

Zebra Mussels – Douglas County -- Minnesota

March 2011

Douglas County Commissioners’ Citizens’ Committee on Zebra Mussels

The casual responses	<p>Some will argue that Zebra Mussels cannot be stopped; so, there is no point in spending millions of dollars on prevention and containment.</p> <p>Others say that Zebra Mussels aren’t so bad...they clear up the water</p>
Impact in US (Midwest & East)	The running total cost over the past 13 years is estimated at \$5 billion and the ecological impacts are still being revealed, though some fish population declines have occurred
Impact in MN	Impacts like those experienced elsewhere would devastate the economic and ecological resources of the state. Fishing tournaments attract thousands of boaters each year -- these provide a very important economic piece in the puzzle.
What we know	<p>They are here: ZEBRA MUSSELS are established in the Alexandria Chain</p> <p>How they spread:</p> <ol style="list-style-type: none"> 1. They are spread primarily by boats transporting water from an infested water to an uninfested water <ol style="list-style-type: none"> a. The evidence of Zebra Mussels being transported on reptiles is <u>undocumented</u> in MN b. Birds and other waterfowl are <u>not</u> the main vector for the spread <p>Negative affect on fish populations:</p> <ol style="list-style-type: none"> 2. Zebra Mussels eat the zooplankton needed in the native fish food chain 3. There are no know natural predators as the fish that do eat them are not found in abundance here in MNⁱ <p>Negative affect on private water users:</p> <ol style="list-style-type: none"> 1. There is cost associated with ridding intake pipes of Zebra Mussels, scraping their carcasses off hard structures, cleaning up beachesⁱⁱ <p>Negative affect on counties:</p> <ol style="list-style-type: none"> 2. Property values and their associated Property Taxes negatively impact the local tax bases affecting basic

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	infrastructure funding
Most easily described options	<ol style="list-style-type: none"> 1. Do nothing, accept all consequences 2. Take action <ol style="list-style-type: none"> a. Stop the spread: Zero tolerance of ZM transportation <ol style="list-style-type: none"> i. Inspections ii. On-site decontamination stations <ol style="list-style-type: none"> 1. Use hot (< 40° C or 104° F) or salt water to clean your equipment. 2. If hot water is not available, spray equipment such as boats, motors, trailers, anchors, decoys, floats, nets, with high-pressure water. iii. AIS Violations / Fine Proceedsⁱⁱⁱ b. Eradication of current ZM populations in <ol style="list-style-type: none"> i. Pilot-study infested lakes ii. Pilot –study non-infested lakes
Community challenges	<ol style="list-style-type: none"> 1. Fear/discomfort with <ol style="list-style-type: none"> a. change b. losing “rights” to water c. being a leader d. being challenged e. all of the above 2. Implementation in uncharted territory- <ol style="list-style-type: none"> a. i.e. closing some accesses, mandatory boat inspections 3. Take action immediately (Spring 2011) to prevent further spread in 2011
Action in other MN counties	Ottertail
Activity in other States	<ol style="list-style-type: none"> 1. CALIFORNIA-weekend boat inspection^{iv} <ul style="list-style-type: none"> • Fulton County, CA - mandatory boat inspection of boats entering the county^v. 2. IDAHO-mandatory boat inspection^{vi} 3. COLORADO-mandatory boat inspection /decontamination^{vii} 4. KANSAS- penalty for transport \$5000 fine^{viii} 5. UTAH/ARIZONA - LAKE POWELL^{ix} <ul style="list-style-type: none"> • NEVADA Lake Tahoe- mandatory inspections 6. MAINE^x 7. IOWA^{xi} 8. WYOMING^{xii} 9. NEW YORK^{xiii} 10. NORTH DAKOTA^{xiv}

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<p>What WE can do</p>	<ol style="list-style-type: none"> 1. Follow the slow path of the MN DNR with education 2. Become the ‘pilot’ for the state of 10,000 lakes and implement some decontamination efforts. 3. Potassium chloride has been proven to kill all Zebra Mussels without harming the remaining ecology, test on local lake. 4. Do nothing and be ready to embrace the consequences of no action.
<p>MN SENATE Committee^{xv}</p>	<p>Committee on Environment and Natural Resources Chair: Sen. Bill Ingebrigtsen</p> <p>Bill Name: SF0847 (as of March 16, 2011)</p> <p>-----</p> <p>Relating to natural resources; clarifying and expanding invasive species definitions; modifying a commissioner of natural resources (DNR) annual report by requiring inclusion of additional measures to protect waters from invasive species; modifying the exception to the prohibition on bait harvesting from infested waters; exempting Lake Superior commercial fishing equipment from the tagging requirement; modifying aquatic macrophytes restrictions; authorizing conservation or peace officers to prohibit water-related equipment placement into state waters; regulating emergency response vehicles and equipment transport with drain plugs; providing for watercraft and water-related equipment and inspection; requiring service provider permits; making conforming amendments; increasing civil penalties; modifying civil penalties satisfaction; requiring aquatic invasive species rules decal display; requiring an invasive aquatic plant management permit; allowing temporary warning for violations until a certain date; repealing the invasive species management program for aquatic plants and wild animals (rt) http://www.senate.leg.state.mn.us/bills/billinf.php?ls=87</p>
<p>Alexandria Lakes Area Chamber of Commerce</p>	
<p>Viking Sportsman</p>	
<p>Douglas County Communities</p>	<p>Osakis</p> <p>Miltona</p> <p>...</p>
<p>Let’s discuss ASAP</p>	

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ⁱ Predators

There are a number of natural predators of zebra mussel. Zebra mussels have high nutritional value (Walz, 1979) and are consumed in large quantities by crayfish, waterfowl and in smaller quantities by muskrats.

Crayfish could have a significant impact on the densities of 1 to 5 mm long zebra mussels. An adult crayfish consumes an average of nearly 105 zebra mussels every day, or about 6000 mussels in a season. Predation rates are significantly reduced at cooler water temperatures.

Several species of fish consume zebra mussels. Of these, roach seems to have the most significant impact on mussel densities. In some Polish lakes the diet of the roach consists almost exclusively (~95%) of zebra mussels (Stanczykowska, 1957). Despite all this, it seems that fish do not limit the densities of zebra mussels in European lakes. Smallmouth bass are a predator in the zebra mussels' adopted North American Great Lakes habitat. Mackie et al. 1989

A common inference made by scientists predicts that the zebra mussel will continue spreading passively, by ship and by pleasure craft, to more rivers in North America. Trailered boat traffic is the most likely vector for invasion into Western North America. This spread is preventable if boaters thoroughly clean and dry their boats and associated equipment before transporting them to new bodies of water. Since no North American predator or combination of predators has been shown to significantly reduce zebra mussel numbers, [citation needed] such spread would most likely result in permanent establishment of zebra mussels in many North American waterways. The cost of fighting the pests at power plants and other water-consuming facilities is \$500 million a year in the U.S., according to the Center for Invasive Species Research at the University of California, Riverside. [14] ^ a b c "Zebra Mussels Overwhelm U.S. Waterways in the Great Lakes Region and Beyond - Copper Screens and Coatings Provide a Solution to this \$500 million Problem". Copper Development Association. 2009-07-30. Archived from the original on 2011-03-13. <http://www.webcitation.org/5x9UPINSt>.

Thomas Nalepa of the National Oceanic and Atmospheric Administration in Ann Arbor is the third co-leader of the study. Jude, Edlund and Nalepa are studying links between the arrival of the invasive mussels and the decline of a tiny shrimplike creature called diporeia, which feeds on algae and which has, for millennia, been one of the pillars supporting the base of the Great Lakes food web.

Make no mistake: The study of diporeia's decline is no esoteric academic pursuit. Nearly every fish species in the Great Lakes feeds on diporeia at some point in its life cycle. The diporeia downturn is already impacting Great Lakes commercial fisheries and a sport-fishing enterprise valued at more than \$4 billion per year.

U of Michigan

ⁱⁱ What Is the Economic Impact of Zebra Mussels? Florida

By doing nothing to prevent zebra mussels from entering Lake Okeechobee and/or nothing to arrest propagation after they arrive, ecosystem damages in terms of lost wetland functions will be \$219.5 million over 20 years.

Private water users will sustain \$25.7 million in expected damages from increased maintenance expenditures and recreational anglers will gain \$1.1 million in expected fishing benefits. The net present value of doing nothing is a loss of \$244.1 million.

With a prevention program in place that is 75% effective, the present value of expected ecosystem damages in terms of lost wetland functions will be \$62.4 million over 20 years. Private water users will endure \$7.2 million in expected damages due to increased maintenance and mitigation expenditures. Recreational anglers will enjoy \$0.3 million in expected fishing benefits. The net present value of managing the threat of zebra mussels with prevention is \$71.8 million, a gain of \$172.2 million over doing nothing. The benefit-cost ratio of prevention is 70:1.

With the intent to eradicate zebra mussels after they arrive and begin causing damages, the present value of expected ecosystem damage in terms of lost wetland functions is \$23.8 million. Private water users will absorb expected damages of \$1.2 million and recreational fishers will gain \$0.12 million in expected fishing benefits. The net present value of late eradication is \$210.8 million, a gain of \$33.3 million as compared to doing nothing. The benefit-cost ratio of late eradication is 1.2:1.

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With a program in place to prevent zebra mussels from arriving and the intent to eradicate them before they begin causing damage, the expected loss in ecosystem functions, damage to private consumptive use, and gain to recreational anglers is \$0. The net present value from prevention and early eradication is \$55.4, a gain of \$188.7 million as compared to doing nothing. The benefit-cost ratio of early eradication is 4.4:1.

ⁱⁱⁱ A violation of section 84D.06 (Unlisted Nonnative Species), section 84D.07 (Regulated Invasive Species), section 84D.08 (Escape of Nonnative and Invasive Species), section 84D.10 (Watercraft Violations), or a rule under section 84D.05 (Prohibited Invasive Species) is a misdemeanor crime. Misdemeanors carry a maximum penalty of a \$ 1,000.00 fine and 90 days in jail.

A person who refuses to obey an order of a peace officer or conservation officer to remove prohibited invasive species or aquatic macrophytes from any watercraft, trailer, or plant harvesting equipment is guilty of a gross misdemeanor. Gross misdemeanors carry a maximum penalty of \$ 3,000.00 fine and one year in jail. The Court Administrator advises that fine proceeds from criminal violations of 84D are disbursed in the following manner: 50 % to the State DNR, 50 % to the State General Revenue Fund. In other words, such proceeds are not retained locally.

However, the statute also provides for civil (non-criminal) penalties as described below:

Subd. 4. Warnings; civil citations.

After appropriate training, conservation officers, other licensed peace officers, and other department personnel designated by the commissioner may issue warnings or citations to a person who:

- (1) unlawfully transports prohibited invasive species or aquatic macrophytes;
- (2) unlawfully places or attempts to place into waters of the state a trailer, a watercraft, or plant harvesting equipment that has aquatic macrophytes or prohibited invasive species attached;
- (3) intentionally damages, moves, removes, or sinks a buoy marking, as prescribed by rule, Eurasian water milfoil;
- (4) fails to drain water, as required by rule, from watercraft and equipment before leaving designated zebra mussel, spiny water flea, or other invasive plankton infested waters; or
- (5) transports infested water, in violation of rule, off riparian property.

Subd. 5. Civil penalties.

A civil citation issued under this section must impose the following penalty amounts:

- (1) for transporting aquatic macrophytes on a forest road as defined by section 89.001, subdivision 14, road or highway as defined by section 160.02, subdivision 26, or any other public road, \$50;
- (2) for placing or attempting to place into waters of the state a watercraft, a trailer, or aquatic plant harvesting equipment that has aquatic macrophytes attached, \$100;
- (3) for unlawfully possessing or transporting a prohibited invasive species other than an aquatic macrophyte, \$250;
- (4) for placing or attempting to place into waters of the state a watercraft, a trailer, or aquatic plant harvesting equipment that has prohibited invasive species attached when the waters are not designated by the commissioner as being infested with that invasive species, \$500 for the first offense and \$1,000 for each subsequent offense;
- (5) for intentionally damaging, moving, removing, or sinking a buoy marking, as prescribed by rule, Eurasian water milfoil, \$100;
- (6) for failing to drain water, as required by rule, for infested waters and from watercraft and equipment, other than marine sanitary systems and portable bait containers, before leaving waters of the state, \$50; and
- (7) for transporting infested water off riparian property without a permit as required by rule, \$200.

Subd. 6. Watercraft license suspension.

A civil citation may be issued to suspend, for up to a year, the watercraft license of an owner or person in control of a watercraft or trailer who refuses to submit to an inspection under section 84D.02, subdivision 4, or who refuses to comply with a removal order given under section 84D.13.

A civil penalty collected under this section is payable to the "commissioner" and must be credited to the "invasive species account."

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^{iv} CALIFORNIA Department of Fish and Game officials will conduct mandatory boat inspections from 2-8 p.m. Thursday and Friday at the California Highway Patrol Cottonwood Inspection Facility to check for evidence of the invasive quagga and zebra mussel species.

^v COUNTY EFFORT IN NORTHERN CALIFORNIA according to Fulton, the way the program will work is that a boater entering the county will be directed to a boat inspection station where the boat will be inspected by a certified inspector. If the boat is determined to be clean of mussels and their lava (called veligers), the operator will be given a sticker that he or she must place on the boat. The sticker and inspection is free from April 8 through June 30. After June 30, there will be a small fee for the inspection and sticker. The stickers are valid until Jan. 1, 2009. If the boat fails to pass inspection, it will be directed to one of the four decontamination stations located around the county. The decontamination process includes washing the boat, its bilge, livewells and trailer with water that's at least 140 degrees.

Fulton said signs on the highways leading into the county would issue instructions so that boaters can comply with the ordinance. These instructions include a radio station you can tune to or a telephone number to call, both of which will direct the boater to the nearest inspection station. Initially the inspection stations will be located at the Clearlake Oaks Fire Station, Upper Lake Fire Station and the Konocti Vista Casino and Marina, located on Soda Bay Road just south of Lakeport. Fulton said other inspection stations will be added in the near future.

he ordinance also states it's illegal to dispose of any live bait into the lake, including live minnows, worms or other live bait. According to Fulton, fishermen can still use live minnows and other live bait but they can't be dumped into the lake after fishing. The same applies to the water in a minnow bucket. It must be disposed of away from the lake or storm drains that empty into the lake

^{vi} IDAHO mandatory boat inspections to begin in Idaho today KTVB.COM Posted on March 15, 2011 at 11:58 AM BOISE -- People hoping to boat on Idaho waters will need have their [craft inspected]

The inspection stations will be open from 7 a.m. to 7 p.m. every day

And don't forget Idaho's invasive species sticker requirement for most vessels. The sticker comes with Idaho boat registrations, but a separate sticker must be purchased if your boat is registered out of state or if you have an unregistered non-motorized craft. All non-motorized boats over 10 feet long, including inflatables, are required to have a sticker.

...

IDAHO Boater Costs: More than 90,000 motorized boats were registered in the state of Idaho in 2007. Potential increases in boater costs are based on estimates for anti-fouling paints and increased per-boat maintenance costs. Estimates based on Vilaplana et al. (1994) for increases in boater maintenance costs (\$265 per boat).

- Fishing Use: Recreational fishing is a \$430 million industry in Idaho. Research on impacts of mussels on fisheries is limited but reductions of fish numbers are likely. Vilaplana et al. (1994) found a 4% decrease in boater recreation because of mussel introduction. Estimate based on a 4% reduction of use applied to 2,917,972 Idaho fishing trips a year averaging \$150 per trip (IDFG 2003).

- Irrigation: 56,175 points of diversion (POD) were identified in Idaho by the Idaho Department of Water Resources. Multiple points of use (POU) may be associated with each POD. Each POD and POU could be affected by the introduction of zebra or quagga mussels. These mussels can grow up to 0.5mm / day under ideal conditions and could impact water conveyances that are seasonally dry. Fouling from mussel establishment is cumulative and increased fouling and flow reduction would occur in ditches, pipes, pumps, fish screens and diversion structures over time. Published research on mussel related flow reduction in irrigation systems is minimal, but mussel establishment in pipes and pumps is well documented. The true impacts of zebra and quagga mussel introduction on irrigated agriculture in Idaho are uncertain, but there is a high likelihood that theses mussels will increase maintenance costs for operations that rely on surface water for irrigation.

Facility	Number	Estimated Cost Per Unit	Estimated Cost State-Wide	Citation
Hydro Power	26	\$1,817,000.00	\$47,242,000.00	Phillips et al. 2005
Other Dams	86	\$1,730.00	\$148,700.00	O'Neil 1997
Drinking Water	100	\$42,870.00	\$4,287,000.00	O'Neil 1997

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Golf Courses	114	\$150.00	\$17,100.00	O'Neil 1997
Boat Facilities	380	\$750.00	\$285,000.00	O'Neil 1997
Hatcheries/Aquaculture	194	\$5,860.00	\$1,136,800.00	O'Neil 1997
Boat Maintenance	90,000	\$265.00	\$23,850,000.00	Vilaplana andHushak 1994
Angler Days (4% reduction)	2,917,927	\$150.00	\$17,507,500.00	Vilaplana andHushak 1994
Irrigation POD	56,175	Little current published data		
Total Estimate			\$94,474,000.00	

^{vii} COLORADO Mandatory INSPECTIONS AFTER LEAVING INFESTED WATERS

They did 400,000 inspections last year ... if the boat shows up and it is clean it takes less than 2 minute per inspect ... they ask boat owners to park on a hill to drain thoroughly ... ask that they sponge out the live well prior to inspection .. had only one law enforcement incident in 400,000 inspections ... program is funded by a tax on oil and gas producers in the state monitor 130 bodies of water .. in the last three years they have not seen any increase in ZEBRA MUSSELS infestation ... doing a great job ... YES ... I understood correctly boats must be inspected prior to entering and exiting the boat landing of a known infested body of water.... uniformed DNR professional does the inspection ... DNR does not have the authority to impound the boat but law enforcement does .. DNR guy would report the boat license number to sheriff ... sheriff would go to the boaters home and get the boat ... they have not had to impound any boats as yet ... Elizabeth says that the inspections have uncovered a number of boats with ZEBRA MUSSELS and were able to prevent spread of infestation ... she is happy to act as a resource

^{viii} KANSAS Zebra mussels have very sharp shells that can cut the unprotected skin of people and animals. Federal legislation has been passed to help prevent the spread of zebra mussels. If an individual is caught transporting live zebra mussels into Kansas, they may face up to six months in jail and fines up to \$5,000.

^{ix} LAKE POWELL (UTAH & ARIZONA)[from a Mille Lacs, MN report] As the battle cry mounts to stop the spread of zebra mussels in Minnesota, the Department of Natural Resources would do well to check out places where they have been stopped.

One such place is Lake Powell, the nation's second-largest man-made reservoir that straddles Utah and Arizona. At full pool, Lake Powell is 186 miles long and has 1,960 miles of shoreline. But unlike Lake Mille Lacs or Lake Minnetonka, the reservoir on the Colorado River has only five major marinas where the bulk of boaters access the lake.

Nonetheless, Lake Powell has remained free of zebra and quagga mussels (the latter very similar to zebra mussels) because of an aggressive and mandatory boat inspection program, the use of boat decontamination stations and very stiff fines.

Lake Powell was predicted early on to become the first major western reservoir to get the nasty mussels. It has remained mussel-free, while its neighbor to the south, Lake Mead, has had them since 2005.

"Our program has been successful. We have not found any mussels, and Lake Powell is a huge, huge reservoir," said Mark Anderson, aquatic ecologist for Glen Canyon National Recreation Area. The National Park Service oversees the national recreation area, which encircles Lake Powell and regulates it.

Anderson said Glen Canyon staff inspected 100,000 boats last year before they launched on Lake Powell. A lesser number of "high-risk" boats were required to undergo decontamination, and 14 were found to have zebra mussels on them.

The Lake Powell zebra mussel prevention program costs \$1 million annually, but the National Park Service also has invested in two large decontamination stations, where boats and trailers can drive up a ramp and get sprayed with pressurized, 140-degree water. Those stations cost about \$200,000 each. The park service also uses three smaller stations that cost about \$30,000 each.

Here's how the program works:

Boaters must pass through a check station where they are asked whether their watercraft has been in waters other than Lake Powell in the past 30 days. If the answer is yes, the boat owners and craft are directed to an

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inspection and decontamination station. Inspectors look for places on the boat that might be wet or dirty, and they spray the boat down with pressurized, 140-degree water. Also, any sitting water in the bilge or other places is removed.

The decontamination process takes 15 to 30 minutes, and boaters are charged for the cleaning (anywhere from \$12.50 to \$25), according a recent Lake Powell report. The machines, resembling a small car wash, collect the water after the cleaning. The larger machines filter the water; the small ones only collect it for disposal later. Boats that had zebra mussels attached to them were required to go into quarantine. Anderson said the boat trailer is "booted" and not allowed to leave the area. During the summer, the quarantine can last 5 to 10 days, when extremely hot weather ensures zebra mussels on the boat will die.

Anderson said that even if all the discovered zebra mussels are removed from the boat, there would be others that aren't found, hence the quarantine requirement.

All boat owners are required to put on their vehicle windshield a certification that their watercraft was inspected and "mussel free."

Failure to display the certificate can result in a mandatory court appearance, up to six months in jail and a \$5,000 fine. In 2009, 318 citations were issued, and a \$2,500 fine was upheld in court.

Could such a system of inspection and decontamination stations work in Minnesota?

Lake Powell's advantage is having a limited number of boat access points (5), while the number of potential launches, private and public, throughout Minnesota ranks in the thousands.

A more likely scenario would be to have boats inspected and decontaminated after leaving infested waters such as Lake Minnetonka and Lake Mille Lacs.

Former DNR biologist and current fisheries consultant Dick Sternberg has put together a PowerPoint presentation on the danger zebra mussels pose to Minnesota lakes. He has shown it a half-dozen times around the state in recent months.

"The main thing is having decontamination stations," Sternberg said. "If an infested lake doesn't provide decontamination stations, then you're always going to be playing defense on other lakes." He said preventing the spread of zebra mussels from Mille Lacs and Minnetonka should be the DNR's highest priority.

He said he worries that Leech Lake and Lake Winnibigoshish are next in line for infestation because those lakes are popular destinations for walleye anglers that might have visited Lake Mille Lacs.

Requiring Lake Mille Lacs or Minnetonka boaters and their watercraft to submit to mandatory inspections wouldn't be easy or cheap. But such measures appear to be the only successful solutions to keeping zebra mussels out of waters where "high-risk" boat travel is sure to further the mussels' spread.

^x MAINE Mandatory boat inspections in Maine </> Embed

For the first time inspections are mandatory for invasive milfoil plan

Channel: [NECN](#)

Category: [News](#)

^{xi} IOWA In some parts of Europe, large diving duck populations have actually changed their migratory pattern in order to forage on zebra mussel beds. In one case on the Rhine River, diving ducks and coots consumed up to 97% of the standing zebra mussel crop each year, but the high reproduction rates of the mussel replenished the population each summer.

In North America, the species most likely to prey on relatively deep beds of zebra mussels are scaup, canvasbacks, and old squaws. The problem is that populations of these duck species are very low--canvasbacks are so rare they are protected. Mallard ducks have also been found to forage on zebra mussels in shallower waters. Freshwater drum have also been observed to feed on the mussels, and yellow perch have been seen feeding on juveniles, mainly when they are detached and drifting.

^{xii} WYOMING Aquatic Invasive Species Decal

All watercraft using Wyoming waters are required to display an Aquatic Invasive Species decal. Costs for the decal are \$10 for motorized watercraft registered in Wyoming, \$30 for motorized watercraft registered in other states,

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\$5 for non-motorized watercraft owned by Wyoming residents and \$15 for non-motorized watercraft owned by non-residents. Inflatables 10 feet or less in length are exempt.

^{xiii} NEW YORK As part of an effort to fund increased boat inspections, the village board Monday passed a resolution raising the annual cost of a permit for out-of-town permits for Lakeside Park boat access. The new cost adds a \$35 environmental impact fee to a base \$40 cost.

"There are some new invasive species that are now invading New York state that are worse than Eurasian milfoil," said Village Trustee Kurt Wheeler. "There's no perfect system, but we just feel that if we don't do everything that's in our power to prevent the introduction of those new invasive species — the lake is too important a resource to ignore."

^{xiv} NORTH DAKOTA Equipment cleaning and bait regulations:

Aquatic Nuisance Species are animals, plants and even diseases that are not native to North Dakota and have the likelihood to become well established if introduced. They can displace native plants and animals, and cause serious economic and ecological damage. ND has adopted a number of rules designed to minimize the threat of ANS.

1. All aquatic vegetation and mud must be removed from boats, personal watercraft, trailers, and fishing and hunting equipment such as fishing poles, lures, duck decoys, and waders before leaving a body of water. That means "vegetation free" when transporting watercraft and/or equipment away from a boat ramp, landing area or shoreline. Additionally, hunters must brush hunting dogs free of mud and seeds.

2. All aquatic vegetation must be removed from bait buckets when leaving the water.

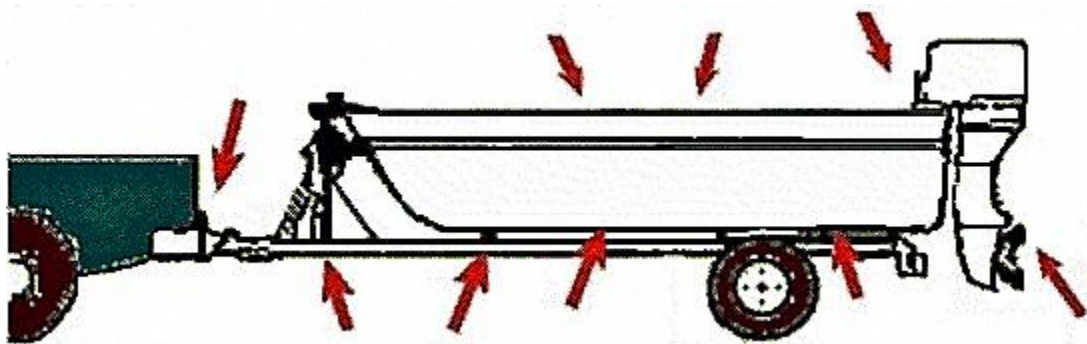
3. All water must be drained from boats and other watercraft, including bilges and motors before leaving a water body (Note: effective October 1, 2010, this includes livewells and baitwells).

4. Live aquatic bait or aquatic vegetation may not be transported into North Dakota.

5. All water must be drained from watercraft prior to entering the state.

Places where aquatic nuisance species can hide and hitchhike to new waters:

Hitch, live-well, mud & water on floor, transom



Anchor rope, trailer frame, boat hull, rollers, bunks, axle, wheels, boat motor

Recommended Methods for Disinfecting Gear - Not Required

- Power wash the exterior and interior of the boat and trailer at a commercial carwash to remove small plant fragments and remove items clinging to the hull.
- Disinfect boat, live-well and bait-well, the bilge, or confined spaces, and other equipment with a solution of one part chlorine bleach to 20 parts warm water or wash the equipment with water that is hotter than 120 degrees Fahrenheit or air dry boat and trailer for five days in hot, dry weather.

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