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INVESTIGATION OF RAINBOW TROUT BLINDNESS
AT THE WOLF LAKE HATCHERY

by

George N. Washburn

According to a communication from Mr. J. G. Marks, Regional Fisheries Supervisor at the Wolf Lake Hatchery, a number of fingerling rainbow trout (5 mo. old) in pond No. 2 of the hatchery appeared to be blind. A sample of these infected trout was sent to the Institute laboratory for examination which was completed on July 18, 1944.

These fish ranged from two to three inches in length and were, to all general appearances, comparable to any other healthy trout, the only difference recorded was the presence of white pupils in the eyes. Even though blindness was evident, these fish apparently were able to seek and obtain a sufficient amount of nutritive material for normal growth under hatchery conditions.

Through the courtesy and cooperation of Dr. George R. LaRue of the University of Michigan a number of these trout were examined and the causative agent found. Microscopical examination of dissected eyes revealed the presence of a small digenetic trematode (fluke or flatworm) Diplostomum sp. These parasites were found within the eye at three prominent locations, namely; the vitreous body, aqueous humor, and the lense capsule. According to Dr. LaRue,

the presence of these organisms in or about the lense would act as an irritant, causing cataract or other eye ailments, eventually leading to blindness.

This parasite has a three stage life cycle - bird, snail, and fish; and in order to control the infection, one of the hosts has to be eliminated. Samples of snails from pond No. 2 were collected and identification was made by Dr. H. vander Schalie, Curator of Mollusks of the Museum of Zoology, University of Michigan. According to Dr. vander Schalie, three species of snails were present in the collection, namely; Physa gyrina Say, Helisoma trivolvis Say, and Lymnaea elodes Say. The latter snail was thought to be the carrier of the trematode cercariae, while the two former species were not involved in any stage of the life cycle of this particular organism.

An attempt to completely destroy the snail population at pond No. 2 was made during the fall of 1944. Dr. A. S. Hazzard, Director of the Institute for Fisheries Research, the writer, and hatchery personnel undertook this project on October 11, 1944. A total of 60 gallons of hypochlorite (Klenzade), 17 per cent available chlorine, was administered to the pond water and thoroughly mixed with an outboard motor. The commercial product used had been left over from the Oden hatchery sterilization job and was believed to have at least partially lost its original potency. The presence of free chlorine, checked by indicator paper, ranged between 20 and 25 parts per million for two hours after the initial treatment. Sixteen hours later no free chlorine in the water could be detected.

The sterilization project was not successful as on a later examination many snails were found to still be alive. Undoubtedly a much greater concentration of chlorine is necessary to assure complete success, and it is possible that a hypochlorite treatment, even then, would not be complete as some snails may burrow to a sufficient depth in the bottom soil and thus avoid encountering

this chemical, which because of its active nature soon loses its potency.

If fish placed in pond No. 2 at the Wolf Lake Hatchery show symptoms of blindness in future stockings, then a complete sterilization by some method will be undertaken.

If it were not necessary to use this pond for holding trout from about May 15 to October 15 very little trouble would develop even though infected snails were present since the infected cercariae are not given off in numbers except during the period of warmer water.

INSTITUTE FOR FISHERIES RESEARCH

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