Our File: Eagle Lake
Machar Twp.

EAGLE LAKE FISHERIES ASSESSMENT - 1988

Introduction:

Fisheries management efforts on Eagle Lake have been concerned with the establishment of a suitable sport fishery for almost 50 years. A number of fish introductions of both cool water and cold water species have occurred beginning in 1940. During this first decade, extensive plantings of fingerling smallmouth bass and yearling brook trout took place. In 1949, the first stocking of lake trout was made.

During the 1950's, it became apparent that the smallmouth bass plantings had been successful in establishing a strong self reproducing population and as a result, stocking of this was phased out. Stocking emphasis was then placed on brook trout and lake trout and continued until angling pressure on these species created a level were the limited cold water habitat in Eagle Lake was not able to support enough trout to satisfy the fishing demand.

From 1955 to 1959, Eagle Lake received five plantings of walleye in the hopes of establishing a self reproducing population. Although these fish survived well in the lake and provided some angling success, they were unable to find adequate spawning facilities and their numbers soon began to dwindle. Reports from anglers during the 1980's indicate that the odd walleye is still taken, but it is obvious that the species forms a very minor component of the fish community.

The next species to be tried was rainbow trout. From 1963 to 1984, 151,675 of these fish were stocked into Eagle Lake. Although rainbows are stocked in this part of the province strictly for the creation of put and take fisheries, some of these fish found suitable spawning facilities on the Distress River. Unfortunately, this river flows out of Eagle Lake making the return of rainbow fry to the lake extremely unlikely. Rainbow plantings were discontinued after 1984 when it became obvious that two decades of repeated stocking was not providing an adequate return to the anglers.

In 1986, a plant of 4,000 splake was made in Eagle Lake in a final effort to establish a put and take trout fishery. This report gives the results of a netting assessment conducted on Eagle Lake during the summer of 1988 in order to determine the status of the splake stocking and as well, check on the abundance and size structure of the smallmouth bass population.

Netting Results:

During the period July 26 to July 29, 1988, fisheries staff from the Bracebridge District office conducted an assessment of Eagle Lake. Two - six foot trapnets were set for a total of 121 hours and one gill net was set for a period of 24 hours (figure #1) A total of 152 fish were captured and included 16 whitefish, 29 smallmouth bass, and 1 brook trout. A complete species breakdown by net is shown in Table 1.

Discussion & Management Direction:

Results of the survey indicate that a healty bass population is present in Eagle Lake with a good representation of size classes (Table 2). This species has done well in the lake since they were introduced in 1940 and will continue to be managed as the principal sport fish. It is important to realize that the trapnets used were not capable of capturing small fish because of the large mesh size of the leader net. A visual shallow water inspection resulted in the observation of numerous young smallmouth bass in the 5-10.0 cm size range. During this shoreline inspection however, it was quite apparent that much littoral zone habitat has been destroyed by lake residents who have removed weeds, rocks and other important cover structures from their shoreline areas for creation of swimming areas, boat access and unobstructed views from the cottages. There is no doubt that this habitat loss has contributed heavily to declining fishing success in Eagle Lake.

Splake were stocked into the lake in 1986 and to date, we are not sure how they faired. No individuals of this species were captured in the gill net and we would therefore conclude their abundance in the lake as low. This species is only slightly more tolerant of water temperature than is lake trout, and water analysis of Eagle Lake confirms that there is very little suitable habitat available for these cold water species (Table #3). In view of the repeated failures to establish a cold water fishery, we must accept the fact that the characteristics of the lake are such that it will not support trout in numbers capable of satisfying angling demand. Further stocking of cold water trout species will therefore be discontinued.

Walleye were introduced into Eagle Lake during a span of years from 1955 to 1959. These fish did extremely well for a time, and provided fishing opportunities, however, natural recruitment has been limited in the absence of suitable spawning facilities. It is not feasible to maintain a walleye fishery through put-and-delayed-take stocking. Walleye are not a fish that lend

themselves to a put-and-take situation. This Ministry will introduce them to lakes where successful reproduction is likely and then, as is the case with bass, let them maintain their numbers through natural reproduction. In some instances man-made spawning facilities can be created for walleye. In Eagle Lake, unfortunately there is no flowing water of sufficient volume to create a spawning area. If however, members of the association have knowledge of lake spawning sites for walleye, the M.N.R. would be interested in investigating their potential for expansion or rehabilitation. In this way, a self-producing walleye population may be possible for Eagle Lake.

Lake whitefish appear to be an untapped component of the Eagle Lake fish community (figure #2). These fish are native to the lake and have appeared in large numbers in all netting surveys conducted on the lake since the 1940's. Although most anglers seem to pursue this fish during the winter season, they may be readily taken during the open water season providing that the jig or minnow is fished just off the lake bottom in the cold water at or below the thermocline. The whitefish captured in this years gill net were taken between 9.0 and 15.0 meters.

TABLE 1. **Number of Fish Captured During Netting Survey of Eagle Lake 1988.**

GEAR	WHITEFISH	SMALL-MOUTH BASS	BROOK TROUT	WHITE SUCKER	YELLOW PERCH	BROWN BULL-HEAD	BURBOT	PUMPKINSEED	TOTAL
GILLNET	16	2	1	27	8		17		71
TRAPNET #1		13				1		3	17
TRAPNET #2		14		11		38		1	64
TOTAL	16	29	1	38	8	39	17	4	152

TABLE 2

LENGTH DISTRIBUTION OF SMALLMOUTH BASS CAPTURED IN EAGLE LAKE - 1988

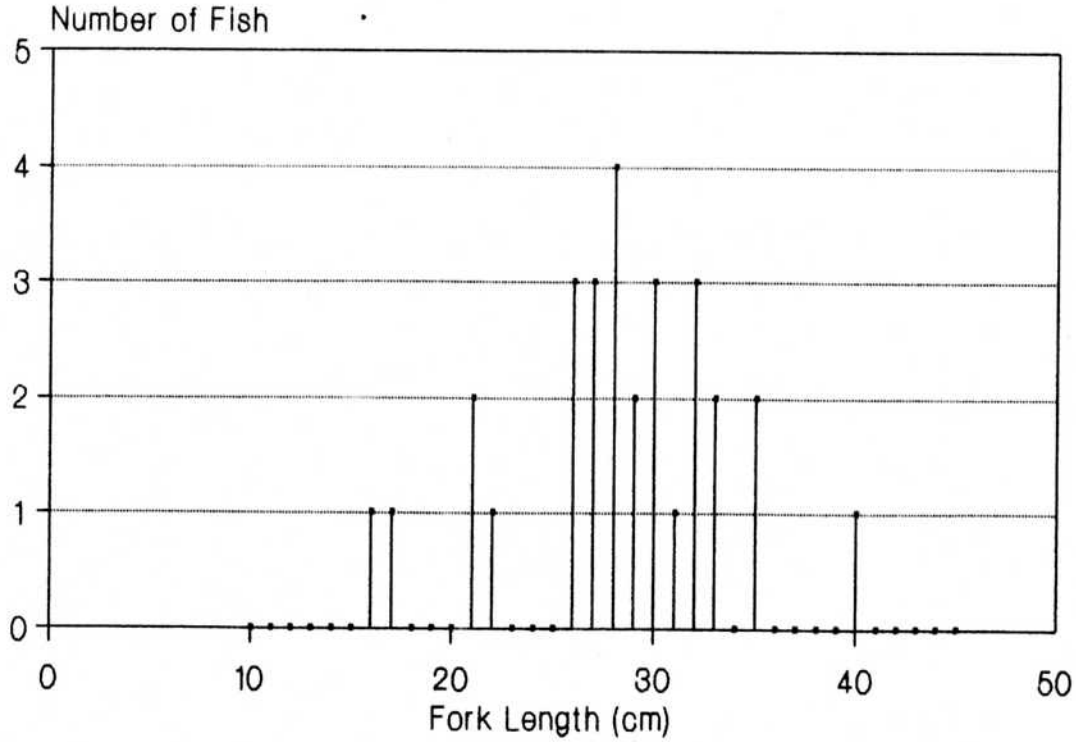


TABLE 3. Volume of Optimum and Useabl[illegible] dabitat Available in Eagle Lake for l[illegible] e Trout and Splake

Total Volume of Eagle Lake: $5{,}929.7 \times 10^4\ m^3$

JULY 27, 1988

SPECIES	OPTIMUM HABITAT	% OF LAKE	USEABLE HABITAT	% OF LAKE
LAKE TROUT	(water temp 10°C) (dissolved O_2 6 mg/l)		(water temp 15°C) (dissolved O_2 4 mg/l)	
	not present		9.0 m - 13.0 m	
	0	0	$426.8 \times 10^4 m^3$	7.2
SPLAKE	(water temp 12°C) (dissolved O_2 6 mg/l)		(water temp 16°C) (dissolved O_2 4 mg/l)	
	not present		9.0 m - 13.0 m	
	0	0	$426.8 \times 10^4 m^3$	7.2

SEPTEMBER 2, 1986

SPECIES	OPTIMUM HABITAT	% OF LAKE	USEABLE HABITAT	% OF LAKE
LAKE TROUT	not present		10 m - 11.5 m	
	0	0	$134.7 \times 10^4 m^3$	2.3
SPLAKE	not present		10 m - 11.5 m	
	0	0	$134.7 \times 10^4 m^3$	2.3

FIGURE #2

PERCENT SPECIES COMPOSITION BY NET TYPE

EAGLE LAKE NETTING SURVEY
1988

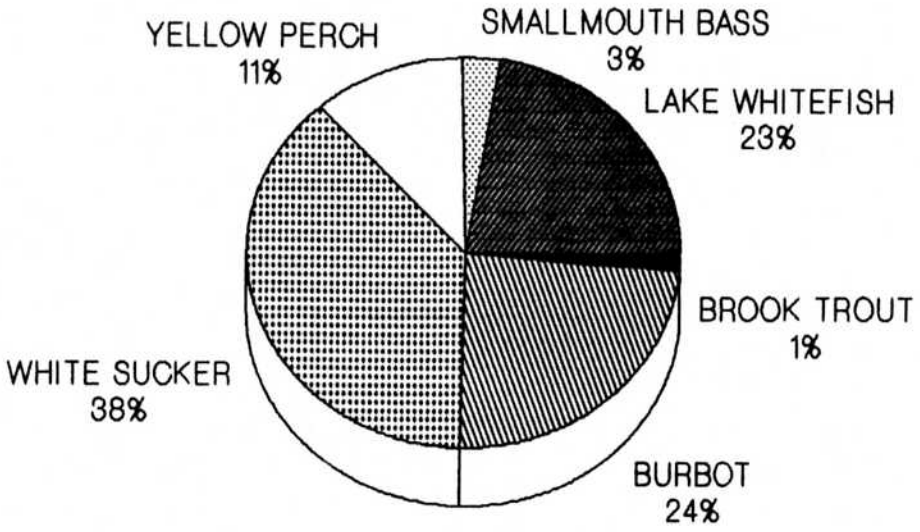


CHART 1: GILLNET CATCH

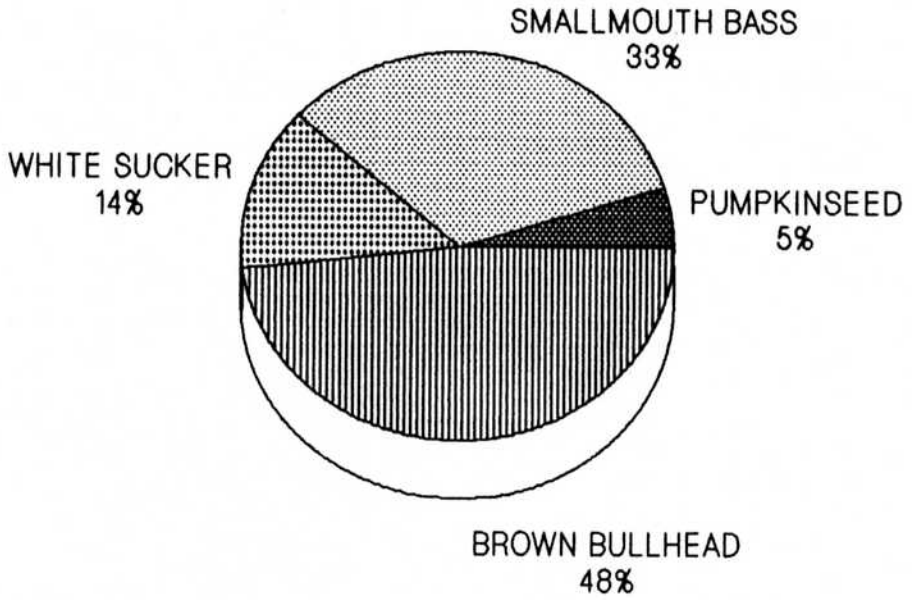


CHART 2: TRAPNET CATCH

Ministry of Natural Resources
Ontario

Lake Survey Summary
Aquatic Habitat Inventory

1988 UPDATE

A. Identification Key
M.N.R. District No. 5 3 | Watershed | Lat. ° ' | Long. ° ' | Survey Year 19 8 8

B. Location Data — Gazetteer Name: Eagle Lake | Topographic Map Name: Eagle | Local Name: Eagle
County or Judicial District: Parry Sound | Township: Machar | Lot | Concession
Name and No. of Topo. Map | Watershed Code | Elevation m
Access: Mikisew Provincial Park

C. Water Chemistry Data
Sta. No 0 1 of 0 1 | Secchi . m | Cloud 9 0 .% | 1 0 0 0 hrs. | Date — Day 2 7 Mo. 0 7 Year 19 8 8
Surface — Calm [X] Rippled [ ] Wavy [ ] Rough [ ] | Thermocline From 0 9 . 0 m To 1 2 . 0 m
Colour — Colourless [ ] Yellow/Brown [X] Blue/Green [ ] | Air Temp. . °C | No Thermocline [ ]

Depth m	Temp. °C	D.O. mg L⁻¹	pH	Alk. mg L⁻¹	T.D.S. mg L⁻¹	Cell T. °C	Conductivity µmhos/cm
00	23.2	7.4					
01	23.1	7.5					
02	23.0	7.6					
04	23.0	7.8					
06	21.0	7.2					
08	18.5	7.0					
09	17.0	6.2					
10	14.5	5.2					
11	11.1	5.1					
12	9.0	4.8					
13	8.0	4.3					
14	7.8	3.4					
15	7.1	3.2					
16	7.0	3.0					
17	7.0	2.8					

Numbers Only
[X] Checking Only

Chemistry Test Time From 1 0 0 0 hrs. to 1 0 1 5 hrs. | Station Depth 1 7 . 5 m

D. Basin and Terrain Characteristics
Timber Types

Below B.M. — . m | Fluctuation . m | No. Resorts | Flat .%
Max. Depth . m | Mean Depth . m | No. Cottages | Rolling .%
Perimeter . km | Is. Shoreline . km | Crown .% | Hilly .%
Surface Area . ha | Patent .% | Mntnous .%
Volume — . x10⁴m³
S.D.F. — .

Survey Date (day 2 7 / month 0 7 / 19 yr. 8 8) To (day 2 9 / month 0 7 / 19 yr. 8 8) | Investigator(s) Gillespie, Danby; Stiver, Crozier | Sheet 0 1 of 0 1