Nearshore Community Index Netting (NSCIN) Eagle Lake, 2000

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Introduction

Eagle Lake is located in Machar Township, within the Bracebridge District of the Ontario Ministry of Natural Resources. The town of South River is near the lake and Mikisew Provincial Park is on the shoreline along with many tourist resorts, recreational camps and home/cottage properties. This study was initiated by the Eagle Lake Cottage's Association to determine the attributes of littoral fish specie, and their relative abundance indices in Eagle Lake comparable to other lakes in Ontario. During the Association's past meetings, the reported angler catch per unit effort on the lake was declining and rumors of an illegal introduction of northern pike *(Esox lucius)* had occurred, concerned its members. With the assistance of the Ontario Ministry of Natural Resources, a Nearshore Community Index Netting program was established and a population estimate experiment for smallmouth bass *(Micropterus dolomieu)* was started.

Methodology

The methods used in this survey are from the "Manual of Instructions, Nearshore Community Index Netting (NSCIN), 1999" by Mark R. Sterling of the Ontario Ministry of Natural Resources, Lake Simcoe Fisheries Assessment Unit. The lake was divided into two sections with the bridge at the narrows as the dividing point and in each section, 250m sectors of shoreline were numbered as net sites see Figure #1 and #2, Eagle Lake NSCIN Sectors and Net Locations, 2000. The smallmouth bass, northern pike, and brook trout (*Salvelinus fontinalis*) populations were sampled for age, length, and weight, the others were tallied by length class. In samples 3,4,5,14, and 15, the catch was tallied by length class due to sampling time constraints. In addition to the normal fish sampling, half of the left pectoral fin was removed on the smallmouth bass with scissors as a mark for the population estimate.

Results

A total of 24 sets were completed over a ten day period from August 14^{tht} to the 25th. The fish species caught included smallmouth bass, northern pike, brown bullhead *(Ameiurus nebulosus),* pumpkinseed *(Lepomis gibbosus),* burbot *(Lota lota),* common white sucker (*Catostomus commersoni*), brook trout and yellow perch (*Perca flavescens)* (See Table #1, Nearshore Community Index Netting Summary for EagleLake, 2000.

Table #1, Nearshore Community Index Netting Summary for Eagle Lake, 2000.

Species	Total Catch	Number Biosampled	Effort (C.U.E.)	Recaptures
smallmouth bass	573	370	23.875	7
northern pike	1	1	0.0417	n/a
brook trout	7	7	0.292	n/a
brown bullhead	128	0	5.333	n/a
common white sucker	1235	0	51.458	n/a
burbot	19	0	0.792	n/a
pumpkinseed	48	0	2	n/a
yellow perch	3	0	0.125	n/a

The mean size of fully sampled smallmouth bass was 27 centimeters and 0.385 kilograms. They ranged in size from 15.5-48 centimeters and 0.085-1.95 kilograms. Two nets contained a total of seven recaptured bass, one with one and the other with six smallmouth bass. The mean site temperature was 22.3 °C and the nets were set for an average of 22.5 hours, see Table #2, Sample Attributes and Catch Summary for Eagle Lake Nearshore Community Index Netting, 2000.

Discussion

The most abundant littoral fish species found in Eagle Lake are common white suckers and smallmouth bass. The smallmouth bass seem to be reproducing well with young fish comprising part of the catch and many young of the year were evident around the shoreline. There is a evident population of brook trout but with a sample size of six, inferences can not be made and more information should be collected. The capture of one northern pike would suggest the population of this species may be very low but should be examined further. Setting minnow traps around the lake in weedy areas to see if there is any northern pike recruitment would be beneficial. If the northern pike have established themselves it may be very detrimental to the brook trout and common white sucker populations.

Fishing pressure from residents and park users appears to be high with everyone interested in the fish community. On any given day during the survey there were 3-6 boats with anglers and many people fishing off the dock or rocks at the narrows. It would be good to initiate a voluntary angular creel survey with the Eagle Lake Cottage's Association members to record various catch data over the next few years.

Table #2, Sample Attributes and Catch Summary for Eagle Lake Nearshore Community Index Netting, 2000

				Catch								
Sample	Site Location	Site Temperature (°C)	Duration of Set in hours	smallmouth bass	common white sucker	brown bullhead	pumpkinseed	brook trout	burbot	northern pike	yellow perch
1	1,47	23.7	21.45	70	39	12					2
2	1,26	24.9	24.25	68	107	29	14	1			
3	1,58	24.1	26.75	97	68	9			1		
4	1,36	23.2	21.01	36	68	3					
5	1,41	23.3	19.92	15	176	10	3				
6	1,4	23.3	21	28	51	3	7	6			
7	2,80	22.3	21.67	10	8	1	4				
8	1,21	22.8	22	6	69	1					
9	2,25	23.8	22.17	5	46		1				
10	2,60	22.4	22.42	26	13	1	2				
11	2,41	22.9	21.67	24	79	3	1				
12	2,30	22.9	21.58	7	74	2	1				
13	2,5	21.1	23.25	38	36	7	3		2		
14	2,51	21.1	24.5	26	18	1			1		
15	2,43	20.4	25	24	29		3		1		
16	2,58	20.1	22	5	27	3			1		
17	2,77	20.1	22.17	7	5		2				
18	1,1	20.7	22.33	5	25	1	3		2	1	
19	2,17	21.1	23	5	17	1			1		1
20	1,25	21.7	23.33	22	77	10	1		1		
21	1,50	22.9	23.75	15	63	4	1		4		
22	2,70	22.2	22.83	2	12						
23	1,18	21.7	22	1	28	21	1		2		
24	1,54	22.4	21	31	100	6	1		3		
mean		22.3	22.5	23.875	51.458	5.333	2	0.292	0.792	0.042	0.125
total			541.05	573	1235	128	48	7	19	1	3