

Standard Operating Procedure 7:

Sampling Equipment Decontamination (Version 1.0)

Summary

This SOP describes the step-by-step procedures for decontamination of all water quality and benthic macroinvertebrate monitoring equipment. Decontamination will help prevent the spread of aquatic invasive species from one sample location to another. Procedures have been modified from the Great Lakes Network Large Rivers Water Quality Monitoring Protocol (2005).

Revision Log

Original Version #	Date of Revision	Revised By	Changes	Justification	New Version #
NA	2/23/2016	C. Tzilkowski	NA	Protocol Implementation Plan publication	1.0

Overview

Aquatic invasive species (AIS) are an issue of concern throughout the United States. The Eastern Rivers and Mountains Network (ERMN) will be monitoring water quality and benthic macroinvertebrates in diverse watersheds in four states; therefore, it is important to take a proactive approach to preventing the spread of AIS among streams.

Aquatic invasive species threaten aquatic ecosystems by disrupting community composition, outcompeting native species, and altering food chains. This SOP identifies the most likely AIS threats, of which there are many, and addresses general decontamination procedures. In the future, if an explicit species threat develops, more specific procedures will be implemented.

Procedures

Before any stream can be entered for sampling purposes all equipment must be decontaminated to remove exotic species. Decontamination should be conducted as soon as a stream has been sampled, and before sampling occurs in another stream. These procedures are to be followed in all waters, not only those with current AIS issues. To prevent any introductions/dispersal of AIS all ERMN streams are assumed to be infested with AIS.

The following procedures have been directly taken or modified from the Great Lakes Network Standard operating procedure #5, Decontamination of Equipment to Remove Exotic Species (Elias 2005).

1. Procedure at non-remote locations, when tap water is available

- i. When finished at a stream that is known or suspected to be infested with AIS, remove or rinse mud, plant material, mussels, and other visible organic material from waders, boots, and all sampling equipment;
- ii. Spray a 10% Green Solutions High Dilution Disinfectant 256 (GS256) solution on equipment and let stand for 5 minutes; GS256 is preferred over bleach as it is less harsh on equipment. GS256 is available as a commercial cleaner manufactured by the Spartan Chemical Company, Inc.
- iii. Thoroughly rinse disinfectant solution off sampling equipment;
- iv. Let equipment dry for 10 days. If it is not possible to let equipment dry, follow the procedure outlined in section 3.

2. Procedure at remote locations, when tap water is not available

- i. When finished at a stream that is known or suspected to be infested with AIS, remove and rinse mud, plant material, organisms, and other visible organic material from all sampling equipment;
- ii. Pay particular attention to cracks and crevices in equipment when rinsing;
- iii. Visually inspect all gear to verify that it has been cleaned and rinsed;
- iv. Let equipment dry for 10 days. If it is not possible to let equipment dry, follow the procedure outlined in section 3.

3. Procedure if equipment cannot be dried before entering a new stream:

- i. On vegetated land or in the laboratory, use spray bottle and scrub brush to rinse and scrub with tap water and scrub-brush all sampling equipment; discard water on land, away from the stream, avoiding impervious surfaces and slopes where rinse water might run directly into the stream;
- ii. Use a bottle or toilet brush on a rope to clean the inside of the continuous water quality monitor housing;
- iii. Pay particular attention to ropes, cracks, and crevices in equipment, and rinse well;
- iv. Inspect all gear and clothing to verify that all equipment and gear has been cleaned and rinsed.

4. Regardless of Remoteness

- i. When possible, avoid using equipment that has been used in infested streams in un-infested streams. Designate a set of equipment for both types of streams.
- ii. Always begin sampling with streams not known to harbor AIS; sample streams known or suspected to contain AIS last.
- iii. Thoroughly clean and disinfect all equipment between use in infested and un-infested waters.
- iv. Use a 2-10% GS256 as a disinfectant. GS256 is preferred over bleach because it is less harsh on equipment. GS256 is available as a commercial cleaner manufactured by the Spartan Chemical Company, Inc.

- v. When possible, dry all sampling equipment (e.g., nets, waders, and boots) for 10 days after sampling a water body known to be infested with AIS.

Literature Cited

Elias, J. 2005. Standard operating procedure #5, Decontamination of equipment to remove exotic species. in Magdalene S., D.R. Engstrom, and J. Elias. 2007. Large rivers water quality monitoring protocol, Version 1.0. National Park Service, Great Lakes Network, Ashland, Wisconsin.