Old Woman Lake
(460-04)
01634BULK

SECONDARY LAKE INVENTORY
1997 STUDIES

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

Prepared for:

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APRIL 1998

COVER PAGE

Lake Name:	**Old Woman Lake**
Alias:	**-**
Watershed Code:	**460-04**
Waterbody Identifier:	**01634BULK**
Survey Date:	**September 19, 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:	Old Woman Lake
Watershed Code:	460-04
Waterbody Identifier:	01634BULK
Map Reference:	093L.050 (1993)
Air photo Reference:	30BCB90061 No.44
Surface Area: 27 ha	Source: MELP
Elevation: 791 m	Source: TRIM
Biogeoclimatic Zone:	Sub-Boreal Spruce (SBS)

The lake is shown in Plates 1 and 2.

1.2 ACCESS

The lake was accessed by road from Burns Lake. Roads leading directly to the lake were gravel. There are two ways to access the lake. The route described below is the most direct, however, access may not be permitted on certain occasions, since it is a private driveway and the residents request permission prior to access. If access is not permitted through the private drive, then access to the lake will require continuing around Broman Lake and along the hydro corridor.

Directions: From Burns Lake, travel northwest on Hwy 16 for approximately 35 km (depends on starting point); turn right; travel 900 m (past house) and turn right onto trail; travel approximately 100m along trail to private dock (prior to entry, request permission from local resident to access driveway and/or dock)

1.3 TERRAIN

The lake appears to be a glacial lake (GL), with a southeast aspect. It is situated on the valley floor (VF), and does not exhibit signs of hillside coupling (DC). Land in the immediate vicinity of the lake is comprised of currently unused areas (40%), agriculture (20%) and urban development (40%). The agriculture activity

consists of cattle ranching. Urban development includes residential housing (2 houses located on west side of lake), powerline corridor to the north and a highway situated to the south.

1.4 SHORELINE

The shoreline is comprised of 100% marsh with a grass perimeter. An extensive marsh is situated at both the north and south ends of the lake. The grass is so heavy in some areas that the shoreline can not be accessed by boat. Elsewhere, shoreline vegetative cover is moderate and consists primarily of grass. No public recreational features (i.e. resorts, campsites, boat launches) were observed. One dock (privately-owned) is located on the northwest shore where small boat launching can take place.

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 3.0 m. Based on the E-line survey, the littoral area (% lake <6m) is 100%. The maximum high water mark was observed at 0.15 m.

1.6 INLETS/OUTLETS

One permanent inlet, three ephemeral inlets and one outlet have been identified for this lake. Three of the four inlet tributaries were previously mapped on the 1:20,000 TRIM map. The fourth tributary was identified in the field and added to the lake outline map as a new tributary. One of the four tributaries had an existing watershed code; interim locational points (ILP) were used to identify the remaining three tributaries. No channel was discernible in the field for one of the previously mapped inlets and this inlet has been recorded as nvc on the lake outline map.

Inlet (permanent)
w/s code: 460

This channel is the main inlet (approximately 0.6 m wide). The channel travels adjacent to an existing house and meanders downstream through a primarily marsh shoreline (i.e. extensive grasses). The substrate is comprised of primarily sand and silt. The channel may be used seasonally as rearing habitat.

Inlet (ephemeral)

ILP # 48

This channel is identified as permanent on the 1:20,000 TRIM map. The channel was hard to locate during the field survey. Upstream the channel was dry (approximately 40 m from lake). Water was present in the channel close to the lake. The substrate is composed primarily of sand and silt. Fish habitat features are poor in this inlet .

Inlet (ephemeral - nvc)
ILP # 49

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 (ephemeral – new tributary)
ILP # 82

Although not previously mapped on the 1:20,000 TRIM map, there is a channel that appears to be ephemeral situated near the north end of the lake. The channel is not distinct but the area consists of one large swamp/marsh with small pockets of open water, close to the lake. Based on the field observations and aerial photos of the lake, a channel may exist during periods of high flow. The substrate is primarily sand, silt and debris. The channel may be used seasonally as rearing habitat.

Outlet
w/s code: 460

The outlet is a distinct channel approximately 3-4 m wide, narrowing as the channel passes through a marsh/shrub area. The substrate is comprised of primarily sand and silt. Heavy macrophyte growth is evident in this area. Cattle roam freely along the southwest perimeter of the lake and may contribute to nutrient loading. The channel may be used seasonally as rearing habitat.

1.7 AQUATIC FLORA

At the time of the survey, extensive areas of the lake contained emergent vegetation (30%) and submergent vegetation (65%). Submergent species included *Potamogeton perfoliatus*, and emergent vegetation included *Nuphar lutea* (yellow pond-lily), *Potamogeton natans* (floating-leaved pondweed) and *Caryx spp*. Emergent vegetation was abundant on the west and northwest shoreline. Floating algae were observed.

1.8 WILDLIFE

During the survey, ducks, a bird of prey and two beaver lodges were observed.

1.9 LIMNOLOGICAL SAMPLING

The limnological sampling site was located at the deepest recorded point (3.0 m). Dissolved oxygen (mg/l) and temperature (C) were measured with a YSI meter (model 85). A thermocline was not evident. Dissolved oxygen levels were 6-7 mg/l from surface to bottom (for profile results, refer to Appendix D). The Secchi depth was 2.75 m; water was colourless. pH was measured using a hand held Hanna pH meter. Surface and bottom pH were 7.4 and 7.5, respectively. H_2S was not detected.

1.10 SURVEY COMMENTS

1.10.1 Problems

Excessive marsh/shrub-like conditions made foot surveys very difficult, particularly towards the north end of the lake.

1.10.2 Fish Comments

Six adult largescale suckers (*Catostomus macrocheilus*) and three adult redside shiners (*Richardsonius balteatus*) were captured during gillnetting. One floating gillnet was set parallel to shore for approximately 2.25 hours. In addition, one rainbow trout (*Oncorhynchus mykiss*) was caught by a local angler; the fish was approximately 21 cm in length.

1.10.3 Habitat Comments

Neither inlet spawning habitat nor lake spawning habitat were observed. The entire shoreline was comprised of marsh, with an abundance of grass and no indication of rock or gravel substrate. Extensive shoreline grasses and macrophytes provide abundant fish cover.

1.10.4 Rehabilitation/Enhancement Comments

Rehabilitation/enhancement efforts may include water quality monitoring to establish the potential effects of nutrient loading and, if nutrient levels are high, development of measures to reduce loading.

1.10.5 Follow-up Sampling

No follow-up sampling is recommended.

1.10.6 Other Concerns/Interest Points

A local resident reported observing fish spawning activity on the northeastern shore. The resident also reported that the macrophytic growth in the lake is becoming more excessive each year and may be a sign of nutrient loading.

According to FISS data, the lake may be subject to winter kills. Furthermore, FISS data reports that rainbow trout (RB), northern squawfish (NSC), lake chub (LKC) and longnose sucker (LSU) have been identified downstream in Conrad Lake.

2.0 PROJECT- SPECIFIC RESULTS DISCUSSION

Largescale suckers, redside shiner and rainbow trout are present in this lake. Seasonal rearing habitat was identified at the inlets as well as the outlet. No potential spawning habitat was identified, however, it has been reported by one of the local residents that fish spawning has been observed in the past, on the northeastern shore.

This lake is shallow and fish use is likely seasonal. Dissolved oxygen levels were 6-7 mg/l from the surface to the bottom (3.0 m). Water quality may be adversely affected by current and future nutrient loading. Water quality studies ought to be undertaken to establish baseline nutrient measurements. This lake appears to hold high aesthetic value to the local residents.

3.0 REFERENCES

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Plates

Plate 1 View from limnological station looking north.

Plate 2 View of outlet (460-04) looking downstream (southeast).

Appendices

Appendix A

Bathymetry (E-line Trace)

Appendix B

Lake Outline Map

Appendix C

Air Photo Plate

Appendix D

Lake Survey Form

Appendix E

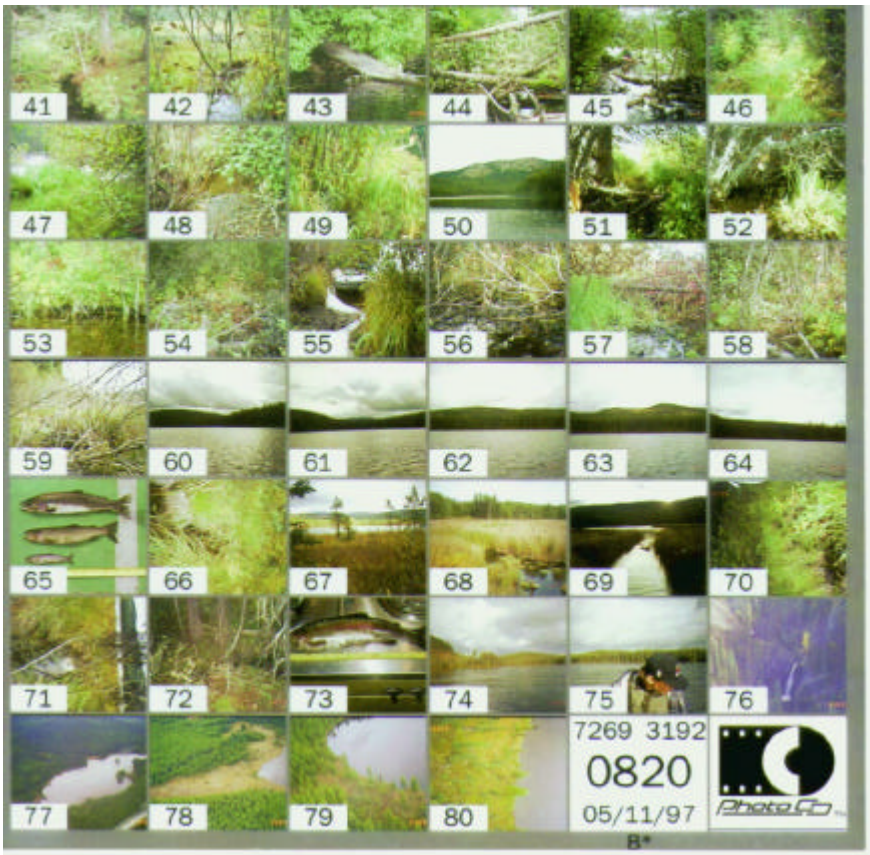
Fish Collection Form

Appendix F

Photograph Contact Sheets

Photographic index for southern lakes secondary lake survey 1997.

Lake	Watershed Code	Roll	Pic#	CD	Image	Neg	Dir.	Comment
L31	460-04	6	4	0820	54	9358	Up	Inlet 460
L31	460-04	6	5	0820	55	9358	SW	One of 2 houses on W side of lake
L31	460-04	6	6	0820	56	9358	NE	Cattle area at SW end of lake
L31	460-04	6	7	0820	57	9358	NW	Cattle area at SW end of lake
L31	460-04	6	8	0820	58	9358	E	Outlet
L31	460-04	6	9	1560	59	9358	SW	High water mark = 15 cm at outlet
L31	460-04	6	10	1560	60	9358	E	Beaver lodge
L31	460-04	6	11	1560	61	9358	SE	Beaver lodge
L31	460-04	6	12	1560	62	9358	Dn	Inlet ILP 49
L31	460-04	6	13	1560	63	9358	Dn	Inlet ILP 48
L31	460-04	6	14	1560	64	9358	Up	Inlet ILP 48
L31	460-04	6	15	1560	65	9358	Dn	Inlet ILP 82
L31	460-04	6	16	1560	66	9358	Up	Inlet ILP 82
L31	460-04	6	17	1560	67	9358	N	Panoramic view of lake at limnosite
L31	460-04	6	18	1560	68	9358	NW	Panoramic view of lake at limnosite
L31	460-04	6	19	1560	69	9358	NW	Panoramic view of lake at limnosite
L31	460-04	6	20	1560	70	9358	SE	Panoramic view of lake at limnosite
L31	460-04	6	21	1560	71	9358	S	Panoramic view of lake at limnosite
L31	460-04	6	22	1560	72	9358	N/A	CSU, RSC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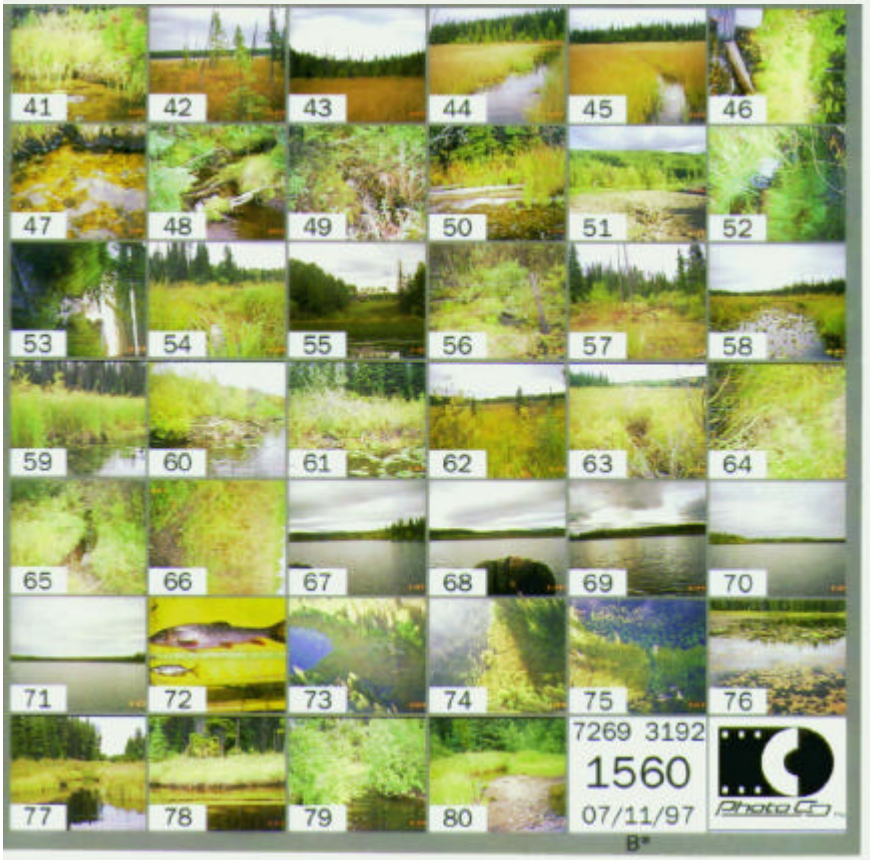
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