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Trypanorhynch Infections in the Flesh of Sciaenid Fishes

ROBIN M. OVERSTREET

Robin M. Overstreet is with the Gulf Coast Research Laboratory, Ocean Springs, MS 39564. *This study was conducted in cooperation with the U.S. Department of Commerce, NOAA, National Marine Fisheries Service, under P.L. 88-309, Project No. 2-262-R.*

"Wormy" marine fish often result from parasitism by trypanorhynch plerocercoid larvae. These cestodes infect elasmobranchs as final hosts; species using teleosts as intermediate hosts presumably are always or most often transmitted to those fishes by crustaceans. Distinctive because of their four eversible, hooked tentacles on the scolex, the worm proper of many species is often enveloped by a thin membrane and a protective blastocyst. Usually, the blastocyst and encysted organism appear chalky-white or yellowish, folded or twisted, and relatively large and elongated or small and spherical. When one end of a blastocyst is enlarged, it usually contains the scolex with its organs of attachment and presumptive germinal region.

Identification of species may constitute a problem. Many infections have not been reported; some species cannot be associated with known adults and suggest undescribed species; characteristics of many are difficult to interpret; and different species may possess similar diagnostic features.

Along the coasts of the northeastern United States and northern Gulf of Mexico, several commercial, sport, and seldom-utilized fishes harbor trypanorhynchs. At least eight of these cestode infections are restricted to the flesh, whereas many more than that number occasionally infect flesh, but typically inhabit the viscera of fishes or tissues of invertebrates. Often rather specific to both host and site within the host, a trypanorhynch can be extremely displeasing to fishermen and consumers if it is visible or involves edible flesh. Consequently, numerous fish possessing a cestode parasite harmless to man are discarded and wasted. In the Northeast, trypanorhynchs occur in butterfish, bluefish, hake, winter flounder, Atlantic mackerel, swordfish, and other fish in addition to sciaenids; whereas in the Gulf, at least amberjacks, crevalle jack, sea catfish, bluefish, and red grouper harbor infections in addition to sciaenids. Some of these worms are presently under study (T. Mattis and R. Overstreet, Gulf Coast Research Laboratory).

Several trypanorhynchs infect sciaenid fishes in the northern Gulf of Mexico. *Pseudogrillotia pleistacantha* occurs in large black drum and perhaps infects other drums as well. *Pterobothrium lintoni* infects southern kingfish, and *P. heteracanthum* infects the Atlantic croaker and other hosts. An unidentified abothriate species suspected to be a trypanorhynch infects the Atlantic croaker and spotted seatrout, and a few other trypanorhynchs infect sciaenids only infrequently. The most prevalent flesh-infecting trypanorhynch in the northern Gulf, *Poecilancistrium caryophyllum* (Fig. 1, 2), infected 6 of the 10 sciaenids examined from Mississippi and also occurred in other sciaenids from other regions in the Gulf and along the U.S. Atlantic seaboard. Spotted seatrout, silver perch, and red drum comprise the most prevalent hosts in Mississippi.

The relationship between *Poecilancistrium caryophyllum* and the spotted seatrout is now known in considerable detail (Boertje, 1976; Overstreet, 1977; Schlicht and McFarland, 1967). Based on my studies, roughly 40 percent of the examined seatrout from Texas, Louisiana, and Mississippi possessed an average of about two worms; whereas, values for infections in seatrout from Apalachee Bay, Fla., were about twice as high, and those from Tampa Bay, Fla., much less than from the more western localities. Plerocercoids most often involved the middle of a fillet or the region adjacent to the vertebral column immediately below the dorsal fins, making them clearly visible to one filleting the fish. Even though no clear seasonality for the infections occurred in Mississippi, prevalence seemed to relate nonlinearly with salinity. Prevalence, but not intensity, also increased with increasing host-length. This finding, plus a relatively close fit of the negative binomial distribution to data of observed frequencies, suggests an immune response to challenge infections. Infections appear to last at least 1-3 years. No fish less than 140 mm SL and few less than 250 mm possessed infections. The paucity of infections suggests either unavailability of the intermediate host, or a case of direct death or weakening and resulting predation of young, infected seatrout. The worm does not seem to affect the growth of older fish. Condition coefficients and relative liver weights for the more heavily infected fish did not differ significantly from those for less infected fishes.

LITERATURE CITED

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Figure 1.—Five blastocysts of *Poecilancistrium caryophyllum* in a filleted spotted seatrout (from Overstreet, 1977).

Figure 2.—A plerocercoid larva of *Poecilancistrium caryophyllum* removed from enlarged portion of a blastocyst shown in Figure 1.

Overstreet, R. M. 1977. *Poecilancistrium caryophyllum* and other trypanorhynch cestode plerocercoids from the musculature of *Cynoscion nebulosus* and other sciaenid fishes in the Gulf of Mexico. J. Parasitol. 63:780-789.

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