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UNUSUAL FOOD SELECTION BY SMALL BROOK TROUT

From October 18 to 20, 1937, Drs. A. S. Hazzard and R. W. Eschmeyer conducted some field studies on Hemlock Lake, Pigeon River State Forest. One phase of their study entailed making graded gill net sets in the lake. One such set was made at 11:30 a.m., October 19, and lifted at 2 p.m., October 20. Six brook trout taken in this haul were preserved for study. Although fish taken in gill nets frequently survive until digestion has rendered unidentifiable the bulk of the contents, the specimens here treated proved to be exceptions, their contents being well preserved and easily recognizable. This report presents results obtained by analyzing the stomach contents of these trout.

Previous investigations on trout feeding habits have indicated quite convincingly that fish usually make up a relatively small proportion of the diet of small brook trout. Metzelaar, in his study of trout feeding habits in Michigan* found that fish composed 12.1% of the diet of 7-9 inch brook trout taken from streams during the open season, and 20.5% of the diet for all size classes, these figures being based upon an examination of 411 brook trout ranging from seven to seventeen inches in length. He also showed that of all the fish taken by brook trout, darters composed only 3%.

* Metzelaar, Jan., 1929. Trans. Amer. Fish. Soc., 59:

The appended table lists sex, and standard and total length, of each individual, as well as a detailed analysis of stomach contents. It will be seen that, averaged together, 98.5% of the total bulk is made up by fish, and that of this 19.3% are darters (Poecilichthys exilis), fat-headed minnows (Pimephales promelas) making up the remaining 80.7%.* Vegetable debris (bits of charred wood) composes 1.2% of the total bulk, aquatic insects only 0.3%.

There exists a possibility that the aquatic insect fauna of Henlock Lake is below average. The relatively large number of darters taken indicates that the trout were feeding in shallow water next to shore, in the littoral zone, where lake-inhabiting insects should be numerous. A few insect fragments were found, however, and it must be recognized that the possibility exists that forage fish were selected in preference to insects. At this season of year (early autumn) many aquatic insect groups are represented by very young and minute growth stages, which might be less attractive to trout than forage fish. Whatever the explanation, this examination demonstrates that, at certain times and places, small forage fish may become a very important element in the diet of small brook trout.

* Fish determinations were made by M. B. Trautman, Assistant Curator of Fishes, University of Michigan Museum of Zoology.

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Stomach Analyses of Brook Trout From
Hemlock Lake, Pigeon River State Forest

(Graded Gill-net Set, Oct. 19, 11:30 a.m. to
Oct. 20, 2 p.m., 1937. A.S. Hazzard and R. W. Eschmeyer)

Length in inches		Sex	Contents	Volume in c.c.
Std.	Total			
5 1/2	6	Female	1 darter (<u>Poecilichthys exilis</u>)	0.300
5 3/4	6 3/4	Male	Odonata (fragments of one libelluline dragonfly nymph)	0.025
5 3/4	6 3/4	Male	1 fat-head minnow (<u>Pimephales promelas promelas</u>)	0.800
			1 darter (<u>Poecilichthys exilis</u>)	0.600
			Woody debris	0.100
6 1/8	7 1/4	Female	1 midge larva (Diptera:Chironomidae) plus a trace of plant debris	trace
6 1/8	7 1/4	Female	3 darters (<u>Poecilichthys exilis</u>)	0.700
6 1/2	7 5/8	Male	3 fat-head minnows (<u>Pimephales p. promelas</u>)	5.900
				8.425 cc.