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Report 167

ON MORTALITY OF SUCKERS IN WEST TWIN LAKE, MONTMORENCY COUNTY

On August 25, 1932, District Conservation Supervisor Thomas Marlatt of Gaylord telegraphed the Department of Conservation as follows:

"Hundreds of tons of suckers dead in West Twin Lake at Lewiston. Have a crew cleaning them up sending specimen to Dr. Hubbs."

Mr. Westerman telephoned the Institute suggesting the desirability of an investigation, on account of "the unusual quantity of fish indicated as dying in this lake".

Our understanding is that the loss was so great as to necessitate hiring a crew to bury the dead fish.

Dr. John R. Greeley was requested by wire to make the field examination, which he did on the afternoon of the same day. His findings follow:

Report on field examination by Dr. Greeley

There has been heavy mortality of suckers since on or before August 20 (date given by Mr. C. H. Winters, who says he has buried over 500). The fish have caused a serious nuisance and thousands have been carted away and buried.

Mr. Winters reports a few dying every year but "nothing like this". Postmaster of Lewiston reports such epidemics a "dozen times in 40 years", however, involving both lakes. The present outbreak is in West Twin only. This is a rather shallow lake, water clear, 740 on this date.

The beach at the east side of lake (receiving most drift with wind at west) was visited. The shore was lined with suckers (I counted 70 in a 250 foot random sample). There were a thousand or more on this beach, in all stages of decay. A few weak ones were caught with hands. A few were too active to be caught. Evidently the mortality was not yet finished. Two herring gulls were seen, one with a sucker. The fish were from 8 to at least 16 inches long, and many of the larger ones were very thin.

Six freshly dead ones (one just killed) were examined and were found to have symptoms of a bacterial gill disease (gill filaments elongate, swollen, whitish) and all had several encysted trematodes in the pericardial cavity. The air bladders were sound, and no evidence of dynamiting was seen. One fish had whitish spots on the head, perhaps a continuation of the gill infection. Most of the fish showed no body injuries.

Samples of the fish were shipped by both Mr. Marlatt and Dr. Greeley. Mr. Marlatt sent several suckers and one perch in formalin solution, while Dr. Greeley sent several adult suckers on ice, caught before dying. The latter material being better suited for examination was studied in the laboratory, by Dr. Hubbs and by Mr. Kwang Wu, a graduate student in the University specializing on the parasites of Michigan fishes. The Laboratory examinations confirmed the field studies. The suckers were all more or less emaciated. There was no loosening of muscle bundles, breakage of bladders or other indication of dynamiting. Evidence of disease appeared in two places, on the heart and on the gills, in all specimens examined.

The trematode parasite which was abundantly encysted on the ventricle and auricle of the heart was identified by Mr. Wu as Tetracotyle communis. He reports having found such encysted trematodes on the hearts of suckers in apparent health, and doubts that they caused the mortality.

The cause of death was probably gill disease. On careful examination of the gills on the morning after their receipt (after a night in a cold refrigerator), the surface of the gill filaments appeared covered with a criss-cross of rod-like bacteria (Bacillus). These were shorter, stouter and less regularly arranged than the bacilli causing gill disease in trout, and were probably of a different species. The fact that only the suckers were reported killed in large numbers indicates a rather specific disease.

Probably the bacillus observed was the death-producing organism, though this could not be proved without a careful study. Remains of a small parasitic copepods, chiefly egg cases, were also found on the gills. These were identified as a species of Ergasilus by Mr. Wu. The copepods probably did not cause the death directly, though they may have allowed the bacteria to gain a foothold.

The diseased appearance of the gills was as follows: Many of the filaments

were swollen and white, apparently from excess mucous excretion. In patches the whole gill mass was brown and more or less disintegrated, with many filaments much shortened or reduced at their tips to the skeletal framework of the filaments. In advanced lesions there was a bloody exudation.

Conclusion: A very heavy mortality of suckers occurred in West Twin Lake in Montmorency County in August, 1926. The death was obviously due to disease, probably to a bacterial infection of the gills.

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Earl C. Hubbs.