Unnamed Lake
(460-600600-36400-39700-02)
01378MORR

SECONDARY LAKE INVENTORY
1997 STUDIES

Ministry of Environment, Lands and Parks
Project No. IVBVS622 (FRBC)

Prepared for:

MINISTRY OF ENVIRONMENT,
LANDS AND PARKS, SKEENA REGION
BC Environment
PO Box 5000
Smithers, BC
V0J 2N0

Prepared by:

HATFIELD CONSULTANTS LTD.
Suite 201 - 1571 Bellevue Avenue
West Vancouver, BC
V7V 1A6

Tel: (604) 926.3261 Fax: (604) 926.5389
Email: hcl@hatfieldgroup.com

APRIL 1998

COVER PAGE

Lake Name:	**Unnamed Lake**
Alias:	**-**
Watershed Code:	**460-600600-36400-39700-02**
Waterbody Identifier:	**01378MORR**
Survey Date:	**September 29, 1997**
Project Code:	**lVBVS622**
Survey Objectives:	**to conduct secondary lake inventories in the southern portions of the Morice and Lakes Forest Districts (Prince Rupert Forest Region)**
Survey Type:	**Secondary Lakes Inventory**
Survey Agency:	**CO60**
Proponent:	**MELP**
Inventory Program:	**FRBC**

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APPENDICES

1.0 LAKE INVENTORY DATA

1.1 WATERBODY

Type:	Small lake (<400 ha)
Lake Name:	Unnamed Lake
Watershed Code:	460-600600-36400-39700-02
Waterbody Identifier:	01378MORR
Map Reference:	093L.006 (1993), 093L.016 (1990)
Air photo Reference:	30BCC 95059 No.262
Surface Area: 31 ha	Source: MELP
Elevation: 1027 m	Source: TRIM
Biogeoclimatic Zone:	Englemann Spruce-sub-alpine Fir (ESSF)

The lake is shown in Plates 1 and 2.

1.2 ACCESS

The lake was accessed by helicopter from Houston. Flying time was approximately 15 minutes southwest of Houston.

1.3 TERRAIN

The lake appears to be a glacial lake (GL), with a southwest aspect. It is situated on the valley floor (VF), and exhibits no signs of hillside coupling (DC). Land in the immediate vicinity of the lake is comprised of natural areas (50%) and forestry (50%).

1.4 SHORELINE

The shoreline is comprised of 80 % rocky substrate and 20% marsh. Shoreline vegetative cover is moderate and consists primarily of grass and low-lying shrubs. Potential spawning gravel was observed intermittently throughout the shoreline, particularly at the mouth of the inlets and the outlet. An extensive marsh exists at the northeast end of the lake. No recreational features (i.e. resorts, campsites, boat launches) were observed.

1.5 BATHYMETRY

An E-line survey was completed along the long axis of the lake using a Lowrance X-16 unit (equipped with continuous paper trace sounder rolls). The maximum recorded depth was 8.5 m. Based on the E-line survey, the estimated littoral area (% lake <6 m) is 60%. The maximum high water mark was observed at 0.6 m.

1.6 INLETS/OUTLETS

Four permanent inlets, one ephemeral inlet and one outlet have been identified for this lake. Three inlet tributaries were previously mapped on the 1:20,000 TRIM map. One of the five tributaries had an existing watershed code; interim locational points (ILP) were used to identify the remaining four tributaries. A channel was not discernible during the field survey for one of the previously mapped inlets and has been recorded as nvc on the lake outline map.

Inlet (permanent)
w/s code: 460-600600-36400-3970

This tributary is the main inflow with an approximate width of 1.5 m at the lake. The stream passes beneath forest cover until it reaches the lake. The substrate consists mostly of sand and silt with substantial amounts of debris. Near the lake the stream provides potential rearing habitat but no spawning habitat.

Inlet (permanent)
ILP # 62

This channel had an approximate width of 0.8 m at the lake. Water was flowing at the time of the survey. Gravel is present within the channel and at the stream mouth and provides good potential spawning habitat. Further upstream the forest canopy and overhanging vegetation provide good stream cover.

Inlet (ephemeral - nvc)
ILP # 63

Although previously mapped on the 1:20,000 TRIM map, no channel was discernible during a foot survey of the area. Further investigation may be required to confirm channel presence.

Inlet (permanent – new tributary)

ILP # 106

This tributary was not identified on the 1:20,000 TRIM and is therefore considered a new tributary. Water was flowing at the time of the survey. The channel passes through a marsh/scrub area and is approximately 0.4 m in width at the mouth. The substrate consists primarily of sand and silt. This inlet likely provides good rearing habitat at high flow.

Inlet (permanent – new tributary)
ILP # 106

This tributary was not identified on the 1:20,000 TRIM map and is therefore considered a new tributary. Water was flowing in the inlet at the time of the survey. The channel passes through a marsh/scrub area and is approximately 1.5 m in width at the mouth. There is a substantial amount of gravel in this channel, providing good potential spawning habitat. A number of small, similar channels lead into the lake from the same marsh area but only two additional tributaries were noted as distinct. A large pond area located approximately 15 m upstream, is connected to this channel. The pond area is potential rearing habitat.

Outlet
w/s code: 460-600600-36400-39700

The outlet has a channel width of approximately 4-5 m at the lake. Gravel and cobble substrate occurs along this channel as well as along the shore, providing potential spawning habitat. The channel also had good stream cover further downstream beneath a forest canopy.

1.7 AQUATIC FLORA

Small areas of the lake had emergent vegetation (<10%) and submergent vegetation (<10%). Submergent species included *Fontinalis antipyretica,* and *Ranunculus spp.,* while emergent vegetation included *Nuphar lutea* (yellow pond-lily), and *Hippuris spp*. Floating algae were not observed.

1.8 WILDLIFE

One duck was observed during the survey.

1.9 LIMNOLOGICAL SAMPLING

The limnological sampling site was located at the deepest recorded point (8.5 m). Dissolved oxygen (mg/l) and temperature (C) were measured with a YSI meter (model 85). A thermocline was evident approximately 7.0 m below

surface. Oxygen levels were between 5 and 8 mg/l above the thermocline (for profile results, refer to Appendix D). The Secchi disc was visible at 2.5 m; water colour was brown. pH was measured using a hand held Hanna pH meter. The surface and bottom pH values were 7.4 and 7.0, respectively. H_2S was not detected.

1.10 SURVEY COMMENTS

1.10.1 Problems

No field problems were encountered.

1.10.2 Fish Comments

No fish were captured during gillnetting. One floating gillnet was set perpendicular to shore for approximately 1.5 hours. Fish captured during 2-3 hour gillnet sets in similar lakes sampled during the same inventory study included rainbow trout (*Oncorhynchus mykiss*), cutthroat trout (*Oncorhynchus clarki*), redside shiner (*Richardsonius balteatus*), longnose sucker (*Catostomus catostomus*), largescale sucker (*Catostomus macrocheilus*) and mountain whitefish (*Prosopium williamsoni*). Up to 33 fish were captured in those gillnet sets.

Good spawning and rearing habitat is available in the lake as well as in the inlets and outlet. The oxygen levels were acceptable at the time of the survey and the outlet was passable. A 10 m falls is situated along Pimpernel Creek, downstream of the study lake and approximately 3 km upstream of the Lamprey Creek confluence (N 54 05 54; W 127 04 53). Although located a considerable way downstream of the study lake, the falls may be the upper limit of any fish activity along Pimpernel Creek.

1.10.3 Habitat Comments

Potential spawning habitat was observed along the shore as well as in the inlets and outlet channels. A large pond was observed at one of the inlets and may provide habitat. Small amounts of shoreline grasses likely provide near shore fish cover.

1.10.4 Rehabilitation/Enhancement Comments

Enhancement efforts may include removal or measures to allow fish circumvention of any barriers that are preventing fish movement upstream into the lake, if barriers are identified downstream as part of a follow-up survey.

1.10.5 Follow-up Sampling

Follow-up sampling in the lake or outlet stream, is recommended to confirm fish absence and/or closest downstream proximity. Follow-up surveys should identify if fish passage is blocked by downstream fish barriers.

1.10.6 Other Concerns/Interest Points

None.

2.0 PROJECT- SPECIFIC RESULTS DISCUSSION

Fish were not captured during the current survey. Potential spawning and rearing habitat was observed at the inlets and outlet. In addition, there appeared to be significant amounts of gravel situated along the shoreline, which may be used as lake spawning habitat. Oxygen levels were between 5-8 mg/l above the thermocline and as expected, fall sharply below the thermocline until they approach zero close to the bottom. There is no indication based on the dissolved oxygen and temperature profile data, that this lake would not sustain a healthy seasonal fish community. The outlet appeared to be passable close to the lake. Fish may be absent as a result of a downstream barrier. Follow-up sampling is recommended to confirm fish presence/absence as well as identify possible fish barriers.

No recreational features were observed; a cabin is reported to be on this lake but could not be located. ATV tracks were observed, indicating recent visitors to the lake.

3.0 REFERENCES

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McPhail, J.D., and R. Carveth. 1994. Field Key to the Freshwater Fishes of British Columbia. BC Ministry of Environment, Lands and Parks. Fisheries Branch. (Resources Inventory Committee Manual)

Scott, W.B., and E.J. Crossman. 1973. Freshwater Fishes of Canada. Fisheries Research Board of Canada, Ottawa. 966 p.

Plates

Plate 1 Aerial view from northeast end of lake looking southwest.

Plate 2 View looking northeast from limnological station.

Appendices

Appendix A

Bathymetry (E-line Trace)

Appendix B

Lake Outline Map

Appendix C

Air Photo Plate

Appendix D

Lake Survey Form

Appendix E

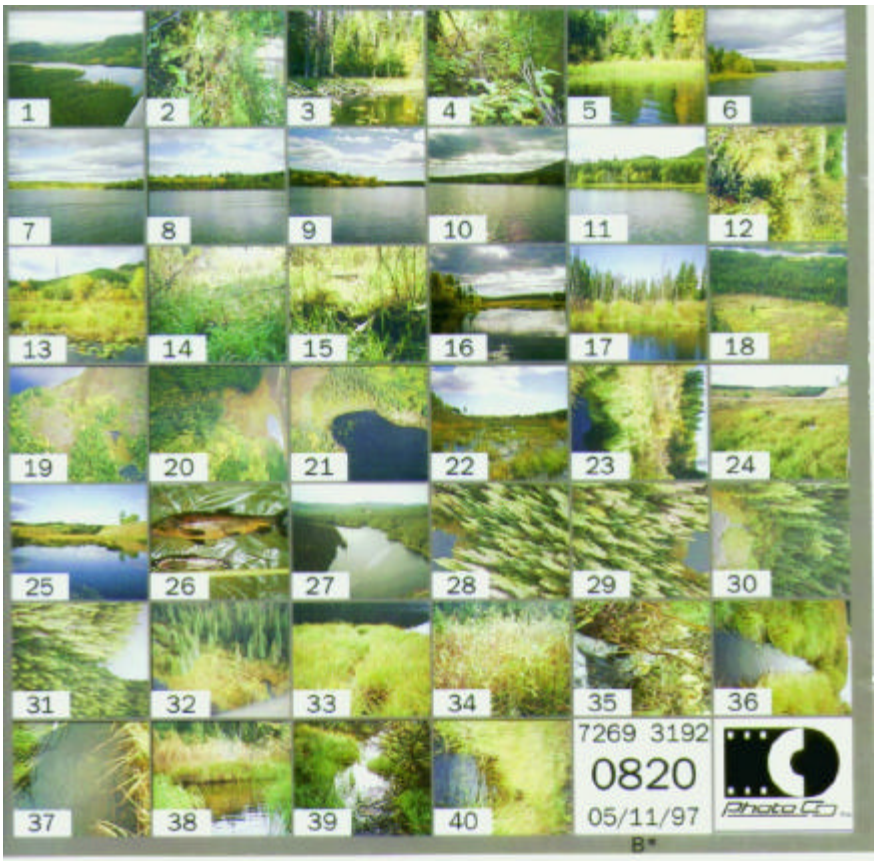
Fish Collection Form

Appendix F

Photograph Contact Sheets

Photographic index for southern lakes secondary lake survey 1997.

Lake	Watershed Code	Roll	Pic#	CD	Image	Neg	Dir.	Comment
M55	460-600600-36400-39700-02	16	2	0820	27	9355	SW	Aerial overview of lake
M55	460-600600-36400-39700-02	16	3	0820	28	9355	SW	Aerial view of main inlet
M55	460-600600-36400-39700-02	16	4	0820	29	9355	SW	Aerial view of main inlet
M55	460-600600-36400-39700-02	16	5	0820	30	9355	E	Aerial view of main inlet
M55	460-600600-36400-39700-02	16	6	0820	31	9355	NE	Aerial view of outlet
M55	460-600600-36400-39700-02	16	7	0820	32	9355	N	Aerial view of marsh area at south end
M55	460-600600-36400-39700-02	16	8	0820	33	9355	Dn	Inlet ILP 106
M55	460-600600-36400-39700-02	16	9	0820	34	9355	Up	Inlet ILP 106
M55	460-600600-36400-39700-02	16	10	0820	35	9355	Up	Inlet ILP 107
M55	460-600600-36400-39700-02	16	11	0820	36	9355	Dn	Inlet ILP 107
M55	460-600600-36400-39700-02	16	12	0820	37	9355	Bd	Substrate at ILP 107
M55	460-600600-36400-39700-02	16	13	0820	38	9355	Up	Side channel of inlet ILP 107
M55	460-600600-36400-39700-02	16	14	0820	39	9355	Dn	Side channel of inlet ILP 107
M55	460-600600-36400-39700-02	16	15	0820	40	9355	Up	Side channel of inlet ILP 107
M55	460-600600-36400-39700-02	16	16	0820	41	9355	Up	Main inlet
M55	460-600600-36400-39700-02	16	17	0820	42	9355	Dn	Main inlet
M55	460-600600-36400-39700-02	16	18	0820	43	9355	S	HWM=0.6m
M55	460-600600-36400-39700-02	16	19	0820	44	9355	Dn	Outlet
M55	460-600600-36400-39700-02	16	20	0820	45	9355	Up	Outlet
M55	460-600600-36400-39700-02	16	23	0820	48	9355	Up	Inlet ILP 62
M55	460-600600-36400-39700-02	16	24	0820	49	9355	Dn	Inlet ILP 62
M55	460-600600-36400-39700-02	16	25	0820	50	9355	NE	View of lake at limnosite
M55	460-600600-36400-39700-02	17	1	0820	76	9367	NE	10m falls on Pimpernel Creek d/s of M55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