

Zebra Mussel

(*Dreissena polymorpha*)

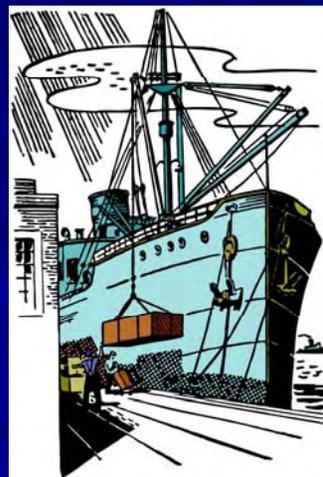
An Invasive Aquatic Invertebrate

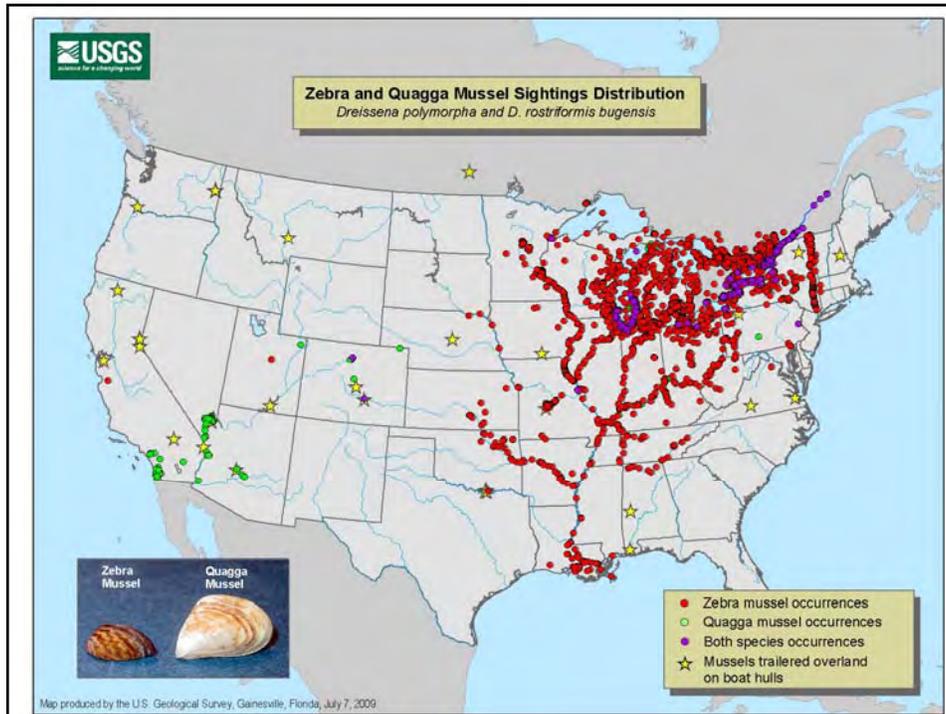


December 2, 2009

Origin

- Native to the Eastern Europe/Western Asia
- Believed to have been transported by freighters from European ports in ballast water, which was discharged into the Great Lakes in 1988.





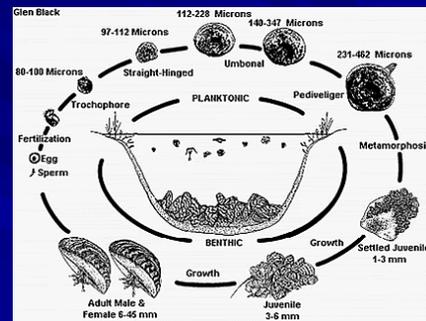
Description

- Zebra mussels are small freshwater mollusks, striped pattern on their shell
- Typically live 2 to 5 years in temperate climates
- Only freshwater mussel that can attach to a hard surface
- Breed prolifically, can form dense clusters, in some cases over 700,000 per square meter



Reproduction

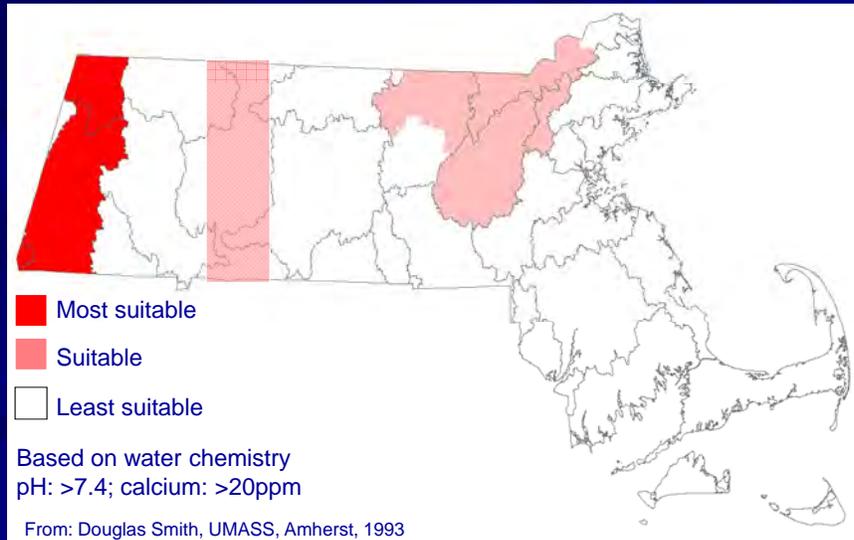
- Zebra mussels reach sexual maturity after 1 or 2 years.
- optimal spawning temperature: >54°F.
- external fertilization: release eggs and sperm directly into surrounding waters
- up to one million eggs per female in a spawning season
- zebra mussels have a free floating larval stage (veliger) and an attached adult stage.



Habitat

- freshwater lakes, ponds, and rivers
- hard surfaces: any surface including rocks, wood, vinyl, metal, cement and other species (including crayfish, turtles and even other mussels) are suitable substrates – ALSO AQUATIC PLANTS
- water temperature: 32 – 90 °F (optimal 63-74°F)
- pH: 7.4 - 9.0
- calcium: 20 - 125 ppm
- dissolved oxygen: 8-10 ppm

Potential Zebra Mussel Habitat in Massachusetts



Feeding

- Filter feeder- an adult can filter 1 quart of water per day
- Primarily phytoplankton and zooplankton but also bacteria and detritus
- Will remove virtually all particulates from suspension
- Intra-specific competition for food can be a significant population-regulating mechanism

Possible ecological effects

COMPLEX!

- reduce density of phyto/zooplankton
- divert energy from pelagic to benthic
- increased water clarity
- alter fish community
- displace/reduce abundance of native species



Massachusetts: Species at Greatest Risk

- Where and What:

Housatonic River drainage:

- Triangle Floater (*Alasmidonta undulata*) special concern
- Creeper (*Strophitus undulatus*) special concern
- Boreal Marstonia (*Marstonia lustrica*) Laurel Lake/Stockbridge Bowl state endangered

Connecticut River drainage:

- Yellow Lampmussel (*Lampsilis cariosa*) state endangered
- Dwarf Wedgemussel (*Alasmidonta heterodon*) state & federally endangered
- Swollen Wedgemussel (*Alasmidonta varicose*) state endangered

Other potential impacts



How are they spread?

- Within a waterbody –
Larvae disperse

- Between waterbodies -

Veligers, juvenile and adults:

All watercraft, trailers, bilge water, live wells, bait buckets, dive gear, wildlife, etc.



- *No practical method to eradicate zebra mussels once they have become established.*

