River restoration for flood alleviation

Improving habitat and reducing flood risk along the Ouseburn, Newcastle

FACTSHEET

Project area: *Multiple benefits of Natural Flood Management*
Intended readership: *Local community, flood managers, local council*

The Ouseburn is a tributary of the River Tyne with its source close to Callerton. In the past it has been subject to flood prevention measures which have impacted on the ecological quality of the river. Within increased pressure to build on floodplain areas, there is a now a need to implement measures along the Ouseburn that benefit communities and habitats whilst still reducing flood risk.

This factsheet looks at the potential opportunities for river restoration along the Ouseburn from Callerton to as far downstream as the B1318 at the City of Newcastle Golf Club (a length of 8km in total). The recommendations are based on a combination of expert opinion and data collected from a range of projects and research about the catchment. Potential multiple benefits, including ecological and habitat improvements, natural flood management, reduction in pollution, social, amenity and education have been considered. Seven specific areas were identified as having key opportunities and benefits. The full report can be found on the Blue-Green Cities website. Two examples are detailed.

Callerton Village – re-profile Ouseburn and wetland areas

There are outline proposals for development along this section of the Ouseburn. Previous studies have suggested installing small dams to encourage managed storm water to spill into storage areas in the adjacent field. A better option for habitat and flood risk management would be to ***profile the current channel in combination with utilising low lying areas of floodplain as wetland areas***. The current profile has steep sides and is encroached with vegetation more akin to a terrestrial environment rather an aquatic communities. A wider profile with a range of features could accommodate a range of flows (both small and large) and support low flow macrophyte communities, reduce flood concerns and allow the river to work with natural processes. If incorporated with a buffer zone area water quality would also be improved. Key to success is agreement with the local community and an understanding of future management requirements.

Current profile of the Ouseburn and example of what could be achieved

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Evidence supporting re-profiling and wetland areas

Evidence from similar projects indicates that profiling of this type even when vegetation is present will generally result in increased water levels within the channel constraints during low flow conditions with reductions at higher flows. Whilst this will not remove all flood risk it will potentially mitigate the impact of some higher flows and reduce the retention time of water on the floodplain.

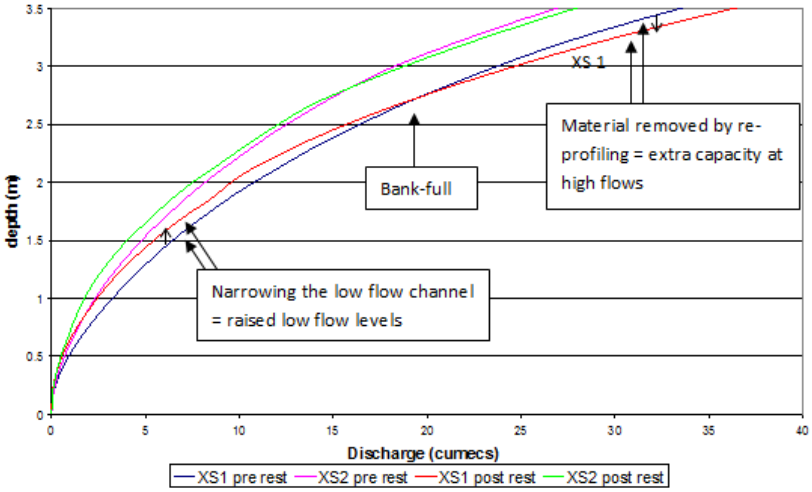
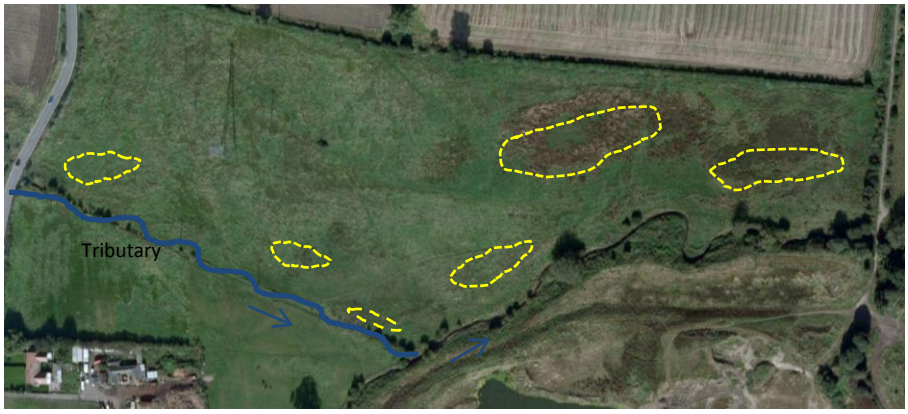


Figure shows an example of where a low flow channel has been dug within a scheme and reprofiling of banks with evidence of change in depth related to discharge.

Source: RRC 2005 – River rehabilitation guidance for Eastern England Rivers.

Wildlife reserve area - reconnecting floodplains

This is a section of the Ouseburn that is very disconnected from its floodplain and yet there is a large area of open grassland which provides little habitat diversity. It is recommended that the tributary be re-meandered with banks lowered to encourage floodplain connection, a range of ponds (permeable and semi-permeable) be constructed on the floodplain and large fixed debris in the channel to support a variety of habitats.



Indicative map of what could be achieved at this site. Source: Google with overlay by RRC

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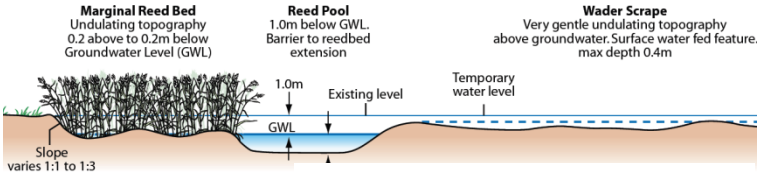
Photos of projects where natural river process are working from river to floodplain (see below)



Cross-section (above) showing different approaches to floodplain wetland features: designed for various flood events/ different habitat features.

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