

## External Parasites on Fish

**Leeches, lice and maggots are external parasites that can occur on fish.**

*By Neale Monks, Ph.D.*

Large external parasites, such as leeches and fish lice, most commonly affect pond fish. They can cause a variety of problems, including weakening of the host fish, secondary infections in the fish, such as fin rot, and the transmission of blood-borne diseases between fish.

### Identification

Not all leeches are parasitic, but many are. Parasitic leeches feed on the blood of the fish, leaving behind distinctive circular lesions on the fish's body. These lesions appear sore and inflamed, and are frequently sites of secondary infection.

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Photo courtesy Neale Monks. Anchor worms (*Lernea* spp.) are thin, wormlike crustaceans less than an inch in length. They are often black in color, and when they are mature, a pair of large egg sacs will be clearly visible. As with leech bites, the sites of anchor worm attachment in fish are bloody and frequently become infected.

Fish lice (*Argulus* spp.) are flattened, disk-shaped crustaceans less than half an inch in diameter. They irritate the host fish, causing it to scratch itself against rocks or repeatedly jump out of the water in an effort to dislodge the parasites.

Gill maggots (*Ergasilus* spp.) are closely related to fish lice, but as the name suggests, they infect the gills, rather than the body of the fish. When the fish's gill covers are raised, the paired white egg sacs on the parasites will be visible as maggotlike structures.

### Pathology

All these parasites feed on the fish's blood, weakening the host fish to some degree. In extreme cases, the host fish becomes emaciated and prone to secondary infections and other diseases.

Anchor worms, fish lice and gill maggots spend their entire adult life attached to a single host fish, but leeches will feed on a succession of hosts and are believed to be able to transmit blood-borne diseases between fish.

### Life Cycle

Leeches alternate between feeding and resting stages throughout their lives.

Anchor worms, fish lice and gill maggots have life cycles that involve a free-living juvenile stage and a parasitic adult stage. The precise details vary from species to species; among gill maggots, for example, only the female is parasitic.

### Manual Removal

Anchor worms and fish lice can be removed from the fish using forceps, but after removal, an antiseptic such as iodine should be dabbed on the wound to prevent secondary infections. Leeches can be removed in a similar way, though usually the leeches are weakened first by exposing them to a saltwater bath (see below). Gill maggots cannot be removed easily because of their location on the fish.

To remove leeches, place the fish on a soft, wet towel. Hold the fish firmly, but without squeezing. Only remove the fish from the water for a minute or two. Use the forceps to grip the external parasite as close to the body of the fish as possible, and then carefully pull it away. Dab the wound with antiseptic and then repeat the process for any other external parasites on the fish.

Physical removal of the parasites does nothing about those living free in the pond. To kill these, you will need to use an organophosphate insecticide.

External parasites on fish the size of koi or goldfish can be bathed in a saltwater solution for 15 to 30 minutes. Saltwater Dips Saltwater dips weaken or kill parasites, so they can be removed without damaging the host fish. In a bucket, mix 2½ to 4

ounces of aquarium salt per gallon of bucket-water at the same pH and temperature as the pond. Stir the water until the salt has completely dissolved.

External parasites on fish the size of koi or goldfish can be safely bathed in this saltwater solution for 15 to 30 minutes. Freshwater fish are stressed by immersion in saltwater baths, and if they show signs of severe distress, such as loss of balance, they should be removed at once.

#### Insecticides

The organophosphate insecticide metrifonate (also known as trichlorfon) is widely used to kill leeches and crustacean parasites in ponds and aquaria. It is not normally sold in pet stores but can be obtained through your vet. The dose depends on ambient conditions, particularly pH and temperature, but is typically around 1 mg per gallon for seven days. Activated carbon will remove insecticides from the water, so this will need to be taken out of any filtration systems if used.

Proprietary medications for treating some external parasites in fish are available in pet stores, in particular ones based on diflubenzuron (also known as dimilin). These should be used as instructed by the manufacturer.

Insecticides kill a wide variety of invertebrate life, not just parasites. Some are highly toxic to humans, as well as other pets.

#### Prevention

Leeches and crustacean parasites mainly get into ponds and aquaria in three ways: attached to fish that haven't been quarantined, in their free-living stages in packages of live food and attached to plants (especially in the case of leeches).

Always quarantine new fish before introducing them to your pond, and avoid using live foods. Never put aquatic plants collected from the wild in your pond, and instead use plants produced expressly for the fishkeeping hobby.

Neale Monks studied zoology at the University of Aberdeen in the north of Scotland and obtained his Ph.D. at the Natural History Museum in London. He's also been a marine biologist, a high school teacher, a university professor and a museum's exhibit designer. But his real love has always been tropical fish. His particular interest in brackish water fish culminated in his editing of the first encyclopaedic book on the topic, 'Brackish-Water Fishes', published by TFH in 2007. Neale regularly contributes to all the major English-language fishkeeping magazines, focusing especially on community tanks, biotopes, healthcare and water chemistry issues. After living in London and then for a while in Lincoln, Nebraska, Neale now lives in a quaint cottage in a pretty market town in Hertfordshire, England, where he divides his time between teaching and writing.