

Appendix 2: Compendium of Recommended Procedures and Best Management Practices Relevant to Minimizing the Introduction of Invasive Species by Service Activities

This compendium provides a range of prevention methods that Programs may want to incorporate into their guidelines under the Pacific Region Policy on Minimizing the Introduction of Invasive Species by Service Activities. These do not constitute specific Service recommendations, but each is associated with policies or guidelines from at least one natural resource agency or organization. The compendium is not exhaustive. New research information on effective prevention practices is constantly surfacing, and therefore these source materials, and the realm of invasive species prevention protocols in general, are dynamic. For that reason (and also because some technical references are hundreds of pages in length), this compendium provides links to web-based documents rather than directly incorporating the written procedures. Users are encouraged to check these web-based references periodically for guideline revisions.

1. Equipment-Based Procedures

Aircraft

- [Aquatic Nuisance Species Task Force, November 2013, Voluntary Guidelines to Prevent the Introduction and Spread of Aquatic Invasive Species: Recreational Activities](#)

All terrain vehicles (ATVs)

- [California Invasive Species Plant Council, 2012, Preventing the Spread of Invasive Plants, Best Management Practices for Land Managers, Third Edition, Berkeley, CA.](#)

Aquatic Sampling Gear (see In-Water Gear)

Bilges (see Compartments)

Buckets (see In-Water Equipment)

Bulldozers (see Heavy Equipment)

Compartments (e.g., bilges, raw water holding tanks, wet wells, live wells)

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination, pg 10](#)
- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B14](#)
- [Colorado Division of Wildlife, Aquatic Nuisance Species Watercraft Decontamination Manual, pg 10.](#)

Construction Equipment

- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B20](#)

Dip nets (see In-Water Gear)

Dive gear

- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B26](#)

Engines-Watercraft

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination, pg 11](#)
- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B16](#)
- [Colorado Division of Wildlife, Aquatic Nuisance Species Watercraft Decontamination Manual, pg 14.](#)

Fish Tankers

- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols, pg 11](#)

Heavy Equipment

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination, pg 11.](#)
- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B2](#)
- [Peterborough Stewardship Council and Ontario Invasive Plant Council, 2011, Clean Equipment Protocol for Industry, Inspecting and cleaning equipment for the purposes of invasive species prevention](#)

Inboard Engine (see Engines-Watercraft)

In-Water Gear

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination, pg 9](#)
- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B13](#)

- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols](#), pg 11

Live wells (see Compartments)

Measuring Devices-Aquatic (see In-Water Gear)

Nets (see In-Water Gear)

Outboard (see Engines-Watercraft)

Pumps and Hoses

- [Colorado Division of Wildlife, Aquatic Nuisance Species Watercraft Decontamination Manual](#), pg 12.

Paddles and Oars (see In-Water Gear)

Personal gear & clothing

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](#), pg 9
- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705](#), pg B1
- [Aquatic Nuisance Species Task Force, November 2013, Voluntary Guidelines to Prevent the Introduction and Spread of Aquatic Invasive Species: Recreational Activities.](#)

Raw water holding tanks (see Compartments)

Sampling Gear-Aquatic (see In-Water Gear)

SCUBA (see Dive gear)

Snorkeling gear (see Dive gear)

Tools, Miscellaneous – Terrestrial

- [California Invasive Species Plant Council, 2012, Preventing the Spread of Invasive Plants, Best Management Practices for Land Managers, Third Edition, Berkeley, CA.](#)

Tractors (see Heavy Equipment)

Vehicles (Rubber Tired Land Vehicles)

- [NOAA Fisheries Service Habitat Program, Preventing Invasive Species: Inspection of Vehicles, Equipment, and Personal Gear.](#)
- [NOAA Fisheries Service Habitat Program, Preventing Invasive Species: Cleaning Land Vehicles, Equipment, and Personal Gear.](#)
- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B2](#)
- [Peterborough Stewardship Council and Ontario Invasive Plant Council, 2011, Clean Equipment Protocol for Industry, Inspecting and cleaning equipment for the purposes of invasive species prevention](#)
- [USDA Forest Service, December 2005, Vehicle Cleaning Technology for Controlling the Spread of Noxious Weeds and Invasive Species](#)

Waders

- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols, pg 9](#)
- [Idaho Department of Ecology, Decontamination Procedures for Decontamination of Monitoring Equipment](#)

Watercraft and associated trailers

- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B14](#)
- [California Department of Fish and Wildlife, October 2013, Aquatic Invasive Species Decontamination Protocol, pg 2](#)
- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016, Best Management Practices for Boat, Gear, and Equipment Decontamination, pg 10](#)
- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols, pg 10](#)
- [Colorado Division of Wildlife, Aquatic Nuisance Species Watercraft Decontamination Manual, pg 20.](#)

Wet wells (see Compartments)

Wildland firefighting equipment

- [California Invasive Species Plant Council, 2012, Preventing the Spread of Invasive Plants, Best Management Practices for Land Managers, Third Edition, Berkeley, CA.](#)
- [USFS Intermountain Region Technical Guidance, June 2014, Preventing Spread of Aquatic Invasive Organisms common to the Intermountain Region, 2014 Technical Guidelines for Fire Operations](#)
- [US Fish and Wildlife Service, 2008, Fire Management and Invasive Plants: A Handbook, Arlington Virginia.](#)
- [Center for Invasive Plant Management, September 2003, Invasive Plant Prevention Guidelines](#)

2. Activity-Based Procedures

Grazing

- [Center for Invasive Plant Management, September 2003, Invasive Plant Prevention Guidelines](#), pg 11
- [The Nature Conservancy, Wildland Invasive Species Team, April 2001, Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas](#), Chapter 2.

Use of Hay

- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols](#), pg 3

Habitat Restoration

- [NOAA Fisheries Service Habitat Program, Replanting and Maintenance of Native Communities](#).
- [California Invasive Species Plant Council, 2012, Preventing the Spread of Invasive Plants, Best Management Practices for Land Managers, Third Edition, Berkeley, CA.](#)
- [Wisconsin Council on Forestry, 2010, Transportation and Utility Rights-of-way BMPs for Preventing the Introduction and Spread of Invasive Species.](#)
- [Center for Invasive Plant Management, September 2003, Invasive Plant Prevention Guidelines](#)
- [Washington Invasive Species Council, Reducing Accidental Introductions of Invasive Species: State Agency Field Work Protocols](#)

Revegetation via Seeds and Rootstock

- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols](#), pg 4

3. Chemical Decontamination Methods

Chlorine bleach

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](#), pg 8
- [California Center for Amphibian Disease Control, 2007, Decontamination Protocol to Reduce Risk of Spreading Amphibian Diseases.](#)
- [Washington Department of Ecology, Summary of Field Gear Cleaning and Decontamination Procedure](#)

Formula 409 ®

- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols](#), pg 9

Quaternary Ammonium

- [Washington Department of Ecology, Summary of Field Gear Cleaning and Decontamination Procedure](#)

Virkon® Aquatic disinfectant

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](#), pg 7
- [Washington Department of Ecology, Summary of Field Gear Cleaning and Decontamination Procedure](#)
- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols](#), pg 7

4. Physical Decontamination Methods

Cold/Freezing

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](#), pg 9
- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705](#), pg B13
- [California Department of Fish and Wildlife, October 2013, Aquatic Invasive Species Decontamination Protocol](#), pg 2
- [Washington Department of Ecology, Summary of Field Gear Cleaning and Decontamination Procedure](#)
- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols](#), pg 8

Drying/Desiccation

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](#), pg 7
- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705](#), pg B13
- [California Department of Fish and Wildlife, October 2013, Aquatic Invasive Species Decontamination Protocol](#), pg 2
- [Washington Department of Ecology, Summary of Field Gear Cleaning and Decontamination Procedure](#)

Heat

- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B12](#)

Hot water soak

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination, pg 7](#)
- [California Department of Fish and Wildlife, October 2013, Aquatic Invasive Species Decontamination Protocol, pg 2](#)
- [Washington Department of Ecology, Summary of Field Gear Cleaning and Decontamination Procedure](#)
- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols, pg 8](#)
- [Anderson, Lucy; Dunn, Alison; Rosewarne, Paula; Stebbing, Paul, 2015, Invaders in hot water: a simple decontamination method to prevent the accidental spread of aquatic invasive non-native species, Biol Invasions; Efficacy study](#)

Hot water spray

- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B12](#)

Steam cleaning

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination, pg 6](#)

5. Organism-Specific Procedures

Mollusks

Zebra and quagga mussels (*Dreissena polymorpha*;*Dreissena rostriformis bugensis*)

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination, pg 15](#)
- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705, pg B10, B21](#)

- [NOAA Fisheries Service Habitat Program, Decontamination of Shells used for Habitat Restoration.](#)
- [Colorado Division of Wildlife, Aquatic Nuisance Species Watercraft Decontamination Manual, pg 25.](#)
- [USFS Intermountain Region Technical Guidance, June 2014, Preventing Spread of Aquatic Invasive Organisms common to the Intermountain Region, 2014 Technical Guidelines for Fire Operations.](#)

Asian Clam (*Corbicula fluminea*)

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination, pg 15](#)
- [USFS Intermountain Region Technical Guidance, June 2014, Preventing Spread of Aquatic Invasive Organisms common to the Intermountain Region, 2014 Technical Guidelines for Fire Operations.](#)

New Zealand mudsnail (*Potamopyrgus antipodarum*)

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination, pg 15](#)
- [California Department of Fish and Wildlife, October 2013, Aquatic Invasive Species Decontamination Protocol, pg 4](#)
- [Colorado Division of Wildlife, Aquatic Nuisance Species Watercraft Decontamination Manual, pg 25.](#)
- [Oregon State University-Sea Grant, February 2010, New Zealand Mudsnails, How to Prevent the Spread of New Zealand Mudsnails Through Field Gear.](#)
- [USFS Intermountain Region Technical Guidance, June 2014, Preventing Spread of Aquatic Invasive Organisms common to the Intermountain Region, 2014 Technical Guidelines for Fire Operations](#)

Pathogens/Bacteria

Chytrid fungus (*Batrachochytrium dendrobatidis*; *Batrachochytrium salamandrivorans*)

- [California Center for Amphibian Disease Control, 2007, Decontamination Protocol to Reduce Risk of Spreading Amphibian Diseases.](#)
- [Northeast Partners in Amphibian and Reptile Conservation, 2014, Disinfection of Field Equipment to Minimize Risk of Spread of Chytridiomycosis and Ranavirus.](#)
- [USFS Intermountain Region Technical Guidance, June 2014, Preventing Spread of Aquatic Invasive Organisms common to the Intermountain Region, 2014 Technical Guidelines for Fire Operations.](#)

Sudden oak death (*Phytophthora ramorum*)

- [USFS Intermountain Region Technical Guidance, June 2014, Preventing Spread of Aquatic Invasive Organisms common to the Intermountain Region, 2014 Technical Guidelines for Fire Operations.](#)

Viral Hemorrhagic Septicemia (VHS) virus

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](#), pg 16
- [USFS Intermountain Region Technical Guidance, June 2014, Preventing Spread of Aquatic Invasive Organisms common to the Intermountain Region, 2014 Technical Guidelines for Fire Operations.](#)

Whirling disease (*Myxobolus cerebralis*)

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](#), pg 16
- [USFS Intermountain Region Technical Guidance, June 2014, Preventing Spread of Aquatic Invasive Organisms common to the Intermountain Region, 2014 Technical Guidelines for Fire Operations.](#)

Plants

Freshwater weeds, general

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](#), pg 14
- [USFS Intermountain Region Technical Guidance, June 2014, Preventing Spread of Aquatic Invasive Organisms common to the Intermountain Region, 2014 Technical Guidelines for Fire Operations.](#)

Eurasian watermilfoil (*Myriophyllum spicatum*)

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](#), pg 14

Hydrilla (*Hydrilla verticillata*)

- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](#), pg 14

Terrestrial weeds, general

- [California Invasive Species Plant Council, 2012, Preventing the Spread of Invasive Plants, Best Management Practices for Land Managers, Third Edition, Berkeley, CA.](#)
- [Center for Invasive Plant Management, September 2003, Invasive Plant Prevention Guidelines](#)
- [The Nature Conservancy, Wildland Invasive Species Team, April 2001, Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas.](#)

6. Risk Assessment Methods

- [Mendoza, Roberto; Luna, Sergio; Aguilera, Carlos, 2015, Risk assessment of the ornamental fish trade in Mexico: analysis of freshwater species and effectiveness of the FISK \(Fish Invasiveness Screening Kit\), Biological Invasions 17:3491-3502.](#)
- [National Invasive Species Council \(NISC\), 2007, Training and Implementation Guide for Pathway Definition, Risk Analysis and Risk Prioritization.](#)
- [Mandrak, N & Cudmore, B, 2015, Risk assessment: Cornerstone of an aquatic invasive species program, Aquatic Ecosystem Health & Management, 18:3, 312-320](#)
- [D'hondt et al, 2015, Harmonia+ and Pandora+: risk screening tools for potentially invasive plants, animals and their pathogens., Biological Invasions 17:1869-1883.](#)
- [Davidson AD, Hewitt CL, Kashian DR, 2015, Understanding Acceptable Level of Risk: Incorporating the Economic Cost of Under-Managing Invasive Species. PLoS ONE 10\(11\): e0141958.](#)
- [Castro JM, Macdonald A, Lynch E, Thorne CR \(2015\) Risk-Based Approach to Designing and Reviewing Pipeline Stream Crossings to Minimize the Impacts to Aquatic Habitats and Species, River Research and Applications, 31:767-783.](#)
- Hazard Assessment and Critical Control Point (HACCP) planning
 - [US Fish and Wildlife Service, 2009, Managing Invasive Species Pathways 750FW.](#)
 - USFWS HACCP Planning Process, 750 FW1 Appendix 1.

7. Invasive Species Outreach/Communications

- [Play Clean Go](#)
- [Stop Aquatic Hitchhikers!](#)
- [Clean, Drain, Dry](#)
- [Don't Move Firewood](#)
- [Don't Let it Loose](#)
- [100th Meridian Initiative](#)

Bibliography of Source References

- [Anderson, Lucy; Dunn, Alison; Rosewarne, Paula; Stebbing, Paul, 2015, Invaders in hot water: a simple decontamination method to prevent the accidental spread of aquatic invasive non-native species, Biol Invasions.](#) Available online at: <http://eprints.whiterose.ac.uk/85906/1/anderson%20et%20al%202015%20biological%20invasions%20hot%20water%201.pdf>

- [Aquatic Nuisance Species Task Force, November 2013, Voluntary Guidelines to Prevent the Introduction and Spread of Aquatic Invasive Species: Recreational Activities](http://www.anstaskforce.gov/Documents/AIS_Recreation_Guidelines_Final_8-29-13.pdf). Available online at: http://www.anstaskforce.gov/Documents/AIS_Recreation_Guidelines_Final_8-29-13.pdf
- [Brooks, M. and M. Lusk, US Fish and Wildlife Service, 2008. Fire Management and Invasive Plants: a Handbook, Arlington Virginia, 27 pp.](https://www.fws.gov/policy/FireMgtandInvasives%20HB%202009.pdf) Available online at: <https://www.fws.gov/policy/FireMgtandInvasives%20HB%202009.pdf>
- [Bureau of Reclamation, 2012 Edition: Managing Water in the West, Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, Technical Memorandum No. 86-68220-0705](https://www.usbr.gov/mussels/prevention/docs/EquipmentInspectionandCleaningManual2012.pdf). Available online at: <https://www.usbr.gov/mussels/prevention/docs/EquipmentInspectionandCleaningManual2012.pdf>
- [California Center for Amphibian Disease Control, 2007, Decontamination Protocol to Reduce Risk of Spreading Amphibian Diseases](http://www.ccadc.us/docs/DeconForProfessionals.pdf). Available online at: <http://www.ccadc.us/docs/DeconForProfessionals.pdf>
- [California Department of Fish and Wildlife, October 2013, Aquatic Invasive Species Decontamination Protocol](https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=43333). Available online at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=43333>
- [California Invasive Species Plant Council, 2012, Preventing the Spread of Invasive Plants, Best Management Practices for Land Managers, Third Edition, Berkeley, CA](http://www.cal-ipc.org/ip/prevention/landmanagers.php). Available online at: <http://www.cal-ipc.org/ip/prevention/landmanagers.php>.
- [California Invasive Plant Council, 2012, Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors](http://www.cal-ipc.org/ip/prevention/tuc.php). Available online at: <http://www.cal-ipc.org/ip/prevention/tuc.php>.
- [Castro JM, Macdonald A, Lynch E, Thorne CR, 2015, Risk-Based Approach to Designing and Reviewing Pipeline Stream Crossings to Minimize the Impacts to Aquatic Habitats and Species, River Research and Applications, 31:767-783](#)
- [Center for Invasive Plant Management, September 2003, Invasive Plant Prevention Guidelines](http://www.weedcenter.org/store/docs/CIPM_prevention.pdf). Available online at: http://www.weedcenter.org/store/docs/CIPM_prevention.pdf
- [Colorado Division of Wildlife, Aquatic Nuisance Species Watercraft Decontamination Manual](http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd503152.pdf). Available online at: http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd503152.pdf
- [Davidson AD, Hewitt CL, Kashian DR, 2015, Understanding Acceptable Level of Risk: Incorporating the Economic Cost of Under-Managing Invasive Species. PLoS ONE 10\(11\): e0141958](http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0141958). Available online at: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0141958>.
- [D'hondt et al, 2015, Harmonia+ and Pandora+: risk screening tools for potentially invasive plants, animals and their pathogens., Biological Invasions 17:1869-1883](http://link.springer.com/article/10.1007%2Fs10530-015-0843-1). Available online at: <http://link.springer.com/article/10.1007%2Fs10530-015-0843-1>

- [Idaho Department of Ecology, Decontamination Procedures for Decontamination of Monitoring Equipment](http://www.deq.idaho.gov/media/647055-decontamination_procedures.pdf), Available online at: http://www.deq.idaho.gov/media/647055-decontamination_procedures.pdf
- [Kenai Peninsula Cooperative Weed Management Area April 2013, Preventing the Spread of Invasive Species: Prevention Guidelines for Field Research](http://www.kenaiweeds.org/user_images/Prevention%20Guidelines.pdf). Available online at: http://www.kenaiweeds.org/user_images/Prevention%20Guidelines.pdf
- [Mandrak, N & Cudmore, B, 2015, Risk assessment: Cornerstone of an aquatic invasive species program, Aquatic Ecosystem Health & Management, 18:3, 312-320](http://dx.doi.org/10.1080/14634988.2015.1046357). Available online at: <http://dx.doi.org/10.1080/14634988.2015.1046357>.
- [Mendoza, Roberto; Luna, Sergio; Aguilera, Carlos, 2015, Risk assessment of the ornamental fish trade in Mexico: analysis of freshwater species and effectiveness of the FISK \(Fish Invasiveness Screening Kit\), Biological Invasions 17:3491-3502.](#)
- [Michigan Department of Natural Resources, June 2015, Wildlife Division Guidelines for Decontamination](http://www.michigandnr.com/FTP/forestry/Forest%20Certification%20Audit%20Documents%202015/Forest%20Certification%20Auditor%20Master%20CD%20File/Management%20Plans%20and%20Guidelines/DNR%20Guidelines/Wildlife%20Division%20guidance%20for%20decontamination_FINAL_June2015.docx). Available online at: http://www.michigandnr.com/FTP/forestry/Forest%20Certification%20Audit%20Documents%202015/Forest%20Certification%20Auditor%20Master%20CD%20File/Management%20Plans%20and%20Guidelines/DNR%20Guidelines/Wildlife%20Division%20guidance%20for%20decontamination_FINAL_June2015.docx
- [Minnesota Pollution Control Agency, Water Quality Sampling SOP 2015, Protocols for Decontamination after Sampling Water Resources with AIS](https://www.pca.state.mn.us/sites/default/files/wq-s1-19.pdf). Available online at: <https://www.pca.state.mn.us/sites/default/files/wq-s1-19.pdf>
- [National Invasive Species Council \(NISC\), 2007, Training and Implementation Guide for Pathway Definition, Risk Analysis and Risk Prioritization](http://www.anstaskforce.gov/Documents/Pathways_Training_and_Implementation_Guide_Jan_2007.pdf). Available online at: http://www.anstaskforce.gov/Documents/Pathways_Training_and_Implementation_Guide_Jan_2007.pdf
- [NOAA Fisheries Service Habitat Program, Decontamination of Shells used for Habitat Restoration](http://www.habitat.noaa.gov/pdf/best_management_practices/Decontamination%20of%20Shells.pdf). Available online at: http://www.habitat.noaa.gov/pdf/best_management_practices/Decontamination%20of%20Shells.pdf
- [NOAA Fisheries Service Habitat Program, Preventing Invasive Species: Cleaning Land Vehicles, Equipment, and Personal Gear](http://www.habitat.noaa.gov/pdf/best_management_practices/Cleaning%20of%20Land%20Vehicles%20and%20Equipment.pdf). Available online at: http://www.habitat.noaa.gov/pdf/best_management_practices/Cleaning%20of%20Land%20Vehicles%20and%20Equipment.pdf
- [NOAA Fisheries Service Habitat Program, Preventing Invasive Species: Cleaning Watercraft and Equipment](http://www.habitat.noaa.gov/pdf/best_management_practices/Cleaning%20of%20Watercraft%20and%20Equipment.pdf). Available online at: http://www.habitat.noaa.gov/pdf/best_management_practices/Cleaning%20of%20Watercraft%20and%20Equipment.pdf
- [NOAA Fisheries Service Habitat Program, Preventing Invasive Species: Decontamination of Crane Bags](#). Available online at:

http://www.habitat.noaa.gov/pdf/best_management_practices/Decontamination%20of%20Crane%20Bags.pdf

- [NOAA Fisheries Service Habitat Program, Preventing Invasive Species: Inspection of Vehicles, Equipment, and Personal Gear](http://www.habitat.noaa.gov/pdf/best_management_practices/Inspection%20of%20Vehicles%20and%20Equipment.pdf). Available online at: http://www.habitat.noaa.gov/pdf/best_management_practices/Inspection%20of%20Vehicles%20and%20Equipment.pdf.
- [NOAA Fisheries Service Habitat Program, Replanting and Maintenance of Native Communities](http://www.habitat.noaa.gov/pdf/best_management_practices/Replanting%20Project%20Sites.pdf). Available online at: http://www.habitat.noaa.gov/pdf/best_management_practices/Replanting%20Project%20Sites.pdf
- [Northeast Partners in Amphibian and Reptile Conservation, 2014, Disinfection of Field Equipment to Minimize Risk of Spread of Chytridiomycosis and Ranavirus](http://www.northeastparc.org/products/pdfs/NEPARC_Pub_2014-02_Disinfection_Protocol.pdf). Available online at: http://www.northeastparc.org/products/pdfs/NEPARC_Pub_2014-02_Disinfection_Protocol.pdf
- [Oregon State University-Sea Grant, February 2010, New Zealand Mudsnails, How to Prevent the Spread of New Zealand Mudsnails Through Field Gear](http://www.dfw.state.or.us/conservationstrategy/invasive_species/docs/NZ_Mudsnails_10-page.pdf). Available online at: http://www.dfw.state.or.us/conservationstrategy/invasive_species/docs/NZ_Mudsnails_10-page.pdf
- [Peterborough Stewardship Council and Ontario Invasive Plant Council, 2011, Clean Equipment Protocol for Industry, Inspecting and cleaning equipment for the purposes of invasive species prevention](http://opwg.ca/clean-equipment-protocol/). Available online at: <http://opwg.ca/clean-equipment-protocol/>
- [The Nature Conservancy, Wildland Invasive Species Team, April 2001, Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas](http://www.invasive.org/gist/products/handbook/methods-handbook.pdf). Available online at: <http://www.invasive.org/gist/products/handbook/methods-handbook.pdf>
- [USDA Forest Service, December 2005, Vehicle Cleaning Technology for Controlling the Spread of Noxious Weeds and Invasive Species](http://www.fs.fed.us/eng/pubs/pdf/05511203.pdf). Available online at: <http://www.fs.fed.us/eng/pubs/pdf/05511203.pdf>
- [US Fish and Wildlife Service, 2008, Fire Management and Invasive Plants: A Handbook, Arlington Virginia](https://www.fws.gov/policy/FireMgtandInvasives%20HB%202009.pdf). Available online at: <https://www.fws.gov/policy/FireMgtandInvasives%20HB%202009.pdf>
- [US Fish and Wildlife Service, 2009, Managing Invasive Species Pathways 750FW](https://www.fws.gov/policy/750fw1.html). Available online at: <https://www.fws.gov/policy/750fw1.html>
- [US Fish and Wildlife Service, 2004, 713FW 5: Special Case Aquatic Animal Movements and Controlled Propagation Programs](https://www.fws.gov/policy/713fw5.html). Available online at: <https://www.fws.gov/policy/713fw5.html>
- [US Fish and Wildlife Service, January 2008, Procedures for Decontamination of Equipment to Prevent Spread of Viral Hemorrhagic Septicemia and Other Infectious Diseases and Biota, Sea Lamprey Control Program protocol to minimize the risk of transmission of invasive species and disease in the Great Lakes, Technical Operating Procedure 028.0/U.S.](http://www.glfc.org/sealamp/sop/top/top%20028%20decontamination%20procedures.pdf) Available online at: <http://www.glfc.org/sealamp/sop/top/top%20028%20decontamination%20procedures.pdf>

- [US Forest Service, 1999, MBS Prevention Strategies and Best Management Practices for Noxious Weed Management](http://www.invasivespecies.wa.gov/documents/USFS%20Prevention%20Protocols%20for%20Noxious%20Weeds.pdf). Available online at:
<http://www.invasivespecies.wa.gov/documents/USFS%20Prevention%20Protocols%20for%20Noxious%20Weeds.pdf>
- [US Forest Service Intermountain Region INTERIM Operational Guidance, June 2016, Preventing Spread of Aquatic Invasive Organisms Common to the Intermountain Region](http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5373421.pdf). Available online at:
http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5373421.pdf
- [US Forest Service Intermountain Region Technical Guidance, June 2014, Preventing Spread of Aquatic Invasive Organisms common to the Intermountain Region, 2014 Technical Guidelines for Fire Operations](http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5373422.pdf). Available online at:
http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5373422.pdf
- [Washington Department of Ecology, Summary of Field Gear Cleaning and Decontamination Procedure](http://www.ecy.wa.gov/programs/eap/invasivespecies/Documents/TwoPageSummary.pdf). Available online at:
<http://www.ecy.wa.gov/programs/eap/invasivespecies/Documents/TwoPageSummary.pdf>
- [Washington Department of Ecology January 2016, Version 2.1, Standard Operating Procedures to Minimize the Spread of Invasive Species](http://www.ecy.wa.gov/programs/eap/qa/docs/ECY_EAP_SOP_PreventSpreadOfAISv2_1EAP070.pdf). Available online at:
http://www.ecy.wa.gov/programs/eap/qa/docs/ECY_EAP_SOP_PreventSpreadOfAISv2_1EAP070.pdf
- [Washington Department of Fish and Wildlife, Version 2, November 2012, Invasive Species Management Protocols](http://wdfw.wa.gov/publications/01490/wdfw01490.pdf). Available online at:
<http://wdfw.wa.gov/publications/01490/wdfw01490.pdf>
- [Washington Invasive Species Council, Reducing Accidental Introductions of Invasive Species: State Agency Field Work Protocols](http://www.invasivespecies.wa.gov/documents/invasive%20species%20prevention%20protocol.pdf). Available online at:
<http://www.invasivespecies.wa.gov/documents/invasive%20species%20prevention%20protocol.pdf>
- [Wisconsin Council on Forestry, 2010, Transportation and Utility Rights-of-way BMPs for Preventing the Introduction and Spread of Invasive Species](http://www.wisconsinforestry.org/files/invasiveBMPs/ROW-Manual.pdf). Available online at:
<http://www.wisconsinforestry.org/files/invasiveBMPs/ROW-Manual.pdf>
- [Wisconsin Department of Natural Resources, Bureau of Water Quality May 2016. Best Management Practices for Boat, Gear, and Equipment Decontamination](https://dnrx.wisconsin.gov/swims/downloadDocument.do?id=113967385). Available online at:
<https://dnrx.wisconsin.gov/swims/downloadDocument.do?id=113967385>
- [Wyoming State, Wyoming Aquatic Invasive Species Fire Equipment Inspection and Decontamination Manual](https://wgfd.wyo.gov/WGFD/media/content/PDF/Fishing/AIS_FIREEQUIPMENT.pdf). Available online at:
https://wgfd.wyo.gov/WGFD/media/content/PDF/Fishing/AIS_FIREEQUIPMENT.pdf
- [Wyoming State, Aquatic Invasive Species Watercraft Inspection and Decontamination Manual](https://wgfd.wyo.gov/WGFD/media/content/PDF/Fishing/AIS_AgencyWIDManual.pdf). Available online at:
https://wgfd.wyo.gov/WGFD/media/content/PDF/Fishing/AIS_AgencyWIDManual.pdf