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QUALITY CONTROL/QUALITY ASSURANCE DOCUMENTATION

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1.0 SCOPE AND APPLICABILITY

This document presents the North Dakota Department of Environmental Quality, Division of Water Quality's (DWQ) Standard Operating Procedure (SOP) for decontamination of equipment used in waterbodies where Aquatic Nuisance Species (ANS) are present. This SOP applies to all DWQ field staff, non-DWQ cooperators, and citizen volunteers and should be followed to ensure the transmission of ANS is mitigated.

2.0 SUMMARY OF METHOD

Currently, ANS are present in the Red, Sheyenne, James and Missouri River systems as well as Lake Elsie, Lake LaMoure and Twin Lakes. When possible, equipment should be dedicated for sole use in ANS waterbodies.

Before leaving a site, all field equipment needs to be visually inspected and all visible ANS removed and killed. Special attention should be paid to 1) cracks and crevices in which ANS species may become trapped, and 2) boat trailers (pads) or propellers. If possible, trailer pads made of carpet and foam rubber should be removed from trailers before doing work in ANS-infested waters.

There are four forms of decontamination proven effective on ANS: Dedicated Equipment, Desiccation, Freezing and Chemical Decontamination. Desiccation is the preferred method of decontamination, but if desiccation is not possible, all boats, anchors, trailers used in field sampling will be cleaned using a self-service automatic car wash. The car wash should be located in the same subbasin as where the watercraft was used.

3.0 HEALTH AND SAFETY WARNING

Field personnel should be aware that potentially hazardous conditions exist at every waterbody. If unfavorable conditions are present at the time of decontamination, precautions should be taken, and decontamination should be completed at the next immediate opportunity (prior to any supplies contacting other waters). If hazardous weather conditions arise during decontamination, such as lightning or high winds, personnel should cease decontamination procedures and move to a safe location.

Aquatic Nuisance Species have the potential to carry diseases which could be of harm to human health or for which a human may act as a vector. Field personnel should avoid touching their face and exposing open wounds to ANS contaminated surfaces.

Field personnel should also be aware of wildlife, insects, and plants that could be harmful as well as heat stroke and hypothermia. A first aid kit should be accessible for any potential cuts, stings, bites, or contact with poisonous plants. Also ensure there is access to water, sunscreen, insect repellant, and extra clothing.

4.0 CAUTIONS

All equipment and persons that comes in contact with ANS waterbodies have the potential to transport ANS species.

These procedures are subject to nuances and changes to ensure the best preventative measures are being taken. Please report all discrepancies to the author(s) for correction.

5.0 INTERFERENCES

Environmental conditions and equipment malfunctions may affect the field staff's ability to conduct decontamination procedures. In these cases, decontamination should be completed at the next immediate opportunity (prior to any supplies contacting other waters). Methodical decontamination of equipment and contacted surfaces is essential to ensure no equipment becomes re-contaminated.

6.0 PERSONNEL QUALIFICATIONS/RESPONSIBILITIES

All personnel conducting ANS Decontamination must read this SOP annually and acknowledge they have done so via a signature page (see Appendix B). New field personnel must also demonstrate successful performance of the method. The signature page will be signed by both trainee and trainer to confirm that training was successfully completed and that the new personnel is competent in carrying out this SOP. The signature page will be kept on-file at DWQ along with the official hard copy of this SOP.

7.0 EQUIPMENT AND SUPPLIES

- Water (tap)
- Iodized salt
- Sprayer bottle
- pH 4 solution (for sondes)

8.0 PROCEDURE

Four primary methods of decontamination will be used for ANS decontamination.

1. Dedicated equipment when possible
2. Desiccation: Equipment should be allowed to dry for a minimum of 5 days http://nas.er.usgs.gov/queries/factsheet.aspx?speciesid=5
3. Freezing: Transport time between sites during the winter will be enough to decontaminate equipment used in the winter
4. Chemical decontamination: 100% saturated salt solution
    a. For cold water, a saturated salt solution is 357 g of salt per L of water, which is approximately 6 cups of table salt (iodized salt) per gallon of water
    b. Thoroughly spray equipment with the solution and allow to sit for 30 minutes before use.
    c. Due to sensitivity to chemical decontamination, water-quality sondes will be decontaminated with a tap-water rinse onsite and storage in a pH 4 solution between sites.

9.0 DATA AND RECORDS MANAGEMENT

There is no data collection or associated records management tasks corresponding to ANS decontamination.

10.0 QUALITY ASSURANCE AND QUALITY CONTROL

This SOP exclusively outlines the decontamination process for field equipment and personnel in contact with ANS. Proper decontamination of equipment ensures ANS species are not transmitted between waterbodies and samples collected with the equipment is not contaminated. Additional QA/QC measures for sample collection are outlined in supplemental SOPs.

11.0 REFERENCES

Nustad, Rochelle. *Zebra Mussel (Dreissena polymorpha) Decontamination Policy.* USGS North Dakota Water Science Center. Finalized September 16, 2015.

http://nas.er.usgs.gov/queries/factsheet.aspx?speciesid=5

http://el.erdc.usace.army.mil/zebra/zmis/zmishelp/decontamination_and_disinfection_procedures.htm

http://www.usbr.gov/mussels/prevention/docs/EquipmentInspectionandCleaningManual2012.pdf

12.0 APPENDIX

To identify zebra mussels, look for the signature flat side. Note that an adult zebra mussel is approximately the size of a quarter and veligers are microns in size and depending on the veliger stage may not be detectable to the naked eye.

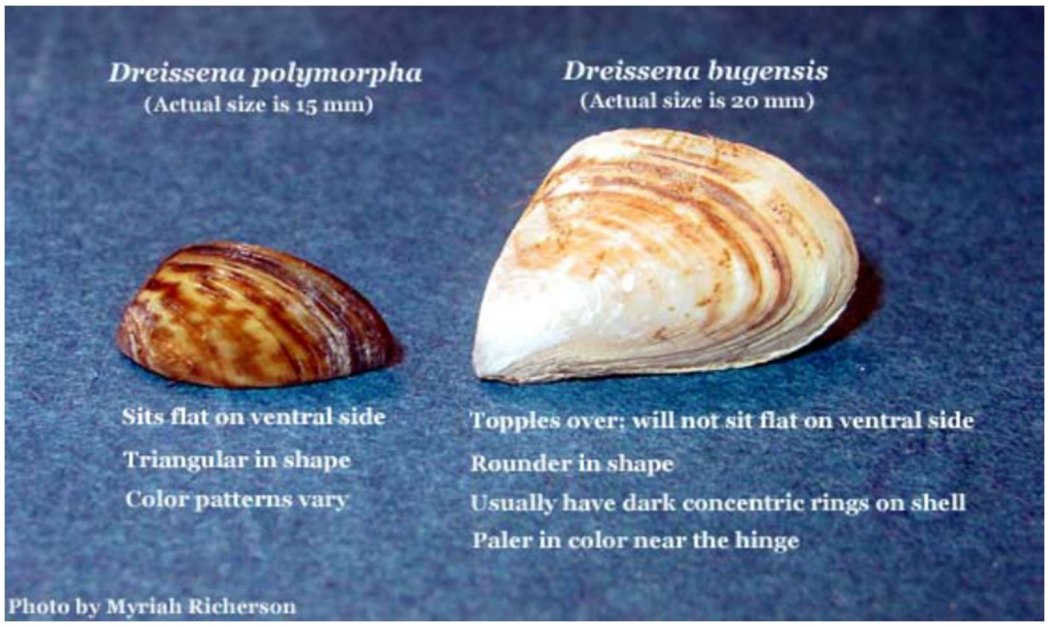

Figure 1: Zebra mussel example and identificaiton parameters.

To ensure the proper handling, decontamination and disposal of samples taken in waterbodies where ANS is known to be present, bottles should be marked “ANS” on both the cap and label before or immediately after the sample has been retrieved. Examples of proper bottle labeling can be found in figures 2 and 3 below.

Figure 2: Properly labeled 500 ml, 250 ml and 125 ml bottles (left to right, respectively) from samples taken in a region where ANS are known to be present.

Figure 3: Properly labeled 500 ml bottle for sample taken from a region where ANS are known to be present.