

Zebra Mussels



Article and Imagery by Brianna Hill

What are Zebra Mussels?

Zebra Mussels (*Dreissena polymorpha*) are small bivalve shellfish that are native to the Black Sea and the Caspian Sea in Eastern Europe.

Zebra mussels came into the United States' waterways in the late-1980's. Lake St. Clair having the first reported discovery. By 2005, zebra mussels had colonized in 10 of the 11 Finger Lakes in New York.



The zebra mussels that were photographed were collected from Keuka Lake in Hammondsport, New York.

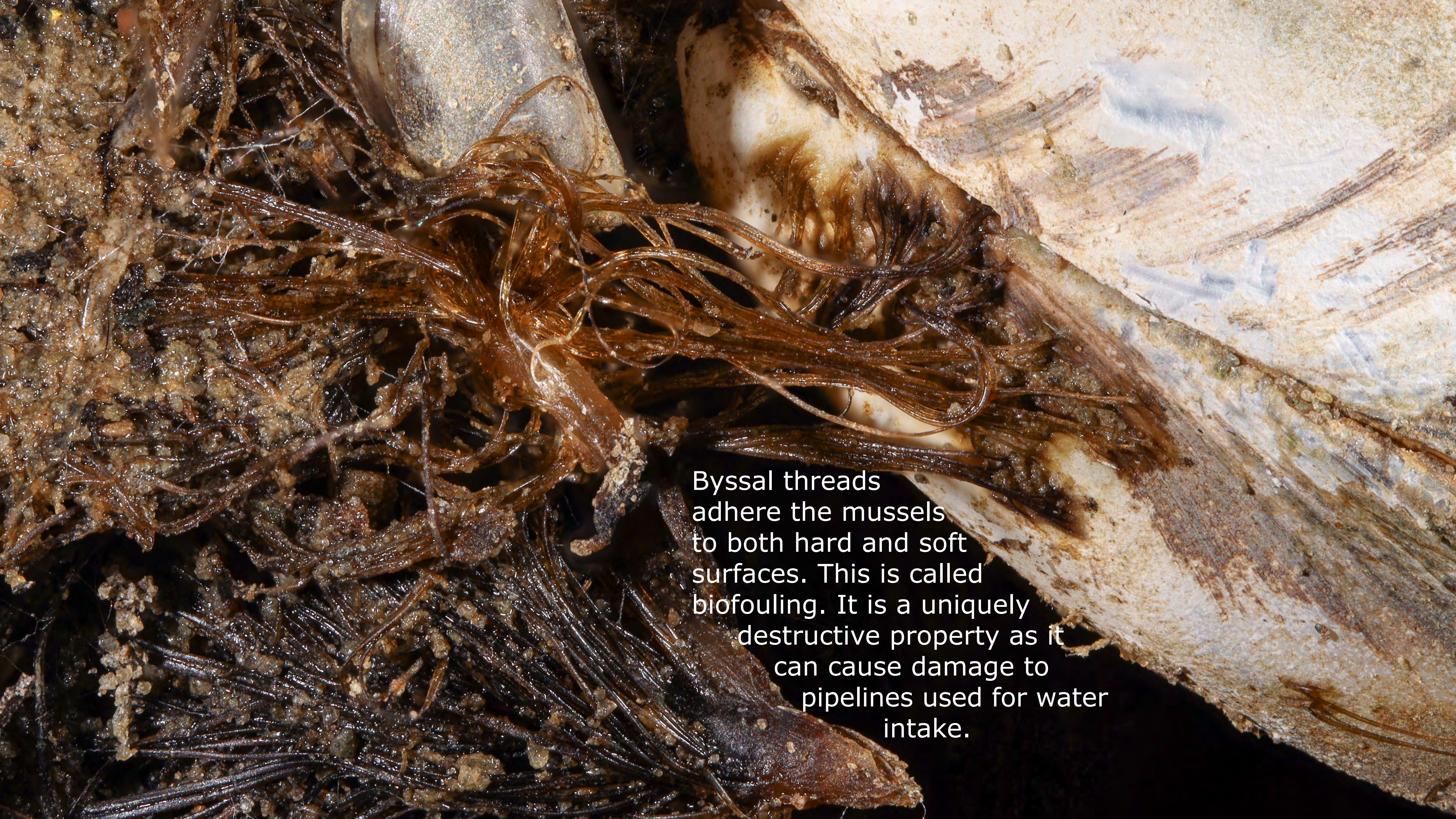




Female zebra mussels are able to produce between 30,000 and 1,000,000 new mussels a year, called veliger in the larval stage, which has made eradicating the invasive species nearly impossible at this point in time. The only way to avoid infestation is preventing the spread of the veliger and the mussels themselves.

Zebra mussels are filter feeders, which means they consume their nutrients by filtering the plankton from the water. One mussel can filter approximately 1 liter of water a day. This has major ecological effects on the waterways that they have inhabited. The native mussels lose a tremendous food source because they cannot outcompete the speed at which zebra mussels can filter the water. The excessive filtering also causes the waterways to be much clearer, which allows sunlight to reach deeper depths; this causes more harmful algal blooms which are both harmful to the local flora and fauna, but there are also algal blooms that have negative health impacts on humans, such as the toxic blue-green algae that was present in the Finger Lakes Region.





Byssal threads
adhere the mussels
to both hard and soft
surfaces. This is called
biofouling. It is a uniquely
destructive property as it
can cause damage to
pipelines used for water
intake.

Zebra mussels have razor sharp edges, which causes them to become dangerous in swimming areas due to their ability to slice the human skin. With biofouling, the mussels can attach to stairs, docks, and rocks, creating hazards for patrons.



Zebra mussels grow to between one and two inches in their adults stages. They live for approximately five years.



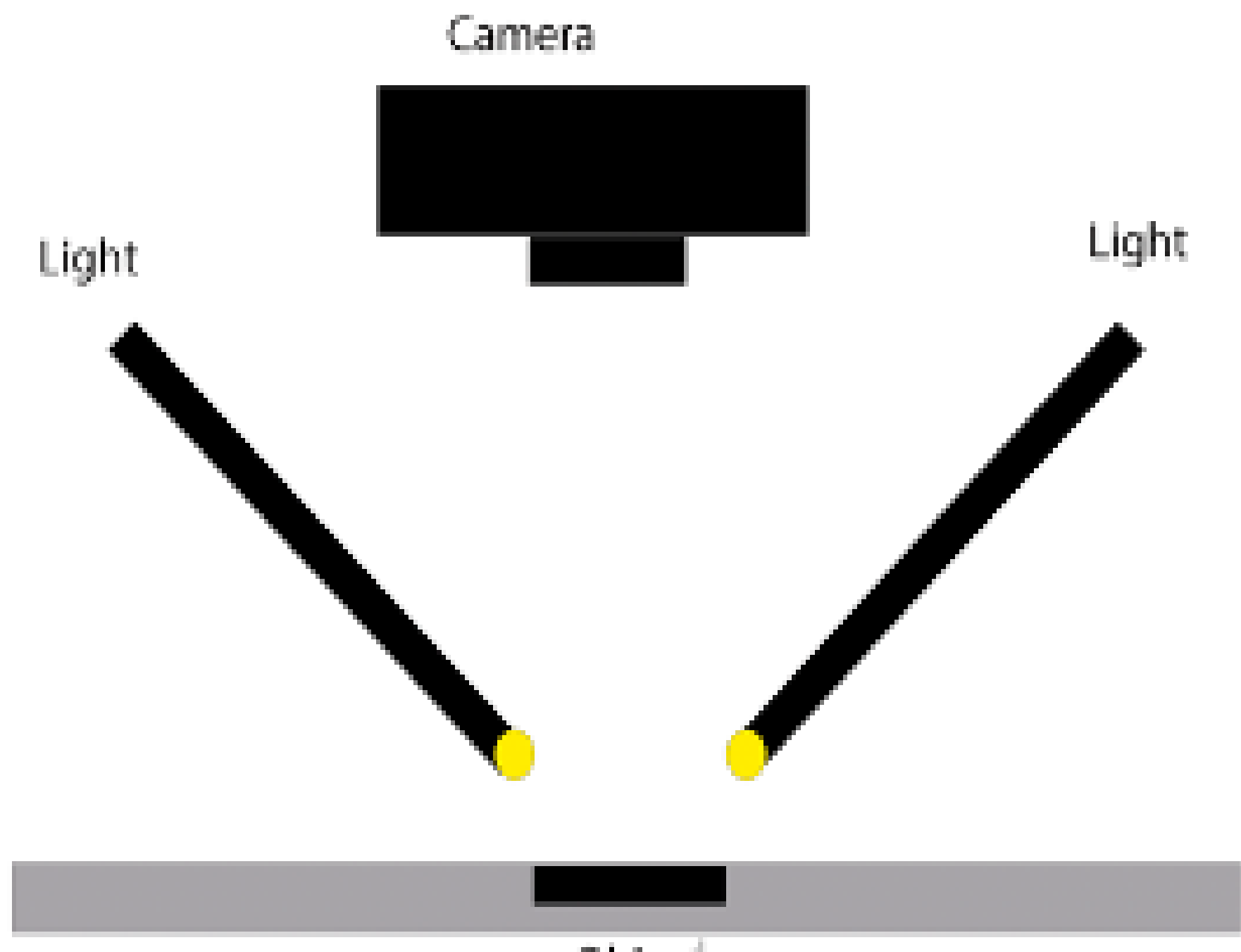
Zebra Mussel



Zebra Mussels (*Dreissena polymorpha*) are easily identified due to the striping on the shell, which gave it its common name. They grow to be roughly the size of a fingernail in their adult stages. Zebra mussels will often colonize with their cousin invasive mussel, the quagga mussel (*Dreissena bugensis*). The main difference between the two mussels are their coloration, with the quagga mussel having a lighter tone with concentric rings opposed to the zebra mussels' zig-zag stripes.

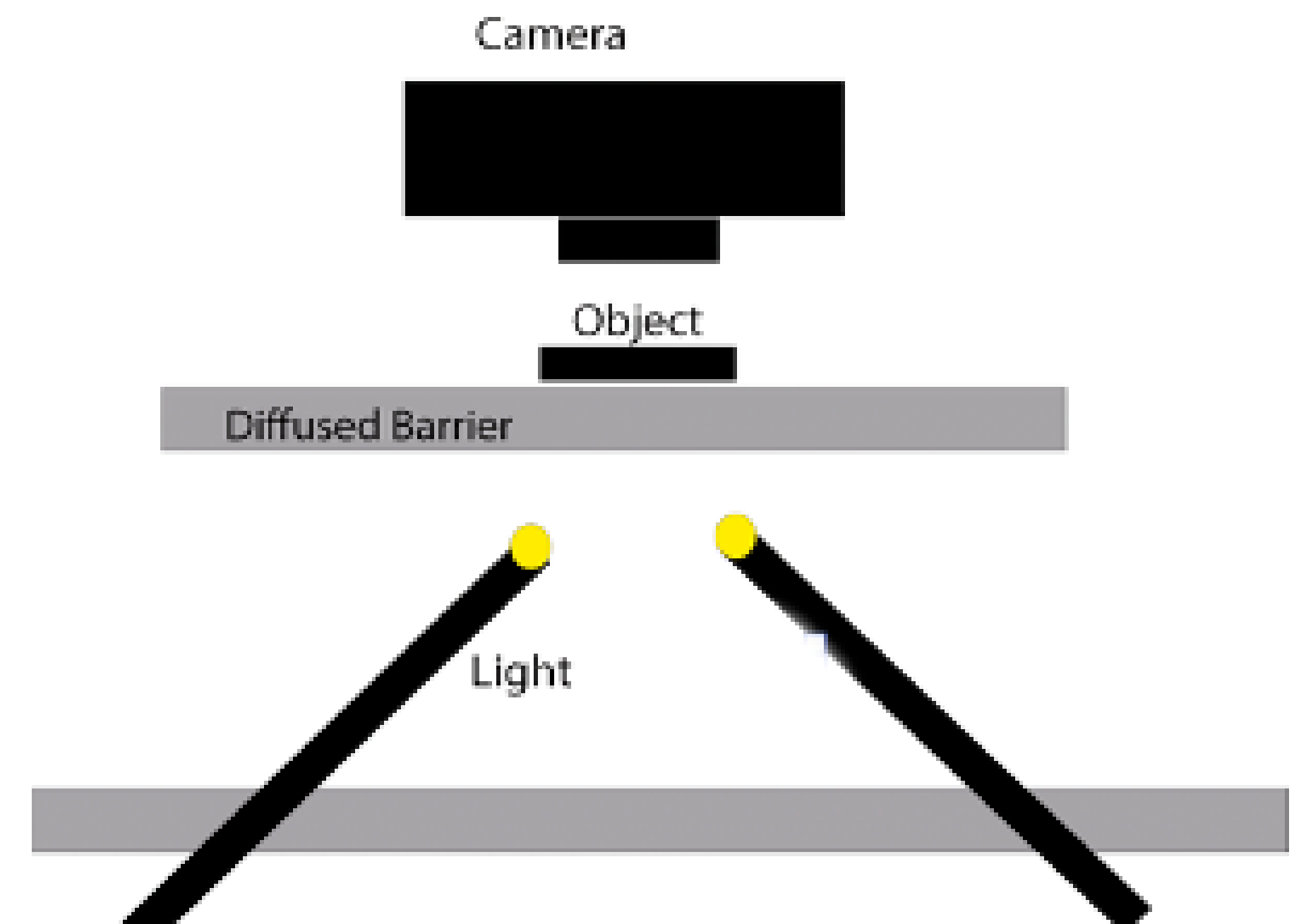
Quagga Mussel





The images were taken entirely on a Canon EOS R camera with a Laowa 100mm lens. A stackshot was used to compile and shoot stabilized images to create a focus stack. Each stack had approximately 90 images. Helicon focus and Adobe Photoshop were used for editing software.

Because the mussels were translucent, two lighting styles were primarily used in making the images; a top-down lighting style with the lights placed at 45 degree angles on each side (left), and lighting from below to shine through the mussels (right).



About the Author

Brianna Hill is a photographer who grew up in the Finger Lakes Region of New York. She is a senior in the School of Individualized Study at RIT, and will be graduating in the fall semester of 2024 with a Bachelors of Science and a minor in Imaging Systems.



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