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TRIP TO BIRCH LAKE, CASS COUNTY, TO SEINE FOR RAINBOW TROUT FRY

by

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On June 10, 1940, Birch Lake was visited by William Beckman and the author to investigate the possible survival of the rainbow trout fry which should have emerged from the eggs deposited during May of this year.

Previous investigation by Hazzard, Brown, and Moffett had shown that the adult fish were successful in building nests on the northeast shore and depositing viable eggs, and collections of eyed eggs from these nests on May 16 indicated that there was a good possibility of the eggs hatching.

Beckman and I seined approximately 7,500 square feet of the shoreline in the vicinity of the redds with a 25-foot bag seine (6 feet deep, 3/8 inch mesh in the wings, 1/4 inch mesh in the bag), and examined the numerous fish caught with great thoroughness, but could find no rainbow trout fry. We also dug up several of the redds, but found no evidence of either live or dead eggs after screening the bottom contents.

Following is a list of the fish taken by seining: Game fish, large-mouthed bass, small-mouthed bass, bluegill, green sunfish, rock bass, yellow perch; Minnows and others, log perch, skip-jack, common shiner, bluntnosed minnow, blacknosed shiner, sand shiner, mimic shiner.

All of the game fish captured were of fingerling size and without scale examination would be judged to be yearlings or two-year old fish. A sample of all but the small-mouthed bass fingerlings, which were relatively few in number, were preserved for stomach analysis, as it was thought that these fish, which were feeding in the vicinity of the redds might have been eating young rainbow trout fry or trout eggs.

The results of the stomach examinations are presented in Table 1. The stomach contents were carefully removed and examined under a high power binocular microscope. No traces of rainbow trout fry or of rainbow trout eggs were found. The dominant food organisms present were insects of terrestrial origin, by far the most common being caterpillars (two species), which were falling from the trees in great numbers on June 10. The only fish which appeared to have been feeding on other fish was the large-mouthed bass fingerling; both centrarchid and minnow scales were observed in its stomach, as well as miscellaneous insect legs.

Temperature records for the period May 16-June 9 were obtained from Mr. Ruel Harvey of Birch Lake, who obligingly kept morning and evening temperatures of the water at the request of Dr. Hazzard. These records will be found in Table 2. From these records it can be seen that after June 4 that the temperature of the shoreline waters was at or near the upper limits of toleration for trout.

Although no rainbow trout fry were taken in our seining, it should not be concluded that the spawning of this season has no survivors. The extremely high water temperatures recorded for the shallow water may have driven any surviving fry of the hatch into the deeper, cooler waters, where we were not able to seine.

It is also possible that the products of the spawning have been the victims of predation by the centrarchid fishes at an earlier date than our collection for stomach examination (June 10).

More definite knowledge as to whether the rainbow trout spawning of this spring has produced any young will have to await capture of the young fish by anglers, or by netting at some date in the near future. Seining and netting in late September, after the lake waters have cooled, are planned.

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Table 1. Results of Qualitative Examination of Stomachs from Fish
 Collected in the Vicinity of the Rainbow Trout Redds at Birch Lake,
 Cass County on June 10, 1940. Examination of Stomachs by D.S. Shetter.

Species of fish	Number collected	Number examined	Size range (total length in inches)	Stomach contents	Remarks
Yellow perch	3	3	3 7/8 - 4 3/8	No identifiable remains	Fish very slender and in poor condition
Large-mouthed bass	1	1	3 3/4	Insect legs, centrarchid scales, minnow scales	
Rock bass	2	2	1 7/8, 2	3 caterpillars, 2 Gammarus 1 chironomid larvae, insect debris	
Green sunfish	1	1	4 1/4	1 large dragonfly nymph 7 caterpillars 1 rhinoceros beetle 1 grasshopper leg	Mature ♀ ready to spawn
Green sunfish	4	4	2 1/2 - 2 7/8	1 dragonfly nymph 12 caterpillars 1 winged ant	All mature ♀
Bluegill	4	4	3 1/2 - 5	3 beetles, debris from several others 18 caterpillars, debris from several others 1 damsel fly Miscellaneous vegetable debris	All immature fish
Bluegill	17	5	2 1/4 - 3 1/4	14 caterpillars	
Totals	32	20	1 7/8 - 5	54 caterpillars 2 Gammarus 1 chironomid 2 dragonfly nymphs 1 damsel fly 4 beetles 1 winged ant 1 grasshopper	Sixty out of sixty-six recognizable food items were of terrestrial origin, and of these sixty, fifty-four were caterpillars

Table 2. Temperature Records for Birch Lake, Cass County,
May 16 - June 9, 1940, at the Shoreline, Harvey's Cottage
(Northeast Shore)

<u>Date</u>	<u>8 a.m.</u>	<u>6 p.m.</u>	<u>Date</u>	<u>8 a.m.</u>	<u>6 p.m.</u>
May 16	...	51	June 1	59	62
17	50	52	2	60	70
18	50	56	3	68	72
19	53	54	4	70	72
20	52	60	5	71	77
21	55	64	6	71	74
22	56	60	7	71	74
23	56	60	8	73	77
24	56	56	9	70	...
25	56	61			
26	58	60			
27	56	58			
28	58	63			
29	60	61			
30	59	60			
31	58	59			