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Fisheries Division

EVALUATION OF THE 1971 SPLAKE INTRODUCTION

COPPER HARBOR, LAKE SUPERIOR

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SUMMARY

In the spring of 1971, F₁ splake (13,199 with an average length of 7.4 inches) were stocked in Copper Harbor, Lake Superior to compare their growth, survival, and migratory tendencies with brook trout which had been stocked there previously.

In July, 1972, the splake plant was evaluated with gill nets set in eleven locations along the northern and southern shores of the Keweenaw Peninsula. A total of 75 splake (average length 12.5 inches) were captured; 64% of them inside Copper Harbor. Growth and survival of splake was closely comparable to the previously stocked brook trout. Significant numbers of straying splake were found in only one location (Agate Harbor) outside of Copper Harbor.

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INTRODUCTION

An attempt was made to establish a "coaster" fishery in Copper Harbor with the release of 25,000 yearling brook trout in 1967 and 10,000 yearlings in 1968. Although their growth rate was good (4.5 to 5.5 inches in one year), they tended to migrate from the harbor or die within one and one half years after their release making their availability to the local fishery rather limited.

In the spring of 1971, 13,199 F₁ splake (average length 7.4 inches) were stocked in Copper Harbor in an attempt to compare their growth and migratory tendencies to that of the Michigan hatchery brook trout in Lake Superior. It was felt that this longer-lived species, which is similar in appearance to the true "coaster," might be less migratory and provide a better fishery in the harbor.

In July, 1972, the first evaluation netting was conducted. This report summarizes the netting results and discusses the success of the program to date.

METHODS AND MATERIALS

Eleven sampling sites were chosen (Figure 1). Two of the sites were located in Copper Harbor to evaluate the growth and abundance of splake there. Six sites were sampled between Copper Harbor and Eagle River to determine the amount of westward straying. Three sites were sampled from Copper Harbor to the mouth of the Montreal River to assess straying eastward and around the tip of the Keweenaw Peninsula.

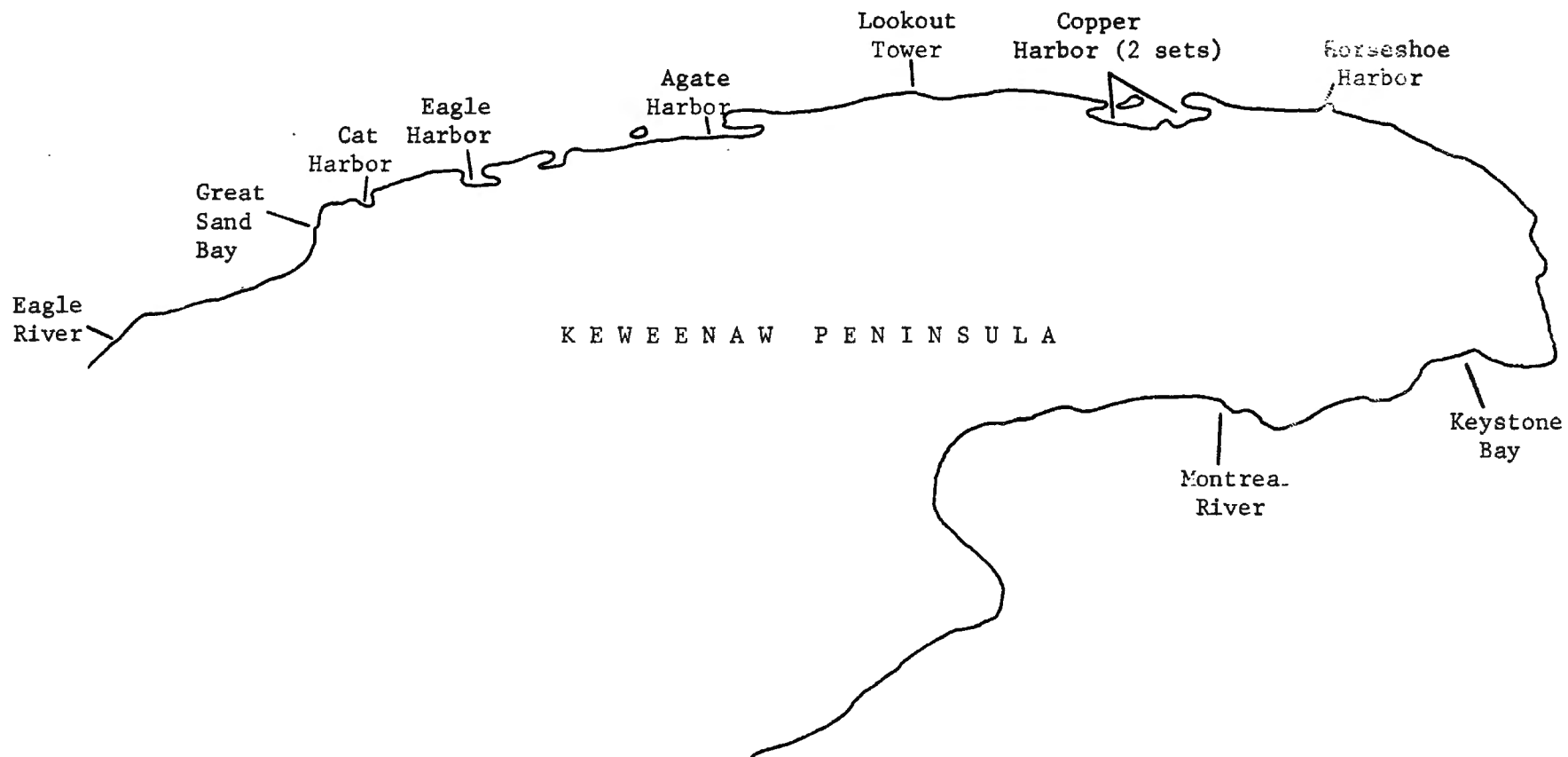


FIGURE 1: 1972 SPLAKE EVALUATION GILL NETTING SITES

The sampling was done with 900 foot gangs of variable mesh gill net. One gang, made up of 300 feet of 1 1/2 inch (stretch) mesh, 300 feet of 2 1/2 inch mesh, and 300 feet of 4 1/2 inch mesh, was fished at each sampling site. Each gang was fished for approximately 24 hours. The average water depth fished at each site was six to thirty feet.

All gamefish were individually measured (in inches) and weighed (in pounds). A length-frequency and total weight was obtained from non-gamefish species.

RESULTS

The numbers of each species of fish captured at each netting site is shown in Table 1. A length-frequency distribution for all species is presented in Table 2.

Splake were captured at all sites except in Cat Harbor and by the Lookout Tower. Of the 75 splake captured during the survey, 48 were taken in the two sets within Copper Harbor. Agate Harbor was the only site where significant numbers of straying splake were found (13 fish caught). Four or less splake were captured in all other sites outside of Copper Harbor.

The splake ranged in size from 9.5 to 16.4 inches in length with the exception of a 21.7 inch, 4.8 pound individual which probably was a stray out of Lake Fanny Hooe. The average splake was 12.5 inches long and weighed 0.75 pounds.

Lake trout was the dominant salmonid captured (113 total). From one to twenty fish were taken at each site. The following data on

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COPPER HARBOR SPLAKE EVALUATION

(Number of each fish species caught at each gill netting site)

Fish Species	Eagle River	Great Sand Bay	Cat Harbor	Eagle Harbor	Agate Harbor	Lookout Tower	Copper Harbor (near Is.)	Copper Harbor (Fanny Hooe Cr)	Horseshoe Harbor	Keystone Bay	Montreal River	TOTAL
Splake trout	1		3	4	13		21	27	3	1	2	75
Lake Trout	1	10	13	20	10	9	3	4	17	3	23	113
Brook Trout	1	1	3	1	2		2			1		15
Brown Trout	1		1		2			3		1		8
Rainbow Trout			1	1				1		1		4
Coho Salmon	2	1	1								5	9
Whitefish						1			1		5	7
Menominee	5	1	22	4	36	11	46	17	7	45	27	222
Smelt						1						1
Alewife	8	3	6	4	2					1	7	31
Yellow Perch					1		4	1				6
Walleye			1									1
Northern Pike					1		1					2
Burbot			1		1		1	2	2	1		8
L. N. Sucker	43	56	31	9	6	21	2	22	67	85	6	343
White Sucker	1	5	29	19	15		57	18	1	38	29	213
N. Lk. Chub	6	4	13		7		11	13	20	11		85

lamprey scarring was obtained: 17-20 inch fish, 12.5% scarred; 21-24 inch fish, 23.8% scarred; fish 29 inches and up, 66.7% scarred. A total of 5.6% of the lake trout between 25 and 28 inches long bore fresh lamprey wounds.

Lake trout ranged in length from 14.4 to 31.9 inches. Nearly 60% of the lake trout were between 24.0 and 27.9 inches long.

All other gamefish species (except menominees) were taken in small numbers in scattered locations. A total of 221 menominees were caught (1 to 45 in each set).

DISCUSSION

Based on the results of the 1972 evaluation netting, it is apparent that splake survival for the first year after stocking is closely comparable to previous years brook trout survival. Similar numbers of each species were captured with about the same amount of gill netting effort.

Splake in the 10 to 14 inch size range appear to be readily catchable. Angler reports from the 1972 season indicate large numbers of splake were caught throughout Copper Harbor.

The growth rate of splake for one season in Copper Harbor is nearly identical to the brook trout's. Brook trout released in 1967 added 5.4 inches in length in one year. Brook trout released in 1968 added 4.4 inches by the following year. The splake stocked in 1971 increased in length by 5.1 inches in one year. The only noticeable difference in growth was that for their length, splake weighed less

than brook trout. Splake reached 1 pound in weight at about 14 inches while the brook trout reached 1 pound between 12.5 and 13.5 inches.

In conclusion, to date there appears to be little difference in the success of stocking either brook trout or splake in Copper Harbor. Both species exhibit similar growth and abundance patterns. It appears that splake will migrate out of the harbor as did the brook trout previously stocked but the extent of their migratory tendency is unknown at this time.

In June or July of 1973, another evaluation netting should be scheduled to check the abundance and growth of the splake in the harbor. If there appears to be less migration from the splake stocking than from the brook trout stocking and the splake's growth rate continues to be good, Copper Harbor should be managed for splake. However, if the carry-over of splake is in the same magnitude as the brook trout carry-over, brook trout management would provide a heavier and more attractive fish.

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