ENVIRONMENTAL FLOOD RISK DRAINAGE ECOLOGY

# Scunthorpe UPM Study

## Severn Trent, Asset Delivery, 2003-09

### Project aims

A simplified river impact assessment was required to assess the water quality impacts of proposed UID improvement schemes. This was subsequently extended to include water quality sampling and more detailed model calibration to refine the study and hence the scheme options. Further analysis has been undertaken to identify potential AMP5 water quality drivers in the catchment.

The key aspects of this study involved InfoWorks model build and verification, water quality modelling, water quality sampling management, UPM river impact assessments, and CSO analysis.

### Project summary

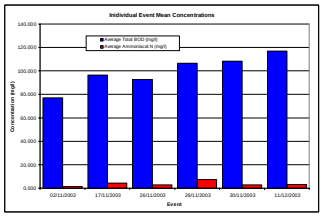
The study area covered the sewerage catchment draining to the Scunthorpe STW. The population of the catchment is some 76,000. A part-verified InfoWorks hydraulic model was supplied by Severn Trent Water and this was used as the basis for developing a water quality model.

Watercourse surveys were carried out to establish river cross sectional and slope details and the InfoWorks model was updated to include represent the river units.

A stochastic rainfall series was generated from historic rainfall for the catchment. This was ranked to create a manageable data set.

The InfoWorks UPM tool was used to assess the river impacts of the existing system CSOs. Simplified river impact assessments were carried out using default parameters to test compliance against both percentile and FIS criteria.

Following the initial analysis, further surveys were carried out including river flow gauging and water quality sampling to refine the calibration of the InfoWorks model. The impact analyses were then repeated to establish baseline system and options performance.




The study included a series of sensitivity analyses to check the robustness of the both the options and the methodology. This provided greater confidence in the improvement options developed.

In preparation for AMP5, the water quality assessments were repeated to identify any potential water quality drivers at other CSOs and Yaddlethorpe WwTW storm tanks.

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