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INSTITUTE FOR FISHERIES RESEARCH
DIVISION OF FISHERIES
MICHIGAN DEPARTMENT OF CONSERVATION
COOPERATING WITH THE
UNIVERSITY OF MICHIGAN

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REPORT NO. 402

THE GROWTH OF BLUEGILLS IN MILLER LAKE, CASS COUNTY

Last September the Department received an interesting letter from the Marcellus Rod and Gun Club through its secretary, Mr. C. J. Bradt. This letter read:

"My attention has been called by several fishermen to the fact that in one of our local lakes, Miller Lake in Section 36, Marcellus Twp., Cass County, there are thousands of undersized bluegills and practically none, or very few, of legal size. Outside of a rearing pond I have never seen so many small fish as this lake possesses at the present time. It is the opinion of our Club members, to whom I have talked about it, that Miller Lake is overstocked with bluegills in relation to the food supply for these particular fish. Could you have someone of your investigators look this over and see what they find out about it. If there are too many fish, could we have a lot of them seined out and transferred to some of our other lakes? For instance Copley Lake, where everything froze out last winter. We will greatly appreciate your opinion in the matter, and hope to hear from you regarding it."

The letter is especially interesting because it indicates that some of the more progressive and inquisitive sportsmen recognize the possibility of having too many fish in a lake.

On October 15th and 16th, Dr. Hazzard and the writer visited Miller Lake and obtained specimens of the fish by netting and by angling. Mr. W. J. Griner provided a boat for the investigation and assisted the party in various ways.

According to the Michigan Lakes and Streams Directory, Miller Lake has an area of 100 acres, has no resort development and no boat livery. It is listed as being "not much frequented."

Most of the lake is relatively shallow--less than 10 feet deep. Vegetation reaches to, or almost to, the surface over much of the lake. According to reports, the maximum depth is between 15 and 20 feet. Local residents indicate that a number of years ago the perch fishing was good, but the bluegill fishing was poor; in recent years bluegill fishing has been fairly good, but perch fishing was poor.

The lake level has dropped considerably in the last 10 or 20 years according to reports. A boat house which once stood at the waters edge is now about a hundred feet from the present lake shore. Much of the lake border is swamp.

A total of 24 bluegills were taken (all except one or two by angling). A number of perch, golden shiners and lake chub suckers were caught in the nets. Several large-mouthed bass, warmouth bass and mud pickerel were also obtained.

The bluegills were caught by Dr. Hazzard in a very short time, indicating that reports of their abundance are probably not exaggerated. Only one of the 24 bluegills taken was of legal size.

Netting indicated that large golden shiners and large lake chub suckers were fairly abundant. Whether or not smaller forage fish were common could not be determined. Almost no small fish were seen, but, because of the lateness of the season, they were probably out in deeper water.

Scale samples were taken from all bluegills for a study of their rate of growth. Lengths at various ages were calculated by W. F. Carbine. According to Mr. Carbine's study of these scales, the growth each year was as follows:

<u>Age (Growing Seasons)</u>	<u>Number of Specimens</u>	<u>Length</u>
1	24	1.08 inches
2	24	2.53 "
3	24	3.67 "
4	24	4.69 "
5	12	5.59 "
6	3	6.22 "

It required six growing seasons (6 years) for these fish to reach legal size. This is obviously a slow growth for bluegills in southern Michigan lakes. For comparison, the growth of bluegills in several other southern Michigan lakes are listed below:

Wintergreen Lake, Kellogg Bird Sanctuary (age determinations made by G. P. Cooper, Report No. 289):

<u>Age (Growing Seasons)</u>	<u>Length</u>
3	7.5 inches
4	8.5 "
5	8.8 "
6	9.4 "

Watkins Lake, Irish Hills (age determinations made by Cooper and Eschmeyer, Report No. 267)

<u>Age (Growing Seasons)</u>	<u>Length</u>
1	1.5 inches
2	3.2 "
3	4.75 "
4	5.7 "

Watkins Lake was fished very little and apparently the fish were quite abundant in this lake. The growth was slow compared with growth in Wintergreen Lake.

Dr. Ralph Hile gives data on the growth of bluegills in northern Indiana lakes. His information is listed in standard length (not including the tail) and in centimeters. These have been changed to approximate total length in inches in the table below. All fish were taken in summer

(July or August) and are a part of a growing season older than the figures show:

Age	Approximate Average Length in Each Lake				Simple Average
	Syracuse 1926	Wawasee 1926	Indian Village July, 1929	Rider 1929	
2	5.5	5.6	5.55
3	8.5	7.8	8.1	7.9	8.1
4	...	9.1	8.8	8.3	8.7
5	...	9.6	8.9	9.2	9.2
6	...	10.4	10.4

The fish from northern Indiana were as big at the end of two and a fraction growing seasons as the Miller Lake fish were in 5 growing seasons. The evidence indicates that the suspicions of the Marcellus Rod and Gun Club were correct with reference to the growth of the bluegills.

The reason for the slow growth of the Miller Lake bluegills has not been determined. It may be due to a scarcity of food, to over-crowding or to some other poorly suited environmental condition. The determination of the cause for slow growth would require more time than is now available for the study.

Regardless of the cause for the slow growth, it is obvious that stocking with more bluegills would only make matters worse. A decrease in the number of small bluegills would probably be very much preferable to an increase.

Examination of several perch scales suggests that perch grew very rapidly. One perch had reached legal size at the end of its second growing season, the other at the end of the third season. The few small bass taken showed fair growth.

It is believed that Miller Lake should be stocked with perch both because of the good growth and large size attained by these fish and because of the possibility of their decreasing the supply of bluegills to some extent. There is little reason to believe that the perch would not use

some of the small fingerling bluegills as food. The transplanting of bluegills from Miller Lake to other lakes in the vicinity is not recommended because of the difficulty which would be experienced in seining the fish due to dense vegetation and soft bottom.

It is planned that the Institute will make a more detailed examination of the lake some time within the next year.

INSTITUTE FOR FISHERIES RESEARCH

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