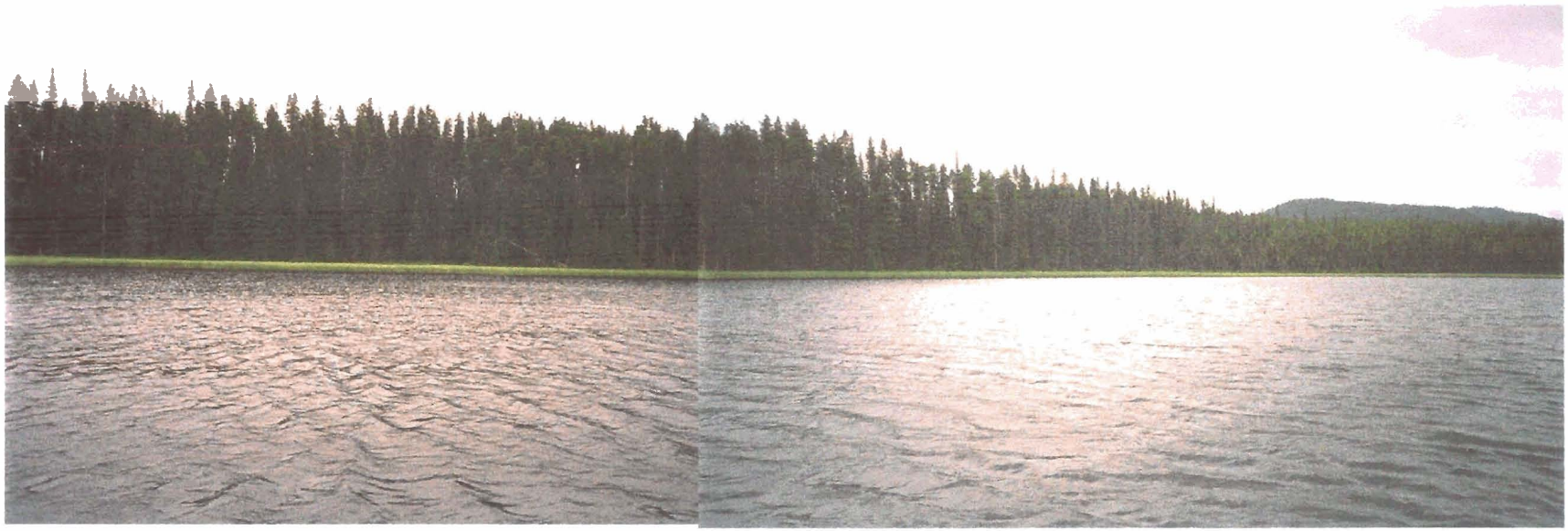
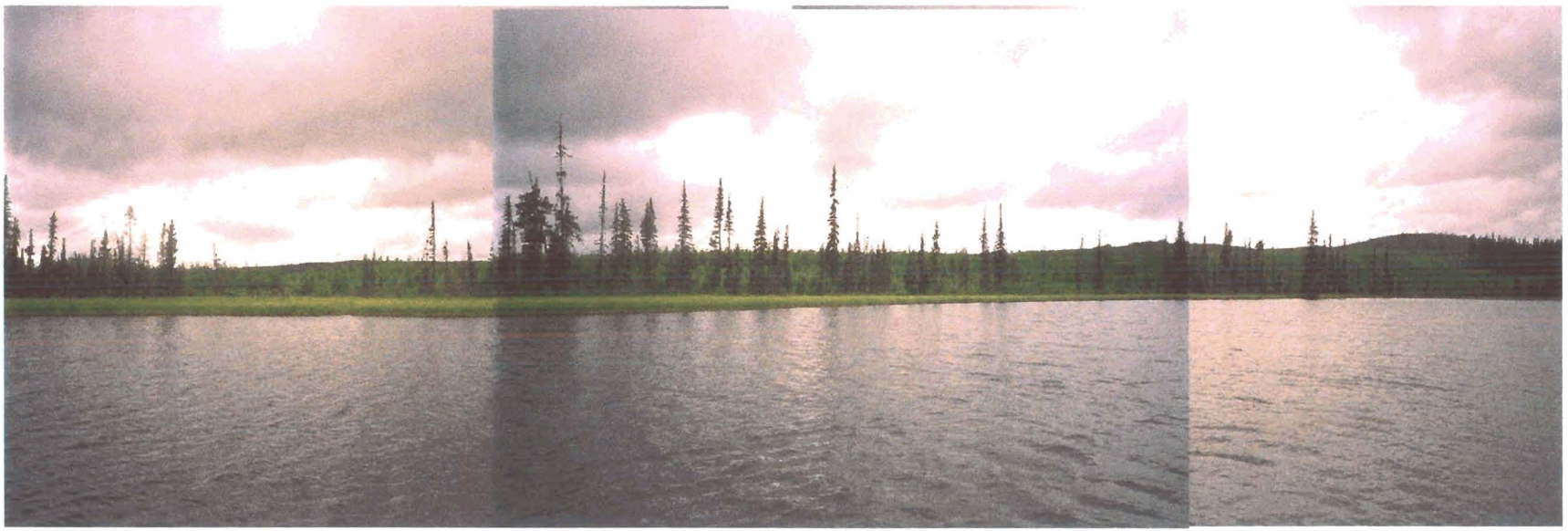


Figure 3. Panoramic views of the shoreline of Unnamed Lake (WBID 00433BABL) looking south (above) and west (below).



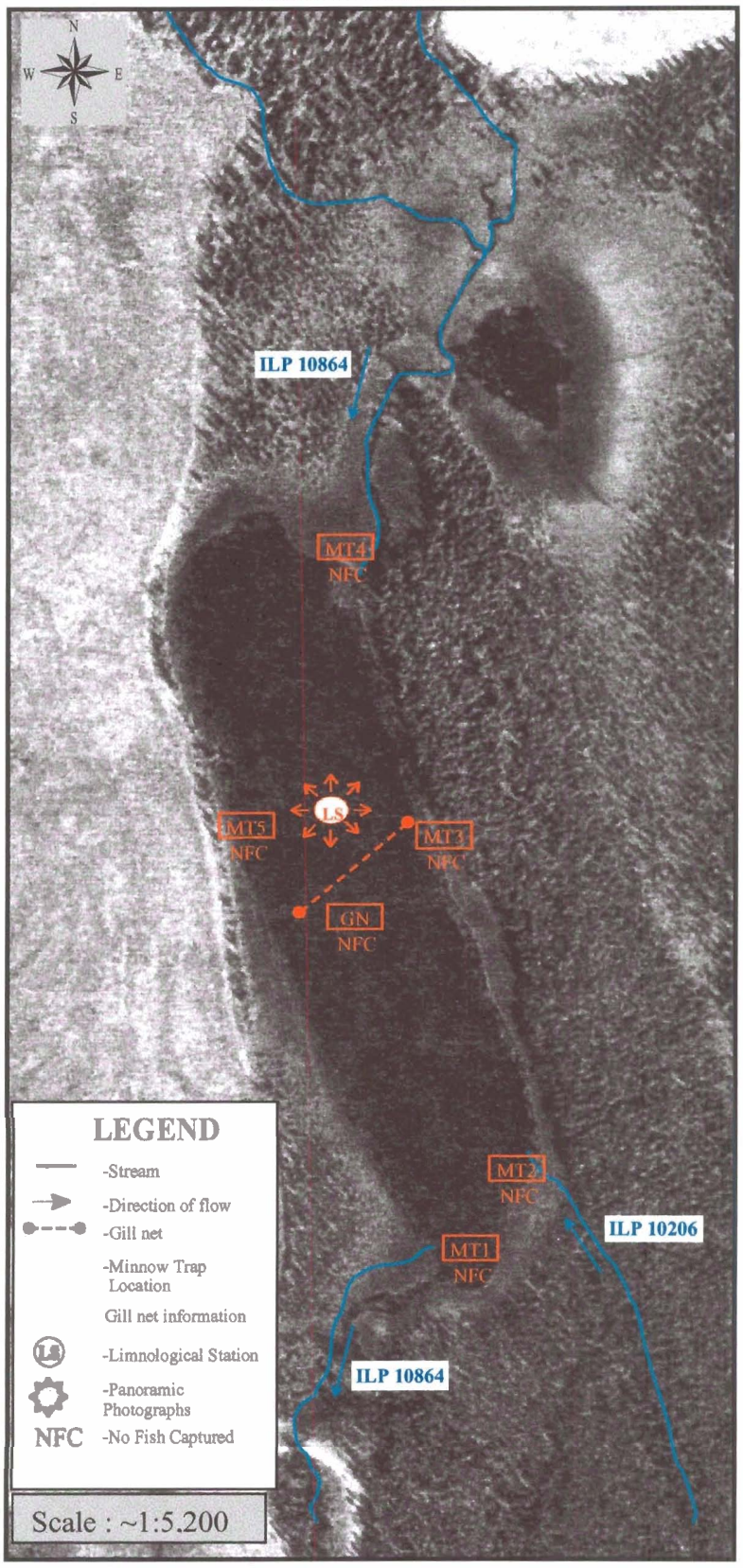


Figure 4. Annotated air photo (30BCC93039 No. 127) of Unnamed Lake (WSC 480-502100, WBID 00433 BABL, ILP 51086) surveyed on July 16th and 27th , 2000.

4.4 LAKE MORPHOLOGY AND AQUATIC VEGETATION

Unnamed Lake (WBID 00433 BABL, ILP 51086) is about 600 metres long, and about 9.5 metres deep (Figure 5). The deep station is located north of the geographic center of the lake (Figure 6). The relatively high shoreline development indicates that potential littoral area of the lake is relatively pronounced. However, emergent aquatic vegetation, consisting of water sedges, western water lily and marsh cinquefoil was sparse, although 30% of the lake area was occupied by submergent aquatic vegetation including coontail, grass-leaved pond weed and bladderwort. Approximately 50% of the lake area was less than 6 metres deep, but the lake bottom slopes relatively rapidly to a maximum depth of 9.5 metres along the north shore, and remains deep (>4 m) to within 3 metres of the southern shore of the lake at the lake outlet (Figure 5). The gentler slope of the lake bottom at the northern extent of the lake allows for a greater proportion of this end to be occupied by littoral vegetation. The lake substrate consisted primarily of sand and mud although some gravel sections may also be present, particularly off a rocky bluff due east of the deep station.

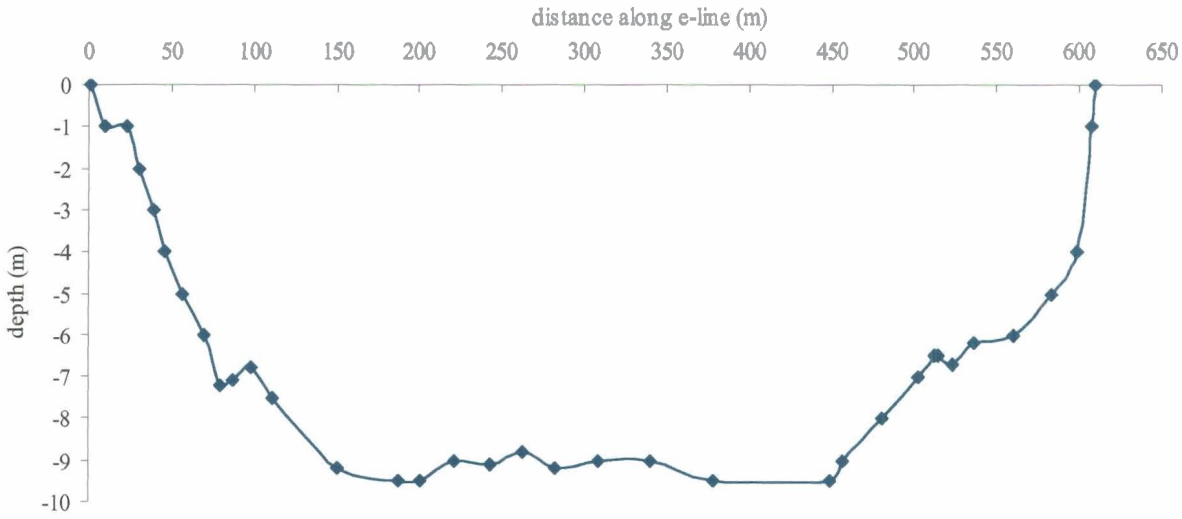


Figure 5. Bathymetric transect along the e-line in Unnamed Lake (WBID 00433BABL). Distance along the e-line is measured from the north shore of the lake (see Figure 4 for details).

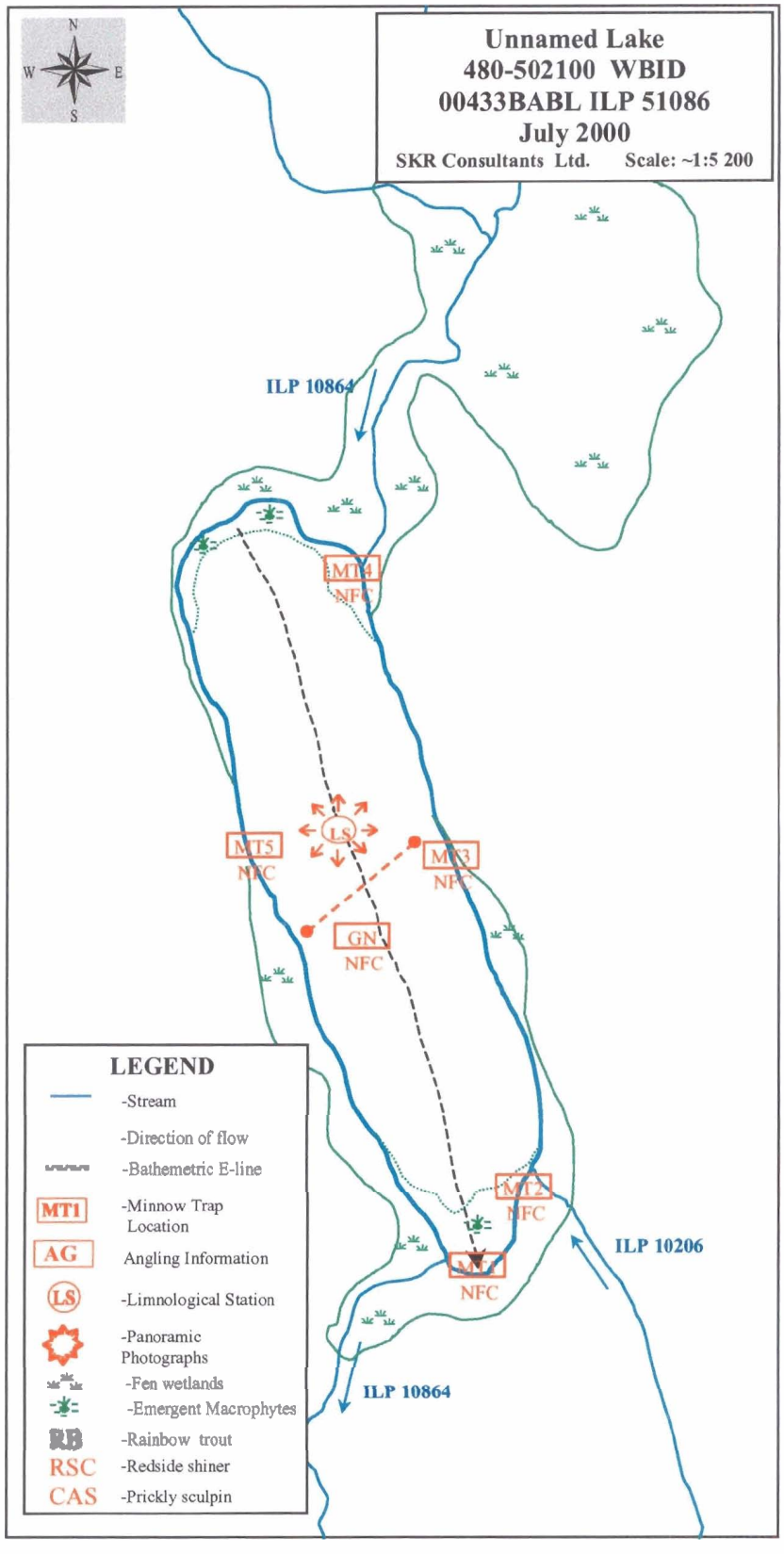


Figure 6. Lake outline map for Unnamed Lake (WSC 480-502100 WBID 00433BABL, ILP 51086) surveyed on July 16th and 27th , 2000.

4.5 INLETS AND OUTLETS

Unnamed Lake (WBID 00433BABL, ILP 51086) has two inlet streams and one outlet stream. The main inlet stream (WSC 480-502100, ILP 10864) is located in a bay about 100 metres southeast of the northern extent of the lake, while a second inlet (ILP 10206) drains into the lake in a bay located 100 metres northeast of the southern extent of the lake, near the lake outlet. The lake outlet (WSC 480-502100, ILP 10864) is located at the southern extent of the lake, and drains in a southwestern direction towards Babine Lake through and extension of the W1 wetland associated with this lake (Figures 4 and 6). The main inlet stream, and the outlet stream are third order systems, and consist of a permanent, well established channel exhibiting large channel morphology within the wetland associated with the lake. A passable beaver dam is located in the outlet stream, and a five metre falls is located in the outlet stream, about 2.3 km downstream of the lake. The second inlet stream (ILP 10206) is a first order system, and consisted of a non-classified drainage. No suitable spawning habitat was present in the lake or in close proximity to the lake.

4.6 SUMMARY OF DATA COLLECTION

Data collected during the secondary lake survey of Unnamed Lake (WSC 480-502100, WBID 00433BABL, ILP 51086) include temperature and oxygen profiles for the lake. No fish were captured while minnow trapping or gill netting. The following sub-sections summarize the limnological and fish sampling information for the lake.

4.6.1 Limnological Summary

Water quality measurements were taken at the deep station of the lake (Limnological Station, *see* Figure 4) on July 27th, 2000 at 12:17 hrs. The weather at the time of limnological sampling was overcast (100% cloud cover) with a moderate breeze and occasional showers. Secchi depth was recorded to be 3.0 metres, and the water colour was brown. Field pH and conductivity were recorded for surface and bottom samples (Table 3). A slight hydrogen sulphide odour was detected, and the hydrogen sulphide concentration in the bottom sample was 0.2 ppm.

Oxygen and temperature data were obtained at the deep station of the lake (Limnological Station, see Figure 2) on July 13, 2000 at 13:00 hrs. Readings were taken every 0.5 metres to a depth of 5 metres, and at one metre intervals between 5 and the 9 metres (Figure 7). Oxygen and temperature profiles (Figure 7) show that the lake is strongly stratified, with the thermocline being located between 3 and 3.5 metres. The epilimnion extends over the upper two metres of the lake, and is relatively well oxygenated with dissolved oxygen concentrations suitable for salmonids (>6.5 ppm Nagpal 1995, Canadian Council of Resource and Environment Ministers 1983). Oxygen concentrations rapidly decline to in the metalimnion (2-4 m depths), and are near 0 in the hypolimnion. In addition, the presence of hydrogen sulphide in the bottom water sample indicates a presence of anaerobic restoration. The lake is well oxygenated in the epilimnion, but oxygen concentrations are below minimum requirements of salmonids (usually around 6.5 ppm,) at depths greater than 2.5 metres. The secchi disk depth of 3 metre falls within the range reported for mesotrophic lakes (Wetzel 1983). The oxygen profile also resembles that of a mesotrophic lake, however, trophic classification based on secchi depth and oxygen profiles alone are speculative. The brown colouration of the water indicates that the lake is dystrophic and has a high level of allochthonous inputs (Wetzel 1983). Measurements of phosphate and nitrogen concentrations would be beneficial for further identification of the trophic classification of the lake.

Table 3. Conductivity and pH recorded in the field at the limnological station of Unnamed Lake (WBID 00433BABL, ILP 51086) on July 27th, 2000 at 12:17.

Parameter	Surface (0.1 m)	Bottom (9.0 m)
Field pH	7.2	6.8
conductivity	170 µS/cm	90 µS/cm

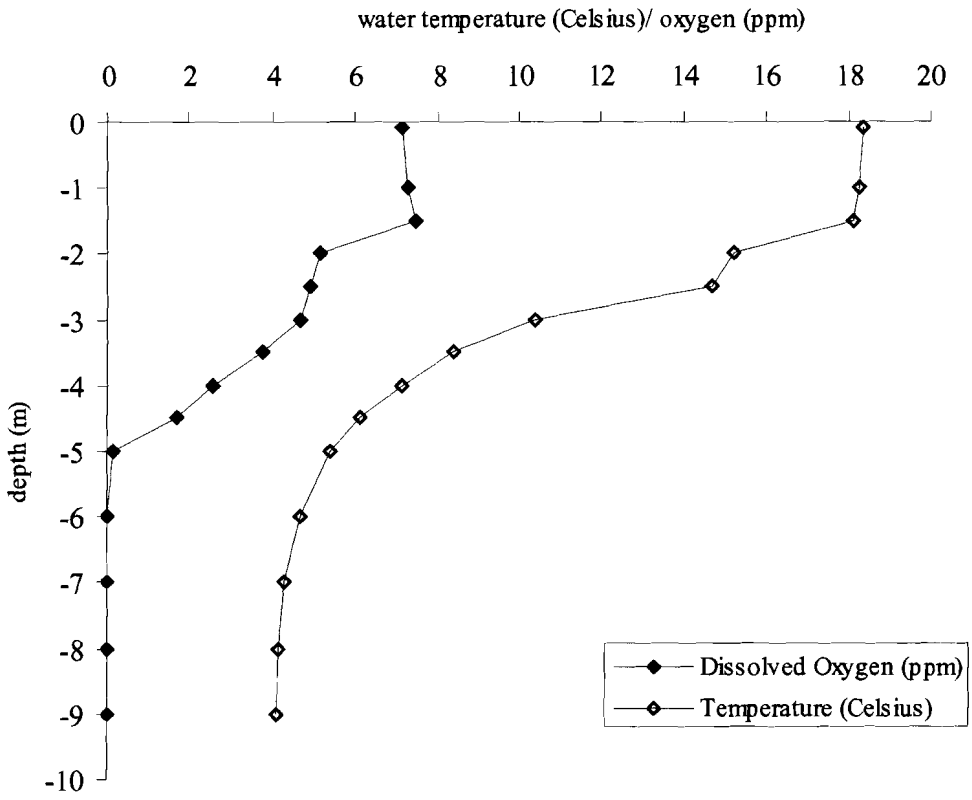


Figure 7. Oxygen and temperature profiles for Unnamed Lake (WBID 00433BABL) on July 27th, 2000 at 12:17 hrs.

4.6.2 Fish Sampling Summary

Unnamed Lake (WBID 00433BABL, ILP 51086) was sampled by using overnight settings of minnow traps and a gill net (Table 4). No fish were captured in the lake, and no fish have been captured in the main inlet or outlet during upstream of a 5 metre high falls during historical sampling (SKR 1997, 1998). Zooplankton noted in the lake appeared to be present at relatively high density, likely due to the lack of zooplanktivores in the lake.

Table 4. Fish sampling summary for Unnamed Lake (WBID 00433BABL, ILP 51086) on July 26-27th, 2000.

Watershed Code	ILP	Reach	Stream Order	Length Surveyed	Sampling Method	Catch	Reference
480-502100 (WBID 00433)	51086	6	3	lake	MT GN	no fish	
480-502100	10864	4	3	historical	EF	no fish	SKR 1998
480-502100	10864	8	3	historical	EF	no fish	SKR 1998
480-502100	10187	3	2	100	EF	no fish	SKR 2001

4.7 SIGNIFICANT FEATURES AND FISHERIES OBSERVATIONS

4.7.1 Fish and Fish Habitat

No fish or fish habitat concerns were noted for this lake since the lake is barren.

4.7.2 Habitat Concerns

4.6.2.1 Restoration and Rehabilitation Opportunities

No restoration or rehabilitation opportunities were identified at Unnamed Lake (WBID 00433BABL, ILP 51086).

5.0 REFERENCES

B.C. Environment. 2000. http://www.env.gov.bc.ca

B.C. Environment. Personal Communications. 2000b. Water Management Branch

Treaty Commission. 2000. http://www.bctreaty.net

Canadian Council of Resource and Environment Ministers. 1987. Canadian Water Quality Guidelines.

Cole, G.A. 1994. Textbook of Limnology. Waveland Press, Prospect Heights, Illinois.

Federal/Provincial Fish Habitat Inventory and Information Program. 1998. Fisheries Information Summary System Maps. Cited as FISS

Giroux, P.A. personal communications. 1999. Fisheries Inventory Specialist, B.C. Environment, Skeena Region, Smithers, B.C..

Houston Forest Products Co. 1999. Five year development plan maps.

Land Use Coordination Office. 2000. web page at http:\\ftp.gis.luco.gov.bc.ca

Meidinger, Del and Pojar, Jim eds. 1991. Ecosystems of British Columbia. Ministry of Forests, Research Branch, Victoria, B.C.

Ministry of Employment and Investment. 2000. web page at http://webmap.ei.gov.bc.ca/minpot/map/mtitles.mwf

Ministry of Forests, Research Branch. 1988. Biogeoclimatic and ecoregion units of the Prince Rupert Forest Region. Victoria, B.C..

Ministry of Forests. 1997. Forest Service Recreation Map for the Morice Forest District.

Nagpal, N.K. 1995. Approved and working criteria for water quality –1995. Water Quality Branch, Environmental Protection Department, Ministry of Environment, Land and Parks.

Resource Inventory Committee. 1998. 1:20,000 Fish and Fish Habitat Inventory Standards. Victoria, B.C.

Resource Inventory Committee. 1999. Reconnaissance (1:20,000) Fish and Fish Habitat Inventory Standards and Procedures Version 1.1. Errata, March 1999.

Resource Inventory Committee. 2000. Reconnaissance (1:20,000) Fish and Fish Habitat Inventory Standards and Procedures Version 1.1. Errata, April 2000.

Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Fish. Res. Bd. Can. Bull. 191.

SKR Consultants Ltd. 1997. Aquatic Stream Inventory in the Morrison IRM Unit: CP 527-1, CP 535-3, CP 540-1, CP 540-2, CP 541-3, CP 555-1, CP 555-2, CP 555-3. Unpubl report prepared for Houston Forest Products Co. Houston, B.C.

SKR Consultants Ltd. 1998. Fish and Fish Habitat Inventory for Operational Areas in the Morrison Landscape Unit: CP 555-1, 2, and 3. Unpubl report prepared for Houston Forest Products Co. Houston, B.C.

SKR Consultants Ltd. 1999. Phase I-III Pre-Field Project Planning Report. Morrison 1:20,000 Reconnaissance Fish and Fish Habitat Inventory. Unpubl report prepared for Houston Forest Products Co. Houston, B.C.

SKR Consultants Ltd. 2001. Reconnaissance (1:20,000) Fish and Fish Habitat Inventory of selected inlet streams to Babine Lake. Watershed Code: 480-000000. Unpublished report prepared for Houston Forest Products Co., Houston, B.C.

Wetzel, R.G. 1983. Limnology. 2nd ed. Saunders College Publishing, Toronto.

Appendix 1. FDIS Lake Summary Form and Fish Collection Form for Unnamed Lake (WBID 00433BABL, ILP 51086)

FDIS Lake Form

01/04/19

Reach #	ILP Map #	ILP #
6	093M.018	51086

Watershed Code: 480-502100-00000-00000-0000-0000-000-000-000-000-000-000

WATERBODY

Waterbody Type Primary **Sample Type** Secondary **Project ID** 06-BABL-000001172-1999

Lake Names Fish Form? ☒

Gaz **Local** **Ref**

Watershed Code 480-502100-00000-00000-0000-0000-000-000-000-000-000-00(

Reach # 6.0 **Air Photo** 30BCC93039 127 **Comment**

Waterbody ID 00433BABL **ILP Map #** 093M.018 **ILP #** 51086

NID Map # 093M.018 **NID #** 54088 **TRIM Map #** 093M.018

UTM 9 658001 6116863 GIS

Incomplete ☐

	Magnitude	Source	Mthd
Surface Area	8	TRIM	PL
Elevation	943	TRIM	GIS
Biogeoclimatic Zone		SBS	

TERRAIN CHARACTERISTICS

Setting VF **Aspect** S

Hillslope Coupling DC **Basin Genesis** GL

Land Use	NO	AG	FB	FR	MI	PR	UD	OT
Percentage	70		30					

SHORELINE CHARACTERISTICS

Shoreline Type	i	ii	iii	iv	v
Percentage				100	

Cover	NO	Resorts	Camps	Boatlaunch
Rec. Features		0	0	0

INLETS / OUTLETS

 # Inlets (Perm.) 1 **Inlets (Other)** 1 **Outlets:** 1 **Spawning hab. present?** ☐

I/O	Watershed Code	ILP Map #	ILP #	Comments
I	480-502100-00000-00000-0000-0000-000-000-000-000-000-000	093M.018	10864	
O	480-502100-00000-00000-0000-0000-000-000-000-000-000-000	093M.018	10864	
I	000-000000-00000-00000-0000-0000-000-000-000-000-000-000	093M.018	10206	

SURVEY INFORMATION

Date 2000/07/26 **to** 2000/07/27

Agency C141 **Crew** NF ML

AQUATIC FLORA

EMERGENT VEG. **SUBMERGENT VEG.**

Sparse ☒ **OR** % Sparse ☐ **OR** 30 %

Floating Algae? ☐

Voucher Specimen

Type	Dom. Species
EMERGENT	WATER SEDGE
EMERGENT	WESTERN WATER LILY
EMERGENT	MARSH CINQUEFOIL
SUBMERGENT	COONTAIL
SUBMERGENT	GRASS-LEAVED PONDWEED
SUBMERGENT	BLADDERWORT

ACCESS

Air ☐ FW ☐ H **Road** ☒ V2 ☐ V4 **Auto within** 200.0

Off Road ☐ FT ☐ ATV ☐ V4 **Distance**

BT ☐ HO ☐

Trail? ☐ **Distance**

Closest Community Granisle

Comments

Head south from Granisle Hwy 7.5km, cross barge, follow Jinx FSR for 9km, turn left onto Hagan FSR for 42km, go onto Morrison Main FSR. At 7.25km turn left onto West Main for 12.5km then turn right onto deactivated Rd follow to stream crossing, hike 200m

LAKE BATHYMETRY

Type of Survey EL **Littoral Area** 50 % **Method** GE **Max. Depth** 9.5

Benchmark Height **High Water Mark** 0.1

FDIS Lake Form

01/01/30

Reach #	ILP Map #	ILP #
6	093M.018	51086

Watershed Code: 480-502100-00000-00000-0000-0000-000-000-000-000-000-000

Benchmark Type/Location

Comments

PHOTO DOCUMENTATION

Photo (R/F)	Foc Lg	Dir	NID Map #	NID #	UTM (zone/easting/northing)	Method	Comments
M10 / 01	STD	NS					water sedge plant
M10 / 02	STD	NS					coontail sample
M10 / 03	STD	U					inlet stream ILP 10684, R7 upstream vie
M10 / 04	STD	D					inlet stream ILP 10864, R7 downstream view
M10 / 05	STD	U					inlet stream ILP 10206 R1, NCD upstream view
M10 / 06	STD	D					inlet stream ILP 10206, R1, NCD downstream view
M10 / 07	STD	U					outlet stream ILP 10864, R5 upstream view
M10 / 08	STD	D					outlet stream ILP 10864, R5 downstrean view
M10 / 09	STD	N	093M.018	54088			panoramic lake view (ILP 10864, R6)
M10 / 10	STD	N	093M.018	54088			north north-east
M10 / 11	STD	E	093M.018	54088			east north-east
M10 / 12	STD	E	093M.018	54088			east
M10 / 13	STD	E	093M.018	54088			east south-east
M10 / 14	STD	S	093M.018	54088			south south-east
M10 / 15	STD	S	093M.018	54088			south
M10 / 16	STD	S	093M.018	54088			south south-west
M10 / 17	STD	W	093M.018	54088			west south-west
M10 / 18	STD	W	093M.018	54088			west
M10 / 19	STD	W	093M.018	54088			west north-west
M10 / 20	STD	N	093M.018	54088			north north-west

AQUATIC WILDLIFE OBSERVATIONS

Observations

BIR	dabbling duck
MAM	observed a black bear
MAM	beaver dam at outlet
INV	dragonfly nymphs

LIMNOLOGICAL STATION WATER QUALITY

Station No. 2 **Date** 2000/07/27 **Time:** 12:17

Location UTM 9 658000 6117250 MAP **EMS #**

WATER SAMPLE

Secchi Depth 3

Water Color BR

pH (surf/bottom) 7.2 6.8

Ice Depth 0

FDIS Lake Form

Reach #	ILP Map #	ILP #
6	093M.018	51086

01/01/30

Watershed Code: 480-502100-00000-00000-0000-0000-000-000-000-000-000-000

DISSOLVED OXYGEN, TEMPERATURE PROFILE AND CONDUCTIVITY

Depth	DO (d)	T(C)	DO (a)	T (C)	Cond.
.1	7.1	18.4	7.2	18.3	170
1.0	7.2	18.3	7.4	18.2	
1.5	7.5	18.1	7.5	18.1	
2.0	5.5	15.2	4.8	15.2	
2.5	5	13.6	4.9	13.8	
3.0	4.7	10.5	4.7	10.3	
3.5	3.9	8.6	3.6	8.2	
4.0	2.8	7.4	2.3	6.9	
4.5	1.8	6.3	1.6	6.0	
5.0	0.2	5.5	.1	5.3	
6.0	0	4.8	.0	4.6	
7.0	0	4.4	.0	4.2	
8.0	0	4.2	.0	4.1	
9.0	0	4.1	.0	4.1	90

H2S: 0.2

EQUIPMENT USED

pH P2 **Water Temp** T6 **Conductivity** S4 **Dis. Oxygen** D6

COMMENTS

Section	Comments
WEATHER	100% cloud cover, moderate breeze, occassional showers
SURVEY INFORMATION	no spawning habitat observed in the inlets or outlets; the permanent inlet and outlet exhibited large channel morphology with fine substrate

FDIS Fish Form

Reach #	ILP Map #	ILP #
6	093M.018	51086

01/04/20

Watershed Code: 480-502100-00000-00000-0000-0000-000-000-000-000-000-000

WATERBODY

Gazetted Name: **Local:**

WS Code: 480-502100-00000-00000-0000-0000-000-000-000-000-000-000 **Lake/Stream:** L

Waterbody ID: 00433BABL **ILP Map #:** 093M.018 **ILP #:** 51086

Project ID: 06-BABL-000001175-1999 **Reach #:** 6 **Lake From Date:** 2000/07/26

Fish Permit #: 144604K **Date:** 2000/07/26 **To:** 2000/07/27 **Agency** C141 **Crew:** NF ML **Resample:** ☐

SITE / METHOD

Site#	NID Map	NID #	UTM:Zone/East/North/Mthd				MTD/NO		Temp	Cond	Turbid	Comment
82	093M.018	54228	9	658036	6058010	GIS	MT	1				
83	093M.018	54229	9	658067	6058072	GIS	MT	2				
84	093M.018	54230	9	658059	6058311	GIS	MT	3				
85	093M.018	54231	9	657996	6058519	GIS	MT	4				
86	093M.018	54232	9	657937	6117245	GIS	MT	5				
87	093M.018	54233	9	658000	6117208	GIS	GN	1				

A. GEAR SETTINGS

Site#	MTD/NO		H/P	Date In	Time In	Date Out	Time Out	Comment
82	MT	1	1	2000/07/26	14:18	2000/07/27	10:29	
82	MT	1	2	2000/07/26	14:18	2000/07/27	11:51	
83	MT	2	1	2000/07/26	14:21	2000/07/27	11:41	
84	MT	3	1	2000/07/26	14:26	2000/07/27	11:33	
85	MT	4	1	2000/07/26	14:29	2000/07/27	11:20	
86	MT	5	1	2000/07/26	14:34	2000/07/27	11:36	
87	GN	1	1	2000/07/26	15:20	2000/07/27	10:42	

B. NET/TRAP SPECIFICATIONS

Site #	MTD/NO.		H/P	Net Type	Length	Depth	Mesh	Set	Habitat
82	MT	1	1			1.0		BT	L
82	MT	1	2			1.0		BT	L
83	MT	2	1			1.0		BT	L
84	MT	3	1			1.0		BT	L
85	MT	4	1			1.0		BT	L
86	MT	5	1			1.0		BT	L
87	GN	1	1	SK	91.4	9.5	ST	BT	PL

C. ELECTROFISHER SPECIFICATIONS

FISH SUMMARY

Site#	MTD/NO		H/P	Species	Stage	Age	Total #	Lgth (Min/Max)	FishAct	Comment
82	MT	1	1	NFC			0			
82	MT	1	2	NFC			0			
83	MT	2	1	NFC			0			

FDIS Fish Form

Reach #	ILP Map #	ILP #
6	093M.018	51086

01/01/30

Watershed Code: 480-502100-00000-00000-0000-0000-000-000-000-000-000-000

85	MT	4	1	NFC	0
86	MT	5	1	NFC	0
87	GN	1	1	NFC	0

COMMENTS

FDIS Fish Form

Reach #	ILP Map #	ILP #
6	093M.018	51086

01/01/30

Watershed Code: 480-502100-00000-00000-0000-0000-000-000-000-000-000-000

INDIVIDUAL FISH DATA

Appendix 2. FDIS Reach Cards and Site Photograph for the two inlets and the outlet of Unnamed Lake (WBID 00433BABL).

Stream	**ILP**	**Reach**
outlet	10864	5
mainstem inlet #1	10864	7
Inlet #2	10206	1

FDIS Reach Card

01/05/08

Reach #	ILP Map #	ILP #
5.0 -	093M.018	10864

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

PROJECT

Project Name Babine (Sub-unit 29) Fish Inventory **Project Code** 06-BABL-000001172-1999

Stream Name (gaz.)

Project Watershed Code 480-502100-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Reach Watershed Code 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

ILP Map #	ILP #	Reach #	NID Map #	NID #	UTM(Zone/East/North/Method)
093M.018	10864	5.0 -			9 658142 6116890 GIS

Air Photos **Names**

LINE: **Gaz.** **Sample Type**

**Local** Unnamed Creek **Wetland** ☒

SURVEY INFO

Date 1999/03/15 **Agency** C141 **Crew**

ATTRIBUTES

Length (km) .11 **US Elev** 944

DS Elev. 942 **Magnitude**

Gradient 1.55 **Order** 3 **BGC Zone**

Setting

Open water

Confinement OC

Coupling

Valley Flat **C/D**

Active Floodplain Visible ☐ Est. Width:

Channel Pattern SI

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Islands

Bars ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR

Mass Movement

Riparian Veg.

Exposed/Eroded

Landuse

MAPS

FEATURES

PHOTOS

COMMENTS

Outlet from Unnamed Lake (00433BABL, ILP 51086)
Unnamed Creek (ILP 10864) Reach 5

Upstream view (above) and downstream view (below)

FDIS Reach Card

Reach #	ILP Map #	ILP #
7.0 -	093M.018	10864

01/05/08

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

PROJECT

Project Name Babine (Sub-unit 29) Fish Inventory **Project Code** 06-BABL-000001172-1999

Stream Name (gaz.)

Project Watershed Code 480-502100-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Reach Watershed Code 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

ILP Map #	ILP #	Reach #	NID Map #	NID #	UTM(Zone/East/North/Method)
093M.018	10864	7.0 -			9 658183 6117728 GIS

Air Photos **Names**

LINE: **Gaz.** **Sample Type**

**Local** Unnamed Creek **Wetland** ☐

SURVEY INFO

Date 1999/03/15 **Agency** C141 **Crew**

ATTRIBUTES

Length (km) .35 **US Elev** 943

DS Elev. 943 **Magnitude**

Gradient 0.18 **Order** 3 **BGC Zone**

Setting

Open water

Confinement OC

Coupling

Valley Flat **C/D**

Active Floodplain Visible ☐ Est. Width:

Channel Pattern SI

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Islands

Bars ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR

Mass Movement

Riparian Veg.

Exposed/Eroded

Landuse

MAPS

FEATURES

PHOTOS

COMMENTS

Mainstem Inlet #1 to Unnamed Lake (00433BABL, ILP 51086)
Unnamed Creek (ILP 10864) Reach 7

Upstream view (above) and downstream view (below)

FDIS Reach Card

Reach #	ILP Map #	ILP #
1.0 -	093M.018	10206

01/05/08

Watershed Code: 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

PROJECT

Project Name Babine (Sub-unit 29) Fish Inventory **Project Code** 06-BABL-000001172-1999

Stream Name (gaz.)

Project Watershed Code 480-502100-00000-00000-0000-0000-000-000-000-000-000-000

WATERSHED

Reach Watershed Code 000-000000-00000-00000-0000-0000-000-000-000-000-000-000

ILP Map #	ILP #	Reach #	NID Map #	NID #	UTM(Zone/East/North/Method)
093M.018	10206	1.0 -			9 658424 6116468 GIS

Air Photos **Names**

LINE: **Gaz.** **Sample Type**

**Local** Unnamed Creek **Wetland** ☐

SURVEY INFO

Date 1999/03/15 **Agency** C141 **Crew**

ATTRIBUTES

Length (km) .55 **US Elev** 961

DS Elev. 943 **Magnitude**

Gradient 3.27 **Order** 1 **BGC Zone**

Setting

Open water

Confinement OC

Coupling

Valley Flat C/D

Active Floodplain Visible ☐ Est. Width:

Channel Pattern ST

DISTURBANCE INDICATORS

O1	B1	B2	B3	D1	D2	D3
☐	☐	☐	☐	☐	☐	☐

C1	C2	C3	C4	C5	S1	S2	S3	S4	S5
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Islands

Bars ☐ N ☐ SIDE ☐ DIAG ☐ MID ☐ SPAN ☐ BR

Mass Movement

Riparian Veg.

Exposed/Eroded

Landuse

MAPS

FEATURES

PHOTOS

COMMENTS

Inlet #2 to Unnamed Lake (00433BABL, ILP 51086)
Unnamed Creek (ILP 10206) Reach 1

Upstream view (above) and downstream view (below)

Appendix 3. Photodocumentation Form 1. Negatives and digital images of photos (2 copies) were submitted to B.C. Environment.

Photodocumentation Form 1 – Equipment Details

Survey Start Date:	2000/07/26	Survey End Date:	2000/07/27
Agency:	C141		
Crew:	ML/NF		

Camera #1:

Make and Model:	Canon Sureshot A1
Lense:	35 mm
Format:	135 mm, Kodak CD Rom

Roll and or Batches Detail:

Roll #	CD #	Camera	Output Medium	Film Type	ISO
M10	Morrison/Babine 3	1	negative/CD Rom	colour print	200

For Photdocumentation Form 2, please see SKR (2001).