



**NERC/EA/Defra Using natural processes to reduce flood risk  
Workshop Report  
London, UK  
9 June 2016**

**Background**

This workshop brought together academics and users to discuss the research gaps and priorities for natural flood management (NFM). The workshop will inform the development of a potential collaborative research activity by NERC, EA and Defra. The morning session began with introductions from Ruth Kelman (NERC), Lydia Burgess-Gamble (EA) and Stacy Sharman (Defra). Following short presentations from a number of users highlighting their perspective of natural flood management, workshop participants discussed the gaps in the current research and what are the priorities for new research.

A summary of the comments captured during the discussion sessions can be found below. For reference the workshop agenda and list of attendees are also attached at Annexes A and B respectively.

**Outputs**

***Discussion session 1: What are the gaps? What's stopping us from making this approach mainstream?***

Quantify multiple benefits

Different drivers in different regions

Urban (SUDS) vs rural

Changes downstream from NFM

Understanding how NFM protects a town/urban area

Maintenance and repair of NFM in the long term- who is responsible? What are the costs associated with upkeep?

Targeting the right NFM features for the catchment

Impact of flood risk

Water and sediment management

Subsurface flow

Groundwater recharge rates

Validation through case studies

Better national sharing of information and best practice

Integrated governance

Capturing how floods will change across landscapes

Quantifying impacts of NFM

Mechanisms to understand costs to farmer

Community engagement- citizen science

Landscape scale studies

Long term data and observations

Regional variation

Wildlife conservation

Understanding the impacts of different types of flooding

Transferability of information and best practice

***Discussion session 2: What is needed? New research? Translational research? What are the priorities? How do we fill the gaps?***

Understanding different catchment types and catchment scales

Multiple benefit assessment- what are the trade-offs? How to value them to establish their natural capital potential?

Regional variation and flood type

Impact of storing water on different land use types

Lowland/urban catchments

Groundwater- the role it plays in flood management

Lifespan of NFM and costs of maintenance

Degree of effectiveness- does it reduce the risk?

Long term datasets and using existing data- hydrological, ecological, morphological, water quality

Interdisciplinary research

Cross research council funding

Modelling at small and large scale

Sharing of best practice and guidance for different NFM measures

Community engagement

Dialogue between modelling and empirical research to ensure we measure and model the correct variables

Effective knowledge transfer mechanisms- communication between researchers, policy makers and the wider community

Uncertainty and risk of NFM- limits, failure and how to communicate this uncertainty

Extreme events- role of NFM during extreme events; reducing the flood risk during extreme events

Integration and coordination to link all research

Importance of soil- cost of soil loss during a flood; soil structure

Where do the NFM measures need to be placed: grade 1 farmland vs. upland areas?

Farm resilience- farmers and flood management; cost of flooding vs. cost of NFM

Suitability of different models for different questions

How do NFM measures compare to traditional engineering approaches in terms of their engineering performance?

Can NFM measures enhance the performance of traditional engineering schemes or make property level protection and temporary defences more effective?

How big a network of NFM measures do you need across a catchment to be effective at reducing flood risk?

How effective is NFM at reducing flood risk for range of flood events of different magnitudes, across range of catchment sizes.

How to effectively design and implement NFM in groundwater fed catchments so as to not increase flood risk.

What role these measures could play in making catchments more adaptable and resilient to the impacts of climate change.

What types of measures work in heavily engineered and extensively drained river catchments (e.g. Fens and IDB managed drains)?

What is an effective monitoring/adaptive management protocol for NFM?

Need for more catchment demonstration projects with long-term monitoring.

When is modelling needed/not needed?

How do you design NFM so as to not synchronise flood peaks.

Are there places where NFM won't work or will worsen flooding?

Annex A



Department  
for Environment  
Food & Rural Affairs

**Natural Flood Management workshop**  
**Etc. Venues Marble Arch, London, W2 2EA**  
**09 June 2016**  
**10.00-16.30**

**The aim of the workshop is to identify the research gaps and priorities.**

10.00 Arrival and coffee/tea

10.30 Introduction to the workshop: Ruth Kelman, Doug Whitfield, Stacy Sharman

10.50 Presentations from invited speakers

National Trust - Stewart Clarke

Arup - Alex Nicholson

Forest Research - Thomas Nisbet

Regional Flood and Coastal Committee - Robert Oates

Newcastle University - Paul Quinn

Association of Drainage Authorities - Ian Moodie

SEPA- Heather Forbes

National Farmers Union - Martin Rogers

Welsh Government - Emily Finney

RSPB - Simon Wightman

11.20 Discussion session 1: What are the gaps? What's stopping us from making this approach mainstream?

12.20 Soapbox

12.30 Lunch break

13.30 Soapbox

13.40 Discussion session 2: What is needed? New research? Translational research? What are the priorities? How do we fill the gaps?

14.45 Coffee/tea break

15.00 Presentations from Discussion session 2

15.50 Closing remarks and discussion

16.30 Workshop close

## Annex B

### Participants

First name	Surname	Organisation
Ruth	Ashton-Ward	Defra
Jeremy	Biggs	Freshwater Habitats Trust
Gary	Bilotta	University of Brighton
Richard	Brazier	University of Exeter
David	Brown	Environment Agency
Lydia	Burgess-Gamble	Environment Agency
Rob	Cathcart	Natural England
Nick	Chappell	Lancaster University
Stewart	Clarke	National Trust
Tom	Dauben	Environment Agency
Simon	Dixon	University of Birmingham
Emily	Finney	Welsh Government
Karen	Fisher	Buckinghamshire County Council
Heather	Forbes	Scottish Environment Protection Agency
David	Gilvear	Catchment and River Science Research Group, Plymouth University
Ian	Hall	DEFRA
Tim	Hess	Cranfield University
David	Holtum	EPSRC
Janet	Hooke	University of Liverpool
Duncan	Huggett	Environment Agency
Martin	Janes	River Restoration Centre
Ruth	Kelman	NERC
Jillian	Labadz	Nottingham Trent University (School of Animal, Rural & Environmental Sci)
Johanna	Mawson	South Yorkshire Forest Partnership
Ian	Moodie	Association of Drainage Authorities
Alexander	Nicholson	Arup / Environment Agency
Thomas	Nisbet	Forest Research
Brighid	O Dochartaigh	British Geological Survey
Robert	Oates	Thames RFCC
John	Oldfield	Bedford Group of IDBs
Ian	Pattison	School of Civil and Building Engineering, Loughborough University
Anne	Priest	NERC
Paul	Quinn	Newcastle University
Sim	Reaney	Durham University
Nick	Reynard	Centre for Ecology and Hydrology
Martin	Rogers	National Farmers Union (NFU)
Steve	Rose	JBA Consulting
David	Sear	University of Southampton
Paul	Shaffer	CIRIA - LONDON
Stacy	Sharman	Defra

Heather	Shepherd	The National Flood Forum
Fran	Southgate	Sussex Wildlife Trust / Sussex Flow Initiative
Chris	Spray	University of Dundee, UNESCO Centre for Water Law, Policy & Science
David	Thomas	Welsh Government
William	Todd	Environment Agency
Chris	Uttley	Stroud District Council
Anne	Verhoef	The University of Reading
Jonathan	Walker	Moors for the Future Partnership
Geraldene	Wharton	Queen Mary University of London
Anne	Wheeler	English Severn and Wye Regional Flood and Coastal Committee
Doug	Whitfield	Environment Agency
Simon	Wightman	RSPB
Mark	Wilkinson	James Hutton Institute