Designation: D 4347 – 84 (Reapproved 1995)

Standard Practice for Collecting Benthic Macroinvertebrates with Shipek (Scoop) Grab Sampler[1]

This standard is issued under the fixed designation D 4347; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the procedures for obtaining qualitative or quantitative samples of macroinvertebrates inhabiting sand, gravel, mud, clay, and similar substrates.

1.2 This device is used primarily in estuarine habitats and large freshwater lakes.

1.3 For the advantages and limitations of grab sampling devices, see Guide D 4387.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific hazards, see Section 5.

2. Referenced Documents

2.1 *ASTM Standards:*

D 4387 Guide for Selecting Grab Sampling Devices for Collecting Benthic Macroinvertebrates[2]

3. Summary of Practice

3.1 The Shipek scoop type grab sampler consists of a semicylindrical scoop and must be positioned properly on the bottom to take a scoop and retain discrete samples of sediment through 180°.

3.2 The scoop of this device penetrates to a depth of about 10.2 cm at center.

3.3 Unlike many other types of samplers, closure of the device is made at the side, rather than at the bottom.

4. Significance and Use

4.1 The Shipek (scoop) grab sampler is used to collect qualitative and quantitative samples from different aquatic habitats containing benthic macroinvertebrates living on or in various types of substrates.

4.2 The organisms in the sample are used to define macroinvertebrate community characteristics in water quality studies and ecological assessments.

5. Hazards

5.1 This sampler cannot be used under adverse wind and wave conditions.

5.2 The sampler requires a vessel with a winch and cable.

6. Procedures

6.1 The sampler must be lowered on a near vertical line.

6.2 The sampler is composed of two concentric half cylinders, the inner semicylinder is rotated at high torque by two helically wound external springs.

6.3 Upon contact with the bottom, the two external springs are automatically released by the inertia of a self-contained weight upon a sear mechanism which trips the catch and the scoop rotates upward.

6.4 At the end of its 180° travel, the sample bucket is stopped and held at the closed position by residual spring torque.

6.5 After closure the sample is given optimum protection from washout during the return trip by the cylindrical configuration of the sampler.

6.6 The scoop can be disengaged from the upper semicylinder by releasing the two retaining latches.

6.7 Once the sample is taken, it is retrieved by a power winch and cable.

6.8 Once on deck the sample bucket may be disengaged from the rest of the device by releasing two retaining latches at each end of the upper semicylinder.

6.9 Empty the sample into either a suitable container or a sieving device directly for processing.

6.10 Wash or hose the sampler with water so that all the sample is processed before a replicate sample is taken.

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[1] This practice is under the jurisdiction of ASTM Committee E47 on Biological Effects and Environmental Fate and is the direct responsibility of Subcommittee E47.03 on Terrestrial Assessment and Toxicology.

Current edition approved Feb. 24, 1984. Published October 1984.

[2] *Annual Book of ASTM Standards*, Vol 11.05.