



Flood Impact Modelling and Natural Flood Management

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Local implementation of Natural Flood Management methods are now being proposed in many flood schemes. In principle it offers a cost-effective solution to a number of catchment-based problems as NFM tackles both flood risk and WFD issues. However, within larger catchments there is the issue of which subcatchments to target first and how much NFM to implement. If each catchment has its own configuration of subcatchment and rivers, how can the issues of flood synchronisation and strategic investment be addressed?

In this study, we will show two key aspects to resolving these issues. Firstly, a multi-scale network water level recorder is placed throughout the system to capture the flow concentration and travel time operating in the catchment being studied. The second is a Flood Impact Model (FIM), which is a subcatchment-based model that can generate runoff in any location using any hydrological model. The key aspect to the model is that it has a function to represent the impact of NFM in any subcatchment and the ability to route that flood wave to the outfall. This function allows a realistic representation of the synchronisation issues for that catchment. By running the model in interactive mode, the user can define an appropriate scheme that minimises or removes the risk of synchronisation and gives confidence that the NFM investment is having a good level of impact downstream in large flood events.