

Largemouth bass virus (LMBV) fact sheet

By BASS Communications

1. What is Largemouth Bass Virus?

It is one of more than 100 naturally occurring viruses that affect fish but not warm-blooded animals. Origin is unknown, but it is related to a virus found in frogs and other amphibians and nearly identical to a virus isolated in fish imported to the U.S. for the aquarium trade. Although the virus is carried by other fish species, to date, it has produced disease only in largemouth bass. Scientists do not know how the virus is transmitted or how it is activated into disease. In addition, they know of no cure or preventative, as is commonly the case with viruses.

LMBV first gained attention in 1995, when it was implicated in a fish kill on Santee Cooper Reservoir in South Carolina. Since then, the virus has been found in lakes and impoundments from Texas east to the Chesapeake Bay area and south into Florida.

During 2000, LMBV was confirmed as the source of a kill in Lake George on the Indiana-Michigan border. The following year, minor kills were attributable to LMBV in the same general area, with the virus being found in two lakes in Michigan, three in Indiana, and two on the border. Illinois also reported finding the virus in fish from four lakes and in hatchery stock.

Often, LMBV has been found in bass that show no signs of disease, which suggests that some fish might be infected but not ever become ill.

Some kills, however, have been linked to LMBV. Since all those die-offs occurred from June through September, warmwater temperatures might be a factor, particularly in Southern fisheries, where surface temperatures can remain in the 90s for months at a time. No other common variables seem to exist among lakes where kills occurred. Some lakes, for example, contain aquatic vegetation and others do not, suggesting that herbicide management of aquatic plants did not trigger the disease to turn fatal.

Some scientists believe that "stressed" bass might be the most likely to die of the disease. Along with hot weather, stress factors might include poor water quality caused by pollution.

Thus far, LMBV-related kills have been minor in comparison to kills prompted by other causes, such as pollution. These incidents have received considerable attention, however, because they involve the nation's most popular game fish.

No evidence exists that LMBV has caused a long-term problem on any fishery or will have a long-term impact. But scientists are investigating how the virus might affect growth rates of bass, particularly younger fish.

2. What are the signs of Largemouth Bass Virus?

Most bass infected with LMBV will appear completely normal. In those cases where the virus has triggered disease, however, dying fish will be near the surface and have trouble swimming and remaining upright. That's because LMBV appears to attack the swim bladder, causing bass to lose their balance. Diseased fish might also appear bloated.

The occurrence of lesions or black spots is not necessarily a symptom of LMBV.

Adult bass of two pounds and more seem to be the most susceptible to disease.

3. Is Largemouth Bass Virus a new disease?

No one knows. Because LMBV has been confirmed in so many places at nearly the same time, some scientists suspect the virus has been around for a while. Others suggest that "genetic sequencing information" indicates that it may be relatively new. Recent evidence suggests that the virus was present during 1991 in Florida's Lake Weir.

4. Where has Largemouth Bass Virus been found?

Since 1995, LMBV has been found in 17 states: Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Michigan, Missouri, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. Other states have monitored for the virus, but did not find it. Others plan to do so in 2002. Between March and November 2000, researchers examined

3,476 largemouth bass and related sunfish species in nine southeastern states, according to the federal Warm Springs Fish Health Center. Of those, 464, or 13 percent, tested positive for LMBV. Fish kills attributable to LMBV have been confirmed in more than two dozen locations. During 2001, however, mortalities reported were the lowest in several years. Minor kills occurred in Arkansas, Georgia, Indiana, Louisiana, and Michigan.

Additionally, the presence of the virus itself seemed to decline in Southern waters. In Texas, for example, only 45 of 899 adult-size largemouth bass sampled in LMBV-positive reservoirs were infected. Previously, infection rates in some fisheries were more than 50 percent of sampled bass.

5. What are the impacts to bass populations?

Scientists do not know enough yet about the virus to determine if it will have long-lasting effects on bass populations. Indications are, however, that it will not harm fisheries long-term. Surveys on lakes following a kill suggest that fish populations remain within the normal range of sampling variability.

6. What are the impacts to fishing?

Following some kills, anglers have reported catching fewer bass, especially bigger fish. But indications are that an infected fishery will recover within a year or two.

More largemouth bass are killed annually by other known diseases or poor environmental conditions than by LMBV.

7. Are other fish and animals affected by Largemouth Bass Virus?

LMBV is a virus of the type that affects only cold-blooded animals. Researchers have found it in other centrarchids, but, thus far, it has proved to be a fatal disease only for largemouth bass. Other members of the sunfish family found infected with the virus include smallmouth bass, spotted bass, Suwanee bass, bluegill, redbreast sunfish, white crappie, and black crappie. Amphibians, reptiles, and other fish species could be carriers of LMBV. Scientists have found LMBV to be 98 percent identical to a virus found in guppies and "doctor fish," a freshwater aquarium species imported from Southeast Asia. This suggests that LMBV could have originated with importation of an exotic species.

8. Are infected fish safe to handle and eat?

Yes. LMBV is not known to infect any warm-blooded animals, including humans. But common sense should prevail at all times: Thoroughly cook fish that you intend to eat. Also, fish that are dead or dying should not be used for human food, regardless of the cause of the illness.

9. What can and is being done.

As with many fish viruses, little is known about LMBV. But because of the popularity of largemouth bass, state and federal agencies, universities, and private-interest groups are working hard to learn more about the virus and its impact on the resource. Universities involved with LMBV include Arkansas-Pine Bluff, Auburn, California-Davis, University of Illinois, Louisiana State, Mississippi, Mississippi State, and Texas A&M. During 2001, the federal Sport Fish Restoration Program, also known as Wallop-Breaux, provided more than \$400,000 for LMBV research.

10. What the experts think.

Because so little is known about LMBV, scientists have few conclusions to offer regarding the virus. They do suggest, though, that LMBV probably will become an enduring element in ecosystems and a component in natural selection. In other words, it could serve as a population control. On the positive side, scientists believe that LMBV does not appear to have the potential to cause anything more than minor and sporadic fish kills.

11. What can anglers do?

Anglers can help minimize the spread of LMBV virus and its activation into a lethal disease by doing the following:

- Clean boats, trailers, and other equipment thoroughly between fishing trips to keep from transporting LMBV — as well as other undesirable pathogens and organisms — from one water body to another. Recent research has determined that the virus can live for several hours in water, confirming the importance of this practice.
- Never move fish or fish parts from one body of water to another. And do not release live bait into a fishery.
- Handle bass as gently a possible if you intend to release them.
- Stage tournaments during cooler weather, so fish caught will not be so stressed.
- Report dead or dying fish to state wildlife agencies.
- Volunteer to help agencies collect bass for LMBV monitoring.