Invertebrate Hester-Dendy Sample Preparation

(Modified from Standard Methods 10500C)

1. SCOPE AND APPLICATION

1.1 This method details the rinsing and storing of macroinvertebrate samples collected with a Hester-Dendy artificial substrate sampler.

1.2 This method is used for samples collected according to Standard Operating Procedure (SOP) FS 7000 - General Biological Community Sampling in environments deemed to have acceptable conditions for calculating macroinvertebrate community and diversity measures per SOP LT 7000 - Biological Indices.

1.3 This method is to be used for all samples with Laboratory Information Management System (LIMS) test code MI-FW-QNAC.

2. SUMMARY OF METHOD

2.1 A biological sample, consisting of the assembled Hester-Dendy sampler, surface water, macroinvertebrates, leaves, stems, sand, silt and other detritus, is emptied into a U.S. #30 mesh sieve.

2.2 The Hester-Dendy is dismantled and rinsed over the sieve to collect all organisms retained by #30 mesh size.

2.3 All organisms are transferred to an ethanol-filled glass jar for storage and subsequent identification.

3. APPARATUS AND EQUIPMENT

3.1 U.S. #30 mesh sieve
3.2 Wrench for dismantling Hester-Dendy condos
3.3 Waterproof paper and pencil
3.4 Glass jars, 100 to 250 mL
3.5 Squeeze bottle of 80% Ethanol
3.6 zip-top bag

4. REAGENTS AND CHEMICALS

4.1 Ethanol (80%) – prepared following Standard Operating Procedure (SOP) IZ-09

5. SAMPLE COLLECTION, PRESERVATION, AND HANDLING

5.1 Samples are collected, preserved, and delivered to the lab according to SOP FS 7000 – General Biological Community Sampling.

5.2 Samples are checked into the laboratory per SOP IZ-01.

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6. SAMPLE PREPARATION PROCEDURE

6.1 Select a sample for preparation. Check that the hand-written label on the Whirlpak bag matches the LIMS sticker Receiving added to the bag during log-in. Determine which sample is being prepared (control site, test site, etc.) and attach the corresponding LIMS label, provided by Receiving, to a the smallest practical container that will hold the sample (usually a 100 mL to 250 mL glass jar). .

6.1.1 Hester-Dendy multi-plate samplers typically arrive in Whirlpak bags on ice and must be processed promptly. The Receiving Room notifies the Biology staff as soon as the samples are logged into LIMS. Receiving provides a second set of sample labels to use after the samples are prepped and have been placed in a jar with ethanol (see step 6.5).

6.2 Pour the contents of the Whirl-pak bag (an assembled Hester-Dendy and associated detritus) into a U.S. #30 mesh sieve. Rinse the Whirl-pak bag with tap water to ensure all organisms are washed into the sieve. Do not remove the labels. Place the Whirl-pak bag to dry.

6.2.1 Empty Whirl-pak bags will be kept for a period of time, designated by the Lab Data Support (LDS) staff, after the job is authorized in LIMS. After this period of time, the Receiving staff will collect the empty Whirl-pak bags and discard them from LIMS. The Invert Workgroup Log-in logbook tracks the sample.

6.3 Using a wrench to remove the bottom nut, dismantle the Hester-Dendy (HD). Work over the sieve so that no organisms fall outside the sieve and get lost.

6.4 Gently rinse the sample material with tap water. If the water pressure is too high, the organisms can be damaged (a small hose attached to the faucet works best). Scrape and simultaneously rinse organisms off HD plates with fingers (or a soft brush), using care not to damage them. Wash fine debris (silt, mud) through the sieve. Any large debris (leaves, twigs) should be brushed clean of organisms, rinsed, and discarded. Rinse the organism plus detritus matrix to one small area of the sieve.

6.4.1 Save the HD plates and hardware; place them in the drying oven or on a table to dry overnight.

6.4.2 If using a brush, rinse it and visually check to ensure that no organisms are trapped in the bristles.

6.5 Using an ethanol-filled (80% ethanol) squeeze bottle, rinse the organism plus detritus matrix into the clean, labelled container (from step 6.1).

6.6 Place all jars for a given study together in the Log-in area near the sample shelf.

6.7 Place all Whirl-pak bags for the study in one zip-top bag. Place the zip-top bag in the designated sample bottle storage area.

6.8 Log in the samples per SOP IZ-01.

7. SAMPLE ANALYSIS PROCEDURE

7.1 Samples are analyzed per SOP IZ-06.

8. QUALITY CONTROL AND DOCUMENTATION

8.1 Bioassessment Sample Log-In logbook. Use a pen with black ink for all logbook entries.

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8.2 To correct raw data entries, place a single line through the incorrect entry, write the corrected entry near the error, and initial and date the correction. If the correction requires an explanation, write a comment and reference the error.

8.3 If a problem occurs during sample processing, submit a nonconformance report (NCR) describing the problem and the corrective action. To create a NCR, open LIMS and go to Laboratory/Administrative/Non-Conformance Report. For a decision tree regarding issuance of NCR's, refer to SOP LB-002.

8.4 Quality Control (QC) of Sorting is performed per SOP IZ-40.

8.5 QC of Taxonomic Identification is performed per SOP IZ-13.

8.6 Refer to the Laboratory Quality Manual.

9. SAFETY/HAZARDOUS WASTE MANAGEMENT

9.1 Lab coat, latex or vinyl gloves, and eye protection are required when working with chemicals and unprocessed samples.

9.2 Squeeze bottles must be labeled with the name and concentration of the reagent.

9.3 Refer to the Material Safety Data Sheet (MSDS) for information about reagents and chemicals in this SOP.

9.4 Refer to the Laboratory Health and Safety Plan.

10. REFERENCES

10.1 FDEP Laboratory Quality Manual, http://www.dep.state.fl.us/labs/library/progplan.htm

10.2 FDEP Laboratory Health and Safety Plan, https://www.fldepnet.org/content/dear/bureau-laboratories-safety-documents

10.3 Form IZ-LOG-(version #)

10.4 SOP FS-7000 General Biological Community Sampling

10.5 SOP LT-7000 Biological Indices

10.6 SOP IZ-01 Sample Arrival/Log-in Procedures

10.7 SOP IZ-06 Invertebrate Enumeration and Taxonomic Analysis

10.8 SOP IZ-09 Preparation of 80% Ethanol

10.9 SOP IZ-13 Invertebrate Taxonomic Identification Quality Control

10.10 SOP IZ-40 Invertebrate Sorting Quality Control (QC)

10.11 SOP LB-002 Non-conformance Reporting System

Appendix of Changes

12/10/2009 Reformatted the layout following SOP LB-001.

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12/10/2009	Added procedure for saving Whirl-pak bags
11/10/2011	Updated name for the Laboratory Safety Manual.
11/04/2013	Updated sorting QC SOP #
10/27/2014	Updated sample log-in and preparation procedure between Receiving and Invert (step 6.1). Formatted for 508 compliance
11/05/2015	Updated SOP references. Included reference to form IZ-LOG.

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