

U.S. Fish and Wildlife Service  
Marquette Biological Station  
3090 Wright Street  
Marquette, Michigan 49855  
U.S.A.

and

U.S. Fish and Wildlife Service  
Ludington Biological Station  
5050 Commerce Drive  
Ludington, Michigan 49431  
U.S.A.

and

Fisheries and Oceans Canada  
Sea Lamprey Control Centre  
1219 Queen Street East  
Sault Ste. Marie, Ontario P6A 2E5  
Canada

## **TECHNICAL OPERATING PROCEDURE**

### **PROCEDURE TITLE:**

Procedures for Deployment and Operation of Automatic Water Samplers

### **APPLICABILITY:**

Automatic water samplers are used to collect water samples from a lampricide block, and to collect samples for fluorescent dye flow studies (TOP:002.x and TOP:003.x).

### **PRINCIPLE:**

Automatic water samplers are deployed to collect water samples for lampricide analysis. This information is used to maintain a record of the concentrations of the lampricide block, evaluate treatment efficacy, estimate the lampricide block time of passage, and to compute lampricide dilution rates. Automatic water samplers also are deployed to collect water samples used to determine stream flow times during fluorescent dye studies (TOP:002.x and TOP:003.x).

### **SAMPLE COLLECTION AND PRESERVATION:**

Automatic samplers collect water samples in either clear glass or plastic containers. The samplers are used to collect water samples containing lampricides or fluorescent dye. Water samples containing Bayluscide are taken in glass bottles to prevent loss of concentration. About 250 mL of sample are necessary for lampricide analysis and 500 mL of sample are needed for dye analysis. No preservatives are added to samples.

**EQUIPMENT REQUIRED:**

ISCO water sampler (various models)

**POTENTIAL INTERFERENCES:**

Ambient air temperatures below 0 °C will cause freezing in the suction hose if left exposed. If an intake is not suspended above stream bottom, silt and other debris will obstruct hose. If two units are set next to each other electro-magnetic interference may occur.

**SAFETY:**

When a carousel of glass sample bottles is filled a unit weighs in excess of 80 pounds. To avoid injury two persons should carry a full water sampler.

**DISPOSAL:**

After water samples are analyzed they are disposed into a portable containment unit. The portable containment unit is emptied into the stream undergoing treatment.

**REAGENTS:**

No reagents are used in preserving or storing water samples.

**PROCEDURES:**

I. Calibration

- A. Calibration is completed prior to field season
- B. IOP:002.x

II. Site selection

- A. Determination of data needs: Sites are selected which
  - 1. Provide a profile of concentrations in the lampricide or fluorescent dye block
  - 2. Provide historical data for comparison with other treatments
  - 3. Provide water samples for analysis of lampricide concentrations at the stream mouth
- B. Security considerations: Automatic samplers are placed in locations which are not easily observed by the public. Vandalism and tampering are more likely in high-use areas.

III. Deployment

- A. Placement of the unit
  - 1. Place unit on level and stable ground, high enough above the stream bank to avoid inundation and being washed away if stream levels were to rise dramatically during a rain event.

2. Secure the unit to a sturdy permanent object near the stream so the metal intake can be placed in moving water. Make sure the metal intake is in the water column and off the stream bottom (place on a rock or drape from a tree branch). This will reduce potential sediment that may be collected with each water sample and ensure that the intake will remain clear from blockage.
3. Position the intake hose without sagging or drooping. The unit will purge the intake line prior to each sample. This helps prevent sitting water in the hose and contamination from previous sample.
4. Ensure that the direct area is clear from grass blades, leaves or other vegetation that could become trapped when opening and closing unit base and top cover assembly.

B. Checking the Unit

1. Check the distributor arm to ensure it is in proper alignment, secured, and free from any entanglement.

C. Programming Unit: (see IOP:002.x )

IV. Sample recovery (IOP:002.x)

**REFERENCES:**

Instrument operating manuals:                      Operating manuals for ISCO samplers (various models)

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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 \_\_\_\_\_  
Program Manager (Canada)

TOP 022.31

Effective Date: 1/26/2021

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| Revision No. | Date    | Person(s) Responsible          | Description   |
|--------------|---------|--------------------------------|---|
| 31           | 1/26/21 | Benson Solomon, Lauren Freitas | Changes to 'A. Placement of unit' to ensure samplers get proper placement |
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