

Aquatic Invasive Species

in the Chesapeake Bay

A M A R Y L A N D S E A G R A N T B R I E F

Zebra Mussels

What Are Zebra Mussels?

The zebra mussel (*Dreissena polymorpha*) is a shellfish native to the Caspian and Black seas in Eastern Europe. Zebra mussels can grow up to five centimeters in length and typically exhibit dark and light concentric bands, which look like stripes. They are usually found in temperate freshwater lakes, rivers, canals, and reservoirs. Zebra mussels are, however, capable of settling in diverse habitats and have the potential to spread to brackish estuaries.

The first zebra mussel was discovered in North America in 1988 in the Great Lakes region, most likely introduced by ballast water from a ship traveling from Europe. By 1989 zebra mussels had become well established in the Great Lakes and had spread to all of the major waterways of Northeastern United States and Canada by the early 1990s. In 2002 a population of zebra mussels was discovered in New York state in the upper Susquehanna River, a tributary of the Chesapeake Bay, and in Virginia's Millbrook



Quarry. Over the next six years, they spread further into the Chesapeake's watershed, with populations found in the lower Susquehanna River in Maryland as well as in Muddy Run, a tributary of the Susquehanna in Pennsylvania.

Why Are They Harmful to the Chesapeake Bay?

Zebra mussels are of great concern because they have the ability to spread rapidly. They can also directly or indirectly alter the environment around them. They are extremely efficient filter feeders, depleting the amount of food available for larval and juvenile fish. Zebra mussels are major "biofouling" organisms, attaching themselves to native mussels and severely impacting native mussel populations. In addition, they attach to manmade structures, clogging intake pipes that provide cooling water to power plants, processing water to industrial plants, and raw water to municipal water treatment facilities. Costs to remove the creatures can run into the millions of dollars. They also

seriously impact the recreational boating and shipping industries by fouling boat hulls, buoys, ropes, piers, and docks.

What Is Being Done to Control Zebra Mussels?

Many methods have been used to eradicate or slow the spread of zebra mussels — but once a population becomes established in large bodies of water, eradication is nearly impossible. The most commonly used control methods are chemical treatments incorporating chlorine, bromine, or lethal “molluscicides.” They are, however, often only a temporary solution and may harm other aquatic organisms. Alternative methods such as hand scraping, radiation treatments, or power washing may be effective but are time consuming and expensive.

In 2002 the Chesapeake Bay Program (CBP), in partnership with Maryland Sea Grant, sponsored a workshop aimed at developing Baywide management strategies for problematic invasive species, including zebra mussels. A Working Group on Zebra Mussels, comprised of natural resource managers, jurisdictional representatives, and federal partners, was

appointed in 2002 to develop a regional management plan to eliminate zebra mussels from the region.

What Is Their Status?

In Virginia, natural resource managers used potassium chloride to kill the Millbrook Quarry zebra mussel population, an action that did not have a significant impact on other organisms or water quality. In Maryland, 20 young zebra mussels were discovered in the upper Chesapeake Bay in 2012. Officials at Maryland’s Department of Natural Resources (DNR) are warning boaters and anglers to be vigilant in checking their hulls and equipment for the mussels to help prevent their further spread.

For More Information

Zebra mussels, Chesapeake Bay Program Field Guide
http://www.chesapeakebay.net/fieldguide/critter/zebra_mussel

Success Stories: Virginia Zebra Mussels
(Mid-Atlantic Panel on Aquatic Invasive Species)
<http://www.midatlanticpanel.org/resources/ZMSuccessStories.htm>

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