



## VHS: What It Is and Why You Should Know

By Salmon River Steward Stacy Furgal

Viral hemorrhagic septicemia virus (VHSV) was discovered to be in the Great Lakes region in 2005. The VHSV seen emerging in fish populations in the Great Lakes Basin is a unique, new genetic strain of virus referred to as Genotype IVb.

VHSV is a strain unlike any of its relatives and has left scientists relying on past research for answers on how to deal with it. This is a temporary means of answering the many questions about VHSV Genotype IVb. New type-specific research is being conducted by Dr. Paul Bowser and Dr. James Casey.

Bowser and Casey of the Aquatic Animal Health Program at Cornell University's College of Veterinary Medicine have been awarded several research grants from New York Sea Grant and other agencies to develop a molecular-based test for the virus.

*VHSV cannot be transmitted to humans or other warm-blooded species.* This is because of high internal body temperatures that prevent virus replication.

Research on the other VHS genotypes leads researchers to believe that VHSV Genotype IVb is transmitted from fish to fish by exposure to infected fluids (milt, ovarian fluids, urine, feces) or by a fish ingesting prey infected with the virus.

Fish that survive other genotypic infection develop antibodies that will, for a short time, protect the fish from further infection. Over time the number of antibodies will decrease and the fish will once again become susceptible.

As of Fall 2008, the virus had been discovered in 28 Great Lakes species and identified in nine bodies of New York State waters (see reverse to identify species and waters).

To learn more about VHSV, please visit, [www.nyseagrant.org](http://www.nyseagrant.org); use the search feature to find "VHS: The Anatomy of an Emerging Virus."

*VHSV infection is confirmed by tissue culture. At right, Dr. Paul Bowser holds a VHSV-infected muskellunge in his Cornell lab. Photo: U.S. Fish & Wildlife Service*



*The statements and views expressed in this publication are those of the Eastern Lake Ontario Dune and Salmon River Stewards who are student authors. 5/2009*

## A Primer on VHS Virus

### General Information

- VHSV is a member of the rhabdovirus family, which includes rabies
- VHSV has a tendency to mutate and currently exists as four genotypes: I, II, III, IVa and IVb
- The genotype affecting the Great Lakes is IVb
- Genotype IVb behaves unlike its relative genotypes I-IVa
- VHSV causes hemorrhaging of internal organs;
- Fish infected with VHSV may not display visible symptoms: bleeding or red spotting



*VHSV spotting. Photo: Wisconsin Department of Natural Resources*

### History of VHS

- First identified in 1930s in European aquaculture facilities
- Entered the Western Hemisphere in 1988
- Genotype IVb discovered in the Great Lakes in 2005

### Infected Bodies of Water in NYS (as of 2008)

- Lake Ontario
- Skaneateles Lake
- Niagara River
- Little Salmon River in Mexico
- St. Lawrence River
- Private pond in Ransomville
- Lake Erie
- Seneca Cayuga Canal
- Conesus Lake

### Infected Great Lakes Fish Species (as of 2008)

- black crappie • bluegill • bluntnose minnow • brown bullhead • brown trout • burbot
- channel catfish • chinook salmon • emerald shiner • freshwater drum • gizzard shad
- lake whitefish • largemouth bass • muskellunge • shorthead redhorse • northern pike
- pumpkinseed • rainbow trout • rock bass • round goby • silver redhorse • smallmouth bass
- spottail shiner • trout • walleye • white bass • white perch • yellow perch

### What You Can Do to Help

- Wash waders and boats before entering new bodies of water
- Do not transport live fish from one body of water to another
- Use certified bait and do not empty bait buckets or live wells in the water
- Practice clean boating

**For More Info: Eastern Lake Ontario Dune & Salmon River Steward Program, 315-312-3042**

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The Eastern Lake Ontario Dune Steward & Salmon River Steward Program is managed by New York Sea Grant in partnership with the New York State Department of Environmental Conservation, New York State Parks, and The Nature Conservancy

