

[The effects of altered flow and bed sediment on macroinvertebrates in stream mesocosms \(Growsns et al. 2016\)](#)

[1]

River regulation and altered land use are common anthropogenic disturbances resulting in ecological impacts through siltation or altered hydrology. We tested the separate and combined effects of increased flow and fine particles (colmatation) on macroinvertebrates in flume mesocosms. We hypothesised that increased flow would reduce any effects of colmatation.

We tested two bed types, namely clean and colmated sediment where fines were 10% by weight. Two flow rates were initially established, namely a turbulent flow in six mesocosms and a lower rate to create a transitional flow between turbulent and laminar flows in the remaining six mesocosms. After 30 days, macroinvertebrates were sampled and the flow in three turbulent-flow mesocosms and three transitional-flow mesocosms switched to the lower and higher flow rates respectively, thus creating four flow scenarios. The experiment was concluded after sampling macroinvertebrates again at Day 70. We demonstrated that colmatation and decreased flows individually result in decreased density and richness of macroinvertebrates and altered assemblage and trait structure. However, our hypothesis that higher flows would ameliorate any effects of fines was not supported. Further research is required to evaluate whether lower thresholds of colmatation have ecological impacts and determine the velocities required to ameliorate those impacts.

Keywords: benthos, colmatation, flume mesocosms, river regulation, sedimentation.

Publication Date:

Wednesday, 25 May 2016

Full reference:

Growsns, I., Murphy, J. F., & Jones, J. I. (2016). The effects of altered flow and bed sediment on macroinvertebrates in stream mesocosms. *Marine and Freshwater Research*.

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