

## Prevent the Spread of Zebra Mussels

**A. Clean, Drain, Dry.** All visible plants, mud, or other debris should be removed. All drain plugs should be pulled with any standing water allowed to fully drain. The watercraft and equipment should then be allowed to fully dry for 1 week during July and August, 2 weeks in June and September, and 4 weeks before and after these dates. Dry times should be longer if weather has been unseasonably cool or wet.

Note: Vessels that have been exposed to freezing temperatures for the winter are considered to be decontaminated.

OR

**B. Clean, Drain, Decontaminate.** After cleaning and draining, use an approved decontamination method or combination of methods on all vessel parts in contact with water and carpeted trailer bunks:

- **Steam or Scalding Hot Wash (>140 degrees):** To achieve this temperature at the surface being cleaned, water temperature must be as close to 155 degrees as possible at the nozzle (Note: Caution should be taken as this temperature may cause scalding to exposed skin). Keep contact for 10 seconds or more. High pressure spray is best to clean the outside surfaces of vessels and low pressure should be used to flush live wells, bilges, ballasts, and engines. Run the water through the craft's cooling system for at least 10 seconds at 140 degrees. Use "ears" for outboards, or garden hose for personal watercraft and inboards as you would normally for winterization or running while out of water.

- **Chlorine/Bleach Solution (1 oz. per gal. water):** Surfaces should be kept "wet" with Chlorine/Beach solution for at least 10 minutes before rinsing with clean water. Clean all exterior surfaces and flush live wells, bilges, ballasts, and engines with solution. Run outboard engines in a tub, bucket or barrel of solution or use ears to decontaminate engine cooling systems. This is also a good option for soaking ropes, dive gear, or anything else that may be placed into the solution bucket or barrel. Solution may only be used for up to 24 hours after mixing. After that, a fresh chlorine mixture must be mixed.

- **Lysol (As sold, or if using the concentrate, dilute to achieve 1% active ingredient):** Surfaces should be kept "wet" with Lysol solution for at least 10 minutes before rinsing with clean water. Clean all exterior surfaces and flush live wells, bilges, ballasts, and engines with solution. Run outboard engines in a tub, bucket or barrel of solution or use ears to decontaminate engine cooling systems. This is also a

good option for soaking ropes, dive gear, or anything else that may be placed into the solution bucket or barrel. Because of the possible dilution with rinse water, the solution should not be reused. A fresh batch should be used each time if it has been diluted by the cleaning procedure.

- **Vinegar (as sold- 100%):** Surfaces should be kept "wet" with Vinegar solution for at least 20 minutes before rinsing with clean water. This option, however, may not be the most practical or feasible for decontaminating engine cooling systems because of the quantity of vinegar that one would need to purchase in comparison to preparing decontamination solutions from Lysol or bleach concentrate. Vinegar may be a more practical option for cleaning the exterior of the boat and for soaking ropes, dive gear, or anything else that may be placed into the solution bucket or barrel. Because of the possible dilution with rinse water, the solution should not be reused. Fresh solution should be used each time.

### Cleaning Solutions

Disinfectant	Concentration	Contact Time
Steam/Scalding hot wash	>140°F	10 Seconds
Chlorine/Bleach Solution	1 oz. per gallon water	10 Minutes
Lysol	1% Solution	10 Minutes
Vinegar	as sold - 100%	20 Minutes
Freezing	<32°F	24 Hours



**STOP AQUATIC HITCHHIKERS!**

Prevent the transport of nuisance species.  
Clean all recreational equipment.  
[www.ProtectYourWaters.net](http://www.ProtectYourWaters.net)

To report a zebra mussel sighting or for more information, contact Massachusetts DCR Lakes and Ponds Program at 617-626-1250 or [www.mass.gov/lakesandponds](http://www.mass.gov/lakesandponds)

The DCR oversees 450,000 acres of parks, forests, beaches, bike trails, watersheds and dams. Its mission is to protect, promote, and enhance the wide variety of natural, cultural, and recreational resources within the Massachusetts state park system. To learn more about DCR and to discover other parks and recreational opportunities within the Massachusetts state park system visit [www.mass.gov/dcr](http://www.mass.gov/dcr) or call 617-626-1250 or write DCR, 251 Causeway Street, Suite 900, Boston, MA, 02114.

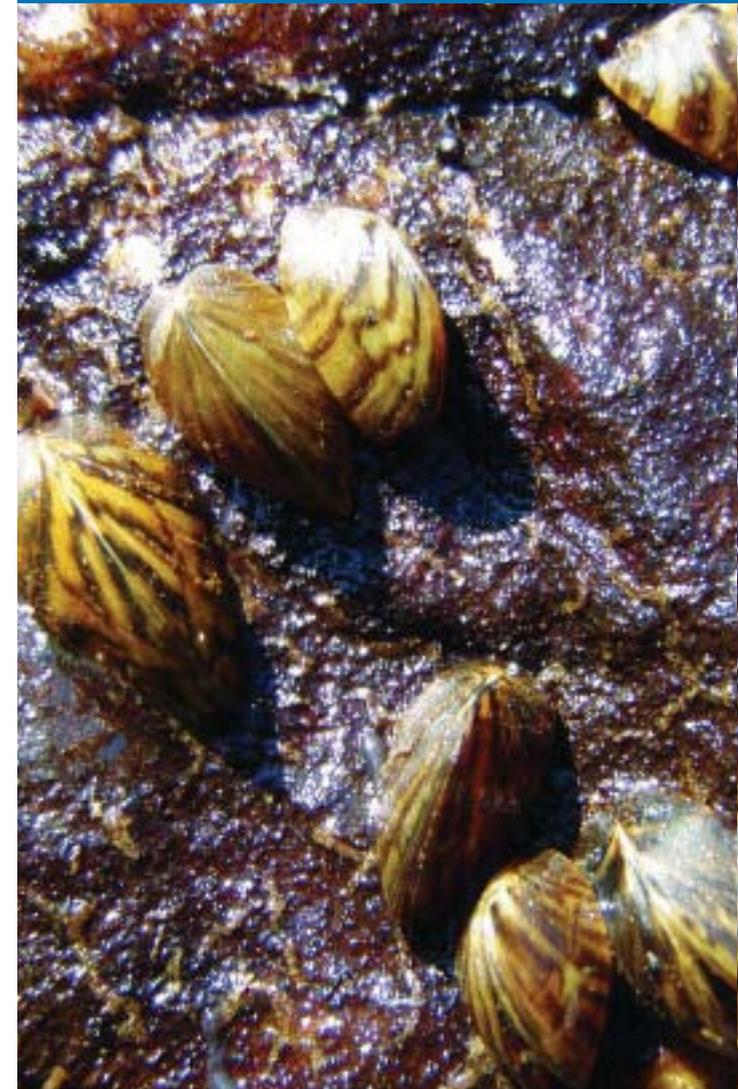
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Timothy P. Murray, Lt. Governor  
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Tom Flannery

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# Lakes and Ponds Program



## Stop the spread of Zebra Mussels

*Dreissena polymorpha*  
An Invasive Mussel

**ATTENTION BOATERS!**

# What are Zebra Mussels?

Massachusetts lakes, ponds, and streams are a valuable resource for boating, swimming, fishing, and numerous other types of recreation. These water bodies also provide a valuable habitat for a variety of wildlife, including a number of popular sportfish species. Unfortunately, the looming invasion of our waters by exotic mussels and other invasive species threatens to damage these resources.



Zebra Mussel: Photo Credit: USGS

The zebra mussel (*Dreissena polymorpha*) has extended its range in the Northeast in recent years and is now found in Laurel Lake (Lee/Lenox), Lure L Brk, Housatonic River, Massachusetts; Twin Lakes in Salisbury, Connecticut; Mary Lakes & Rivers in New York; and several lakes in Vermont, including Lake Champlain, Lake Horntonia & Lake Bomoseen.



Photo Credit: USGS

The similar but more aggressive quagga mussel (*D. bugensis*) is rapidly expanding its range and has been found as close as the Mohawk-Hudson River confluence in New York.

Boaters should use caution before launching their boat in Massachusetts water bodies. If you have been boating in western Massachusetts, New York, Vermont or Connecticut, it is especially important that you thoroughly inspect and wash your boat and other equipment following the guidelines in this brochure. Microscopic Larve (Veligers) hitchhike undetected and are a primary way mussels spread from one lake to another.



Photo Credit: Minnesota DNR

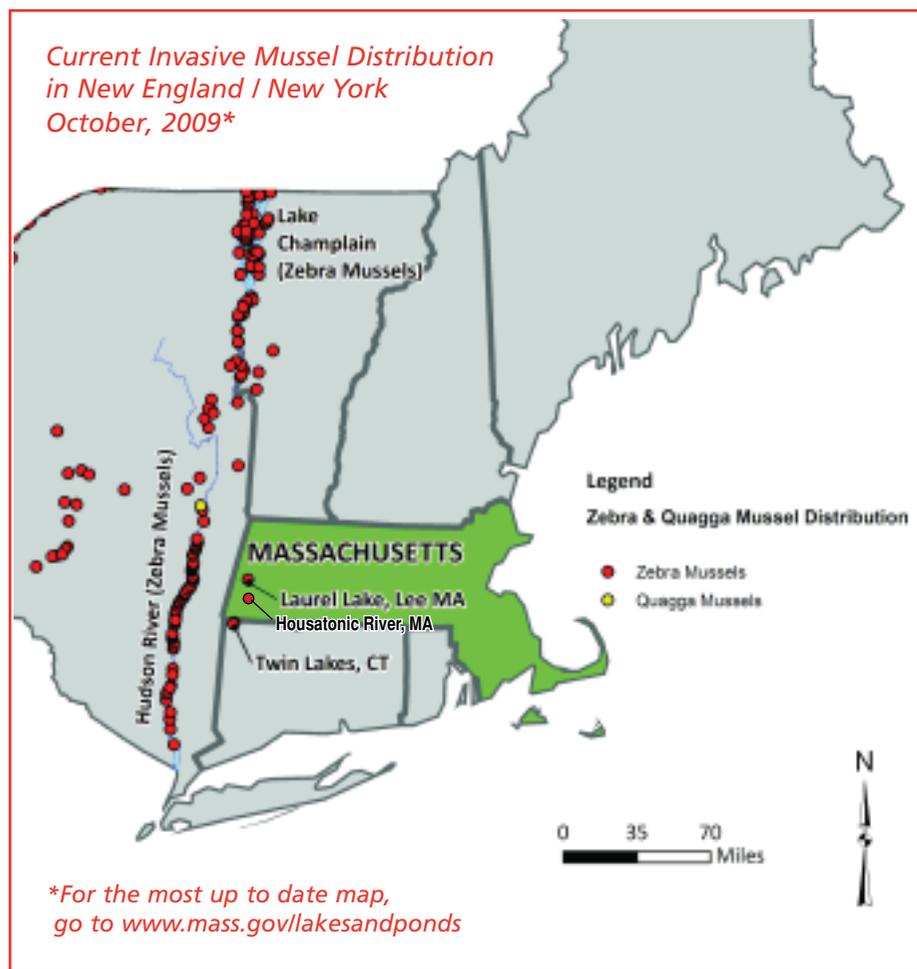


Photo Credit: Minnesota DNR



Photo Credit: Michigan Sea Grant Archives



Photo Credit: Ontario Ministry of Natural Resources

## Why should you be concerned about Zebra Mussels?

Zebra and quagga mussels are some of the most ecologically and economically damaging aquatic organisms to invade the United States. Their destructive power lies in their sheer numbers and ability to attach to solid objects – water intake pipes, propellers, boat hulls, dock pilings, submerged rocks and even other aquatic animals.

- Native mussels, fish and wildlife are threatened. Zebra and quagga mussels consume available food and alter the ecology of infested waters. They compete directly with Juvenile fish for food. They are a direct threat to native mussels, accumulating on their shells in sufficient numbers to smother their hosts. In infested waters, they can wash up on beaches, covering them with thousands of broken sharp shells.
- Boat engines can be ruined by zebra and quagga mussels growing in the cooling system intakes and blocking water flow. They can also jam steering equipment.

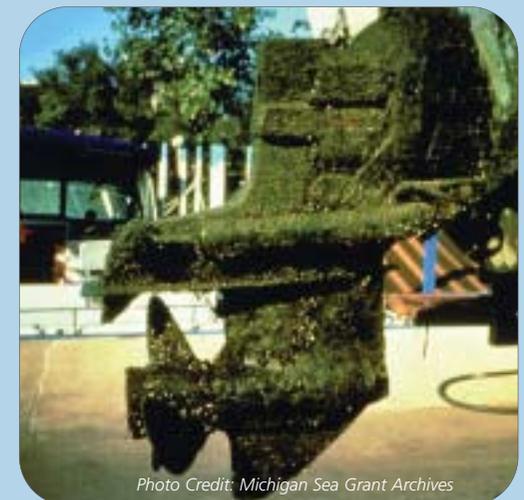


Photo Credit: Michigan Sea Grant Archives