

Reconnaissance Lake Inventory
of
Unnamed Lake (John Brown Lake)
WSC: 460-924300
Waterbody Identifier: 01983BULK

Prepared for:
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Project Reference Information

MELP Project Number

BFP-C016-001-1999

FRBC Project Number	0000105
FRBC Activity Number	10437
FDIS Project Number	06-UNRS-100000072-1998
FDIS Project WSC	460
FRBC Region	Smithers Region
MELP Region	06
FW Management Unit	6-9
DFO Sub-District	4D
Forest Region	Prince Rupert
Forest District	Lakes Forest District
Forest Licensee and Tenure #	Babine Forest Products Company Forest Licenses A-16823 and A-16825

Watershed Information

Watershed Group:	Bulkley River (BULK)
Watershed Code:	460-924300
Waterbody Identifier:	01983BULK
UTM at Lake Outlet	9.694709.6002265
Order at Lake Outlet	2
Number of Tributaries	3
Drainage Area	3km ²
Magnitude	5
Elevation	900m
NTS Map	093 L/1
TRIM Map	93L.020
BEC Zone	SBS
Air Photos	30BCC96071: 020

Lake Sampling Summary

Lake Survey Type	Secondary
Water Surface Area	13.75 ha
Max. Depth	7.5m
Mean Depth	N/A
Secchi Depth	1.5m
Volume	N/A
Area Above 6m Contour	N/A
Shoreline Perimeter	1815m
Lake Length	650m
Number of Islands	0
Species Present in Lake	LSU, RB

Contractor Information

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Maps prepared by:	Cliff Manning Forestry Services Lot 13, Burns Lake, B.C. (250) 692-3459

Abbreviations Used in this Report

BGC	biogeoclimatic zone	m	meter
C	clear (not turbid)	mm	millimeter
C.	creek	M	moderate flow or moderate turbid
CAS	prickly sculpin (<i>Cottus asper</i>)	MELP	Ministry of Environment, Lands and Parks
CD	compact disc	M/L	mainline
CO	coho salmon (<i>Oncorhynchus kisutch</i>)	MT	minnow trap
Cond.	conductivity	NA	not applicable
CW	channel width	NFC	no fish captured
DFO	Department of Fisheries and Oceans	NFP	no fish present
Dist.	distance	NS	not sampled
Dpth	depth	NTS	National Topographic Survey
d/s	downstream	PCC	peamouth chub (<i>Mylocheilus caurinus</i>)
EF	electrofishing	Prop	proposed
ESSF	Engelman Spruce-Subalpine Fir BGC	R.	river
FDIS	Field Data Information System	RB	rainbow trout (<i>O. mykiss</i>)
FISS	Fisheries Information Summary System	Rd	road
FPC	Forest Practices Code	Rip	riparian
FRBC	Forest Renewal of British Columbia	sec	seconds
Grad	slope gradient	SBS	Sub-Boreal Spruce BGC
H	high flow	SK	sockeye salmon (<i>O. nerka</i>)
Hz	Hertz	S6 - S2	riparian classes
ILP	Interim Locational Point	T	turbid
Info.	information	TRIM	Terrain Resource Information Management
km	kilometer	Turb	turbidity
L	low flow or lightly turbid	u/s	upstream
L.	lake	UTM	Universal Transverse Mercator coordinates
LKC	lake chub (<i>Couesius plumbeus</i>)	V	volts
LSU	longnose sucker (<i>Catostomus catostomus</i>)	WSC	watershed code
LWD	Large Woody Debris	µs	microseconds

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.

Acknowledgments

Funding for this project was provided by Forest Renewal B.C. We would also like to give special thanks to those people who made this project possible, tolerable and even fun. Paul Giroux, who helped throughout the project and maintained the “common sense” approach, Joe Jazvac, who was our guide and mentor and who made our first lake survey possible and enjoyable, Lynn Miers, whose quick responses to our frequent requests still amaze us, the staff at Cliff Manning Forestry Services who always had maps ready for us, in addition to a helpful hint about “how to get there”, and most of all, Karen Grainger for, above all else, putting up with us throughout the field portion of the project.

Table of Contents

PROJECT REFERENCE INFORMATION	I
WATERSHED INFORMATION	II
LAKE SAMPLING SUMMARY	II
CONTRACTOR INFORMATION.....	III
ABBREVIATIONS USED IN THIS REPORT	IV
DISCLAIMER	V
ACKNOWLEDGMENTS	V
LIST OF TABLES.....	VII
LIST OF FIGURES.....	VII
LIST OF APPENDICES	VII
LIST OF ATTACHMENTS AVAILABLE AT MELP OFFICE.....	VIII
1.0 INTRODUCTION.....	1
1.1 PROJECT SCOPE/OBJECTIVES.....	1
1.2 LOCATION.....	1
1.2.1 Access.....	1
2.0 RESOURCE INFORMATION	3
3.0 METHODS.....	4
4.0 RESULTS AND DISCUSSION.....	5
4.1 LOGISTICS.....	5
4.2 IMMEDIATE SHORELINE	5
4.3 SURROUNDING COUNTRY	5
4.4 SUMMARY OF DATA COLLECTION	5
4.4.1 Annotated Air Photo.....	5
4.4.2 Bathymetric Map.....	5
4.4.3 Lake Outline Map.....	5
4.4.4 Limnology Summary.....	8
4.4.5 Fish Sampling Summary.....	8
4.5 FISH AGE, SIZE AND LIFE HISTORY.....	8
4.6 SIGNIFICANT FEATURES AND FISHERIES OBSERVATIONS.....	10
4.6.1 Fish and Fish Habitat.....	10
4.6.2 Habitat Concerns.....	10
BIBLIOGRAPHY.....	11

List of Tables

TABLE 1. SAMPLING SUMMARY FOR JOHN BROWN LAKE ON OCTOBER 26, 1998.....	8
TABLE 2. SUMMARY OF LENGTH-AT-AGE DATA FROM FISH SAMPLED IN THE JOHN BROWN LAKE, 26 OCTOBER 1998.	9

List of Figures

FIGURE 1: LOCATION OF PROJECT AREA	2
FIGURE 2: ENLARGEMENT FROM AIR PHOTO	6
FIGURE 3: OUTLINE MAP OF JOHN BROWN LAKE.....	7
FIGURE 4. TEMPERATURE/ DISSOLVED OXYGEN PROFILE FOR JOHN BROWN LAKE ON OCTOBER 26, 1998.....	8
FIGURE 5. LENGTH-FREQUENCY HISTOGRAM OF SAMPLED FISH FROM JOHN BROWN LAKE, 26 OCTOBER 1998.	9

List of Appendices

APPENDIX I	FDIS LAKE FORM PRINTOUT, FDIS FISH FORM PRINTOUT AND PHOTOGRAPHS
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List of Attachments Available at MELP Office

Attachment I Planning Document

- i) Phase Completion Report
- ii) Project budget break-down by phase
- iii) Project sampling design plan
- iv) Hardcopy and digital Reach Table
- v) Hardcopy and digital Lake Table
- vi) Hardcopy and digital copy of the random sample table
- vii) List of air photographs

Attachment II Hardcopy FISS Update Data Forms and Maps

Attachment III Photodocumentation

- i) Photodocumentation Form 1
- ii) Photo Summary Report printout from FDIS Database
- iii) Indexed Photo Album with labeled photographs
- iv) Indexed Album of all negatives uniquely labeled in plastic sleeves
- v) 2 Indexed Copies of Photo CD's with numbered images and thumbnail references in each CD jacket

Attachment IV Field Data

- i) site cards, lake forms, fish collection forms, individual fish data forms and field notes
- ii) field working maps
- iii) paper sounding trace from E-lines

Attachment V Fish Scales

- i) labeled envelope with scales
- ii) scales mounts

Attachment VI Digital Data

1.0 Introduction

1.1 Project scope/Objectives

John Brown Lake (WBID 01983BULK) is a secondary lake that was surveyed as part of the Maxan Creek (460-924300) watershed survey.

1.2 Location

John Brown Lake is located approximately 20 km south-west from the town of Burns Lake in the Lakes Forest District and is the westernmost lake of the three lake cluster in the Maxan Creek headwaters. Its location in relation to the Province of British Columbia is depicted on Figure 1 on the following page.

1.2.1 Access

Access to John Brown Lake from Burns is as follows:

- From Highway 16 and Highway 35 Intersection, drive 18.5 km west on Highway 16.
- Turn left onto Decker Lake Forest Products Mill Yard road and follow it for 1.4 km.
- Turn into the Maxan Road over the Endako River Bridge crossing and drive for 18.4 km.
- Follow the Maxan road for 18.4km then turn right into the Colleymount road
- Follow this road for 10.5km at which point it crosses Maxan Creek in reach 6.
- From this point, drive 0.9km past Maxan Creek and turn left into the spur road at this point
- Follow this spur road for 1.8km to the landing at the end of the cutblock.
- From this landing, the lake is accessible by foot, following a south-east bearing for 400 m.

2.0 Resource Information

- **Previous surveys**

This lake was included in the pre-field phases of the 1997 Reconnaissance Fish and Fish Habitat Inventory for Babine Forest Products. However, field sampling of John Brown Lake was included under the 1998 project objectives.

- **Development and land use: logging, mining, recreation**

Resource use within the area is dominated by logging activities although no logging has been performed in the immediate vicinity of this lake. The nearest cutblock is located approximately 250 m west of the lake. The area is also within trapping territory license # 609T001. There were no resorts or any campsites noted at the lake.

- **Impacts and uses by wildlife**

As noted during pre-field phases, beaver activity is prevalent in the Maxan Creek watershed, particularly within low lying reaches of the mainstem. Abundant use by beavers was also observed during the 1998 stream inventory in this watershed. The outlet reach of this lake has been historically dammed by beavers. In addition to the presence of a beaver dam approximately 300m downstream from the lake, it was observed that historic lake levels were approximately 1m higher than at present, possibly due to past beaver activity in the lake outlet. Visual observations of beaver, a beaver lodge and food pile were noted, confirming current use of this lake by beavers.

- **Inlets and outlets**

Of the four mapped inlets to this lake, only ILP 20038 (new WSC 460-924300-96124) is a perennial stream. This stream has a moderate gradient of ~10% and 0.7m channel width. It flows over organic fines and cobbles offering no spawning habitat for rainbow trout. Inlet streams ILP 20037 and ILP20036 (new WSC's 460-924300-96144 and 460-924300-96124, respectively) were seasonal or intermittent with no fish habitat potential. Reach 15 of Maxan Creek, which is mapped as an inlet to the south end of the lake, had no defined channel and no fish habitat or fisheries potential.

One outlet drains the lake (Maxan Creek reach 13) from its eastern bay. There is some limited suitable spawning habitat for rainbow trout in this outlet reach. In the 150m section from the outlet, short gravel patches intermixed with fines are present which may provide limited spawning opportunity for rainbow trout.

3.0 Methods

Methodology used throughout this project were consistent with the standards and methods as defined in “Reconnaissance (1:20,000) Fish and Fish Habitat Inventory (April 1998)” and all standards referenced therein.

List of equipment used:

- 9.9 HP short shaft outboard motor
- 10' Zodiac inflatable boat
- Sounding speed of boat was 2.2 m/s
- Lowrance X-16 echosounder
- Standard 91.2 m sinking gillnet
- YSI model 57 for DO and temperature readings
- Hanna instruments for pH and conductivity readings
- Secchi disk with attached marked line
- Horizontal “Van Dorn Bottle”
- Dissecting kit
- Pentax Zoom 90WR camera

4.0 Results and Discussion

4.1 Logistics

No problems or difficulties were encountered during the survey.

4.2 Immediate Shoreline

The vegetation of the immediate shoreline is composed of sedges (*Carex spp.*) and some alder and mature conifers within 2 m of the lake perimeter. Shoreline substrate is composed of fines.

4.3 Surrounding Country

The surrounding country is comprised of low rolling hills, forested mainly by a mixed coniferous forest of lodgepole pine, spruce and fir.

4.4 Summary of Data Collection

4.4.1 Annotated Air Photo

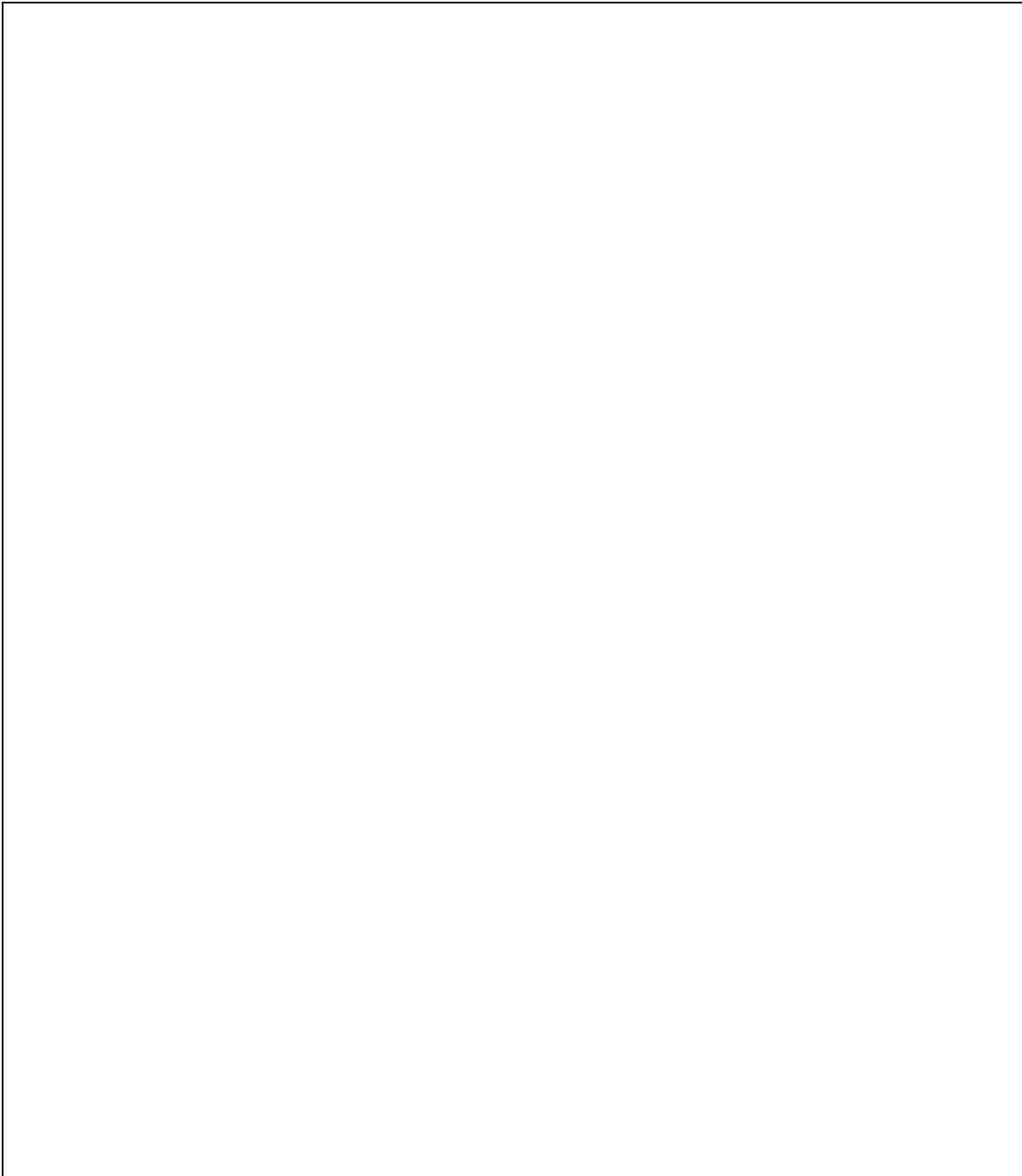
The air photo enlargement of photo 30BCC96071: 020 was made on laser copier and it is included on following page. All the relevant survey information is marked on this photo.

4.4.2 Bathymetric Map

A bathymetric map was not produced as it is not required for secondary lake surveys.

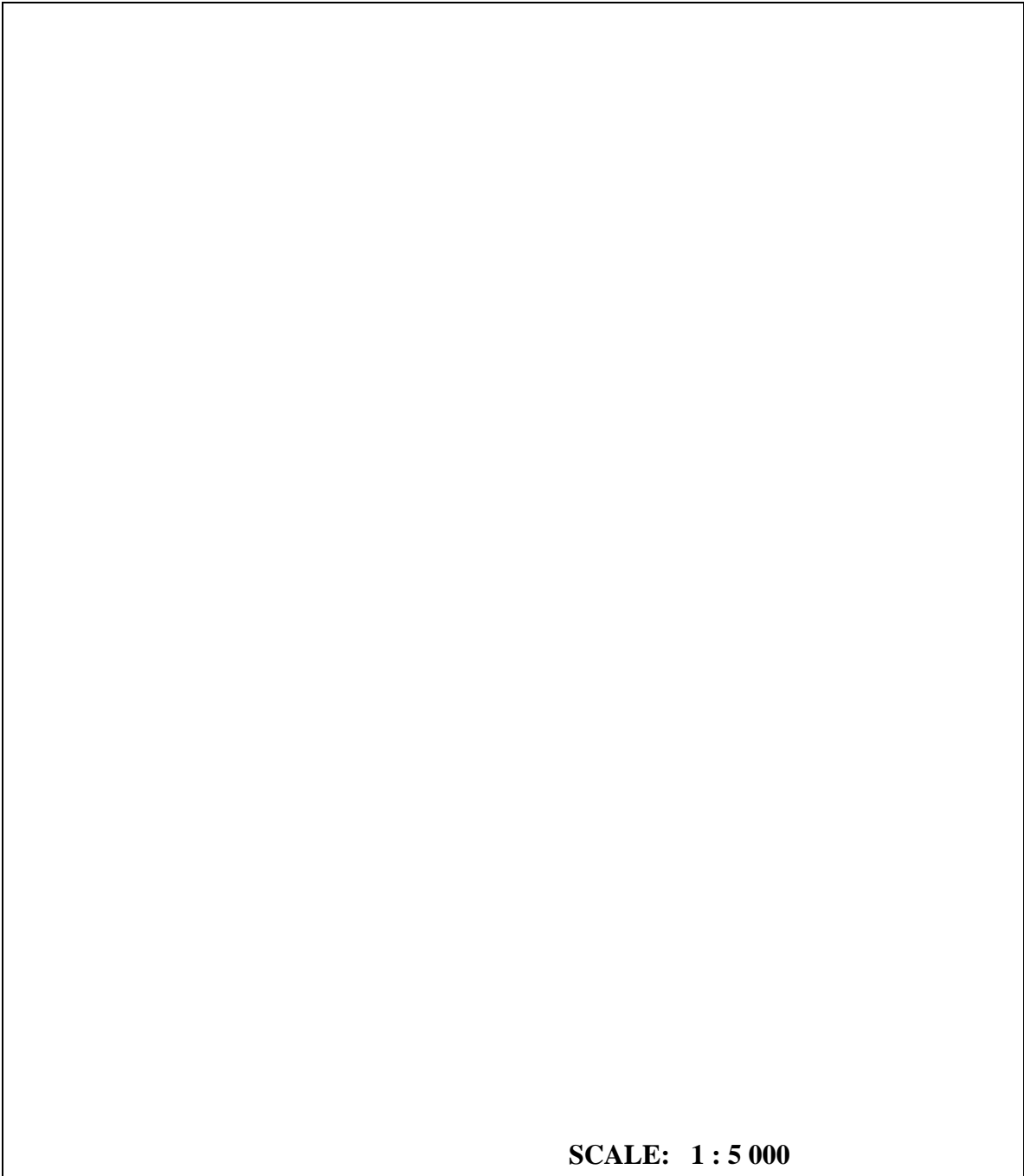
4.4.3 Lake Outline Map

The lake outline map was prepared from an air photo enlargement and is included on page 6. All the relevant survey information is marked on the map.



LAKE:	John Brown Lake	LEGEND:	
WC:	460-924300		Permanent or seasonal stream, and flow direction
WBID:	01983BULK		Gillnet set
OUTLET UTM:	9.694709.6002265		Panorama photo site
AIR PHOTO:	30BCC96071 #020		Photo site, direction, number
			Limnological station

Figure 2: Enlargement from air photo



SCALE: 1 : 5 000

LEGEND

LS	Limnological Station		Gillnet set
1	Panorama photos north to south by east		Permanent or seasonal stream and flow direction
2	Panorama photos south to north by west		
3	View of outlet (480-924300)		
4	View of inlet (480-924300)		Watershed code
5	View of inlet -924300-96144 (ILP 20037)		
6	View of inlet -924300-96152 (ILP 20036)		Photo direction and location
7	View of shoreline near outlet		
8	View of inlet -924300-96124 (ILP 20037) and beaver lodge/food pile		Maximum depth
	Beaver lodge		Depth sounding transect

Figure 3: Outline map of John Brown Lake.

4.4.4 Limnology Summary

Limnological sampling was conducted at midday on October 26, 1998, at the limnology station labeled on Figure 3. All data and additional information were collected on RIC standard Lake, Fish Collection, and Individual Fish Data Forms which are provided in Attachment III. Water chemistry samples for laboratory analysis were not collected as this is not required for secondary lake surveys.

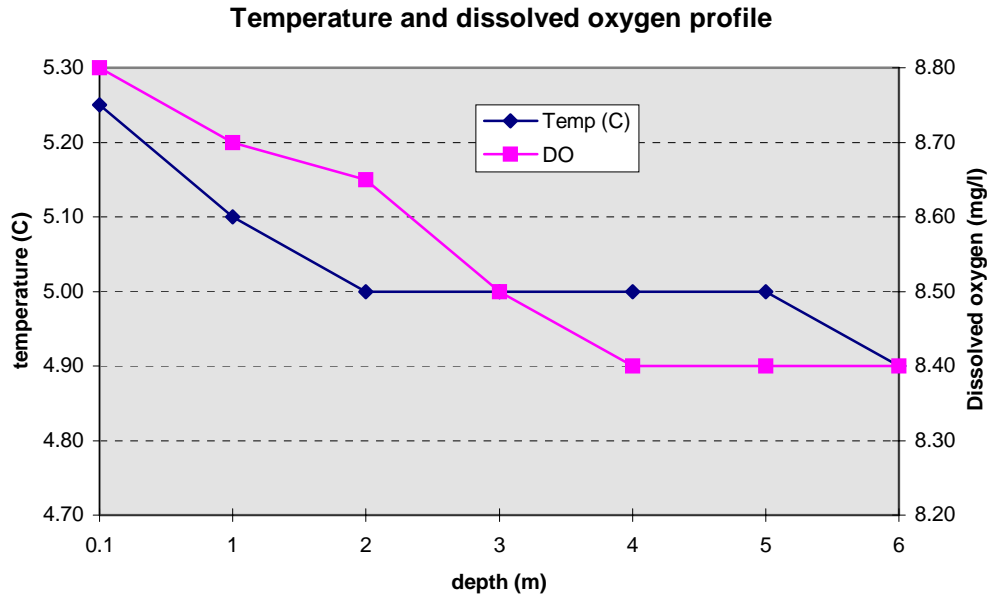


Figure 4. Temperature/ Dissolved Oxygen Profile for John Brown Lake on October 26, 1998.

4.4.5 Fish Sampling Summary

Table 1. Sampling summary for John Brown Lake on October 26, 1998..

Net Trap Summary						
Site No.	Method	Set		Pull		Species
		Date	Time	Date	Time	
Site 1	Sinking Gill net	Oct. 26	10:00	Oct. 26	14:30	RB, LSU

4.5 Fish Age, Size and Life History

Longnose sucker were the most abundant species in this lake. Only one rainbow trout was captured, suggesting the lack of suitable spawning opportunity for lake resident rainbow trout. Their population density may also be adversely affected by the presence of numerous beaver dams and wetlands downstream in the Maxan Creek watershed which may impede fish migrations into the upper watershed. Almost all longnose sucker captured exhibited signs of black spot disease, while the rainbow trout appeared healthy and exhibited no visible signs of

disease. The rainbow trout was also aged at only 1+, indicating either a very high growth rate or more likely, that scale regeneration has occurred.

The following table presents data for fish species encountered in this lake.

Table 2. Summary of length-at-age data from fish sampled in the John Brown Lake, 26 October 1998.

Stream Name	Watershed Code	Spp.	Age	Number of fish	Mean length (mm)	Range of Lengths (mm)
John Brown Lake	460-924300	RB	1+	1	NA	240
	01983BULK	LSU	NA	17	242.2	162-290

Length/Frequency Histogram

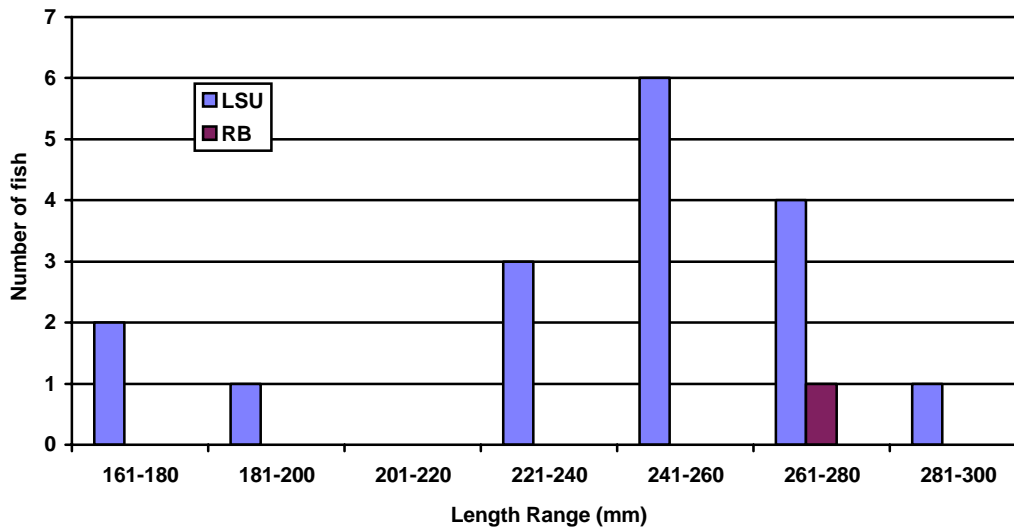


Figure 5. Length-frequency histogram of sampled fish from John Brown Lake, 26 October 1998.

4.6 Significant Features and Fisheries Observations

4.6.1 Fish and Fish Habitat

Overall rearing habitat for rainbow trout and longnose suckers in John Brown Lake is good. However, the low population density of rainbow trout may be result of the lack of spawning habitat for lake resident rainbow trout. In addition, only one permanent but tiny inlet to this lake was observed. The oxygen supplied by this stream during winter may not be sufficient to prevent anoxic conditions in the lake. The presence of beaver dams, impoundments and wetlands downstream from this lake also impede access and likely limit seasonal use and migration of rainbow trout from the lower watershed.

4.6.2 Habitat Concerns

No habitat concerns were noted during this survey. The upper Maxan Creek watershed remains virtually undeveloped, limited to a few recent cutblocks located several hundred meters from the watershed.

Bibliography

Hancock, M.J., Leaney-East, A.J., Marshall, D.E. 1983. Catalogue of Salmon Streams and Spawning Escapements of Statistical Area 4 (Upper Skeena River). Canadian Data Report of Fisheries & Aquatic Sciences. No. 394.

Warrington, P.D. 1994. Identification Keys to the Aquatic Plants of British Columbia. RIC Report 029. April 1994. Victoria, B.C.iii + 139.

AGRA Earth and Environmental Ltd. 1996. Part 3: Level I Fish Population and Riverine Habitat Assessment Maxan Watershed. February 1996. Prince George, B.C. iv + 25pp +Appendix 1.

Fish presence and distribution information within the project area was also obtained from FISS maps within the Smithers MELP regional library. These maps included 93L/1 and 93L/8.

Reconnaissance Lake Inventory
of
Unnamed Lake (John Brown Lake)
WSC: 460-924300
Waterbody Identifier: 01983BULK

- **Appendix I: : FDIS Lake Form, FDIS Fish Form and Photographs**