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OBSERVATIONS AT WOLF LAKE HATCHERY, ON AUGUST 1, 1932

While passing through Kalamazoo August 1, 1932, the opportunity was taken to examine the Wolf Lake Hatchery. On the whole this is one of the finest developments we have seen. A few points observed may be interesting enough for present comment.

Trout in head pond and disease in hatchery

We noticed that a large number of brook trout remain in the head spring-pool. At least two of those seen certainly had some form of dorsal fin trouble. The same or a similar disease affected or had recently affected a large proportion of the fingerling brook trout in the hatchery. While it is not certain, we consider it probable that some of the disease in the hatchery was caused by disease organisms filtering through the house from the infected spring head.

In our opinion it was a mistake not to have provided for a complete draining of the head ponds (this it will be recalled was our recommendation). It would not have been a particularly difficult or expensive job to ditch through the fill so as to repair or replace the collapsed flume which formerly permitted drainage. The difficulties met with in attempting to gill-net the trout out of the pond have already been experienced. Since excellent spawning gravel is located in the pond, a new production of small trout each fall may be expected. It hardly seems feasible to remove the trout completely by netting. We again express the opinion that all trout in the water supply should be removed, and that facilities for draining the pond should still be installed.

Short gill cover in fingerlings

We noted that nearly all the fingerlings in the troughs decidedly showed short gill covers. While this is not necessarily harmful, one may suppose that the exposed gill

filaments will either provide an increase danger from infections, or will be hardened so as to decrease the respiration and activity of the fish. A point of perhaps small significance is that the appearance of adult trout with exposed gills is not so pleasing as that of normal fish.

While it is common for hatchery trout to show a considerable proportion of more or less short gill covers, these fish showed the malformation to a greater degree and in a much higher percentage than usual in our experience. Most of the fingerlings at the Thompson hatchery, examined later in the month, showed short gill-covers, although the condition did not appear to be as exaggerated as at the Wolf Lake station.

All the trout in both hatcheries were reported to show this short gill cover malformation, without reference to the source of the eggs. (Cape Cod, Paradise and American fish companies and Harrietta hatchery).

The short gill cover malformation is produced by a rolling over of the gill cover. It originates in an early stage of development and continues through life. The cause so far as we know is unknown. A somewhat similar abnormality in carp is claimed to be due to a parasitic infestation, but this seems unlikely for trout. The scarcity of short gill covers in wild trout would suggest that the cause is inherent in some condition of artificial propagation.

The extreme development of this condition at the Wolf Lake Station suggests that the high hatching temperature at this station is the cause. The winter water temperatures are reported as running close to 50°F, varying from 43° to 61°. The high incidence of short gill-cover at the Thompson hatchery confirms this theory, as the winter temperatures are also high there.

We suggest that a study be made of the incidence of short gill covers at several hatcheries next spring. A tabulation of the percentage affected in each stock in each of three or four hatcheries should be made. At least 100 fish, dipped at random from the troughs, should be examined. Particularly valuable comparison would be between lots of fish hatched at different hatcheries, yet all originating from one source.

Forage fish rearing

We were informed that one of the largest ponds (No. 9) at the Wolf Lake hatchery had been devoted to forage fish rearing. It had been stocked during the winter or spring with:

1. About 8000 lake shiners (Notropis atherinoides) from Grand Haven.
2. About 2000 golden shiners (Notemigonus crysoleucas) from the Lydell hatchery.
3. About 2000 blunt-nosed minnows (Hyborhynchus notatus) from Schuil Acres.

Mr. Marks thought that the lake shiners were reproducing and that killifish (Fundulus diaphanus) had been sent down by Mr. Schuil. He was apparently mistaken on both points, which was natural, as he had had no experience with shiners before and had not been supplied with identified specimens of the young and old shiners. The killifish found in the pond were presumably of natural occurrence, while the fry taken to be the result of lake shiner spawning were young blunt-nosed minnows.

In order to obtain some idea of the reproduction of forage fish in the pond, Mr. Marks had three hauls made with a 20-foot bobbinet seine. There were obtained:

1. Lake shiner (Notropis atherinoides): 2 adults; not a single young. The adults of this species may well have been schooling near the unseined center of the pond, but if many young had been produced, some should have been caught.
2. Golden shiner (Notemigonus c. crysoleucas): about 100 adults and thousands of young. This species had obviously been spawning very successfully in this warm weedy pond – as would be expected.
3. Blunt-nosed minnows (Hyborhynchus notatus): several adults and hundreds of young of varied size. The fact that fewer blunt-nosed minnows than golden shiners were produced, is I believe explainable on the circumstance that no spawning slabs had been installed for the blunt-nosed minnows,

while the spawning material for the golden shiners (the weeds) were present in abundance.

4. Killifish (Fundulus diaphanus menona): several.

5. Bluegill (Helioperca incisor): many young and some yearlings, and one ripe male about 4 inches long. The young bluegills may have come through the screen and conduit from high ponds which feed into No. 9, or may have resulted from the spawning of a few adults unconsciously held over.

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