



Urban River Enhancement Scheme (URES)

# Breathing life back into Burnley's rivers

Outcomes and achievements



IMPROVING OUR URBAN RIVERS FOR WILDLIFE AND PEOPLE



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*Victoria Woods, Community Engagement Officer, receives a plaque commemorating the URES project reaching the finals of the 2014 National Lottery Awards for ‘Best Environment Project’.*

*Jack Spees, Director (left) and Neil Ashworth, Education Assistant (right) receive the award for ‘Outstanding Partnership Project’ at the 2014 Wild Trout Trust Conservation Awards’.*



*Ribble Trust’s work on the URES project and elsewhere on the River Calder received recognition as a ‘Highly Commended Project’ in the 2015 UK River Prize Awards.*

# Project summary

The Lancashire town of Burnley is widely recognised for its industrial heritage, being at the forefront of cotton production during the Industrial Revolution. The reason for its success was the presence of two rivers – the Brun and Calder – which were used to power machinery in the mills and factories. Industry in Burnley has since evolved and the rivers' power is no longer required, however the environmental degradation caused by industrialisation and pollution has left a lasting legacy of damaged and neglected rivers that were unable to support significant populations of riverine wildlife.

The Urban River Enhancement Scheme (URES) was a million pound project managed by Ribble Rivers Trust between April 2011 and June 2015. It aimed to:

*Protect and enhance both the ecological and historical heritage of the rivers in Burnley for the benefit of local communities and riverine species.*

The URES project sought to achieve its aim by shining a spotlight on Burnley's natural river heritage through a coordinated and multi-partnership approach in order to deliver lasting improvements for both people and wildlife. This resulted in the local communities having a better understanding and respect for their rivers with a greater inclination to protect their natural asset beyond the scope of the project, as well as improved physical habitat that is able to support greater numbers of fish, invertebrates, birds and mammals.

Rivers function as a dynamic system so anything that happens upstream can affect the area downstream and vice versa. With one of the worst affected areas now improved and communities' appreciation for rivers rekindled, there will undoubtedly be positive knock-on effects for the entire Calder Catchment as a whole.

This document presents the outcomes and achievements of the URES project and attempts to evaluate the impact on individuals, local communities and river ecology in order to disseminate the learning more widely amongst project partners, stakeholders and funders.



# Acknowledgements

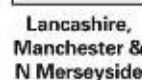
We would like to thank the volunteers whose passion and enthusiasm made the delivery of the URES project such a success, as well as the funders who have made URES a reality; the Heritage Lottery Fund, Environment Agency, Forestry Commission, Workers' Educational Association and United Utilities. We would also like to express our appreciation to our project partners, including members of the URES Steering Group, who have provided support and helped to direct and deliver individual aspects of the URES project.

URES project partners include:

- Burnley Borough Council
- Burnley Camera Club
- Burnley Civic Trust
- Burnley Film Makers
- Burnley Fire Service
- Burnley Historical Society
- Burnley Leisure Trust
- Burnley Youth Theatre
- Burnley Wildlife Forum
- Calder Consultative
- Canal and River Trust
- Canalside Community Association
- Durham University
- Environment Agency
- Friends of Towneley Park
- GeoLancashire
- Lancashire County Council
- Lancashire Probation Trust
- Lancashire Wildlife Trust
- Mid Pennine Arts
- Mohiuddin International Girls College
- National Trust
- North West Sound Archive
- Offshoots Permaculture Project
- Pennine Lancashire Community Farm
- Red Rose Recovery
- United Utilities
- Workers' Educational Association



LOTTERY FUNDED



# 1.0 Background

In spring 2010, Ribble Rivers Trust in partnership with the Environment Agency completed a series of projects to restore river habitat connectivity and improve habitat in priority locations within the Calder Catchment. Shortly after, the Trust began to assess the rest of the Calder Catchment and in doing so, identified Burnley town centre as the next priority for restoring habitat connectivity.

Prior to developing the URES project, the Trust had largely focused on delivering habitat improvement projects in rural areas. The urban situation presented further challenges, including increased costs and complexities associated with making physical improvements, as well as an increased number of stakeholders required to be involved in the process. However it also presented significant opportunities for community engagement, helping to not only increase awareness and understanding of rivers, but also to encourage the public to be more involved in improving their rivers. The scope and extent of the activities to engage with the diverse range of ages, backgrounds, abilities and interests would be far greater than anything the Trust had previously undertaken.



A pollution incident that occurred on the River Brun in Burnley in 2011 demonstrated how in addition to physical restoration of riverine habitats, community engagement would be the key to success of any river improvement project.

## 1.1 HERITAGE LOTTERY FUND'S HERITAGE GRANTS PROGRAMME

The Heritage Lottery Fund (HLF) distributes money raised by the National Lottery to support projects involving the national, regional and local heritage of the United Kingdom, helping people to explore, enjoy and protect the heritage they care about. The Heritage Grants programme offers awards of over £100,000 for larger heritage projects, from museums, parks and historic places to archaeology, natural environment and cultural traditions.

The URES project sought to deliver on key outcomes of the HLF's Heritage Grants programme;

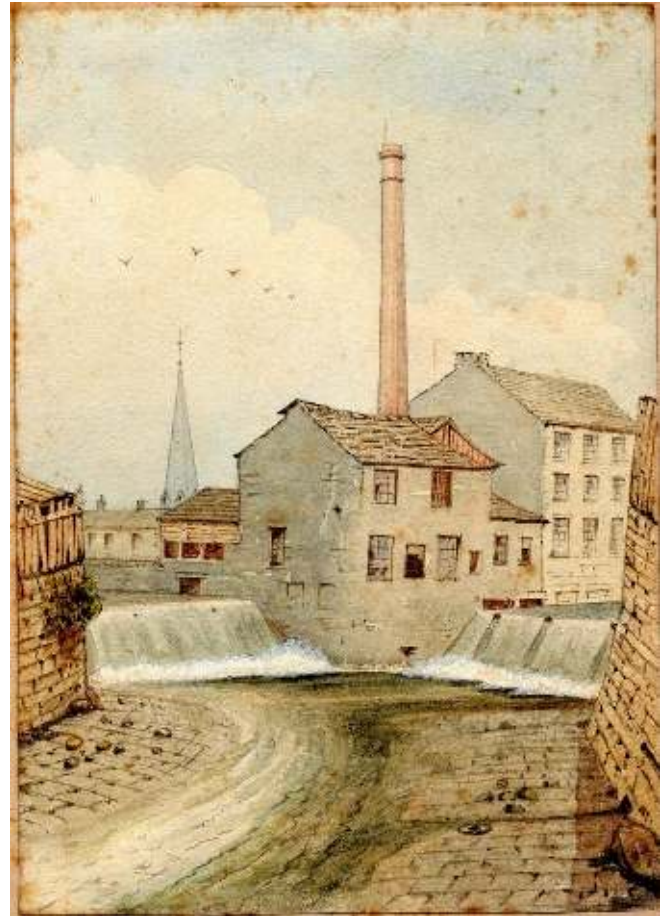
- Help people learn about their own and other people's natural heritage.
- Conserve the UK's diverse natural heritage for both present and future generations to experience and enjoy.
- Help more people, and a wider range of people, to take an active part in and make decisions about our natural heritage.

## 1.2 A BRIEF HISTORY OF BURNLEY'S RIVERS

The Lancashire mill town of Burnley exists because of the presence of the Rivers Brun and Calder. The name Burnley is believed to have been derived from 'Brun Lea' meaning 'meadow by the River Brun'. Burnley's earliest known factories stood on the banks of the River Calder close to where it joins the River Brun and they relied on water power to drive the cotton spinning machines during the Industrial Revolution. Much of the industry that relied on the rivers for power has now gone. However, the environmental destruction caused by industrialisation and pollution has left a lasting legacy of damaged and neglected rivers.

The rivers today disappear beneath roads and behind buildings in the town centre. Forced into fast-flowing, narrow channels, the rivers resemble an open sewer rather than the important natural resource they are. In fact, historical evidence suggests that the lined channels were specifically designed to carry away the sewage that was discharge into the river before the construction of Burnley's first sewage treatment works.

More recently, the quality of the water in Burnley's rivers was significantly improved thanks to efforts from the Environment Agency. Ribble Rivers Trust installed twin fish passes on the confluence of the Brun and Calder to allow fish access into the town centre's rivers, however the fast-flowing, homogenous habitat upstream still represented a significant barrier to all river species, thus reducing the populations and diversity of fish, invertebrates and mammals throughout the Calder Catchment.



*Confluence of the Rivers Brun and Calder featuring weirs that harnessed the power of the water to drive machinery*



*Confluence of the Rivers Brun and Calder today, featuring fish passes that allow migrating fish access upstream for the first time in decades. Furnished with artistic interpretation panels.*

### 1.3 URBAN RIVER ENHANCEMENT SCHEME: WHAT DID WE SET OUT TO ACHIEVE?

The aims of the URES project were twofold;

- Physically restore the riverine habitat and connectivity of the rivers through Burnley town centre to improve populations and diversity of riverine species.
- Engage, involve and inspire local communities in Burnley about their rivers’ heritage to increase their knowledge and respect for rivers and help them to better appreciate this town’s important natural asset, such that any improvements made by the URES project will be sustained beyond its life.

The URES project sought to achieve its aims through the delivery of a programme of physical in-channel works simultaneously with practical engagement activities that were designed to raise public awareness of the rivers in Burnley as an important part of our natural heritage and provide opportunities for people to become actively involved in both learning about and making improvements to their local rivers.

It was vital during the development of project to understand how potential audiences may come to value this important natural heritage. Through a series of engagement activities, people were asked what they liked and disliked about their local rivers (more detail can be found in Appendix 1);

What do the people of Burnley like most about rivers?	What do the people of Burnley dislike most about their rivers?	What activities would best improve the rivers in Burnley?
<ul style="list-style-type: none"> <li>• Wildlife</li> <li>• Walking/exercising</li> <li>• Relaxing environment</li> </ul>	<ul style="list-style-type: none"> <li>• Litter/rubbish</li> <li>• Pollution</li> <li>• Poor or no footpaths</li> </ul>	<ul style="list-style-type: none"> <li>• Regular clean-ups</li> <li>• Improve access</li> <li>• Improve the condition of the rivers for fish and wildlife, and control and reduce pollution</li> </ul>

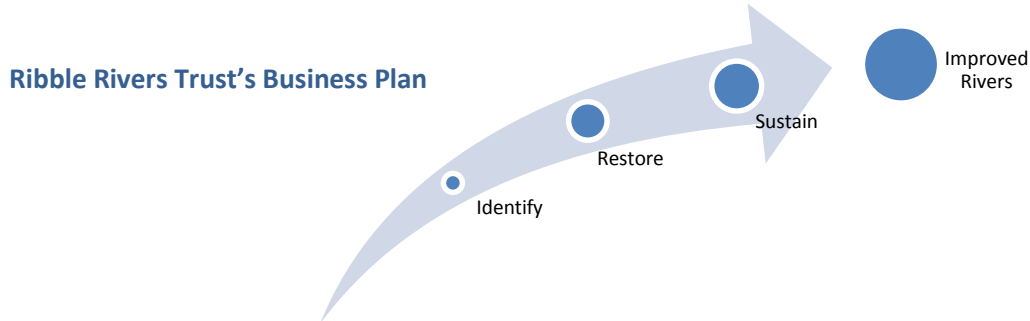
With this input, the following programme of activities was devised;

- Increase the connectivity of the urban riverine habitat
- Naturalise the highly modified river by constructing in-channel improvements
- Increase bankside access and improve existing access
- Deliver a programme of community events
- Provide recognised training to volunteers via a River Habitat Management Course
- Establish local river action groups
- Educate children through the ‘River in the Classroom’ project
- Promote the heritage of Burnley’s rivers through the ‘Love Your River’ oral history project
- Engage young people through the creation of river-themed artwork - Undercurrents (Creative Rivers In Burnley)
- Engage young people through performance arts – ‘When You See Water’ theatrical performance



## 1.4 STRATEGIC DOCUMENTS

The URES project was guided by several strategic documents, as well as the Ribble Rivers Trust’s own business plan, which recognises the importance of involving local people in the conservation and restoration of local rivers and streams and clearly sets out a commitment to involve people in all stages of project delivery, from planning and development of riverine restoration projects to the delivery of work on the ground.



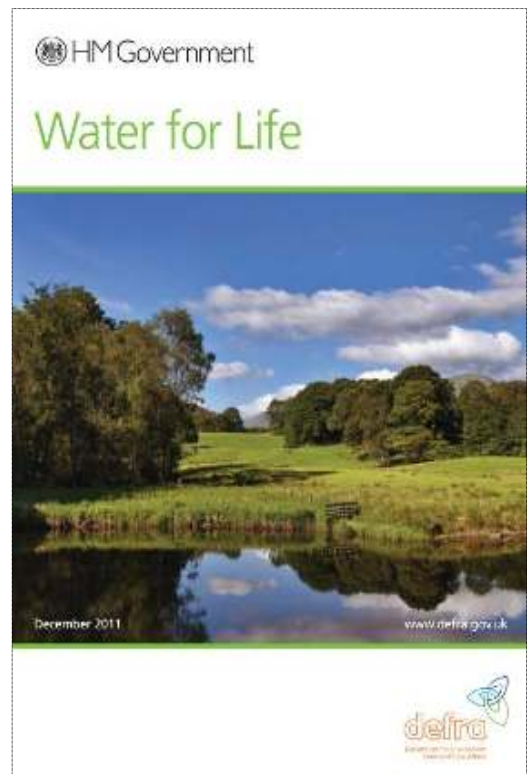
**The Water Framework Directive** (Directive 2000/60/EC) is a European Union Directive which commits European Union member states to achieve good qualitative and quantitative status of all water bodies by 2027. The Directive aims for good ecological status for all ground and surface waters. It is designed to:

- enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands which depend on the aquatic ecosystems
- promote the sustainable use of water
- reduce pollution of water, especially by ‘priority’ and ‘priority hazardous’ substances
- ensure progressive reduction of groundwater pollution.

### National Policy

The Government’s Water White Paper ‘Water for Life’ makes clear that we must halt and reverse the damage we have done to water ecosystems and ensure that they can continue to provide essential services to us and the natural environment more generally. The White Paper highlights that we have been damaging rivers and other water bodies in two ways; we have been polluting them and taking too much water out of them (over-abstraction).

It proposes a new ‘catchment-based approach’ to water quality and diffuse pollution which includes working at a catchment level, making use of local networks, tapping into local enthusiasm and addressing local concerns. Working at a catchment level enables all those with an interest to see how they can tackle water issues together, in a way that not only improves water quality but also delivers benefits to the whole area, including socio-economic benefits. The URES project demonstrated this approach, working at a local level and with local people to address local concerns and resulted in a number of visits from agencies, organisations and individuals from outside of Burnley to learn about the process.



### Regional Policy

Lancashire’s Economic Strategy and the recently established Lancashire Enterprise Partnership in April 2011 emphasise the economic contribution that a quality environment plays in improving the local economy. Similarly, Burnley is also the focus of £8.5m Regional Growth Fund programme to create a fast and direct rail link between Burnley and Manchester, whilst also enabling the redevelopment of the Weavers Triangle. URES in Burnley will contribute to the on-going regeneration of this former East Lancashire mill town through delivery of aesthetic pleasing and functioning “blue space” that can be enjoyed visitors and those who work and live in the area.

### Local Policy

The Sustainable Community Strategy for Burnley 2010-2017 sets out the strategic vision for the borough by 2017. It identifies three key strategic priorities including the ‘Places’ priority, which states making the borough clean, green and safe. Improving access to high standard parks, playing fields and other green spaces in the borough is seen as a key intervention in achieving the Places priority. URES will help contribute towards this overall ambition in Burnley by providing access to clean rivers within the town centre.

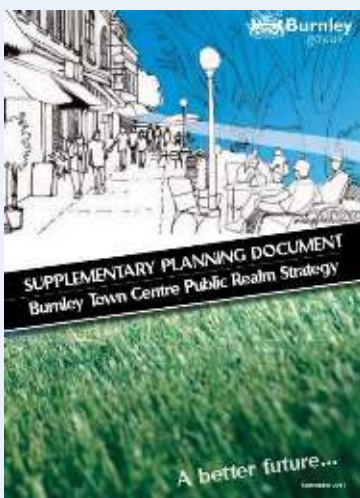
### Local Planning Context

Burnley Borough Council is currently developing its Local Plan that will replace the existing Burnley Local Plan (2006). The council is also working to produce a Green Infrastructure Strategy as part of the Evidence Base on which the Local Plan will be developed. The work that has been carried out during the development phase in terms of proposed river restoration has been forwarded for inclusion within this document, ensuring rivers are recognised as a key type of green infrastructure and firmly embedded within local planning policies, hoping to sustain and increase the number of improvements made through the URES project into the future.

The Burnley Town Centre Public Realm Strategy: Supplementary Planning Document (September 2011) has also been a key consideration in terms of the development of the URES project. This document establishes the key principles for the design of new public realm within Burnley and perhaps most significantly, recognises the rivers Calder and Brun as important natural assets. The document states that *“the relationship of these rivers to the town is one that needs to be rediscovered and celebrated.”* The URES activity plan enabled people to rediscover and celebrate this relationship.

*“The relationship of these rivers to the town is one that needs to be rediscovered and celebrated.”*

**- Burnley Town Centre Public Realm Strategy: Supplementary Planning Document (September 2011).**



## 1.5 WHO WAS INVOLVED?

### Ribble Rivers Trust staff directly employed by the URES project;

- Victoria Woods, Community Engagement Officer
- John Milne, Contracts Manager
- Neil Ashworth, Education and Project Assistant

### Ribble Rivers Trust staff also involved in aspects of the URES project;

- Jack Spees, Director
- Catherine Birtwistle, Office and Publicity Manager
- Adam Walmsley, Invasive Species Officer
- Paul Peters, Education Support

### Representatives from local authorities, government organisations, third sector organisations and local interest groups came together to form the URES Steering Group, which offered peer support in the development and delivery of the project;

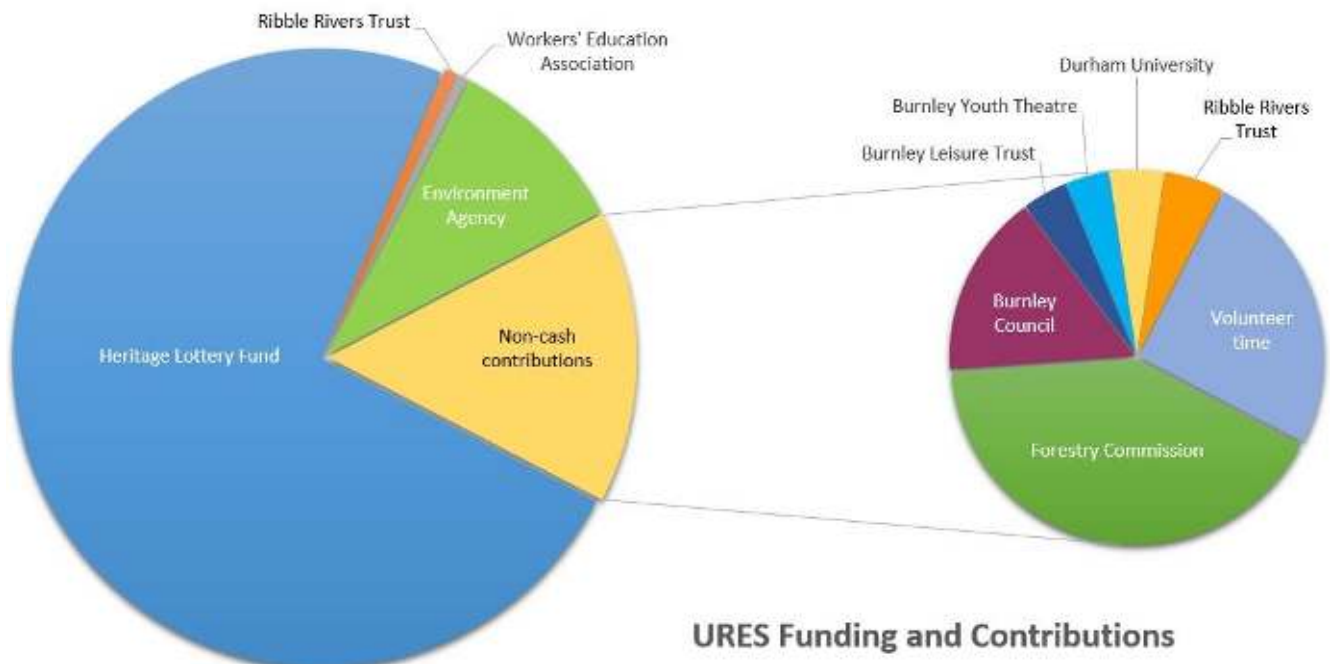
- Jack Spees, Ribble Rivers Trust
- Philip Lord, Ribble Rivers Trust
- John Milne, Ribble Rivers Trust
- Neil Ashworth, Ribble Rivers Trust
- Roger Frost, Burnley Civic Society
- Raymon Collinge, Burnley Historic Society
- Lee Collins, Environment Agency
- Peter Hornby, Burnley Wildlife Forum
- John Lamb, Lancashire Wildlife Trust
- Denis Halstead, Mitre Angling Club
- Grant Hinks, Calder Consultative (Angling)
- Keith Wilson, Forest of Burnley
- Mick Warn, Thursby Community Garden Action Group
- Jo Spencer, Ribble Rivers Trust
- Darren Wilson, Environment Agency
- Jackie Monk, Environment Agency
- James Moran-Zietek, Burnley Council Regeneration
- Paul Blakely, Lancashire County Council
- Simon Goff, Burnley Council Green Spaces
- Andy Wild, Canal and River Trust
- Matthew Schofield, Irwell Rivers Trust
- Dave Anderson, Towneley Hall Art Gallery
- Helen Yates, Mid Pennine Arts
- Rachel Hawthorn, Burnley Leisure Trust
- Mick Cartledge, Burnley Borough Council
- Michelle Wolfenden, Friends of Thompson Park
- Christie Webster, Environment Agency
- Tricia Brindle, Newground Offshoots Permaculture Project
- Rachael Ash, Burnley Youth Theatre
- Michael Darbyshire, Burnley Borough Council
- Pete Wilson, United Utilities
- Winston Robinson, Burnley Borough Council
- Roger Rawlinson, Burnley Borough Council
- Bea Foster, Burnley Councillor



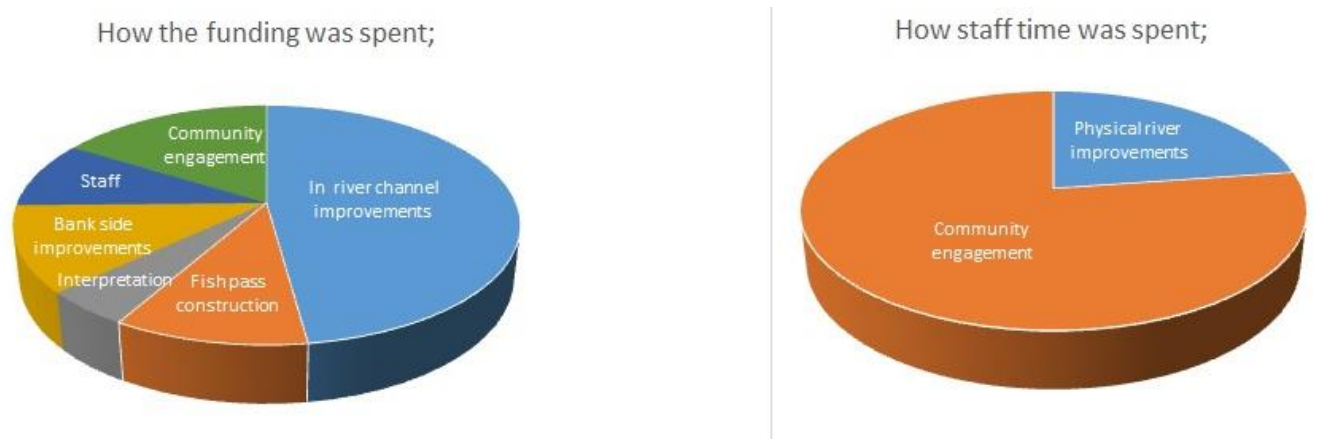
*The Steering Group regularly undertook site visits to inspect the progress being made.*

**1.6 FUNDING THE PROJECT**

The URES project was developed and delivered over a period of four years and in that time, approximately £1m has been invested, with £756,200 awarded from The Heritage Lottery Fund. A further £100,000 of match funding was secured from the Environment Agency in addition to smaller amounts from the Workers’ Education Association, United Utilities and the Ribble Rivers Trust. Other contributions towards the value of the project included £64,600 from the Forestry Commission, £25,000 from Burnley Borough Council and significant amounts of gift in kind from project partners such as Burnley Leisure Trust, Burnley Youth Theatre, Durham University and not least local volunteers.



The greatest proportion of the funding was spent on delivering the physical in-channel improvements while conversely, the greatest proportion of staff time was spent engaging the communities of Burnley.



A detailed breakdown of project costs can be found in Appendix 2.

## 2.0 Overall achievements & impact

The URES project comprised 11 sub-projects aimed at improving river habitat and connectivity, engaging and educating local communities about their rivers and improving access to them – physically, intellectually and visually. Early monitoring shows that all of the sub-projects will achieve their aims within the timescales set out at the beginning of the project, with some exceeding delivery expectations (a map of the activities can be found in Appendix 8).

### 1. ACTIVITIES

**Habitat connectivity:** 5 separate reaches of the rivers Calder and Brun were successfully altered to improve the habitat for local and migrating fish populations. 1 fish/eel pass was installed on Burnley's oldest weir & an existing one improved.

**Bankside improvements:** 11 Local River Action Groups were set up to tackle litter and invasive species on riverbanks. 78 volunteer days were held, undertaking activities including 34 clean-ups, invasive species control, planting 508 trees, wildflower planting, constructing 4 otter holts and sprucing up railings. Artwork was installed at 2 central locations to draw the public's attention.

**Access:** Physical access to the rivers was increased by installing 2 new bridges (one of which was constructed by the Army and Prince's Trust volunteers), 2km of riverside footpath was installed and a further 3km improved for multi-users. The project also increased visual access to the rivers by creating 2 viewing windows in bankside railings. The project increased intellectual access by erecting 3 interpretation panels to inform the public of the heritage and wildlife of the rivers.

**Community events:** The URES project organised 12 community events (including the Big Splash event in the town centre, an outdoor carnival with over 250 young people and a book launch attended by 80 people) and supported 15 other community events such as the Canal Festival and the Woodland Festival.

**Temporary exhibitions and displays:** The project held a temporary exhibition featuring artwork by local children which became a town centre attraction for 5 months in the windows of a disused shop. River-themed photographs were exhibited for a day in the town centre. A river painting 'Calder Life' was commissioned and is now a key feature in Towneley Hall Art Gallery.



*Conference delegates on site tour of Burnley*

**Walks and talks:** 8 guided river walks were held and 34 presentations were delivered, reaching an audience of 2,033. The closing conference hosted 16 speakers presenting a range of topics to an audience of 120. In addition, 3 heritage trails and guide books were developed, 4 steering group site tours were delivered, there was one fish pass opening ceremony, one painting unveiling and several short films produced – available online.

**Outreach sessions in schools and colleges:** 'River in the Classroom' was run over two years with 9 primary schools, directly engaging 300 children. Over 800 secondary school children from 27 schools and community centres were involved in 'When You See Water' drama workshops. 14 teenagers gained an Arts Award qualification through the 'Undercurrents' project. Dozens of pupils from the Mohiuddin International Girls' College were engaged with the installation of the fish pass adjacent to their college. Hundreds of school leavers undertook river conservation activities in the 'Challenge' summer programme.

**Other activities:** More than 50 people were involved in recording an oral history of Burnley's rivers and over 100 entries were received for a river-themed photo competition – 258 public votes selected the winner. A book was researched and published, entitled 'The River Calder'.

## 2. VISITS

The project hosted some notable visits; a site tour for the Burnley MP Gordon Birtwistle, the attendance of the Mayor and Mayoress at several opening ceremonies (including the fish pass, bridge and footpaths), the government Minister for Health attended a river clean-up and representatives from DEFRA visited the construction works.

## 3. VOLUNTEERS

2,001 individual volunteers were involved in the various aspects of the project, giving over 9,590 hours of their time.

## 4. TRAINING

30 people completed a WEA recognised River Habitat Management Course, 15 volunteers gained qualifications to treat invasive plants adjacent to watercourses, 30 volunteers became certified by the Riverfly Partnership to monitor river invertebrate populations, 14 college students gained an Arts Award qualification and two teacher training events were held prior to running 'River in the Classroom' in 9 primary schools, with the teachers gaining chartered CPD points.

5. **NEW STAFF:** 3 new part time posts were created to deliver the URES project – Community Engagement Officer, Contracts Manager, Education and Project Assistant.



*The Mayor and Mayoress of Burnley officially opened the new fish pass*

Benefits for people were derived from every sub-project that was delivered while at the same time, every sub-project benefitted the river in some way. The main areas of impact from the project can be summarised as;

1. Dramatically improved riverine habitat for both people and wildlife
2. Increased awareness of the rivers in Burnley and the many facets of the river heritage
3. Increased and improved access to the riverside in Burnley
4. Investment in skills and training provision

The main audiences that benefitted from the URES project were; local residents and visitors, school groups (primary, secondary and college ages), community and local interest groups, volunteers, local businesses, partner organisations and the wider sector.

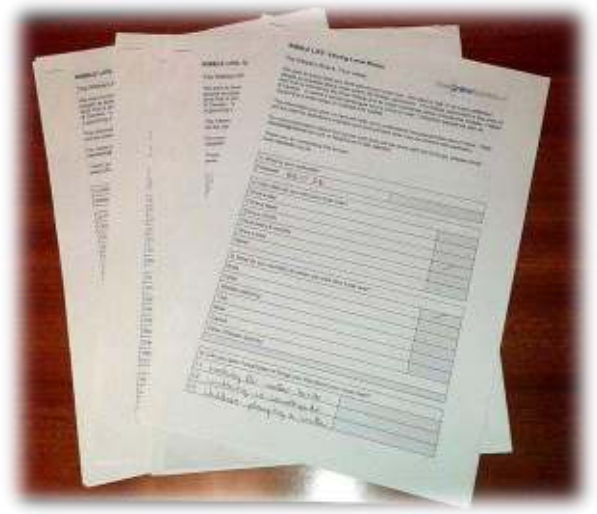
## 3.0 Evaluation methodologies

The URES project had two main aims; to improve the river habitat and connectivity for wildlife and to engage local communities in learning about their river heritage and involve them in making improvements. As such, there were three elements to the evaluation process;

1. A survey of the local populations of fish and invertebrates before and after the works were carried out, conducted by PhD student Mike Forty from Durham University.
2. A review of the engagement activities and the resulting impacts on individuals and community groups conducted by the project staff.
3. Collection of data and analysis by the project staff for regular interim reports and the final project report as required by the Heritage Lottery Fund.

Data was collected over the course of the URES project in the following ways;

- Original grant bid documentation
- Mapping the extent of project delivery, both physical works and engagement
- Participant evaluation forms from training, events and activities
- 'Valuing Local Rivers' questionnaires
- Feedback and discussion with school teachers during teacher training course and during the 'River in the Classroom' project
- Comment notelets during community activities and public events
- Volunteer sign-in sheets
- Project newsletters
- Record of publicity including press coverage, magazine articles, online publications and radio features
- Interim project reports to the steering group
- Recording email enquiries and feedback
- Photographic record of project activities and outcomes
- Capturing the development and delivery of the project on film, producing short videos
- Face to face interviews recorded at the North West Sound Archive
- Website and social media activity analysis i.e. Facebook, Twitter and YouTube.
- Ecological surveys of habitat, freshwater invertebrates, fish and invasive species
- Steering group SWOT analysis and evaluation activities
- Reports from partnership projects including Community Service teams, Undercurrents and Mid Pennine Arts
- Research of oral history recordings in both national and regional archives
- Research of historical maps and newspaper archives in Burnley Library
- Volunteer contributions from the public of a wide range of river heritage records including 'Battle of the Brun', 'Moving of the river Brun', 'Lost rivers of Burnley'
- Sound recordings of songs written by local community



## 4.0 Evaluation Results

### 4.1 ACHEIVEMENTS AND IMPACT

#### 4.1.1. DRAMATICALLY IMPROVED RIVERINE HABITAT FOR WILDLIFE AND PEOPLE

The URES project aimed to ‘*increase the connectivity of the urban riverine habitat*’. This was achieved through the construction of a fish and eel pass on Burnley’s oldest weir, as well altering the lined channel in 5 sections of the rivers Calder and Brun to create better conditions for fish passage.

#### Fish Pass



*Burnley Weir before and after fish pass installation*

#### Channel Alterations



*River Calder Reach 4 before and after channel alterations*

Initially the project set out to alter 13 reaches on the rivers Brun and Calder, however due to budget restrictions this was reduced to 5. The locations were carefully selected to allow successful fish passage and to decrease the risk of flooding in the town.



## Sea Trout

While some brown trout remain local to where they were spawned, others migrate out to sea. In the autumn, they return to the rivers and move high up into the smaller tributaries of the main rivers to spawn.

When works on Calder Reach 5 were nearing completion and the river was being redirected to its original course, a large trout became trapped in a pool. It was quickly moved to the main river, with just enough time for a quick photograph. Its large size confirmed that this fish was in fact a sea trout, demonstrating successful fish passage through Burnley town centre for the first time in decades.



Early monitoring by Durham University PhD student Mike Forty has indicated an increase in resident trout numbers almost immediately after the works were completed;

Reach	Number of trout before works	Number of trout after works
Calder Reach 4	5	56
Calder Reach 6	17	54

The full fish survey report can be found in Appendix 3.



*Brown trout caught and measured during surveys on the River Calder*

Following successful and prompt completion of the in-channel works, the riverine habitat is now connected from the estuary of the River Ribble and up through the rivers Calder and Brun to the smaller tributaries above the town such as the River Don, Thursden Brook and Swindon Water. The impact of this work has been to open up significantly more fish spawning habitat to migratory salmonids, which will not only mean greater fish populations, but also increased numbers of birds and mammals such as otters too.

The impact that this work has had in the community has been to draw the public's attention to the town centre's rivers, not least with the usage of 90ft cranes during construction. The high-profile undertaking of the work in the town centre delivered the message that urban rivers *are* worth caring about and if people have a greater respect for their rivers, it is likely to reduce occurrences of littering and pollution. The work was also well documented in the local press. Additionally, the fish pass was constructed adjacent to the Mohiuddin International Girls' College, who were interested to learn more about the work and be involved in the recording of data from the retrospectively fitted fish counter.

**Invasive Species Control**

The URES project aimed to ‘improve the river habitat to increase population and diversity of riverine species’. Invasive plants such as Himalayan balsam, Japanese knotweed and giant hogweed are detrimental to riverine biodiversity as they outcompete our native species and dominate the riverbanks. To tackle this issue, 11 Local River Action Groups were established, numerous volunteer ‘balsam bashing’ days were organised and 15 volunteers earned a qualification to legally and safely use herbicide adjacent to watercourses.

Since rivers are a vehicle for the downstream spread of invasive species, it was important to map their known locations in order to employ a structured approach to ensure maximum and lasting impacts of eradication. In practice, the location of invasive treatment did not always follow the ‘start upstream, work downstream’ method due to impracticalities working with volunteers in remote locations and the focus of the URES project being centred on the urban zone. Nonetheless, the work has had an impact on river habitat in that now our native flora has a chance to become established. For people, the removal of Japanese knotweed in particular has resulted in a reduction of risk to the integrity of structures such as buildings, bridges and roads. The mapping exercise was crucial in providing a centralised data store to show where treatment had taken place and where there is scope to undertake further work in the future. See Appendix 4 for map.

During the project, the following areas of invasive species were treated;

Plant type	In Burnley			Total in Ribble including Burnley
Japanese knotweed	30 sites	13716 m <sup>2</sup>	60%	22700 m <sup>2</sup>
Giant hogweed	4 sites	20673 m <sup>2</sup>	93%	22300 m <sup>2</sup>
Himalayan balsam	11 sites	16974 m <sup>2</sup>	9%	198000 m <sup>2</sup>



*A qualified volunteer treats Japanese knotweed on Green Brook in Burnley*

#### 4.1.2. INCREASED AWARENESS OF THE RIVERS IN BURNLEY AND THE MANY FACETS OF RIVER HERITAGE

##### River in the Classroom

The URES project aimed to “Engage, involve and inspire local communities in Burnley about their rivers’ heritage to increase their knowledge and respect for rivers and help them to better appreciate this town’s important natural asset”. One of the ways this was achieved was to deliver the ‘River in the Classroom’ project over two years in 9 primary schools in Burnley that represented the different socio-economic and ethnic backgrounds.

The project involved the installation of fish tanks containing trout eggs that the children could observe hatching into fry and eventually release them into their local river. Once the fish were released, the tanks were reused to house mayfly nymphs, which the children observed hatch into winged insects and subsequently released at the river.

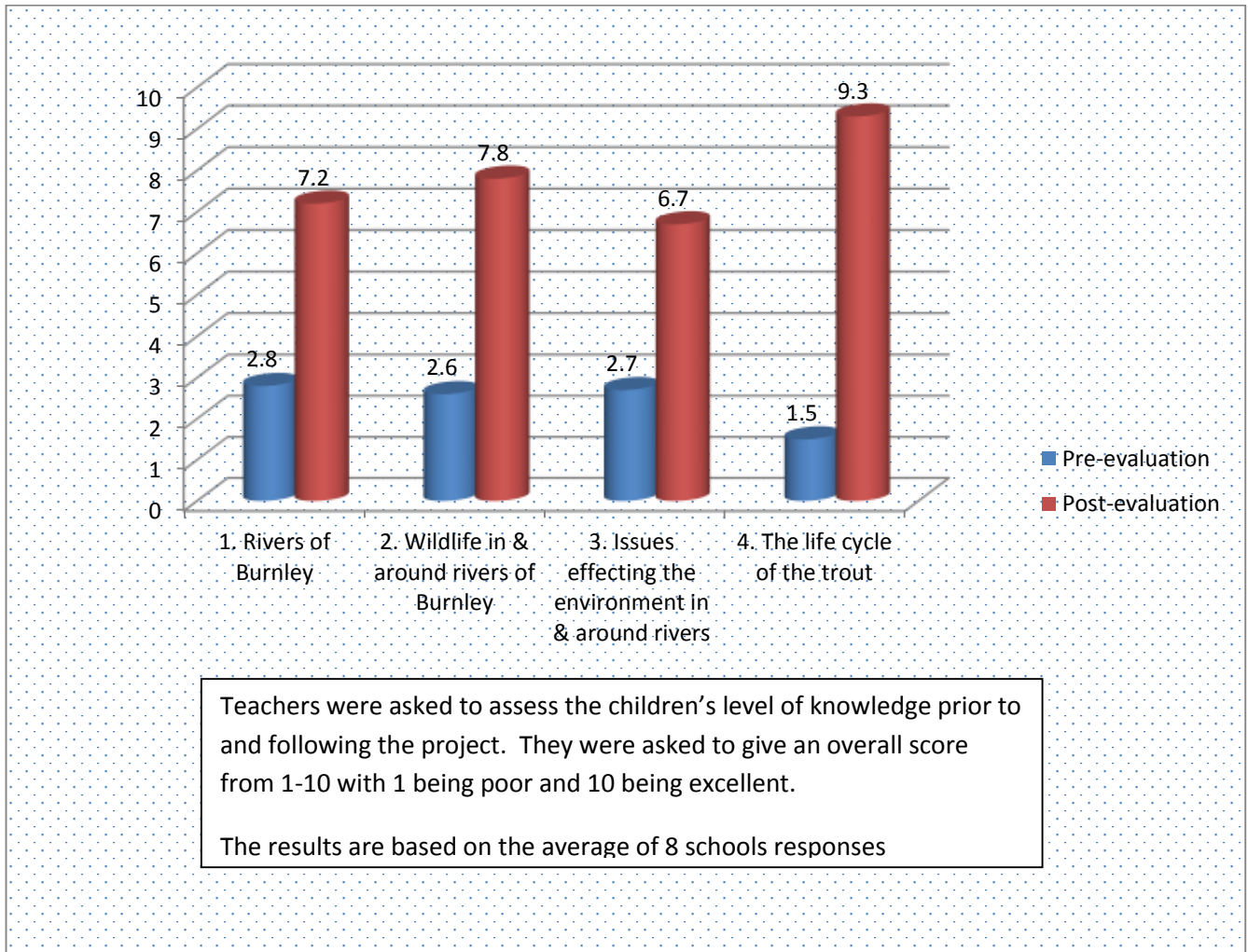


In 2014 over 170 children from 6 primary schools and in 2015 over 340 children from 8 primary schools plus their teachers and support staff were directly involved in **River in the Classroom**. However it is possible to say that the project also reached a much larger audience in the wider community both inside and outside of the school. For example, family members heard all about the project from their children and through the school newsletters and websites. Some parents and grandparents joined in the fish release events. In particular one young person brought his four brothers and parents to a river clean-up near their home following participation in the River in the Classroom activity in his school.

The project was evaluated using questionnaires. Teachers were asked about the children’s knowledge of rivers, wildlife, environmental issues and trout lifecycles before and after the project. They were also asked to comment on the overall running of the scheme in general. One teacher commented;

*“The children were given experiences and learning opportunities both inside and outside of the classroom which enriched and enhanced their understanding of the local area. They were given an insight into environmental issues through first-hand experience.”*

The evaluation results showed that the children’s knowledge of rivers was poor prior to the project but afterwards, knowledge had improved to good or very good across all schools;



The second year of River in the Classroom enabled the project delivery to be expanded to include more educational activities that increased participation in the project. These included 362 RRT newsletters being delivered to the homes of participating children, 2 river walks including a treasure trail along the river Brun, 10 fishing demonstrations and 2 talks utilising the new geomorphology table. Coupled with the 10 fish releases, 10 invertebrate sampling sessions were undertaken and the freshwater invertebrates were brought back to the classroom to extend the use of the tank and rear mayfly and caddisfly in the classroom.

All these additional activities were delivered with the help of a regular volunteer who also invented a novel way to preserve invertebrates in acrylic, creating a new educational resource suitable to use all year round.

In addition to the 10 artist workshops in the schools in 2015, an additional day brought together three school groups to give a performance of their artwork and songs in the school hall. Attending the performance were the next year cohort of students as well as dozens of teachers, support staff and representatives of the URES Steering Group.

A particularly interesting aspect to River in the Classroom was the way in which teachers sought to link it with other topics in the curriculum, such as science life cycles, geography, literacy, numeracy, art, creative writing and music.

River in the Classroom was well publicised in the local press, as well as through the Creeping Toad Blog and the teacher networks in Burnley. This led to more schools wanting to be involved than there were tanks, funding and staff available, however it is a positive result that many schools have begun to seek additional funding to enable the project to continue and possibly expand in the future.

Huckleberry Films also documented the project to produce a short film, which can be viewed online at <http://youtu.be/vvCdOZpJvTw>

A full report of River in the Classroom can be found in Appendix 5.



## When You See Water

Working with Burnley Youth Theatre, this project was inspired by the poem 'When You See Water' and was designed to explore Burnley's natural river heritage through drama, visual art and music.

Delivered over one year in four phases, the first phase worked with over 26 community centres, secondary schools, primary schools and special schools throughout all the wards and communities of Burnley to deliver drama workshops to young people of all ages, backgrounds and abilities.

The workshops provided an engaging way to learn about the natural river heritage of Burnley, including the wildlife in and along the river corridors and the problems and issues associated with the rivers. The workshops also consulted the young people on what their perceptions of Burnley's waterways were. We asked the question – **'what do you think of when you see water?'** The result is a very moving piece of oral history produced by the young people of Burnley.

The second phase involved four artists working with eight of the groups from phase one to develop the initial ideas into theatrical pieces of outdoor theatre and prepare costumes and giant puppets for the carnival type performance.

Phase three ran alongside phase two and was based at Burnley Youth Theatre. This included an audition for the main performance group of over twenty young people who worked with a movement practitioner to create a piece of stylised physical theatre focusing on the 'When You See Water' theme. This was to form the centre piece of the performance day.

Phase four was the outdoor performance and parade. Bank Hall Park on the banks of the River Brun was the location for the carnival which included over 250 young people performing and attracted an audience of over 150 family, friends and local residents.

*"Overall I feel that this project has been a real success, the quality of the work created was excellent and really celebrated the talents of the children which varied in each group we worked with. All schools and groups who engaged with the project were really enthusiastic, both staff and pupils enjoyed the project and said that they now saw the rivers running through Burnley in a different way."*  
- Rachael Ash, Project Co-ordinator with Burnley Youth Theatre

A short film was generated by the project and produced by Manchester based Seal Films. This can be seen on line at: <https://youtu.be/RYPyEVAXq2M>



*When you see water in a stream  
you say: oh, this is stream water;  
When you see water in the river  
you say: oh, this is water of the river;  
When you see ocean water  
you say: This is the ocean's water!  
But actually water is always  
only itself  
and does not belong to any of these containers  
though it creates them.  
And so it is with you.*

**Alice Walker**

When You See Water is a poem by Pulitzer Prize-winning novelist and poet, Alice Walker, most famous for her novel 'The Color Purple'.

## Stories in Stone

Stories in Stone was specifically designed to engage communities in the Stoneyholme and Daneshouse areas of Burnley which include people of both Pakistani and Bangladeshi heritage. URES strived for a way to enable and encourage people in this area to connect with their local rivers and at the same time to bridge the gap of understanding across ethnically diverse communities.

To achieve this Ribble Rivers Trust partnered with the Burnley based Love and Etiquette Foundation, who work to promote cross cultural community engagement through the design, promotion and delivery of high quality visual art, workshops, exhibitions and educational programmes.

Stories in Stone generated opportunities for different communities to come together, interact and be creative which helps to encourage positive messages and change perceptions.

Delivered in the Spring of 2015, Stories in Stone documented the connection and history of rivers through the creation of stone sculptures inspired by the Rivers Jhelum in Pakistan, Surma in Bangladesh and the Brun and Calder in Burnley. The project has demonstrated that it is possible to bring people from different backgrounds together under a traditional art form which has a sense of belonging to both English and Asian heritage.

In the run up to the 3-day stone carving workshops, Stories in Stone engaged with over 70 children and 20 adults in the Jamia Ghosia Mosque during an interactive talk about the importance of water and wildlife. Two 'Treasure Trail' walks were also organised, giving local communities an opportunity to visit and explore the historical significance of the rivers Brun and Calder in Burnley and learn about the ongoing restoration work.

The project was publicised by posters and leaflets circulated in Mosques and other local networks as well as on-line. A particular highlight is the fact that Stories in Stone generated a one hour radio programme through the Manchester based BBC Asian Network, a national radio station.

In the short time that the project ran, over 36 people participated in activities and the resulting stone carvings created have been installed as a feature in a riverside cairn located in a prominent town centre location. These features help to increase ownership of the local rivers as well as draw the attention of passers-by to their river. The legacy of the Stories in Stone is that other Mosques in Burnley are also interested in hosting the interactive talks in the near future.



### **Creative Rivers in Burnley – *Undercurrents***

It is not always easy to simply ‘teach’ people about rivers, their wildlife and the issues they face. Part of the aim of the URES project was to ‘inspire’ people to connect with their rivers and in order to achieve this, the project took different approaches to reach different audiences. One approach was to engage teenagers through a partnership initiative with Burnley Council Arts Development Team (which later became Burnley Leisure Trust) called ‘Creative Rivers in Burnley’.

The initiative recruited 13–19 year olds who attended workshops over 18 months to take part in creative activities led by 6 professional artists to work towards their Arts Award qualification. Calling themselves ‘Undercurrents’, the young people had the opportunity to discover and explore the hidden rivers that flow through the town using photography, film, visual art and creative writing.



230 young people attended workshops, including 20 autistic young people at a dedicated resource centre and 27 from BAME communities. Undercurrents was also involved in public events and engaged a further 800 people.

#### **Arts Award**

- Number of qualifications completed so far = 8
- Number of awards started and still to complete = 6
- Number of young people progressing to next level of arts award = 7
- Number of sign ups to new Arts Award programme at Library = 8

Participant feedback from the workshops was collected. A young person commented;

*"It's important for young people in Burnley to learn about our rivers because they are beautiful things that flow through our home town."*

One of the key outcomes of the project is that Arts Award delivery is now embedded at Burnley Central Library, with the Library staff setting up and running their own Arts Award scheme for the first time in 2014, as a direct result of the experience and mentoring gained through working with Burnley Leisure Trust and URES.

See Appendix 6 for the full evaluation report from Burnley Leisure.



### Oral History – Love Your River

URES Oral History 'Love Your River' project included the training of over 20 people in interview skills and the use of sound recording equipment. Over 30 interviews were carried out with a wide range of local residents including business owners, landowners, councillors, volunteers, local residents, community activists and professionals in the environment sector.



*"I remember when we could buy packets of seeds to grow Himalayan Balsam, it was promoted as 'From the land of the yeti' we were encouraged to grow it in flower borders, now we know it is an invasive species and it has become a problem"*

*"This is our world, our town, we have to look after it for the future generations because no-one else will"*

*"People ask why would you do it (improve the rivers) I say why not? It can help to provide a better life for future generations, it can be a way to meet people from different communities. We are all different and we can be so far apart, projects like this can bring people together."*

*"There have been vast improvements over the last few years, increasing numbers of aquatic species and invertebrates. I like to see people's faces when I show them something they just haven't seen before, it's important to share knowledge."*

*"I used to be one of the worst offenders throwing litter everywhere. After a river clean up with Vic I have changed and I don't do it anymore. I think that is what it is like for a lot of the volunteers."*

*"Never for 40 years have I seen fish in this river, now there are six brown trout living right under our bridge and we enjoy listening to the river as it rushes over the new rapids, it's excellent"*

*"Walking by the river is the most relaxing thing, if I get depressed or uptight I go there, water is magical"*

*"There used to be osier beds on the banks of the river Brun in Burnley and willows still grow on the river banks near the Town Mouse, basket making was one of the main tasks in the workhouse which used to be near there. The rivers were initially used to provide power for the bread and then the cotton mills. There were many different mills in Burnley that relied on the rivers including calico printing mills. As well as providing power the rivers took away wastes and they were heavily polluted. The rivers are improving now, they are much cleaner, they are home to more wildlife. The Trout in the Classroom scheme has seen hundreds of brown trout hatching out in tanks in school classrooms and kick sampling in the rivers shows that they are abundant with life. It is important to bring the environment to the fore, Burnley rivers to be better known, mainstream not hidden."*

*"Working with URES and the Challenge empowers young people, equips them with tools, gives them access to local organisations and teaches them to care about their area, with passion. It sparks all sorts of possibilities to make a difference."*

Working with artists, story tellers and musicians, URES also enabled young people of Burnley to write, sing and record their own songs. Over 15 songs were produced and many of these were performed in school assemblies and other events. Some of the sound recordings made during walk over surveys were incorporated into short films as part of the Undercurrents project work.



*Heasandford Primary School perform 'Splish Splash Splosh' in a school assembly.*

Oral history of the rivers in Pakistan, Bangladesh and Burnley were explored through the Stories in Stone project and community elders were interviewed about the history of the Mangla Dam construction and the resulting relocation of people to Burnley from the Jhelum River catchment in the Mirpur District of Azad Kashmir, Pakistan.

In addition to new recordings, URES volunteers carried out extensive oral history research into the records held by Lancashire County Council and the North West Sound Archive which resulted in the development of a Geotrail



guided walk leaflet as well as a QR tag trail guide, articles in newsletters of the Lancashire Geological Association and newly available web based resources. Possibly the most significant of which includes footage of a presentation given by a renowned, though unfortunately deceased, local historian Titus Thornber (pictured left). Permission was obtained from the surviving members of the Thornber family and the film entitled 'The Mystery of Shedden Clough' is now available through both the URES and GeoLancashire web sites.

A volunteer also researched newspaper archives in Burnley library and collections of newspaper articles relating to Burnley's rivers have been collated including stories dating back to the 1940's right up to the present day.

#### 4.1.3. INCREASED AND IMPROVED ACCESS TO THE RIVERSIDE IN BURNLEY

It is difficult for people to become engaged and involved with their rivers if they cannot access them. During the development stage of the project, it was found that one of the things people disliked most about their local rivers was that there were “*poor or no footpaths*”. To increase physical access to the rivers, two bridges were constructed, 2km of new footpath was laid and 3km of existing footpath was improved for multi-users.

It was also recognised in the development phase that the confinement of the urban river channels would pose a challenge to accessing the river physically. Therefore the project sought to improve visual and intellectual access too, by installing interpretation panels and windows in railings to encourage the public to look over bridges and walls, as well as riverside artwork to draw people’s attention to the rivers’ presence.



The footpath alongside Green Brook (pictured above) was improved with the help of volunteers from Veolia, Groundwork and Burnley Council, as well as young people serving their community sentences with Lancashire Probation Trust.

River bank erosion, wetland habitat improvement, otter holt construction, invasive species management and wildflower plug planting were also carried out here with the help of 22 staff from the Environment Agency who collectively gave 298 hours as part of their corporate and social responsibility days.

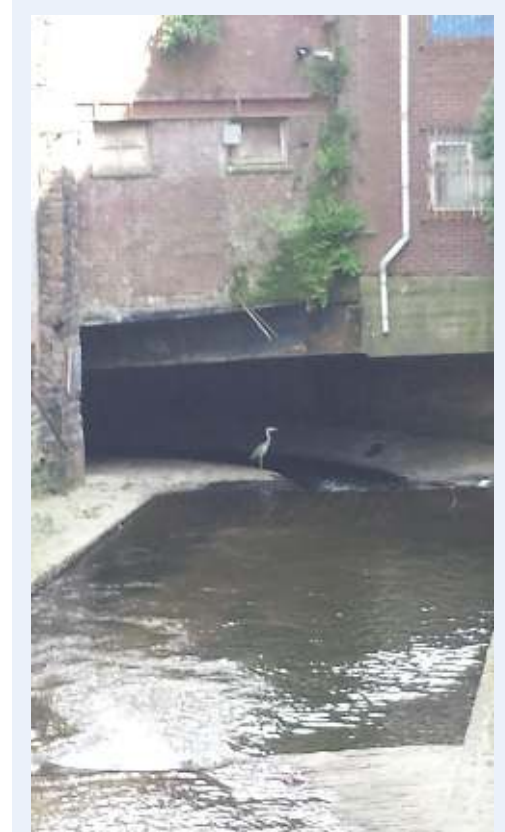
The new viewing windows in the renovated railings were also opened by the Mayor and Mayoress of Burnley at an official ceremony attended by 24 volunteers who gave 48 hours of their time with a further 54 pupils from the Mohiuddin International Girls' College (MIGC) in attendance.

Landscape improvements adjacent to the River Brun in Burnley Town Centre included a new leaping fish chainsaw sculpture which was created during the Big Splash. A summer event was attended by over 200 members of the public and included a giant moving fish bicycle touring Burnley Town Centre to disseminate information and attract attention, a performance of When You See Water, river invertebrate display, badge making, face painting, demonstrations of river geomorphology and a 'Fish race' on the river Brun.

The new multi-user bridge over the River Brun was opened by the Mayor of Burnley at an official ceremony that was attended by URES volunteers and 25 members of the public. Following the ceremony, attendees were taken on a guided walk of the river valley to Rowley Lake.

The new bridge over the River Brun is particularly beneficial to the river habitat because prior to its installation only hardy walkers, mountain bikers and horse riders would visit the river here as they had to ford the river at this spot. Using a ford causes riverbank erosion and disturbs the in-channel habitat – a particular worry during fish spawning season. Now that the bridge is in place, vegetation can recolonise the riverbanks and increase their stability, and the threat to juvenile fish survival has been minimised.

Adjacent to the bridge is a new two sided information panel (below). One side is a location map clearly indicating the new riverside footpaths in the Brun Valley Forest Park. The second side was inspired by URES and is an illustrated guide to the wildlife associated with the river habitat in this area.



A heron was spotted awaiting the arrival of fish at the newly altered Calder Reach 6 by a member of the URES Steering Group – he managed to capture the moment on his smartphone.

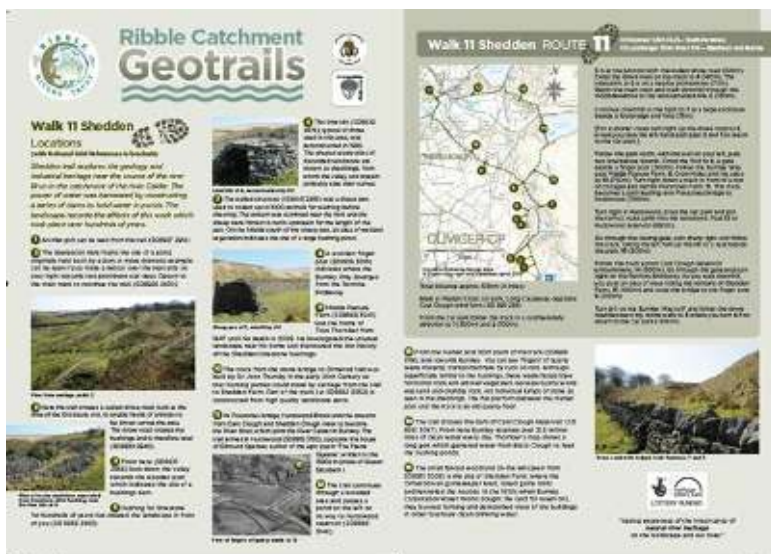
Walkers are drawn to this information panel as part of the clues in the ‘Battle of the Brun’ Treasure Trail (below) which connects the centre of Burnley with the open moorland of the South Pennines through a mosaic of glorious parks, woodlands and meadows following the course of the river Brun.



A second Treasure Trail has also been designed to be a fun and interactive way to explore the river Calder as it meanders through Burnley Town Centre. To accompany the trails an educational resource pack has also been produced to enable teachers and group leaders to arrange group walks and other educational activities associated with learning about the rivers of Burnley.

The impact these access improvements have had for the people of Burnley is to increase their enjoyment of the town’s natural asset, helping them to see more wildlife, encouraging them to be more active outdoors and inspiring them to take better care of their rivers.

To further encourage access to the rivers, dozens of guided river walks were delivered by a wide range of walk leaders. As well as exploring the river network, the walks also promoted information about the wildlife, geology and natural heritage associated with the rivers of Burnley.



One new guided walk leaflet enables people to explore Shedden Clough at the source of the River Brun. The new Geotrail guide (left) includes a QR code link to further web based information resource. One local resident commented;

*"Just reading the notes on the URES geotrail and I did the Shedden walk the other day and found it very interesting, I have run around that area for years and never knew anything about it."*

**4.1.4. INVESTMENT IN SKILLS AND TRAINING PROVISION**

Right from the outset, it was important to ensure that benefits derived from the URES project, either for the river or for the community, must continue beyond the scope of the project in order to have made a lasting improvement to Burnley’s rivers. To achieve this, the project invested in training members of the community so that they could continue to improve their rivers and monitor their health after the project ended.



**Introduction to River Habitat Management**

In conjunction with the Workers’ Educational Association (WEA), four ‘Introduction to River Habitat Management’ courses were delivered and over 30 people were trained in skills such as recognising different types of river habitat and species, as well as the importance of appropriate freshwater management and how to go about making improvements. First Aid at Work training was also part of the course. Delivered over 8 days spanning approx. 6 weeks, each course not only benefitted the river through the delivery of practical habitat improvements, it also promoted the progression of the learners to further education and training, volunteering and employment. The course was evaluated using Tutor Feedback Forms to capture data such as number of enrolments, attendance, feedback from the participants themselves and their progression post-completion. Some progressed into freshwater invertebrate training with the Riverfly Partnership or herbicide spray training with Myerscough College.

Comments made by participants on their feedback forms;

Please comment on your progress towards the learning outcomes overleaf. Do you need more support or more challenge? How could the course be improved? Are any individual support needs you have being met?

I have enjoyed the course and it has given me more understanding of the river's which will help me further my progress in conservation

Please comment on your progress towards **your individual learning outcomes** overleaf and the **reasons you joined the course**? Can you give examples of any other achievements you have made as a result of the course? E.g. a new skill, reduced stress, greater confidence.

Impraced confidence, learnt new skills w when and why to remove baram. Understand more about river habitat and how it is effected by change.

**End of course review**

Please comment on your progress towards the **group learning outcomes** overleaf. VERY INFORMATIVE THE COURSE HAS SHOWN ME MANY PROJECTS THAT ARE AVAILABLE TO EXPLORE AND GIVEN ME MANY OPPORTUNITIES TO GET INVOLVED IN MORE ENVIRONMENTAL ORGANISATIONS INCREASING MY LEVELS OF EDUCATION AND POSSIBLE EMPLOYMENT OPPORTUNITIES

## WHO BENEFITTED FROM THE URES PROJECT?

The audiences that URES set out to reach included the residents and local communities of Burnley, schools, local community and interest groups, local businesses and visitors to Burnley. More specifically and reflective of the socio-economic and demographic profile of Burnley's population, these included:

- Young people, particularly people with low educational attainment
- People from black, Asian and minority ethnic communities
- People in lower socio-economic groups and on low incomes

These audiences are important because they all have the ability to have an impact (positive and negative) on the natural heritage of the rivers in Burnley.

### 4.2.1 LOCAL RESIDENTS AND VISITORS

The URES project engaged with local residents in a variety of ways, including public events, exhibitions, presentations and guided walks. The aim was to open up the heritage of Burnley's rivers to the people that live there and this was done by improving access to their rivers, both physically, visually and intellectually. The URES project wanted to bring the rivers to the people and achieved this by installing interpretation panels and artwork on the riverbanks and in Towneley Hall Art Gallery, creating viewing windows in railings, outdoor theatrical performances of a river-themed play, the adoption of a vacant shop to display information about the rivers, a river-themed photography exhibition in the main shopping area and not least, a giant chalk illustration of a river in the town centre (pictured below), which the public were invited to draw their own wildlife images on.



The benefits to the town and its communities were well documented in the local and national media. The project's dedicated website and social media helped to further engage and inform local residents and visitors. Several local and national radio programmes also covered aspects of the URES project. As well as an hour long programme on Pendle Community Radio and shorter pieces on Radio Lancashire, one river clean-up was covered by a programme on Rock FM and the Stories in Stone project resulted in coverage on the BBC Asian Network.

The project also hosted a visit by national representatives from DEFRA who were interested in the innovative solutions to improve the in-channel habitat through the town centre, as well as a visit from Rochdale Metropolitan Borough Council, who were interested in finding out more about the URES project to help inform and inspire their own 'Revealing the River Roch' project. The URES closing conference attracted visitors to Burnley from every corner of the UK including Scotland, Wales, South West and South East as well as Cumbria, Northumberland, Yorkshire and the Midlands. Delegates at the two day conference heard about solutions to physically improving urban river habitats as well as how URES worked in partnership with a variety of local organisations to deliver a wide range of engagement activities with local communities.

#### 4.2.2 SCHOOLS AND COLLEGES

In total, around 1,500 pupils of primary, secondary and college age were directly involved in the URES project, either through River in the Classroom, When You See Water drama workshops (pictured below) or the Creative Rivers in Burnley (Undercurrents) art workshops, plus their teachers and mentors. In addition to this, many more were indirectly involved including support staff, parents and the friends of those directly involved.



*'When You See Water' outdoor performance*

Schools benefitted from the URES project because they were able to engage their pupils in innovative and hands-on initiatives, with the opportunity for learning outside of the classroom. The teachers were able to link the initiatives with other aspects of the curriculum as an alternative means of improving their pupils' reading, writing and creative abilities, particularly those 'harder to reach' pupils.

*"I think that the project allowed for a really good balance of indoor and outdoor creative activities and that meant I was also able to devise activities that encouraged the group to look around them, at their environment and also within themselves and think about how they could respond to their environment in a personal/emotional way." – Lucy Bergman, Lead Artist at Undercurrents*

*"I linked the trout to our work in science on life cycles. It fitted perfectly with what we were doing and gave the children first-hand experience. I could also link in literacy using explanation text." – Teacher involved with River in the Classroom*



The Ribble Trust delivered River in the Classroom in other primary schools outside of Burnley too and in one case, it was reported that the initiative enhanced their Ofsted report, demonstrating that it is possible for all schools to increase their performance levels through the adoption of the scheme.

In the second year of running River in the Classroom, advice and mentoring was provided to teachers since many were keen to seek out additional funding to continue running the scheme after the URES project had ended.

In the case of Undercurrents, 8 young people gained their Arts Award qualification, with a further 6 working towards it. The Arts Award is a nationally recognised qualification enabling young people to progress into further education and employment.

The University Technical College in Burnley, part of the Visions Learning Trust, benefitted through the hosting of the URES conference event. Students at Burnley College benefitted in several ways including attending stalls, displays and presentations delivered by URES in Burnley college as well as participating in practical activity days ranging from wildflower planting, Himalayan balsam clearance, river clean-ups, surveys and Treasure Trail walks. In addition to the Land based and environmental studies students, URES reached other departments in Burnley College including A-Level students of Applied Science and Functional skills students in Community Studies.

#### **4.2.3 VOLUNTEERS**

In total, 2,001 individual volunteers were involved in the many facets of the project, giving over 9,590 hours of their time. They took on a variety of roles, from physical habitat management, survey work and footpath construction, to helping at events and documenting the project through photography and film.



Many volunteers made a long-term commitment to the improvement of Burnley's rivers and with initial advice and assistance from the URES project, took ownership of their own local river. By regularly monitoring the condition of their river and taking action on issues such as litter and invasive non-native species they are actively maintaining and improving their local river habitats. Eleven such groups now operate in the Burnley area and have been awarded 'Local River Action Group' status through the URES project. Members of these groups now possess skills and knowledge to be able to continue to improve the rivers beyond the lifespan of URES.

Not only did the volunteers learn new skills and habitat restoration techniques 'on the job', they were also taught the reasons *why* it is important to conserve and protect riverine habitats, not just for wildlife but for people too, increasing their knowledge about environmental management.

Some volunteers wanted to progress further and the URES project enabled them to undergo training and become certified in freshwater invertebrate surveys with the Riverfly Partnership and NPTC Safe Use of Pesticides through Myerscough College, which allows them to legally and safely treat invasive plants adjacent to watercourses.

The commitment that the volunteers gave to the project, together with the skills, knowledge and qualifications they gained, helped to increase their employability. The nature of the work encouraged volunteers to be more



active outdoors, thus promoting healthier lifestyles. The volunteer activities were also a good way for individuals to socialise, work as part of a group and gain confidence.

The URES project team has been overwhelmed by the level of enthusiasm from volunteers wanting to help improve their rivers, for their own enjoyment and for the town, and is confident that now the project has ended, the rivers are being left in safe hands.

#### 4.2.4 COMMUNITY AND INTEREST GROUPS

The URES project worked with a plethora of local community and interest groups by delivering 34 presentations and 8 guided walks, engaging an audience of more than 2,000 people. Some of the groups already possessed a vested interest in their rivers, such as Mitre Angling Club, Burnley Wildlife Conservation Forum and Burnley Historical Society, while others were completely new audiences; the BAME community of Burnley in particular those of Pakistani and Bangladeshi heritage in Stoneyholme and Daneshouse, Burnley Lady Farmers, Briercliffe Society, Burnley Soroptimist Group, Bank Hall Care Home and Burnley Probus Group.

The high level of interest in the URES project from different local groups indicated that the subject of river heritage has the ability to touch a wide ranging audience, not just environmentalists and historians, but also those 'harder to reach' audiences. With more people having a greater knowledge, understanding, respect and appreciation of Burnley's rivers and realising why there was a need for the URES project, there are more likely to be lasting benefits.

#### 4.2.5 LOCAL BUSINESSES AND ORGANISATIONS

A focus was placed on the use of contractors and suppliers that operated within or near to Burnley, in order to help boost the local economy. Workers from William Pye Ltd, who delivered the innovative in-channel construction, would regularly witness fish moving through the channels while they worked, allowing them to see first-hand the reason for the alterations and that the designs were working.

Some businesses became involved in practical volunteer days, including Kwik Fit, Veolia and Calico, who became actively involved in removing rubbish from the rivers adjacent to their premises in order to improve the aesthetics of their environs and improve their appearance to their customers.

The greatest input from local businesses was their involvement in the promotion of the Big Splash event in the town centre. Over 50 businesses placed posters in their windows and took part in the ‘fish race’. It was a useful opportunity to spread the message of the need to improve Burnley’s rivers to local businesses, who could then pass it on to their customers.

#### 4.2.6 PARTNER ORGANISATIONS

The URES project partnered with several organisations, including the Environment Agency, the Forestry Commission through the Brun Valley Forest Park, Burnley Borough Council, Burnley Youth Theatre, Burnley Leisure Trust, GeoLancashire and Mid Pennine Arts. These organisations have all benefitted from being part of the URES project in that they were all able to deliver their own objectives by ‘thinking outside the box’ and extending their normal activities to incorporate a river focus, adding to their existing staff’s skills and experience. The URES Conference was delivered in partnership with The Rivers Trust (RT) and publicised as the Spring Conference to the national network of rivers trusts, it attracted over 120 delegates (picture below on a site tour of Burnley). As a networking opportunity this was a huge success and did much to showcase the URES and other urban rivers and community engagement projects.



*"We are delighted to support the Ribble Rivers Trust and the work they are doing to clean-up the Rivers Calder and Brun in Burnley. The River Calder flows past the Kwik Fit garage and it is a haven for wildlife but this is spoilt by all the rubbish, so we are more than glad to help to improve it." –*  
**Paul Waterworth,**  
**Centre Manager for Kwik Fit**



# 5.0 Legacy

## 5.1 LEGACY FOR THE NATURAL RIVER HERITAGE

The alterations that were made to the river channel and the installation of the fish pass are now permanent features of the river that should require little further maintenance. This means that the wildlife corridor has been permanently restored, allowing uninhibited movement of wildlife both upstream and downstream of the town. Numbers of species such as trout, dippers, herons, kingfishers and otters will continue to increase in the area as a result of the project, enhancing the biodiversity of Burnley's rivers.

In addition to the improvements to the local rivers, the URES conference was attended by representatives from many of the 40 other rivers trusts in the UK. As well as providing a significant networking opportunity, the presentations and site visits helped to disseminate information, ideas and examples of best practice to every corner of the UK.

With so many individuals inspired, trained and dedicated to improving their local rivers and many more attitudes changed, the impact that the URES project has had on encouraging *the local communities to care for their rivers* is highly likely to be sustained well into the future.



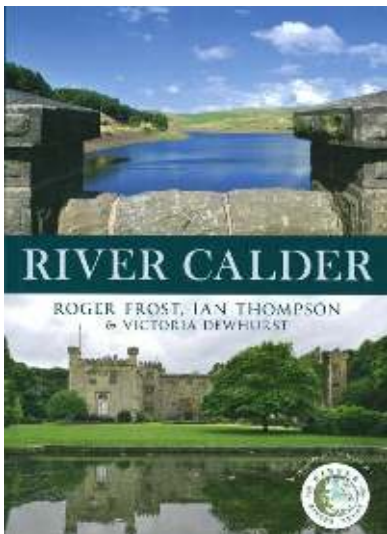
## 5.2 LEGACY FOR HISTORICAL HERITAGE

When the URES began, it was found that there was no single place where information on the rivers of Burnley was available. There appeared to be several sources of heritage information on Burnley's Canals, including smart tag trails, internet databanks, sound archives and a local museum. However information on Burnley's rivers was not apparent anywhere. During the project, heritage information gradually came to light through word of mouth. It became an aim for the project to collate, preserve and interpret this information in numerous and accessible ways, making it more readily available to both interest groups and the general public.



For the first time the historical significance of Burnley's medieval weir has been highlighted with the production of an interpretation panel installed on the renovated railings above the weir. The panel incorporates heritage photographs and maps together with an explanation of the detrimental impact of weirs on river ecology, the life cycle of the Atlantic salmon and reasons for the construction of the new fish pass.

Local people contributed a wealth of interesting and significant historical information on the local heritage associated with the rivers of Burnley. For example Titus Thornber, a renowned historian, settled in the area and explored the intriguing features in the landscape in Shedden Clough above Burnley. His work was almost lost as Titus passed away a few years ago, however with the help of volunteers the URES project has researched and collated a wealth of information and used it to generate a new guided walk and web based resource. Permission from the Thornber family was also granted to make films of Thornber’s lectures available to the public through the GeoLancashire and URES websites. These detail the work towards ‘Solving the Mystery of Shedden Clough’ and describe the background to a method of ‘hushing’ which harnessed the power of water in our rivers in the production of quick lime.



The new URES website functions as the ‘go to’ place for information about Burnley’s rivers, not least the sound-bites recorded as part of the oral history project, that capture first-hand accounts of Burnley’s rivers. There are also newspaper cuttings going back to the 1960’s which describe issues associated with the river at the time referring to the river Calder as ‘The tomato soup river’ and advertisements of Himalayan Balsam seed promoted as ‘From the land of the yeti’.

A new book has been written and published entitled ‘River Calder’ by authors Roger Frost, Ian Thompson and Victoria Dewhurst, which documents the history, ecological and social value of Lancashire’s River Calder, including a photographic record of the work of URES in Burnley Town Centre. (More information on the River Calder book can be read in the review in Appendix 7).

### 5.3 LEGACY FOR PEOPLE

As a result of the project, more people have a greater knowledge and understanding of rivers, some have gained practical skills in conservation techniques and others have been awarded nationally recognised qualifications, all of which count towards an individual’s employability or acceptance into further education. Of the feedback received following participation in the training courses, 100% of people indicated that the experience had had a positive effect on their health and wellbeing. Many returned to volunteer with the Trust and some also went on to organise environmental projects and river clean-ups in their own communities.

The children and young people involved in Undercurrents, When You See Water and the River in the Classroom projects have learnt about their local heritage and gained lots of new skills. Evidence from the film footage and feedback forms demonstrate that these experiences have influenced their perceptions and behaviour towards the natural environment which will be much more positive in the future.

Following over 34 river clean-up events and dozens of riverside improvements including landscaping and renovated railings, members of the many local communities in Burnley have seen an improvement in their local environment. Hundreds of volunteers have been actively involved in the project resulting in several miles of the rivers now being much cleaner, four otter holts have been constructed and dozens of bird boxes and king fisher and sand martin nest tunnels have been installed. Members of local communities have also learned how to

better appreciate the town's natural assets and will benefit from the increased access to the rivers, allowing them to more fully engage with and enjoy the riverine environment and wildlife in the future.

*"I used to be one of the worst offenders throwing litter everywhere. After a river clean up with Vic I have changed and I don't do it anymore. I think that is what it is like for a lot of the volunteers."* - Clean-up volunteer

*"I've shown my kids what not to do with Himalayan Balsam, how to pick it before it flowers so not to spread the seeds. We enjoy more walks together and now I know more about the environment after doing the river training course."* - Course participant

People outside of the project area may also expect to benefit from URES activities in future. For example the artists working with URES have been asked to write an article for the National Association of Environmental Education about their work on the Rivers in the Classroom project. Two educational resource packs have been produced for the Rivers in the Classroom project which will help to support more teachers in more schools to deliver learning activities associated with rivers.

The URES conference also saw over 120 people attending the first day of presentations. From the feedback received on the day and the subsequent enquiries generated this networking event is likely to help spawn numerous river improvement and community engagement events and activities in other river catchment areas throughout the UK.



#### 5.4 LEGACY FOR ORGANISATIONS

The URES project has left a lasting impression on schools in particular, especially primary schools (pictured below) that have enjoyed taking part in River in the Classroom. Some teachers are actively seeking external funding to be able to purchase their own tanks and continue the scheme themselves.



*Angling demonstration with primary school group as part of the extra-curricular activities linked to the River in the Classroom.*

The core group involved in Undercurrents took part in the development of a Heritage Lottery Fund Young Roots bid focussed on Thompson Park. They had spent quite a bit of time in the park through which the River Brun runs, and they were keen to find a way to continue to do creative workshops together and to give other young people the opportunities that they have had. Consultation has been carried out with creative arts and media students at Burnley College and this project was submitted to the HLF by Burnley Leisure in partnership with Burnley College. Additionally, the Arts Award workshops are now embedded at Burnley Central Library, following mentoring and guidance of the library staff during the delivery of Undercurrents.

Following their visit to Burnley, Rochdale Borough Council went on to be successful in their bid to the Heritage Lottery Fund to develop their project 'Revealing the River Roch' which aims to de-culvert the river in the town centre, revealing the historic bridge and restoring the river's natural habitat (pictured right). The river, which has been hidden for over a century, is envisaged to enhance the town centre, reinstating attractive views and giving Rochdale another unique selling point to attract visitors, businesses and inward investment.



There is a significant legacy left by the URES project for Burnley Borough Council. The improvements and value of the rivers of Burnley have been formally recognised by the Council in their core plan, particularly the Green Infrastructure Strategy, which will be used to influence developments and encourage further improvements to the ecology, aesthetics and use of the Rivers Brun and Calder in the future.

Before working with URES, The Cumbria and Lancashire Community Rehabilitation Company (CRC) (previously known as the Lancashire Probation Trust) did not undertake any activities within 15 metres of a water course. This would have prohibited them from participating in any URES activities. However through sustained effort, good communication, site visits and the completion of appropriate paperwork including thorough risk assessments, URES identified possible activities, projects and locations which could safely accommodate groups of people serving their community sentences. URES staff also accompanied the groups particularly for the first day of any project or new location. Although not counted as volunteer time, the activities undertaken by the CRC groups included Himalayan Balsam clearance, river clean-ups, footpath repair, tree planting and landscaping projects. The feedback from the CRC staff was very positive, the majority of people serving community sentences had never undertaken environmental improvement work before. They were often eager to learn new things and many described how they had taken their children to visit the projects they had completed like the new boardwalk by Green Brook in Lowerhouse Lodges Local Nature Reserve. Now the necessary paperwork is in place and many of the riverside locations and activities introduced to the CRC by URES will continue to be monitored as part of the Burnley Council schedule of works.

A legacy for URES includes benefits for the Town Centre organisations, over 40 members of Veolia staff participated in riverside and in river channel activities helping Veolia to meet their CSR targets. Improvements by the riverside on Curzon Street has resulted in a significant improvement in the perception of the area and adjacent shops are now opening up new window displays in what were previously shuttered up and disused locations. The Town Centre shop front that had hosted URES displays and the URES Big Splash event had been empty for many months, however this prominent location is now fully occupied by new tenants.



Moorhouses Brewery contributed to the URES project by serving two new river beers at the Conference evening dinner. Both the University Technical College and the Holiday Inn Express proved to be excellent quality venues in which to hold the Conference. Visitors to Burnley were suitably impressed by the hospitality and the venue was also new to local residents and we are aware that one local group has already booked the venue to hold an event later this year as a result of attending the URES conference.

An important legacy for the Environment Agency is that local communities are now more aware of both their current and historic work and role. URES has promoted and publicised the work and achievements of the Environment Agency through the presentations delivered, press coverage generated, articles in project newsletters, on web sites and during local river action group events. Specifically in achievements of cleaning up the water quality and repairing the legacy of industrial pollution of our rivers has been celebrated.



The legacy for United Utilities (UU) from the URES project have been benefits to the vulnerable moorland habitat. URES educational activities included several visits to Worsthorne Moor, one event in particular included over 30 teenagers from the Challenge Network who took part in the Big Bog Challenge and helped to plant 3,000 cotton grass plugs to reduce erosion of the peat bog. URES also developed the new Geotrail with the permission and support of UU. The Geotrail is largely based on UU land and provides the visitor with up to date information describing features in the landscape in particular the reconstructed lime kiln and sheep enclosure which were built by UU in 1985. Updating the interpretation information has been a helpful outcome for UU staff and also provided an additional audience for URES.



Several venues and organisations benefitted from having URES publications including Burnley Town Hall, Burnley Library, Burnley Tourist Information Centre, Queens Park Café and Towneley Hall. A legacy for Towneley Hall includes the new painting ‘Calder Life’ which forms a key piece in the Wild about Burnley Gallery which hosts thousands of visitors each year. The artwork is also a key educational tool for the 400 school children who visit the gallery each week during the summer season and it features in new river Calder footpath leaflets and Towneley News, the newsletter of the Friends of Towneley Park.

### 5.5 LEGACY FOR RIBBLE RIVERS TRUST

This project was the first of its kind for the Ribble Trust. Not only has it not worked in an urban setting before, it had never simultaneously engaged the public at this level. These challenges resulted in a steep learning curve for the Trust, its staff and partners. Having learnt from the challenges and how to overcome them, the Trust is a much stronger organisation, and has already used many of the specific learnings during the project to improve how it plans and delivers projects, specifically to make lasting improvements to the Ribble Catchment as a whole.



*Members of the steering group visit the completed works at Calder Reach 5*

## 6.0 Lessons Learned

The Urban River Enhancement Scheme represented a new direction for Ribble Rivers Trust, which had previously been focused almost entirely on the delivery of physical improvements to the rivers of the catchment. However in preparation for the URES project, it was recognised that this alone was not sufficient to fully improve and sustain the riverine heritage of Burnley. This was confirmed during the development phase when a sea trout entered the town centre for the first time in over 100 years – a result of earlier fish passage work by the Trust. Unfortunately, a pollution incident then killed the sea trout, as well as a significant number of other fish and invertebrates. The pollution incident was the result of a lack of awareness and education, and resulted in the polluter being prosecuted by the Environment Agency. Subsequently the Trust embarked on its first programme of engagement activities. The results of the evaluation confirm that the awareness and understanding of rivers in Burnley has increased. This has aided in ensuring that the ecological improvements achieved are sustained beyond the end of URES. **As such, the fundamental lesson learnt from the Urban River Enhancement Scheme is that engaging with people, particularly through activities that they are interested in, is vital to achieving and sustaining improvements to the natural river heritage.** This has now been fully adopted by Ribble Rivers Trust as a necessity for any project it delivers in the future.

### The Project

As a result of the URES project, Ribble Rivers Trust went through a significant period of growth which presented a number of challenges relating to project management. These include staffing, managing contractors and consultants, partnership working, procurement and evaluation. Each of these challenges were overcome, however the Trust used these challenges to better inform, manage and plan other projects.

### Staffing

During the initial planning prior to the development phase, Ribble Rivers Trust employed 3 people. It was envisaged that this would be increased slightly by the addition of a Community Engagement Officer to deliver engagement activities and that the other activities such as the management of contractors would be undertaken by the Trust Director (at no cost to URES). However the Trust was successful with a number of other funding applications, resulting in significant delivery and a change in the role of the Trust Director. Additional staff were therefore required to aid in the delivery of URES. **The key lesson learnt from this process was an organisational need to better plan and manage risks such as organisational change and include suitable processes and resources for this.**

### Managing Contractors and Consultants

During the project, a number of contractors and consultants were used to deliver a wide range of activities, from flood risk modelling to re-aligning the river channel. There were a number of difficulties experienced relating to obtaining suitable flood risk modelling and also contractors meeting deadlines. The difficulties related to clear communication of the aims and objectives of the work. Although specifications for works were clearly set out in the development briefs, understanding the 'purpose' and what 'success looks like' were not sufficiently clear. As a result, additional costs were incurred and the delivery of works delayed. These risks had been identified at the beginning of the project and were managed such that the project was delivered successfully. However the **key lesson was that communication of a project's aims and objectives is a critical aspect of ensuring that contractors and consultants understand their role and responsibility within the wider context of delivery.**

### **Procurement**

The greatest proportion of project funding was expended on the river channel re-alignment. Prior to the development phase of the project, limited involvement of contractors and partners was used to identify costs the likely future costs. During the development phase, Barhale undertook some early contractor involvement (ECI) to aid in planning and assessing the tender returns. The outcomes of the ECI were significantly higher than had been expected and resulted in an amended tender process – the tenders were geographically separated to allow for reducing the scale of works to meet the project budget, and ensured that the works were delivered in the key locations to achieve the outcomes of the project. Had there been ECI prior to submitting the development phase application, a more suitable budget and level of aspiration combined with an easier procurement process would have been achieved. As such, the **key learning is that early contractor involvement will enable easier planning of budgets, procurement and achievable aspirations.**

### **Partnership working**

The Ribble Rivers Trust has long been involved in partnership working and has delivered a significant amount of work in this way. However until URES, the partnerships Ribble Rivers Trust was involved in saw the Trust acting solely as a delivery partner. Through URES, the Trust was able to develop skills in co-ordination and creation of partnerships that not only delivered the aims and objectives of URES, but also delivered on a wide range of other objectives and attracted additional funds that helped in delivering and exceeding targets. Through this process, the Trust has taken learnings and applied them to other initiatives, including the Ribble Life Partnership, which aims to deliver projects together to achieve multiple benefits. Therefore the **key learning was that Ribble Rivers Trust could act as both a delivery partner and a facilitator** to embed water into a number of other activities and achieve more together.

### **Evaluation**

Ribble Rivers Trust is a scientifically driven organisation that seeks to use the best available science and knowledge to inform decisions. Given the Trust's previous experience in delivering physical improvements, monitoring and evaluation of ecological response to works was a standard activity that the Trust had the skills in achieving. However by undertaking its first engagement activities, the Trust had little experience in evaluation of engagement activities and impacts on people. Through the Community Engagement Officer, a number of new databases and simple recording forms were created and the Trust has been able to capture information about the outputs of activities, which can then easily be analysed to evaluate the outcomes. The **key learning from this was that setting up and including evaluation at the beginning of projects allowed easier reporting and a more holistic evaluation of the Trust's activities**, which is now embedded into the Trust's way of working.

# Appendix

## Appendix 1

Results of surveys of the public of their “Likes” and “Dislikes” about the rivers in Burnley.

### Dislikes:



### Likes:



## Appendix 2

URES Detailed Project Costs										
Capital works expenditure						Income				
Cost heading	Activity	NET	VAT	Sub total Gross	Actual costs	Match Cash	Contingency	URES HLF	Match GIK	Actual GIK
		£	£	£	£	£	£	%	£	£
New building work	Fish Pass construction, connectivity of the Urban Riverine Habitat	45,303	9,061	54,364	86,194		5,436	10	59,800	-
	Constructing In river-channel Habitat Improvements	327,350	65,470	392,820	394,497	100,000	35,138	12	327,958	-
Other physical work	Interpretation	37,000	7,400	44,400	39,745				44,400	-
	Bankside Access and Improvement Works	91,600	2,400	94,000	95,785	64,600			29,400	25,000
<b>Total Capital Costs</b>		<b>501,253</b>	<b>84,331</b>	<b>585,584</b>	<b>616,220</b>	<b>164,600</b>	<b>40,574</b>		<b>461,558</b>	<b>25,000</b>
<b>Activity Costs</b>										
Cost heading	Activity	NET	VAT	Gross		Match Cash	Contingency	URES HLF	Match in Kind	Match in kind
		£	£	£		£	£	%	£	£
Staff costs	1.5 FT equiv staff & recruitment	63,576	-	63,576	74,944			0	63,576	-
	Expenses (inc. travel and phone)	4,000	-	4,000	9,650		200	5	4,200	
Equipment and materials	Local River Action Groups	18,080	3,616	21,696	14,902		1085	5	22,781	
	River in the Classroom	13,650	1,680	15,330	18,479	5,225	505	5	10,610	
	Love Your River Oral History	7,920	1,584	9,504	4,279	-	475	5	9,979	-
Training volunteers	River Habitat Management Training	23,670	4,734	28,404	24,992	6,250	1108	5	23,262	
Other	Creative Rivers In Burnley Project	18,000	-	18,000	18,000		900	5	18,900	6,160
	When You See Water	20,160	856	21,016	21,016		1051	5	22,067	6,000
Printed materials	Programme of Events	12,850	2,770	15,620	22,349		781	5	16,401	1,000
<b>Total Activity Costs</b>		<b>181,906</b>	<b>15,240</b>	<b>197,146</b>	<b>208,611</b>	<b>11,475</b>	<b>6,105</b>		<b>191,776</b>	<b>13,160</b>
<b>Additional Project Costs</b>										
Cost heading	Activity	NET	VAT	Total		Match Cash	Contingency	URES HLF	Match in Kind	Match in kind
		£	£	£		£	£	%	£	£
Publicity & Promotion	Website and Blog, newsletters and flyers	5,500	1,100	6,600	7,087		330	5	6,930	
Evaluation	Scientific monitoring	9,900	1,980	11,880	12,870		594	5	12,474	7,500
	Auditing and accountancy	1,500	300	1,800	5,875		90	5	1,890	
GIK	Office		-	-						5,625
	Engagement meeting rooms		-	-						1,500
<b>Total Additional Project Costs</b>		<b>16,900</b>	<b>3,380</b>	<b>20,280</b>	<b>25,831</b>	<b>-</b>	<b>1,014</b>		<b>21,294</b>	<b>14,625</b>
	Volunteer time									39,200
<b>Sub totals</b>		<b>700,059</b>	<b>102,951</b>	<b>803,010</b>	<b>850,662</b>	<b>176,075</b>	<b>47,693</b>		<b>674,628</b>	<b>52,785</b>
<b>Total project costs</b>									<b>942,688</b>	<b>1,015,039</b>



# **1 Year interim report: ecological response to restoration of flow heterogeneity in an open culvert**

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Urban River Enhancement Scheme

**Mike Forty**  
November 2014



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## Introduction

Within the last decade the detrimental effects of culverts on rivers and their ecosystems has become a more well-known issue with policies developing to encourage the removal of these structures and to return the river to a more natural condition (e.g. Environment Agency , 1999; SEPA, 2006; CIWEM, 2007; Wild *et al.*, 2011). The detrimental effects of culverting can be in the form of reduced light levels, low heterogeneity and complexity of physical habitat and in-stream conditions, unsuitable hydrological regimes with depth and velocities tending to more extreme values due to flashy hydrographs, and increases in diffuse and point source pollution, which all contribute towards low ecological integrity; additionally effects can be in terms of a loss to society in recreational value, increasing disconnection of society with the natural environment and its waterways (Wild *et al.* 2011). Habitat loss due to fragmentation from the presence of culverts can be high due to only a small number of or a short section of culverted river (Poplar-Jeffers *et al.*, 2008; Wild *et al.*, 2011). This may prove especially detrimental in situations where the culverted section acts as a barrier to passage of upstream migrating fishes such as the Atlantic salmon who need to reach the suitable spawning grounds above the culverted sections, delaying or stopping fish from reaching these spawning grounds and reducing the condition of the fishes which do arrive there. There are many benefits associated with removing or rehabilitating culverted river reaches (see Wild *et al.*, 2011 for a review) which have instigated many restoration projects, however, reporting of the outcomes of the project against their objectives is scarce and lacking in consistency with projects benefitting from a greater understanding of the underlying processes and impacts of restoration efforts (Bernhardt *et al.*, 2005; Palmer *et al.*, 2005).



**Figure 1** – Site 8 pre-restoration

This project focuses on the River Calder which runs for 7 km through Burnley and is cobble lined throughout this entire reach as both an open and closed culvert and as such provides poor

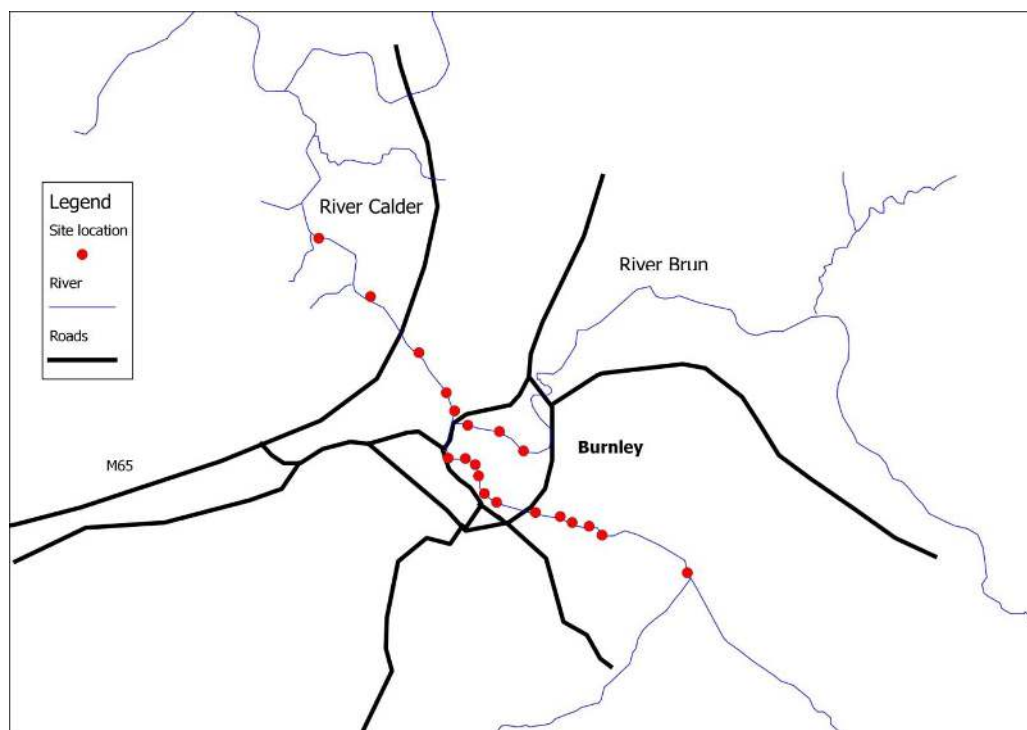
habitat for ecosystems, particularly fish communities reflected in population surveys conducted by the Ribble Rivers Trust (RRT) pre-2013. As part of a Heritage Lottery funded project, the RRT re-profiled the cobble-lined channel as a means of creating pools to improve habitat quality by increasing flow heterogeneity to benefit resident fishes as well as providing resting places for migratory fishes, and to improve food availability by increasing macroinvertebrate diversity and abundance. The aim of this report is to:

- Outline the investigation into the effectiveness of habitat enhancement through increasing flow heterogeneity and complexity in a cobble-lined channel in an urban environment on fish and macroinvertebrate communities; and
- Provide an interim assessment of the results obtained one year post-restoration of two reaches.

## Methodology

### Study sites

The River Calder is completely cobble lined passing through the town of Burnley in both open and closed culverts (Figures 1 and 2). Pre-restoration, the river is a narrow channel in the culverted sections with a depth of up to  $\sim 0.45$  m and a width of 1 – 1.8 m flowing at up to  $\sim 2$  m  $s^{-1}$  in baseline flows. A total of 21 study sites are utilised in this study with six treatment reaches distributed through the cobble lined channel section being restored, four un-lined control reaches (two upstream and two downstream of the town centre), and 11 lined control reaches (both upstream and downstream of treatment areas). This is an increase from 3 sites, distributed downstream and upstream of Burnley town centre which are part of the RRT's annual monitoring programme, providing greater spatial resolution through a heavily impacted area. Two reaches were restored in summer 2013 with the other four completed in summer 2014.



**Figure 2** – Map of study area and locations of study reaches in Burnley



**Figure 3** – Site 9 before (left) and after restoration (right)

### Sampling design and data collection

This study utilised a before-after-control-impact study design with annual sampling conducted at all sites in June-July beginning in 2013 and finishing 2015 with treatment sites sampled before restoration and then annually after restoration is completed. Each site covered at least one cycle of flow-forms present in that section (riffle, run, pool etc.) and was typically at least 30 m long. At each site fish and benthic macroinvertebrates were sampled and physical habitat measured. Fish were surveyed using 3-pass depletion electric fishing surveys conducted by two man teams using a generator powered bankside electric fishing kit (Honda 10i 1 kW and Electracatch International WFC 4 fishing unit). The top and bottom of the sites were blocked using stop nets and fished through three times removing all individuals. All fish were reserved in aerated reservoirs, identified to species and the lengths (fork-length or total length) measured for all salmonids and the first 100 individuals caught per site for each other species with those over 100 being counted but not measured.

Benthic macroinvertebrates were sampled by taking six replicates per site with a Surber sampler (sample area: 330 x 305 mm). The sampler was placed in river and large substrate hand-washed of any invertebrates and macrophytes and then the substrate disturbed up to a depth of 50 mm within the sample area, ensuring all invertebrates are washed downstream in to the net. Samples were preserved on site in 70% alcohol and later sorted and identified to family in the laboratory. Physical habitat was mapped and information on grain-size distribution, depth, flow form and velocity recorded. Grain-size distribution was determined through a visual assessment with % estimated of mud/silt (< 62.5  $\mu\text{m}$ ), sand (62.5  $\mu\text{m}$  – 2 mm), gravel (2-64 mm), cobbles (64-256 mm), boulders (> 256 mm) and bedrock (Wentworth, 1922). Flow form was categorised in terms of % of riffle, run, glide or pool present. Depth-velocity profiles were mapped (Valeport electromagnetic flow meter, model 801, 10 s averaged samples) with five transects for each site with five measurements equally spaced along each transect (three where width < 2 m) and velocity measured at 0.6 of the depth.

## Results

### Physical habitat

The completed restoration works on sites 8 and 9 have successfully provided areas of lower velocity in the form of pool and glide habitat as a replacement of the run flow-form characteristic of the pre-restoration flume-like channel. The works have more than halved the mean velocity in restored sites (mean = 0.905 and 0.306  $\text{ms}^{-2}$  for 2013 and 2014 respectively), meaning they are more reflective of those present in the unlined control sections (Table 1). It can be seen that this was facilitated by

widening the channel as well as increasing the depth (mean = 0.13 and 0.19 m for 2013 and 2014 respectively) through the creation of small weirs (Table 1).

The restored sections were constructed using embedded cobbles in a similar fashion to the original lined channel as naturalising the river bed was not an option due to erosion risks to surrounding buildings. However, the slower flows in the pool/glide sections have created some deposition of natural substrate from upstream in approximately 10% of the reach area. This substrate is predominantly gravel but is also in the form of pebbles, sand and silt.

**Table 1** – Channel dimensions and velocities for all sites with pre- and post restoration for treatment sites.

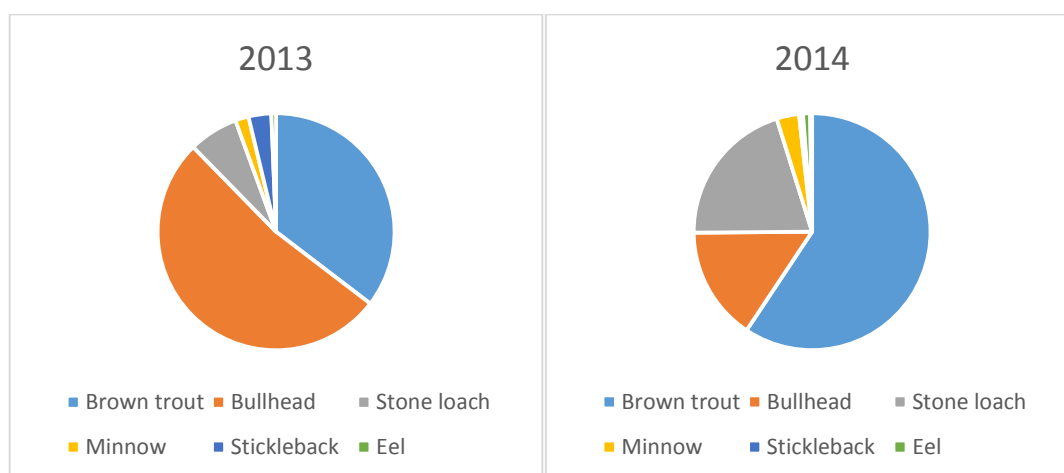
Site Type	Site Number	Mean width (m)		Mean depth (m)		Mean velocity (m <sup>2</sup> )	
		2013	2014	2013	2014	2013	2014
US unlined control		4.45		0.16		0.384	
US lined control		1.50		0.20		0.611	
Treatment	8	1.50	4.30	0.14	0.20	0.867	0.351
	9	1.50	4.93	0.12	0.17	0.942	0.260
DS lined control		1.44		0.16		0.832	
DS unlined control		7.31		0.18		0.296	
Unfinished treatment		1.57		0.15		1.006	

### Reponse of fish communities

There was an overall increase in the number of individual fish caught between 2013 and 2014 (933 and 1380 respectively) with increases being observed in all fish species (Fig. 4). Six species were caught during surveying: brown trout (*Salmo trutta*), European bullhead (*Cottus gobio*), stone loach (*Barbatula barbatula*), minnow (*Phoxinus phoxinus*), three-spined stickleback (*Gasterosteus aculeatus*) and European eel (*Anguila anguila*).

Pre-restoration, the two treatment reaches were populated by brown trout and bullhead with Shannon diversity scores (0.451 and 0.487) lower than the mean for other lined sections (mean = 0.633; Table 2). In 2014, one year post-restoration only brown trout were found present in the two reaches with bullhead not having recolonised and no other species having colonised the reaches.

**Figure 4** – Relative abundance of individuals caught in electric fishing surveys in 2013 and 2014



**Table 2** – Community indices for all sites in 2013 and 2014

Site Type	Site Number	Species Richness		Shannon diversity		Shannon evenness	
		2013	2014	2013	2014	2013	2014
US unlined control	1	1	1	0	0	0	0
	2	3	4	0.921	0.711	0.839	0.513
US lined control	3	3	4	0.966	1.022	0.880	0.737
	4	2	2	0.626	0.685	0.903	0.988
	5	3	2	0.791	0.692	0.720	0.999
	6	2	2	0.693	0.572	1.000	0.826
	7	2	2	0.619	0.682	0.894	0.983
Treatment	8	2	1	0.451	0.000	0.650	0.000
	9	2	1	0.487	0.000	0.702	0.000
DS lined control	10	3	2	0.760	0.681	0.691	0.983
	11	2	3	0.520	0.956	0.750	0.870
	12	1	3	0.000	1.055	0.000	0.960
	13	2	4	0.693	0.794	1.000	0.573
DS unlined control	14	3	4	0.642	0.605	0.585	0.436
	15	4	5	0.957	1.094	0.690	0.679
Unfinished treatment	16	2	2	0.562	0.546	0.811	0.787
	17	2	3	0.637	0.628	0.918	0.571
	18	1	3	0.000	1.055	0.000	0.960

### Brown trout

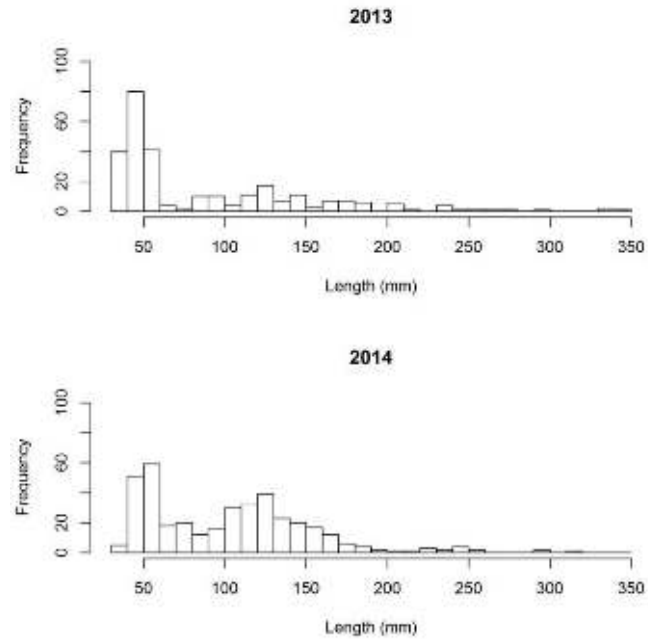
Brown trout were the only species found to be present in all surveyed reaches (Table 3). The total number of brown trout captured across all sites increased in 2014 as a result of a large increase in the number of 1+ trout (where 1+ refers to a fish of any age above 1) in 2014 outweighing a smaller decrease in total age 0+ trout caught (Figure 5 and 6).

In the two restored reaches there was a marked change in both the number of brown trout present as well as the age structure of the population. Pre-restoration, the sites had total brown trout densities of 11.11 and 37.78 fish/100m<sup>2</sup> compared with the mean for lined control sections of 25.29 fish/100m<sup>2</sup>. Post-restoration, despite increases in the number of trout caught in each site, densities of total trout within treatment reaches reduced (Table 4) due to 4 – 5 fold increases in the channel area as part of the restoration (see Table 1). However there was a marked increase in the number of trout per unit length of river for treatment sites between 2013 and 2014 (mean = 0.367 and 1.197 fish/m respectively; Fig. 7). Despite a mean increase across control sites also being observed (mean = 0.941 and 1.165 fish/m), the increase in the mean was noticeably higher for restored sites (0.831 fish/m) than for control sites (0.224 fish/m).

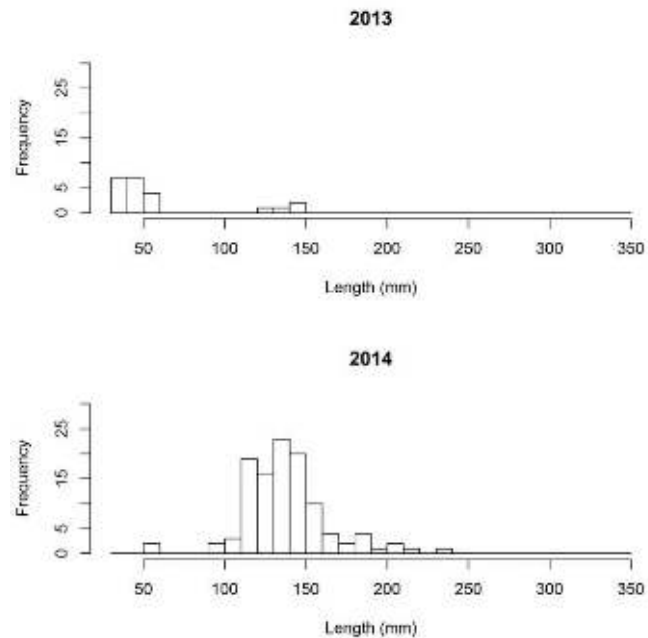
### Age structure

Enhanced growth caused by mild winter temperatures in 2013/2014 were reflected in the 0+:1+ fork-length boundary determined from fork-length histograms (Fig. 5 and 6; 2013 = 75 mm and 2014 = 85 mm). The low numbers of 0+ trout and a greater mean increase in 1+ trout found in lined compared with unlined sites has led to stark changes in the 0+:1+ trout ratio within lined sites in

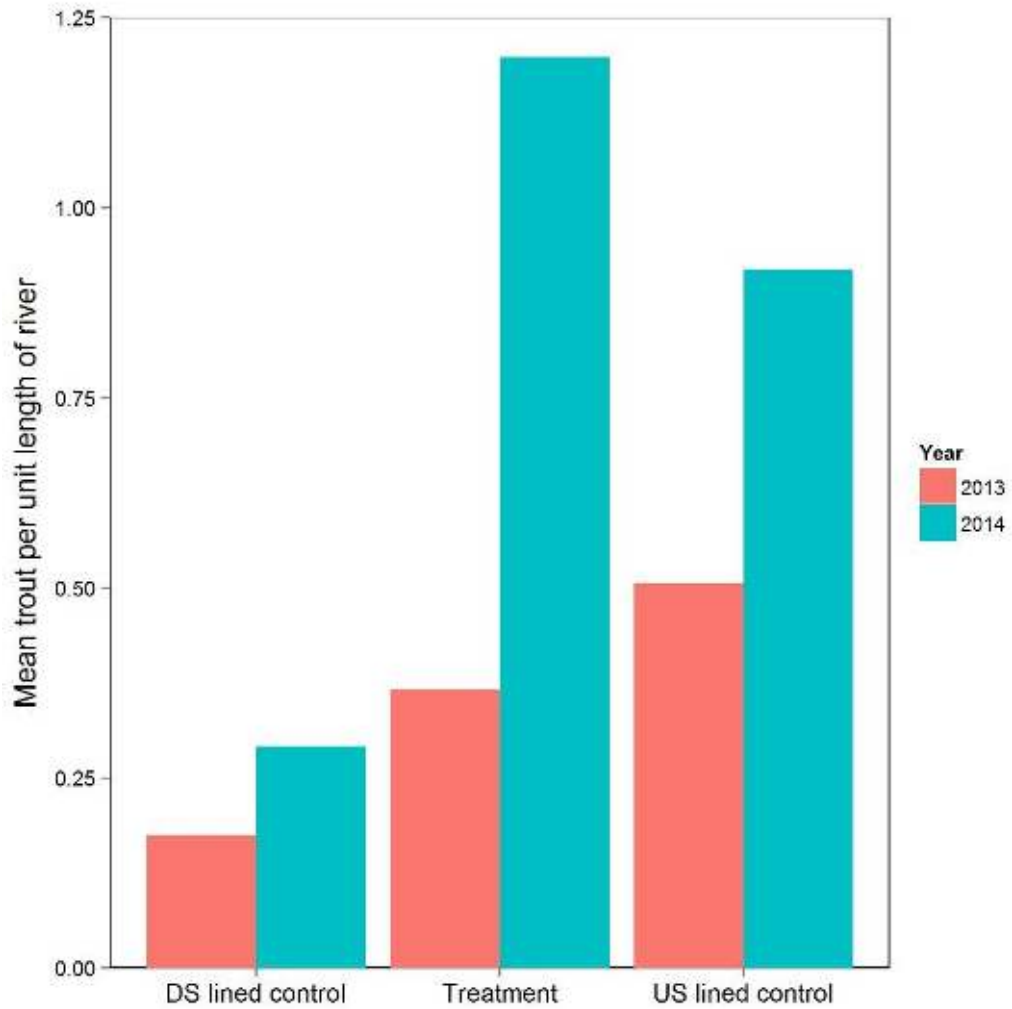
2014 (Table 4). Restored sites saw the greatest change in brown trout population structure between years with both becoming dominated by the 1+ age group (Table 4; Figures 5 and 6) with only one 0+ individual being caught in each site in 2014.



**Figure 5** – Length-frequency histogram of brown trout for all control sites in 2013 and 2014



**Figure 6** – Length-frequency histogram of brown trout for treatment sites before and after restoration



**Figure 7** – Mean brown trout per unit length of river pre- and one year post-restoration for lined control and restored sites

**Table 3** – Showing the presence (✓) or absence (✗) of fish species within surveyed reaches

Site Type	Site Number	Brown trout		Bullhead		Stone loach		Minnow		Stickleback		Eel		Species Richness	
		2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014
US unlined control	1	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	1	1
	2	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✗	✓	3	4
US lined control	3	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✗	✓	3	4
	4	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	2	2
	5	✓	✓	✓	✓	✗	✗	✗	✗	✓	✗	✗	✗	3	2
	6	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	2	2
	7	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	2	2
Treatment	8	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	2	1
	9	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	2	1
DS lined control	10	✓	✓	✓	✓	✗	✗	✗	✗	✓	✗	✗	✗	3	2
	11	✓	✓	✓	✓	✗	✗	✗	✗	✗	✓	✗	✗	2	3
	12	✗	✓	✓	✗	✗	✗	✗	✗	✗	✓	✗	✗	1	3
	13	✓	✓	✓	✗	✗	✓	✗	✗	✗	✗	✗	✓	2	4
DS unlined control	14	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	3	4
	15	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	4	5
Unfinished treatment	16	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	2	2
	17	✓	✓	✓	✓	✗	✗	✗	✗	✗	✓	✗	✗	2	3
	18	✓	✓	✗	✓	✗	✓	✗	✗	✗	✗	✗	✗	1	3
<b>Total</b>		17	18	16	13	2	4	1	1	4	6	1	4	6	6



### Other species

After brown trout, bullhead were found to be the most widely distributed throughout the area surveyed being present at 16 sites. The only site they were not present at in either year was site 1 which is a species poor site and more geographically isolated than the other sites being further upstream in the River Calder. There was a noticeable loss of bullhead in 2014 in restored sites, however they were only present in low numbers in 2013 (1 and 4 individuals for sites 8 and 9 respectively). Low densities of bullhead within the surrounding lined sections combined with their low mobility may explain their absence from restored reaches.



**Figure 8** – European bullhead (*Cottus gobio*)

Stickleback, stone loach and eel were also found to be present within the lined channel sections with stickleback coinciding with the presence of backwaters within sites where the lined channel had broken up and water velocities were slower. The number of eels had a slight increase in 2014 to 9 from 6 found in 2013. However the range of their distribution was much greater in 2014 being found at 4 sites compared to just one of the unlined control sites downstream of the town in 2013. In 2014 they were found to be present in the lined sections of the Rivers Calder and Brun with individuals being found above the town centre in the upstream control site within Towneley Park giving evidence to the functionality of recently constructed fish passes on the tributary of the Rivers Brun and Calder. Stone loach, having being isolated to the downstream control sites within 2013, were found to be present at two of the downstream lined control sites below the Calder-Brun confluence in 2014. Minnow were found in low numbers in both 2013 and 2014 at the most downstream unlined control site only.

The dynamic nature of the lined channel sections with fast flows likely to be causing regular displacements of fish, especially those with lower mobility such as stickleback, means that where densities of species are low, all individuals from a site may be displaced from one site to colonise another downstream multiple times throughout a year. This may explain the lack of stickleback and bullhead in some of the lined channel sections in one year and then being present the other.

**Table 4** – Mean values of density, fish per unit length and 0+:1+ ratio for brown trout.

Site Type	Mean densities						Mean fish per unit length							
	Total trout		0+ trout		1+ trout		Total trout		0+ trout		1+ trout		0+:1+ trout ratio	
	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014
US unlined control	64.53	75.82	35.05	44.25	29.48	31.57	2.60	2.85	1.57	1.57	1.03	1.28	1.52	1.33
US lined control	36.04	64.35	17.83	15.97	18.21	48.38	0.54	1.17	0.28	0.24	0.26	0.93	5.04	0.25
Treatment	24.44	26.15	20.00	0.47	4.44	25.68	0.37	1.20	0.30	0.02	0.07	1.18	4.33	0.02
DS lined control	11.86	23.15	6.61	4.05	5.25	19.10	0.23	0.37	0.13	0.07	0.10	0.30	1.40	0.39
DS unlined control	6.79	8.23	5.38	5.05	1.42	3.18	0.48	0.60	0.38	0.37	0.10	0.23	4.00	1.60
Unfinished treatment	6.99	15.26	3.19	1.08	3.81	14.18	0.13	0.26	0.06	0.03	0.07	0.24	0.83	0.11

## Macroinvertebrates

Macroinvertebrate samples taken during 2013 and 2014 are still in the process of being identified so this data will not be analysed within this report. Table 5 identifies the families which have been found present in samples identified thus far from the lined channel sections.

**Table 5** – Benthic macroinvertebrate species found present in samples processed from lined channels thus far.

ORDER	FAMILY
AMPHIPODA	GAMMARIDAE
COLEOPTERA	DYTISCIDAE ELMINTHIDAE
DIPTERA	CERATOPOGONIDAE CHIRONOMIDAE SIMULIIDAE
EPHEMEROPTERA	BAETIDAE EMPHEMERILLIDAE
GASTROPODA	HYDROBIIDAE
TRICHOPTERA	HYDROPSYCHIDAE RHYACOPHILIDAE

## Discussion

One year post-restoration treatment reaches have undergone stark changes in fish communities with increases in the number of brown trout found and the loss of bullhead in both sites. The increase in velocity and depth heterogeneity created through restoration appears to be providing a more suitable habitat for 1+ brown trout which have colonised the restored sites quicker than other species. This dominance may be the result of a number of contributing factors including the higher mobility of 1+ brown trout in comparison with 0+ trout (which are less likely to range) and other species found in this area, the flow form of the restored sections and the lack of cover any form of cover leading to high predation rates by 1+ brown trout. Slower flow through the restored sections may allow for 1+ trout to spend more time actively feeding in comparison with other pre-restoration conditions. Combined with a lack of cover afforded to smaller fish from low deposition of natural substrate (gravels etc.) this could explain low abundances of 0+ trout and the absence of other species. Low abundance of 0+ brown trout is common place through most of the lined sections of the River Calder, due to the lack of spawning substrate throughout the man-made channel. Higher densities do occur in the lined channel in sections where suitable spawning substrate has accumulated (e.g. site 5) in combination with the presence of riffle habitat or there is a spawning area in close proximity upstream where individuals can be washed downstream in elevated flows (e.g. site 3). With this in mind abundance of 0+ trout may increase over time with natural substrate deposition. However, the lack of riffle habitat within the restored sections is likely to be a limiting factor.

Newly created channels are known to take time to stabilise both ecologically and in terms of physical habitat, with habitat likely to be enhanced by natural substrate deposition and fish communities changed through colonisation by other species and an increase in food availability through benthic macroinvertebrate colonisation.

## Future work

Surveying will continue across all sites in June/July 2015 to give data on two years post restoration for sites restored in 2013 and 1 year for those restored in 2014. The final report will include data complete results on fish communities, physical habitat changes as well as macroinvertebrate communities. This will give a fuller picture on the ecosystem response to the physical restoration of these reaches on the Rivers Calder and Brun.

## Acknowledgements

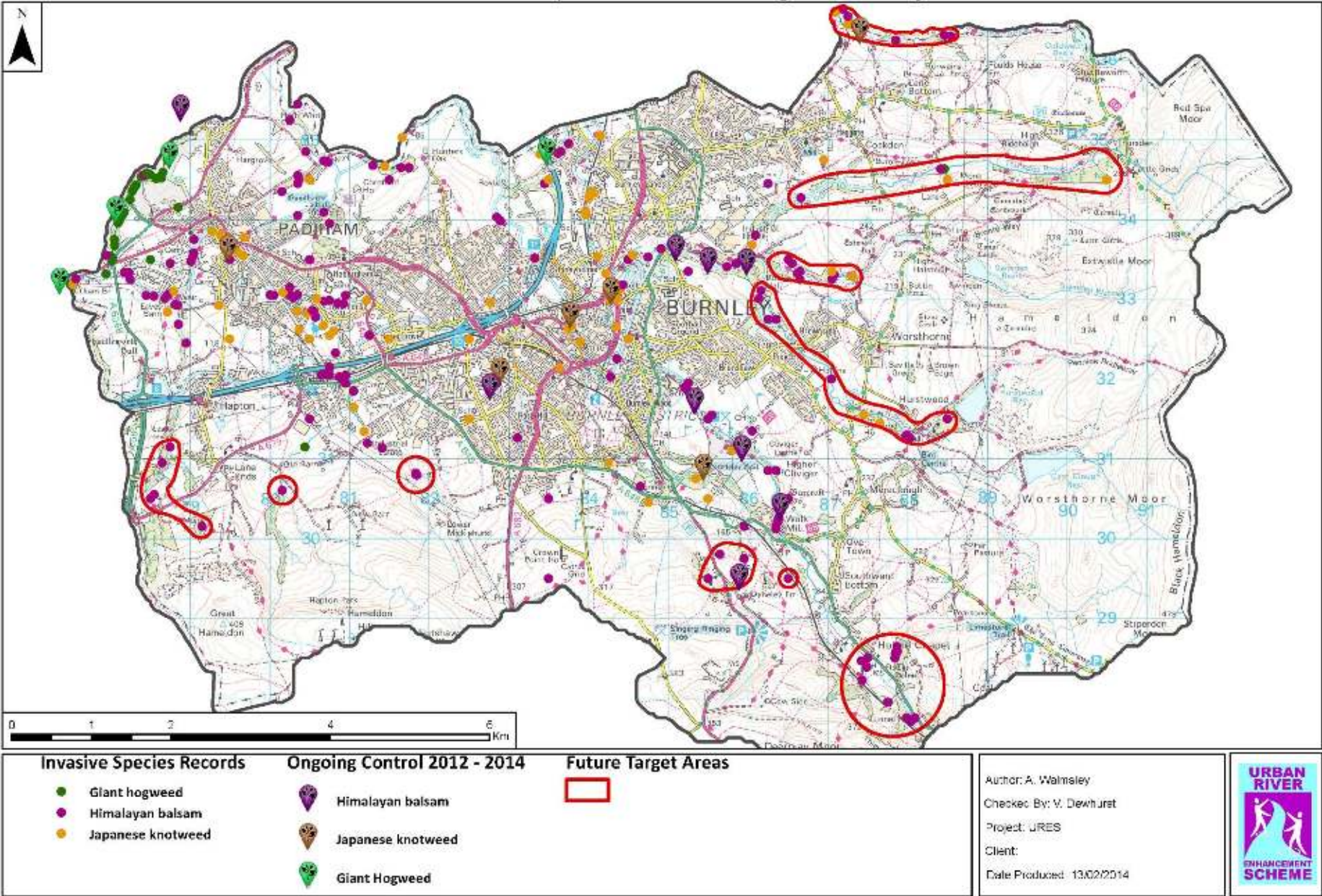
Thanks go to those who have aided in this work, notably Gareth Jones, Paul Peters and Adam Wheeler for their contributions to fieldwork and Jack Spees and Dr. Martyn Lucas for their guidance and supervision. Thanks also to the Heritage Lottery Fund and DEFRA's Catchment Restoration Fund for providing funding for this work.

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Appendix 4

Invasive Species in the Borough of Burnley



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# Rivers in The Classroom 2015

## Achievements and Outcomes





## Background

The 'Rivers in the Classroom' (RIC) scheme was introduced into Burnley schools as part of the Urban Rivers Enhancement Scheme (URES) in 2014. URES was conceived and developed by the Ribble Rivers Trust (RRT). With Heritage Lottery Funding (HLF) the scheme was designed to improve/restore the rivers of Burnley for the benefit of wildlife and local people. Part of the scheme involved physical improvements to the river channels to ease movement and provide resting places for fish. However, along with other activities, the RIC was designed to engage the community of Burnley particularly the children who will be the future guardians of the river.

Building on the experience and outcomes from last year's 'Trout in the Classroom' where six Burnley schools took part, this year's scheme involved eight schools with ten sets of equipment and a total of eleven classes.

Five of the six schools who took part last year signed up to take part again these, together with three new schools, one with three classes in each year and one with two classes in one year meant that we had to increase the number of tanks to ten. This was particularly pleasing as these schools were disappointed after wanting to take part last year but there wasn't the equipment available.

With the addition of the extra schools the mix of socio-economic and ethnic backgrounds, that reflects the diverse community of Burnley, was maintained with a total of 34 % participation from children with minority ethnic heritage.



All participants were invited to a teacher training event in November 2014 where the new schools were introduced to the scheme, given a demonstration of the equipment and shown examples of the work the schools had produced during the last scheme. The training session was based around lessons learnt from last year and the input from teachers who took part last year was invaluable for the new schools. Ideas and



examples of how the scheme was linked to the national curriculum were exchanged and this gave the new schools a head start on last years.

One Teacher commented:

*"The event told me everything I needed to know to take part in the scheme, fully informed".*

Schools that took part last time and were taking part again were **St Peter's, Ightenhill, Springfields, Holy Trinity and Stonneyholme.**

The new schools were **Cliviger, Worsthone and Heasandford.**

*Heasandford is one of the largest schools in Lancashire with three classes of thirty children in each year group. With the introduction of three tanks this allowed ninety children could take part.*

Each school was advised which year group to select and most chose their year four's which allows us to carry out further activities into the following year before they leave for secondary school.

#### Time Line

The equipment was installed into the schools in late December and eggs were delivered during early January. Following hatching and development of the fry they were released in late March into local streams and rivers.



*This year the eggs were introduced at a later stage in their development resulting in a much increased survival rate during the early development of the fry with only one egg in a thousand not hatching.*

## Summary

The Rivers in the classroom (RIC) scheme ran over 5 months between January and May 2015 and was again made possible by funding from the Heritage lottery. This funding enabled 8 Burnley schools to take part in the scheme.

Based on the experiences gained from last year's TIC this year every school took part in 'Mayfly in the Classroom' which is an extension of the TIC and involves collecting Mayfly from their local river, after the trout have been released, and placing them in the same tank the trout occupied. This allowed the children to observe the life cycle of invertebrates from their local rivers and then contribute by releasing them back into the local environment.

This Nationally recognised scheme not only engaged the children but also the teachers, support staff and parents. A demand for further river based activities from all the schools demonstrates a potential lifelong interest having been engendered in all who participated.

One of the main achievements has been to highlight the unique and rich cultural heritage of the rivers of Burnley and signpost ways of engaging with them through further research, recreation and sporting activities.

In total **342** children took part directly by participating in all sessions however many more were indirectly involved due to just having the fish in their school.

All schools who took part returned their evaluations and all were positive about the RIC and how it had been run. To emphasise this they were all enthusiastic to participate in future schemes. One teacher commented;



*"The children were given experiences and learning opportunities both inside and outside of the classroom which enriched and enhanced their understanding of the local area. They were given an insight into environmental issues through firsthand experience"*

Teacher

## Evaluation

The evaluations took the form of a pre and post evaluation of the children's knowledge of;

- The rivers of Burnley
- The wildlife in and around the rivers of Burnley
- The issues effecting the environment in and around rivers and
- The life cycle of the trout.

In summary, previous to the scheme, the level of knowledge about the above was mainly poor across all the schools but post the scheme the knowledge had, in all cases, improved to good or very good. See appendix 1

Teachers were also given the opportunity to comment on all aspects of the scheme and encouraged to suggest improvements based on their experiences.

## Results

Experience gained from running the scheme last year was utilised to good effect both by RRT staff and teachers with few problems being encountered.

The main issue that contributed to most problems last year was identified as over feeding the fish. To counter this, the problem was highlighted at the teacher training event and emphasised throughout. This resulted in far fewer fatalities and a marked reduction of emergency calls to RRT staff.

## Artistic Sessions

All schools were especially pleased again with the input from the professional artist, Gordon (literacy and art) and Steve (Music) and commented that the time allocated to the sessions could be longer to allow them to explore other ideas.

The artist really have added value to the scheme but, with more schools taking part, there were fewer sessions. To cover this in the future the artist have, based on their previous involvement, produced work books that include lesson plans that can used in future schemes without the need to employ the artists.

## Links to curriculum

As mentioned earlier this year's participants were able to utilise the experiences from last time to include and expand ideas around the curriculum.

Examples of this include:

- Science of life cycles
- Literacy using explanation texts
- Rivers around the world
- The trail of the river Brun
- Poetry
- Art
- Geography activities linked to rivers
- Writing activities linked to the journey of the trout.



When asked if the scheme help to introduce topics into the national curriculum one teacher commented:

*"Yes, I linked the trout to our work in Science on life cycles. It fitted perfectly with what we were doing and gave the children firsthand experience. I could also link in literacy using explanation text" (Teacher).*

## Equipment

There were very few problems with the equipment this year, again mainly due to the knowledge gained from previous schemes.

## Follow-on activities



All schools have or have planned to take part in extra activities including river walks and fishing demonstrations. As a result, it is planned to further develop these activities to provide a more structured approach and a lead onto other activities such as fishing lessons with other organisations. One teacher commented:

*"We would be interested in taking part in any follow up activities, already had a great river walk with Neil and Steve". (Teacher)*

One school, following the release of their trout, took part in a treasure hunt along the banks of the river Brun. The treasure trail was developed and produced by RRT staff. By arranging the release in a local park, down river from the school, the children were able to follow the trail and walk back to school.



It was pleasing to see how many parents and grandparents remained with the children during the release and the subsequent walk back to school.

One grandparent commented:

*"I've learnt more about my local river in the last hour than I have living in the Town for 65 years"*

(Burnley Resident)



This demonstrates how the scheme has had a wider influence than just on the children directly involved to encompass family and friends.

This year saw the introduction of the Geomorphology table that allows children to further explore rivers and how they are formed.

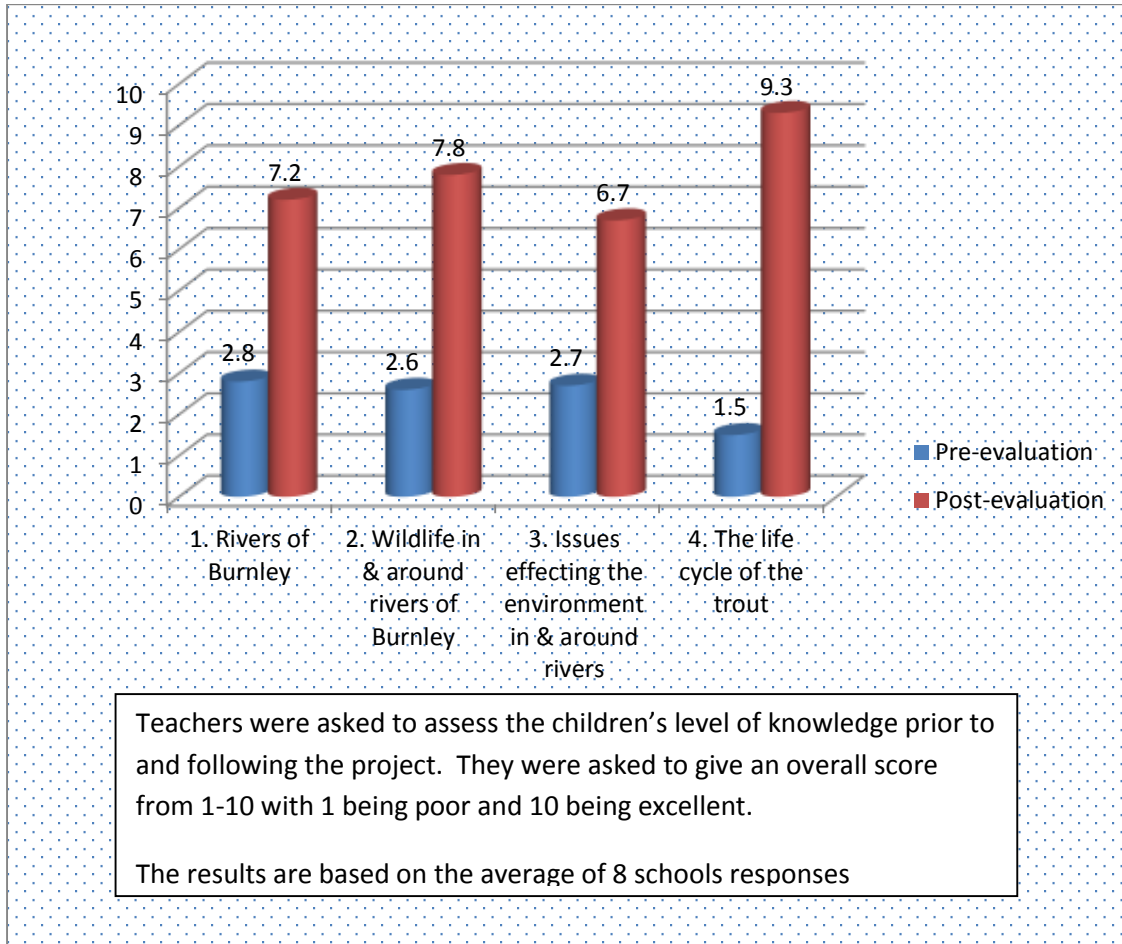


Children can be shown in a practical, hands on way how:

- Rivers are formed
- Altering rivers can be both good and bad
- The Ribble Rivers Trust is working to promote good practices including:
  - Preventing erosion
  - Cooling down rivers
  - Preventing pollution and improving the river for people and wild life.

# Appendix 1

## Evaluation Learning Outcomes Results 2015



From the above we can see that there was an improvement in the children’s knowledge with the life cycle of the trout being the most improved.

## Appendix 2

### Key Outcomes

342 Children directly took part in the scheme that involved:

- 30 Presentations by RRT Staff
- 2 river walks including a treasure hunt
- 10 fish releases
- 10 invertebrate sampling sessions
- 10 fishing demonstrations
- 12 artistic sessions.
- 8 volunteer days.
- 362 RRT newsletters delivered to homes via children, teachers and teaching assistants.
- 2 Geomorphing presentations

## Appendix 6

**FINAL REPORT****Submitted by Rachel Hawthorn****November 2014****Overview**

Undercurrents has given young people in Burnley the opportunity to discover and explore the hidden rivers that run beneath the town using photography, film making, visual art and creative writing. Based in the Crib in Burnley Central Library, a group of 13 to 19 year olds have met regularly over the past 18 months to take part in creative activities lead by professional artists, and to work towards their Arts Award(s).

Undercurrents is part of Burnley's Urban Rivers Enhancement Scheme (URES) run by the Ribble Rivers Trust, and is managed by Burnley Leisure's Arts Development Team. The project is funded by the Heritage Lottery Fund.

The delivery of the second year of Undercurrents included satellite sessions at Burnley College and the Burnley's Autism Resource Centre (ARC), recognising that certain groups of young people would not be able to engage with a project based solely at the Library and with the intention for the project to reach more diverse groups of young people.

As a separate venture, we also coordinated fish making arts workshops at a range of public events throughout the summer as well as in local schools and community centres. These workshops generated over 200 handmade fish entries towards the Fish Race as part of the URES Big Splash event. Taking these participative workshops into the diverse communities of Burnley enabled URES to engage with audiences from much broader age range, particularly children aged 3 – 11 and family groups.

**Highlights**

- Increased confidence, opportunities and skills for local young people, including trips out in nature, building friendships, and inclusion of family and friends in trips and workshops
- Accreditation through national Arts Award scheme
- Generating increased publicity opportunities for URES, including listing on [www.pointme.org.uk](http://www.pointme.org.uk), Burnley's bespoke What's On website, and feature



the Summer Fun brochure, distributed to all school children in the borough

- Engagement of a range of communities at public events on behalf of URES, promoting Undercurrents and URES to a wide audience including disseminating URES newsletters and passing on enquiries to RRT office
- Running a blog about the project, attracting new audiences online [www.burnleyundercurrents.blogspot.co.uk](http://www.burnleyundercurrents.blogspot.co.uk)
- Positive new partnership opportunities with a wide network of organisations in Burnley and beyond
- Generating increased opportunities for outreach work throughout the communities of Burnley as well as a central location at Burnley Library
- Publicity through a network of Burnley Libraries of URES and Undercurrents events and activities
- Burnley Library Staff mentored in Arts Award delivery
- Providing employment for 6 local freelance artists

## Engagement and Delivery

- *Total number of children and young people engaged at workshops = 230*
- *Number regularly engaged as part of Undercurrents Core Group = 12*
- *Number of autistic young people engaged at ARC = 20*
- *Number of people engaged from BME communities = 27*
- *Wider engagement at public events = approx. 800*

Artist-led workshops have taken place 15 different venues:

- Burnley Central Library – Children’s Library and the Crib
- Autism Resource Centre
- Thompson Park, as part of Rangers Day
- Towneley Hall
- St Peters Centre, Half Term activity club
- Rose School
- Tay Street Children’s Centre
- Burnley Wood Children’s Centre
- Queens Park, at Building Bridges Fun Day
- Burnley Campus Library, Barden Lane
- Burnley Youth Zone
- Stoops Community Centre
- Town Centre as part of the Big Splash
- Burnley College
- Burnley Canal Festival, Inn on the Wharf

Art forms have included photography, film making, collage, decoupage, origami, illustration, painting, print and poster making, typography, creating characters, paper sculpture, making books, creative writing, collage, making collections, making magnetic poetry, and using craft materials to make colourful fish. Artistic outcomes include:

- 174 Fish made for Fish Race as part of the Big Splash, documented on Fish Race facebook page
- 4 short films inspired by the rivers made by young people as part of their Silver Arts Award project. Shown on the blog and available on DVD.
- Numerous handmade books, illustrations, drawings, collages, badges, paintings, collections etc have been made by participants. These have been displayed at the Library and have been taken home by the participants.
- Giant river collage created at ARC
- Exhibition of art work held at The Crib in Burnley Central Library in Autumn 2013
- Film showing and exhibition was held at The Crib in Summer 2014
- The Undercurrents blog which displays photos of all artwork, record of all sessions, and documents the process of the project including reviews from participants.

We have worked with 2 lead artists – Lucy Bergman for Undercurrents and Phil Bradley for the Fish Race. We have had 4 guest artists join the project for several sessions, bringing specialist skills and experience. Guest artists were:

- Talya Baldwin, Illustrator
- Helen Roberts, Sculptor
- Martha Jurksaitis, Super 8 Filmmaker
- Sophie Gibson, Illustrator and Collage Artist

### **Arts Award**

- *Number of qualifications completed so far = 8*
- *Number of awards started and still to complete = 6*
- *Number of young people progressing to next level of Arts Award = 7*
- *Number of sign ups to new Arts Award programme at Library = 8*

Arts Award delivery has been built into the project planning from the start. This has enabled core participants to gain a national qualification. Several have progress from Bronze to Silver and are now about to embark on their Gold award as a result of their involvement in Undercurrents.

One of the key successful outcomes of the project is that Arts Award delivery is now embedded at Burnley Central Library. Library staff set up and ran their own Arts Award scheme for the first time in 2014 as a direct result of the experience and mentoring gained through working in partnership with Burnley Leisure and URES on the delivery of the Undercurrents project.

Linking in with Arts Award gives a national platform on which we have showcased Undercurrents. We have gained coverage on [www.artsawardvoice.com](http://www.artsawardvoice.com) and on Arts Award Facebook and Twitter pages. This link has given the young people the sense of being part of something much bigger, which enriches the project's focus on the local area.

## Partnerships

The project has enabled Burnley Leisure to extend and deepen our partnerships with a variety of local organisations.

Working with Ribble Rivers Trust to explore the rivers of Burnley up close, to organise and host activities which enabled the young people to find out more about the natural heritage, ecology and wildlife associated with the river as well as the health and safety aspects of working close to rivers and water bodies.

We already had a good working relationship with Burnley Library, particularly the Crib. The project has allowed us to offer mentoring to library staff around Arts Award and to directly support the establishment of the Crib's Youth Forum.

We have extended our relationship with Burnley College, delivering workshops in their building for the first time, exhibiting at their Fresher's Fair and working with their Creative Arts and Media department towards an HLF Young Roots funding bid for a new Arts Award project based in Thompson Park.

The Fish Race project has also allowed us to deliver workshops for a number of community venues with whom we have an existing relationship and to approach new venues and deliver workshops for them, enabling new connections which we can build on in the future.

In particular we have established a new working relationship with the Autism Resource Centre which we intend to continue and broaden in future.

## Promotion and Publicity

- Adverts and press releases featured in Burnley Express
- Half page advert in "Summer Fun", the Council young people's summer brochure which is sent to all children in schools in the borough.
- Posters and postcards for the project distributed throughout the local area - through Burnley's Librarys, YPS centres, schools, arts venues, community noticeboards, cafes, CVS centre, Council Contact Centre etc.
- Local What's On website [www.pointme.org.uk](http://www.pointme.org.uk) has been used to promote the project and specific workshops and events
- The Project Blog has racked up 2,444 page views so far. Managed collaboratively between project manager Rachel Hawthorn and artist Lucy Bergman, the blog features photos, films and write-ups of all the sessions that have taken place. See [burnleyundercurrents.blogspot.co.uk](http://burnleyundercurrents.blogspot.co.uk)
- Social media has been widely used to promote the project.
  - We have used our own Facebook pages: "Crib Creative" which is targeted at young people who attend creative activities in the Crib and our general page "Burnley Creative". We have also set up a Facebook Group for Undercurrents participants and project artists

to communicate with each other, plus a separate page for the Fish Race.

- Twitter has been used to promote the blog using #Undercurrents. The Twitter reach for #Undercurrents = 19,611 twitter accounts reached. Tweets have been retweeted by @ArtsAward and @RibbleLife among others.

## Budget

Expenditure	Available	Spent
<b>Undercurrents</b>		
Artist Fees	10000	10170
Equipment and Materials	3000	3290
Marketing	2000	1992
Arts Award	2000	2098
Crib Hire	1000	1000
<b>TOTAL</b>	<b>18000</b>	<b>18550</b>
<i>Remaining</i>		-550

<b>Fish Race</b>		
Artist Fees	1400	1225
Materials	1000	775
Project Management	900	900
Contingency	150	0
<b>TOTAL</b>	<b>3450</b>	<b>2900</b>
<i>Remaining</i>		550

<b>OVERALL TOTAL</b>	<b>21450</b>	<b>21450</b>
<i>Remaining</i>		0

In kind contributions	
<b>Undercurrents</b>	
Crib Hire (Library)	1000
Project management (Burnley Leisure)	4000
Volunteer time	1000
<b>TOTAL</b>	<b>6000</b>

<b>Fish Race</b>	
Project management (Burnley Leisure)	450
<b>TOTAL</b>	<b>450</b>

<b>IN KIND OVERALL TOTAL</b>	<b>6450</b>
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## Lessons learned

- As an area of low engagement in the arts, it is typically very challenging to recruit young people to a project like Undercurrents. Some recruitment through schools was achieved; more focus on school contacts at the initial stage could have improved recruitment figures for the Core Group, perhaps beginning earlier in the year, well before the school holidays. Taster sessions could have been run in schools to give the young people more of an idea of the project
- Promotion in the second year could have been improved. The Silver Arts Award group took on the task of promoting the summer workshops and did a good job of distributing flyers etc. Other promotional activity was also achieved, e.g. advertising in Summer Fun, however promotion through schools again and at other events could have improved recruitment for Year 2 summer workshops.
- Unfortunately we missed the opportunity to put up Undercurrents display in RRT shop window in Burnley Town Centre during the summer 2014, partly due to not knowing about the opportunity in advance enough to produce a display, and partly due to staff absences over the summer holidays.
- Although we had planned for the group of autistic young people at the ARC to visit the river in one of their sessions this didn't happen. Arrangements were changed at a late stage due to ARC staffing concerns. As this was our first project working with the ARC we have been on a learning curve about working with them and have learnt that for activities to be planned outside of their centre a lot more staff support and engagement would be needed in advance.
- The sessions that were initiated at Burnley College did not complete due to participation dropping off. The project could have been more embedded in Burnley College's enrichment programme to ensure a better take-up.
- Some of the young people had not completed their Silver Arts Award portfolios by the time the project came to an end. Despite having ample opportunity and support to complete, some of the young people simply didn't have impetus to complete in time. They are still able to complete the award through the Library or other local providers of the scheme. Many of the core group have sustained their involvement in the project over 18 months which is impressive for that age group, however some momentum was lost during summer 2014 due to lack of recruitment of enough new young people to refresh the group.

## Legacy

- Artwork created at ARC will be displayed at the RRT URES conference in March 2015, along with a showing of the Silver Arts Award films and table display of promotional materials from the project.

- As part of the final phase of the project in Summer 2014 the Core Group took part in the process of developing a Heritage Lottery Fund Young Roots bid focussed on Thompson Park. They have spent quite a bit of time in the park as the River Brun runs through there, and they were keen to find a way to continue to do creative workshops together and to give other young people the opportunities that they have had. Consultation has been carried out with creative arts and media students at Burnley College and this project is now being submitted to the HLF by Burnley Leisure, working in partnership with Burnley College.
- Burnley Library have continued to run the weekly Arts Award drop in sessions which were set up as part of Undercurrents. They have also developed their own Arts Award programme, which launched in summer 2014. Young people have been directly signposted from Undercurrents to the new Arts Award scheme.

### **Feedback from partners and artists**

*"Thank you for organising for the artist to come to the children's centre on Saturday. The event was a success and the dads and their children really enjoyed making the fish." Burnley Wood Children's Centre*

*"I think that the project allowed for a really good balance of indoor and outdoor creative activities and that meant I was also able to devise activities that encouraged the group to look around them, at their environment and also within themselves and think about how they could respond to their environment in a personal/emotional way." Lucy Bergman, Undercurrents Lead Artist*

*"The participants confidence grew not only in relation to expressing themselves artistically but also in relation to making decisions around planning events, public speaking and generally helping to make their ideas possible." Lucy Bergman*

### **Feedback from participants**

"I thought it was fun because I got to splash in the river. I saw things people don't usually see."

"I think Undercurrents is a great experience"

"It was an amazing few weeks where we learned new skills and meet new people"

"I loved going into the river!"

"More river walks please!"

"People don't appreciate the rivers in Burnley enough"

“Burnley’s rivers have taught me that beauty can be found, if only people would learn to see things differently”

“I really enjoyed every part of the project”

“Burnley’s rivers are really interesting!”

“It’s important for young people in Burnley to learn about our rivers because they are beautiful things that flow through our home town”

“The rivers are lovely. I’ve loved learning new things about the place where I live.”

## Links

For the Undercurrents blog go to:

[www.burnleyundercurrents.blogspot.co.uk](http://www.burnleyundercurrents.blogspot.co.uk)

The Films are available at:

<http://www.burnleyundercurrents.blogspot.co.uk/2014/09/mollys-film.html>

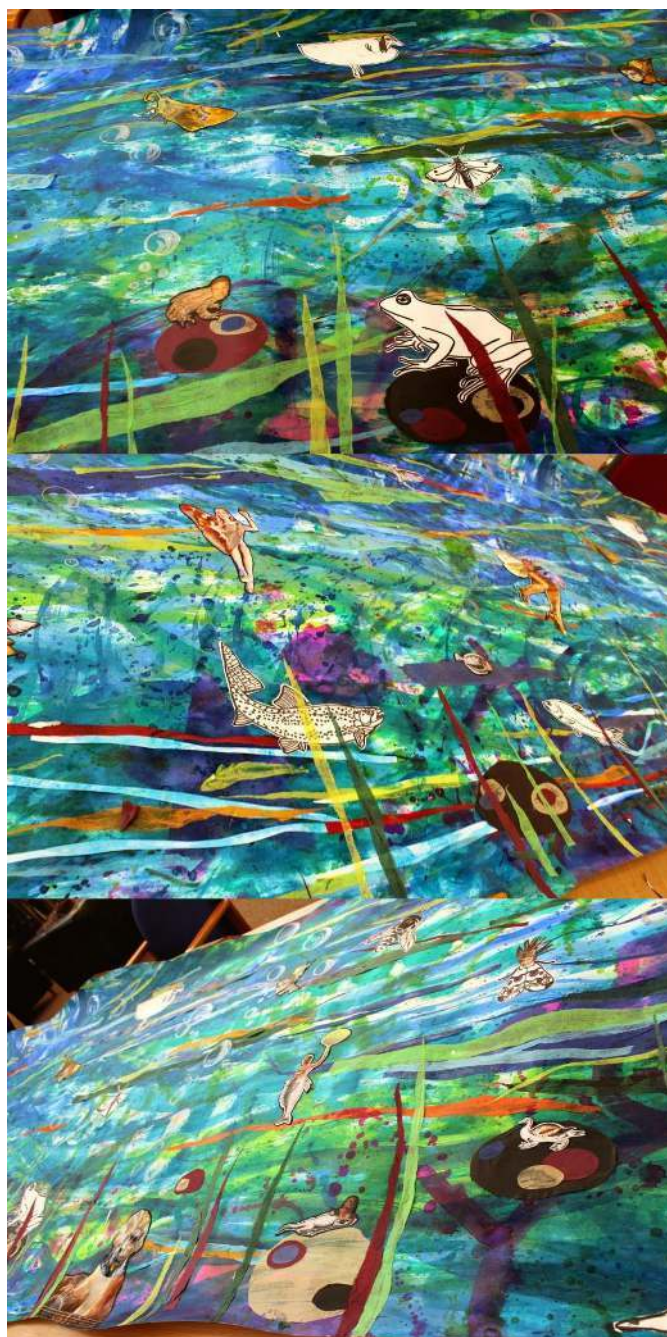
<http://www.burnleyundercurrents.blogspot.co.uk/2014/09/mhairis-film.html>

<http://www.burnleyundercurrents.blogspot.co.uk/2014/09/shonas-film.html>

For Fish Race documentation please see the Facebook page:

[www.facebook.com/BigSplashFishRace](http://www.facebook.com/BigSplashFishRace)







### **URES Book titled 'River Calder' reviewed by Pam Norfolk**

**Tucked away in the well-trodden Lancashire countryside near Burnley is the mysteriously named Valley of the Goblins.**

The real name of this wild, isolated and beautiful spot is Thursden, part of a popular walking route which follows the River Calder. 'Thurses' were supernatural goblins or poltergeists in the Middle Ages and locals believed that one of their last haunts was the Thursden Valley.

The ancients, many of whom were buried in this uncompromising place, also believed that the Norse god Thor lived here and created thunder by banging his giant hammer against the rocks below Rieve Edge.

Within the valley is a stream which eventually becomes the River Calder, the shortest in England and one of three rivers (the others being the Ribble and Hodder) which meet in Mitton. The Calder was once described as 'the Cinderella' of the trio because of its industrial past but it has been undergoing something of a renaissance.

The fish are coming back, over a million trees have been planted in the nearby moorland cloughs, abandoned coal mines no longer discharge into local streams and the Ribble Rivers Trust is working hard to improve the waters. And to celebrate a new era for this rich and historic area, Burnley Borough Councillor and Burnley Civic Society chairman Roger Frost has collaborated with Ian Thompson and Victoria Dewhurst on this fully illustrated guide.

The river passes through Holme Chapel, Walk Mill, Burnley, Padiham, Altham and Whalley before joining the Ribble near Great Mitton. It lies in the shadow of brooding Pendle Hill and its name essentially means 'fast-flowing water.' And the Calder can certainly be perilous. The Calder Valley has one of the highest rainfalls in England and when the river is in spate as a result of sudden and heavy rainfall, it quickly gathers momentum and becomes a threat to anyone in its path.

The land around the river is made up mainly of clay – glacial in origin – making it difficult to plough and, until the invention of tarmac, was responsible for the area having some of the country's worst and most dangerous roads.

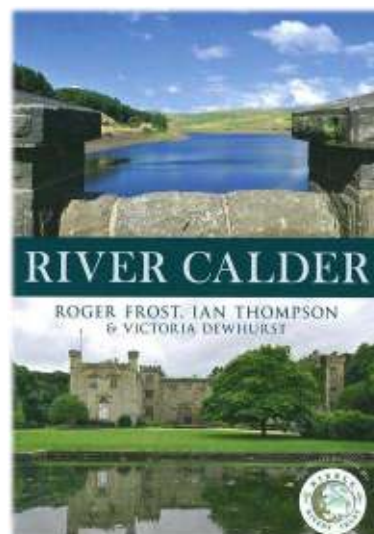
At Whalley, the Calder passes the famous ruins of the town's 14th-century Cistercian abbey and is crossed by the listed 48-span railway viaduct built between 1846 and 1850. The river has been hugely important throughout the history of this area of Lancashire and has a fascinating past which includes battles in the Dark Ages, the invention of bottled beer, the Pendle witches, the Industrial Revolution and much more.

This informative and entertaining guide includes pictorial 'stop-offs' at scenic Cliviger Gorge, Towneley Park, Pendle Hill, the historic village of Wycoller, Pendle Heritage Centre in Barrowford Park and Gawthorpe Hall, home of the Shuttleworth family.

Don't miss the journey to a hidden gem of the English landscape...

(Amberley, paperback, £14.99)

**Authors: Roger Frost, Ian Thompson and Victoria Dewhurst**

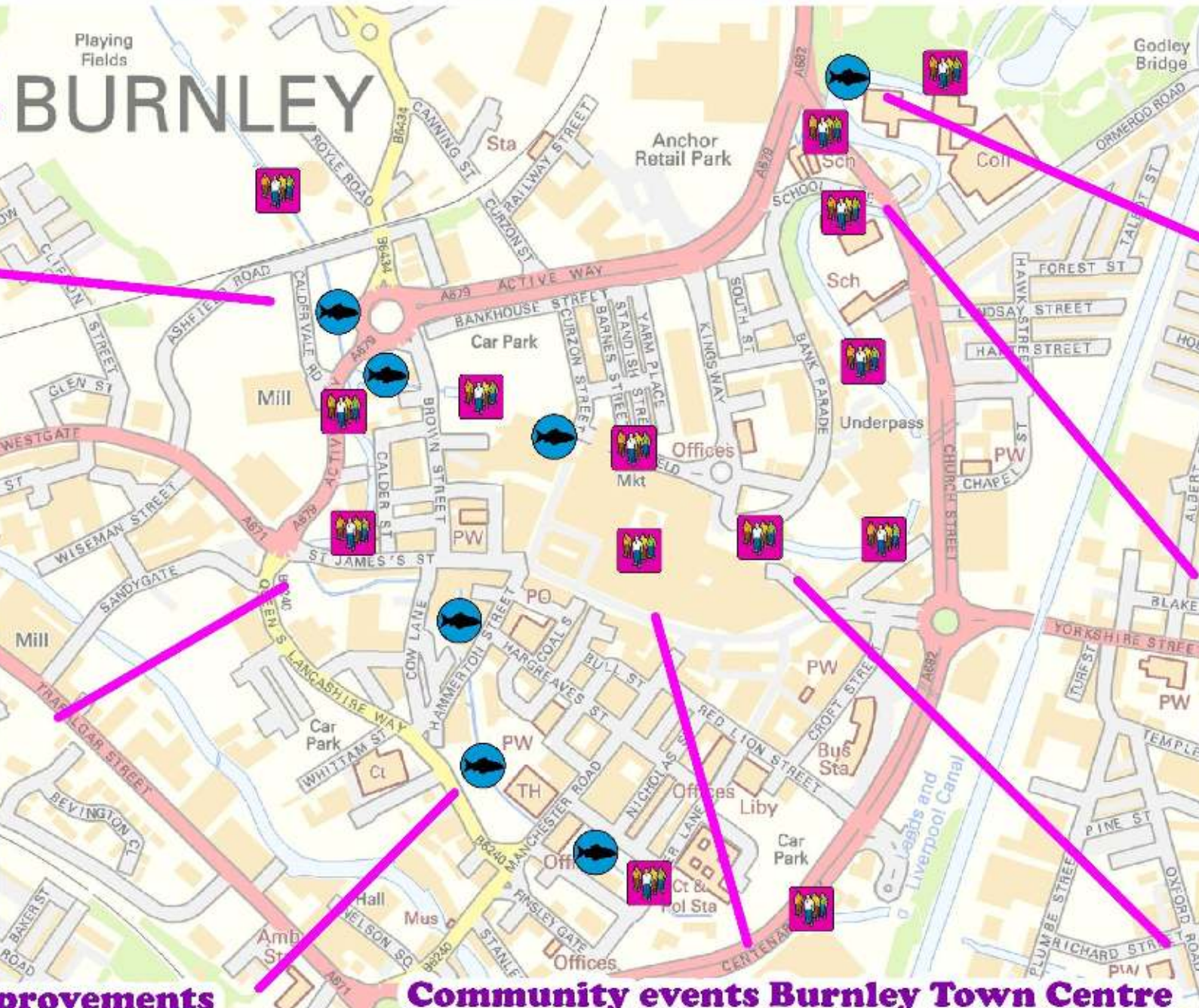




# Examples of activities Urban River Enhancement Scheme



### Fish Passage Brun-Calder confluence



### Fish pass Burnley Weir



### River clean-ups, education, celebration



### River Viewing Areas



### River channel improvements



### Community events Burnley Town Centre



### Bankside improvements





**Ribble Rivers Trust**  
c/o Hanson Cement  
Ribblesdale Works  
Clitheroe  
Lancashire  
BB7 4QF

01200 444452

[www.ures-burnley.org.uk](http://www.ures-burnley.org.uk)  
[www.ribbontrust.org.uk](http://www.ribbontrust.org.uk)



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