

Institute for Fisheries Research

Report Number 8

April 22, 1930

DISPOSAL OF DISEASED GAME FISH IN
LAKE ST. CLAIR
(First Installment)

By Carl L. Hubbs

Mr. F. L. Gantenbein, RFD 4, Mt. Clemens, Michigan, holder of the contract to seine rough fish in Lake St. Clair, sent a diseased walleye or yellow pike to the Institute on April 12. He wrote that it was sent at the request of the Department of Conservation, and added "If these fish should be removed from the water, please let me know."

The chief apparent diseased condition of the fish sent is the development of great tumor-like swellings on the fins, and elsewhere on the body. This condition, known technically as "dermocystis," is a fairly common affliction of the "yellows" in Saginaw Bay and Lake Erie as well. Dr. Vann Oosten informs us that such fish are absolutely unmarketable. He found on Lake Erie that the fishermen were throwing these diseased fish back into the water. He strongly urged that they be brought ashore and dumped into the gut barrel.

This one sample of diseased walleye from Lake St. Clair, and one preserved by Mr. Langlois from Saginaw Bay, were given an examination in the Division of Parasitology of our Zoology Department. The results of this examination follow:

(I) Specimen from Lake St. Clair near Mt. Clemens, Michigan,
April 12, 1930.

Male 30 cm. in length.

Externally: yellowish tumors occur on the anal end and especially on the caudal fins. Nothing is shown but masses of sediment under microscope. Probably a protozoan infection.

Internally: Digestive tract heavily infected, especially in the pyloric pouches, which are entirely filled with tapeworms. The degree of infection is:

Coelom - 7 cestodes, 1 acanthocephalan.

Stomach - 5 cestodes.

Pyloric pouches - 30 cestodes.

Intestine - 16 cestodes, 8 trematodes.

The peritoneum has a number of reddish green patches on its inner surface; it needs sectioning to tell the kind of infection. The other organs seem normal.

(II) From Saginaw Bay. T. H. Langlois. November 30, 1928.

Female 33 cm. in length.

Externally: A number of yellowish tumors on all fins except the ventrals, and one of the eyes. Nothing definite is shown, as indicated above.

Internally: Not heavily infected with parasites. The degree of infection is:

Intestine - 10 cestodes.

Pyloric pouches - 5 cestodes.

The peritoneum has whitish patches on its inner surface. It needs sectioning to tell the kind of infection. The remaining organs are normal.

It is obvious that the Lake St. Clair fish is very badly diseased, both externally and internally. It is possible that the external tumors weakened the fish, so much that it developed the internal infection, or vice versa.

Fish so badly diseased as this one are obvious menace to healthy fish in the same water. They are too repulsive to most anglers to be eaten (even though they would presumably be harmless). If these fish should migrate into either Lake Huron or Lake Erie, they would not be marketable, and might infect healthy fish of the same species.

Until we know more about this disease, we are of the opinion that such diseased walleyes in Lake St. Clair should be killed and disposed of ashore. Of course, we have no authority to recommend this disposal of the diseased fish to the holder of the rough-fish contract. We merely pass on our opinion for Department action.

Mr. Gantenbein also reports, "We have rock bass that are diseased that I will send later." We have asked Mr. Gantenbein to do this. If the Department communicates with Mr. Gantenbein, we urge that it recommend that these diseased fish be sent the Institute, on ice.

The Institute would be glad to have further examinations made of diseased fish in Lake St. Clair. We are having a further study made of the tumors

on the walleyes, to determine more definitely the cause of the condition.

Signed by Carl L. Hubbs, Director

Report Number 8

(Second Installment)

June 14, 1930

Attention is directed to the first installment of this report, presented April 22.

Some additional study has been given to the peculiar and unpleasant-appearing skin disease of the yellow pike or walleyes. The outer layer of the skin is swollen into large pellet-like cysts, which appear to be filled with a hyaline colloidal substance. In the material at hand no Protozoa or bacteria could be found in these welts. Perhaps no more is known of this disease than of cancer in human beings. The disease is similar to what the German fish pathologists call "Lymphocytis disease."

It is possible that a detailed study of living material or the cutting of microscopic sections might give a clue to the nature of this disease, which renders the fish so repulsive as to prevent its sale. This we trust we shall have the opportunity of doing at some future time.

In sending the diseased walleyes, Mr. Gantenbein mentioned that rock bass were also diseased, and that he would send material of that species for study. Six large rock bass were received on ice in excellent condition, in May. These were carefully examined in the Parasitology Laboratory of the University, and found to contain few internal parasites. The diseased condition cannot be

ascribed to parasitic worms.

The surface of the body in these rock bass presented a patchy appearance, due to lesions in the skin. The lower jaw, cheeks, and bases of some fins, as well as the rest of the body, were affected. In general, the upper part of the head and the anterior part of the body were free from the affected areas.

The lesions, in advanced stages were decidedly reddish, while those not so far advanced were pinkish. The color resulted from dilated and ruptured blood vessels. The affected areas showed a superabundance of mucus. In some specimens, the epithelium in these areas appeared thickened. The edges of the scales were slightly lifted, but intact and firmly held down.

The disease was found by Fish Pathologist Krull to be another one of bacterial nature. Two types of bacteria, a rod and a coccus, were found in the lesions. The coccus type was by much the more abundant and was the more closely associated with the tissue cells. This observation, coupled with certain peculiarities in the distribution of the bacteria over the fish, seemed to indicate that the coccus is the causative organism of the disease, and that the rod form is of only secondary occurrence. The coccus type was thought to produce the dilated and ruptured condition of the blood vessels, especially since these bacteria were found abundantly in the blood of the affected fishes.

A similar fish disease has been recognized in Germany, but apparently has not been described from this country.

There can scarcely be a question as to the contagious nature of this bacterial disease of the rock bass. We therefore reiterate our statement in the first installment of this report, and do so with a firmer basis, that the

diseased fish (both walleyes and rock bass) taken in the carp-seining operations in Lake St. Clair are a menace to healthy fish in the same water. The removal of these fish, in our opinion, would work to the advantage of the sport fishery in that lake.

Signed by Carl L. Hubbs, Director