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Sea Lamprey Control Centre
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TECHNICAL OPERATING PROCEDURE

PROCEDURE TITLE:

Procedures for Deployment of Water Chemistry Monitors

APPLICABILITY:

Procedure applies to the deployment of all types of water chemistry monitors used by Sea Lamprey Control agents to measure water chemistry parameters in Great Lakes tributaries.

PRINCIPLE:

The pH of stream water influences the toxicity of lampricides. Daily changes of stream pH can affect the efficacy and safety of a stream treatment. Water chemistry monitors can be deployed before treatments to measure diurnal cycles in pH and temperature, and the data are used to plan lampricide applications. Monitors can also be deployed to measure and record pH and water temperature during a TFM application. The pH data can be paired with lampricide concentration data and correlated with prediction chart values to determine if minimum lethal concentrations of lampricides were maintained for sufficient time.

SAMPLE COLLECTION AND PRESERVATION:

No retention of samples is necessary for collection of pH and temperature data.

EQUIPMENT REQUIRED:

Thermo Orion 265A/266S Portable pH measurement and logging device
Computer

POTENTIAL INTERFERENCES:

See IOP:006.x, and instrument operating manuals.

SAFETY:

No special precautions

DISPOSAL:

No special requirements

REAGENTS:

pH buffers for calibration (check expiration dates)

PROCEDURES:

- I. Calibration
 - A. See IOP:006.x Thermo Orion 265A/266S

- II. Site selection
 - A. Determination of data needs
 1. Collection of water chemistry data only
 - a. Monitors are deployed to collect water chemistry data (only) prior to treatment. Sites are chosen which exhibit typical water chemistry parameters. The data are used to set lampricide concentrations and as a check for stream conditions which may affect the efficacy or safety of the treatment.
 - b. Sites are selected in areas of stream which may have atypical water chemistry or exhibit significant shifts in pH.
 - (1) Downstream of impoundments
 - (2) In weed-choked sections of stream
 - (3) Downstream of industrial or municipal effluents
 - (4) In slow-moving areas or estuaries
 - 2.
 - B. Availability of access: Some streams offer only limited access. The sites at which monitors are placed may depend on the location of access.
 - C. Security considerations: Monitors are placed in locations which are not easily observed by the public. Vandalism and tampering are more likely in high-use areas than in secluded areas which offer cover.

- III. Deployment
 - A. Situating the unit
 1. Secure the unit to a sturdy permanent object near the stream so the instrument

probe can be placed in moving water.

2. Suspend the probe in the water column off the stream bottom (place on a rock or drape from a tree branch).

B. Initiating sampling

1. Set operating parameters according to IOP:006.x
2. Measure the pH with a hand-held meter (IOP:007.x and TOP:006.x) and record the result of the measurement for later comparison with monitor results.
3. As a quality control measure, complete one or more measurements at the site, during the deployment period, with a hand-held meter (if time and personnel availability allow).

IV. Recovery

A. Recovery of unit

1. At the time of recovery, measure the pH with a hand-held meter (IOP:007.x and TOP:006.x) and record the result for later comparison with monitor results.
2. See IOP:006.x Thermo Orion 265A/266S
- 3.

B.

REFERENCES:

Instrument operating manuals:

Thermo Orion 265A/266S

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)

Revision No.	Date	Person(s) Responsible	Description
41	1/28/21	Benson Solomon, Stephen Smith, Lauren Freitas	Removed obsolete instrumentation