



# FACT SHEET

Office of Water Resources

September 2017

## Freshwater Aquatic Invasive Species Threatening Rhode Island: Zebra Mussel



Relative zebra mussel size\*



Byssal threads of a zebra mussel †



Zebra mussels attach to and cover a shopping cart ††

### Species Description and General Information

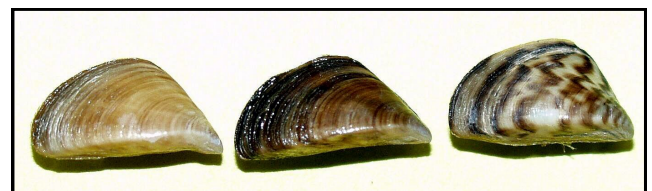
Zebra Mussel (*Dreissena polymorpha*) is a small, invasive, freshwater mollusk. The distinctive light and dark tan lines on the exterior of the zebra mussel shell gave rise to its common name; however not every individual mussel will follow the striped pattern (see photo below). It attaches to hard underwater surfaces via minute, thread like fingers known as 'byssal threads'. It is the only freshwater mussel able to attach itself to hard objects. Water bodies with an established zebra mussel population have mollusks carpeting any hard surface such as docks, rocks, boats, pipes and debris (see photo above). Adult mollusks reach sizes of 1/4 inch to 1-1/2 inches and can grow up to a maximum size of 2 inches.

### Why is the Zebra Mussel Considered an Invasive Species?

This mussel has the capacity to reproduce in extremely high amounts, making population growth exponential. Once an adult, one female zebra mussel can release 100,000 to 500,000 eggs onto the water a year. Her free floating eggs become known as 'veligers' or microscopic larvae which begin to form shells. The extremely small size of the veliger makes it hard to detect within a water body until it matures in size. After two weeks, the veligers begin to settle out of the water column, attaching to hard surfaces with their byssal threads.

Zebra mussels easily attach to any solid object, quickly becoming a hassle for private residences or businesses with infrastructure in the water. They can attach to and clog intake pipes on boats, or irrigation pumps drawing from the water. Swimmers are also at a risk of injury from zebra mussels by cutting a foot or hand on sharp zebra mussel shells coating rocks or swim ladders. The ability to attach to any hard surface allows the zebra mussel to collect on top each other, forming layers on objects, and can even smother other native mussels.

Zebra mussels are filter feeders, which means they take in lake water and filter out algae and debris; one zebra mussel can filter one gallon of water per day. Increased populations of zebra mussels can increase water clarity in a lake, allowing greater amounts of sunlight deeper into the water, potentially increasing aquatic plant growth.



Varying color of zebra mussels (credit: USGS Nonindigenous Aquatic Species)

## How Did Zebra Mussels Become Established in the United States?

Zebra mussels are native to freshwaters in eastern Europe and Asia. Their first discovery in the United States was in 1988 in Lake St. Clair, between Lake Huron and Lake Erie. It is believed they were transported to the great lakes region via the ballast water tanks in large ocean carrier ships. Ocean ships use ballast water to control how deep a ship sits in the water, as well as to stabilize a ship while crossing oceans. Invasive species can easily be drawn into ballast tanks at an origin port, and released into the water at the destination port.

Since 1988, the zebra mussel has easily spread throughout the Great Lakes and into connecting water ways. Presently, they are found throughout the entire Mississippi River Valley, east to the Hudson River, western Massachusetts and Connecticut water bodies. They have also been documented as far west as California, Utah, Colorado and south to Texas.



## Please Help Prevent the Introduction of Zebra Mussel to Rhode Island!

The primary threat to spreading zebra mussels is now the recreational boater. Care should be given to thoroughly wash a boat being transported from waters known to have zebra mussels. Some steps to be taken consist of draining boats and motors far from the water, allowing it to dry before next use; as well as cleaning boots, waders and all fishing gear or other recreational equipment (water skis or tubes) before and after use.

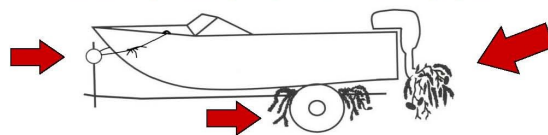
Once introduced into a water body it is unlikely that zebra mussels will be eradicated. No effective large-scale control options currently exist. Preventative actions are the best defense in the fight against zebra mussels. Learn to identify invasive species and be on the lookout for zebra mussels in your lake. Identification resources are available on the RIDEM website at <http://www.dem.ri.gov/programs/benviron/water/quality/surfqw/pdfs/identify.pdf>. Examine hard surfaces in the water such as docks and boats, where they are most likely to attach. Report any suspected sighting of this species to RI DEM, and spread the word to fellow boaters and fishermen!

Never release a plant or animal into a water body unless it came from that water body. Discard unused bait in the trash and do not dump aquarium contents into any water body. Because juveniles are free-swimming in the water and microscopic, all water should be drained from boats upon exiting the water. The flushing of engines and bilge water should be done out of, and away from, the water, and then given a chance to dry for at least 24 hours before putting into a new water body to prevent the release of zebra mussel larvae.

For more information also see:

- Protect Your Waters  
<http://www.protectyourwaters.net/>
- 100th Meridian Initiative  
<http://www.100thmeridian.org/>
- The URI Watershed Watch Program  
[www.uri.edu/ce/wq/ww](http://www.uri.edu/ce/wq/ww)
- The Rhode Island Natural History Survey  
<http://www.rinhs.org/>
- Aquatic Invasive Species in Rhode Island  
<http://www.dem.ri.gov/programs/water/quality/surface-water/aquatic-invasive-species.php>

### BOATERS: INSPECT VESSEL CAREFULLY BEFORE and AFTER USE!



- **CHECK** watercraft, trailer and gear before and after each use
- **CLEAN** all weeds and plant fragments from boats, boots & gear
- **DRAIN** boat, bait buckets, live wells and motors far from water
- **DRY** boats out of the water at least 24 hours before next put-in
- Never release bait, shellfish, pet fish, or plants into a waterbody