


Original: Fish Division  
cc: A. T. Stewart  
Mr. Ruhl

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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. 505

POISONING OF SUSTERKA LAKE, BELLEVILLE, MICHIGAN

Susterka Lake, a privately owned lake, located at Belleville, Michigan, has been used for a number of years as a bluegill rearing pond by the Fisheries Division of the Michigan Department of Conservation. Mr. A. T. Stewart, District Supervisor of Fisheries Operations, requested that the Institute poison the small stream that feeds the pond, to remove all bullheads and minnows.

On the morning of November 10 the stream was examined by the writer and Mr. Harold Bowditch. It was found to rise in three separate tile drains approximately 3,500 feet above the head of the pond. From the tiles the stream has been ditched through two fields to a natural channel that carries the water from three separate, natural springs to the Huron River. The Edison Dam is now located in the Huron River at this point. About 20 years ago a Mr. Susterka placed a dam (see map) across the small tributary stream and installed a feed mill. At present he operates a resort at this place. At the time of poisoning the pond was dry, Mr. Stewart having drained the pond and removed the fish on November 2.

The ditched portion of the stream has a bottom composed chiefly of marl with some sand and organic detritus present. A dense growth of Chara is found in this section of the stream, and in some places completely fills the stream bed. Sand and gravel are the main constituents of the bottom

of the swifter waters of the natural channel. A good growth of watercress is present in this part of the stream. There are numerous small springs entering along this section of the stream. The bottom of the pond is mainly a flocculent muck, several feet in depth.

The stream flow was measured at a point immediately below the pond, where we were able to catch all of the water in a five gallon pail. The average time required to fill the five gallon pail was 4 seconds, indicating a flow of 75 gallons of water per minute.

A partial water analysis test made yielded the following figures: pH 7.4; phenolphthalein alkalinity 0.0; methyl orange alkalinity 19.2 p.p.m.; water temperature 45°F.; air temperature 47°F., at 11:00 a.m.

Temperatures taken along the stream when the poison was administered were as follows:

11:00 a.m. at dam 45°F.

11:30 a.m. at tile 35°F.

11:45 a.m. at drain ditch 35°F. (Ice was present along edge of stream)

12:30 p.m. at culvert 35°F.

2:00 p.m. at pond 52°F.

The valve at the dam was closed at 11:00 a.m. and poisoning operations were started immediately. Twenty pounds of poison<sup>1</sup> were used for the entire stream. Five pounds were placed in the stream at the tile where there was no discernible current. A concentrated solution of powdered derris was sprayed from a point approximately one hundred feet below the tile to the springs, where the water has considerable current. The springs also were sprayed. At a point immediately below the springs another five pounds of

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<sup>1</sup> Powdered derris root containing 5% rotenone and 20% ether extractives.

powdered derris were applied over a period of about 20 minutes, and five pounds were placed in the stream just above the pond.

The first dead fish were seen floating down stream at 1:30 p.m.

The entire stream was cruised on November 11, when a number of dead fish were observed along its entire course. No living fish were seen. A majority of the dead fish were creek chubs (1-7 inches in length), although a few black-nosed dace and mud minnows were also observed. No dead bullheads were seen. (Each year when the pond is drained, hundreds of black bullheads are removed with the bluegills. This year when the pond was drained more bullheads were realized than bluegills.) If bullheads were present in the pond, they must have been in the mud. The pond was left filled until November 14 (four days).

It is doubtful whether any fish, other than the bullheads, survived the poisoning. Dr. J. W. Leonard of the Institute estimated that a concentration of approximately 1:65,000 was used. Experimentally, concentrations of 1:2,000,000 have killed such fishes as bluegills, perch, carp and mud minnows. At the concentration used in this job, all fish, as well as insect larvae, snails and crustaceans, etc. should have been killed. Other than the fishes, no such mortality was observed.

Mr. Henry Morton, of the Drayton Plains Hatchery, reports that on November 14, when the pond was again drained, neither living nor dead fish were observed.

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