

The potential for Natural Water Retention Measures to improve water quality in agricultural catchments

The capacity of natural components of streams to attenuate nutrients in agricultural catchments across Ireland is hampered both by high inputs of nutrients from the land & by decreased physical heterogeneity of the highly engineered streams typical of these catchments. This study, as part of the EPA-funded SloWaters Project, aims to re-establish & enhance inherent nutrient attenuation processes through the installation of Natural Water Retention Measures (NRWM's) such as sediment traps, log-jams & flood plains. In a process-led manner, various NWRM's will be installed to create the hydrological conditions required to attenuate specific pressures on water quality (e.g. Phosphorus, Nitrate, Ammonia, Dissolved Organic Carbon). These processes involve sediment retention, oxic/turbulence-driven reactions & enhanced nutrient uptake by microbes within the hyporheic zone. The effects of each of the installed measures on specific water quality parameters will be monitored & analysed on streams in agricultural catchments in Munster.

This PhD study is part of the SloWaters project, funded by the EPA. This study comprises the University College Cork arm of the project. SloWaters studies will also be conducted by students from Trinity College Dublin, Newcastle University & The James Hutton Institute.