



RON WILSON

FLESHING OUT FISH DISEASES

Most North Dakota fish are healthy, but here's what you need to know if you catch one that doesn't look quite right.

By Scott Gangl

With the arrival of spring, many anglers are going forth to do a little fishing. Whether they're out for some R and R, or after the trophy of a lifetime, most have something in common. They like to keep a few for the frying pan. Regardless of whether it's a bucket of bluegills from your favorite lake or a stringer of walleye, fish harvested from North Dakota waters can make a delicious meal. But nothing can spoil your appetite faster than catching a fish that's diseased or looks sick.

The North Dakota Game and Fish Department gets numerous reports of sick-looking fish each year. This article will describe some of the more common diseases and parasites, and whether they affect the edibility of the fish's flesh.

Viruses and bacteria are too small to be seen by the naked eye, but when they infect a fish the symptoms are usually obvious. For example, if you catch a fish that looks like it has warts, it's probably infected with lymphocystis. Lymphocystis is one of North Dakota's most commonly reported viral diseases in fish, but it's typically not fatal to the fish. The "warts" are actually pools of viral cells.

After the disease runs its course, in usually 3-4 weeks, cells slough off, releasing viral particles into the water. Because these particles can infect other fish of the same species, it's best to harvest fish with lymphocystis if regulations allow. Although a fish with lymphocystis is unsightly, the disease doesn't infect the flesh and is not known to transmit to humans. Thus, the flesh of the fish is all right to eat as long as it's cleaned, prepared and cooked properly.

Bacteria are common in North Dakota waters, and when conditions are ripe they can cause infections in

numerous fish species. Two common bacterial infections are caused by columnaris and aeromonas bacteria. Columnaris appears as a grayish-white patch on the fish's skin. If a columnaris infection persists, the patch may develop into a bloody, reddish lesion and the fish may eventually die. Aeromonas often appears as a reddish lesion, and is difficult to distinguish from an advanced columnaris infection.

Bacterial infections can occur in many North Dakota fish species, but may be particularly common in bullheads and catfish. In recent years, columnaris and aeromonas bacteria have been attributed to catfish and carp die-offs on the Red River. These bacteria are always present in the environment, and only cause problems when fish become stressed, such as after spawning or during periods of low water flows and high water temperatures. If you catch a fish with a bacterial infection on the skin, the flesh of the fish should be edible when cleaned, prepared and cooked properly.

A fungal infection may appear as gray-white mats on the fish's skin. These mats are generally fuzzy looking, which helps to distinguish a fungal infection from lesions caused by a bacterial infection. Fungal infections can occur when a fish gets stressed or injured, and can commonly be seen on individual fish where their slime coat has been damaged or removed. The fungus can progress to the point where it covers, and eventually kills, the fish.

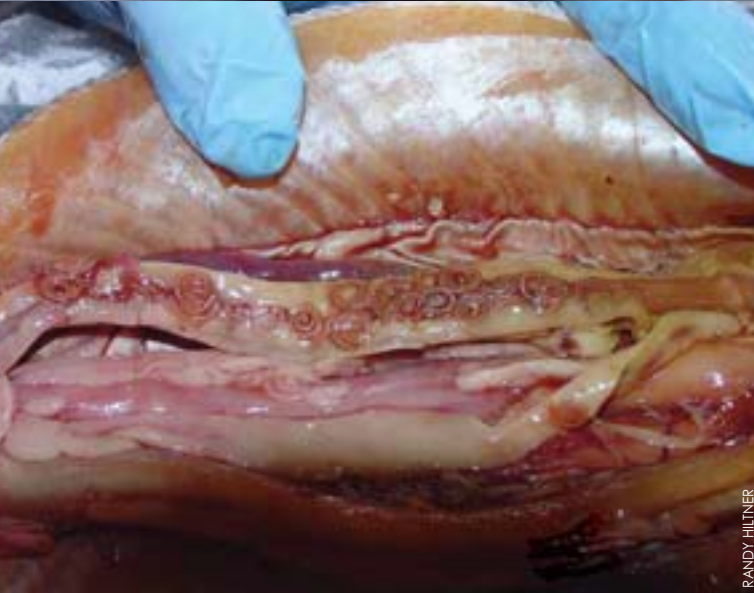
Since the mucous, or slime coat, is a fish's first defense against fungal or bacterial infections, special care should be taken not to damage the mucous layer of any fish you plan to release. If you harvest a fish with a fungal infection, the flesh should be edible if cleaned, prepared and cooked as usual.

A unique malady that has only been found in



Sandy flesh in a walleye fillet appears as rough, brownish flesh reminiscent of freezer burn. It's recommended that you do not eat a walleye with sandy flesh.

DAVE FRIDA



Adult roundworms found in the body cavity of a northern pike. The fillets of this infected fish should be fine to eat as long as it's cooked thoroughly.

RANDY HILTNER



Symptoms of a bacterial infection on the fin of a channel catfish include grayish-white to red lesions such as this, which was likely caused by a columnaris bacterial infection.

BRAD DURICK

walleye is known as sandy flesh, or myofibrogranuloma. Sandy flesh is a form of muscle degeneration often compared to muscular dystrophy in humans because it shows similar symptoms. An affected fish shows no external symptoms or abnormal behavior. However, the fillets will have a rough, sandy texture to the flesh that resembles freezer burn. The flesh may range from slightly discolored to yellowish-brown. Although there is no known link between myofibrogranuloma in fish and muscular dystrophy in humans, the cause of sandy flesh is not known and it's recommended that you do not eat an infected fish.

Parasites can be common in some populations. Various roundworms and flatworms are found in or on fish as either larvae or adult worms. The yellow grub is a larval form of a trematode, or flatworm, that infects fish-eating birds. In the larval stage, yellow grub infects fish and occurs as a cream-colored cyst just under the skin, embedded in muscle. Yellow grub is not known to infect humans, and thorough cooking will kill the parasite. If it's practical, you can trim away the infested tissue, and clean and cook the fish as usual.

Another larval trematode causes black spot disease. As its name implies, black spot disease appears as round, black cysts. About the size of a pinhead, these black cysts are commonly seen in the skin of infected fish, but can also be embedded in the flesh. Black spot is not known to infect humans, and thorough cooking will kill the parasite. As with yellow grub, trim away infested tissue if practical, then clean and cook the fish as usual.

Adult tapeworms, roundworms or spiny-headed worms can infect fish as well. These adult worms are different species than the larval cysts that cause yellow grub or black spot disease, which infect birds as adults. These adult worms are usually found inside the body cavity, attached to or inside internal organs. Most of the time, these worms won't be visible to anglers unless you open the body cavity or cut the intestine while cleaning. The flesh from a fish infected with worms is still edible, and fillets can be prepared and cooked as usual.

Leeches are common fish parasites in many North Dakota waters. Leeches are probably one of the most obvious fish parasites because they attach to the skin or fins, and small leeches can often be seen in the mouth cavities or near the gills. These leeches are external, blood-feeding parasites. Although the leeches themselves are unsightly, they won't harm the fish unless they cause a wound that may open a path for a bacterial or fungal infection. The flesh of a fish infected with leeches is completely edible.

Parasites and diseases are widespread throughout nature. If you harvest a fish that looks sick or diseased, most of the time the flesh is edible if properly cooked. However, when in doubt, it's OK to discard a fish that looks diseased or infested with parasites.

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A walleye infected with lymphocystis. It's recommended that you harvest fish with lymphocystis, where regulations allow, to prevent the spread of the virus contained in the wart-like growths.

The bloody red lesion on this channel catfish is indicative of an advanced columnaris or aeromonas bacterial infection. A fish with a bacterial infection such as this can recover if environmental conditions permit.

Black spot disease is easy to identify in fish, such as this yellow perch.



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