****

CLEAR LAKE

OAKLEY TOWNSHIP

LAKE TROUT ASSESSMENT PROGRAM

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TABLE OF CONTENTS

INTRODUCTION

LAKE LOCATION AND LIMNOLOGICAL BACKGROUND

METHODS

RESULTS: GILL NETTING

WATER CHEMISTRY

SHORELINE CRUISE

COTTAGE SURVEY

SEINE NETTING

OUTLET

DISCUSSION

CONCLUSION AND RECOMMENDATIONS

REFERENCES CITED

LIST OF APPENDICIES

INTRODUCTION

A prerequisite to the management of a lake trout fishery is a thorough knowledge of the environmental conditions within the lake. The purpose of this report is to examine the physical, chemical and biological properties of a lake and draw conclusions as to the lake's present ability to support a lake trout population. Recommendations will be presented for the improvement of the lake trout fishery so that its full potential can be achieved through proper management.

LAKE LOCATION AND LIMNOLOGICAL BACKGROUND

Latitude: 45° 00'	Longitude: 79° 01'
Township: Oakley	Elevation: 330.4 meters
District: Muskoka	Watershed Code: 2EC-15
Surface Area: 100.2 hectares	Volume: 928.5 hectare meters
Maximum Depth: 26.8 meters	Mean Depth: 9.3 meters
Secchi: 7.0 meters	Shoreline Perimeter: 6.84 km

Clear Lake is located within the Township of Oakley approximately 46 kilometers from the Ministry of Natural Resources District Office at Bracebridge. Access to Clear Lake is 3 kilometers north of Muskoka Road 4 on the Clear Lake Road. There is a public access point located at the south-east shore of the lake.

The backshore vegetation consists of a mixed forest of white birch (Betula papyridera), hemlock (Tsuga canadensis), eastern white cedar (Thiya occidentalis), and white pine (Pinus strobus). The rolling hills beyond the lake is predominently a deciduous forest of hard maple (Acer saccharum) and yellow birch (Betula letea). The low wet area located at the outlet is a mixed stand of soft maple (Acer rubrum), balsam fir (Abies balsamea), and eastern white cedar (Thiya occidentalis).

The geology of the area consists of precambrian granites and gneisses overlain with glacial till including deposits of sand, gravel, and small rock. The lake bottom consists of sand dispersed with gravel, rock, and large boulders (see appendix E).

Clear Lake has no inlets and one outlet which discharges from the north-west corner of the lake. The lake bottom formation at the outlet point is composed of a bedrock shelf dispersed with small rocks. The outlet is composed of a detritus bottom and supports a limited quantity of aquatic vegetation. The bench mark is located at the entrance to the outlet on a stone beneath the hydro line.

Through shoreline observations, and discussions with local residents, it was determined that the water level fluctuation is approximately 15 centimeters. This low fluctuation level reflects the small drainage area (approximately 250 hectares)

of the Watershed Unit 2EC-15, as outlined on the Ministry of Natural Resources map #M6273, Watershed Divisions for Southern Ontario, 1973.

Clear Lake supports a sparce variety of aquatic vegetation in the north-eastern, south-eastern, and western bays. Plant species identified in the shallow sandy bays were pipewort (Ericaulon sp.), and pickerelweed (Pontederia sp.)

Fish stocking in Clear Lake began in 1939 and continued through 1980. A total of 40,335 lake trout, 15,200 brook trout, and 19,900 rainbow trout have been introduced over this period of time. Refer to Appendix C for a detailed stocking record.

METHODS

The field work on Clear Lake began on August 20, 1980 and continued until September 3, 1980. The netting was conducted in a controlled random manner by dividing the lake into 1000 x 1000 foot squares. A 700 foot gill net was set in each square that had more than 75% of its area covered by water. (See Appendix F for net locations). Each 700 foot gang of gill net consisted of seven 100 foot sections of the following mesh sizes: 2.5, 4.5, 1.5, 3.5, 2.0, 4.0, and 3.0 inches. The nets were set one day and lifted the following day. The average netting time was from 19 to 22 hours.

During the assessment program all game fish were examined for total length, total weight, sex, stomach contents, and fin clips. A scale sample was also taken to determine the age of the fish. Non-game fish were recorded as to species and the size of mesh the fish was caught in.

Water chemistry testing was done on August 20, 1980 at the deepest part of the lake (see Appendix E). A portable Hach field kit was used to measure dissolved oxygen, pH and alkalinity. Other tests performed at this station were temperature, conductivity, total dissolved solids and secchi disc reading.

A shoreline cruise was done to identify the backshore vegetation types and the degree of slope of the surrounding topography. Concurrent to this a survey was conducted in the area between the shoreline and four meter depth to identify the various bottom types and possible spawning beds for game fish (see Appendix E).

Seine netting was performed at various locations on the lake in an attempt to collect small fish species.

The flow rate for the outlet was taken to estimate the flushing rate of the lake by using the floating chip method (see Appendix D). The outlet was also surveyed for bottom type, presence of aquatic vegetation, bank condition and

surrounding vegetation.

A cottage survey was undertaken to get an estimate of the fishing pressure and success rate of the lake. The number of cottages, lodges, camps and campgrounds was also recorded.

RESULTS

Netting:

A summary of the raw data from the netting and the gill net catch record forms is included in Appendix A. A map of the 1000 x 1000 foot squares and net locations on Clear Lake is included in Appendix F. Appendix B is an analysis of catch per unit effort, sex, weight, length and fin clips of the game fish caught.

The game fish caught were lake trout, and smallmouth bass. The non-game fish species included lake whitefish, white sucker, yellow perch and burbot. In each of the eight sets, lake white fish and white suckers were caught in the greatest numbers.

A total of 16 lake trout were caught during the netting program. Eleven or 69% of these fish exhibited a fin clip. This percentage figure could be considered low since there were 3000 lake trout stocked in 1972 without a fin clip (see Appendix C). From the eleven fin clipped fish that were caught one had a right pectoral clip, 6 exhibited an adipose clip, 2 showed a left pectoral clip and 2 had a right ventral clip.

A high percentage of the lake trout sampled were from 50 cm to 70 cm long. Eight, or 50% of the captured fish were from 50 to 59.9 cm long. There was not a lake trout caught that was less than 41 cm long.

The catch per unit effort analysis is an attempt to assess the lake trout population in a specified lake. The number of lake trout caught is related to the amount of netting done. The basic unit is measured in 100 foot hours (one 100 foot section of net in the water for one hour). The net length is multiplied by the number of hours the net is in the water and then divided by the number of fish caught. A total of 1134.0 100 foot hours of netting was performed to yield 16 lake trout. This gives a relatively high value of 70.8 (see Appendix A), or in other words it took 70.8 hours with 100 feet of net in the water to produce

one lake trout.

The catch per unit effort analysis for smallmouth bass was one fish for 1134.0 100 foot hours (see Appendix B).

Water Chemistry:

The results for the water chemistry is in tabular form on a Lake Survey Summary Sheet. The water chemistry was performed in lake August and therefore illustrates the minimal suitable habitat available to lake trout with respect to dissolved oxygen and temperature.

The 5.0 p.p.m. dissolved oxygen reading was located at 16 meters. Research has shown that lake trout are not under stress in dissolved oxygen levels which are 5.0 p.p.m. or greater (Martin and Olver 1976).

The water temperature was found to be suitable for lake trout at a depth of 7 meters and greater. A temperature of 15°C is considered a maximum for lake trout (Martin and Olver 1976).

The significant habitat area for lake trout is calculated from the limiting factors of dissolved oxygen and temperature. For Clear Lake the suitable habitat area for lake trout was calculated as 113 acres.

The pH readings for Clear Lake ranged from 6.0 at the bottom to 7.0 at the surface. This range is above the 5.5 level at which trout cannot survive (Martin and Olver 1976).

The alkalinity reading of 6.8 mg. per litre for Clear Lake is comparable to over one-half of the trout lakes which have a total alkalinity of less than 20 mg. per litre (Martin and Olver 1976).

The total dissolved solids ranged from 26 mg. per litre at the surface to 28 mg. per litre at the bottom. This reading is similar to over one-half of the trout waters which have a range from 10 p.p.m. to 29 p.p.m. (Martin and Olver 1976).

Shoreline Cruise:

The shoreline cruise was done to identify bottom substrates and locate possible lake trout spawning beds. Shoreline slope and vegetation type also was recorded and a detailed map of the shoreline cruise can be found in Appendix E.

Potential lake trout spawning beds are designated on the shoreline cruise map by a ⊛. However, these areas that had the characteristic fist size rocks appeared silted over and it is doubtful as to whether the lake trout spawn could develop and hatch successfully.

A total of 56 cottages and 1 combined camp, campground was counted on the shoreline cruise. This is a high number of cottages for a lake with a shoreline of only 4.2 5 miles.

Cottage Survey:

During the two weeks in which the assessment took place a total of 4 angling parties were interviewed. All of the parties interviewed had no fishing success and only one of the anglers had caught one lake trout the previous spring. The general consensus was that the lake received moderate fishing pressure from the cottagers for lake trout in the spring and smallmouth bass in the summer. The fishing success rate was low and the interviewed anglers had only knowledge of two lake trout and one smallmouth bass being caught during the season. The survey also indicated that the lake received moderate fishing pressure in the winter.

Three other cottagers were interviewed who did not fish the lake. Their interests centred around recreational activities of the lake such as canoeing, sailing, boating and waterskiing. During the assessment period the lake was heavily used by all types of boats.

Seine Netting:

A total of six attempts were made using a seine net to capture small fish species at various locations and habitats. Locations of the seine netting are indicated by a xSx on the shoreline cruise map (see Appendix E).

No fish were captured in the netting and during the shoreline cruise no small fish were seen in the clear calm waters of the lake.

Outlet:

The results obtained on the flow and the calculations of the outlet's discharge can be found in Appendix D. The calculated discharge of 0.1451 m^3/sec. indicates that the water exchange rate for Clear Lake is low. The fact that Clear Lake is a headwater lake with a narrow watershed substantiates these findings. Since there are no inlets into the lake, it can be assumed that the lake is spring fed.

DISCUSSION

The chemical and physical properties of Clear Lake indicate that a suitable habitat is present to support a lake trout population. This is further established by the lake having a morphoedaphic index of 0.98. It has been found that in the Province of Ontario the average M.E.I. for trout lakes is 1.1 (Ryder 1965). This indicates that Clear Lake is an average oligotrophic trout lake. Other physical and chemical attributes of Clear Lake are the maintenance of a constant water level which is critical to the survival of the incubating lake trout spawn during the winter months. The low flushing rate and the subterranian flow of water into the lake reduces the chances of drastic fluctuations in the chemical composition of the water.

However, aside from the chemical and physical properties of the lake the results obtained from the netting program indicate that there are many problems associated with the lake trout population. The value of 70.8 100 foot hours obtained from the catch per unit effort analysis indicates a relatively low lake trout population. Further problems are evident in the high percentage of stocked trout that were sampled from the netting program. This indicates that there are complications with the survival of the spawn due to inadequate spawning beds, and/or

predatory fish. With the high lake whitefish population in the lake, it can be assumed that they could be partially responsible for the low number of native trout.

The netting program is conducted in a controlled random manner so that the results represent a cross-section of the total fish population within the lake. However, it must be recognized that for the data to be accurate all of the 1000 X 1000 foot squares should be netted simultaneously. Since this is not feasible, an error could occur in the results from the migration of fish from an area of the lake that hasn't been netted into an area that has been netted without encountering the nets.

Possible explanations to the low catch per unit effort analysis can be related to certain aspects of the trout's habitat. Temperature and dissolved oxygen levels contribute to produce a small significant habitat area of 113 acres or 46% of the total lake's surface. The potential fish production (Yield) can be approximately calculated using Ryder's formula: Yield = $2\sqrt{X}$ where X represents the M.E.I. The sustainable yield for Clear Lake is 1.98 pounds/acre/year. Therefore the lake's cold water fishery is capable of producing 223.7 pounds/year of fish. This value represents the combined production for lake trout and lake whitefish. Since the lake whitefish population is greater than the lake trout population the yield in pounds/acre/year for lake whitefish is greater than that for lake trout. The pounds/acre/year for lake trout would be less than half of the total pounds/acre/year produced by the cold water fishery. As the lake trout population is selectively reduced by angling, the niche occupied by the trout within the lake's ecosystem is then replaced more and more by the lake whitefish.

CONCLUSIONS AND RECOMMENDATIONS

Clear Lake has excellent physical and chemical characteristics to sustain a healthy lake trout population. The problems associated with the lake trout fishery are lack of suitable spawning beds and competition from lake whitefish. The lake trout population is almost totally dependent on the stocking program for continued existence. The low number of native trout sampled is due to inadequate spawning facilities and/or predation of eggs and developing trout from predatory fish.

It is recommended that Clear Lake be managed as a lake trout fishery and that the stocking program be continued to maintain the present trout population. Closer examination of existing spawning beds should be made to determine the problems associated with successful natural reproduction of the lake trout. This could involve the cleaning off of existing spawning facilities or if feasible the construction of an artificial spawning bed. The lake whitefish population should be reduced by initiating a netting program or encouraging anglers to harvest this readily available fish species. It is recommended that Clear Lake be included in future creel surveys to monitor summer and especially winter fishing pressure. Due to the high number of cottages on the lake the chemical properties of the water should be monitored on a periodic basis.

At the present it is imperative that the stocking program be continued to maintain a lake trout population. This program could be discontinued in the future if found feasibly possible to improve the spawning facilities so that the lake trout could maintain a healthy population by reproducing successfully.

REFERENCES CITED

Martin, N.V. and C.H. Olver, 1976. The Distribution and characteristics of Ontario Lake Trout Lakes, Ontario Ministry of Natural Resources, Division of Fish & Wildlife. 30 pp.

Ryder, R.A. 1965. A method for Estimating the Potential Fish Production of North-Temperate Lakes. Trans. Am. Fish. Soc. 94: 214-218.

LIST OF APPENDICIES

APPENDIX A - GILL NET CATCH RECORDS AND SUMMARY SHEETS

APPENDIX B - CATCH/UNIT EFFORT ANALYSIS (SUMMARY SHEET)

APPENDIX C - STOCKING RECORD: CLEAR LAKE

APPENDIX D - OUTLET DATA: CLEAR LAKE

APPENDIX E - SHORELINE CRUISE MAP

APPENDIX F - NETTING LOCATION MAP

APPENDIX G - WATERSHED MAP

APPENDIX A

CATCH RECORDS FOR STATION 1 TO 8

Species	Number Caught
Lake Trout	16
Smallmouth Bass	1
Lake Whitefish	228
White Sucker	229
Yellow Perch	5
Burbot	18

100 Ft. Hrs./Trout - Sets 1 to 8

Station	Feet of Net	Hours of Netting	100' Hrs.
1	700	22.0	154.0
2	700	20.0	140.0
3	700	20.5	143.5
4	700	19.5	136.5
5	700	20.0	140.0
6	700	20.0	140.0
7	700	21.0	147.0
8	700	19.0	133.0
		162.0	1134.0

TOTAL 100 FT. HRS. NETTING = 1134.0

TOTAL LAKE TROUT CAUGHT = 16

$$\therefore \frac{\text{100 FT. HRS. NETTING}}{\text{LAKE TROUT INDEX}} = 70.80$$

RECORD OF LAKE TROUT CAUGHT

Station No.	Total Length (cm)	Round Weight (g)	Stocking Marks	
1	64.9	2675	None	
	62.1	2350	Adipose	'73
	58.9	2050	Adipose	'73
	51.6	1250	Left pectoral	'75
2	62.0	2075	Right pectoral	'71
3	55.6	1550	Adipose	'73
	54.5	2300	Adipose	'73
	42.5	525	Left pectoral	'75
	48.5	925	Right ventral	'77
	80.9	6400	None	
	64.0	2450	Adipose	'73
5	62.0	2100	None	
	57.1	2025	None	
7	58.0	2100	None	
	53.1	2050	Right ventral	'77
8	59.5	2200	Adipose	'73

TOTAL NUMBER OF LAKE TROUT CAUGHT = 16

TOTAL NUMBER OF LAKE TROUT MARKED = 11

% OF LAKE TROUT MARKED = 69%

2675
6400
2350
2200

GILL NET CATCH RECORD

LAKE: Clear		DEPTH OF SET:	
DATE SET:	TIME:	DATE LIFTED:	TIME:
SET NO:		NETTING TIME:	
MESH SIZE			
INSHORE →			← OUTSHORE

	Species	Sample No.	Total Length (cm.)	Round Weight (grams)	Sex	Mat.	Age	Recaps	(stocking) Markings	Dis.
Set #1	Lake Trout	13	64.9	2675	M			—	Nil	
	Lake Trout	14	62.1	2350	M			—	Adipose	
	Lake Trout	15	58.9	2050	M			—	Adipose	
	Lake Trout	16	51.6	1250	F			—	Left pectoral	
Set #2	Lake Trout	1	62.0	2075	M			—	Rt. pectoral	
Set #3	Lake Trout	2	55.6	1550	F			—	Adipose	
	Lake Trout	3	54.5	2300	F			—	Adipose	
	Lake Trout	4	42.5	525	M			—	Left pectoral	
	Lake Trout	5	48.5	925	M			—	Rt. ventral	
	Lake Trout	6	80.9	6400	F			—	Nil	
	Lake Trout	7	64.0	2450	M			—	Adipose	
Set #5	Lake Trout	8	62.0	2100	M			—	Nil	
	Lake Trout	9	57.1	2025	M			—	Nil	
Set #7	Lake Trout	11	58.0	2100	F			—	Nil	
	Lake Trout	12	53.1	2050	M			—	Rt. ventral	
Set #8	Lake Trout	10	59.5	2200	F			—	Adipose	
Set #3	SM Bass	SM 1	19.5	200	-			—	Nil	

GILL NET CATCH RECORD

LAKE: Clear Lake		DEPTH OF SET: 15 m to 12 m	
DATE SET: Aug.28	TIME: 1500	DATE LIFTED: Aug. 29	TIME: 1300
SET NO: 1		NETTING TIME: 22 hrs.	

MESH SIZE

SPECIES	½"	¾"	1"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	5½"	6"	6½"	TOTAL
White Sucker					2		3	9	29						
White Fish						9	2								
Lake Trout						1	3								
Ling				1		1			1						
Perch				5											

GILL NET CATCH RECORD

LAKE: Clear		DEPTH OF SET: 8m to 24m	
DATE SET: Aug. 20	TIME: 1400	DATE LIFTED: Aug. 21	TIME: 1000
SET NO: 2		NETTING TIME: 20 hrs.	

MESH SIZE

SPECIES	½"	¾"	1"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	5½"	6"	6½"	TOTAL
White Sucker									5						
Lake Trout					1										
Burbot					3										
White Fish					32										

GILL NET CATCH RECORD

LAKE: Clear		DEPTH OF SET: 5.5m to 7.0m	
DATE SET: Aug. 20	TIME: 1430	DATE LIFTED: Aug. 21	TIME: 1100
SET NO: 3		NETTING TIME: 20.5 hrs.	

	MESH SIZE														
SPECIES	½"	¾"	1"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	5½"	6"	6½"	TOTAL
Lake Trout					1			3	1	1					
White Fish					67	2		1							
White Sucker							34	3	38	2					
Burbot					2		3		2						
Smallmouth Bass							1								

GILL NET CATCH RECORD

LAKE: Clear		DEPTH OF SET: 9m to 12m	
DATE SET: Aug. 21	TIME: 1430	DATE LIFTED: Aug. 22	TIME: 1000
SET NO: 4		NETTING TIME: 19.5 hrs.	

MESH SIZE

SPECIES	½"	¾"	1"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	5½"	6"	6½"	TOTAL
White Sucker						1	2	2	8	1					
Burbot						1									
White Fish					9										

GILL NET CATCH RECORD

LAKE: Clear		DEPTH OF SET: 19m to 20m	
DATE SET: Aug. 25	TIME: 1400	DATE LIFTED: Aug. 26	TIME: 1000
SET NO: 5		NETTING TIME: 20 hrs.	

	MESH SIZE														
SPECIES	½"	¾"	1"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	5½"	6"	6½"	TOTAL
White Fish				1	11	4	0	0	0	0					
Sucker				0	0	0	0	4	0	4					
Lake Trout				1	0	0	0	0	0	1					
Ling				0	0	0	0	1	0	0					

GILL NET CATCH RECORD

LAKE: Clear Lake		DEPTH OF SET: 14m to 18m	
DATE SET: Aug. 27	TIME: 1500	DATE LIFTED: Aug. 28	TIME: 1100
SET NO: 6		NETTING TIME: 20 hr.	

MESH SIZE

SPECIES	½"	¾"	1"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	5½"	6"	6½"	TOTAL
White Sucker				0	0	0	0	0	2	2					
White Fish				0	9	2	0	0	0	0					
Lake Trout				0	0	0	0	0	0	0					

GILL NET CATCH RECORD

LAKE: Clear Lake		DEPTH OF SET: 12m to 13m	
DATE SET: Aug. 28	TIME: 1430	DATE LIFTED: Aug. 29	TIME: 1130
SET NO: 7		NETTING TIME: 21 hrs.	

MESH SIZE

SPECIES	½"	¾"	1"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	5½"	6"	6½"	TOTAL
White Sucker				0	0	1	19	0	24	7					
White Fish				15	39	10	0	0	0	0					
Lake Trout				0	0	1	0	1	0	0					
Ling				1	1	0	0	0	1	0					

GILL NET CATCH RECORD

LAKE: Clear		DEPTH OF SET: 12m to 15m	
DATE SET: Aug. 26	TIME: 1500	DATE LIFTED: Aug. 27	TIME: 1000
SET NO: 8		NETTING TIME: 19 hrs.	

MESH SIZE

SPECIES	½"	3/4"	1"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	5½"	6"	6½"	TOTAL
White Sucker				0		4	1	9	11	2					
White Fish				0	14	2				0					
Lake Trout					1										

APPENDIX B

CATCH/UNIT EFFORT ANALYSIS (SUMMARY SHEET)

Net Set No.	Hrs. of Netting	Net Length in Feet	100 ft. hrs. Netting	No. of Lake Trout Caught	No. of S.M. Bass Caught	Total No. of Fish Caught
1	22.0	700	154.0	4	0	66
2	20.0	700	140.0	1	0	41
3	20.5	700	143.5	6	1	161
4	19.5	700	136.5	0	0	24
5	20.0	700	140.0	2	0	27
6	20.0	700	140.0	0	0	15
7	21.0	700	147.0	2	0	120
8	19.0	700	133.0	1	0	44
TOTALS	162.0		1134.0	16	1	498
100' HRS. NETTING/FISH			. . . .	70.8	1134.0	2.28

LAKE TROUT

TOTAL LENGTH RECORDED IN 10 CM INTERVALS

10-19.9	20-29.9	30-39.9	40-49.9	50-59.9	60-69.9	70-79.9	80-89.9
0	0	0	2	8	5	0	1

NUMBER UNDER 41 CM = 0 NUMBER OVER 41 CM = 16

TOTAL WEIGHT OF LAKE TROUT REMOVED = 35025 GRAMS

OR 35.025 KILOGRAMS

TOTAL NUMBER OF LAKE TROUT CAUGHT = 16

TOTAL NUMBER OF LAKE TROUT MARKED = 11

% OF LAKE TROUT MARKED = 69%

MARKED FISH

NO. OF FISH	FIN CLIP	% CLIPPED	% UNCLIPPED
5	Unclipped	69%	31%
1	Right pectoral		
6	Adipose		
2	Left pectoral		
2	Right ventral		

SEX OF FISH

Sex	Number	% of Total
M	10	62.5%
F	6	37.5%

APPENDIX C

Stocking Record — Clear Lake

Date	Species	Age	# of Fish	Clips
1939	Brook Trout	Y	3000	—
1940	Brook Trout	Y	2400	—
1942	Lake Trout	Fg.	5000	—
1942	Kamloops Trout	Y	4800	—
1944	Lake Trout	Fg.	5000	—
1944	Kamloops Trout	Y	1000	—
1945	Brook Trout	Y	1000	—
1945	Kamloops Trout	Y	1200	—
1946	Brook Trout	Y	2400	—
1947	Lake Trout	Fg.	2500	—
1947	Kamloops Trout	Y	2000	—
1947	Brook Trout	Y	2400	—
1951	Lake Trout	Fg.	1000	—
1954	Brook Trout	Y	2000	—
1954	Kamloops Trout	Y	1000	—
1955	Kamloops Trout	Y	1000	—
1955	Lake Trout	3 months	1000	—
1956	Brook Trout	Y	1000	—
1956	Kamloops Trout	Y	1000	—
1957	Brook Trout	Y	1000	—
1957	Kamloops Trout	Y	1000	—
1958	Lake Trout	Y	1000	—
1959	Kamloops Trout	Y	900	—
1960	Kamloops Trout	Y	1000	—
1961	Lake Trout	Y	1000	—
1962	Kamloops Trout	Y	2000	—
1963	Lake Trout	Y	1500	—
1964	Kamloops Trout	Y	2000	—
1965	Lake Trout	Y	1000	—
1965	Kamloops Trout	Y	1000	—
1967	Lake Trout	Y	2000	—
1968	Lake Trout	Y	3000	—
1971	Lake Trout	Y	3000	Right pectoral
1972	Lake Trout	Y	3000	—
1973	Lake Trout	Y	2000	Adipose
1975	Lake Trout	Y	2000	Left pectoral
1977	Lake Trout	Y	2600	Right ventral
1980	Lake Trout	15 months	3735	—

APPENDIX D

Outlet Clear Creek	Width:	Average - 7.9 meters
	Depth:	Average - 24.5 cm
	Flow:	10 meters in 160 sec.
		10 meters in 110 sec.
		10 meters in 90 sec.
		Average - 120 sec.

BOTTOM MATERIAL: DETRITUS

DISCHARGE: 0.1451 m^3/sec.

Ministry of Natural Resources
Ontario

Lake Survey Summary
Aquatic Habitat Inventory

A. Identification Key
M.N.R. District No. 5 3 | Watershed 2 E C
Lat. 4 5 ° 0 0 | Long. 7 9 ° 0 1 | Survey Year 19 8 0

B. Location Data — Gazetteer Name: Clear | Topographic Map Name: Clear | Local Name: Clear
County or Judicial District: Muskoka | Township: Oakley | Lot: 8 – 1 | Concession: VIII – IX
Name and No. of Topo. Map: Bracebridge 31 E/S East | Watershed Code: 2 E C 1 5 | Elevation: 3 3 0 m
Access: PUBLIC

C. Water Chemistry Data
Sta. No. 1 of ☐ | Secchi 7 · 0 m | Cloud 3 0 % | 1 3 3 0 hrs. | Date — Day 2 0 Mo. 0 8 Year 19 8 0
Surface — Calm ☐ Rippled ☒ Wavy ☐ Rough ☐ | Thermocline From 6 · 0 m To 8 · 0 m
Colour — Colourless ☒ Yellow/Brown ☐ Blue/Green ☐ | Air Temp. 2 1 · 0 °C | No Thermocline ☐

Numbers Only
☒ Checking Only

Depth m	Temp. °C	D.O. mg/l	pH	Alk. mg/l	T.D.S. mg/l	CELL T °C	Conductivity umhos/cm
00	20.0						
01	19.4						
02	19.4	8.4	7.0	6.8	26.0	21.5	22.5
4	19.0						
6	17.8						
8	12.2	9.4	6.5	6.8	26.0	21.5	22.5
10	9.4						
12	6.7						
14	5.6						
16	5.0	5.0	6.0	6.8			
18	5.0						
20	5.0	2.2	6.0	6.8			
22	4.8						
25	4.5	0.8	6.0	6.8	28.0	20.1	25.0

Test Time From 1 3 1 5 hrs. to 1 4 3 0 hrs.

D. Basin and Terrain Characteristics

Timber Types: _____

Below B.M. — m | Fluctuation — m | No. Resorts 1 | Flat 1 0 %
Max. Depth 2 7 · 0 m | Mean Depth — m | No. Cottages 5 6 | Rolling 7 0 %
Perimeter 6 · 8 km | Is. Shoreline — km | Crown — % | Hilly 2 0 %
Surface Area 1 0 0 · 2 ha | Patent — % | Mntnous — %
Volume — x10⁴m³