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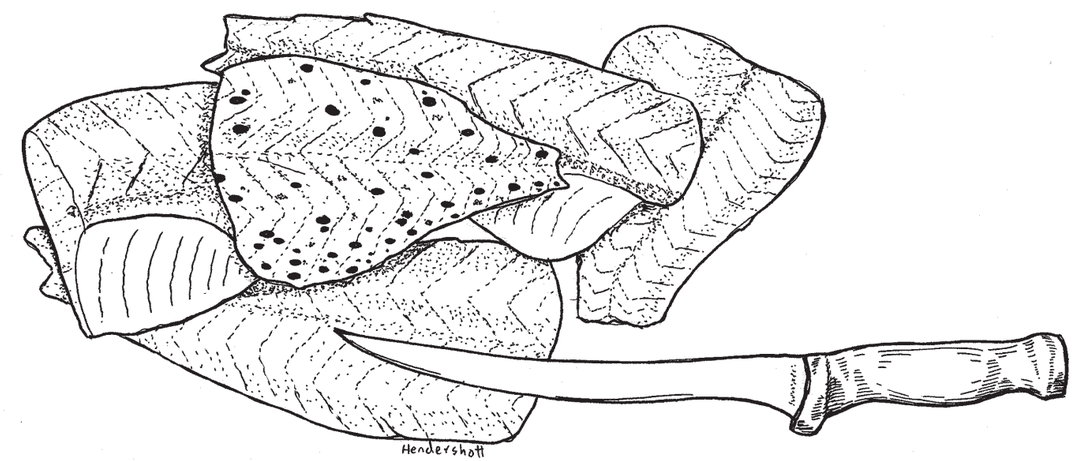
AQUAGUIDE
MISSOURI DEPARTMENT OF CONSERVATION

What's Bugging My Fish?

A Guide to Parasites in Fish

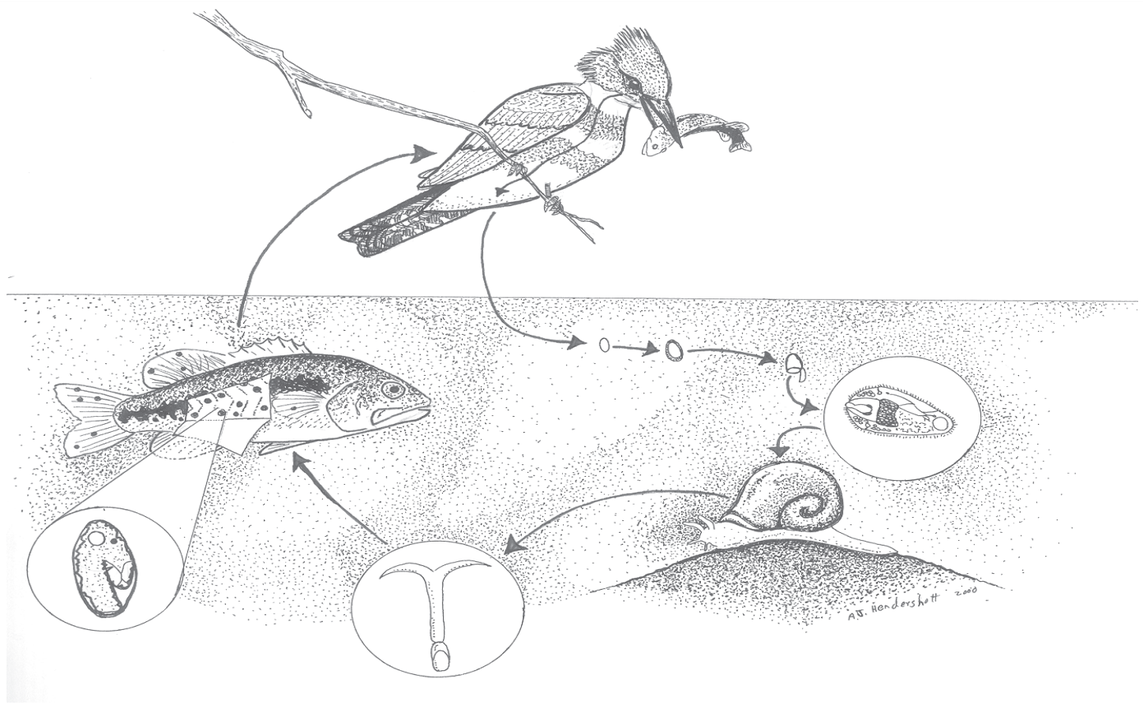


"What are these spots on my fish"? This is a question that fisheries biologists receive from many lake owners around the state. Lake owners and anglers alike will eventually run across a fish that has visible parasites on it. While some anglers simply throw the fish back, often it isn't apparent that the fish has parasites until it is cleaned. It is then that anglers come to MDC biologists to ask whether these fish are safe to eat. The answer to date has always been the same, "Yes, it's okay to eat the fish. We do recommend that the fish be thoroughly cooked before consumption.

Why My Fish ?

Almost all fish have a few parasites. Most of them are very small and are located in the internal organs. They are usually discarded during the cleaning process and therefore never seen. Numerous microscopic parasites that can affect fish are present in all bodies of water. They become more prevalent in fish as the fish's immune system becomes stressed. A fish's immune system can become stressed in many ways. Some of the more common stressors are spawning, dramatic low dissolved oxygen levels, or temperature changes.

Due to these microscopic parasites, fish can have symptoms such as: small sores on the body, white spots on the body, holes in the head, bulging eyes, or swollen pale gills. In these extreme cases it is generally less expensive to let the infection run it's course and if necessary restock later with the species that was affected.



Are There Different Kinds?

Fish can be a host to many different types of parasites. There are some cases where fish have had reproductive problems or even been killed by parasites; however, these instances are extremely rare. In most cases, parasites target a select species of fish and inhabit individuals without negatively affecting the total population. Most fish live with parasites all of their lives without suffering serious effects.

The four main parasites that anglers may encounter in Missouri are the tapeworm, black grub, yellow grub, and the white grub. Tapeworms are common in the organs and body cavities of many fishes. Anglers rarely know if tapeworms are present in fish since they live in the digestive tract and are usually discarded when the fish is cleaned. Tapeworms are white and can reach lengths of up to 12 inches. They resemble long thin ribbons about 1/16 of an inch wide.

Black grub (black spot) are light colored grubs that form a small dark colored cyst around themselves which makes them appear dark and easy to spot. These grubs are found most often in the fins of fish but can also be found in the flesh. They are wide-spread throughout the state. Commonly affecting a wide variety of fish, black grub are most often found on minnows and sunfish.

Yellow grubs are cream to pale yellow in color and curl up in the flesh of the fish. When the grub is removed from the fish, they can stretch to a length of one-third inch. They tend to affect a wide variety of fishes.

White grubs are similar to yellow grubs in color; however, they are found in the liver or occasionally in other internal organs. This grub will be found in bluegill, crappie, and minnows.

None of these parasites are harmful to man, but some anglers choose to remove them from the fish they clean for aesthetic reasons. A fillet that is completely covered with black or yellow grubs can be very unappetizing. However, once the flesh is throughly cooked, the parasites are killed and cannot be tasted. There are three types of fish parasites found in North America that can be harmful to man, **but none occur in Missouri**. Infestations of those parasites are found mainly among people who eat raw fish.

Another common question that biologists receive about parasites is, “How does the grub infect the fish?”. Black grub, white grub, and yellow grub have similar life cycles. It begins when a fish-eating bird (i.e,. kingfisher or heron) eats an infected fish. The larvae then grow into adults while inhabiting the bird’s digestive tract. Once mature they produce eggs. The bird then releases the eggs (through regurgitation or in the feces) into streams and lakes where they hatch into more larvae. These larvae then infest any snails they encounter on the bottom . The snail then serves as the larvae’s new host. While inside of the snail, the parasites develop into free swimming flukes which leave the snail and penetrate the flesh of any suitable host fish they encounter. If the infected fish is eaten by a bird, the cycle is then repeated.

What can I do?

Since the life cycle of these parasites is fairly complex, treatment is often difficult. Usually it is more effective to attempt to break a link in the chain of their life cycle than to try to affect the organism directly. If one link in the cycle can be eliminated, the chances of getting any parasite problem under control improves.

Employing this theory biologists have found that the weakest link in the parasite’s life cycle is the snail population. If it can be reduced then the parasite population will also decrease.

Since they are more visible, many might assume that the birds would be easiest to control. This is not the case. Since the eggs pass through their feces, it is not neccessary that they even land at the impoundment to infect it. Also, many of the birds that act as carriers are protected species.

Many pond owners have asked whether there are any chemicals available that they could apply to kill the snails. Unfortunately while such chemicals do exist they also affect fish populations as well. This makes them very undesirable methods of control.

The best overall natural control for snails found thus far is a stocking of redear sunfish. They can be used to control snail populations because they feed primarily on snails. Every lake is different, but these fish may help with a parasite problem. As an added bonus redear sunfish provide excellent fishing opportunities in lakes of all sizes. These muscular bluegill-like fish are broader bodied than bluegill. They tend to be a greater challenge to hook and more aggressive fighters once on the line. For lakes with a parasite problem the department recommends stocking redear at a rate of 50 (four to six inch) per acre. The Missouri Department of Conservation provides a list of commercial fish dealers that can help pond owners find a source of redear sunfish.

So, if the fish in your lake have parasites don’t be startled. It is a normal occurrence and there is no need to worry. The parasites don’t have to ruin your fishing trip and you don’t have to cancel that family fish fry.

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