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INSPECTION OF TAMARACK CREEK, MONTCALM COUNTY,  
WITH RESPECT TO PHYSICAL AND BIOLOGICAL CONDITIONS FOR TROUT

by

George N. Washburn

At the request of Mr. F. A. Westerman, Chief of the Fish Division, Department of Conservation, an inspection of Tamarack Creek was made on July 5, 1944. The investigation party was composed of Mr. Claude Lydell, District Fisheries Supervisor of the Lydell Hatchery, Mr. Dan Etheridge of Grand Rapids, who is interested and familiar with fishing conditions of this stream, and the writer, of the Institute for Fisheries Research.

The primary purpose of this investigation was to obtain water temperatures of the stream at a time when maximum or near maximum air temperatures would be encountered. The inspection date was found to be very satisfactory as little or no rain had fallen for the past week and the air temperature for the preceding two days had been above (90°F. maximum).

In addition to various temperature recordings, general biological conditions were observed. Inspection commenced at U.S. Highway 131 bridge in Howard City and extended downstream for a distance of 7 or 8 miles (approximately to the Newaygo County line). The stream was checked at six locations and the findings at each of these stations are presented below.

Station I

Location--Howard City, U. S. Highway 131 bridge, T. 12 N., R. 10 W., Sec. 26. The air temperature was 85° F. and the water was 76° F. The stream was approximately 30 feet wide and consisted of pools and rapids. The stream bed was composed of a heterogeneous mixture of sand, gravel, and rubble interspersed with an occasional pile of brush and other debris. The immediate banks were normal in appearance and did not seem to indicate much erosion.

Station II

Location--one and one-half mile west of Station I, on Highway M 46, T. 12 N., R. 10 W., Sec. 26. The air and water temperatures were the same as at Station I. A few small pockets of water located along seepage banks had a somewhat lower temperature, 74° F. The stream bed was similar to that section previously described. At this location though, there was considerable evidence of flood water erosion, as high clay banks were cut away on both sides of the stream.

Station III

The location was approximately the same as at II except that it was one-fourth mile farther downstream, making it in the northeast corner of Section 33. The water temperature and general stream conditions were the same as above. At this location a few minnows and crayfish were observed in the water and many of the rocks were coated with a filamentous green algae.

Station IV

Location--T. 12 N., R. 10 W., Sec. 32 (approximately 4 1/2 miles west of Howard City on M 46).

The stream at this location was much larger (estimated at one sixth) and the water temperature had dropped to 72°F. The general stream character was the same as previously described in the other stations. There are three feeder streams entering the main stream between stations III and IV and undoubtedly possess cold water, as indicated by a temperature drop of 4°F. in the main stream. Two of the three feeder streams were inspected; one (entering from the north) was impounded and contained warm water (78°F.), while the other (entering from the south) had clear cold water (61°F.).

#### Station V

Location--T. 12 N., R. 10 W., Sec. 32 (approximately 6 miles west of Howard City on road bridge of M 46).

The stream at this point was lined on both sides by high banks overhung by dense foliage. The water temperature was recorded as 70°F., a two degree drop from Station IV. At this location several flowing springs were emerging from the west bank and dropping into the stream. The temperature of this spring water was 47°F. Other stream characters were similar to the above described stations with the exception that less gravel and more shifting sand was present in the stream bed.

#### Station VI

Location--T. 12 N., R. 10 W., Sec. 30 (approximately 7 miles west of Howard City at Mr. Dan Etheridge's cabin).

The stream at this location is similar to that described in Station V, being well wooded and changing bottom type. Several small springs (having a temperature range of 47° to 50°F.) enter the main stream at various intervals at this location. Also, a small feeder enters here having a temperature of 56°F. The temperature of the main stream was the same as at Station V, 70°F. The air temperature was 80°F.

Summary and Recommendations

It appears from this preliminary investigation that Tamarack Creek is capable of supporting a limited number of trout the year around even though near maximum tolerance temperatures were encountered, as small, cold feeder streams and springs entering the stream at well spaced intervals would offer temporary refuge during a critical period.

Therefore, the planting of trout in this section of Tamarack Creek should be continued, restricting the stocking to brown and rainbow trout. For reference, the plantings of 1941, 1942 and 1943 are tabulated below.

Year	Species and number of each			Size
	Brown trout	Rainbow trout	Brook trout	
1941	1,400	1,600	100	Yearlings
	5,000	1,700		8 mos. old
1942	3,400	1,000	500	Yearlings
	1,000			Adults
1943		1,400		Yearlings
	1,000			Adults

Tamarack Creek becomes shallow and wide as it approaches the Montcalm-Newaygo County line and undoubtedly would be benefited by the introduction of some type of stream improvement. It would be desirable to have the proper personnel survey this area in respect to this problem.

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