

## Biofilm effects on the deposition of suspended particles in a flow

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<http://science.shinshu-u.ac.jp/~environ/NAO/NAO.html>

Microorganisms growing in a stream often form biofilm draping the surface of riverbed gravels. The biofilm develops a particular interface between stream water and riverbed, which seems to control the hydrodynamic condition and retention time of particles within the interface. We made a series of field and laboratory experiments on the deposition of inorganic suspended particles from flowing water on the bed with/without biofilm using an open flume. Grain-size analyses of the deposits were done after experiments, and cross-section of the biofilm was observed.

The deposition of fine materials is related with flow velocity and biofilm existence. Also, the increase of flow velocity shows the greater influence with biofilm. The increase of the sediment on the biofilm was proportional to the flow velocity, while that on no-biofilm bottom was decreased with the increase of the flow velocity. When the velocity increased, grain-size distribution of the sediment on the biofilm becomes coarser. The results indicate that the biofilm has a great advantage on the deposition of fine clastics from flowing water through sieving the particles by its mesh structure within biofilm.