

# In Pursuit of Boat Wash Stations

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STYLES, QUESTIONS TO CONSIDER, & STEPS TO TAKE

KRISTA KAMKE

*CONCURRENT SESSION 6: FRIDAY, 9:15AM-10:15AM*



# In Pursuit of Boat Wash Stations

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Former South Central Region AIS Coordinator with Golden Sands Resource Conservation and Development Council, Inc.

<http://www.goldensandsrcd.org/> and <https://www.facebook.com/goldensandsrcd>



Grant deliverable for partners and WI DNR to inform on new ways to protect the area lakes

Boat wash stations have criticism as a justification to neglect other steps

Boat wash stations are just another tool in our toolboxes to help protect our waterways.

They are NOT a one-size-fits-all fix... but can be tailored to your water!

# In Pursuit of Boat Wash Stations

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All agree that water needs protection for future enjoyment.

# Types of Stations

SIMPLE



COMPLEX

Brushes and signage

Compost Bins

Chemical treatments

Pressure washers  
Cold water  
Hot water

Steam sprayers

Also consider if  
**portable units /**  
**temporary location**  
is how you want to  
protect your area

OR

if a **permanent**  
installation fits your  
needs best

# Types of Stations

AIS Best-Management Practices			
Good	Better	<b>BEST</b>	Exceptional
Inspect, Remove, Drain	Inspect, Remove, Drain, Rinse	Inspect, Remove, Drain, Pressure Wash	Inspect, Remove, Drain, Hot Pressure Wash
<p>Visually inspect boat, motor, trailer and equipment.</p> <p>Remove vegetation, debris and any animals.</p> <p>Drain standing water from motor, bilge, live wells, tanks, tubs and bags – all equipment.</p>	<p>Inspect, drain and disinfect</p> <p>PLUS:</p> <p>Rinse off boats, trailers and equipment with a garden hose.</p> <p>Rinse tournament equipment and live wells with a mild bleach solution (1/2 oz bleach/quart water) or salt solution (2/3 cup salt/gallon water).</p>	<p>Inspect, drain and disinfect</p> <p>PLUS:</p> <p>Use a pressure washer to rinse off the boat.</p>	<p>Inspect, drain and disinfect</p> <p>PLUS:</p> <p>Use hot, high pressure water.</p>

# Efficacy

“Best Management Practices for Boat, Gear, and Equipment Decontamination”

Wisconsin Department of Natural Resources, May 2016

- o Amanda Perdzock, former Rapid Response Coordinator

Table 1 Efficacy of treatment methods for macrophytes and algae.

AIS	Steam Cleaning (212°F)	Hot Water (140°F, ≤10 min)	Drying (5 days)	Chlorine (500 ppm, ≤10 min)	Virkon (2:100 solution, ≤20 min)	Freezing (26°F, ≤24hrs <sup>†</sup> )
Curly Leaf Pondweed	®	®	☑ <sup>3,55</sup>	®	®	⊗ <sup>52</sup>
Curly Leaf Pondweed Turion	☑	☑ <sup>53</sup>	⊗ <sup>3</sup>	®	®	?
Eurasian Watermilfoil	☑	☑ <sup>15</sup>	☑ <sup>12,55</sup>	® <sup>57*</sup>	®	⊗ <sup>58*</sup>
Eurasian Watermilfoil Seed	?	?	⊗ <sup>56</sup>	?	?	?
Hydrilla	?	?	☑ <sup>55*,59,60*,61</sup>	?	?	?
Yellow Floating Heart	?	?	⊗ <sup>62*</sup>	?	?	?
Starry Stonewort	?	?	?	?	?	?
Didymo	☑	☑ <sup>13,70</sup>	☑ <sup>13,70</sup>	☑ <sup>13,48,49,50,51</sup>	☑ <sup>1</sup>	☑ <sup>70</sup>

\*Additional details:

<sup>†</sup>Freezing times vary therefore specific citation should be consulted for appropriate time

<http://dnr.wi.gov/news/input/documents/guidance/DisinfectionGuidanceFinal.pdf>

# Efficacy

Exhaustive literature review 1970 - 2016

Document response of AIS to treatments

Table 2 Efficacy of treatment methods for invertebrates.

AIS	Steam Cleaning (212°F)	Hot Water (140°F, ≤10 min)	Drying (5 days)	Chlorine (500 ppm, ≤10 min)	Virkon (2:100 solution, ≤20 min)	Freezing (26°F, ≤24hrs <sup>†</sup> )
Faucet Snail	✓	✓ <sup>18*</sup>	✗ <sup>18,35</sup>	✗ <sup>18</sup>	® <sup>18</sup>	✓
New Zealand mud snail	✓	✓ <sup>4,65*</sup>	✓ <sup>6*,66*</sup>	✗ <sup>21, 78*</sup>	✓ <sup>10*, 76, 77</sup>	✓ <sup>4,6*</sup>
Quagga Mussel (Adults)	✓ <sup>†</sup>	✓ <sup>7*,16*</sup>	✓ <sup>14*,67</sup>	✓	✓ <sup>9</sup>	✓
Quagga Mussel (Veligers)	✓ <sup>†</sup>	✓ <sup>4,17</sup>	✓ <sup>69*, 79*</sup>	✓	✓ <sup>9</sup>	✓
Zebra Mussel (Adult)	✓ <sup>†</sup>	✓ <sup>7*,8*,54,67</sup>	✓ <sup>14*,25*,67</sup>	✓ <sup>11,19,22</sup>	®	✓ <sup>25,27,67,68</sup>
Zebra Mussel (Veligers)	✓ <sup>†</sup>	✓ <sup>4</sup>	®	✓	®	✓
Asian Clam	✓	✓ <sup>4,37,41,42,43</sup>	✗ <sup>4,44*,45</sup>	✗ <sup>36*,37*,38*,39*,40</sup>	✓ <sup>23</sup>	✓ <sup>46*</sup>
Spiny Water Flea (Adult)	✓	✓ <sup>7*,47*</sup>	✓ <sup>4</sup>	✓ <sup>78</sup>	✓ <sup>78</sup>	✓ <sup>78</sup>
Spiny Water Flea (Resting Eggs)	✓	✓ <sup>2*</sup>	✓ <sup>2*</sup>	✗ <sup>2, 78*</sup>	✓ <sup>78</sup>	✓ <sup>2*</sup>
Bloody Red Shrimp	®	®	®	®	®	®
Rusty Crayfish	?	?	?	?	?	?

# Types of Stations

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SIMPLE TO COMPLEX





# Brushes and signage

Low maintenance, no staffing necessary, low cost (\$150-\$500)

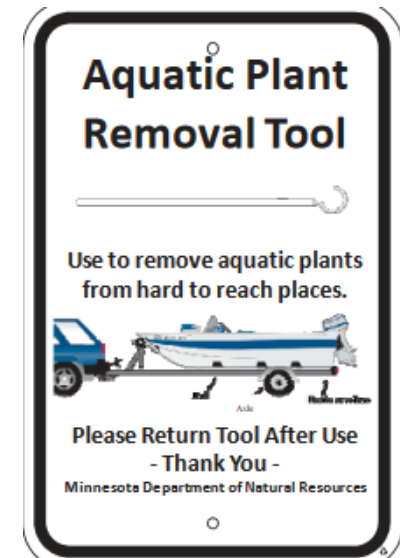


# Brushes and signage

Scrapers, for removal of mussels from the hull

Sponges, soak up water remaining in live wells

Pick tools, to remove vegetation from difficult to reach places.



# Brushes and signage

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## GOOD FOR...



Low traffic lakes

Lakes surrounded by “clean” or AIS-free lakes

Not a designated “super spreader”

No electric or water hookups nearby

Ability to compost plant debris

## RECONSIDER IF...



Larger lake and want as ONLY tool

Have several AIS present in lake, especially non-plants

# Compost Bins

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Plant debris and bait water disposal

Low maintenance, no staffing necessary, low installation cost

**Visual reminder to complete AIS prevention steps**





# Chemical Treatments

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Chlorine bleach, vinegar, salt water, other solutions

Higher maintenance, no staffing necessary, low recurring costs

## GOOD FOR...



Groups with dedicated volunteers to check and top-off bottles

Landings with room for runoff to drain AWAY from water

## RECONSIDER IF...



Funds unable to provide signage and additional tools

- Liability – Disclaimer on signs

# Cold water pressure washers

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Require maintenance, still no staffing needed, low cost, generally low liability



La Crosse – all seasons, \$1 for 4 minutes, pressure wash

# Cold water pressure washers

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Green Bay – low pressure wash



Two Rivers – 3 seasons, \$1 to start, pressure wash

# Cold water pressure washers

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## GOOD FOR...



Plant-only AIS lakes

Pair with signage and tools to thoroughly remove ALL debris

Lower cost than heated pressure wash stations

## RECONSIDER IF...



No utilities on site

- Could still do portable units, but needs a water tank and power

No stormwater / runoff management available

No signage on prevention efforts

- Clean-Drain-Dry
- Inspect-Remove-Drain-Never Move

Main counterargument to stations: boaters forget other steps



# Heated Pressure Washers

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High maintenance, staffing potentially necessary, high cost, liability, but one of most effective activities beyond Clean-Drain-Dry actions



# Heated Pressure Washers



# Heated Pressure Washers

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Portable **heated** power wash station used by Wild Rivers Invasive Species Coalition in northern WI and the UP of MI



# Heated Pressure Washers

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# Pressure Washers



# Pressure Washers – Recycle Water



# Pressure Washers – Recycle Water

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# Pressure Washers

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## GOOD FOR...



Pairing with Clean-Drain-Dry campaigns

Visually showing boaters process of removing AIS in a faster, more accessible manner

- Less mobile folks can't crawl under boats and trailers, but with pressurized water and tools, can still reach areas where hitchhikers catch on

## RECONSIDER IF...



No other tools on site

Low volume of visitors

Mostly or all "clean" lakes around

Funding questionable

- Start-up costs for equipment
- On-going costs for maintenance, staffing, and refilling

**Bonus:** Do NOT pump from and use lake water – why not?



# Steam Sprayers

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Highest maintenance, staffing necessary, high cost, high liability



Photo by The Teak Rail

# Steam Sprayers

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## GOOD FOR...



Complete annihilation of living organisms when done correctly

## RECONSIDER IF...



Time is of essence – Steam disinfection NOT quick process

Crunched for space at landing

Funding questionable – similarly large upfront cost investment as pressure washers with tanks

# So many choices...


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DECIDING WHAT WORKS BEST FOR YOUR AREA



# QUESTIONS TO CONSIDER

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1. How big is your waterbody?
  2. How many recreationists do you see in an average weekend?
  3. How many of those visitors do you want to reach? Numerous landings? Multiply the costs and benefits.
  4. What AIS are present in your area?
  5. Which species could be of concern here in the future?
  6. Do you have leverage for funding? What is your budget?
  7. Are utilities available within a workable distance to landing?
  8. Permanent or portable stations?
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# Get CREATIVE

Shadow Lake,  
Vermont

Upcycled old  
horse trailer

Now holds  
handouts,  
hot water tank,  
& equipment



c.J. Dunbar photo

# Resources

## The Nature Conservancy

- “Slowing the lake to lake spread of aquatic invasive species by recreational boaters,” Center for Aquatic Conservation at University of Notre Dame

[https://www.fs.usda.gov/Internet/FS\\_E\\_DOCUMENTS/stelprdb5122627.pdf](https://www.fs.usda.gov/Internet/FS_E_DOCUMENTS/stelprdb5122627.pdf)

## Important information for managers and lake associations on slowing the spread of aquatic invasive species

**Table 1. Cost per Boat Landing and Efficacy for Different Intervention Options**

	Capital Expense	Annual Labor Costs	Efficacy (% reduction in AIS)	
			For vegetation	For small-bodied organisms
Inspection and hand-removal	\$25 (training by Clean Waters)	<sup>3</sup> \$0- <sup>4</sup> \$12,800	87%	70%
Low pressure wash (unmanned) <sup>7</sup>	\$50-\$200	\$0	63%	73%
Power wash station (self serve)	<sup>1</sup> \$300- <sup>2</sup> \$35,000	\$0	85%	90%
Manned Power wash station	<sup>1</sup> \$300- <sup>2</sup> \$35,000	\$0- <sup>3</sup> \$12,800	>85%	>90%

- For a portable high pressure washer with no containment system--for use on outgoing boats at source (i.e., already invaded) lakes.
- For a portable high pressure washer with filter and containment system to prevent incoming species..
- Volunteers can be trained as boat inspectors
- Assumes two paid inspectors 40 hrs/wk for 20 weeks (the same time period as Clean Boats/Clean Waters)
- Manned power wash station with containment system would need at least two people to run. With training and experience we would expect on average a higher standard of cleaning and compliance
- Garden hose with normal pressure without hand removal

# Resources

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Minnesota Department of Natural Resources, Division of Parks and Trails

- **“Aquatic Invasive Species Best Management Practices for Water Access”, 2012**

[http://files.dnr.state.mn.us/destinations/water\\_access/ais/bmp\\_full.pdf](http://files.dnr.state.mn.us/destinations/water_access/ais/bmp_full.pdf)

One of the most thorough documents on how to set up a landing for AIS removal stations



# Resources

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Minnesota Department of Natural Resources

## **“Aquatic Invasive Species (AIS) Watercraft Decontamination Handbook for Lake Service Providers”, 2013**

<http://files.dnr.state.mn.us/rlp/permits/lsp/decon-manual.pdf>

Walk-through on setting up the how and why for decontamination procedures





# Resources

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Minnesota

Lists out the decontamination unit specifications they support

<http://files.dnr.state.mn.us/jobs/watercraft/decontamination-specs.pdf>

## **Decontamination unit specifications**

### **Specifications for Decontamination/Recovery System with Trailer**

*These are the specifications that were used to get bids for the current state contract. They were based on a specific model that is referenced in the specifications but the unit does not need to be this specific make or model.*

#### **Scope of Project:**

Self contained decontamination system that includes pressure washer, trailer with water tank(s), containment mat, underlayment pad (if applicable), vacuum recovery system, and decontamination attachments. The water recovery system is powered by a generator mounted on the trailer; no external power source required. Accessories and parts should be contained/stored within the trailer. Unit Price must include all costs associated with the tanks, trailer and accessories. Vendors must be an authorized dealer or reseller(s) for the product requested. The state will reject any unit that is substandard in quality, workmanship, or craftsmanship.

# Resources

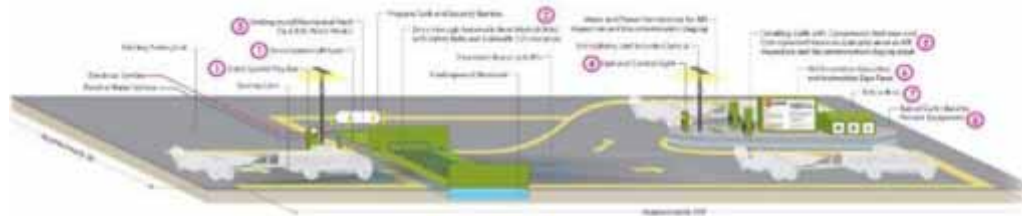
## Hennepin County, MN

- State funded decontamination equipment



### Permanent semi-automatic decontamination stations: *"Give us the tools."*

In partnership with public or private entities, the county will coordinate the design and construction of permanent decontamination stations. These facilities will be available to the public to properly clean all types of watercrafts (sailboats, personal water craft, fishing boats, etc.), as well as boat lifts, docks and other equipment that the public transports from one water body to another. The county's ultimate goal would be to have a network of decontamination stations conveniently set up throughout the county.



*Concept plan for an automatic permanent boat wash station.*

<http://www.hennepin.us/business/work-with-henn-co/aquatic-invasive-species>

# Resources

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BoatUS Foundation – Grassroots Grants up to \$10,000, rolling deadline

Based out of Maryland, usually awards to marinas, yacht clubs, community organizations, and student groups

<https://www.boatus.org/grants/faq/>



Activities That Facilitate Behavior Changes in the Boating Community



Unique Ideas - Either Topic, Methods or Delivery Mechanism



Extensive Outreach Efforts to Boaters



Use of Technology to Educate Boaters Including Social Media and Internet



Wide Reach to Recreational Boaters



Hands-On Work with the Boating Community



Quantifiable Measures of Success



Timeline of One Year or Less

# Recap and Question Time

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Boat wash stations are not a substitute for the basic Clean-Drain-Dry

Many levels, completely customizable to your lake's needs, desires, and budget

