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TRANSFER OF AN ACANTHOCEPHALAN FROM ONE FISH HOST TO ANOTHER

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Autopsies of lake trout and of recently stocked coho salmon from Lake Michigan revealed heavy intestinal infestations with the acanthocephalan or spiny-headed worm Echinorhynchus salmonis (Muller, 1784). Do these fish get the worm by eating small infested fish such as ciscoes and smelt which are carrying the adult parasite? This would be in addition to the known method of transfer through a crustacean intermediate host.

A simple experiment was conducted to see if the adult acanthocephalan could be transferred from the intestine of one fish to the intestine of another. An adult coho salmon from Lake Michigan was autopsied and a portion of the lower intestine with attached acanthocephala was removed. This was placed in Ringer's solution (0.75% salts) and divided into segments each containing 5-15 undamaged acanthocephala. A segment was force-fed to each of eight brook trout from a hatchery stock not infested with the parasite. The prior absence of the parasite was verified by autopsy of 25 brook trout from the same source without finding any acanthocephala.

The experimental brook trout were held in aquaria at 50° F. and sacrificed periodically for 12 weeks. Live acanthocephala were found attached to the fish intestines in all periods. This experiment proves that the acanthocephalan Echinorhynchus salmonis, as an adult worm, is able to reestablish in a new host after ingestion. This is a reasonable explanation for the high intensity and incidence of infestation among coho salmon and lake trout in Lake Michigan.

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