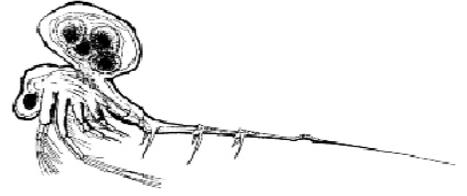




Anglers and resource managers across the U.S. are concerned about exotic species and diseases that threaten aquatic systems. Several occur here at Pictured Rocks National Lakeshore and in nearby waters. With your help, the impact of these invaders on our lakes and rivers can be minimized.

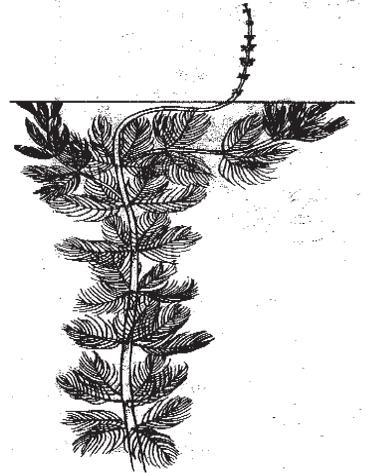
## Spiny Water Flea

This small animal (*Bythotrephes sp.*) is a harmful exotic species, and has been found in Lake Superior and Big Beaver Lake. It is not an insect, but a tiny crustacean (less than 1/2" long) with a long, sharp, barbed tail spine. While the effects of its presence are not completely known, it competes with young perch and other small fish for food such as *Daphnia* zooplankton. Populations have exploded and the animal can now be found throughout the Great Lakes and in some inland lakes, including at least five lakes across the Upper Peninsula. The barbs on their tails can catch on fishing and anchor line.



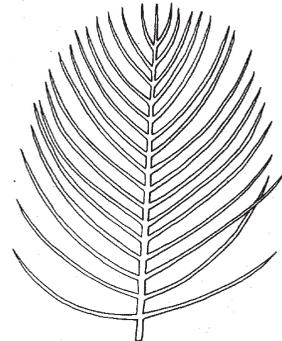
## Eurasian Water Milfoil

This is an exotic plant, introduced to the U.S. by the aquarium industry. It is rapidly becoming a major nuisance throughout North America. It is capable of rapid spreading, mainly by fragmentation of plant parts. Each fragment is capable of growing roots and eventually developing into a new plant. Removal of fragments from boat trailers and along shorelines will help prevent its spread into new areas. Eurasian milfoil is quite competitive with native species and may completely dominate a pond or lake within a few years after introduction. Due to the plant's ability to form dense growths, water use activities may become severely impaired. These plants have little use as food for wildlife or as cover for fish. Plant fragments can be carried from one lake to another on propellers and boat trailers.



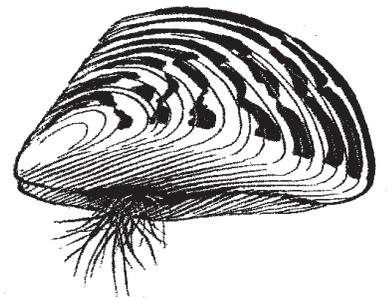
## Zebra Mussels

Zebra mussels are small, fingernail-sized mussels native to the Caspian Sea of Asia. Tolerant of a wide range of conditions, they have now spread to all of the Great Lakes and Mississippi River and are being found in inland lakes. Zebra mussels clog water systems of power plants and water treatment facilities as well as irrigation systems. They have severely reduced and eliminated native mussel species in some inland lakes. Microscopic larvae may be carried in livewells or bilge water. Adults can attach to boats or boating equipment that sit in the water.



## VHS - Viral Hemorrhagic Septicemia

VHS (Viral Hemorrhagic Septicemia) is an acute fish disease caused by a virus (called VHSV) that was first noticed in Europe. It spread to the Pacific Northwest in 1988, where it infected migrating salmon. Later, VHSV was found off the Atlantic coast of Canada, and since 2003 it has killed fish in each of the lower Great Lakes, as well as a few inland lakes in the Lower Peninsula, Wisconsin, New York, and southern Ontario. Until the virus reached the Great Lakes, scientists thought only marine fish were susceptible. Since 2006, 28 species of freshwater fish have died from VHS. These include lake whitefish, rainbow trout, muskellunge, walleye, yellow perch, brown trout, largemouth bass, smallmouth bass, rock bass, northern pike, bluegill, pumpkinseed, burbot, and emerald shiners. **See Regulations Below.**



## What Can I Do?

- By Superintendent's Order, Pictured Rocks **PROHIBITS** use as bait for fishing, any fish or fish part, including fish roe, amphibians, or crayfish, in NPS administered waters within the Lakeshore Zone of the National Lakeshore.
- Michigan State law prohibits the movement of any Prohibited Fish Species, or parts of fish, including roe, from an infected water body to a VHS-free management area.
- The launching of any watercraft, that has not been decontaminated prior to launch into NPS administered waters within the Lakeshore Zone of the National Lakeshore. Decontamination is defined as cleaning and drying the boat and all associated equipment so that they are dry and free of any vegetation, animals and mud and that the bilges, live wells and other compartments are also clean, dry and free of all organic material.
- Dry your waders, boat trailer, fishing gear, nets, etc., before fishing in another body of water.
- If you find dead fish, contact a park employee for a collection kit.
- Animal and Plant Health Inspection Service of the U.S. Department of Agriculture prohibits carrying live fish across state lines without a disease-free certification.
- This disease has the potential to significantly impact fishing resources important to us all.

For more information on exotic species, see:

<http://www.nature.nps.gov/biology/invasivespecies/index.htm>

<http://www.nps.gov/piro/naturescience>

