

# Natural Flood Management (NFM):

## A Catchment Based Approach

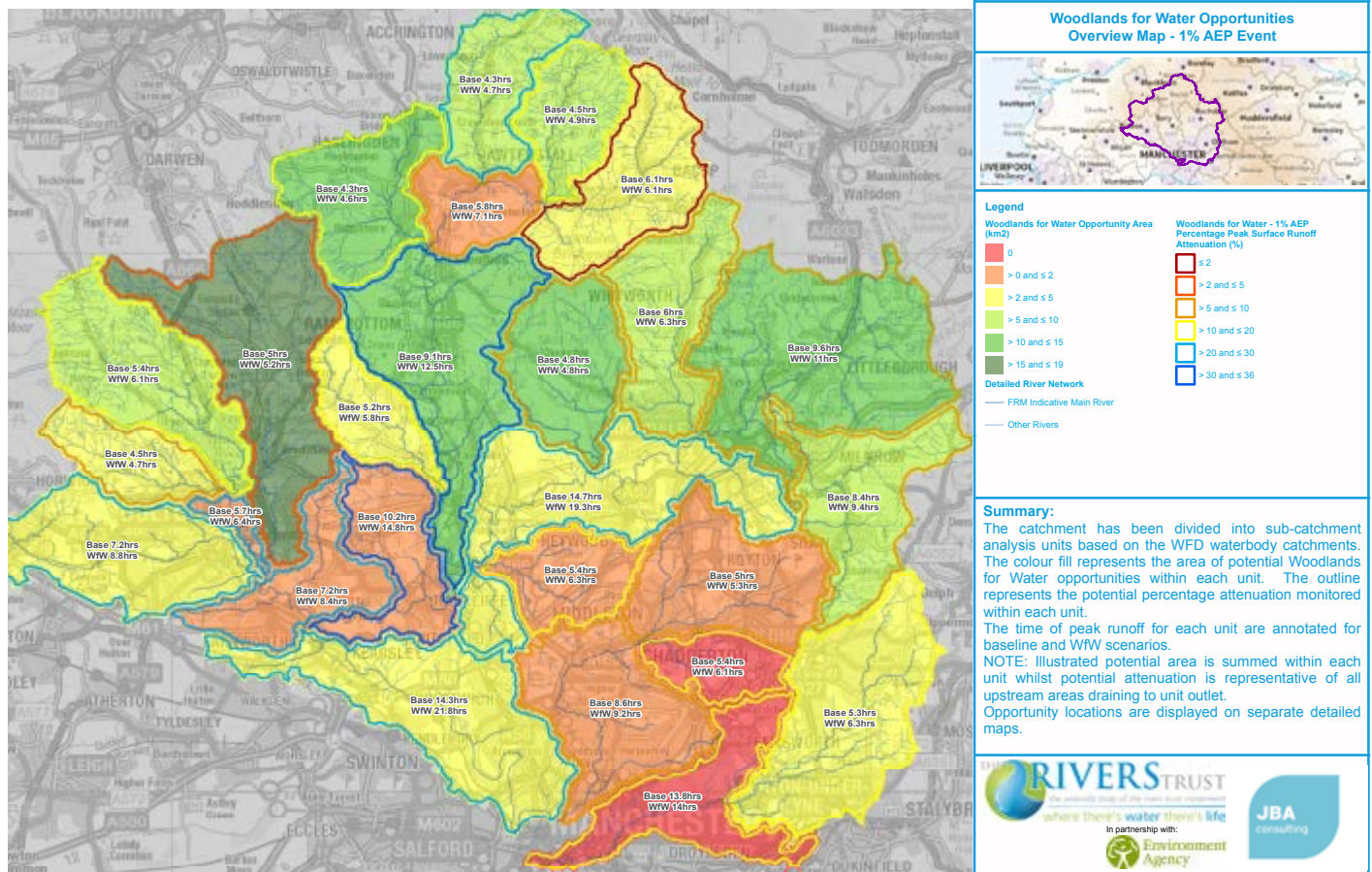
The Rivers Trust is using modelling to quantify the potential impact of NFM on peak flows in four of the Defra Pioneer catchments, by working with JBA and Lancaster University. The two key lessons so far are:

- That according to the model, large scale NFM could have made a significant difference to flood risk in Storm Desmond. This reduction in flood risk would compliment both traditional engineering measures and the existing natural capital within these catchments.
- Collaborative modelling, which incorporates knowledge and understanding from the local community, is a powerful catalyst for NFM delivery. A key part of this process is to openly acknowledge the uncertainty in the predictions and use this knowledge to influence decision making.

### Progress

Collaborative NFM opportunity maps which **quantify** both the opportunity and the benefit of NFM have been developed in four of the Defra Pioneer catchments. These maps represent the communities understanding of NFM opportunities and benefits and are already being used to inform the delivery of £3M of NFM investment. This investment will be planned and delivered as part of an integrated catchment based approach which combines flood risk and Water Framework Directive benefits with the aspirations of the local community.

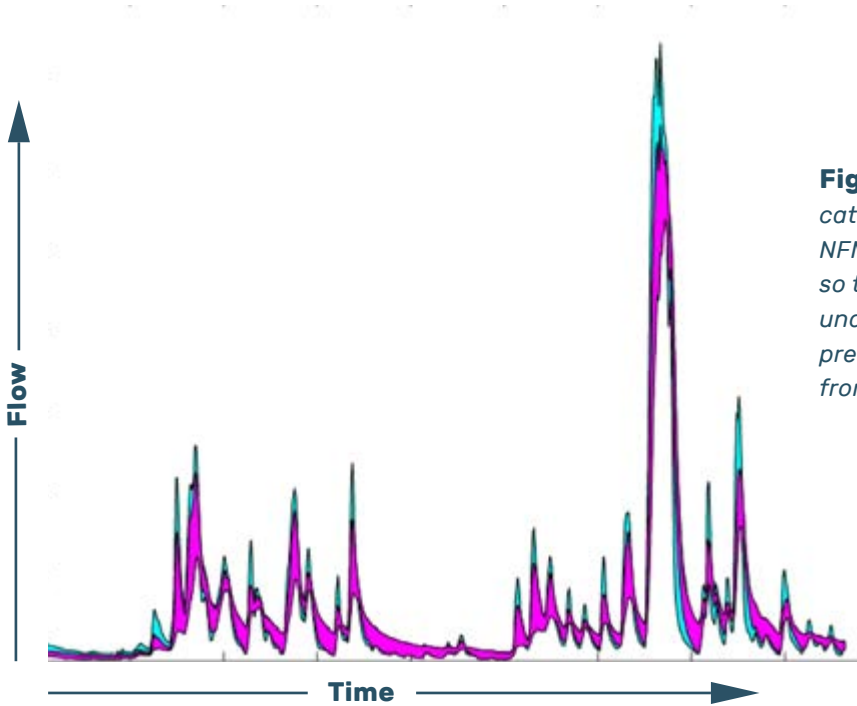
The most recent set of maps in Greater Manchester have been developed in partnership with the Water Company, United Utilities. This will allow improved identification of NFM opportunities and benefits in urban areas, Fig 1.



**Figure 1:** Strategic map of the quantified benefits of NFM in the Irwell catchment in Greater Manchester. The benefits are based on modelling the detailed NFM opportunities, maps of which are available for each sub-catchment to help partnerships identify and deliver NFM on the ground.

## The approach

The strategic maps were used by the local community as part of a weight of evidence to identify priority places within each of the Cumbrian Pioneer catchments for NFM delivery. Detailed 'operational' modelling of these sub-catchments has allowed us to quantify the benefit of NFM in the series of storms which culminated in Storm Desmond. This modelling showed the potential for large scale NFM delivery to make a significant contribution to reducing flood risk in extreme storm events, Fig 2, which could compliment traditional engineering solutions and the existing natural capital within these catchments.



**Figure 2:** Modelled flows in the Eden catchment without (blue) and with (pink) NFM. Five scenarios were modelled so that catchment managers could understand the uncertainty in these predictions. This graph shows the results from the most optimistic scenario.

## Next steps

Building the capacity for catchment partnerships across the country to deliver NFM and wider integrated catchment management is a key goal of The Rivers Trust. This year a joint proposal from Lancaster University, JBA and The Rivers Trust has won a two year grant from NERC to deliver training on NFM. This type of opportunity, coupled with the existing program of workshops, training and online resources ([www.catchmentbasedapproach.org/](http://www.catchmentbasedapproach.org/)) already being offered by the CaBA national support team, is starting to build capacity across the catchment management community.

The program of mentoring, that is being supported by CaBA national support team is a critical component of capacity building. Mentoring allows the skills and knowledge gained from research and training to grow and become part of the 'business as usual' delivery of integrated catchment management.

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