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FISH DIVISION

INSTITUTE FOR FISHERIES RESEARCH
UNIVERSITY OF MICHIGAN

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Report 221

DEATH OF FISH IN HURON RIVER AT FLAT ROCK, MICHIGAN

On the afternoon of July 17, 1933, the Institute for Fisheries Research received a well-iced box of fish, accompanied by the following information:

These fish were taken from the Huron River at Flat Rock, Michigan about 300 ft. below the Ford Dam there was thousands of them floating, most then came to, and swam away. If you can determine the cause please let me know.

W. J. Willson, Conservation Officer

These specimens were examined early the following day, when still on ice and in good condition. The walleye was the only specimen which showed any considerable amount of internal decomposition, and it probably had been dead some hours before being collected.

Results of the examination follow:

1. Carp 12 3/4" long; a ripe female, though the eggs were largely white; general condition rather thin; skin and gills apparently normal; intestines crammed with filamentous green algae and some midge larvae; no internal parasites found in a hasty search. No apparent cause for fish being thin nor for death of fish.
2. Carp 14 1/2" long; a ripe female, with many white eggs; in fair condition; skin and gills apparently normal; intestines with more animal food than fish No. 1; no internal parasites seen in a hasty search. No apparent cause for death.
3. Northern pike 17 1/2" long; fair condition, though rather elongate; skin normal; gill filaments stubby in one place (apparently a healed injury); no food; no internal parasites found in hasty search. No apparent cause for death.
4. Walleye 13" long; rather thin; skin normal; gills probably normal, but dried and somewhat decomposed; skeleton of a fish in stomach; internal parasites

(acanthocephalan worms) rather numerous. No apparent cause for death.

5. Large-mouth bass 12" long; a maturing female; good condition; skin clean except for a few black cysts; stomach filled with one 3 3/4" perch and several small crayfish; plenty of abdominal fat; no adhesions of internal organs, and no further indication of internal parasites found by a hasty search, except for two empty cysts on liver. No apparent cause for death.

6. Large-mouth bass 13 1/2" long; very heavy and in very good condition; skin and gills apparently normal; one 5 1/4" goldfish and one 2 1/4" blunt-nosed minnow in stomach; much abdominal fat; only internal parasites found were a few acanthocephalan worms in the pyloric caeca. No apparent cause for death.

7. Bluegill 5 3/4" long; a female with eggs nearly ready for laying; condition very good; skin normal except for a very few black cysts; lower jaw broken as though by former hooking; gills apparently normal; stomach and intestines with food; no marked abnormalities or parasites found in hasty examination of internal organs. No apparent cause for death.

8. Black crappie 6 1/2" long; a spent or immature fish; skin, gills, broken jaw; food and lack of parasites same as for bluegill. No apparent cause for death.

9. Black crappie 6 1/2" long; a ripe female; skin; gills, food and lack of parasites same as for bluegill. No apparent cause for death.

10. White crappie 7 1/2" long; general condition good; skin clean except for a few black cysts; gills seemingly normal; stomach and intestines with food; no marked abnormalities or parasites seen in hasty examination of internal organs. No apparent cause for death.

Discussion and Summary

None of the ten fish submitted showed any apparent cause for the mortality observed. The fact that a number of unrelated species were affected suggests that disease did not cause the deaths. The recovery of most of the "thousands" of dead

fish, as reported by Officer Willson, is strongly confirms this conclusion, and indicates that the trouble was caused by a temporary depletion of the oxygen supply or by some other change in the composition of the water, through pollution. The hot weather and low water of early July would be expected to intensify the pollution. Ordinarily the effects of pollution in the river are probably slight near Flat Rock, for the survey of July 24 to November 18, 1931, by the Stream Control Commission, showed rather good conditions at this point. The Huron River Pollution Survey profile chart, issued by said Commission, shows approximately the following pollution indices for the point where the fish were found dying:

5-day biochemical oxygen demand.....	4.8 p.p.m.
Minimum dissolved oxygen.....	6.6 p.p.m.
Average dissolved oxygen.....	8.0 p.p.m.
Percent saturation with oxygen.....	87%
<u>B. coli</u> index.....	500
Bacteria per cc. at 37°C.....	5000

Considering the conditions as reported by Mr. Willson, the lack of any indications of disease in the fishes submitted for examination, and the weather and flowage conditions, we conclude that the fishes below the Flat Rock dam were distressed and in part killed by stream pollution, very likely due to oxygen-depleting wastes entering the stream somewhere above Flat Rock.

INSTITUTE FOR FISHERIES RESEARCH

Carl L. Hubbs
Director

*Discussed
with Adams
8-7-33*