

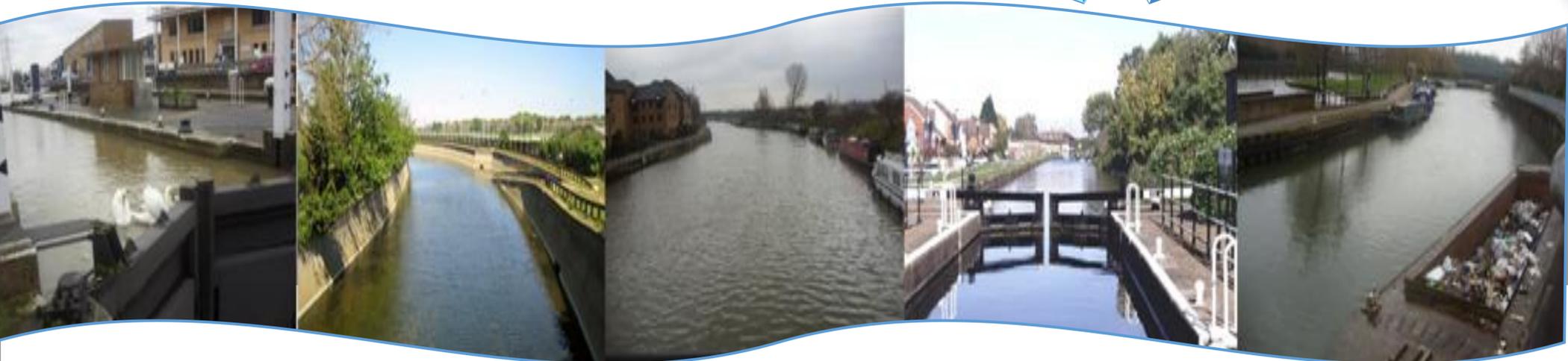
# Evaluating the impacts of an urban catchment on water and sediment quality of a receiving river

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The European Union Water Framework Directive (EU WFD) aims to ensure that all European surface and groundwaters achieve good chemical and ecological status by 2027. Whilst water quality has been the focus of much research, little has been done with regard to sediment quality. Within this context, this study will evaluate the impacts of an urban catchment on water and sediment quality of a receiving river.

The Lower Lee catchment in North London is the focus of this research project. It is a local example of an urban water body which has been heavily modified over the last 100 years to cope with increasing urbanisation by reducing flood risk. It receives major discharges of treated sewage effluent and is also in receipt of multiple surface water discharges from both combined and separate surface water sewer systems.



Identified sampling sites

The research will involve a combination of field, laboratory and desk-based studies. Field work will involve the collection of water and sediment samples from 10 sites selected to represent variations in drainage and land use activities. Samples will be analysed for: heavy metals (cadmium, lead, mercury, nickel, zinc and copper) and persistent organic pollutants (PAHs [anthracene, fluoranthene, naphthalene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, ideno(1,2,3-cd)pyrene]), di(2-ethylhexyl) phthalate, quinoxifen, tributyltin and diclofenac.

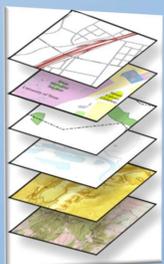
Map of the Lower Lee catchment pilot



Laboratory work will focus on the use of batch tests to further enhance understanding of the process of pollutant release from sediment to water. In combination with field data, these results will be used to ground truth the results of a substance flow analysis (a theoretical approach to predicting pollutant loads entering surface waters).



The general concept of substance flow analysis. The different colours represent different applications of a substance, such as use in different goods, production processes etc.



The combined output of this research will inform the development of a GIS-based model to enable stakeholders, e.g. the Environment Agency, to identify and prioritise pollutant sources within a catchment based on their potential to negatively impact on water and sediment quality.