

# Yorkshire Dales Rivers Trust



[www.yorkshiredalesriverstrust.com](http://www.yorkshiredalesriverstrust.com)

More specific NFM information can be found at:

[www.yorkshiredalesriverstrust.com/natural-flood-management](http://www.yorkshiredalesriverstrust.com/natural-flood-management)

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# What is NFM?





# Natural Flood Management

“Natural flood management involves techniques that aim to work with natural hydrological and morphological processes, features and characteristics to manage the sources and pathways of Flood waters. These techniques include the restoration, enhancement and alteration of natural features and characteristics, but exclude traditional flood defence engineering that works against or disrupts these natural processes.”

*SAIFF (2011). What is meant by restoration, enhancement, and alteration under the Flood Risk Management (Scotland) Act 2009. Edinburgh: Scottish Advisory and Implementation Forum for Flooding*



# Natural Flood Management

Natural flood management aims to reduce the downstream maximum water height of a flood (the flood peak) or to delay the arrival of the flood peak downstream, increasing the time available to prepare for floods.

This is achieved by restricting the progress of water through a catchment using a range of techniques which work with the natural features to slow down or store flood waters.

*Yorkshire Dales National Park Authority- NFM Handbook*



# Natural Flood Management

Natural flood management (NFM), managing flood risk by protecting, restoring and emulating the natural regulating function of catchments and rivers, has the potential to provide environmentally sensitive approaches to minimising flood risk, to reduce flood risk in areas where hard flood defences are not feasible, and to increase the lifespan of existing flood defences.

*Natural Environment Research Council*



# Natural Flood Management

Working with Natural Processes (WWNP) to reduce flood and coastal erosion risk (FCRM) involves implementing measures that help to protect, restore and emulate the natural functions of catchments, floodplains, rivers and the coast. WWNP takes many different forms and can be applied in urban and rural areas, and on rivers, estuaries and coasts. It is also referred to as Natural Flood Management (NFM).

*Environment Agency- Working With Natural Processes*



# Natural Flood Management

**Emulating, SUDS,  
rewilding**

**Protect,** Benefits,

**Risk,** RSDS, **Multi, RSUDS,**

**Urban Flood** wetlands,

Restore,

**Slowing, coastal,**

**Drainage,**

**Natural Processes,**

**Reducing,**

**Sustainable**



# Natural Flood Management

**Reduces Flood Risk**

**Works with Natural Processes**

**Provides Multiple Benefits**

**Resilient to future climatic changes**





# Natural Flood Management

Working with Natural Processes (WWNP) to reduce flood and coastal erosion risk (FCRM) involves implementing measures that help to protect, restore and emulate the natural functions of catchments, floodplains, rivers and the coast. **That provides multiple benefits, are resilient to future climatic changes and work at a Catchment Scale.**



# Natural Flood Management





Why NFM?





# Some Stats

9 of 17 record breaking rainfall months/ seasons since 1910 occurred after 2000

*Met Office*

2.7 million homes in the UK are at risk of surface level flooding.

*Environment Agency*

The 2015/16 flood where estimated to cost roughly £1.6 billion

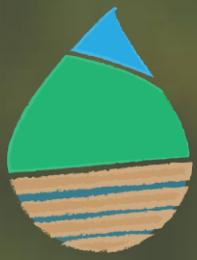
*Environment Agency*

The government have committed £2.6 billion to fund 1,500 flood defence projects.

*DEFRA*

Despite the 25 year environmental plan stating it would 'expand the use of natural flood management solutions' it forms a tiny proportion of funds committed.

*Environment Agency*



# Case Studies

## Slowing the Flow- Pickering Beck

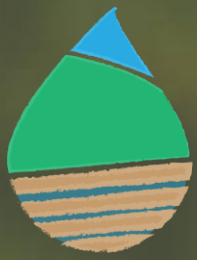
Lead: Forestry Research

**Key findings:** *12% reduction in flood peak in late December 2013*

- Leaky Woody Dams
- Moorland Management
- Riparian Woodland creation
- Woodland farm creation
- Buffer zones
- Improve Soil infiltration
- Low level Bunds



- LARGE CONSTRUCTED FLOOD ALLEVIATION SCHEME



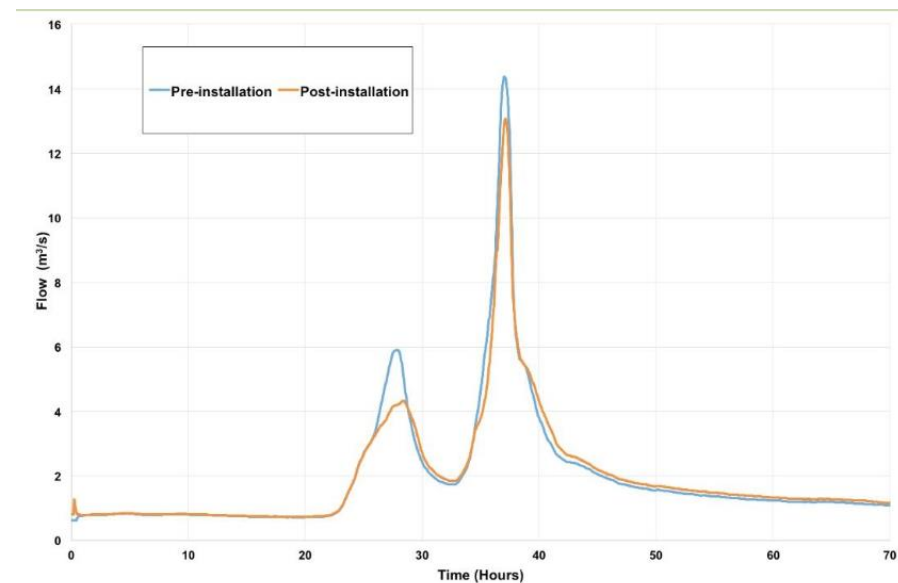
# Case Studies

## From Source to Sea- Holnicote

Lead: National Trust

**Key findings:** *Limited planting of riparian woodland and installation of LWD dams predicted to reduce flood peak by 4-8%*

- Leaky Woody Dams
- Moorland Management
- Formal Flood Storage Area
- Woodland creation
- Arable reversion



- ONE LAND OWNER- NATIONAL TRUST

<https://www.nationaltrust.org.uk/holnicote-estate/documents/from-source-to-sea---natural-flood-management.pdf>



# Case Studies

## Making space for Water- Dark Peak, Derbyshire

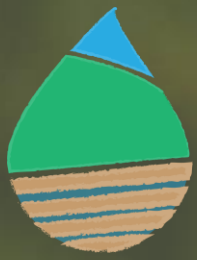
Lead: Moors for the Future

**Key findings:** *Revegetation across 12% of a 9km catchment could reduce flood peaks from severe storms by 5%*

- Peatland restoration
- Bare peat restoration



- ONLY FOCUSES ON ONE ELEMENT

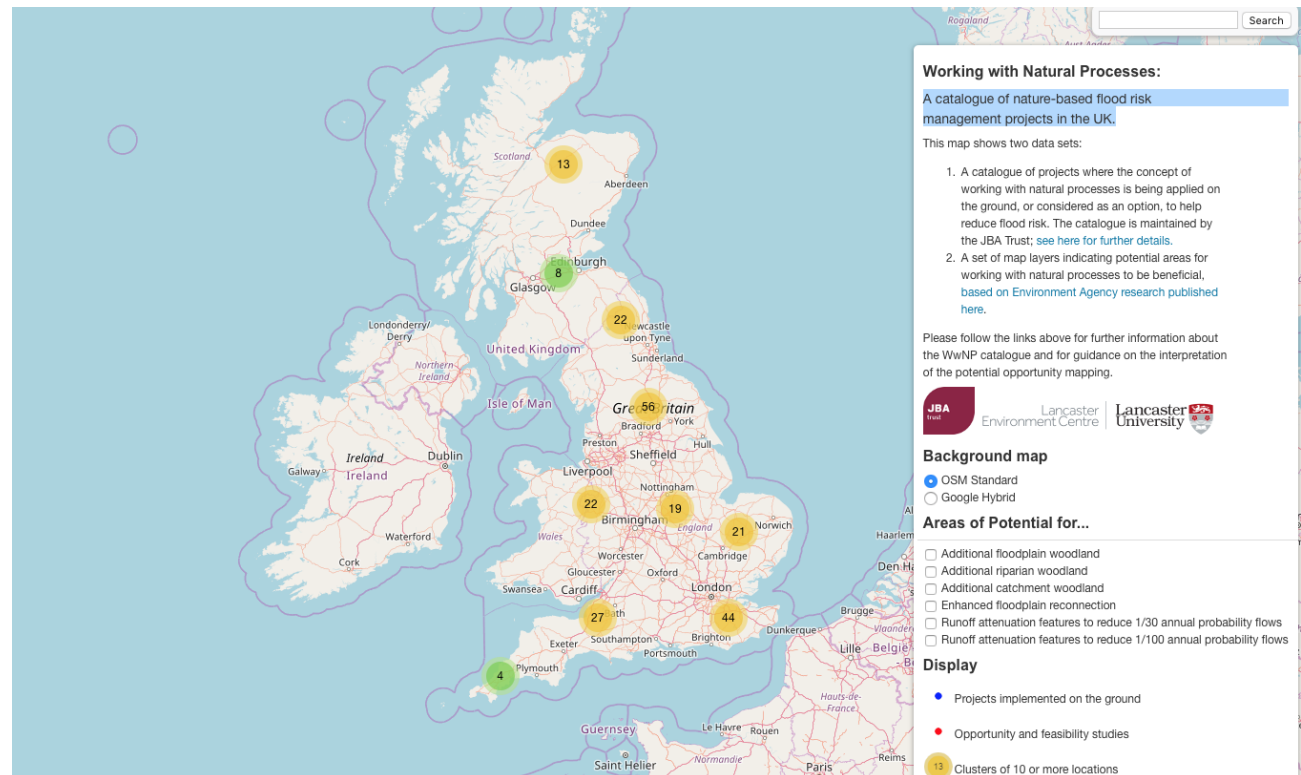


# Examples

## A catalogue of nature-based flood risk management projects in the UK

<http://naturalprocesses.jbahosting.com>

Interactive Map







Any Questions?

