



Natural Flood Management Plus: Scaling Up Nature Based Solutions to Larger Catchments

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It has been established that networks of NFM features, such as ponds and wetlands, can have a significant effect on flood flow and pollution at local scales (less than 10km²). However, it is much less certain that NFM and NBS can impact at larger scales and protect larger cities. This is especially true for recent storms in the UK such as storm Desmond that caused devastation across the north of England. It is possible using observed rainfall and runoff data to estimate the amounts of storage that would be required to impact on extreme flood events. Here we will show a toolkit that will estimate the amount of storage that can be accrued through a dense network of NFM features. The analysis suggests that the use of many hundreds of small NFM features can have a significant impact on peak flow, however we still require more storage in order to address extreme events and to satisfy flood engineers who may propose more traditional flood defences. We will also show case studies of larger NFM features positioned on flood plains that can store significantly more flood flow. Examples of designs of NFM plus features will be shown. The storage aggregation tool will then show the degree to which storing large amounts of flood flow in NFM plus features can contribute to flood management and estimate the likely costs. Together smaller and larger NFM features if used together can produce significant flood storage and at a much lower cost than traditional schemes.