

STANDARD OPERATING PROCEDURES

BUACC-SOP-04 Aquatic Sampling Demonstrations

The present SOP has been developed for to provide students with hands on demonstration of aquatic sampling methods with freshwater fish and aquatic invertebrates such as:

- *Etheostoma nigrum*
- *Semotilus atromaculatus*
- *Semotilus corporalis*
- *Catostomus commersoni*
- *Lepomis gibbosus*
- *Lepomis macrochirus*
- *Notropis cornutus*
- *Gasterosteus aculeatus*
- *Pungitius pungitius*
- *Ameiurus nebulosus*

1. Responsibility

The procedure will be carried out by the Principal Investigator / class instructor and/or the Biology Lab Technician.

2. Minimum Qualifications/ Training for PI and/or lab technician

1. Previous field sampling experience;
2. Previous experience handling/extracting fish;
3. McGill Wildlife Animal Care Course

3. Minimum Qualifications/ Training for students

1. Classroom lesson on the above for students

4. Materials

1. Seine net
2. Minnow traps
3. Adequate viewing container for caught specimens
4. D-frame aquatic net
5. Bottom Aquatic net
6. Hand sanitizer
7. Waders
8. Personal Flotation Devices (PFD)
9. First Aid Kit
10. Injured Fish Euthanization Kit

- I. Nitrile gloves
- II. Protective apron
- III. Euthanization container
- IV. Appropriate dose of Eugenol. If necessary MS-222 can also be used.
- V. Scalpel
- VI. Priest (club)
- VII. Probe

5. Procedure

A. Minnow traps

1. Traps used are standard, vinyl coated, round, minnow traps;
2. Trap location, depth and placement must be recorded as the trap is set to ensure trap recovery;
3. Traps will be placed with enough water to cover trap entrances and will be placed in a manner that ensures that conditions will remain constant for the duration of the sampling period;
4. Traps will be either weighted or buoyed so that they remain at a constant depth through sampling period;
5. Surface trapping will not take place if there is a possibility of ice accumulation over the trapping period;
6. Traps will be anchored via rope or chain to a rope, stake, buoy, or stout vegetation and clearly marked unless a significant risk of theft is present;
7. The traps will be set for no longer than 24hrs and may be used with or without bait;
8. All fish captured by the traps will then be collected and transferred to large, aerated, plastic holding tanks (approx. 1m x 50cm x 50cm);
9. Total time from initial capture to final release will be between 15-30 minutes;
10. Water in the holding tank will be changed every 15 minutes to maintain appropriate temperature and oxygen concentrations thereby eliminating the risk of any potential thermal or oxygen stress;
11. All fish will then be immediately identified, weighed, measured, inspected for any obvious tumours, growths, and/or other abnormalities and released;
12. Traps that have been identified by predators or have obvious signs of being 'robbed' by predators will immediately be removed and that location recorded as a problem location.

B. Seine Net

1. All students will receive a 2-3 hour lecture on appropriate methodology prior to the first sampling;
2. Fish will be collected using a 15m beach-seine with ¼ inch mesh;
3. Seine will be anchored by one person near shoreline with another person walking out into the water to stretch out the length of the net;
4. The net will be supported to ensure that leadline stays in constant contact with substrate;
5. The midstream sampler will then walk in a curve, keeping constant net tension downstream until terminating the haul at the shoreline;
6. The net will then be brought in equally to guide fish into seine pocket;
7. All fish captured by the seine will then be collected and transferred to large aerated plastic holding tanks (approx. 1m x 50cm x 50cm);
8. Total time from initial capture to final release will be between 15-30 minutes;
9. Water in the holding tank will be changed every 15 minutes to maintain appropriate temperature and oxygen concentrations thereby eliminating the risk of any potential thermal or oxygen stress;

10. The net will be entirely removed from the water after each haul to ensure that no fish remains trapped in the net nor will a fish become entangled in the net during sample analysis;
11. All students will be supervised at all times by the instructor.

6. Euthanasia Procedures

A. Fish and amphibians under 10 cm

Please refer to BU SOP-1, « Fish anaesthetic and euthanasia » for updated fish euthanasia procedures.

B. Fish over 15 cm

Please refer to BU SOP-1, « Fish anaesthetic and euthanasia » for updated fish euthanasia procedures.

7. Safety

Persons who are or may be pregnant or who may have a compromised immune system should contact Human Resources **prior** to handling animals/ cleaning habitat/aquaria and or participating in field studies where they may come into direct contact with animals. **No** person who is or may be pregnant or who may be immuno compromised will be required to handle animals or come into contact with untreated animal waste/habitat bedding.

8. SOP Revision History

These Standard Operating Procedures were revised and updated in May 2019.

References

Euthanasia:

McGill University. McGill Fish and Amphibian Euthanasia Procedure (2008):

http://www.mcgill.ca/research/sites/mcgill.ca.research/files/303_01-Fish_and_Amphibian_Euthanasia.doc

American Veterinary Medical Association. Guidelines for Animal Euthanasia (2013). 70-71 Physical method (3) :

http://www.purdue.edu/research/vpr/rschadmin/rschoversight/animals/docs/2013_AVMA_Guidelines.pdf

Trapping procedure:

Government of New Zealand. Passive Nets: minnow traps: <http://www.doc.govt.nz/Documents/science-and-technical/inventory-monitoring/im-toolbox-freshwater-fish/im-toolbox-freshwater-fish-passive-nets-minnow-traps.pdf>

Tennessee Valley Authority. Standard Operating Procedure for: Fish Sampling with Seines (2010):

http://www.tva.gov/kingston/sap/TVA-KIF-SOP-32%20Fish%20Sampling%20with%20Seines%20_DRAFT%206%20May%2010_.pdf