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Fisheries Division

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1975 FISHERIES SURVEY OF EAST TWIN LAKE, MONTMORENCY COUNTY

Warren Alward, Fisheries Habitat Biologist

SUMMARY

A fisheries survey was conducted on East Twin Lake, Montmorency County in June of 1975 to determine the status of the walleye and perch populations. Complaints of poor fishing prompted the survey.

A total of 682 fish were collected with trap and gill nets. The fish population consisted of yellow perch, walleye, smallmouth and largemouth bass, bluegill, pumpkinseed, rockbass, tiger muskellunge, northern pike, channel catfish, white sucker and brown bullhead.

Walleye were not abundant. The standing crop of walleye was estimated at 0.52 pounds-per-acre down from 5.6 pounds-per-acre estimated by Crowe in 1940. Natural reproduction of walleye is apparently lacking. Periodic fry stockings have maintained a small walleye population over the years.

Yellow perch exhibited below-average growth.

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INTRODUCTION

A trap and gill net survey was performed on June 17 through 20, 1975. This survey was done to determine the status of the walleye population and the general status of the fish resource. Complaints of poor fishing were common. Many people complain of very abundant small perch.

SURVEY PROCEDURES

A total of 38 trapnet lifts and 16 experimental gill net lifts were made. All fish were measured to the nearest tenth of an inch. A scale sample was taken from ten fish per inch group, where possible from the major sport species. No population estimates were made but pounds-per-acre of some species were estimated using a change in ratio of trapnet C.P.E. compared to the 1939 estimates.

SURVEY RESULTS AND DISCUSSION

A total of 632 fish was taken. Length frequency of all species is in Table 1.

Only 84 yellow perch were taken. This is unusual, especially with the complaints of abundant small perch being caught. The perch are slow-growing, almost an inch under state average. Possibly, many perch were too small to be taken in the nets.

Walleye were not very abundant. The C.P.E. (Table 2) is down considerably from the 1939 survey by Crowe (Crowe 1940). In 1939 a population estimate was made, which showed there were only 15 pounds-per-acre standing drop for all species. Walleye were the most abundant by weight and were 5.6 pounds-per-acre or 4.3 fish-per-acre. The C.P.E. in 1975 is only about one-tenth of the 1939 survey. Using this drop in C.P.E., I estimate there were only 0.52 pounds-per-acre of walleye present in 1975.

Walleye were introduced sometime after 1915. The population apparently does not reproduce, but is dependent on plants. The walleye taken in 1939 resulted from fry plants of 3.5 million fish between 1934 and 1938. Fingerling plants in 1954 and 1959 show up in surveys made in 1961, 1966 and 1969. The ages of

these fish do not agree exactly with the plant, but most agree well. The variation can be attributed to difficulty in aging old fish. A fry plant of 400,000 was made in 1968. A 1969 survey concluded this plant was a failure; however, all walleye taken in 1975 were age VI-VIII. This corresponds to the fry plant, if you adjust for the difficulty in aging.

I conclude that fry and fingerling plants are both effective in adding to the walleye population.

Smallmouth bass were more abundant in 1975 than in 1939. They apparently were introduced in the early 1900's. These fish were growing slower in 1975 than in 1939, but growth was variable in different surveys. Largemouth bass were also abundant in 1975. They were not common in 1939, when the population estimate was only 111 fish. It is estimated that both species of bass total 6.16 pounds-per-acre or 44.8 percent of the total adult fish standing crop in 1975. This represents a drastic change from dominance by walleye in 1939 to dominance by bass in 1975.

Pumpkinseed sunfish and rockbass are the most abundant sunfishes. These fish are increasing in abundance. Pounds-per-acre were 1.5 and 0.3 respectively in 1938. Estimates for 1975 are 2.34 and 0.90 pounds-per-acre. These species are growing better than state average and should provide good fishing.

Common white suckers are abundant. During the winter of 1936-37, 2,041 suckers (4,338 pounds) were removed by commercial fishermen. In 1939 the population was estimated to be 3.8 pounds-per-acre. A drop of average size was noted then. Suckers were estimated to make up 2.8 pounds-per-acre in 1975. This population appears stable and makes up about 25 percent of the population by weight.

Northern pike were abundant in the early 1900's. This species disappeared around 1920 and does not show up in surveys until 1975. High water probably favors reproduction and migration.

Tiger muskellunge are migrating into East Twin Lake from West Twin Lake. There is free access through the water-level control structure.

Crowe recommended that bluegills be introduced. He felt this would increase the number of desirable fish in the lake. Bluegills never became abundant. They were a minor part of the lake community in 1975. Growth is better than state average.

Brown bullheads are a small but stable part of the fish population. The single channel catfish was likely introduced by an angler.

MANAGEMENT RECOMMENDATIONS

Most anglers prefer that we manage for walleye. Attempts at rearing walleye to fingerling size for planting in East Twin Lake have not been successful yet. A fry plant in 1968 was successful but is providing a marginal fishery. Our objective could be to build-up the walleye population as much as we can. This apparently is around 5.6 pounds-per-acre or about 10 times the size of the present population.

The best way to manage for walleye would be to continue periodic fry plants and attempt to encourage natural reproduction through construction of a spawning reef. The fact that fry plants have been successful is usually a good indication that an artificial reef should provide walleye reproduction. Once the reef is in and there are enough adults present to produce a reasonable year-class, fry plants should be discontinued.

Encouraging other predators would probably conflict with walleye management. A large walleye population may reduce the number of largemouth and smallmouth bass.

Panfish management is not feasible. Yellow perch are not over-abundant and would not benefit from thinning. Introduced bluegills did not produce a fishery. Pumpkinseed sunfish, yellow perch and rockbass will probably remain the most important panfish in East Twin Lake.

There may be a problem with disease. There is apparently an annual mortality caused by a bacterial gill disease. Institute Report No. 167 deals with the problem. Crowe felt this disease may reduce the population considerably from time to time.

REFERENCES

1. Crowe, W. R. 1940. Population Analysis of East Twin Lake, Institute of Fisheries Research Report No. 590. Mimeo.

TABLE 1. Length Distribution by Species
in 1975 Survey of East Twin Lake

INCH GROUP	YELLOW PERCH	WALLEYE	SMALLMOUTH BASS	LARGEMOUTH BASS	BLUEGILL	PUMPKINSEED	ROCKBASS	TIGER MUSKELLUNGE	NORTHERN PIKE	CHANNEL CATFISH	CMN. WHITE SUCKER	BROWN BULLHEAD
4	2	-	-	-	3	1	2	-	-	-	-	-
5	50	-	-	-	2	3	6	-	-	-	-	-
6	25	-	1	1	-	27	22	-	-	-	-	-
7	1	-	13	3	-	103	20	-	-	-	-	-
8	1	-	29	5	2	38	9	-	-	-	-	-
9	-	-	12	3	1	-	1	-	-	-	-	-
10	-	-	2	1	-	-	-	-	-	-	1	1
11	4	-	6	2	-	-	-	-	-	-	1	-
12	-	-	5	5	-	-	-	-	-	-	3	1
13	-	-	5	1	-	-	-	-	-	-	6	1
14	1	-	3	4	-	-	-	-	-	-	21	-
15	-	-	4	16	-	-	-	-	-	-	21	-
16	-	-	1	4	-	-	-	-	-	-	19	-
17	-	-	1	2	-	-	-	1	-	-	24	-
18	-	4	-	-	-	-	-	-	-	-	10	-
19	-	7	-	1	-	-	-	1	-	-	14	-
20	-	10	-	1	-	-	-	1	1	-	12	-
21	-	8	-	-	-	-	-	-	-	-	2	-
22	-	2	-	-	-	-	-	-	-	-	2	-
23	-	2	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-
25	-	1	-	-	-	-	-	-	-	1	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	1	-	-	-
TOTALS	84	34	82	49	8	172	60	3	2	1	136	3

TABLE 2.
Comparison of Trap and Gill Net Catches from East Twin Lake During 1940, 1966, 1969 & 1975

SPECIES	Trapnet Catch per Effort (number per net lift) (38) (lifts) 1975	(16) (lifts) 1969	(560) (lifts) 1940	Gill Net Catch per Effort (number per net lift) (16) (lifts) 1975	(18) (lifts) 1966
Yellow Perch	0.08	10.00	-	5.06	17.94
Walleye	0.45	2.88	4.85	1.06	1.72
Smallmouth Bass	4.26	-	1.68	0.06	0.17
Largemouth Bass	2.39	0.06	0.11	0.25	-
Bluegill	0.18	0.06	-	0.26	0.11
Pumpkinseed	4.50	0.19	2.89	0.06	-
Rockbass	3.11	0.38	1.04	-	0.11
Tiger Muskellunge	0.08	-	-	-	-
Northern Pike	0.03	-	-	-	-
Channel Catfish	0.03	-	-	-	-
Common White Sucker	2.89	11.75	2.28	1.63	0.67
Brown Bullhead	0.08	0.19	0.08	-	-

TABLE 3. Estimated Pounds per Acre

Species	1939 Survey lbs./acre	1939 Survey % by weight	1975 Estimate (from C.P.E. ratio) lbs./acre	1975 Estimate (from C.P.E. ratio) % by weight
Walleye	5.6	47.0	0.52	3.8
Pumpkinseed	1.5	12.6	2.34	10.3
Sucker	3.0	25.2	3.80	27.7
Smallmouth Bass	1.5	12.6	3.99	29.0
Largemouth Bass	0.1*	-	2.17	15.8
Rockbass	0.3	2.5	0.90	6.6
Bullhead	0.2*	-	0.02	0.1
TOTALS	11.9	99.9	13.74	99.3

*Estimated