minnesota waters

Minnesota
DEPARTMENT OF
NATURAL RESOURCES

Lake Service Provider Training

A Guidance Manual for Preventing the spread of AIS

Acknowledgements

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Chapter 1: What are Invasive Species?

A. Background

According to Minnesota Sea Grant: "Aquatic Invasive Species…

- Are non-native plants, animals, and pathogens
- Live primarily in water
- Thrive in a new environment
- Cause economic loss, environmental damage, and harm to human health

These species are introduced or moved by human activities to a location where they do not naturally occur. Minnesota's natural resources are threatened by aquatic invasive species such as the zebra mussel, Eurasian watermilfoil, faucet snails, spiny waterflea, and purple loosestrife. These species along with new invasive species could be easily spread within the state if citizens, businesses, and visitors don't take the necessary steps to contain them.

Impact of Infestations

AIS May Change Minnesota's Waters Forever- Ecologically, Economically, and Recreationally

Aquatic invasive species compress the natural time and space scales for invasions to the point where natural systems are unable to adapt in a timely manner. As a result, aquatic systems are thrown off balance and are less able to provide ecologic, economic, recreation and natural resource services.

The issue of invasive, exotic, non-native, alien species is so pervasive that it is easy to throw up our hands. Burdick (2005), senior science editor for Discover, refers to this new era as the 'Homogecene' – where the greatest threat to biological diversity is "not bulldozers or pesticides, but in a sense, nature itself." Biological diversity is the gold standard for ecological health and ecological invasions are often framed in the terminology of biodiversity in academic circles. As invasive species take over a community they drastically reduce biodiversity. However, ecological invasions have more personal, practical and tangible impacts as well. Invading species replace or damage plants and animals of horticultural, agricultural or aqua-cultural value. Invasive plants and animals cause or mediate disease.


Photo credit: MN DNR

Invasive species damage lake ecology, recreation, property values, commerce and industry. Invasive species can impact an ecosystem in various ways, but the most general impact is competition for food and space with native species. This competition can lead to significant declines, and in some cases complete removal of native species populations for the environment. The declines or elimination

of native species populations in one trophic level can work like a domino effect causing negative effects on native species in other trophic levels. AIS can upset the natural balance within ecosystems through displacement of native species, reduction in species diversity, destruction of habitat, and degradation of water related recreation

According to Chang and Boyle (2010) in a study on Vermont lake property owners, as Eurasian watermilfoil infests a lake, property values can diminish by < 1% to 16% for incremental increases in the infestation level. It is important to lakeshore property owners to keep invasive species out of their lake not only for reasons of aesthetics but also to protect their property investment.

A poll in Iron River, WI regarding the possibility of Eurasian watermilfoil (EWM) invading lakes found:

- A $1 million reduction in local fishing economy revenue per year
- A reduction of $250,000 per year in general spending for the area
- The average annual loss for additional infested lakes was calculated to be $187,000 per year.

Further, results showed an average impact of $30,000 to lakeshore property values in the area, or about 13% decline if EWM infests that body of water. The average homeowner in the area was willing to pay $1,400 to prevent EWM infestation.

B. Pathways of Spread

Recreational, Animals, and Businesses

The best thing that you can do to help prevent the spread of AIS is to be aware. There are several vectors or pathways that are the most common way that AIS are transported from water body to water body. Below are vectors that contribute to the distribution of AIS and some simple but vital steps that can be taken to prevent the spread of AIS.

Ballast water

Ocean going vessels from ports in Europe or Asia take on ballast water from their homeport for stability when crossing the Atlantic Ocean for destinations within the Great Lakes. Once in port, the ballast water is not needed anymore and it is pumped out of the ship and into the lake. Whatever organisms are in the ballast water from the ship's homeport have been given a ride half way around the world and are dumped with the ballast water into Lake Superior. Trans-oceanic ships now are required to exchange ballast water in the open sea at least 200 miles from U.S. coasts under regulations implemented in 1993 by the U.S. Coast Guard. The exchange system requires ships to replace pumpable ballast water at sea with open-ocean water. The idea is that this reduces the number of organisms available for discharge and exposes those remaining to salt water, which may kill them or affect their ability to reproduce. However, ballast exchange may not totally eliminate or affect organisms in the sludge and sediment on the bottom of a ship's ballast tanks.

Boaters and fishermen

Boaters and fishermen, because of their movement from multiple lakes and rivers, are a major pathway of AIS spread. Their boats, fishing gear, and bait can be sources of AIS transport. Some simple steps that can be taken include:

- Remove any visible plants, fish or animals from your boat and trailer.
- Remove mud and dirt since it too may contain mussels or small larvae that can establish themselves in the next lake where you launch.
- Remove plant fragments as some AIS can root from even these small fragments.
- Eliminate all water from every conceivable item before you leave the area you are visiting.
- Remove water from motors, jet drives, live wells, boat hulls, scuba tanks and regulators, boots, waders, bait buckets, seaplane floats, swimming floats.
- Don't dispose of your bait by dumping it in the lake. Give it to another angler before leaving your fishing hotspot or put them in the garbage.
- Allow your boat, fishing equipment, and other recreational equipment to dry for 5 days before using them at the next fun spot!

Lake Service Providers

Lake Service Providers represent a wide range of businesses such as boat dealers/installers, boat storages, fishing guides, and harvesters. As part of their businesses they are required to move products from lake to lake. Often lake service providers work in both AIS infested and uninfested waters. Later in the manual we will discuss some steps that can be taken to minimize the chance that AIS will be spread during business operations.

Shore owners and tourists

- Check your docks and remove any plants and mussels that might be attached. If you suspect that the critters are on your docks are zebra mussels contact your local DNR staff and let them know.
- After a full day of water play wash your dogs before you take them on their next water adventure.

Water gardener or aquarium owner

- If you cannot find a home for the critters in you aquarium, bury them. Dump the water into the toilet or yard, far away from storm drains.
- Check your water garden plant order for unwanted plants. Invasive species have been unintentionally introduced in water gardens in our state.

Chapter 2: AIS Species

A. Eurasian watermilfoil

Eurasian watermilfoil is a submerged aquatic plant that is a native of Europe.


Photo credit: MN DNR

Plant Characteristics

- 12-21 leaflet pairs per leaf
- Leafs are limp when out of water
- Spreads by vegetative reproduction
- Does not produce turions

Life Cycle

- Plant starts growing when water temperature reached 50°F, earlier then native watermilfoil
- Over spring and summer it can grow over 2 inches a day
- Can form dense mats at the surface

Impacts

- Prolific growth
- Displaces native vegetation
- Can alter lake ecosystems
- Limits recreation


Photo credit: MN DNR

Steps to Prevent and Contain

- Cannot be eradicated
- Prevention Education and Outreach
- Herbicide, mechanical, and biological control
- Unlawful to transport, possess, import or introduce this species

B. Curly-leaf pondweed

Curly-leaf pondweed is a native to Eurasia, Africa, and Australia. It was introduced into the United States with the introduction of the common carp.

Plant Characteristics

- "Curly" leaves with small serrations that are alternate on the stem
- Most leaves have prominent red-tinged mid-vein
- Leave veins are branched
- Can be similar to native pondweeds


Photo credit: MN DNR

Life Cycle

- Produces winter buds or turions
- Grows during the winter
- Rapid growth in the spring while other plants are dormant

Impacts

- Dense curly-leaf canopy shades out other plants
- Complete their lake cycle in early summer and can lead to mats of dying vegetation
- High vegetation die off often results in higher levels of nutrients such as phosphorus, which can increase algal blooms
- Can impede recreational uses of a lake


Photo credit: MN DNR

Steps to Prevent and Contain

- Herbicide, limited mechanical management
- Remove all vegetation from any boats or equipment entering or leaving a lake
- Unlawful to transport, possess, import or introduce this species

Photo credit: MN DNR

C. Flowering Rush

This exotic is believed to have been imported from Europe as an ornamental garden plant.

Plant Characteristic

- Flowers grow in umbrella shaped clusters and each individual flower has 3 whitish pink petals. Plants only produce flowers in very shallow areas
- Green stems that resemble bulrushes but are triangular in cross section.
- Along shore, erect leaves and grows to about 3 feet in height. The leaf tips may be spirally twisted. Under water, the leaves are limp.
- An extensive root system that can break into new plants if disturbed.

Life Cycle

- Emergent plant that resembles native bulrush when not in flower
- Plants do produce seeds but the main method of spread is through rhizome spread

Impacts

- Forms dense stand that may interfere with swimming and other use of lakes
- Can grown on shore and into 8 ft of water
- Flowering Rush is an aggressive plant and can crowd out native vegetation as well as disturb habitat for fish and other wildlife

Steps to Prevent and Contain

- Herbicide (effective on dry land or shallow water), cutting, digging (extreme care must be taken not to break off root parts that could spread and start new infestations)

D. Zebra mussel

Zebra mussels are native to western Russia. They were introduced to the Great Lakes region in the ballast water of ocean ships. From the harbor areas of Great Lakes ports they have spread to in-land lakes.

Animal Characteristics

- Mostly white or cream colored with jagged brown or black strips. Shell is D-shaped and adults range from 1/8 – 2 inches in length
- Unique byssal thread are located on the hinge edge of their shell

Life Cycle

- Zebra mussels reproduce when the water temperature exceeds 54°F. Dormant in the winter
- Female can produce up to 1 million eggs per year
- Free swimming larval stage called the veliger feeds on phytoplankton until they start to form shells at 3-5 weeks
- In the settling stage, when shells are forming, they must find a hard surface to attach to or they will die. Plants, rocks, native mussels, other zebra mussels as well as man-made structures are used as attachment sites.

Impacts

- May disrupt food web dynamics and kill native mussels
- Can clog motors, intake pipes, and make swimming hazardous
- Filtering capacity can cause conditions that increase growth of other plants to greater depths in a lake

Steps to Prevent and Contain

- Clean boats, docks, and equipment with power wash and let dry for 5 days before using in another water body
- Dump all water from bilges, live wells, and bait containers
- Unlawful to transport, possess, import or introduce this species

E. Spiny Waterflea

This invasive zooplankton is a native to Europe and Asia and hitched a ride to the Great Lakes in the ballast water of ocean-going vessels. From the Great Lakes they have been transported to inland lakes by means of boating and fishing equipment.

Animal Characteristics

- Larger than native zooplankton up to ¾ inch
- Unique body shape of head with large dark eye and long tail spine that is often twice the rest of the body
- Several barbs are located on the spiny tail

Life Cycle

- Can reproduce sexually and asexually
- Resting eggs can survive after the adult is dead
- As water temperature rises reproduction is increased. A new generation can be reproduced in two weeks
- Eggs released from the female can rest on the lake bottom and overwinter to start reproduction the next spring

Impacts

- Prolific and can displace native plankton that are native fish food
- Because of the tail spine this zooplankton are difficult for certain fish to feed on
- Impedes fishing
- Can change a lakes ecosystem

Steps for Prevention and Containment

- Currently there are no means of controlling this invasive
- Education on proper cleaning of boats and fishing equipment is the only route of prevention

F. Faucet Snail

The faucet snail is an aquatic snail native to Europe and was introduced to the Great Lakes in the 1870s. It was probably brought to North America unintentionally with the solid ballast of large timber transport ships or perhaps with vegetation used in packing crates.

Animal Characteristics

- Light brown to black color
- Shell has 4-5 whorls
- Shell opening is to the right and has a "bullseye" pattern on the operculum

Life Cycle

- Can lay up to 300 eggs a season and hatching can take from 3 wks to 3 months depending on the weather
- Life span is usually 17-39 months

Impacts

- Serves as a host for 3 trematode parasites
- Ducks, such as scaup and coots, that feed on the snail can die from internal hemorrhaging caused by the parasitic trematode
- Faucet snails compete with native snails for habitat
- May clog water intake valves and other submerged equipment

Steps for Prevention and Containment

- Inspect for and remove aquatic plants, animals, and mud from boats and equipment before transporting from one water body to another.
- Preferably spray with high-pressure hot (120 F) water for a couple minutes.
- No known treatment for faucet snail

G. Other Invasives of Concern

1. New Zealand Mudsnail

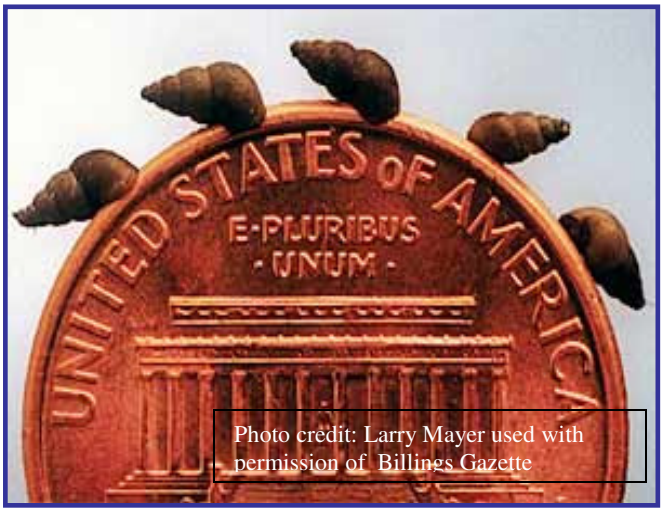


Photo credit: Larry Mayer used with permission of Billings Gazette

A tiny snail that reproduces asexually Native to New Zealand, it was accidentally introduced with imported rainbow trout in Idaho in the 1980s and into the Great Lakes via ballast water from ocean going ships.

Why be Concerned?

Densities can reach 100,000 to 700,000 per square meter. They outcompete species that are important forage for native trout and other fishes and provide little nutrition to fish that eat them. They likely spread by attaching to recreational fishing gear, other types of equipment placed in the water, or in fish shipments. They attach to hard surfaces such as man-made structures and rocks. To prevent the spread all recreational and business equipment should be rinsed in hot water and allowed to dry for 5 days.

2. Rusty Crayfish

Rusty crayfish are crustaceans that grow up to 5 inches long. They are native to the Ohio River basin. Their carapace usually has a pair of rusty-colored spots and claws often have black bands at their tips. They were most likely introduced through fisherman that brought the crayfish north as bait.

Why be Concerned?

Rusty crayfish are aggressive invaders. They can harm native fish communities by feeding on their eggs and young, drive out or hybridize with native crayfish, and eliminate aquatic vegetation. They were discovered in Minnesota around 1960 and are confirmed in about 50 Minnesota waters, mostly in central and northern counties. They can infest lakes, rivers, streams and wetlands. Rusty crayfish is a regulated invasive species (DNR), which means release into the wild is illegal. Licensed anglers may collect any crayfish for use as bait on the same water body. They can also harvest up to 25 pounds of any crayfish for personal consumption but selling live crayfish for bait or aquarium use is illegal. To prevent the spread of these invasives inspect and remove aquatic plants and animals from recreational gear and never release crayfish, fish or plants from one body of water into another.

3. Chinese/Banded Mystery snail

Chinese mystery snails were probably introduced into the United States through releases from the aquarium industry. This snail is readily imported for Asian food markets. Therefore, some releases may have been intentional in an effort to create a local food source. Once in a body of water the Chinese mystery snail can be transported via bait buckets and water holding areas on boats. The historic range of the banded mystery snail (BMS) is the southeastern U.S., primarily in the Mississippi River system up to Illinois. It is a popular aquarium snail that's been released in Minnesota.

Chinese Mystery and Banded Mystery Snail Society

Why be Concerned?

Chinese mystery snails can serve as vectors for the transmission of parasites and diseases. Some of the parasites and diseases that the Chinese mystery snail has been known to play host to can infect humans. Their shells will clog the screens of water intake pipes inhibiting the flow of water. Also, they naturally compete with our native snails for food and space. Banded Mystery Snails can cause mortality of largemouth bass embryos when they invade nests. Specific control methods for the Chinese mystery snail have yet to be developed but there are some general snail management techniques such as copper compounds that are sold as snailicides but they are usually not selective in the snails they kill. With Chinese mystery snails possessing the ability to "close up", more damage would probably occur to native snails in the treatment area than to the target pest. The best type of control is prevention. Preventing any further spread of the Chinese mystery snail will help keep our native ecosystems healthy.

4. Bighead and Silver Carp

The Bighead and Silver carp are large filter feeding fish that can weigh up to 110 pounds for the bighead and 60 pounds for the silver carp. Both species have low-set eyes below the mouth and large upturned mouths without barbels. Originally imported from China in the 1970s for use in aquaculture ponds to control plankton both of these species had escaped into open waters in southern states by the 1980s.

Why be Concerned?

Bighead and Silver carp are voracious eaters and compete for food with native organisms including mussels, larval fishes, and some adult fish such as paddlefish. This competition for food could result in fewer and smaller sport fish. Silver carp can jump up to 10

feet out of the water when disturbed by sounds of watercraft. They often jump into boats and can injure boaters, personal watercraft operators, and water skiers. No reproducing populations are known to be in Minnesota but Silver and Bighead carp have been netted by commercial fishermen on the Mississippi River in Pools 4 and 16. Reproducing populations exist further downstream in the Mississippi and its tributaries and during high water periods have likely been able to traverse upstream through the locks on the river. To prevent the spread of these fish do never take or use bait from waters containing these fish.

5. Round Goby

Native to the Black and Caspian seas region, the round goby, was introduced into the Great Lakes via freighter ballast and were found in the Duluth/Superior harbor in 1995. Round gobies perch on rocks and other substrates in shallow areas, but can adapt to other habitats. Gobies also have a well developed sensory system that enhances their ability to detect water movement and allows them to feed in complete darkness, giving them an advantage over other fish in the same habitat. Zebra mussels may have facilitated the invasion of the round goby and other Eurasian species by providing an abundant food source.

Why be Concerned?

Once established, populations typically increase quickly. They are aggressive fish and voracious feeders. They will vigorously defend spawning sites in rocky or gravel habitats, thereby restricting access of other less aggressive fish to prime spawning areas. Gobies also are capable of rapid population growth. They spawn repeatedly during the summer months, and each time, a female can produce up to 5,000 eggs.

6. European ruffe

The Eurasian ruffe's (pronounced "rough") home range includes northeastern France, England, most of Siberia, and the Baltic Sea. The European ruffe was first reported in the U.S. in 1986 and the population rapidly increased in the St. Louis River Estuary in the Duluth-Superior Harbor. The most likely pathway of introduction was in the ballast water of ocean-going vessels.

Why be Concerned?

An elevated ruffe population means aggressive competition for food and habitat. Maturing quickly, the ruffe has a high reproductive capacity, and adapts to a wide variety of environments. It is considered a serious threat to the yellow perch commercial and sport fishing industry. It spawns between mid-April and July, depending on location, water temperature, and preferred habitat. A female ruffe lives an average of seven years, but may live up to 11 years. Males live up

to seven years but have an average lifespan of three to five years. The best management practice for these fish are prevention. Fishermen should learn how to identify European ruffe and take precautions to prevent transporting them into other waters. If you think that you have captured a European ruffe kill it and freeze it. Contact your regional AIS staff to report your find.

7. Northern snakehead

The northern snakehead is native to China, Russia, and Korea. The first reported breeding population was discovered in the eastern U.S. The northern snakehead survives in a wide range of habitats including wetlands, vegetated ponds, swamps, and slow-moving streams. Its air bladder works like a primitive lung, allowing snakeheads to survive out of the water in moist locations for up to four days. This adaptation, along with their ability to wriggle over land to new bodies of water, gives the snakehead a competitive edge over other fish in securing habitat and expanding its range. Females can spawn several times a year beginning in June, and can lay as many as 100,000 eggs annually.


Maryland Department of Natural Resources Fisheries

Why be Concerned?

These invaders can devastate populations of native fish and wildlife. At all stages of their lives, northern snakeheads will compete with native fish for food. As adults, they become voracious predators, feeding on other fish, crustaceans, frogs, small reptiles, and even birds and mammals. Northern snakeheads are also capable of surviving in water with very low oxygen content, giving them a competitive advantage over species such as pike and bass that require more oxygen.

8. Hydrilla

Hydrilla is a submerged aquatic plant native to Asia and northern Australia. It is thought to have been spread through aquarium dealers and can still be found in water garden nurseries. It can grow several inches a day and is often undetected until is "tops out" at the surface of a lake.


Photo credit: Vic Ramey at University of Florida

Why be Concerned?

When hydrilla invades, ecologically-important native submersed plants such as pondweeds, and coontail are shaded out by hydrilla's thick mats, or are simply outcompeted, and eliminated. Millions of dollars are spent each year on herbicides and mechanical harvesters in Florida alone in an effort to place hydrilla under "maintenance control". A major infestation of hydrilla can seriously interfere with boating, both recreational and commercial, and prevent swimming and fishing, and effect water quality. Once established the eradication of Hydrilla is difficult and may be impossible. To prevent the spread, remove all vegetation from boats and recreational

equipment before entering and leaving a water body. Also be aware of nurseries that still sell this invasive specie under the name of "anacharis".

9. Rock Snot (Didymosphenia geminata)

Didymo is a diatom, a single-celled alga that grows an extracellular stalk that is resistant to degradation in streams. Didymo is part of the upper Great Lakes diatom community and doesn't appear to be colonizing Lake Superior's tributaries but might be a cause for concern if it spreads to inland waters.

Why be Concerned?

Didymo forms dense mats that can be over 6 inches thick smothering streambeds, aquatic plants, insects and reducing fish habitat and food. The species can quickly produce excessive biomass in conditions where nutrients are scarce and temperatures are chilly. The most likely risk for spreading Didymo is on felt-bottomed waders. The key to curbing the spread of Didymo is educating fly fishers in particular about cleaning their equipment. Nuisance blooms may taper off after 3-4 years.

10. Brazilian waterweed

Brazilian waterweed is a submersed, freshwater, perennial herb native to South America. Its stems are cylindrical and simple or branched, and typically grow 1-2 feet long, but can grow up to 20 feet long. Leaves grow in whorls of 3 to 8 with short internodes making the plant look very leafy. Commonly sold as an aquarium plant, it has spread to at least a half-dozen countries and numerous states, some of which have banned its sale.

Why be Concerned?

It forms mats dense enough to restrict water movement, trap sediment and cause fluctuations in water quality. Reproducing via fragmentation allows it to spread from a single plant and tends to choke out slower-growing native plants. It can also outcompete Eurasian water milfoil.

11. Pink water lily

The pink water lily is a hybrid cultivar that can be purchased from most water garden supply companies. Similar to our native water lilies these hybrids have, as their name implies, pink flowers. Minnesota DNR staff discovered non-native water lilies growing in four Minnesota lakes.

Why be Concerned?

The magnitude of potential adverse impacts of hybrid water lilies is high. At least one population has survived for ten years in Minnesota and has spread along at least 100 feet of lakeshore. In other states these hybrids have completely taken over lakes. There is a possibility that non-native hybrid water lilies may back-cross with native water lilies and distinguishing native origin would then be very difficult. As with any aquatic species that is brought to Minnesota, there is a high possibility that rhizomes of the non-native water lilies may contain other exotic species that would be transplanted along with the water lilies.

Chapter 3: Minnesota Regulations

1. Current Regulations

Minnesota has several state laws intended to minimize the introduction and spread of invasive species of wild animal and aquatic plants in the state. The state designated several invasive species using a four-tiered classification system. Invasive species are classified as prohibited, regulated, unregulated, and unlisted invasive species. The classification process establishes the level of regulation and types of allowable uses for each species.

Prohibited invasive species

Certain invasive species that can threaten natural resources and their use have been designated as **prohibited invasive species** in Minnesota. It is unlawful (a misdemeanor) to possess, import, purchase, transport, or introduce these species except under a permit for disposal, control, research, or education. The prohibited invasive species in Minnesota include the following and any hybrids, cultivars, or varieties of the species listed below:

- **Aquatic Plants**
  African oxygen weed (*Lagarosiphon major*)
  aquarium watermoss or giant salvinia (*Salvinia molesta*)
  Australian stone crop (*Crassula helmsii*)
  brittle naiad (*Najas minor*)
  curly-leaf pondweed (*Potamogeton crispus*)*
  Eurasian watermilfoil (*Myriophyllum spicatum*)*
  European frog-bit (*Hydrocharis morsus-ranae*)
  flowering rush (*Butomus umbellatus*)*
  hydrilla (*Hydrilla verticillata*)
  Indian swampweed (*Hygrophila polysperma*)
  purple loosestrife (*Lythrum salicaria, Lythrum virgatum, or any variety, hybrid, or cultivar thereof*)*
  water aloe or water soldiers (*Stratiotes aloides*)
  water chestnut (*Trapa natans*)

- **Fish**
  bighead carp (*Hypophthalmichthys nobilis*)
  black carp (*Mylopharyngodon piceus*)
  grass carp (*Ctenopharyngodon idella*)
  northern snakehead fish (*Channa argus*)
  round goby (*Neogobius melanostomus*)*
  rudd (*Scardinius erythrophthalmus*)
  ruffe (*Gymnocephalus cernuus*)*
  sea lamprey (*Petromyzon marinus*)*

silver carp (*Hypophthalmichthys molitrix*)
tubenose goby (*Proterorhinus marmoratus*)*
white perch (*Morone americana*)*
zander (*Stizostedion lucioperca*)

- **Invertebrates**
  New Zealand mud snail (*Potamopyrgus antipodarum*)*
  zebra mussel (*Dreissena spp.*)*

* **These species are known to be in Minnesota waters.**

Transportation prohibitions

Current state law prohibits transportation of **all** aquatic plants (with a few exceptions). This law will not only help prevent the spread of Eurasian watermilfoil, but it will also reduce the risk of zebra mussels being transported while attached to aquatic plants. And it will reduce the inadvertent transport of other harmful plants into or within the state.

Under state law, it is unlawful to:

- transport aquatic plants on public roads, except as allowed in statute;
- transport zebra mussels and other **prohibited** species of animals on a public road;
- place or attempt to place into waters of the state a boat, seaplane, or trailer that has aquatic plants , zebra mussels, or other **prohibited** invasive species attached.

Regulations on transport of water

As of July 1, 2010, the following regulations, apply to the transportation of water by boaters from all waters in the state (violations are misdemeanors):

- a person leaving waters of the state must drain boating-related equipment holding water and live wells and bilges by removing the drain plug before transporting the watercraft and associated equipment on public roads; and
- drain plugs, bailers, valves, or other devices used to control the draining of water from ballast tanks, bilges, and live wells must be removed or opened while transporting watercraft on a public road (marine sanitary systems and portable bait containers are excluded from this requirement).
- A person must not dispose of bait in waters of the state.

How does this apply to me?

If your business involves moving, transporting, or selling of any boats or other equipment from one water body to another water body you are responsible for following the regulations of transportation of plants, animals, and water. If you are found out of compliance with these regulations your may incur either a civil penalty or a misdemeanor.

Bait Harvesters and Fishing Guides

If you are a bait harvester or fishing guide you have some additional AIS related regulations. For bait harvesters the harvesting of bait from infested waters is prohibited except for commercial harvest by special permit. Commercial bait harvesters must apply to the DNR for the permit, attend training, pass a test, and follow restrictive permit conditions. Permits require conditions such as; use of separate gear in infested waters and non-infested waters, tagging all gear in infested waters with tags specific to species in the infested waters, and not transporting gear tagged for infested waters to non-infested waters.

Fishing guides must follow all the regulations that apply to recreational boaters and anglers. It is illegal to transport live fish other then baitfish. Live fish may not be transported in a livewell once you leave the lake.

For the latest laws on AIS regulations visit the MN DNR website at
http://www.dnr.state.mn.us/eco/invasives/laws.html

For other questions about the regulations and enforcement you can contact:
Invasive species Specialists - see list at: http://files.dnr.state.mn.us/contact/eco_invasivesstaff.pdf

2. Penalties

Why Should I comply?

As a lake service provider you are in a unique position of having the ability to not only prevent the spread of aquatic invasive species but also act as a conduit of information to your customers about AIS. But there are other considerations that make compliance a good business decision.

- Your business depends on it! Keeping lakes free of AIS means continued tourist dollars as well as economic and ecological health.
- You are very high profile. If you support compliance then you influence others to be good stewards of their lakes.
- If you are found or alleged to be the source of an infestation the negative publicity would be damaging. Your customers are concerned about their lakes and they want to hire businesses that show that same level of concern.
- Potential criminal and or civil penalties. These can be expensive and prohibitive to your bottom line.
- Use it as a marketing tool. Toot your horn about your stewardship ethics! You will find your customers will appreciate your extra effort on the behalf of their lakes.
- Be a leader in invasive species protection. You can influence not only your customers but other businesses to go the extra mile to protect lakes from AIS.

Current Penalties for Transportation Violations

Violation (Officers may issue either civil citations or misdemeanors)	**Penalty**
Transporting aquatic plants on public roads	$50 civil penalty
Transporting zebra mussels or other prohibited species of animals on public roads	$250 civil penalty or misdemeanor (up to $1000)
Place or attempt to place into waters of the state a watercraft that has: • Aquatic plants • Zebra mussels or other prohibited species	 $100 civil penalty $500 civil penalty or misdemeanor (up to $1000)
Failing to remove drain plug and drain water from watercraft and equipment before leaving designated zebra mussel, spiny water flea, or other invasive plankton infested waters	$50 civil penalty or misdemeanor (up to $1000)
Refuse to submit to an inspection	suspend watercraft license for one year
Refuse 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	gross misdemeanor (up to $3000) or suspend license for one year

*** This information is current as of February 2011. For the latest information please visit http://www.dnr.state.mn.us/eco/invasives/laws.html#transport**

Chapter 4: Business Practices, Recommendations, and Reporting

A. Best Business Protocols

1. Training

The number one best business practice that you can practice is to raise awareness of the issue. Take advantage of training opportunities to educate yourself on the problems of AIS spread and preventive measures that can be taken to stop this spread. Train your employees to identify AIS and to take preventive measures to halt the spread of AIS in your business practices.
Your employees at a minimum should know:

- Problems of AIS spread
- Best practices to prevent the spread
- AIS transportation regulations
- Infested waters in your region
- How to report an AIS infestation

It is critical for you as a business owner to take the time to make sure that all your employees are educated on this issue and can take the necessary steps to prevent spreading AIS.

2. Transportation Protocols

There are several steps that a business can take to prevent spreading AIS. Some of these practices are required by law and some are practices that add an extra measure of safety to avoid transportation of an unwanted hitchhiker!

Inspection
Inspect trailers, docks, boat lifts, swim platforms, boats, barges, and all equipment removed from the water for aquatic plants, snails, mud, water, and zebra mussels.

Clean, Remove, and Dispose

Clean and remove all plants and animals attached to your boats, docks, and other equipment before transporting to another location.

Dispose of aquatic plants, animals, and unwanted bait in the trash.

Drain

Drain water from your boat bilges, livewell, bait containers, ballast tanks, and motor. Remove the drain plug and open water-draining devices before you leave a lake for over road transportation. If you want to keep your live bait when leaving infested waters, you must replace water in bait containers with tap or spring water.

Clean and Dry

Spray and rinse watercraft and trailers. Power wash your equipment often, especially if you have been in infested waters. Boots, anchors, and any other equipment used in the water should be cleaned often. Dry your equipment after working in zebra mussel or spiny waterflea infested waters.


Photo credit:
MN DNR


Photo credit:
MN DNR

B. Examples from Other Businesses


Photo credit:
MN DNR

In Lake Service Provider trainings that have been held over the past several years there has been a chance for professionals to share their recommendations on AIS prevention measures. Here are several practices that other businesses have incorporated to prevent AIS spread.

- **Power wash all rental returns**
- **Dedicate separate equipment for Infested Waters**


Photo credit:
MN DNR

- **Drill extra holes in trailer frame for better drainage**

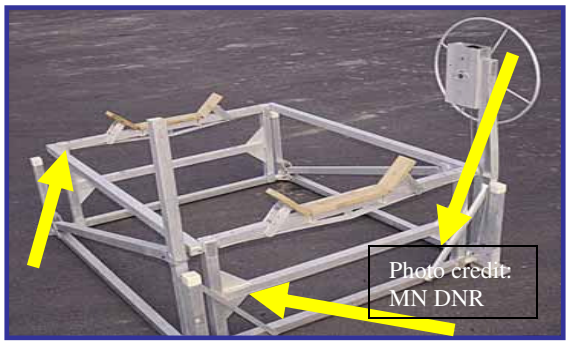


Photo credit:
MN DNR

- **Schedule work on infested waters at the end of the day/ week**

- **Restrict usage/ work in infested waters**

Transfer and Sale of Used Lake Equipment from Infested Waters

- All equipment must be cleaned before transporting
- **Special permits** are required for transporting equipment from an infested lake to a separate location for cleaning
- If possible, delay transfer over winter or at a minimum of 5 days before entering another water body
- Pressure wash (hot water) before entering another water body

How do businesses apply for a permit to transport prohibited invasive species and infested water?

- A. To obtain permit information visit http://www.dnr.state.mn.us/eco/invasives/laws.html#transport

C. Reporting Infestations

As Lake Service Providers you not only serve an important role as leaders in preventing the spread of AIS but also being the first to see new infestations of AIS in your area. You are out there everyday working on and in the lake and because of this you have a good chance of seeing new infestations. So how do you report any suspected AIS that you see? Here are some steps to follow:

- **First Know Your Infested Waters**

  To find the latest infested waters go to the MN DNR website at http://files.dnr.state.mn.us/eco/invasives/infested_waters.pdf

- **Contact your local Invasive Species Specialist**

To help your local AIS field staff identify an AIS infestation it is helpful to have a few pieces of information at hand.

- A digital photograph with someway of suggesting scale. It is helpful for the AIS staff to have an idea of the size of the plant or animal
- Location of potential AIS, a GPS coordinate is great but if that is not possible then a detailed description with landmarks is helpful.

*** Remember do not transport any potential AIS! A digital photograph is frequently just as helpful to DNR staff for identification and it will not get you on the wrong side of transportation regulations.**

Invasive Species Specialists (Field Staff) can be found at http://files.dnr.state.mn.us/contact/eco_invasivesstaff.pdf

D. What Next?

1. Resources for you and your customers

Congratulations on completing the Lake Service Provider training! By taking this training we are hoping that you will realize your key role in protecting the lakes and rivers of our state. We also expect that you will want to take what you have learned today and share it with your employees, customers, neighbors, and family. Here are some resources that you can share with others to increase their knowledge of the issue

Stop Aquatic Hitchhikers

Stop Aquatic Hitchhikers!" is a national campaign that helps recreational users to become part of the solution in stopping the transport and spread of aquatic invasive species. Brochures and additional information is available from the Protect Your Waters website at **http://www.protectyourwaters.net/**

You can also download a informational brochure to handout to your customers from the MN DNR website at

http://files.dnr.state.mn.us/natural_resources/invasives/stop_aquatic_hitchhikers.pdf

MN DNR Invasive Species Program

The purpose of the DNR's Invasive Species Program is to curb the spread and minimize the harmful effects of invasive plants and animals on our state's ecology and economy. The Program's Goals are:

- Prevent introductions of new invasive species into Minnesota.
- Prevent the spread of invasive species within Minnesota.

- Reduce the impacts caused by invasive species to Minnesota's ecology, society, and economy.

To find out more information on Invasive Aquatic Plants visit the website at
http://www.dnr.state.mn.us/invasives/aquaticplants/index.html

To find out more information on Invasive Aquatic Animals visit the website at

http://www.dnr.state.mn.us/invasives/aquaticanimals/index.html

2. Toot your own horn!

You have made a commitment today to use practices that will protect our water resources for generations to come. That is a great accomplishment and one that should be shared with others! We have seen in other areas that have hosted this training that customers are calling to request the contact information of businesses that have been trained on AIS awareness and protocols. Take some steps to make sure that your customers know that you care about their lakes and rivers!

- Make your Invasive Species Training certification part of your advertising! When you complete your training your will receive a certificate of completion. Put this certificate in your advertisements, on your business walls, and in your commercials.

- Ask Lake Associations to add your name to a list of certified Lake Service Providers. This information can be added to their lake association newsletters and websites
- Ask Minnesota Waters to add your name to a list of certified Lake Service Providers. Our website is used by over 400 lake associations.

Thank you for attending the Lake Service Provider Invasive Species Training. Your stewardship and commitment will make a difference in preventing the spread of AIS.

Appendices

A. **Permit for Commercial Transport**

B. **AIS Seasonal Growth Chart**

C. **AIS Infested Waters Signs**

D. **Question & Answers Transport of Watercraft and Lakeshore Equipment From Infested Waters in Minnesota**

E. **How to Handle Bait**

F. **2011 Regional DNR Aquatic Invasive Species Staff**

A. Permit for Commercial Transport

Application for General Permit for
Commercial Activities to Transport
Prohibited Invasive Species and Infested Waters

Instructions: Complete all of the following information for your business. Submit the completed application to the email or mail address below.

Person's Name: _____

Business Name: _____

Business address: _____

_____

Cleaning Location: _____
(If different from business address) _____

Phone number: _____

Type of Business: __ Marina __Boat Storage __ Boat Service __Docks and Lift Service

__ Other _____

What is transported? __docks, __lifts, __boats, __ personal watercraft, __other (*describe*)

_____

Number of vehicles used for transport: _____

Send form to:
jay.rendall@state.mn.us
or
Invasive Species Program
Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155-4025

B. Aquatic Invasive Species Seasonal Growth

	March	April	May	June	July	August	September	October
Eurasian water-milfoil								
Curly-leaf pondweed								
Purple Loosestrife								
Flowering Rush								
Rusty Crayfish								
Zebra/Quagga Mussels								
Spiny waterflea								

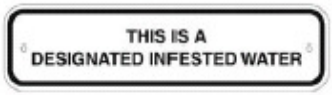
C. Infested Waters Signage

NEW in 2010: Help Stop Aquatic Hitchhikers Sign

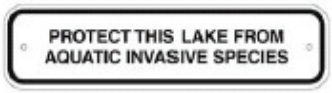
Changes to the signing for infested and non/infested waters

The main sign is a large (3'x4') version of the current 18"x24"Help Stop Aquatic Hitchhikers sign for use at all types (public and private) of water accesses throughout the state. There are two companion signs to be placed above the large sign — one for infested waters and one for non-infested waters.

1



2



3

There are three parts to this sign:
1. "Large Stop Aquatic Hitchhikers" – this is the main sign
2. "This is an Infested Water" – goes above the main sign at the tie down area or exit lanes on lakes that are infested waters
3. "Protect this Lake" – goes above the main sign at make ready areas on non- infested waters.

Reason for new sign

Large signs related to aquatic invasive species have been requested by the public for use at DNR and non-DNR water accesses. Some local groups have developed, or want to develop their own signage. This sign was co-developed by the Invasive Species Program and Parks and Trails as a way to provide bigger and bolder signage as numerous groups have requested and to provide flexibility for use at either infested or uninfested waters. By having such signs, it will help minimize the requests for special local signs that take considerable staff time when responding.

At Infested Waters

Large "Help Stop Aquatic Hitchhikers" signs are desired at all high-use accesses on infested waters.

- The Invasive Species Program (ISP) will be providing the signs, and lake and access site lists for PAT staff to install at DNR sites during the 2010 season.
- The large signs should be posted at the exit or tie down area as an additional sign or a replacement for one of the 18x24 size H SAH signs (NRM 8.3.14A).
- Funds for these signs will come from the Invasive Species Program (ISP) prevention budget.
- At non-DNR sites the signs will be posted by ISP staff or volunteers.

At Non-infested Waters

Large "Help Stop Acquatic Hitchhikers" (HSAH) signs will be provided by local sponsors working with the Invasive Species Program (ISP).

- The large signs can be posted at the ramp or make ready area as an additional sign or replacement of one of the 18x24 size HSAH sign (NRM 8.3.14A).
- PAT staff have the responsibility to post these signs at DNR administered sites.
- At non-DNR sites the signs will be posted by ISP staff or volunteers.
- Contact Nancy Stewart if you have any questions (nancy.stewart@state.mn.us, 651-259-5616).

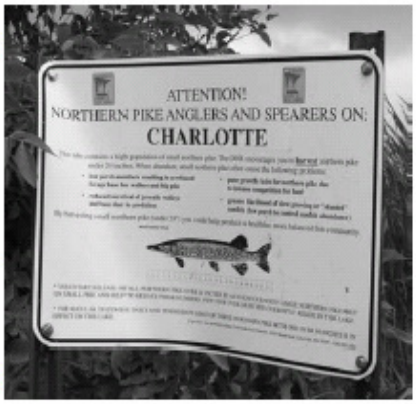
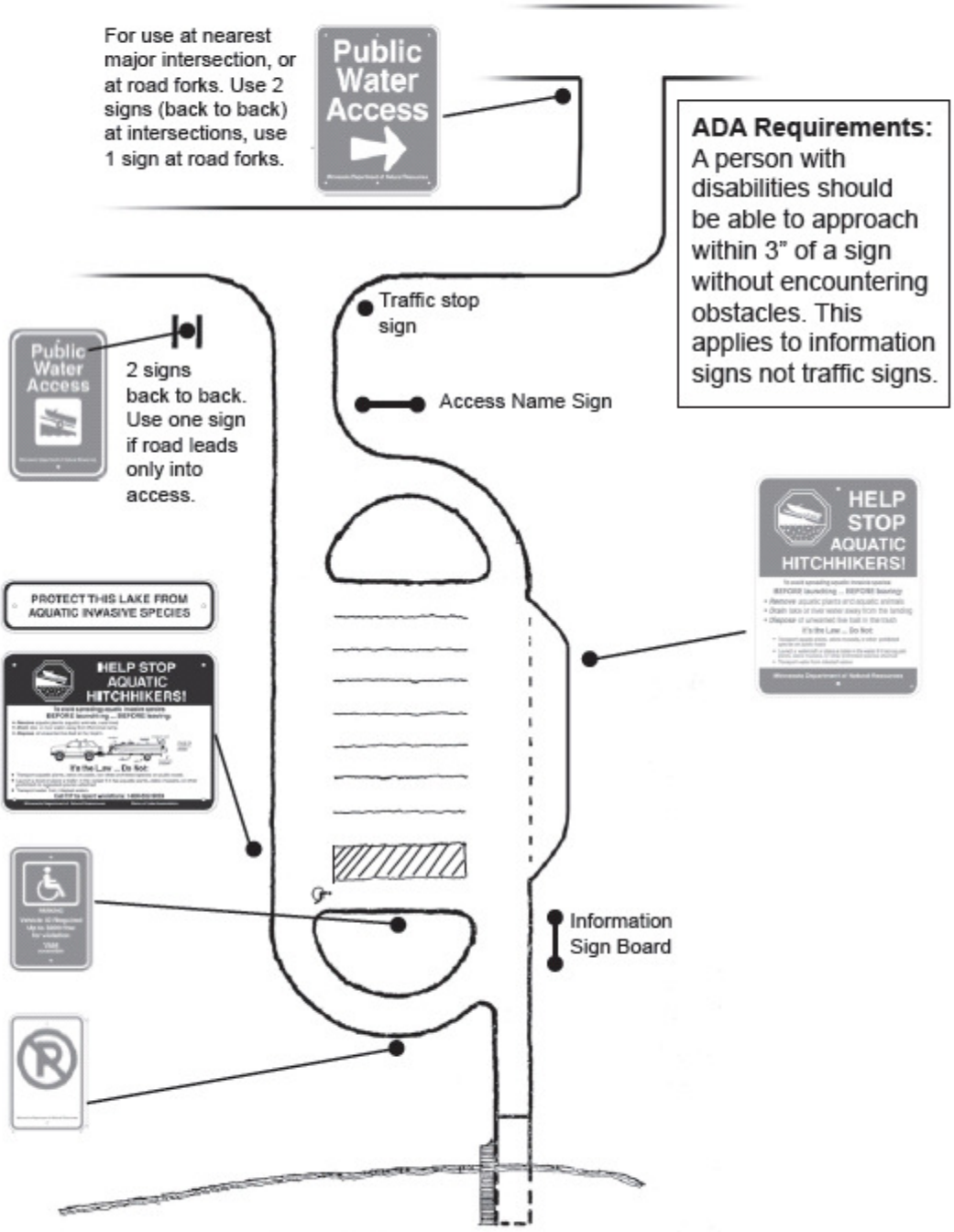
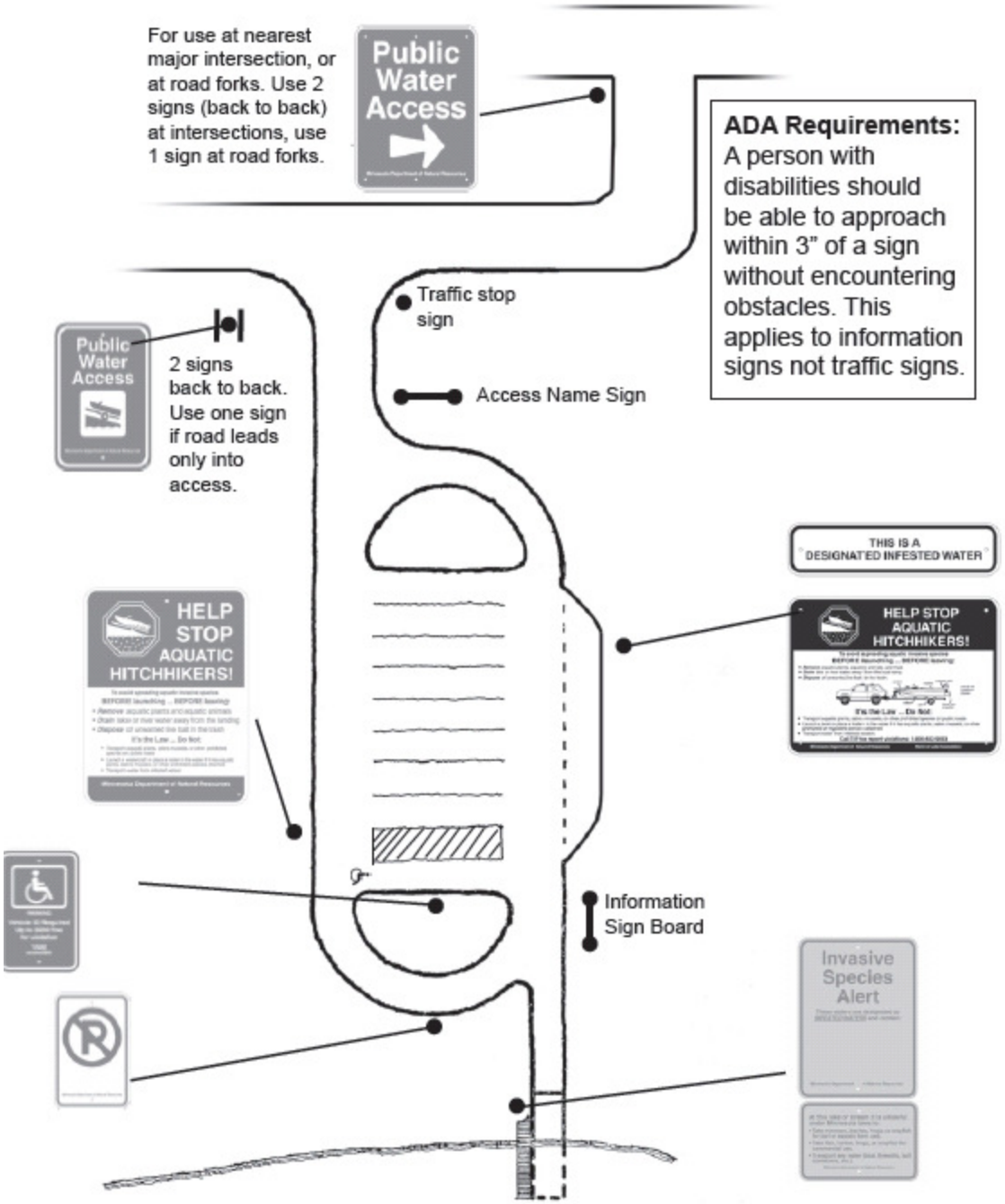


Photo: Example of a sign requiring 2 posts that is bent and looks unprofessional. Please use two posts and a wood backing to post larger signs to avoid bending of the metal.

Help Stop Aquatic Hitchhikers Sign: Non-infested Water Example



Help Stop Aquatic Hitchhikers Sign: Infested Water Example



D. Question & Answer: Transport of Watercraft and Lakeshore Equipment From Infested Waters in Minnesota

Q&A Transport of Watercraft and Lakeshore Equipment From Infested Waters in Minnesota

August 30, 2010

Q. What regulations apply to boats, trailers, equipment, and water as they enter or leave lakes and rivers, or when transported on a public road?

A. State Regulations related to invasive species are located in Minnesota Statutes, Chapter 84D and Minnesota Rules, Chapter 6216. Under those regulations:

- It is ***illegal*** to transport any aquatic plants or prohibited invasive species on boats, trailers, and equipment (including weed rollers, boat lifts, docks, swim rafts) on public roads, except under permit or as specified by the DNR.
- It is ***illegal*** to transport water from all designated infested waters without a permit.
- At all waters, a person **must** *"drain boating-related equipment holding water and live wells and bilges by removing the drain plug before transporting the watercraft and associated equipment on public roads. Drain plugs, bailers, valves, or other devices used to control the draining of water from ballast tanks, bilges, and live wells must be removed or opened while transporting watercraft on a public road. Marine sanitary systems and portable bait containers are excluded from this requirement."*
- At zebra mussel or spiny waterflea infested waters, water ***must*** also be drained from portable bait buckets.
- It is ***illegal*** to launch or attempt to launch a boat/trailer with aquatic plants or prohibited species (e.g., zebra mussel) attached.
- It is illegal to place any object, such as docks, boat lifts, swim rafts into a waterbody if it has any nonnative species (e.g., zebra mussels, snails, spiny waterfleas) attached.

Q. What steps do commercial boat storage, boat services, and dock and lift businesses need to take when removing watercraft, docks, and lifts from Lake Minnetonka and transporting them on a public road?

A. There are two options for them:

1. They can follow the steps required by law before leaving the water access (draining all water, removing **all** aquatic plants and zebra mussels; or
2. They can apply for DNR permits to allow watercraft to be transported, and in some cases drained, at their own or another commercial cleaning facility. Permits will cover the transport to a cleaning facility. Watercraft and equipment leaving the facility after cleaning will not covered by the permit and must comply with state transport and launching regulations. Permits conditions will require: 1) hand cleaning of visable and accessable plants and zebra mussels from the boat and trailers at the water access, and 2) thorough hot-water power washing of the hull and motor parts exposed to the water to remove all zebra mussels, including portions of the hull that may have grates covering them; and 3) draining water from bilge, livewells, motor, and other boat components holding lake water.

Q. How do businesses apply for a permit to transport prohibited invasive species and infested water?

A. To obtain permit information contact Jay Rendall, DNR Invasive Species Prevention Coordinator, at jay.rendall@state.mn.us or 651-259-5131.

Q. Can boats and equipment be moved within a lake if they have zebra mussels attached? (For example, when a dock or boatlift is sold by a Lake Minnetonka resident to another Lake Minnetonka resident and transported by barge)

A. Yes, the state law excludes the movement of a prohibited invasive species, such as the zebra mussel, or infested water within a waterbody from the definition of transport. However, it is recommended that as a best management practice to avoid moving equipment from lower Lake Minnetonka to the upper part of the lake because no zebra mussels have been found in that part of lake.

Q. Can boats and equipment with attached aquatic plants or zebra mussels be moved on a public road without a permit or special authorization?
A. No, whether the person is the boat owner, a boat storage business, or a commercial boat transporter, it is illegal to transport aquatic plants and prohibited invasive species such as zebra mussels on a public road, except by permit or as specified by the DNR. Permits for transporting boats and lake equipment for service and winter storage may be issued to faciltate cleaning of the boats and equipment at off lake locations.

Q. Can boats and equipment be moved from the lake onto the shore of lakeshore property if they have zebra mussels attached?
A. Yes, the focus of state transport laws is on boats and equipment being moved away from the infested waters, especially on a public road.

Q. Do docks and boatlifts need to be cleaned before they are placed back into the lake?
A. Docks, swim rafts, and boat lifts that are removed from an infested water with prohibited invasive species or other nonnative species attached, for maintenance or winter storage while on the riparian property (without transporting on a public road), may be returned to the same water body without removing the prohibited or invasive species.

Q. Where should a person or business dispose of adult zebra mussels after cleaning?
A. Zebra mussels that have been removed from a boat, boat lift or other equipment can be disposed of if the person follows these steps:

- dries the aquatic plants and zebra mussels for 5 days prior to transporting;
- transports aquatic plants and zebra mussels in a covered trailer, covered container, or wrapped the material sufficiently to keep plants from being blown out during transporting;
- lawfully disposes all the plants and attached material at least 300 feet from riparian areas, ditches, or seasonally flooded lands;
- cleans all plants and zebra mussels from the conveyance device (e.g., trailer, pickup truck) and any cover materials at the disposal site; and
- fills out a DNR authorization form before transporting.

Q. What should a boat owner do if they are transporting their boat from a zebra mussel infested lake to a winter storage location?
A. It depends upon several factors:

- If the boat was stored on a boatlift and there are not any attached zebra mussels, when removing the boat from the water — boat owners should remove any aquatic plants from the trailer and boat, drain water, and remove the drain plug before transporting.
- If the boat was stored in the water and there are visible zebra mussels attached, there are a few options. A boat owner can either:
  A. take the boat to a **marina** for cleaning before transporting to the winter storage location;
  B. complete and follow a DNR transport **authorization form** that authorizes a person to transport a boat with zebra mussels attached to a cleaning location; or
  C. remove the boat at a **riparian property** and store it there.

Q. Who can answer further questions about the regulations and enforcement?
A. The following people can provide information about the water draining regulations and enforcement:

- Jay Rendall, DNR Invasive Species Prevention Coordinator 651-259-5131; jay.rendall@state.mn.us
- Captain Phil Meier, DNR Southwest Region Enforcement Manager 507-359-6040; phil.meier@state.mn.us
- Invasive species Specialists - see list at: http://files.dnr.state.mn.us/contact/eco_invasivesstaff.pdf

E. How to Handle Bait

Q&A about Infested Waters

Q. How do you know what lakes and rivers are designated as infested waters?

A. There are several ways to know if a waterbody is a designated infested water:

- **There is a list in the annual Fishing Regulations Booklet;**
- **The most up to date list is posted on the DNR Web site at**

  http://files.dnr.state.mn.us/eco/invasives/infested_waters.pdf
- **The list is published annually in the State Register and as more waters are designated;**
- **There are signs posted at the public water accesses (see right);**
- **You can call the DNR Invasive Species Program; and**
- **A list is attached to the permits to harvest in infested waters.**

General Permit Conditions for Harvesting Bait in any Infested Waters

1) The **permittee or another person employed by the permittee** shall be present when:
   - Traveling to and from the infested waters;
   - Emptying, cleaning and checking equipment;
   - Sorting of bait; and
   - Loading of vehicles to transport equipment and bait from infested waters

2) A **copy of the permit** must be in possession of the permittee or designee while traveling to and working at infested waters, and transporting nets and other equipment that have infested water tags.

3) **Employees** of permittees who do not attend the training session will be required to read or watch a brochure *Help Stop Aquatic Hitchhikers* about aquatic invasive species, a list of infested waters, permit conditions, and the *From Net to Sale* DVD. These individuals will also be required to read and sign an *Employee Acknowledgement Form* acknowledging that they have read these materials. The signed form must be kept with the employee during harvesting activities as an extension of the permit.

4) The permittee must agree to comply with the conditions of the permit.

5) All **aquatic plants** other than duckweed must be removed from the equipment before leaving the site.

6) For each harvest date, the permittee must use fresh ground **water** or water from non-infested lakes or streams to transport minnows harvested from infested waters;

7) All equipment must be tagged with **tags** matching the permit and type of infested water. Tags must be attached by placing them through a location on the equipment, so the tag may not be removed from the equipment except by cutting the tag. Tags must be placed: on the top side of all box traps used in infested waters; and between the first and second float on

one end of the float line of all seines. The ends of the tag must be pushed together until locked. Tags should be check to see if pulling the sides of the tag a few times locks the ends. Tags that are not locked will not be legal.

8) **Nets, traps, and other equipment** marked with infested waters tags, issued with a permit for the current year by the DNR Division of Fish and Wildlife, may only be used in the infested waters listed on the permit. Nets and traps marked with infested waters tags may not be possessed while in, or on, or near non-infested waters or infested waters that is designated because they contain populations of other aquatic invasive species.

9) **Water tempering** can take place by obtaining water from a non-infested surface water site (such as on a Lake Mille Lacs a tributary above the first bridge crossing).

10) Water from infested waters may not be used to transport live minnows (wild animals), unless a special **separate permit** is obtained according to M.R. 6216.0500, subpart 4 and attached to the minnow (bait) harvesting permit.

11) All **water** used to transport minnows harvested from designated infested waters must not emptied into tanks at the permittee's facility or any rearing or holding ponds.

12) All **water** used to transport bait from infested waters shall be disposed of on the ground (pervious surface) at least 100 feet from any natural waters or artificial ponds.

13) A **report** of daily harvest activities must be provided to the Commercial Fisheries Program consultant monthly.

14) The inside of all tanks on trucks used to haul minnows during bait harvest in infested waters must be thoroughly **sprayed and rinsed with hot water** $\geq$ 120 degrees Fahrenheit following their use and before reuse at an another waterbody.

Species Specific Permit Conditions for Harvesting Bait in Infested Waters

Eurasian Watermilfoil

1) Nets, traps, and other equipment must be marked with **orange,** numbered infested water tags **(**INFESTED WTR ONLY) issued for the current year by the DNR Division of Fish and Wildlife and may only be used in Eurasian watermilfoil-infested waters listed on the permit.

Faucet Snail

2) Nets, traps, and other equipment must be marked with **blue,** numbered infested water tags (SNAIL INF WTR ONLY), issued for the current year by the DNR Division of Fish and Wildlife and may only be used in faucet snail-infested waters listed on the permit.

3) All **snails** must be removed from all boats, trailers, nets and any other equipment used on faucet snail infested waters before leaving the water access.

4) The soles and foot portions of boots and **waders** used in designated faucet snail-infested waters must be cleaned with a brush and rinsed before leaving the harvest site.

Flowering Rush

1) **Nets, traps, and other equipment must be marked with** orange**, numbered infested water tags (INFESTED WTR ONLY) issued for the current year by the DNR Division of Fish and Wildlife and may only be used in flowering rush-infested waters listed on the permit.**

Spiny Waterflea

1) Nets, traps, and other equipment must be marked with **orange,** numbered infested water tags **(**INFESTED WTR ONLY) issued for the current year by the DNR Division of Fish and Wildlife and may only be used in spiny waterflea-infested waters listed on the permit.

2) The soles and foot portions of boots and **waders** used in designated spiny waterflea-infested waters must be cleaned with a brush and rinsed prior to leaving the harvest site.

3) Applicants with **facilities** outside of the Lake of the Woods or Rainy River watershed will not be permitted to harvest minnows during the Summer/Early Fall season.

Zebra Mussel

1) All equipment must be tagged with **red,** numbered infested water tags (ZEB MUS INF WTR ONLY) issued for the current year by the DNR Division of Fish and Wildlife and may only be used in zebra mussel-infested waters listed on the permit.

2) The harvest of bait from zebra mussel infested waters is closed during the summer season from May 16 to October 15 [*Note: Except at Mille Lacs where it extends to May 22*]

3) Small amounts of infested water to be used for **tempering** is not allowed from designated zebra mussel waters;

4) The soles and foot portions of boots and waders used in designated zebra mussel infested waters must be cleaned with a brush and rinsed prior to leaving the harvest site.

5) Equipment used in zebra mussel infested waters is limited to seines, dip nets, graders, and buckets or pails. [*Note: This is to avoid object being left in the water that mussels could attach to*]

Zebra Mussel, Eurasian Watermilfoil, and Spiny Waterflea (Mille Lacs)

1) Small amounts of infested water used for tempering is not allowed from Lake Mille Lacs.

2) Equipment used in Lake Mille Lacs is limited to seines, dip nets, graders, and buckets or pails.

3) Nets, traps, and other equipment must be tagged with **red** numbered infested waters tags (ZEB MUS INF WTR ONLY) and orange numbered tags (INFESTED WTR ONLY) issued for the current year by the DNR Division of Fish and Wildlife and may not be used in <u>any</u> other waters of the state.

4) The soles and foot portions of boots and waders used in designated zebra mussel

infested waters must be cleaned with a brush and rinsed prior to leaving the harvest site. Waders must be double tagged as listed in Item No. 3 and may not be used in other waters.

5) Equipment used in zebra mussel infested waters is limited to seines, dip nets, graders, and buckets or pails. [*Note: This is to avoid object being left in the water that mussels could attach to*]

What's the big deal about earthworms in Minnesota?

All of the terrestrial earthworms in Minnesota are non-native, invasive species from Europe and Asia (There is a native aquatic species that woodcock eat). At least fifteen non-native terrestrial species have been introduced so far. Studies conducted by the University of Minnesota and forest managers show that at least seven species are invading our hardwood forests and causing the loss of tree seedlings, wildflowers, and ferns. See "What are the harmful effects of non-native earthworms" below for more information.

What can I do to help?

- Don't dump your worms in the woods. It's illegal to release most exotic species into the wild (Minnesota Statutes 84D.06).
- Dispose of unwanted bait in the trash.
- Tell others "the dirt" on invasive earthworms in Minnesota.

MN DNR Invasive Species Program Staff

Invasive Species Program Staff (Central Office)

Invasive Species Program Supervisor- supervision of overall program, policy and direction, legislative issues	Luke Skinner	651-259-5140	luke.skinner@state.mn.us
Invasive Species Prevention Coordinator-education and public awareness, permits, regulations and prevention grants	Jay Rendall	651-259-5131	jay.rendall@state.mn.us
Aquatic Invasive Species Management Coordinator- technical and financial assistance for aquatic invasive plant management	Chip Welling	651-259-5149	chip.welling@state.mn.us
Terrestrial Invasive Species Management Coordinator- technical assistance and biological control programs	Laura Van Riper	651-259-5090	laura.vanriper@state.mn.us
Grants Coordinator- administers invasive species management and prevention grants	Wendy Crowell	651-259-5085	wendy.crowell@state.mn.us
Watercraft Inspection Program Coordinator –supervise program staff; awareness events at water accesses; and cooperative inspector hires	Heidi Wolf	651-259-5152	heidi.wolf@state.mn.us
Research Scientist - zebra mussels, spiny waterflea, rusty crayfish, and other invasive aquatic invertebrates	Gary Montz	651-259-5121	gary.montz@state.mn.us
Enforcement - statewide coordination of enforcement of invasive species regulations for aquatic plants and wild animals	Phil Meier	507-359-6040	phil.meier@state.mn.us

Invasive Species Specialists (Field Staff)

Primary contact for aquatic invasive species issues at the local level. Provide technical assistance for invasive species management and prevention activities for their perspective work areas.

Northwest MN (Park Rapids)	Darrin Hoverson	218-699-7293	darrin.hoverson@state.mn.us
West-Central MN (Fergus Falls)	Nathan Olson	218-739-7576 ext. 259	nathan.olson@state.mn.us
Northeast MN (Grand Rapids)	Rich Rezanka	218-999-7805	richard.rezanka@state.mn.us
Central MN (Brainerd)	Dan Swanson	218-833-8645	dan.swanson@state.mn.us
Central and Southeast MN (St. Paul)	Brittany Hummel	651-259-5828	brittany.hummel@state.mn.us
Southern MN (New Ulm)	Joe Eisterhold	507-359-6079	joe.eisterhold@state.mn.us

Watercraft Inspection Program Assistants (Field Staff)

Supervise local watercraft inspectors and provide outreach for awareness events at water accesses

Northern MN (Park Rapids - seasonal)	Bruce Anspach	218-699-7295	bruce.anspach@state.mn.us
West-Central MN (Fergus Falls – seasonal)	Anna Ness	218-739-7576 ext. 247	anna.ness@state.mn.us
Central MN (Brainerd - seasonal)	Keri Hull	218-833-8737	keri.hull@state.mn.us
Central and Southeast MN (St. Paul)	Maureen Ziskovsky	651-259-5146	maureen.ziskovsky@state,mn.us

General Information 651-259-5100

About Minnesota Waters

Vision

Minnesota Waters envisions an engaged citizenry working to protect and restore Minnesota's irreplaceable natural assets - our clean and healthy lakes and streams - for current and future generations.

Mission

The mission of Minnesota Waters is to promote responsible stewardship of our water resources by engaging citizens, local and state policymakers, and other partners in the protection and restoration of Minnesota's lakes and rivers.

Concerned about the future of Minnesota's waters? Join Minnesota Waters today!

Visit our website at www.minnesotawaters.org or call 800-515-5253 for more information.

minnesota waters

CITIZENS PROTECTING AND IMPROVING
OUR LAKES AND RIVERS