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INSTITUTE FOR FISHERIES RESEARCH
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Report 234

REPORT ON FISH MORTALITY IN FLINT RIVER AT FLUSHING,
MICHIGAN

A shipment of four iced, fresh fish specimens and jar of water was received November 2 from Mr. Ivan Kesten, State Conservation Officer of Davison, Michigan. The following letter accompanied the shipment:

I am sending you under separate cover a sample of water and some fish that was taken out of the Flint River at Flushing. I do not know what killed these fish. Would you kindly check this water and fish, and let me know your findings. Please address your report to Ivan Kesten, State Conservation Officer, Davison, Michigan.

There is one small fish that resembles a white fish in the lot that I am sending you, would you kindly identify it and send me the common name. An immediate report on this matter would be greatly appreciated.

Identification: Two perch, Perca flavescens, total lengths 3 1/8 and 3 1/4 inches; one common sunfish, Eupomotis gibbosus, total length 5 inches; one northern pike (grass pike) Esox lucius, total length 24 1/2 inches; one carp, Cyprinus carpio, total length 3 3/4 inches; one spot-tailed minnow, Notropis hudsonius, total length 4 13/16 inches; one common sucker, Catostomus commersonnii, total length 8 3/4 inches; and one gizzard shad total length 6 7/8 inches. The latter is evidently the species mentioned in the letter as resembling a whitefish. It has become abundant during the last year through southeastern Michigan.

Condition: The shipment arrived with some ice remaining and fish were in good condition, especially the larger ones. Marks of external injury were lacking, although there was some redness about the head region of the gizzard shad. The sunfish had the fin tips slimy and thickened, with slight erosion of fin membranes. None of the fish were emaciated. The pike was a maturing female, with well developed fat masses in the body cavity. The stomach of this fish contained two well digested small fish (yellow perch).

Cause of death: The conclusions regarding mortality which are justified from the material examined are: (1) That death was sudden (as indicated by partly-digested food in the pike stomach) (2) That mechanical means were not involved (lack of abrasions, air bladders not broken) (3) That poisoning, suffocation, or other means leaving no visible traces caused the death of these fish.

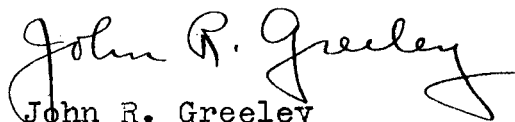
As indicated by the sending of water sample, pollution was evidently suspected by Mr. Kester as having killed the fish. Our examination would support this conclusion but, unfortunately, there are no autopsy characters that are reliable to use in determining the specific type of pollution responsible, whether a poisoning effect or a lack of oxygen.

Water sample: As indicated by odor and turbidity, a large amount of organic substance is present in the water. Some of this had settled to the bottom as a slimy precipitate. Microscopic culture of this deposit showed it to be very rich in microscopic plant and animal life ~~ef-the~~ including: diatoms of several genera, green algae,

protozoans (Infusorians, flagellates). The plant and animal life of the culture was alive--good evidence that chemical poisoning could not have been serious. The rich culture indicated a high degree of organic substances in the water, since these forms of life depend upon enrichment of the waters by organic compounds. While no organisms specifically distinctive of pollution were noted, rich cultures such as this are noted where sewage, milk waste or certain other non-poisonous organic wastes enrich the water. The nature of the organic substance in the water sample could not be detected by us. The water had a somewhat "fishy" odor, but this is often caused by microscopic life such as that mentioned.

Sewage and other organic wastes which are subject to decomposition are frequently the cause of mortality of fish life. When the amount of these substances are too great to be oxidized without pulling the oxygen supply below the asphyxial point, mortality can be expected. Field study of the Flint River at Flushing will need to be made before definite conclusions can be drawn as to the nature and seriousness of pollution there.

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