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Lars Lake



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**An Inventory of Lars Lake
and its
Inlet and Outlet Streams**

by

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Field Work by

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Summary

Lars Lake was surveyed on October 13th and 14th, 1993. Rainbow trout parr were caught in both inlets, but not the outlet stream. Largescale suckers and peamouth chub were caught in the outlet stream and/or the lake. No rainbow trout were caught in the lake since the inability to launch the boat prohibited the set of the gill net.

The inlet streams of Lars Lake appear to offer adequate habitat for spawning and rearing of rainbow trout. Neither inlet stream had complete barriers to migration, however, logging practices in this area have disturbed, and are having detrimental affects on the spawning habitat. Recommendations are made regarding some alleviation from the effects of the clear cuts around this lake and its main inlet stream.

1.0 Introduction

Lars Lake was surveyed as a part of the Burns Lake-Houston small lakes project in which a total of 10 lakes were examined: Sunset, Gilmore, Swans, Lars, Old Man, McBrierie, Elwin, Watson, Day, and Bulkley lakes. Recent reports of serious declines of the rainbow trout sport fishery in this region have created a need for more information on the annual recruitment and relative species composition of these lakes. The intent of this project was to survey fish communities when possible, and to report existing conditions at the inlet and outlet streams at each of these ten lakes. The most recent concern has been an outburst of beaver activities which appear to have affected annual recruitment of rainbow trout by blocking many or all of a lake's streams with impassable dams. The primary focus of this work was on the descriptions of inlet and outlet streams as assessments of available spawning sites for rainbow trout and to give recommendations for possible habitat enhancements at these small lakes. Lars Lake was not accessible by 4WD so a survey by boat and gill net setting were not possible at this lake. However, the shorelines, inlets, and outlets were surveyed on foot and fish were sampled using minnow traps.

2.0 Materials and Methods

2.1 Study Site

Lars Lake (lat: 54° 33', long: 126° 22') is located approximately 10 km southwest of the Topley turn off from

Highway 16. Road access is limited to off road vehicles with high suspension, but easier access involves a 30 - 40 min hike from the camp and boat launch area at Swans Lake (for directions see Appendix 1). The areas to the north and west of Lars Lake have been heavily logged and are not satisfactorily replanted in several locations. Marsh around the lake makes shore fishing difficult, but some deer trails make launching of light weight canoes possible near the outlet.

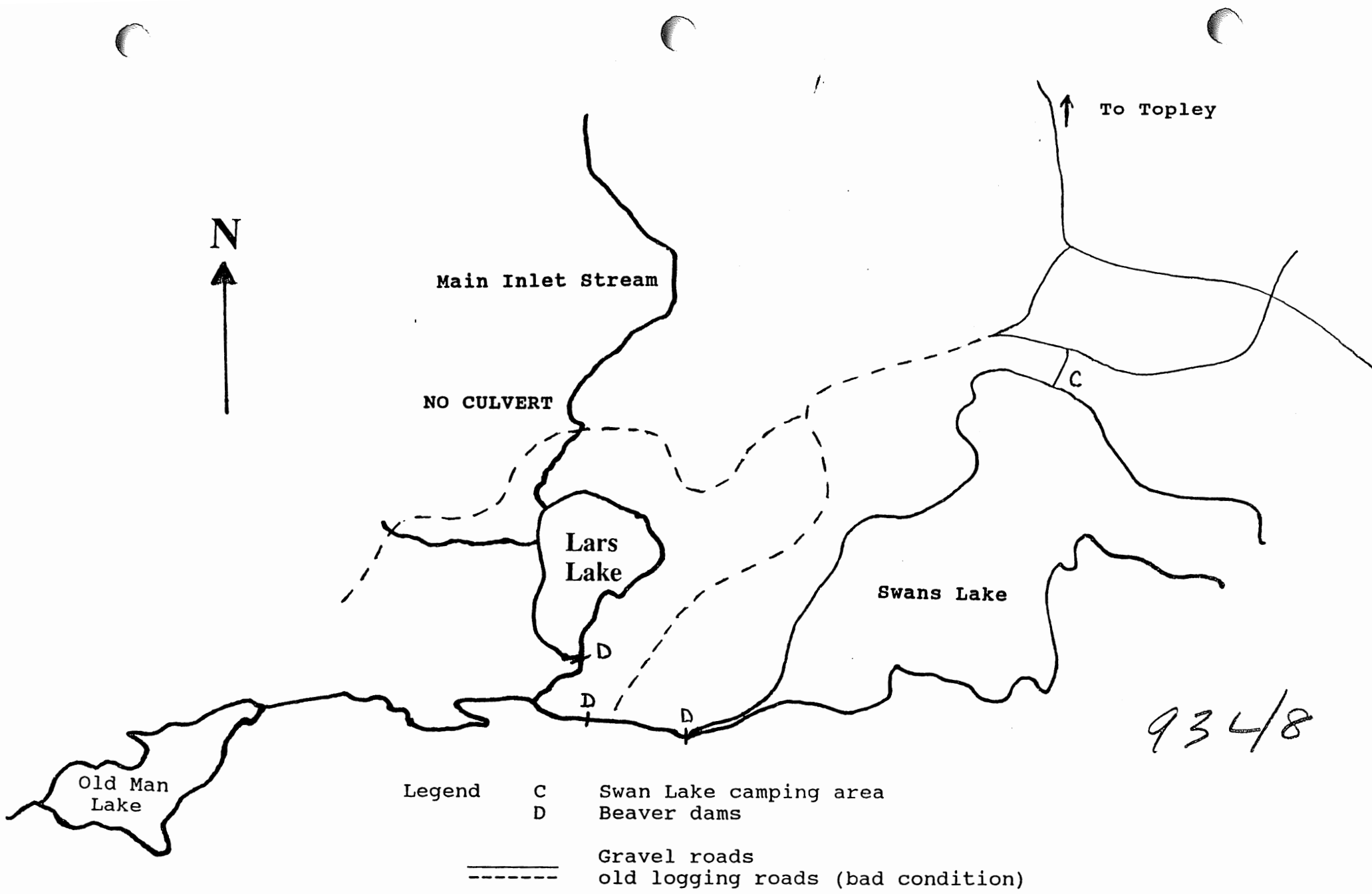
There are two inlets at the northwest corner of the lake, and one outlet at the south end (Figure 1). The outlet of Lars Lake drains south into the stream that drains Swans Lake into Old Man Lake; the outlet of Old Man Lake is then Aitken Creek which drains into the Bulkley River 10 km east of Houston. The inlets are not connected to surrounding lakes.

2.2 Lake Evaluation

Photographs of the lake and its surrounding terrain were taken to show general characteristics. Visual observations were made along the entire shoreline of the lake but a gill net was not set. Two minnow traps (baited with processed cheese) were set along the east shore of the lake to evaluate the presence of any small fish. Fish caught in the minnow traps were measured to the nearest mm (fork length), and were then released.

2.3 Evaluation of inlets and outlets

The inlet and outlet streams were surveyed by visual observations while hiking along the streams for as long as



Legend

C	Swan Lake camping area
D	Beaver dams
====	Gravel roads
-----	old logging roads (bad condition)

Figure 1. Map of Lars Lake and its inlet and outlet streams.



Figure 2. View of Lars Lake, looking south.

seemed necessary to assess available spawning habitat for rainbow trout. Photographs were taken to represent the general characteristics of each stream and to illustrate any obstructions to fish migration. The streams were also sampled for the presence of any small fish (25 - 100 mm) with minnow traps (baited with processed cheese). Fish captured in the minnow traps were identified, measured to the nearest mm, and released.

3.0 Results

3.1 Lars Lake

The large shoreline area on the west and north side of the lake has been clear cut in the last 10 - 15 years (Figure 2).



Figure 3. West side of Lars Lake where the reforestation was inadequate.

Much of this logged area around the lake is not satisfactorily replanted (Figure 3). A band of vegetation has been left directly surrounding this lake to give some protection from run off and erosion.

Two minnow traps were set along the east shore of the lake within 30 m of one of the two beaver houses that were found at this lake (Figure 4). Traps were set overnight (22 hours), but caught only one large scale sucker (*Catostomus macrocheilus*) with a fork length of 94 mm.

3.2 Main inlet

The main inlet stream to Lars Lake was on the northwest corner, and wound through the clear cut area. A very narrow stand of trees and bushes was left around this stream for 250 m down to the lake (Figure 5). For the lower 80 m of this inlet



Figure 4. Active beaver house on the east side of Lars Lake.



Figure 5. Looking at southwest corner of Lars Lake where a narrow band of trees gives some protective cover over the lower 250 meters of the main inlet stream.

stream there was no notable flow in this 5 - 10 m wide stretch with a mud bottom; this lower reach is surrounded by marsh. Above this 80 m stretch the stream narrows to 1 - 3 m wide and flow is faster. The stream becomes consistently broken into pools and runs and includes suitable spawning sites for rainbow trout. The narrower stretches of stream ranges from 20 - 80 cm deep and the wider areas are primarily large pools that range in depth from 10 - 60 cm (Figures 6 & 7). There was some evidence of minor beaver activity but the stream remains passable by fish through this entire lower section. Overhead protection was good with 90 % cover and thick willow bushes surrounding large lengths of the stream appeared to supply additional protection from terrestrial predators. Debris cover for fish was approximately 10 %.

An old logging road, that is presently well used by off road vehicles (hunters), crosses the stream approximately 250 m up from the lake. A culvert was never installed at this road crossing. At this location, vehicles are constantly disturbing the stream beds by causing increased siltation downstream into suitable spawning habitat for rainbow trout. In addition, there was no protective band of vegetation left upstream of this site by the loggers to protect against natural erosion or to give cover from aerial predators (Figure 8). Steep embankments on the east side of this stream were clear cut to within 10 cm of the stream bed. This is discernable, although not clearly, in Figure 8.

Two minnow traps were set overnight in this stream near the



Figure 6. The main Lars Lake inlet stream where it is narrow, but fairly deep with good water flow.



Figure 7. One of the small pools in the main Lars Lake inlet stream that is 3 - 4 meters wide, 30 - 50 cm deep and partially blocked by beaver activity.



Figure 8. A view, looking up the inlet stream. The pool of water in view is the road crossing and the open area in the background is where the stream winds through the clear cut.

logging road crossing. Six rainbow trout parr were captured. Fork lengths of these six parr were 66, 59, 73, 65, 69, and 68 mm. The presence of parr in this stream above and below the road crossing emphasizes the need for rehabilitation at this site.

3.3 Secondary inlet

The other inlet at Lars Lake is on the west shore and is difficult to access. The lowest 100 m of this stream was not closely surveyed, but beaver dams were not visible from the other side of the lake. Above the lower 100 m, this stream was 1 - 2 m wide and ranged in depth from 5 - 15 cm in faster moving runs to 30 - 100 cm in slower pools; the maximum width at

flooding would be approximately 3 m. The substrate was a mixture of rock, gravel and sand which appeared to be suitable for spawning by rainbow trout in several locations.

This stream runs along the edge of the clear cut and is crossed by an old logging road approximately 1 km up-stream from the lake. At this crossing, a 45 cm culvert is present but does not appear to be adequate for fish migration. This location appears to form the upper boundary for fish migration in this inlet stream.

Two minnow traps were set 200 m up-stream from the lake (overnight) in a 1 m deep pool; substrate was 10 % sand, 20 % gravel, 70 % mud and leaf debris. Two rainbow trout parr were captured: fork lengths were 58 and 57 ^{mm} ~~cm~~.

3.3 Outlet

The outlet of Lars Lake is at the south end of the lake. Directly at the outlet there is a 25 m long beaver dam; at the time of this survey, this dam was only 5 cm above the lake water height (Figure 9). Well used trails and fresh tree cuts in the area surrounding this outlet gave clear evidence of current beaver activity. The dam had some growth on it, but also had evidence of weak points that are vulnerable to annual break through. Although small leaks were present in this dam, fish passage was not possible at the time of observation; it is possible that fish may get past this location during spring floods.

Directly below the dam, there is a 10 m long pool,



Figure 9. Looking downstream at the beaver dam which blocks the only outlet from Lars Lake.

approximately 1 m deep. Below this point the outlet stream exhibits good flow for approximately 250 m down to its confluence with the Swans Lake outlet stream. The stream below the outlet dam has no other beaver dams blocking it. The stream is 1 -2 m wide and consistently changes from pools to runs; substrate varies with different combinations of sand, gravel and muddy debris. Depths range from 10 - 40 cm at the runs, to 30 - 100 cm at pools. This stream winds through dense bush and then through a meadow. Habitat through the willows has 5 - 10 % debris cover. Through the meadow, tall overhanging grass offers 20 % cover for fish as the stream is deep and narrow; large fallen trees across the stream in several locations also offer ideal cover. The lowest 15 m of this stream then slows and becomes approximately 1 m deep where it joins the Swans Lake



Figure 10. Junction of Swans Lake and Lars Lake outlet streams.

outlet stream (Figure 10).

Along this entire stretch of stream there are several suitable spawning sites for rainbow trout. However, only large scale suckers (*Catostomus macrocheilus*) and one peamouth chub (*Mylocheilus caurinus*) were captured in the two minnow traps that were set 100 m downstream from the dam; the fork lengths of the 47 large scale suckers ranged from 43 - 125 mm, and the fork length of the peamouth chub was 61 mm.

4.0 Discussion

The samples of rainbow trout parr at both inlet streams into Lars Lake indicates that this lake contains a self sustaining stock of rainbow trout. Difficult shoreline access

protects this stock from overfishing by the sport fishery but annual recruitment is threatened by the outcomes from a negligent clear cuts across the main inlet stream that contains the main spawning and rearing habitat for rainbow trout. Rehabilitation and improvement of the road crossing this inlet stream, with culvert or bridge, should be completed before the next hunting season (Fall 1994). There is also a need for sufficient forest restock to protect the stream from run off and erosion.

The presence of beavers at this lake do not presently affect the recruitment of rainbow trout. The two inlet streams which are the primary spawning and rearing habitat for rainbow trout are not blocked by beaver dams. The clear cut logging surrounding the inlets appears to have moved the beaver activity to the opposite side of the lake.

The dam at the outlet to Lars Lake does not appear to be stable and does not threaten the rainbow trout in this lake. It is more probable that this dam is limiting invasion by other fish species which can allow better survival and physical condition of this lake's rainbow trout stock. Access to the outlet is presently too difficult for any major habitat enhancement.

5.0 Recommendations

5.1 It is recommended that official requests be made to the logging company responsible for the present environmental damage at Lars Lake. The culprit company should supply sufficient rehabilitation of this location. The area surrounding this lake should be thoroughly replanted, and the road across the stream should be either blocked or a suitable culvert should be installed.

5.2 If the company responsible for this damage is not identified, it is suggested that a volunteer project be organized to at least install a culvert to protect the inlet stream from excess siltation in future years.

Appendix 1. Directions to Swans Lake camping area for trails to Lars Lake.

0 km Turn south off Highway 16 onto Topley Road
2 km Start of gravel road
3.9 Sunset Lake turnoff - don't turn
5.4 Y intersection - stay left
6.1 Y intersection - stay left
6.7 under power lines
7.5 side road on right - stay left
8.0 Y intersection - stay left
8.6 side road on right - stay left
9.7 side road on left - stay right
12.1 Y intersection - stay right
13.7 Y intersection - stay right
14.7 side road on right - stay left
15.3 stay left
15.5 stay left - going through clear cut
16.5 side road on left - stay right
16.6 Y intersection - u-turn left
16.8 rough campground on right
17.0 turn right to boat launch