



Environment Canada

Environnement Canada

Fisheries and
Marine Service

Service des pêches
et des sciences de la mer

75-ENV-F-RD - MAR-DR10

Canada. Fisheries and Marine
Service. Maritimes Region.
Resource Development Branch.
DATA RECORD SERIES MAR/D

DFO - Library / MPO - Bibliothèque



09039421

1973 Surveys of Eleven Lakes in Antigonish and Guysborough Counties, Nova Scotia

by

B. H. Ives

54311

Data Record Series No. MAR/D-75-10

Resource Development Branch
Maritimes Region



1973 SURVEYS OF ELEVEN LAKES
IN ANTIGONISH AND GUYSBOROUGH COUNTIES,
NOVA SCOTIA

B.H. IVES

NOVEMBER, 1975

DATA RECORD SERIES NO. MAR/D-75-10

RESOURCE DEVELOPMENT BRANCH
FISHERIES AND MARINE SERVICE
DEPARTMENT OF THE ENVIRONMENT

HALIFAX, NOVA SCOTIA

CONTENTS

INTRODUCTION.	1
METHODS	1
RESULTS	3
Cameron Lake	4
Charlie Lake	9
Cross Lake	13
Eight Island Lake.	18
Gaspereaux Lake.	23
Giant Lake	27
Gillis Lake.	31
Lochaber Lake.	35
Narrow Lake.	44
Pringle Lake	49
Round (Island) Lake.	54
APPENDIX A - LIST OF COMMON AND SCIENTIFIC NAMES OF FISH SPECIES CAPTURED DURING LAKE SURVEYS.	59
APPENDIX B - LIST OF CODES AND ABBREVIATIONS USED IN REFERENCE TO HATCHERY-PRODUCED TROUT	61
APPENDIX C - SELECTED MORPHOEDAPHIC, EDAPHIC AND BIOLOGICAL DATA FOR ELEVEN LAKES SURVEYED IN 1973	63
APPENDIX D - FISH SPECIES COLLECTED BY GILLNET, TRAPNET AND ELECTROSEINE FROM ELEVEN LAKES AND/OR THEIR TRIBUTARY STREAMS DURING SURVEYS CONDUCTED IN 1973.	65
REFERENCES.	67

INTRODUCTION

In July and August, 1973, eleven lakes in Antigonish and Guysborough counties, Nova Scotia, were surveyed as part of a continuing lake-inventory program in the Maritimes Region.

These lakes were coincidentally stocked in a hatchery-trout distribution assessment project which commenced in the spring 1973. Distributions consisted of yearling brook trout, all of which had the adipose fin clipped. In addition, 20% of all the fish released were tagged. Tagging and clipping were carried out at Antigonish Hatchery, with assistance from hatchery personnel. All the lakes are accessible by hatchery truck.

METHODS

Lake surface area was determined by planimetry, from enlargements of existing topographical maps (Energy, Mines and Resources 1954, 1:50,000 scale). Maximum length, maximum width, maximum effective length and maximum effective width (Welsh 1948) were also calculated from enlarged maps. Shoreline length was measured using a map measurer.

The degree of irregularity of the shoreline (shoreline development) was calculated using the formula

$$\frac{S}{2\sqrt{a\pi}}, \text{ (Welsh 1948)}$$

Where s = shoreline length
 a = area of the lake.

For depth soundings, transects were run between readily identifiable landmarks on opposite shores of the lake. Continuous depth soundings were recorded graphically, using a Furuno Mark II depth sounder, with a transducer held by hand over the side of the boat. Recorded depths were plotted on lake outline maps and similar adjacent depth markings were joined in preparing the bathymetric maps (5 ft-contour intervals) included in this report.

Volume of the lake was determined by adding the volume of each horizontal stratum as limited by the contours of the bathymetric maps. The formula used is

$$V = \frac{h}{3} (a_1 + a_2 + \sqrt{a_1 a_2})$$

Where h = vertical depth of each horizontal stratum
 a_1 = area of stratum upper surface
 a_2 = area of stratum lower surface.

Areas were determined by planimetry. Total lake volume is

the sum of all strata volumes (Welch 1948).

Mean depth (meters) was found by dividing lake volume (cubic meters) by water surface area (square meters).

Water temperature was determined by using a single-channel Y.S.I. telethermometer with a 15-meter extension cord. Subsurface water samples were collected with a one-litre Kemmerer sample bottle. Dissolved oxygen content and pH were determined with a portable Hach Kit. Water sample stations are denoted on accompanying maps by "STN", plus the station number referred to in the text. Additional chemical analysis, including conductivity, was completed by Environment Canada, Atlantic Region Water Quality Branch, Moncton. NAQUADAT (National Water Quality Data Bank) provides a storage and retrieval service of water-quality data.

Field measurements of turbidity were made with a secchi disc (Lagler 1956).

For each lake surveyed, total dissolved solids (T.D.S.) was calculated by conversion from the average conductivity of all surface-water samples, using the formula: $\log \text{T.D.S.} = 1.091 \log \text{conductivity} - 0.252$ (Hayes 1963). A morphoedaphic index (M.E.I.) was calculated by dividing the calculated T.D.S. values (mg/l) for each lake by the mean depth of the lake (m) (Ryder et al. 1974). The morphoedaphic index values were used in calculating annual potential fish yield to anglers per unit area, using the formula $\text{yield} \approx 0.966 \sqrt{\text{M.E.I.}}$ (Ryder et al. 1974).

The fish population of each lake was sampled with mono-filament survey-type nets (GN), measuring 58 m on the float line and 70 m on the lead line. Each net included six panels of equal length, with mesh size ranging from 1.9 cm to 6.2 cm (square mesh). A modified Pennsylvania trapnet (TN), measuring 40 m at the leader, 12 m on each wing, and with a mesh size of 1.25 cm (square mesh), was also used. The net body, consisting of two hearts and a pot, measured 2.4 m by 1.8 m. Usually, one surface gillnet, one sunken gillnet, and one trapnet were set for one or more nights in each lake. The locations of gillnet and trapnet sets are denoted on maps as "GN" or "TN", respectively.

In the text, fish species are referred to by common names. A list of scientific names for these species is provided (Appendix A). No distinction was made between gaspereau and blueback herring.

"Stocking history", referred to in the surveys, is taken from the records of the Resource Development Branch, Fisheries and Marine Service, Department of the Environment. Abbreviations used in this report are those commonly used by the Branch (Appendix B).

RESULTS

Summaries were compiled for selected morphometric, edaphic and biological data for the eleven lakes (Appendix C), and for the fish species collected (Appendix D). Brook trout were captured in only seven of the lakes. None of the 29 brook trout captured were from the 1973 spring distribution and evaluation project.

Detailed survey results are recorded on the following pages for each of the eleven lakes, listed in alphabetical order.

Cameron Lake

<u>County:</u> Antigonish	<u>Maximum Width:</u> 620 m
<u>Location:</u> 45°31'N; 61°59'W	<u>Maximum Effective Width:</u> 620 m
<u>Drainage System:</u> South River	<u>Maximum Depth:</u> 9.5 m
<u>Survey Date:</u> July 23-27, 1973	<u>Mean Depth:</u> 4.8 m
<u>Surface Elevation:</u> 61 m	<u>Volume of Lake:</u> 14.2 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 29.6 ha	<u>Shoreline Length:</u> 2,800 m
<u>Number of Islands:</u> 0	<u>Shoreline Development:</u> 1.5
<u>Island Area:</u> 0.0 ha	<u>Conductivity:</u> 55.2 µmhos/cm
<u>Water Surface Area:</u> 29.6 ha	<u>Secchi Disc Reading:</u> 2.4 m
<u>Maximum Length:</u> 840 m	<u>Morphoedaphic Index:</u> 8.9
<u>Maximum Effective Length:</u> 840 m	<u>Potential Fish Yield:</u> 86.0 kg 2.9 kg/ha

Access: A dirt road runs along the west side of the lake. Most of the shore is sufficiently open to allow access on foot. There is a boat-launch site on the lake.

Use: The lake is used for limited recreational purposes (swimming, boating and fishing). There are no cottages on the lake and the general setting is remote.

Physical Characteristics: The lake shore is forested by coniferous trees. Emergent vegetation was observed within the 5-ft contour at both the north and south ends of the lake.

Streams: Inlet #1 is narrow (<1 ft), with an intermittent flow of water. The stream bed near the mouth has a gravel bottom, but a lot of garbage and fallen trees were observed. Dissolved oxygen level was 8.8 mg/l, pH was 6.5 and temperature was 18.5°C.

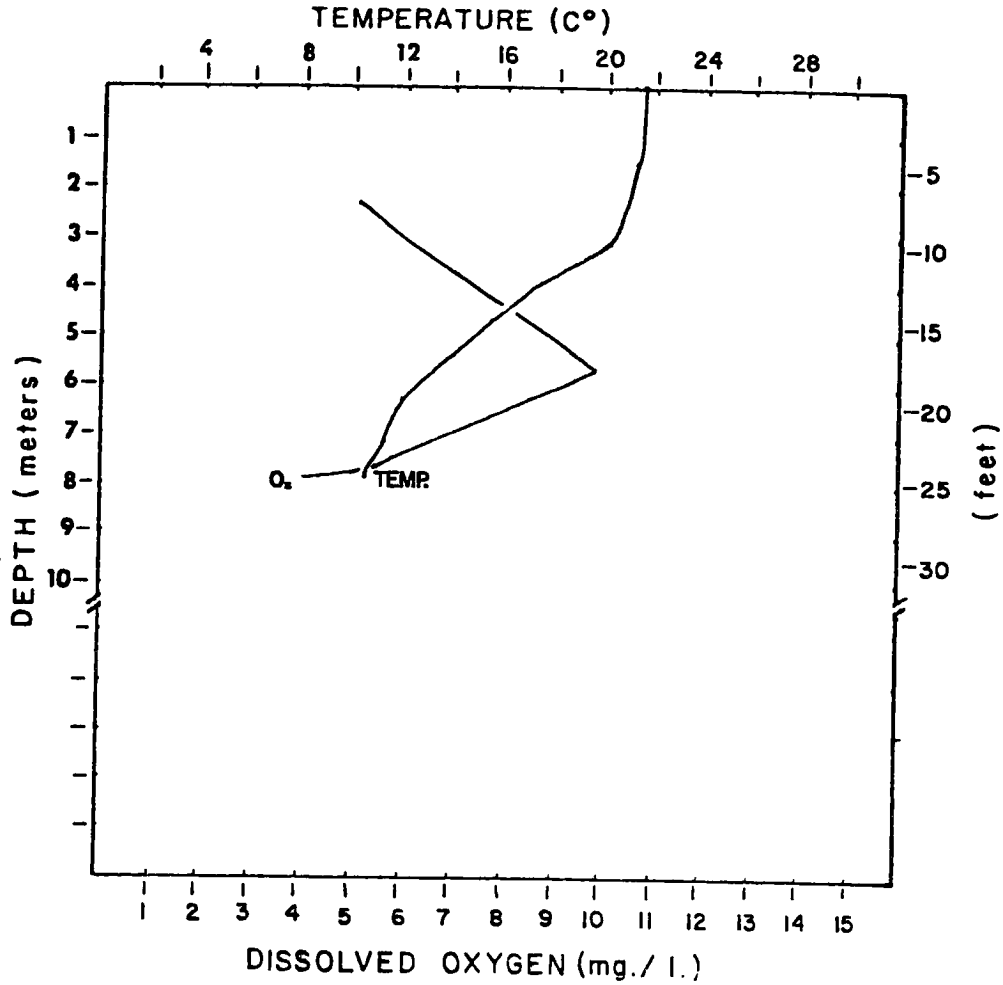
Inlet #2 is also intermittent and was cluttered by fallen trees. Dissolved oxygen level was 8.8 mg/l, pH was 6.0 and temperature was 15.5°C.

The southern inlet (#3, main stream), is 8-10 ft wide at its mouth and narrows to 4 ft about 50 yd upstream. Bushes, mostly alder, grow very densely along the stream. The stream has a muddy bottom and is about 3 ft deep near its mouth. Dissolved oxygen level was 8.4 mg/l, pH was 5.5 and temperature was 18.5°C.

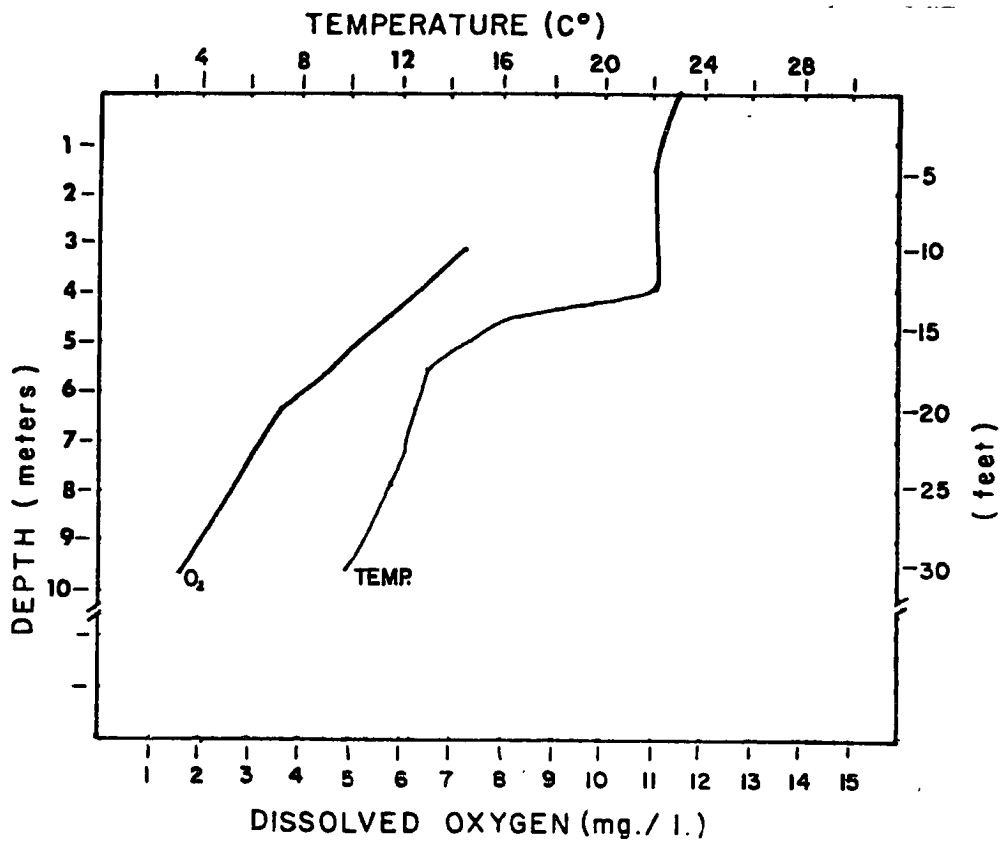
The outlet, flowing to Gillis Lake, contained extensive vegetation. Dissolved oxygen level was 8.0 mg/l, pH was 6.8 and temperature was 20°C.

Lake Water Characteristics: Cameron Lake was thermally stratified in late July (22.0°C-12.0°C). Dissolved oxygen levels ranged from 9.6 mg/l in the upper level to 1.6 mg/l near the bottom; pH was 6.4 throughout.

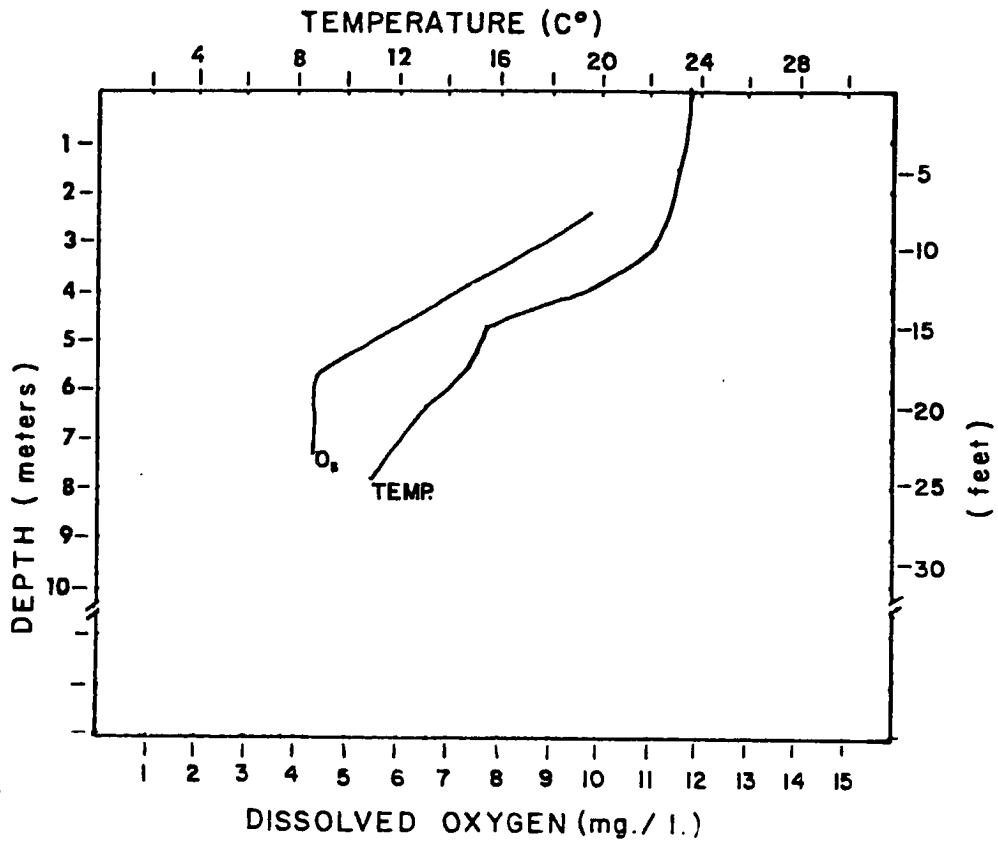
STN #1



STN #2



STN #3



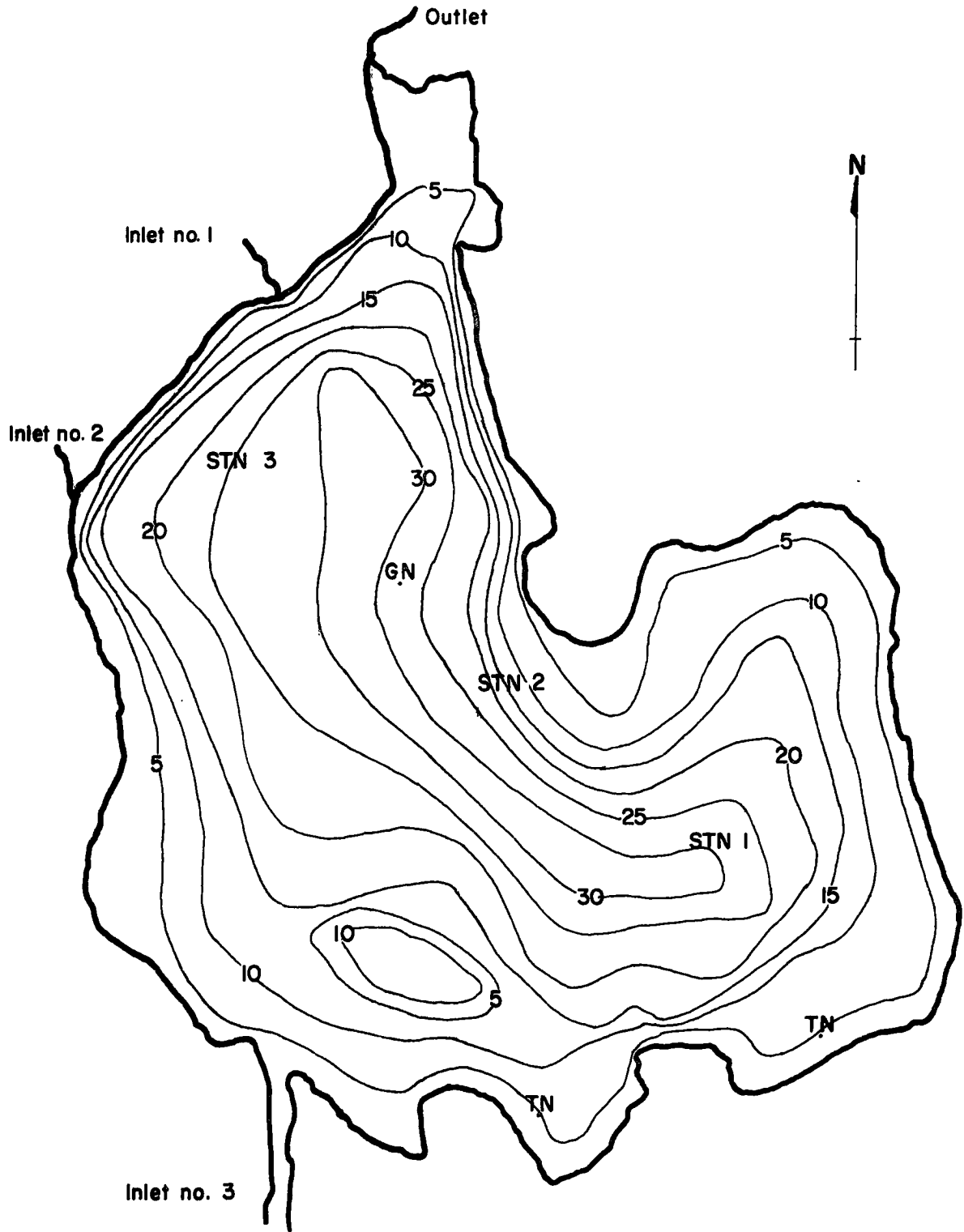
Fish Collection: In two consecutive nights of gillnetting and trapnetting, the following fish were caught:

Species	Number	Fork length (cm)			Mean weight (g)
		Maximum	Minimum	Mean	
Brook trout	2 ¹	—	—	28.6	225
White perch	180	30.0	9.8	14.8	—
Yellow perch	119	13.6	9.5	12.0	—
Common sucker	50	—	—	—	—
American eel	14	—	—	—	—
Gaspereau	26	—	—	—	—
Golden shiner	1	—	—	—	—

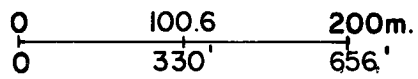
¹One mutilated.

Stocking History:

1970	No stocking
1971	550 S5
1972	500 S4
1973	700 Sf



Cameron Lake



Charlie Lake

<u>County:</u> Guysborough	<u>Maximum Width:</u> 330.0 m
<u>Location:</u> 45°23'N; 61°52'W	<u>Maximum Effective Width:</u> 330.0 m
<u>Drainage System:</u> Salmon River	<u>Maximum Depth:</u> 10.7 m
<u>Survey Date:</u> August 13-17, 1973	<u>Mean Depth:</u> 4.2 m
<u>Surface Elevation:</u> 168 m	<u>Volume of Lake:</u> 7.4 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 17.4 ha	<u>Shoreline Length:</u> 1,770 m
<u>Number of Islands:</u> 0	<u>Shoreline Development:</u> 1.2
<u>Island Area:</u> 0.0 ha	<u>Conductivity:</u> 28.7 µmhos/cm
<u>Water Surface Area:</u> 17.4 ha	<u>Secchi Disc Reading:</u> 3.4 m
<u>Maximum Length:</u> 810.0 m	<u>Morphoedaphic Index:</u> 5.0
<u>Maximum Effective Length:</u> 810.0 m	<u>Potential Fish Yield:</u> 38.0 kg 2.2 kg/ha

Access: The lake is accessible by a gravel road and there is one boat-launch site.

Use: There is a limited amount of swimming and fishing on Charlie Lake. There is one vacant cottage in this remote rural area.

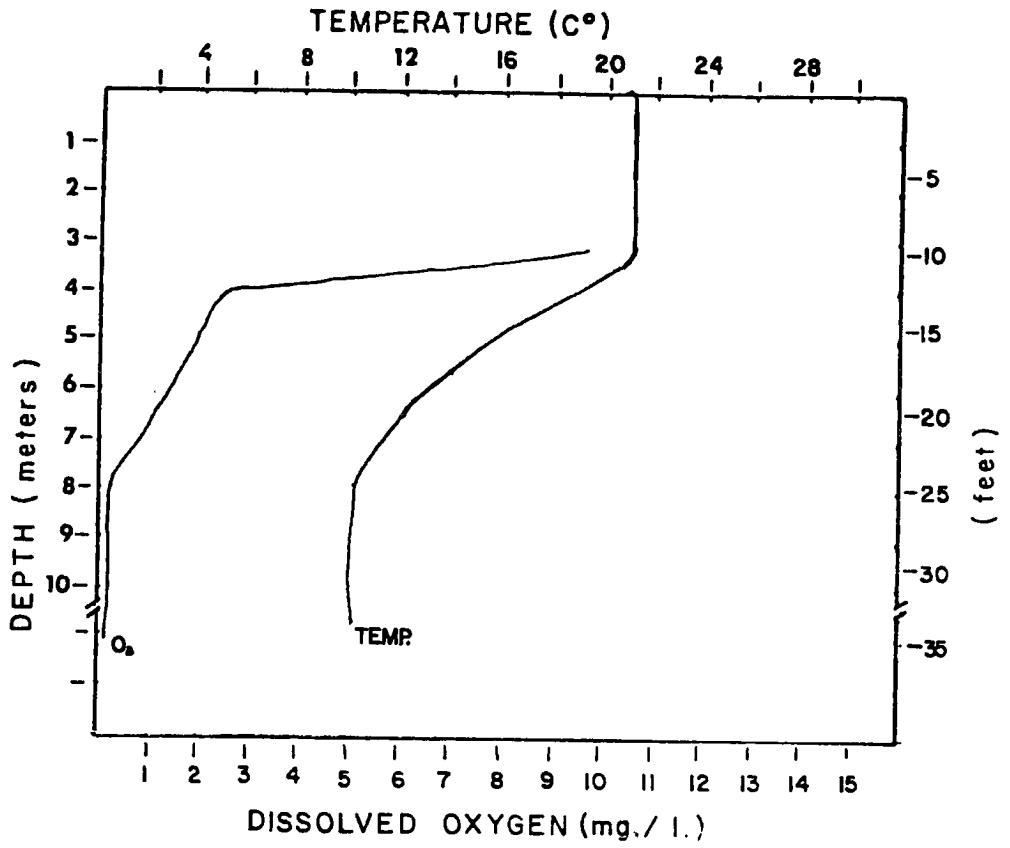
Physical Characteristics: The lake shore has many rocky areas and is forested primarily with softwoods. The south side, near the boat launch, has a growth of alders.

Streams: At the time of the survey, the inlet stream had a slow flow (<0.5 cfs) of water. The stream was narrow (2 ft) and rocky, with obstructions extending 30 ft upstream. The stream was spring fed. It was 6-8 in. deep and 3-4 ft wide. Dissolved oxygen content of the water was 11.0 mg/l, pH was 6.5 and temperature was 15.5°C.

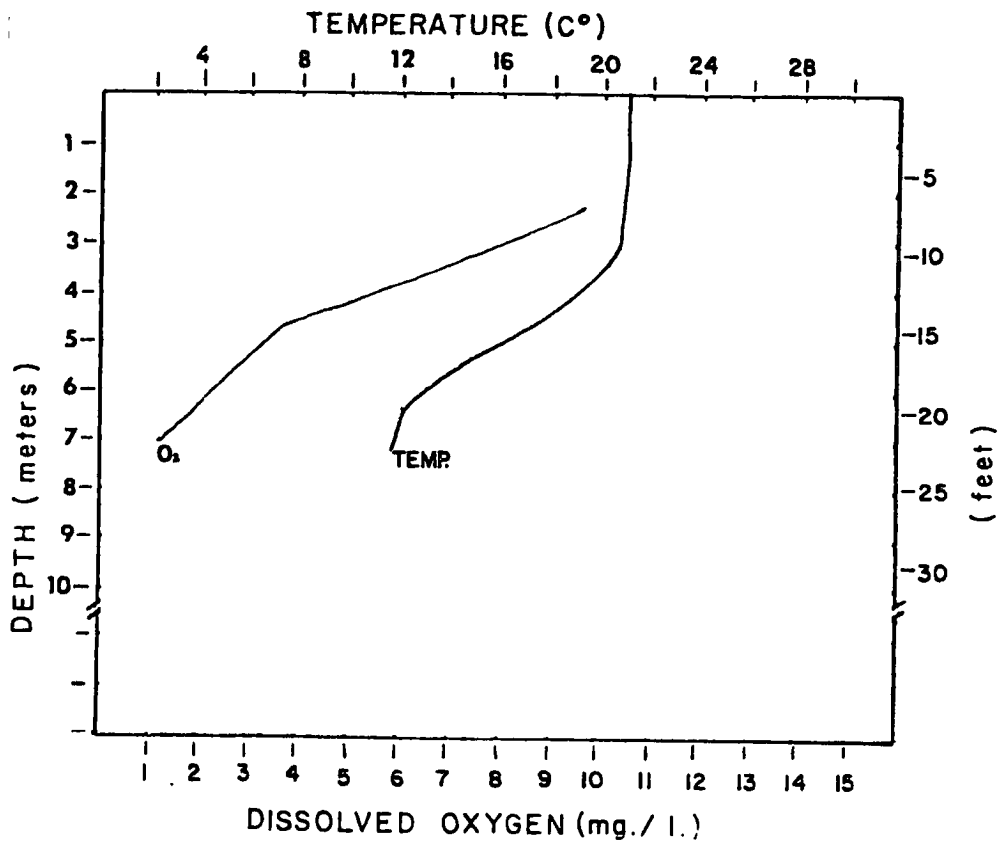
The outlet stream was 2-3 ft wide, with only a moderate flow of water. There were many obstructions. The stream bed consisted of small rocks, with marsh grass growing along the sides. Dissolved oxygen was 10.8 mg/l, pH was 6.8 and temperature was 19.5°C.

Lake Water Characteristics: In August, Charlie Lake was found to be thermally stratified (18.0°C at the surface and 10.0°C near the bottom). Dissolved oxygen ranged from 9.4 mg/l to 0.2 mg/l; pH ranged from 6.8 to 6.3.

STN #1



STN #2

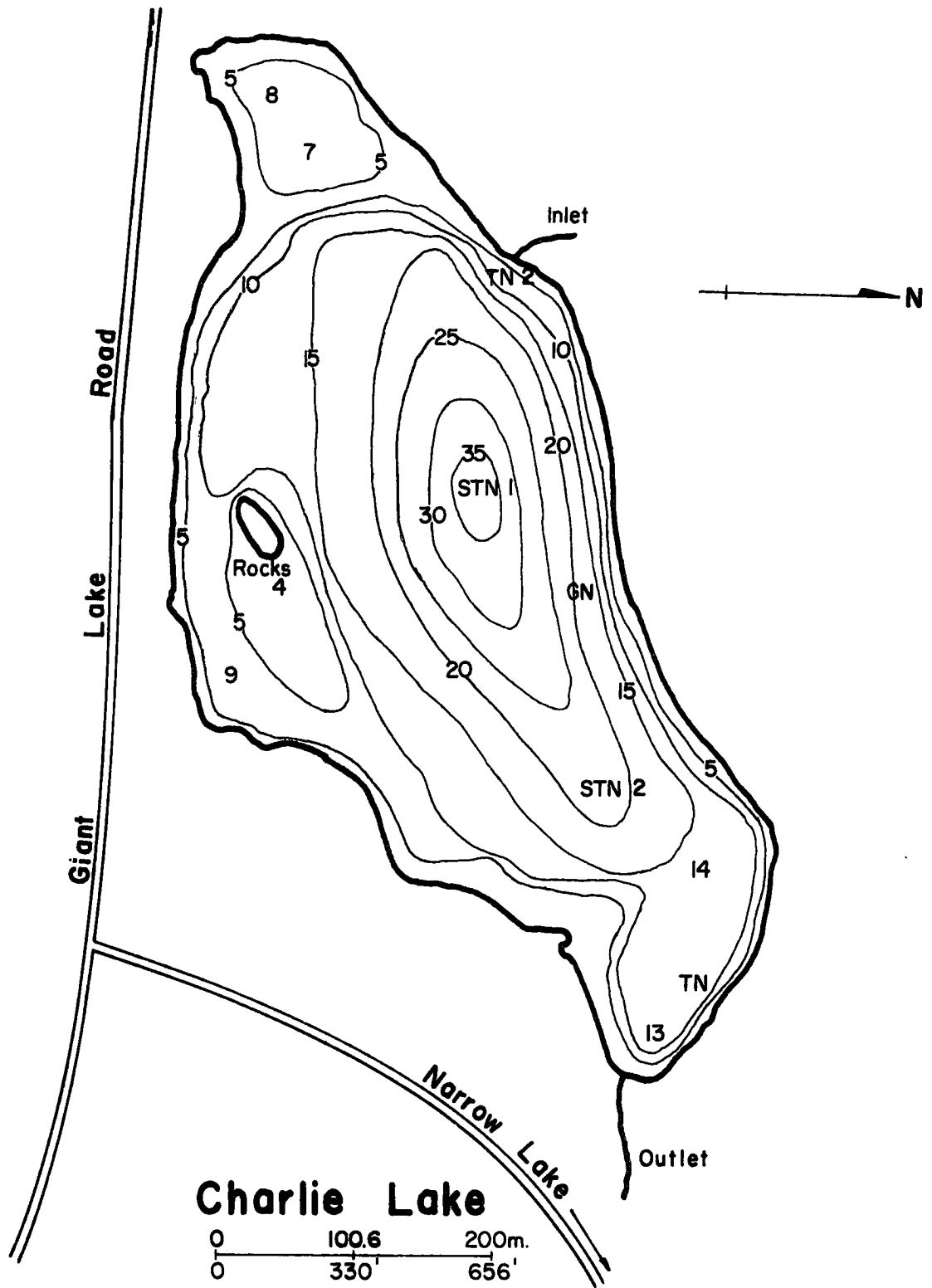


Fish Collection: A trapnet was set for three nights, during which time nothing was caught. In two nights of gillnetting, the following fish were caught:

Species	Number	Fork length (cm)		
		Maximum	Minimum	Mean
Common sucker	23	26.3	24.7	25.5
Gaspereau	2	30.5	24.5	27.5

Stocking History:

1970	15,000 S1, 900 S3
1971	1,100 S5
1972	No stocking
1973	500 Sf



Cross Lake

<u>County:</u> Guysborough	<u>Maximum Width:</u> 1,110 m
<u>Location:</u> 45°25'N; 61°51'W	<u>Maximum Effective Width:</u> 1,110 m
<u>Drainage System:</u> Salmon River	<u>Maximum Depth:</u> 7.3 m
<u>Survey Date:</u> August 21-24, 1973	<u>Mean Depth:</u> 3.4 m
<u>Surface Elevation:</u> 153 m	<u>Volume of Lake:</u> 40.0 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 116.6 ha	<u>Shoreline Length:</u> 7,470 m
<u>Number of Islands:</u> 0	<u>Shoreline Development:</u> 2.1
<u>Island Area:</u> 0.0 ha	<u>Conductivity:</u> 25.6 µmhos/cm
<u>Water Surface Area:</u> 116.6 ha	<u>Secchi Disc Reading:</u> 2.5 m
<u>Maximum Length:</u> 2,380 m	<u>Morphoedaphic Index:</u> 5.4
<u>Maximum Effective Length:</u> 2,380 m	<u>Potential Fish Yield:</u> 256.0 kg 2.2 kg/ha

Access: Cross Lake can be reached by a dirt road to the provincial government sugar camp. One convenient boat-launch ramp has been constructed on this lake.

Use: The lake appears to receive little use. All the land surrounding the lake is Crown owned. A single camp is used for hunting and fishing. The forest is used during maple sugar harvest and is predominantly hardwood (maple).

Streams: Inlet #1 is fast flowing, with a discharge of 3-4 cfs. It is 4-6 ft wide and has a rocky bottom. Dissolved oxygen content of the water was 9.8 mg/l, pH was 6.0 and temperature was 15.0°C.

Inlet #2 was partially obstructed by an old beaver dam near the mouth. Dissolved oxygen was 7.4 mg/l, pH was 6.0 and temperature was 15.8°C.

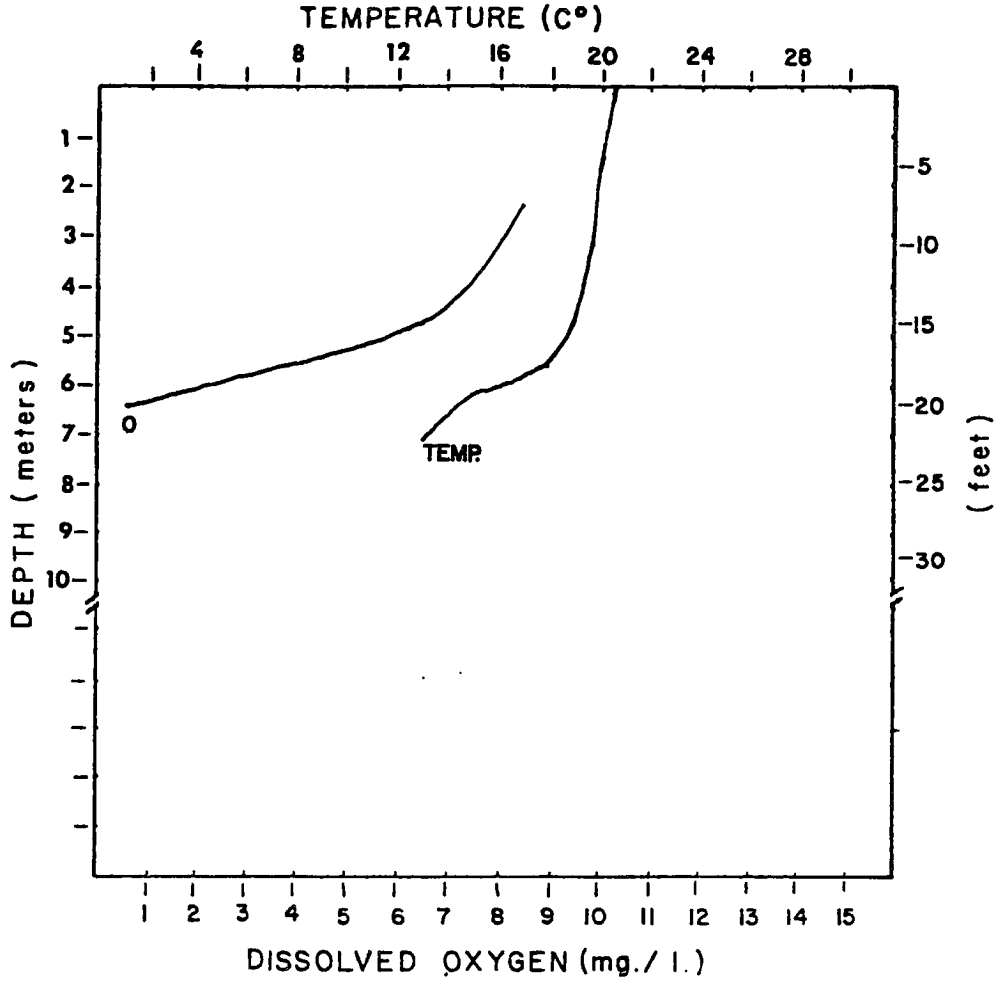
Inlet #3 flows from a high marshy area separated from the lake by a bank. Seepage occurs into the lake, although it is limited to periods of rain. Dissolved oxygen was 1.3 mg/l, pH was 5.3 and temperature was 13.0°C. The remaining streams on Cross Lake were dry at the time of the survey.

The outlet stream flows into Round (Island) Lake. The stream is 4-5 ft wide and 10-12 in. deep. Numerous small eels were observed in the stream. Dissolved oxygen was 7.8 mg/l, pH was 6.5 and temperature was 17.5°C.

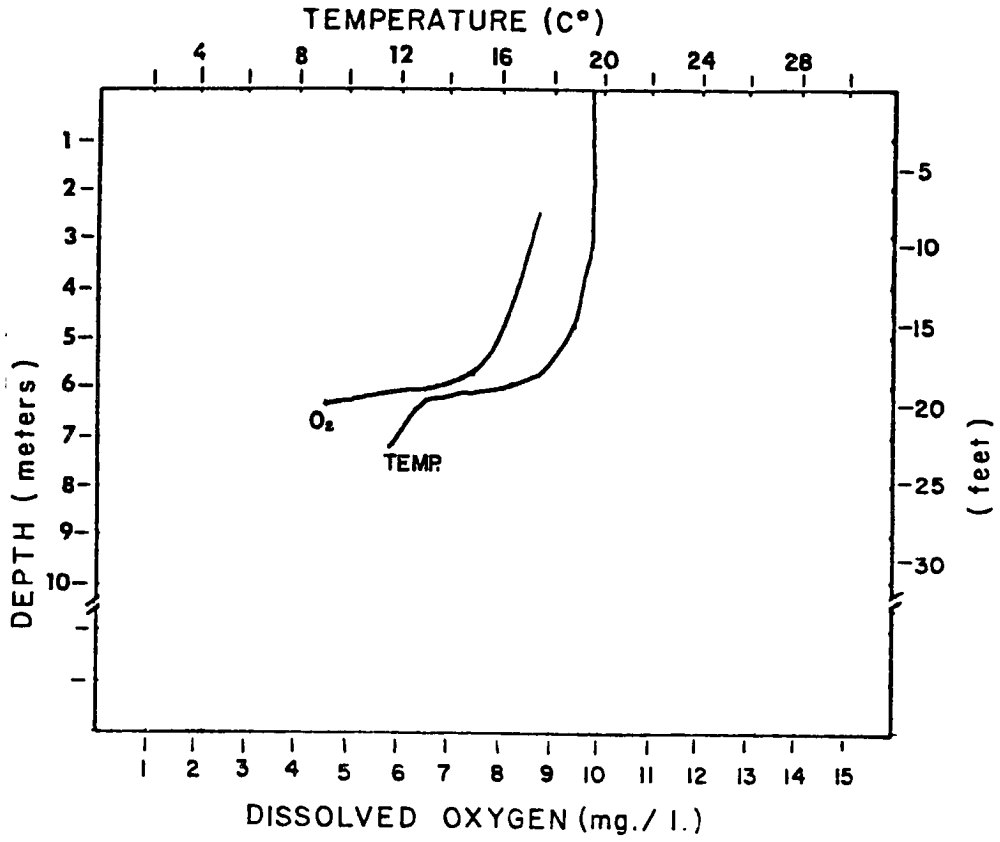
Lake Water Characteristics: In August, Cross Lake was found to

be thermally stratified, with a water temperature of 20.5°C at the surface and 13.0°C near the bottom. Dissolved oxygen concentrations were 8.6 mg/l at the 7.5-ft level and 0.4 mg/l near the bottom; pH range was 6.5-6.0.

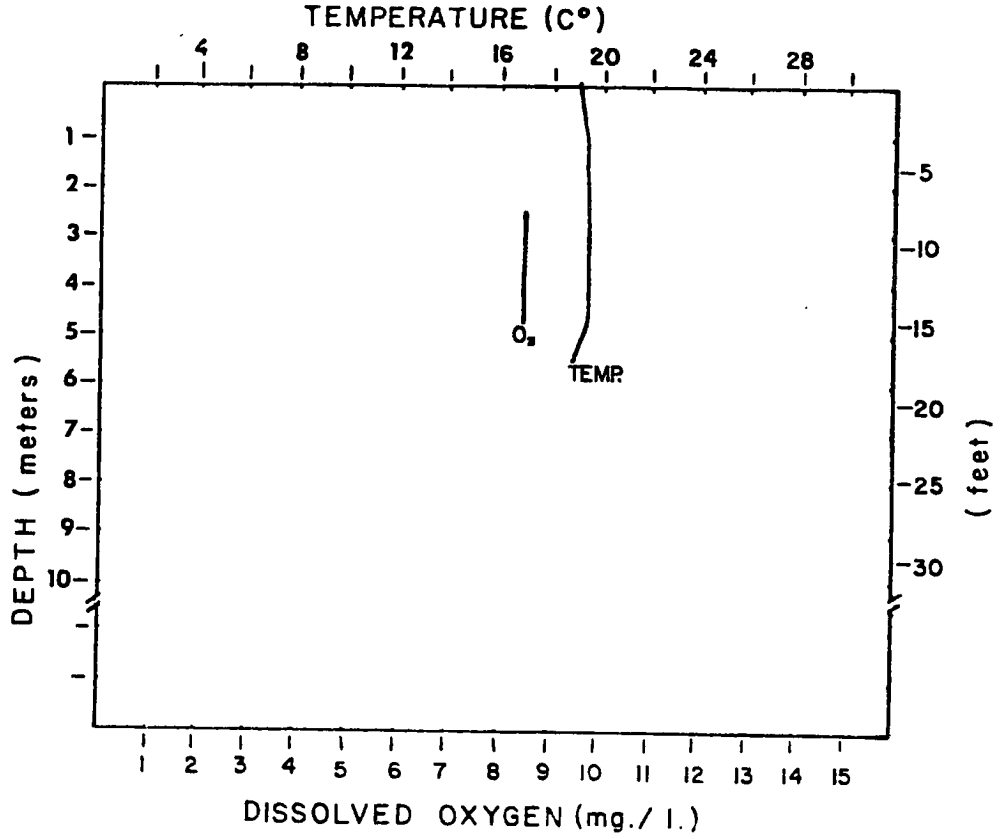
STN #1



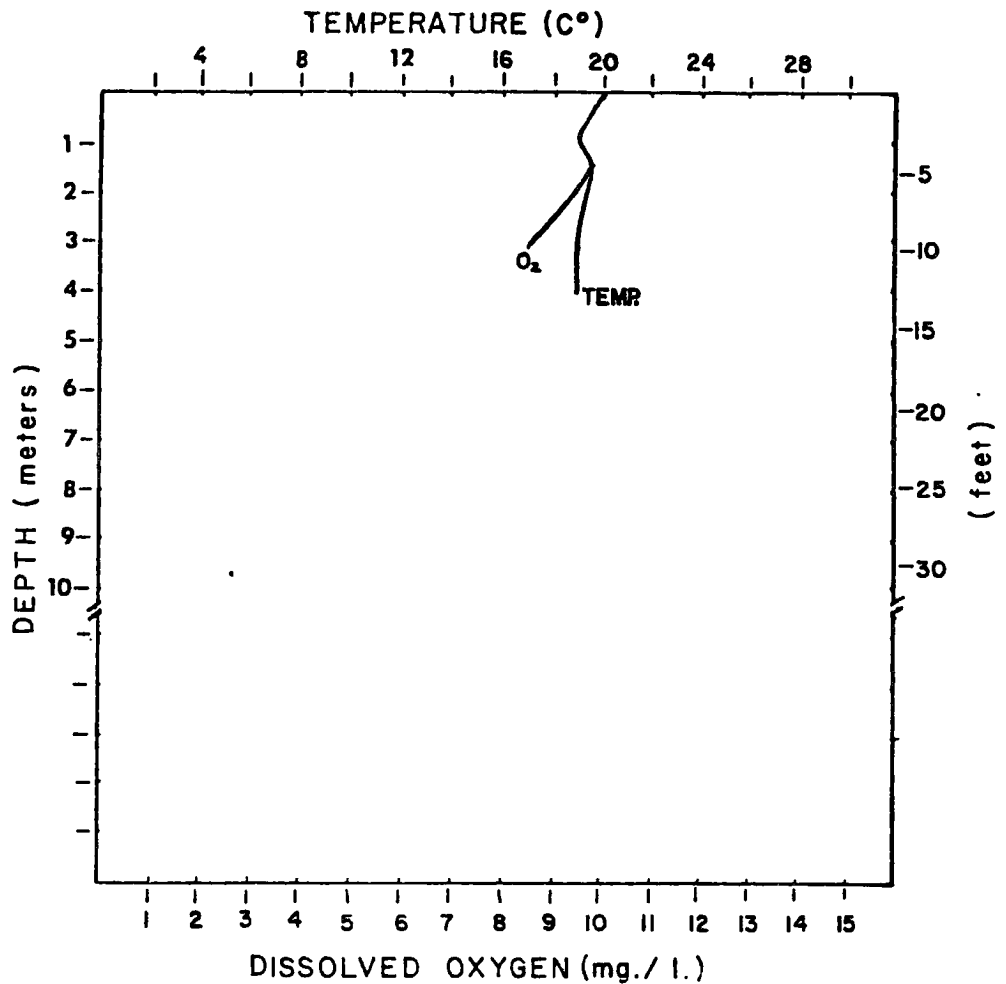
STN #2



STN #3



STN #4

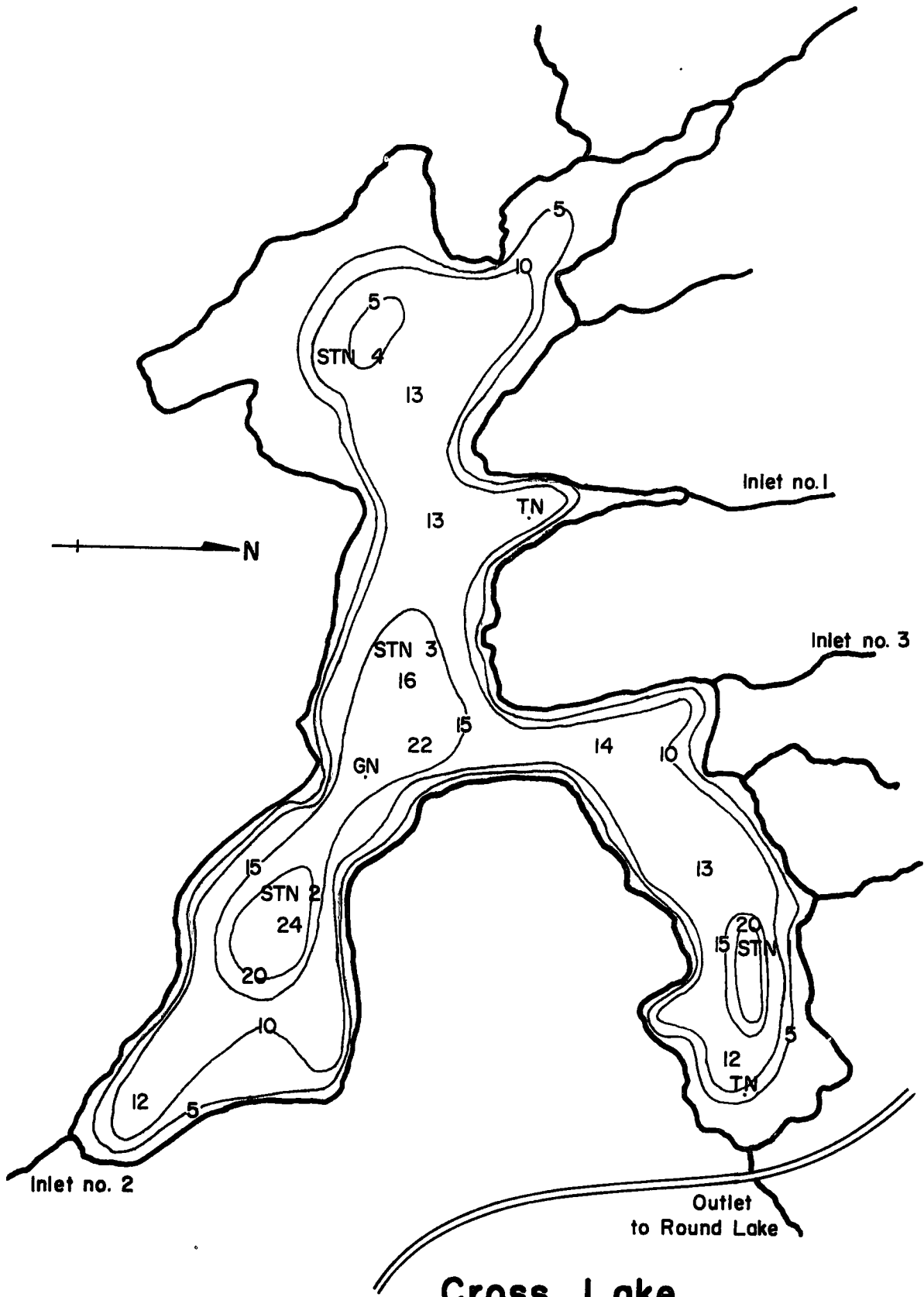


Fish Collection: In four nights of netting (gillnets and trap-nets), the following fish were caught:

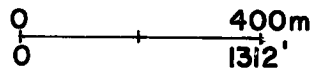
Species	Number	Fork length (cm)			Mean weight (g)
		Maximum	Minimum	Mean	
Brook trout	2	25.2	20.2	22.7	200
Yellow perch	71	11.9	8.3	9.8	—
Common sucker	54	25.3	9.8	15.3	—
American eel	3	—	—	—	—
Golden shiner	5	12.4	11.0	11.6	—
Common shiner	4	11.7	10.2	11.0	—

Stocking History:

1970	1,350	S3
1971	1,650	S5
1972	1,000	S4
1973	800	Sf



Cross Lake



Eight Island Lake

<u>County:</u> Guysborough	<u>Maximum Width:</u> 700 m
<u>Location:</u> 45°21'N; 61°57'W	<u>Maximum Effective Width:</u> 700 m
<u>Drainage System:</u> Country Harbour River	<u>Maximum Depth:</u> 10.1 m
<u>Survey Date:</u> August 1-3, 1973	<u>Mean Depth:</u> 3.6 m
<u>Surface Elevation:</u> 76 m	<u>Volume of Lake:</u> 32.6 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 93.0 ha	<u>Shoreline Length:</u> 7,460 m
<u>Number of Islands:</u> 8	<u>Shoreline Development:</u> 2.2
<u>Island Area:</u> 1.7 ha	<u>Conductivity:</u> 37.9 µmhos/cm
<u>Water Surface Area:</u> 91.3 ha	<u>Secchi Disc Reading:</u> 3.8 m
<u>Maximum Length:</u> 2,410 m	<u>Morphoedaphic Index:</u> 7.8
<u>Maximum Effective Length:</u> 910 m	<u>Potential Fish Yield:</u> 246 kg 2.7 kg/ha

Access: Eight Island Lake can be reached via a private road running along the west side of the lake. The land belongs to Mr. Merritt Feltmate. One boat-launching area was found to be convenient, but permission was required from the property owner.

Use: The lake is used extensively by the local residents for boating, swimming and fishing. There are approximately 40 cottages near the lake, all of which are said to be seasonally used.

Physical Characteristics: The west shore of the lake has some cultivated land, but the shoreline is predominantly softwood forest. Emergent vegetation is predominant at either end of the lake.

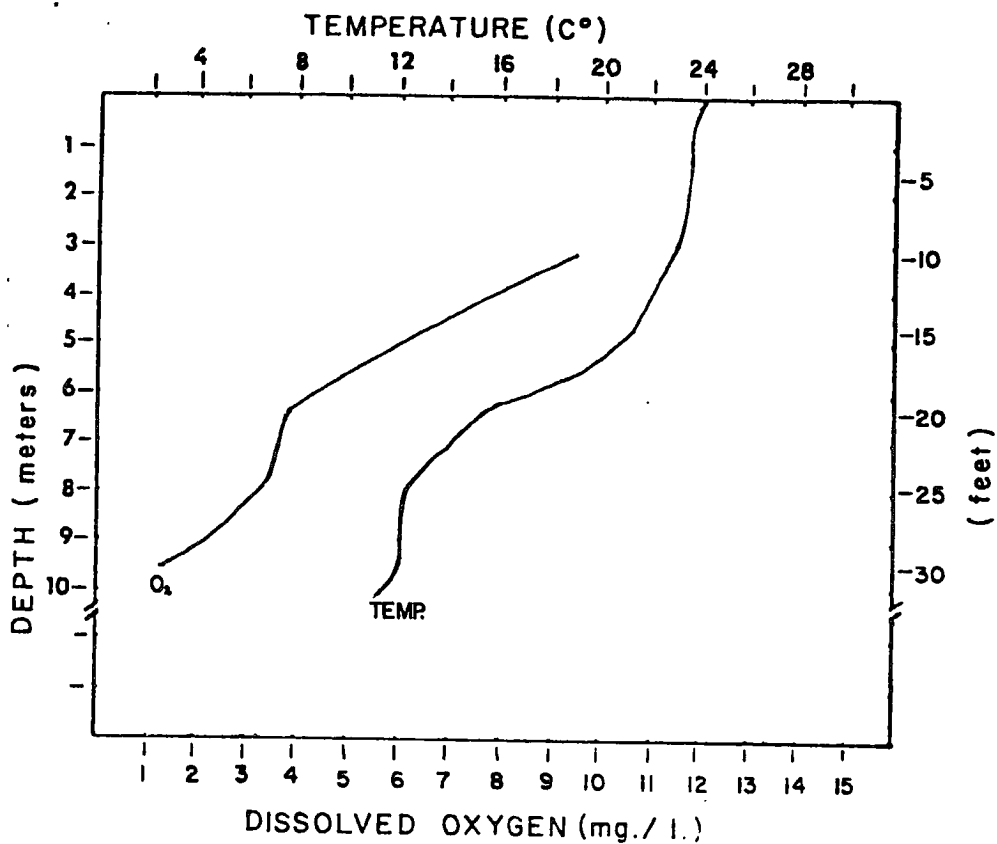
Streams: The inlet to Eight Island Lake has extensive vegetation and marsh area. The stream was 4-5 ft wide and 3-4 ft deep. Dissolved oxygen was 8.4 mg/l, pH was 7.0 and temperature was 23.0°C.

The outlet of Eight Island Lake flows into Country Harbour River. The remains of an old dam were observed, but they do not prevent fish passage. Dissolved oxygen was 9.6 mg/l, pH was 7.0 and temperature was 23.0°C.

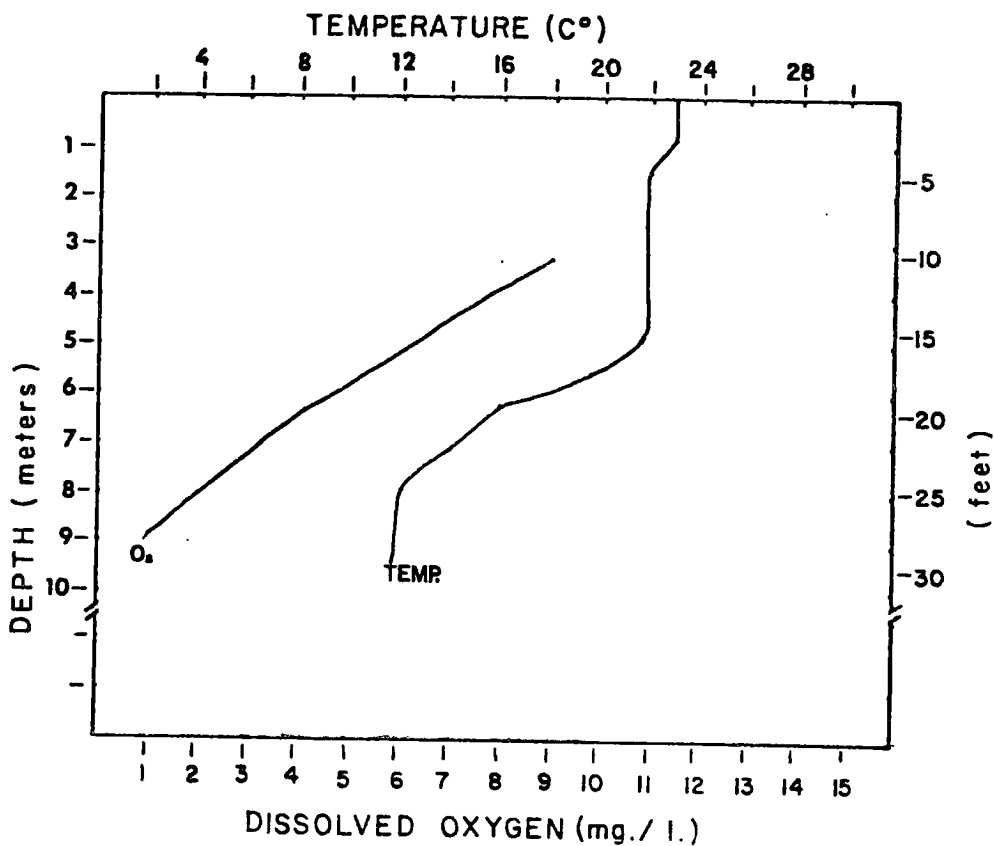
At the time of the survey, the other streams were dry.

Lake Water Characteristics: In August, Eight Island Lake was found to be thermally stratified. The temperature ranged from 24.0°C at the surface to 11.0°C at the bottom. Dissolved oxygen

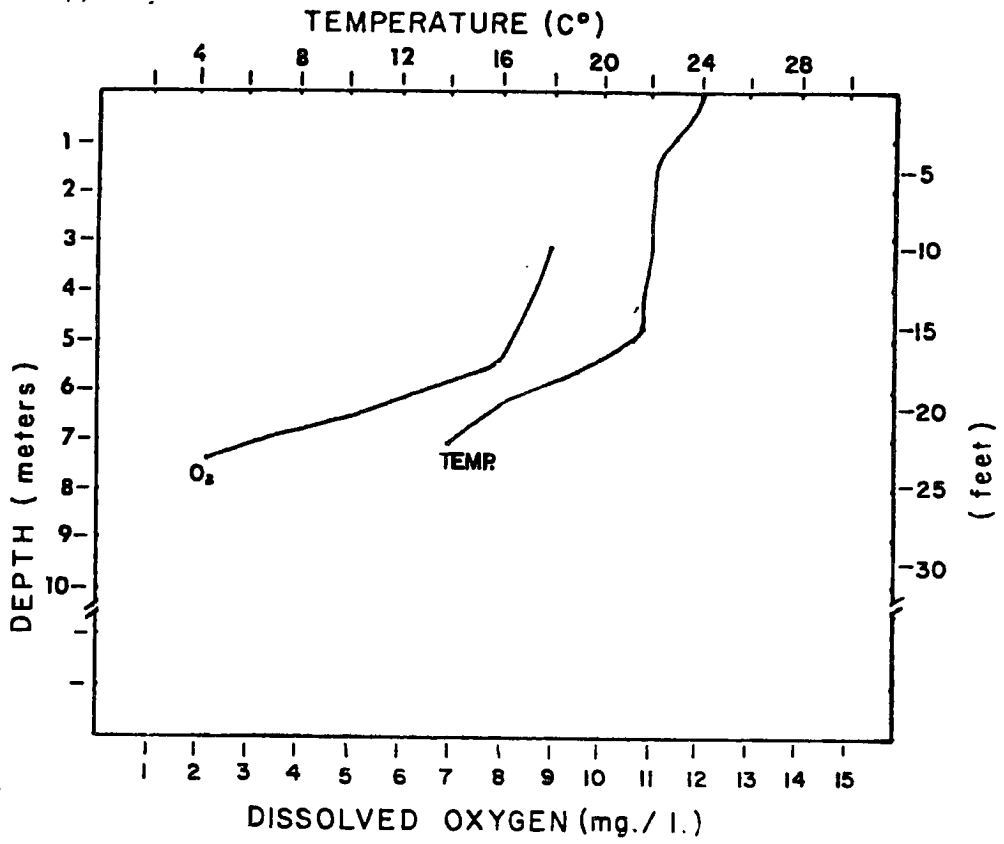
STN #1



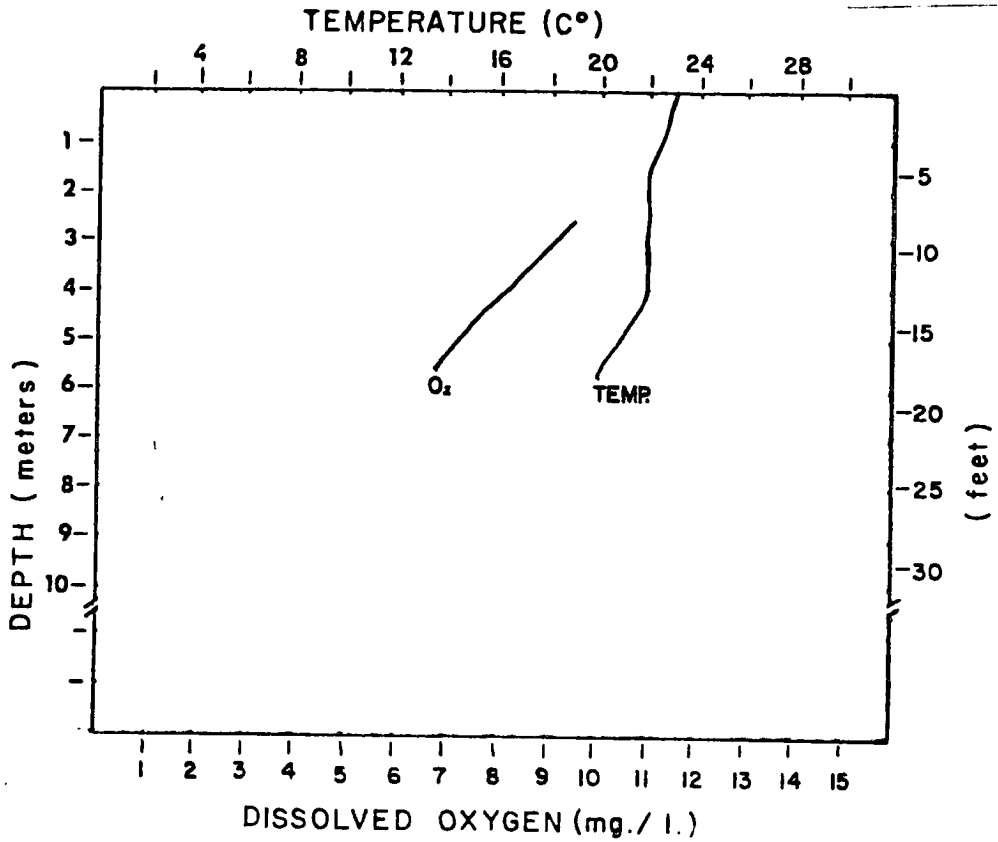
STN #2



STN #3



STN #4



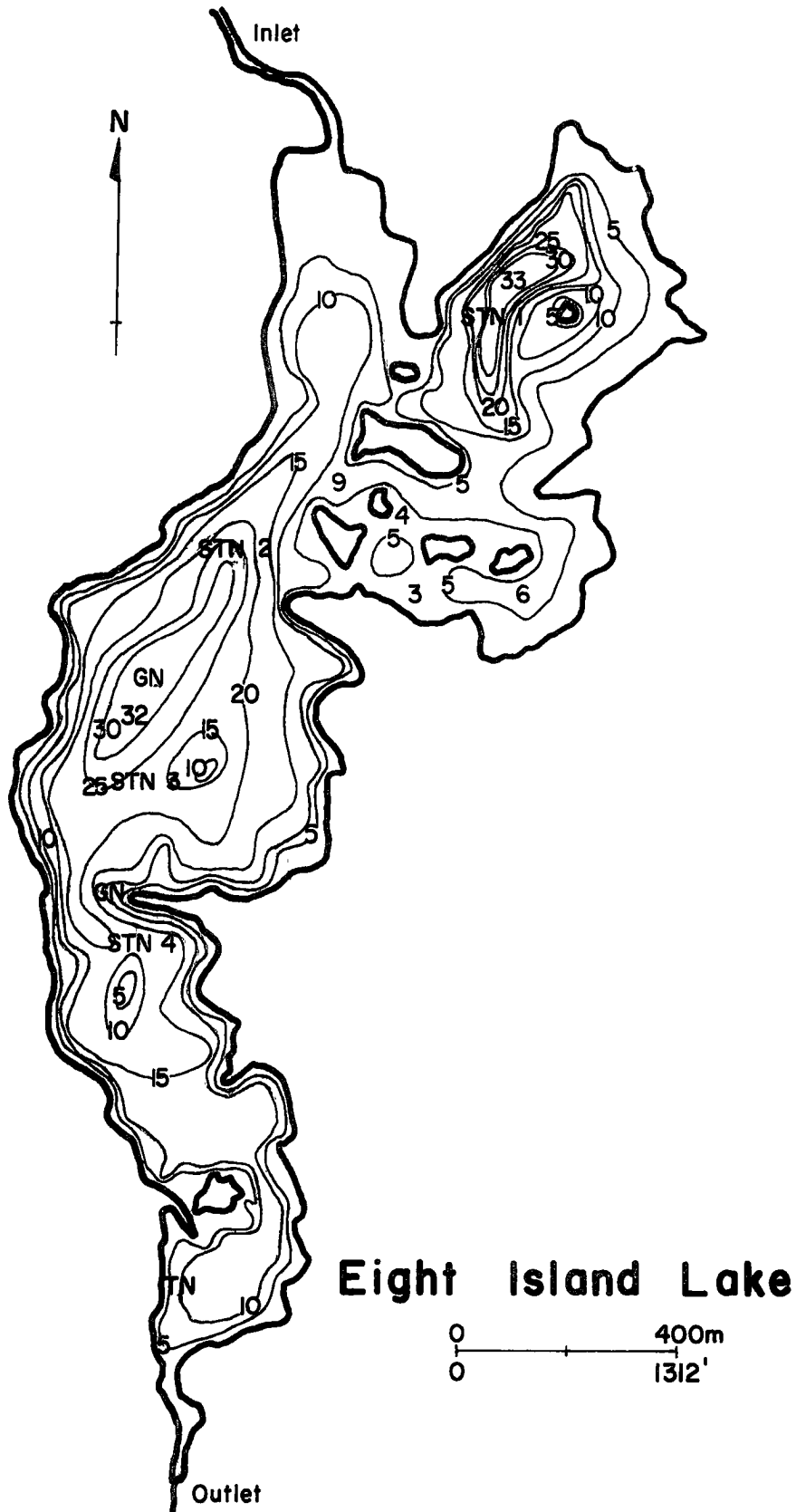
levels ranged from 9.4 mg/l at the 10-ft level, down to 1.2 mg/l at the 30-ft level; pH ranged from 6.4 to 6.2.

Fish Collection: Gillnets were set one night and a trapnet was set for two nights. The following fish were caught:

Species	Number	Fork length (cm)		
		Maximum	Minimum	Mean
White perch	113	17.5	10.4	13.3
Yellow perch	21	17.5	9.1	10.9
Common sucker	25	—	—	—
American eel	13	—	—	—
Gaspereau	1	—	—	—
Brown bullhead	4	—	—	—

Stocking History:

1970	No stocking
1971	No stocking
1972	1,500 Sf
1973	1,000 Sf



Gaspereaux Lake

<u>County:</u> Antigonish	<u>Maximum Width:</u> 1,020 m
<u>Location:</u> 45°33'N; 62°03'W	<u>Maximum Effective Width:</u> 1,020 m
<u>Drainage System:</u> West River	<u>Maximum Depth:</u> 4.6 m
<u>Survey Date:</u> August 3-5, 1973	<u>Mean Depth:</u> 1.9 m
<u>Surface Elevation:</u> 46 m	<u>Volume of Lake:</u> 16.9 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 89.5 ha	<u>Shoreline Length:</u> 4,640 m
<u>Number of Islands:</u> 1	<u>Shoreline Development:</u> 1.4
<u>Island Area:</u> 2.4 ha	<u>Conductivity:</u> 153 µmhos/cm
<u>Water Surface Area:</u> 87.1 ha	<u>Secchi Disc Reading:</u> 3.6 m
<u>Maximum Length:</u> 1,620 m	<u>Morphoedaphic Index:</u> 66.3
<u>Maximum Effective Length:</u> 1,620 m	<u>Potential Fish Yield:</u> 688 kg 7.9 kg/ha

Access: Highway #7 runs along the south shore of Gaspereaux Lake; a dirt road runs to the lake shore. There is a good public boat-launching area on the south shore.

Use: Swimming, boating and fishing are popular on Gaspereaux Lake. One local resident uses the water for a part of his domestic supply. There are three permanent and three seasonal homes on Gaspereaux Lake.

Physical Characteristics: The land around most of the lake is forested with softwood. Some clear cutting has been carried out on the northeast side of the lake. The island, with an area of 2.4 ha, is also forested.

Streams: At the time of the survey, only inlet stream #1, that closest to the boat launch, had flowing water. Dissolved oxygen was 7.0 mg/l, pH was 6.7 and water temperature was 20.0°C.

Inlet #2 was very swampy, with no flow of water. The bottom is covered with a heavy silt deposit. Dissolved oxygen was 3.8 mg/l, pH was 6.0 and temperature was 22.5°C.

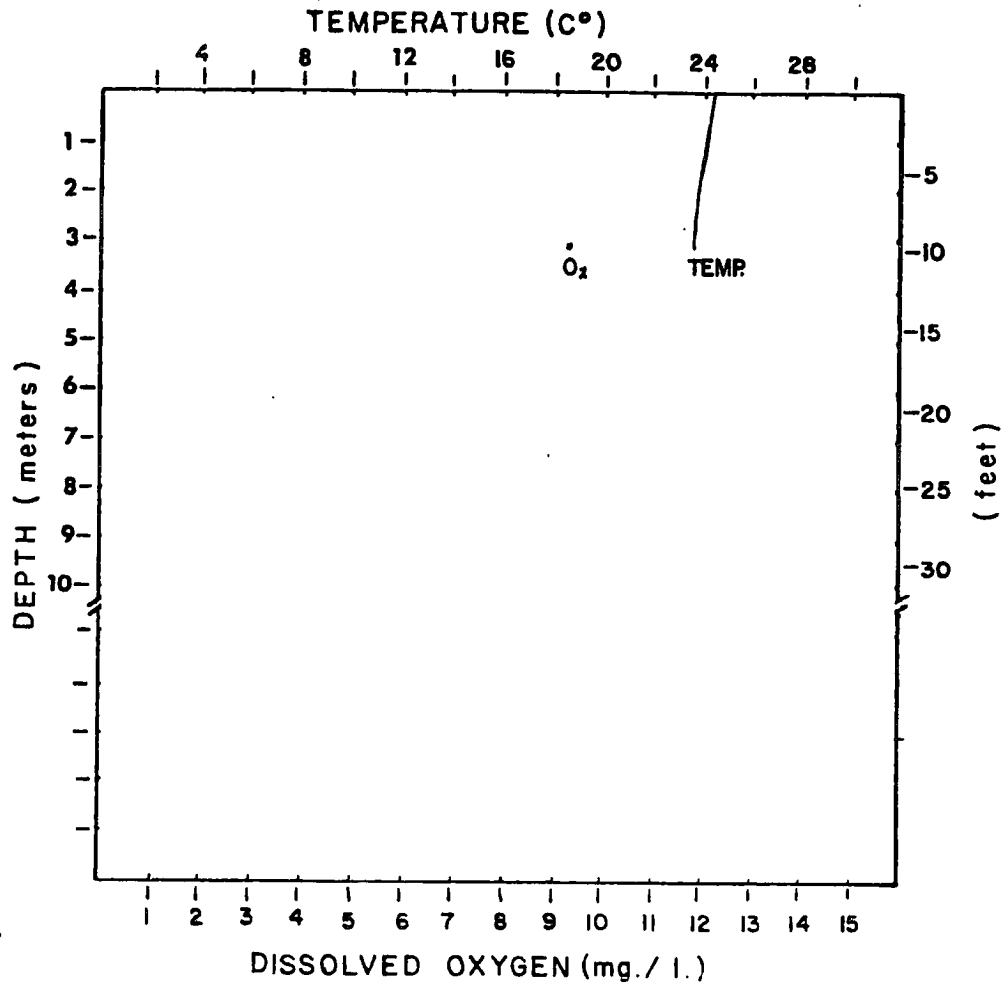
The outlet was also very swampy, with no water flow. The stream bed is overlain by about 5 cm of black muck. Dissolved oxygen was 8.4 mg/l, pH was 7.0 and temperature was 26.5°C.

Lake Water Characteristics: The lake is very shallow, and there was no thermal stratification. The lake bottom is covered by a thick layer of muck. The water temperature was approximately 24.0°C at all levels. Dissolved oxygen ranged from 9.2 mg/l to

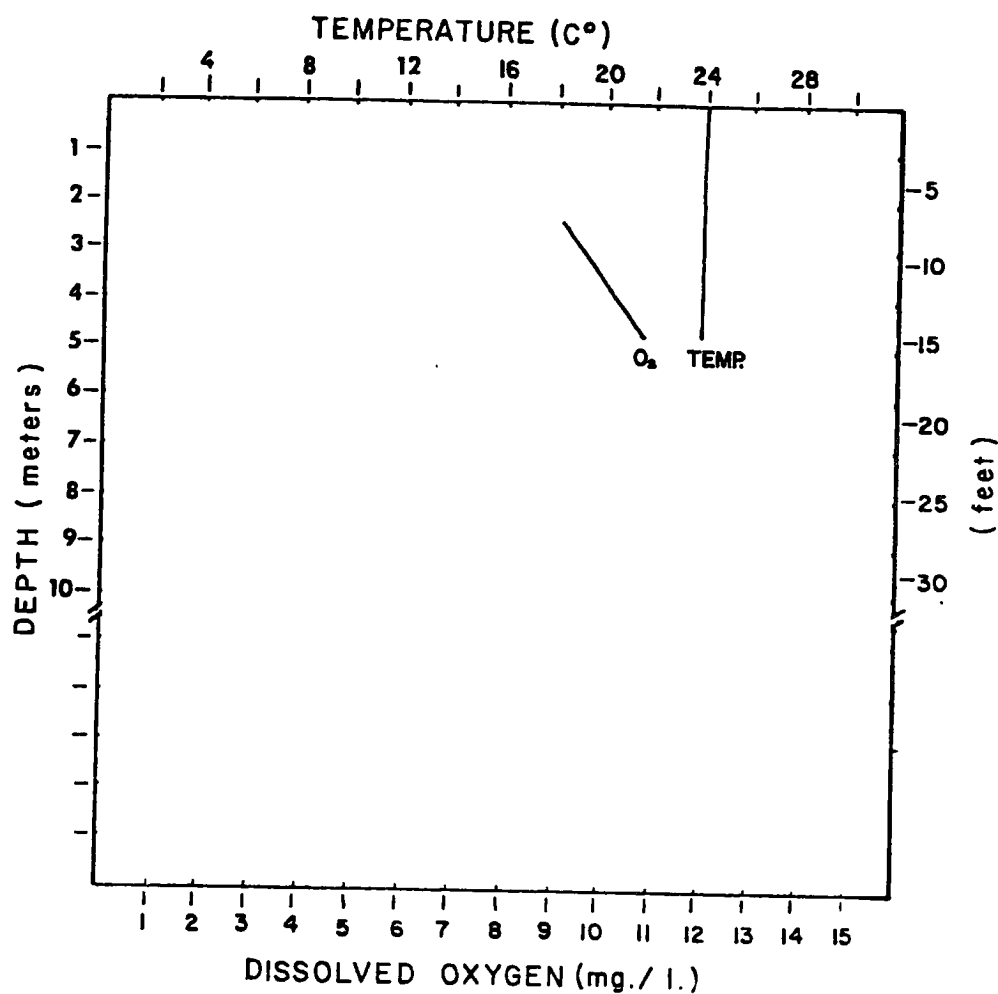
24

10.8 mg/l, the latter reading being taken near the bottom; pH was 8.0 at all levels.

STN #1



STN #2



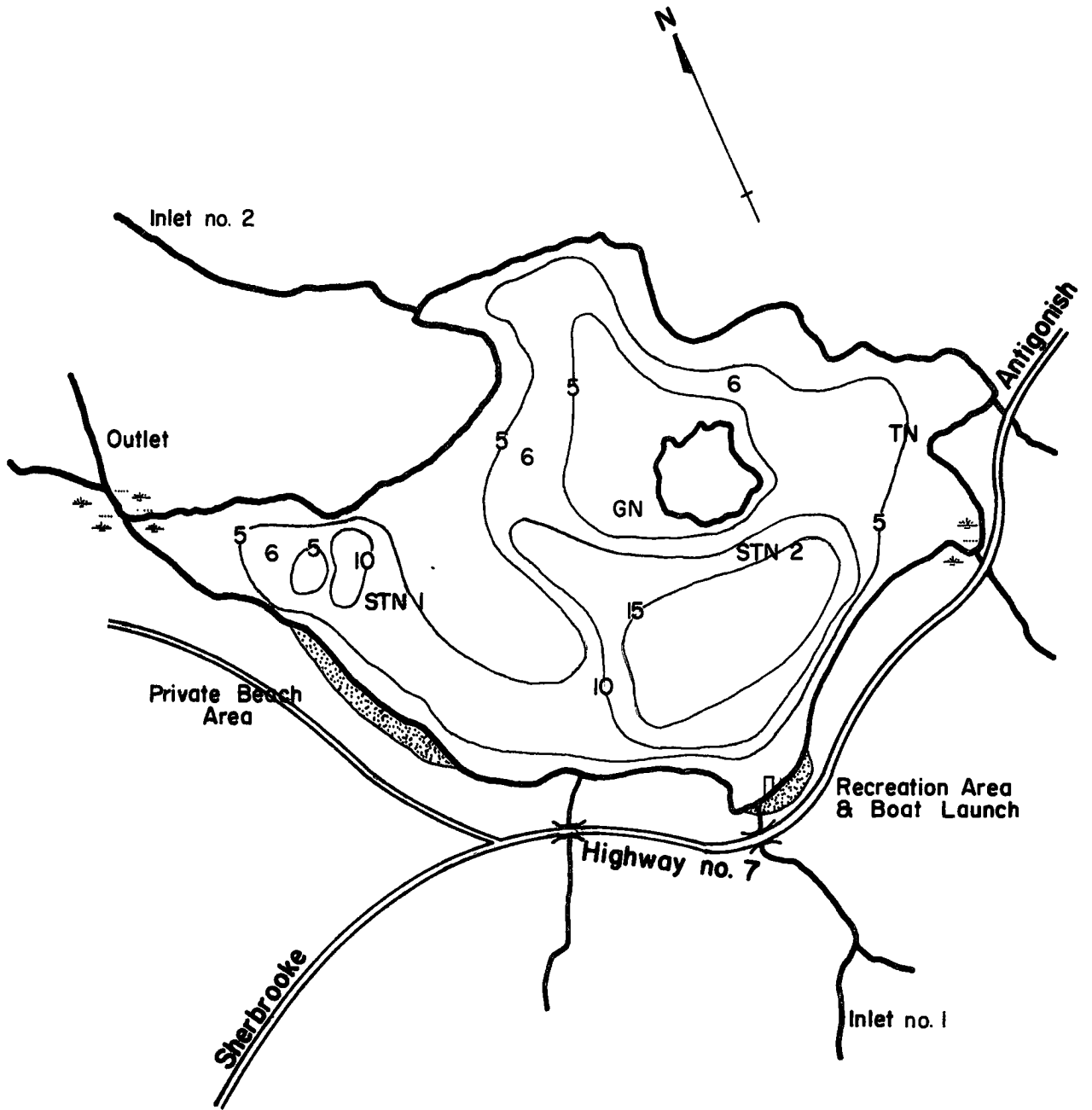
Fish Collection: One trapnet and two gillnets were fished for three nights. The following fish were caught:

Species	Number	Fork length (cm)		
		Maximum	Minimum	Mean
Yellow perch	121	26.2	10.7	14.4
White perch	932	28.2	8.2	14.8
Common sucker	66	37.2	17.0	27.0
American eel	11	—	—	—
Brown bullhead	5	24.0	19.0	21.5
Golden shiner	8	14.7	10.5	12.7

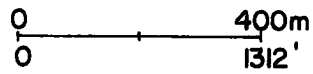
The highlight of biological studies was the capture of a large snapping turtle (≈ 35 lb) in a trap net.

Stocking History:

1970	No stocking
1971	1,000 Sf
1972	1,000 S4
1973	966 Sf,



Gaspereaux Lake



Giant Lake

<u>County:</u> Gaysborough	<u>Maximum Width:</u> 790 m
<u>Location:</u> 45°23'N; 61°53'W	<u>Maximum Effective Width:</u> 790 m
<u>Drainage System:</u> South River	<u>Maximum Depth:</u> 12.2 m
<u>Survey Date:</u> August 7-9, 1973	<u>Mean Depth:</u> 3.7 m
<u>Surface Elevation:</u> 168 m	<u>Volume of Lake:</u> 21.0 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 57.0 ha	<u>Shoreline Length:</u> 2,890 m
<u>Number of Islands:</u> 0	<u>Shoreline Development:</u> 1.1
<u>Island Area:</u> 0.0 ha	<u>Conductivity:</u> 26.1 µmhos/cm
<u>Water Surface Area:</u> 57.0 ha	<u>Secchi Disc Reading:</u> 4.6 m
<u>Maximum Length:</u> 1,190 m	<u>Morphoedaphic Index:</u> 5.0
<u>Maximum Effective Length:</u> 1,190 m	<u>Potential Fish Yield:</u> 125 kg 2.2 kg/ha

Access: Giant Lake is easily accessible by dirt road (Giant Lake Road). There is one boat-launching area on the lake.

Use: Giant Lake has a limited use for boating and fishing. The only local resident living on the lake uses the water for a domestic supply.

Physical Characteristics: Giant Lake is forested (softwoods). On the southwest side, the lake is shallow, with numerous large rocks present.

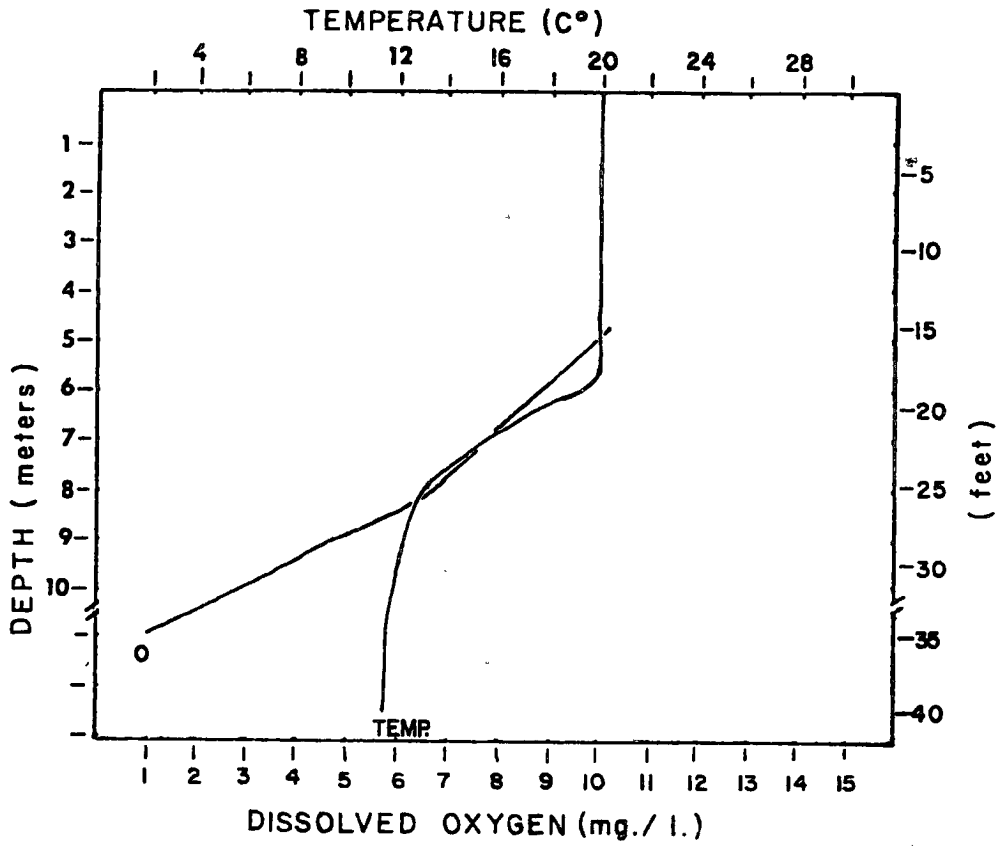
Streams: Inlet #1 enters the lake through a small culvert. There was negligible flow of water at the time of the survey. Dissolved oxygen was 6.2 mg/l, pH was 5.7 and temperature was 18.2°C.

Inlet #2 flows from Sullivan Pond. There is a marshy pool (10-ft diameter) just above the lake. Fallen trees were observed. Dissolved oxygen was 10.6 mg/l, pH was 6.5 and temperature was 16.4°C.

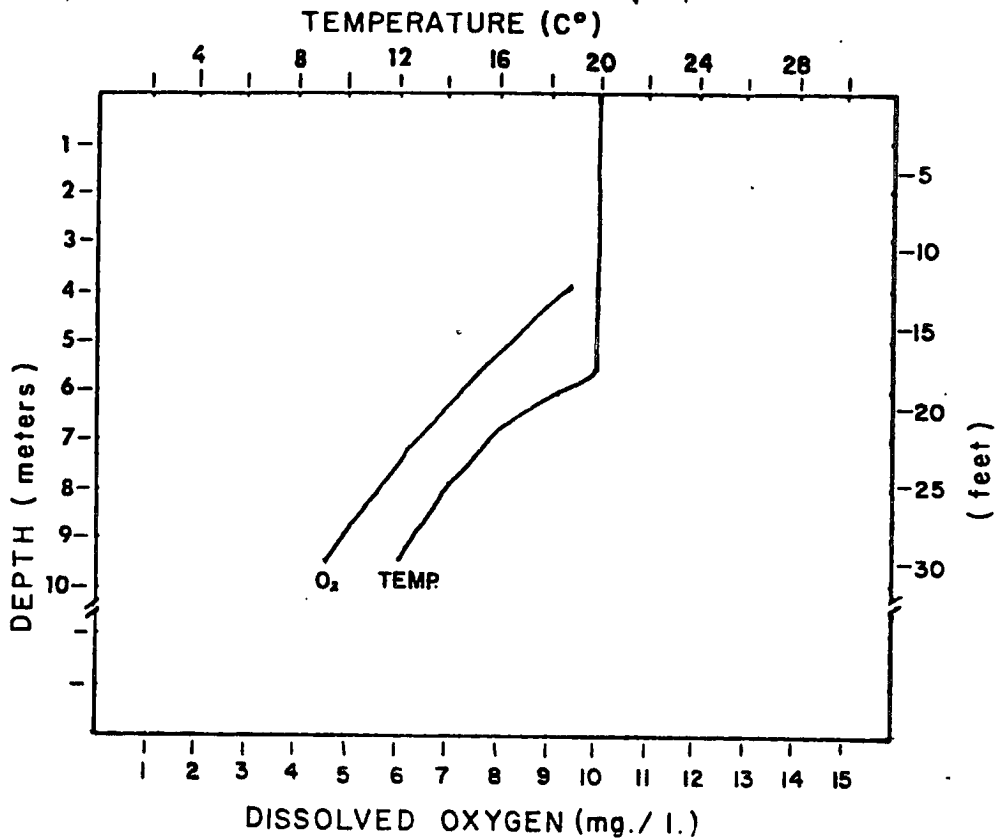
The outlet stream is partially obstructed by the remains of a fish migration barrier located at the lake shore. The barrier was placed to prevent emigration of rainbow trout, but rainbow trout stocking in Giant Lake between 1931 and 1963 was considered unsuccessful. The stream has numerous overhanging alders and a few small pools. Dissolved oxygen here was 10.0 mg/l, pH was 6.9 and temperature was 21.0°C.

Lake Water Characteristics: In August, Giant Lake was found to be thermally stratified, with temperatures ranging between 20.0°C at the surface and 11.5°C near the bottom; pH was between 7.0 and 5.8, and dissolved oxygen concentrations ranged from 10.2 mg/l at the 15-ft level to 0.8 mg/l at the 35-ft level. A secchi disc reading of 15 ft 8 in. was recorded.

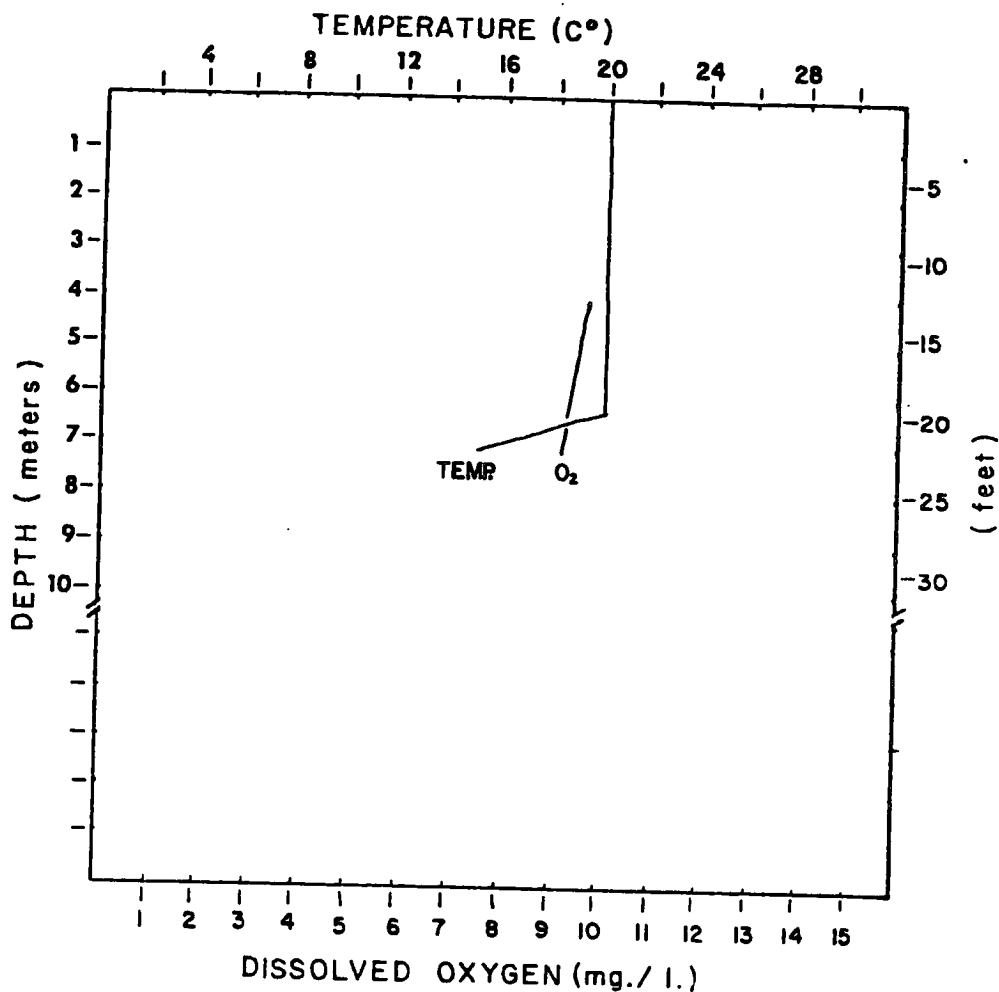
STN #1



STN #2



STN #3

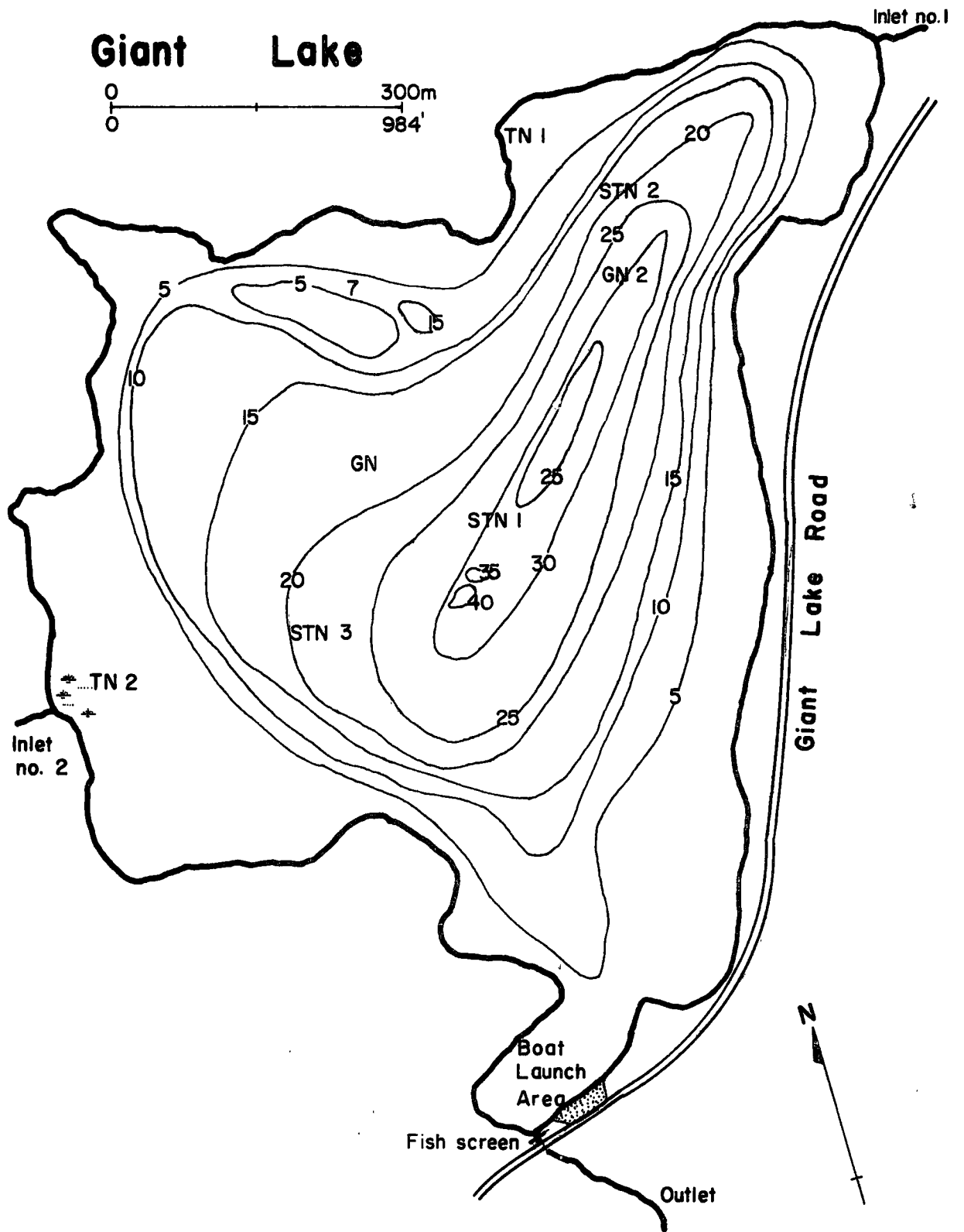


Fish Collection: On three nights of fishing the trapnet and one night of gillnetting, the following fish were captured:

Species	Number	Fork length (cm)		
		Maximum	Minimum	Mean
Brook trout	6	27.8	26.2	26.9
Yellow perch	385	—	—	—
Common sucker	91	—	—	—
American eel	9	—	—	—

Stocking History:

1970	1,080 S4
1971	No stocking
1972	1,000 S4
1973	600 Sf



Gillis Lake

<u>County:</u> Antigonish	<u>Maximum Width:</u> 460 m
<u>Location:</u> 45°32'N; 61°58'W	<u>Maximum Effective Width:</u> 460 m
<u>Drainage System:</u> South River	<u>Maximum Depth:</u> 10.7 m
<u>Survey Date:</u> July 24-26, 1973	<u>Mean Depth:</u> 3.9 m
<u>Surface Elevation:</u> 61 m	<u>Volume of Lake:</u> 10.8 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 28.0 ha	<u>Shoreline Length:</u> 2,020 m
<u>Number of Islands:</u> 0	<u>Shoreline Development:</u> 1.1
<u>Island Area:</u> 0.0 ha	<u>Conductivity:</u> 74.2 µmhos/cm
<u>Water Surface Area:</u> 28.0 ha	<u>Secchi Disc Reading:</u> 4.0 m
<u>Maximum Length:</u> 950 m	<u>Morphoedphaic Index:</u> 15.1
<u>Maximum Effective Length:</u> 950 m	<u>Potential Fish Yield:</u> 106 kg 3.8 kg/ha

Access: Two dirt roads intersect at the northwest side of Gillis Lake, allowing good access to the lake. There is one adequate boat-launching area on the main inlet.

Use: Gillis Lake receives a limited amount of recreational use (boating, swimming and fishing).

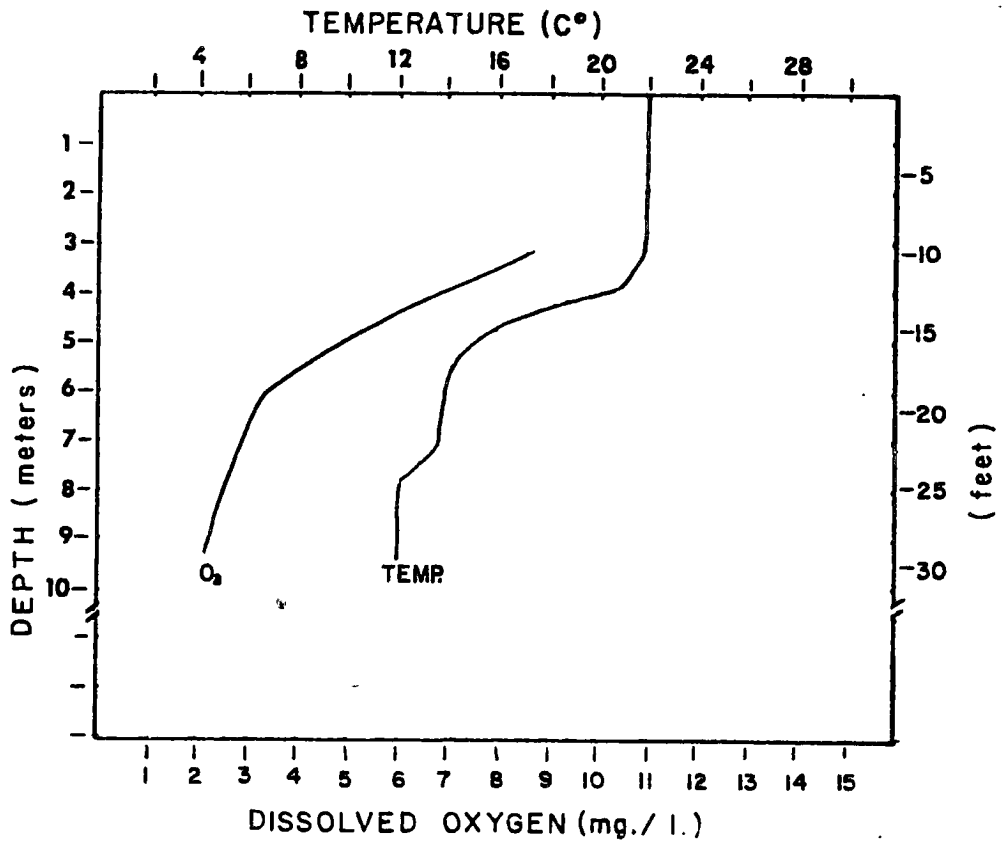
Physical Characteristics: The shoreline of Gillis Lake is forested (softwood). The north side of the lake is shallow with aquatic and shoreline vegetation.

Streams: Approximately 35 ft from the mouth of the inlet, there is a working beaver dam. The dam is 4 ft high and 25 ft wide. At the time of the survey, the stream below the dam was 6 ft wide and 7-10 ft deep. Dissolved oxygen was 9.2 mg/l, pH was 6.7 and temperature was 20.0°C.

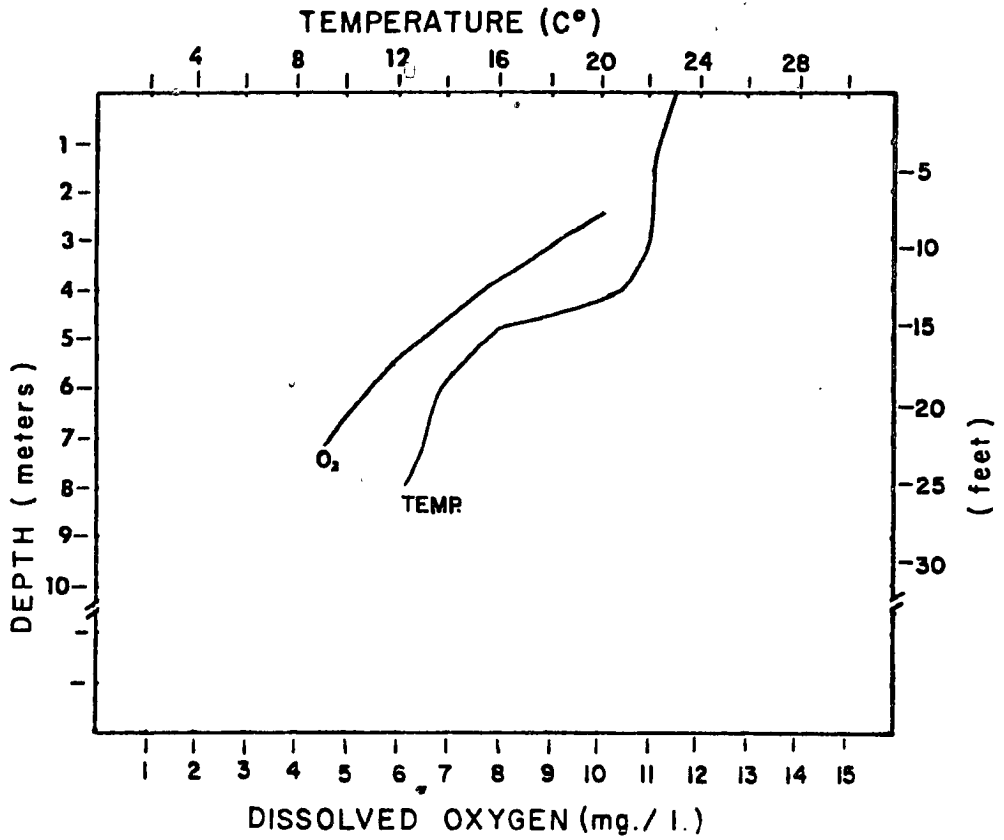
The outlet stream was very shallow, with a stream bed consisting of fine gravel areas. Near the road, the stream contained much debris. Dissolved oxygen was 9.2 mg/l, pH was 6.8 and temperature was 19.0°C.

Lake Water Characteristics: In July, Gillis Lake was found to be thermally stratified. Temperature near the surface was 20.0°C, and near the bottom it was 12.0°C. Dissolved oxygen determinations ranged from 8.6 mg/l to 2.2 mg/l; pH was 6.3 in all samples tested. A secchi disc reading of 13.75 ft was recorded.

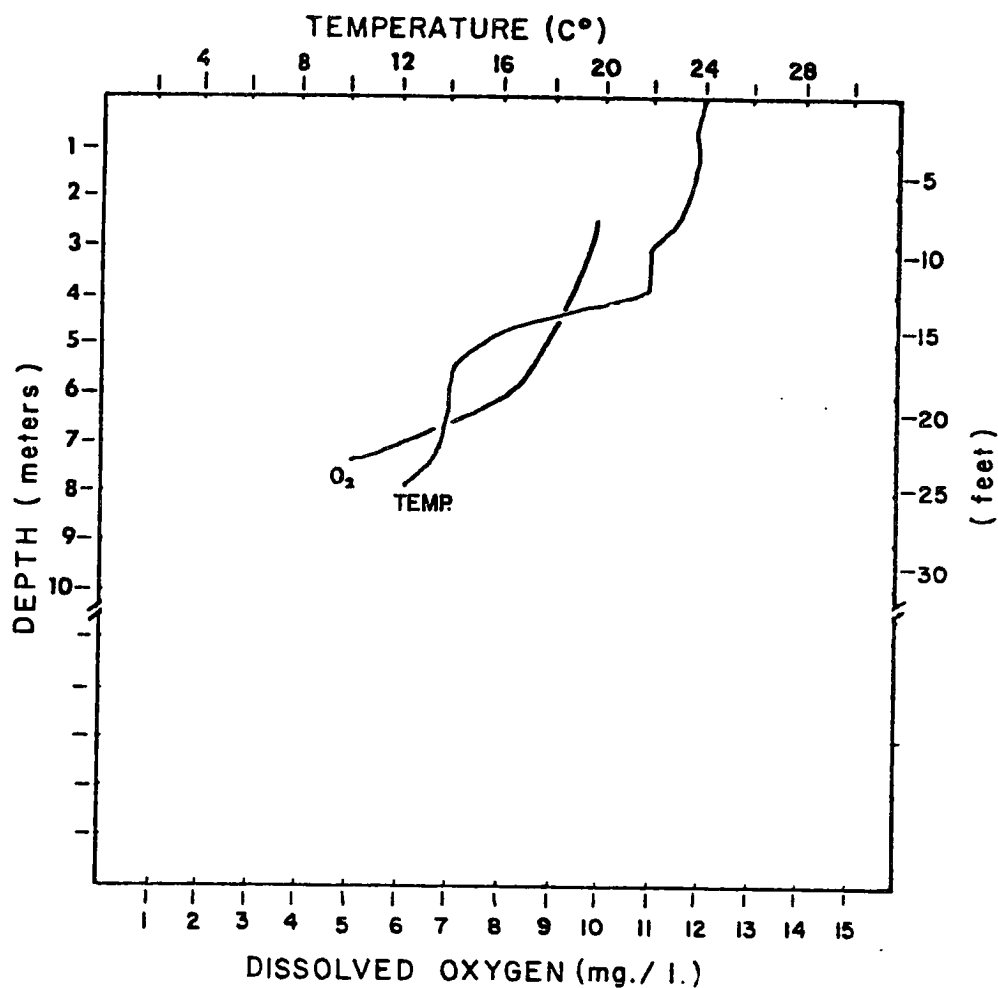
STN #1



STN #2



STN #3

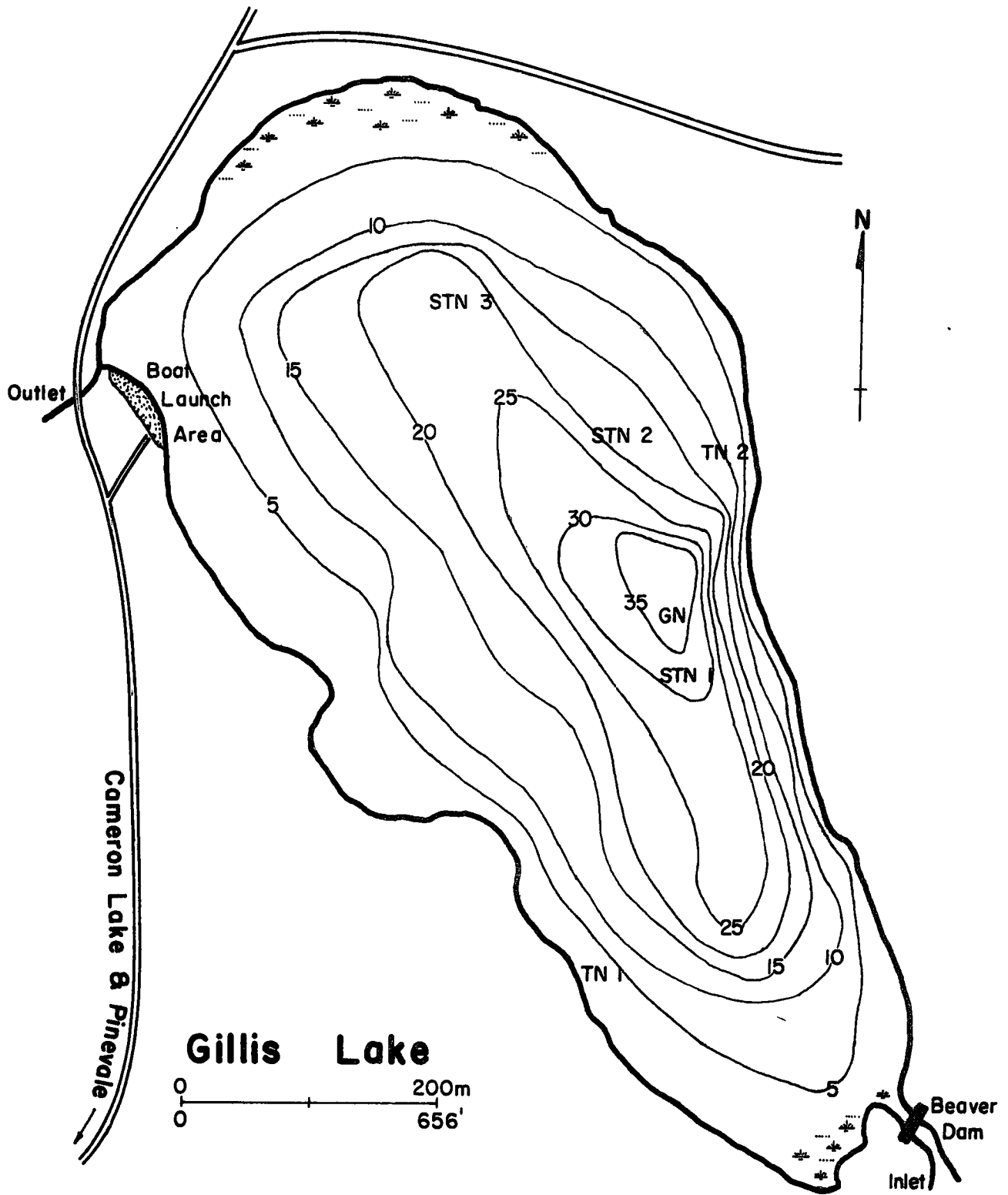


Fish Collection: On four consecutive nights of netting (gillnets and trapnets), the following fish were captured:

Species	Number	Fork length (cm)		
		Maximum	Minimum	Mean
Brook trout	3	32.7	19.0	26.3
White perch	659	32.8	8.7	14.1
Yellow perch	88	19.4	9.5	11.7
Common sucker	60	—	—	—
American eel	19	—	—	—
Gaspereau	125	—	—	—
Golden shiner	6	—	—	—

Stocking History:

1970	No stocking
1971	1,100 S5
1972	500 S4
1973	500 Sf



Lochaber Lake

<u>County:</u> Antigonish	<u>Maximum Width:</u> 730 m
<u>Location:</u> 45°25'N; 62°02'W	<u>Maximum Effective Width:</u> 730 m
<u>Drainage System:</u> St. Mary's River	<u>Maximum Depth:</u> 52.4 m
<u>Survey Date:</u> August 27-30, 1973	<u>Mean Depth:</u> 21.8 m
<u>Surface Elevation:</u> 46 m	<u>Volume of Lake:</u> 669.0 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 307.2 ha	<u>Shoreline Length:</u> 18,320 m
<u>Number of Islands:</u> 1	<u>Shoreline Development:</u> 3.0
<u>Island Area:</u> 0.2 ha	<u>Conductivity:</u> 46.6 µmhos/cm
<u>Water Surface Area:</u> 307.0 ha	<u>Secchi Disc Reading:</u> N/A
<u>Maximum Length:</u> 8,440 m	<u>Morphoedaphic Index:</u> 1.6
<u>Maximum Effective Length:</u> 4,440 m	<u>Potential Fish Yield:</u> 368.0 kg 1.2 kg/ha

Access: Access to Lochaber Lake is excellent. A paved road (Highway #7) parallels the eastern shore, and a gravel road parallels the western shore. There are several boat-launching areas adjacent to both roads.

Use: Lochaber Lake is used for several recreational purposes (swimming, boating and fishing). Swimming is limited by the lack of suitable shallow water beaches. There is only one developed community beach, although many cottages have small swimming areas and rafts. Light planes (Dept. of Lands and Forests) use the lake occasionally. At present there are more than ninety cottages and homes on the lake. This suggests high potential for recreational fisheries.

Physical Characteristics: There is constant residential (seasonal and year-round) development taking place on or near the lake. Some of the land is cultivated, with six farms near the lake. Small stands of softwood trees are present.

Both ends of the lake contain extensive shallow-water areas with an abundance of vegetation.

Streams: The outlet and ten tributary streams (inlets) were examined briefly. The approximate locations of the streams examined are identified numerically on the attached map. Unfortunately, there was some confusion in identification of water samples collected for detailed analysis at a later date. Detailed analysis is, therefore, not reported. The streams generally had temperatures near 14.5°C, while surface water in the lake was 20°C and stream pH was between 6.5 and 7.5.

Inlet #1, McNab's Brook, had obviously been altered by bulldozer along the lower 100 yd. The stream-bed had been straightened, widened and cleaned. As a result, trout habitat had been destroyed and no trout were present in this area. Upstream from the road, trout were captured in unaltered pools and riffles. Estimated discharge was approximately 5 cfs.

Inlet #2 had an estimated discharge of only 1 cfs. The bottom was predominantly large gravel and small rocks (12-in. diameter) with very few pools. However, 33 trout, up to 15.4 cm fork length, were collected in a single electroseining sweep of approximately 800 ft².

Inlet #3 is heavily overgrown with alder bushes. Fallen limbs provide good instream cover for small fish. Fields adjacent to this stream are cultivated for strawberry production and the stream appears to be a source or irrigation water. In a single electroseining sweep of approximately 500 ft² of stream bed, 42 trout, measuring as large as 20 cm fork length, were collected. This is the highest trout density of any tributary stream examined on this lake. Estimated discharge was 2 cfs.

Inlet #4 is heavily overgrown with marsh grasses. The bottom is a mixture of sand and gravel, with some areas of deep silt. Estimated discharge was 1 cfs. Four small trout were collected while electroseining approximately 350 ft² of stream bed.

Inlet #5 had an estimated discharge of 5-6 cfs and is accessible by boat for several hundred yards above the lake shore. This stream is presently subject to serious siltation, with recent accumulations exceeding 3 ft in depth. Eight small speckled trout were collected by electroseining several hundred square yards of stream bed. The number and size of pools suggested that higher densities should have been present.

Inlet #6 had an estimated flow of only 0.5 cfs at the time of the survey, and there was no access from lake to stream, since the stream passes underground in the 20-ft interval adjacent to the lake. Electroseining yielded 15 trout in a 300-ft² area. The largest trout measured 22.5 cm fork length.

Inlet #7 had an estimated discharge of 1-2 cfs, and passes through a dense growth of alder bushes on the lake shore. Four speckled trout were collected in a 250-ft² area.

Inlet #8 had a discharge of 1-2 cfs, and six speckled trout were collected over a 300-ft² area.

Inlet #9 had an estimated discharge of 5-7 cfs. A fall, 2-3 ft in height, located at the highway bridge, would prevent upstream passage of fish beyond this point. Three speckled trout were collected of 800 ft² of stream bed. The stream bed appears to have been subjected to mechanical alteration.

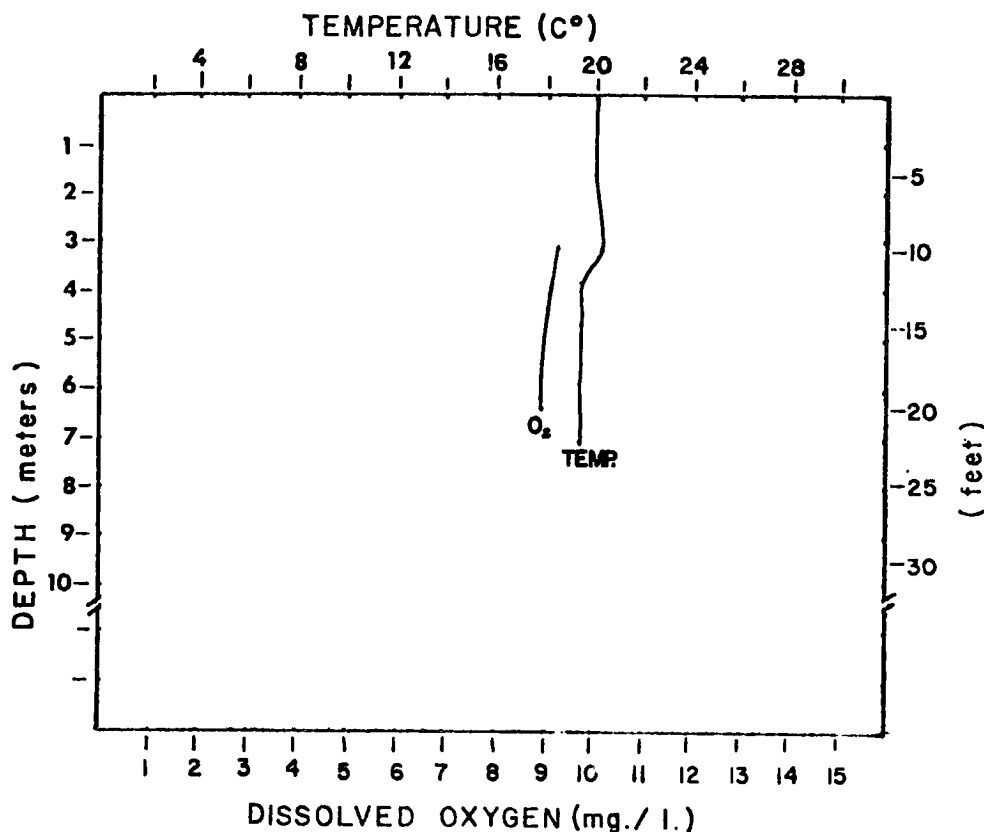
Inlet #10 had an estimated discharge of 1-2 cfs. This stream flows underground near the lake shore, and fish access is therefore limited during low water periods. Nineteen speckled trout were collected while electroseining approximately 1,500 ft² of stream bed.

The outlet of Lochaber Lake, contains areas of stream bed that appear suitable for trout spawning. Stream width is up to 30 ft, and a few pools were as much as 6 ft deep. Estimated discharge was 50 cfs. White suckers, American eels and one juvenile gaspereau were the only fish captured while electroseining approximately 18,000 ft² of stream area.

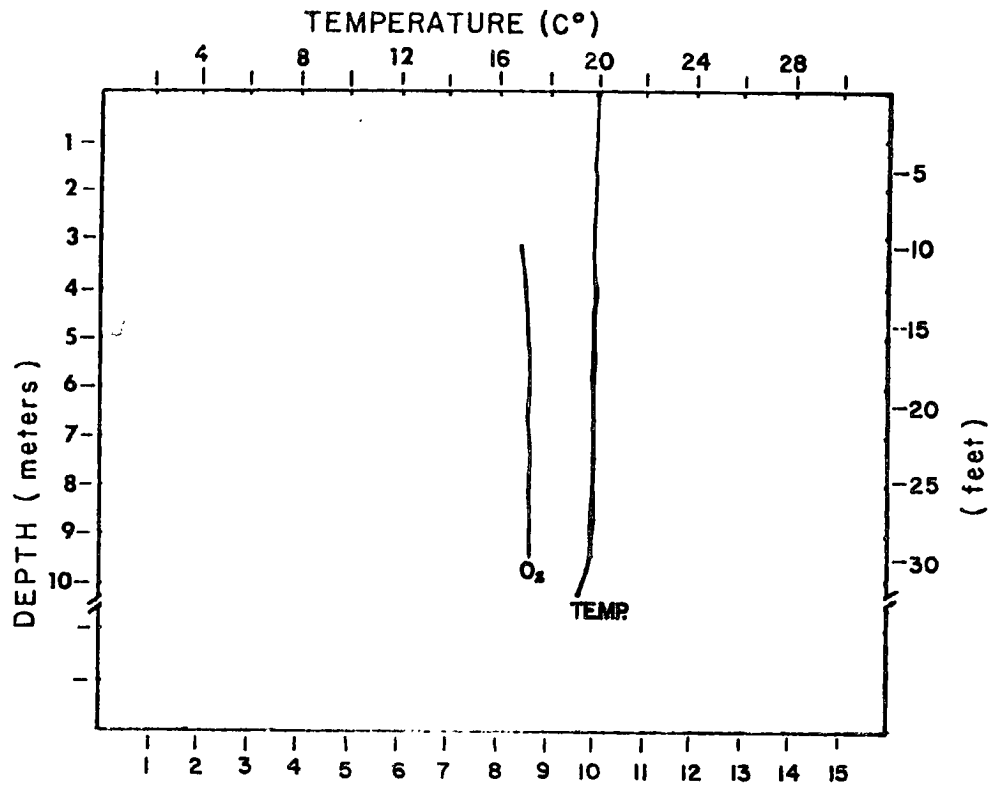
In addition to the 131 presumably native trout collected in these streams, six trout from a group of 2,000 stocked into the lake on April 19, 1973, were collected (identified by an adipose fin clip). One additional tagged fish, planted on June 14, 1973, was also recovered. Since 1,600 unmarked fish were planted on June 14, it is possible that some of the 131 fish presumed to be wild were also of hatchery origin.

Lake Water Characteristics: At the time of the survey, Lochaber Lake was found to be thermally stratified, with the thermocline between the depths of 35 and 50 ft. Dissolved oxygen content was 8.6 mg/l or above at all depths tested, and pH ranged from 7.4 near the surface to 6.3 at the 70-ft depth. Specific conductance averaged approximately 45 μ mhos/cm in all samples.

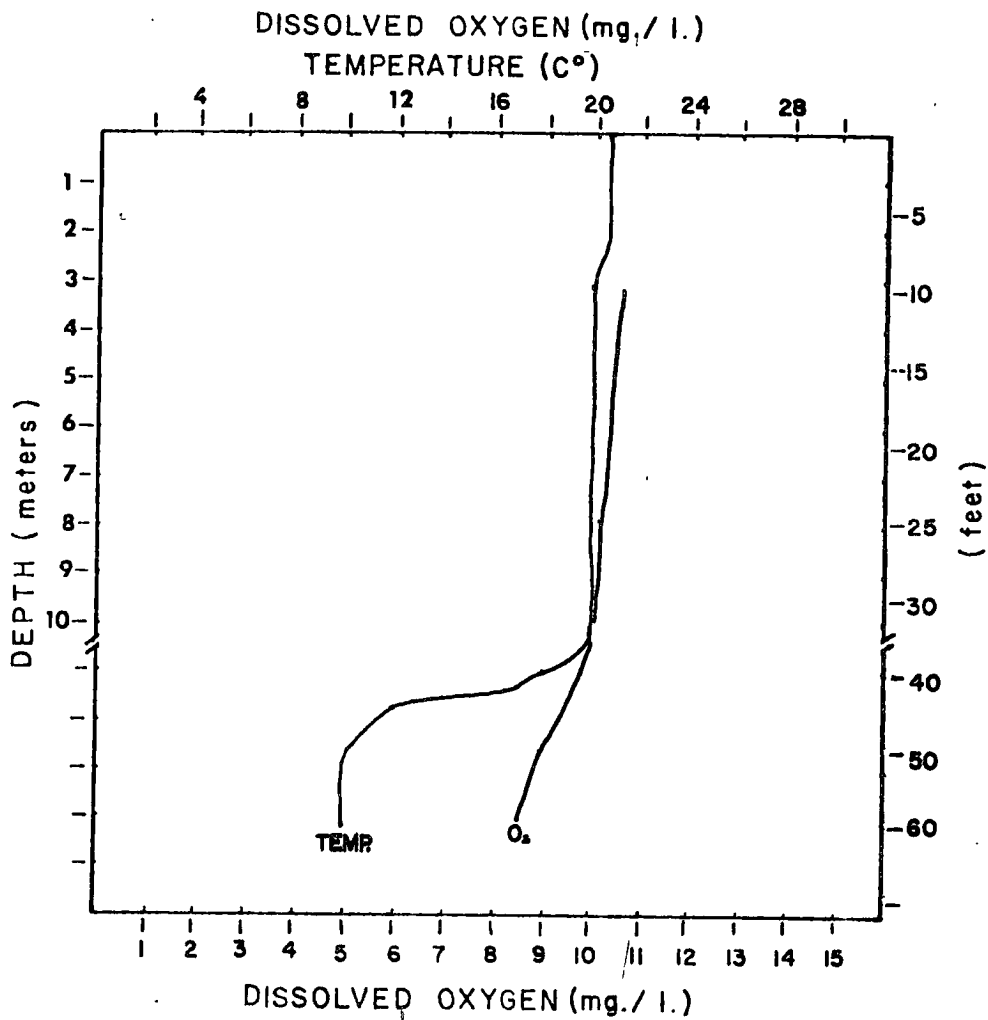
STN #1

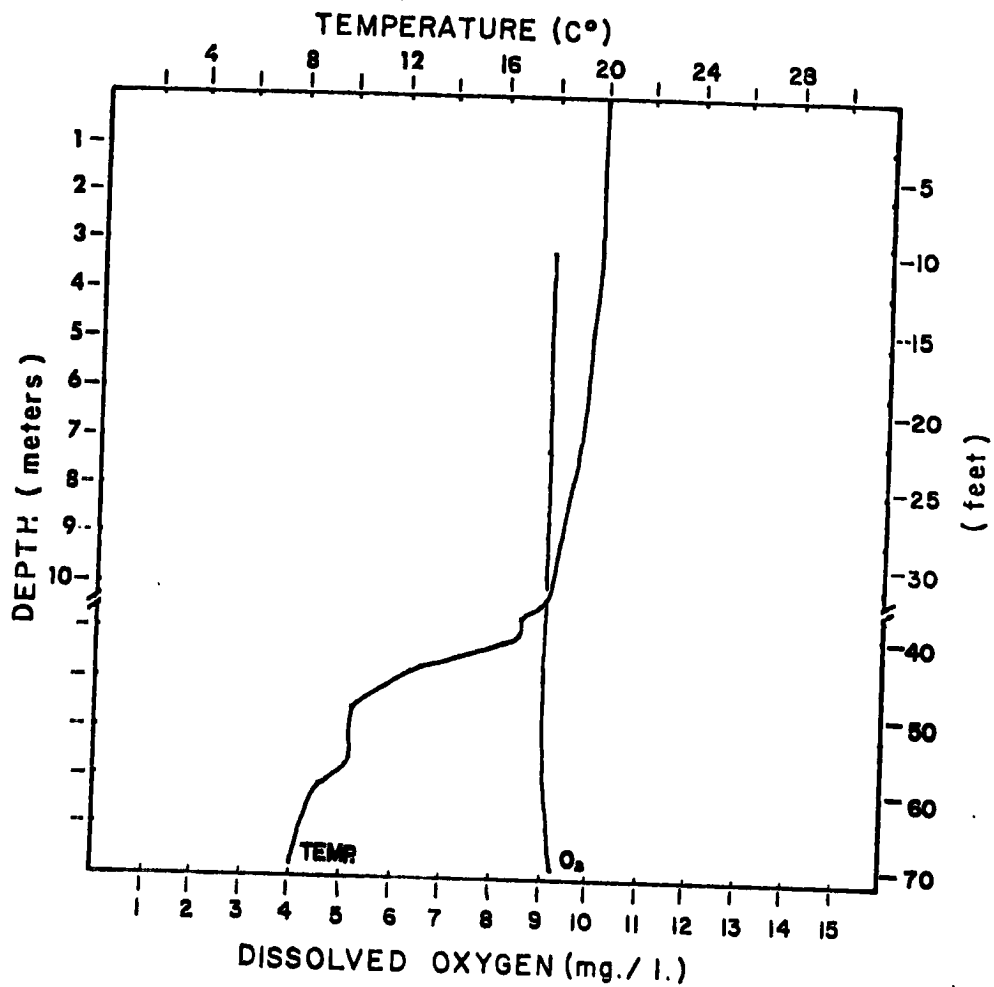
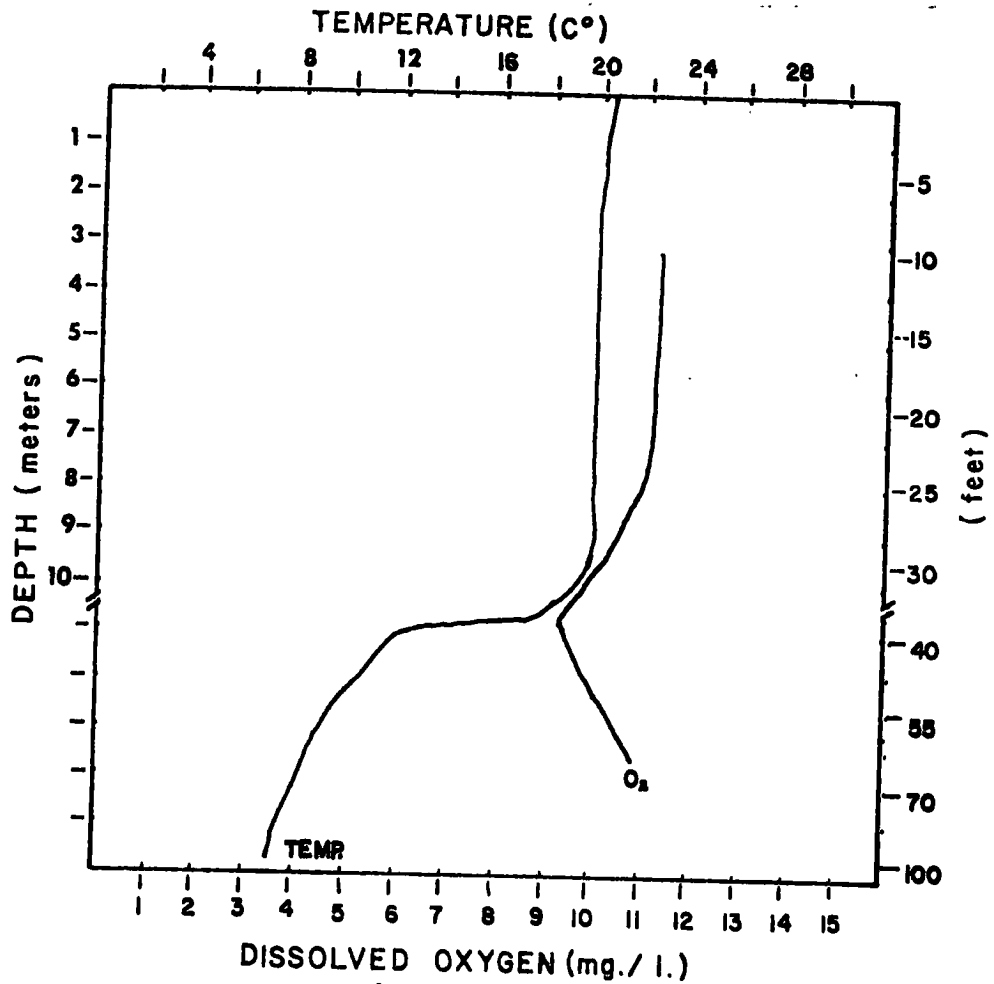


STN #2



STN #2





Fish Collection: Lochaber Lake is reported to be the source of at least some wild speckled trout used in the development of the present Antigonish domestic strain. This lake has a history of frequent speckled trout stocking in the magnitude illustrated by the distribution from Antigonish Fish Culture Station during the past four years:

1970	400 Sf
1971	2,200 S5, 1,300 Sf
1972	1,000 S4, 3,500 Sf
1973	4,355 S5, 4,000 Sf

The 4,000 speckled trout yearlings released in 1973 were part of a large-scale evaluation program, in which 20% of all fish were marked with Monel metal jaw tags. Resultant harvest estimates will be available in a separate report.

Anglers report that fishing in Lochaber Lake is good, with catches of both speckled trout and landlocked salmon. There is some indication that lake trout (togue or grey trout) may be present as well.

In two consecutive nights of netting, using a trapnet and Swedish survey-type gillnets, the following species and numbers of fish were captured:

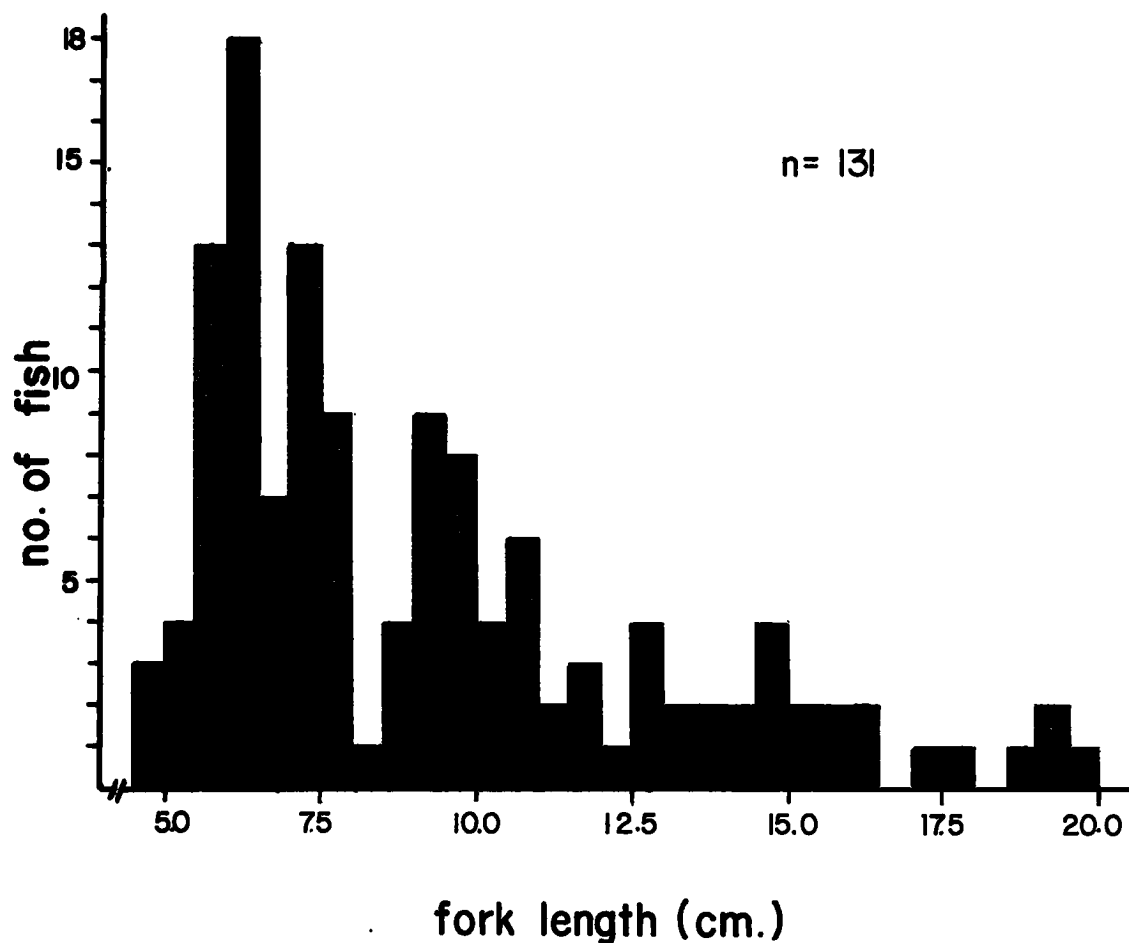
Species	Number	Fork length (cm)		
		Maximum	Minimum	Mean
Yellow perch	429	17.4	11.0	13.4
White perch	98	28.7	14.4	20.2
Common sucker	39	35.0	13.2	26.2
American eel	13	-	-	-
Brown bullhead	2	-	-	-
American smelt	1	-	-	-
Speckled trout	5	30.4	19.8	-

Scale samples were collected from three of the five speckled trout captured. Age determination of these fish from scale examination proved to very difficult, since annuli were indistinct.

Fork length (cm)	Total length (cm)	Weight (g)	Sex	Age
26.2	27.5	210	Male	2+
19.8	20.9	85	Male	2+
30.4	31.8	295	Female	3+ or 4+

Netting results indicate that coarse fish such as yellow perch and white perch are abundant in Lochaber Lake. Although no significant numbers of forage fish were captured, it is presumed that large numbers of juvenile gaspereau may be available early in the season.

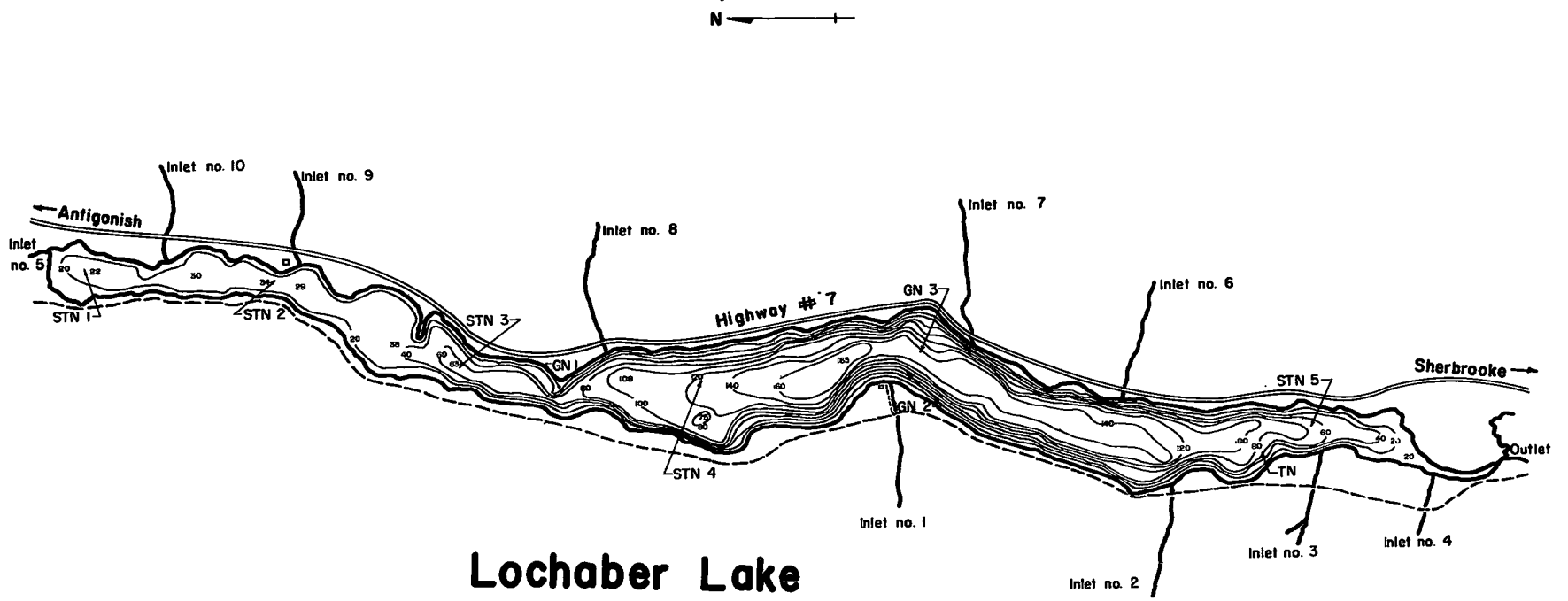
The major point of interest is that all tributary streams with flowing water contained speckled trout. Speckled trout were collected from each of the streams by spot electroseining. These fish were measured, scale sampled and returned to the streams. The length-frequency distribution for the 131 trout collected is shown below (trout of known hatchery origin excluded).



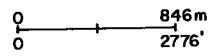
Length-frequency distribution of speckled trout captured in August, 1973, by electroseining ten tributary streams of Lochaber Lake.

On November 1, 1973, eight additional speckled trout were collected from the lake by gillnet. These fish were scale sampled for age determinations.

Fork length (cm)	Total length (cm)	Weight (g)	Sex	Age
22.3	23.9	110	Male	2+
33.9	35.5	440	Female	3+
23.3	24.5	105	Male	2+
21.0	22.3	110	Male	2+
28.1	29.5	210	Female	2+
24.2	25.5	130	Female	2+
25.6	27.2	170	-	2+
20.7	22.0	75	-	2+



Lochaber Lake



Narrow Lake

<u>County:</u> Guysborough	<u>Maximum Width:</u> 380 m
<u>Location:</u> 45°24'N; 61°51'W	<u>Maximum Effective Width:</u> 380 m
<u>Drainage System:</u> Salmon River	<u>Maximum Depth:</u> 11.0 m
<u>Survey Date:</u> August 13-17, 1973	<u>Mean Depth:</u> 5.1 m
<u>Surface Elevation:</u> 153 m	<u>Volume of Lake:</u> 13.7 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 27.0 ha	<u>Shoreline Length:</u> 2,620 m
<u>Number of Islands:</u> 0	<u>Shoreline Development:</u> 1.5
<u>Island Area:</u> 0.0 ha	<u>Conductivity:</u> 25.5 µmhos/cm
<u>Water Surface Area:</u> 27.0 ha	<u>Secchi Disc Reading:</u> 3.0 m
<u>Maximum Length:</u> 1,150 m	<u>Morphoedaphic Index:</u> 3.6
<u>Maximum Effective Length:</u> 1,150 m	<u>Potential Fish Yield:</u> 49.0 kg 1.8 kg/ha

Access: Access to the lake is available approximately 30 ft from the lakeshore, at the intersection of the perimeter road and a private driveway. There is a convenient boat-launching site at this point.

Use: The lake is used for a limited amount of swimming, boating and fishing. There are two farms situated near the lake.

Physical Characteristics: Narrow Lake is surrounded mainly by forest (softwood), although there is some cultivated land.

Streams: Inlet #1 runs into a small pond before entering the lake. There are no major obstructions. The stream is spring fed and has a flow of 2 cfs. The stream bed contains suitable gravel (<1 in.) for spawning. Dissolved oxygen was 10.2 mg/l, pH was 6.8 and temperature was 16.0°C.

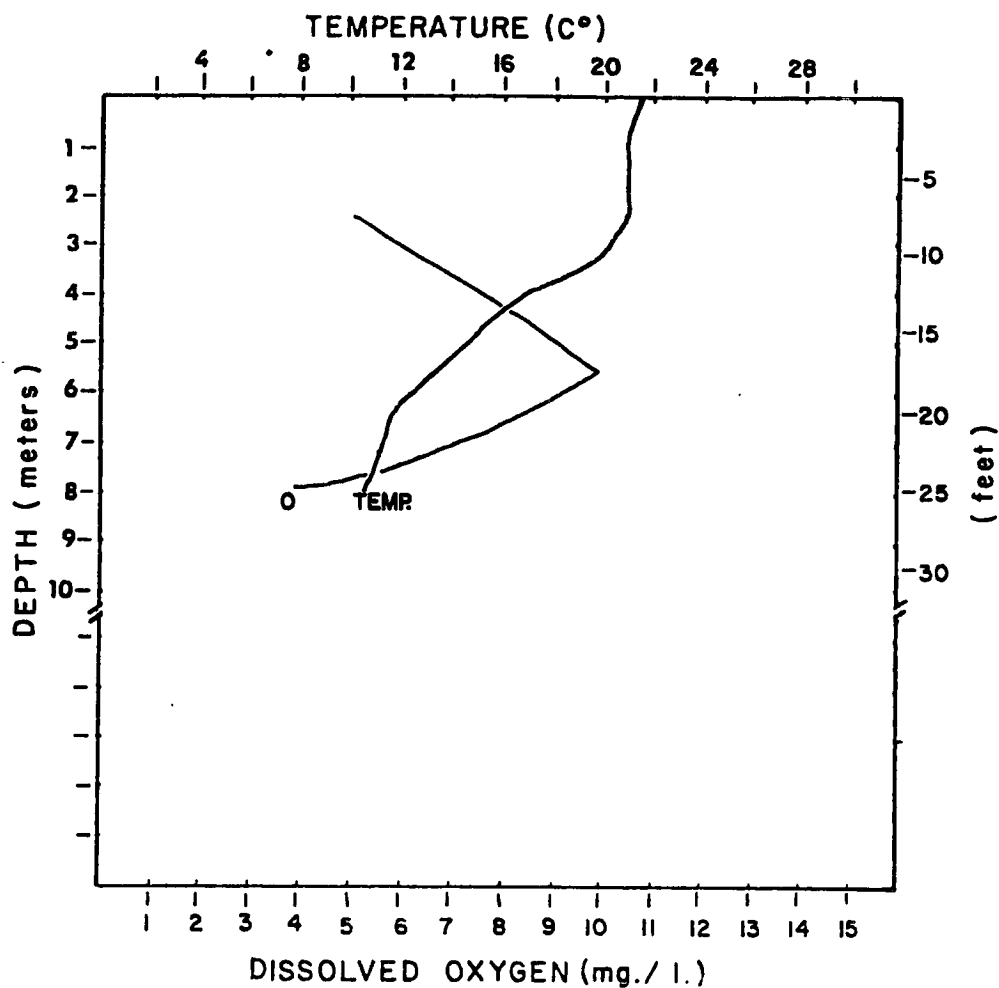
Inlet #2 is a fast-flowing narrow stream with a moderately coarse gravel bottom. The stream was approximately 2 ft wide and 4-5 in. deep. Dissolved oxygen was 8.6 mg/l, pH was 6.0 and temperature was 16.5°C.

Inlet #3 was dry at the time of the survey.

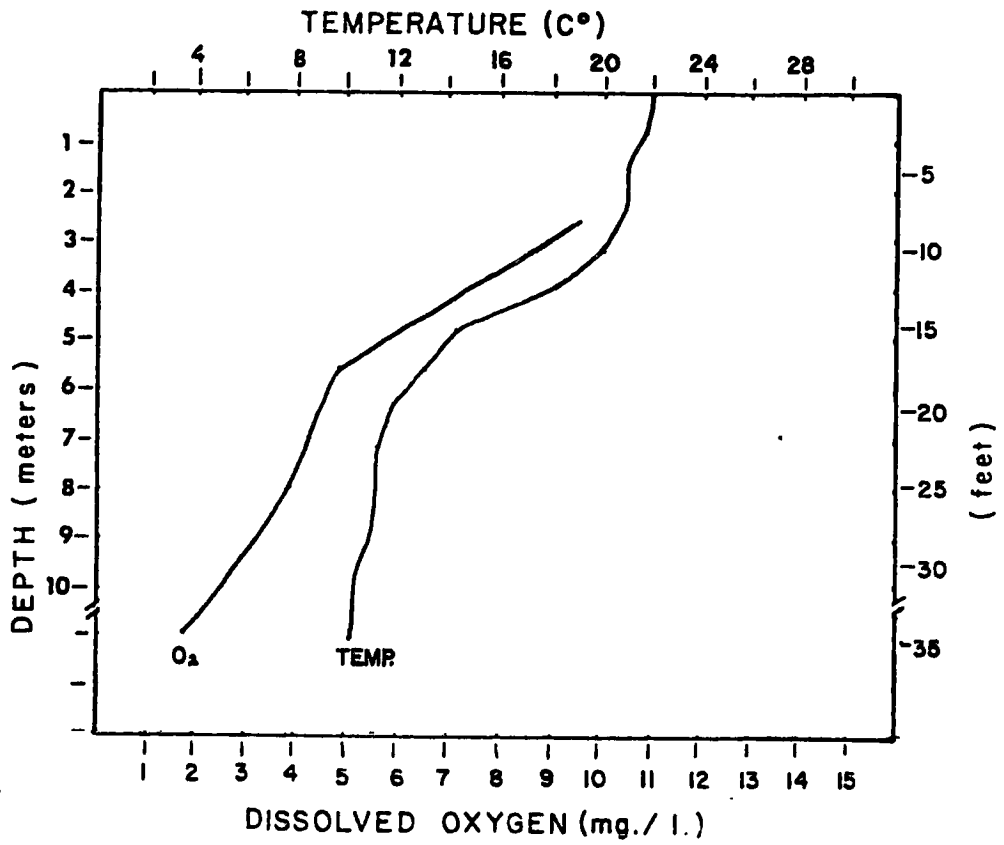
The outlet stream widens from 4-5 ft at the lake to about 12 ft further downstream. It had a depth of approximately 1 ft and an abundance of vegetation. Dissolved oxygen was 10.6 mg/l, pH was 6.7 and temperature was 18.5°C.

Lake Water Characteristics: The lake water was thermally stratified in August. Near the surface the temperature was 19.0°C, with a temperature of 10.0°C near the bottom. Dissolved oxygen ranged from 9.4 mg/l to 0.6 mg/l; pH was 6.7-6.1.

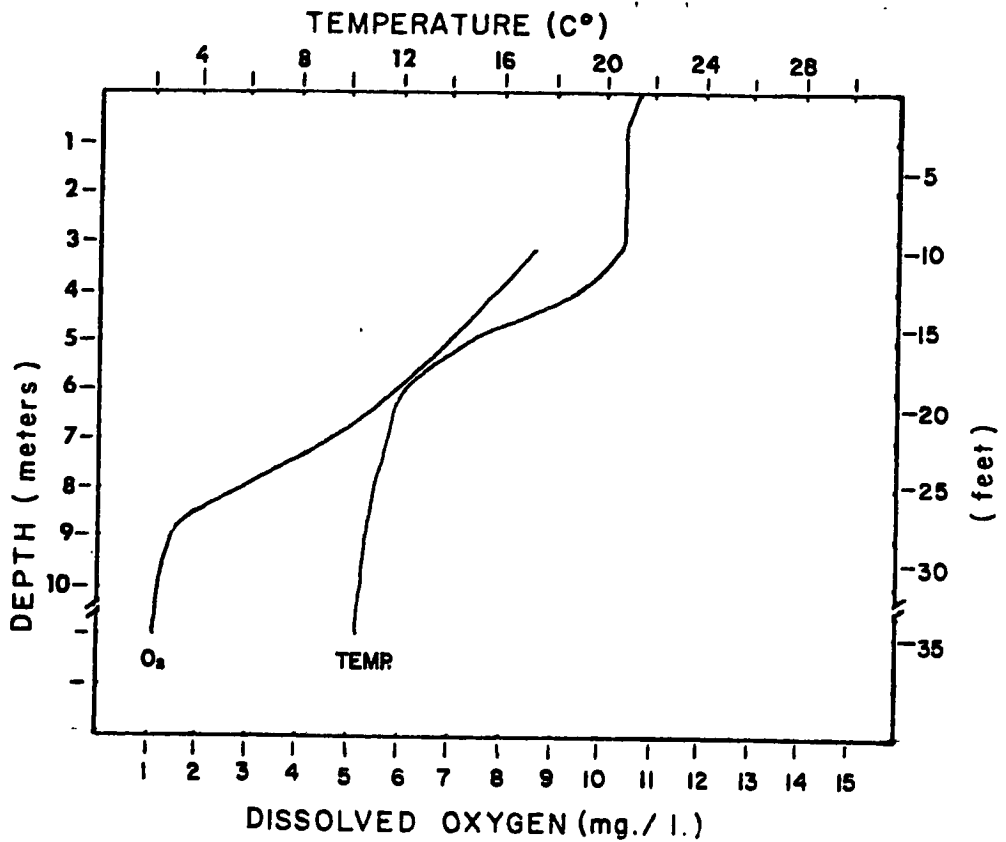
STN #1



STN #2



STN #3

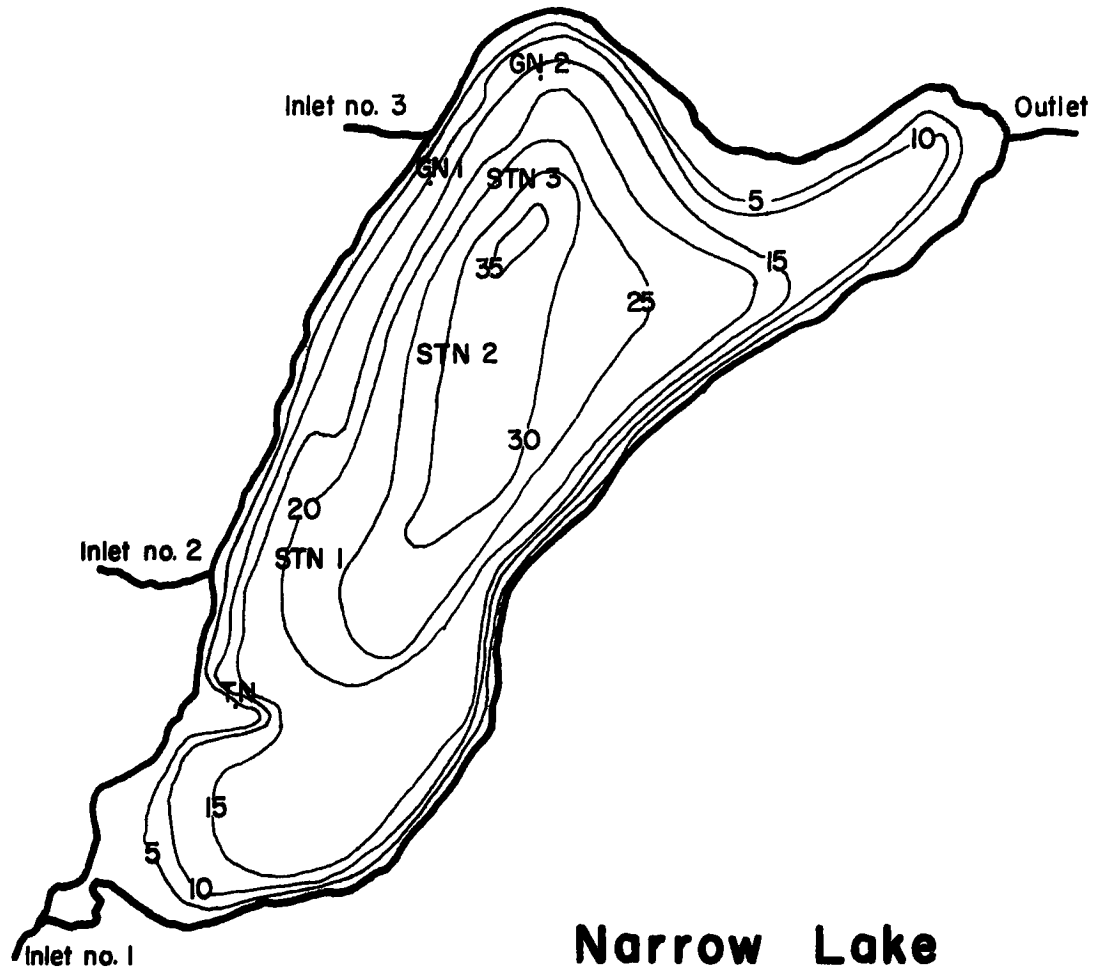
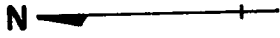


Fish Collection: In two consecutive nights of gillnetting and trapnetting, the following fish were caught:

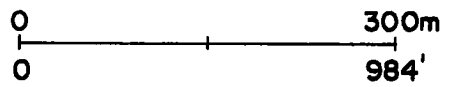
Species	Number	Fork length (cm)		
		Maximum	Minimum	Mean
Brown trout	1	43.4	-	-
White perch	15	26.0	16.4	20.6
Yellow perch	1	12.8	-	-
Common sucker	41	41.9	17.8	31.4
Lake whitefish	9	-	-	-
American eel	1	-	-	-
Gaspereau	10	28.7	25.3	27.6

Stocking History:

1970	900	S3		
1971	1,100	S5		
1972	1,000	S4		
1973	800	Sf	<u>Brook</u>	15,000 S1



Narrow Lake



Pringle Lake

<u>County:</u> Guysborough	<u>Maximum Width:</u> 520 m
<u>Location:</u> 45°23'N; 61°57'W	<u>Maximum Effective Width:</u> 520 m
<u>Drainage System:</u> Country Harbour River	<u>Maximum Depth:</u> 26.0 m
<u>Survey Date:</u> July 16-20, 1973	<u>Mean Depth:</u> 9.8 m
<u>Surface Elevation:</u> 76 m	<u>Volume of Lake:</u> 61.2 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 62.7 ha	<u>Shoreline Length:</u> 4,440 m
<u>Number of Islands:</u> 0	<u>Shoreline Development:</u> 1.6
<u>Island Area:</u> 0.0 ha	<u>Conductivity:</u> 39.8 µmhos/cm
<u>Water Surface Area:</u> 62.7 ha	<u>Secchi Disc Reading:</u> 6.5 m
<u>Maximum Length:</u> 1,700 m	<u>Morphoedaphic Index:</u> 3.0
<u>Maximum Effective Length:</u> 1,700 m	<u>Potential Fish Yield:</u> 107 kg 1.7 kg/ha

Access: A paved road, which parallels the northwest lakeshore, affords good access to Pringle Lake. Boats can be launched from a small beach located within a tenting and trailer camping ground on that shore.

Use: The tenting and trailer camping grounds (Maple Grove) has been expanded and upgraded annually for several years, and included approximately 50 campsites plus two cottages at the time of the survey. Campers use the lake for swimming, boating and fishing. Several private camps or cottages are also located near the shore.

Physical Characteristics: Although there are some hardwood stands on and around the beach area, the lakeshore vegetation is predominantly softwood forest.

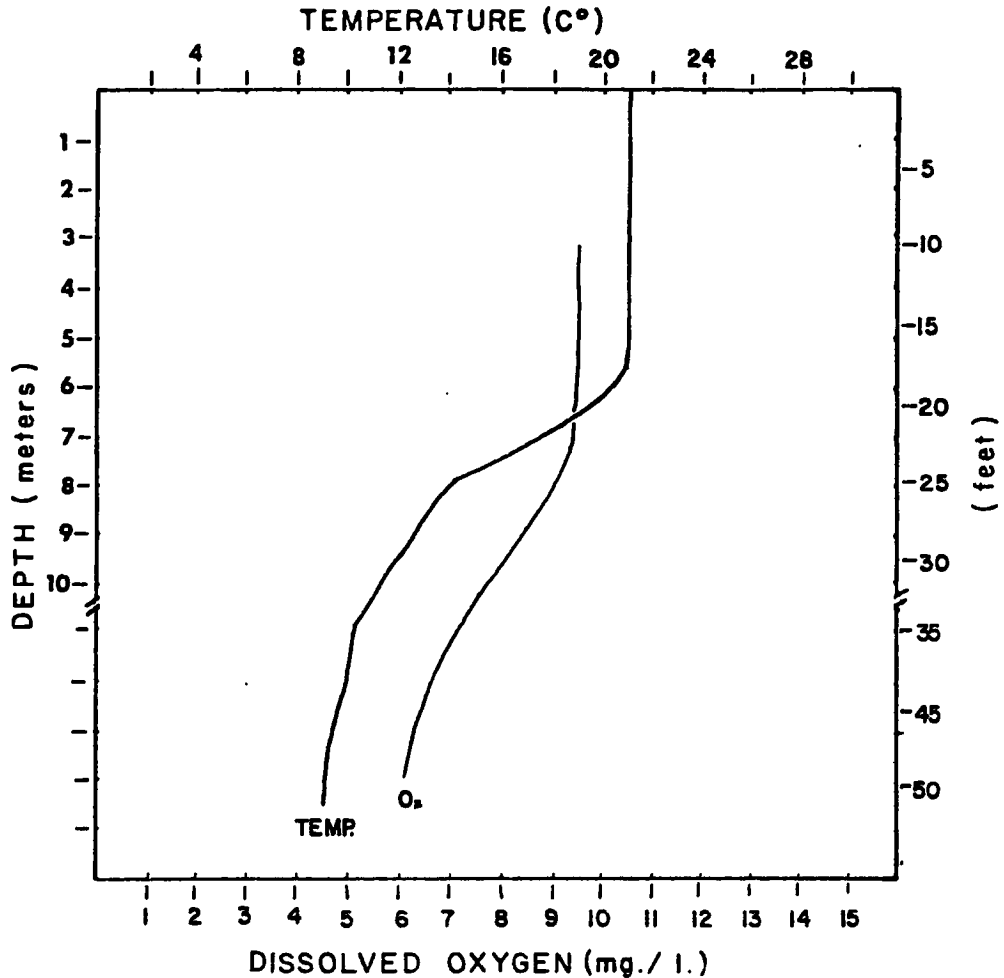
Streams: Inlet #1 has an intermittent flow. The stream was 10 ft wide and 5 in. deep. No major obstructions were observed, and the stream had a steep gradient throughout its length. Dissolved oxygen was 9.8 mg/l, pH was 6.6 and temperature was 16.0°C.

Inlet #2 was not noticed in July, but was found during high water in August. At this time, the stream was 3.5 ft wide and 8 in. deep. The water temperature was 16.0°C.

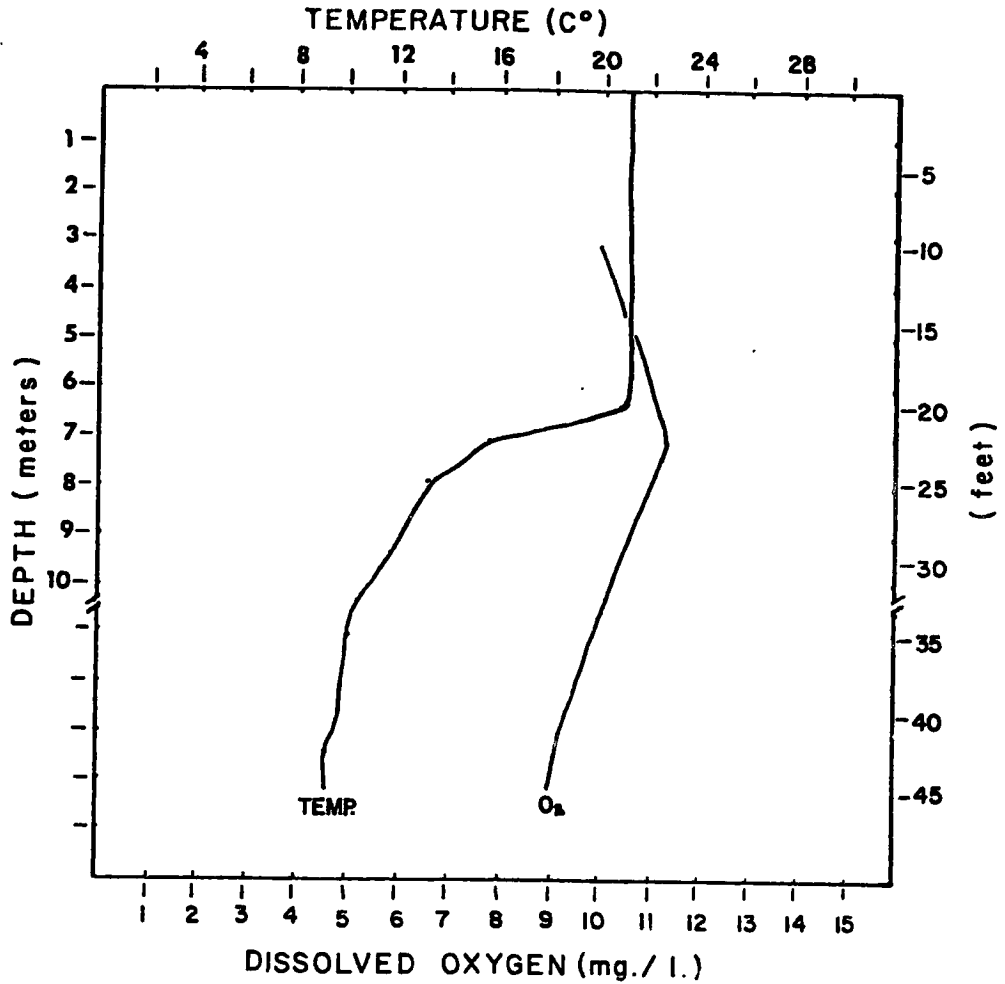
The outlet flows to a small pond about 100 yd below the lake. Numerous minnows were observed. The stream was 10 ft wide and 5 in. deep. There was no measureable flow of water. Dissolved oxygen was 9.2 mg/l, pH was 6.2 and temperature was 22.5°C.

Lake Water Characteristics: Pringle Lake was found to be thermally stratified. The temperature in the upper level was 21.0°C and near the bottom it was 9.0°C. Dissolved oxygen levels ranged from 9.6 mg/l at 10 ft to 6.1 mg/l at the 50 ft level; pH was 6.3-5.9. A secchi disc reading of 20.0 ft was recorded.

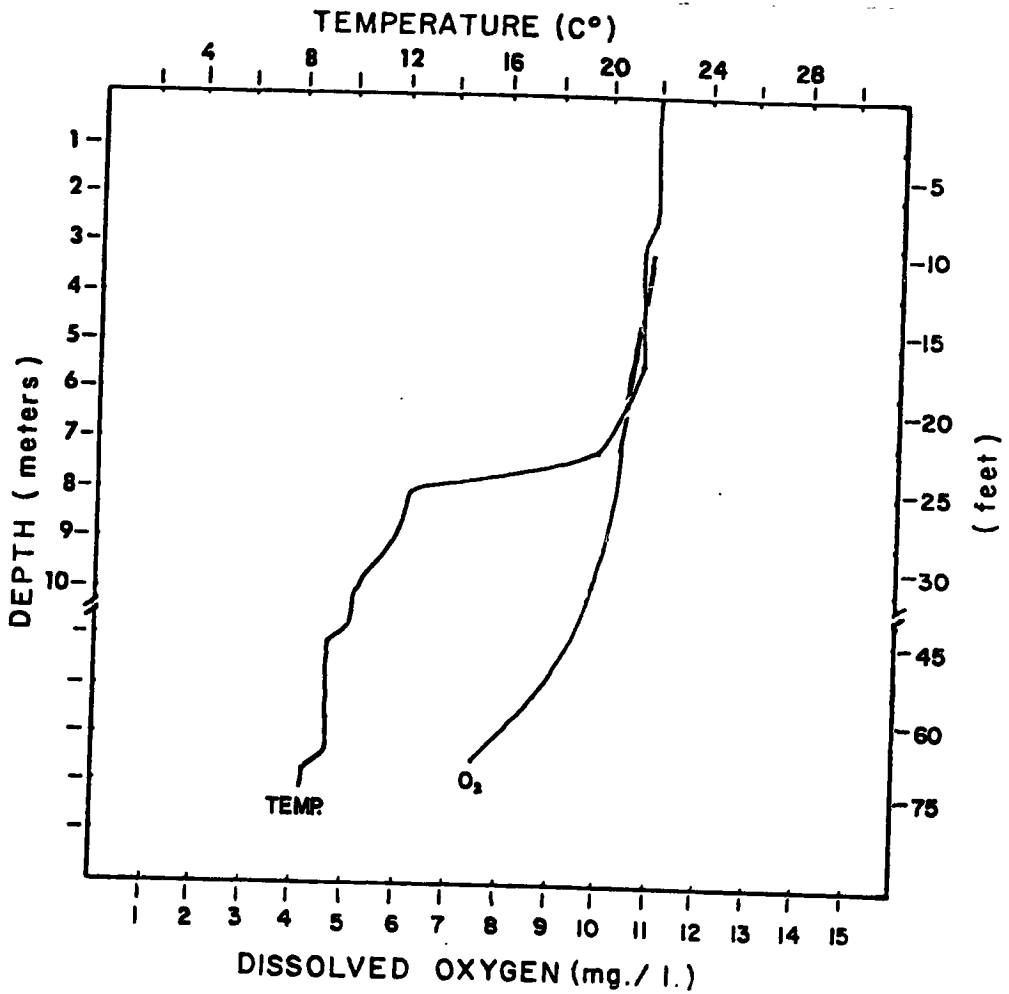
STN #1



STN #2



STN #3



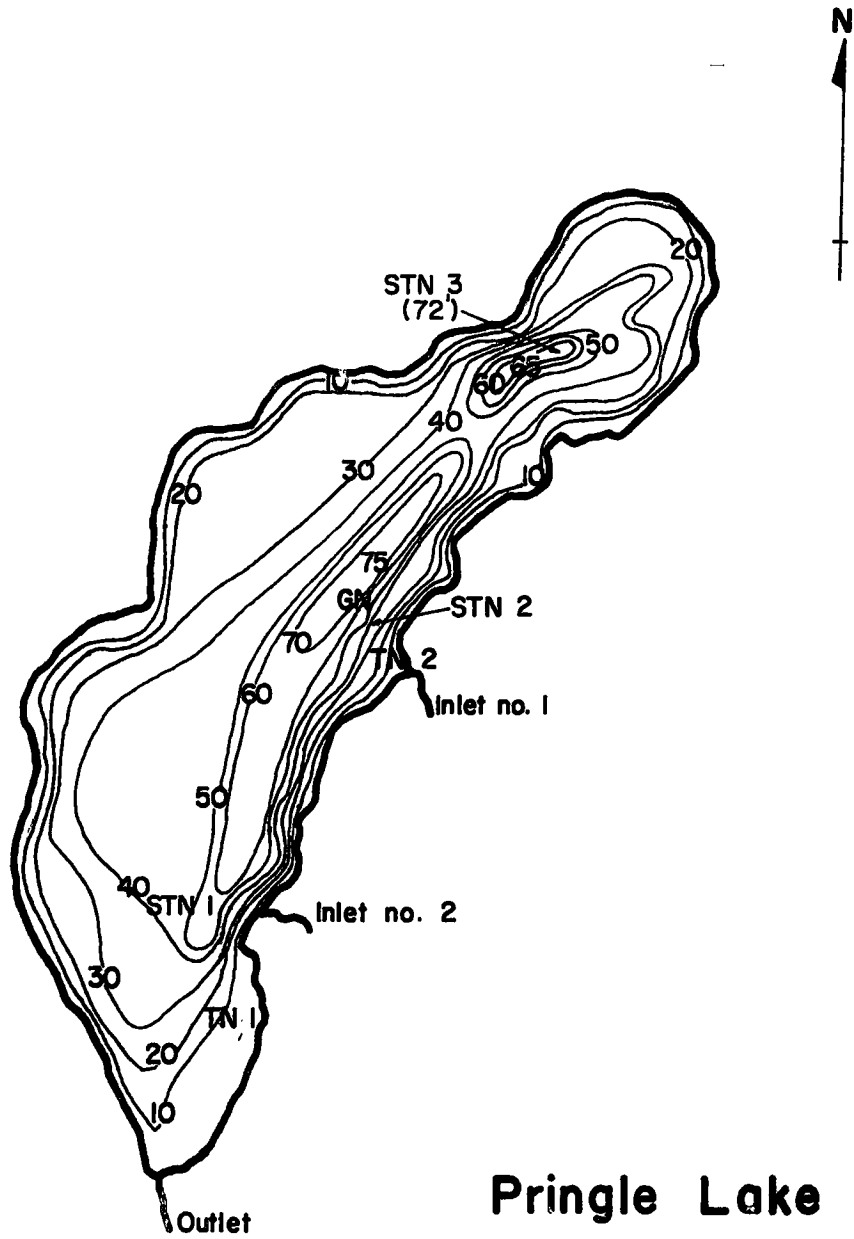
Fish Collection: Trap- and gillnets were set in Pringle Lake for three consecutive nights. The following fish were caught:

Species	Number	Fork length (cm)		
		Maximum	Minimum	Mean
Brook trout	3 ¹	-	-	-
White perch	6	-	-	-
Yellow perch	105	29.0	8.0	-
Lake whitefish	4	24.8	21.9	-
Common sucker	30	-	-	-
American smelt	6	-	-	-
American eel	16	-	-	-
Gaspereau	520	-	-	≈25.0

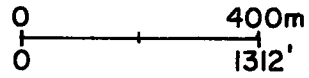
¹Eaten by eels.

Stocking History:

1970	No stocking
1971	2,200 S5
1972	500 S4
1973	600 Sf



Pringle Lake



Round (Island) Lake

<u>County:</u> Guysborough	<u>Maximum Width:</u> 840 m
<u>Location:</u> 45°24'N; 61°30'W	<u>Maximum Effective Width:</u> 810 m
<u>Drainage System:</u> Salmon River	<u>Maximum Depth:</u> 7.6 m
<u>Survey Date:</u> August 22-24, 1973	<u>Mean Depth:</u> 2.9 m
<u>Surface Elevation:</u> 153 m	<u>Volume of Lake:</u> 13.5 x 10 ⁵ m ³
<u>Lake Surface Area:</u> 47.4 ha	<u>Shoreline Length:</u> 3,500 m
<u>Number of Islands:</u> 1	<u>Shoreline Development:</u> 1.4
<u>Island Area:</u> 0.8 ha	<u>Conductivity:</u> 23.4 µmhos/cm
<u>Water Surface Area:</u> 46.6 ha	<u>Secchi Disc Reading:</u> 3.3 m
<u>Maximum Length:</u> 1,080 m	<u>Morphoedaphic Index:</u> 5.7
<u>Maximum Effective Length:</u> 1,080 m	<u>Potential Fish Yield:</u> 107 kg 2.3 kg/ha

Access: Round (Island) Lake is easily accessible by way of the dirt road to the provincial government maple sugar camp. There is one good boat-launching site.

Use: The lake receives some recreational use, primarily in the form of fishing by provincial personnel who work at the maple sugar camp.

Physical Characteristics: The lakeshore is made up of mixed stands of hardwood and softwood. Vegetation is abundant along the shore.

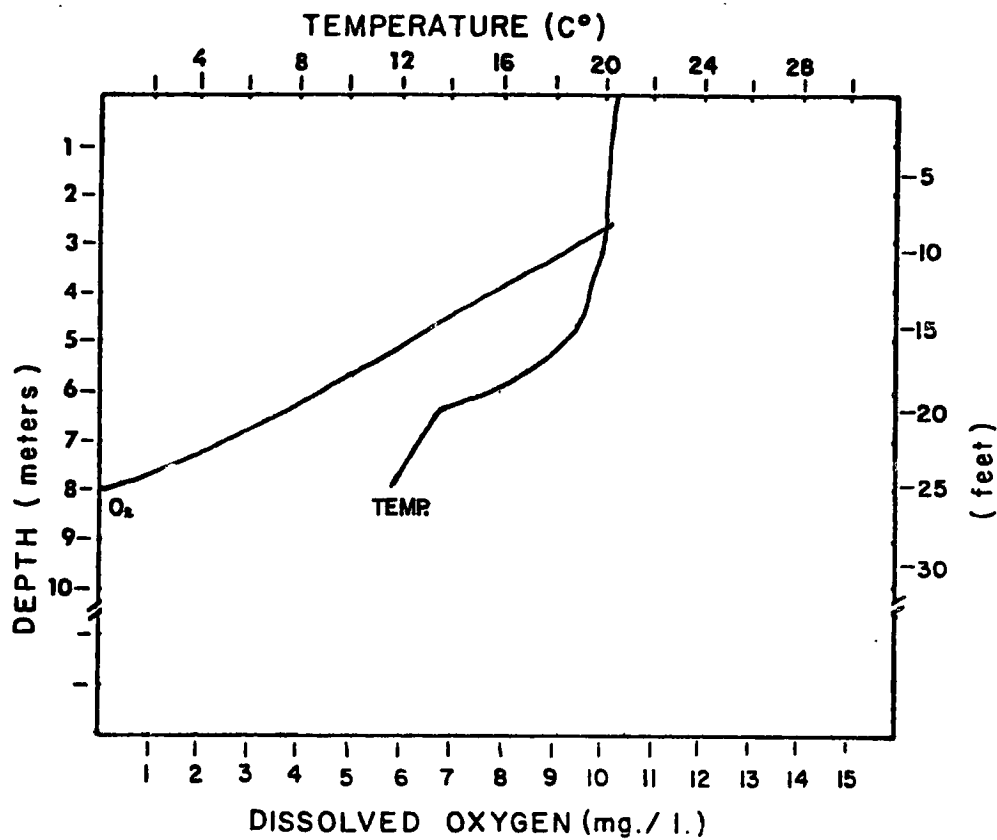
Streams: The main inlet to Round Lake flows from Cross Lake. Dissolved oxygen was 9.6 mg/l, pH was 6.8 and temperature was 20.5°C. A second inlet was dry at the time of the survey.

The northwest outlet is now a large marsh area with no fish passage to the lake.

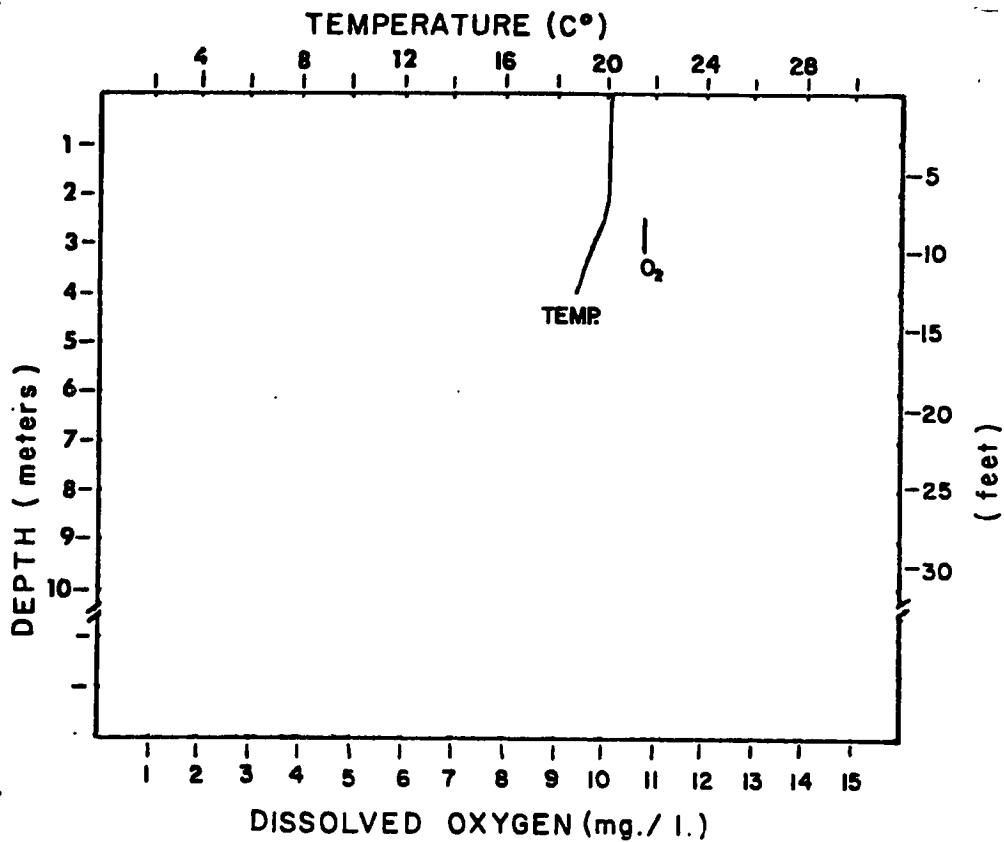
The northeast outlet flows into the Salmon River. There is a small man-made dam a short distance downstream, with a pool below it. Dissolved oxygen was 9.4 mg/l, pH was 6.8 and temperature was 19.5°C.

Lake Water Characteristics: In August, Round Lake was found to be thermally stratified, with temperature ranges between 20.0°C near the surface and 11.5°C near the bottom. Dissolved oxygen ranged from 11.0 mg/l at the 7.5-ft level and 0.0 at the 25-ft level. A secchi disc reading of 10.0 ft was recorded.

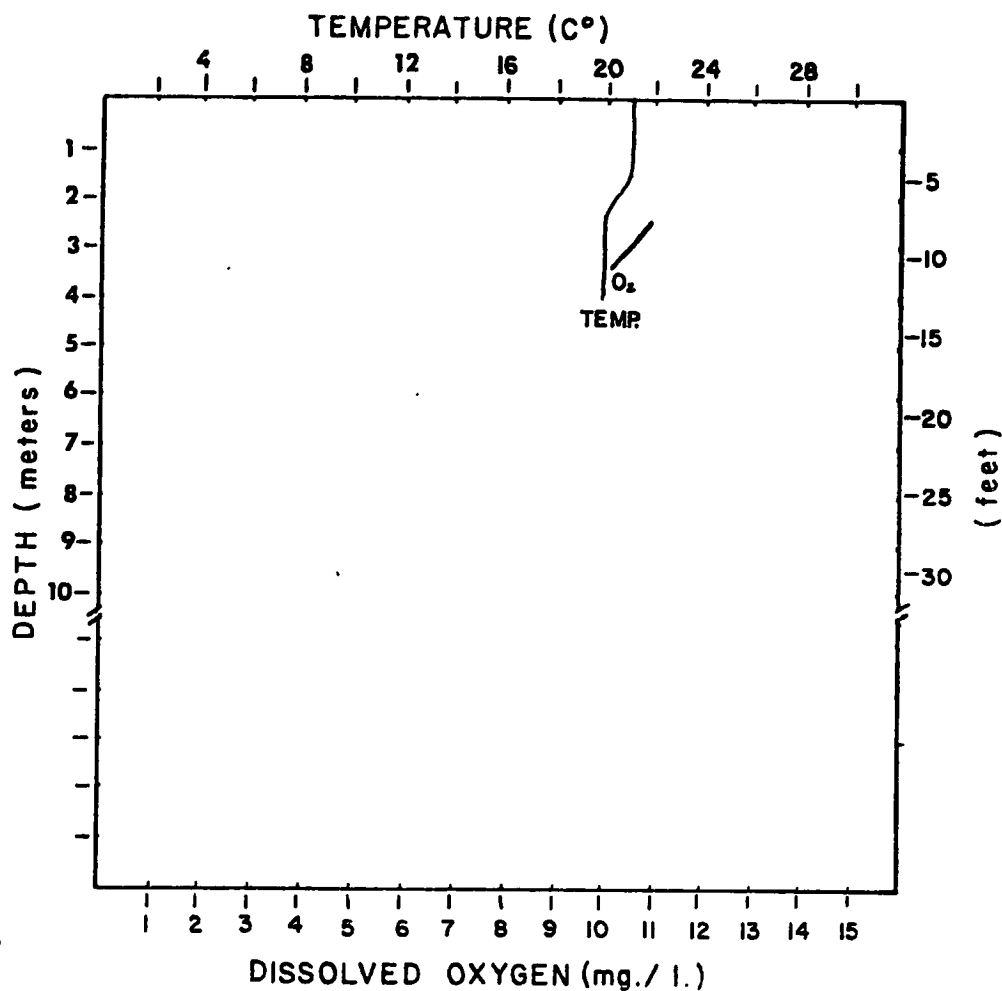
STN #1



STN #2



STN #3

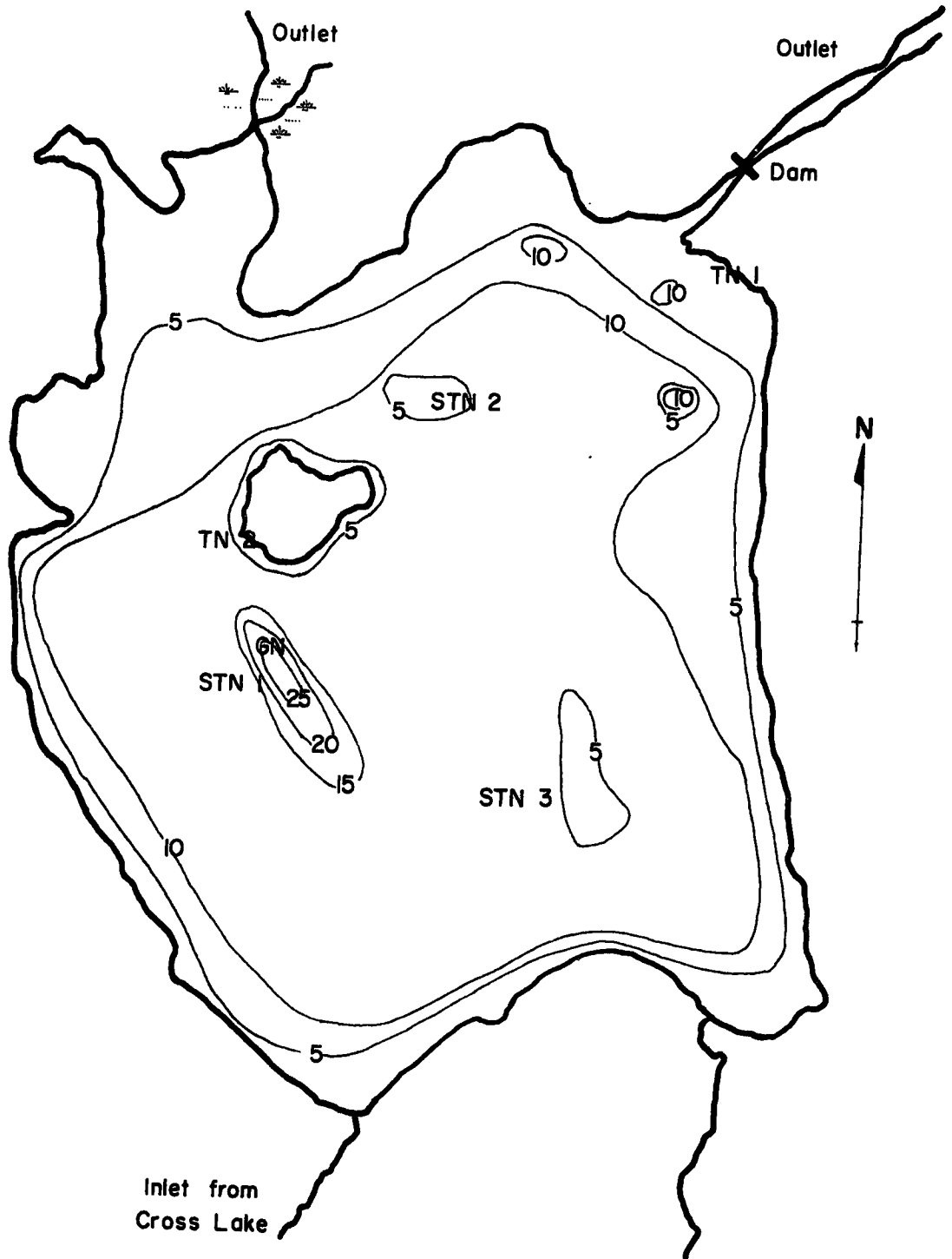


Fish Collection: On two nights of netting (gillnets and trapnet), the following fish were caught:

Species	Number	Fork length (cm)		
		Maximum	Minimum	Mean
Brook trout	9	34.4	17.8	26.1
Yellow perch	8	19.0	8.2	12.1
Common sucker	18	36.0	9.5	17.3
American eel	16	-	-	-
Common shiner	33	13.0	9.4	10.7
Golden shiner	37	13.8	8.6	11.0

Stocking History:

1970	1,305	S3
1971	1,100	S5
1972	1,000	S4
1973	800	Sf



Round (Island) Lake



APPENDIX A

LIST OF COMMON AND SCIENTIFIC NAMES OF
FISH SPECIES CAPTURED DURING LAKE SURVEYS

<u>Common name</u>	<u>Scientific name</u>
Eastern brook trout (Speckled trout)	<i>Salvelinus fontinalis</i> (Mitchill)
Brown trout	<i>Salmo trutta</i> (Linnaeus)
Common white sucker	<i>Catostomus commersoni</i> (Lacépède)
American eel	<i>Anguilla rostrata</i> (LeSueur)
Yellow perch	<i>Perca flavescens</i> (Mitchill)
White perch	<i>Roccus americanus</i> (Gmelin)
Brown bullhead	<i>Ictalurus nebulosus</i> (LeSueur)
American smelt	<i>Osmerus mordax</i> (Mitchill)
Gaspereau	<i>Alosa pseudoharengus</i> (Wilson)
Golden shiner	<i>Notemigonus crysoleucas</i> (Mitchill)
Common shiner	<i>Notropis cornutus</i> (Mitchill)
Lake whitefish	<i>Coregonus clupeaformis</i> (Mitchill)

APPENDIX B

LIST OF CODES AND ABBREVIATIONS USED IN
REFERENCE TO HATCHERY-PRODUCED TROUTCode or
abbreviationSpecies

S	Brook trout
R	Rainbow trout
B	Brown trout

Stage of development

c	Fry
d	Advanced fry (first 2 weeks after absorption of yolk sac)
1	#1 fingerlings (2-8 weeks)
2	#2 " (8-14 weeks)
3	#3 " (14-20 weeks)
4	#4 " (20-26 weeks)
5	#5 " (26-52 weeks)
f	Yearlings
g	Two years
h	Three years

APPENDIX C

SELECTED MORPHOMETRIC, EDAPHIC AND BIOLOGICAL DATA FOR ELEVEN LAKES SURVEYED DURING 1973

Lake	Co-ordinates	Elev. m	Drainage system	Max. length m	Max. effect. length m	Max. width m	Max. effect. width m	Lake area ha	No. of islands	Island area m	Water area m	Max. depth m	Mean depth m	Volume of lake m ³	Shoreline length m	Shoreline develop.	Conductivity µmho/cm	M.E.I.	Potential fish yield	
																			Total kg	Per ha
Cameron	45°31'; 61°59'	61	South River	840	840	620	620	29.6	0	0.0	29.6	9.5	4.8	14.2 x 10 ⁵	2,800	1.5	55.2	8.9	86	2.9
Charlie	45°23'; 61°52'	168	Salmon River	810	810	330	330	17.4	0	0.0	17.4	10.7	4.2	7.4 x 10 ⁵	1,770	1.2	28.7	5.0	38	2.2
Cross	45°25'; 61°51'	153	Salmon River	2,380	2,380	1,110	1,110	116.6	0	0.0	116.6	7.3	3.4	40.0 x 10 ⁵	7,470	2.1	25.6	5.4	256	2.2
Eight Island	45°21'; 61°57'	76	Country Hbr. River	2,410	910	700	700	93.0	8	1.7	91.3	10.1	3.6	32.6 x 10 ⁵	7,460	2.2	37.9	7.8	246	2.7
Gaspereaux	45°33'; 62°03'	46	West River	1,620	1,620	1,020	1,020	89.5	1	2.4	87.1	4.6	1.9	16.9 x 10 ⁵	4,640	1.4	153.0	66.3	688	7.9
Giant	45°23'; 61°53'	168	South River	1,190	1,190	790	790	57.0	0	0.0	57.0	12.2	3.7	21.0 x 10 ⁵	2,890	1.1	26.1	5.0	125	2.2
Gillis	45°32'; 61°58'	61	South River	950	950	460	460	28.0	0	0.0	28.0	10.7	3.9	10.8 x 10 ⁵	2,020	1.1	74.2	15.1	106	3.8
Lochaber	45°25'; 62°02'	46	St. Mary's River	8,440	4,440	730	730	307.2	1	0.2	307.0	52.4	21.8	66.9 x 10 ⁵	18,320	3.0	46.6	1.6	368	1.2
Narrow	45°24'; 61°51'	153	Salmon River	1,150	1,150	380	380	27.0	0	0.0	27.0	11.0	5.1	13.7 x 10 ⁵	2,620	1.5	25.5	3.6	49	1.8
Pringle	45°23'; 61°57'	76	Country Hbr. River	1,700	1,700	520	520	62.7	0	0.0	62.7	26.0	9.8	61.2 x 10 ⁵	4,440	1.6	39.8	3.0	107	1.7
Round	45°25'; 61°30'	153	Salmon River	1,080	1,080	840	810	47.4	1	0.8	46.6	7.6	2.9	13.5 x 10 ⁵	3,500	1.4	23.4	5.7	107	2.3

APPENDIX D

FISH SPECIES COLLECTED BY GILLNET, TRAPNET AND ELECTROSEINE
FROM ELEVEN LAKES AND/OR THEIR TRIBUTARY STREAMS
DURING SURVEYS CONDUCTED IN 1973

Lake	Brook trout	Brown trout	White perch	Yellow perch	Common sucker	Lake whitefish	American smelt	American eel	Gaspereau	Brown bullhead	Golden shiner	Common shiner
Cameron	X		X	X	X			X	X		X	
Charlie					X				X			
Cross	X			X	X			X			X	X
Eight Island			X	X	X			X	X	X		
Gaspereaux			X	X	X			X		X	X	
Giant	X			X	X			X				
Gillis	X		X	X	X			X	X		X	
Lochaber	X		X	X	X		X	X	X			
Narrow		X	X	X	X	X		X	X			
Pringle	X		X	X	X	X	X	X	X			
Round	X			X	X			X			X	X

REFERENCES

- Hayes, F.R. 1963. Chemical characteristics of fresh water. Pub. No. 10, Great Lakes Research Division, The University of Michigan, p. 112-117.
- Lagler, K.F. 1956. Freshwater fishery biology. Wm. C. Brown Company, Publishers, Iowa. 421 p.
- Ryder, R.A., S.R. Kerr, K.H. Loftus and H.A. Regier. 1974. The morphoedapic index, a fish yield estimator - review and evaluation. J. Fish. Res. Bd. Canada 31:663-688.
- Scott, W.B. 1954. Freshwater fishes of eastern Canada. 2nd ed., University of Toronto Press 1967. 137 p.
- Welch, P.S. 1948. Limnological methods. McGraw Hill Book Co. Inc., Toronto. 381 p.