

Boom Electrofishing HACCP Plan

HACCP Step 1 - Activity Description	
Facility: La Crosse Fishery Resources Office	Site: Navigable waters
Project Coordinator: Crew leader (varies)	Project Description: Fishery Resource Management
Site Manager: Pam Thiel	
Address: 555 Lester Avenue Onalaska, WI 54650	
Phone: 608-783-8434	

Project Description (Who, What, Where, When, How & Why)
<p>The La Crosse Fishery Resources Office (LAXFRO) maintains three (3) boom electrofishing boats that are used to temporarily immobilize and capture fish in navigable waters of many different rivers, lakes, and impoundments in the Upper Mississippi River and Great Lakes drainage basins. This equipment is used in support of projects that include the restoration of native species, surveillance of invasive species, assessment of fish health, management of trust resources, and public education. This equipment is used during ice-free periods (typically March-November) by LAXFRO staff and cooperators who are trained in its safe operation.</p>

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HACCP Step 2 - Potential Hazard Identification

Vertebrates:

Round goby, Asian carps, white perch, and other invasive fish

Invertebrates:

Zebra mussels, faucet snails, quagga mussels, Daphnia lumholtzi, rusty crayfish, and other invasive aquatic inverts

Plants:

Eurasian watermilfoil, purple loosestrife, and other invasive aquatic plants

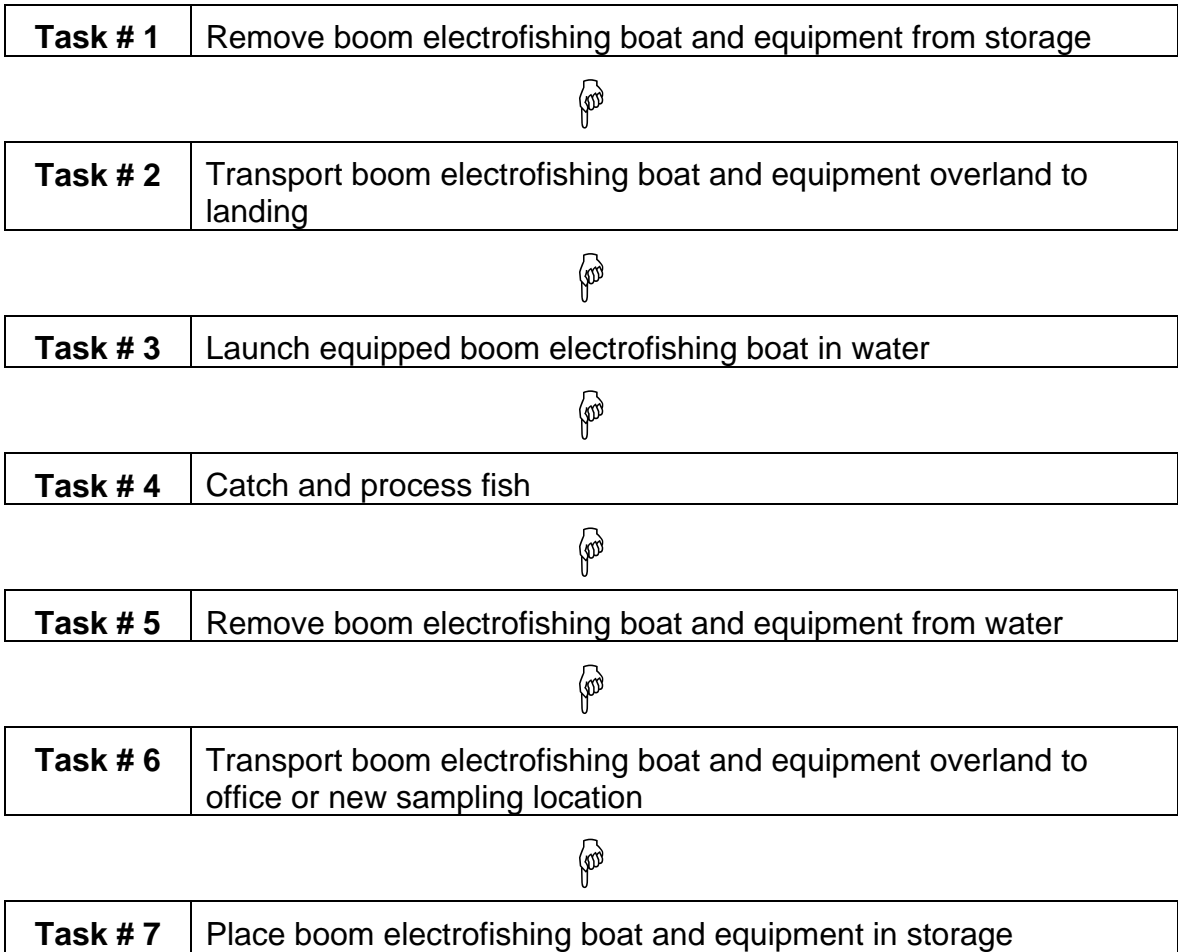
Other Biologics:

Largemouth bass virus (LMBV), spring viremia of carp virus (SVCV), viral hemorrhagic septicemia (VHS), bacterial kidney disease (BKD), furunculosis, ich, whirling disease, and other infectious fish pathogens

Others:

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HACCP Step 3 - Flow Diagram



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HACCP Step 4 - Hazard Analysis

Task	Hazard	Probable?	Justification	Control Measures	CCP?
Remove boom electrofishing boat and equipment from storage	Vertebrate: Round goby, Asian carps, white perch, and other invasive fish	Yes	Invasive fish may remain on boat or in live well from previous sampling.	Inspect and remove all fish and standing water from boat and live well.	No
	Invertebrate: Zebra mussels, faucet snails, quagga mussels, Daphnia lumholtzi, rusty crayfish, and other invasive aquatic inverts	Yes	Invasive invertebrates may remain on boat or in live well from previous sampling.	Remove all visible invertebrates and standing water from boat and live well. Check maintenance log to ensure boat was pressure washed and/or thoroughly dried since last use.	No
	Plant: Eurasian watermilfoil, purple loosestrife, and other invasive aquatic plants	Yes	Viable plant propagules may remain on boat, trailer, in live well, or attached to dipnets and electrodes from previous sampling.	Inspect and remove visible plant propagules from boat, trailer, live well, dipnets, and electrodes.	No
	Other Biologic: LMBV, SVCV, VHS, BKD, furunculosis, ich, whirling disease, and other infectious fish pathogens	Yes	Boat and other gear may not have been disinfected following prior use.	Check maintenance log to ensure boat and trailer were disinfected since last used; use gear that was disinfected before storage.	No
Transport boom	Vertebrate: Round goby,	No	Precautions to		No

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electrofishing boat and equipment overland to landing	Asian carps, white perch, and other invasive fish		prevent anthropogenic movement of invasive fish were taken in previous step.		
	Invertebrate: Zebra mussels, faucet snails, quagga mussels, Daphnia lumholtzi, rusty crayfish, and other invasive aquatic inverts	No	Precautions to prevent anthropogenic movement of invasive inverts were taken in previous step.		No
	Plant: Eurasian watermilfoil, purple loosestrife, and other invasive aquatic plants	No	Precautions to prevent anthropogenic movement of invasive aquatic plants were taken in previous step.		No
	Other Biologic: LMBV, SVCV, VHS, BKD, furunculosis, ich, whirling disease, and other infectious fish pathogens	No	Precautions to prevent anthropogenic movement of infectious fish pathogens were taken in previous step.		No
Launch equipped boom electrofishing boat in water	Vertebrate: Round goby, Asian carps, white perch, and other invasive fish	No	Precautions to prevent anthropogenic		No

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			movement of invasive fish were taken in a previous step.		
	Invertebrate: Zebra mussels, faucet snails, quagga mussels, Daphnia lumholtzi, rusty crayfish, and other invasive aquatic inverts	No	Precautions to prevent anthropogenic movement of invasive inverts were taken in a previous step.		No
	Plant: Eurasian watermilfoil, purple loosestrife, and other invasive aquatic plants	No	Precautions to prevent anthropogenic movement of invasive aquatic plants were taken in previous step.		No
	Other Biologic: LMBV, SVCV, VHS, BKD, furunculosis, ich, whirling disease, and other infectious fish pathogens	No	Precautions to prevent anthropogenic movement of infectious fish pathogens were taken in previous step.		No
Catch and process fish	Vertebrate: Round goby, Asian carps, white perch, and other invasive fish	Yes	Invasive fish may be collected and brought on board.	Identify catch and preserve invasive fish or kill them and place in garbage.	No
	Invertebrate: Zebra	Yes	Invasive inverts may	Remove	No

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	mussels, faucet snails, quagga mussels, Daphnia lumholtzi, rusty crayfish, and other invasive aquatic inverts		be collected and brought on-board with water in live well, in/on dip nets, etc.	macroinvertebrates from boat and return to waterbody.	
	Plant: Eurasian watermilfoil, purple loosestrife, and other invasive aquatic plants	Yes	Viable plant propagules may accumulate on board boat and other used equipment.	Remove all visible plant propagules and return to waterbody or bag and discard in garbage.	No
	Other Biologic: LMBV, SVCV, VHS, BKD, furunculosis, ich, whirling disease, and other infectious fish pathogens	Yes	Pathogens may contaminate equipment when fish and water are brought on board.	None.	No
Remove boom electrofishing boat and equipment from water	Vertebrate: Round goby, Asian carps, white perch, and other invasive fish	Yes	Small fish may remain undetected in recesses on deck or in bilge area.	Drain water from boat and live well; remove fish from deck, live well, bilge, and dip nets; kill, bag, and discard invasive fish in garbage.	Yes
	Invertebrate: Zebra mussels, faucet snails, quagga mussels, Daphnia lumholtzi, rusty crayfish, and other invasive aquatic inverts	Yes	Invasive inverts may remain undetected in recesses on deck or in bilge area	Drain all water from boat; search deck and bilge for invasive macroinvertebrates, bag and discard these in garbage.	No

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	Plant: Eurasian watermilfoil, purple loosestrife, and other invasive aquatic plants	Yes	Viable plant propagules may remain in live well, on dip nets, motor, wiring, trailer, recesses on deck or in bilge area.	Drain water from boat and live well; remove plant material from nets, motor, wiring, live well, deck, bilge, and boat trailer.	Yes
	Other Biologic: LMBV, SVCV, VHS, BKD, furunculosis, ich, whirling disease, and other infectious fish pathogens	Yes	Fish disease pathogens may contaminate boat and other equipment that got wet or was used to handle fish.	Drain all water from boat and live well.	No
Transport boom electrofishing boat and equipment overland to office or new sampling location	Vertebrate: Round goby, Asian carps, white perch, and other invasive fish	No	These were removed in the previous step.		No
	Invertebrate: Zebra mussels, faucet snails, quagga mussels, Daphnia lumholtzi, rusty crayfish, and other invasive aquatic inverts	Yes	Viable microscopic life stages of some invasive inverts may remain.	Pressure wash and/or drain water from boat, trailer, live well, and other used equipment (e.g., dip nets, buckets, measuring boards, etc) and thoroughly dry.	Yes
	Plant: Eurasian watermilfoil, purple loosestrife, and other invasive aquatic plants	Yes	Small propagules may remain in boat and on trailer.	Pressure wash boat and trailer.	No
	Other Biologic: LMBV, SVCV, VHS, BKD,	Yes	Pathogens may remain on boat and	Disinfect boat, trailer, live well,	Yes

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	furunculosis, ich, whirling disease, and other infectious fish pathogens		other equipment.	pfds, dip nets, electrodes, boots, gloves, and other used gear and thoroughly dry.	
Place boom electrofishing boat and equipment in storage	Vertebrate: Round goby, Asian carps, white perch, and other invasive fish	No	Cared for in previous step.		No
	Invertebrate: Zebra mussels, faucet snails, quagga mussels, Daphnia lumholtzi, rusty crayfish, and other invasive aquatic inverts	No	Cared for in previous step.		No
	Plant: Eurasian watermilfoil, purple loosestrife, and other invasive aquatic plants	No	Cared for in previous step.		No
	Other Biologic: LMBV, SVCV, VHS, BKD, furunculosis, ich, whirling disease, and other infectious fish pathogens	No	Cared for in previous step.		No

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HACCP Step 5 - HACCP Plan

Critical Control Point #1:

Task # 5: Remove boom electrofishing boat and equipment from water

Significant Hazards:

Vertebrate: Round goby, Asian carps, white perch, and other invasive fish

Control Measures:

Drain all water from boat; remove fish from deck, bilge, live well, and dip nets; kill, bag, and discard invasive fish in garbage.

Limits for Control Measures:

Remove water and all fish from boat, bilge, dip nets, and live well.

Monitoring: What?

Water and fish on deck, in bilge, dip nets, and live well.

Monitoring: How?

Visually

Monitoring: Frequency?

Once (before boat leaves landing)

Monitoring: Who?

Crew leader

Evaluation & Corrective Actions:

Inspect gear before reuse to ensure compliance

Supporting Documentation:

Critical Control Point #2:

Task # 5: Remove boom electrofishing boat and equipment from water

Significant Hazards:

Plant: Eurasian watermilfoil, purple loosestrife, and other invasive aquatic plants

Control Measures:

Drain all water from boat; remove plant material from boat trailer, dip nets, motor, electrodes, wiring, live well, deck, and bilge.

Limits for Control Measures:

Remove vegetation from all parts of boat, boat trailer, and other used equipment.

Monitoring: What?

Presence of vegetative propagules on deck, in bilge, live well, and other locations on boat, motor, wires, and trailer.

Monitoring: How?

Visually

Monitoring: Frequency?

Once (before boat leaves landing)

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Monitoring: Who? Crew leader
Evaluation & Corrective Actions: Inspect gear before reuse to ensure compliance
Supporting Documentation:
<b style="color: red;">Critical Control Point #3: <b style="color: red;">Task # 6: Transport boom electrofishing boat and equipment overland to office or new sampling location
Significant Hazards: Invertebrate: Zebra mussels, faucet snails, quagga mussels, Daphnia lumholtzi, rusty crayfish, and other invasive aquatic inverts
Control Measures: Pressure wash or scrub boat, trailer, and live well to flush off resistant life stages and/or thoroughly all used equipment.
Limits for Control Measures: Pressure wash and/or thoroughly dry all used equipment
Monitoring: What? Equipment was pressure washed and/or thoroughly dried
Monitoring: How? Visual, tactal
Monitoring: Frequency? Once (after boat returns to office or before arrival at a new sampling location).
Monitoring: Who? Crew leader
Evaluation & Corrective Actions: Inspect maintenance log and gear before reuse to ensure compliance
Supporting Documentation: Boom electrofishing boat maintenance log
<b style="color: red;">Critical Control Point #4: <b style="color: red;">Task # 6: Transport boom electrofishing boat and equipment overland to office or new sampling location
Significant Hazards: Other Biologic: Largemouth bass virus, spring viremia of carp virus, viral hemorrhagic septicemia, bacterial kidney disease, furunculosis, ich, whirling disease and other infectious fish pathogens
Control Measures: Disinfect boat, trailer, live well, electrodes, pfd, boots, gloves, and other used equipment and thoroughly dry.
Limits for Control Measures:

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10 minutes of Extra germicidal detergent (1:64 dilution) contact time, rinse, and thoroughly dry	
Monitoring: What? Disinfectant contact time on equipment	
Monitoring: How? Chronometer	
Monitoring: Frequency? Once	
Monitoring: Who? Crew leader	
Evaluation & Corrective Actions: Equipment must be quarantined until disinfected; inspect boat maintenance log to ensure compliance; equipment that has not been disinfected cannot be used beyond the sub-basin location where it was last used and must be quarantined.	
Supporting Documentation: Boom electrofishing boat maintenance log	
Facility: La Crosse Fishery Resources Office	Activity: Fishery Resource Management
Address: 555 Lester Avenue Onalaska, WI 54650	
Signature: <i>Pam Thiel</i>	Revision Date: 12 April 2007

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HACCP Checklist:

Fishery Resource Management

Facility La Crosse Fishery Resources Office
Site Navigable waters
Coordinator Crew leader (varies)
Manager Pam Thiel
Address 555 Lester Avenue, Onalaska, WI 54650

- Task # 1: Remove boom electrofishing boat and equipment from storage**
- Task # 2: Transport boom electrofishing boat and equipment overland to landing**
- Task # 3: Launch equipped boom electrofishing boat in water**
- Task # 4: Catch and process fish**
- Task # 5: Remove boom electrofishing boat and equipment from water**
CRITICAL CONTROL POINT
 - Hazards were contained
Hazards: Vertebrate: Round goby, Asian carps, white perch, and other invasive fish
 - Control measures were implemented
Control Measures: Drain water from boat and live well; remove fish from hidden recesses on deck, bilge area, live well, and dip nets; kill, bag, and discard invasive fish in garbage.
 - Control limits were maintained
Control Limits: Remove water and all fish from boat deck, bilge, live well, and dip nets.
 - Corrective actions were (performed if necessary)
Corrective Actions: Inspect gear before reuse to ensure compliance
- Hazards were contained
Hazards: Plant: Eurasian watermilfoil, purple loosestrife, and other invasive aquatic plants
- Control measures were implemented

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Control Measures: Drain water from boat; remove plant material from dip nets, motor, wiring, live well, deck, bilge, and boat trailer; thoroughly dry all used equipment.

- Control limits were maintained
Control Limits: Remove all vegetation from boat, trailer, and used equipment.
- Corrective actions were (performed if necessary)
Corrective Actions: Inspect gear before reuse to ensure compliance

Task # 6: Transport boom electrofishing boat and equipment overland to office or new sampling location CRITICAL CONTROL POINT

- Hazards were contained
Hazards: Invertebrate: Zebra mussels, faucet snails, quagga mussels, Daphnia lumholtzi, rusty crayfish, and other invasive aquatic inverts
- Control measures were implemented
Control Measures: Pressure wash boat, trailer, and live well and/or drain water from all used equipment (e.g., boat, trailer, waders, dip nets, buckets, measuring boards, etc.) and thoroughly dry
- Control limits were maintained
Control Limits: Pressure wash and/or drain water from all used equipment and thoroughly dry
- Corrective actions were (performed if necessary)
Corrective Actions: Inspect maintenance log and gear before reuse to ensure compliance

- Hazards were contained
Hazards: Other Biologic: Largemouth bass virus, spring viremia of carp virus, viral hemorrhagic septicemia, bacterial kidney disease, furunculosis, ich, whirling disease, and other infectious fish pathogens
- Control measures were implemented
Control Measures: Disinfect boat, trailer, live well, dip nets, booms, pfd, boots, gloves, and other equipment and thoroughly dry.
- Control limits were maintained

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Control Limits: 10 minutes of Extra germicidal detergent (1:64 dilution) contact time, rinse, and dry

- Corrective actions were (performed if necessary)
Corrective Actions: Inspect maintenance log and gear before reuse to ensure compliance

- Task # 7: Place boom electrofishing boat and equipment in storage**