MOORS FOR THE FUTURE PARTNERSHIP

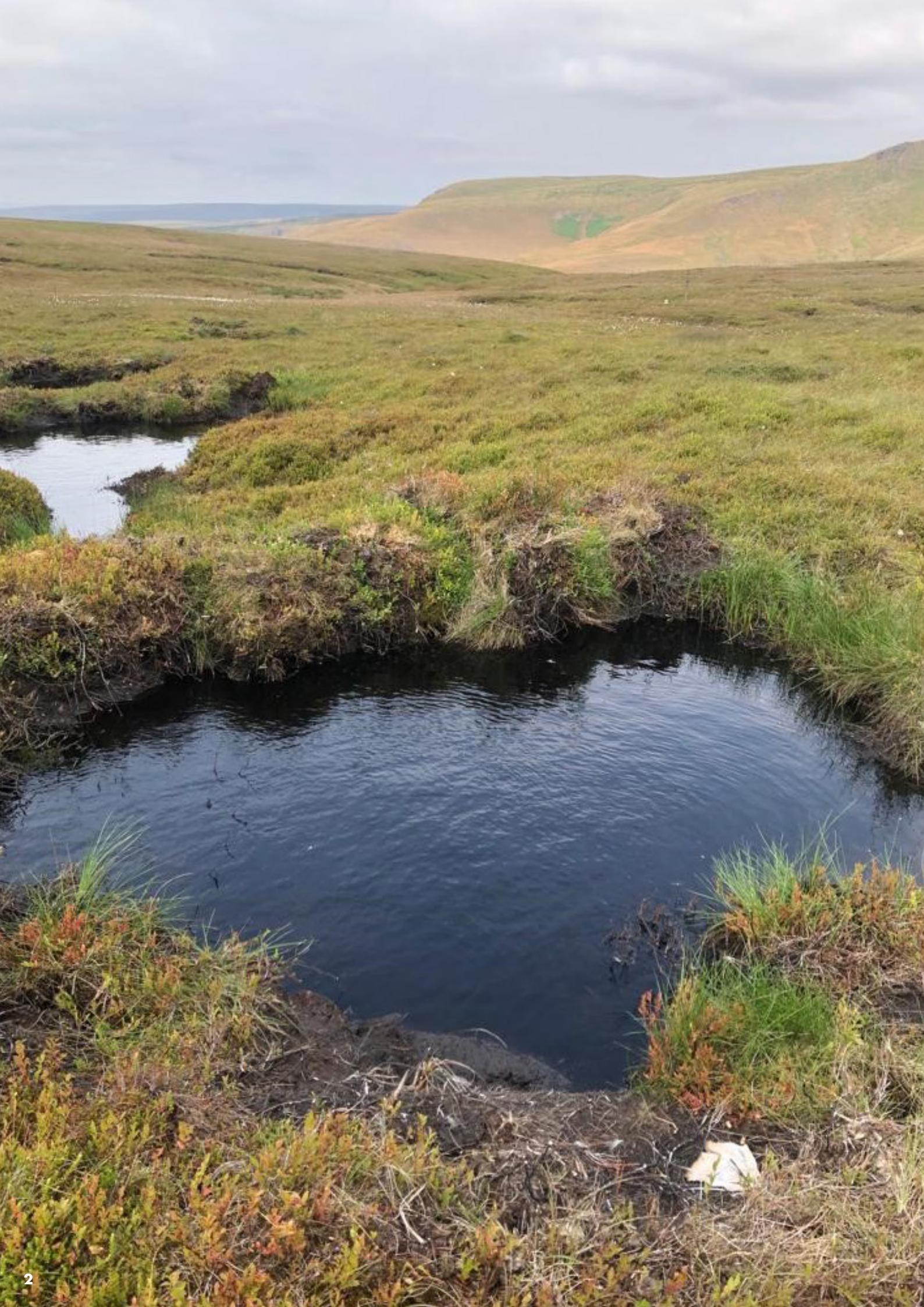
MOORS FOR THE FUTURE PARTNERSHIP

Our plan for water

in the upper catchments of the South Pennines until 2030

Protecting the uplands for the benefit of us all – through the 2024 Price Review Process and the Flood and Coastal Erosion Risk Management Strategy Roadmap.

Revised 2023



Foreword

As partner members of the Moors for the Future Partnership, which is led by the Peak District National Park Authority, three water companies – Severn Trent Water, United Utilities and Yorkshire Water Services – have contributed to a transformation of the South Pennine uplands. The Environment Agency has also made a significant contribution by working through the Partnership during this period, principally by funding projects that focus on natural flood management. Their efforts in working in partnership since 2004 using the Price Review Process have been instrumental in supporting two enormously significant projects, the award-winning MoorLIFE project which ran from 2010–2015 and the MoorLIFE 2020 project which ran from 2015–2022.

This innovative partnership approach has begun the process of revitalising the most degraded upland catchments in Europe and there is a significant opportunity to continue through PR24 to build resilience and sustain an improving trajectory in catchments across the Dark Peak and South Pennine landscape. This essential work is even more relevant now as the effects of climate change are being experienced in the uplands.

Therefore I encourage everyone to support the three utility companies and the Environment Agency in continuing this critical work. By working within the Moors for the Future Partnership we are together well placed to make a strong case for this investment achieving the very best value for customers.

I recommend this visionary partnership approach between the three utility companies, the Environment Agency and the other Moors for the Future partners, and look forward to seeing the results of this across the backbone of England. It is my hope that this strategy for the uplands will also lead to a plan across future AMP periods taking this exciting and vital investment out to 2030 and beyond.

David Chapman
Chair, Moors for the Future Partnership
Member, Peak District National Park Authority

Executive Summary

By continuing to work together, the Partnership can scale up to make a significant contribution to the investment needed in this crucial time frame of the next 5–10 years when the effects of climate change are already being experienced in the uplands. Current estimates of the potential scope of combined investment are for a 5-year project of around £20 million by these 4 key partners working together. This is more than the combined total values of two previous LIFE-funded projects that ran in the past 12-year period. This is vital investment in the uplands in a post-Brexit funding landscape.

Severn Trent Water, United Utilities and Yorkshire Water Services and the Environment Agency have played a crucial role in Moors for the Future Partnership, offering expertise and financing for the vital work done to protect the uplands. This has been invaluable in developing a truly partnership-based approach, whereby multiple benefits can be realised through bigger and wider projects than any individual organisation can achieve by working in isolation. There is now a huge opportunity to 2030 and beyond. Working through future water industry asset management plans and the Environment Agency's Flood and Coastal Erosion Risk Management Roadmap, these two opportunities combined could make a real difference to the environment across the Dark Peak and South Pennines.

Although much has already been achieved to date, there is still more work to be done. The activity so far has mainly been to move the blanket bog habitat from one dominated by bare, eroding peat, to one that has been revegetated. However, evidence shows that without further intervention, this impressive feat is only temporary and there is a real danger that it will revert back to its previous state.

The strategic objective of the Partnership, which was set up in 2003 under the leadership of the Peak District National Park Authority, is to restore the most degraded upland landscape in Europe, between Edale and Skipton in the South Pennine Moorlands Special Protection Area. This vital landscape-scale restoration work is needed now more than ever, while we have a unique opportunity to protect these resources from the devastating effects of climate change.

Creating resilient, well-functioning habitats delivers many ecosystem services, including:

- **provisioning services** that protect water quality;
- **regulatory services** such as those that will reduce the risks of flood, fire, pollution and climate change; supporting services that benefit species and diversity;
- **cultural services** that provide tourism opportunities, and a sense of place that contributes to the mental and physical wellbeing of local communities and visitors.

The impact of climate change will affect each of these, but protecting carbon stored in blanket bog will also protect these other vital services.

Many of these ecosystem services are directly relevant to the expectations and regulatory obligations of water companies as outlined in the government's Water Industry Strategic Environmental Requirements (WISER) report, outlined in the Annex. Many of these ecosystem services are also directly relevant to Defra's expectations via the Environment Agency Flood and Coastal Erosion Risk Management Strategy Roadmap.

Improving the resilience of the habitat is also paramount if water companies are to uphold their duties as custodians of the land, and as managers of sites of conservation importance.

Working through the Moors for the Future Partnership, water companies and the Environment Agency can meet their business needs as well as demonstrating how they value nature in the decisions they take, building on their role as stewards of the environment, now and into the future.

Furthermore, by taking the opportunity to work as part of a partnership that includes the Defra family, together we can continue to deliver catchment-scale programmes of work that benefit all.

The Partnership aims to continue to work with the water companies and the Environment Agency by developing joint plans that will take us through AMP8 and beyond. The ambitious plan set out in the following pages will continue to offer significant benefits for water companies as a crucial part of our unique and successful partnership.

A resilient habitat is not just critical to protect the species it supports; healthy uplands will also increase business resilience by protecting this huge natural resource.

Together, we can:

- **reduce the risk of wildfire, reducing the impact of ash and sediment into water courses and associated spikes in colour caused by oxidation of vegetation and peat.**
- **reduce the impact of storm water entering combined sewerage systems and reduce the risk of flooding in the homes and businesses of water company customers and stakeholders, and meet Environment Agency outcomes.**
- **improve water quality by reducing the oxidation of peat and release of organic phosphates, lowering water temperature (affecting seasonal algal blooms) and reducing the amount of sediment and pollution entering water courses.**
- **increase the physical and mental wellbeing of water company customers through an enhanced natural environment, by inspiring the public to safeguard and respect the upper catchments**
- **Ensure that customers are aware of how the water companies' work in the upper catchments impacts clean water supply and natural flood management.**

Introduction

Investment

Why do we need more investment in the uplands?

The South Pennine Moors Special Area of Conservation covers approximately 650 km², all of which is also designated as SSSI. Its SAC designation is in recognition that it contains the most south-easterly occurrence of the blanket bog habitat in Europe. Blanket bog is globally rarer than rainforest and when in good condition it provides a range of benefits. Water from these uplands flows into two different river basins, is the source for eight major rivers and 91 surface water catchments. They provide water to three water companies in a large number of reservoirs within and around the landscape. For example, United Utilities manages 42 drinking water impounding reservoirs to supply nine water treatment works. Water is supplied to just under 700,000 properties, supporting a population of 1.5 million people.

Degraded moorland has a significant impact on water quality, due to increased sediment, acidity, colouration and the release of heavy metals. For example, in Severn Trent Water's Bamford Water Treatment Works (which takes its supply from Ladybower, Derwent and Howden reservoirs), between April 2010 and March 2011, £160,000 was spent on removing sediment from raw water to meet drinking water standards.

The Partnership is currently working with catchment management teams in Severn Trent Water, United Utilities and Yorkshire Water to identify the works required to continue the progress made to date. But this is not only about site and habitat resilience. As the climate is changing, functioning habitats such as woodlands and active blanket bogs can reduce the risk of flooding downstream by releasing water more slowly into water collection infrastructure. This also reduces the impact of drought and improves raw water quality.

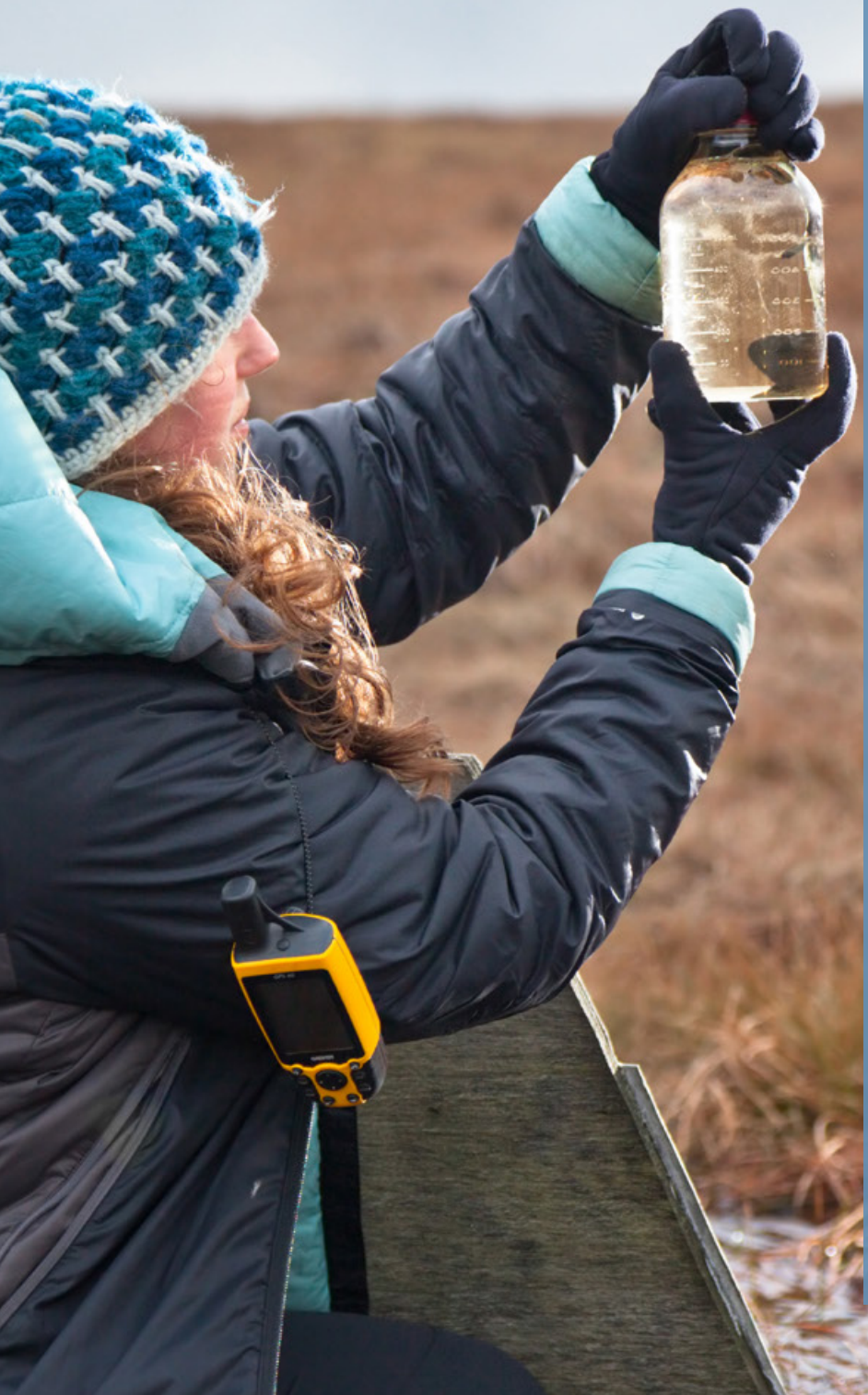
These public benefits are known collectively as ecosystem services. Our work to date has already moved most of the South Pennines towards a more favourable condition. Future projects will continue to improve the water quality and water provision benefits, as well as storing more carbon and reducing the risk of flooding downstream.

Better use of natural capital and awareness of ecosystem services will deliver outcomes required by both Defra and Ofwat, as well as meeting Water Industry Strategic Environmental Requirements (see Annex for details). It will develop a naturally resilient water sector. Biodiversity is a key requirement of both natural capital and ecosystem service provision, as well as being critical for Corporate Social Responsibility.

For both woodlands and peatlands, there is also the potential to attract funding through the Woodland Carbon Code and Peatland Code. We have a clough woodland opportunity mapping dataset which we could use for projects that would assist in meeting tree planting targets, subject to additional funding.

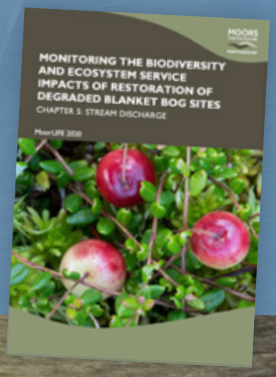
The Partnership's work can reduce carbon released into the atmosphere and take carbon out of the atmosphere, actions that scientists are now saying are critical in avoiding runaway climate change.

Revegetation of bare peat, combined with gully blocking, carries immediate benefits that are enhanced by sphagnum introduction, with a 65% reduction in peak flow and an increase in lag time of over 130 minutes.



In addition:

- **By increasing the amounts of sphagnum mosses across the southern Pennines, we can take significant amounts of carbon out of the atmosphere, hold water in these priority areas of wetland for nature conservation, release cleaner water more slowly into water collection infrastructure, and reduce the risk of future wildfires by making a wetter bog surface.**
- **By increasing the area of tree cover in the uplands, we can cool water courses, reduce evaporation during warm weather, allow water into water courses more slowly and remove atmospheric pollutants from rainfall.**
- **Restoration interventions reduce peak flows and increase lag times, both of which are likely to reduce the severity and incidence of flooding. If we can reduce the storm water by 9% from combined sewage systems (the Environment Agency estimate for natural flood management measures), or slow it down by 20 minutes, we can reduce the amount of sewage entering flood water and therefore reduce the impact of flooding. Latest results (Allott, T.E.H. et al. (2022) Monitoring the biodiversity and ecosystem service impacts of restoration of degraded blanket bog sites) demonstrate that revegetation of bare peat, combined with gully blocking, carries immediate benefits that are enhanced further over time by sphagnum introduction, with a 65% reduction in peak flow and an increase in lag time of over 130 minutes (compared to untreated catchments) reported 6 years after sphagnum planting.**



CLICK HERE TO VIEW >

For the AMP8 investment period there is a greater opportunity to build on previous work so that the benefits that they provide for the people and wildlife of the region continue to improve. By accessing Environment Agency funding and combining it with the AMP8 commitments of the three water companies there is an opportunity to scale up delivery to meet the imminent challenges of climate change.

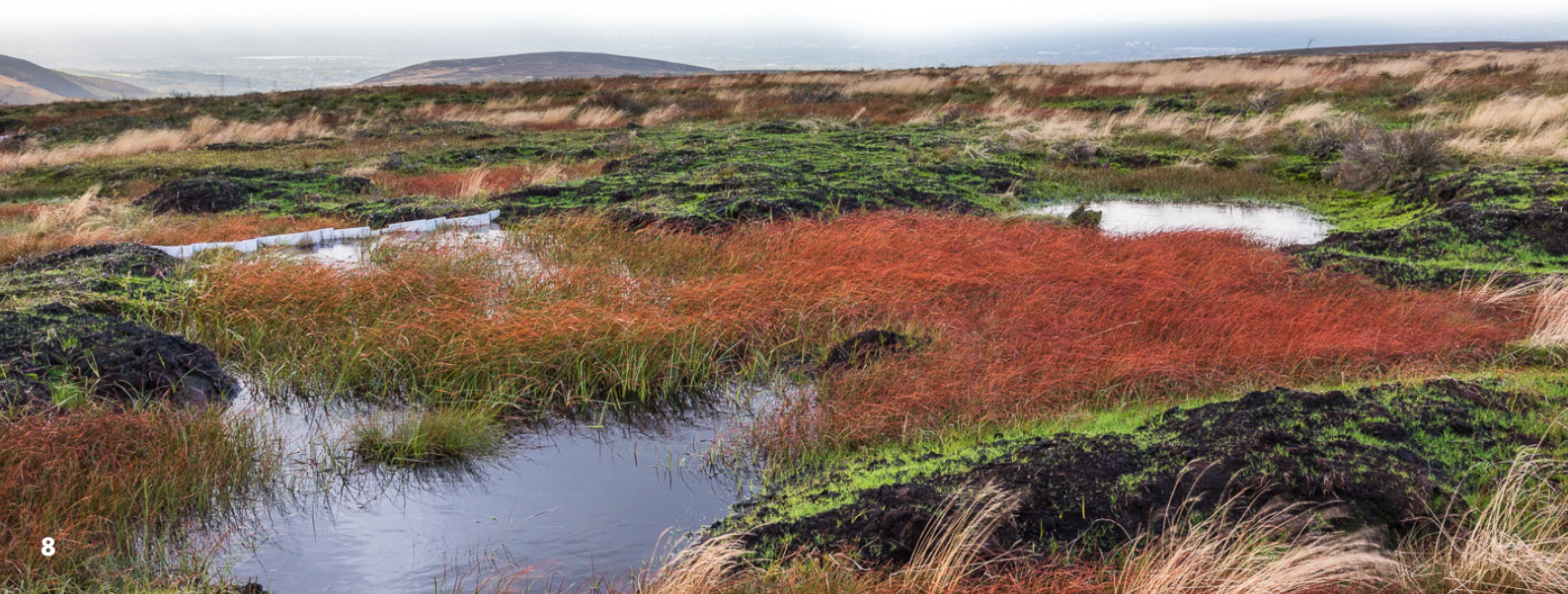
By working together, the Partnership can make a significant contribution to the investment needed in this crucial time frame. Current estimates are of a potential project of around £20 million – more than the combined total values of two previous EU LIFE-funded projects that we ran over the past 12-year period. This is crucial investment in a post-Brexit funding landscape.

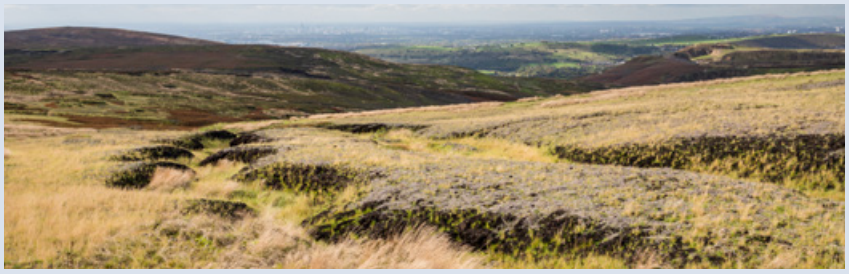
Opportunities for working together in AMP8 and beyond

Current projects funded by AMP7 will result in approximately £5 million investment by 2025. In addition, this funding is a valuable match to unlock a further potential £3 million of funding under the Nature for Climate Peatland Grant scheme (£1 million of this grant funding is currently in delivery), all to be delivered by 2025. Alongside this, we are running one of the natural capital pilot schemes funded by Defra, the Environment Agency and the Esmée Fairbairn Foundation. This project is developing a site in the Peak District to investment readiness, based on monetising the ecosystem service and natural capital outcomes of peatland restoration.

The main projects are expected to focus around three main objectives:

1) **Finalising the revegetation** and hydrological restoration of the remaining bare peat areas and diversification of the recently re-vegetated former bare peat.
2) **Improving the resilience** of the area, both for habitats and water management, by managing and diversifying the vegetation and working with private landowners on land management, with a particular emphasis on sphagnum moss re-introduction.
3) **Increasing resilience to climate change**, for both valued habitats and water collection, by ensuring that upland landscapes help with water supply management. This will be done through:
   a. increasing the retention and quality of water
   b. supporting river flow and reservoir levels in dry periods
   c. reducing the risk of flooding during wetter periods
   d. reducing fire risk through habitat management and visitor engagement.





What can working through Moors for the Future Partnership offer?

There is growing evidence of the devastating effects of climate change. In 2022 the UK experienced a period of hot, dry weather and record temperatures of 40°C. This led to another season of wildfires on blanket bog. Met Office climate predictions are for this type of extreme weather to increase, with dry spells putting the habitat at risk. This damages the upper catchments where the peat layer is exposed, leads to eroded peat being deposited into water courses and reservoirs, increasing costs for water companies. Increased flood risk with water from the upper catchments flowing downstream into communities at risk of flooding puts a greater strain on urban flood defences.

As outlined in the Environment Agency and Natural England's Water Industry Strategic Environmental Requirements (WISER) report, habitats and ecosystems in good condition offer significant wins in terms of catchment management, as well as fulfilling obligations of managers and owners of sites of conservation importance (SSSIs, SACs, SPAs). We actively work within 5 catchment partnerships and our work has focussed for some time on increasing natural capital and improving ecosystem services, whilst improving biodiversity.

By improving habitat condition at a landscape scale, we can:

- **Increase habitat resilience**, allowing for increased adaptation to **climate change.**
- **Reduce the risk of wildfire and flooding downstream**, by keeping more water in the peatlands and woodlands at the top of the catchment.
- **Improve water quality**, by
  - **reducing oxidation of peat** (lowering DOC) and subsequent release of organic phosphates (from peat degradation);
  - **reducing seasonal spikes in colour** production by increasing the amount of sphagnum-dominated vegetation and reducing the amount of dwarf shrub- and grass-dominated vegetation;
  - **lowering water temperature** entering streams by increased riparian woodland planting, which reduces algal responses to increasing levels of nitrogen and phosphate;
  - **reducing the input of sediment from erosion** (both from peatlands and lower in the catchment from mineral soils) and atmospheric deposition (riparian woodlands significantly reduce particulate pollutants entering water courses).
- **Reduce the risk of spread of invasive non-native species (INNS)** by working within catchment partnerships to manage INNS at a catchment level, from the top of the catchment down.

Our work to date has mainly focussed on halting the massive environmental problems caused by bare and eroding peat. The next phase will be to move the whole landscape into a more resilient condition. Habitats in resilient condition will also lead to increased business resilience for the water companies, for the reasons outlined above.

Furthermore, the work will offer the following benefits.

- By **reducing the risk of wildfire**, we will reduce the **costs** of fighting wildfires on owned land, reduce the impact of ash and sediment into water courses and reduce the spikes in colour caused by oxidation of vegetation and peat.
- By **reducing flood peaks** and increasing lag times, we can reduce mixing of rain water and sewage in the **waste water system**, as well as reducing the amount of sediment entering raw water collection infrastructure and reducing the risk of flooding in the homes and businesses of our customers and stakeholders.
- By working in partnership at a landscape scale there is an opportunity for **reductions in carbon emissions** of carrying out the work. This has been evidenced by the carbon audit carried out by the MoorLIFE 2020 project.

The partnership's approach

Evidence-led

We continually and rigorously monitor the effects of our work. This means we are able not only to try out new and innovative techniques, but also assess the effectiveness of them. An example of this is our pioneering work in the reintroduction of sphagnum moss, an essential peat-building plant. We have trialled the introduction of sphagnum in the form of fragments in bead and gel, as well as plug plants and transplants, developing machinery for the application of the material.

Engagement-focussed

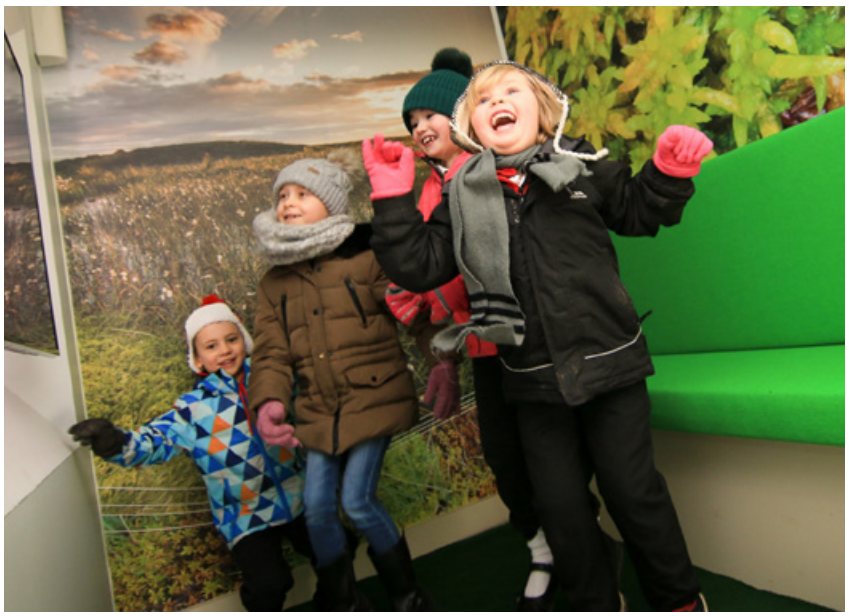
Public engagement is an equally important strand of work. Our Bogtastic initiative is significantly raising awareness of the importance of habitats in good ecological condition and the services they provide, by inspiring the public to care for the uplands and value the investment that water companies and other are making to protect it. This is helping to develop customer support for catchment-based solutions. We are experienced in developing stakeholder-focussed solutions that inform the public as well as practitioners, policy makers and land managers of the importance of protecting the investment in the uplands.

Landscape-scale

As a partnership we provide an essential enabling service, allowing all our individual partners to deliver significantly bigger projects than they would be able to do alone. Improvements in water quality are no exception, and we expect we can continue to deliver these benefits, working together with other Defra family members, such as the Forestry Commission and Natural England.

Since the beginning of the partnership, much has been achieved. However, the evidence we have collected shows that though blanket bog is recovering it will take years of careful management to bring it into a good ecological condition. It is for this reason that the partnership continues to look to the future.

Through the Partnership, the three water companies and the Environment Agency are in an excellent position to lead on future work.



About our partnership

Our vision

By 2050 the upland landscape of the Dark Peak and South Pennines will be sustainable and resilient. It will be valued for its healthy, functioning peat bogs and ecologically diverse moorland fringe.

It will be good for wildlife and as a place for everyone to enjoy, now and for generations to come.

Since Moors for the Future Partnership was established in 2003, the surrounding major northern water companies and the Environment Agency have been key partners. Their expert advice, relationship building and financial support have been of great value as we work towards the restoration of the uplands. These areas are one of the great natural resources that customers and communities depend on, both as a source of fresh water and as a buffer to help mitigate against some of the impacts of climate change. The Environment Agency has worked through the Partnership, principally by funding projects that focus on natural flood management, which complement other Environment Agency flood defences.

Together, the Partnership has developed and implemented innovative and sustainable land management practices in the uplands. This work has aimed to protect all of the uplands' multiple benefits, including reducing water treatment costs for customers, sediment removal and infrastructure maintenance.

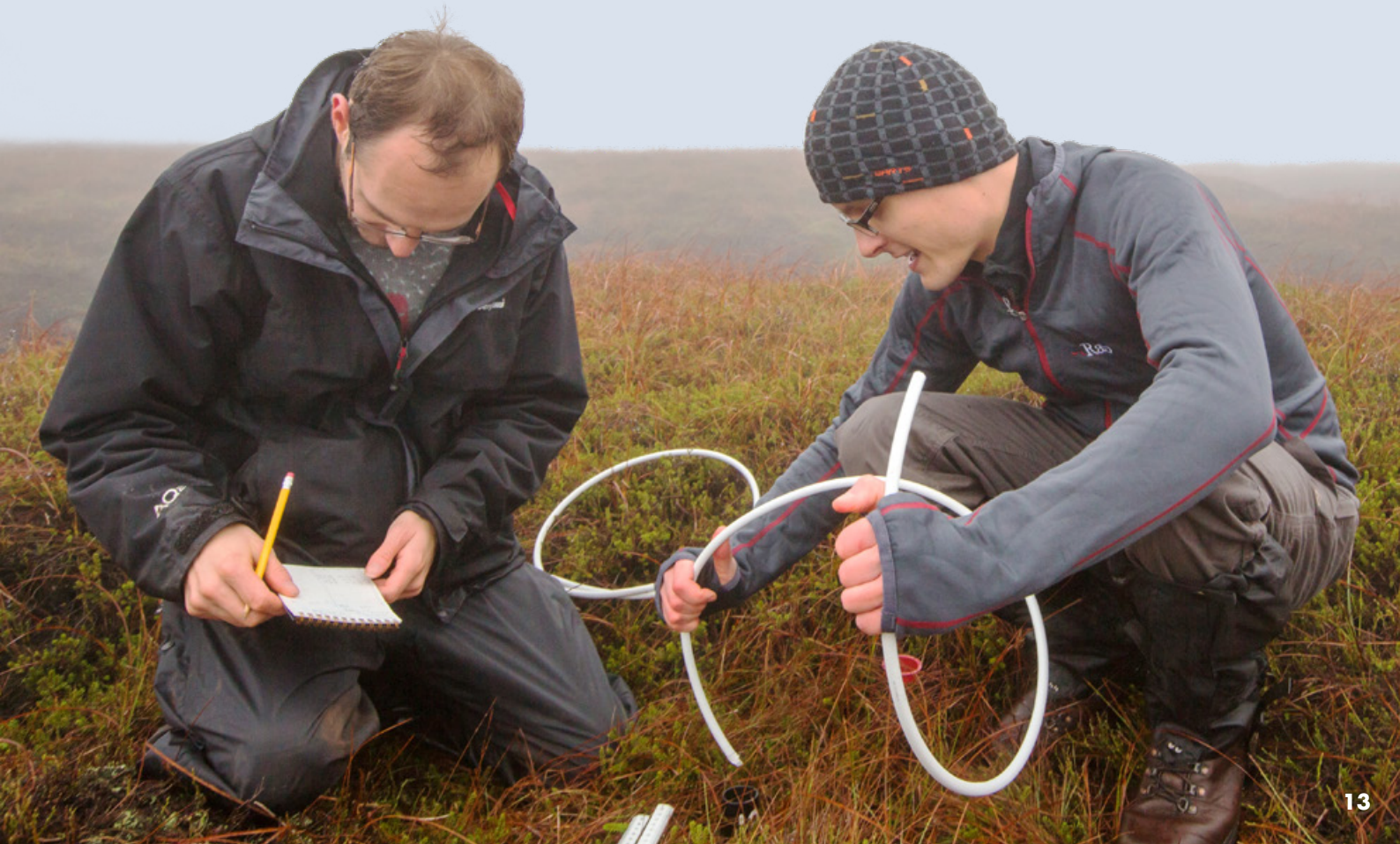
Moors for the Future Partnership is a founding partner in the Great North Bog coalition which aims to bring significant investment to restore blanket bogs from the Peak District to the Scottish Borders.

Achievements

- Delivering high quality, innovative projects providing multiple social and environmental benefits through integrated catchment planning since 2003.
- Planning and delivering projects from diverse funding sources that improve water quality through landscape-scale works in AMPs 4, 5, 6 and 7 to the value of over £50 million.
- Improved land privately owned by others within water company catchments. For example the Wessenden and Close Moss Restoration (Yorkshire Water) the Woodhead project (United Utilities) and the Bamford catchment project (Severn Trent).
- Secured grants based on the evidence that peat revegetation improves water quality, by slowing sedimentation, reducing heavy metal contamination of water courses and removing phosphates which would otherwise have got into drinking water from the breakdown of organic soils.
- Continued monitoring of levels of Dissolved Organic Carbon from monitoring sites set up nearly 20 years ago, providing long-term data on changes to colour in water.
- Continuing to monitor the Etherow, one of Defra's long-term monitoring plots to record background changes to water quality and environmental conditions.

Recent major projects include the £13 million EU LIFE-funded MoorLIFE 2020 project which protected active blanket bog across the whole of the Peak District and South Pennines. Severn Trent, United Utilities, and Yorkshire Water co-financed this project. This has been an excellent investment for the water companies and their customers, with a £4 return on every £1 of investment in conservation work, monitoring and public engagement.

In short the Partnership has, over the past 20 years, raised and invested £50m and has averted an environmental catastrophe.



Annex: The potential role of Moors for the Future Partnership in delivering Water Industry Strategic Environmental Requirements (WISER)

The following is taken from the Water Industry Strategic Environmental Requirements (WISER) document, and highlights possible areas of delivery through Moors for the Future Partnership.

All of the strategic environmental requirements below, combined with the recent evidence of natural flood risk management benefits on page 6, will significantly benefit the Flood and Coastal Erosion Risk Management Roadmap.

A thriving natural environment

Drinking Water Protected Areas	
Catchment actions to prevent deterioration in water quality and to reduce the need for additional treatment	S
Catchment actions to improve water quality to reduce the level of existing treatment	S+
Invasive non-native species (INNS)	
Prevent deterioration by reducing the risk of spreading INNS and reducing the impact of INNS	S
Reduce the impact of INNS, where INNS is a reason for not achieving conservation objectives or good status	S, S+
Reduce pathways for the introduction and spread of INNS	S
Natural environment	
Action that contributes to meeting and or maintaining conservation objectives of Habitats sites, for example, addressing the potential impact of development and growth	S
Action that contributes to meeting or maintaining favourable condition targets for Sites of Special Scientific Interest	S+
Action that contributes to the restoration and recovery of habitats and species under the NERC Act including supporting delivery of the Nature Recovery Network	(S+)
Actions for biodiversity should deliver the outcomes of the relevant Local Nature Recovery Strategy, Protected Site Strategies, and Species Conservation Strategies introduced by the Environment Act	S+
Contribute to actions under non-statutory initiatives including the England Peat Action Plan, England Tree Action Plan and the National Pollinator Strategy	NS
Action that contributes to the conservation and enhancement of landscape character and sense of place, so that landscapes are alive for nature and beauty, and provide opportunities that benefit people's health and wellbeing (where this goes beyond statutory obligations)	NS
Action that delivers inclusive public access to water company land and water of natural beauty, amenity or recreational value and allow public access for the widest possible range of activities	S+
Urban wastewater	
Reduce the frequency and volume of sewage discharges from storm overflows in line with the Storm Overflow Discharge Reduction Plan	S
Action to protect newly identified Sensitive Areas	S
Water body status (river basin management plan objectives)	
Action to prevent deterioration in current water body status	S
Action to improve water body status	S+
Action to ensure no river, lake or estuary is in poor or bad ecological status due to the water industry	S+
Work with stakeholders and catchment partnerships to explore integrated solutions, including nature-based solutions, and delivery of multi-functional benefits at a catchment scale	NS

Resilience for the environment and customers

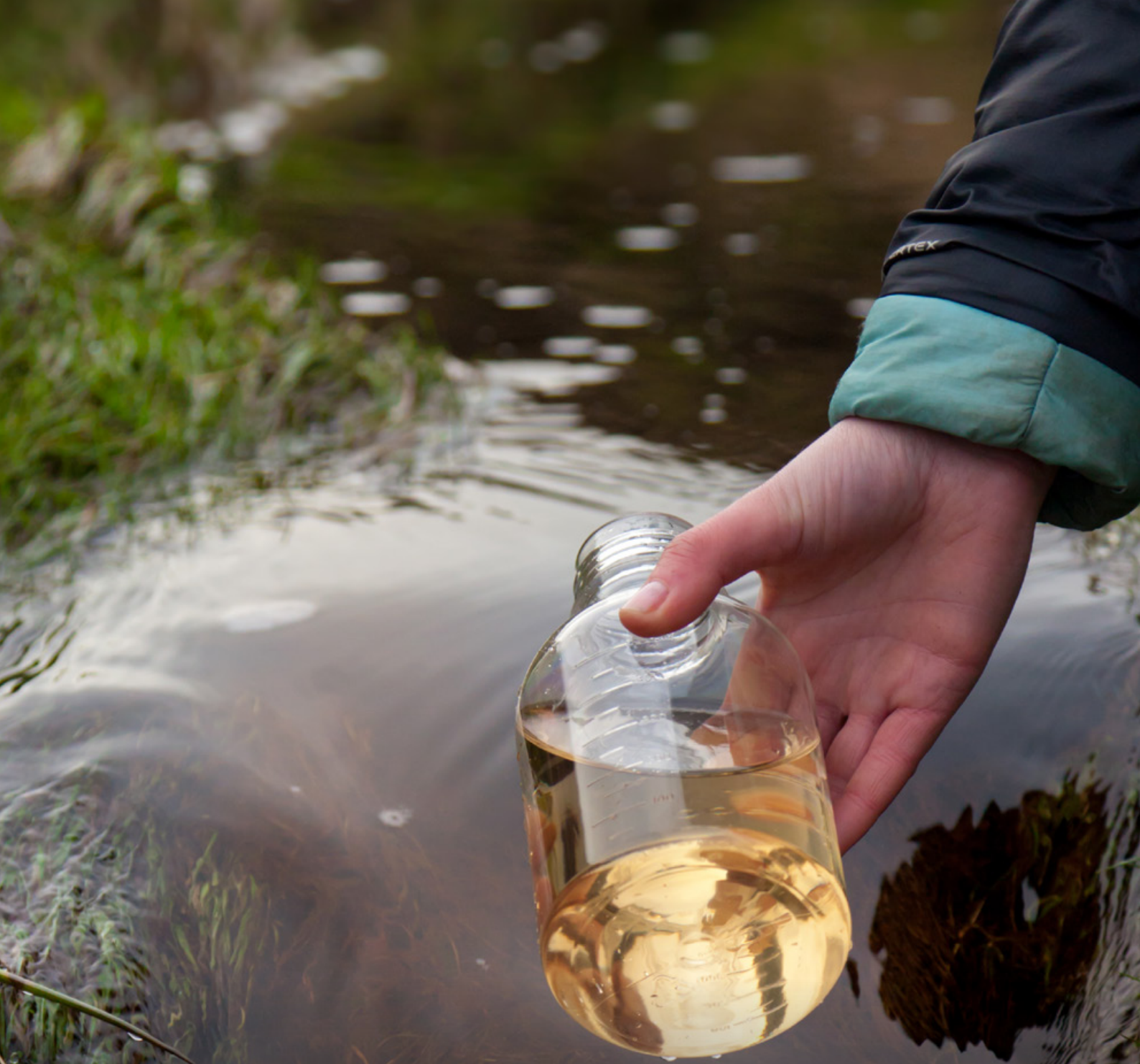
Climate change	
Contribute to the sector's ambition to achieve net zero carbon by 2030 as set out in Water UK's 'Net Zero 2030 Routemap'; to meet the government's 2050 net zero target, the sector will need to go beyond the stated net zero ambition as currently scoped 1 and 2 greenhouse gas protocol to account for, and reduce, existing indirect emissions greenhouse gas protocol Corporate Value Chain (Scope 3) Standard, that result from: future asset management plan delivery; new national requirements; and measures taken in adapting to and addressing climate change impacts	NS
Apply adaptive planning for a range of future climate change scenarios	NS
Safeguard services and ensure risks are proactively identified and actions implemented using an adaptive planning approach	NS
Deliver actions to restore form and function of the natural environment to improve resilience of ecosystems to warmer water temperatures, more frequent flooding and drought, and rising sea level (where this goes beyond statutory obligations)	NS
Deliver actions that help to mitigate rising water temperatures	NS
Deliver actions that mitigate the impact of low flows and rising temperatures on water quality (where this goes beyond statutory obligations)	NS
Ecosystem and natural function	
Action that contributes to restoring natural function to allow capacity for growth and development and to allow nature recovery	NS
Action which supports Nature Recovery Networks through enhancing ecosystem resilience and ecosystem function on which nature recovery is reliant (where this goes beyond statutory obligations)	NS
Restore and reconnect priority habitats (such as wetlands and peatlands) to strengthen freshwater and marine resilience to challenges such as climate change	S+
Flood risk management	
Reduce sewer flooding of homes and businesses trending towards zero	NS
Contribute to reducing the number of properties at risk of all sources of flooding through co-funded or co-delivered schemes with other risk management authorities and other parties, including by using nature-based solutions	NS
Deliver sustainable drainage systems and nature-based solutions, for example by promoting these solutions through the drainage and wastewater management plan process and business plans	NS
Future drainage	
PR24 business plans should reflect the requirements including the extent and pace of these reductions as set out in the Secretary of State's 'Storm Overflow Discharge Reduction Plan' to be published by 1st September 2022	S
Water and sewerage companies drainage and wastewater management plans should provide the evidence base for reducing spills from current and future baselines to meet the requirements of the Storm Overflow Discharge Reduction Plan	NS
Water resources – security of supply	
Demonstrate that the government expectations for water companies' water resources planning have been met	NS
Ensure water resource management plans reflect the relevant regional water resource plans and show how strategic scale solutions are implemented to meet long term water supply needs and environmental destination	NS
Deliver solutions to meet the need identified in final water resource management plans for 2030 and the long term	NS
Implement solutions to meet the needs identified in the final water resource management plan aiming for resilience to a 1-in-500 year drought by 2039 (or by 2050 where costs are exceptionally high locally in comparison to benefits)	NS

Key:

S: Statutory obligations or legal requirements

S+: Statutory plus obligations or legal requirements where economic evidence forms part of the decision-making process

NS: Non-statutory expectations are not driven by statutory requirements



MOORS FOR THE FUTURE PARTNERSHIP

MFFP was established in 2003 to protect damaged blanket bog habitats across the Peak District and South Pennines. It provides evidence-based conservation, backed up by innovative public engagement.

The Partnership is led by the Peak District National Park Authority. Partners include the Environment Agency, National Trust, South Pennines Park, RSPB, Severn Trent, United Utilities, Yorkshire Water, Natural England, National Farmers Union, Heather Trust, Woodland Trust, the ethical finance sector and the British Mountaineering Council.

The Partnership has raised over £50 million of public and private funding to deliver restoration over 35 square kilometres of bare and eroding peat and created 3 square kilometres of native clough woodlands.

www.moorsforthefuture.org.uk

Moors for the Future Partnership
The Moorland Centre, Fieldhead, Edale, Hope Valley, S33 7ZA
e: moors@peakdistrict.gov.uk

MOORS FOR THE FUTURE PARTNERSHIP

Environment Agency

United Utilities
Water for the North West

YorkshireWater

SEVERN TRENT