

Yorkshire Integrated Catchment Solutions Programme (iCASP)





Photo credits:

Cameron Scott, Joanna Richards, Lee Brown, Les Firbank, Sheila Palmer, Don Catchment Rivers Trust, Moors for the Future Partnership, Leeds City Council, Mzuri Ltd, Natural England, Slow the Flow Calderdale, Yorkshire Water & The Environment Agency.

Introduction

Yorkshire Integrated Catchment Solutions Programme (iCASP) is a UKRI-Natural Environment Research Council-funded partnership that is making environmental evidence available for the development of innovative solutions to land and water management challenges at catchment scale.

It aims to generate £50 million+ of benefits to Yorkshire's economy by 2022, and to inform regional, national and international practices and policies, including supporting the delivery of the 25 Year Environment Plan.

This brochure describes projects which have been co-designed and are being delivered by collaborative partnerships of academics and practitioners to achieve iCASP's ambition.

You can discover more about our projects, the people involved and the resources they generate on the iCASP website:

<https://icasp.org.uk/>

And if you'd like to stay in touch, please sign up to our quarterly newsletter:

<https://icasp.org.uk/category/news/>

Or email us at:

icasp@leeds.ac.uk



Preparing for new climate projections

iCASP's first project helped organisations in Yorkshire to prepare for the publication of the UK's new climate change projections in 2018 (UKCP18). Organisations such as water companies and local authorities draw on these scientific assessments of the changing climate when they make long-term risk management decisions.

The UK projections published in 1998, 2002 and 2009 are to be updated again in 2018 with some significant changes. For instance, there will be more local detail and information on climate extremes and uncertainty. In collaboration with the UK Met Office, which is responsible for producing the projections, the iCASP project has been giving organisations, including Yorkshire Water, the National Farmers' Union and Leeds City Council, an opportunity to rehearse ways of using the updated information in their operations and strategies. In turn, the project partners have given feedback to the Met Office on their needs of the new information and how it is presented.

Building on the success of this project, a one day UKCP18 forum will be held for organisations from different sectors of the regional economy who need to use UK climate projections for resilience planning and long-term business strategies.

Partners:

Environment Agency, JBA Group and JBA Trust, Leeds City Council, National Farmers' Union, UK Met Office, University of Leeds, Yorkshire Water, Yorkshire Wildlife Trust.

Duration:

May 2017 – March 2019



Making the case for integrated flood alleviation schemes

iCASP has been working closely with organisations involved in Phase 2 of the Leeds Flood Alleviation Scheme (FASII) which plans to put in natural flood management measures in the River Aire Catchment.

Measures being considered include: tree planting, peatland grip blocking, run-off attenuation features, floodplain woodland planting, riparian planting, changing land-use methods and river rehabilitation (including re-meandering).

iCASP offered support to the development of the Leeds FASII Business Case by providing cost estimates for different standards of the baselining and ongoing monitoring that are needed. This helped to shape the monitoring specification, including justifying additional budget.

This small project has been the start of iCASP's continuing involvement in Leeds FASII and has facilitated communications and productive working relationships between academic researchers and project partners.

Partners:

Environment Agency, Thomas MacKay Ltd., University of Leeds.

Duration:

August - September 2017



Working with nature on flood prevention

The Government's 25 Year Environment Plan highlights an important role for natural flood management in flood alleviation. Pilot schemes in Yorkshire are the focus of an iCASP project to develop best practice and show how working with nature can deliver a range of benefits.

Experts in modelling and monitoring are showing practitioners and communities different ways to evaluate and quantify the effectiveness of approaches such as tree planting and building leaky woody dams. The project team will share insights from these pilot schemes with larger-scale flood alleviation schemes such as in Leeds, York, Sheffield, and Calderdale. The integration of natural flood management processes with hard engineered structures could give greater protection to homes, businesses and transport links in the region.

The project will also help to develop a community of practice to increase regional NFM capability, and will contribute updates to the Environment Agency's national 'Working with Natural Processes' evidence base and guidance.

Partners:

Bradford Metropolitan District Council, Calderdale Council, Environment Agency, JBA, National Trust, University of Leeds, University of York, Yorkshire Dales Rivers Trust.

Duration:

April 2018 – September 2020



Maximising pay-back from peat restoration

Efforts to restore Yorkshire's vast peat bogs are getting a welcome boost from an iCASP project that is making it easier for practitioners to use modelling tools and economic valuation methods.

The Yorkshire Peat Partnership and Moors for the Future Partnership have been collaborating with the Universities of Leeds, Manchester and Durham to develop tools that people can use when they consider how to get the most value from restoring peatland even as the climate changes. The project team has produced a user-friendly interface for a digital modelling tool called DigiBog_Hydro which informs what peatland restoration activities can do to optimise ecosystem service delivery.

They have also developed a guide to help practitioners decide on the type of method that could be used to value the benefits of peatland restoration. This is illustrated with helpful case studies to show how different valuation methods can be used for different purposes. These tools can be used to support multi-million pound investments in peatland restoration and to strengthen the business case for more investment in such schemes.

Partners:

Durham University, Moors for the Future Partnership, University of Leeds, University of Manchester, Yorkshire Peat Partnership.

Duration:

February 2018 – January 2019



Enhanced surface water flood forecasting

Some floods are easier to prepare for than others. When water levels in rivers start to rise, the authorities can usually calculate the timing and likelihood of a flood in good time. However, more generalised surface water flooding caused by intense rainfall can strike with little warning.

Current weather forecasts can't pinpoint the location for heavy rainfall precisely enough. This makes it hard for decision-makers to take evasive action – issue flood warnings, reroute traffic, etc., because they can't be sure of getting it right.

This iCASP project is harnessing the latest advances in probabilistic rainfall forecasting and high-resolution surface water modelling to explore whether 'real-time' local-scale forecasts could help Lead Local Flood Authorities take decisions more readily.

Partners:

City of York Council, Environment Agency, Flood Forecasting Centre, JBA, Leeds City Council, National Centre for Atmospheric Science, UK Met Office, University of Leeds, Yorkshire Water.

Duration:

April 2018 – June 2019



Practices to improve soil and deliver public goods

Defra is currently exploring how to incentivise farmers and land owners to manage their land in ways that can deliver so-called public goods, as well as food security. These goods could include improved water quality, flood protection and carbon storage.

The proposed changes to the way farm subsidies are awarded has presented iCASP with an opportunity to make a helpful contribution. Recognising that healthy soil underpins the delivery of many public goods, iCASP has carried out a rapid review of evidence on the effectiveness of ten agricultural practices for improving soil health. The ten that were selected are those that are adopted most frequently by Yorkshire farmers signed up to current agri-environment schemes.

The results provide some useful pointers for policy-makers and farmers which the team are communicating in a series of hand-outs for different target audiences.

Partners and advisors:

Dales to Vales River Network, Environment Agency, Leeds City Region Local Nature Partnership, Natural England, National Farmers' Union, Nidderdale AONB (and Northern Upland Chain Local Nature Partnership), Sustainable Futures, University of Leeds, University of Newcastle, University of Sheffield, University of York, White Rose Forest, Yorkshire Water.

Duration:

May 2018 – November 2018



Getting our act together on surface water data

The Derwent Data Finder project will explore whether a collaborative monitoring system could help the Environment Agency and other organisations to reduce costs and to gather more useable information.

Focusing on the Yorkshire Derwent, the project will develop an online metadata database that can point users to a variety of sources of information that they may not even have known existed. This will encourage the sharing and collation of data to address catchment management issues.

It will demonstrate whether the data currently collected is helping to address surface water and other catchment management issues, save costs by preventing duplication of effort, and inform future monitoring investments by identifying knowledge gaps.

The Yorkshire Derwent is one of five catchment 'prototype projects' that have been chosen by the Environment Agency as part of its national review of monitoring, so the learning from the project will be helpful further afield.

Partners:

Environment Agency, University of Leeds, Yorkshire Derwent Catchment Partnership.

Duration:

July 2018 – January 2019



Multiple benefits from better land management

iCASP is advising the Don Catchment Rivers Trust on their Hidden Heritage Secret Streams project. This is based on the Upper Rother Catchment, a tributary of the River Don. One of the aims of the project is to improve the way land is managed so that it provides both social and heritage benefits.

The Trust will recruit volunteers to put in place small and simple changes. These will reduce river pollution from different sources, slow the rate at which water flows down the river, and make it easier for different species to flourish by ensuring suitable habitats are connected up in the landscape. At the moment, it's difficult to prioritise what should be done and whether volunteers can do it. The available information has not been consolidated or analysed at high enough resolutions to understand which areas require land management.

This is where iCASP can add most value. Drawing on academic expertise, the project will collate open source data and produce opportunity maps. The lessons learnt can be used by other neighbouring and national catchments.

Partners:

Don Catchment Rivers Trust, University of Leeds, University of Sheffield, University of York.

Duration:

September 2018 – January 2019



Green and blue infrastructure business cases

This iCASP project aims to overcome the multiple barriers to the effective valuation of green blue infrastructure (GBI). Parks, open spaces, playing fields, woodlands, street trees, allotments and gardens, as well as rivers, canals and ponds are all examples of GBI.

Their presence can enhance property values, flood protection, air quality and overall health and well-being, but planners and developers struggle to make a persuasive business case for investment in them. Therefore, the project will develop a clear, practical, and rigorous approach to GBI cost-benefit analysis that is ready for HM Treasury approval.

On an operational level, it will identify the most effective tools to use when making a business case and test them at case study sites. This will help business case developers and appraisers access GBI evidence, and will guide future development of GBI tools.

Partners:

Developers, funders, regulators, planners, tool developers, and business case writers and appraisers, as well as a cohort of multi-disciplinary academics.

Duration:

November 2018 – April 2020



Prioritising natural flood management interventions in Calderdale

A rainfall-runoff model developed at the University of Leeds is the latest weapon in Calderdale's armoury to prevent future flooding in the valley. An iCASP project is using a digital model, SD-TOPMODEL, to model the flow of water from hillslopes to the river.

The project team will then be able to analyse how and if existing landscape features, such as walls, gates and hedges, and new measures, such as hedge and tree planting, reduce flood risk by storing and slowing flood water.

Conclusions will bolster future business cases and evaluations of work done already, and contribute to the Calderdale Flood Action Plan by helping to prioritise the siting of future natural flood management (NFM) schemes.

Furthermore, the project will also help to identify research gaps and provide information for communities to illustrate how working with natural processes can have an impact on flooding.

Partners:

Environment Agency, Calderdale Council, Calderdale NFM Operational Group, University of Leeds, Yorkshire Water.

Duration:

November 2018 – January 2020





Thank you
for reading

iCASP



Integrated Catchment Solutions Programme

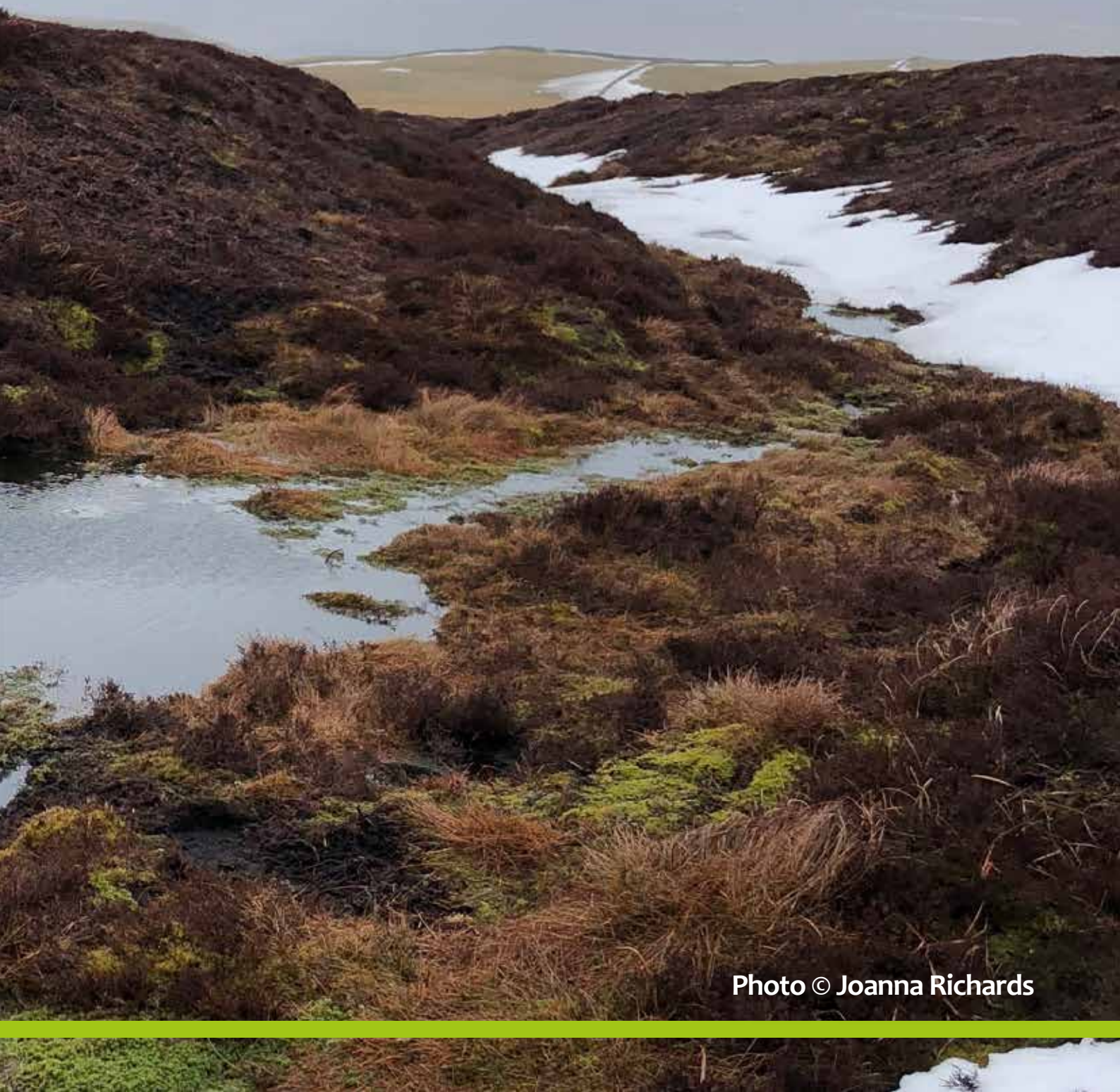


Photo © Joanna Richards



Funded by NERC Grant: NE/P01160/1

