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Report 237

KILLING OF FISH BY POLLUTION NEAR SOUTH LYON

On December 15 Conservation Officers Allen Wilkinson of South Lyon and William Corson of Ann Arbor brought to the University of Michigan a sample of fish, consisting of 5 adult large-mouth bass, 4 adult black crappies and 15 adult blue-gills. These were all freshly dead except for the largest bass, 17 inches over all, which still showed signs of life.

Mr. Wilkinson reported that he picked up these fish, along with one other bass, in the stream connecting Nichwagh Lake with Limekiln Lake, Livingston County, and that he could have taken a bushel or two of bluegills. These fish apparently came down from Nichwagh Lake, for such fish were seen lazily swimming at the surface of the open water just above the Rushton Mill dam in the outlet stream (the lake proper was frozen over). The weakened fish apparently went over the dam, and died on the shores of the creek below.

It was further reported that the fish possessed such a bad odor that they could not be eaten. A bass even after parboiling was said to have been very disagreeable to eat. This odor is said to be the same as that permeating the air about the plant of the Seamless Tube Co. of South Lyon, which is discharging about 1000 gallons a day of an effluent with this odor into the inlet creek of Nichwagh Lake. Mr. Wilkinson assumes that the current from this inlet courses the <sup>east</sup> west shore of Nichwagh Lake and then passes down the outlet where the fish are dying.

The fish brought in, especially about the gills and viscera, gave off a strong sickly sweet odor, identical with the odor of a quart sample of the water of the inlet creek, taken about an hour previously in the creek below the plant. Some rain during the night was said to have raised the creek enough to dilute the effluent.

This quart sample was raised to the temperature of an aquarium containing native killifish (Fundulus diaphanus menona), about 25° C, and one of these fish put in. Violent respiratory movements of the mouth were observed at once though the fish never lapped at the surface. This indicated acute distress, but not asphyxiation. After about half an hour the fish became weak and sluggish and hung near the surface. After an hour and a half it was still weaker, but went into spasms at times. The sample now showed an oil scum such as Mr. Wilkinson reported seeing in the creek, and had accumulated a precipitate which looked like rust,—probably the cause of the "yellow weeds" seen down the inlet, around the lake and down the outlet. Though the dissolved oxygen had presumably been lowered in producing the rust-like precipitate, a test showed considerable dissolved oxygen remaining. This test, the reported conditions, and the symptoms displayed by the fish, all point to a toxic material being responsible for the fish deaths, rather than a mere loss in dissolved oxygen.

The fish died sometime between 3 and 6 hours. The slow death and the accumulation of odor in the fish suggest that the toxic substance is absorbed and retained by the fish.

Examination of the fish showed them to be in good general condition. Some of the crappies had been feeding recently, but the others had not—but this could be laid to the cold weather. Most of them showed a considerable infection with bass tapeworms through the mesenteries and of small parasitic worms through the liver, but the infection was apparently insufficient to account for the deaths.

Mr. Wilkinson reported some trouble and complaint about three years ago, when the cooperative management put in a sand bed to filter the effluent<sup>11</sup>. This is said to have been largely removed by the railroad company recently, so that the effluent discharged more directly in the creek. Large government orders have recently put the plant onto a 24-hour run, which will likely continue for some time. For this reason a continuation of the fish deaths and of giving them an obnoxious odor and of giving them an obnoxious odor and doubtless flavor may be expected, unless

something is done. Whether the reinstallation of the filter (which Mr. Wilkinson reported was being accomplished) will suffice to remove this bad condition can not be predicted on the evidence.

INSTITUTE FOR FISHERIES RESEARCH

Carl L. Hubbs  
Director

CC: Messrs. Wilkinson, Corson, Adams, Westerman.

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