Wisconsin DNR Boat, Gear, and Equipment Decontamination and Disinfection Manual Code

Invasive Mussel Collaborative Webinar

Methods and Protocols for Decontaminating Field Gear and Equipment

May 11, 2017

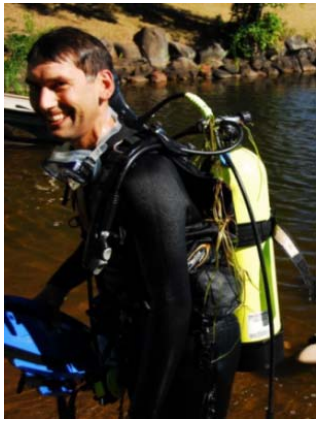
Prevention

STOP AQUATIC HITCHHIKERS!™

Prevent the transport of nuisance species.
Clean all recreational equipment.
www.ProtectYourWaters.net

Prevention

However…



Manual Code

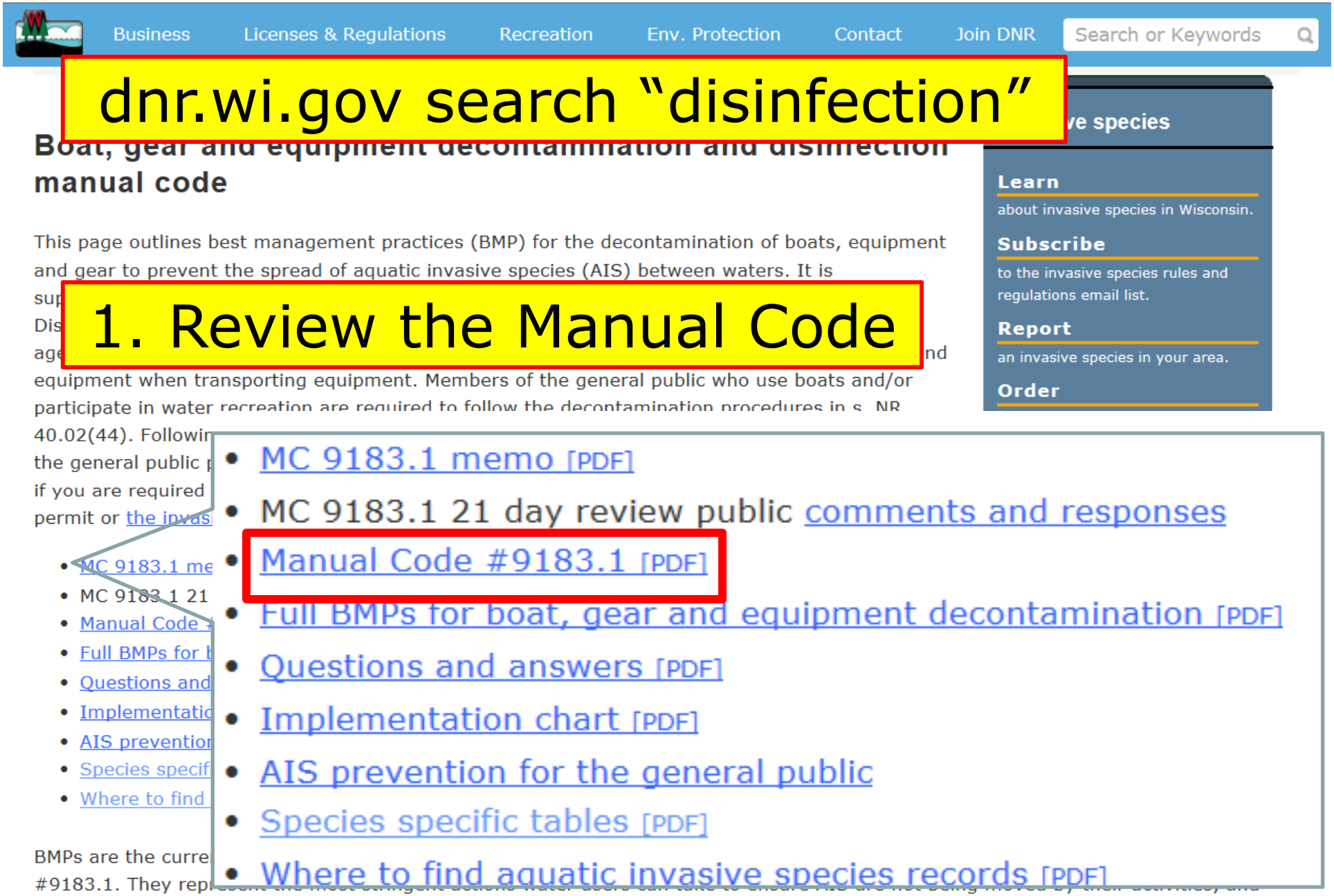
- Prepared in 2007; updated in 2016
- Requires DNR, agents, contractors, permitees to clean equipment between waterbodies.

Manual Code

- Decontaminate
  - Inspect & remove, drain, dispose
- DISINFECT by either:
  - Dry 5 days
  - 212°F steam or 140°F hot water
  - 500 ppm Chlorine
  - 2% Virkon

Preparing to sample

1. Review manual code
2. Review best management practices
3. Check for known AIS
4. Select best disinfection for species


Business
Licenses & Regulations
Recreation
Env. Protection
Contact
Join DNR
Search or Keywords
dnr.wi.gov search “disinfection”
Boat, gear and equipment decontamination and disinfection manual code
1. Review the Manual Code
ve species
Learn
about invasive species in Wisconsin.
Subscribe
to the invasive species rules and regulations email list.
Report
an invasive species in your area.
Order
This page outlines best management practices (BMP) for the decontamination of boats, equipment and gear to prevent the spread of aquatic invasive species (AIS) between waters. It is
nd
equipment when transporting equipment. Members of the general public who use boats and/or participate in water recreation are required to follow the decontamination procedures in s. NR
40.02(44). Followi
the general public
if you are required
permit or the invas
MC 9183.1 me
MC 9183.1 21
Manual Code
Full BMPs for
Questions and
Implementatic
AIS preventio
Species specif
Where to find
MC 9183.1 memo [PDF]
MC 9183.1 21 day review public comments and responses
Manual Code #9183.1 [PDF]
Full BMPs for boat, gear and equipment decontamination [PDF]
Questions and answers [PDF]
Implementation chart [PDF]
AIS prevention for the general public
Species specific tables [PDF]
Where to find aquatic invasive species records [PDF]
BMPs are the curre
#9183.1. They rep
will be periodically updated to reflect the latest scientific findings for decontamination. The guidelines outlined in this document cover many gear types, but do not cover all gear types. Boats, gear and equipment not expressly mentioned in this document that come in contact with surface waters are still subject to Manual Code #9183.1.

State of Wisconsin
Department of Natural Resources
Manual Code # 9183.1 Boat, Gear, and Equipment Decontamination and Disinfection Protocol

Ed Eberle 06/16/2016
Ed Eberle, Assistant Deputy Secretary Date

Rescinds and replaces: 9183.1 Date 04-10-2015 Approved by OMT: 04-10-2015

I. SCOPE

This manual code applies to all Department of Natural Resources employees moving boats, gear, and equipment between waterbodies and/or crossing a barrier while moving from downstream to upstream on the same waterbody or a connected waterbody, whether or not the presence of aquatic invasive species is known. This manual code outlines the minimum requirements to be followed by employees, and **does not preclude employees from taking additional actions**.

Employees will require any agents or service providers through the specific contract or agreement confering that agency status or engaging that service provision to follow this manual code. Compliance with this manual code may be considered reasonable precautions as defined by s. NR 40.02(44), Wis. Adm. Code. Manual Code 9183.1 was developed in 2007 to provide department employees boat and gear disinfection guidelines. Based on new research and discoveries, Manual Code 9183.1 was amended in 2015 to improve the department decontamination/disinfection policy. This manual code will be effective on June 16, 2016.

Employees are advised to include this manual code and associated BMPs requirements in applicable permits where allowed by the underlying regulatory authority or agreed to with the permitte. Each permitting program is subject to its own statutory and code standards that must be assessed when considering decontamination/disinfection requirements.

II. POLICY

It is the department's policy to follow proper protocol for decontamination/disinfection to ensure that employees are minimizing or eliminating the risk of spreading aquatic invasive species and/or pathogens through work activities, and to comply with ch. NR 40, Wis. Adm. Code, s. NR19.055, Wis. Adm. Code, and ch. 23, Wis. Stats.

Business | Licenses & Regulations | Recreation | Env. Protection | Contact | Join DNR | Search or Keywords

dnr.wi.gov search "disinfection"

Boat, gear and equipment decontamination and disinfection manual code

2. Review the BMPs

This page outlines best management practices (BMP) for the decontamination of boats, equipment and gear to prevent the spread of aquatic invasive species (AIS) between waters. It is supplemental and Disinfection P employees, agents and s oats, gear and equipment when transporting equipment. Members of the general public who use boats and/or participate in water recreation are required to follow the decontamination procedures in s. NR 40.02(44). Followi the general public if you are required permit or the invas

- MC 9183.1 me
- MC 9183.1 21
- Manual Code
- Full BMPs for
- Questions and
- Implementatic
- AIS preventio
- Species specif
- Where to find

ve species

Learn
about invasive species in Wisconsin.

Subscribe
to the invasive species rules and regulations email list.

Report
an invasive species in your area.

Order

- MC 9183.1 memo [PDF]
- MC 9183.1 21 day review public comments and responses
- Manual Code #9183.1 [PDF]
- Full BMPs for boat, gear and equipment decontamination [PDF]
- Questions and answers [PDF]
- Implementation chart [PDF]
- AIS prevention for the general public
- Species specific tables [PDF]
- Where to find aquatic invasive species records [PDF]

BMPs are the curre #9183.1. They rep will be periodically updated to reflect the latest scientific findings for decontamination. The guidelines outlined in this document cover many gear types, but do not cover all gear types. Boats, gear and equipment not expressly mentioned in this document that come in contact with surface waters are still subject to Manual Code #9183.1.

Best Management Practices for Boat, Gear and Equipment Decontamination

March 2017

Contents

This page outlines best management practices (BMP) for the decontamination of boats, equipment and gear to prevent the spread of aquatic invasive species (AIS) between waters. It is

d equipment when transporting equipment. Members of the general public who use boats and/or participate in water recreation are required to follow the decontamination procedures in s. NR 40.02(44). Followin the general public if you are required permit or the invas

- MC 9183.1 me
- MC 9183.1 21
- Manual Code
- Full BMPs for
- Questions and
- Implementatic
- AIS preventio
- Species specif
- Where to find

BMPs are the curre #9183.1. They rep will be periodically upd many gear types, but do not cover all gear types. Boats, gear and equipment not expressly mentioned in this document that come in contact with surface waters are still subject to Manual Code #9183.1.

Check for species present

- Check!
- Spatial and tabular data available
- Sample from least to most known AIS

dnr.wi.gov search “AIS efforts”

Business Licenses & Regulations Recreation Env. Protection Contact Join D

Aquatic Invasive Species

Location

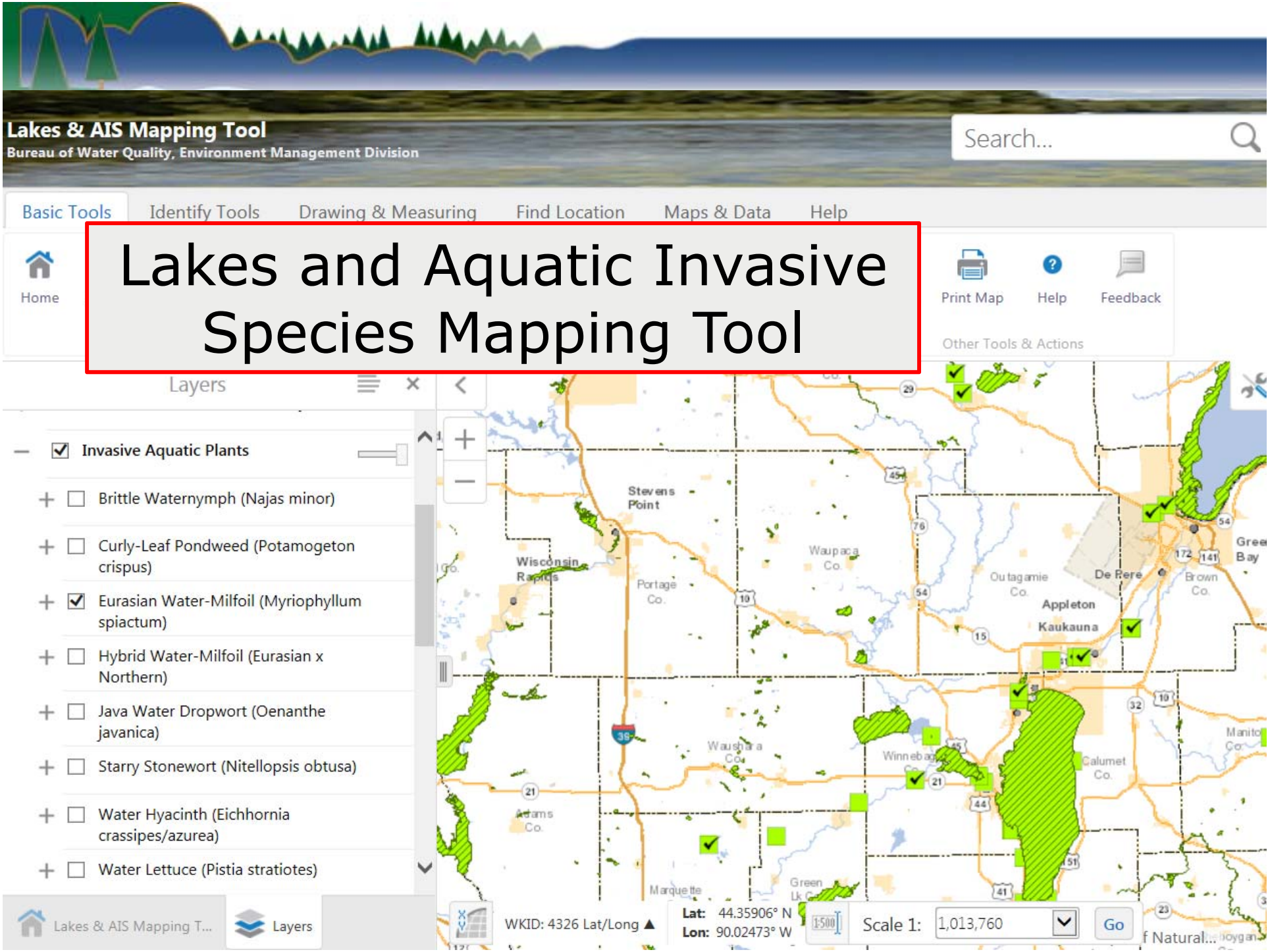
Lakes, Rivers, and Wetlands with Aquatic Invasive Species

Aquatic in sed on AIS Status Guidance. ations with the "observed ns with the "no longer observed" cessarily exhaustive so it is important to report occurrences. To report new discoveries visit: http://dnr.wi.gov/topic/Invasives/report.html. See the Aquatic Invasive Species Guidance for information on how statuses are assigned. Personally identifiable information on data collection forms may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

To Excel

< First	< Prev	Page 1 of 99	Next >	Last >

Waterbody Name	Waterbody ID Code (WBIC)	Invasive Species
Adams County (28)		
Arkdale Lake	1374300	Chinese Mystery Snail, Curly-Leaf Pondweed, Eurasian Water-Milfoil, Purple Loosestrife, Rusty Crayfish, Water Hyacinth
Big Roche A Cri Creek	1374100	Japanese Knotweed, Rusty Crayfish, Water Hyacinth, Zebra Mussel
Big Roche a Cri	1374800	Chinese Mystery Snail, Curly-Leaf Pondweed, Eurasian Water-


Lakes & AIS Mapping Tool
Bureau of Water Quality, Environment Management Division
Search...
Basic Tools
Identify Tools
Drawing & Measuring
Find Location
Maps & Data
Help
Home
Print Map
Help
Feedback
Other Tools & Actions
Lakes and Aquatic Invasive Species Mapping Tool
Layers
Invasive Aquatic Plants
Brittle Waternymph (Najas minor)
Curly-Leaf Pondweed (Potamogeton crispus)
Eurasian Water-Milfoil (Myriophyllum spiactum)
Hybrid Water-Milfoil (Eurasian x Northern)
Java Water Dropwort (Oenanthe javanica)
Starry Stonewort (Nitellopsis obtusa)
Water Hyacinth (Eichhornia crassipes/azurea)
Water Lettuce (Pistia stratiotes)
Lakes & AIS Mapping T...
Layers
Stevens Point
Wisconsin Rapids
Portage Co.
Waupaca Co.
Outagamie Co.
Appleton
Kaukauna
De Pere
Brown Co.
Waushara Co.
Winnebago
Calumet Co.
Adams Co.
Marquette
Green Lk Co.
WKID: 4326 Lat/Long
Lat: 44.35906° N
Lon: 90.02473° W
Scale 1: 1,013,760
Go

This page outlines best management practices (BMP) for the decontamination of boats, equipment and gear to prevent the spread of aquatic invasive species (AIS) between waters. It is

equipment when transporting equipment. Members of the general public who use boats and/or participate in water recreation are required to follow the decontamination procedures in s. NR 40.02(44). Followi

the general public

if you are required

permit or the invas

- MC 9183.1 me
- MC 9183.1 21
- Manual Code
- Full BMPs for
- Questions and
- Implementatic
- AIS preventio
- Species specif
- Where to find

BMPs are the curre

#9183.1. They rep

will be periodically updated to reflect the latest scientific findings for decontamination. The guidelines outlined in this document cover many gear types, but do not cover all gear types. Boats, gear and equipment not expressly mentioned in this document that come in contact with surface waters are still subject to Manual Code #9183.1.

Literature Review

- **80 scientific publications**

Virucidal Activity of Two Iodophors to Salmonid Virus

DONALD F. AMEND AND JOHN P. PIETSCH

U.S. Bureau of Sport Fisheries and Wildlife
Western Fish Disease Laboratory, Seattle, Wash. 98115, USA

AMEND, D. F., AND J. P. PIETSCH. 1972. Virucidal activity of two iodophors to s
viruses. J. Fish. Res. Bd. Canada 29: 61–65.

Viability of Aquatic Plant Fragments following Desiccation

Matthew A. Barnes, Christopher L. Jerde, Doug Keller, W. Lindsay Chadderton, Jennifer G. Howeth, and David M. Lodge*

North American Journal of Aquaculture 64:220–223, 2002
© Copyright by the American Fisheries Society 2002

Field Testing of Protocols to Prevent the Spread of Zebra Mussels *Dreissena polymorpha* during Fish Hatchery and Aquaculture Activities

WILLIAM J. EDWARDS,* LISA BABCOCK-JACKSON,[1] AND DAVID A. CULVE

The Ohio State University,
Department of Evolution, Ecology, and Evolutionary Biology,

Survival of the exotic Chinese mystery snail (*Cipangopaludina chinensis malleata*) during air exposur and implications for overland dispersal by boats

Tolerance of the Asiatic Clam *Corbicula* spp. to Le Levels of Toxic Stressors—A Review

Francis G. Doherty

North American Journal of Fisheries Management 28:1172–1176, 2008
© Copyright by the American Fisheries Society 2008
DOI: 10.1577/M07-028.1

[Management Brief]

Application of Household Disinfectants to Control New Zealand Mudsnails

GEORGE J. SCHISLER AND NICOLE K. M. VIEIRA*

Colorado Division of Wildlife, Aquatic Research Unit,

Aquatic Botany, 35 (1989) 167–180 167
Elsevier Science Publishers B.V., Amsterdam — Printed in The Netherlands

SEED DISPERSAL OF THREE NYMPHAEID MACROPHYTES

American Fisheries Society Symposium 29:217–225, 2002
© 2002 by the American Fisheries Society

Whirling Disease Prevention, Control, and Management: A Review

ERIC J. WAGNER
Fisheries Experiment Station, 1465 West 200 North, Logan, Utah 84321, USA

Hydrobiologia (2011) 675:167–174
DOI 10.1007/s10750-011-0814-1

PRIMARY RESEARCH PAPER

Effects of desiccation on two life stages of an invasive snail and its native cohabitant

Allison M. Wood · Cody R. Haro · Roger J. Haro · Gregory J. Sandland

Limnol. Oceanogr., 58(6), 2013, 2171–2184
© 2013, by the Association for the Sciences of Limnology and Oceanography, Inc.
doi:10.4319/lo.2013.58.6.2171

Effects of chemical and physical conditions on hatching success of *Bythotrep longimanus* resting eggs

Donn K. Branstrator,* Lyle J. Shannon, Meghan E. Brown,[a] and Marte T. Kitson[b]

Department of Biology, University of Minnesota Duluth, Duluth, Minnesota

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)
Faucet Snail	☑	☑[18*]	⊗[18,35]	⊗[18]	®[18]	☑
New Zealand mud snail	☑	☑[4,65*]	☑[6*,66*]	⊗[21, 78*]	☑[10*, 76, 77]	☑[4,6*]
Quagga Mussel (Adults)	☑[†]	☑[7*,16*]	☑[14*,67]	☑	☑[9]	☑
Quagga Mussel (Veligers)	☑[†]	☑[4,17]	☑[69*, 79*]	☑	☑[9]	☑
Zebra Mussel (Adult)	☑[†]	☑[7*,8*,54,67]	☑[14*,25*,67]	☑[11,19,22]	®	☑[25,27,67,68]
Zebra Mussel (Veligers)	☑[†]	☑[4]	®	☑	®	☑
Asian Clam	☑	☑[4,37,41,42,43]	⊗[4,44*,45]	⊗[36*,37*,38*,39*,40]	☑[23]	☑[46*]
Spiny Water Flea (Adult)	☑	☑[7*,47*]	☑[4]	☑[78]	☑[78]	☑[78]
Spiny Water Flea (Resting Eggs)	☑	☑[2*]	☑[2*]	⊗[2, 78*]	☑[78]	☑[2*]
Bloody Red Shrimp	®	®	®	®	®	®
Rusty Crayfish	?	?	?	?	?	?

*Additional details:

[2] Frozen in water, not just in air; Hot water: 50°C (122°F) for >5 min (or 1 min at >50°C); Drying: ≥ 6 hr @ 17°C (63°F)

[6] Drying: Must ensure hot and dry environment (>84°F for 24hrs; > 104°F (40°C) for >2 hours); Freezing: < 27°F (

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)
Faucet Snail	☑	☑[18*]	⊗[18,35]	⊗[18]	Ⓡ[18]	☑
New Zealand mud snail	☑	☑[4,65*]	☑[6*,66*]	⊗[21, 78*]	☑[10*, 76, 77]	☑[4,6*]
Quagga (Ad						
Quagga (Vel						
Zebra (Ad						68
Zebra (Veligers)						
Asian Clam	☑	☑[4,37,41,42,43]	⊗[4,44*,45]	⊗[36*,37*,38*,39*,40]	☑[23]	☑[46*]
Spiny Water Flea (Adult)	☑	☑[7*,47*]	☑[4]	☑[78]	☑[78]	☑[78]
Spiny Water Flea (Resting Eggs)	☑	☑[2*]	☑[2*]	⊗[2, 78*]	☑[78]	☑[2*]
Bloody Red Shrimp	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ
Rusty Crayfish	?	?	?	?	?	?

- Green check = effective
- Red "X" = not effective
- Blue "R" = research needed

*Additional details:

[2] Frozen in water, not just in air; Hot water: 50°C (122°F) for >5 min (or 1 min at >50°C); Drying: ≥ 6 hr @ 17°C (63°F)

[6] Drying: Must ensure hot and dry environment (>84°F for 24hrs; > 104°F (40°C) for >2 hours); Freezing: < 27°F (

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)
Faucet Snail	☑	☑[18*]	⊗[18,35]	⊗[18]	®[18]	☑
New Zealand mud snail	☑	☑[4,65*]	☑[6*,66*]	⊗[21, 78*]	☑[10*, 76, 77]	☑[4,6*]
Quagga Mus (Adults)						☑
Quagga Mus (Veligers)						☑
Zebra Muss (Adult)	☑	☑	☑	☑	®	☑[25,27,67,68]
Zebra Mussel (Veligers)	☑[†]	☑[4]	®	☑	®	☑
Asian Clam	☑	☑[4,37,41,42,43]	⊗[4,44*,45]	⊗[36*,37*,38*,39*,40]	☑[23]	☑[46*]
Spiny Water Flea (Adult)	☑	☑[7*,47*]	☑[4]	☑[78]	☑[78]	☑[78]
Spiny Water Flea (Resting Eggs)	☑	☑[2*]	☑[2*]	⊗[2, 78*]	☑[78]	☑[2*]
Bloody Red Shrimp	®	®	®	®	®	®
Rusty Crayfish	?	?	?	?	?	?

Superscripts reference citation used

*Additional details:

[2] Frozen in water, not just in air; Hot water: 50°C (122°F) for >5 min (or 1 min at >50°C); Drying: ≥ 6 hr @ 17°C (63°F)

[6] Drying: Must ensure hot and dry environment (>84°F for 24hrs; > 104°F (40°C) for >2 hours); Freezing: < 27°F (

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)
Faucet Snail	☑	☑[18*]	⊗[18,35]	⊗[18]	®[18]	☑
New Zealand mud snail	☑	☑[4,65*]	☑[6*,66*]	⊗[21, 78*]	☑[10*, 76, 77]	☑[4,6*]
Quagga Mussel (Adults)	☑[†]	☑[7*,16*]	☑[14*,67]	☑	☑[9]	☑
Quagga Mussel (Veligers)	☑[†]	☑[4,17]	☑[69*, 79*]	☑	☑[9]	☑
Zebra Mussel (Adult)	☑[†]	☑[7*,8*,54,67]	☑[14*,25*,67]	☑[11,19,22]	®	☑[25,27,67,68]
Zebra Mussel (Veligers)	☑[†]	☑[4]	®	☑	®	☑
Asian Clam	☑	☑[4,37,41,42,43]	⊗[4,44*,45]	⊗[36*,37*,38*,39*,40]	☑[23]	☑[46*]
Spiny Water Flea (Adult)	☑	☑[7*,47*]	☑[4]	☑[78]	☑[78]	☑[78]
Bloody Red Shrimp	®	®	®	®	®	®
Rusty Crayfish	?	?	?	?	?	?

Footnotes provide additional details

*Additional details:

[2] Frozen in water, not just in air; Hot water: 50°C (122°F) for >5 min (or 1 min at >50°C); Drying: ≥ 6 hr @ 17°C (63°F)

[6] Dry must ensure hot and dry environment (>84°F for 24hrs; > 104°F (40°C) for >2 hours); Freezing < 27°F (

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)
Faucet Snail	☑	☑[18*]	⊗[18,35]	⊗[18]	Ⓡ[18]	☑
New Zealand mud snail	☑	☑[4,65*]	☑[6*,66*]	⊗[21, 78*]	☑[10*, 76, 77]	☑[4,6*]
Quagga Mussel (Adults)	☑[†]	☑[7*,16*]	☑[14*,67]	☑	☑[9]	☑
Quagga Mussel (Veligers)	☑[†]	☑[4,17]	☑[69*, 79*]	☑	☑[9]	☑
Zebra Mussel (Adult)	☑[†]	☑[7*,8*,54,67]	☑[14*,25*,67]	☑[11,19,22]	Ⓡ	☑[25,27,67,68]
Zebra Mussel (Veligers)	☑[†]	☑[4]	Ⓡ	☑	Ⓡ	☑
Asian Clam	☑	☑[4,37,41,42,43]	⊗[4,44*,45]	⊗[36*,37*,38*,39*,40]	☑[3]	☑[46*]
Spiny Water Flea (Adult)	☑	☑[7*,47*]	☑[4]	☑[78]	☑[78]	☑[78]
Spiny Water Flea (Resting Eggs)	☑	☑[2*]	☑[2*]	⊗[2, 78*]	☑[78]	☑[2*]
Bloody Red Shrimp	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ
Rusty Crayfish	?	?	?	?	?	?

*Additional details:

[2] Frozen in water, not just in air; Hot water: 50°C (122°F) for >5 min (or 1 min at >50°C); Drying: ≥ 6 hr @ 17°C (63°F)

[6] Drying: Must ensure hot and dry environment (>84°F for 24hrs; > 104°F (40°C) for >2 hours); Freezing: < 27°F (

Decontaminate

- Inspect
- Remove
- Drain

Disinfect

- Pick one of 4 options:
  - Dry five days
  - ≥ 140ºF
  - 500 ppm chlorine (bleach solution)
  - 2% Virkon Aquatic

Drying

- Soap and water or pressure wash, then store for 5 days

- Safety
  - No PPE required

Hot Water or Steam

- ≥140ºF, 212ºF preferred

  (car washes not hot enough)

- Safety
  - Heat resistant gloves & clothing

Hot Water or Steam

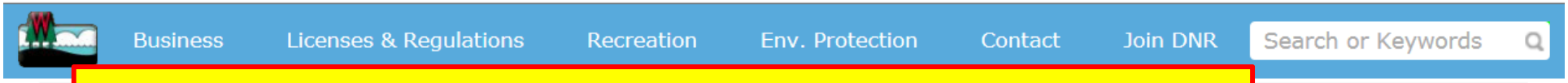
Chlorine Solution

- Consider shelf life (24 hours!)
- 500 ppm solution ~ 2.5 tbsp/gal
- Check label concentration
- Soak 10 min
- Sodium thiosulfate (neutralize bleach)
- Rinse with tap water

- Safety:
  - Emergency eyewash station, eye protection, and nitrile gloves
  - Stay upwind of spray

Virkon Aquatic

- Consider shelf life
- 2:100 solution ~5.4 tbsp/gal
- Soak 20 min
- Safety:
  - Emergency eyewash station, eye protection, and nitrile gloves
  - Splash goggles and/or face shield
  - Respirators advised
  - Stay upwind of spray



dnr.wi.gov search "disinfection"

Boat, gear and equipment decontamination and disinfection manual code

This page outlines best management practices (BMP) for the decontamination of boats, equipment and gear to prevent the spread of aquatic invasive species (AIS) between waters. It is supplemental to Manual Code #9183.1 Boat, Gear and Equipment Decontamination and Disinfection Protocol, which requires all Wisconsin Department of Natural Resources employees, agents and service providers, and some permitees to take steps to decontaminate boats, gear and equipment when transporting equipment. Members of the general public who use boats and/or participate in water recreation are required to follow the decontamination procedures in s. NR 40.02(44). Followir
the general public
if you are required
permit or the invas

- MC 9183.1 me
- MC 9183.1 21
- Manual Code
- Full BMPs for
- Questions and
- Implementatic
- AIS preventio
- Species specif
- Where to find

ve species

Learn
about invasive species in Wisconsin.

Subscribe
to the invasive species rules and regulations email list.

Report
an invasive species in your area.

Order

- MC 9183.1 memo [PDF]
- MC 9183.1 21 day review public comments and responses
- Manual Code #9183.1 [PDF]
- Full BMPs for boat, gear and equipment decontamination [PDF]
- Questions and answers [PDF]
- Implementation chart [PDF]
- AIS prevention for the general public

Training video coming soon!

BMPs are t
#9183.1. T
[PDF]
will be periodically updated to reflect the latest scientific findings for decontamination. The guidelines outlined in this document cover many gear types, but do not cover all gear types. Boats, gear and equipment not expressly mentioned in this document that come in contact with surface waters are still subject to Manual Code #9183.1.

Acknowledgments

CAES
- Marsha Present

Community Financial Assistance
- Diane Conklin

Fisheries Management
- David Rowe, Susan Marcquenski

Land Division
- John Olson

Law Enforcement
- Todd Schaller, Steve Sisbach

Legal Services
- Quinn Williams, Mike Kowalkowski

Parks and Recreation
- Craig Anderson, Janet Hutchens

Sustainability and Business Support
- Michael Halsted, Matt Mitro, Kelly Wagner, Dreux Watermolen

Water Quality
- Tim Campbell, Maureen Ferry, Sue Graham, Michael Miller, Amanda Perdzock, Julia Riley, Michael Sorge, Bob Wakeman

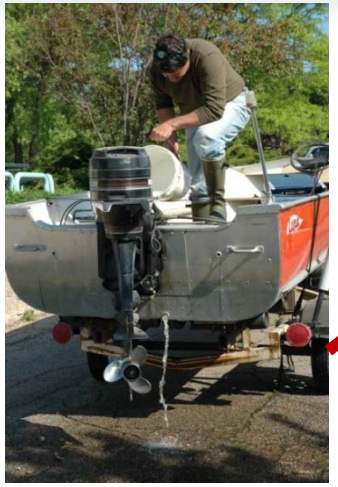
Watershed Management (Dams and Floodplains)
- Cheryl Laatsch

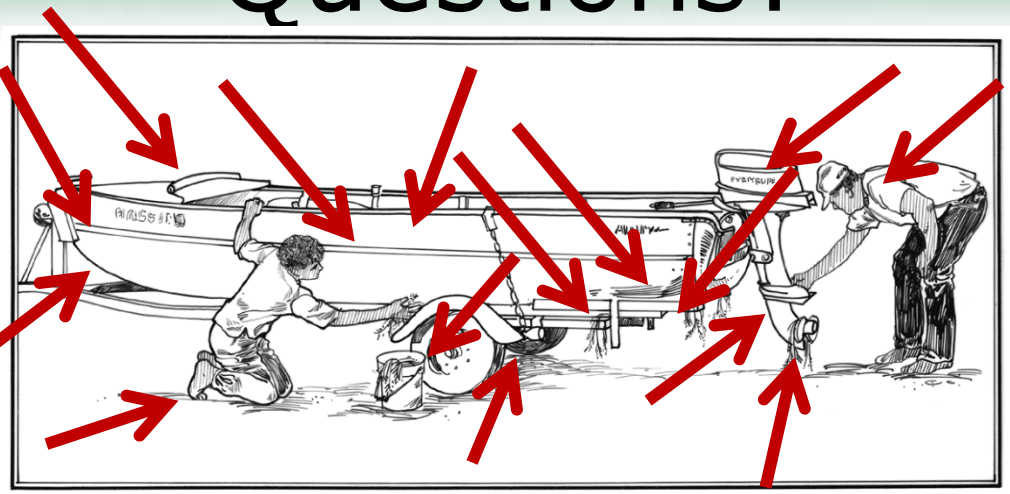
Watershed Management (Runoff Management)
- Jim Bertolacini

Watershed Management (Waterways)
- Martin Griffin

Wildlife
- Daniel Hirchert

Questions?





Remember, we are the stewards – always disinfect!