

Case study

A pilot strategy to address diffuse pollution issues in the Wortley Beck catchment

A collaborative research project between the Environment Agency, water@leeds, Leeds City Council, Yorkshire Water, Aire Action Leeds and Aire Rivers Trust
2012 to 2015

water@leeds people involved in the project are: Viki Hirst, Gordon Mitchell, Louise Walker and Nigel Wright
Email v.hirst@leeds.ac.uk

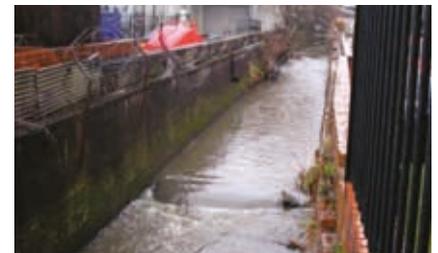
The research aim

To develop and apply a generic approach for stormwater characterisation and abatement in an urban catchment, addressing physical, chemical, flood management and sociological issues.

Background

The project forms part of Environment Agency (EA)'s Environment Programme to help meet the requirements of the Water Framework Directive (WFD). The WFD is an important piece of EU legislation which was enacted to improve and integrate the way water bodies are managed throughout Europe. The Directive was transposed into UK law in 2003 and much of its implementation is carried out by the EA. This is done in a series of planning cycles which allows plans to take into account longterm environmental trends (such as climate change) and improved understanding of basin characteristics. The first cycle must be completed by 2015.

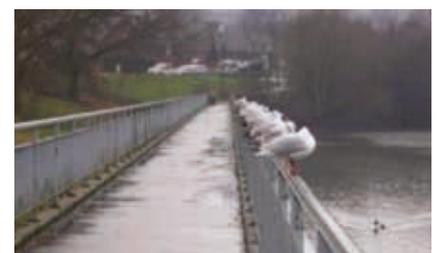
Wortley Beck, like many urban waterways is a Heavily Modified Water Body (HMWB) which is failing WFD targets due to suspected diffuse urban pollution and suspected intermittent point-source discharges. The morphology of the beck also affects its species composition.



Wortley Beck in urban Leeds



Wortley Beck close to the Leeds inner ring road



The balancing pond at Farnley, Leeds

Objectives

This project will make recommendations about:

- Identifying and reducing pollution issues and abating high flows through the use of sustainable drainage systems (SuDs)
- Improving the physical waterbody channel through provision of habitat and incorporation of SuDs
- Engaging with local communities to raise awareness of water related environmental issues and sociological issues associated with Wortley Beck

Methods

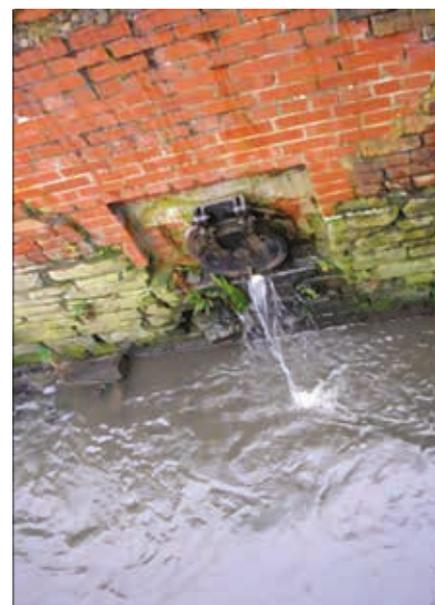
This catchment will be used to demonstrate a new approach for addressing urban diffuse pollution issues by developing a robust methodology which could then be applied widely across other urban catchments. The methodology is being developed through the following steps:

1. Configure a project board containing members from all supporting relevant authorities
2. Characterise and prioritise diffuse and point source inputs using the MUSIC model and verify the outputs
3. Collaborate with all responsible authorities to collate relevant plans, understand synergies and identify opportunities for environmental improvements through linking plans and aims
4. Design and publish collaborative mitigation plan to address key inputs of pollution
5. Actively engage with local communities to raise awareness of environmental issues and individual actions which can improve sustainable drainage and the health of the environment
6. Agree methodology with relevant authorities, publish as a report and disseminate
7. Deliver on the ground improvements to sustainable drainage and biodiversity through linking shared aims of relevant authorities where funding is available
8. Monitor impacts and benefits of the measures

Impact and outcomes

Improved knowledge about how to address complex urban diffuse pollution issues

- Identification of key sources of diffuse pollution and their potential mitigation measures in this catchment
- Presentation of options for incorporation of SuDS within the catchment
- Delivery of some mitigation measures in this catchment
- Improved flood risk understanding through identification of run-off hot-spots
- Benefits to Leeds City Council in identifying flood run-off hotspots in the Wortley Beck catchment
- Benefits to Yorkshire Water in identifying where assets are causing pollution to the catchment
- Benefits to the Aire Rivers Trust through implementation of habitat improvement measures.
- Benefits to Leeds University through undertaking applied research
- Benefits to Aire Action Leeds through community engagement in the Wortley Beck catchment



Surface water run-off to Wortley Beck