WATERCRAFT
INSPECTION MANUAL

DEPARTMENT OF NATURAL RESOURCES

AQUATIC INVASIVE SPECIES AND THE WATERCRAFT INSPECTION PROGRAM

What is the purpose of this Aquatic Invasive Species (AIS) Watercraft Inspection Manual?

This manual outlines standard watercraft inspection and decontamination procedures and protocols to prevent the spread of aquatic invasive species in Minnesota by Authorized Inspectors. The procedures and protocols in this manual apply to trailered watercraft and water-related equipment of any kind.

Who should use this manual? DNR staff and LGU staff trained annually by the Department of Natural Resources

Watercraft Inspection Manual developed by:

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DEPARTMENT OF NATURAL RESOURCES

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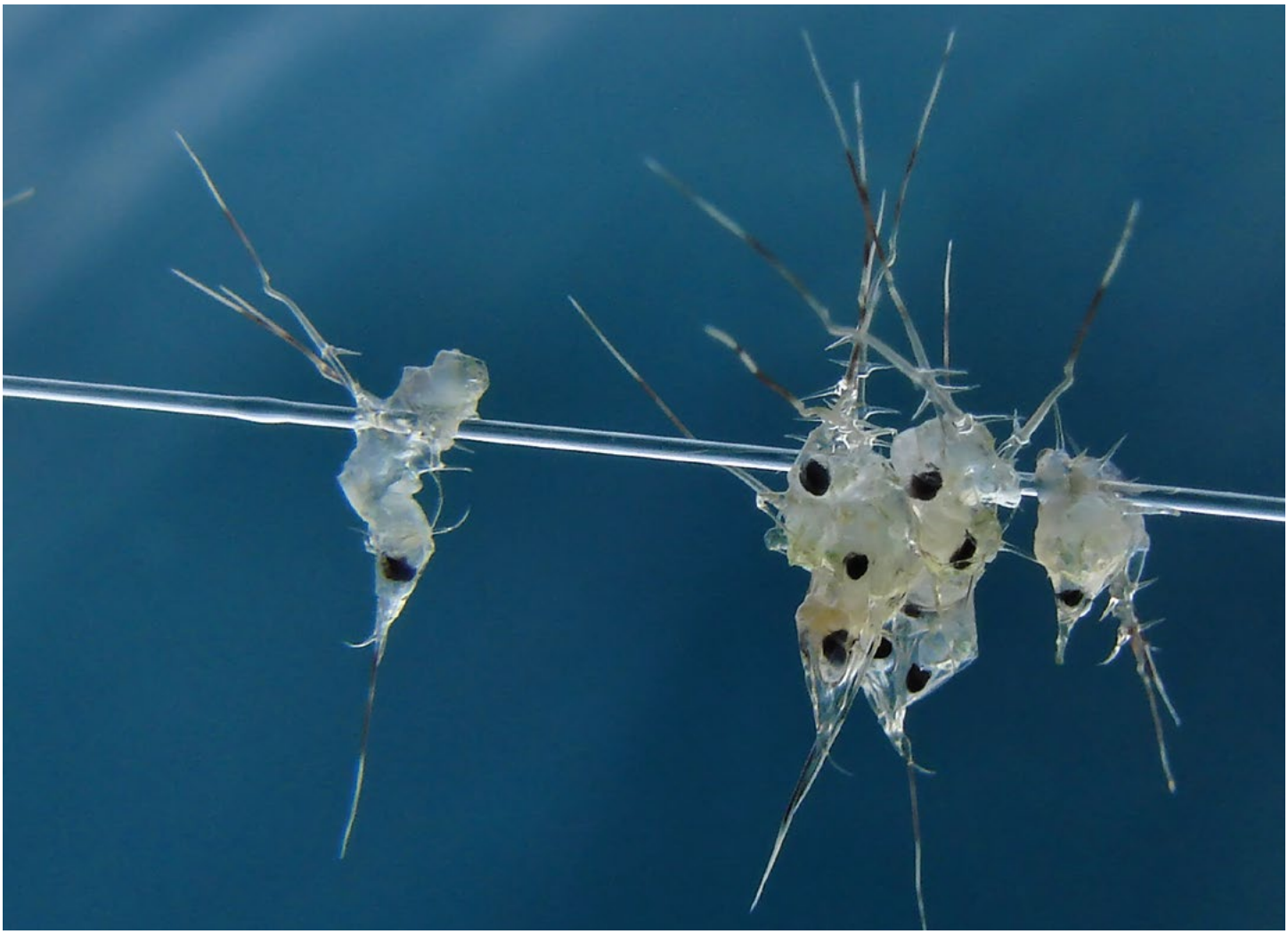


Spiny waterfleas attached to fishing line. Photo credit: © Jeff Gunderson, Minnesota Sea Grant

Section 1: Introduction

Aquatic Invasive Species and the Watercraft Inspection Program

What are Aquatic Invasive Species (AIS)?

According to state statutes, "Invasive Species" means a non-native species that:

- Causes or may cause economic or environmental harm or harm to human health; or
- threatens or may threaten natural resources or the use of natural resources in the state.

AIS 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 can 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 by predators, parasites, pathogens, and competitors. However, when they are transported to a new environment that doesn't have those natural checks and the species have other strong survival attributes, these plants and animals have an advantage over native species, making them very difficult to control.

Purpose and History of the Watercraft Inspection Program

The goal of the program is to prevent the spread of invasive species in Minnesota through watercraft user education, watercraft inspections and watercraft decontaminations at water accesses.

The Watercraft Inspection Program was created in 1992 in response to legislation proposed by the DNR, MN Lakes Association and angling groups. In 2011, legislation aimed at strengthening Minnesota's ability to prevent the spread of AIS was signed into law. As a result of this legislation, the DNR can give watercraft inspectors new authority. With these new authorities inspectors and any licensed peace officer can do visual and tactile inspections of water related equipment.

Minnesota statute 84D.01 Subd. 8c defines "inspector" as an:

1. individual trained and authorized by the commissioner to inspect water related equipment; or
2. conservation officer or licensed peace officer.

Minnesota statute 84D.01 Subd. 8b defines "INSPECT" as:

1. examine water-related equipment to determine whether aquatic invasive species, aquatic plants, or water is present
2. and includes removal, drainage, decontamination, or treatment to prevent the transportation and spread of aquatic invasive species, aquatic plants, and water.

An Introduction to Watercraft Inspection: Your Role as an Inspector

Your role as a watercraft inspector is to educate watercraft users about the impacts of aquatic invasive species and how to thoroughly inspect their watercraft. You play a key role in changing the behavior of watercraft users by helping to create new behaviors of checking for AIS each and every time they enter and leave a public water access. An inspector will not be present for every watercraft launched in the state, so it's important that everyone learns the proper steps from each of you. A majority of watercraft users follow Minnesota's laws and you can reinforce these positive behaviors by thanking them for taking the time to help prevent the spread of AIS.

Priorities for Watercraft Inspections

As a watercraft inspector, it is your responsibility to:

- **Ensure personal and public safety**
  Your safety and the safety of the public is your top priority at all times. Many vehicles and boats will be moving around the inspection area. People will be looking under trailers and all around watercraft.

SAFETY MESSAGE: Make every effort to ensure the safety of all involved during the inspection process.

- **Educate the public**
  Every contact you make with the public must educate them about the importance of preventing the spread of aquatic invasive species. Explain what watercraft users need to do each time they use their watercraft, regardless of what waters they are leaving. Inspectors and watercraft users should look for the following:

  1. plants
  2 invasive animals
  3. water
  4. mud

Impress upon them that they have a lot to lose if they do not assist in this effort, both in terms of recreation opportunities (fishing, and swimming) and penalties for violating state laws. The education message is:

CLEAN-DRAIN-DISPOSE

Clean aquatic plants and prohibited invasive species from watercraft.

Drain lake or river water from all equipment and keep drain plugs out during transport.

Dispose of unwanted bait in the trash, not in the water.

Recommended additional action:
Dry—their boat for five days or more before launching in other waters

- **Perform watercraft inspections**
  Occasionally you will be inspecting a large number of watercraft quickly in order to avoid traffic build-up and watercraft user frustration at the inspection site. While doing this, you must ensure that you perform inspections the same way each time and are thorough enough to assess the risk of watercraft and all water-related equipment. There is a wide range of risks associated with different types of watercraft and water-related equipment. (See table on page 12.)

- **Decontamination**
  While conducting inspections it will also be your job to determine if a watercraft requires decontamination. "Decontaminate" means to wash, drain, dry, or thermally or otherwise treat water-related equipment in order to remove or destroy aquatic invasive species. (See page 26 for detailed information.)

- **Law Enforcement Assistance**
  In some instances, such as when a watercraft has launched against your recommendation, you should request the assistance of law enforcement personnel to assist with the situation.

Section 2: Watercraft Types and Other Accessories

There are many boat types you will encounter in the field, but the survey you will use only has a limited number of options. This section will teach you about the most common types of watercraft you will encounter.

Runabout

Used for water sports, cruising and fishing. Runabouts are powerboats that are typically powered by a sterndrive (inboard-outboard) motor. Runabouts do not have ballast tanks.

Wakesport Boat

These watercraft are equipped with ballast tanks and typically have an inboard motor. They usually have a tower that attaches to both sides of the vessel and has attached storage racks for wakeboards, or water skis. These watercraft contain at least one hard or soft tank located underneath the deck which hold large amounts of water in order to make the watercraft heavier as it moves through the water, which generates larger wakes. Wakesport boats have a series of thru-hull fittings along the hull that discharge ballast water.

Fishing Boat

They will have live wells or baitwells inside. They are “V” hulled and usually have an outboard motor. Brand examples include: Lund, Crestliner, Ranger, Stratos, Alumacraft, Nitro, Skeeter, Tuffy, Smoker Craft, Yar-Craft, Triton, Tracker.

Jon Boat

Will have a flat bottom. Often times they are a drab color, like olive green. Jon boats are simple boats that typically have few internal compartments, if any.

SAFETY MESSAGE:

When approaching watercraft be aware of where they are parked, and if they’re properly trailered. Be sure the watercraft and trailer are not in danger of tipping.

Personal Watercraft (PWC)

Built for one, two or three people and are 9 to 14 ft long. They have a jet propulsion system.

Pontoon

Typically a flat decked vessel that floats and balances by means of two or three large, closed cylinders that are mounted lengthwise.

Note: plugs should not be removed from the cylinders.

Boat Lift or Similar

A tube-framed device that sits next to a dock and is used to raise or lower a boat into or out of the water.

Canoe

A canoe is a long narrow boat that is moved by paddles with a single blade.

Cabin Cruiser

A cabin cruiser is a type of watercraft that provides accommodation for people inside the structure. These watercraft are complex and may contain tanks for potable (not lake) water, toilets (heads), and air conditioning systems.

Photo credit: Skipp LaJoy

Kayak or Similar

A kayak is a narrow boat occupied by one, two or three people that is moved by paddles with two blades.

Sailboat

Watercraft likely to have a keel or keel box, mast, sail, more rounded hull, rudder, and possibly ballast tanks.

LSP Transport Barge or Pontoon

Lake Service Providers will use a flat-topped boat to transport docks and lifts across the lake. They are usually a modified pontoon with the seating and safety rails removed. They will have a steering column and captain's seat with little else. These may have a crane attached or other equipment on board to lift the equipment onto the boat.

Other Accessories

Anchor

Heavy weight attached to a line; used to hold boat in place.

Bait bucket

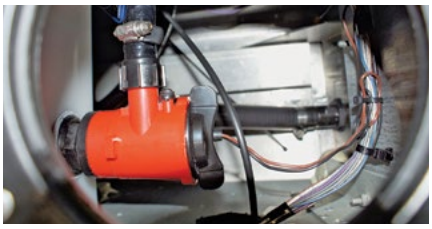
Bucket or other container used to hold water in order to keep minnows or leeches alive while fishing. Typically made from plastic and yellow in color, these devices have a hinged door to prevent the escape of the angler's bait while fishing.

Bait well

Very similar to live well. Can be round and hold a removable bait bucket.

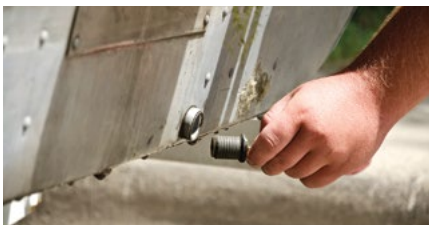
Ballast tanks

Found on Wakesport Boats. Multiple thru-hull fittings normally indicate the presence of ballast tanks. These carry water to make the watercraft heavier, which creates a larger wake.



Bilge

Normally in the back of the watercraft, at the lowest point. Owner can turn a pump on to discharge water.



Bilge plug

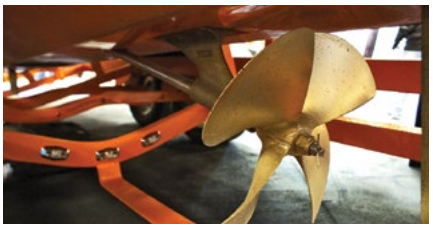
The bilge plug, located on the transom, is used to drain water that has collected in a watercraft's lowest spaces such as the hull and bilge area.

Downrigger

A device used while fishing with the trolling method. A downrigger consists of a pole with a weight connected to a steel cable set at a certain depth. A clip, also known as a "release" attaches the weighted cable to a separate fishing line with the bait or lure.

Gimbal area

Attaches to the transom providing pivoted support to move the lower unit up and down and side to side on sterndrive watercraft.



Inboard motor

The engine block is located inside the watercraft and the drive shaft and propeller is under the hull of the watercraft.

Jet engine

Water is drawn up from under the boat into a pump and a jet of water is ejected from a nozzle at the stern to propel the watercraft.

Live wells

Used to keep fish alive while on the water body. Likely to be plastic lined storage areas with a drain plug.

Outboard motor

The propulsion system is attached to the outside of the transom. An outboard is used for motion as well as steering.

Portable hydraulic pontoon lifts

Hydraulic legs attached underneath pontoon boats that allow the pontoon to be lifted out of the water and adjusted to sit stably. Due to their location underneath the pontoon, please exercise safety when inspecting. Portable hydraulic pontoon lifts are not included in the 21 day dry law for boat lifts.

Shallow water anchor

Mounted at the stern (back) of the watercraft, this housing contains a fiberglass rod which is lowered into shallow water and pierces the lake bed in order to anchor the watercraft in place. Used primarily by bass fisherman.

Sterndrive motor; also known as inboard-outboard (I/O)

The propulsion system is located inside the watercraft and provides power to the lower unit located on the outside of the transom.

Transducer

An electronic sensing device that provides data for a depth finder.

Transom

Located at the back of a watercraft. The transom is the flat section that connects the two sides of the hull together. The transom is the location for the bilge plug, attachments and the propulsion system.

Trim tabs

Small surfaces (shelves) that are connected to the transom on a boat. They are hydraulically powered and are used to level the vessel laterally while traveling through the water.

Trolling motor

Usually consists of a self-contained unit that includes an electric motor, propeller and controls, and is affixed to an angler's boat, either at the bow or stern. MinnKota is a brand typically found in Minnesota.

Section 3: Watercraft Inspection Protocols/Procedures

Watercraft Inspector Authorities

- Inspectors are required to pass annual training by a DNR appointed trainer to maintain inspection authority.
  - This authority can be removed at any time, for any reason.
- Compliance with inspections is a requirement of all watercraft users who operate or transport water-related equipment.
  - Watercraft users are required to submit to an inspection, but are not required to answer any survey questions.
- Inspectors inspect water related equipment to determine if plants, invasive animals, or water is present.
  - If any of these are found, educate the watercraft user (based on the manual) on how to bring the watercraft back to compliance.
- Inspectors are authorized to look at and touch water-related equipment during an inspection, but do not enter watercraft unless they have received permission from the user. Very few inspections require entering a watercraft, and many tasks can be performed with the assistance of the watercraft user.

Water-related equipment includes boats, watercraft, docks, boat lifts, rafts, trailers, and other associated equipment. See page 52 for the complete definition.

Type of Water-Related Equipment	Risk Level
• Moored boats, boat lifts, docks, weed rollers	**High Risk** Possible adult mussels attached
• Ski and wakesport boats with ballast tanks • Sailboats with ballast tanks • Fishing boats with livewells	**Medium to High Risk** Veligers of zebra mussels in water, plants, and plants with zebra mussels or other aquatic animals on trailers
• Smaller open boats with outboard motors (no livewells, no ballast tanks) • Personal watercraft (PWC, Jet Skis)	**Medium Risk** Adults and veligers unlikely, plants with animal species attached may be on trailers
• Hand-launched craft: canoes, kayaks, belly boats, inflatables	**Low Risk** Educate and inspect if workload permits, if dirty from being moored may be risky

Watercraft Inspector Authorities continued...

- **Inspectors should never open internal compartments without direct permission to do so.** Always ask the boater to open live wells or other closed compartments, and explain that you are looking for the presence of water or AIS.

- Inspectors have authority to deny launch under certain circumstances (see below).

Inspecting "Water Related Equipment"

Inspect all equipment that has the possibility to contain or transport invasive animals, aquatic plants, or water. **When inspecting interior compartments ALWAYS ask the boater to open closed compartments, and explain why you are checking.**

Reasons to Deny Launch

Inspectors should only deny launch as a last resort. When denying a watercraft from launching at an access, do not physically stop any user from launching. Safety of the inspector and access users is always the first priority. Inspectors are encouraged to contact law enforcement if the situation escalates. The following is a list of reasons to deny launch:

- A watercraft has plants or invasive animals attached and the watercraft cannot be completely cleaned at the access prior to launching.
- The boat arrived with the drain plug "in", and water is found in that compartment. The inspector should follow up with the watercraft user and have them drain any water at a location away from the ramp, or provide a sponge to remove any water. Launch is allowed after a re-inspection of watercraft by the inspector.
- A watercraft operator declines any part of the inspection process. If this occurs, explain that a visual and tactile inspection is required before they can lunch, submitting to an inspection is the quickest way for them to continue on to the water. If needed, inform them that they are not required to answer the questions.
- The inspector detects the presence of a live well, bait well, or other compartment that may contain water, and the user refuses to demonstrate that the area has been properly drained.

Setting Up at the Access

Ideally, watercraft inspections, draining, and decontamination should be located in the same general area. There should be clear control points so that boats can be prevented from launching or leaving until they have been through the inspection and/or decontamination process. When arriving at an access, an authorized inspector will do the following:

1. Locate a safe and legal place to park.
2. Determine where your inspection station will be (these may be pre-assigned).
   a. Public water access inspection sites should be set up near the launch area; be sure to choose a safe location that avoids traffic congestion.
3. Post the "Stop Aquatic Hitchhikers" banner, or other identifying signs.
4. Finish setting up your equipment (tablet, chair or other items etc.).
5. **Verify the date and case number** for the access you are working.

Speaking with Watercraft Users: Initiating Contact and Starting the Inspection

As you approach the vehicle, begin entering inspection information into your hand-held device. Be sure to enter the correct case number for the access you are working. Detailed information on survey completion is listed on page 33.

As the vehicle approaches wait for them to stop. Greet the watercraft user, identify yourself and the organization you work for, and let them know what you're doing.

SAFETY MESSAGE: If they haven't done so already, you must ask the driver to turn off the engine and set the parking brake. It is critical to prevent boats or trailers from rolling as you will be looking under and behind them. If the boater stops in a location at the access other than your preferred location, they are not in violation. Walk to the vehicle to perform the inspection where they have stopped.

Remember that a primary goal is education, so ask the watercraft user to assist you with the inspection process.

Speaking with the public can be intimidating. Having a script and preparing a message can help you feel comfortable when speaking with watercraft users and will help guide you through the inspection process.

Each inspector will develop their own style of talking with watercraft users, but each inspection should include the following points:

1. Greet all watercraft users in a friendly and professional manner
2. Introduce yourself, identify your organization, and let them know what you're doing. Example: "Hi, I'm _(name)__ with the _(organization)____Watercraft Inspection Program, and I'm out here today educating watercraft users and performing inspections for aquatic invasive species, plants, and water as required by state law. Our purpose for being out here is to prevent aquatic invasive species from spreading, and to educate watercraft users how to conduct a thorough inspection."
3. Ask them to join you in an inspection of their watercraft and equipment. Be sure to teach them tips on how to conduct their own inspection throughout the process.
4. During the inspection ask the appropriate questions within the DNR survey. If they are reluctant to answer your questions continue on with your inspection as normal. Watercraft users are not required to answer any survey questions. Don't take it personally. It may be helpful to explain why you are asking questions to help put them at ease. Detailed information about the survey questions starts on page 28.
5. During the inspection continue to talk about AIS prevention and point out the various places to look.
6. Give them your final message, ("Remember Clean/Drain/Dispose") and thank them for their time.

Watercraft Inspection Checklist

- Always wear your identifying uniform.
- Be courteous, professional, and friendly at all times.
- Always introduce yourself and your organization.
- Conduct the watercraft inspection with the assistance of the watercraft user(s).
- Tell the watercraft user about AIS prevention, relevant laws, and the inspection process. Education is important!
- Share the primary education message, Clean/Drain/Dispose, and explain that it is important to always arrive and leave with their watercraft and gear cleaned and drained.

When Speaking with Boaters:

- Focus on teaching them about our inspection process. You will be recording lots of observational data which will be evaluated at the end of the season but don't let the survey be the main focus.
- Stay professional at all times. If the conversation becomes opinionated, keep those thoughts to yourself.
- If the boater becomes confrontational, disengage, and remove yourself from the situation.
- Do not engage in confrontation of any kind.
- Be systematic and complete inspections in a timely manner. We don't want to delay boaters unnecessarily.

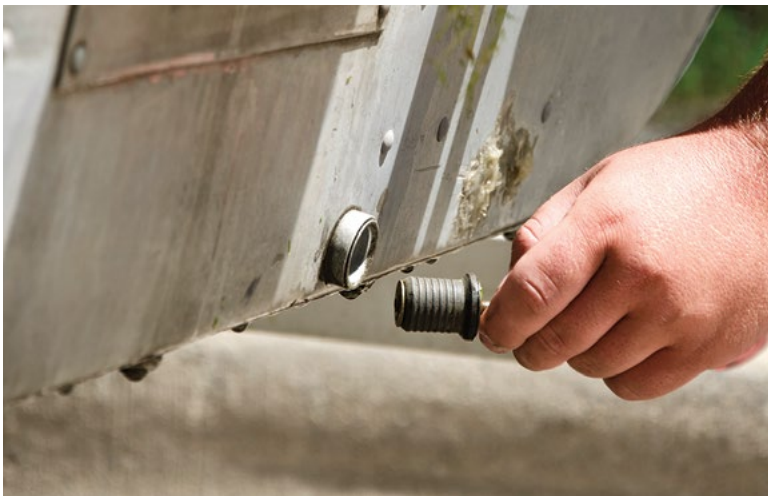
Watercraft Inspection Protocol

The inspection process includes a thorough and complete visual and physical inspection. The time it will take to complete an inspection will vary greatly depending on the type and complexity of the equipment. An inspection should range from three to 10 minutes; more in extreme circumstances. The goal of the inspection is to ensure water-related equipment is clean (free of AIS) anytime it enters or exits a water body.

The following sections will describe the protocols for inspecting watercraft entering or exiting waterbodies. The steps for both inspections are largely the same and the sections will appear repetitive. These sections will also serve as handy guides while in the field to review each type individually. As an inspector you will also be responsible for collecting accurate survey information during the inspection; this will be covered in a later section.

During an inspection look for:

1. Water in live wells, bilges, bait buckets, ballast tanks, engine/motor.
2. Invasive aquatic animals such as zebra mussels, spiny waterflea, faucet snails.
3. Aquatic plants of all kinds. Other AIS, like zebra mussels, often attach to plants.
4. Mud possibly hiding AIS.



How to Inspect an Entering Watercraft

Step 1: Check all drain plugs and ensure the watercraft is drained.

a. Under state law water related equipment must be transported with all drain plugs removed (or in "open" position) before transporting the watercraft on public roads. If they are out, remind the watercraft user to install them before launching. Proceed with the inspection.

b. If any are in, but no water is present, remind the watercraft user of the law (see page 52) and proceed with inspection. If the access is busy the watercraft user may have placed their plug(s) into the watercraft. This is alright as long as they state that their plug(s) were out when they arrived at the access. You will still need to verify that there is no water present.

c. If any are in and water is present, instruct the following:
   - Instruct the watercraft user to drain remaining water at a location that is far enough away from the waterbody to ensure that it does not flow into the waterbody. Start a new inspection when they return from draining. Deny launch if they refuse to follow these procedures.

If the water body is infested, let them know what it is infested with. "Zebra mussels/Eurasian watermilfoil/spiny waterflea are in this lake/river." The public can find out whether or not a water body is infested by:

- Looking for an orange infested waters sign posted at the access.
- Looking on the DNR Infested Waters List, **dnr.state.mn.us/invasives/ais/infested.html** (updated quarterly).
- Calling a DNR office and speaking with an invasive species employee.

Step 2: Inspect the exterior of the watercraft and trailer.

As you begin the visual and tactile inspection, it is important to educate the watercraft user. Explain what AIS are and their impacts such as: aquatic invasive species are plants or animals that come from other places and cause problems for Minnesota's waters, recreation, and economy. You will also be explaining what you are doing, and what to look for, so that they can inspect their own watercraft. Look the watercraft over and feel the hull with the watercraft user. Both of you should feel the ridges, seams, and recessed bolts of the craft. The young mussels may feel like bumps or sandpaper on the watercraft. If you or the watercraft user feels a rough spot be sure to investigate closer. A magnifying glass can be a helpful tool to determine if these rough spots are young attached mussels.

a. Start the inspection at the trailer winch post on the driver's side. Use the following steps to work your way completely around the watercraft.
   - Look and feel for zebra mussels, snails, spiny waterfleas, aquatic plants, and other species that may be attached to the hull. You are focusing your effort at and below the waterline.

b. Check rollers and trailer bunks as you work your way around the watercraft for attached plants or other AIS.
   - Removing all plants eliminates the need to identify specific species.
   - Talk about aquatic invasive plants and the problems they can cause. Information about AIS present in Minnesota can be found starting on page 38.

c. When you get to the trailer fender, look at the axle. Use your flashlight and mirror to check hard to see places, including the opposite side of axle for plants.

- Aquatic plants are likely to attach to these hard to see areas.
- Also check license plates and taillight wires.

d. At the transom of the watercraft, look closely at the lower unit, intake, trim tabs, transducers, and motor parts that would be below the waterline.
   - Use your mirror and/or flashlight to view hard to inspect areas.
   - Run your hand over the hull below the waterline and touch the transom to ensure there are no tiny zebra mussels attached.
     - Educate the boater about the problems zebra mussels can cause.

Step 3: Inspect the interior of the watercraft

a. Ask the watercraft user to show you any equipment that has contacted the water. Check for plants, snails, mussels, waterfleas, and mud.
   - Spiny waterfleas are likely to collect on anchor lines, fishing lines, and downriggers.
   - Check waterfowl decoy lines and anchors for plant material.
   - Check anchors and anchor ropes for mud. Small AIS such as zebra mussels or starry stonewort bulbils could be present in the mud.

b. Ask the watercraft user to open the live well(s), baitwell(s), and bilge area. Verify these areas have been drained.
   - Never enter a watercraft without the express permission from the boater to do so.

What to do if you find something:
If aquatic plants, mussels, or sandpapery bumps are found on either the watercraft or the trailer, refer to “Reasons to Deny Launch” on page 12.

SAFETY MESSAGE:

- Watch for sharp objects or splinters whenever touching watercraft. Wear and tear can sometimes create sharp surfaces.
- Keep an eye out for pinch points when inspecting trailers and motors.

Did you know?

A small fragment of Eurasian milfoil a few inches long can survive several days out of water and infest another lake.

How to Inspect an Exiting Watercraft

Step 1: Remind the watercraft user to remove all drain plugs. This will allow all compartments to drain; they do not have to be fully drained before leaving. Plugs must remain out during transport on public roadways. **It's the law!**

Step 2: Drain the lower unit on outboard or sterndrive (I/O) motors and allow them to drain completely.

a. Lower the motor or lower unit to the run position.

b. Tell the watercraft user when to stop lowering the motor to prevent it hitting the ground.

c. After draining, remind them to raise the motor before transporting to prevent damage.

Step 3: Have the watercraft user drain all bait buckets, if present.

a. This water must be drained. **It's the law!**
- They can refill the bait bucket with tap or bottled water if they want to keep their bait.

Step 4: Inspect the exterior of the watercraft and trailer.

a. Start the inspection at the trailer winch post on the driver's side. Use the following steps to work your way completely around the watercraft.
- Look and feel for zebra mussels, snails, spiny waterfleas, aquatic plants, sandpapery bumps and other species that may be attached to the hull. You are focusing your effort at and below the waterline.

b. Check rollers and trailer bunks as you work your way around the watercraft for attached plants or other AIS.
- Removing all plants eliminates the need to identify specific species. Remind them to remove all AIS and vegetation before transporting the watercraft. **It's the law!**
- Talk about aquatic invasive plants and the problems they can cause.

c. When you get to the trailer fender, look at the axle. Use your flashlight and mirror to check hard to see places, including the opposite side of axle for plants.
- Aquatic plants are likely to attach to these hard to see areas.
- Also check license plates and taillight wires.

d. At the transom of the watercraft, **look closely at the lower unit**, intakes, trim tabs, transducers, and motor parts that would be below the waterline.
- Use your mirror and/or flashlight to view hard to inspect areas.
- Run your hand over the hull below the waterline and touch the transom to ensure there are no tiny zebra mussels attached.

Step 5: Inspect the interior of the watercraft.

a. Ask the watercraft user to show you any equipment that has contacted the water. Check for plants, snails, mussels, waterfleas, and mud.
   - Spiny waterfleas are likely to collect on anchor lines, fishing lines, and downriggers.
   - Check waterfowl decoy lines and anchors for plant material.
   - Check anchors and anchor ropes for mud. Small AIS such as zebra mussels or starry stonewort bulbils could be present in the mud.

b. Ask the watercraft user to open the live well(s), baitwell(s), and bilge area. Verify these areas are draining by removing all drain plugs.
   - Never enter a watercraft without the express permission from the boater to do so.

After the inspection, if aquatic plants or AIS are removable by hand, complete the removal and allow the watercraft user to leave. If aquatic plants, mussels, or sandpapery bumps are found that are not removable by hand, let them know the watercraft must be decontaminated prior to launching anywhere. Send the watercraft to decontaminate at the access, if available, or give them a permit to decontaminate at another location of their choosing, if no unit is present on site.

SAFETY MESSAGE:

- Be sure the watercraft and trailer are not in danger of tipping.
- Watch for sharp objects or splinters whenever touching watercraft. Wear and tear can sometimes create sharp surfaces.
- Keep an eye out for pinch points when inspecting trailers and motors.
- Keep your safety in mind and always distance yourself from conflict and violent situations. Never encourage confrontation even if you feel very strongly about a subject. You are there as an educator, not an enforcer.
- If your safety is in jeopardy, leave the launch site and contact enforcement. If any safety issues arise at an access, contact your supervisor immediately.

Spiny waterfleas attached to fishing line.
Photo credit: © Jeff Gunderson, Minnesota Sea Grant

Did you know?

Zebra mussels and other invasive species can attach to aquatic plants.

Section 4: Best Management Practices—Helping Boaters Go Above and Beyond

It is important to remember that as a watercraft inspector, the most important task is educating the public. As an inspector, you can educate boaters on ways to go above and beyond what is legally required to further reduce the risk of spreading AIS.

Acknowledging the behaviors of compliant boaters, while creating new habits of checking for AIS each and every time they enter and leave a water body is the primary goal of this program. Many lakes and rivers in the state will not have inspectors, and the public will need the knowledge of how to properly inspect their watercraft.

Education and Outreach

Working with watercraft users is integral to your work. Watercraft users and other people may be curious about the inspection or decontamination process. Encourage them to ask questions, but make sure they do it from a safe location. It is important that you explain the inspection process and answer any questions the watercraft users may have.

In working with watercraft users, you can help them adopt good habits such as self-inspection or watercraft decontamination. The DNR is using Community-Based Social Marketing (CBSM) to prevent the introduction and spread of AIS. CBSM is a social science approach to foster sustainable, environmentally beneficial behaviors over the long term. Behavioral science tells us there is often a gap between intention and action. Just because people intend or know they should do something, doesn't mean they always follow through (e.g. how often your dentist suggests that you floss your teeth, vs. how often you actually do). Here are some CBSM results and strategies that you can use to help promote the adoption and consistent practice of desirable AIS prevention behaviors, such as self-inspection or watercraft decontamination.

In a 2019 DNR survey of licensed anglers in Minnesota (N =1,612), when asked "What would prevent you from cleaning and draining your boat and trailer when leaving a lake or river?" the highest ranked response selected (27%) was "I don't have the tools/equipment I need." When asked what would motivate them to take action, the top three responses were "Having access to running water" (63%), "Knowing I am helping prevent the spread of AIS" (60%), and "Having a staffed decontamination unit available" (52%). Finally, anglers prefer to receive AIS information at boat launches (66%), trust the Minnesota DNR for AIS information (92%), and believe preventing the spread is the right thing to do (94%).

Results from a 2020 DNR survey of registered watercraft owners in Minnesota were similar (N = 2,893; weighted average). When asked "Which of the following are most important to have at a public boat launch," 20% selected "Tools for cleaning weeds and aquatic invasive species." Additionally, most (77%) recreational boaters say they are willing to spend 30 minutes or less decontaminating their boat if a free unit is offered.

You can use these results in your day-to-day work to promote self-inspection and decontamination because:

- Boaters want and need your services. They want to prevent the spread of AIS, and you can help educate them on how to take necessary actions.
- The protocols you follow are from a highly trusted source, the DNR.
- You remove the "lack of tools" barrier by providing assistance with the inspection process.
- You provide AIS information where boaters prefer to receive it.

Gathering Commitments

Another strategy that you can use is gathering commitments. Commitments are an essential tool used in a majority of behavior change programs. Social science studies show time and again that when people make a commitment to do something, they are more likely to follow through. Simply asking "can I count on you to inspect your watercraft before your next launch?" can influence boater behavior positively.

You are a trusted messenger providing needed AIS prevention services at locations where boaters prefer to receive information. Your job plays a critical role in helping boaters adopt and consistently practice desired AIS prevention behaviors.

Exterior Inspection Tips

During your inspection, educate boaters about where to check during their own inspection. Common places to inspect are:

- Trailers hauling water-related equipment;
- Watercraft hull;
- Motors and engines, including trolling motors, propellers, and motor mounts;
- Transom, including trim tabs, transducer, intakes, and boat plugs;
- Closely inspect portable hydraulic boat lifts if present on pontoons (see definition on page 9).

Young zebra mussels found on hull of watercraft.

Teach boaters to examine each piece of equipment and feel for bumps that may indicate the presence of young zebra mussels. Carefully check the rear of watercraft, including intakes, upper and lower motor areas, and the propeller. Trailers also can 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 and invasive species.

Pay particular attention to the undersides of lifts and docks where zebra or quagga mussels are commonly found. A mirror can help by allowing you to see in locations you may otherwise miss. In addition, portions of boat lifts and docks that contact the sediment should receive additional attention as these areas commonly pick up bottom material from the lake or river while the equipment is in the water.

Interior Inspection Tips

Teach boaters that the interior of all water-related equipment needs to be inspected for the presence of invasive species and residual water before transporting.

Below is a list of common equipment and areas to inspect:

- Live wells and baitwells
- Bilge area near back of the watercraft
- Hard and soft ballast tanks
- Lines (ropes) and anchors
- Storage areas
- Fenders
- Fishing equipment

Tips for Draining

- Drain plugs must be removed and bailers, valves, or other devices used to control the draining of water from ballast tanks, bilges, and live/baitwells must be opened while transporting water-related equipment.
- Water can drain from water-related equipment as it is leaving a water access.
- Pontoons are air holding compartments and not intended to hold water. Plugs do not need to be removed from them when they are transported, unless they are damaged and contain water.
- If water is found during an entering inspection, and the plugs are in place, the water should be drained. The watercraft needs to drain the water at a location that is far enough away from the lake to ensure that it does not flow back into the lake. You should determine the best location to drain watercraft at the start of your shift.
- If the bilge area of a watercraft cannot be visually inspected, bilge pumps should be activated to determine if there is any water present. Similarly, if the watercraft has a ballast tank (such as on wake sport boats), the watercraft user should remove the plug and drain all water or activate the ballast tank pump until no water is expelled.
- Sponges or towels are helpful tools to use if residual water is found in any areas that cannot be drained. Decontamination can help treat this water.

Tips for Working at Accesses with Inspection Tools

- Some accesses are equipped with stations that provide tools to help watercraft users inspect their watercraft, and remove plants, invasive animals, and water. If you work at these accesses always teach boaters about the stations, and encourage their use.

Water draining from a lower unit

Engine Inspection Tips

Watercraft engines use raw water in some parts of their cooling system. Raw water is lake or river water that is pulled into the engine through intakes, and some of this water can remain inside the engine when it is turned off. Below are some tips for draining these systems; these steps are not legally required, but are helpful in further reducing the risk of spreading AIS.

Outboard motors:

Outboard motors are self-contained propulsion systems attached to the transom of a watercraft. You will typically encounter these motors in the “up” position and ready for transport when the watercraft is on a trailer. Water may remain trapped inside the lower unit when in this position. During inspections instruct the boater to lower the motor to the vertical position to allow any residual water to drain. Do not touch the motor or surrounding areas while the boater is raising or lowering the motor and watch the motor to ensure it does not come into contact with the ground. Once residual water stops dripping out (there may not be any) instruct the boater to raise the engine back to the “up” position. It is possible for some watercraft to have multiple outboard motors. Smaller outboards, called kickers, can be drained by following the same steps.

Stern Drive or Inboard-Outboard (I/O) motors:

Stern drive motors look similar to outboard motors. The engine is located inside the watercraft, with the lower unit extending through the transom. The lower unit of stern drive engines can contain residual water and can be lowered in the same manner as outboards. Instruct the owner to lower the motor to the vertical run position to allow any water to drain. Do not touch the motor or surrounding areas while the boater is raising or lowering the motor and watch to ensure it does not come into contact with the ground. Once residual water stops dripping out (there may not be any) instruct the boater to raise the engine back to the "up" position.

Jet-drive motors:

This type of propulsion system is most commonly found on personal watercraft, and less commonly on larger watercraft. This type of system consists of an engine inside the watercraft and uses a high speed pump to pull water in through an intake grate, and expel it at a high velocity out through an adjustable nozzle. In order to remove trapped residual water, instruct the boat/personal watercraft owner to start the jet-ski and run the engine for five seconds or less. The boater should rev the engine during this process, which will expel water from the engine, and the motor can then be shut off. Starting engines out of water can raise damage concerns of watercraft users. The process explained here follows similar instructions contained within operator manuals when describing how to flush jet-drive motors with fresh water.

Inboard engines (direct drive and V-drive):

Inboard engines are located entirely within the watercraft, with only a propeller shaft and propeller extending outside the watercraft, typically located underneath the hull. While this engine type also contains residual water, removing this water is difficult. The best way to treat this water is by conducting an engine decontamination. If boaters are going to be placing the watercraft in another body of water within 24-48 hours you can help them find a decontamination unit nearby. This is an optional way for boaters to go above and beyond to further reduce the risk of spreading AIS but is not required. Do not start these engines out of the water.

Trolling motors:

Trolling motors are small, electrically powered motors located near the bow, or on the transom of some watercraft. During your inspection pay close attention to the propeller areas of trolling motors since it is possible vegetation is wrapped around them.

A trolling motor attached to the bow of a watercraft.

Section 5: Inspecting Lake Service Providers (LSP)

Who are Lake Service Providers?

Lake service providers are businesses that are hired to install, remove, decontaminate or rent/lease water-related equipment in Minnesota waters. Common examples are dock and lift installers, marinas, watercraft hauling/storage, irrigators, resorts and outfitters. LSPs come in a wide variety of business types, sizes and locations ranging from a large marina with lots of staff, equipment, trucks and trailers to a small dock installation company with a few seasonal staff and a couple of trucks with trailers. LSPs must have an owner or manager complete permit training and obtain a permit from the DNR every three years. Their staff must also complete online employee certificate training every three years.

Partnering with LSPs

As watercraft inspectors you have a unique relationship with LSPs. Depending on what accesses you are assigned and what businesses use those accesses, you may work with LSP employees daily.

Lake service providers have varying experience with watercraft inspectors depending on what lakes and rivers they work on and if they use public accesses. As an example, a lawn irrigation company generally sends staff to each home owner's property to install pumps and hoses from the water to the lawn. In this case they don't need to use a public access and don't usually interact with inspectors. Another example is a watercraft repair business located away from the water.

This business will need to use the public access and will have frequent interactions with inspectors. It's good to get to know the lake service provider businesses in your area—the ones that you may see daily and the ones that may show up just occasionally.

At permit training, lake service provider business owners and managers are introduced to the role of watercraft inspectors and told what to expect from you. However, if they aren't used to interacting with inspectors, or have new staff who aren't used to inspections, you may need to work with them to help them learn the inspection process. Those of you working with LSPs have the unique opportunity to help them better understand the law when needed but to also build the relationship between authorized inspectors and local businesses to help lower the risk of spreading AIS.

LSP Requirements

1. Follow AIS laws and go through inspections like all other citizens using public accesses.
2. Carry a signed copy of their permit with them and their employees when doing work.
3. Display a permit sticker in the lower left of the windshield on each vehicle hauling water-related equipment.

example permit, which should be displayed on the lower left of the windshield of the tow vehicle.

4. Have their employees working with water-related equipment complete online employee certificate training, pass a quiz and carry a wallet-sized certificate when doing work.

If you aren't sure a business is permitted, you can check the list of those currently permitted at **mndnr.gov/lsp**.

LSP Permit Authorities

LSPs have a additional authorities in their permit that aren't standard for the average watercraft user.

1. **Transport authority**
   LSP permits include one-way transport authority for water-related equipment from zebra mussel and faucet snail waters. This authority allows them to transport equipment with attached zebra mussels or faucet snails back to their business address or other decontamination addresses listed in their permit in order to decontaminate the equipment thoroughly. The equipment must be decontaminated before transporting from the decontamination site—even if it's being transported back to the same lake or river. LSP transport authority does not include aquatic plants or other AIS. If they need to haul other contaminated equipment not covered in the LSP permit, they need additional transport permits for commercial businesses.
2. **Drain plug exemption**
   LSP permits allow the business to transport inboard or inboard/outboard watercraft back to their decontamination addresses listed on their permit with the drain plug in place in order to properly dispose of contaminated bilge water away from lakes and rivers.

Inspecting an LSP

1. If the water-related equipment you're inspecting is hauled by an LSP complete your inspection following normal protocols while keeping in mind the LSP permit authorities mentioned in the previous section.
2. Make sure to look for the permit sticker on their vehicle's windshield to ensure that their permit is up-to-date. Note the colors and years rotate annually: Blue-Orange-Green-Yellow.

Some LSPs are easily identified because their trucks and trailers, or employee's clothing are marked with the business name; however it is not always obvious. If you're unsure if the watercraft is being towed by an LSP, but think they might be an LSP employee, ask them if they're transporting the equipment for their work. If you have confirmed that they are an LSP, but have no permit visible, ask to see a paper copy of the permit.

When inspecting LSPs, select "LSP, Lake Service Provider" in the survey for the last and next water bodies. Remember to treat LSPs with respect and as professionals. If LSPs aren't cooperating or are violating LSP law or their permit, you should report it to your supervisor. If needed you can also contact local law enforcement, or use the WIP email (**wip.dnr@state.mn.us**) to report noncompliance.

What if they don't have a current permit sticker displayed in the window?

Ask the driver of the tow vehicle if they have a copy of their paper LSP permit. On the front of the paper permit it will have the permitted years. If that is also out of date, contact your supervisor.

Do you need to see proof of all the permit requirements?

If you see a current year sticker displayed in the front windshield of the LSP tow vehicle, you do not need to see any other documentation.

What if an LSP is transporting a watercraft and they don't have or can't show the proper permits?

Collect as much information as possible and follow up with your supervisor. Helpful information includes the business name, date, time, and location.

For more information on LSPs contact:

Lake Service Provider Training Coordinator
Email: **lsp.dnr@state.mn.us**

Section 6: Encouraging Decontamination

Watercraft and other equipment often have small amounts of trapped residual water that can be quickly treated at the access to reduce the risk of spreading invasive species. If a decontamination unit is present on-site you can encourage boaters to have their equipment voluntarily decontaminated.

Help teach boaters about the benefits of decontamination, and refer any interested boaters to the Level 2 watercraft inspector. A simple flush of the live well and/or engine will only take a few minutes. These simple actions can help reduce the risk of spreading AIS. Inspectors can help increase voluntary decontaminations by pro-actively encouraging boaters to take advantage of free decontamination.

Manual Decontamination

Manual decontamination is the removal of all visible mud, plants, and organisms from the interior and exterior of the watercraft and equipment by hand. A dry time of **five days or more** is often recommended by the inspector after manual decontaminations.

- This can be done by the watercraft user and/or an authorized Level 1 watercraft inspector.
  a. Inspectors can also provide a permit (see appendix A) to the watercraft user in order to legally transport the watercraft from the access to a specific location for decontamination.

Mechanical Decontamination

Mechanical decontamination is the use of **hot water and/or high pressure** to remove AIS from a watercraft or equipment.

- This can be completed at the access (if a decontamination unit is available) or at another location (decon unit locations can be found on our website, **mndnr.gov/decon**).
- This can be performed by a lake service provider, watercraft user, or authorized Level 2 watercraft inspector.
- A separate training is provided for decontamination protocols. (*A separate Decontamination Manual and a Compendium of Watercraft Manufacturer Specific Information describes the decontamination process in more detail and have information specific to types of boats.)*

After completing an inspection you will determine whether or not decontamination is needed. See the list below for scenarios that may require additional decontamination.

Some types of decontamination are voluntary for boaters to complete, while others are legally required. Voluntary decontaminations are referred to as protocol decontaminations and legally required decontaminations are referred to as legally required. As a level 1 inspector it is important for you to understand the difference between the two, and educate boaters about decontamination practices whether or not you ever work alongside decontamination staff.

If a decontamination unit is not present with you on-site, you do not have the ability to legally require decontamination. The watercraft inspection survey may tell you that a decontamination is required even when a unit is not present on-site. Follow the on-screen instructions to help educate the boater on next steps. If the watercraft is able to leave and is in compliance with all laws no further action is required of the boater. If the watercraft still has attached AIS such as zebra mussels provide a transport permit and instruct the boater to ensure that the watercraft has all AIS removed before transporting the watercraft the next time.

When a decontamination unit is present on-site refer boaters to the on-site Level 2 when any of these scenarios arise.

- Zebra mussels, spiny waterfleas, or other AIS are found attached to the watercraft/equipment
- Suspicious organic material
- Residual water after draining or the watercraft/equipment cannot be drained fully
- Ballast tanks with unverified water in them
- Aquatic plants attached that cannot be removed by hand
- Watercraft or equipment has been in the water 24 hours or more
- Watercraft or equipment is going to another water body within 24 hours
- A licensed peace officer deems one necessary
- Courtesy Decontamination
- Pontoon with attached portable Hydraulic lift.

Legally Required On-site Decontaminations

State statute allows authorized inspectors, conservation officers, and licensed peace officers to require that mechanical decontamination be completed on-site if a unit is present when these specific scenarios occur.

Scenario 1: Water-related equipment that has a confirmed presence of zebra mussels, spiny waterflea, or other AIS that will require decontamination for successful removal.

Scenario 2: Water-related equipment that has water present that is unable to be drained. (This does not include residual water on watercraft with ballast tanks. See Scenario 3 for ballast tank protocols.)

Scenario 3: Water-related equipment that has ballast tanks which still contain verifiable water, even after pumping has occurred. **If the tanks contain verifiable water, decontamination will be required.** This step will be required at zebra mussel or spiny water flea infested waters, on exiting boats only.

Protocols to Follow when a Boater Refuses Decontamination

All refusals to decontaminate should be recorded in the survey and uploaded to the server within 24 hours. Providing additional comments on the refusal is required. Follow up with your supervisor as soon as possible to notify them of the violation for the refusal of a legally required decontamination. Provide a written statement as described in Section 7 of the Watercraft Inspection Handbook.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Section 7: How to Document and Handle AIS Violations

As an inspector you will encounter violations at one point or another throughout the inspection season. It is very important that you handle these interactions carefully and professionally—remember that the primary goal of an inspector is to educate watercraft users. Use these interactions as key teachable moments to teach the watercraft user how to avoid making the same mistakes in the future.

Violations can happen for a variety of issues, from transporting a watercraft with the drain plug in, to attempting to launch with zebra mussels. Regardless of the violation, keep these key protocols in mind. Work with your supervisor on specific protocols on how to handle violations in your area.

Incoming Watercraft

- Complete a thorough inspection of the watercraft–deny launch if all violations cannot be corrected at the access.
- Record drain plug, plant, and water violations on the survey.
- Zebra mussel violations require additional documentation.
  - **Do not immediately remove mussel(s).**
- Take a close up photo of the mussels (when prompted).
- Take photos of the mussels in the general location they were found (when prompted).
- Take a photo of the watercraft that shows the boat registration (when prompted).
- Upload survey to server within 24 hours.

- Do not take photos if you fear that your safety may be put at risk.
- Provide a write-up to your supervisor for all zebra mussel violations. See example below. An example violation write-up form can be found in appendix C.)
    - I observed a zebra mussel violation on May 10 on a red ski boat with a registration of MN xxxx. There were multiple zebra mussels on the motor's lower unit and the boater stated he was not aware they were there. I removed all mussels and allowed the boater to launch. He was driving a black truck with license plate 123ABC, and was approximately 6' tall with blond hair in his mid-30s. I reported the violation to the local sheriff.
- Inform the boater that a conservation officer might contact them as a follow up.

Exiting Watercraft

Many of the violations you may find happen during incoming inspections, but they still may occur during an exiting inspection. Below is an example of what you should do when you find an invasive species not known to be in the lake you're inspecting at.

- Inform the boater on what you have found, and explain that the lake isn't known to be infested with this species.

  NOTE: It is possible that you are discovering a new infestation, remember to treat the boater with professionalism and courtesy as they may not be violating any laws.
- Photograph the AIS in the location it was found. Do not remove the AIS before taking this photo.
- Photograph the watercraft with the boat registration visible.
- Ask the boater how long the boat was in the water, and where the boat has been previously.
- Collect the AIS and turn it in to your supervisor ASAP as it may need further ID.
- Upload the survey within 24 hours.
- Contact your supervisor ASAP to report the finding.

How to Report a Potential New Infestation

- Use the form located in appendix C on page 69. After completing the form follow up with your supervisor and the local DNR Invasive Species Specialist.

At the access you will communicate with the public in a variety of ways, and you may even be approached by a member of the public who believes they have found new AIS. If this happens to you be sure to take very specific notes and forward the information to your supervisor and the DNR ASAP. A sample or photo is required. See suspected AIS collection form on page 69.

Section 8: Completing the Survey

All authorized inspectors will be expected to collect data using official DNR watercraft inspection surveys, which they will complete during their inspection of each watercraft. Surveys are in the form of an electronic application ("app", which is usually downloaded to a mobile device), or a paper form. Some of the data is observational, while other data is obtained by verbally questioning the user. Inspectors have the ability to mark within the survey if a user prefers not to answer.

Selecting Surveys

A Level 1 inspector will have one primary watercraft inspection survey that they utilize. This survey will typically be labeled "Watercraft Inspection Survey," preceded by the current year. A version number is often at the end of the title (e.g. Watercraft Inspection Survey v 1.1). Periodically throughout the inspection season, new versions of the survey are released. These contain corrections, changes in survey data, or even statute updates. It is important for all inspectors to use the most current version, and can check with their supervisors if they are unsure of what version they are using.

If a Level 2 inspector is working in the area with a decontamination unit, oftentimes a watercraft user will be sent directly to them for decontamination of their equipment. When this happens, the Level 2 inspector will utilize another type of survey, called a "Decontamination Survey." This survey differs from the typical Watercraft Inspection Survey in that it collects data detailing the steps the Level 2 inspector used in order to mitigate the spread of the invasive species.

Filling out the survey

While educating the watercraft user is your top priority when conducting inspections we still need to collect data about the inspection you completed. This data is used to help shape the watercraft inspection program. There are some parts of the survey that you need to pay close attention to when entering the data into your tablet.

Case Numbers

Each time you complete a survey you will need to enter a "Case Number." The case number is the unique number assigned to a specific access. Minnesota has many water bodies that have the same name and many water bodies have more than one access. The case number indicates what access you are working. Searching by case number instead of lake name greatly reduces the chance for data entry errors. You can get the case numbers that you are working from your supervisor.

An example of a case number is:
Medicine Lake, Hennepin County, 27010401
27 = county number, 0104 = lake ID,
01 = access number

The first one or two digits represents the county number, the middle numbers represent the water body identification number, and the last two digits represents the access number. Counties are numbered alphabetically; be sure to ask your supervisor if you are unsure of the appropriate number you can also find a listing of county numbers on the back page of the manual.

License Plates

The electronic survey will prompt users to fill in a license plate. This is the license plate of the vehicle that is towing the watercraft or water-related equipment. This data is only used when there is a violation of AIS Laws. Some times you may come across unique situations such as a vehicle without a license plate. This could be a tractor towing a watercraft, an ATV, a new vehicle, etc. If there is not a license plate, please type NONE into the box where you would type the number. Dealer plates can be entered as is. You will also be asked to select the state where the license plate is from. If the license plate doesn't state a specific state there are other specific options you can select such as Tribal, Government, and Canada.

Last water body/next water body

At the end of each survey it will prompt you to enter the last water body that the watercraft user visited and what the next water body will be that they will visit. The lakes are listed with the county that they are found in, be sure to select the correct lake and county name. In some cases the entering the last lake and next lake names aren't appropriate if this is the case use one of the options below:

- If the boat is coming from, or going to storage select the storage option no county data needs to be collected.
- If the boater does not know use the unknown/does not know answer
- If the boater is coming from or going to another state, enter the state name. It will appear as the state followed by out of state.
- If the boater is a Lake Service Provider(LSP) select the LSP-Lake service provider for both next/last lake.
- If the boater chooses to not answer your questions you can select Prefers Not to Answer for both next/last lake.
- If there is a lake that is not on the list select Not on this list.

Taking Photos

The electronic survey will prompt users to capture photos during the inspection process when zebra mussels have been found. The photos will be submitted to law enforcement for additional follow-up. It is important that inspectors take photos that are clear and show what they have observed. If you are not using an electronic survey and find zebra mussels or other attached AIS, take photos, if able, using your own camera and send them to your supervisor within 24 hours.

Desirable Photos

- The first image will be a close up of the mussel(s) found.
- The second image shows zebra mussels attached to the watercraft. The image should show the general location where they are attached to the watercraft.
- The third image will show the watercraft with its registration numbers visible.

Remember to review each photo prior to advancing the survey; the survey will allow you to retake photos if needed.

Upload Survey Results

Surveys are required to be uploaded at least once per week. **Violations MUST be uploaded within 24 hours.**

To upload results: press and hold the start button until the administration screen appears. Upload surveys by pressing the "Upload Results" button. When the upload is complete press "Run Current Survey." Or on the main screen with the start button, tap on the yellow cloud in the lower right of the screen. A wi-fi or data connection is required to upload survey data.

Survey Application Tips

- To ensure the survey is working properly on the tablets/smartphones:
- Keep the survey application up to date via Google Play Store or the Apple App store.
- Do not change the device name in the administration menu.
- Report any glitches to your supervisor with screenshots of the issue.

Section 9: Expectations while Working with the Public

A positive first impression, welcoming helpful attitude, and the knowledge to respond to customers while maintaining a safe work environment are the key requirements to being an authorized watercraft inspector. Positively representing both your employer and the DNR will ensure a public service environment that is free of disrespectful or unprofessional communications or behavior.

Professional behavior and good customer service begins before the inspection! What you say and how you say it are keys to a successful inspection, but the visual impression you give through your body language and appearance are just as important to a successful conversation.

Visual Impressions

- Inspectors shall appear for each shift in a clean and neat appearance.
- Uniforms shall be clean and in good condition.
- Articles of clothing, including jewelry, shall not display endorsements of a vulgar, controversial, or obscene nature.
- Inspectors shall wear visible identification while working in public use areas. Identification needs to include the organization name that has authority to conduct authorized inspections.
- It is recommended that Personal Protective Equipment (PPE) be worn while working as an authorized inspector (as decided by your hiring agency). Examples include:

  a. High-visibility vest
  b. Close toed shoes
  c. Sunscreen
  d. Hat

Verbal Impressions

- Inspectors will acknowledge the watercraft user's presence by using a basic greeting when approaching the public. Though each inspector will have a slightly different way of approaching their visitors, all inspectors will include in their greeting a clear statement identifying themselves as a watercraft inspector, and what organization they represent. For example "Hi, my name is Mike and I am here with Blue Water County conducting watercraft inspections today."
- When you approach a watercraft user, remember that you're trying to engage them in a conversation. Be respectful and patient as you talk with them; some watercraft users will be very familiar with this process, others will be new.
- Use positive communication and treat individuals in a manner that a reasonable person would find appropriate.

Inspectors will display good judgment and proper behavior that is reasonably expected in public use areas. Disrespectful or unprofessional behavior includes, but is not limited to, sleeping, smoking while conducting inspections, and arguing with visitors. If you are uncomfortable with a situation at any time you should remove yourself from the confrontation.

SAFETY MESSAGE:

Call 911 or leave the access if you feel it is necessary, or if you feel threatened.

Zebra mussels (not to scale)

Section 10: Aquatic Invasive Species

This section includes basic information on some of the most problematic AIS. Invasive species pose a great ecological and financial threat to Minnesota and the introduction of these species can cause significant and irreversible changes to Minnesota waters.

AIS in Minnesota are regulated depending on the legal classification they are given. The two main categories relevant to AIS laws are prohibited and regulated. According to Minnesota statute, "A person may not possess, import, purchase, sell, propagate, transport, or introduce a prohibited invasive species." Examples include zebra and quagga mussels, invasive carp, faucet snails, round goby, Eurasian watermilfoil, and flowering rush. Statute states, "A person may not introduce a regulated invasive species." Examples include rusty crayfish, banded and Chinese mystery snails, and spiny waterfleas.

Many AIS, including zebra mussels, were first introduced into the Great Lakes via the discharged ballast water of ocean-going ships. Once in North American waters and wetlands, these invasive species often "hitch" rides to other bodies of water on the boats, trailers, and equipment that people transport from place to place. Other AIS were introduced via water gardens, aquariums, or other pathways. Although many are from overseas, others are from different parts of the U.S.

Some of the most problematic invaders currently in Minnesota are zebra mussels, spiny waterfleas, faucet snails, Eurasian watermilfoil, and curly-leaf pondweed.

Information about all of the invasive species in Minnesota is available at mndnr.gov/invasives.

Aquatic Invasive Animals

Zebra Mussels *(Dreissena polymorpha)* and Quagga Mussels *(Dreissena bugensis)*

Zebra mussels are native to the Black and Caspian seas. They were discovered in the Great Lakes in 1988 and have since spread to over half of the states in the U.S. Quagga mussels are native to the Dnieper River Drainage in the Ukraine and were first found in the Great Lakes in 1989.

(not to scale)

Zebra Mussel:

- Sits flat on ventral side
- Triangular or D-shaped
- Color patterns vary

(not to scale)

Quagga Mussel:

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

Biology

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. Adult mussels range in size from 1/4 to about 2 inches in length. 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 byssal threads to any hard surface. Both zebra and quagga mussels can survive cold waters, but will not tolerate freezing. They can endure temperatures between 33°-86° F. Zebra mussels need waters above 54° F to reproduce, while quagga mussels can reproduce in waters as cold as 48° F.

A single female mussel can produce up to one million eggs a year. The microscopic larvae, called veligers, are planktonic—free-floating. The veligers float in the water column or are carried in the current for up to five weeks. Then, the larvae develop shells and settle onto any solid surface, including the shells of native aquatic species and stems of aquatic plants.

Impacts

Zebra and quagga mussels can cause severe economic, recreational, and environmental problems.

The amount of food the mussels eat and the waste they produce can have life-altering effects on the ecosystem and can harm fisheries. As filter feeders, they remove large amounts of microscopic plants and animals that form the base of the food chain, reducing available food for native aquatic species.

As the mussels filter plankton from the surrounding water, the water clarity may increase, which can cause more aquatic vegetation to grow at greater depths and produce dense stands. If a lake has high numbers of mussels over large areas, this filter feeding can impact the food chain, reducing food for young fish.

Other common problems include:

- Clogged intakes for home irrigation systems.
- Clogged boat motors, intakes, water cooling areas.
- Clogged intake pipes, trash screens, canals, aqueducts, and dams—disrupting the water supply to homes, farms, factories, and power plants.
- Altered taste and smell of drinking water.
- Cuts to people and dogs from shells on rocks, swim rafts, ladders, or washed up on beaches.
- Lost fishing tackle from shells cutting fishing line.
- Zebra mussels can attach to native mussels, smothering and killing them.

Means of Spread:

Adult mussels can spread to other bodies of water by attaching to boat hulls, lower units, trim tabs, anchors, docks, and other water-related equipment.

Depending on their size and the weather conditions, adult zebra mussels can survive out of water for up to two weeks and as a result can be transported overland to new water bodies. They prefer cool, dark areas and often will attach inside hard-to-reach areas like dock posts.

Microscopic mussel larvae can be transported in bilge water, ballast water, or live bait wells. Larvae can also be present in mud and on plants which are then spread by equipment. Larvae also disperse naturally, and can be carried by water currents to other lakes or reservoirs downstream or through water diversions.

Where to Look:

Examine boat hulls, swimming platforms, docks, the inside of pipes, on aquatic plants, wood and other objects along the shorelines of lakes and rivers.

Regulatory Classification:

Zebra and Quagga mussels are prohibited invasive species, which means it is illegal to import, possess, transport, or introduce them into the wild.

Spiny Waterflea (not to scale)

Spiny Waterflea *(Bythotrephes longimanus)*

Spiny waterfleas are very small creatures known as zooplankton (microscopic animals). Native to Europe and Asia, they were introduced into the Great Lakes by ballast water discharged from ocean-going ships. They were first discovered in Lake Ontario in 1982 and spread to Lake Superior in 1987.

Biology:

Adults range from 1/4-to 5/8-inch long. Spiny waterflea have a single, long tail with small spines along its length. Even though these waterfleas can be eaten by fish, their spines make it difficult for most small fish to swallow them.

Impacts:

Waterfleas threaten aquatic ecosystems and fishing by out-competing native fish for food. Spiny waterfleas eat smaller zooplankton including Daphnia, which are an important food for young native fish. In some lakes, they caused the decline or elimination of some species of native zooplankton.

With fewer zooplankton eating algae, algal blooms can occur, making lake water less clear.

Waterfleas collect in masses on fishing lines and downrigger cables. They can clog eyelets of fishing rods and prevent fish from being landed.

Means of Spread:

Waterfleas can spread to new waters when egg-laden females attach to fishing lines, downriggers, anchor ropes, and other water-related equipment. They can also be unintentionally transported in bilge water, bait buckets, or livewells. While females die out of water at the end of the season, they produce special "resting" eggs that resist drying and freezing, remain viable, and can establish a new infestation.

Where to look:

They collect in gelatinous globs on fishing lines and downrigger cables. They prefer deep lakes, but can be found in shallow lakes and rivers.

Regulatory Classification:

Spiny waterfleas are a regulated invasive species in Minnesota, which means introduction into another water body is prohibited.

Faucet Snail (not to scale)

Faucet Snail *(Bithynia tentaculata)*

The faucet snail is a small aquatic snail native to Europe. It 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.

Biology:

Faucet snails have spread beyond the Great Lakes to surrounding inland waters in Midwest states including Minnesota. They are very difficult for the non-specialist to identify. Adults can grow up to 1/2 inch in length, but are generally smaller. They are light brown to black, with four to five whorls and a cover on the shell opening. The shell opening is on the right when the tip of the shell is pointed up.

Impacts:

The faucet snail is an intermediate host for three intestinal parasites that cause mortality in ducks and coots. When waterfowl consume the infected snails, the adult parasites attack the internal organs and cause lesions and hemorrhage. Infected birds appear lethargic and have difficulty diving and flying before eventually dying. The parasites have contributed to the deaths of about 9,000 scaup and coots in 2007 and 2008 on Lake Winnibigoshish and tens of thousands of waterfowl since 2002 in the whole state.

There is no evidence that other wildlife besides waterfowl, including any fish species, are adversely affected by the parasites present in faucet snails. Anglers can eat fish from Lake Winnibigoshish without worry of the parasite. Faucet snails are not known to be co-hosts for the swimmers itch parasite.

Faucet snails also compete with native snails, and may clog water intake pipes and other submerged equipment.

Means of Spread:

They can spread by attaching to aquatic plants, boats, anchors, decoy anchors, other water-related equipment and then come off in the next body of water where the equipment is used. Faucet snails are able to close their openings to withstand dry conditions and a variety of temperatures.

Where to Look:

It is found on rocky shorelines, river and lake bottoms, aquatic plants, docks, and other objects placed in the water.

Regulatory Classification:

Faucet snails are prohibited invasive species, which means that importation, possession, transportation, and introduction into the wild is prohibited.

Above photo credit: © Larry Mayer

New Zealand Mudsnail *(Potamopyrgus antipodarum)*

New Zealand Mud Snail (not to scale)

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 throughout the western U.S. and the U.S. Great Lakes.

Biology:

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 to hold the point of the shell upward. When the point of the shell is facing up, the shell's opening is on the right.

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; it only takes one to start a whole new population.

Impacts:

Mudsnails outcompete species that are important forage for native trout and other fishes and provide little nutrition to fish that eat them.

Means of Spread:

The mudsnail attaches to fishing gear, boats, trailers, or even fish and bait, then comes off in the next stream or river where these things are used or discarded.

Regulatory Classification:

The New Zealand mudsnail is proposed as a prohibited invasive species, which means import, possession, transport, and introduction into the wild will be prohibited.

Rusty Crayfish (not to scale)

Rusty Crayfish *(Orconectes rusticus)*

Biology:

The rusty crayfish 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 reach a maximum length of four inches.

Rusty crayfish can inhabit lakes, ponds, and both pool and fast-water areas of streams. They are opportunistic feeders and will eat a variety of aquatic plants, benthic invertebrates (like aquatic worms, snails, leeches, clams, and aquatic insects), decaying plants and animals, bacteria and fungi, fish eggs, and small fish.

Impacts:

Rusty crayfish cause a variety of negative impacts when introduced to new waters, including displacing native animals and plants.

Means of Spread:

Original spread was by anglers using rusty crayfish as bait, but the crayfish were also harvested for regional bait markets and for biological supply companies, activities which probably helped spread the species further.

Regulatory Classification:

Rusty crayfish are regulated invasive species and are illegal to introduce into state waters.

Bighead Carp (not to scale)

Bighead and Silver Carp *(Hypophthalmichthys nobilis and H. molitrix)*

Biology:

Large filter feeding fish that can weigh up to 110 pounds for bighead carp and 60 pounds for silver carp. Both species have low-set eyes below the mouth and large upturned mouths without barbels. Imported from China in the 1970s for use in aquaculture ponds to control plankton. By the early 1980s, both species had escaped into open waters in southern states.

Impacts:

They eat huge amounts of plankton and detritus. Because they feed on plankton, these fish 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 watercraft users, and damage personal watercraft.

Means of Spread:

Both species are spreading within the Mississippi River basin through connected waters. The juveniles are difficult to distinguish from gizzard shad and other native baitfish, so they could be spread through use or release of live bait.

Regulatory Classification:

Bighead and silver carp are all designated as prohibited invasive species, which means import, possession, transport, and introduction into the wild is prohibited. It is required to report these fish if caught in the state. They can be legally transported to the DNR to report a suspected finding.

Round Goby (not to scale). Photo credit: © David Jude

Round Goby *(Neogobius melanostomus)*

The round goby is an aggressive bottom-dwelling fish that lives in lakes and rivers. It is native to the freshwater region of the Black and Caspian Seas. They were introduced into the Great Lakes within ballast water discharged from ocean-going ships.

Biology:

They resemble sculpins, which are native, bottom-dwelling fishes. They can spawn several times per year. Adult fish are 3-10 inches long and mostly slate gray in color. There is a single scallop-shaped pelvic fin and a black spot on the dorsal fin.

Impacts:

Round gobies have been found at densities up to 20 per square meter. They compete with native fish for food and habitat, and eat the eggs and young of native fish.

Means of Spread:

They could be spread through illegal harvest and improper disposal of live bait.

Regulatory Classification:

It is a prohibited invasive species, which means import, possession, transport, and introduction into the wild is prohibited.

Chinese and Banded Mystery Snails *Cipangopaludina chinensis* and *Vivaparus georgianus*

Chinese mystery snails are native to Asia. They were brought to California in 1892 as a food source, and found in Massachusetts in 1915—likely an aquarium release. 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.

Biology:

Chinese mystery snail has small shallow depressions above the shell opening and rows of fine, short stiff hairs parallel to the whorl of the shell (may wear off with age and abrasion). Banded mystery snail has red bands that are parallel to the whorl of the shell. They are called "mystery" snails because in spring, they give birth to young, fully developed snails that suddenly and mysteriously appear. After reproducing in their fourth year, they die and their shells wash up on shore.

Means of Spread:

These species are commonly imported and sold by the aquarium trade, leading to the potential for illegal release into the wild.

Impacts:

Both snails can form dense aggregations. In Asia, the CMS can transmit human intestinal flukes, however, cases have not been documented in the United States. It also is a carrier of trematode parasites found in native mussels. BMS can cause mortality of largemouth bass embryos when they invade nests.

Regulatory Classification:

Chinese and Banded mystery snails are regulated invasive species and are illegal to introduce into state waters.

Aquatic Invasive Plants

Eurasian Watermilfoil (not to scale)

Eurasian Watermilfoil *(Myriophyllum spicatum)*

Eurasian watermilfoil is a submerged aquatic plant that was accidentally introduced to North America from Europe in the 1940s. It spread westward into inland lakes primarily by boats and reached the Midwest between the 1950s and 1980s. This highly aggressive species colonizes a variety of habitats, including both moving and standing waters.

Biology:

The feathery dark green leaves of Eurasian watermilfoil are finely divided and occur in whorls of three or four along the stem, with 12–21 pairs of fine, thin leaflets. These leaflets give milfoil a feathery appearance that is a distinguishing feature. It grows rapidly—about one foot per week. Pink or olive green stems grow to the water surface, usually extending three to ten feet in length and frequently forming dense mats.

A key factor in the plant's success is its ability to reproduce through stem fragmentation and runners. A single segment of stem and leaves can take root and form a new colony.

It can be difficult to tell Eurasian watermilfoil apart from some native aquatic plants like Northern watermilfoil *(Myriophyllym sibiricum)* and hybrids between the native and invasive milfoil species.

Impacts:

In nutrient-rich lakes, it can form thick underwater stands of tangled stems and vast mats of vegetation at the water's surface. In shallow areas, the plant can interfere with water recreation such as boating, fishing, and swimming. The plant's floating canopy can also crowd out important native water plants, disrupting the food chain, displacing wildlife habitat, and clogging waterways and flow of water.

It is difficult for Eurasian watermilfoil to take hold in lakes with well-established populations of native plants. In some lakes, the plant appears to coexist with native flora and has little impact on fish and other aquatic animals.

Means of Spread:

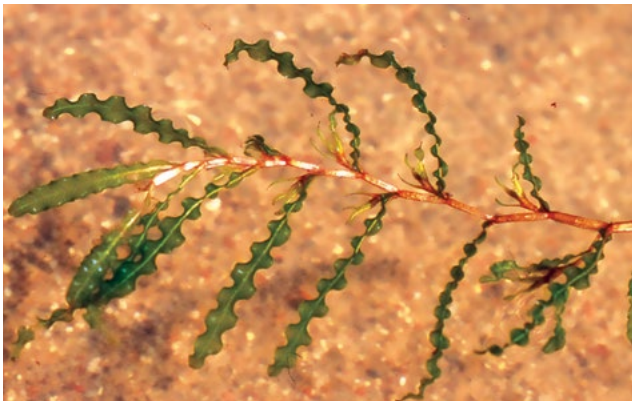
Fragments clinging to boats and trailers can spread the plant from lake to lake. Mechanically clearing aquatic plants from beaches, docks, and landings creates thousands of new stem fragments. Removing native vegetation creates perfect habitat for invading Eurasian watermilfoil.

Where to Look:

Eurasian Milfoil can easily get stuck in boat propellers, or may attach to keels and rudders of sailboats. Stems can become lodged among any watercraft apparatus or sports equipment that moves through the water, especially boat trailers.

Regulatory Classification:

It is a prohibited invasive species, which means import, possession, transport, and introduction into the wild is prohibited.



Curly-leaf Pondweed (not to scale)

Curly-leaf Pondweed *(Potamogeton crispus)*

Native to Eurasia, Africa, and Australia, it was likely brought to North America from Europe as a garden plant. It was first noted in Minnesota about 1910. It probably was accidentally introduced to the state when common carp were intentionally brought to the area. It has been in Minnesota so long that most people do not realize it is a non-native species.

Biology:

A submersed aquatic plant, it generally grows in three to ten feet of water. Leaves are somewhat stiff and crinkled, approximately 1/2-inch wide and two to three inches long; leaves are arranged alternately around the stem, and become more dense toward the end of branches. It tolerates low water clarity and will readily invade disturbed areas. It is similar in appearance to many native pondweed plants commonly found in Minnesota lakes and streams, but can be distinguished from them by its unique life cycle. It is generally the first to come up in spring, then dies back in mid-summer. The flower stalks, when present, stick up above the water surface in June and appear reddish brown in water, but are actually green when out of water.

Impacts:

In spring, curly-leaf pondweed can form dense mats that may interfere with boating and other recreation on lakes. It also can cause ecological problems by displacing native plants. In mid-summer, it usually dies back, resulting in rafts of dying plants piling up on shorelines, and often is followed by an increase of the nutrient phosphorus in the water, creating undesirable algal blooms.

Means of Spread:

It is believed to spread from one body of water to another primarily by the unintentional transfer of turions, which are hardened stem tips, on plant fragments carried on watercraft and trailers.

Where to Look:

Curly-leaf pondweed can easily get stuck in boat propellers, or may attach to keels and rudders of sailboats. Stems can become lodged among any watercraft apparatus or sports equipment that moves through the water, especially boat trailers.

Regulatory Classification:

It is a prohibited invasive species, which means import, possession, transport, and introduction into the wild is prohibited.

Starry Stonewort and bulbils. (not to scale)

Starry Stonewort *(Nitellopsis obtusa)*

Starry stonewort is a grass-like form of macro-algae that is not native to North America. The macro-algae was first confirmed in Minnesota in Lake Koronis, Stearns County, in late August of 2015. Fragments were probably brought into the state on a trailered watercraft from infested waters in another state.

Biology:

Starry stonewort is similar in appearance to native grass-like algae such as other stoneworts and musk-grass. Native stoneworts and musk-grass are both commonly found in Minnesota waters. Starry stonewort can be distinguished from other grass-like algae by the presence of star-shaped bulbils.

Means of Spread:

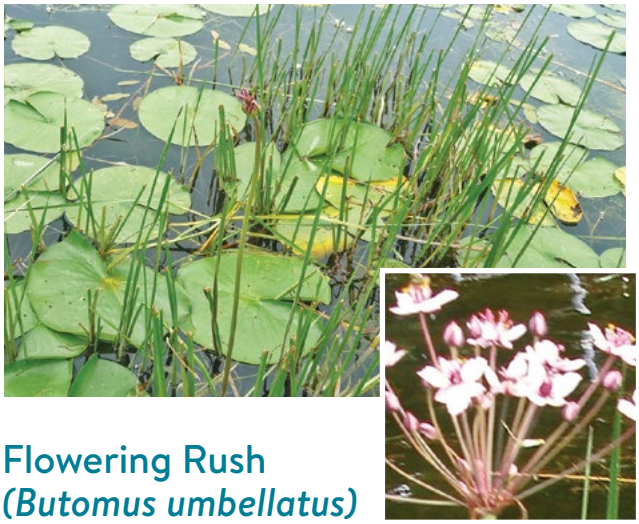
Starry stonewort is believed to be spread from one body of water to another by the unintentional transfer of bulbils, the starlike structures produced by the macro-algae. Fragments may also attach to trailered boats, personal watercraft, docks, boat lifts, anchors or any other water-related equipment that was not properly cleaned.

Where to Look:

Starry stonewort can easily get stuck in boat propellers, or may attach to keels and rudders of sailboats. Stems can become lodged among any watercraft apparatus or sports equipment that moves through the water, especially boat trailers.

Regulatory Classification:

It is a prohibited invasive species, which means import, possession, transport, and introduction into the wild is prohibited.



Flowering Rush
(not to scale)

Flowering Rush *(Butomus umbellatus)*

Native to Africa, Europe and Asia, the flowering rush was likely brought to North America as a garden plant.

Biology:

A perennial aquatic plant, it grows one to four feet high on an erect stem along shores in shallow water. In deeper water it grows submerged without producing flowers. It is very difficult to identify when not in flower. It closely resembles many native shoreland plants, such as the common bulrush. Its leaves are sword-shaped, triangular in cross section. It has umbrella-shaped pink or white flowers that bloom from June to August.

Impacts:

Once established, populations of flowering rush increase and may continue to persist. It can spread slowly into nearby wetlands, and can tolerate water over 6 1/2 feet deep. Flowering rush can outcompete and displace native shoreline vegetation, disrupting the local habitat. It also can be an obstacle to boat traffic. Boaters can transport flowering rush on their equipment. Its wide range of hardiness (zones 3-10) makes it capable of being invasive throughout much of the United States.

Means of Spread:

Flowering rush is a Eurasian plant that was sold commercially for use in garden pools. It is now illegal to buy, sell, or possess the plant. It reproduces by vegetative spread from its roots in the form of bulblets, and by seed. Both seeds and bulblets are dispersed by water currents. It is actively expanding and has spread from a limited area around the Great Lakes and the St. Lawrence River to sporadically appear in the northern U.S. and southern Canada.

Where to Look:

Flowering rush can easily get stuck in boat propellers and can become lodged among any watercraft apparatus or sports equipment that moves through the water.

Regulatory Classification:

It is a prohibited invasive species, which means import, possession, transport, and introduction into the wild is prohibited.

Above photo credit: © WI DNR

Brazilian Elodea
(not to scale)

Brazilian Elodea *(Egeria densa)*

Native to Brazil and Argentina, Brazilian elodea is a popular aquarium plant often sold in pet stores and available in school science kits under the name Anacharis. Brazilian waterweed is commonly mistaken for the native elodea *(Elodea canadensis)*, or common waterweed, as well as the nonnative, invasive hydrilla *(Hydrilla verticillata)*.

Biology:

This aquatic weed is a submerged, freshwater perennial plant found in both still and flowing waters including lakes, ponds, and quiet streams. It prefers low light and tolerates variable water quality (turbidity, pollution, etc.). It can survive under ice for short periods—but not prolonged freezing. The plant grows mostly underwater but forms dense mats along the surface that can cover hundreds of acres. Leaves grow in whorls of three to six around the stem making a cylindrical shape, and the stems are very leafy compared to the native elodea. The leaf edges appear smooth to the naked eye but the margins are minutely toothed, visible with low magnification. A distinguishing characteristic is the smooth midvein on the underside of the leaf. Small, white flowers appear from June through October. They have three glossy petals that appear wrinkled, and float on or rise above the water's surface on thread-like stems.

Impacts:

When it is introduced into freshwater, it forms dense beds that reduce water quality, disrupt wildlife habitat, slow the flow of water, and impede recreational activities.

Means of Spread:

Spreads by plant fragments. No female plants have been reported in the U.S. Since all plants are male, no seeds are produced in the U.S.

Where to Look:

Like other plants, Brazilian waterweed can easily get stuck in boat propellers, or may attach to keels and rudders of sailboats. Stems can become lodged among any watercraft apparatus or sports equipment that moves through the water, especially boat trailers.

Regulatory Classification:

Brazilian Waterweed is a regulated invasive species in Minnesota, which means introduction into another water body is prohibited.

Hydrilla and potato-like tubers

Hydrilla (not to scale)

Hydrilla *(Hydrilla verticillata)*

Hydrilla is native to India, Korea, and central Africa. It was first introduced in Florida in 1958 for use in the aquarium industry.

Biology:

Hydrilla is a submerged, rooted, perennial plant that forms dense colonies. Leaves are bladelike, about 1/8 inch to 3/8 inch long with

small tooth margins. The underside of the leaf has a red midrib with one to four spines or conical bumps, making them feel rough. Leaves are usually four to eight in a whorl. Hydrilla produces tiny, translucent, white to reddish flowers on long stalks. Plants flower from June through October. Hydrilla is able to establish itself in low-light waters over 20 feet deep and then grow towards the shallow banks. It branches profusely after reaching the surface and forms thick mats that hinder recreation, navigation, and water intakes. It grows quickly and outcompetes and eliminates native species. Hydrilla can grow in almost any freshwater—in variable conditions with either low or high nutrient amounts, and has a wide temperature tolerance (68–86°F).

Impacts:

Hydrilla interferes with boating and prevents swimming and fishing by forming dense mats of vegetation. Hydrilla is known to be an aggressive and competitive plant, and can out-compete and displace native species.

Means of Spread:

Hydrilla reproduces rapidly—by fragmentation, from seeds, and it also produces 1/4 inch turions at the leaf axils and potato-like tubers attached to the roots in the mud.

Where to Look:

Like other plants, hydrilla can easily get stuck in boat propellers, or may attach to keels and rudders of sailboats. Stems can become lodged among any watercraft apparatus or sports equipment that moves through the water, especially boat trailers.

Regulatory Classification:

Prohibited.

Purple Loosestrife (not to scale)

Purple Loosestrife *(Lythrum salicaria)*

Purple loosestrife is native to Europe and Asia, and was initially introduced to the northeastern seaboard of the United States in the ballast of ships in the 1800s. It has been repeatedly and continually introduced as a garden plant. Loosestrife tolerates a wide range of environmental conditions. It favors fluctuating water levels and other conditions often associated with disturbed sites. It is shade intolerant and is apparently unable to invade saline wetlands.

Biology:

Purple loosestrife is a perennial with long, showy spikes of magenta flowers and a square stem. Usually under 4 feet in height, the plant may reach up to 10 feet tall in nutrient-rich habitats. The flowers have five to seven petals and bloom from June to September. The leaves are usually opposite, usually in pairs, or in whorls of three. Leaves are lance-shaped, without teeth, and the venation has a peripheral margin which distinguishes it from other square stem mint species prior to flowering. Purple loosestrife is a List A noxious weed and eradication is mandatory.

Impacts:

Purple loosestrife invades marshes and lakeshores, replacing cattails and other wetland plants. In some locations, natural cattail marshes have been completely overtaken by loosestrife. The plant forms dense, impenetrable stands that are unsuitable as cover, food, or nesting sites for a wide range of native wetland animals.

Spread:

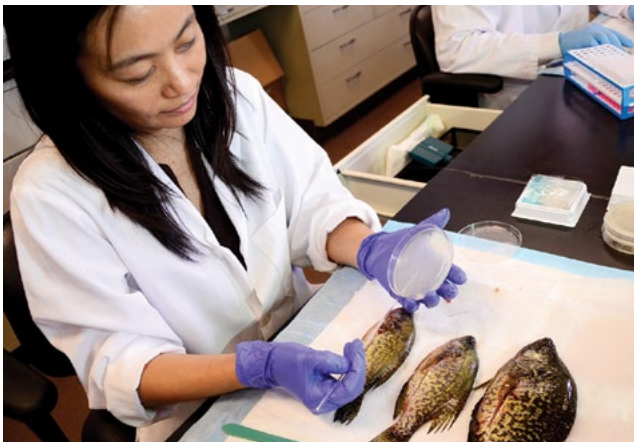
Seeds escape from gardens and nurseries into wetlands, lakes, and rivers. Once in aquatic systems, seeds are easily spread by moving water and wetland animals. One plant can make over 1 million seeds.

Where to Look:

As a woody wetland plant, inspectors may not commonly find plant fragments during inspections. Seeds can easily be hidden in mud on dirty anchors, push poles, waterfowl decoys, etc.

Regulatory Classification:

Purple loosestrife is a prohibited invasive species, which means import, possession, transport, and introduction into the wild is prohibited.



Invasive Fish Diseases

Viral Hemorrhagic Septicemia Virus (VHS)

Viral hemorrhagic septicemia virus is a serious pathogen of fresh and saltwater fish. VHS 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 bleeding of fish tissue, including internal organs, and potentially the death of infected fish. Once a fish is infected, there is no known cure.

The clinical signs of VHS may include tissue hemorrhaging, unusual behavior, anemia, bulging eyes, bloated abdomens, and rapid onset of death; however, these symptoms could apply to many different fish diseases. There is no clear visual diagnostic to confirm VHS. Not all infected fish show signs and may become carriers of the disease. The only way to confirm VHS is to test the fish in a lab.

Other Aquatic Invasive Species

There are many other AIS that pose a significant threat to Minnesota waters. See pictures and descriptions of these common invaders of concern at mndnr.gov/invasives.

Additional Aquatic Invasive Plants:

- Reed canary grass
- Water hyacinth
- Yellow iris

Additional Aquatic Invasive Animals:

- Ruffe
- Sea lamprey
- White perch
- Grass carp
- Black Carp
- Bloody red shrimp
- Red swamp crayfish

Section 11:

Minnesota Aquatic Invasive Species Laws

Selected Minnesota Laws Related to Water-related Equipment, Watercraft Inspections, and Decontamination

July 1, 2015

M.S. 84D.01 DEFINITIONS.

Subd. 1a. Aquatic invasive species affirmation.
"Aquatic invasive species affirmation" means an affirmation of the summary of the aquatic invasive species laws of this chapter that is part of watercraft licenses and nonresident fishing licenses, as provided in section 84D.106.

Subd.3a.Decontaminate.
"Decontaminate" means to wash, drain, dry, or thermally or otherwise treat water-related equipment in order to remove or destroy aquatic invasive species using the "Recommended Uniform Minimum Protocols and Standards for Watercraft Interception Programs for Dreissenid Mussels in the Western United States" (September 2009) prepared for the Western Regional Panel on Aquatic Nuisance Species, or other protocols developed by the commissioner.

Subd.8b. Inspect.
"Inspect" means to examine water-related equipment to determine whether aquatic invasive species, aquatic macrophytes, or water is present and includes removal, drainage, decontamination, or treatment to prevent the transportation and spread of aquatic invasive species, aquatic macrophytes, and water.

Subd.8c.Inspector.
"Inspector" means: (1) an individual trained and authorized by the commissioner to inspect water-related equipment under section 84D.105, subdivision 2, paragraph (a); or (2) a conservation officer or a licensed peace officer.

Subd.18a. Water-related equipment.
"Water-related equipment" means 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 for those vessels permitted under the Pollution Control Agency vessel discharge program, bilge areas, and water-hauling equipment that is capable of containing or transporting aquatic invasive species, aquatic macrophytes, or water.

M.S.84D.02 INVASIVE SPECIES MANAGEMENT PROGRAM FOR AQUATIC PLANTS AND WILD ANIMALS.

Subdivision 1. Establishment.
The commissioner shall establish a statewide program to prevent and curb the spread of invasive species of aquatic plants and wild animals. The program must provide for coordination among governmental entities and private organizations to the extent practicable. The commissioner shall seek available federal funding and grants for the program.

M.S.84D.10 WATERCRAFT REQUIREMENTS AND PROHIBITIONS.

Subdivision 1. Launching prohibited.
A person may not place or attempt to place into waters of the state water-related equipment, including aquatic plant harvesting or control equipment that has aquatic macrophytes, zebra mussels, or prohibited invasive species attached except as provided in this section.

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, including decontamination using hot water or high pressure equipment when available on site, before the water-related equipment is transported or 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 listed by the commissioner as being infested with that species;

(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; and

(5) decontamination of water-related equipment when available on site.

(b) An order for removal of prohibited invasive species under paragraph (a), clause (1), or decontamination of water-related equipment under paragraph (a), clause (5), may include tagging the water-related equipment and issuing a notice that specifies a time frame for completing the removal or decontamination and re-inspection of the water-related equipment.

(c) An inspector who is not a licensed peace officer may issue orders under paragraph (a), clauses (1), (3), (4), and (5).

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, portable bait containers when fishing through the ice except on waters designated infested for viral hemorrhagic septicemia, and marine sanitary systems are exempt from this subdivision.

(e) A person must not dispose of bait in waters of the state.

(f) A boat lift, dock, swim raft, or associated equipment that has been removed from any water body may not be placed in another water body until a minimum of 21 days have passed.

M.S. 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.

Subd.2.Inspector authority.

(a)The commissioner shall train and authorize individuals to inspect water-related equipment for aquatic macrophytes, aquatic invasive species, and water. The commissioner may enter into a delegation agreement with a tribal or local government where inspection authority as provided under paragraphs (b), (g), and (h) is delegated to tribal and local governments that assume all legal, financial, and administrative responsibilities for inspection programs on some or all public waters within their jurisdiction.

(b)Inspectors may visually and tactilely inspect watercraft and water-related equipment to determine whether aquatic invasive species, aquatic macrophytes, or water is present. If a person transporting watercraft or water-related equipment refuses to take required corrective actions or fails to comply with an order under section 84D.10, subdivision 3, an inspector who is not a licensed peace officer shall refer the violation to a conservation officer or other licensed peace officer.

(c)In addition to paragraph (b), a conservation officer or other licensed peace officer may inspect any watercraft or water-related equipment that is stopped at a water access site, any other public location in the state, or a private location where the watercraft or water-related equipment is in plain view, if the officer determines there is reason to believe that aquatic invasive species, aquatic macrophytes, or water is present on the watercraft or water-related equipment.

(d)Conservation officers or other licensed peace officers may utilize check stations in locations, or in proximity to locations, where watercraft or other water-related equipment is placed into or removed from waters of the state. Any check stations shall be operated in a manner that minimizes delays to vehicles, equipment, and their occupants.

(e)Conservation officers or other licensed peace officers may order water-related equipment to be removed from a water body if the commissioner determines such action is needed to implement aquatic invasive species control measures

(f)The commissioner may require mandatory inspections of water-related equipment before a person places or removes water- related equipment into or out of a water body. Inspection stations may be located at or near public water accesses or in locations that allow for servicing multiple water bodies. The commissioner shall ensure that inspection stations:

(1) have adequate staffing to minimize delays to vehicles and their occupants;

(2)allow for reasonable travel times between public accesses and inspection stations if inspection is required before placing water-related equipment into a water body;

(3)are located so as not to cause traffic delays or public safety issues;

(4)have decontamination equipment available to bring water-related equipment into compliance; and

(5)do not reduce the capacity or hours of operation of public water accesses.

(g)The commissioner may authorize tribal and local governments that enter into a delegation agreement with the commissioner to

conduct mandatory inspections of water-related equipment at specified locations within a defined area before a person places or removes water-related equipment into or out of a water body. Tribal and local governments that are authorized to conduct inspections under this paragraph must:

(1) to the extent called for in the delegation agreement, assume legal, financial, and administrative responsibilities for implementing the mandatory inspections, alone or in agreement with other tribal or local governments;

(2) employ inspectors that have been trained and authorized by the commissioner;

(3) conduct inspections and decontamination measures in accordance with guidelines approved by the commissioner;

(4) have decontamination equipment available at inspection stations or identify alternative decontamination equipment locations within a reasonable distance of the inspection station that can bring water-related equipment into compliance;

(5) provide for inspection station locations that do not create traffic delays or public safety issues; and

(6) submit a plan approved by the commissioner according to paragraph (h).

(h) Plans required under paragraph (g) must address:

(1) no reduction in capacity or hours of operation of public accesses and fees that do not discourage or limit use;

(2) reasonable travel times between public accesses and inspection stations;

(3) adequate staffing to minimize wait times and provide adequate hours of operation at inspection stations and public accesses;

(4) adequate enforcement capacity;

(5) measures to address inspections of water-related equipment at public water accesses for commercial entities and private riparian land owners; and

(6) other elements as required by the commissioner to ensure statewide consistency, appropriate inspection and decontamination protocols, and protection of the state's resources, public safety, and access to public waters.

(i) A government unit authorized to conduct inspections under this subdivision must submit an annual report to the commissioner summarizing the results and issues related to implementing the inspection program.

(j) The commissioner may waive the plan requirement in paragraph (g) for inspection programs where authorized inspectors are placed directly at one or more water access sites, with no requirement for a person to travel from the water access for inspection or decontamination, and no local ordinance or other regulation requiring a mandatory inspection before placing watercraft or water-related equipment into a water body or after watercraft or water-related equipment are removed from a water body.

Frequently Asked Questions and Scenarios

Q What if a watercraft I'm inspecting has lots of zebra mussels, or it is just too hard to decontaminate?

A1 **If they just arrived at an access:**

Inform the watercraft user that they cannot launch. It is important that the user understands what issues you have encountered. Explain to them specifically what you are seeing, and help them understand where the potential threats are.

Give them a permit to transport to a decontamination location. Complete the entire survey, making sure all information is clearly recorded for law enforcement. Contact your supervisor to report the incident, and follow your supervisor's protocol for informing law enforcement.

Even Level 2 inspectors encounter watercraft that are too difficult to decontaminate, and every watercraft that is turned away is an opportunity to educate watercraft users on how to avoid similar situations in the future.

A2 **If leaving an access:**

Try to provide users with several options to comply with state law. Become familiar with your work area before you arrive at the access, including locations of decontamination units and Lake Service Providers. Always explain the specific issues you have encountered.

- **Option 1:** Watercraft users can be provided a permit to transport their watercraft to a decontamination location.
- **Option 2:** If there is a Lake Service Provider in the area who remove watercraft, you can provide their name to user.

Contact your supervisor to report the incident, and follow your supervisor's protocol for informing law enforcement.

Q What if a boat contains water?

A1 **If arriving at an access:**

If entering vessels arrive with small amounts of water, but have all drain plugs removed, they are allowed to launch if otherwise in compliance. It is highly recommended that the watercraft users remove any standing water with a towel or sponge prior to launch.

If a wakesport boat with ballast tanks arrives, verify there is no water in the tanks by having the watercraft user activate ballast tank pumps. If soft ballast tanks are installed, ask to verify the tanks are empty. If hard and soft ballast tanks are full, deny launch and send watercraft away from the access to drain. If a decontamination unit is present, send watercraft to the Level 2 employee to have these systems flushed.

A2 **If leaving an access:**

All plugs need to be removed and water needs to be draining on exiting boats according to law.

Q What should I do if I find aquatic plants on a watercraft or trailer?

Explain why it is illegal to transport or launch a watercraft with any aquatic plants attached. Remember that duckweed is an exception to this law.

Duckweed (not to scale)

A1 **If they are arriving at the access:**

After educating the user, inform them that they cannot launch until they have cleaned their equipment off. Once all of the aquatic plants are removed, allow them to launch. If present, a Level 2 inspector can perform a partial decontamination using hot water to kill any attached plants or invasive animals.

A2 **If they are leaving the access:**

Inform the user the plants must be removed before transporting. If there are excessive plants, or if they are stuck in the rollers, watercraft can also be re-launched. If present, a Level 2 inspector can perform a partial decontamination, using a hot water soak to kill any attached plants or invasive animals.

Q What if a watercraft with attached mussels is exiting a water body that is not known to be infested with zebra mussels?

A Become familiar with your work area before you arrive at the access, including any infested bodies of water, and what they're infested with. Most public launch sites will have signs showing any invasive species that are present, but the most reliable source of information is the "Infested Waters" list, located on the DNR website. If, to the best of your knowledge, the waterbody you are working at is un-infested, explain to the user why there is an issue.

Complete your survey, making sure to ask how long the watercraft has been in the water, and which waterbodies the watercraft has been in before this visit. Inspectors should take pictures and even samples, utilizing the "Suspected AIS Collection" form located in Appendix C of this manual. It will walk you through any information that is needed.

If a decontamination unit is present, send their watercraft for a full decontamination. If none is present, provide them with a permit to transport to a decontamination location. Contact your supervisor to report the incident, and follow your supervisor's protocol for informing law enforcement.

Frequently Asked Questions and Scenarios Cont.

Q Are inspections just an excuse to look in my livewell?

A No. Inspectors are not law enforcement, and they are only looking for AIS. We are at the access to stop invasives from spreading further throughout our state, and educating people on how to find them is our purpose.

If a conservation officer or other law enforcement do an inspection, they are required to address any violations they see.

Q Do the inspections take a long time or cause big traffic back-ups?

A No. Watercraft inspectors are trained to be efficient in order to minimize delays.

Q Isn't the spread of zebra and quagga mussels inevitable anyway?

A No. States that have implemented education and inspection programs have significantly slowed or even stopped the spread of these species. Even if we only slow the spread of mussels, each year they are contained could save us tens to hundreds of millions of dollars of taxpayer money. Also, preventing the spread of zebra and quagga mussels will protect our waters, native wildlife, and fish for that many more years while ongoing research develops tools to control these species.

Q Aren't zebra and quagga mussels actually good for fishing?

A No. They significantly impact many fish species by removing most of the nutrient base. Zebra and quagga mussels are filter feeders that eat small plankton which is the backbone of the aquatic food web. In some cases game and commercial fish populations have declined after the introduction of zebra mussels.

Q Don't zebra and quagga mussels improve water quality?

A They increase water clarity, not necessarily water quality. They do clear the water significantly, but that is not necessarily a good thing. These mussels eat the good algae and leave behind problematic algae. Clear water also can enable aquatic plant species to grow in more areas of a water body which along with problem algae, impacts water quality, causing taste and odor problems in drinking water.

Q Isn't there anything that eats these mussels?

A These mussels are controlled by natural predators in their native environment, but so far no biological controls have been effective on this continent. Some ducks and fish do eat zebra mussels, but not in quantities that reduce zebra mussel populations. Some predatory fish from their native waters were introduced to the Great Lakes, but they did not control the zebra mussels there. In fact, these species had major negative impacts on other fish species such as smallmouth bass. The public should never introduce new fish predators.

Q Can zebra and quagga mussels be spread by birds?

A Research studies have shown that birds are not a significant factor in transferring these species to new watersheds. Most of the new locations where zebra and quagga mussels have been found are high-use boating areas. Moving watercraft and water-related equipment is the primary method of spreading these species in the U.S., and it is the one factor we can control.

Q Should I stop boating in Minnesota lakes and reservoirs infested with zebra or quagga mussels?

A No. You just need to take extra precautions to Clean and Drain your watercraft completely between infested waters and other places where you like to boat. If you properly follow the Clean, Drain, and Dispose prevention steps, you can safely move your boat between waters. Additionally, drying watercraft and equipment for 5 days can reduce the risk of spreading AIS.

Q How are you going to inspect and decontaminate thousands of boats?

A While we attempt to inspect a large number of watercraft at high risk locations, only those with obvious signs of aquatic nuisance species will be decontaminated. This could be plants, mud, or even visible or suspected water. Many decontaminations are done because the watercraft will be launched again within twenty-four hours.

Q Are zebra and quagga mussels harmful to humans?

A Not directly. They do not represent any direct health risks to humans when they are in a waterway. If there is a large population of mussels in a lake, then the shoreline can be littered with sharp shells.

Q Can you eat zebra and quagga mussels?

A No, you shouldn't. As the mussels filter in food and water, they accumulate heavy metals in their bodies. The high heavy metal content has been toxic to some birds that eat them. Because these metals are toxic, we can't harvest these mussels for human consumption in order to get rid of them.

Q What should I do if there is lots of algae, that is not starry stonewort, on a bunk trailer?

A Algae can be hard to remove fully, but you should try to remove as much as possible. If there is a decontamination unit available have the watercraft user speak with the on-site level 2.

Q What should I do when a watercraft user takes their watercraft off the water to get gas and return the same day?

A Complete your inspection like normal following all protocols. If the watercraft needs to go through a decontamination process, provide an authorization form or have an on-site decontamination completed. Inform the watercraft user they need to be following all AIS laws when they relaunch their watercraft.


Invasive Species Alert
These waters are designated as INFESTED WATERS and contain:
Zebra Mussels
(common size: 1/4 to 1-1/2 inch)
Eurasian Watermilfoil
(12-21 pairs of leaflets)
Minnesota Department of Natural Resources

Appendix A: General Permits

DEPARTMENT OF NATURAL RESOURCES

MINNESOTA DEPARTMENT OF NATURAL RESOURCES
General Permit 2015-003

One-way Authorization to Transport Watercraft with Prohibited Invasive Species or Aquatic Plants attached for Cleaning or Storage
(Minnesota Statutes 84D.05 Subd. 1(5) and 84D.11 Subd. 2d)

Eligible Permittees: Watercraft owners transporting their watercraft with prohibited invasive species and/or aquatic plants attached for cleaning or storage purposes. This permit applies only to individuals transporting equipment as part of a non-commercial activity; individuals or businesses who provide such services for hire or as a benefit of membership in an organization may be required to have a lake service provider permit (see www.dnr.state.mn.us/lsp/index.html for more information).

Scope: This general permit authorizes watercraft owners to transport their watercraft with prohibited invasive species attached to a repair or winter storage location where the prohibited invasive species will be removed and disposed. This general permit is valid only for one-way transport on one day.

Conditions: The watercraft owner must take the following measures to prevent the spread of aquatic invasive species during transport and disposal activities covered under this permit:

- remove as many aquatic plants as you can from the watercraft before transport;
- drain all water from the watercraft before transport (Minnesota Statutes 84D Subd. 4(a));
- transport the watercraft directly from the departure address to the destination address; and
- ensure that prohibited invasive species are disposed of in the trash or in a location at least 300 feet from riparian areas, ditches or seasonally flooded lands.

Instructions: The watercraft owner must complete and sign this permit. The watercraft owner must carry the completed and signed form while transporting watercraft with attached prohibited invasive species to the repair or storage location.

Watercraft owner's name: _____

Watercraft license number (if applicable): _____Transportation date: _____

Departure address (or water access name): _____

Destination address: _____

I have read and agree to follow the above permit conditions.

Signature of the Watercraft Owner: _____Date: _____

Rev. 3/1/18

DEPARTMENT OF NATURAL RESOURCES

MINNESOTA DEPARTMENT OF NATURAL RESOURCES
General Permit 2015-004

One-way Authorization to Transport Boat Lifts, Docks, or Other Water-Related Equipment with Prohibited Invasive Species or Aquatic Plants Attached for Repair, Storage or Cleaning (Minnesota Statutes 84D.05 Subd. 1(5) and 84D.11 Subd. 2d)

Eligible Permittees: Owners of equipment such as boat lifts, docks or swim rafts transporting their equipment with prohibited invasive species and/or aquatic plants attached. This permit applies only to individuals transporting equipment as part of a non-commercial activity; individuals or businesses who provide such services for hire or as a benefit of membership in an organization may be required to have a lake service provider permit (see www.dnr.state.mn.us/lsp/index.html for more information).

Scope: This general permit authorizes equipment owners to transport a boat lift, dock, swim raft or other related equipment, which has prohibited invasive species attached, to a repair or winter storage location where zebra mussels or other prohibited invasive species will be removed and disposed. This general permit is valid only for one-way transport on one day.

Conditions: The equipment owner must take the following measures to prevent the spread of aquatic invasive species during transport and disposal activities covered under this permit:

- remove as many aquatic plants as you can from the equipment before transport;
- drain all water from the boat lift, dock, swim raft or other equipment before transport (Minnesota Statutes 84D.10 Subd. 4(a));
- transport the boat lift, dock, swim raft or other equipment directly from the departure address to the destination address;
- at the destination location, ensure that prohibited invasive species are disposed of in the trash or in a location at least 300 feet from riparian areas, ditches or seasonally flooded lands; and
- leave the boat lift, dock, swim raft, or related equipment out of the water for 21 days before placing it in a different water body (Minnesota Statutes 84D Subd. 4(f)).

Instructions: The equipment owner must complete and sign this permit. The equipment owner must carry the completed and signed form while transporting equipment with attached prohibited invasive species to the repair or storage location.

Equipment owner's name: _____

Watercraft license number (if applicable): _____ Transportation date: _____

Departure address (from where boat lift, dock, swim raft, or other water-related equipment will be transported):

_____

Destination location (where removal of prohibited invasive species will occur): _____

_____

I have read and agree to follow the above permit conditions.

Signature of the Equipment Owner: _____ Date: _____

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Appendix B: Recommended Equipment for Inspections

Recommended Equipment for Inspections

A designated inspection area should be identified, with signage identifying its location. This is usually a *Stop Aquatic Hitchhikers* lawn banner. Inspectors will need to be sure the following equipment and materials are available:

Uniforms

- ☐ Staff identification: shirts, badges, name tags, hats, inspection vest, etc.

Safety Equipment

- ☐ Insect repellent
- ☐ Traffic safety vests
- ☐ Sun block
- ☐ First aid kit
- ☐ Closed toe shoes

Inspection Equipment

- ☐ Inspection forms or device
- ☐ Crescent wrench or needle nose pliers to take out bilge plugs (9/16″ socket also handy)
- ☐ Cell phone with camera
- ☐ Hand wipes
- ☐ Hand sanitizer
- ☐ Paper towels
- ☐ Inspection mirrors
- ☐ Flashlights
- ☐ Magnifying glass
- ☐ Clipboards
- ☐ Pens
- ☐ Grabber tool
- ☐ Sponge
- ☐ Chairs
- ☐ Trash bags

Educational Materials

- ☐ Stop Aquatic Hitchhikers brochures, ID cards and Laws Stickers
- ☐ Boating regulation booklets
- ☐ Fishing regulation booklets

Signage

- ☐ Stop Aquatic Hitchhikers banner
- ☐ Directional signs

Appendix C: Watercraft Inspection and Collection Forms

DEPARTMENT OF NATURAL RESOURCES

WATERCRAFT SURVEY

Date: _____

Case Number: _____ **License Plate Number:** _____ **License Plate State** _____

If zebra mussels were found please make sure you have license number, photograph, and follow up with supervisor

Decontamination unit present: ☐ Yes ☐ No

Watercraft Type (select one): ☐ Fishing Boat ☐ Runabout/ski (no ballasts) ☐ Pontoon ☐ Wakesport

☐ PWC ☐ Jon Boat ☐ Sailboat ☐ Canoe/Kayak/Similar ☐ Boat Lift/Dock/Similar

Drain Plug (select one): ☐ In ☐ Out ***If IN,*** did they remove the plug when asked? ☐ Yes ☐ No

How long was the watercraft in the water: ☐ Less than 24 hours ☐ More than 24 hours

When do you plan to launch next: ☐ Same day (within 24 hours) ☐ Next day (24-48 hours) ☐ 3-4 days ☐ 5 days or more

When has the boater spoken with an inspector:

☐ within the last month:

If less than one month skip the next three check boxes and move directly to Inspecting Watercraft.

☐ a month or more:

☐ Tell them about AIS as you inspect the watercraft ☐ Tell them about EWM ☐ Tell them about zebra mussels

Inspecting Watercraft

Are any plants or animals found (check all that apply):

☐ plants, stuck ☐ plants, removable by hand ☐ zebra mussels, stuck ☐ zebra mussels, removable by hand

☐ spiny water flea ☐ snails ☐ water ☐ mud ☐ other: _____ ☐ none

Where were any plants or animals found (check all that apply):

☐ watercraft ☐ trailer ☐ equipment or accessories (e.g. anchor) ☐ zebra mussels on vegetation

Is further decontamination necessary?

☐ Yes, and decontamination unit is available

☐ Yes, and decontamination unit not available (Provide permit and instruct owner to clean prior to entering.

☐ No

If decontamination is being conducted please select the type: ☐ Full ☐ Partial ☐ Courtesy ☐ User Refused

What was the last water body visited?

Minnesota lake: _____ Minnesota County: _____

☐ out of state ☐ prefers not to answer ☐ does not know

What water body do they plan to visit after this trip?

Minnesota lake: _____ Minnesota County: _____

☐ out of state ☐ prefers not to answer ☐ does not know

DEPARTMENT OF NATURAL RESOURCES

SUSPECTED AIS COLLECTION FORM

Collector's Name: _____

Vehicle License (not required for citizen reports): _____Organization: _____

Lake Name and Access: _____

Collector's Phone Number: _____ Collector's Email: _____

Date of Collection/Report: ____/ ___ / ___Time of Collection/Report: _____

Reason for Collection (check all that apply):

☐ Visual ID of AIS ☐ Plants on Boat/Trailer

☐ Bumps on Boat/Trailer ☐ Unidentifiable Organic Material

Location of Suspected AIS Prior to Collection:

☐ Watercraft Hull ☐ Motor ☐ Live Well

☐ Anchor ☐ Bilge ☐ Watercraft Interior

☐ In Lake/Reservoir ☐ Other:

Citizen Report Information:

Reporter's Name: _____

Reporter's Phone Number: _____Reporter's E-mail: _____

Suspected Species: _____

Location species seen (be as specific as possible):

Does the reporter have photos? Yes No If yes, email them to: WIP.DNR@state.mn.us

Date Delivered: ____/ ___ / ____

Do Not Write for Lab Use Only

Date received at DNR Office: ____/ ___ / ___

Specimen ID: Date identified: ____/ ___ / ___

Technician: _____ Further analysis needed: _____

Collector contacted with results: _____

COLLECTING SAMPLES

Take a sample for identification and/or law enforcement if:

- You think you have found an aquatic invasive species attached to a watercraft or water-related equipment coming out of a water body which is not known to be in that water.
- You have found a prohibited invasive species on a watercraft or water-related equipment entering a water access.

Steps to follow:
Put sample in a plastic bag and keep it in a cool place (a cooler in your car or refrigerator at home). Call your supervisor and he/she will, if possible, pick it up and bring it in to the office to be identified.

Note the following information on the plastic bag:

1. Date
2. Water body
3. Describe where it was found (e.g., on a boat, on a trailer, growing in a water body, caught by a fisherman caught on his line, etc.).
4. Before removing from a boat or equipment, be sure to take photos. Then get vehicle and boat license numbers, and description of boat and boater. If possible, get the name of the vehicle driver.

Samples for education:
When at zebra mussel waters, if you find native mussels, or anything interesting (like a shoe, anchor rope, fishing equipment) with attached ZM, keep it and turn it into your supervisor ASAP. Your supervisor will then bring it into the office to be preserved for a educational specimen. You should have a copy of the DNR Prohibited Invasive Species Permit issued for Invasive Species Program Staff to transport the species for educational purposes.

Citizen report of new infestation:
Collect contact information for the citizen reporting the infestation; ask if the reporter has photographs and e-mail them to wip.dnr@state.mn.us. When collecting location information be as specific as possible: GPS info, location on a map, address of property nearby, color of cabin or dock nearby, etc. Submit this completed form to your supervisor immediately, and e-mail information to: wip.dnr@state.mn.us

DEPARTMENT OF NATURAL RESOURCES

Authorized Watercraft Inspector Report

Possible Zebra Mussel Violation Report Form

SECTION 1: General Information					
Date of Violation			Time of Violation		AM / PM
Inspector Name			Inspector Phone #		
Lake Name			Access Name		
Vehicle Make and Color			Vehicle Model		
Boat Registration			Boat Model and Color		
Lake Service Provider?	Yes	No	LSP Business Name		
Enforcement Contacted?	Yes	No	Enforcement Name		

SECTION 2: Describe the Situation

Tips: Complete this form with as much detail as possible. Include a description of the driver and a name (if possible).

SECTION 3: Final Steps

1. Complete and take a screenshot (press the power and the volume down button at the same time) of this form to send to your supervisor on the same day as the violation.
2. Upload completed surveys on the same day the violation occurred.

Zebra Mussel Violation Write-Ups

Please complete a write up when any of the following occur:

a. Zebra mussels are found during an entering inspection

b. Zebra mussels are found during an exit inspection **at a lake not known to be infested.**

Complete your inspection survey as normal.

Remember to take photos and send this report to your supervisor the day the violation occurs.

Required Information:

1. Date/Time
2. Inspector Name and Phone #
3. Access and County
4. Description of the watercraft
5. Description of the vehicle towing the watercraft with license plate of vehicle
6. Brief description of the watercraft operator
7. Description of the violation
8. Actions of the inspector regarding launch and decontamination. Some examples:
   a. Boat sent to decon on site
   b. Gave boater an authorization form
   c. Removed everything by hand and allowed to launch
9. Was law enforcement contacted for any reason? If so, what happened?

Examples of a write-up:

- Date: 6.12.16, 0815
- Inspector Info: John Smith 651-555-1234
- Location: WBL City access, Ramsey Co
- Watercraft: Lund Fishing Boat, MN 5555ZX
- Vehicle towing: plate—MN 539KCD, Black Yukon
- Operator: Older man, white hair and glasses

I found plants and plants with zebra mussels attached on a boat trying to enter. The boat had been on Upper Prior 2 days earlier. Plants were found on the trailer and the zebra mussels were on plants on the anchor. I denied them launch and told them about their decontamination options and provided them with an authorization form.

County ID Numbers and Names

01	Aitkin
02	Anoka
03	Becker
04	Beltrami
05	Benton
06	Big Stone
07	Blue Earth
08	Brown
09	Carlton
10	Carver
11	Cass
12	Chippewa
13	Chisago
14	Clay
15	Clearwater
16	Cook
17	Cottonwood
18	Crow Wing
19	Dakota
20	Dodge
21	Douglas
22	Faribault
23	Fillmore
24	Freeborn
25	Goodhue
26	Grant
27	Hennepin
28	Houston
29	Hubbard
30	Isanti
31	Itasca
32	Jackson
33	Kanabec
34	Kandiyohi
35	Kittson
36	Koochiching
37	Lac qui Parle
38	Lake
39	Lake of the Woods
40	Le Sueur
41	Lincoln
42	Lyon
43	McLeod
44	Mahnomen
45	Marshall
46	Martin
47	Meeker
48	Mille Lacs
49	Morrison
50	Mower
51	Murray
52	Nicollet
53	Nobles
54	Norman
55	Olmsted
56	Otter Tail
57	Pennington
58	Pine
59	Pipestone
60	Polk
61	Pope
62	Ramsey
63	Red Lake
64	Redwood
65	Renville
66	Rice
67	Rock
68	Roseau
69	St. Louis
70	Scott
71	Sherburne
72	Sibley
73	Stearns
74	Steele
75	Stevens
76	Swift
77	Todd
78	Traverse
79	Wabasha
80	Wadena
81	Waseca
82	Washington
83	Watonwan
84	Wilkin
85	Winona
86	Wright
87	Yellow Medicine

Glossary

Many terms pulled from:

Brown, Elizabeth M., editor. Watercraft Inspection and Decontamination (WID) Manual. Pacific States Marine Fisheries Commission, Portland, OR. 2021. 138 pp.

Aft: A nautical term that refers to the rear or stern of the boat.

Anchor: A heavy object attached to a line and used to moor a vessel to the bottom of the water body.

Anchor Line: A device that connects the anchor to the boat. This could be a rope, chain, or other type of tether.

Anchor Storage: An interior compartment area on the boat, typically in the bow of the boat, where the anchor is stored.

Anti-Cavitation Plate: A flat metal fitting mounted horizontally above the propeller of an outboard motor, which helps direct the flow of water into the propeller and reduces cavitation. Cavitation is the effect caused when air is drawn down into the water by a propeller, resulting in loss of power, overspending of the engine and propeller, and pitting of the metal surfaces of the propeller.

Aquatic Invasive Species (AIS): Aquatic Invasive Species means a nonindigenous species, including their seeds, eggs, spores, larvae, or other biological material capable of propagation, that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural or recreational activities dependent on such waters.

Bait: Food that is used to entice fish or other animals as prey.

Bait Well: An interior compartment that specifically holds live aquatic bait. Sometimes it is a separate container on the boat or incorporated in the live well compartment.

Ballast Tank (hard or soft): A compartment within a boat, ship or other floating structure that holds water. Adding water (ballast) to a vessel lowers its center of gravity and increases the draft of the vessel. A ballast tank can be filled or emptied to adjust the amount of ballast force.

Bilge: The lowest compartment on a boat where the two sides meet at the keel. The word is sometimes also used to describe the water that collects in this compartment. Water that does not drain off the side of the deck drains down through the boat into the bilge.

Bilge Plug or Drian Plug: A plug located either on the transom wall or in the bottom of the hull that keeps lake water from entering the boat. It must be removed when exiting the water body.

Bilge Pump: A water pump used to remove excessive bilge water. The water that collects in the bilge must be pumped out to prevent the bilge from becoming too full and threatening to sink the boat on the lake or reservoir.

Bow: A nautical term that refers to the forward part of the hull of a boat.

Burner on/off switch: This switch on a decontamination unit activates the burner to heat the water.

Byssal threads: A spider-web like appendage that enables the zebra or quagga mussels to attach to surfaces. Native species do not have byssal threads.

Centerboard: A retractable keel which pivots out of a slot in the hull of a sailboat that is used to provide lift to counter the lateral force from the sails.

Choke: A device on some decontamination units that must be pulled out prior to turning the key to start the engine and pushed in immediately after starting the unit.

Clean: A watercraft, trailer or equipment that does not show visible AIS or attached vegetation, dirt, debris, surface deposits, or non-verifiable water. This includes mussel shells or other biological materials and is inclusive of dirt or other residue that could mask the presence of attached mussels or AIS.

Control: To mitigate against the effects of AIS through reductions in the species population size.

Daggerboard: A retractable keel used by various sailing craft which slides in a casing converting the forward motion into a windward lift, countering the leeward push of the sail.

Decontamination: A process used to kill, destroy, or remove aquatic invasive species and other organic material that may be present in or on a conveyance, to the extent technically and measurably possible.

Decontaminator or Level 2: An individual that is certified to perform watercraft inspection and decontamination for AIS.

Detection: The verified presence of AIS.

Diffuser: This is a decontamination unit attachment that connects directly to the spray gun and is used to provide low pressure hot water for rinsing or flushing with a rubber tip to prevent scratching surfaces.

Drain: To the extent practical, all water drained from any live-well, bait-well, storage compartment, bilge area, engine compartment, deck, ballast tank, water storage and delivery system, cooler or other water storage area on the watercraft, trailer, engine, or equipment.

Drain Plug: see bilge plug

Dreissenids: Dreissenids are the common term associated with the family Dreissenidae which are small freshwater mussels who attach themselves to hard surfaces using byssal threads. Two invasive dreissenid species of interest in North America are the quagga (Dreissena rostriformis bugensis) and the zebra mussel (Dreissena polymorpha).

Dry: No standing water; opposite of wet. A watercraft is completely dry if there is no detectable water on the exterior or interior surfaces of the watercraft, and no dampness can be felt on the interior of the watercraft.

Entering Inspection: See Incoming inspection

Exit Inspection: This is the complete inspection that is performed on watercraft exiting the lake or river. This procedure includes a visual and tactile inspection of all portions of the watercraft, accessories, and trailer that came into contact with water. Verify that the boater has followed the proper procedures to clean off the watercraft and completely drain all compartments prior to leaving.

Exotic: An exotic species is a species that is not native to a given environment that often causes environmental and economic harm.

Fake-a-Lake: This decontamination unit attachment is used for decontaminating inboard engines and ballast tanks. It has a telescoping leg, and the hose attachment threads into the connection on the "plunger," joining the fake-a-lake to the hose to the wand.

Fender: Cushions that prevent a boat from being damaged by rubbing against a dock, or other watercraft. May also be referred to as bumpers.

Full Decontamination: A decontamination procedure that is applied to watercraft with attached zebra mussels, or other suspected AIS. Flush engine with hot water, and flush internal compartments and equipment that may have come in contact with water. Apply a hot water rinse of the hull and use of high pressure to remove attached mussels or other AIS. Physical removal of adult mussels or suspect mussels/AIS.

Gimbal: A pivoted support that allows the rotation (up and down and side to side movement) of the outdrive of an I/O engine and outboard motor.

Hose: This 6-foot hose has a quick connect fitting that connects to the end of the wand. The other end threads into the fake-a-lake or muff attachments needed for a decontamination.

Hull: The body or frame of a boat.

Inboard Engine: A marine propulsion system that is enclosed within the hull of the boat. These have a raw water-cooling system where water from the reservoir is pumped by the engine to cool it. Attached to the hull of the boat is the propeller shaft and propeller which propels the boat through the water. The rudder acts as the "steering wheel" to guide the boat.

Incoming or Entring inspection: This is the complete inspection that is performed on watercraft entering the lake or river. This procedure includes a visual and tactile inspection of all portions of the watercraft and trailer that could come into contact with water.

Infested Water: A water that has an established (recruiting or reproducing) population of AIS.

Inspection: A process to determine whether watercraft or water-related equipment is harboring any organisms or organic materials that may present a risk of spreading AIS risk by physically and visually examining it following the protocols and procedures.

Inspector or level 1: An individual that is authorized to perform watercraft inspection for AIS.

Invasive Species: Invasive species means, with regard to a particular ecosystem, a non-native organisms whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health.

Jet Boat: A boat propelled by a jet of water ejected from the back of the craft. A jet boat draws the water from under the boat into a pump inside the boat. The water then passes through a series of impellers and stators known as stages which increase the velocity of the water flow. The water is then expelled through a nozzle at the stern. Most modern jets are single stage while older waterjets may have as many as three stages. The tail section of the waterjet unit extends out through the transom of the hull above the waterline. This jet stream exits through a small nozzle at high velocity to push the boat forward.

Keel: Runs in the middle of the boat, from the bow to the stern, and serves as the foundation or spine of the structure, providing the major source of structural strength of the hull, which may be fixed or retractable to allow sailing in shallow waters.

Larval: The larvae or initial life free-floating planktonic life stage of a zebra or quagga mussel (and some other molluscs including Corbicula), also called a veliger.

Live Well: An interior compartment found on many boats that is used to keep caught fish alive. It works by pumping fresh water from the water body into the tank, as well as keeping the water aerated.

Live Well Pump: A pump that assists in filling a live well with lake water.

Lower Unit: The bottom portion of an outboard motor or an inboard/outboard engine. The water found in this portion is lake water that has not been heated by the motor/engine.

Macrophyte: An aquatic plant, large enough to be seen by the naked eye.

Microscopic: Too small to be seen by the unaided eye but large enough to be studied under a microscope.

Muffs: Muffs are used to decontaminate the lower unit of an outboard motor or inboard/outboard engine.

Non-Motorized, Hand-Launched Boats: These boats are not launched from trailers, and they do not have engines or motors. They may or may not have compartments or containers that hold water.

Non-Native: A species that has been introduced to a new environment, either intentionally or unintentionally outside of its native range.

Off-Water WID Stations or Locations: WID stations that are not located at a water body (e.g. highways, ports of entry, offices or business locations).

Outboard Motor: A propulsion system for boats, consisting of a self-contained unit that includes engine, gearbox, and propeller. It is designed to be affixed to the outside of the transom and is the most common motorized method of propelling small watercraft. As well as providing propulsion, outboards provide steering control, as they are designed to pivot over the gimbal (mounting bracket) and control the direction of the thrust. The skeg also acts as a rudder when the engine is not running.

Personal Watercraft (PWC): A recreational watercraft that the user sits or stands on, rather than inside of, as in a boat. Models have an inboard engine driving a jet pump that has a screw-shaped impeller to create thrust for propulsion and steering.

Phytoplankton: Plankton consisting of microscopic plants in water.

Pitot Tube: A pressure measurement instrument used to measure the velocity of a boat at a given point and is usually attached to the transom.

Plankton: Passively floating, drifting, or somewhat motile organisms occurring in a body of water, primarily comprising microscopic algae and protozoa, which are often the bottom of the food chain.

Plankton Tow: A cylindrical net with a fine mesh is dropped into a body of water to capture any plankton, veligers, or other organisms in the net, where it can then be analyzed in a lab.

Plant Decontamination: Apply hot water as defined in WID Manual to kill plants that can't be physically removed by hand during inspection.

Port: A nautical term that refers to the left side of the boat as perceived by a person who is in the boat facing the bow.

Prevention: To stop or attempt to stop the introduction of an AIS.

Prop Shaft: The propeller shaft knows by many different names, such as drive shaft, prop shaft, or driveline, and is a component of the drive train, with the purpose of delivering torque from the transmission to the differential, which then transmits this torque in order to move the vehicle.

Quick Connect Fitting: This decontamination unit fitting comes in two parts: (1) the part that is attached to the end of the wand has to have the external circle pressed down before the other portion of the fitting can be inserted; and (2) the external circle then must click in place to make a proper connection.

Rudder; A device used to steer a boat when moving through water which operates by redirecting water that has passed the hull, imparting a turning motion to the craft.

Sailboat: A boat propelled partially or wholly by sail.

Sea Strainer: A filtration device used to prevent solids from reaching internal compartments, such as pumps on engines or ballast tanks.

Settlers: The juvenile stage of Dressenids and some other molluscs that follows the veliger or larval stage and is before the adult stage. As a veliger grows out of the veliger or larval stage, it undergoes a metamorphosis and begins to grow a shell and will settle onto a semi-hard or hard surface to finish developing into an adult. At this stage, the settlers will feel like sandpaper or grit on a boat.

Skeg: A support at the bottom of a rudder.

Spray Gun with Trigger: The spray gun is the controlling mechanism to deploy water out of the decontamination unit. The hose, wand, or diffuser attachment thread directly onto the gun.

Standing Water Decontamination: Hot water flush, rinse, or spray as defined in WID Manual of the exterior or internal compartments that can hold water.

Starboard: A nautical term that refers to the right side of the boat as perceived by a person who is in the boat facing the bow.

Stern: The rear or aft-most part of a boat.

Sterndrive (or Inboard/Outboard (I/O) Engine): A sterndrive is located inboard just forward of the transom (stern) and provides power to the drive unit located outside the hull. The drive unit (or lower unit or outdrive) resembles the bottom half of an outboard motor.

Substrate: 1.) A device used to monitor for the settler stage of zebra or quagga mussels, typically consisting of a black, rough PVC pipe suspended in the water body between a buoy at the surface and a weight at the bottom. 2.) The bottom of the water body, where organisms live the benthos or benthic area.

Thermometer: A device to measure temperature which is essential to the decontamination process and should be used before, during, and after decontamination.

Thermostat: A device that allows the water temperature to be adjusted so that different decontamination temperature protocols and procedures can be adhered to.

Through Hull Fitting: A device that's secured to and creates an opening through the hull, to which a pipe or duct can be attached, allowing the passage of water or gas into or out from the boat.

Trailer: A vehicle that is towed which is designed to launch, retrieve, carry and sometimes store boats. The boat may sit on rollers or carpet depending on the type of trailer.

Trainer: An individual who is certified to train others in watercraft inspection and decontamination for AIS.

Transom Well: Recessed area where water collects that is formed by the transom.

Unverifiable Water: Water that is found within compartments that cannot be visually seen or physically inspected, such as in wells, ballast, bilge, or engines.

Veliger: The initial life stage which is the free-floating larval form of a dreissenid mussel and some other mollusks.

Verifiable Water: Water that is found within compartments that you can see, feel, and physically inspect, such as in wells, or storage areas.

Zooplankton: Plankton consisting of microscopic animals in water.

Notes

DEPARTMENT OF NATURAL RESOURCES

AQUATIC INVASIVE SPECIES AND THE WATERCRAFT INSPECTION PROGRAM

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