

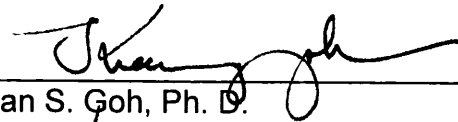
STANDARD OPERATING PROCEDURE

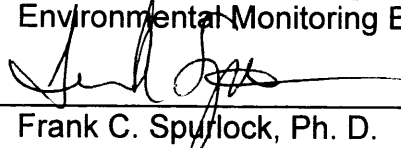
Procedure for Collecting Benthic Macroinvertebrates using a Hester-Dendy Sampler

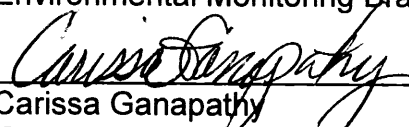
KEY WORDS


Artificial Substrate, Benthological Study

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STANDARD OPERATING PROCEDURE

Procedure for Collecting Benthic Macroinvertebrates using a Hester-Dendy Sampler

1.0 INTRODUCTION

1.1 Purpose

This Standard Operation Procedure (SOP) is the approved method for the collection of aquatic macroinvertebrates in California waterways using the Hester-Dendy (H-D) artificial substrate sampler (Figure 1). The U.S. EPA and U.S. Geological Society have approved this sampler for use in benthological studies.

1.2 Definitions

1.2.1 **Macroinvertebrate** – Small organism lacking a backbone. In the case of sampling using H-D samplers, all macroinvertebrates will be aquatic; that is found living in water.

1.2.2 **Artificial Substrate** – A constructed version of the natural habitat of various aquatic life forms.

1.2.3 **Riprap** - loose chunks of stones placed together, often used in the construction of a protective foundation or embankment

2.0 MATERIALS

- 2.1 14-plate round H-D samplers
- 2.2 Small buoys
- 2.3 8 to 14 feet of nylon rope
- 2.4 Heavy brick or riprap
- 2.5 Galvanized bailing wire (14 gauge or larger)
- 2.6 Wire cutters
- 2.7 Wire pliers
- 2.8 Heavy leather gloves
- 2.9 Wood or steel marker stakes or flagging tape
- 2.10 Hammer
- 2.11 1650 mL Whirl-Pak® bags
- 2.12 95% ethanol
- 2.13 500-micron D-Frame Dip net

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Figure 1. Fourteen plate round Hester-Dendy sampler

3.0 PROCEDURES

3.1 Location Selection

- 3.1.1 Choose collection sites as stated in study protocol.
- 3.1.2 Within the sites chosen decide on a location to place the H-D sampler.
- 3.1.3 The H-D sampler should be placed in an area in which low water mark will not expose sampler. If possible, place H-D near vegetation.

3.2 Deployment

- 3.2.1 Attach buoy to one end of nylon rope.
- 3.2.2 Make a 1-foot rope dropper and attach one H-D with galvanized wire.
- 3.2.3 Attach the brick or riprap to the other end of the rope. Be sure to select one that is large enough to hold the H-D in place should the water level rise and flow velocity increase.

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3.2.4 Place the H-D in the water so that:

- 3.2.4.1 If the water level falls the H-D will not become stranded on the shore
- 3.2.4.2 It is not in the middle of the stream to block navigation or become entangled with debris
- 3.2.4.3 Will remain submerged the entire duration of deployment (2-4 weeks).
- 3.2.4.4 Will be exposed to flow velocity of at least 0.2 feet per second for the duration of deployment.
- 3.2.4.5 Will be in a location that will be accessible should depth in the stream rise.
- 3.2.4.6 It will not be easily visible from bridges, known fishing locations, trails, etc. so as to minimize the chance of disturbance and or vandalism.

3.2.5 Place marker stakes or flagging tape along bank of stream to identify location of sampler for later retrieval.

3.3 Retrieval procedures

- 3.3.1 Enter the stream being sure not to disturb areas around H-D samplers
- 3.3.2 Place the 500-micron D-Frame net down stream of the H-D sampler to catch any organisms that may detach during removal of the H-D.
- 3.3.3 Carefully detach the H-D sampler from the galvanized wire.
- 3.3.4 Place the H-D sampler and any material from the net into a labeled Whirl-Pak bag.
- 3.3.5 Fill Whirl-Pak bag with 95% ethanol and seal.

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- 3.3.6 Repeat for each H-D sampler, making sure to check net for any attached organisms between H-D removals.

4.0 REFERENCES

Central Valley Regional Water Quality Control Board. 2004. Hester-Dendy Standard Operating Procedure.

Ohio Environmental Protection Agency. 2004. Creek Connections Aquatic Macroinvertebrates Module – Multi-plate Sampling.

H-D Source: Wildco Wildlife Supply Company
95 Botsford Place
Buffalo, NY 14216
800-799-3201
www.wildco.com