

Environmental Impact of Combined Sewer Overflows and Riverine Inputs on Urban Water Bodies

Objectives

The main goal of this project is to predict microbiological water quality of direct relevance to recreational activities. The project aims to:

- quantify existing disease burden levels attributable to combined sewer overflows and riverine discharges into urban freshwater bodies and to determine the impact on recreational opportunities
- quantify the 'health gain' of possible treatment and/or management strategies of waste water discharges into urban water bodies
- link urban storm water discharge models to 2-D and 3-D hydrodynamic and water quality models using plume based near field models
- link water quality and epidemiological models to establish 'health gain' and risk levels, ie in time and space, in urban water bodies
- develop and propose design strategies to maximise recreational opportunities in urban water bodies.

Location

South Wales

Approach

One of the main tasks of this project is to integrate a storm sewer design and analysis software tool with a 2-D and 3-D model for predicting hydrodynamic processes and water quality indicator distributions in urban water bodies. This integrated modelling approach is, initially, being set-up and validated for the Fylde Coast, at Blackpool. Because of the extensive data available for the region and the various hydrodynamic inputs to the coastal waters, this is an ideal site for model calibration and verification.

In parallel with this, the model is being extended to include an epidemiological model, to provide health risk and health gain assessments for various scenarios. The linked component model will then be applied to a range of input and meteorological scenarios for Cardiff Bay, and possibly the Tawe Barrage. This site specific example will investigate the impact of various combinations of rainfall, weather conditions (eg cloud cover and wind), and riverine flow and tidal conditions to establish the impact of these parameters on the health risk probability within the urban water body.

Start Date/Duration

October 1997 Three years

Lead Organisations

University of Leeds

Deliverables

This project will provide software tools and water management guidelines for quantifying the health risks and enhancing the 'health gain' in urban water bodies.

Users

Agencies responsible for standards design
Water and effluent disposal companies
OFWAT
Environment Agency
Medical public health services
Local environmental health professionals
Central and local government
Trans-national environmental standards agencies

Further Details

Further information is available from the following contacts:

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