

Frequently Asked Questions about the Zebra Mussel

What is the scientific name?

The scientific name is *Dreissena polymorpha*.



What is it?

Zebra mussels are a type of mollusk, which also include a wide variety of organisms such as squids, octopuses, snails, oysters, scallops, and clams.

What does it look like?

Mussels are also called 'bivalves'. This means they have two shells or valves (a right valve and a left valve). The zebra mussel gets its name because of the dark, striped pattern on each valve. Usually the shell is a light color (tan, beige) with the zig-zag stripes. However, some are almost completely all brown and the stripes are not pronounced. Even more rare are those nearly all light colored with little striping.

How big do they get?

Generally, zebra mussels are small, averaging about an inch long. Two inches is approximately the maximum size. Their life span is four to five years.

Where are they from?

Zebra mussels are native to freshwater rivers and lakes in Eastern Europe and western Asia. In 1769, Pallas first described populations of this species from the Caspian Sea and Ural River in Russia.

When were they first found in the United States?

Zebra mussels were first discovered in Lake St. Clair in 1988. Lake St. Clair is located east of Detroit, Michigan between Lake Huron and Lake Erie.

Where are they?

Zebra mussel spread rapidly throughout the Great Lakes region and in the large navigable rivers of the eastern Mississippi drainage including the Mississippi, Tennessee, Cumberland, Ohio, Arkansas, and Illinois rivers. They can also be found in the Hudson River on the Atlantic Slope. Barge traffic in these large rivers helped to disperse zebra mussel their first few years here. Since then, dispersal has been mostly into small lakes within the Great lakes region. Currently, there are more than two hundred and thirty lakes that have zebra mussels. Much of this recent dispersal can probably be attributed to recreational activities such as boating and fishing.

How did they get here?

It is generally agreed upon by scientists that zebra mussels entered the Great Lakes from ballast water dumping by large ocean-going vessels from Europe. Ballast water is used to keep ships stable in the water. The amount of water carried is dependent on the amount of cargo on board. A ship will carry large amounts of ballast water when there is no cargo and will dump it in port as cargo is loaded.

Why should we care about the zebra mussel?

Many invasive species share common characteristics that make them very adaptable to a new environment. The zebra mussel has the potential to inhabit most of the fresh waters of the U.S. and may impact a variety of native aquatic species and eventually entire ecosystems. They also have had a large economic impact already. Many power plants and water users have had to spend millions of dollars cleaning out zebra mussels from their facilities. In addition, more money has been spent on retrofitting facilities with devices to keep zebra mussels out and to monitor for them. These costs get passed along to the consumers.

What do they eat?

They are primarily algae feeders. They feed by filtering the water through a siphon, up to a liter per day. This is why they like the insides of pipes so well, there is a constant supply of water and food flowing by them.

What impact are they having on the ecosystem?

One of the most well documented impacts is on our native mussels. Zebra mussels are anchoring themselves by the thousands to native mussels making it impossible for the native mussel to function. As many as 10,000 zebra mussels have attached to a single native mussel. Our natives have all but disappeared in Lake St. Clair and the western basin of Lake Erie. Zebra mussels also are filtering the Great Lakes at an amazing rate, making the lake very clear. Most people assume that this increased visibility in the water must mean the water is "cleaner". Not true. All they have done is filter out all the algae which normally would be food for native microscopic organisms.

Do zebra mussels have any predators?

Zebra mussels do not have many natural predators in North America. But, it has been documented that several species of fish and diving ducks have been known to eat them.

Are zebra mussels edible?

Most clams and mussels are edible, but that does not mean they taste good! Many species and fish and ducks eat zebra mussels, so they are not harmful in that sense. Zebra mussels are so small and do not have much in the way of "meat" inside them, you would have to be pretty hungry to want to eat them. However, because they are filter feeders, they can accumulate pollutants in their tissues that may not be healthy for people to consume. You should contact local public health officials to learn whether it is safe to eat mussels or fish from a specific waterbody. Therefore to be safe, it is not recommend they be eaten by people.

What's unusual about the species?

- Once they are drawn into a pipe filled with water, they can grow and clog the pipe until the water stops flowing.
- Females can lay over one million eggs in a spawning season.

- They attach themselves to a usually hard surface and are difficult to remove. This is a common trait of mussels that live in marine (saltwater) ecosystems, but not of freshwater mussels.
- They can withstand short periods (several days) out of the water if conditions are moist and humid.
- They have a saltwater relative, the dark false mussel (*Mytilopsis leucophaeata*), which is native to our Atlantic coast. This relative looks very much like the zebra mussel and is often mistaken for it. Should you find what appears to be a zebra mussel in saltwater, it is probably the dark false mussel.
- Zebra mussel larvae (called veligers) are microscopic in size and are undetectable by the human eye. They can be unknowingly transported in boat live wells and bait buckets or anything that carries small amounts of water.

How can the spread be prevented?

The USGS focus is to document the zebra mussel's geographic distribution and to learn as much as possible about its behavior and biology. The resulting information is considered critical in helping to develop strategies aimed at containing or controlling its spread. Meanwhile, catching and transporting for use as bait, food, or aquarium pets is highly discouraged. We do encourage good boat hygiene, that is, wash your boat off with warm, soapy water if possible. Do not transport water from live wells and bait buckets from one waterbody to another. Empty them onto land when possible and dispose of leftover bait in the trash. Most often the bait fish are nonindigenous to that water just as much as the zebra mussels.

What methods are being used to control zebra mussels inside power plants?

There are many methods that have been investigated to help control zebra mussels. They are listed below in no particular order. Some methods will work better than others in a particular situation.

Chemical molluscicides: Oxidizing (chlorine, chlorine dioxide) and Non-oxidizing
 Manual removal (pigging, high pressure wash)
 Dewatering / Desiccation (freezing, heated air)
 Thermal (steam injection, hot water >32°C)
 Acoustical vibration
 Electrical current
 Filters, Screens
 Coatings: Toxic (copper, zinc) and Non-toxic (silicone-based)
 Toxic constructed piping (copper, brass, galvanized metals)
 Carbon dioxide injection
 Ultraviolet light
 Anoxia / Hypoxia
 Flushing



Source: U.S. Geological Survey, June 2017