Lake Service Provider Training Manual

Manual for Preventing the Spread of Aquatic Invasive Species

Version 2.0 - 2012 Edition

minnesota waters
CITIZENS PROTECTING AND IMPROVING
OUR LAKES AND RIVERS

Minnesota
DEPARTMENT OF
NATURAL RESOURCES

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Table of Contents

Chapter 1: What is a Lake "Service Provider"?

In 2011, Minnesota passed a number of new laws related to prevention and management of aquatic invasive species (AIS) that apply to service providers and boaters, property owners, bait dealers, and others involved with the transportation of water-related equipment.

Minnesota's invasive species laws (Minnesota Statutes, Chapter 84D) imposed a variety of restrictions and a permit program pertaining to service providers to help prevent the spread of AIS between waters in the state.

Minnesota Statute 84D.01 subd. 15a defines **"Service Provider"** as an individual who installs or removes water-related equipment or structures from waters of the state for hire. Service provider does not include a person working under the supervision of an individual with a valid service provider permit issued under M.S. 84D.108 or those businesses or individuals who install or remove water-related equipment under section M.S. 84D.108. The terms service provider and lake service provider are used throughout this and other documents and are considered one and the same.

Minnesota Statutes, Section 84D.108 established a service provider permit. Service providers must apply for and obtain a permit from the MN DNR before installing or removing any water-related equipment from waters of the state. Service providers can obtain a permit once the DNR receives an application, a $50 application fee, and the service provider has successfully completed a DNR aquatic invasive species training course.

What are Aquatic Invasive Species (AIS) and what is the purpose of this Service Provider permit and AIS training?

According to state statutes, "Invasive species" means a nonnative species that:
(1) causes or may cause economic or environmental harm or harm to human health; or
(2) threatens or may threaten natural resources or the use of natural resources in the state.

Aquatic invasive species can be plants or animals. Invasive aquatic plants are introduced non-native species of plants that have adapted to living in, on, or next to water, and that can grow either submerged or partially submerged in water. Invasive aquatic animals require a watery habitat, but do not necessarily have to live entirely in water.

AIS plants and animals threaten native species and aquatic ecosystems; interfere with municipal, commercial, and agricultural water supply and distribution; and impair recreational activities. In their native environments, AIS populations are typically held in check and controlled by predators, parasites,

pathogens, or competitors. However, when they are transported to a new environment, the natural checks are usually left behind. That and other attributes of the species themselves give invasive plants and animals an advantage over native species and make them very difficult to control. (More on AIS in Chapter 2)

Commonly, service providers are installing and removing water-related equipment from multiple bodies of water. Therefore, service provider's activities have been identified as a high risk for the transport of aquatic invasive species. Zebra and quagga mussels, in particular, are some of the most problematic. They are laborious to remove and it is difficult to be certain whether they are attached to water-related equipment. They also have free-floating larvae known as veligers that can be moved in small amounts of water inside or outside of equipment. Service provider training is to educate service providers about AIS, including how to identify AIS, how to inspect their water-related equipment, and what business practices they can implement to reduce their risk of illegally transporting AIS. The permit requirement is to ensure that all service providers in Minnesota have taken the training, all persons working under the service provider have been AIS trained, and they understand and implement AIS risk reduction procedures and practices into their businesses.

This manual outlines standard AIS information, watercraft inspection and decontamination procedures, and business practices that can be implemented to prevent the spread of AIS in Minnesota. While this handbook puts special emphasis on zebra and quagga mussels—the procedures apply to all AIS, both plant and animal. The procedures in this handbook apply to trailered watercraft and water-related equipment of any and all kinds. It includes boat lifts, docks, watercraft and their motors, trailers, compartments and any other associated equipment or containers that routinely or reasonably could be expected to contain or have come into contact with water.

How do you know if you are a service provider and would need a service provider permit?

A person or business should ask themselves - Do we receive payment and/or are hired to put a person's or other businesses', "water-related equipment" into or remove it from waters of the state?

- If **yes**, you are a service provider and need a service provider permit.
- If **no**, you are not a service provider but, at anytime you receive payment you would be considered one and would need a permit before doing so.

Minnesota Statute, Section 84D.01, Subd. 18a defines **"Water-related equipment"** – as a motor vehicle, boat, watercraft, dock, boat lift, raft, vessel, trailer, tool, implement, device, or any other associated equipment or container, including but not limited to portable bait containers, live wells, ballast tanks (except those with a MPCA permit), bilge areas, and water-hauling equipment that is capable of containing or transporting AIS, aquatic macrophytes (plants), or water. This definition replaces and expands previous references to watercraft, trailers, plant harvesting equipment, and portable bait containers.

Water-related equipment examples – dock, lift, boat, personal watercraft, and service provider transport barge

Examples of service providers include:

Type of Work	If For Hire or Charges	If Installs, Launches, or Removes Water-related Equipment from Water	Service Provider
Boat dealer	yes	no	no
Boat repair	yes - hire	yes	yes
Canoe outfitter	yes	no	no
Canoe outfitter that trailer others canoes	yes - rent	yes	yes
Dock hauler	yes - hire	yes	yes
Dock & lift seller	no	no	no
Dock & lift seller and installer	yes - hire	yes	yes
Installs buoys	yes - hire	yes	yes
Marina	yes - hire	yes	yes
Watercraft rental	yes - rent	yes	yes

The individuals below are not considered service providers and do not require a permit.

- Fishing guides
- Commercial bait harvesters as they fall under DNR aquaculture and infested water permitting.
- Sheriff's Department who install and remove buoys
- Local governments (counties, cities, watershed districts, etc.) as they are not being hired to put in someone else's water related equipment. Therefore, their staffs are not working for a service provider either. If the local government hires a person or business to place or remove equipment, then that person or business must be permitted as a service provider.

What steps are required to obtain a service provider permit?

There are several requirements before a service provider can obtain a service provider permit. Those requirements include:

- Filing an online service provider permit application at http://www.dnr.state.mn.us/lsp/index.html;
- Submitting an electronic $50 application and testing fee; and
- Completing Minnesota DNR's AIS training and passing a service provider examination.

All information pertinent to service provider training and permits is available on the DNR website at http://www.dnr.state.mn.us/lsp/index.html . Service providers need to use this webpage to apply for the service provider permit using the online application. Upon completion of the application the service provider will be asked to provide an electronic payment of $50 for the application and testing fee. Training locations and dates will be posted to this webpage and service provider business owner will be asked to select a training location and date. Employees of service providers do not need to attend training in person but must complete online training.

Upon completion of the training, passage of the examination, review of the application, and receipt of the application and training fee the service provider will be provided a service provider permit. Along with the service provider permit will be stickers for service provider vehicles. You will need to identify how many permitee stickers you will need for all your vehicles and they must be attached to the windshield of the vehicle to identify the vehicle as having the required service provider permit. Service provider permits and stickers will be valid for three calendar years.

Permitted service providers must have a valid permit in possession and a sticker in their vehicle window while providing services and persons working for the permitted service provider must also satisfactorily complete AIS related training provided by the MN DNR (see below).

Online Training for Persons working for a Permitted Service Provider

Persons who work for a permitted service provider do not have to take the service provider AIS training in person, but must take an online training before working in waters of the state. The online training will cover the same information as the training for permitted service providers. Upon completion an employee's certificate will be generated with the person's information and it will need to be printed and kept in their possession at all times when working for a service provider. The permitted service provider is responsible for having all persons working under their permit trained and certified through the online service provider training.

Refer to DNR Lake Service Provider Webpage for link to online training for employees - http://www.dnr.state.mn.us/lsp/index.html;

What if you work on zebra or quagga mussel infested waters and need to transport mussel encrusted water-related equipment on a road for decontamination?

Because zebra and quagga mussels can attach to and encrust water-related equipment that is installed in zebra or quagga mussel infested waters it makes some equipment very difficult, if not impossible, to decontaminate on site before transport. Prior to 2012, many service providers were provided a general prohibited invasive species permit for commercial purposes for the transport of this zebra or quagga mussel encrusted equipment to an identified location for decontamination. This was needed because neither an individual nor business can possess or transport the prohibited invasive zebra or quagga mussel without a permit. They would have submitted an application to do so to the DNR for approval. Because service providers are now required to get a service provider permit, the DNR found it important to build a function to allow the transport of the zebra or quagga mussel encrusted equipment into this new service provider permit when and where needed.

Therefore, as part of the service provider permit application those applicants working in zebra or quagga mussel infested waters need to indicate whether they want a permit condition that would allow them to transport zebra or quagga mussel encrusted water-related equipment back to their service station or another designated decontamination location.

Details that would be asked of the service provider applicant for this permit condition would include:

- Do you operate in zebra or quagga mussel infested waters?
- Do you need the permit condition that would allow for the movement of zebra or quagga mussel encrusted water-related equipment to on offsite location for decontamination?
- Where is the decontamination location(s)?

This enhanced permit condition would only be provided for those working in zebra or quagga mussel infested waters. In all other infested waters, water-related equipment should be thoroughly inspected, all aquatic plants, animals, aquatic invasive species, and mud should be removed, and water should be completely drained (unless allowed by the standard permit for some types of watercraft).

Stickers for vehicles will be provided that are slightly different than those who do not need a permit condition to transport zebra or quagga mussel encrusted equipment. This will allow us to distinguish the difference between those with and without the enhanced permit condition.

The condition would allow the service provider to possess and transport zerbra or quagga mussels that are attached to water-related equipment being removed from zebra or quagga mussel infested waters that is being transported to the permittee's cleaning location for the purpose of decontamination and disposal. Permission is also granted to transport zebra or quagga mussels from the cleaning location to a disposal site per the conditions specified below.

All service provider permittees will be authorized to transport inboard and inboard-outboard power boats from infested waters to the decontamination facility without draining bilge water or removing the drain plugs (in order to minimize the discharge of oil and other liquids that may be in the bilges at the

water accesses and into waters of the state). Outboard boats and sailboats must be drained at the water access and drain plugs removed as required by Minnesota Statutes 84D.

Conditions to transport zebra or quagga mussel contaminated water-related equipment would include the following:

Permit: The permittee and all designees shall have a copy of the permit in their possession while conducting activities authorized by this permit. The permittee shall also display the service provider sticker for those who have the above mentioned condition in the service provider permit which would be provided by DNR, on the left side window of each vehicle working under this permit.

Equipment: This permit applies to all water-related equipment.

Treatment, Confinement, and Disposal: The permittee would be allowed to take the following measures to prevent the spread of zebra or quagga mussels to other waters during the activities authorized by this permit condition.

Required Measures for Watercraft

- **Required at the water access -** Boats, motors, trailers, and other water-related equipment being transported to the decontamination location shall be hand cleaned at the water access to remove visible and accessible aquatic plants, adult zebra or quagga mussels, and clusters of zebra or quagga mussels.

- **Required at the decontamination location -** Boats, motors, trailers, and other water-related equipment removed from zebra or quagga mussel infested waters that are being transported under this permit shall be completely decontaminated at the above location to remove zebra or quagga mussels before further transport.

Decontamination and treatment shall include:

A. **Boats placed in winter storage** – 1) thorough scraping and/or high-pressure washing of the hull and motor parts exposed to the water to remove all zebra or quagga mussels, including portions of the hull that may have grates covering them; and 2) draining water from bilge, livewells, motor, and other boat components holding lake or river water.

B. Boats transported to, or re-launched into, another waterbody the same boating season – 1) thorough scraping and/or high pressure washing of the hull and motor parts exposed to the water to remove and kill all zebra or quagga mussels, including portions of the hull that may have grates covering them; 2) hot-water (140 degrees F contact temperature unless limited by model of watercraft, see page 25 for recommendations) rinse with minimum 10 second contact time on

all surfaces, 3) draining water from bilge, livewells, motor, and other boat components holding lake water and flushing with hot water (140 degrees F contact temperature unless limited by model of watercraft), see page 25 for recommendations; and 4) drying it for at least 5 days following power washing and/or scraping.

C. **Watercraft and water-related equipment being removed from the water for repair, maintenance, or other temporary purpose and returned to the same waterbody where it was removed** - 1) thorough scraping and/or hot-water, high pressure washing of the hull and motor parts exposed to the water to remove all zebra or quagga mussels, including portions of the hull that may have grates covering them; and 2) draining water from bilge, livewells, motor, and other boat components holding lake water before transporting back to the waterbody.

Required Measures for Other Water-related Equipment

- **Required at the water access** Boat lifts, docks, swim rafts, and other water-related equipment being transported to the decontamination location shall be hand cleaned at the water access to remove visible and accessible aquatic plants, loosely attached adult zebra or quagga mussels, and clusters of zebra or quagga mussels. Water must be drained from any lake equipment components holding lake water prior to transport on a public road (per Minnesota Statutes 84D.10, Subd. 4)

- **Required at the decontamination location** Boat lifts, docks, swim rafts, and other water-related equipment removed from zebra or quagga mussel infested waters that are being transported under this permit shall be completely decontaminated at the above location to remove zebra or quagga mussels and sediment before further transport.

Decontamination and treatment shall include:

A. **Off lake winter storage** – 1) thorough scraping and/or power washing of the areas of lake equipment exposed to the water to remove all zebra or quagga mussels.

B. **Placement in another water or sale to person off the lake during the same boating season –** 1) thorough scraping and/or hot-water power washing of the lake equipment exposed to the water to remove all zebra or quagga mussels and sediment; 2) draining water from lake equipment components holding lake water; 3) rinsing with hot water on all surfaces exposed to the water for at least 10 seconds; and 4) drying it for at least 21 days following power washing/scraping.

Disposal - All water transported to the decontamination location in boats that were removed from infested waters shall be disposed of on a permeable surface (e.g., gravel, sand, or grass) or

sludge/holding tank, so that it does not enter the storm sewer system or another waterbody. All plants, zebra or quagga mussels, and associated material removed from boats and equipment shall be dried for at least five days and either disposed of at the cleaning location provided it is at least 300 feet from any waterbody; or transported to a disposal location in closed containers or covered trailers or trucks, and disposed of at sites at least 300 feet from any waterbody.

Inspections: Facilities for holding prohibited invasive species of wild animals and aquatic plants for control or disposal purposes identified in this permit are subject to inspection at any reasonable time by the commissioner of natural resources or a designated employee.

Revocation: Permits issued under this condition may be revoked by the commissioner if the permittee does not comply with the conditions of this permit or Minnesota rules 6216.0100 to 6216.0600, or if revocation is necessary to protect the interest of the public, to protect native plant and animal populations in the state, or to otherwise protect the state's natural resources.

Transferability The service provider permit and the permit condition are not transferable.

Disclaimer of Liability No liability is assumed by the State or any of its officers, agents, or employees by issuance of this prohibited invasive species permit, or for any act or omission of the permittee, or by any prohibited species in possession of the permittee.

Penalties Violations of this permit can result in civil and criminal penalties established in in Minnesota Statutes, section 84D.13. Violations have varied penalties up to $1,000.

Chapter 2. Aquatic Invasive Species (AIS)

As previously mentioned, AIS are species that are non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

AIS can be plants or animals and some of the most problematic of those invasive species are the zebra and/or quagga mussels, spiny water-fleas, faucet snails, Eurasian watermilfoil, and curly-leaf pondweed. These animals and plants threaten native species and aquatic ecosystems; interfere with municipal, commercial, and agricultural water supply and distribution; and impair recreational activities. This section will focus on some of these most problematic AIS, in particular zebra and quagga mussels.

Photo by Lauren Livo & Steve Wilcox

What are zebra and quagga mussels?

Zebra and quagga mussels are freshwater bivalve mollusks—animals with two shells. They are relatives of clams and oysters. It is very difficult for a non-expert to tell the two species apart. The shell color of both mussels alternates between a yellowish and darker brown, often forming stripes. They range in size from microscopic up to about two inches long. The zebra mussel is nearly triangular in shape and the quagga mussel is more rounded.

Unlike native North American freshwater mussels, which burrow in soft sediment, adult zebra and quagga mussels can attach via tiny threads—byssal threads—to hard surfaces.

- Sites flat on ventral side
- Triangular in shape
- Color patterns vary

- Topples over, will not sit flat on ventral side
- Rounder in shape
- Usually have dark concentric ring on shell
- Paler in Color near the hinge

Photo by U.S. Geological Survey

Both zebra and quagga mussels can survive cold waters, but cannot tolerate freezing. They can endure temperatures between 1º–30ºC (33º–86ºF). Zebra mussels need waters above 12ºC (54ºF) to reproduce while quagga mussels can reproduce in waters as cold as 9ºC (48ºF). The embryos are microscopic. The larvae, called veligers, are planktonic—free-floating. The veligers float in the water column or are carried in the current for about four to eight weeks. Then the larvae develop shells and settle onto any solid surface, including the skin or shells of native aquatic species. Zebra mussels are native to the Black and Caspian Seas. They were discovered in the Great Lakes in 1988 and have since spread to 26 states in the United States. Quagga mussels are native to the Dnieper River Drainage in the Ukraine, and were first found in the Great Lakes in 1989.

Many aquatic nuisance species, including zebra and quagga mussels, have first been introduced into the Great Lakes in the discharged ballast water of ocean-going ships. Once in North American waters and wetlands, aquatic invasive species often hitch rides to other bodies of water on the boats, trailers, and equipment that people transport from place to place.

Why should we be concerned about zebra and quagga mussels?

Zebra and quagga mussels pose a great ecological and financial threat to the state. The invasion of these mussels will affect Minnesotans in many ways that can be significant and irreversible:

• They grow and reproduce quickly.
Zebra and quagga mussels reproduce *exponentially*. A single female mussel can produce up to one million eggs a year! Even if only ten percent of the offspring survive, there would be 10 septillion mussels in the waterway at the end of five years! As the mussel population explodes, they cover the bottom and sides of the waterway.

• They clog water infrastructure, impacting water supply and quality.
As mentioned before, zebra and quagga mussels can attach via byssal threads to hard surfaces. They attach to most underwater structures and can form dense clusters that impair facilities and impede the flow of water. They clog intake pipes and trash screens, canals, aqueducts, and dams—disrupting water supply to homes, farms, factories, and power plants. Zebra and quagga mussels also degrade water quality and can alter the taste and smell of drinking water.

Photo by Peter Yates

• They have significant ecological impact.
Invasive species have the ability to change aquatic ecosystems and native plant and animal communities. The amount of food the mussels eat and the waste they produce has life-altering effects on the ecosystem and can harm fisheries. As filter feeders, these species remove large amounts of microscopic plants and animals that form the base of the food chain, reducing available food for native aquatic species. Zebra or quagga mussels attach to and encrust native organisms, essentially smothering them and removing more animals from the food chain.

Photos by Brad Henley (above) & Minnesota DNR (left)

• They have recreational impacts.
These mussels encrust docks and boats. Attached mussels increase drag on boats. Small mussels can get into engine cooling systems causing overheating and damage. Increased hull and motor fouling will result in increased maintenance costs on vessels moored for long periods of time. Zebra and quagga mussels also impact fish populations and reduce sport-fishing opportunities. Their sharp shells can cut the feet of swimmers, beach goers, and dogs.

• They have significant economic impact.
As maintenance costs for power plants, water treatment facilities and water delivery infrastructures increase, so does the cost of food and utilities. In the Great Lakes area, maintenance costs in water

treatment plants, power plant intakes and dams have been in the billions of dollars. The destruction of native fisheries also has a wider economic impact in terms of tourism and recreation dollars not spent. Marinas and watercraft dealers could suffer business declines as well.

Photo by Minnesote DNR

• They are very difficult to kill.
In only one instance have managers been able to eradicate zebra mussels and that was an isolated 12-acre quarry in Virginia. A large volume of chemical was used to treat the water and kill the adults and larvae. Eradicating or treating zebra or quagga mussels in large water bodies and/or connected waterways may not be possible, so prevention is very important. *If watercrafts are cleaned, drained, and dried in between water bodies, any attached mussels or other AIS will be removed or killed.*

• They spread quickly to other water bodies.
Mussels can spread to other bodies of water by attaching to boat hulls, lower units, trim, tabs, and anchors, trailers, and other water-related equipment. Larvae can be transported in bilge water, ballast water or live bait wells. Mussel larvae also disperse naturally, and can be carried by water currents to other lakes or reservoirs downstream or through water diversions.

Photos by Minnesota DNR

What are the other AIS to be concerned about?

There are many other AIS that pose a significant threat to the aquatic resources or water infrastructure of the state, including, but not limited to, the following:

Animals:

Common Name	Scientific Name
Rusty Crayfish	*Orconectes rusticus*
Faucet Snail	*Bithynia tentaculata*
Zebra or quagga Mussel/quagga	*Dreissena polymorpha & bugensis*
New Zealand mudsnail	*Potamopyrgus antipodarum*
Waterflea, fishhook	*Cercopagis pengoi*
Spiny Waterflea	*Bythotrephes longimanus* (also known as *Bythotrephes cederstroemi*)

Plants:

Common Name	Scientific Name
Brazilian water weed	*Egeria densa*
Curly-leaf pondweed	*Potamogeton crispus*
Eurasian watermilfoil	*Myriophyllum spicatum*
Flowering rush	*Butomus umbellatus*
Hyacinth, water	*Eichornia crassipes*
Hydrilla	*Nymphoides peltata*
Purple loosestrife	*Lythrum salicaria*

Pathogens:

Common Name	Scientific Name
Viral Hemorrhagic	Septicemia Virus

Spiny Water Flea (*Bythotrephes longimanus)* and **Fishhook Water Flea (*Cercopagis pengoi*)**

Photo by Minnesota Sea Grant

Spiny and fishhook water fleas are small predacious crustaceans. Unlike other crustaceans, the spiny and fishhook water fleas are very small creatures known as zooplankton. Both arrived in ship's ballast water from Eurasia. Water fleas threaten aquatic ecosystems and fishing by competing with native fish for food and fouling gear. Both water fleas eat smaller zooplankton that is important food for juvenile fish. With less zooplankton to feed on algae, algal populations can bloom, making lake water less clear. Even though these waterfleas can be eaten by fish, their spine deters most small fish, which experience great difficulty swallowing the water fleas. Waterfleas collect in masses on fishing lines and downrigger cables. Water fleas can spread to inland waters when recreational gear and other water-related equipment are contaminated with egg-laden females. While females die out of water, under certain conditions they produce eggs that resist drying, remain viable, and can establish a new population. Eradicating established infestations is impossible.

Photo by Michigan Dept. Env. Quality

New Zealand mudsnail (*Potamopyrgus antipodarum*)

This small aquatic snail is native to freshwater lakes and streams of New Zealand. In the United States, this snail was first detected in the mid-1980s in the Snake River region of Idaho. Since then, it has spread to other western waters and into Minnesota. Mature New Zealand mudsnails average 1/8 inch in length and have brown or black cone-shaped shells with five whorls. One way to identify this species is hold the point of the shell upward. When the point of the shell is facing

up, the shell's opening is on the right. The mudsnail attaches to fishing gear, boats, trailers, or even fish and bait, and then comes off in the next body of water where these things are used. Mudsnails are able to close their openings to withstand dry conditions and a variety of temperatures. They can survive out of water for several days, so it's easy to see how they can move about and survive on recreational gear. Mudsnails consume aquatic vegetation, upsetting the balance of the aquatic environment. They reproduce asexually; so it only takes **one** to start a whole new population! Eradicating established infestations is impossible.

Photo by Minnesota DNR

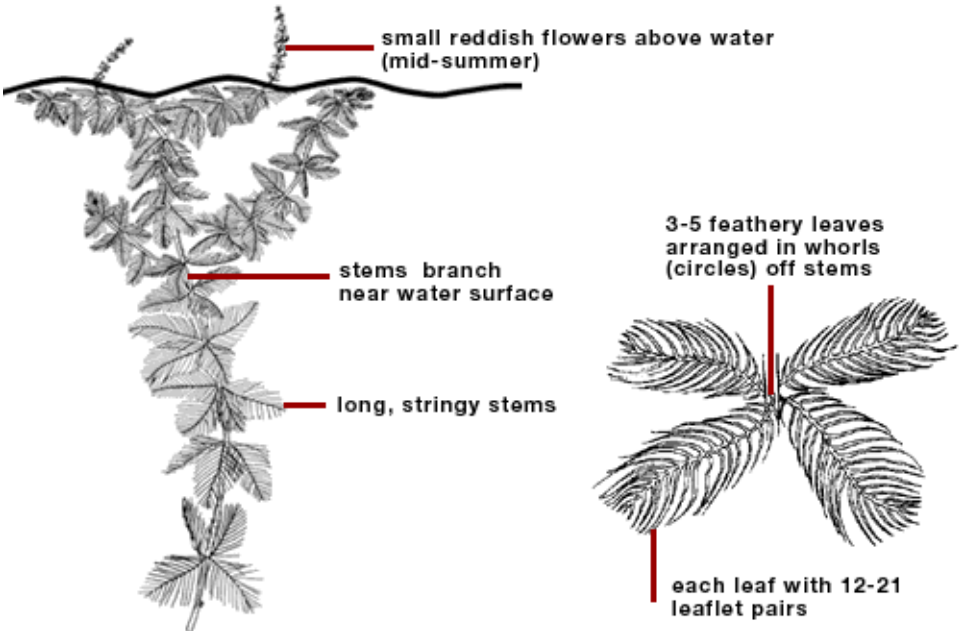
Faucet Snail (*Bithynia tentaculata*)
The faucet snail is another aquatic snail introduced to the Great Lakes from Europe by transport ships or packing crates. It has spread beyond the Great Lakes to surrounding inland waters in Midwest states including Minnesota. The faucet snail is very difficult for non-specialist to indentify. Adults can grow up to ½ inch in length, but are generally smaller. They are light brown to black, with 4 to 5 whorls and a cover on the shell opening. The shell opening is on the right when the shell is pointed up. The faucet snail is a host to three parasitic trematode species that have contributed to tens of thousands of waterfowl deaths in Minnesota since 2002. They also compete with native snails and can clog water intake pipes and other submerged equipment. Like the mudsnail, faucet snail attaches to fishing gear, boats, trailers, or even fish and bait, and then comes off in the next body of water where these things are used. They are also able to close their openings to withstand dry conditions and a variety of temperatures. They can survive out of water for several days, so it's easy to see how they can move about and survive on recreational gear

Rusty Crayfish (*Orconectes rusticus*)
This species, which is native to the Ohio River basin, can often be identified by two rust colored marks on its mid-back area, near the area where one would place a thumb and finger to pick the animal up. Adults can reach a length of four inches. Original spread was likely by anglers using rusty crayfish as bait. They can inhabit lakes, ponds, and both pool and fast-water areas of streams. Rusty crayfish cause a variety of negative impacts when introduced to new waters, including displacing native animals and plants.

Photo by US EPA

Eurasian watermilfoil (*Myriophyllum spicatum*) Eurasian watermilfoil is a submerged, herbaceous aquatic plant that was introduced into the USA in the 1940s and is one of the most destructive aquatic plants known. This highly aggressive species colonizes a variety of habitats, including both moving and standing waters. It grows rapidly—about one foot per week—and can form extremely dense mats. The mats crowd out native species, disrupts the food chain, displace wildlife habitat and clog waterways, stopping or slowing the flow of water. Dense mats impair all forms of water based recreation.
Pink or olive green stems grow to the water surface, usually extending 3 to 10 feet in length and frequently forming dense mats.

The feathery dark green leaves of Eurasian watermilfoil are finely divided and occur in whorls of 3 or 4 along the stem, with 12–20 pairs of fine, thin leaflets. These leaflets give milfoil a feathery appearance that is a distinguishing feature of the genus. Native Northern watermilfoil (*Myriophyllym sibiricum*) are very difficult to distinguish from Eurasian watermilfoil. There are also hybrids that can complicate identification.



Minnesota Seagrant – Eurasian watermilfiol identification

Photos by Vermont Fish & Wildlife

Viral Hemorrhagic Septicemia Virus (*VHSV*)
Viral hemorrhagic septicemia virus is a serious pathogen of fresh and saltwater fish. VHSV virus is a rhabdovirus (rod shaped virus) that affects fish of all size and age ranges. It does not pose any threat to human health but can cause hemorrhaging of fish tissue, including internal organs, and can cause the death of infected fish. Once a fish is infected with VHSV, there is no known cure. The clinical signs of VHSV may include tissue hemorrhaging (bleeding), unusual behavior, anemia, bulging eyes, bloated abdomens, and the rapid onset of death; however, these symptoms could apply to many different fish diseases. There is no clear visual diagnostic to confirm VHSV. Not all infected fish show signs and may become carriers of the disease. The only way to confirm VHSV is to test the fish in a lab. VHSV can be spread from one waterbody to the next through a variety of means, not all of which are known at this time. One known method of spreading VHSV is moving fish from one waterbody to another. This could occur by importation, stocking, or the use of bait fish. Other potential sources of VHSV spreading are natural fish movements, recreational boating/angling, bird assistance, water discharge, and sampling activities.

The Minnesota DNR webpage has additional information on other aquatic invasive species - http://www.dnr.state.mn.us/invasives/index.html

Chapter 3. MN AIS Laws Related to Service Providers

Chapter 1 covered AIS laws pertinent to the service provider permit, but there are other invasive species laws that all users must always abide by.

Those laws include:

- A person may not possess, import, purchase, sell, propagate, transport, or introduce a prohibited invasive species. Those prohibited species include curly-leaf pondweed, Eurasian watermilfoil, bighead and silver carp, New Zealand mudsnails, zebra or quagga mussels and several other species listed under Minnesota Rules 6216.0250 Prohibited Invasive Species in Appendix A.

- A person may not introduce a regulated invasive species without a permit issued by the commissioner. Regulated species include rusty crayfish, spiny waterfleas, and other regulated species listed under Minnesota Rules 6216.0250 Regulated Invasive Species in Appendix A.

- A person may not transport aquatic macrophytes (aquatic plants).

- A person may not place or attempt to place into waters of the state water-related equipment that has aquatic macrophytes (plants), zebra mussels, or prohibited invasive species attached.

- When leaving waters of the state and transporting water-related equipment a person must drain all water-related equipment holding water and live wells and bilges by removing the drain plug before transporting the water-related equipment off the water access site or riparian property. Drain plugs must be removed and bailers, valves, or other devices used to control the draining of water from ballast tanks, bilges, and live wells must be left open while transporting water-related equipment.

- Compliance with aquatic invasive species inspection requirements is an express condition of operating or transporting water-related equipment. An inspector may prohibit an individual from placing or operating water-related equipment in waters of the state if the individual refuses to allow an inspection of the individual's water-related equipment or refuses to remove and dispose of aquatic invasive species, aquatic macrophytes (plants), and water.

In state laws **"Introduce"** means to place, release, or allow the escape of a nonnative species into a free-living state. Introduce does not include:

1) the immediate return of a nonnative species to waters of the state from which the nonnative species was removed; or
2) ***the seasonal return of nonnative species attached to water-related equipment, such as a dock or boat lift, that has been stored on riparian property and directly returned to the same waters of the state from which the water-related equipment was removed.***

In state laws "**Transport**" means to cause or attempt to cause a species to be carried or moved into or within the state, and includes accepting or receiving the species for transportation or shipment. Transport does not include:

1) the movement of infested water or a nonnative species within a water of the state or to a connected water of the state where the species being transported is already present; or
2) ***the movement of a nonnative species attached to water-related equipment or other water-related structures from a water of the state to the shore of riparian property on that water or the return of water-related equipment or structures from the shore into the same water of the state.***

The second exception under both introduce and transport allows individuals and service providers to return water-related equipment such as docks and lifts that may have aquatic invasive species such as zebra or quagga mussels attached back into the water in which they came as long as they only came off that same riparian property. **These exceptions DO NOT allow you to transport water-related equipment with aquatic plants or prohibited invasive species attached to an access and down the road to a person's riparian property.**

Penalties vary depending on offense, severity, subsequent offenses, and civil or criminal violation.

Civil Citation	Penalty as of January 1, 2012
Fail to drain water	**$ 50**
Transport aquatic plants on public road	**$ 50**
Launch with plants attached	**$100**
Transport infested water w/o permit	**$200**
Transport or possess prohibited species	**$250**
Launch into non-infested waters with AIS attached	**$500**
Subsequent offenses	**$1,000**
Refuse inspection	**Lose boat license for year**
Criminal	Penalty
Misdemeanor	**Up to $1000 and/or 90 days**
Gross Misdemeanor	**Up to $3000 and/or 1 year**

We strongly encourage service providers to review Appendix A. Selected Minnesota Laws Related to Service Providers, Water-related Equipment, Watercraft Inspections, and Decontamination for additional information and detail on AIS Laws.

Chapter 4: Inspection and Decontamination Protocols

Best Business Practices and Protocols for Service Provider

1. Inspection, Cleaning, Draining and Drying Protocols

There are number of practices that a business can implement to stop the spread of AIS. Some of these practices are required by law and some are practices that add an extra measure of safety to avoid transportation of any unwanted aquatic hitchhiker! It is recommended that Service Providers affix tags to customer's equipment to identify things such as the date they were brought to the facility and the date they were decontaminated.

Determine Risk Factors

Some situations pose higher risk for spreading invasive species than others and therefore may require more actions to prevent the spread. For example, removing and transporting a boat lift from zebra or quagga mussel infested waters that has been in the water for several months is high risk and much riskier than removing and transporting a boat that has been in non-infested waters for a few hours. **Service providers should be continually evaluating the risk level of each activity and act accordingly.**

Inspection

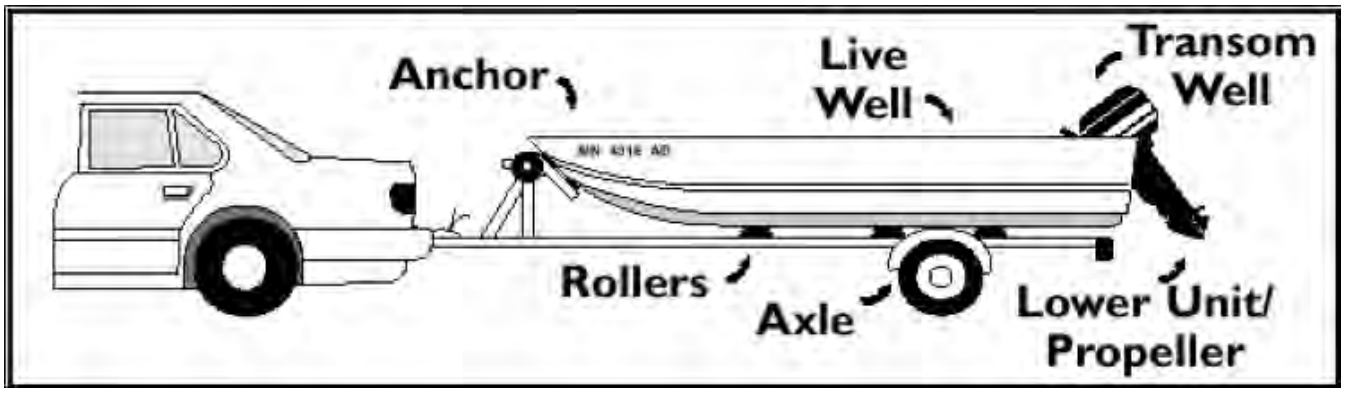
The inspection of boats and equipment before transporting them should include a thorough and complete visual and tactile inspection of all portions of trailers, docks, boat lifts, swim platforms, boats, barges, and all equipment removed from the water. Be on the lookout for aquatic plants, snails, mud, water, and zebra or quagga mussels. The time it will take to complete an inspection may vary greatly depending on the type and complexity of the equipment and could range from 3 minutes to 30 minutes or more.

Exterior Inspection

Start and end the inspection at the same place on each piece of water-related equipment. Some common places to inspect are:

- Hull of boat;
- Boat motor including propeller and motor mount;
- Back of boat including trim tabs, transducer, intakes, and boat plug;
- Boat trailers;
- External components of dock posts and ladders, boat lift frame, and swim rafts.

Key Locations to Inspect

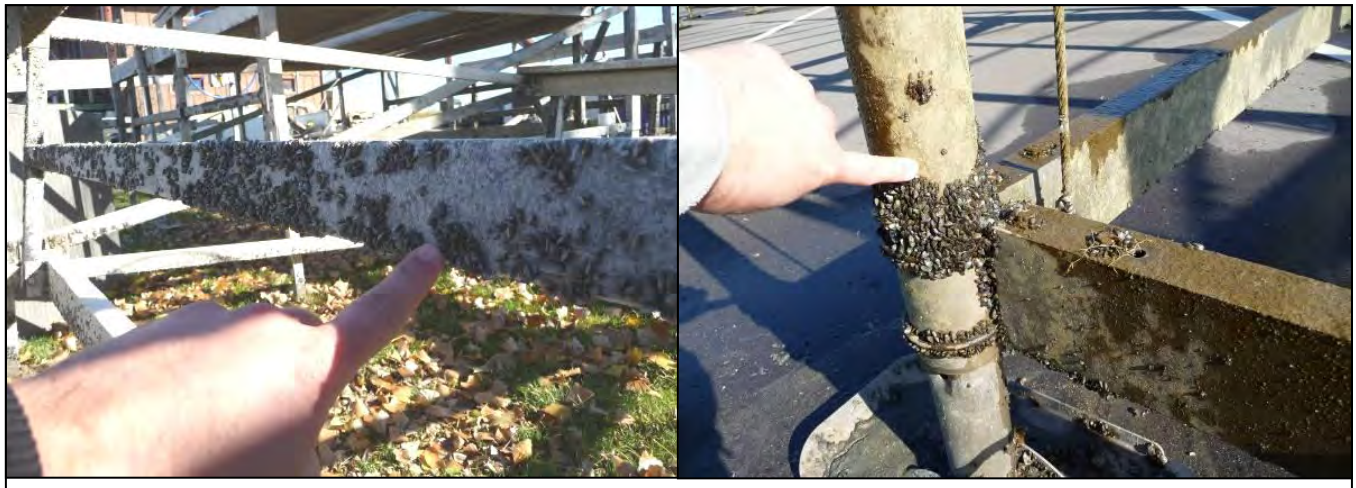


Zebra or quagga mussels attached to an outboard motor and a paddle boat. Photos courtesy of MNDNR and

Look over each piece of equipment and feel for sandpapery bumps that may indicate the presence of young zebra or quagga mussels. Carefully check the rear of boats, including intakes, upper and lower motor areas, and the propeller. Trailers can also pose a high risk, so carefully check trailer rails, lights, and electrical wires, as well as the license plate and trailer pads for aquatic plants.

Zebra or quagga mussels do not like to be located in direct sunlight, so pay particular attention to the underside of lifts and docks, as zebra or quagga mussels will commonly be found here. Use a mirror as shown to the right to help in inspecting. It allows you to see in locations you may otherwise miss. In addition, portions of boat lifts and docks that contact the bottom should receive additional attention as these areas commonly pick up bottom material from the lake while the equipment is in the water.

Hand held mirror to check for AIS under water-related equipment



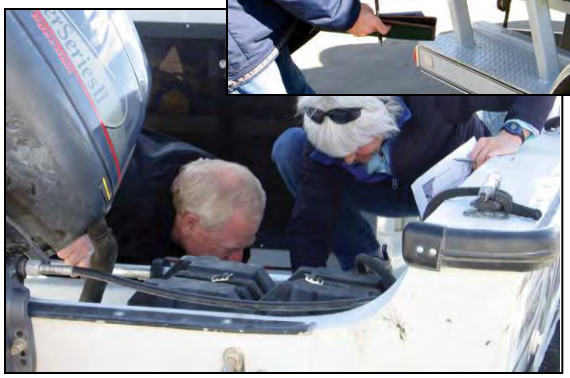
Zebra or quagga mussels attached to the exterior of boat lifts. Photos MNDNR.

Interior Inspection

The interior of all water-related equipment needs to be inspected for the presence of invasive species and standing water before transporting. Below is a list of common equipment to inspect:

- Live/bait wells
- Bilge area near back of the boat
- Ballast tanks
- Ropes and anchors
- Buoys
- Miscellaneous fishing equipment
- Internal components of dock posts/parts and lift legs and frame (if possible)

Service Provider staff must inspect bait and live wells of boats to ensure the plug is removed and they are drained of all water before transport. The bilge area near the back of the boat must also be inspected for standing water and to ensure the plug is removed. Other equipment such as ropes and anchors that may be stored inside the boat should also be inspected. If possible, search the inside of the dock/boat lift frame by removing the white rubber caps that cover the end of the framing. A LED flashlight may be needed to effectively see inside the framing and other dark crevices.



Ensure Boats & Equipment are INSPECTED!!

Above: zebra or quagga mussels attached to anchors. below: zebra or quagga mussels on the inside of the framing of a boat lift and bilge area near back of boat.

Removing **Ensure Boat & all Equipment is CLEANED!!**

If plants are found attached to the exterior or interior of equipment they need to be removed by hand before transporting the equipment. Dispose of this material in the trash or in compost bins that may be located at the access. However, if the piece of equipment has been:

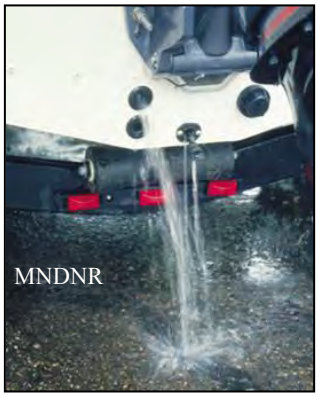
- located in infested waters, or
- zebra or quagga mussels or other AIS are found, or
- sandpapery bumps are felt, or
- mud or standing water is found

refer to the decontamination protocols on page 23 and the drying recommendations listed below.

Above: Trailer and personal watercraft in need of cleaning and access site compost bin

Draining

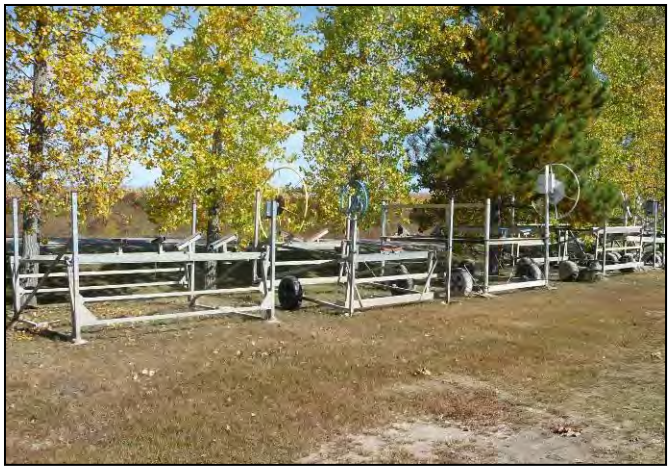
Water must be drained from all water-related equipment holding any water before leaving a water access. Drain plugs must be removed and bailers, valves, or other devices used to control the draining of water from ballast tanks, bilges, and live/bait wells must be opened while transporting water-related equipment. Because the pontoons on pontoon boats are air holding compartments and not intended to hold water, plugs do not need to be removed from pontoons when they are transported, unless they are damaged and contain water. Water should be drained at a location that is far enough away from the lake to ensure water, which may contain oil or other contaminants, does not flow back into the lake.



The interior inspection should reveal any locations of standing water and this water must be drained prior to transporting the equipment. If the bilge area of a boat cannot be visually inspected, bilge pumps should be activated to determine if there is any water present. Similarly, if the boat has a ballast tank (such as on wakeboard boats), staff should remove the plug and drain all water or activate the ballast tank pump until no water is expelled. If these situations are encountered, staff should perform additional decontamination as outlined on page 23. Boat motors

should be trimmed down as much as possible until water is observed draining from the motor. Remember to trim the motor into up position before transporting. For docks and boat lifts, consider drilling holes in the frame at strategic locations to help drain water. If there is standing water found in any locations that is unable to be drained, refer to the decontamination protocols on page 23.
Ensure Boats & all other Water-related Equipment are DRAINED!!

Drying
All equipment should be dried prior to entering another body of water. The best practice is to allow the equipment to overwinter prior to being placed in another water body. Service providers should be continually evaluating the risk of the activity and act appropriately. For example, a boat lift that has been in zebra or quagga mussel waters for one month should be dried much longer than a canoe that has been in the same water for only a few hours. With this in mind, **it is recommended that equipment that has been in infested water should be decontaminated and/or dried for 21 days before placing in another water.** For equipment in non-infested waters, equipment should be cleaned, drained, and dried for up to five days or as long as possible. It is extremely difficult, if not impossible, to fully decontaminate some parts of water-related equipment, thus drying is the only option to ensure aquatic invasive species that could not be removed are not alive. If you must place equipment in another body of water in a drying timeframe less than recommended you should then follow decontamination protocols on page 23.



Ensure Boat and all Equipment is thoroughly DRIED prior to entering another waterbody!!

2. Decontamination Protocols

Decontamination consists of a very hot, high or low pressure wash. In some cases, equipment should also be allowed to dry for an extended period of time following the decontamination. There are no soaps, bleaches, or chemicals needed or recommended. The hot water kills zebra or quagga mussels and other invasive species, and the high pressure removes them from the water-related equipment. Aquatic plants and invasive species must be removed from all water-related equipment before moving the equipment to a different water body. It is likely the decontamination will take place at your place of business, but if you plan to decontaminate at the access, be sure you are located far enough away from the water, so waste water will not flow back into the water body.

When is decontamination recommended?
Below are specific situations when decontamination is recommended, however, each Service Provider should evaluate the circumstances of the activity they are performing and determine whether it must be done to comply with state laws or the risk warrants decontamination. When in doubt, decontamination and extended drying is recommended. Decontamination of water-related equipment should occur if any of the following situations arise:

- The water-related equipment was located in infested waters;
- Aquatic invasive species (such as zebra or quagga mussels) are found or suspected to be on a piece of water-related equipment;
- Suspect unidentifiable bumps are detected on water-related equipment;
- The water-related equipment contains a large amount of water that cannot be drained;
- Mud, sand, or other substrate is attached to water-related equipment; or
- An authorized DNR inspector deems decontamination necessary.

Decontamination Equipment
A number of pieces of equipment will be needed to decontaminate any boat, lift, dock, trailer, or other water-related equipment. Below are examples of equipment that will make decontamination more efficient and reliable for staff to assure they are not spreading AIS.

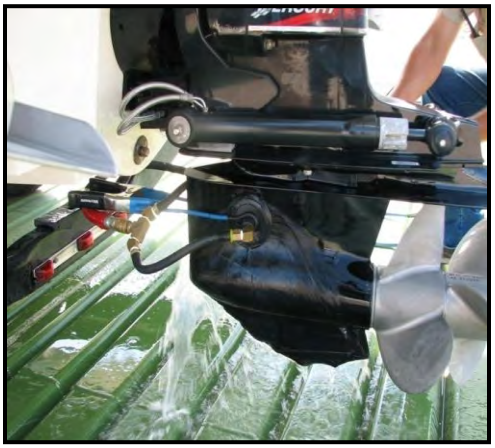
- Hot Water and High-Pressure Sprayer Unit – portable with attachments
- High pressure wand and low pressure diffuser
- Motor muffs for outboard motors
- Fake a Lake for ballast tanks
- Scraping equipment (to scrape off snails and zebra or quagga mussels)
- Personal protection equipment (face shield or eye glasses, rubber boots and clothing, gloves, ear plugs, etc.)
- See next page of more information on decontamination equipment


Scraper for AIS removal

Hot Water Power Pressure Sprayers – there are a number of units that will work just fine to assist in decontamination. Fully contained portable units are used by the MN DNR but smaller units that are used back at your place of business will work just fine.

High Pressure Wand and Low Pressure Diffuser – both attachments are essential when decontaminating any water-related equipement. The high pressure wand is used to apply hot water and scrape away any attached AIS and the low pressure diffusser allows you to soak sensitive areas and water holding areas with hot water to kill AIS.

Outboard Motor Muffs and Fake a Lake attachment – both attachments are again essential if deontaminating motors and onboard ballast tanks and bags. The outboard motor muffs are attached to the lower units as seen in picutre below. The fake a lake attachement is positioned under one of the through hull fittings and the ballast tank or bag is then turned on the circulate hot water through system for a long enough time that allows for all AIS to be killed.



Boat Decontamination Protocol

The general water temperature and pressure recommendations for decontamination of a boat are:

- For non-sensitive areas (e.g., boat hulls and trailers)
  - 140°F water at high pressure at point of contact (approximately 2500 psi) with a 40 degree nozzle
- For interior compartments without pumps
  - 140°F water at low pressure
- For interior compartments with pumps
  - 120°F water at low pressure to avoid damaging the pump

Photo Credit:Jeff Shimonski

If you determine a boat is in need of decontamination, follow these steps:

1. Use extreme caution while operating the hot water pressure washer. Wear proper personal protective equipment and ensure that the area surrounding the boat is clear of other staff.
2. Remove all mud, plants, and large material as much as possible prior to beginning the decontamination.
3. Spray the entire exterior of the boat and trailer using 140°F water at high pressure with a 40 degree nozzle. Begin and end at the same location. Take small sections at a time by locating the water line on the hull and spray crosswise from stern to bow, starting at the top of the water line and working down. Hold the spray nozzle 12 inches away from the surface at a 45 degree angle, so the water is "chiseling" the unwanted material off the boat/trailer. Do not shoot the high pressure hot water at a 90 degree angle to the object.
4. All compartments that may hold water and have a pump such as live/bait wells, ballast, or bilge areas and intakes must be flushed with 120°F water at low pressure. Flush these areas until the exit water temperature is 120°F. If a bilge pump is present, it should be operated until the bilge appears empty. Also flush all discharge ports for one minute.
5. Boat engines should be flushed with 140°F water at low pressure. For outboard motors, make sure the motor is completely lowered. Place the muffs so that the intake openings are completely covered. Start the water flowing and start the motor in neutral. Flush the engine until the exit water temperature is 120°F.
6. Following the decontamination, the boat should again be inspected to ensure proper decontamination was completed.

Photo Credits: MNDNR & CO Parks

Boat Lift and Dock Decontamination Protocol

Water-related equipment such as boat docks and lifts pose unique challenges to decontamination. These pieces of equipment are commonly in the water for longer periods of time than boats and therefore may have adult zebra or quagga mussels attached to them. In addition, the framework on many docks and lifts make it almost impossible to properly decontaminate them with a hot water pressure washer. Therefore, for water-related equipment other than boats, our recommendation is that Service Providers should allow at least a 21 day drying period-even if the piece of equipment has been decontaminated as outlined below-before moving the equipment to a new water body.

Missouri Department of Conservation

Top: Service provider crew removing a boat lift, Bottom: Zebra or quagga mussels inside of boat lift frame.

All boat lifts and docks should be dried for at minimum 21 days before entering another body of water.

If you determine that a boat dock or lift is in need of decontamination, follow these steps:

1. Use extreme caution while operating the hot water pressure washer. Wear proper personal protective equipment and ensure that the area surrounding the boat is clear of other staff.
2. Remove all mud, plants, and large material as much as possible prior to beginning the decontamination.
3. Spray the entire exterior of the dock/lift using 140°F water at high pressure with a 40 degree nozzle. Begin and end at the same location. Hold the spray nozzle 12 inches away from the surface at a 45 degree angle so the water is —chiseling" the unwanted material off the boat/trailer. Do not shoot the high pressure hot water at a 90 degree angle to the object.
4. Use 140°F water at low pressure to rinse the inside of the framing and other components as much as possible. Continue to rinse the framing until the exit water is 140°F.
5. Following the hot water decontamination, the equipment should again be inspected to ensure proper decontamination was completed. Allow the piece of equipment to dry for at least 21 days or over the winter before moving it to another body of water.

What if a hot water pressure washer is not available?

If your company does not have access to a hot water high pressure washer, you have the following options to ensure you are not transporting invasive species:

- Dedicate equipment for use only in infested waters
- Wait the recommended drying times and hand clean before moving equipment to another body of water.
- Do not transport equipment-leave it on property owner's shoreline

Todd Simonson.

Putting it All Together: Example Work Scenarios

This section covers some common scenarios that your business may run into and outlines actions that should be taken to prevent the spread of aquatic invasive species. Of course it is not possible for all scenarios to be discussed here; your staff may have to make decisions on the best actions to take in order to ensure invasive species are not being transported. Remember, when in doubt, decontaminate and dry equipment, or allow it to overwinter, for as long as possible before moving it to another body of water.

Scenario 1: Working in Infested Waters
Situation: A dock and lift company is called to remove a fishing boat and boat lift from a lake known be infested with zebra mussels and move both pieces of equipment to another lake that does not have zebra mussels. The customer states that the boat and boat lift have been in the lake for 2 months, but the boat has been on top of the boat lift and out of the water for the last 7 days. Workers inspect both pieces of equipment and find plants and mud attached to the boat lift. Workers also feel small bumps along the framing of the boat lift. Workers find nothing attached to the boat or trailer, and no water in the live well or the bilge area.

Risk Assessment: High; the lake where the equipment is located has zebra mussels and the customer would like it moved to a lake that does not have zebra mussels. It is highly likely the boat lift is infested with zebra mussels, as indicated by the small bumps felt by the staff. The boat on top of the lift likely poses a lower risk since it has been out of the water the last 7 days and nothing was found attached, but staff should still be cautious before moving it another body of water.

Recommended Actions:
Staff have already inspected the equipment that is being moved, so now they must clean, drain, and dry as much as possible before transporting it back to the office.

1. Staff must also perform an inspection on their own equipment prior to leaving the access. Plants must be removed from the company's equipment. Plugs must be pulled and water drained from all equipment. The motor should be trimmed down until water is observed draining from the lower unit. Unless the equipment is dedicated for use in infested water, it should be decontaminated or dried for 21 days before being used in another lake.
2. The plants and mud that are on the boat lift should be cleaned off.
3. Staff must remove the drain plugs from all live/bait wells and bilge areas on the customer's boat. The boat lift must be allowed to drain as much as possible before transport. It may be necessary to drill holes in the framing in order to allow the boat lift to drain thoroughly.
4. Staff should determine what equipment needs to be decontaminated and/or dried. Small bumps were felt along the framing of the boat lift, so it definitely needs to be decontaminated and allowed to dry 21 days before being moved to the next lake. Supposedly the customer's boat has been out of the water for 7 days, and nothing was found on the boat that would warrant decontamination, but it has been on the lake for 2 months. Therefore, to be safe, the boat should be decontaminated or allowed to dry as long as the boat lift before being placed into the next lake. Tags should be affixed to both pieces of the customer's equipment to identify the date they were brought to the facility, the date they were decontaminated, and the lake from which it came.

Scenario 2: Working in Non-Infested Waters
Situation: A dock and lift company is called to remove a boat dock and boat lift from a lake that does not have any aquatic invasive species. The customer states that both pieces of equipment have been in the lake the entire summer and they want the equipment stored at the company's office for the winter. Staff inspect both pieces of equipment and find plants and mud attached to the boat lift and the boat dock.

Risk Assessment: Low; the lake where the equipment is located is not designated as having any invasive species and the equipment is not being transported to another body of water.

Recommended Actions:
Staff have already inspected the equipment that is being moved, so now they must clean, drain, and dry as much as possible before transporting it back to the office.
1. Staff must also perform an inspection on their own equipment. Plants and mud must be removed from the company's equipment. Plugs must be pulled and water drained from all equipment. The motor should be trimmed down until water is observed draining from the lower unit.
2. The plants and mud that are on the boat lift and boat dock should be cleaned off.
3. The boat lift and dock must be allowed to drain as much as possible before transport. It may be necessary to drill holes in the framing in order to allow the boat lift to drain thoroughly.
4. Decontamination is not necessary for the boat lift and dock. The equipment came from non-infested waters and is planned to sit in storage over winter. Tags should be affixed to both pieces of the customer's equipment to identify the date they were brought to the facility and the lake from which it came.

Scenario 3: Mechanically Testing Watercraft
Situation: A boat mechanic has just finished servicing a boat and would like to test their work on the water. The mechanics are not sure what lake the boat was in last and cannot get a hold of the owner.

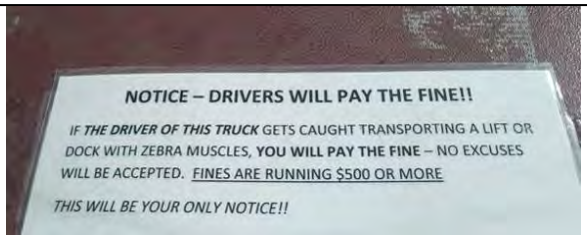
Risk Assessment: Moderate; not knowing where the boat came from increases the potential risk of the activity.

Recommended Actions:
1. Do not assume that the owner of the boat performed an adequate inspection prior to dropping it off at the store. Staff should inspect the boat prior to taking it to the lake for testing. Look for plants that may be attached to the boat or trailer and make sure all of the plugs are removed and the water is drained.
2. Choose a lake that is not designated as infested for testing the boat. Remember to replace the plug(s) before launching the boat for testing.
3. After loading the boat back onto the trailer, inspect the boat again for any aquatic plants and for standing water. Remove any plants from the boat and the trailer if found.
4. Remove all plugs from the boat and allow water to drain. Lower the outboard motor until water is observed draining from the lower unit. Remember to place the motor back into the upright position before transporting it back to the office.
5. Decontamination is not necessary for the boat. Boat was operated in non-infested water for short time. However, it is recommended that the boat dry for 5 days before being placed into another body of water.

Examples from Other Businesses

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.

- Decontaminate/dry all rental returns.
- Tag all equipment that come into your facility-note things such as date of arrival, date of decontamination, and where the equipment came from.
- Dedicate separate equipment for infested waters.
- Drill extra holes in frames of equipment for better drainage.
- Schedule work on infested waters at the end of the day or week.
- Restrict usage/work in infested waters.



Left picture: a label placed on a barge indicating that it is not to be used in Pelican Lake, which has zebra or quagga mussels. Above Picture: a warning taped to the dash of all company trucks warning workers about the transport of invasive species. Photo credits: Todd Simonson.

Other Important Information for Service Providers

1. Transfer and sale of used water-related equipment from infested water

- All equipment must be cleaned, drained, and dry before transporting.
- For boat lifts and docks, decontaminate and dry for at least 21 days before moving it to another water body as they are high risk for transporting AIS.
- If possible, delay transfer over winter.

2. Reporting Infestations

As 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 every day 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 DNR website http://files.dnr.state.mn.us/eco/invasives/infested_waters.pdf
- **Contact your local Invasive Species Specialist** - To find local specialist go to DNR website http://www.dnr.state.mn.us/invasives/contacts.html

To help your local DNR Invasive Species Program field staffs confirm a potential new AIS infestation it is helpful to have a few pieces of information at hand:

- A digital photograph of the organism with some way 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; and
- If you think you find a new infestation, especially zerbra or quagga mussels, you can collect a sample for transport to a DNR Office. Place a specimen with a label of the lake, where it was collected and your contact info. A digital photograph also works but a sample is recommended and more helpful.

3. Other AIS Resources for you and your customers

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 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 aquatic invasive species.

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

3. Use Training, AIS permit, and AIS certificates to "Toot your own horn"

By taking this training you now realize your key role in protecting the lakes and rivers of our state. The MN DNR has made a commitment to stop the spread of invasive species and they hope you have also made the commitment 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! Across the state customers are calling to request the contact information of businesses that have been trained on AIS awareness, inspection and decontamination protocols, and have obtained the required permit. Take some steps to make sure that your customers know that you care about their lakes and rivers!

- Make your Invasive Species Training permit and certification part of your advertising! When you complete your training the service provider will receive their permit and the person's working for the service provider 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 permitted 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 permitted Service Providers posted on the Minnesota Waters website at www.minnesotawaters.org. This website is used by over 400 lake associations.

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

Appendix A. Selected Minnesota Laws Related to Service Providers, Water-related Equipment, Watercraft Inspections, and Decontamination

MINNESOTA STATUTES 84D.01 DEFINITIONS.
Subd. 8a. Introduce.
"Introduce" means to place, release, or allow the escape of a nonnative species into a free-living state. Introduce does not include:
(1) the immediate return of a nonnative species to waters of the state from which the nonnative species was removed; or
(2) the seasonal return of nonnative species attached to water-related equipment, such as a dock or boat lift, that has been stored on riparian property and directly returned to the same waters of the state from which the water-related equipment was removed.

Subd. 16.Transport.
"Transport" means to cause or attempt to cause a species to be carried or moved into or within the state, and includes accepting or receiving the species for transportation or shipment. Transport does not include:
(1) the movement of infested water or a nonnative species within a water of the state or to a connected water of the state where the species being transported is already present; or
(2) the movement of a nonnative species attached to water-related equipment or other water-related structures from a water of the state to the shore of riparian property on that water or the return of water-related equipment or structures from the shore into the same water of the state.

MINNESOTA STATUTES 84D.O5 PROHIBITED INVASIVE SPECIES.
Subdivision 1. Prohibited activities.
A person may not possess, import, purchase, sell, propagate, transport, or introduce a prohibited invasive species, except:
(1) under a permit issued by the commissioner under section 84D.11;
(2) in the case of purple loosestrife, as provided by sections 18.75 to 18.88;
(3) under a restricted species permit issued under section 17.457;
(4) when being transported to the department, or another destination as the commissioner may direct, in a sealed container for purposes of identifying the species or reporting the presence of the species;
(5) when being transported for disposal as part of a harvest or control activity under a permit issued by the commissioner according to section 103G.615, when being transported for disposal as specified under a commercial fishing license issued by the commissioner according to section 97A.418, 97C.801, 97C.811, 97C.825, 97C.831, or 97C.835, or when being transported as specified by the commissioner;
(6) when the specimen has been lawfully acquired dead and, in the case of plant species, all seeds are removed or are otherwise secured in a sealed container;
(7) in the form of herbaria or other preserved specimens;
(8) when being removed from watercraft and equipment, or caught while angling, and immediately returned to the water from which they came; or
(9) as the commissioner may otherwise prescribe by rule.

MINNESOTA STATUTES 84D.07 REGULATED INVASIVE SPECIES.
Except as provided in rules adopted under section 84D.12, subdivision 2, clause (1),
a person may not introduce a regulated invasive species without a permit issued by the commissioner.

MINNESOTA STATUTES 84D.09 AQUATIC MACROPHYTES.
Subdivision 1. Transportation prohibited.
A person may not transport aquatic macrophytes (aquatic plants) except as provided in this section. [Effective 5-28-2011]
Subd. 2. Exceptions.
Unless otherwise prohibited by law, a person may transport aquatic macrophytes:
(1) that are duckweeds in the family Lemnaceae;
(2) for disposal as part of a harvest or control activity conducted under an aquatic plant management permit pursuant to section 103G.615, under permit pursuant to section 84D.11 , or as specified by the commissioner;

(3) for purposes of constructing shooting or observation blinds in amounts sufficient for that purpose, provided that the aquatic macrophytes are emergent and cut above the waterline;
(4) when legally purchased or traded by or from commercial or hobbyist sources for aquarium, wetland or lakeshore restoration, or ornamental purposes;
(5) when harvested for personal or commercial use if in a motor vehicle;
(6) to the department, or another destination as the commissioner may direct, in a sealed container for purposes of identifying a species or reporting the presence of a species;
(7) when transporting commercial aquatic plant harvesting or control equipment to a suitable location for purposesof cleaning any remaining aquatic macrophytes;
(8) that are wild rice harvested under section 84.091;
(9) in the form of fragments of emergent aquatic macrophytes incidentally transported in or on watercraft or decoys used for waterfowl hunting during the waterfowl season; or
(10) when removing water-related equipment from waters of the state for purposes of cleaning off aquatic macrophytes before leaving a water access site. [Effective 5-28-2011]

MINNESOTA STATUTES 84D.10 WATERCRAFT REQUIREMENTS AND PROHIBITIONS.
Subdivision 1. Launching prohibited.
A person may not place or attempt to place into waters of the state a watercraft, a trailer, or aquatic plant harvesting or control equipment that has aquatic macrophytes, zebra mussels, or prohibited invasive species attached except as provided in this section. [Effective 5-28-2011]
Subd. 3. Removal and confinement.
(a) A conservation officer or other licensed peace officer may order:
(1) the removal of aquatic macrophytes or prohibited invasive species from water-related equipment before it is placed into waters of the state;
(2) confinement of the water-related equipment at a mooring, dock, or other location until the water-related equipment is removed from the water;
(3) removal of water-related equipment from waters of the state to remove prohibited invasive species if the water has not been designated by the commissioner as being infested with that species.; and
(4) a prohibition on placing water-related equipment into waters of the state when the water-related equipment has aquatic macrophytes or prohibited invasive species attached in violation of subdivision 1 or when water has not been drained or the drain plug has not been removed in violation of subdivision 4.
(b) An inspector who is not a licensed peace officer may issue orders under paragraph (a), clauses (1), (3), and (4).

Subd. 4. Persons transporting water-related equipment.
(a) When leaving waters of the state a person must drain water-related equipment holding water and live wells and bilges by removing the drain plug before transporting the water-related equipment off the water access site or riparian property.
(b) 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 water-related equipment.
(c) Emergency response vehicles and equipment may be transported on a public road with the drain plug or other similar device replaced only after all water has been drained from the equipment upon leaving the water body.
(d) Portable bait containers used by licensed aquatic farms and marine sanitary systems are exempt from this subdivision.
(e) A person must not dispose of bait in waters of the state. [Effective 5-28-2011]

MINNESOTA STATUTES 84D.105 INSPECTION OF WATER-RELATED EQUIPMENT.
Subdivision 1. Compliance inspections.
Compliance with aquatic invasive species inspection requirements is an express condition of operating or transporting water-related equipment. An inspector may prohibit an individual from placing or operating water-related equipment in waters of the state if the individual refuses to allow an inspection of the individual's water-related equipment or refuses to remove and dispose of aquatic invasive species, aquatic macrophytes, and water.

MINNESOTA STATUTES 84D.108 SERVICE PROVIDER PERMIT
Subd. 1. Service provider permit required.
(a) Service providers must apply for and obtain a permit from the commissioner before providing any services described in section 84D.01, subd. 15a.

(b) Service providers must have a valid permit in possession while providing services described in section 84D.01, subd. 15a.

Subd. 2. Permit requirements.
(a) Service providers must complete invasive species training provided by the commissioner and pass an examination to qualify for a permit. Service provider permits are valid for three calendar years.
(b) A $50 application and testing fee is required for service provider permit applications.
(c) Persons working for a permittee must satisfactorily complete aquatic invasive species-related training provided by the commissioner.

Subd. 3.Standard for issuing.
The commissioner may issue, deny, modify, or revoke a permit as provided in section 84D.11, subd. 3.

Subd. 4. Appeal of permit decision.
Permit decisions may be appealed as provided in section 84D.11, subd. 4.

MINNESOTA STATUTES 84D.13 ENFORCEMENT; PENALTIES.
Subdivision 1. Enforcement.
Unless otherwise provided, this chapter and rules adopted under section 84D.12 may be enforced by conservation officers under sections 97A.205, 97A.211, and 97A.221 and by other licensed peace officers.

Subd. 2. Cumulative remedy.
The authority of conservation officers to issue civil citations is in addition to other remedies available under law, except that the state may not seek penalties under any other provision of law for the incident subject to the citation.

Subd. 3. Criminal penalties.
(a) A person who violates a provision of sections 84D.03 or 84D.06 to 84D.11, or a rule adopted under section 84D.12, is guilty of a misdemeanor.
(b) A person who possesses, transports, or introduces a prohibited invasive species in violation of section 84D.05 is guilty of a misdemeanor. A person who imports, purchases, sells, or propagates a prohibited invasive species in violation of section 84D.05 is guilty of a gross misdemeanor.
(c) 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 water-related equipment is guilty of a gross misdemeanor. [Effective 5-28- 2011]

Subd. 5. Civil penalties.
A civil citation issued under this section must impose the following penalty amounts:
(1) for transporting aquatic macrophytes in violation of section 84D.09, $50;
(2) for placing or attempting to place into waters of the state water-related 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 water-related 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 remove plugs, open valves, and drain water from water-related equipment, other than marine sanitary systems, before leaving waters of the state, $50; and
(7) for transporting infested water off riparian property without a permit as required by rule, $200.
[Effective 5-28-2011]

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.105 or who refuses to comply with a removal order given under this section.
[Effective 5-28-2011]

Subd. 7. Satisfaction of civil penalties.
A civil penalty is due and a watercraft license suspension is effective 30 days after issuance of the civil citation. A civil penalty collected under this section must be paid to either: (1) the commissioner if the citation was issued by a conservation officer and must be credited to the invasive species account; or (2) the treasury of the unit of government employing the officer who issued the civil citation.
[Effective 5-28-2011]

MINNESOTA STATUTES 86B.811 CRIMINAL PENALTIES.
Subd. 1a. Petty misdemeanor.
A watercraft owner who fails to obtain or display an aquatic invasive species rules decal or a person who operates a watercraft that does not display an aquatic invasive species rule decal in violation of section 86B.508 is guilty of a petty misdemeanor. [Effective 7-1-2011]

MINNESOTA RULES 6216.0250 PROHIBITED INVASIVE SPECIES.
Subpart 1. Designation. The species in subparts 2 to 5 and any hybrids, cultivars, or varieties of the species are designated as prohibited invasive species.

Subp. 2. Aquatic plants. The following aquatic plants are designated as prohibited invasive species:
A. African oxygen weed (*Lagarosiphon major*) (Ridley) Moss ex Wagner;
B. aquarium watermoss or giant salvinia (*Salvinia molesta*) Mitchell;
C. Australian stonecrop (*Crassula helmsii*) (Kirk) Cockayne;
D. brittle naiad (*Najas minor*) Allioni;
E. curly-leaf pondweed (*Potamogeton crispus*) Linnaeus;
F. Eurasian water milfoil (*Myriophyllum spicatum*) Linnaeus;
G. European frog-bit (*Hydrocharis morsus-ranae*) Linnaeus;
H. flowering rush (*Butomus umbellatus*) Linnaeus;
I. hydrilla (*Hydrilla verticillata*) (Carl von Linnaeus) Royle; J.
J. Indian swampweed (*Hygrophila polysperma*) (Roxburgh) T. Anders;
K. purple loosestrife (*Lythrum salicaria, Lythrum virgatum*, or any variety, hybrid, or cultivar thereof) Linnaeus;
L. water aloe or water soldiers (*Stratiotes aloides*) Linnaeus; and
M. water chestnut (*Trapa natans*) Linnaeus.

Subp. 3. Fish. The following fish are designated as prohibited invasive species:
A. bighead carp (*Hypophthalmichthys nobilis*) Richardson;
B. black carp (*Mylopharyngodon piceus*) (Richardson) Peters;
C. grass carp (*Ctenopharyngodon idella*) Valenciennes;
D. northern snakehead fish (*Channa argus*);
E. round goby (*Neogobius melanostomus*);
F. rudd (*Scardinius erythrophthalmus*) Linnaeus;
G. ruffe (*Gymnocephalus cernuus*) Linnaeus;
H. sea lamprey (*Petromyzon marinus*) Linnaeus;
I. silver carp (*Hypophthalmichthys molitrix*) Valenciennes;
J. tubenose goby (*Proterorhinus marmoratus*) Pallas;
K. white perch (*Morone americana*) Gmelin; and
L. zander (*Stizostedion lucioperca*) Linnaeus.

Subp. 4. Invertebrates. The following invertebrates are designated as prohibited invasive species:
A. New Zealand mud snail (*Potamopyrgus antipodarum*) Gray; and
B. zebra or quagga mussel (*Dreissena spp*.).

6216.0260 REGULATED INVASIVE SPECIES.
Subpart 1. Designation. The species in subparts 2 to 5 are designated as regulated invasive species.

Subp. 2. Aquatic plants. The following aquatic plants are designated as regulated invasive species:

A. Brazilian waterweed (*Egeria densa*) Planchon;
B. Carolina fanwort or fanwort (*Cabomba caroliniana*) A. Gray;
C. Chinese water spinach (*Ipomoea aquatica*) Forsskal;
D. parrot's feather (*Myriophyllum aquaticum*) (da Conceicao Vellozo) Verdcourt;
E. nonnative waterlilies (*Nymphaea spp.)* Linnaeus, or any variety, hybrid, or cultivar thereof
Native Minnesota waterlilies are: Nymphaea odorata Aiton subsp. odorata Aiton, N. leibergii Morong, and N. odorata Aiton subsp. tuberosa (Paine) Wiersema & Hellquist; and
F. yellow iris or yellow flag (*Iris pseudacorus*) Linnaeus.

Subp. 3. Fish.
A. alewife (*Alosa pseudoharengus*) Wilson;
B. common carp, koi (*Cyprinus carpio*) Linnaeus;
C. goldfish (*Carassius auratus*) Linnaeus;
D. rainbow smelt (*Osmerus mordax*) Mitchell; and
E. tilapia (*Tilapia, Oneochromis, Sartheradon spp*.).

Subp. 5. Invertebrates. The following invertebrates are designated as regulated invasive species:
A. Chinese mystery snail,
B. Japanese trap door snail (C*ipangopaludina* spp.) Hannibal;
C. rusty crayfish (*Orconectes rusticus*) Girard; and
D. spiny water flea (*Bythotrephes cederstroemi*) Scho