

# PROGRAMME

MANCHESTER, UK

MAY 18 - 19, 2023



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## UK DAM REMOVAL CONFERENCE

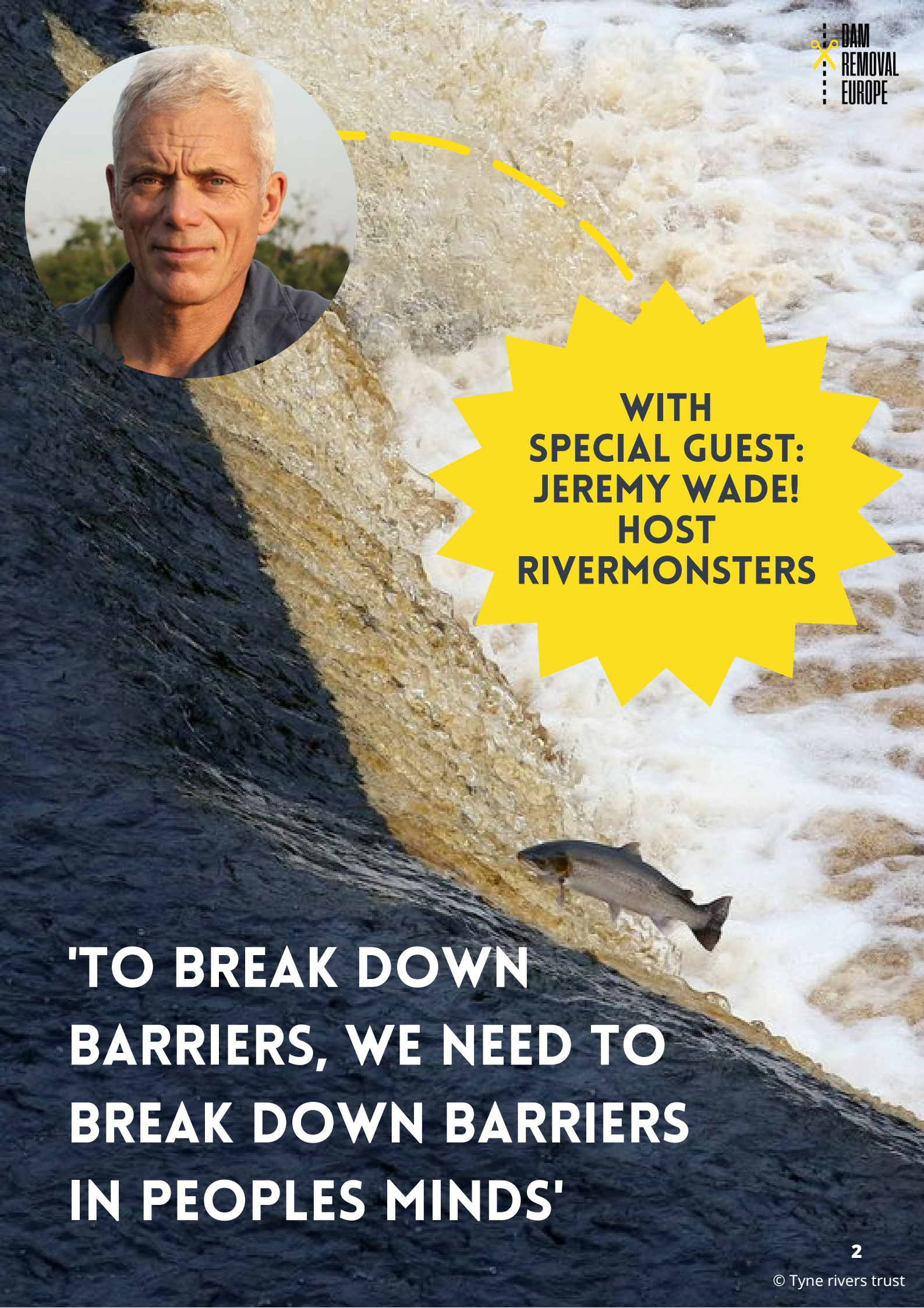


Making progress delivering  
dam removals in challenging  
locations





**WITH  
SPECIAL GUEST:  
JEREMY WADE!  
HOST  
RIVERMONSTERS**



**'TO BREAK DOWN  
BARRIERS, WE NEED TO  
BREAK DOWN BARRIERS  
IN PEOPLES MINDS'**

# MAY 18



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## 09:00 - 09:30 **REGISTRATION**

09:30 - 09:40 Welcome and introduction

09:40 - 10:00 Dam Removal. Restoring the biodiversity of European rivers by removing dams  
**Herman Wanningen** - *World Fish Migration Foundation*

10:00 - 10:15 Bowston weir removal - A weir too far?  
**Pete Evoy** - *South Cumbria Rivers Trust*

10:15 - 10:30 Salmon, Snakes and Ladders – the ups and downs of a weir removal  
**Tim Jacklin** - *Wild Trout Trust*

10:30 - 10:45 Their weiry legacy still weirs on... 3 cheers for the weir!  
**Sarah Howard** - *Environment Agency North West*

10:45- 11:00 Barrier removal using the SEPA Water Environment Fund  
**Lawrence Belleni** - *Scottish Environment Protection Agency*

11:00 - 11:15 Fragmented rivers: the desk-based bit.  
**Josh Jones** - *The Rivers Trust*

11:15 - 11:30 Q&A

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## 11:30 - 11:45 **COFFEE BREAK**

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11:45 - 12:00 Removing the Garlogie Dam  
**Charles Perfect** - *Scottish Environment Protection Agency*

12:00 - 12:15 The success of dam removals and river restorations - a catchment approach  
**Karin Olsson** - *County Administrative Board of Scania, Sweden*

12:15 - 12:30 Managed and Un-managed weir removal  
**Kevin Nash** - *Environment Agency*

12:30 - 12:45 The sustainable 'nature-based' management of sediment at dam structures: design and implementation case studies from Scotland, England and Iceland.  
**Hamish Moir & Eric Gillies** - *CBEC*

12:45- 12:55 Q&A

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12:55- 13:35 **LUNCH BREAK**

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13:35 - 13:50 Barriers to barrier removal  
**Jack Spees** - *Ribble Rivers Trust*

13:50 - 14:05 The First Avenue Weir removals works  
**Sangeetha Viswan** - *Environment Agency*

14:05 - 14:20 Lake naturalisation through impoundment removal  
**Alice Senior & Simon Webb** - *United Utilities, Natural England*

14:20 - 14:35 Overcoming the pain barrier: Stories of successful weir removal  
**Neil Entwistle & George Heritage** - *University of Salford, Dynamic Rivers*

14:35 - 14:50 Bang for buck at Scotton  
**Tim Jacklin** - *Wild Trout Trust*





14:50 - 15:00 Q&A

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15:00 - 15:15 **COFFEE BREAK**

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15:15 - 15:30 Dovecliff Weir Removal – The Final Breakdown  
**Christopher Grzesiok** - *Environment Agency*

15:30 - 15:45 Barrier removals: A contractor's perspective  
**Ben Fisher** - *Ebsford Environmental*

15:45- 16:00 Weir's it Gone? The ups and downs of removing a much-loved and much-maligned weir  
**Luke Bryant** - *West Cumbria Rivers Trust*

16:00 - 16:15 Getting Kilometers Of Connectivity  
**Arantza Unzurrunzaga Iturbe** - *Gipuzkoa provincial council, Spain*

16:15 - 16:25 Q&A

16:25 - 16:35 Wrap up of the day

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16:35 - 17:30 **NETWORKING**

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17:30 - 19:30 Evening program with dinner  
Keynote by: **Jeremy Wade**  
Dam Removal Award Ceremony  
Hosted by: **World Fish Migration Foundation**

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19:30 - 22:00 **BARWORKING**

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# MAY 19



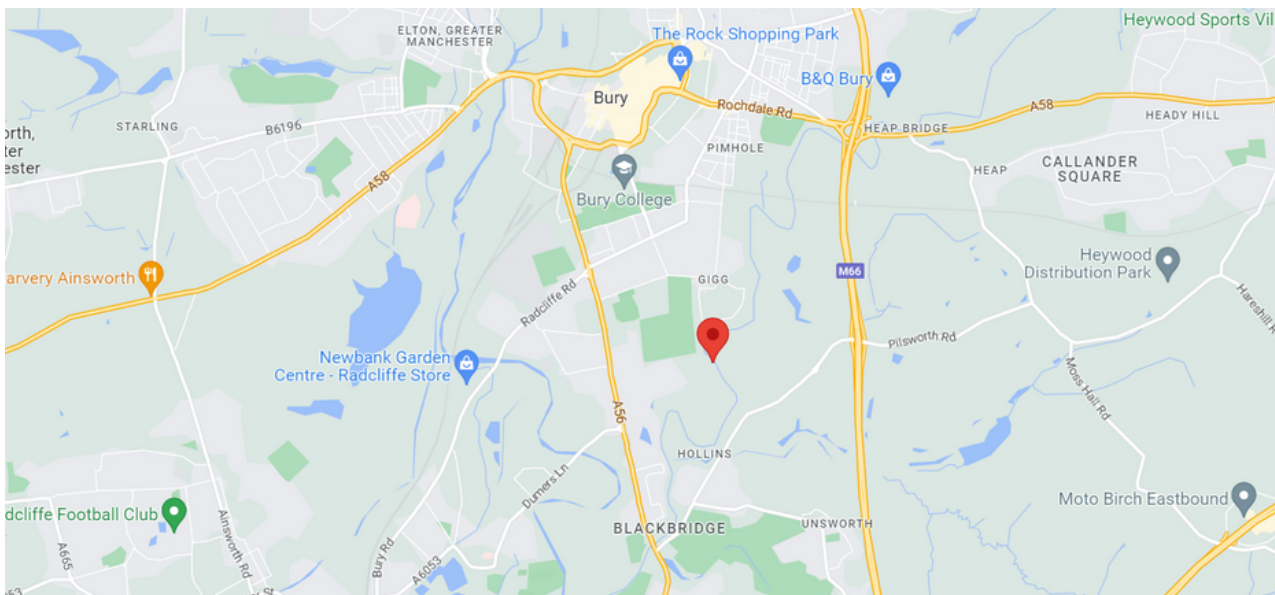
- 08:45 Meeting point at the venue, morning coffee
- 09:15 Departure to site visits
- 14:30 Wrap up, return to Old Trafford, Manchester





## Goshen Weir

Goshen Weir was located on the River Roch in Bury, Greater Manchester. The wood and blockstone structure ponded water back on a wide bend of the river retaining just under 2 m of head and providing the power for a local cotton mill (now demolished). The structure was deemed to be in a failing state and was removed by the Environment Agency. Monitoring of the watercourse through time-lapse photography and walkover survey captured rapid initial changes to the morphology with bar development and destruction during floods. A new dynamic morphology has now developed in line with the river planform providing more varied sustainable habitats and fish passage is now possible.



## Moses Gate Weir

Moses Gate Weir was a vertical blockstone structure built by the Victorians on the River Croal in Bolton, Greater Manchester. It spanned the watercourse in a 40 m shallow arc impounding almost 3 m of head upstream. Water was abstracted from behind the weir to supply a paper mill which has subsequently been demolished. The weir was removed by the Environment Agency in 2013 at a cost of less than £15,000. The foundation stones were retained to limit the risk of upstream change and this was below the low flow water level and fish passage was possible. There has been some limited adjustment over the last 6 years with gravel bars forming upstream and downstream but this has been within expected bounds.







## **Herman Wanningen**

*Director World Fish Migration Foundation*

Herman Wanningen is ecologist and entrepreneur specializing in fish migration and water management. He is the founder and director of the World Fish Migration Foundation and initiator of Dam Removal Europe. He is recognized internationally for his work promoting the maintenance and recovery of free-flowing rivers by raising global awareness of rivers and migratory fish through the biennial event ‘World Fish Migration Day’.

### **Dam Removal. Restoring the biodiversity of European rivers by removing dams**

Ongoing river fragmentation and dam construction are two of the greatest global threats to freshwater biodiversity and ecosystem functioning. And yet, analysis and field validation from a European study estimates that there is almost one barrier for each river kilometer in Europe (AMBER, 2018). While many dams have been of benefit for it’s people, in Europe alone, there is an estimated number of 150,000 mainly small dams which are now obsolete. In fact, recent reports from Europe and the USA conclude that the removal of dams is a very effective ecological restoration measure as rivers recover faster than expected after dam removal. Furthermore, it is becoming increasingly clear that dam removal is often a cost-effective measure. For these reasons the World Fish Migration Foundation, WWF, the Rivers Trust, TNC, Wetlands International, Rewilding Europe and the European Rivers Network started Dam Removal Europe ([www.damremoval.eu](http://www.damremoval.eu)) in 2016. The ambition is to make dam removal a viable option for river management and to restore rivers and fish populations. The development of this movement is a major success. Policies have been positively influenced in Lithuania, Finland and Sweden. And as a result of our joint policy lobby the European Union has included specific biodiversity targets to restore 25.000km of free-flowing rivers by removing dams. European water and nature policies are now getting aligned for this new ‘riverlution’ to restore the biodiversity of European rivers and to have rivers full of fish again. Another crucial development is the fact that the ARCADIA Foundation launched the European Open River Programme in 2021 with a value of 42 million Euro, catalysing new dam removal and river restoration projects throughout Europe.

The Dam Removal Europe coalition is ready to replicate and scale up dam removal all over Europe. This will be done through channelizing funding, stimulate knowledge exchange, sharing best practices and implementing the new European biodiversity goals for free flowing rivers. The presentation will highlight how European rivers managers, inspired by a growing movement, are getting ready to restore rivers by removing dams. It will look at the benefits of dam removals and the lessons learned from removals in the US and Europe.

## **Pete Evoy**

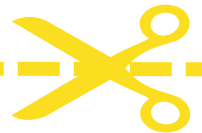
*South Cumbria Rivers Trust Director*

Pete joined South Cumbria Rivers Trust in the Autumn of 2010 following 17 years service as a Fisheries Officer with the National Rivers Authority and later the Environment Agency. He has worked within all the catchments of South Cumbria since this time and is well acquainted with the issues that face South Cumbria Rivers Trust. Pete is a keen outdoor man who loves where he lives and works. He is keen to help develop the work of the Trust and be involved in real improvements to the water environment of South Cumbria.



### ***Bowston weir removal- A weir too far?***

In this presentation, South Cumbria Rivers Trust Director, Pete Evoy describes the multiple challenges faced in respect of a recent weir removal proposal on the River Kent & Tributaries Site of Special Scientific Interest and Special Area of Conservation, Cumbria. Although the weir removal was ultimately successful and the river is now demonstrating significant re-naturalisation, flood benefit and an uplift in biodiversity, there remain overriding concerns that the scale and pace of further redundant weir removals necessary to undo evidenced ecological damage to our rivers amid a climate crisis is hamstrung by lack of support at the highest level.



## **Sangeetha Viswan**

*Environment Agency*

Sangeetha is a Geomorphology Technical Specialist covering the eastern part (Staffordshire, Warwickshire and West Midlands) of West Midlands. She joined the EA in 2012 and has subsequently project managed around 17 weir removal works.



### ***The First Avenue Weir removals works***

The works were part of the First Avenue Flood Alleviation Scheme (FAS) which has been led by the Environment Agency and which forms part of a wider piece of work the Environment Agency is currently doing across the River Rea catchment. The scheme links to the works already in place at Selly Park North and Selly Park South. The scheme involves construction of a flood embankment and removal of two weirs and further two weir removals for additional environmental benefits and re-grading of footpath to provide a route for floodwaters to drain from the site and back to the watercourse. Monitoring and maintenance of the channel post weir removal had been set for a period of time (around 5 years) or until expert judgement is that the channel has recovered and reached a state of relative equilibrium.



## Tim Jacklin

*Wild Trout Trust Conservation Officer Midlands*

Tim completed a degree in zoology followed by a PhD on the dynamics of juvenile coarse fish populations in the River Trent. A career in the fisheries section of the National Rivers Authority / Environment Agency followed and his experience includes running a programme of fisheries surveys, abstraction issues relating to hydropower and thermal power stations, habitat restoration projects, the restoration of salmon to the Trent and the construction of fish passes.



### ***Salmon, Snakes and Ladders – the ups and downs of a weir removal***

In 2022 a weir was removed from the River Ecclesbourne, Derbyshire, restoring upstream fish passage for the first time in centuries. The weir was adjacent to Snake Lane in the village of Duffield, near Derby, a challenging location in terms of access and a legacy of industrial use and engineering for flood alleviation. Previous projects to improve fish passage had not progressed beyond the options stage. Although the fish community upstream of the weir has long been impoverished compared to downstream, the catalyst for the successful removal of the weir was the recent return of Atlantic salmon via the Rivers Derwent and Trent following previous fish passage improvements on these rivers. Following completion of the weir removal in October 2022, further works were required to stabilise slumping banks, emphasising the importance of having a contingency budget for projects of this kind. Evidence of adult salmon has been found upstream of the weir site since removal. The project was developed and delivered by a partnership between the Wild Trout Trust and Environment Agency, with community engagement by Derbyshire Wildlife Trust and additional financial support from the Grayling Society and Duffield Parish Council.

### ***Bang for buck at Scotton***

Scotton weir had been *in situ* in various guises for 200 years near to the head of the Nidd gorge. With developments in milling and hydropower technology, it had grown to a 75m wide and 4m high behemoth, impounding the river for over 800m. Once it partially breached during spate flow in late 2018, the notch caused serious erosion to the left bank and was prone to frequent blockage, causing temporary impoundment and uncontrolled 'blow-out' events contributing to further erosion. On the plus side, it allowed for easier assessment of issues and planning moving forward. Fish passage on the Nidd had been assessed but, unlike many of the other Dales' rivers, little progress had been made to improve the situation. Environment Agency data suggested Scotton Weir was ranked second on the priority list (the first being addressed with technical fish passage). Despite the scale of the structure, the project was relatively simple in terms of a redundant barrier of little intrinsic value, land ownership, associated infrastructure, and supportive stakeholders. Hence, with Open Rivers Programme funding, full removal could be achieved by the Wild Trout Trust with a relatively small, no frills budget. Rudimentary monitoring of geomorphological and fish community response is ongoing.

## **Kevin Nash**

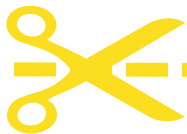
*Project Manager at Environment Agency*

Kevin has worked in freshwater ecology and fisheries for 25 years. He is a fisheries advisor for the Environment Agency in the Mersey catchment and advises on and enforces environmental regulations, promoting the preservation and growth of wild fish populations.



### *Managed and Un-managed weir removal*

Planned weir removals provide an opportunity for the practitioner to assess, monitor and manage risk to the surrounding infrastructure. Unexpected weir collapses often go unnoticed until their repercussions come to light. This talk contrasts two case studies in North Manchester, one where a weir was successfully removed and monitored, and another where removal was considered too risky but collapsed anyway with unexpected results.



## **Jack Spees**

*Director and CEO Ribble Rivers Trust*

Jack joined Ribble Rivers Trust in April 2008, as a Fisheries Scientist, to spearhead a more science and evidence based approach to the work of the Trust. Over the last 15 years Jack has led and overseen the growth, of the Trust (becoming CEO in 2010), and delivery from a small 2 person team to a team of 26 working holistically across the entire 750 square mile catchment.



### *Barriers to barrier removal*

This talk highlights the trials and tribulations of delivering dam removals and river restoration on an active upland gravel-bed river in the Ribble valley. In particular we highlight issues around red tape, excessive bureaucracy and convoluted processes that often make delivering such significant environmental outcomes very difficult to achieve.



## Lawrence Belleni

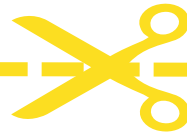
*Restoration Specialist at Scottish Environment Protection Agency*



Lawrence has been involved in habitat restoration in Scotland for 10 years and has interests in fisheries, river restoration and catchment management. He is currently a Restoration Specialist in SEPA's Water Environment Fund Team (WEF). His focus is urban river restoration and removal of barriers to fish passage for the benefit of Scotland's environment and communities. He has recently managed the removal of a weir that was blocking fish passage on the River Eden, Fife.

### ***Barrier removal using the SEPA Water Environment Fund***

The Water Environment Fund is used by the Scottish Environment Protection Agency (SEPA) to remove or ease barriers to fish passage. In 2022, SEPA commissioned the removal of two barriers to fish migration at Gateside Mills Weir, Fife and Bronie Burn Weir, Aberdeenshire. This talk will cover the challenges and successes of removing those two weirs.



## George Heritage

*Managing Director Dynamic Rivers Ltd.*

George is fluvial geomorphologist. He recently founded his own company (Dynamic Rivers) and now scopes, designs and delivers river and floodplain restoration and naturalisation schemes across the UK. George is passionate about moving our rivers towards a more natural dynamic state where erosion, deposition and all associated flow and sediment transport processes are allowed to function as naturally as possible.



## Neil Entwistle

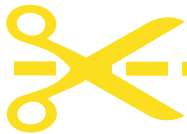
*Professor of River Science & Climate Resilience,  
University of Salford*

Neil's interests principally lie in the fields of hydromorphology, river restoration, catchment connectivity, ecohydraulics and fluvial and glacial sediment dynamics. I use a range of remote sensing methods to map and model spatial and temporal changes in topography, hydraulics and fluvial habitat. Data captured from these platforms for a wide range of research projects for example; UK Natural Flood Management and river restoration.



### *Overcoming the pain barrier: Stories of successful weir removal*

Barrier removal is never easy and always protracted. Despite this the end product is worth the pain. This presentation highlights the trials and tribulations behind several weir removal projects in the UK, highlighting how resistance was overcome and issues solved. It also illustrates the results of the works illustrating the major gains made at all sites.



## Arantza Unzurrunzaga Iturbe

*Dirección General de Obras Hidráulicas,  
Gipuzkoako Foru Aldundia*

Arantza runs the office of river restoration at the Gipuzkoa Province Council, Department of Environment and Hydraulic Works.

She is responsible for planning for river's connectivity. Direction of writing projects as well as the works



### *Getting Kilometers Of Connectivity*

It is now accepted that it is necessary to improve connectivity in our degraded rivers, even more so in special areas of conservation. Barriers are a principal cause of dysconnectivity, regardless of the size of the dam. The natural functioning of any river welcomes actions to improve on its degraded state through restoration. This talk concerns the Oiartzun river in Spain. A masterplan to tackle 3 dams is being enacted in a special area of conservation, Natura 2000, ES2120016 Aiako Harria.

Last summer we achieved 10 km of connectivity. One action was to create a rock ramp because it was not possible to remove the dam due to protected archaeological status, and the other two actions removed two dams and included handling an asbestos cement pipe incorporated into the structure.



## **Christopher Grzesiok**

*Fisheries Technical Specialist at Environment Agency*

Chris is a Fisheries Biologist working for the Environment Agency in the West Midlands Area (England), with over 20 years of international experience specialising in fish passage and hydrology. Chris has recently completed technical guides on eel passage and eel screening solutions in the UK, bringing together the most up-to-date research and knowledge to protect and reverse the decline of European eels.

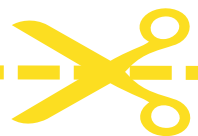


### ***Dovecliff Weir Removal – The Final Breakdown***

Approximately 23,000 in-river obstacles have been identified in England, 18,800 of which are artificial. Weirs make up a significant proportion of identified in-river barriers, with many being of historical importance and some dating back to the 1100s. Whilst some weirs are still functionally in use (e.g. hydropower, navigation), most are in disrepair or have no purpose. It is known that weirs affect the ecology of the river and its natural function by disrupting geomorphological processes and blocking fish migration. Where a weir has been identified as affecting ecology and river function, the first and best option is to remove the structure when possible.

Removing weirs is a river restoration technique that has gained momentum over the last decade, with more weirs being removed as the technical knowledge and confidence around the benefits grow. However, some significant challenges remain around public perception, particularly with weirs that have historical significance and connection to the surrounding landscape.

This presentation covers the removal of Dovecliff Weir, located on the River Dove in Staffordshire, just to the NE of Burton Upon Trent. It sets out the 13-year project from inception to completion, covering the many challenges and lessons learnt when tackling a historic weir removal.





## **Luke Bryant**

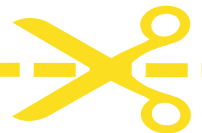
*Assistant Director West Cumbria Rivers Trust*

Luke joined West Cumbria Rivers Trust in 2017 as the new Assistant Director, overseeing the river restoration programme. He previously worked for an environmental contractor and has a background in environmental restoration and outdoor education.



### **Weir's it Gone? The ups and downs of removing a much-loved and much-maligned weir**

Abstract: In 2018, after 5+ years of planning, consulting and designing, WCRT removed Cumbria's Ennerdale Mill weir, which was a proven barrier to upstream and downstream fish migration, posed a significant risk to crucially important Freshwater Pearl Mussel populations, and was the largest obstacle on the River Ehen SSSI / SAC. Despite the multiple benefits and minimal downsides, the physical works on the ground proved to be the simplest part of the journey; years of legal wrangling, protest from angling groups, angry residents opposed to removing 'their' weir and difficulty in securing adequate funding meant this iconic scheme almost never happened...



## **Ben Fisher**

*Head of Projects, Ebsford Environmental*

Ben has vast watercourse restoration experience nationwide for many clients Working initially on business development and promoting river restoration throughout the UK. Ben is now more focused on the successful delivery of flagship schemes, often weir removals which require a high volume of client, stakeholder and community engagement.



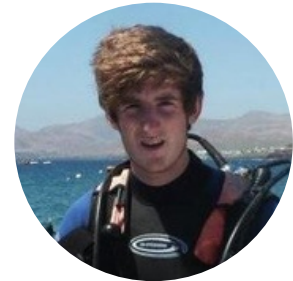
### **Barrier removals: A contractor's perspective**

Barrier removal in rivers is a complex process from both a health and safety and a legislative perspective with the process being highly scrutinised by many throughout any works. This talk highlights the issues encountered and solutions found during the removal of two large structures, Ennerdale Mill Dam on the River Ehen at Egremont and Bowston Weir on the River Kent at Bowston. Issues around ecology, water control, sediment management, safe working and local interest are discussed.

## Josh Jones

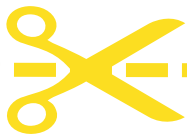
*Senior Technical Analyst, The Rivers Trust*

Dr. Josh Jones has a background in many forms of spatial analysis including connectivity modelling. Whilst at Swansea University Josh co-authored the pan European barrier atlas, a database of more than 600,000 barriers. Since joining The Rivers Trust, he has continued this work and is directly involved in generating data used to prioritise barriers for removal nationally and is also working to build capacity in local Rivers Trusts to remove barriers.



### *Fragmented rivers: the desk-based bit.*

More than 36,000 artificial barriers fragment Britain's waterways. We present an estimate of the extent of river fragmentation caused by artificial barriers. This assessment will enable a strategic approach to barrier removal at a national scale. But this isn't where the desk-based assessment ends, through the inclusion of new information on barrier locations and removals data on fragmentation will be updated to reflect the hard work being done in catchments.



## **Hamish Moir**

*Business Development Director and Principal Designer, cbec*

Hamish has more than 20 years of experience working in the water resource industry of the UK and the US, particularly in the areas of salmonid physical habitat characterisation, catchment management and river restoration. He has extensive training in the fields of fluvial geomorphology, in-stream ecology interactions and river engineering, both in research and consultancy capacities. He has been active in promoting more sustainable approaches to river restoration, recently co-authoring a paper on 'process-based restoration'.



*Dr. Hamish Moir and Dr. Eric Gillies*

*The sustainable 'nature-based' management of sediment at dam structures: design and implementation case studies from Scotland, England and Iceland.*

The management (modification and removal) of dams, weirs etc aims to improve ecological river continuity, particularly for the upstream/ downstream passage of fish. There are also significant potential benefits to geomorphic functioning by reinstating natural sediment transport processes. Often the longitudinal continuity of sediment transport is significantly impacted by the presence of dam and weir structures, directly trapping material in the upstream head pond and/or reducing the energy gradient (and, therefore, potential for sediment entrainment) upstream of the structure due to the raised base level of the dam/ weir crest. As such, there is very great potential to improve physical and ecological condition in rivers from the management of barrier structures. However, in order that such work can be undertaken sustainably, such projects must consider, (1) the likelihood of upstream/ downstream channel adjustment and, associated with this, (2) the potential risk to infrastructure/ property/ services etc. that have developed within the river corridor subsequent to the construction of the dam/ weir structure (and associated infrastructure). We present case studies that represent a range of approaches to the 'nature-based' design and implementation for the management of dam/ weir structures across diverse environments, including projects on the River Kent (Bowston, Cumbria), the Bronie Burn (River Ythan catchment, Aberdeenshire), the River Don (Newe, Aberdeenshire) and the Andakilsa River (west Iceland). Importantly, the Bowston and Andakilsa projects demonstrated the considerable utility of employing morphodynamic (i.e. sediment transport) modelling to arrive at a sustainable design and to minimise the significant risks associated with the projects.



## **Simon Webb**

*Lead Conservation Officer, Natural England*

Simon Webb has been working for Natural England and its predecessor bodies for more than 30 years with a focus on nature recovery and protected sites. He leads work for the Wild Ennerdale project and other landscape scale restoration programmes in the Lake District.



## **Alice Senior**

*Engineering Portfolio Lead for Studies and Investigations at United Utilities*

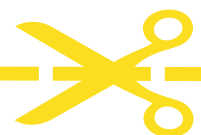
Alice has been United Utilities project manager on the River Ehen since 2015 and is responsible for delivering the projects to restore the lakes in this presentation. Alice has worked in the water industry for the last 20 years on capital projects in the North West of England and Scotland, is a Chartered Scientist with CIWEM and member of APM.



### ***Alice Senior and Simon Webb***

#### ***Lake naturalisation through impoundment removal***

In the English Lake District work has started on a project to remove dams on 4 previously natural lakes and a man-made reservoir. This includes the iconic Ennerdale Water and Crummock Water in the western Lake District and a high mountain corrie lake called Blea Water. The project objective is to restore natural hydrology and natural fish passage to these water bodies. The current proposals are to remove all man-made infrastructure from these sites. Recent changes in the north-west's public water supply, including the £300m Thirlmere pipeline scheme, has made this work possible. A project team led by United Utilities, The Environment Agency and Natural England is taking this work through a design stage at the moment. The drivers and potential hazards of this work have been identified and will be described in the presentation. This includes potential impacts on downstream flood risk and the impact of naturalising flow on England's largest population of freshwater mussels. This project is expected to be completed within 10 years and will be of major significance in restoring lakes which have been historically impounded for public water supply.



## Charles Perfect

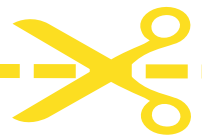
*Scottish Environment Protection Agency, Restoration Specialist*

Charlie supports the development and delivery of river restoration and fish passage projects, funded through the Water Environment Fund. Previously he worked at the Centre for River Ecosystem Science undertaking options, design and monitoring work on rivers and lochs. His PhD at the University of Stirling focussed on the ecological and geomorphological recovery of realigned river channels.



### *Removing the Garlogie Dam*

This summer SEPA is working in partnership with the River Dee Trust to remove Garlogie Dam. This 5.7m high 30m wide barrier to fish migration was built in 1930 for power generation before being decommissioned in the 1950s. We will be connecting live by video link to provide an update on progress and look at some of the challenges the project has faced on the long journey to removal including heritage, ecology and flood risk concerns. Hopefully there will be the opportunity to watch live as some of the deconstruction works take place.



## Sarah Howard

*Historic Environment Advisor – Environment Agency North West*

Sarah Howard has a PhD in sustainability policy as applied to archaeology and the historic environment, and an MSc in environmental archaeology and palaeoecology. Before joining the Environment Agency in 2019 she worked for Historic England in northern England as a Heritage at Risk Project Officer and an Inspector of Ancient Monuments.



### *'Their weiry legacy still weirs on... 3 cheers for the weir!'*

This short presentation will make use recent case studies to consider how the Environment Agency approaches weir interventions. Some weirs are statutorily designated but many are not - this does not mean they have no historic value, rather that we don't know whether they have historic value. As such this presentation will consider the questions we ask and the evidence we gather ahead of an intervention. It will demonstrate how knowledge informs (or should inform) design discussions and collaboration with other disciplines and finally how we mitigate any impacts we might on historic weirs.'



## **Karin Olsson**

*County Administrative Board of Scania*

Karin is the Project manager for the LIFE CONNECTS project dealing with the restoration of seven rivers in Southern Sweden. She completed a degree in environmental sciences followed by a PhD in limnology at Lund University. The last twenty years Karin has worked with improving the status of our waters. The last seven years she has been involved in the removal of at least 50 barriers in Scania.



### ***The success of dam removals and river restorations - a catchment approach***

Dam removals are widely considered one of the most significant measures in river restoration conveying positive benefits for aquatic and terrestrial biodiversity. The transformation of currently impounded areas upstream dams to lotic habitats will affect the rivers hydrology, water quality and biodiversity substantially at the same time as it improves the rivers resilience to climate change. Most rivers in Sweden are negatively affected by barriers and alterations of the rivers hydromorfology. The lack of river connectivity is particularly critical for sea migratory fish such as Atlantic salmon (*Salmo salar*) and brown trout (*Salmo trutta*) but also endangered mussel species like the freshwater pearl mussel (*Margaritifera margaritifera*) and thick-shelled river mussel (*Unio crassus*) are negatively affected when barriers hinder their host-fishes to reach them. By taking a catchment approach for river restorations cost-effective solutions can be used at a larger scale and several stakeholders can work together to restore our rivers creating free flowing rivers that enhance the biodiversity and climate resilience. In Southern Sweden the LIFE CONNECTS project have removed both smaller and larger dams, even hydropower plants, and restored several kilometers of river. In this presentation you will hear about the success of some of the dam removals and restorations done so far.

