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REPORT ON THE POISONING OF WILSON LAKE,

MARQUETTE COUNTY

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The regular inventory, conducted on Wilson Lake in August 1938, indicated that this lake had all of the necessary qualities for trout. It was considered advisable to remove the standing population of fish in order to permit trout to establish themselves, since a previous planting of brook trout from the Marquette Hatchery was entirely unsuccessful. This was undoubtedly due to the presence of large perch which very probably devoured many of the trout planted, and also the stiff competition for food by the species present.

Wilson Lake has a surface area of about 27 acres and a maximum depth of 22 feet. The water temperature on the date of poisoning was 57° F. at the surface and 55° F. at the bottom.

On Sept. 21-23, 1938, a party consisting of O. H. Clark, Floyd Ames, Walter Crowe, James Wilkinson, and myself undertook to poison this lake using powdered derris. A boat was furnished by Mr. Louis Sauheitel of the Marquette Hatchery.

Calculations of the volume of water in the lake were made and enough powdered derris root was ordered to produce a concentration of approximately 1:2,000,000.

Early in the morning of Sept. 21, preparations were made and a procedure worked out so that the poison could be applied quickly and thoroughly. Two men were assigned to mixing the derris with water. This was done by adding water slowly and just enough to produce a thin "batter." This method of mixing the water and derris powder slowly was found to be much more satisfactory than the previous method of rapid mixing, since all of the derris was thoroughly wet before being applied, thus avoiding lumps.

By 8 a.m. everything was ready to being poisoning. The first application was made by treating parallel strips of water until the lake was completely covered. The second application followed immediately with the treated strip at right angles to the first. The derris mixture was poured from 10-gallon cans over the side of a boat driven by an outboard motor. Each time a strip was treated, the water was given an additional stirring by maneuvering back and forth with the outboard motor. It took from 8 a.m. to 3 p.m. to complete the double treatment of the main lake. Approximately 185 pounds of derris was used. During this same time, one man was treating the west bay, too shallow to be worked from a boat. A portable fire pump was used to cover areas which could not be reached by wading. About 15 pounds of derris were required to treat this bay.

During the afternoon two men, with the rubber boat, explored the inlet and found about 5 acres of water partially covered with a mat of vegetation. It took 4 hours of careful work to treat this area which required about 50 pounds of derris.

One man was assigned to make observations on the fish. Within 45 minutes after the first derris was added to the lake, fish began to show signs of distress and a few fish, apparently dead, were found floating.

Certain observations were made on the resistance of the various species to derris poisoning. The results were as follows.

A. The following fish began to die within 1 hour after the first application of derris to the lake:

1. Iowa darter
2. Golden shiner
3. Northern dace
4. Black-nose shiner (only young individuals)
5. Brassy minnow
6. Stickleback
7. Golden shiners (only young individuals)

B. The following fish were first noticed 2-3 hours after treatment began:

1. Suckers (large)
2. Perch (medium sized)
3. Mud minnows
4. Black-nose shiner (adults)
5. Red-belly dace

C. These fish were the last to show in collections. Many were still alive 24 hours after treatment began.

1. Perch (large and small)
2. Mud minnow
3. Golden shiners (large)
4. Suckers (small)

Only one brook trout was observed. This was found dead on the south shore 24 hours after the first treatment.

There seems to be no apparent reason for the order in which the different species of fish were affected by the poison. The differences in toleration of young and old specimens was most distinct. This was particularly true in the suckers. Only one small sucker was found the first day, but many large ones appeared early in the afternoon. By the end of the second day many small and large suckers were collected.

The location of the fish in the lake or the readiness with which they rise to the surface may account for some of these observations. It doesn't seem likely that it is a difference of resistance to derris poison.

Many of the fish were picked up and examined. The perch were heavily parasitized yet seem to be in good condition. Most of the suckers collected were weighed and measured for later study.

A great many fish could be seen on the bottom in shallow areas. They did not rise to the top even after $2\frac{1}{2}$ days.

On September 23 a final check was made and no living fish were observed. We somewhat doubt, however, that there was a complete kill in the inlet area since there was about two acres of water under a mat of vegetation which could not be reached directly.

Previous stocking in this lake had been entirely ineffective. Records show that 25,000 grayling fry were planted here in 1926, 2,000 4 month old bluegills in 1934, 9,000 5 month old bluegills in 1935, and 1,000 9 inch brook trout in 1937. None of these fish appeared at the time of poisoning with the exception of one brook trout.

Plans call for the removal of the beaver dam at the outlet of this lake and the stocking of brook trout at an early date. After brook trout are planted, regular examinations will be made to determine the success of planting and the growth rate of surviving fish.

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