

McBrierie Lake



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**NOTE: This lake is an unnamed lake,
incorrectly referred to as McBrierie Lake
throughout this report.**

58778

**Survey of McBrierie Lake
and its
Inlet and Outlet Streams**

by

R. Saimoto

Field Work by

**Ron Saimoto
Regina Saimoto**

**B.C. Fish and Wildlife Branch
Smithers, B.C.**

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Summary

McBrierie Lake was surveyed on October 15th, 1993. The inlet and outlet streams of this beautiful, pristine lake were found to have suitable and accessible spawning and rearing habitat for rainbow trout. However, large schools of large scale suckers were in most pools of both streams and no rainbow trout parr were captured. A complete assessment of the aquatic community at this lake will determine the feasibility and/or necessity of a rainbow trout stock enhancement.

1.0 Introduction

McBrierie 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 information on the annual recruitment and relative species composition at these lakes. The intent of this project was to survey fish communities, and to report existing conditions at the inlet and outlet streams at each of these 10 lakes. The most recent concern has been an outburst of beaver activities which appear to have affected annual recruitment of rainbows by blocking many or all of a lake's streams with impassable dams. The primary focus of this work was on description of inlet and outlet streams as assessments of available rainbow trout spawning sites and to give recommendations for possible habitat enhancements at these small lakes.

2.0 Materials and Methods

2.1 Study Site

McBrierie Lake (lat: 54° 24', long: 126° 25') is located 15 km east of Houston (for directions see Appendix 1). A logging road (2WD in dry conditions) leads through a clear cut to the peak of the hill above the lake, and it is necessary to hike for approximately 10 minutes down through the forest to reach the

north side of the lake. There is also a less maintained road along the natural gas pipeline which crosses the inlet stream at the southwest corner of the lake. This pipeline road allows access to the lake by off-road vehicles and has a small area suitable for camping and launching canoes. The existing trails around this lake are difficult to follow and wind up and down steep cliffs along the north side of the lake.

McBrierie Lake has one inlet and one outlet (Figure 1). The outlet stream drains into Old Man Lake which forms Aitken Creek that drains into the Bulkley River. However, Aitken Creek is artificially dammed just below Old Man Lake (by Ducks Unlimited) which blocks any potential recruitment from the Bulkley River system. In fact, the outlet stream that drains McBrierie Lake into Old Man Lake is presently impassable by fish due to a beaver dam at the inlet to Old Man Lake.

2.2 Evaluation of McBrierie Lake

McBrierie Lake was surveyed on October 15th by hiking and wading along the shoreline. Photographs were taken to illustrate the general characteristics of the lake. Since McBrierie Lake does not have a boat launch, the gill net was not used. Two minnow traps (baited with processed cheese) were set in the lake for 4 hours to sample for any small fish (25 - 100 mm) in the lake. Trapped fish were identified, measured and released.

2.3 Evaluation of inlet and outlet

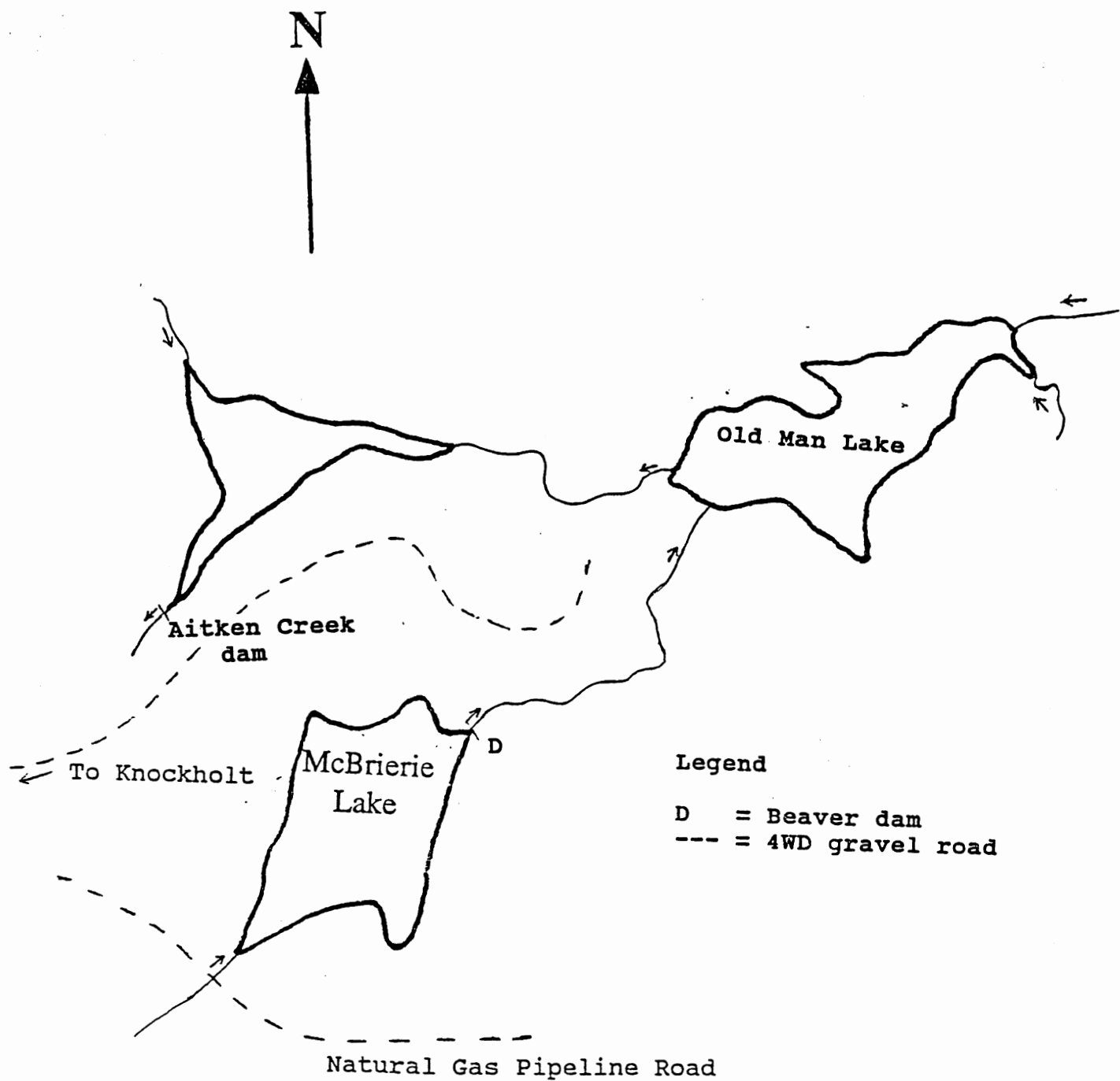


Figure 1. Map of McBrierie Lake, its inlet and outlet streams, and surrounding area.

The inlet and outlet streams were surveyed for as far as seemed necessary to assess the suitability of spawning and rearing habitats for rainbow trout. Photographs were taken to represent the general characteristics of the streams and to illustrate the present obstructions to fish migration. Minnow traps (baited with processed cheese) were set in the streams to sample any small fish (25 - 100 mm) present in the system. Trapped fish were identified and measured before they were released.

3.0 Results

3.1 McBrierie Lake

McBrierie Lake is surrounded by a mixed forest of spruce, aspen and birch; junipers and rosehip are also common on the steeper slopes. The west side of the lake has been clear cut logged with approximately 100 m of forest left on the steep bank. However, this clear cut extended to the very edge of the high gradient terrain where the majority of large trees were not well rooted. The high number of resultant wind falls along this steep bank have blocked trails and hindered the movement of wildlife around the lake. Nevertheless, the aquatic habitat appeared to be adequately protected from this nearby logging practice.

The shore of McBrierie Lake was lined by a narrow band of *Equisetum*, and a wider band of sedges and grasses. There was some evidence of flooding of the immediate shore adjacent to the

outlet creek, but this marsh area was dry at the time of survey, and the ground was solid. McBrierie Lake is beautiful, and the vegetation immediately surrounding the lake made for a relatively pristine environment (Figure 2). There was no real boat launch at the lake, but the substrate in the lake was solid (mostly sand near shore), and the lake levels off gently to greater depths. These characteristics allow for good flyfishing from the shore of this lake, since it is possible to wade into the lake for quite a distance in several locations (Figure 3).

The minnow traps were set in McBrierie lake for 4 hours. Only one 52 mm long (FL) large scale sucker (*Catostomus macrocheilus*) was caught.

3.2 Inlet

The inlet of McBrierie Lake is located on the southwest corner of the lake. A partially broken down, wood bridge crosses this stream approximately 50 m upstream from the lake. The inlet stream ranged from 1 - 3 m in width and from 10 - 30 cm in depth for the initial 50 m from the lake. In this lower section, the stream flowed through an open area, with shoreline sedges and grasses giving the stream approximately 10 % cover (Figure 4); substrate consisted of small rocks, gravel and sand. Upstream from the bridge, the cover from terrestrial vegetation quickly increased to 50 - 80 % where willows lined the edge of the creek, and fallen trees also added cover as (Figure 5). The stream substrate had variable combinations of small rocks, gravel, and sand for approximately 800 m upstream; several



Figure 2. View of northeast corner of McBrierie Lake.



Figure 3. View south, from the McBrierie Lake outlet.



Figure 4. The McBrierie Lake inlet.



Figure 5. View upstream from McBrierie Lake inlet toward broken log bridge.

sites are excellent rainbow trout rearing or spawning habitat. An old beaver dam partially blocks water flow (800 m upstream from bridge), but is presently broken and passable by fish; the stream below the dam has good flow and habitat (Figure 6). The dam was about 35 m across and stood 2 m above the present water level, but despite several active beaver trails in this area the dam was not well maintained (Figure 7); no beaver house was seen. Stream habitat upstream from the dam (surveyed for 200 m) winds through a large long meadow where stream flow is slow and substrate is primarily mud (Figure 8).

A large number of large scale suckers were present in the creek below the beaver dam (Figure 8). Schools of primarily different size/age classes of suckers were observed in every different pool in the creek. A total of 49 large scale suckers (*Catostomus macrocheilus*) and 1 lake chub (*Couesius plumbeus*) were caught in the two minnow traps set in the inlet stream for only 1.5 hours. Fork lengths of the large scale suckers and the lake chub are summarized in Appendix 3.

3.3 Outlet

McBrierie Lake drains into Old Man Lake via a relatively short outlet stream (approximately 1 km). A dam at the outlet (Figure 10) restricts water flow in the outlet stream but was passable by fish due to a break through in the center (Figure 11). The large pool below the dam was about 25 m wide, 8 m long and 25 - 50 cm deep; the substrate of this pool consisted of rock (10%), gravel (5%) and mud (85%). The tailout of the pool

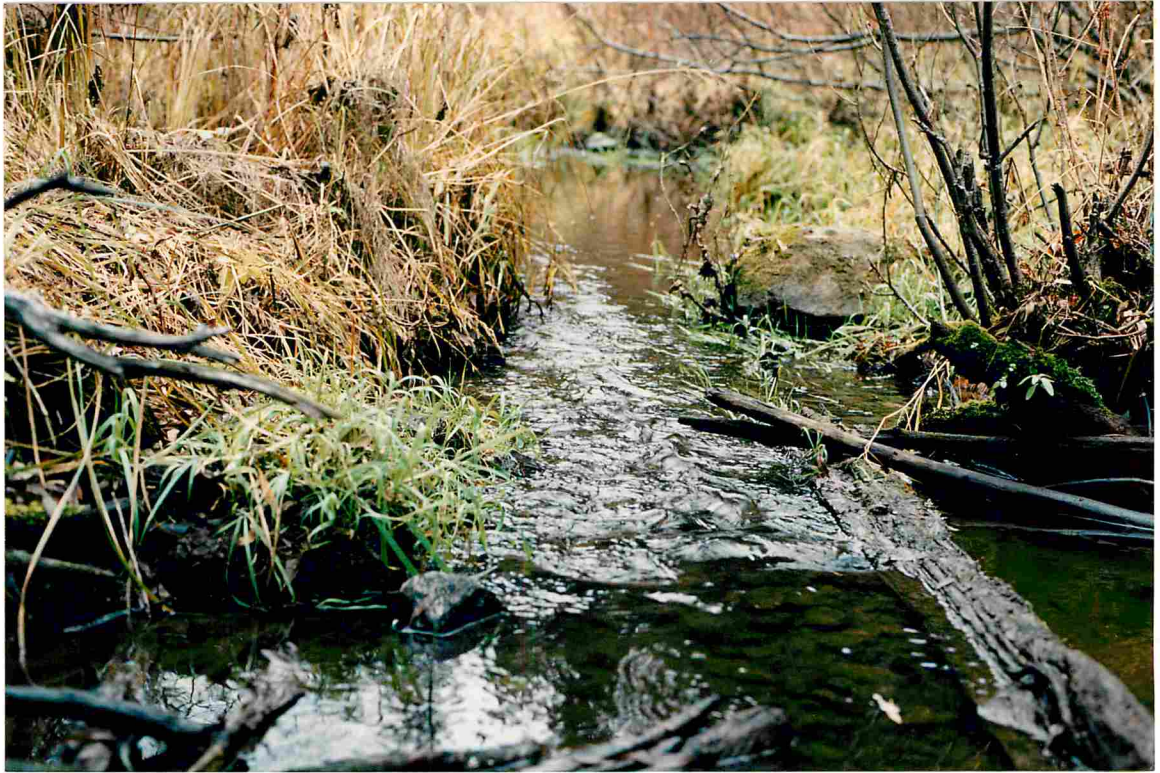


Figure 6. Looking downstream from beaver dam at the McBrierie Lake inlet stream.



Figure 7. Old beaver dam approximately 850 m upstream from McBrierie Lake. Break through at center of the dam is passable by fish.

Figure 9. Common view of slow, holding pools in the inlet stream with large numbers of large scale suckers present.



Figure 8. View looking upstream of beaver dam in inlet stream.





Figure 10. View of McBrierie Lake outlet which is partially blocked by an old beaver dam (presently passable by fish).



Figure 11. Looking upstream at beaver dam on the McBrierie Lake outlet, which is not repaired and was passable by fish.



Figure 12. Looking downstream at second partial block of the McBrierie Lake outlet stream.

narrowed to 3 m, and was heavily clogged with fallen trees (Figure 12). Some evidence of an old beaver dam also existed here, but the remnants of this dam and organic debris were also passable by fish. The stream was surveyed for an additional 100 m downstream through a series of runs and pools. Cover over this stretch of stream consisted of 40 - 80 % from willows and 5 - 10 % from organic debris; substrate varied in combinations of small rock, gravel and sand. This suitable spawning and rearing habitat for rainbow trout was accessible by fish from McBrierie Lake at the time of this survey.

Large numbers of suckers were observed in the upper two pools of the outlet stream. Two minnow traps were set for only

4.5 hours and 53 large scale suckers (*Catostomus macrocheilus*) were caught. Fork lengths of fish caught in this outlet are summarized in Appendix 4.

4.0 Discussion

McBrierie Lake is one of the more beautiful lakes in this district that was surveyed. This lake was initially not part of the Burns Lake - Houston small lakes project, but it was noticed as a promising location during the Old Man Lake survey; historic or fisheries values of this lake were not known. Because we were unable set gill nets in this lake, it is still not known if rainbow trout are in this lake; only large scale suckers and one lake chub were captured in minnow traps. Due to the location of this lake, and its aesthetic value, it will be useful to conduct a more detailed survey of this lake's aquatic community to better assess its value to the sport fishery. If rainbow trout do not exist at this lake, it may be possible to use this location to try trophy enhancement at a lake which may naturally sustain a small population of large rainbow trout.

There appears to be adequate and accessible rainbow trout spawning and rearing habitat in the inlet and outlet stream. However, the high abundance of large scale suckers in the inlet and outlet streams causes concern. Competition between suckers and rainbows at this lake is likely, but removal of suckers at other locations has proven to be futile in the past (Hatlevik pers. comm.).

5.0 Recommendations

5.1 It is necessary to ascertain whether rainbow trout presently utilize McBrierie Lake. A more detailed study should be conducted on the physical characteristics, chemistry, and aquatic community of this lake in order to better assess the general value of McBrierie Lake. This is a beautiful lake, near Houston, and may be a candidate for future enhancement projects.

Appendix 1. Directions to McBrierie Lake.

Turn south off Highway 16 at the Knockholt turnoff. Follow this gravel road across the Bulkley River. Just past the bridge, stay left at the fork and you should pass the Garbage Dump on the left. Approximately 10 km from the highway, turn left off the main road. Follow this road 2.5 km to the Aitken Creek Dam on the north side of the road. The old logging road then winds for approximately 1.5 km to the hill above McBrierie Lake. McBrierie Lake is clearly visible on the right side of the road.

Appendix 2. Fork lengths (mm) of fish captured in minnow traps that were set on the north shore of McBrierie Lake for 4 hours.

Large scale sucker (*Catostomus macrocheilus*) (N = 1)

52 mm

Appendix 3. Fork lengths (mm) of fish captured in minnow traps that were set in the inlet stream of McBrierie Lake for 2 hours.

Large scale sucker (*Catostomus macrocheilus*) (N = 49)

58 49 52 51 53 57 58 56 49 50

- an additional 39 fish were not measured

Lake chub (*Couesius plumbeus*) (N = 1)

44 mm

Appendix 4. Fork lengths (mm) of fish captured in minnow traps that were set in the outlet stream of McBrierie Lake for 5 hours.

Large scale sucker (*Catostomus macrocheilus*) (N = 53)

52 53 49 48 57 53 54 51 58 54

- an additional 43 fish were not measured