Water Environment Improvements
Project Evidence Form

Scope & Purpose

This form is to be used by the external Water Environment Governance Group (WEGG), to review, validate and formally approve the length of bluespaces improved for the Water Environment Improvements ODI. The form will be completed by the Water Environment Team with support from project partners and presented to the WEGG. After formal approval, the km of water environment improved will be recorded against the ODI and projects will be marked as completed on the Water Environment Scorecard and illustrated as delivered in the Bluespaces Mapping Portals.

Project Name

Old Durham Beck: Renewed

Project Lead

Company/ Organisation	Named Lead	Position
Wear Rivers Trust	Paul Atkinson	Deputy CEO

Bluespaces Improved

Year	Claimed	Proposed	Reason For Any Change
Year 5	7.8 km	7.8 km	

Water Environment Assurance

This project has been reviewed internally to ensure it has delivered benefits above and beyond our baseline and regulatory obligations to improve the water environment accessible to customers across at least two out of three aspects. Following our assurance process, the project was approved by both our internal and external groups for review before delivery. This form presents evidence of project completion and the outputs achieved, to request project sign off.

Level	Project Acceptance Date	Project Approval Date	Completed Project Sign Off Date
Project Team	February 2022	NA	N/A
Water Environment Steering Group (Internal)	March 2022	March 2022	N/A
Water Environment Governance Group (External)	March 2022	March 2022	June 2025

Project Timescales

Candidate Project Approved	Project Initiated	Project Completed
March 2022	April 2022	March 2025*

*The baseline water quality elements of this project were achieved through a phosphorus removal scheme at Sherburn and Pittington sewage treatment works which was delivered separately to the Bluespaces programme elements and signed off in January 2025.

Project Summary and Highlights

Summary

NWG and the Wear Rivers Trust (WRT) have worked with the Environment Agency (EA) to deliver water environment improvements to 7.8 km of bluespaces across the Old Durham Beck catchment in the Wear Management Catchment, County Durham.

This project built on a water quality improvement baseline, delivered through WINEP investment, to remove phosphorus from final effluent discharged from two sewage treatment works (STWs) at Pittington and Sherburn. The water quality improvements have resulted in improvements towards Good status for the three Old Durham Beck waterbodies of Coalford, Pittington and Sherburn Becks (currently at Moderate, Moderate and Poor status respectively). Further baseline improvements were also provided by a Branch Out grant to WRT towards management of invasive non-native species (INNS) within the Wear catchment, provided from the WINEP-funded INNS scheme.

The project has focussed on restoration activities to enhance biodiversity and help river and habitat recovery to build on the expected water quality improvements following phosphorus removal, including mapping and treating Giant Hogweed along the catchment. Bluespaces funding has helped to support a team of two Project Officers and one Volunteer Coordinator, as well as the purchase of materials and equipment.

Old Durham Beck is considered to be the source of Giant Hogweed on the entire Wear system, assumed to have originated from a Victorian exotic introduction at Elemore Hall, and so addressing the issue here has complemented efforts to eradicate the species from elsewhere on the catchment. In addition to INNS control, engagement of volunteers with litter picking has improved instream habitat. In the upper catchment, 12 pairs of instream flow deflectors were installed immediately downstream of Pittington STW, benefiting the Coalford Beck by slowing water flow and providing resilience against the reduced flow caused by diversion of final effluent as part of the phosphorus removal solution. 500 m of stock fencing was also installed along the bank of the beck immediately downstream of Pittington STW, creating an ungrazed riparian corridor that has been planted with native trees to provide shade, increased leaf litter input and to reduce the rate of surface water run-off from the pasture.

Highlights

- Mapping and removal of Giant Hogweed from Old Durham Beck catchment has removed the highest known source of this INNS from the Wear Management Catchment, so complementing INNS control efforts lower down the catchment.
- Installation of flow deflectors in the Beck downstream of Pittington STW has slowed water flow and created greater diversity of in-stream habitats.
- Installation of stock-proof fencing and tree-planting downstream of Pittington STW has created a 500 m riparian corridor that will benefit wildlife and reduce agricultural run-off from adjacent farmland.

Maps

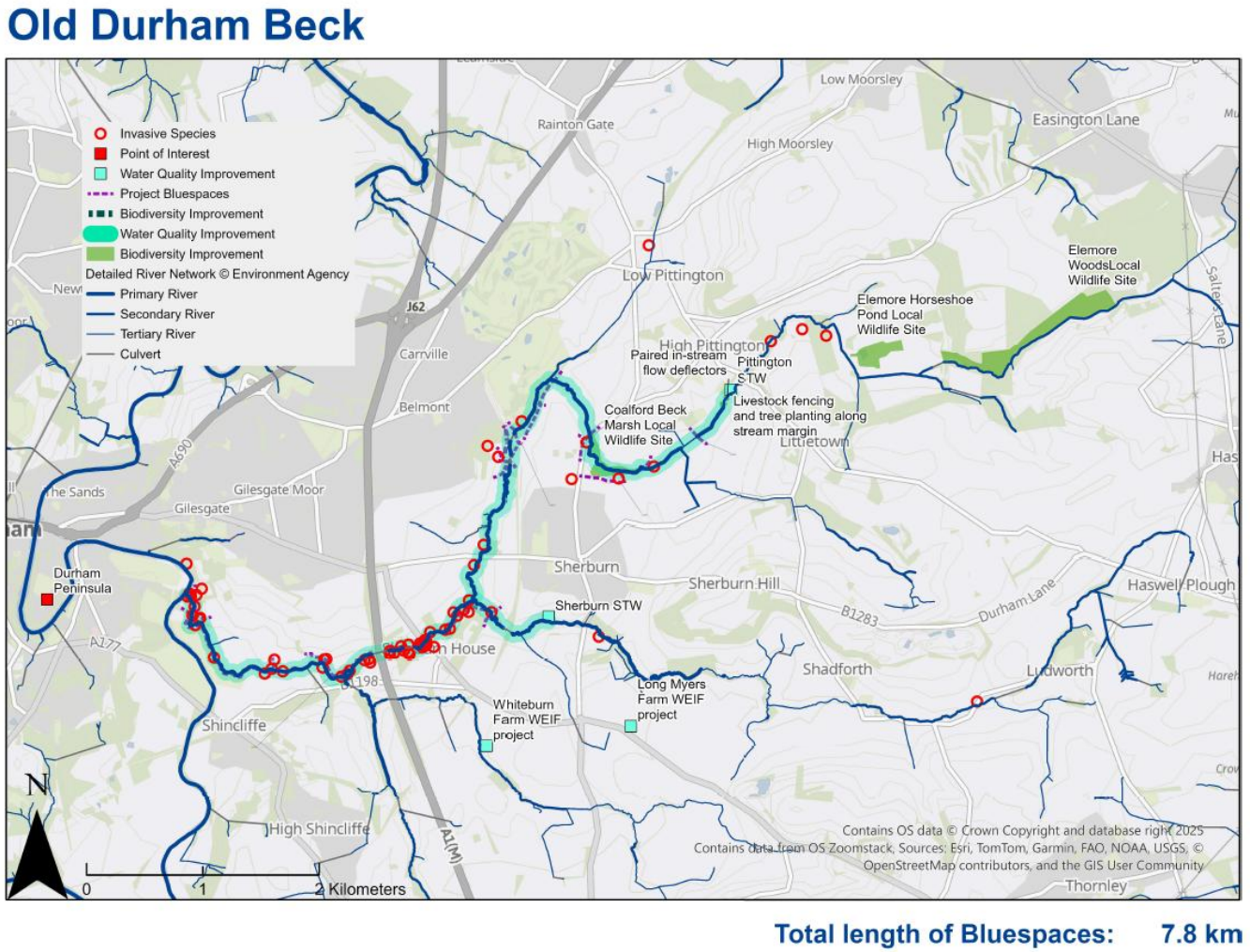
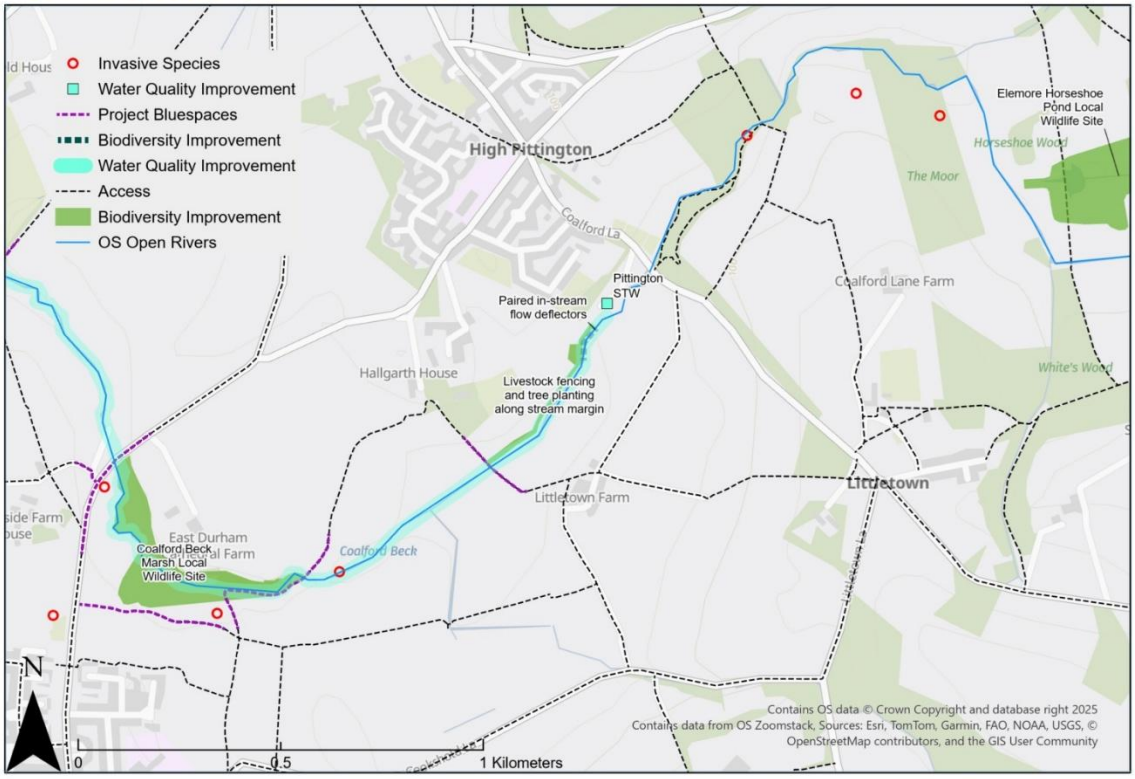


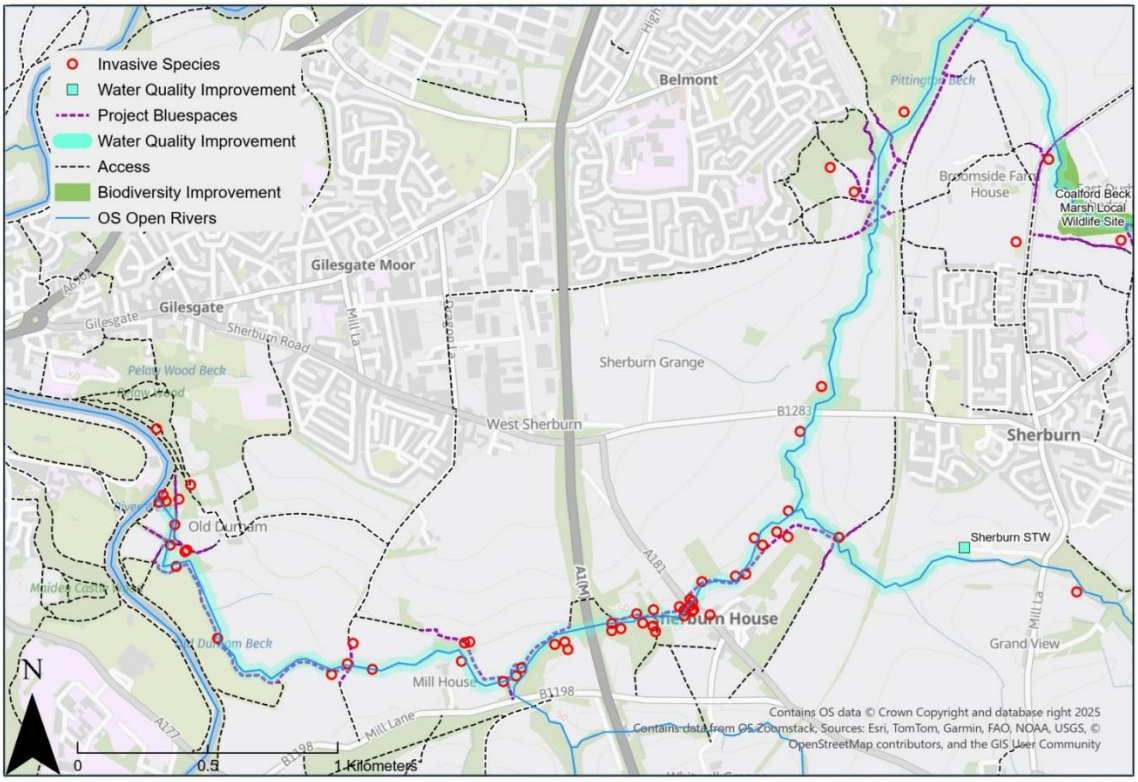
Figure 1: Bluespaces improved in Old Durham Beck project area

Old Durham Beck - East



Total length of Bluespaces: 1.4 km

Old Durham Beck - West



Total length of Bluespaces: 6.4 km

Figure 2: Detailed view of eastern (top) and western (bottom) sections of Old Durham Beck

Project Outputs, Benefits & Evidence Against Criteria

Access, Facilities & Recreation

Expected Project Outcomes	Benefits
1. Access to and enjoyment of the water environment will be improved by the control and removal of Giant Hogweed which currently presents a real risk of harm to the public from Hogweed sap burns 2. Volunteers who assist in implementing the proposed works may experience physical and mental health and wellbeing benefits from undertaking physical activity, being in nature and having the opportunity to socialise with other volunteers 3. Encouraging volunteers to carry out environmental work through the project should encourage positive environmental behaviours and awareness, as will project-based talks with farmers and land managers	➢ A1: Increases access to, engagement with and enjoyment of the water environment ➢ A2: Benefits health and wellbeing through: ➢ A3: Influences positive environmental behaviours

Outputs

1. The extent of Giant Hogweed distribution was mapped in a full catchment walkover in 2022 and then captured by high resolution aerial photography in May 2023. These remote-sensing data were analysed by Durham University students to provide a pre-control baseline. A full season of Giant Hogweed control was completed in 2023 and 2024 and is currently underway in 2025, treating 22.4 km of watercourse. Reduction in plant coverage since 2022 was estimated at 70%, but seasonal and annual variation in cover, and persistence of the seedbank requires repeat treatments, which will be continued at least for two more years beyond the period of Bluespaces funding, to ensure effective control. In difficult to access areas, the plant has proliferated, ultimately creating a monoculture that outcompetes native flora, and illustrating the importance of control efforts.
2. Over 40 volunteers, from partner organisations including Durham University, The Angling Trust, Felling and Witton Fly Fishers, Chester-le-Street and Bishop Aukland Angling Clubs, and Durham County Council assisted with the various works, supporting a total of 27 different environmental improvement tasks. Although some of the INNS control was on steep banksides, where WRT staff undertook the work, much of this aspect was done by volunteers, who also engaged in an electro-fishing event, conducted in September 2022. This gave them an opportunity to learn more about river ecology and this type of survey method, as well as to enjoy being engaged in the water environment.
3. WRT engaged with 15 landowners in the catchment, promoting greater environmental awareness of agricultural best practice to reduce diffuse pollution. Farmers have been helpful in allowing WRT to access land, recognising that it reduces their burden of needing to treat and spot spray their land for Giant Hogweed. In addition, EA WEIF match-funding received in 2023/24 supported five farm visits, at three of which capital works were installed to control diffuse pollution from agriculture, reducing ingress of sediment, phosphate and agricultural pollutant to the water course. Further farm habitat improvement opportunities have been mapped by WRT and provide a project legacy that will inform future environmental improvements in the catchment.

Evidence

Giant Hogweed on Coalford Beck before (March 2022) and after (March 2023) control

Volunteers helping with digging up Giant Hogweed, tree planting, and learning about electrofishing

Plan at one of three farms showing proposed locations of capital works to address diffuse pollution

Capital works undertaken to trap and store clean rainwater, reducing run-off of dirty yard water and providing an additional source of clean water

Wildlife & Biodiversity

Expected Project Outcomes	Benefits
1. Habitat works such as tree planting and natural flood management will be aimed at a number local wildlife sites located in the catchment. This will enhance the condition of these sites and help improve ecological connectivity. This builds on the benefits from INSS removal and water quality improvements 2. Invasive Giant Hogweed will be controlled and removed throughout the catchment, in a concerted attempt to remove the invasive species from this sub-catchment, benefitting these watercourses and the River Wear downstream and allowing re-colonization of the native flora (note: to successfully deplete seedbank, it is recommended that subsequent treatments of Giant Hogweed are applied for a further 4 years up to the end of March 2027, with Bluespaces support up to the end of March 2025.	➢ B1: Improves the quantity, quality and connectivity of habitats ➢ B3: Reduces risk or impact of invasive non-native species (INNS)

Outputs

1. Two Local Wildlife Sites originally included in plans for habitat work (Habitat Creation & Enhancement survey, Coldwell Burn and Coalford Beck – available on request) were found to have been converted to arable, and the landowners were not amenable to habitat restoration or improvements. Instead, an alternative area below Pittington STW was identified for creation of 500 m of riparian corridor by installing livestock fencing. This provided bankside protection to allow native flora to re-establish, augmented with planting 0.24 ha of native woodland (Willow, Alder, Oak, Hawthorn, Elder and Wild cherry) in 2024.

   12 in-stream paired flow deflectors were also installed in autumn 2024 immediately downstream of Pittington STW, slowing water flow and creating additional in-stream habitats to benefit invertebrates, fish and other biodiversity interest.

2. See Access, Facilities & Recreation Output 1. Bluespaces funding contributed towards initial detailed mapping of the extent of Giant Hogweed, and subsequent control from 2022 to 2025. The wider project has secured funding to continue control of Giant Hogweed up to the end of March 2027. By April 2025, there was an estimate 70% reduction in extent when compared with original mapped distribution. Managing this source of the invasive species will benefit the River Wear downstream.

Evidence

Riparian strip fenced off from adjacent grazing to create a wildlife corridor, showing volunteers planting with trees


Staff and volunteers installing in-stream deflectors

Completed deflectors in situ



Bare ground between stunted Giant Hogweed plants (left), Hogweed in overgrown areas that required vegetation management to facilitate access (centre), and spraying Hogweed (right)

Water Quality

Expected Project Outcomes	Benefits
1. WINEP schemes to remove P in the Pittington Beck from Coalford to Old Durham Beck and the Old Durham Beck from Source to Pittington Beck waterbodies will improve their ecological status and also in the Old Durham Beck from Chapman Beck to Wear waterbody downstream. 2. INNS is a further probable reason for not achieving good status (RNAG) for the Old Durham Beck from Chapman Beck to Wear, impacting Macrophytes and Phytobenthos, and INNS improvements should also contribute to improving the WFD status. 3. Habitat restoration due to removal of Giant Hogweed may lead to reduced erosion and sedimentation into the river, as less soil will be exposed over winter when monocultures die back. 4. 12 instream paired flow deflectors will be installed immediately downstream of Pittington STW, benefiting the Coalford Beck, helping to maintain ecological function. 5. Unsightly and habitat damaging litter will be removed from the watercourses	➢ C1: Reduces pollutants entering waters from point or diffuse sources ➢ C2: Contributes towards improved status or no deterioration of rivers or bathing waters or protecting drinking water ➢ C3: Improves state and function of water, including naturalisation, visual appearance, litter and odour

Outputs

1. Improvement work under WINEP to manage phosphorus removal from Pittington STW and Sherburn STW final effluent has been successfully completed. These works were signed off on 15 January 2025. Flows from Pittington are now transferred to Sherburn where flows from both works are treated. New and upgraded permanent infrastructure has been installed to meet the new permit of 0.5 mg/l total phosphorus (a mean concentration of 0.218 mg/l has reported through scheme testing). These improvements were funded separately through WINEP investment and, going forward, final effluent quality will be maintained as part of NWG's baseline operations. Bluespaces funding has delivered additional improvements over and above this baseline investment.
2. Control of Giant Hogweed has been undertaken throughout the catchment, achieving an estimated 70% reduction in extent. This will allow native flora to recolonise areas from where they have previously been outcompeted, helping to restore floral diversity and associated communities and mitigate the RNAG to help the waterbody achieve good status.
3. Restoration of native flora in areas previously dominated by Giant Hogweed and now cleared through this project will increase vegetation ground cover and stabilise the substrate, reducing soil erosion and associated sediment run-off.
4. 12 paired in-stream flow deflectors were installed on the Coldford Beck, downstream from Pittington STW. Simple log structures secured to the riverbed with rebar have narrowed the beck, creating locally increased flow rate and water depth. Works took place during a collaborative WRT / NW workshop and monitoring session on 29th September 2022, during which a European Eel (*Anguilla anguilla*) and a Three-spined Stickleback (*Gasterosteus aculaetus*) were caught. Further surveys in future years will be continued to understand the legacy of this project.
5. Litter picks were carried out as an additional activity during INNS control sessions, with a particular focus on the Pittington reach, which has a fly-tipping hot spot on the bridge next to the STW. Fly tipping incidents were reported to Durham County Council.

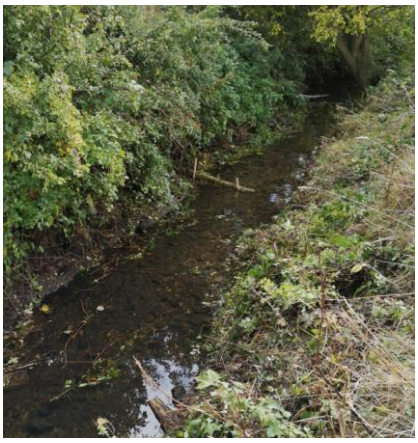
Evidence

Chemical dosing kiosks containing storage tanks and dosing skids (left) and mecana for tertiary solids removal (right)

Tuesday		05/11/2024	DC	Spot	Outfall	1			0.143
Wednesday		06/11/2024	DC	Spot	Outfall	1			0.2
Thursday		07/11/2024	DC	Spot	Outfall	1			
Friday		08/11/2024	DC	Spot	Outfall	1			0.297
Monday		11/11/2024	MM	Spot	Outfall	1			0.232

Final effluent phosphorus concentrations in mg/l, reported during testing of the completed scheme at Sherburn STW

Giant Hogweed being sprayed during the project



In-stream flow deflectors

Stickleback caught during electrofishing survey

Instream and bankside litter collected near Pittington STW

Additional & Secondary Benefits

Expected Project Outcomes	Benefits
1. Habitat restoration will provide the area and its wildlife with greater resilience to climate change. 2. Opportunities will be provided for the local community to get involved in volunteering 3. Control of Giant Hogweed adjacent to Pittington STW will reduce the risk of harm to NW staff and visitors; there will be no need to pay a specialist contractor for commercial invasive weed removal 4. Project is a Wear Catchment Partnership priority and has strategic links to other projects. The Old Durham Beck is thought to be the highest known source of Giant Hogweed on the Wear and addressing the issue here will complement strategic work throughout the Wear river catchment working towards the eradication of the species	➢ D1: Provides resilience and adaptation to climate change and/or reduces the risk of flooding ➢ D2: Provides benefits to local communities, the local economy or NWG ➢ D3: Supports strategic project or investment into strategic partnership or landscape/regional activity

Outputs

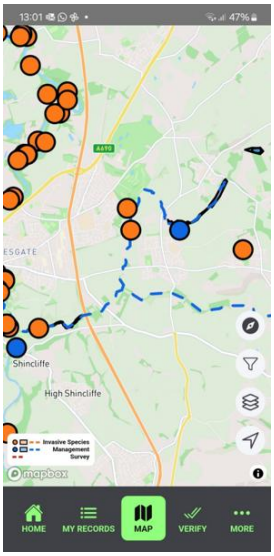
1. Habitat restoration features including flow deflectors and woodland planting will contribute to reduction of heat stress on the watercourse, by augmenting flow rate and providing shade, securing mitigation for future likely effects of climate change.

2. Many opportunities for local community and landowner engagement were provided through this project, generating over 267 hours of volunteer time.

3. Removal of Giant Hogweed adjacent to the STW has negated the risk of harm to NW staff and visitors. Harm from burns can be significant, potentially leading to skin damage in humans and harm to pets. Commercial rates for specialist INNS control can be expensive, and this low-cost option has been beneficial. The site will continue to be monitored by WRT for signs of further INNS colonisation.

4. Knowledge gained from this project is informing more effective treatment of INNS by WRT across the Wear, including in the adjacent sub-catchment of Lumley Park Burn, and is being shared more widely. WRT is part of the EA-led regional INNS strategic group which uses the online INNS Mapper tool to share records nationally and with the Environmental Records Information Centre (ERIC) North East.

Evidence



Screenshot of INNS mapper, used by WRT staff and volunteers for capturing and sharing data on INNS

Customer Testimonies & Media

Social media feedback:

"A lovely autumnal day in County Durham with Wear Rivers Trust last week, working in the Old Durham Beck River catchment near Pittington. Thanks to WRT for demonstrating electrofishing surveying and leading a task to improve the in-stream habitat and the diversity of water flow in the beck.

Electrofishing is a technique commonly used by scientists and fisheries biologists to survey rivers and assess what fish are present. We came across a Three Spined Stickleback, and a European Eel (that will have travelled all the way from the Caribbean to Pittington!). A passing Kingfisher also made a star appearance.

6 instream flow deflectors were also installed. The installation of woody debris and deflectors into a modified channel creates a more diverse stream habitat and ecological niches for wildlife. With the added benefit of slowing the flow for natural flood management.

More work instream work will be carried out here as part of the Old Durham Beck Renewed Bluespaces project, funded by Northumbrian Water, delivering multiple benefits in addition to the £11 million capital scheme being delivered at Sherburn and Pittington to improve water quality in the catchment.

Thanks to NW and MMB volunteers for coming along to learn more about the project and for helping with the habitat works.

Thanks to Sarah, Gaby, Oscar, Damian, David, Dean, Clare, Stephen, and Wear Rivers Trust volunteers for coming along to learn more about the project and for helping with the habitat works. "

Social media articles:

Northumbrian Water · Follow
19 May 2022 ·

❓Did you know, giant hogweed was brought to the UK as an ornamental plant in the Victorian era and each head carries up to 50,000 seeds that spread and take over habitats😲

It's Invasive Species Week, so we've visited the Wear Rivers Trust team that's currently treating giant hogweed as part of the Old Durham Beck Renewed project💚

The programme has received funding from our bluespaces scheme💙, which aims to improve the environment around water, and from our Branch Out fund. It complements our own investment in local treatment works, to improve water quality.

☢️It's important to keep away from giant hogweed, as it can burn on contact with the skin, and to report it either to your local Rivers Trust or via the iRecord app or website.

Find out more about Branch Out: https://bit.ly/3Nn4WMc

35 6 comments 13 shares

Northumbrian Water · Follow
1 June 2022 ·

💚Habitat and water quality improvements from Wear Rivers Trust's fantastic invasive species work in County Durham complements the environmental benefits from our £11m investment in assets in Pittington and Sherburn.

💚We're supporting the Old Durham Beck Renewed project to tackle species like Giant Hogweed, Himalayan Balsam and Japanese Knotweed, with £32,000 of funding from our Branch Out and bluespaces programmes.

💚Between their work and the investment in our assets, the b... See more

169 5 comments 9 shares

Wear Rivers Trust · Follow
3 May 2023 ·

Our Jack out on Old Durham Beck spraying giant Hogweed for our Blue Spaces programme

22 1 comment

Wear Rivers Trust · Follow
3 October 2022 ·

We had a great day out giving an electro-fishing demonstration and installing in-stream flow deflectors on a tributary of Old Durham Beck with Wear Rivers Trust and Northumbrian Water volunteers last week.

This is part of our Old Durham Beck Renewed Bluespaces project, funded by Northumbrian Water, and will help to add areas of diversity and improved habitat to the beck, providing ecological niches and benefitting wildlife. The in-stream flow deflectors will also act as natu... See more

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Like Comment Share

Lead Partner Quotes & Testimonials

' The Old Durham Beck appears to be the original source of Giant Hogweed on the River Wear. Bluespaces funding allowed us for the first time to map its full extent and to begin clearing this harmful species from the source to the confluence with the Wear in Durham. Some 40 km of river downstream is becoming covered by monoculture, so this project has been a vital first step to controlling it to help protect the public, pets and wildlife from chemical burns as well as improving the ecology of our vital waterway'.

Paul Atkinson, Deputy CEO, Wear Rivers Trust