DRAFT only - from Mr. Jack Creeper Apr '72

WILLIAMS LAKE

Surveyed September 9th & 10th October 6th & 7th, 1971

LOCATION: 44° 37' 15" N; 63° 36' 00" W Halifax County

SURFACE ELEVATION: 62 FT.

SURFACE AREA: 97.9 acres

AREA LESS THAN 20 FT. DEEP: 59.7 acres

SHORE LINE LENGTH: 24,700 FT.

MAXIMUM DEPTH: 65 FT.

ACCESS:

Canoes can be easily carried to William's Lake from several roads, but there is no visible public boat launch. Most of the undeveloped shore is sufficiently open to allow convenient access on foot.

USE:

The lake is used for swimming, boating and a limited amount of fishing.

PHYSICAL CHARACTERISTICS:

William's Lake is the lower lake in a two lake system (Williams's and Colbart).

Approximately 1/4 of the lake shore, primarily on the north-west side is presently developed as residential area. Many of these private properties extent to the water, restricting public access and use in those areas.

The west end of the lake is shallow with dense bottom vegetation and some areas silted as the result of construction. The east end of the lake is deep with rock and silt or muck bottom. A small concrete and stone dam on the outlet stream helps to maintain the lake level. The south shore is entirely undeveloped.

STREAMS:

Only one inlet stream, from Colbart Lake, was found at the time of the survey. This stream had an estimated discharge of 1-2 cfs, temperature 18°C and pH 5.5. The stream flows underground through large boulders for almost its entire course and is not accessible to fish except perhaps during peak discharge. There appeared to be no gravel suitable for trout spawning at the stream mouth.

The outlet stream had a discharge of about 2 cfs and pH 7. Most of the water flows over the small dam but there is also a small by-pass stream. This system may limit but no necessarily prevent fish passage and may provide a small spawning area for trout.

LAKE WATER CHARACTERISTICS:

In September, William's Lake was found to be thermally stratified with temperatures ranging from 22°C at the surface to 6.5°C below the thermocline. Dissolved oxygen levels were high enough to support fish throughout almost the entire temperature range. pH varied between 6 and 7.

In August, conductivity of the surface water was 260 and total alkalinity 18 ppm. Conductivity at the 20 meter depth was found to be 600 ppm with chloride levels of 229.5 ppm and sodium 146 ppm.

William's Lake appears to have a higher production potential than most lakes in the area.

BIOLOGICAL STUDIES:

In two nights of gill netting, one in September and one in October, 12 speckled trout, one American eel and approximately 40 eastern banded killifish were captured. There was no evidence of perch, bass or suckers in the lake. All trout appeared to be in excellent condjtion and were between 24 and 38 cm fork length. These fish should have pleased any angler.

One housing developer claims that the lake is annually stocked with trout, but there is no record of trout distributions to William's Lake from either Federal or Provincial sources in the past 3 years. Two residents interviewed while swimming, stated that there are virtually no fish in the lake.

RECOMMENDATIONS:

William's Lake is accessible to the general public as well as to local residents. The lake does support trout apparently as the result of natural reproduction, but the

numbers angled may be low. The water chemistry data as well as the variety of habitat and the excellent trout feeding area, indicate that this lake is ideal for management in trout production.

Hatchery trout should demonstrate good growth and over-winter survival in William's Lake. Stocking with both speckled trout and rainbow trout is recommended. Establishment of a spawning population of rainbow trout should not be expected because of the absence of suitable spawning streams.

The outlet stream is small and it is doubtful that rainbow trout would have a great tendency to emigrate from the lake. Nevertheless a rainbow trout introduction should be accompanied by an evaluation of trout emigration, particularly during periods of peak run-off or the normal emigration period in May and June. It may be necessary to select for a strain of rainbow trout with lower migrating tendencies than has been used in Nova Scotia in the past.

SUGGESTED STOCKING:

1972 - Spring

100 age 2+ speckled trout - .25 fish/100 ft. shore line
= 1.7 fish/acre < 20 ft. deep.
1000 age 1+ speckled trout - 2.5 fish/100 ft. shore line
= 16.7 fish/acre < 20 ft. deep.
2000 age 1+ rainbow trout - 5 fish/100 ft. shore line
= 33.3 fish/acre < 20 ft. deep.

1972 - Fall

3000 fingerling speckled trout = 12 fish/100 ft. shore line = 50 fish/acre < 20 ft. deep.

This stocking should include some evaluation program on which to base revisions for future years.

WILLIAM'S LAKE SAMPLE STATIONS

Station 1 September 9, 1971

Surface Sample	
Temp.	20°C
O_2	7 ppm
CO_2	10 ppm
pH	6.5

Station 2 September 9, 1971

Depth	Temp	pH	O_2	CO_2
0	22			
2½	22	7	8	10
5	21			
6	21			

Station 3 September 9, 1971

Depth	Temp	pH	O_2	CO_2
0	22			
2½	21.5			
5	21	7	8	10
7½	21			
10	21			
12½	21			
15	20.5			
17½	20			
20	20			
22½	20			
25	19.5	7	7	5
27½	19			
30	18			
32½	12			
35	11			
37½	10			
40	9			
42½	7.5			
45	7	6	2	15
47½	7			
50	6.5			
52½	6.5			
55	6.5			
57½	6.5			

Station 4 September 9, 1971

Depth	Temp	pH	O_2	CO_2
0	22			
2½	21.5			
5	21.5			
7½	21			
10	21	7	9	10
12½	21			
15	21			
17½	20.5			
20	20			
22½	20			
25	19.5			
27½	19			
30	17	7	8	10
32½	12.5			
35	11	6	6	10
37½	9			
40	8	6	5	10
42½	7			
45	6.5			
47½	6			
50	6			
52½	6			

WILLIAM'S LAKE SAMPLES

Inlet From Colbart Lake

September 9th, 1971

pH 5.5
Temp. 18°C
Flow 1-2 cfs.

Station 3 October 6th, 1971

Depth	Temp	pH	O_2	CO_2
0	16			
2½	16			
5	16			
7½	16			
10	16	6.5	10	
12½	16			
15	16			
17½	16			
20	16			
22½	15.5			
25	15.5			
27½	15.5			
30	15.5	6.5	9	
32½	15			
35	15			
37½	14.5			
40	10			
42½	8			
45	8	6	4-5	
47½	7.5			

RESULTS FROM GILL NETTING IN WILLIAM's LAKE

Night 1.

September 9 & 10 - Mesh sizes 1/2" 3/4" 1 1/2" 2" 2 3/8"
All nets set near bottom in 15-25 ft. of water.

Fish species taken:

One speckled trout of about 8" and one of about 10" were the only fish caught and both had been badly damaged by eels.

Night 2.

October 6 & 7 - Mesh sizes 1/2" 3/4" 1 1/2" 2" 2 3/8"
All nets were set near the surface with maximum depth of 12 ft.

Fish taken:

Approximately 40 Eastern Banded Killifish of about 10 cm in size were taken overnight.

SPECKLED TROUT

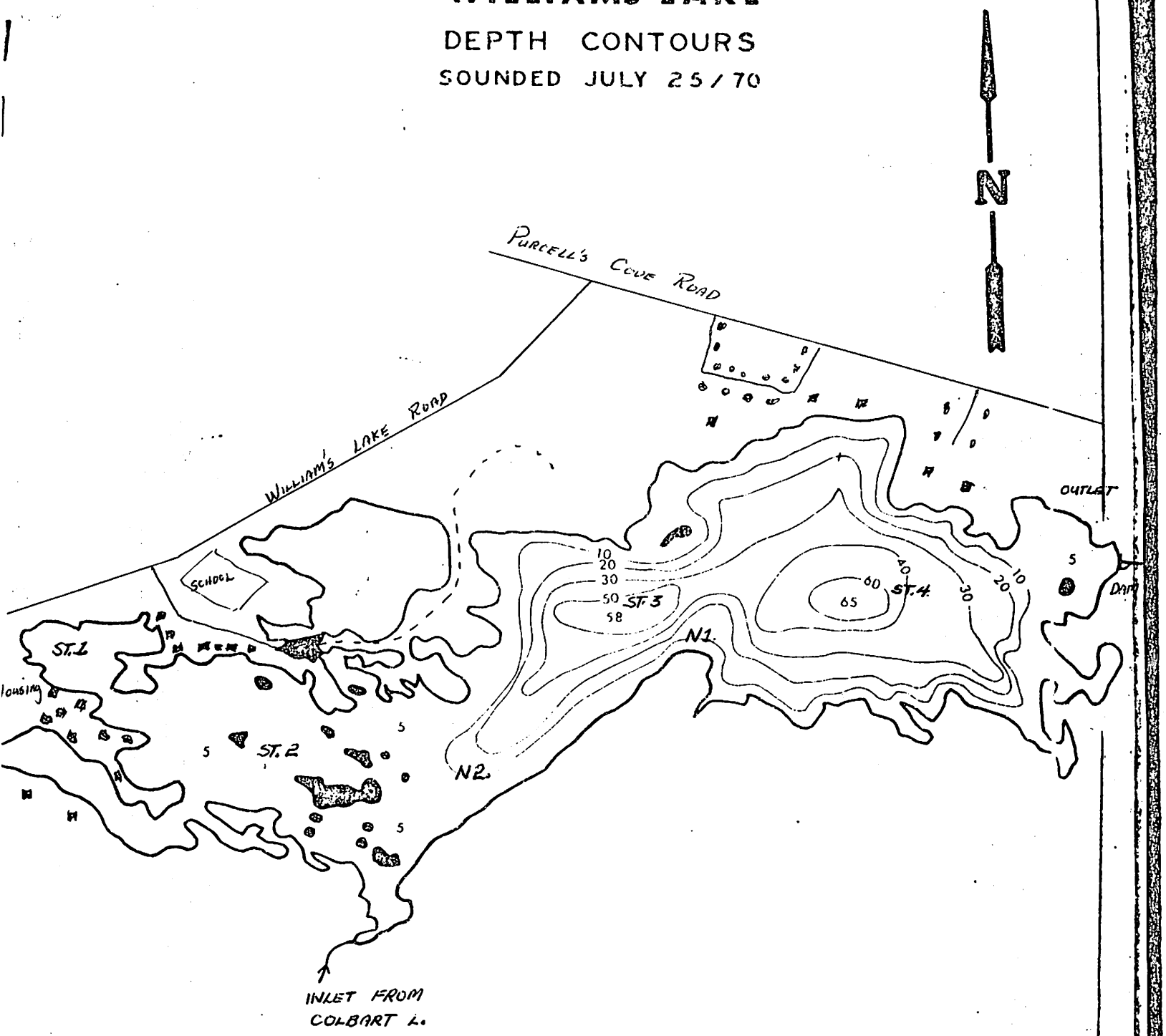
TL	FL	SEX	WT	AGE
30.4 cm	29.3	F	275 gm	3+
29.0	27.4	M	260	3+
26.5	26	M	200	3+
39.4	37.8	M	650	4+
30.3	29.3	F	300	3+
31.5	30.2	M	325	4+
24.6	23.5	F	155	2+
25.0	24.2	F	160	2+
29.2	27.7	M	250	2+

One additional trout had been badly molested by an American eel which had become tangled in the net. There was also a great deal of slime on the nets caused by eels passing through it.

WILLIAMS LAKE

DEPTH CONTOURS

SOUNDED JULY 25/70



ST. = Sample station

N = Location of gill net set.

CONDUCTIVITY 193 PPM. JULY 25/70.

TEMP. SURFACE 74° F. "