Geophysical Research Abstracts
Vol. 14, EGU2012-13250, 2012
EGU General Assembly 2012

A bottom up approach to implementing multi-purpose mitigation measures for reducing flood risk and improving water quality in agricultural catchments

M.E. Wilkinson, P.F. Quinn, J. Jonczyk, S. Burke, A. Nicholson, N. Barber, G. Owen, and M. Palmer
Newcastle University, School of Civil Engineering and Geoscience, Newcastle Upon Tyne, United Kingdom (m.e.wilkinson@ncl.ac.uk)

A number of studies have suggested that there is evidence that modern land-use management practices have increased surface runoff at the local scale. There is an urgent need for interventions to reduce the risk of flooding whilst also delivering multiple benefits (doing more for less). There are many settlements, which regularly suffer from flooding, which would benefit from upstream mitigation measures. Interventions at the source of runoff generation can have a positive impact on the flood hydrograph downstream. An integrated approach to managing runoff can also have multiple benefits on pollution and ecology, which could lead to beneficial impacts at the catchment scale.
Belford, a small community in Northumberland, UK has suffered from an increased number of flood events over the past ten years. There is currently support within the English and Welsh Environment Agency for sustainable flood management solutions such as storage ponds, wetlands, beaver dams and willow riparian features which are being trialled at Belford. These runoff attenuation features (RAFs) also have benefits to water quality, capture sediment and create new ecological zones. Although the process by which numerous RAFs were deployed in Belford proved initially difficult to achieve within the existing regulatory framework, an efficient uptake process is now supported by local regulators including several branches of the Environment Agency. The Belford runoff management framework provides a step by step guide to implementing mitigation measures in the Belford burn catchment and could be easily applied to other catchments at a similar scale. The approach is based on implementing mitigation measures through engaging with catchment stakeholders and using solid field science and management protocols.