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SEINING RECORDS AND FOOD OF THE INTERMEDIATE STAGES OF LAKE ERIE FISHES

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Although the biological part of the summer's work consisted largely of plankton analyses and a study of the early life history of the fishes of Lake Erie, due record was made of any later stages observed or taken in the nets. Occasionally a larger specimen was taken in the meter net or the Helgoland trawl, but such occurrences were uncommon. Such gear rarely captures any fishes longer than 25 mm. in the daytime due to the limited straining ability of the fine mesh. For stages between 25 mm. and 60 mm. offshore, the Petersen trawl has proven most effective, and is quite as applicable to large lakes as to the sea.

The trawl records in the following table indicate the large number of individuals, if not species, taken.

TABLE 28.—Record of captures with Petersen and Helgoland trawls.

Station	Gear	Species	No.	Aver. Dimensions (S. L. & D. mm.)	Remarks
02.02	P. trawl	<i>P. flavescens</i> (Mitchill)	631	37.0 x 9.5	
02.04	P. trawl	<i>P. flavescens</i> (Mitchill)	212	41.0 x 11.0	
02.04	P. trawl	<i>N. atherinoides</i> (Rafinesque) ¹	7	47.0 x 9.0	
02.04	P. trawl	<i>C. cognatus</i>	2	Aver. S. L. 17 mm	
02.04	P. trawl	<i>P. guttatus</i> (Agassiz)	7	Aver. S. L. 18 mm	
02.05	P. trawl	<i>P. caprodes zebra</i> (Agassiz)	1	62.0 x 11.0	
02.11	P. trawl	<i>P. caprodes zebra</i> (Agassiz)	1	22.0 x 3.5	
02.21	P. trawl	<i>P. guttatus</i> (Agassiz)	1	S. L. 28 mm	
7A	H. trawl	<i>B. nigrum</i> (Rafinesque)	3	2 f. 32 x 5	mature ova
				1 m. 35 x 6	

The efficiency of the net is indicated by the catches of 631 and 212 specimens respectively taken at stations 2 and 4 on the second trip. In view of the small number of specimens obtained at most of the other stations it would appear that there were few fishes between the lengths of 25 and 60 mm. offshore during the period of the investigation. The yearlings of the fall spawners (of 1927) were too large and active to be taken, and many, perhaps the majority of the early spawners, would most likely have been found in the shallower waters about the margin of the lake. The young of those

species spawning in the early summer were taken in the fine mesh nets. It may be noted that the greater number of intermediate stages was found at the eastern end of the area studied.

On July 9, 1928, three hauls were made at the mouth of a small stream on the west side of Grand Island with a one-hundred-and-fifty foot seine for the purpose of determining what food was being taken by the fish of the region. The natural lake food supply was supplemented by outwash from the land as well as backwash from the Niagara River. Table 29 lists the stomach contents of the fishes taken in the three hauls at Grand Island together with a percentage table of the food of all the adult fish taken during the summer.

Although the number is too small to give an adequate idea of the food of the fish in the lake, excepting at one or two individual stations, it is interesting to observe that those fish, taken in the seine hauls, vividly show a balance of nature even in so restricted an area. There are those fish feeding on algae and diatoms, those living principally on crustaceans or larvae of aquatic insects, and finally those feeding on smaller fish and fish eggs. In the first class may be included the Cyprinidae and Catostomidae; in the second, the smaller Percidae and Centrarchidae; in the third, the larger Percidae, Esocidae, and Catostomidae.

TABLE 29.—Percentage of organisms in stomach contents

[illegible]

TABLE 29.—(cont'd).

[illegible]

TABLE 29.—(cont'd).

[illegible]

SPECIES, STATION AND DATE	T. L. mm.	Bacillariaceae	Chlorophyceae	Rotifera	Daphnia sp.	Copepoda	Ostracoda	Cambarus sp.	Tricoptera	Chironomus	Baetis sp.	Gyrinidae	Frag. adult Insects	Fish eggs	Fish	REMARKS
<i>P. caprodes zebra</i> Grand Island 7-9-28	70												100			
	62									75	20		5			
	65									45	55					
	73									100						
	59									100						
<i>B. nigrum</i> 7A 7-12-28 Grand Island 7-9-28	38									100						
	57			1	1					98						
	51									100						
	61									100						
	62					40				60						
	48									100						
	50									100						
	47									80	20					
	43						10			90						