

Report 314

September 27, 1935

REPORT ON EIGHT SUNFISH FROM THE MICHIGAN STATE GAME FARM POND

On September 9, 1935, Mr. H. D. Ruhl of the Michigan Department of Conservation, brought 8 sunfish to the office of the Institute for Fisheries Research. These fish were taken from a pond at the State Game Farm. Mr. Ruhl stated; that these 8 sunfish, together with 13 others, were caught with line and hook, baited with worms, during the afternoon of August 27, 1935; that none of the 13 others exceeded in length the largest of the 8 individuals which he had brought; that sunfish were seldom caught in this pond which were larger than these 8 fish; and that the pond also contained goldfish and bullheads, some individuals of which attained a larger size than did the largest of the sunfishes. Mr. Ruhl requested that the 8 sunfish be examined in order to ascertain their age, rate of growth and condition, and also asked for a possible reason why the sunfish in this pond did not attain a larger size.

*The examinations of the 8 sunfish disclosed the following facts:

(1) Seven of the fish were common sunfish or pumpkinseeds (Eupomotis gibbosus) which ranged in total length from 3.10 to 4.05 inches.

(2) The remaining fish was a northern longear sunfish (Xenotis megalotis peltastes) and was 3.05 inches in total length.

(3) The common sunfish were a little more than one year old, having almost completed two growing seasons, and having one winter mark. This is a good growth for this species in the latitude of the game farm.

(4) The northern longear sunfish was over 2 years old, having almost completed 3 growing seasons, and having two winter marks. This is a fair growth for this

* Scale examinations were made by Gerald P. Cooper; examinations for parasites and disease by E. L. Cheatum.

dwarfed species.

(5) One of the common sunfish was heavily parasitized with the strigeid trematode, Neascus van cleavii; 5 were quite heavily parasitized; and the remaining one was apparently not infested by this parasite. (The larvae of N. van cleavii were found in the body cavity and viscera of the fish, the liver usually being the organ most heavily infested. The adult stage of this parasite is passed in the alimentary tract of some waterbird).

(6) The northern longear contained a mild infestation of Neascus van cleavii.

(7) All eight fish contained light infestations of another trematode, Neascus ambloplites. (The life history of this parasite is imperfectly known. It is known however, that the adults live in the lower alimentary tract of some specie or species of waterbird, such as a gull, tern, cormorant, heron or duck. The eggs of the parasite, upon being laid, are passed out with the faecal matter of the bird. These eggs, upon being picked up by some species of snail, undergo a change into a sort of free swimming "embryos", which latter leaves the snails and attaches then buries and encysts themselves in the muscles, fins and skin of such fish as bass, sunfish, rockbass and perch. When fish, so parasitized, are eaten by the proper species of waterbird, the walls of the encysted trematodes are dissolved by gastric juices in the bird's stomach, thereby allowing the imprisoned trematodes to escape and migrate down into the bird's intestine, where they can grow to maturity and reproduce. This species of strigeid, unlike N. van cleavii, does not enter the viscera or body cavity of the fish host, but remains on the skin, fins or muscles.)

(8) The infestations by strigeid parasites of either species undoubtedly has an adverse effect upon the sunfish, especially on those most heavily infected with N. van cleavii.

(9) It cannot be stated from the examinations of these fish why the common sunfish do not attain a larger growth in the pond at the State Game Farm, as the

fish examined showed a fair to good growth rate for one year, despite parasitism. In most southern Michigan waters the common sunfish normally grows to 6, 8 and even 10 inches in total length, and consequently is a fair sized panfish. The reason for the small size of the northern longear sunfish in this pond is quite obvious, when it is understood that this dwarf sunfish, in southern Michigan, seldom attains a total length of 5 inches.

To ascertain why the common sunfish do not grow larger in this pond would necessitate an investigation by the Institute.

The usual reason for a lack of large sunfish in a comparatively unfished pond of this type, which does not have a large predator game fish, is a lack of sufficient food for subadult and adult sunfish and the consequent competition for food and cover between the sunfishes and other fish species.

INSTITUTE FOR FISHERIES RESEARCH

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