

# Viral Hemorrhagic Septicemia (VHS)

## What is VHS?

*The American Heritage Dictionary* defines "virus" as: "Any of various simple submicroscopic parasites of plants, animals, and bacteria that often cause disease and that consist essentially of a core of RNA or DNA surrounded by a protein coat. Unable to replicate without a host cell, viruses are typically not considered living organisms.

Viral Hemorrhagic Septicemia is a deadly fish virus that caused fish kills in several eastern Great Lakes in 2005 and 2006. It was confirmed in 2007 to be in Lake Michigan after first being found in the inland waters of Wisconsin's Winnebago lakes system. It is not a threat to people who handle infected fish or want to eat their catch, but according to the Animal Health Division of the Wisconsin Department of Agriculture, Trade and Consumer protection, 45 species of fish are known to be susceptible to VHS including the following species that are important in Wisconsin:

Black crappie	Chum salmon	Muskellunge	Turbot
Bluegill	Emerald shiner	Pike	Walleye
Bluntnose minnow	Freshwater drum	Pink salmon	White bass
Brown bullhead	Gizzard shad	Pumpkinseed	White perch
Brown trout	Grayling	Rainbow trout	Yellow perch
Burbot	Haddock	Redhorse sucker	Rainbow trout
Channel catfish	Herring	Rock bass	
Chinook salmon	Japanese flounder	Round goby	
Coho salmon	Largemouth bass	Smallmouth bass	

VHS virus is shed in the urine and reproductive fluids of fish into the water and the virus can remain viable in water for at least 14 days. Virus particles in the water infect the gills of the fish and within 2 days, the infected fish will start shedding the virus. Thus, water discharged from live wells, bilges and bait buckets can spread the virus from infected waters. Moving live, infected fish from one location to another will also spread the virus. Fish can also become infected by eating another infected fish. Other ways that the virus may be spread include natural fish movements, recreational boating/angling, birds, ballast water discharge, and research activities.

The clinical signs of VHS may include hemorrhaging (bleeding), unusual behavior, anemia, bulging eyes, bloated abdomens, and the rapid onset of death; however, these symptoms could apply to many different fish diseases. VHS must be confirmed by lab tests. Additionally, some infected fish may not show any signs and transporting these fish to new locations could spread the disease to new waters.