WATERCRAFT DECONTAMINATION MANUAL

DEPARTMENT OF NATURAL RESOURCES

AQUATIC INVASIVE SPECIES AND THE WATERCRAFT INSPECTION PROGRAM

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

This manual outlines standard watercraft and equipment decontamination procedures and protocols. The procedures and protocols in this manual apply to trailered watercraft and water-related equipment of any kind. It includes motors, trailers, compartments, and any other equipment that routinely or reasonably could be expected to contain or have come into contact with water.

Who should use this manual? Minnesota Department of Natural Resources staff and Government Unit staff trained annually by the State of Minnesota.

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DEPARTMENT OF NATURAL RESOURCES

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Table of Contents

High-pressure spray of a watercraft hull.

Section 1: An Introduction to Watercraft Decontamination

Why Decontaminate?

Aquatic invasive species (AIS) are able to travel long-distances over land on watercraft and water-related equipment. Many forms of AIS can survive extended periods of time out of the water. To effectively reduce the spread of these costly invasive species, an extensive education, inspection, and decontamination program has been developed. Completing decontamination on watercraft and water-related equipment by trained and authorized personnel can help protect lakes and rivers.

Watercraft Decontamination in Minnesota

According to Minnesota statute, “decontaminate means to wash, drain, dry, or thermally or otherwise treat water-related equipment in order to remove or destroy aquatic invasive species (AIS)”. Decontaminations are completed to remove all mud, plants, organisms, and water from the interior and exterior of watercraft and equipment. In general there are two types of decontaminations that may be performed; manual decontamination is removal by hand, and mechanical decontamination uses hot water and/or high-pressure. This handbook focuses on mechanical decontamination protocols used in Minnesota.

Level 2 Inspector Responsibilities

Level 2 inspectors are required to pass annual Level 1 watercraft inspection training, and all duties found in the Watercraft Inspection Manual should be followed at all times. In addition, Level 2 inspectors must pass annual Level 2 training and are responsible for following protocols covered in this manual.

Ensure personal and public safety

Your safety, and the safety of the public, is your top priority when performing a decontamination. Working with hot and high-pressure water can present many safety risks; if you cannot decontaminate a watercraft due to a safety hazard, do not do it.

Educate the public

You will be educating watercraft users about the decontamination process because the public may be curious. Be sure to explain the type of decontamination you will be completing so the watercraft user is comfortable and informed about the process.

Perform watercraft inspections

Level 2 inspectors perform watercraft inspections. Watercraft users need to go through an inspection in order to determine whether or not decontamination is necessary. Complete the watercraft inspection survey before completing a decontamination survey. Accurately completing the survey is important. The data you record may help shape the program for the future.

Perform decontaminations

This responsibility is only for authorized Level 2 inspectors who have passed Level 1 and Level 2 watercraft inspection training.

Assist law enforcement

You may need to contact law enforcement to respond to violations. Remember to be an expert witness and document in detail what happened. This will help law enforcement follow-up and respond to a violation.

Encourage Decontamination

As Level 2 watercraft inspectors you will be the experts in the field on watercraft decontamination, and play a key role in educating watercraft users about the advantages of decontamination. The different scenarios listed in this manual are intended to teach you how to best decontaminate equipment based on risk.

While working in the field you may encounter watercraft users that are not legally required to decontaminate and do not have enough time for you to complete all of the steps necessary for proper decontamination. In cases like this you can work with watercraft users to shorten the process and attempt to complete one or two of the steps. As an example, a flush of the livewell and/or engine will only take a few minutes.

These simple actions can help reduce the risk of spreading AIS, and can demonstrate to watercraft users that decontamination is easy and safe for their equipment. Inspectors can help increase voluntary decontaminations by proactively encouraging watercraft users to take advantage of free decontamination.

Watercraft Decontamination Basics

Watercraft decontamination consists of a hot water rinse and a high-pressure spray. The hot water kills the AIS, and the high-pressure removes them. There are no soaps, bleaches, or chemicals used or recommended at this time. Chemicals are not as reliable as temperature at killing AIS, and are a liability because they can damage water-related equipment. At **140°F**, a hot water rinse for 10 seconds to each spot will kill all adult mussels. At 120°F, a contact time of 2 minutes is needed to kill adult zebra mussels. Level 2 inspectors will adjust temperature and exposure times based on the equipment being decontaminated.

SAFETY MESSAGE: Always wear appropriate PPE (personal protective equipment) when working with any decontamination equipment to avoid injuries.

Section 2: Working with Watercraft Users

Education and outreach

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

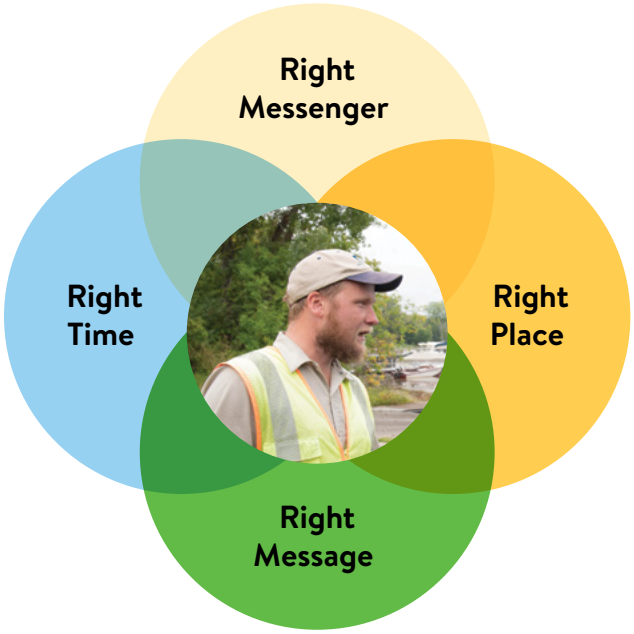
Behavioral science tells us there is often a gap between intention and action. Just because people intend or know they should do something, doesn't mean they always follow through (e.g. how often your dentist suggests that you floss your teeth, compared to how often you do). In your role, you can help watercraft users adopt and practice desirable AIS prevention behaviors, such as watercraft decontamination.

Recent Minnesota studies have shown:

- Most watercraft users and anglers are concerned about AIS and take action to prevent the spread of AIS.
- Watercraft users want and need your services. They want to prevent the spread of AIS, want access to decontamination units, and are willing to spend the time (around 30 minutes) to get a decontamination.
- You provide AIS information where watercraft users prefer to receive it.
- You provide a safe space to act, a place to pull-off away from traffic.
- You follow protocols from a highly trusted source, the DNR.
- You remove the "lack of tools/equipment" barrier by providing professional decontamination services.

Removing barriers (time, concern for damage), leveraging motivators (its free, a clean boat, prevents AIS spread), making it easy (set up in a location away from traffic), helping them feel comfortable (explaining what you are doing and the tools you are using, the training you have), promoting social norms (other people care and take action), and asking "can I count on you to get a decontamination?" or something similar, can influence watercraft user behavior positively.

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



Cleaning Tools at Accesses

Some accesses are equipped with tools to help watercraft users inspect their watercraft, and remove plants, invasive animals, and water on their own. While these are not decontamination stations, these self-serve cleaning tools are a good alternative if a decontamination unit is not available.

Walk-around with operator

Make sure the operator is aware and comfortable with what you are about to do. Prior to completing any part of the decontamination, conduct a walk-around inspection with the operator, and complete that portion of the survey (page 29). Asking operators about their equipment can help you identify what needs to be decontaminated and how it should be done, along with identifying pre-existing damage. This is useful when dealing with ballast tanks and identifying which thru-hull fittings are ballast outlets. Once the decontamination is completed conduct a final walk-around inspection to identify any damage that may have happened during the decontamination.

Safety

When working with the public always keep safety in mind. You should perform certain components of decontamination that involve operator participation first to reduce the risk of watercraft users slipping on any wet surfaces. For example, flushing ballast tanks and motors involve the participation of watercraft users so they should be done before other decontamination components.

Also, make sure to establish a set of signals with the watercraft user when flushing ballast tanks and motors. This will make it easier for both of you to communicate if the unit is too loud to talk over. A signal may be as simple as a "thumbs up" for starting the motor.

SAFETY MESSAGE: If you are approached while conducting the decontamination, stop what you are doing and turn off the unit, answer their questions, direct them to stand at a safe distance before you resume your decontamination.

Inspector words of advice from the field

Decontaminations have been conducted in Minnesota since 2012, and some staff have found effective ways of promoting watercraft decontaminations.

Many inspectors refer to training and educating watercraft users, some have said:

"*I refer them back to the Clean, Drain, Dispose message, completing a decontamination is an additional step to the "Clean".*"

"*I will talk about the decontamination process before I even suggest pulling onto the mat.*"

"*If someone is curious about decontaminations, I tell them or show them what I do by decontaminating their watercraft.*"

Some inspectors found it easier to sell the decontamination by saying something about the process:

"*We have our unit set up over there, we can decontaminate your boat by doing a quick soak of the hull.*"

"*I can do a quick hull soak with 140°F water in about 10 minutes, and that will reduce the risk of spreading AIS from this lake.*"

Inspectors have talked about building relationships with watercraft users to convince them to have a decontamination:

"*When someone is launching for a long weekend, I talk about the decontamination process then and where we will be so they can have one done.*"

"*Even when I might not be 100% confident on the inside, I never show that to the watercraft user and I refer to my manual and training if I have questions.*"

"*I thank them every time they get a decontamination, even if it was not protocol that they have one done.*"

Every conversation will be different when interacting with watercraft users. Some watercraft users have had decontaminations performed before and know the process. Some even seek out the decontamination locations. The goal of the program is to create new habits and decontamination can be one of them.

Section 3: Decontamination Equipment

Decontamination Equipment

Required

- Decontamination unit attachments
  - Ballast hose
  - Extension hose
  - Fake-a-lake
  - High-pressure wand with 40° nozzle
  - Undercarriage sprayer
  - Low flow diffuser
  - Motor flush muffs
  - Trigger assembly
- Hand-held thermometer
- Current year's survey
- Brush for removing AIS
- Plastic scrapper (with round edges)

Recommended

- Chocks
- Safety cones
- First aid kit
- Crescent wrench
- Sponge (large, car wash style works best)
- Step ladder
- Squeegee if using a collection mat
- Reclaim system
  - reclaim and underlay mats
  - vacuum hose and attachment
- Battery powered or portable vacuum

Decontamination Equipment Terminology

Ballast Hose

A ballast hose can attach via a fitting to an extension hose. This hose is used to fill some ballast tanks by inserting the hose into a thru-hull fitting that connects to the ballast tank.

Extension (or Accessory) Hose

This hose connects to the trigger assembly, and is used to connect various decontamination tools , except for the high-pressure wand or undercarriage sprayer.

Fake-a-Lake

A fake-a-lake tool is used to flush water through inboard engines, or to fill ballast tanks while a watercraft is out of the water.

High-Pressure Wand

The high-pressure wand is used to spray pressurized water to help remove stuck aquatic invasive species.

Low Flow Diffuser

The diffuser hose allows low-flow water to pump from the decontamination unit. This tool is used to decontaminate sensitive equipment, external surfaces, and internal compartments.

Motor Muff

Motor muffs are used to decontaminate sterndrive, and outboard engines by providing water to the intake.

Trigger Assembly

The trigger assembly is attached directly to the decontamination unit's high-pressure hose, and is used to start and stop the flow of water.

Hand-Held Thermometer

A digital or analog thermometer should be used to confirm water temperatures throughout the decontamination process. Infrared temperature tools are not as accurate for measuring water temperature.

Brushes and Plastic Scrappers

Brushes with nylon or plastic bristles can be used for AIS removal. Harsh bristle materials, such as metal, should be avoided.

Reclaim System

Some decontamination units will have reclaim systems that consist of a vacuum, reclaim tank, and filters, to allow decontamination water to be reused.

Undercarriage Sprayer

The undercarriage sprayer is used to spray pressurized water to the underside of watercraft to help remove stuck aquatic invasive species. You can also use it in a low flow setting, by removing the 40° white tip nozzle.

Personal Protective Equipment (PPE)

Operating a decontamination unit can present various working hazards. Below is a list of personal protective equipment that should be worn at all times while performing decontaminations to protect yourself from those hazards.

- Face Shield
- Gloves (must be thermally rated)
- Rain Gear
- Safety Glasses
- Hearing Protection

Inspector using high-pressure spray, wearing all required personal protective equipment.

Observe the traffic flow of the access when setting up the decontamination area; consider safety of the inspector and the public first.

Section 4: Decontamination Set-up and Operation

Site setup

Placing the decontamination unit

When placing the decontamination unit at an access, it is important to consider the ground surface, slope, and distance to the water body. Avoid placing the decontamination unit in a location where decontamination water may drain into a water body or connected drainage. Portable decontamination units are heavy when full; parking on the pavement is the best option when available. When this option is not available, park on the firmest ground possible. Avoid parking the decontamination unit under any over hanging trees. The burner exhaust can be very hot and has the potential to start any tree branches on fire.

Traffic patterns at the access should also be considered to avoid blocking traffic, to allow watercraft users to easily pull their watercraft onto the mat, and to ensure the safety of everyone.

Do not park in or block handicap, law enforcement, the launch-site, or other restricted spaces.

IMPORTANT MESSAGE: 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 until they have been through the inspection and/or decontamination process.

Once your decontamination location is determined, set up all remaining equipment. Use cones to create a safe work area – consider creating the stations listed below:

1. Self-inspection and tie down area;
2. Watercraft inspection area; and
3. Decontamination area.

Creating the decontamination area

The decontamination equipment should be ready for use at all times. Set up the equipment as follows:

IMPORTANT MESSAGE: If a water collection system is not available, the station should be on a semi-permeable dirt or gravel site.

Reclaim and underlay mat

If your decontamination unit is equipped with a reclaim system, place the underlay, and then reclaim mat, on the ground. In order to extend the life of the mat, it should only be driven on by vehicles entering the decontamination station for decontamination. Ensure there is enough room for other vehicles to pass without endangering the driver or inspectors. Use cones to mark out space as needed.

Inspector reclaims water from mat using the vacuum head attached to vacuum hose.

Vacuum system

If your decontamination unit has the capability of reclaiming water, connect the vacuum hose to the decontamination unit and place the vacuum hose so it can reach the lowest point of the reclaim mat. If the lowest point of the mat is not on the same side as the decontamination unit, you will need to move the hose into position for each decontamination after the watercraft user has parked on the mat. Do not allow the vacuum hose to be run over.

The vacuum hose will transfer the water into a reclaim tank. The vacuum head attached to the end of the hose needs an air/water mixture to operate properly. The vacuum will not operate properly if the vacuum head gets submerged. The water will then get pumped back into the water tanks via the reclaim/transfer pump.

Attachments

Unwind the entire length of the high-pressure hose so you can go around most watercraft easily; it is recommended by the manufacturer not to leave the hose on the reel. Lay the hose out on the side of the mat away from the flow of traffic.

Connect the trigger to the high-pressure hose and have the attachments accessible; this will make the decontamination process go smoothly. Place attachments in a safe and clean location to prevent damage and keep them in working order.

Start the unit to ensure that it is functioning properly; check the temperature and test the reclaim system.

Decontamination unit operation

Information listed in this section will cover general operation guidelines. There are different types of decontamination units and you should always read the manufacturer's operator manual for specific operating instructions.

Unit start-up

Prior to starting the unit, check the control panel and make sure the reclaim pump, vacuum, and burner are off.

- To start the unit, hold the trigger assembly (pointed in a safe direction) with the trigger squeezed; this will help the unit start easier by releasing excess pressure.
- Pull the choke out and turn the key; as soon as the engine is running push in the choke.
- Trigger may be released once the engine is running.
- Heat the water by turning on the burner and use a thermometer to ensure the unit is heating properly.
- The reclaim system can be turned on whenever water has accumulated on the mat.

IMPORTANT MESSAGE: Following these procedures can reduce wear and tear on the units which helps prevent breakdowns and costly repairs.

Unit shut-down

- Prior to shutting the unit down, turn the burner off and continue to run water through the system until the water has cooled. This will prevent damage to the hose and burner coil.
- Turn the unit off.
- Once the unit is off point the trigger assembly in a safe direction and release the pressure by squeezing the trigger.
- Store attachments in a safe place for future use.
- The reclaim pump can be operated when the unit is not running. Once the reclaim tank is empty turn off the pump.

IMPORTANT MESSAGE: Ensure the reclaim system is completely emptied prior to trailering the decontamination unit. Trailering the unit with water in the reclaim tank can cause damage to the transfer pump if the switch is left on. Follow the owner's manual instructions on how to drain the reclaim tank.

At the end of the shift store all equipment in a safe location for transport and scan the area for anything left behind.

Safety

Only authorized Level 2 inspectors should operate the unit and they should follow safety policies at all times.

- DNR employees must follow the Level 2 Policy Manual, including required personal protective equipment (PPE).
- Non-DNR inspectors must follow employer safety policies.
- All inspectors are encouraged to contact their supervisor with any safety questions.

During a decontamination, inspectors should wear gloves, a face shield, and a safety vest. Rain gear or long sleeves and pants are recommended. Only closed-toe shoes or boots should be worn. Waterproofing is recommended.

Wear gloves when switching attachments; the brass fittings can become extremely hot with use. Keep the safety mechanism on the trigger assembly engaged at all times when switching attachments.

Don'ts:

- Don't allow members of the public or unauthorized inspectors to operate the unit. Be sure to keep everyone well back from the watercraft and decontamination unit when in use.
- Don't point any of the attachments at anyone. ALWAYS ensure that the safety is engaged on the trigger assembly when not in use.
- Don't put a hand in front of the water stream for any reason, no matter what attachment is in use.
- Don't allow anyone to walk around the decontamination unit or watercraft while the Level 2 inspector is decontaminating the boat. This is a distraction and a possible hazard.
- Don't have anyone working on the watercraft while a decontamination is taking place.
- Don't touch the burner/engine during or after use.
- Don't place any equipment on top of the unit, as vibrations from the unit running will dislodge or damage equipment.

SAFETY MESSAGE: Call for emergency help if there are serious injuries of any kind to anyone. Report ALL injuries to your supervisor IMMEDIATELY.

An inspector crouches down to use high-pressure spray on the underside of a hull in order to complete a full decontamination.

Section 5: Decontamination Procedures

When should a decontamination be completed?

Decontaminations are done only after a full inspection has been completed. The inspection process will reveal what type of decontamination is needed. There are a variety of scenarios where we may require or encourage the watercraft user to complete decontamination. See the list below:

- 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 water in them
- Aquatic plants attached that cannot be removed by hand
- Watercraft or equipment that will be placed in another water body within 48 hours.
- Watercraft or equipment that was in a water body for 24 hours or more
- A licensed peace officer deems one necessary
- Courtesy decontamination

Specific protocols for decontaminations start on page 19.

SAFETY MESSAGE: Ensure the watercraft trailer is centered on the reclaim mat, vehicle is in park, and parking brake is set.

If you are working alone, wheel chocks could be added for additional safety.

Zebra mussels can be attached to the watercraft, trailer, or any water-related equipment.

Check all water-holding compartments, like this baitwell, to ensure they have fully drained.

Work with the watercraft operator to ensure all ballast areas are free of residual water.

Aquatic plants can be stuck to watercraft or trailer parts.

What types of decontaminations will I do?

There are multiple types of decontaminations you will perform depending on the scenario. Each of these will be described in detail later in the manual. Each decontamination must be recorded in the decontamination survey.

All types of decontamination fall into one of two categories: full or partial.

A full decontamination is performed when attached zebra mussels, spiny waterfleas, or stuck plant material are detected during the inspection. AIS can be easily missed during an inspection or hand removal process, completing a full decontamination will reduce the risk of spreading AIS. This decontamination is the most complicated and ensures that the watercraft has been completely decontaminated inside and out.

A full decontamination consists of all of the following:

- Internal Decontamination
- Engine Decontamination
- Exterior Decontamination
- High-Pressure Spray

A partial decontamination consists of any of the elements listed above and are described below.

Internal Decontamination

This protocol is performed to kill veligers or other microscopic AIS when there is water inside the watercraft that can't be sponged out or drained, otherwise known as residual water. This decontamination applies to interior compartments that come into contact with lake or river water including, but not limited to: livewells, baitwells, bilge areas, and ballast tanks. Wet equipment may be included in this decontamination such as anchors and anchor ropes, swim platforms, etc.

Engine Decontamination

This protocol is performed to flush and kill any AIS inside engine compartments that hold water. The majority of watercraft engines use lake water to keep the engine running at operating temperature. Some engines will hold water once they are shut off.

Exterior Decontamination

This protocol is performed to kill any known or potentially attached AIS on the outside of the watercraft. This decontamination applies to the entire hull of the watercraft, focused on the waterline and below, the trailer, and areas where plant material cannot be fully removed by hand.

Plant Decontamination

This decontamination is performed whenever plant material cannot be fully removed by hand. This process is specific to areas where plant material is found. Prior to treating with hot water, remove as much plant material as possible. Application of hot water to these areas are localized and need 140°F water for 15 seconds.

How to Perform Decontaminations–Learning the Process

Ballast Tank Decontamination

Ballast tanks may be found in various watercraft such as sailboats and wakesport boats. It is important to verify with the watercraft user where the ballast tanks are located and whether the ballasts are soft or hard tanks before starting a ballast tank decontamination.

To flush hard ballast tanks on wakesport style boats, start by asking the watercraft user to turn on the drains and confirm which thru-hull fitting leads to each ballast tank. It is best to allow each tank to drain to the best of its mechanical ability before supplying decontamination water (this will help with more consistent water temperatures). Ballast tanks will drain through the thru-hull fittings on the side of the watercraft, the thru-hull fittings on the underside of the watercraft, or on the transom. Using each fitting that water drains from to fill the respective ballast tank will provide your best opportunity for a successful ballast tank decontamination.

Location of soft ballast tanks in a wakesport boat.

There are several different methods of getting water into the tanks

- **Ballast Hose** for the thru-hull fittings on the side of the watercraft
- **Fake-a-Lake** for the thru-hull fittings on the underside of the watercraft
- **Low Flow Diffuser** for soft ballast tanks that have been removed or ram driven systems (which drain from the transom of the watercraft)

Ballast Hose

NOTE: You will have to perform the following process for each fitting that water drained from to complete a ballast tank decontamination for the entire ballast system. To use the ballast hose, verify with the watercraft user that the pumps are shut off (not set to drain). Insert the ballast hose into the thru-hull fitting where water was pumped out of the ballast tanks. NOTE: Do not put the ballast hose in a thru-hull fitting that you did not verify water came out of or could hear the pump located on that line. Before pulling the trigger make sure that the ballast hose is in as far as it can go without pushing past any resistance that may occur. Place a hand as close to the watercraft's thru-hull fitting as you can and grasp the ballast diffuser hose so that it will not come back out of the thru-hull fitting when you depress the trigger. Fill the ballast tank on the watercraft with 120°F water for 5 minutes.

SAFETY MESSAGE: DO NOT exceed 120°F, damage to the ballast pumps may occur.

Inspector uses ballast tank hose to flush 120°F water into a ballast tank. The water is held in the tank for at least 5 minutes before being pumped out.

After filling the tank for 5 minutes, ask the watercraft user to turn on the ballast pumps to drain some water so that you can verify the water is at 120°F in the tank. If the water is not close to 120°F, add water for an additional 2 minutes and check the temperature again. Continue this process until 120°F water is verified exiting the thru-hull fitting. Once the temperature has reached 120°F, allow the water to sit in the tank for 5 minutes. After 5 minutes or longer has passed, have the operator turn on the ballast pumps and expel as much water as possible from the tanks. **Caution: Do not stand near the thru-hull fittings when this occurs**. In the event a ballast tank cannot be filled because a check valve is in the thru-hull fitting, or there is a 90° angle bend in the fitting, locate the thru-hull fitting on the underside hull of the watercraft and use the fake-a-lake attachment.

Fake-a-lake attachment used to fill a ballast tank from the bottom thru-hull fitting.

Fake-a-Lake

NOTE: You will have to perform the following process for each fitting that water drained from to complete a ballast tank decontamination for the entire ballast system. To use the fake-a-lake attachment to pump water into each ballast tank, position the fake-a-lake attachment so that its opening is aligned with the thru-hull fitting or intake grates. Start running the water by squeezing the trigger assembly. Once water is flowing and the fake-a-lake remains in place, ask the operator to start the ballast tank fill pump to draw water into the tank. Fill the ballast tank for 5 minutes then ask the watercraft user to turn off the pump. Stop the flow of water. Remove the fake-a-lake and ask the watercraft user to turn on the ballast pumps to drain some water so that you can verify the water is at 120°F in the tank. If the water is not close to 120°F, add water for an additional 2 minutes and check the temperature again. Continue this process until 120°F water is verified exiting the thru-hull fitting. Once the temperature has reached 120°F, allow the water to sit in the tank for 5 minutes. The operator should then be asked to turn on the ballast pumps and expel as much water as possible from the tanks.

Low Flow Diffuser

To flush soft ballast tanks with the low flow diffuser, remove any soft tanks from the watercraft if possible and verify whether the tanks are empty. If a tank contains water, drain the tank on the collection mat or permeable surface and use the low flow diffuser to fill the tank with 120°F water. Rinse the inside of the soft ballast tank for 2 minutes. Allow remaining water to sit in the tank for 5 minutes, then drain completely. Note: If a soft tank cannot be removed for any reason, then have the watercraft user drain as much water as possible using the ballast pumps. Perform the ballast decontamination using either the ballast hose or the fake-a-lake, dependent on where water drains from, using the method mentioned in the respective section (i.e. ballast hose or fake-a-lake).

To flush ram driven systems, have the watercraft user close the drains. Place the low flow diffuser up to the vent and fill for 5 minutes. Perform this process for the ram vents on each side of the watercraft. Have the watercraft user open the drains, water may not drain out until they pull away depending on the angle of the trailer, therefore you may not be able to verify the temperature of the water exiting the system.

Inspector drains a soft ballast tank.

Sailboat Ballast Tanks

Ballast tank decontamination is different for sailboats. The opening for a sailboat ballast area is usually located on the transom of the boat. The area can be raised and lowered to allow water into the ballast area and to drain from it. Because of this location, it is not possible to fill the ballast area and let the hot water sit in it. Insert the low flow diffuser or ballast hose into the opening and soak the ballast area with 120°F water for 5 minutes. Use caution because the hot water will begin to drain back out of the opening.

IMPORTANT MESSAGE: If, at any time there are difficulties with any method of ballast tank decontamination and it cannot be fully performed, make clear comments in the decontamination survey.

Engine Decontamination

Outboard and Sterndrive (Inboard-Outboard)

Inboard/outboard and outboard motors have a water intake on the lower unit. Water from the lake is pumped into the cooling system of the engine and returned to the exhaust port located at the prop center. The engine must run long enough during this process to allow the thermostat to open for a thorough flush. Monitor water discharge temperature if possible to ensure 120°F minimum is reached for at least 2 minutes. To avoid damaging engine systems, water temperatures should never exceed 140°F.

Intake on an outboard motor shown here in black.

This procedure uses the motor muff attachment or a flush bag to supply water to the lower unit. Before you begin, clear everyone from the motor area. Have the operator lower the motor. Ensure the operator doesn't hit the ground with the motor. **DO NOT START THE MOTOR. Position the muffs over the water intake on both sides of the lower unit.** Before starting the engine instruct the operator to keep it in neutral. Activate the trigger assembly to start water flowing, then instruct the operator to start the engine. If water does not exit the engine through the exhaust/propeller hub, and telltale on outboard motors only, within 30 seconds, have the operator stop the engine. Adjust the muffs and try again. Once water is flowing out of the exhaust, continue squeezing trigger the assembly and allow the engine to warm up. Monitor the water temperature coming out of the exhaust until water is up to 120°F, and allow the engine to run for 2 minutes. Once sufficient time of 2 minutes has passed the engine can be turned off, the trigger released, safety engaged, and the motor muffs removed.

SAFETY MESSAGE: Some engines are electronically monitored and may actually shut down when temperatures are too high. Continually monitor the water temperature to ensure that the maximum temperature never exceeds 140°F.

Inboard

Inboard engines have a straight drive shaft from the engine through the hull. Water intakes for these motors are located on the bottom of the hull and/or lower transom of the watercraft. There may be multiple water intakes on the watercraft's hull. Water discharge will typically be at the engine exhaust located on the transom. Again, water will be circulated through the system until the confirmed temperature at exhaust is achieved.

Fake-a-Lake is positioned over the water intake.

Locate all thru-hull water intake points and exhaust points. Attachments for this task will be the inboard motor flush attachment, or fake-a-lake. Position the fake-a-lake attachment against the hull at a water intake point. The engine water intake is typically covered by an oval brass fitting that protrudes from the hull. It will have slits facing toward the front of the boat that block large debris from entering. Before starting the engine, instruct the operator to keep the engine in neutral. Also instruct the operator to monitor the engine temperature gauge to prevent overheating. Activate the trigger assembly to flow hot water. Confirm water flow and have the operator start the engine. If water does not exit the engine through the exhaust, have the operator stop the engine. Adjust the fake-a-lake and try again.

Once water is flowing out of the exhaust, continue squeezing the trigger assembly and allow the engine to warm up. Monitor the water temperature coming out of the exhaust until the water is up to 120°F, and allow the engine to run for 2 minutes. Continually monitor the water temperature to ensure that the maximum temperature never exceeds 140°F. Once sufficient time has passed the engine can be turned off, the trigger released, safety engaged, and the fake-a-lake removed.

As stated, there may be multiple water intake points on the watercraft. Locate additional intake points and repeat flush procedures. Do not

Inboard engine intake (large oval) and ballast tank intake (small round)

confuse other thru-hull drains or ports with water intake points for the engine. Inspectors may need to take time to climb aboard the watercraft to identify a thru-hull fitting's purpose and location. If this is necessary receive operator permission before entering any watercraft.

Internal Decontamination

Internal decontamination includes holding areas like livewells and baitwells, along with accessories like anchors. Ballast tanks are not included in this section as they are considered their own step. Decontaminating internal compartments early in the decontamination process allows fluids and potential AIS to drain while the rest of the decontamination takes place.

Water holding compartments and accessories will require low-pressure, high-temperature (120°F) water for decontamination. The attachment used for this procedure is called a low flow diffuser and reduces the exiting water pressure.

Internal compartment decontaminations should be completed while standing outside of the watercraft. If you must enter the watercraft ask the operator for permission, and ask for the best way to enter.

IMPORTANT MESSAGE: Be aware of the pressure hose at all times–damage could occur to the watercraft if it rubs on the gunwale.

With the trigger assembly, accessory hose, and diffuser connected, begin the flushing of all compartments exposed to lake water, this may include livewells, baitwells, or bilges. All compartment drains must be open during the flushing process to allow all water to drain. This ensures the plumbing is treated with hot water. Likewise, any interior pumps must be operated when flushed with hot water. The watercraft user is responsible for operating the pumps. The flushing procedure is performed by aiming the diffuser assembly into a compartment and pulling the trigger on the trigger assembly. Note that it is very important that water is up to the operating temperature of 120°F with a contact time of at least 2 minutes. The exposure time should be longer if the temperature falls below 120°F. If any adult mussels are observed, they should be physically removed after the hot water soak. Take time to ensure that all compartments and potential water holding areas are hot water rinsed and flushed.

Exterior Decontamination

The low flow diffuser is used for exterior decontamination. Inspectors should systematically work their way around the watercraft, rinsing each section of the hull for at least 10 seconds with 140°F water. Rinse the thru-hull fittings, motor, gimbal area, trim tabs, trailer, and any other exterior part that may have been exposed to the water. Focus your attention at and below the waterline.

The back of watercraft can have numerous features that need a high-temperature soak. This can include transducers, trim tabs, ladders, pumps, swim decks, etc. The outdrive gimbal area is protected and a likely location for mussels due to its shielded location on the boat transom.

Inspectors must take ample time and make certain that all exterior boat devices are thoroughly soaked. The low flow diffuser can be inserted in the gimbal area and moved around to ensure complete coverage. Effective decontamination takes time and dedication to ensure every possible location is soaked with water at 140°F for 10 seconds.

Inspector uses high-pressure spray at a 45° angle from the hull.

High-Pressure Spray

The high-pressure procedures do not depend upon high-temperature water for decontamination. Rather, these procedures use water pressure to remove anything that may be attached to a surface after it has been killed with hot water.

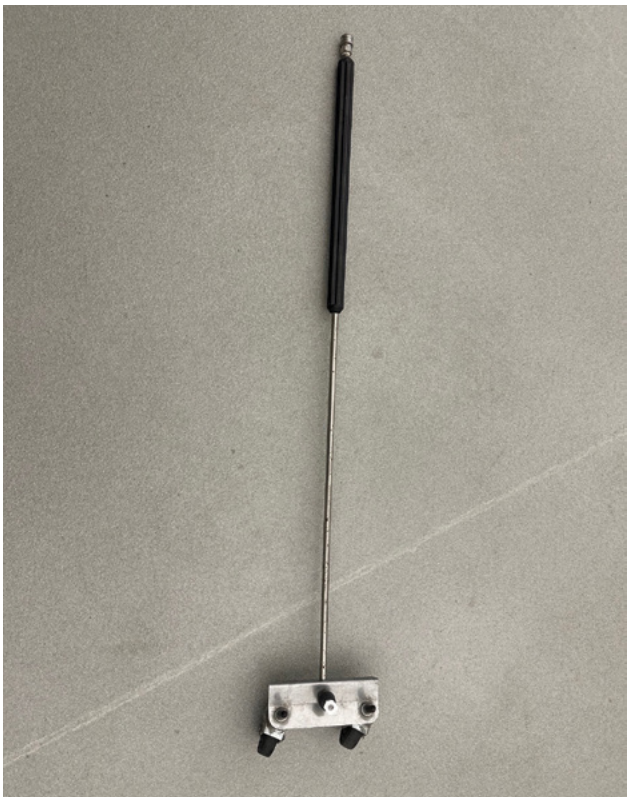
Some high-pressure wands incorporate a variable pressure adjustment valve located about mid-shaft. Rotating the adjustable pressure post will adjust the pressure of the water leaving the white nozzle. Inspectors should familiarize themselves with the operation of this wand. When spraying areas that could be damaged by high-pressure, pressure can be reduced to prevent damage. **At the end of the wand, attach the white quick connect spray nozzle. This is a 40° flat fan spray nozzle.**

To perform high-pressure decontamination of exterior surfaces, hold the wand so it is at a 45° angle from the surface. The tip of the wand should be 12" to 18" away from the surface at all times. Move horizontally, systematically covering all hull areas that were exposed to lake or river water. Start near the waterline and work down. Move around the watercraft making sure all surface areas are treated. Inspectors must be very careful to ensure that the high-pressure attachments are used safely.

SAFETY MESSAGE: Never point the wand at another individual and be careful of graphics or other sensitive areas on the watercraft and trailer.

Undercarriage Sprayer

Another attachment that may use a 40° flat fan spray nozzle is called an undercarriage sprayer. The nozzle end of this assembly is designed to slide on the containment mat. The wand end nearest the trigger gun has an insulated hand grip for stability and guidance of the nozzle. Each time the trigger is activated, a high-pressure spray will be produced at the white nozzle. This attachment can be useful when decontaminating pontoon boats, portable boat lifts, etc. Take sufficient time to cover the entire underside of the hull and along the underside of trailers. Use caution, the high-pressure spray can damage electrical wiring or other fixtures. On some undercarriage sprayer models the 40° flat fan spray nozzle is removable. If this is the case, you can use the undercarriage sprayer as a low flow diffuser to soak hard to reach areas on the hull or bottom of the watercraft.



An undercarriage sprayer can be attached to a cradle with one or more wheels to increase mobility and stability.

Section 6: Decontamination Scenarios

What Types of Decontamination Will I Do?

Hot water decontamination is an effective tool to prevent AIS from entering or leaving a water body on water-related equipment. The types of decontaminations you will perform fall into five specific scenarios. Scenarios apply to incoming and outgoing watercraft unless otherwise noted. Some scenarios involve violations of Minnesota AIS laws; in those cases be sure to follow all protocols learned in the Level 1 manual. Scenarios 1–3 may be legally required to be completed under certain circumstances. If more than one scenario applies, complete all required decontamination steps from each scenario are met.

SCENARIO 1 FULL DECONTAMINATION

Zebra mussels cover the bottom exterior of this trailered watercraft.

SCENARIO 1

Water-related equipment that has a confirmed presence of attached zebra mussels or other AIS that will require decontamination for successful removal. In the case of attached zebra mussels, proceed with a full decontamination even if you think you removed them all by hand. If a watercraft or trailer has attached aquatic vegetation that you cannot completely remove by hand, decontamination can be done to kill and/or remove trapped fragments. To kill plant fragments that are stuck you will need to soak that area for 15 seconds with hot water at 140° F. Targeted use with high-pressure spray may be required.

Full decontamination will be completed and will consist of a hot water soak of the hull, interior compartments, and other areas exposed to water, a flush of the motor (if present), and high-pressure spray to remove attached AIS. This decontamination is the most comprehensive and ensures that the watercraft has been completely decontaminated inside and out.

Required steps:

- Ballast Tank Decontamination - if present (page 14)
- Internal Decontamination (page 17)
- Engine Decontamination (page 15)
- Exterior Decontamination (page 17)
- High-Pressure Spray (page 17)

STOP Decontamination is legally required.

Bilge areas are often tight spaces. An inspector may see residual water but be unable to sponge it out.

SCENARIO 2

Water-related equipment that has residual water that is unable to be drained.

Watercraft and other equipment may not be able to drain all of the water that they are holding. This leftover water is called “residual water.” Residual water decontaminations should be completed when there is enough water present where sponging or toweling is not an option. This criteria is targeted, and a decontamination will consist of a hot water flush of any compartments containing residual water. Residual water decontaminations are performed to kill and flush veligers or other microscopic AIS. The interior compartments include, but are not limited to: livewells, baitwells, bilge areas, and ballast tanks. Residual water decontamination also includes flushing the outboard motor, inboard/outboard engine, or inboard engine of watercraft.

Required steps:

- Ballast Tank Decontamination - if present (page 14)
- Internal Decontamination (page 14)
- Engine Decontamination (page 15)

STOP Decontamination is legally required.

Ballast tanks can be installed underneath floors, and oftentimes a watercraft can have hard and soft tanks in the same area.

SCENARIO 3

Water-related equipment that has ballast tanks which may contain unverifiable water.

Ballast tanks, hard and soft, are designed to add additional weight to a watercraft by holding large amounts of water. Pumps attached to the tanks are able to pump out most of the water, but are unable to fully drain each tank. Since many ballast tanks are installed under floors, tanks cannot be verified as empty.

Note: If the watercraft only has soft tanks that can be removed and verified as completely empty, a decontamination will not be required. Completely dry ballast tanks are rare, and you must be able to verify that all tanks are empty. Even new boats may have water in ballast tanks as they are typically tested prior to sale.

Incoming ballast tank watercraft:

Visually inspect the tanks during the standard inspection and check to see if you can confirm the presence of water, or ask the watercraft user to run the ballast pumps. If you can confirm water is present, conduct the decontamination. If the decontamination is refused, deny launch. If you cannot confirm water is present instruct the watercraft user that a decontamination is recommended, but not required.

Outgoing ballast tank watercraft:

A decontamination should be performed on all exiting watercraft with ballast tanks. These can be done on-site (preferred), or at the operator's discretion. However, if the watercraft is leaving zebra mussel or spiny waterflea infested waters and water is still present in the tanks, decontamination is legally required.

Required Steps (for incoming and outgoing):

- Ballast Tank Decontamination (page 14)
- Engine Decontamination (page 15)

STOP

Decontamination may be legally required if water is present in the tanks.

Although an inspection may not reveal AIS, if a watercraft has been in the water for over 24 hours, a partial decontamination is required.

SCENARIO 4

For exiting water-related equipment only. The water-related equipment has been in the water for 24 hours or more. No confirmed AIS were found during the inspection.

If water-related equipment has been in the water for 24 hours or more there is an increased risk of transporting small AIS that may be missed during an inspection. If this condition is met, a decontamination should be highly encouraged to lower the risk of spreading unseen AIS.

If the watercraft user refuses this protocol decontamination, you should complete a decontamination survey and comment on why they refused.

Required Steps:

- Internal Decontamination (page 14)
- Engine Decontamination (page 15)
- Exterior Decontamination (page 17)

IMPORTANT MESSAGE: The 21 day dry time law still applies to all docks and lifts, even if a decontamination is completed.

SCENARIO 5

This scenario targets residual water that could be trapped in water-related equipment. Residual water could contain microscopic AIS such as zebra mussel veligers. Treating this residual water with hot water will help to minimize the risk of introducing these veligers to new water bodies for water-related equipment going to different water bodies within 48 hours.

If the watercraft user refuses this protocol required decontamination, you should complete a decontamination survey and comment on why they refused.

Entering

The water-related equipment was in another body of water within the past 48 hours.

Exiting

The water-related equipment is going to be placed in a different body of water within the next 48 hours.

Required Steps:

- Internal Decontamination (page 14)
- Engine Decontamination (page 15)
- Exterior Decontamination (page 17)

IMPORTANT MESSAGE: The 21 day dry time law still applies to all docks and lifts, even if a decontamination is completed.

What if the watercraft user refuses decontamination?

Refusals can happen during any time of the decontamination process. First try to explain that a decontamination is required. Letting you complete a decontamination safely is the quickest way for them to continue on with their day. If they agree, then continue with the decontamination and survey. If they still refuse, follow the steps below.

Always record the refusal and reason given for the refusal in the inspection (if not already done) and decontamination survey. This information is used for violation reporting, assessing risks, identifying barriers to decontamination, and improving decontamination protocols.

If an incoming watercraft user declines a decontamination:

- If any decontamination is refused whether it's a legally or protocol required decontamination it must be recorded in the Level 2 decontamination survey.
- Scenarios 4-5: If they are in compliance with AIS laws, you can allow them to launch.
- Scenarios 1-3: You have the authority to deny launch if decontamination is the only way to get the watercraft into compliance.
  - If they launch anyways, contact enforcement right away.
  - Inform the watercraft user that an officer might contact them as a follow up.
  - Complete a write-up describing the situation (see Appendix A) and submit it to your supervisor on the same day of the incident.
  - Upload the survey within 24 hours.

If an exiting watercraft user declines a decontamination:

- Scenarios 4-5: These are protocol required decontaminations, use it as an opportunity for education. You can inform them of the best practices and why a decontamination is best for this scenario, but it is the watercraft user's responsibility to take action. For scenarios 4-5 the watercraft user is generally not violating any AIS laws, and you can allow them to leave.
  - Record in the level 2 survey, why they refused the decontamination.
  - You will mark in the survey that the decontamination was not legally required.
- Scenarios 1-3: These are legally required decontaminations. You can inform them of the laws (e.g., compliance with inspections and decontaminations), but it is the watercraft user's responsibility to take action or risk enforcement action if they are caught/ reported.
  - Record in the Level 2 survey their reason why they refused the decontamination and mark that it is legally required.
  - Hand them the one-way transport form for watercraft with attached zebra mussels.
  - Inform the watercraft user that an officer might contact them as a follow up since this is a legally required decontamination.
  - Complete a violation write-up describing the situation (see Violation Report Form in Appendix A) and submit it to your supervisor on the same day of the incident.
    - Violation write ups will include basic information (date, location, license plate, etc.), description of the watercraft user's behavior, and other information observed during the interaction.
  - Upload the survey within 24 hours.
    - Photos will not be taken during a refusal of a decontamination.

SAFETY MESSAGE: Situations involving violations can be a source of conflict that can escalate quickly. Only complete the violation documentation process (e.g., asking questions) if you feel safe doing so. Remove yourself from the situation if you feel threatened. Develop a plan with your supervisor so that you know who/when to call enforcement for support.

Legally Required Decontamination Scenarios

State statute allows authorized inspectors, conservation officers, and other licensed peace officers to legally require that decontamination be completed under certain scenarios by issuing decontamination orders.

- **Scenario 1:** Water-related equipment that has attached zebra mussels, other AIS, or attached plant material that will require hot water decontamination for successful removal. Complete a full decontamination (page 20).
- **Scenario 2:** Water-related equipment that has verifiable water present that is unable to be drained. Complete a **water unable to drain decontamination** (page 21).
- **Scenario 3:** Watercraft exiting known zebra mussel or spiny waterflea infested water with confirmed presence of water in ballast tanks.
    - Ballast tank pumps are not 100% efficient and water may remain inside the tanks after the ballast tanks stop pumping water. Complete a **ballast tank decontamination** (page 22).

Wait time protocol for legally required decontaminations on exiting watercraft

Watercraft users will not be required to wait in excess of 15 minutes from the time they are notified that decontamination will be legally required until the watercraft is pulled onto the decontamination mat. If situations arise that will create wait times in excess of 15 minutes the inspector conducting the decontaminations will follow a triage system in order to decontaminate water-related equipment considered to have the greatest potential risk. Watercraft meeting Scenario 1 should be the highest priority, followed by 2, and so on. If a user's equipment won't be decontaminated on-site, inform them they are still required to self-decontaminate prior to launching next (following 84D.01 Subd. 3a. Decontaminate definition) and provide them with a transport permit, if applicable.

Protocols for watercraft users who refuse legally required decontamination due to extenuating circumstances:

Situations may arise in which a watercraft user refuses decontamination due to an emergency (as determined by the user) or may be returning to the same access while the inspector is still going to be present.

For users who need to leave for emergency purposes:

- If Scenario 1 criteria is met, the refusal will be forwarded on to enforcement for follow up. Document the situation and provide information to the investigating officer. For scenarios 2 and 3, order an off-site decontamination.

If an inspector has confirmed the presence of water in the ballast tanks of a watercraft leaving a body of water infested with zebra mussels or spiny waterfleas, but the user refuses decontamination because they will be returning on the same day during hours the inspector will be there, the following procedures apply:

- Explain to the user that they are choosing not to obey an order to decontaminate and are committing to return to the same access, within a set time period. The watercraft inspector must inform the watercraft user what time they need to arrive back to the access in order to be re-inspected. Explain that if, for any reason, they are not re-inspected within the allotted time frame the refusal to decontaminate will be forwarded to enforcement. The authority to order the re-inspection is listed in statute 84D.09 Subd 3 (b).

Inspector discretion for sensitive/fragile equipment

Inspectors may choose to order an off-site decontamination of equipment that has a high risk of being damaged by decontamination equipment. Fragile watercrafts such as antique wooden boats or safety concerns, fall into this category. Inspectors should record this as a refusal in the survey and must also record "inspector discretion {reason}" in the comment box. Note: Inspector discretion should only be selected for sensitive/fragile equipment or safety concerns, not other reasons (e.g., winterization, refueling or coming back, storage, etc.).

Watercraft users may arrive at an access to have a courtesy decontamination.

Section 7: Courtesy Decontamination

Courtesy decontaminations are when watercraft users are seeking a decontamination at an access where they will not be launching. Generally, decontamination locations are found either through the courtesy decontamination website or by calling a program supervisor.

There are many reasons a watercraft user may seek decontamination, such as denied launch because of attached AIS, denied border crossing into Canada, or they are going above and beyond to prevent the spread of invasive species. Many of the watercraft that arrive for a courtesy decontamination will be clean. Working with these customers helps to support good AIS prevention practices and can further improve the education and outreach of the program. The more other watercraft users see decontamination actions occurring, the more often these services will be used.

You **must** follow these steps for all watercraft arriving for a courtesy decontamination:

- Complete a courtesy inspection in the level 1 survey
- Complete a courtesy decontamination in the level 2 survey
- Thank the watercraft user for stopping to use the decontamination site

Courtesy decontaminations usually do not take as much time as the previously listed scenarios. It is still important that you complete these steps in the decontamination:

Required Steps

- Engine Decontamination (page 15)
- Exterior Decontamination (page 17)

Highly Recommended

- Ballast Tank Decontamination - if present (page 14)
- Internal Decontamination (page 14)

Reminder if you have a non-courtesy watercraftt that falls under one of the decontamination scenarios, that watercraft will take priority over the courtesy decontamination.

Section 8: Safety Do's and Don'ts

Remember that safety is the top priority. Operating a decontamination unit involves working with hot water and high-pressure, both of which present safety risks if not handled properly. Only authorized individuals can operate the unit.

Do:

- Wear proper personal protective equipment (PPE).
- Notify your supervisor of any malfunctioning equipment.
- Keep safety in mind, yours and that of the public.
- Report any accidents to your supervisor immediately.
- Check labels before fueling.
- Ensure that the safety is engaged on the trigger assembly when not in use or switching attachments.
- Concentrate on the decontamination process.
- If decontaminating water-related equipment during hunting season, ensure firearms are in a safe location.

Don't:

- Don't allow the public or unauthorized inspectors to operate the unit.
- Don't have multiple people on or around the watercraft during the decontamination process.
- Don't point the stream of water at anyone, including yourself.
- Don't put a hand in front of the water stream for any reason no matter what attachment is in use.
- Don't answer questions while conducting a decontamination. Stop what you are doing first, or wait until you are done.

SAFETY MESSAGE Review your organization's safety protocols as to when it is not safe to decontaminate a watercraft.

Section 9: Surveys

Selecting Surveys

As an Authorized Level 2 Inspector you will collect survey data on all inspected watercraft and all watercraft decontaminations. Don't forget to fill out a watercraft inspection survey before filling out a watercraft decontamination survey. Surveys should be completed using a mobile device.

Survey data collected during inspections and decontaminations helps shape the watercraft inspection program, and accuracy is very important.

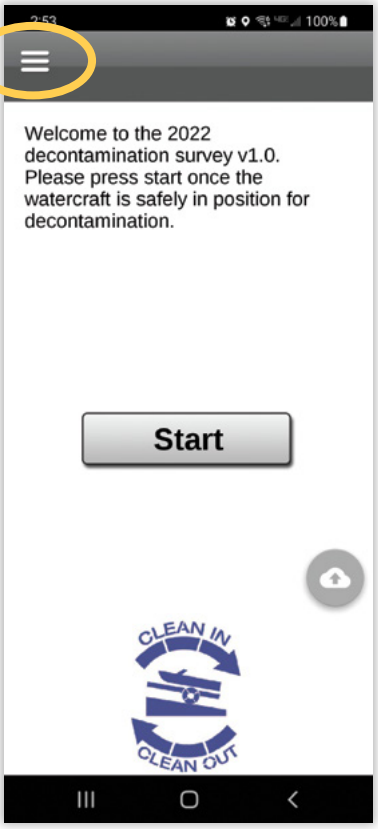
As a Level 2 Inspector you will have access to the standard watercraft inspection survey and an additional decontamination survey. This additional survey is to be used on every watercraft that needs to be decontaminated after an inspection is completed. Remember to always complete a decontamination survey even if the watercraft user has refused the decontamination.

Inspectors will need to switch which survey they are on when completing an inspection of a watercraft or conducting a decontamination.

Switching Between Surveys

Your device should be provided to you with both the inspection and decontamination surveys. The current year should be listed in the survey titles. If you don't have both surveys or the year is wrong, contact your supervisor.

When you open the survey application on your device, it should either show a start screen (photo on right) or the administration menu. If you are on the screen with the start button, you can switch between the surveys using the drop down menu at the top left. If you see the administration menu, press select survey and choose decontamination survey. Before pressing start, make sure the welcome message at the top includes the word decontamination.



Start screen of the survey on an Android tablet. Quick select menu is in the upper left corner. Upload cloud in the middle right.

Completing Electronic Decontamination Surveys

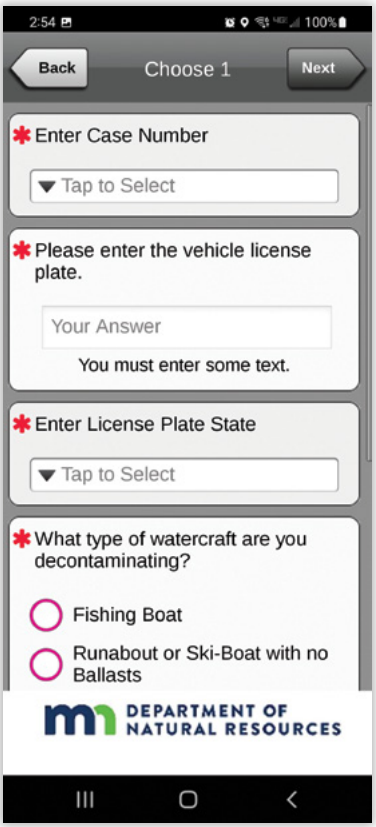
Each time a decontamination is done, a decontamination survey must be completed. This includes watercraft, equipment, docks, and lifts. If you send a watercraft to another inspector to be decontaminated, the inspector completing the decontamination should fill out the decontamination survey.

The survey must be completed each time, **even if the user refuses decontamination**, or they simply requested a courtesy decontamination.

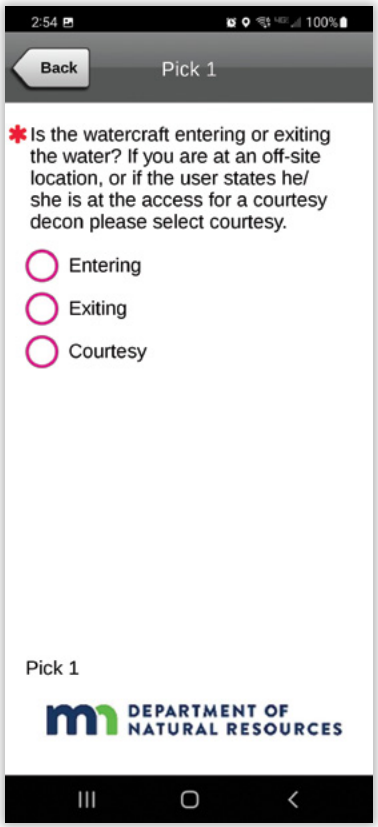
To begin, select the decontamination survey from the drop down menu on the Start screen of your app. You will see a message that welcomes you to the decontamination survey and asks you to hit start once the watercraft is safely in position. Once you are ready to begin, hit the start button and the survey will open to the first page.

Begin entering the following data:

1. Case number of your access
2. Vehicle license plate number and state
3. Watercraft type
4. Specify between entering, exiting, or courtesy



Survey shows numbers 1 through 3.



Survey shows number 4.

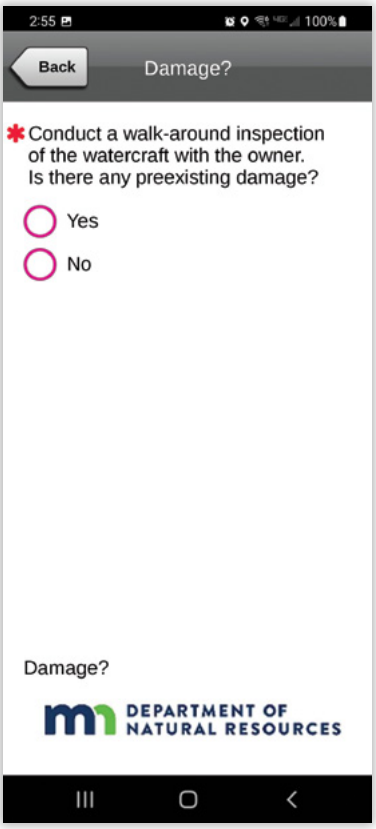
The final step before decontamination is conducting a walk around to look for existing damage. Have the watercraft user conduct the walk around inspection with you. While performing the walk around, inspect the watercraft and trailer for any damage. This could be dents, scrapes, peeling paint or decals, damage to the motor and prop, loose carpet, etc. Point out any damage that you notice and record it in the survey to ensure that we are not held responsible for damage that was already present. The survey will prompt you to take a photo of any damage in the survey app.

Enter the type of decontamination being done in the survey.

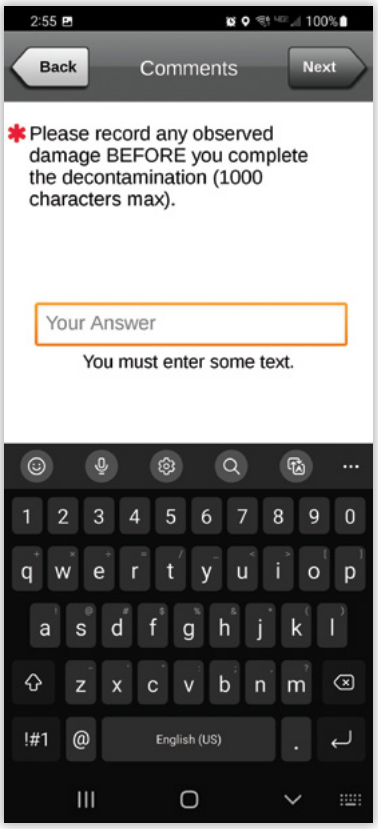
As a Level 2 inspector, you will have to decide what the most appropriate decontamination process will be completed based on state protocols.

There are 5 options:

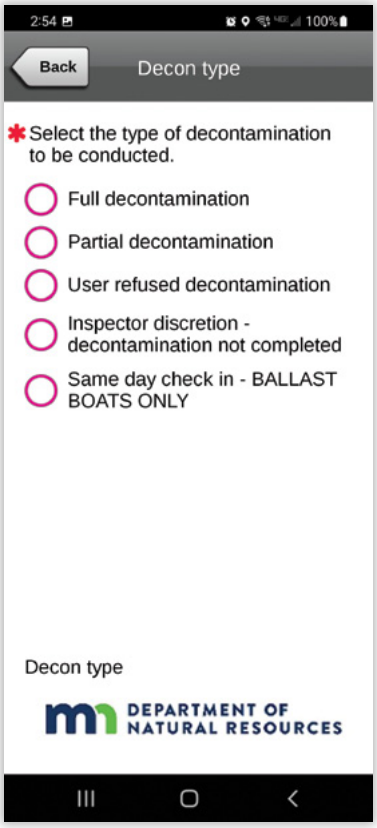
1. Full decontamination
2. Partial decontamination
3. User refused decontamination: If you select that the user refused the decontamination, be sure to include the reason for the refusal.
4. Inspector discretion – decontamination not completed: only select this option if the decontamination could damage the water-related equipment or it is not safe to conduct the decontamination. Example: wood boats.
5. Same day check in— BALLAST BOATS only: This option is for ballast boats that would require a legally required decontamination, Scenario 3. This watercraft will have to check out/in with you only.



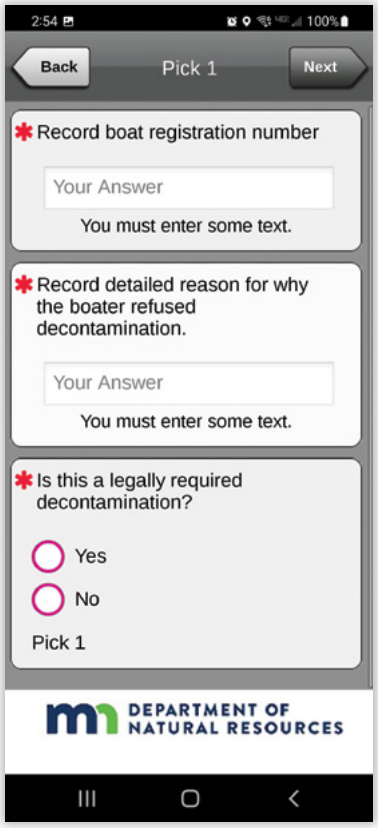
Preexisting damage.



Preexisting damage comments.



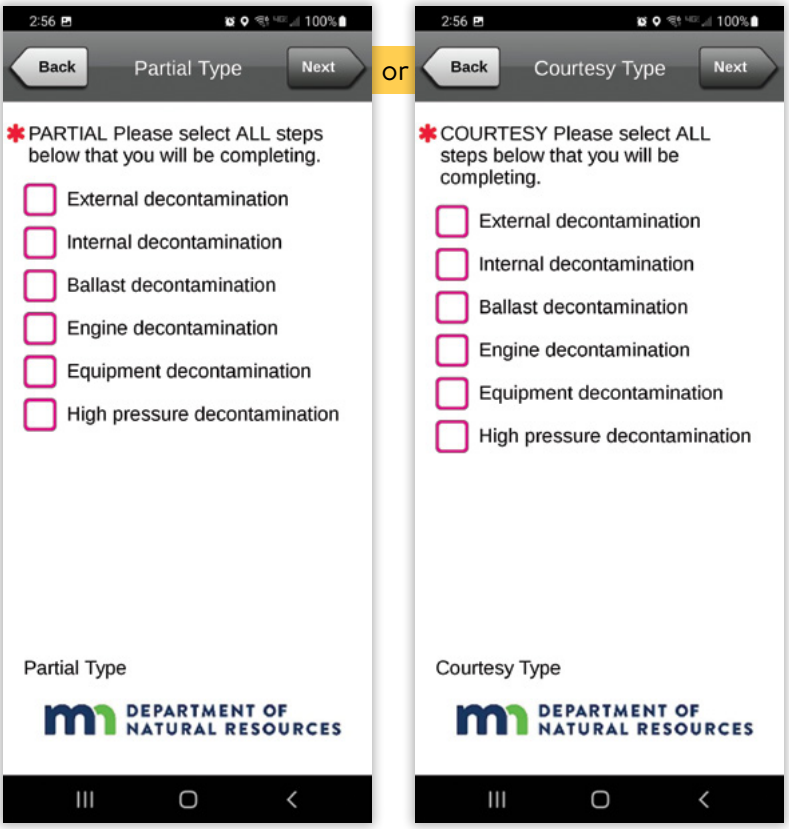
List of all five decontamination type options.



Refusal Comments.

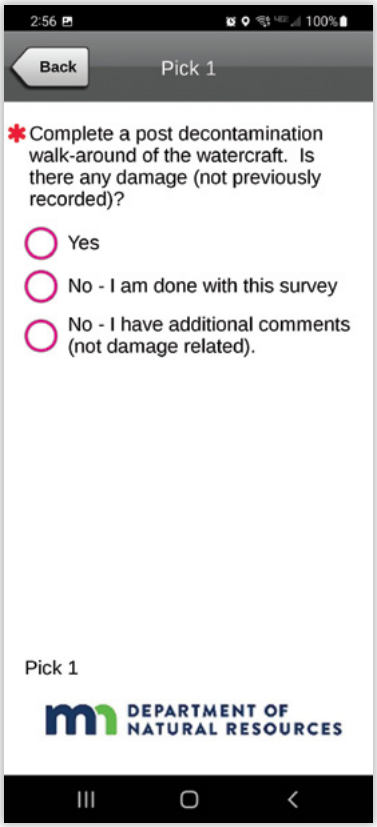
Partial and Courtesy Decontamination Options

For the Partial and Courtesy decontamination options, the inspector needs to select the decontamination steps they will be completing.

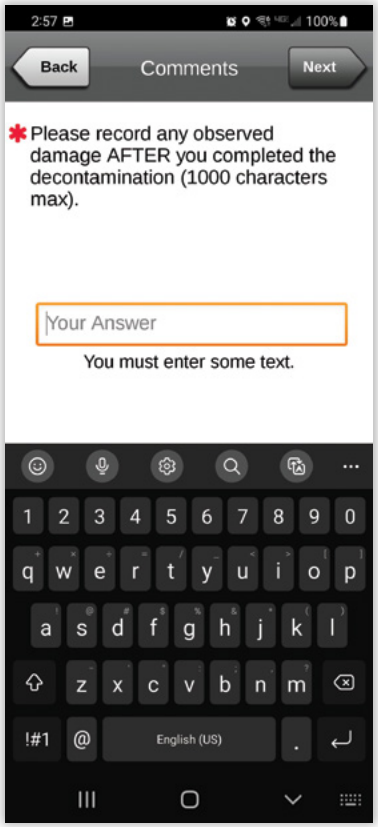


Select steps of decontamination that will be completed.

After completing your decontamination, the next step is to complete a post decontamination walk around. Look for any damage that was not observed before the decontamination was completed. This is damage that may have been caused during the process, or may have been missed during the first walk around. If something is found, select yes and describe the damage. The survey will also prompt you to take a photo, with the survey app, of the damage. Ask for their contact information and notify your supervisor immediately if this happens.

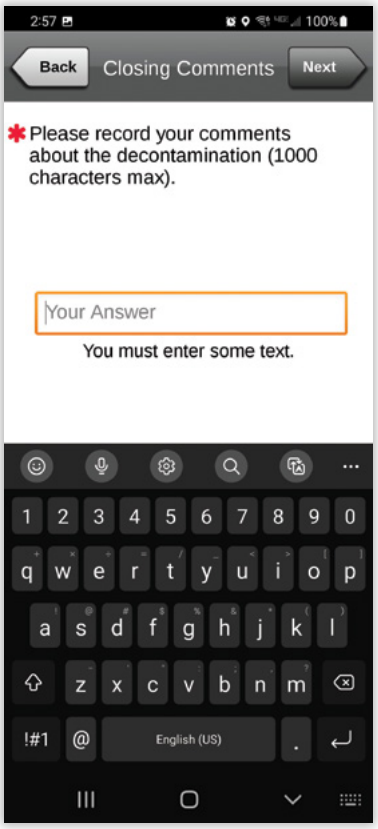


This page asks inspector to check for any damage on the watercraft and document yes or no.



Document any damage found on watercraft or trailer.

Finally, provide any additional comments about the decontamination as often as possible. For example, if you were not able to complete parts of the decontamination and why (e.g., the type of wakesport boat and different ballast features); why the watercraft needed decontamination (e.g., attached zebra mussels, in the water for more than 24 hours, going to a different water body within 48 hours); why the watercraft user wanted decontamination (e.g., going to/from cabin, traveling to Canada, etc.). This information will help improve future protocols and programming.

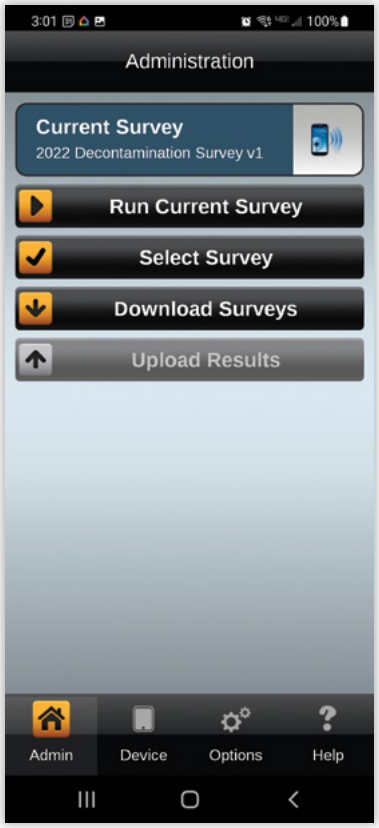


Additional comments page

Uploading Survey Results

Surveys must be uploaded at least once a week (or within 24 hours as needed for certain situations). Your device must be connected to Wi-Fi to upload survey results.

To upload results:
Press and hold the start button until the administration screen appears. If there are surveys to upload the fourth box will be black and will say upload results with the number of surveys. Simply select the "Upload Results" button. When the upload is complete press "Run Current Survey." The fourth button will be greyed out if no surveys are ready for upload. Alternatively, on the main screen with the start button, tap on the yellow cloud in the lower right of the screen. The cloud will be grey if there are no surveys to upload.



Administration page showing where to upload the surveys.

Section 10: Minnesota Aquatic Invasive Species Laws

Selected Minnesota Laws Related to Decontamination. Please see the watercraft inspection handbook for a more complete list of aquatic invasive species statutes.

July 1, 2015

M.S. 84D.01 DEFINITIONS.

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.

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, 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.

(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).

Section 11: Frequently Asked Questions and Scenarios

Even though decontamination units have been used in Minnesota for over a decade, there still is a great deal of curiosity surrounding the process. You will be speaking with a wide variety of people who often ask very similar questions. Be sure to answer any questions prior to starting a decontamination as it is difficult to communicate while the unit is running. The following are some of the most frequently asked questions:

Q What are you spraying on my boat?

A Only water is used to complete the decontamination process. Hot water is used to soak all areas of the boat that contact or hold water. High-pressure spray (2,500-3,000 psi) is used to remove potential threats that cannot be removed by hand.

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

A The majority of decontaminations do not take a long time. A majority of boats will likely not even need a decontamination, but the ones that do can take anywhere from 10-60 minutes depending on the type of decontamination that is performed.

Q Why aren't you doing this on Lake _____?

A The DNR is operating decontamination units primarily at zebra mussel infested waters. We try to speak to as many watercraft users as we can with the inspectors available. Our public awareness efforts focus on all watercraft users in Minnesota. They include signs at water accesses and information in fishing and boating regulation booklets.

Q Is this a free boat wash? Will you just wash my boat if it's dirty?

A No, decontamination services are used only to reduce the risk of spreading AIS. Staff will perform an inspection prior to completing a decontamination to determine if a decontamination is necessary and if so what type.

Q How hot is the water and how high is the pressure?

A Decontamination uses a maximum of 140°F water. The maximum pressure can range between 2,500 to 3,000 psi inside the system, and loses pressure as it leaves the wand.

Q Where can I find a list of available decontamination units?

A There are multiple units being operated by DNR and government partners. Generally, they are scheduled at busy public water accesses on zebra mussel infested waters to help prevent the mussels from being transported to other waters. Unit locations are advertised on the DNR website at mndnr.gov/decon

Q Can we get rid of the zebra and quagga mussels that have been found in Minnesota lakes and rivers?

A Currently there is no way to completely remove a population of zebra or quagga mussels. Chemicals are not 100% effective and require long time periods to affect the mussels.

Q What does "after pumping" mean when talking about ballast tanks with water in them?

A Have the watercraft user turn on the pumps for the ballast tanks. If there is a steady stream of water coming out, the tanks have not been fully emptied. Let the pumps run until no water is coming out. Shut off the pumps, wait a couple minutes, then have the watercraft user turn the pumps back on. If water comes out again, decontamination will be legally required.

Appendix A: Resources

Decontamination Cheat Sheet

This reference guide lists the required decontamination types based on scenarios and quick-start steps for each of the decontamination types. If watercraft or water-related equipment falls under more than one scenario, complete all decontamination protocols for the scenarios it meets.

Decontamination Type	Legally Required Full Decontamination Attached AIS	Legally Required Unable to Drain	Legally Required Ballast Tanks	Protocol Required 24-hour Rule	Protocol Required 48-hour Rule	Protocol Required Courtesy
Scenario:	1	2	3	4	5	Courtesy
Ballast	Yes	No	Yes	No	No	Recommended
Engine	Yes	Yes	Yes	Yes	Yes	Yes
Internal	Yes	Yes	No	Yes	Yes	Recommended
External	Yes	No	No	Yes	Yes	Yes
High-Pressure Spray	Yes	No	No	No	No	No

Decontamination Type

Note about attachments: Always use the trigger assembly with the accessory hose unless otherwise noted.

Ballast

Temperature 120°F

Attachments

Depend on thru-hull fitting location:

- Port or starboard = Ballast hose
- Underside = Fake-a-lake
- Soft bags (removed) = Low flow

Process

- ☐ Fill each tank for 5 minutes.
  - Fake-a-lake only: Have the user turn on pumps to intake water.
  - Fill removed bags for 2 minutes and drain immediately.
- ☐ Have the user turn on pumps to drain briefly.
- ☐ Take the temperature of draining water. If it is not 120° F, fill each tank for 2 minutes. Continue this process until 120°F is reached.
- ☐ Wait 5 minutes.
- ☐ Have the user turn on pumps to fully drain.

Internal

Temperature 120°F

Attachments

- Low flow diffuser

Process

- ☐ Fill or flush each water holding compartment for 2 minutes.

Engine

Temperature 120°F

Attachments

Depend on engine type:

- Outboard and sterndrive = Motor muffs
- Inboard = Fake-a-lake

Process

- ☐ Attach motor muffs/fake-a-lake to motor.
  - Motor muffs only: Have the user lower the motor.
- ☐ Start the flow of water, adjusting for better seal if needed.
- ☐ With continuous flow of water, have the user start the engine.
- ☐ If water does not circulate after 30 seconds, turn off motor and try again. If it still does not circulate, do not continue.
- ☐ Flush for 2 minutes with engine running.
- ☐ Have the user shut off the engine.
- ☐ Stop the flow of water.

External

Temperature 140°F

Attachments

- Low flow diffuser OR
- Undercarriage sprayer without 40° sprayer tip, attached to the trigger assembly

Process

- ☐ Slowly go around the watercraft rinsing all external parts with a 10 second contact time, with a focus on areas below the water line.
- ☐ For attached aquatic plants, rinse the area for 15 seconds.

High-Pressure Spray

No heat

Attachments

- High-pressure wand OR undercarriage sprayer attached to the trigger assembly
- White 40° sprayer tip

Process

- ☐ Create a 45° angle with the wand and the boat, spraying in a direction moving away from the towing vehicle.
- ☐ Have the sprayer tip 12”-18” away from point of contact.
- ☐ Be cautious of peeling decals, rust, damaged bunks, etc.
- ☐ For attached aquatic plants, use targeted spray on the plant material.

Violation Write-Ups

Please complete a write up when any of the following violations occur (see section 7 for more details on handling violations):

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.**

c. A watercraft user refuses a legally required decontamination.

d. A watercraft user refuses inspection after you attempt to engage them in the inspection process. Do not take photos for this violation.

Required Information:

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

Examples of a write-up:

- Date: June 12th, 2025 at 8:15AM
- Inspector Info: John Smith 651-555-1234
- Location: Clear Lake North Access, Ramsey County, St. Paul.o
- Watercraft: Lund Fishing Boat, MN 5555ZX
- Vehicle towing: MN 539KCD, Black Yukon
- Watercraft user: Older man, white hair and glasses
- Enforcement: Not contacted.

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.

Tennessan Warning

You are being asked to share data on aquatic invasive species violations. The data you are providing is primarily public data. Names, personal email addresses, and personal phone numbers are not public data. The consequence from not supplying the not public data is that enforcement may not be able to take follow-up actions on the violation. Only those with a business need will have access to the data. It will not be shared unless court ordered to or as otherwise provided by law. The public data you provide can be released by the agency in response to a Data Practices Request.

DEPARTMENT OF NATURAL RESOURCES

Authorized Watercraft Inspector Report

Violation Report Form

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

SECTION 2: Decontamination Refusal, if applicable					
Decontamination Unit Present	Yes	No	Legally Required Decon	Yes	No

SECTION 3: 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 4: Final Steps
1. Complete this form (digitally or by hand) or draft an email containing all of the same information, and send a copy to your supervisor on the same day as the incident.
2. Upload completed surveys, if applicable, on the same day the violation occurred.

Notes

Find FREE decontamination locations here:

mndnr.gov/decon

**AQUATIC INVASIVE SPECIES AND
THE WATERCRAFT INSPECTION PROGRAM**

500 Lafayette Road, St. Paul, MN 55155-4025
888-646-6367

mndnr.gov