

Guidance for Improving Monitoring Methods for Stormwater-Borne Solids

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Abstract. A large portion of impaired waterways are located near urbanization and are adversely influenced by stormwater-borne solids. Stormwater-borne solids include suspended sediment, bed-load, settleable and non-settleable solids, coarse (gross) solids, and floating debris and trash. These materials have negative impacts on receiving water systems and can lead to loss of aquatic habitat, cause channel instability, and transport harmful pollutants. There is a need for common definitions and standardized monitoring procedures to aid in understanding solid impacts and selection of stormwater best management practices.

Obtaining a representative sample in the field is one of the biggest challenges in characterizing stormwater-borne solids because of temporal and spatial variations. Current sampling techniques neglect larger particles that travel in stormwater including coarse solids, debris and trash because of nozzle placement and intake size restrictions. Total suspended solids is commonly reported in stormwater monitoring, but does not accurately represent the true solids in the water. Suspended sediment concentration is more appropriate for characterizing solids in natural waters. The physical amount of suspended solids in a sample does not represent the quality of solids. Particle size distribution is important to study because the size of particle is more useful in characterizing the water quality impacts and the effect on habitat.

This study summarizes the current state of stormwater solids characterization and sampling techniques. The purpose of this study is to develop a draft protocol addressing sampling, analysis, and reporting practices to examine stormwater-borne solids in order to improve assessment and monitoring protocol.

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