TECHNICAL OPERATING PROCEDURE

PROCEDURE TITLE:

Procedures for Decontamination of Equipment to Prevent Spread of Viral Hemorrhagic Septicemia and Other Infectious Diseases and Biota

APPLICABILITY:

Applies to all intra/interstate field activities.

PRINCIPLE:

Procedures are followed to minimize the risk of spreading disease and non-indigenous organisms.

SAMPLE COLLECTION AND PRESERVATION:

Not applicable

EQUIPMENT REQUIRED:

Hand sprayer (optional)

POTENTIAL INTERFERENCES:

Not applicable
SAFETY:

Avoid contact with disinfection agent.

Use recommended safety equipment per label of disinfection agent.

DISPOSAL:

Rinsate should be directed to an area where it will evaporate or into a treated sewage system.

REAGENTS:

See list of accepted chemical disinfection agents (attachment 2).

PROCEDURES:

The protocol describing disinfection procedures used by the Sea Lamprey Control Program to minimize the risk of transmission of invasive species and disease is provided in attachment 1.

1. Equipment

See attachment 2.

2. Organisms

Organisms used for toxicity testing or other purposes cannot be transferred between states or lake basins.

REFERENCES:

Sea Lamprey Control Program protocol to minimize risk of transmission of invasive species and disease in the Great Lakes

This procedure has been reviewed and approved by the undersigned representatives of the U.S. Fish and Wildlife Service and Fisheries and Oceans Canada.

REVIEWED/APPROVED ________________ DATE ________________
Field Supervisor (U.S.)

REVIEWED/APPROVED ________________ DATE ________________
Division Manager (Canada)
Sea Lamprey Control Program protocol to minimize risk of transmission of invasive species and disease in the Great Lakes
Version January 29, 2008

Equipment Disinfection

- All equipment exposed to stream or lake water (i.e. boats, motors, electrofisher paddles, pumps, hoses, nets, fish tanks, coolers, measuring devices, waders, etc.) will be disinfected prior to moving to a different Great Lake or Great Lake river system (lakes, streams and all tributaries within a watershed with a common outlet to a Great Lake) before leaving the watershed, or before moving to waters that are upstream of a barrier to anadromous fish on the same river. Gear must have all aquatic vegetation, visible organisms/animals, soil, and water drained and removed before transport.

- While on a river geographically located in a different watershed than the temporary duty station (TDS, typically a motel) or field station; equipment will be disinfected daily prior to returning to the TDS or field station. However, when the TDS or field station is geographically located within the watershed of the river system where work is occurring, equipment does not have to be disinfected daily if crews will continue to work within that watershed or the equipment is left on-site (within watershed).

- A recommended disinfection procedure is a solution of 1 cup chlorine (bleach) to 10 gallons of water. Other methods may be used as listed in the attached Department of Interior table Disinfection Techniques/Options: Preventing Spread of Pathogens, Bacteria and Invasives.

Transportation of Water

- Water in fish truck tanks, tank trailers, coolers, etc., will not be dumped directly into a stream, river, pond or lake, or in an area where water could easily run into one of these bodies of water. Rather, water will be dumped in a municipal sewer or an area where the water will seep into the ground and/or evaporate that is at least 300’ from a water body. The only exception to this will be planting sterile-male sea lampreys in the St. Marys River in water from the Hammond Bay Biological Station (Lake Huron water).

- Water will be drained from all boats, motors, bilge pumps and live wells before leaving a water body.

Fish Transfers

- Lampreys from Lake Ontario that are transferred to the upper Great Lakes for the sterile-male-release technique or for mark and release studies will be transferred per established Hazard Analysis and Critical Control Point (HACCP) plans which include disease certification prior to transfer (available at http://haccp-nrm.org/).

- Bioassay animals for lampricide treatments will be collected within the same state and same Great Lake basin. When possible, bioassay animals will be collected within the same river system to be treated. Fish that survive bioassays will be euthanized and disposed in a sanitary landfill.

- Lamprey transfers within the Upper Great Lakes will not include transfer from a VHSv positive area to a VHSv negative area.
Preventing the Spread of Pathogens, Bacteria and Invasives on/in Boats, Motors, Trailers and Equipment
Developed by the U.S. Fish and Wildlife Service Midwest Region

Disinfection Techniques and Options:

Boat, motor, trailer, and gear must have all aquatic vegetation, visible organisms/animals, soil, and water drained and removed BEFORE TRANSPORT. Upon leaving a water-body possibly infected with pathogens or invasive species, a proper disinfection must be completed before re-use of boat, motor, trailer, and any exposed gear in another waterway. Contact time is crucial for complete disinfection. Contact time reflects exposure of air, water, or disinfectant to a specific area, and not the total amount of time spent disinfecting. For example, if you are using 50°C water to disinfect your boat, you must apply 50°C water to each area for ten minutes or longer (see options and procedures below). Read MSDS, wear personal protective gear (ppg), and comply with federal and state regulations.

**Disinfection is MANDATORY for all exposed equipment and gear!**

<table>
<thead>
<tr>
<th>Methods</th>
<th>Procedures</th>
<th>Positives</th>
<th>Negatives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heat + Air</strong></td>
<td><strong>30C (86°F) 24 hours minimum</strong> (time at temp contact period crucial)</td>
<td>Chemical free&lt;br&gt;Effective, but only if properly done under ideal conditions</td>
<td>Time consuming&lt;br&gt;Weather/Temperature criteria critical to reliable results.</td>
</tr>
<tr>
<td><strong>(Drying in hot sun/air)</strong></td>
<td><strong>(exposure to hot sun/air while dry)</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Heat + Water</strong></td>
<td><strong>50C (122°F) contact time 10 minutes</strong> (time and temp contact crucial)</td>
<td>Chemical free&lt;br&gt;Same as above</td>
<td>Must maintain high water temp/contact; hotter than normal tap or carwash. Use personal protective gear (ppg).</td>
</tr>
<tr>
<td><strong>Spray &amp;/or immerse</strong></td>
<td><strong>(source of very hot water needed)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Steam Spray</strong></td>
<td><strong>100C (212°F) contact time 10 seconds</strong> (time and temp contact crucial)</td>
<td>Chemical free&lt;br&gt;Same as above</td>
<td>Must maintain very high water temp/contact; (i.e. steamer washer/sprayer). Risk of burns use ppg.</td>
</tr>
<tr>
<td><em>(approved for eDNA decontamination)</em></td>
<td><em>(steamer washer/sprayer needed)</em></td>
<td></td>
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<tr>
<td><strong>Virkon Aquatic</strong></td>
<td><strong>Follow product directions for proper mixture and minimum contact time</strong></td>
<td>Environmentally friendly&lt;br&gt;Designed for aquatic use&lt;br&gt;Quick inactivation&lt;br&gt;Sewer compatible</td>
<td>Follow MSDS directions for health risks and use ppg when mixing. Chemical based. Corrosive in concentrate form.</td>
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<tr>
<td><em>(approved for eDNA decontamination in a 2% solution for 10 - 30 min)</em></td>
<td><em>(apply directly, maintain saturation and rinse thoroughly)</em></td>
<td></td>
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<tr>
<td><strong>Quaternary Ammonium + Water</strong></td>
<td><strong>Follow product directions for proper mixture and minimum contact time</strong></td>
<td>Effective, user friendly&lt;br&gt;Low health risks&lt;br&gt;Sewer compatible</td>
<td>Follow MSDS directions for health risks and use ppg. Chemical based.</td>
</tr>
<tr>
<td><em>(family of products)</em></td>
<td><em>(apply directly, maintain saturation and rinse thoroughly)</em></td>
<td></td>
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</tr>
<tr>
<td><strong>Sodium Hypochlorite + Water</strong></td>
<td><strong>200 ppm for pathogens; 5000 ppm for eDNA - contact time: 10 minutes</strong></td>
<td>Widely available&lt;br&gt;Effective</td>
<td>Follow MSDS directions for health risks and use ppg. Highly Corrosive.</td>
</tr>
<tr>
<td><em>(approved for eDNA decontamination)</em></td>
<td><em>(apply directly, maintain saturation and rinse thoroughly)</em></td>
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*for eDNA decontamination details contact Jen Bailey, Whitney GeneticsLab: jennifer_bailey@fws.gov  
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