

Boat and Gear Disinfection Protocol

Boat and trailer cleaning guidelines to prevent the spread of aquatic invasive species have been widely distributed to the public through a variety of publications, pamphlets, signs, etc. The guidelines consist of a nationally-accepted set of prevention steps. While disinfection is **not** a required prevention step for the general public, some boaters may be interested in the disinfection procedures followed by the WI DNR. Please note: the first three steps (Inspect and Remove, Drain, and Dispose) listed below are required.

The following steps shall be taken every time a boat, equipment or gear is moved between waters to avoid transporting invasive species and/or pathogens:

- ◆ **Inspect** and **remove** aquatic plants, animals, and mud from your boat, trailer, equipment and gear.
- ◆ **Drain** all water from your boat, motor, live well, bilge, transom wells, as well as from your equipment and gear, including but not limited to tracked vehicles, barges, silt or turbidity curtain, hoses, sheet pile and pumps.
- ◆ **Dispose** of unwanted aquatic plants and animals in an appropriate way.
- ◆ **Disinfect** your boat, equipment and gear by either:
 - ◆ **Washing** with ~212° F water (steam clean), OR
 - ◆ **Drying** thoroughly for 5 days after cleaning with soap and water and/or high pressure water, OR
 - ◆ **Disinfecting** with either 200 ppm (0.5 oz per gallon or 1 Tablespoon per gallon) Chlorine for 10-minute contact time or 1:100 solution (38 grams per gallon) of Virkon Aquatic for 20- to 30-minute contact time. Note: Virkon is not registered to kill zebra mussel veligers nor invertebrates like spiny water flea. Therefore this disinfect should be used in conjunction with a hot water (>104° F) application.

Safety Precautions for Disinfectant Use:

Virkon-A:

1. Receive and be required to read a copy of the Virkon-A Materials Safety Data Sheet (MSDS) for the product.
2. Wear chemical splash goggles.
3. Wear a face shield where the possibility exists for face contact due to splashing or spraying of the material.
4. Wear impervious clothing to prevent contact with skin. (gloves, pants, jacket, hood, and boots) or a Tyvek style full body suit.

In addition, all employees who handle or mix Virkon-A in powder form and prefer to wear a dust mask respirator when handling powder, may do so in compliance with the DNR Respiratory Protection Program Handbook MC 9180.5 Voluntary Use requirements.

Bleach:

Follow precautions 2, 3, and 4 (above).

- Chlorine Wear eye protection, rain gear, gloves if spraying. Stay upwind of the spray. Will break down in sunlight and when in contact with organic material. Is corrosive to metal and rubber. Is toxic to fish at these concentrations so rinse well after disinfection or neutralize with sodium thiosulfate. For neutralizing chlorine, spray sodium thiosulfate in an 800 ppm solution (3 grams per gallon of water) on all surfaces after the disinfection period is over. Rinse with water from the next lake to remove any remaining sodium thiosulfate.
- Virkon Aquatic This is a disinfectant in the peroxygen (hydrogen peroxide) family. It is a powder. It is 99.9% biodegradable and breaks down to water and oxygen and is not corrosive at the working dilution. Wear dust mask if mixing powder and eye protection, rain gear and gloves if spraying. Stay upwind of spray.

Sources of disinfectants

Chlorine - Household bleach (5.25% chlorine) can be purchased from a grocery or convenience store. HTH is granular chlorine (70% calcium hypochlorite) and can be purchased from a pool supply company.

Sodium Thiosulfate - Commonly used to neutralize chlorine and iodine. It should be available at a pool supply company or from a chemical supply company.

Virkon Aquatic is available from Western Chemical. It is the same formulation, but without the perfume and dye, and the label addresses specific fish pathogens. Their phone is 1-800-283-5292.

Disinfection measures must be taken prior to moving boats, equipment and other gear from one waterbody to another. They are not needed daily when sampling the same waterbody or for law enforcement equipment in emergency situations. In cases where boats and gear return to state hatcheries, disinfection should be done in a location away from ponds and water supplies to prevent disinfectant or untreated water from entering those areas. Every effort should be made to keep the disinfection solution and rinse water out of surface waters.

To the extent practicable, equipment and gear used on waters known to be infested with invasive species and viruses should not be used on other non-infested waters. The following are some helpful hints to consider when planning your work in water.

- Organize your sampling so the work in infested waters is always done last.
- If a high percentage of your work is done in waters with invasive species, consider dedicating certain gear to be used only in those waters.
- Depending on the type of work you are doing, it may be possible to work with lake volunteers and use their boats to collect samples. That way only your gear needs to be disinfected.

The following methods are provided to assist staff when disinfecting equipment and gear commonly used by department staff.

Nets

Organic debris should be removed prior to disinfection. Power washing is not required, but nets could be sprayed with a garden hose to remove debris. Nets may be steam cleaned, washed and dried thoroughly for five days or treated with a disinfection solution. Nets should be placed in the disinfection solution for the appropriate contact time for the solution being used. After rinsing, the nets can be used immediately, or hung to dry.

Personal protective gear, including rain gear, gloves, boots/waders

Scrub personal protective gear with the disinfection solution. After scrubbing, the gear should be kept wet with the disinfection solution for the appropriate contact time. Rinse with clean water or water from the next waterbody.

Alternatively, personal gear may be steam cleaned or dried thoroughly for five days after cleaning with soap and water.

Dip nets, measuring boards and other sampling gear

Remove any organic material from sampling gear. There are several options for disinfecting smaller gear. *Dissolved oxygen probes and other sensitive electronic sampling gear may be damaged by disinfection solution and should only be rinsed with clean water.* For other gear used in water choose one of the following options:

- Option one: The gear can be sprayed with the disinfection solution and a wet surface maintained for the appropriate contact time. The gear should be rinsed with clean water or water from the next waterbody before it is used again.
- Option two: Fill a tub with disinfection solution and place all equipment in the tub for the appropriate contact time. The gear should be rinsed with clean water or water from the next waterbody before it is used again.
- Option three: Use a completely new set of gear for each waterbody during the work day and disinfect all gear at the end of the day using option one or two.

Boats, trailers, and live wells

Remove organic material from boats, trailers, and live wells. Drain water from live wells, bilges and pumps. The outside and inside of the boat, trailer, live wells, bilges, and pumps should be sprayed with the disinfection solution and left wet for the appropriate contact time. The inside of the live wells, bilges and pumps should be made to contact the solution for the appropriate contact time as well. Run pumps so they take in the disinfection solution and make sure that the solution comes in contact with all parts of the pump and hose. The boat, trailer, bilges, live well, and pumps should be rinsed with clean water or water from the next waterbody after the appropriate contact time. *Every effort should be made to keep the disinfection solution and rinse water out of surface waters.* Pull the boat and trailer off the ramp and onto a fairly level area and away from street drains to minimize potential runoff into surface waters.

Motors

After removing from the water, tip the motor to the down position and start the motor for several seconds or turn motor over several times to dispel water from the cooling system. Alternatively and especially for motors moored in water for several days or more, emerge the lower unit in a bucket of disinfectant and run the motor to ensure contact with all internal parts and allow for the appropriate contact time. Or, rig up a short (6-foot) piece of garden hose to lower unit muffs. A pail of the disinfectant can be set in the back of the boat and gravity fed to the lower unit to run the disinfectant through the motor. Allow solution to remain in motor for the appropriate contact time. The hose will need to be primed to start the gravity flow because the lower unit does not create enough suction to prime the hose. A non-corrosive (Virkon Aquatic) is recommended for use to protect the impeller. Rinse with clean water or water from the next waterbody.

Heavy Equipment

For heavy equipment steam-cleaning is an effective method of disinfection.