

Quick but Not Dirty - Instream Filtering of Suspended and Volatile Solids

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Goal

Compare quantification of suspended and volatile suspended solids using different filtering methods.

- Total suspended solids (TSS) within the water column include all living and nonliving material within the 0.45 μ m-1mm particle size range and are referred to as *seston*.
- Volatile suspended solids (VSS) are the organic components of TSS and are quantified as the material lost when TSS are ignited.

Research Methods

- Collect seston from 4 sites over a range of TSS/VSS concentrations.
- At each site seston will be collected with a peristaltic pump attached to a hand drill, as well as in a container, that will be transported to the laboratory.
- All seston will be filtered through a 0.7 μ m filter and the residual material on the filter (TSS) will be ignited to quantify the proportion of organic material (VSS) suspended in the water column.

Impact

- Portable, compact, and rapid
Drill pumps are used while standing or floating instream whereas traditional vacuum pumps are used in the lab or if a power source is available streamside.
Filtering with a drill pump eliminates time spent setting up and maintaining bench top vacuum pumps.
- Usable by anyone
Personnel from any discipline can easily build and learn to use drill pumps.

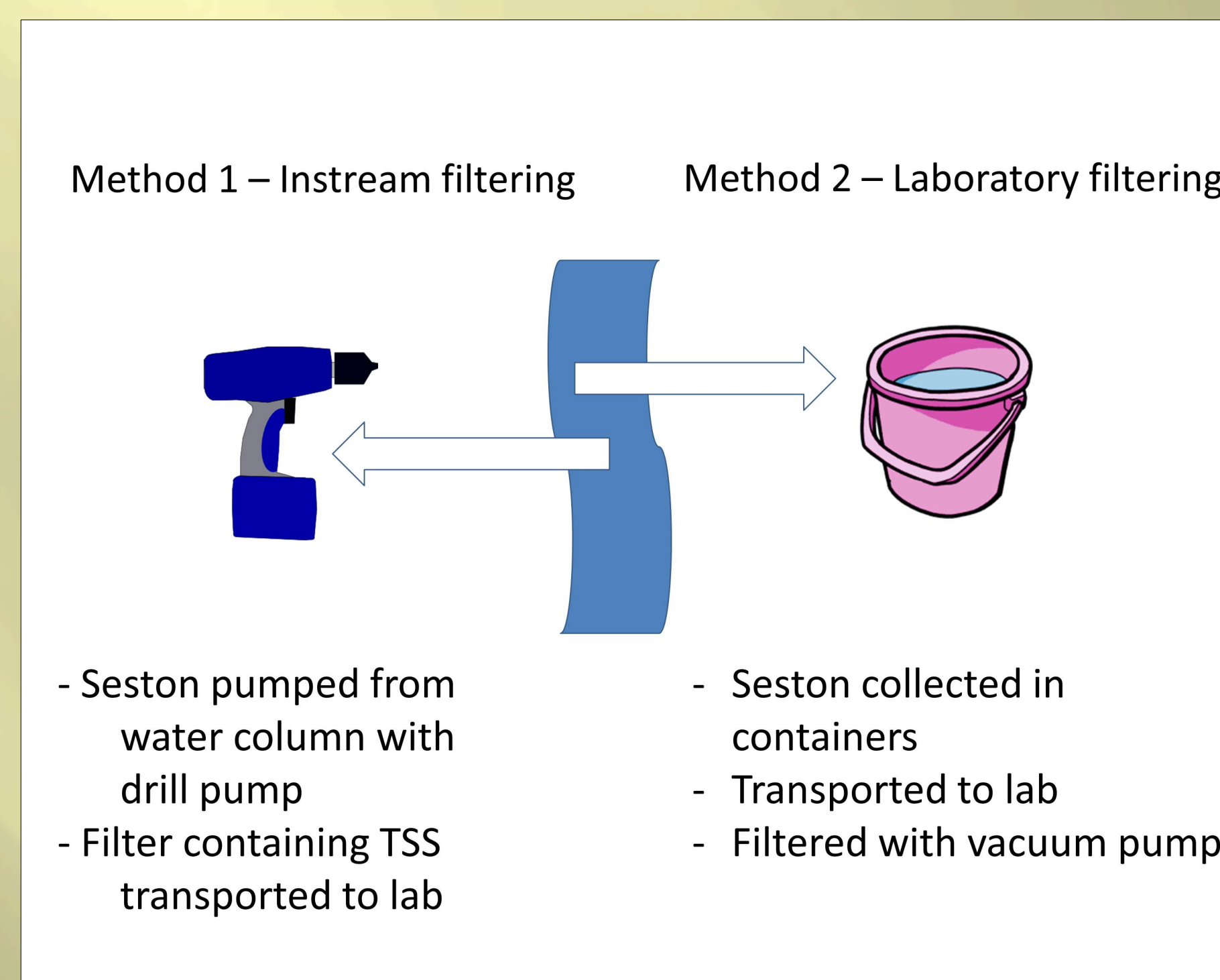


Figure 1. We will compare two methods for collecting and filtering seston from a river, with a drill pump in the field or with a vacuum pump in the laboratory.

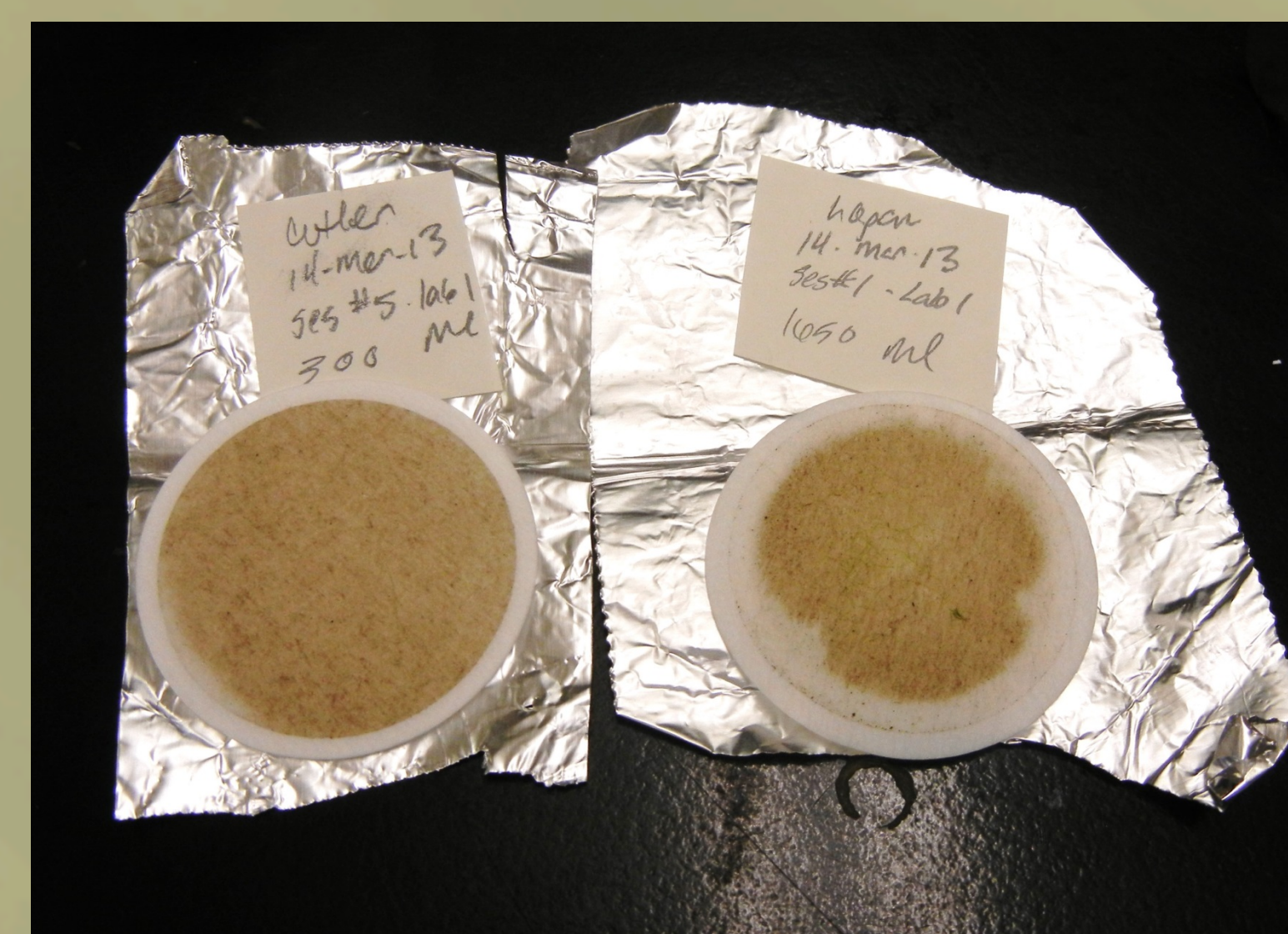


Figure 2. Filters with seston from drill pump and vacuum pump.



Figure 3. Instream filtering versus laboratory filtering of seston.

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