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Standard Practice for Collecting Benthic Macroinvertebrates with Van Veen Grab Sampler¹

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1. Scope

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

1.2 This device is used in marine and estuarine waters and is adaptable for large rivers.

1.3 For advantages and limitations for 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 or 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 Macroinvertebrates²

3. Summary of Practice

3.1 The Van Veen grab sampler has paired jaws that must penetrate the intended substrate without disturbing the water surface boundary of the substrate, close by pincher-like action of two long arms when positioned properly on the bottom, and retain discrete samples of sediment while it is brought to the surface for processing.

3.2 The Van Veen is basically an improved version of the Petersen grab in that long arms have been attached to the jaws to stabilize the grab on the bottom in the open sea just prior or during closing the device.

3.3 Additional weights can be applied to the jaws to effect greater penetration in sediments.

3.4 The long arms give added leverage for penetrating hard sediments.

3.5 Larger versions of this grab can be constructed depending upon the type of bottom to be sampled, and the type of

vessel available to deploy this sampler.

4. Significance and Use

4.1 The Van Veen 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 At great ocean depths the sampler is sometimes difficult to operate as standing waves or swell at the surface or deeper down will act upon the levers so as to close the grab long before it reaches the bottom sediment.

5.2 As with the larger grabs, the Van Veen must be lowered from a stationary vessel or platform with boom and lifting capabilities.

6. Procedures

6.1 The standard Van Veen is cocked with the long arms assuming the spread condition.

6.2 The chains from the jaws are attached to the counter balance mechanism, as are the slackened wires from the long arms.

6.3 Tension is carefully applied to the triggering mechanism as the sampler is winched off its platform, and once the tension is firmly changed from the jaws, the Van Veen is relatively stable in the cocked position.

6.4 Exercise care in lowering the Van Veen through the surface of the water as occasionally contact will produce slack in the chain that will trip the counter balance mechanism.

6.5 The grab is lowered slowly to the bottom, and once it makes contact with the bottom the grab shall be winched in, which initially closes the device and then raises it from the sediment.

6.6 The grab is retrieved slowly to prevent washout and once aboard the vessel, empty the grab into either a suitable container or a sieving device directly for processing.

6.7 Thoroughly wash or hose the device with water so that all the sample is processed before a replicate sample is taken.

¹ This practice is under the jurisdiction of ASTM Committee E-47 on Biological Effects and Environmental Fate and is the direct responsibility of Subcommittee E47.08 on Biological Field Testing.

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



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