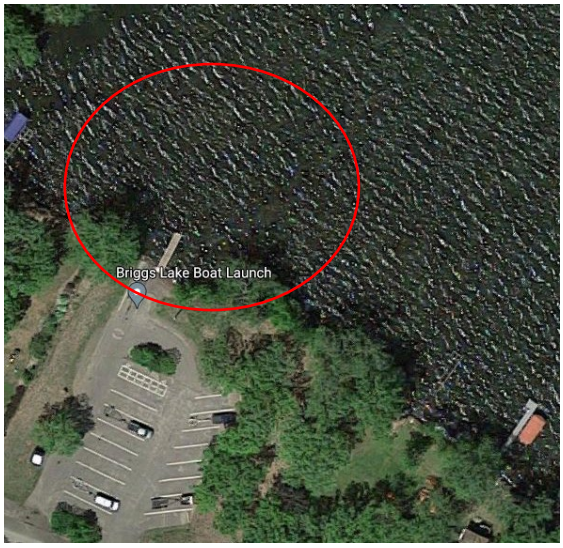
Briggs Lake Golden Clam Project Update

In 2020 a Big Lake family, participating in the University of Minnesota AIS Detectors Program's annual Starry Trek event, visited Briggs Lake to search for potential non-native plants and animals. The family's 12-year old son tossed a sampling rake out into the water and pulled up two small, yellow/brown clams. Right away, he thought these clams did not resemble the native clams that should be in the lake. The clams were collected and later confirmed by the Minnesota Department of Natural Resources as being freshwater golden clams (*Corbicula fluminea*). This finding represents the first time live freshwater golden clams have been found in an inland Minnesota lake. Previous occurrences have been documented in rivers, mostly where a power plant or other facility is discharging water that keeps a portion of that river warmer year round. Minnesota has otherwise previously been thought to be outside of the potential range for this species due to our cold winters, however this recent finding is challenging that theory.

Since this discovery occurred, staff from the Sherburne Soil and Water Conservation District (SWCD) and Minnesota Aquatic Invasive Species Research Center (MAISRC) have visited the lake on a monthly basis to assess the clams and conditions they are surviving in. Holes were drilled into the ice over the winter and clams were dug up from the sediment for examination. Living clams have been found in the shallow, sandy sediment near the boat launch surviving in near freezing temperatures. Each visit, the team is documenting the number of clams, the size of clams, and measuring water quality parameters such as dissolved oxygen, temperature, pH and conductivity. To date 162 invasive clams have been found ranging from about 4 mm to 24 mm (0.2 in to 1 in) in size.



Approximate location of known Golden Clam infestation range, Briggs Lake.

So far, the clams have only been found within a ~0.2 acre area surrounding the Briggs Lake boat launch. The Sherburne SWCD and MAISRC are asking Briggs Chain Lake residents to keep an eye out for these clams and to report any suspected clams they come across. The clams prefer sandy to silty substrates as opposed to organic/muck or rocky bottom. A simple way to look for clams is to dig into the sand with a small shovel, sift through the sand for clams, and return the sand from where it was collected from. The images on the next page can be used to help identify freshwater golden clams from potential look-alike species.

Sherburne SWCD

Minnesota Aquatic Invasive Species Research Center
University of Minnesota
Driven to Discover℠

Freshwater Golden Clam (non-native). Distinct, concentric rings that are ridged or raised. Yellow-green to brown in exterior color. Interior color may be white to light blue or purple. Triangular shape with two shells (bivalve) connected at a single smaller hinge point. Burrow in sandy or light organic sediment. Generally less than two inches in diameter (Briggs Lake clam range has been 0.2 inches - 1 inches).

Image: MN Dept. of Natural Resources

Freshwater Mussel (native). There are many species of native freshwater mussels in Minnesota. Native freshwater mussels are typically more oblong to oval shaped than both freshwater golden glams and zebra mussels. Concentric rings less distinct and not strongly ridged. Exterior color ranges from light yellow to dark brown. Interior color white to off-white. Young mussels may be found as small as less than one inch, mature adults may be 5 or 6 inches in length. Burrow in sandy or light organic sediment. Native freshwater mussels are an important part of Minnesota's aquatic ecosystems and 28 of Minnesota's 50 species are endangered or threatened.

Image: MN AIS Research Center

Zebra Mussel (non-native). Striped, D-shaped shell composed of two shells joined at a hinge. Alternating stripes of yellow/tan to dark brown color. Interior color white to off-white. Generally found from 0.25 to 1.5 inches in length. Zebra mussels are often found attached to hard underwater surfaces such as rocks, wood, plants, docks, boat lifts, etc.

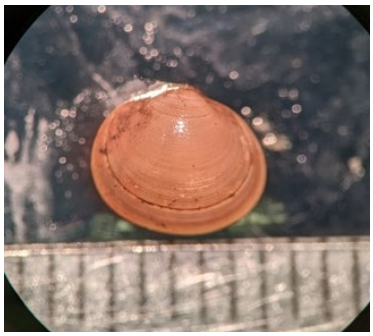


Image: Thomas Everest, iNaturalist.org

Fingernail Clam (native). There are multiple species of fingernail clams in Minnesota. They may very closely resemble freshwater golden clam, however the concentric rings on fingernail clams are not as deeply ridged as freshwater golden clams. The shells also tend to be thin and more fragile. Fingernail clams are typically less than ½ inch in size.

If you find either the Golden Clam, Zebra Mussel, or other potential non-native species, please contact Dan Cibulka at dcibulka@sherburneswcd.org or 763-220-3434 x103