

Spiny Water Flea

The spiny water flea (*Bythotrephes longimanus*) is an aquatic invasive zooplankton native to Northern Europe and Asia. It is not an insect as its name might sound, but is actually a cladoceran, which is a type of crustacean. They were first found in North America in 1984 in Lake Huron. Thought to have arrived in ship ballast water, spiny water flea spread rapidly through the Great Lakes. It is of no danger to humans or domestic animals and there are no known current management options for infestations other than spread prevention.

Spiny water fleas are difficult to distinguish without magnification, usually $\frac{1}{4}$ - $\frac{1}{2}$ inches (5-13 mm) in total length. They have a long barbed tail filament which makes up 70% of their total body length. The tail can have between 1-4 pairs of barbs running down it. Because they are so small, individual water fleas often go unnoticed. However, they gather in masses on fishing lines and downrigger cables, so anglers are often the first to discover new infestations.

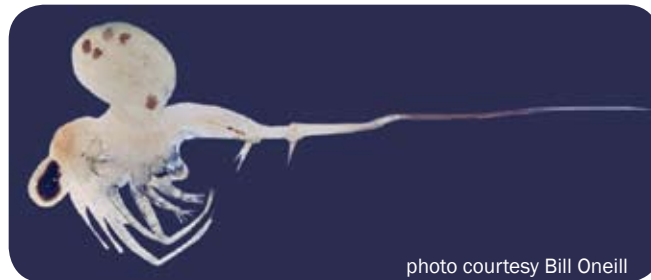


photo courtesy Bill Oneill

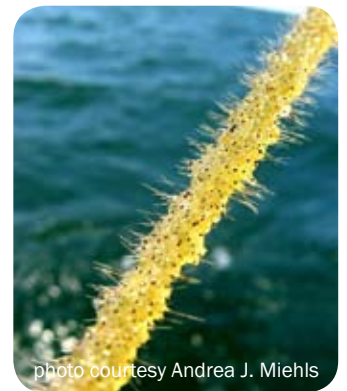


photo courtesy Andrea J. Miehl

Spiny water fleas are predators - they eat smaller zooplankton found in the lake. This puts them in direct competition with juvenile fish for food as well as having a substantial impact on the zooplankton community structure. Spiny water fleas are also prey for fish, however small fish have trouble eating them due to their long, spiny tails.

Spiny water fleas reproduce rapidly through parthenogenesis, commonly known as asexual reproduction, which means that no males are required and populations can explode in number. During the summer when the water is warm, spiny water fleas reproduce rapidly, with each spiny water flea able to produce up to 10 new ones in just two weeks.

Fishing, boating, and other water recreational equipment can transport spiny water fleas and their eggs to new water bodies. Their resting eggs can survive long after the adults are dead, over winter and under extreme environmental conditions. So care must be taken not to transport water between water bodies and to remove all water fleas and eggs from equipment.

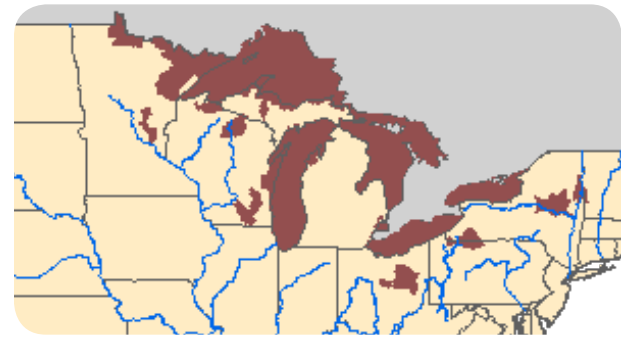
Spiny water fleas look like bristly masses of jelly with black eye spots when tangled on fishing lines, reels, and other equipment. They can clog the first eyelet of rods, damage a reel's drag system, and prevent fish from being landed.



photo courtesy Jeff Gunderson

photo courtesy Howard Webb

Spiny water flea was first found in North America in 1984 in Lake Huron. Thought to have arrived in ballast water, it rapidly spread throughout the Great Lakes. It was confirmed in Lake Ontario and Lake Erie in 1985, Lake Michigan in 1986 and Lake Superior in 1987.

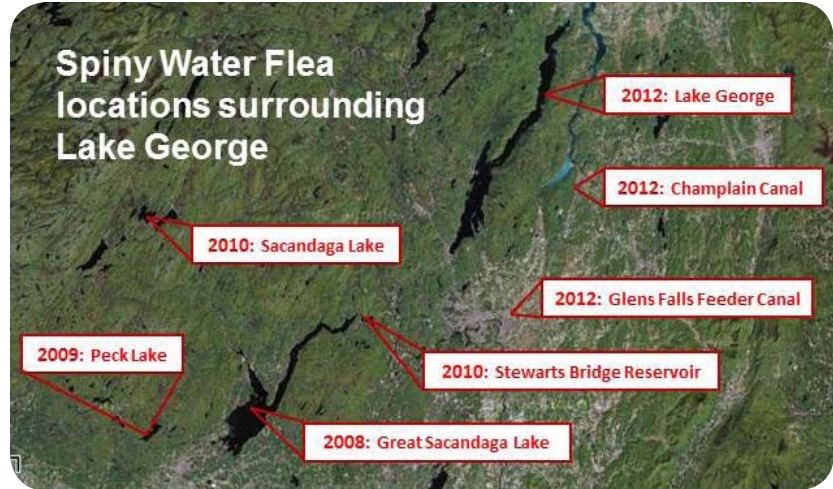


Bythotrephes longimanus infested watersheds. Map created 8/2/2012. USGS.

Spiny water flea had not been confirmed in Eastern New York until 2008, when it was found in Great Sacandaga Reservoir, whose outlet is just about 20 miles west of Lake George. It was then found in Peck Lake in 2009, Stewarts Bridge Reservoir in 2010 and Sacandaga Lake in 2010. In July 2012 spiny water flea was confirmed in the Glens Falls Feeder Canal and the Lake Champlain Canal just weeks before being found in Lake George.



Spiny water fleas collected on a fishing line while fishing in Lake George. September 2012. photos courtesy Emily DeBolt



Scientific literature shows that spiny water flea is limited to regions where water temperature ranges between 4 and 30°C and salinity values between 0.04 and 8.0%, but it prefers temperature between 10 and 24°C and salinity between 0.04 and 0.4% (Grigorovich et al. 1998).

Lake George's salinity is around 1.8% and water temperature ranges from about 4°C to 30°C, so unfortunately it appears Lake George's newest invader will do just fine here.

First found off Mallory Island on the east side in the north basin of the lake, additional sampling in August of 2012 confirmed its presence lake-wide.

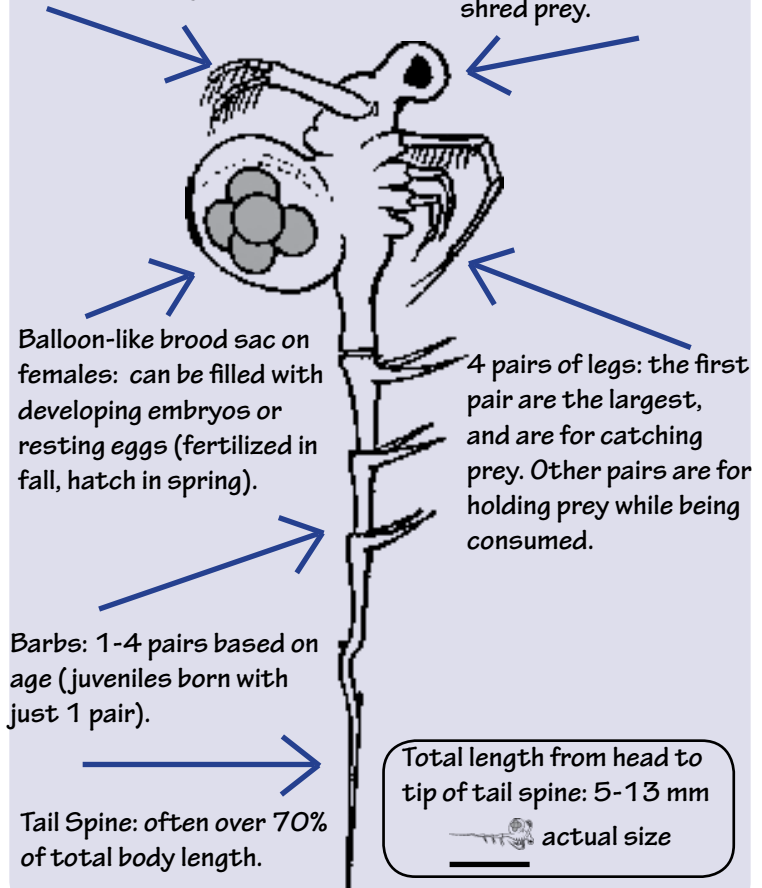
Spiny water flea follows its prey (plankton), staying in deeper waters during the day and coming up closer to the surface at night to feed in a daily vertical migration throughout the water column. Spiny water flea is most likely found around 10-20 meters deep Lake George, making its presence known to anglers trolling for lake trout or salmon.

To learn more about how you can help protect Lake George go to: www.lakegeorgeassociation.org



Swimming antennae: Spiny water flea are good swimmers. They can move several times their body length in a second.

Head: with single large eye and sickle-shaped mandibles to pierce and shred prey.



life history and effects on the great lakes of the spiny tailed bythotrephes <http://www.seagrants.umn.edu/exotics/spiny.html>