Reconnaissance Lake Inventory
of
Kline Lake

Waterbody Identifier 00531KISP
Map # 93M.051
UTM 09.565510.6161065

Prepared for:
Ministry of Environment, Lands and Parks
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Approved by:

March 31, 1998

Disclaimer

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

Data Summary

Project Reference Information

MoELP Project Number	CSK3029
FDIS Project Number	06-LBIR-0010-0002-1998
Forest Region	Prince Rupert
Forest District	Kispiox
MoELP Region	Skeena
Wildlife Management Unit	6-30
FRBC Region	Skeena-Bulkley

Watershed Information

Higher Level Watershed Code	470-290100
Waterbody Identifier	00531KISP
UTM at Lake Outlet	09.565510.6161065
Number of Tributaries on TRIM or FCM	1
Number of Tributaries observed in field	1
Magnitude	1
Elevation	384
NTS Map	93M/12
TRIM Map	93M.051
Biogeoclimatic Zone	ICH
Air Photos	30BCB92126 No. 203

Lake Sampling Summary

Fish Species Present	Peamouth Chub
Lake Survey Type	Secondary (1997 RIC Standards)
Water Surface Area	25 ha
Max. Depth	7 m
Secchi Depth	2.8 m
Shoreline Perimeter	2.7 km
Lake Length	0.9 km
Number of Islands	None

Contractor Information

Project Manager:	Name:	Glenn Grieve, RP Bio, BioLith Scientific Consultants Inc.
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	Phone:	(250) 635-5378
Field Crew:	Names:	Melinda Bahr, Doug Webb
Data Entry by:	Names:	Michelle Prins
Report Prepared by:	Names:	Melinda Bahr
Report Edited by:	Names:	Glenn Grieve
Genetic sample analysis by:	Name:	Susan Pollard
	Address:	Fisheries Branch, 780 Blanshard St., Victoria, British Columbia, V8V 1X4
	Phone:	(250) 387-4573

Acknowledgments

Funding for this inventory was provided by Forest Renewal BC.

We would like to thank Paul Giroux, Steve Gray, Sig Hatlevik, Steve Woodliffe and Doug Webb for their help with this inventory.

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1.0 Introduction

1.1 Project scope/Objectives

The primary purpose of the reconnaissance level (RIC) inventory of Kline Lake was to gather information on the presence or absence of fish in the lake, and to gather preliminary data on biophysical attributes of the lake. Kline Lake was included in a secondary level reconnaissance inventory of 34 lakes located in the northern portions of the Kalum, Kispiox, Bulkley and Morice Forest Districts.

1.2 Location

Kline Lake is located approximately 32 kilometres north of Kispiox, B. C. and about 86 kilometres southeast of Elsworth Logging camp on Highway 37, north of Kitwanga B. C. The latitude of the lake is 55° 35' 28.1" and the longitude is 127° 57' 38". The location of the lake is given in Figure 1.

1.2.1 Access

The field crew reached this lake by helicopter as there was no road access directly to the lake. The flight to the lake from the camp takes approximately 35 minutes. The Cancel Main Forest Service Road (FSR) in the Kispiox Forest District was located approximately 500 metres from the East side of the lake, although at the time of the survey there was no trail or road connecting the two.

2.0 Resource Information

A thorough data search of Ministry of Environment lake files yielded no preexisting information about Kline Lake. The surrounding area of the lake had been logged however cutblocks in the vicinity were supporting a regenerating mixed stand. No preexisting campsites were observed.

2.1 Points of Interest

This lake has some recreational potential for camping although approximately 50-60% of the lake is inaccessible due to the brown-stemmed bog moss (*Sphagnum lindbergii*) that dominates the lake. Some potential campsites would be located in the forested area on the eastern shore.

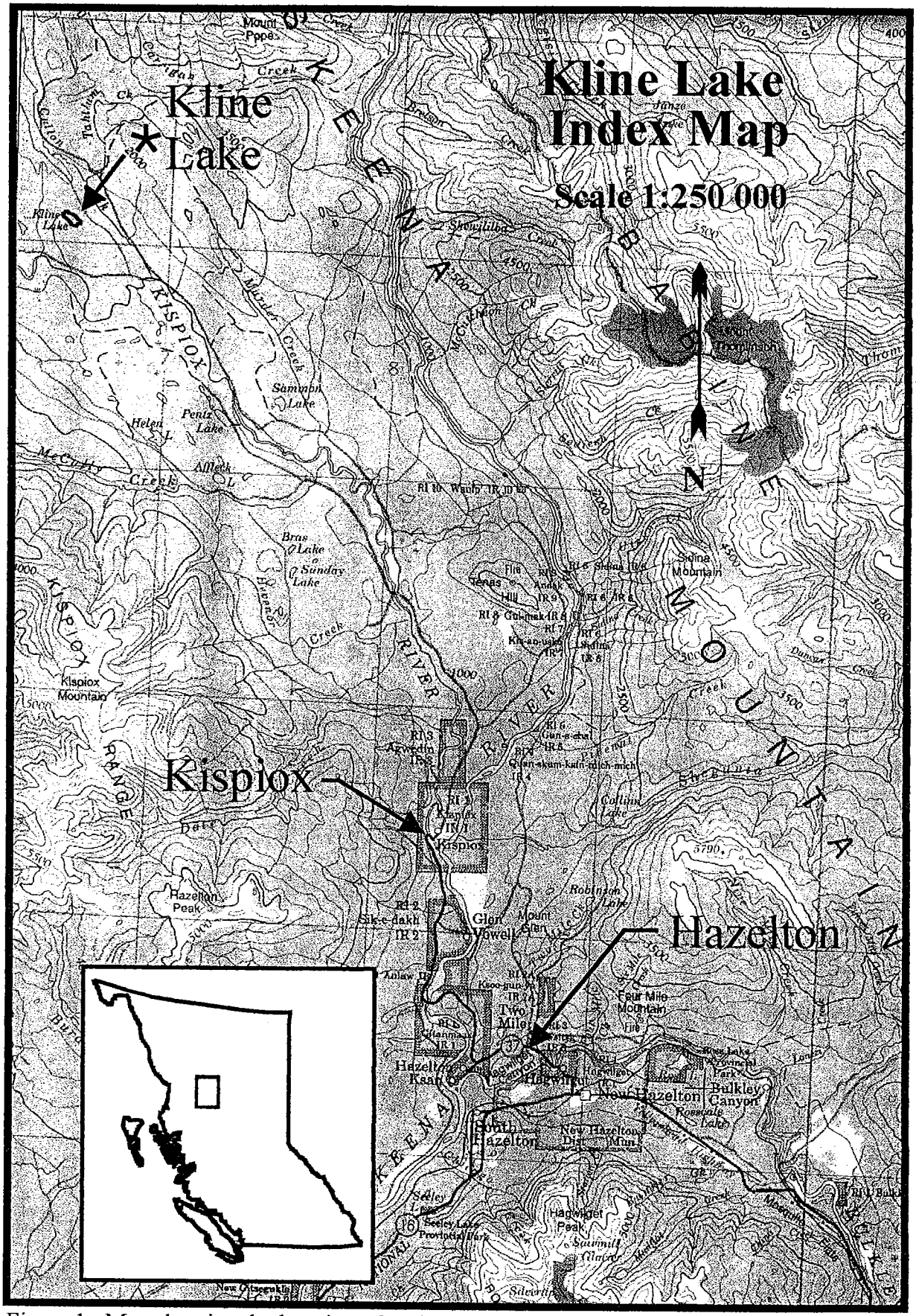


Figure 1. Map showing the location of Kline Lake,, Watershed Code 470-290100-, Waterbody Identifier 00531KISP.

3.0 Methods

Methods used in the inventory of this lake were those described primarily in the Resource Inventory Committee of British Columbia (RIC) document entitled Reconnaissance 1:20 000 Fish and Fish Habitat Inventory Standards and Procedures, May 1997 for secondary lakes. In addition, the standards prescribed in the following documents were used:

- Fisheries Information Summary System: Data Compilation and Mapping Procedures. Federal/Provincial Fish Habitat Inventory and Information Program. February 1995.
- Lake and Stream Inventory: Standards and Procedures, RIC Draft, May 1995; to be replaced in March 1997 by: Reconnaissance (1:20 000) Fish and Fish Habitat Inventory: Standards and Procedures.
- Users Guide to the British Columbia Watershed/Waterbody Identifier System, Version 2.1, RIC Draft January 1997;
- Fish Collection Methods and Standards, RIC Draft January 1997;
- Field Key to Fresh Water Fishes of British Columbia, RIC Draft 1993;
- Bathymetric Standards for Lake Inventories, A: Fish and Fish Habitat, RIC Draft, January 1997;
- Aerial Photography and Videography Standards for Fish Habitat Channel Assessment, RIC 2nd Draft, March 1996;
- A Guide to Photodocumentation for Aquatic Inventory, RIC Draft, March 1996;
- Standards for Aquatic Mapping, RIC Draft, January 1997;
- Ambient Fresh Water and Effluent Sampling Manual, RIC Draft, July 1994;
- Identification Keys to the Aquatic Plants of British Columbia, RIC Draft 1994;
- BC Standards, Specifications and Guidelines for Resource Surveys Using Global Positioning Systems (GPS) Technology, RIC Draft, 1995.

Prior to landing on the edge of the lake, aerial photographs of the lake and its associated streams were taken from the helicopter. Upon landing on the edge of the lake, angling was attempted. If no fish were caught by angling, a multimesh, 92 m long floating gill net was set. The deepest part of the lake was then found using a Lowrance echosounder by measuring the depth along one e-line and then measuring the depth along one transect at right angles to the e-line and at the deepest point on the e-line. At the deepest point we measured the dissolved oxygen concentration and temperature at 1 metre intervals to either the bottom of the lake or 30 metres, whichever came first. The pH and conductivity of the surface water and a sample from 1 metre above the bottom were measured. The secchi depth was then determined at this location and photographs of the surrounding shoreline were taken. At this point, the floating gill net was checked for fish. If it was empty, a similar sinking gill net and five minnow traps were set. The shoreline was surveyed, locations of inlet and outlet streams were recorded and assessed visually for significant habitat from the boat, substrate was assessed, aquatic vegetation was mapped and the high water mark was estimated. The nets and minnow traps were then frequently checked and if nothing was caught, they were left to fish overnight. In the morning, nets and traps were hauled regardless of fish capture.

Equipment used in the Kline Lake inventory included the following:

- Lowrance X-16 echosounder was used to find the depth of the deepest spot in the lake to determine the limnological sampling site
- Eight foot Zodiac inflatable boat powered by a 2 hp Honda 4 cycle outboard motor was used for studying inlet and outlet streams, shoreline vegetation and substrate composition, and for setting minnow traps
- YSI Model 57 portable Oxygen Meter was used for dissolved oxygen and temperature measurements
- Oakton pH/mV/C meter was used for pH measurements
- LaMotte Conductivity Meter was used for conductivity measurements
- Eagle Explorer 12 Channel GPS Receiver or Garmin 12XL GPS handheld units were used for UTM measurements on the lake
- Pentax 35 mm single lens reflex (SLR) camera with a standard 35 mm focal length lens was used for all photography
- Microsoft Word 6.0 was used for production of the report, and Microsoft Excel 5.0 was used for data storage, calculations, and graphing
- CorelDRAW Graphics 6.0 was used for composition of lake outline, fishing, and index maps
- Ministry of Environment digital entry tools entitled Field Data Information System (FDIS) and Fish Collection Form (Fishcoll) were used for recording data

4.0 Results and Discussion

4.1 General Description

Kline Lake is located in the Kispiox River valley. The elevation of the lake was 384 metres and the surface area was 25 ha. The surrounding area of the lake had some recreational potential for camping, although access to the lake was difficult due to the brown-stemmed bog moss.

4.2 Immediate Shoreline

The entire shoreline of Kline Lake consisted of wetlands. At the southern end of the lake, there was approximately 500 metres of bog before arriving at the edge of the forest. The southeasterly portion of the lake was inaccessible by boat due to the large macrophyte beds of yellow pondlily (Nuphar spp.). Emergent aquatic vegetation covered about 50% of the surface area of the lake and consisted of Potamogeton spp., marsh cinquefoil (*Potentilla palustris*), sedges (*Carex spp.*) and yellow pondlily (*Nuphar spp.*) Submergent vegetation was also abundant and covered about 35% of the lake bottom. Brown stemmed bog moss (*Sphagnum lindbergii*) formed a semi-aquatic carpet around the perimeter of the lake.

Terrestrial plants and lichens observed on the lake shore included; Birch *(Betula spp.)*, Cottonwood *(Populus balsamifera)*, Fir *(Abies spp.)*, Spruce *(Picea spp.)*, Bunchberry *(Cornus*

canadensis), High bush cranberry *(Viburnum edule)*, Powdery old man's beard *(Usnea lapponica)* and Blueberry *(Vaccinium spp)*.

4.3 Surrounding Country

Kline Lake is surrounded by a mixed deciduous and coniferous forest that covers the rolling hills of the Kispiox River valley and is within the ICH biogeoclimatic zone. Forest development had occurred in the area however the cutblocks were supporting a regenerating mixed stand. Photos of the surrounding region are found on CD#4 photo 4. The closest visible mountain was Mount Thomlinson, approximately 30 kilometres to the southeast (see CD#4 photo 7).

4.4 Summary of Data Collection

The data collected was recorded in digital files written by the Ministry of Environment in Microsoft Access 2.0 under the name Field Data Information System (FDIS). The specific file name is fdisdat.mdb and contains all of the habitat information. In a similar digital entry tool called Fish Collection Form (Fishcoll), all information relating to fish and fish sampling effort was recorded in a file named fishcoll.mdb. The information in these files is contained in an appendix in hardcopy form and is also provided on a 3 1/2 inch diskette at the back of this document.

4.4.1 Annotated Air Photo

An annotated air photo of Kline Lake showing limnological station, fish sampling sites and inlet and outlet streams is given in Figure 2.

4.4.2 Lake Outline Map

An outline map of Kline Lake showing limnological station, fish sampling sites, inlet and outlet streams and photograph locations and directions is given in Figure 3.

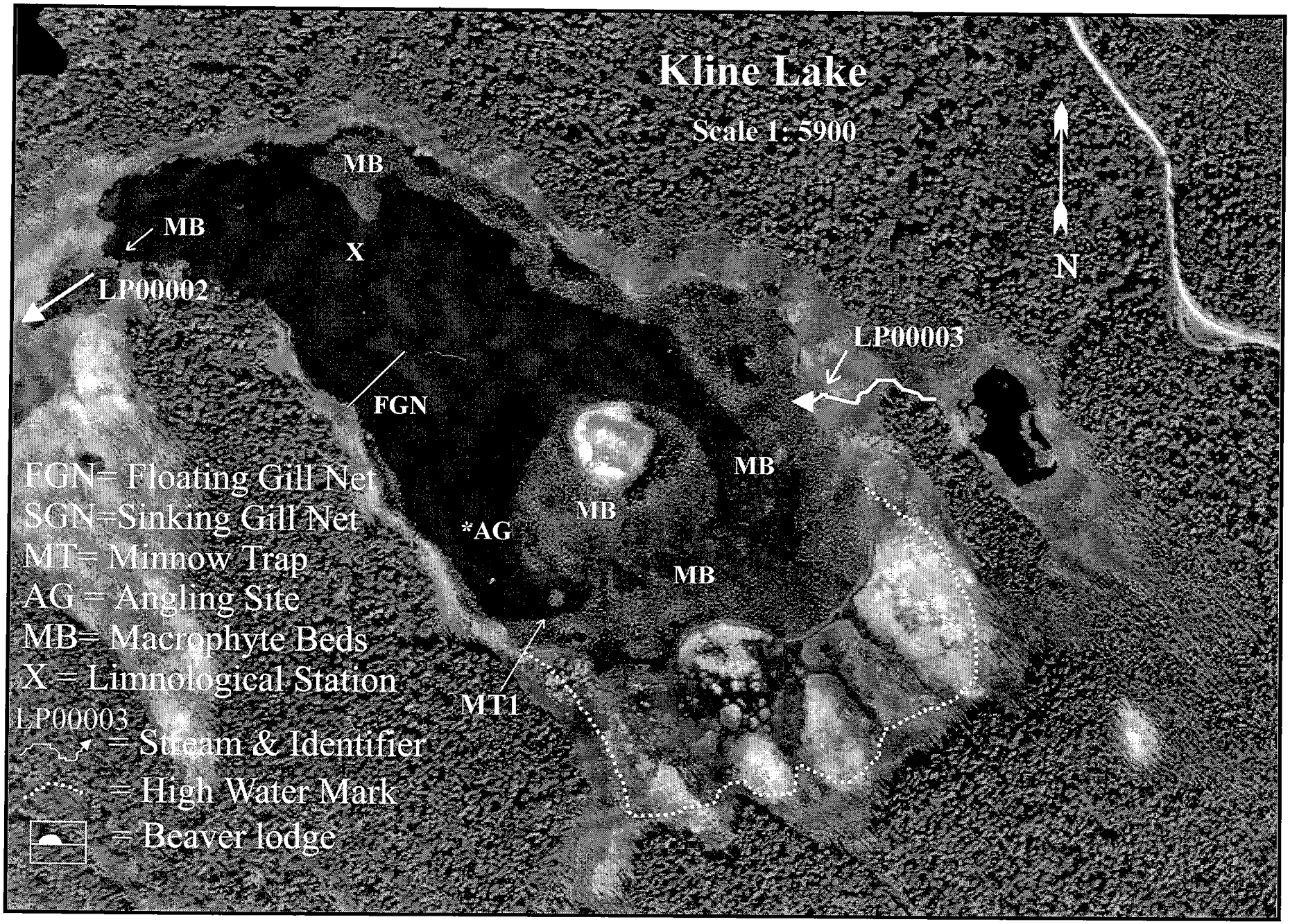


Figure 2. Enlargement of Kline Lake (Waterbody Identifier 00531KISP) from aerial photograph 30BCB92136 No. 202.

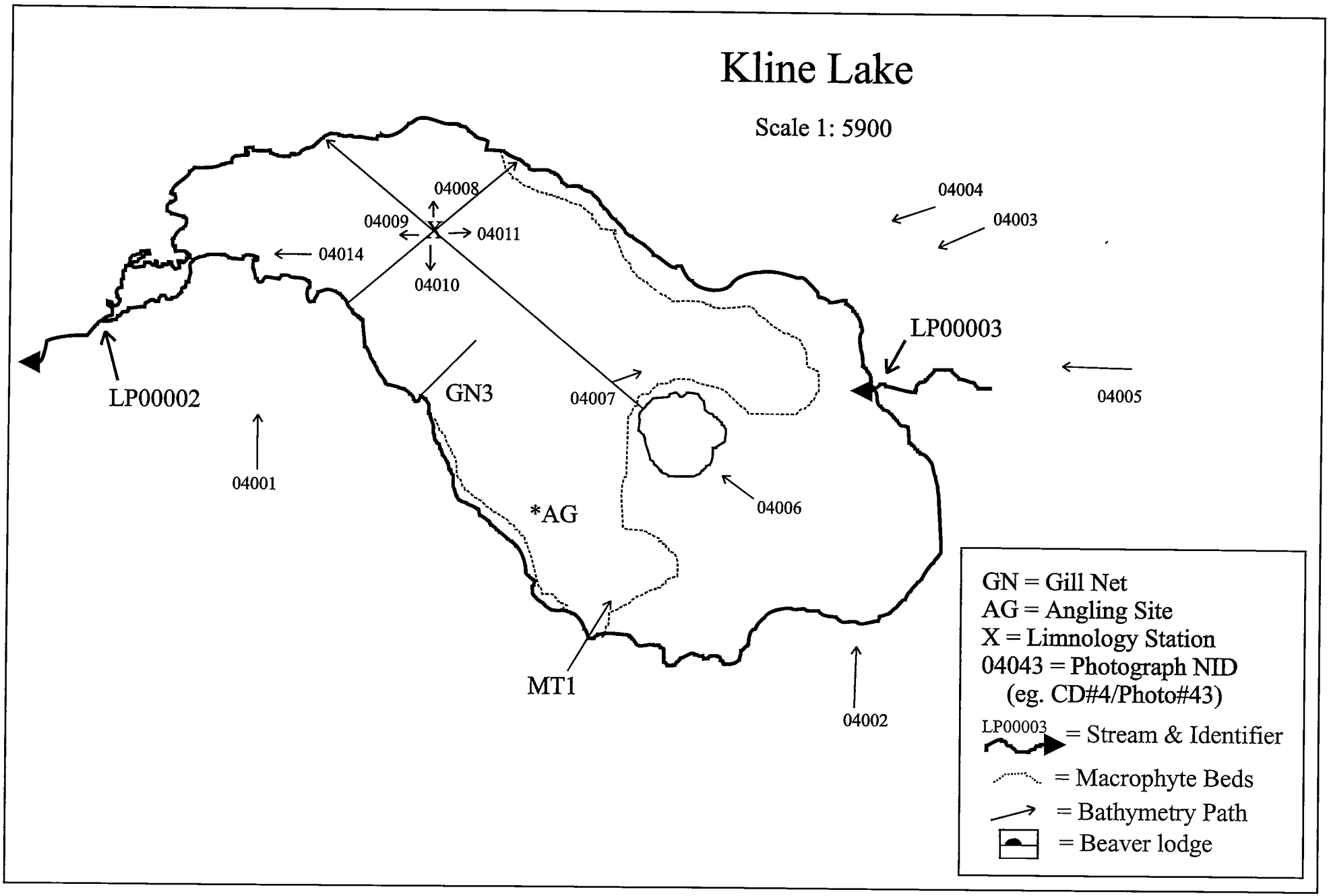


Figure 3. Enlargement of Kline Lake (Waterbody Identifier 00531KISP) from aerial photograph 30BCB92136 No. 202 showing limnological station, fish sampling sites, inlet and outlet streams, significant aquatic macrophyte beds and photograph locations and directions.

4.4.3 Streams

Table 1. A list of streams associated with Kline Lake.

Table 1 lists all of the streams that were shown on the 1:20 000 TRIM and Forest Cover Maps as flowing into or out of Kline Lake. Both of these streams were found in the field. LP numbers are interim location point numbers assigned to each stream pending replacement with unique watershed codes.

Map Number	Project ID	Interim Location Point Number	Found in Field	UTM Zone	Easting	Northing	High Level Watershed Code	Comments
93M.051	06-LBIR-0010-0002-1998	LP00002	Yes	9U	563850	6160550	470-290100	Kline Lake Outlet;
93M.051	06-LBIR-0010-0002-1998	LP00003	Yes	9U	565840	6161100	470-290100	Kline Lake Inlet;

4.3.4.1 Streams Surveyed

Detailed comments on the individual streams observed can be found on the Lake Survey Form.

Neither of the identified streams associated with this lake were directly accessible by ground due to the presence of very deep swamp that was plugged with vegetation.

The only inlet recorded on TRIM and Forest Cover Maps was found in the field.

4.4.4 Limnological Sampling

Limnological sampling was conducted at 0900 hours on September 20, 1997. This site is marked X on the accompanying annotated air photo map and lake outline map. Field data was recorded on the Lake Survey Form, a copy of which can be found in the appendix.

4.4.4.1 Stratification

Kline Lake was not distinctly thermally stratified, though temperature was constant to 3 metres, beyond which point it decreased steadily with increasing depth. Dissolved oxygen was stratified with the oxycline starting at approximately 4 metres. Kline Lake appeared to be eutrophic.

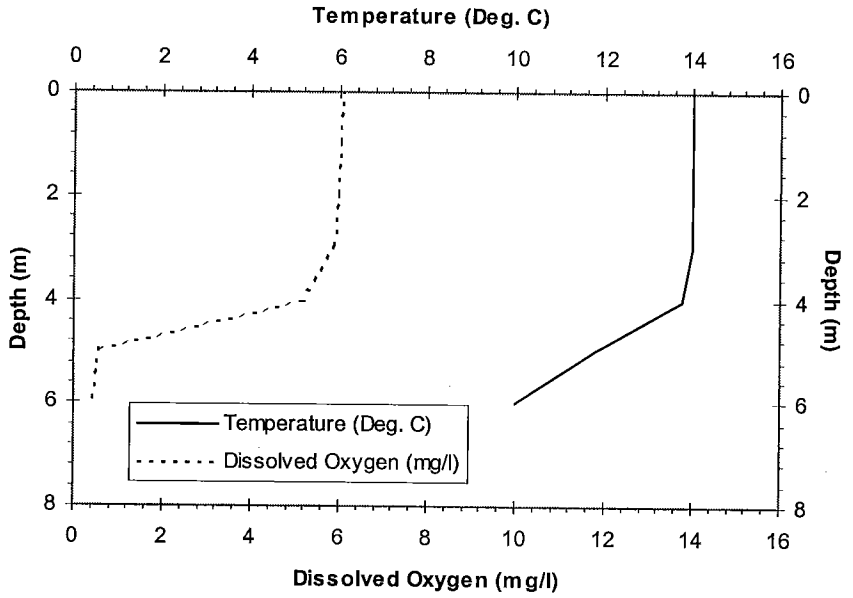


Figure 4. Temperature and dissolved oxygen profiles for Kline Lake on September 20, 1997.

4.4.5 Photographs

Photographs taken at this lake are recorded on Compact Disk #765 (CD #4), one of a duplicate set of six CD's produced during the overall project assessing 34 lakes.

Table 2. Index to photographs.

Roll #	Frame	CD/Photo Number	Direction	NID Map	NID	UTM Zone	Easting	Northing	Comment
78	1	4/001	N	93M.051	4001	9	564950	6161100	LP00001 from the air
78	10	4/010	S	93M.051	4010	9	565223	6161094	looking S from limnology station
78	11	4/011	E	93M.051	4011	9	565223	6161094	looking E from limnology station
78	12	4/012	X	93M.051	4012	9	565400	6160750	fish from GN1 (floater)
78	13	4/013	X	93M.051	4013	9	565400	6160750	fish from GN1 (floater)
78	14	4/014	N	93M.051	4014	9	564950	6161100	LP00001 outlet
78	2	4/002	N	93M.051	4002	9	565950	6160400	wetland complex at east end of lake from the air
78	3	4/003	S	93M.051	4003	9	566450	6160900	overview from the air
78	4	4/004	S	93M.051	4004	9	566450	6160900	overview from the air
78	5	4/005	W	93M.051	4005	9	565840	6161100	LP00003 from the air
78	6	4/006	N	93M.051	4006	9	565700	6160850	island of vegetation in middle of lake
78	7	4/007	N	93M.051	4007	9	565500	6161000	scenic beauty
78	8	4/008	N	93M.051	4008	9	565223	6161094	looking N from limnology station
78	9	4/009	W	93M.051	4009	9	565223	6161094	looking W from limnology station

N.B. The NID is the Numerical Identifier of a feature, in this case, a photograph. The first digit of the NID represents the CD number and the last three digits represent the photo number.
X = Direction not relevant N, E, S, W = Compass Directions
All photographs taken with standard 35 mm focal length lens.

4.4.6 Sampling Summary

Table 3. Fish sampling effort summary for Kline Lake and its associated streams on August 19, 1997.

Fishing Effort Summary							
Site No.	Method	Depth at sampling	Set		Pull		Species
			Date	Time	Date	Time	
1	Minnow Trap	1 m	Sept. 19	1847	Sept. 19	2045	
2	Angling	Surface	Sept. 19	1852	Sept. 19	1900	
3	Floating Gill Net	2 m	Sept. 19	1705	Sept. 19	2030	PCC

PCC=Peamouth Chub

4.5 Summary of Fish Captured

Table 4. Summary of data from fish sampled in Kline Lake, August 19, 1997.

Lake Name	Spp.	Number of fish	Mean length (mm)	Range of Lengths (mm)
Kline Lake	PCC	6	132	110-187

PCC=Peamouth Chub

4.6 Fisheries Observations

4.6.1 Fish

Six peamouth chub (*Mylocheilus caurinus*) were captured at Kline Lake in the floating gill net which was set for three and a half hours.

4.6.2 Habitat

The habitat for fish in this lake appeared to be good. There was an abundance of emergent and submergent aquatic vegetation which could provide cover for fish. No spawning habitat was observed in any of the streams associated with the lake. Approximately 85% of the lake was part of the littoral zone as the maximum depth of the lake was seven metres.

4.6.2.1 Fisheries Sensitive Zones

Both the inlet and outlet stream were surrounded by wetlands that could be considered Fisheries Sensitive Zones.

4.6.2.2 Restoration and Rehabilitation Opportunities

The cutblocks located in the vicinity of the lake supported mixed deciduous and coniferous regeneration. Kline Lake did not have any restoration opportunities.

4.7 Logistics

There were no significant problems in the field work component of this inventory.

Data entry in this report was done using a program called Field Data Information System (FDIS) produced by Ministry of Environment, Lands and Parks of British Columbia. There were multiple releases of this data entry tool throughout production of this report and this caused a loss of significant time. In addition, the Lake Survey Form component of this program was not released until the project was nearly finished causing undue delays.

References

Section A. Standards Documents

The following documents were used as guidelines in conducting this project.

Anon. (1997) Bathymetric Standards for Lake Inventories. British Columbia Ministry of Environment, Lands and Parks, 42 pp.

Anon. (1995) Fisheries Information Summary System: Data Compilation and Mapping Procedures. British Columbia Ministry of Environment, Lands and Parks, and Department of Fisheries and Oceans, 105 pp.

Anon. (1996) A Guide to Photodocumentation, Resources Inventory Committee Manual, Province of British Columbia.

Anon. (1996) Field Key to the Freshwater Fishes of British Columbia, Resources Inventory Committee Manual, Province of British Columbia.

Anon. (1997) User's Guide to British Columbia's Watershed/Waterbody Identifier System, version 2.1, Resources Inventory Committee, Province of British Columbia.

Anon. (1997) Field Data Information System Users Manual. British Columbia Environment, Lands and Parks.

Anon. (1997) Reconnaissance (1:20 000) Fish and Fish Habitat Inventory: Standards and Procedures.

Anon. (1997) Fish Collection Methods and Standards. Ministry of Environment, Lands and Parks' Fish Inventory Unit in consultation with Gordon Haas of UBC Fish Museum.

Anon. (1997) Standards for Fish and Fish Habitat Mapping. Fisheries Section, Resources Inventory Branch, Resources Inventory Committee

Section B. List of Contacts

The following individuals were contacted during the course of this study.

Deleeuw, D. (1997) Senior Habitat Biologist. Ministry of Environment, Terrace, British Columbia. Personal Communication.

Facchin, Angelo. (1997-1998) Ministry of Environment, Lands and Parks, Victoria, British Columbia. Field Data Information System. Personal Communication.

Giroux, Paul. Fisheries Inventory Specialist. Ministry of Environment. Smithers, British Columbia. Personal Communication.

Hatlevik, Sig. Senior Fisheries Technician. Ministry of Environment. Smithers, British Columbia. Personal Communication.

Hazelwood, G. (1997) Biologist. Terrace, British Columbia. Personal Communication.

Miers, Lynn. (1997-1998) Ministry of Environment, Lands and Parks, Victoria, British Columbia. Field Data Information System. Personal Communication.

Neis, P. (1997). Ministry of Environment, Lands and Parks, Smithers, British Columbia. Personal Communication.

Senka, J. (1997) Environmental Protection. Waste Management Branch, Ministry of Environment, Lands and Parks, Smithers, British Columbia. Personal Communication.

Stewart, R. (1997) Forest Ecosystem Specialist. Ministry of Environment, Kispiox Forest District, Hazelton, British Columbia. Personal communication.

Section C. Field Guides

The following field guides were used for this project.

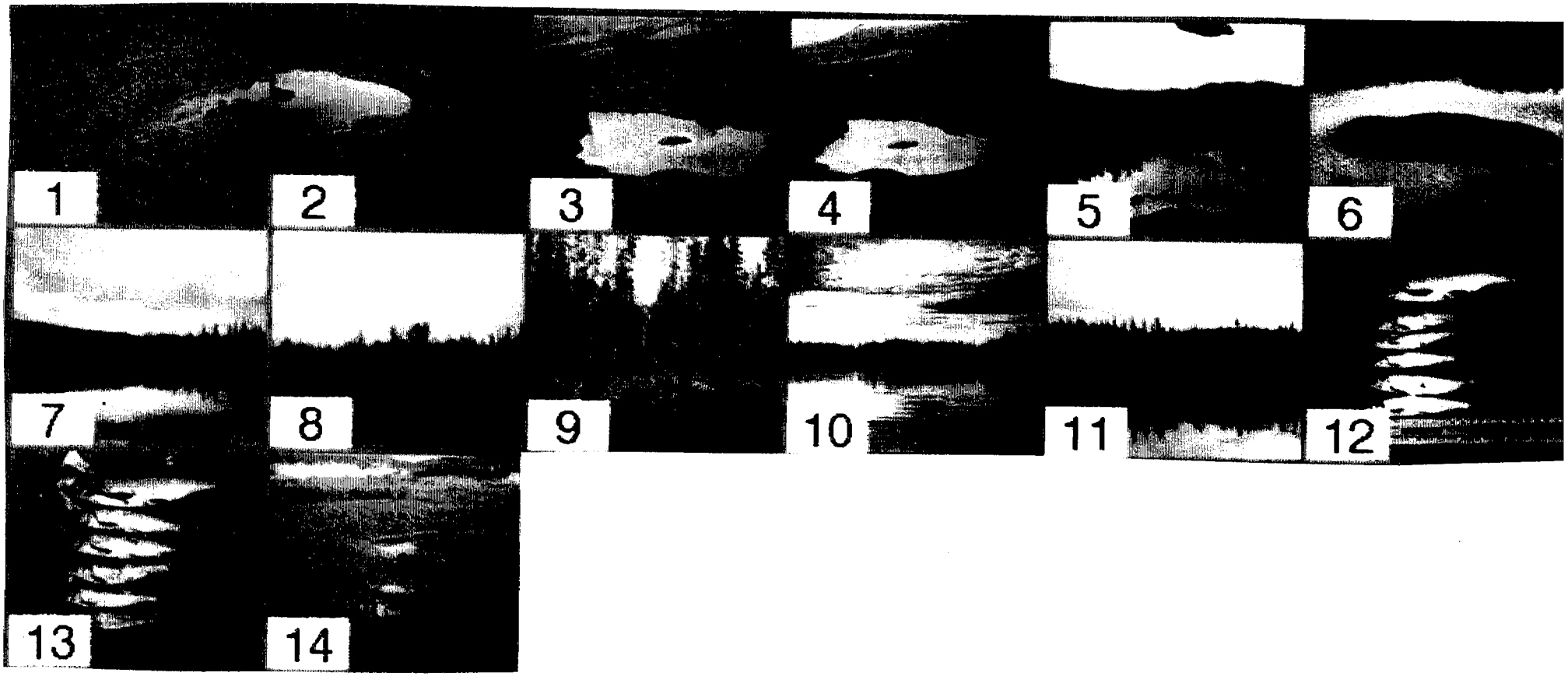
Scott, W. B. and Crossman, E. J. (1973) Freshwater Fishes of Canada. Fisheries Research Board of Canada, Ottawa. Published by Crown.

MacKinnon, Pojar and Coupe. (1992). Plants of Northern British Columbia. B. C. Ministry of Forests and Lone Pine Publishing, Vancouver, British Columbia.

Appendix 1. Photo CD Index Enlargement

The following page is a contact sheet to be used as an index to photographs stored on CD #4. This CD is one of a set of duplicate copies of six CDs that were supplied with the 34 separate lake reports which formed this project.

CD/Photo Number	Direction	NID Map	NID	UTM Zone	Easting	Northing	Comment
4/001	N	93M.051	4001	9	564950	6161100	LP00001 from the air
4/010	S	93M.051	4010	9	565223	6161094	looking S from limnology station
4/011	E	93M.051	4011	9	565223	6161094	looking E from limnology station
4/012	X	93M.051	4012	9	565400	6160750	fish from GN1 (floater)
4/013	X	93M.051	4013	9	565400	6160750	fish from GN1 (floater)
4/014	N	93M.051	4014	9	564950	6161100	LP00001 outlet
4/002	N	93M.051	4002	9	565950	6160400	wetland complex at east end of lake from the air
4/003	S	93M.051	4003	9	566450	6160900	overview from the air
4/004	S	93M.051	4004	9	566450	6160900	overview from the air
4/005	W	93M.051	4005	9	565840	6161100	LP00003 from the air
4/006	N	93M.051	4006	9	565700	6160850	island of vegetation in middle of lake
4/007	N	93M.051	4007	9	565500	6161000	scenic beauty
4/008	N	93M.051	4008	9	565223	6161094	looking N from limnology station
4/009	W	93M.051	4009	9	565223	6161094	looking W from limnology station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Appendix 2. Field Data Information System (FDIS)

FDIS Lake Form

16-Jul-98

Reach # 1 | ILP Map # | ILP #

Watershed Code: 470-290100-00000-00000-0000-0000-000-000-000-000-000-000

WATERBODY

Waterbody Type Secondary **Sample Type** Secondary **Project ID** 06-LBIR-0010-0783-1998

Lake Name **Local Name** Kline Lake (gaz.) (Ki 40) Fish Form? ☒

Watershed Code 470-290100-00000-00000-0000-0000-000-000-000-000-000-000

Reach # 1 **Air Photo Ref.** 30BCB92126 203 **Ref. Comment**

Waterbody ID 00531KISP **ILP Map #** **ILP #** **Magnitude** 1

NID Map # **NID #** **UTM** 9 565510 6161065

TRIM Map #	Year
93M.051	1995

		Source	Method
Surface Area	25	O	O
Elevation	384	MAP	MAP
Biogeoclimatic Zone	ICH		

TERRAIN CHARACTERISTICS

Setting VF **Aspect** W

Hillslope Coupling DC **Basin Genesis** GL

LAND USE	NO	AG	FB	FR	MI	PR	UD	OT
Percentage	100							

SHORELINE CHARACTERISTICS

Shoreline Type	i	ii	iii	iv	v
Percentage				100	

Cover ABUN Resorts Camps Boatlaunch

Rec. Features 0 0 0

INLETS / OUTLETS

 # Inlets (Perm.) 0 **Inlets (Other)** 1 **Outlets:** 1 **Spawning hab. present?** ☐

I/O	Watershed Code	ILP Map #	ILP #	Comments
O		93M.051	2	
I		93M.051	3	

SURVEY INFORMATION

Date 1997-09-19 **to** 1997-09-20

Agency C074 **Crew** MB/DW

ACCESS

AIR ☐ FW ☒ H **ROAD** ☐ V2 ☐ V4 **Auto within**

OFF ROAD ☐ FT ☐ ATV ☐ V4 **Distance**

TRAIL? ☐ **Distance**

Closest Community Kispiox

Comments

the Kispiox road is near to the east- although there is no access to the lake you could hike 500m through the bush on the east side of the lake to get to the Kispiox highway.

AQUATIC FLORA

EMERGENT VEG. Sparse ☐ **OR** 50 %

SUBMERGENT VEG. Sparse ☐ **OR** 40 %

Floating Algae? ☐

Voucher Specimen

Type	Dom. Species
EMERGENT	potamogedon
EMERGENT	yellow pondlily
EMERGENT	cinquefoil

FDIS Lake Form

16-Jul-98

Reach # 1 | ILP Map # | ILP #

Watershed Code: 470-290100-00000-00000-0000-0000-000-000-000-000-000-000

LAKE BATHYMETRY

Type of Survey EL **Littoral Area** 85 % **Method** O **Max. Depth** 7

Benchmark Height **Max Water Level** 0.1

Benchmark Type/Location

Comments the lake can come up a lot because of the moss and water retention-100% swamp

PHOTO DOCUMENTATION

Photo (R/F)	Foc Lg	Dir	NID Map #	NID #	UTM (zone/easting/northing)			Method	Comments
78 / 1	ST	N	93M.051	4001	9	564950	6161100	MAP	LP00001 from the air
78 / 10	ST	S	93M.051	4010	9	565223	6161094	GP3	looking S from limnology st
78 / 11	ST	E	93M.051	4011	9	565223	6161094	GP3	looking E from limnology st
78 / 12	ST	X	93M.051	4012	9	565400	6160750	MAP	fish from GN1 (floater)
78 / 13	ST	X	93M.051	4013	9	565400	6160750	MAP	fish from GN1 (floater)
78 / 14	ST	N	93M.051	4014	9	564950	6161100	MAP	LP00001 outlet
78 / 2	ST	N	93M.051	4002	9	565950	6160400	MAP	wetland complex at east en the air
78 / 3	ST	S	93M.051	4003	9	566450	6160900	MAP	overview from the air
78 / 4	ST	S	93M.051	4004	9	566450	6160900	MAP	overview from the air
78 / 5	ST	W	93M.051	4005	9	565840	6161100	MAP	LP00003 from the air
78 / 6	ST	N	93M.051	4006	9	565700	6160850	MAP	island of vegetation in midd
78 / 7	ST	N	93M.051	4007	9	565500	6161000	MAP	scenic beauty
78 / 8	ST	N	93M.051	4008	9	565223	6161094	GP3	looking N from limnology st
78 / 9	ST	W	93M.051	4009	9	565223	6161094	GP3	looking W from limnology s

AQUATIC WILDLIFE OBSERVATIONS

Group	Observations
MAM	red squirrel
MAM	3 beavers
BIR	crow

LIMNOLOGICAL STATION WATER QUALITY

Station No. 1 **Date** 1997-09-20 **Time:** 09:00

Location UTM 9 565223 6161094 **EMS #**

METHOD USED WATER SAMPLE

FDIS Lake Form

16-Jul-98

Reach # 1 | ILP Map # | ILP #

Watershed Code: 470-290100-00000-00000-0000-0000-000-000-000-000-000-000

Secchi Depth 2.8

Water Color BROW VE

pH (surf/bottom) 7.3 6.8

Ice Depth

DISSOLVED OXYGEN, TEMPERATURE PROFILE AND CONDUCTIVITY

Depth	DO (d)	T(C)	DO (a)	T (C)	Cond.
0.1	6.2	14	5.9	14	21
1	6.2	14	5.8	14	
2	6.2	14	5.7	14	
3	6.2	14	5.5	14	
4	5.5	14	4.9	13.5	
5	0.7	12	0.4	11.5	
6	0.4	10	0.4	10	28

H2S:

EQUIPMENT USED

pH	P2	**Water Temp**	T2	**Conductivity**	S4	**Dis. Oxygen**	D2

COMMENTS

Section	Comments
WEATHER	cloudy but not raining (air temp 9C) no wind
WATERBODY	this lake is plugged with vegetation
INLETS/OUTLETS	not accessible by ground (all very deep swamp)
INLETS/OUTLETS	LP00002-outlet. No spawning potential in this deep swamp.
INLETS/OUTLETS	LP00003-good rearing potential in the swamp.

Appendix 3. Fish Data Collection Form

Fish Data Collection Form

A. Location Referencing

Gazetted Name KLINE LAKE **Alias** Ki40
Watrshed Cod 470-290100-00000-00000-0000-0000-000-000-000-000-0 **WBID #** 00531KISP
Reach # 1 **Interim Locational ID:** **Project ID** 06-LBIR-0010-0783-1998
(BCGS/NTS) Map # 93M.051 **Locational Point**

B. Survey Information

Survey Dat 1997/09/19 **to** 1997/09/20 **Agency** C074
Crew MB /DW/ **Fish Collection Permit** 34770-20
General Comments

C. Station Identification and Conditions

Site	Method	#	UTM Coordinates	Temp	Con	Vis	Turb
1	MT	8					
2	AG	1					
3	GN	7					

D. Fish Summary

Site	Meth	#	H/P	Species	Stage	Age	Tot #	Min Lgth	Max Lgth	Fish Act
1	MT	8	1							
2	AG	1	6							
3	GN	7	1	PCC	J		6	110	187	R

E. Gear Specifications

Site	Meth	#	H/P	D In	T In	D Out	T Out	EF Sec	EF Lgth	EF Wdth	Encl	Nt Typ	Lgth	Dpth	Mesh	IN Sz	Set	Hab	Volt	Freq	Pul	Make	Model
1	MT	8	1	09/19	1847	09/19	2045																
2	AG	1	6	09/19	1852	09/19	1900																
3	GN	7	1	09/19	1705	09/19	2030					FL	100	2	ST		SU	L					

F. Individual Fish Data

Site	Meth	#	H/P	Species	Lgth	Wgt	Sex	Mat	Age Str	Age Smp #	Age	Vouch #	Gen Str	Gen Smp #	Comments	Roll	Fr
1	MT	8	1														
2	AG	1	6														
3	GN	7	1														
3	GN	7	1	PCC	187	55	U		SC	1			FR	1		78	12
3	GN	7	1	PCC	135	17	M	IM	SC	2			FR	2		78	12
3	GN	7	1	PCC	135	14	U	IM	SC	3			FR	3		78	12
3	GN	7	1	PCC	115	10	U	IM	SC	4			FR	4		78	12
3	GN	7	1	PCC	110	6	U	IM	SC	5			FR	5		78	12
3	GN	7	1	PCC	110	5	U	IM	SC	6			FR	6		78	12