

NOTES ON THE FOOD HABITS OF YOUNG OF *COTTUS ICTALOPS* (Millers Thumb.)

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While the writer was engaged in collecting the fry of the Perch and of the Darters in the vicinity of Put-in-Bay, preparatory to making a study of their food habits a locality was found in which the young of *Cottus ictalops* were fairly abundant.

Around the shores of Buckeye Island there is an abundance of short, thick vegetation, shaded by willows and protected and held together by willow roots. This margin is constantly awash due to the exposed position of the island. The young of *Cottus ictalops* and of the Fan Tailed Darter (*Etheostoma flabellare*) were found hiding in the vegetation and under the rocks in the vicinity. It was not possible to take the fish in a seine because they were so well protected but a small collection was secured by persistently dragging the vegetation with a flat ended dip net.

About a hundred specimens were taken ranging in size from 12 to 22 millimeters and the stomach contents of thirty-five were examined. The food articles have been arranged in a tabular form showing the proportion of each kind of food eaten by each size of fish.

—Although ten different articles occur in the food some of them are almost negligible in quantity and even the youngest fish seem to prefer large, active Amphipods or insect larvæ. In some cases a single insect larva, two-thirds as long as the fish filled the stomach.

The young of most fish subsist on Entomostraca during the younger stages, turning later to specialized and larger foods. In a fish of generalized feeding habits the time during which it takes Entomostraca is known as the period of infancy, a later period when midge larvæ and other minute insect larvæ are used is known as the period of youth, while the stage in which the usual food of the adult is taken is designated as the period of maturity. The period of infancy seems to be entirely omitted

or to be passed over in specimens of less than 12 millimeters in length. In this regard it resembles *Etheostoma flabellare*, which unlike most of the other darters captures large, active food while still very small and if it takes Entomostraca at all it does so only in negligible quantities.

The adult Millers Thumb is reported to be a voracious feeder and very destructive to other fish. It is interesting that the young resemble the adult in their ability and their willingness to capture large food animals which are proportionately large even in 12 millimeter specimens. It is well adapted to feeding upon large objects by its large terminal mouth.

Table illustrating the food of young of Cottus icталops.

Length in mm.	12	13	14	15	16	17	18	19	20	21	22
No. examined	1	1	1	2	3	5	5	5	5	4	3
Articles of diet:											
Midge larvae	100.		100.	2.5	33.33+	22.6	20.	22.5	28.75		1.66+
May fly larvae		60.			51.66+	43.8	54.	25.	32.5	75.	81.66+
Amphipods				47.5	15.	27.4	18.	52.5	12.5	12.5	
Fish remains		40.					6.		20.	12.5	
Bottom debris									5.		
Beetle larvae				48.5							16.66+
Round worms						1.2					
Filamentous algae						1.					
Fish eggs				1.5		4.	2.				
Insect eggs									1.25		

Figures represent the percentage of the volume of the stomach contents.