



2014 – 2015 Aquatic Invasive Species Outreach Program

Preventing the spread of aquatic invasive species through education and communication programs

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Agenda

- What is an invasive species?
- What Lakes and Rivers are infested with zebra mussels?
- Why should you take action?
- What resources are available?
- Question and answers



What is an invasive species?

- **Invasive species** defined as a species that is:
 - Non-native (or alien) to the ecosystem under consideration and
 - Whose introduction causes or is likely to cause economic or environmental harm or harm to human health
 - Invasive species can be plants, animals and other organisms
- **Aquatic Invasive Species (AIS)** includes both aquatic plant and aquatic animal species
 - Invasive aquatic plants are introduced plants that have adapted to living in, on, or next to water, and that can grow either submerged or partially submerged in water
 - Invasive aquatic animals require a watery habitat, but do not necessarily have to live entirely in water



Invasive Species Examples



Aquatic Invasive Species

- **Plants** <http://www.MIPN.org> (**Hydrilla**, Purple Loosestrife, Common Reed, Eurasian Milfoil, etc.)



Hydrilla



Asian Carp

- **Animals**

- **Asian Carp**
- Asian Long-Horned Beetle
- European Wood Wasp
- Feral Hog
- Gypsy Moth
- Starling
- **Zebra Mussel**



Zebra Mussel



What is a zebra mussel?

- Invasive species
- Attach to any submerged hard surface in infested waters
- Spreads via commercial and recreational boat traffic, amphibious airplanes, scuba equipment, transport containers, fishing gear, boat lifts and boat docks
- Limited number of natural predators
- High reproductive rates, 1 female zebra mussel can produce 1 Million per year
- Veligers are not visible to the naked eye and can be transported in absorbent materials and water
- Can populate a body of water in 2-3 years
- Can negatively affect entire eco systems, disrupt food webs, sport and commercial fishing and navigation, recreational boating, beaches and agriculture.



Crayfish covered with zebra mussels.



Spreading of Zebra Mussels - 1986

Source: http://www.nationalatlas.gov/dynamic/dyn_zm.html



1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010



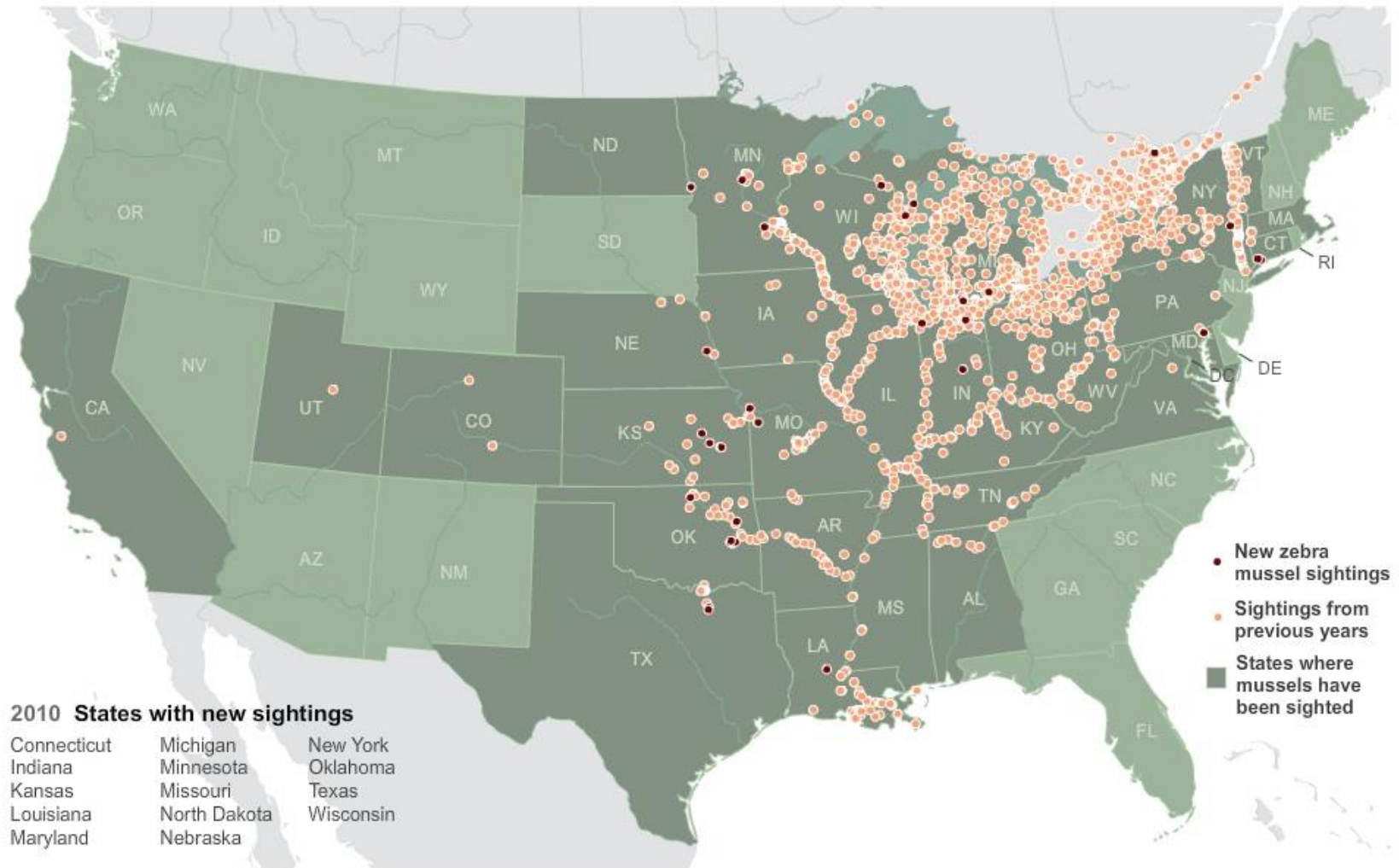
Spreading of Zebra Mussels - 2010

Source: http://www.nationalatlas.gov/dynamic/dyn_zm.html



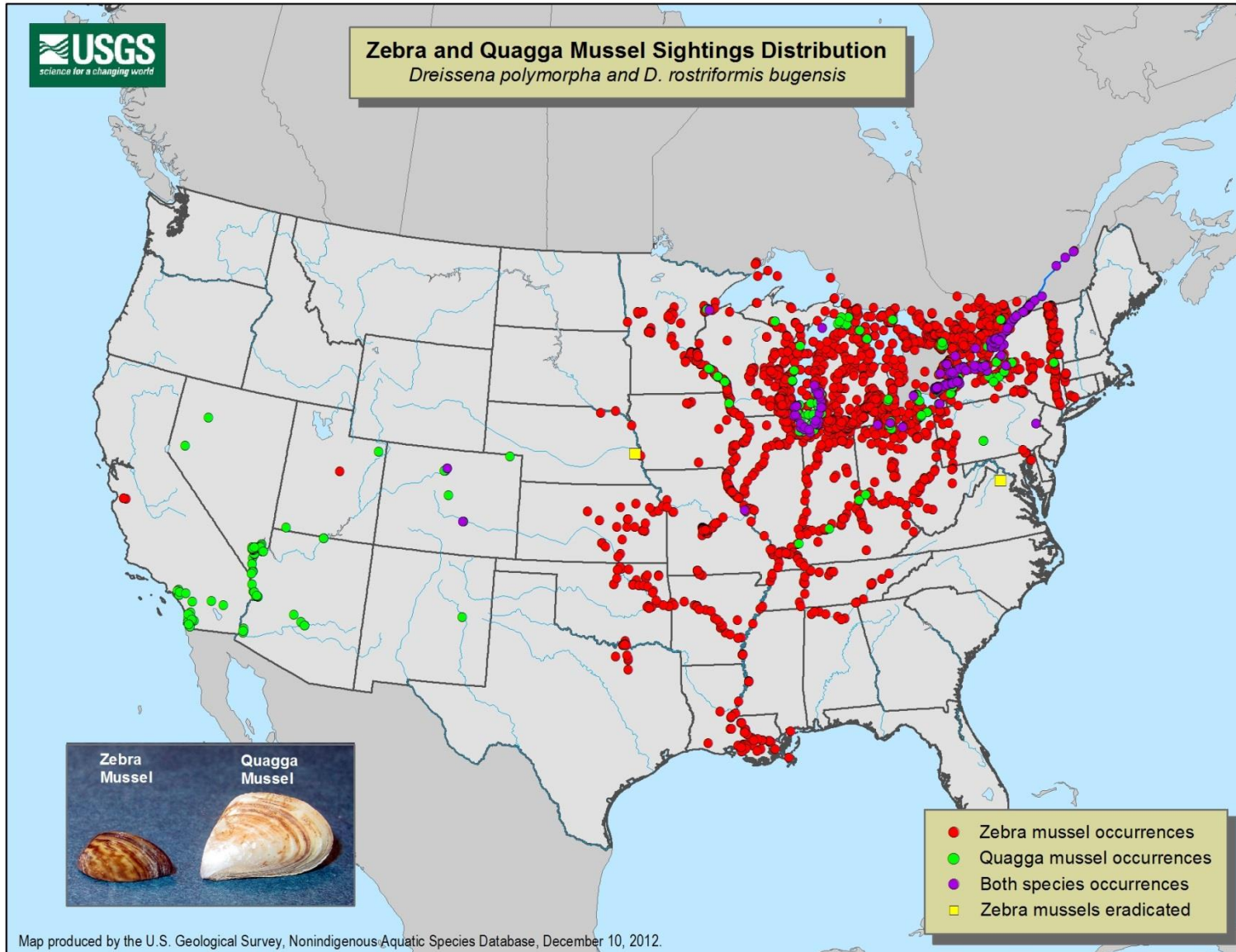
1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010

INTRO



Spreading of Zebra Mussels - 2013

Source: http://nas.er.usgs.gov/taxgroup/mollusks/zebramussel/maps/current_zm_quag_map.jpg



Kansas Infested Reservoirs



Reservoirs/Lakes

- Cheney Reservoir
- Clinton Reservoir
- Council Grow Reservoir
- Council Grove City Lake
- El Dorado Reservoir
- Glen Elder Reservoir - Waconda Lake
- Jeffrey Energy Make-Up and Auxiliary Lakes
- John Redmond Reservoir
- Kanapolis Reservoir
- Wilson Reservoir

Reservoirs/Lakes

- Lake Afton
- Lake Shawnee
- Lake Wabaunsee
- Marion Reservoir
- Melvern Reservoir
- Milford Reservoir
- Perry Reservoir
- Pomona Reservoir
- Wilson Reservoir
- Winfield City Lake
- Wyandotte County Lake



Photos: Melvern Lake Marina 7/2013



NOTE: All rivers that flow from these impoundments are impacted

Missouri Infested Lakes & Rivers



Lakes

- Barber Lake
- Bull Shoals Lake
- Lake Lotawana
- Lake Niangua
- Lake of Ozarks
- Lake Taneycomo
- Smithville Lake

Rivers

- Little Platte River
- Meramec
- Missouri
- Mississippi
- Osage River



Why should you take action?



- Zebra mussels are quickly **infesting nearby Missouri and Kansas** waterways negatively impacting entire eco systems
- They **spread easily**, attaching to anything submerged in infested waters
- In the **larva stage**, they are **not visible to the naked eye** and can live in absorbent materials for many days (live well, bait buckets, life jackets, etc.)
- Once a Lake is infested **you can never go back**
- **Prevention** is the only way to stop them
- Conserving the Lake as a natural resource for fishing, boating and recreational activities is **everyone's responsibility**
- **Protect investments** made in watercraft
- **Preserve property values** for all members
- Safeguard the Lake **lifestyle** you and your family enjoy

What can you personally do?



- Learn to **recognize common invaders**
- **Report sightings** to the Aquatic Nuisance Species Hotline at **877-786-7267** or to the Missouri Department of Conservation **573-522-4115**
- **Inspect** boats, trailers and recreational equipment before use and after use
- **Remove** all plants and animals and dispose in the trash
- Thoroughly **clean and drain** all boats, kayaks, canoes, and recreational gear
- Allow watercraft and all equipment to **dry completely** before launching

✓ **CLEAN**
✓ **DRAIN**
✓ **DRY**

Before you transport your boat or equipment

What can you personally do?

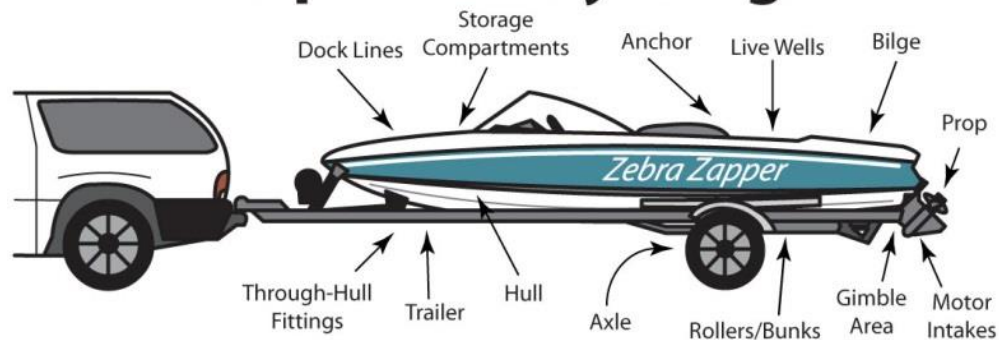


- **Never release plants, pet fish, or animals into a body of water**
- **Dump leftover bait in the trash**
- **Avoid growing or buying plants known to be invasive.** Contact the Missouri Department of Conservation or local plant societies for a list of plants native to your area
- **Take action!** Join a volunteer invasive species monitoring program in your area



**STOP AQUATIC
HITCHHIKERS!™**

Before leaving and before launching...
inspect everything!



Resources & Best Practices



- Community wide education and communication programs
 - Newsletter
 - eMail
 - Phone campaigns
 - Events
 - Town Forums
 - FAQs
 - Signs
 - Training (example: 2 videos, presentation, designation form, test)
 - 13 Minute Video <http://www.youtube.com/watch?v=vWuKtUcR3o8&feature=youtu.be>
 - Web site (example: www.WLICInfoCenter.org)
 - 6 Minute Recorded Presentation (example: <http://www.youtube.com/watch?v=6HP9ymgC-C8>)
- Missouri Department of Conservation
 - Zebra Mussel Flyer
 - Help Stop Aquatic Hitchhikers brochure
 - Web site (example: <http://mdc.mo.gov/>)
 - Report sightings to the Missouri Department of Conservation 573-522-4115
- Midwest Invasive Plant network flyer and web site: <http://www.mipn.org/>
- 100th Meridian web site: <http://www.100thmeridian.org/>
 - Document tab for inspection survey form
 - Tools tab for quarantine estimator based on location and time of year

On-line Resources



- Missouri Department of Conservation resources and educational materials
<http://mdc.mo.gov/>
- Zebra Mussel Information Center:
<http://el.erdc.usace.army.mil/zebra/zmis/zmishelp.htm>
- USGS Nonindigenous Aquatic Species:
<http://nas.er.usgs.gov/taxgroup/mollusks/zebramussel/>
- National Invasive Species Info Center:
<http://www.invasivespeciesinfo.gov/aquatics/main.shtml>
- National Invasive Species Council: <http://www.invasivespecies.gov/>
- NOAA National Center for Research on Aquatic Invasive Species:
<http://www.glerl.noaa.gov>
- Protect your waters: www.protectyourwaters.net.
- Center for Aquatic and Invasive Plants: <http://plants.ifas.ufl.edu>
- National Biological Information Infrastructure, Invasive Species Information Node:
<http://invasivespecies.nbii.gov>



Summary

Please, help prevent the spread of
Aquatic Invasive Species and protect the Lake's ...

- Property values
- Fishing
- Boating
- Swimming
- Shoreline
- Ecosystem
- Members lifestyle

Questions and Answers



***Thank you for helping prevent the spread
of Aquatic Invasive Species***