

The Principal Parasitic Diseases of Warm-Water Fishes

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Parasitic diseases of fishes are usually encountered more often than microbial diseases. From 30 to 50 percent of the cases received at several fish disease diagnostic labs involve parasites.

Host reaction to parasitic invasion is highly variable. The severity of a parasite epizootic may be related to environmental factors, host condition, age, size, and population density. Some species that may be considered commensals become pathogenic under certain conditions, but most obligate parasites are pathogenic and some, such as the ciliated protozoan *Ichthyophthirius*, cause great losses. Many helminths such as the digenean grubs appear to be only slightly or moderately pathogenic but destroy the aesthetic value of fish.

Many consider the protozoans to be the most important group of parasites affecting fish. Fish culturists throughout the world report great losses caused by protozoans. The most devastating fish parasite is the ciliated protozoan *Ichthyophthirius*. "Ich" is an obligate parasite infecting the skin and gills of fish and causing excess mucus production and hyperplasia of the epithelium.

Research has demonstrated that fish will develop an immune response to

"Ich" infections.

Several other ciliates such as *Chilodonella*, *Trichodina*, *Anbiphrya*, and *Epistylis* can cause mortality under certain conditions. Flagellates such as *Costia* and *Bodomonas* often cause mortality but are fairly easy to control with an external treatment.

Henneguya is a Cnidosporidan commonly infecting catfish. Several different forms occur in the gills and skin with an interlamellar form reported to cause extensive mortality in very young fish.

Several species of *Pleistophora*, a microsporidian, occur in fish, one of which occupies the ovary of golden shiners and can cause sterility. Older fish have a much heavier infection rate and more ovary damage, but a technique using 1-year-old brood fish has practically eliminated the problem of sterility.

Some genera of monogenetic trematodes can build up large populations under intensive culture situations, but they are not considered to be a serious threat to fish in North America.

Two groups of digenetic trematodes occur in fish: adults normally living in the gastrointestinal tract, and larval forms, metacercaria, or grubs living in

the tissues. The eye grub, *Diplostomum*, attacks the lens of the eye causing blindness, while white grubs, black grubs, blackspot, and yellow grubs affect mainly the aesthetic value of the fish. There are no controls known for the tissue-inhabiting larval forms.

Cestode plerocercoids of the bass tapeworm live in visceral organs of bass and commonly migrate through ovaries causing sterility. One approach we have taken requires replacement of brood fish about every 3 years to manage around the problem of sterility by maintaining a low intensity of infection. Earlier attempts to rid fish hatcheries of the bass tapeworm by disinfecting the ponds and restocking both brood and forage fish were unsuccessful as the fish would show a reinfection within a year after restocking. *Corallobothrium* is a tapeworm sometimes found in great numbers in the intestine of channel catfish. Little apparent damage is caused by this worm, and it has been easily controlled using tin compounds in the feed.

Nematodes in the gastrointestinal tract are not considered detrimental, but tissue-inhabiting forms can seriously affect the fish population. *Philometra* is a nematode commonly found behind the eye of centrarchids, and up to 40 percent of some reservoir populations in the Southeast have been affected.

Crustaceans are one of the main groups of detrimental parasites, especially the anchor worm that has both an adult and a parasitic larval stage that feeds on the fish.

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