

newsletter

Spring Summer 2022 – Issue 7

Groundwater Project goes Virtual



The British Geological Survey (BGS) and Geological Survey Ireland (GSI) have been developing exciting educational tools. One of these is a groundwater visualisation tool which uses Augmented Reality (AR) and Virtual Reality (VR) technology. Using the latest Oculus Quest 2 hardware, the tool is easy to use, portable, and a high quality immersive headset.

The application has a solo mode and a class mode which is teacher led. It can be tailored to any specific aspect of the Groundwater story through a user interface accessing modular learning.

The CatchmentCARE VR application is currently being used as an educational asset at Marble Arch Caves, both for community outreach through school visits and an exhibition at the site. Other events are planned at various agricultural shows this summer.

A Word from the Project Manager

Welcome to the latest CatchmentCARE Newsletter.

The Project has entered its final year and with that a concerted focus for the teams involved in the various work packages. I have singled out just a few of the exciting project elements to note here, as always the reader can delve in deeper with a stroll through the website, see below.

We previously referenced a chemical export issue which is affecting water quality in the Finn Catchment, with sheep dipping practices a particular focus for attention. Following research, a monitoring programme and various engagement initiatives, the Project is now progressing the construction of three 'Integrated Constructed Wetlands' (ICWs) at select sheep dipping facilities. These are aimed at intercepting and treating spent dip before onward discharge to the aquatic environment.

The performance of these ICWs will not only be of interest across this catchment (with over 100 dipping facilities recorded), but also nationally, with growing water quality challenges from sheep dipping practices.

River restoration works continue in the three catchments (Arney, Blackwater and Finn) with ongoing monitoring showing signs of positive improvements. The Project is currently recording all

works on 'storyboards' which will be public facing on the project website. Each site will be presented with details of the existing situation, the works completed and the associated monitoring.

The Ulster University team have made good progress on works to remediate lakes by phosphorus-fixing, with three loughs dosed with aluminium salts. Extensive biological and chemical data will be analysed and sediment cores will also be taken from the lakes in late spring/early summer for further analysis of phosphorus, iron and manganese.

The CatchmentCARE Community Incentive Scheme (CIS) continues to deliver some excellent community projects, with 36 in total across the 3 catchments (Arney, Blackwater and Finn); this will be a strong legacy from the Project. As part of this, the team at ABC have developed the CatchmentCARE Online Training Programme, which is a bespoke online course for community groups with topics in Water Safety, Invasive Species, Habitat Management and Invertebrate ID and scoring. See more on our YouTube channel at <https://youtu.be/C2BGm6YCR30>

Finally, the date has been set for the end of Project Conference, which will be in a venue in the Finn Catchment in Donegal on Thursday 20th April 2023.

Check out more on www.catchmentcare.eu.

New Videos added to CatchmentCARE YouTube Channel

Our social media sites are important mediums for the project to engage with a wide variety of audiences. Over the lifetime of the project, our YouTube channel has been populated with a wide range of informative videos for people to learn about the project and to understand the actions needed to look after our important river systems. Here's a sample of the latest videos that have been added to the channel.



AFBI Soil Nutrient Video

https://youtu.be/7OJqPw90_u8 - contains information on the role that our farms and livestock play in the life of a catchment. It demonstrates how soil nutrients on farms (which can lead to pollution) can be managed to minimise nutrient runoff in local rivers.



Updated Sheep Dip Information Video – these videos, which were produced in partnership with Teagasc and Loughs Agency, have been updated with subtitles and narration. The video focuses on the potentially harmful effects of the chemicals to our rivers and wildlife and shows ways in which to mitigate the risks of inappropriate storage and leaking of spent sheep dip into the local environment. View the videos at

www.youtube.com/watch?v=_LEQzJVVlxc&t=617s
and <https://youtu.be/Md63SxN7HEA>



CatchmentCARE Online Training Programme – we have been busy developing a bespoke online volunteer training programme across all three catchments to help upskill community groups, farmers and other volunteers in data collation and planning for the delivery of strategic catchment-scale biodiversity focused plans. With this in mind, a promotional video was produced and can be found at <https://youtu.be/C2BGm6YCR30>

Blackwater Community Projects' continued Success



The community incentive scheme (CIS) has been one of the success stories of the CatchmentCARE project. In the Blackwater Catchment alone 23 successful community projects have been supported and delivered over two phases of the scheme. In Phase 2, 12 projects were funded; these included access works, community river trails, funding for volunteer training and supply of specialised equipment, bio-blitz events, citizen science projects and interpretation and signage.

Case Study – Castlecaulfield Horticultural Society

In Phase 2 of the CIS, local community group Castlecaulfield Horticultural Society (CHS) was funded for 'The Little Ripples / Bamboos Project'. The project involved the development of a site on the River Torrent in the village of Castlecaulfield and included the following elements:

- Improved access to the river through the provision of steps, handrails and new pathing
- Development of a 6-week river themed education programme for two local schools
- Development and installation of a new interpretative panel

- Community involvement through Bioblitz and community get together days
- Procurement of a range of scientific equipment to help the group monitor water quality on the river and computer equipment to aid the group in their efforts to educate and inform a wider audience
- Development of a training programme for local volunteers to upskill them on local river and wider catchment issues.

The overall project was a huge success and is an example of the excellent practical works achieved through the wider CIS scheme across the Blackwater.

River remediation works in Donegal

Works begin this summer on the Finn River, the Rough, and the Upper Reelin River in Donegal.

The works include several measures to help protect the structure of the river catchment and improve biodiversity with a focus on bank stabilisation, riparian fencing and planting works with some instream improvements.

The work includes planting native trees for a riparian buffer zone. Trees strengthen the riverbanks as their roots grow and, combined with fencing, will protect the banks from cattle damage. Bush trimming will be carried out in areas of overgrown canopies to allow for more light to get into these parts of the river. Cattle will be kept out of the river with fencing, whilst solar powered pumps will bring water to the cattle troughs.

One aspect of the works at the Rough involves a fish migration route. The existing farmers' crossing consists of a large concrete pipe covered with rocks and boulders. This culvert is crushed by the weight on top of it and is now too narrow to facilitate proper water flow, leading to blockages. Replacing this with a clear span structure will alleviate these problems while preserving the natural morphology of the riverbed.



Along the Finn, the works will take place between Killygordon Bridge and Liscooley Bridge. The Loughs Agency team would like to express thanks to the angling clubs and landowner who provided informative and worthwhile engagement during the consultation process.



The Elatagh instream habitat improvement and riparian works are now nearing completion. These works span a 3.4km stretch on the Elatagh River, Co. Donegal.

To help address lower than optimal pH levels, water slowing measures were introduced. These included creating artificial meanders using limestone boulder deflectors and rubble mats, creating pools, with additional limestone rubble mats placed to recreate a natural riffle habitat. Woody material was pinned to the bank as a protection measure and to provide aquatic refugia and a source of food for aquatic fauna.

In front of the pinned woody material, two rows of stakes were driven into the bed of the river. Between these stakes, brash and brushwood fascine were packed to help soften the impact of the water flow and collect sediment from the water column.

A small wetland area of 145m² was planted using native emergent and submerged wetland plants including Common Reed, Yellow Flag, Common Sedge, Marsh Pennywort and Tussock Sedge, whilst a mix of native grasses and shrubs were planted in 20m² clumps covering an overall area of approximately 5000m². The decision to plant native grasses and shrubs rather than trees was influenced by discussions with the Curlew Conservation Project.

The early results indicate strong success. The Loughs Agency's annual redd count survey has since recorded seven redds in an area that historically did not support any spawning. They also recorded that an area of the river that historically had a maximum of 12 redds, now supports 30.

Sharon McMahon, Chief Executive Officer of the Loughs Agency said: "The initial results indicate the immense and immediate benefits of the project and the advantages of using green engineering solutions to support biodiversity, particularly salmonids."

Loughs Agency will continue to monitor and report the impacts of the implemented improvements through the annual freshwater fisheries monitoring programme.



Blackwater Projects Officer: Working with our stakeholders

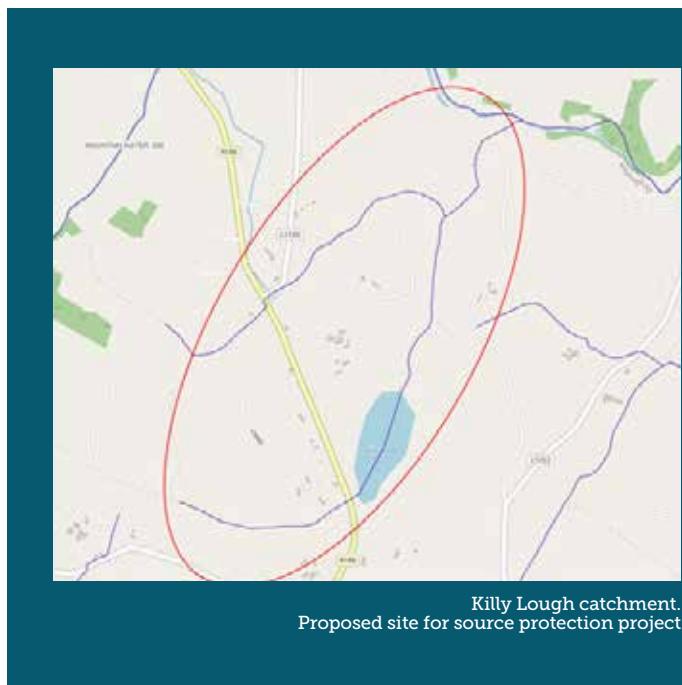
During 2021, establishing a baseline and profile of the water quality in the Blackwater catchment was prioritised, where a combination of river surveys, nutrient sampling and invertebrate kick samples were employed.

CatchmentCARE and one of our partners - Glaslough/Tyholland Group Water Scheme, collaborated on a deep dive survey of the Mountain water in north County Monaghan. This river feeds Emy Lough, which is an extraction point for this group water scheme. The scheme has been suffering from nutrient and MCPA problems for many years and we wanted to get a good overview of the catchment. 14 sample points were chosen and over 500 samples were taken over 18 weeks, with nutrient levels and acid herbicides monitored. One particular test point (SP4) was constantly in exceedance and samples taken in spring 2022 show similar problems.

With this data the GWS decided to focus on a sub catchment and have chosen Killy Lough as the target area for a source protection project, where a range of projects were delivered. These include:

- Mountain water phase 1, Riparian buffer zones (4km)
- Farming for water quality (MCPA prevention / weed wiping)
- Septic tank desludging (35 homes around Killy Lough)

At present, the GWS is working with the CatchmentCARE project team in scoping a new source protection project for Killy Lough with a view to securing funding. The project will build on CatchmentCARE's work in the area and develop a best practice approach to these protection measures. Other groups like the River Blackwater Catchment Trust and the Tydavnet Biodiversity Training Centre will also be involved as project partners.



Actions will include:

Farmer training
(Herbicide / Pesticide usage / water quality)

Alternative water drinkers

Smart buffer zone creation

Farmyard surveys and mitigation measures

Fencing off water courses from animal access

Nutrient management plans

Education Programme goes back to the Classroom

Since 2019, CatchmentCARE has been running a successful education programme in local schools, educating pupils about the need to look after our local rivers and water bodies. In 2019 a Pilot Programme was delivered to schools across the Arney, Blackwater & Finn Catchments. In 2020 and 2021, due to Covid restrictions the education programme went online and 2 series of programmes entitled 'The River' were developed and distributed to schools across the catchments and wider afield.

After the great response from local teachers, principals and pupils across the country, we have been busy developing Phase 3 of the education programme and are finally back in the classroom in 2022. The new Education Roadshow is now taking place in 28 schools across the three catchments and will deliver a final schools classroom visit to these schools to tie all the elements of the education programme together. This will include:

- A two-hour programme of talks, activities and experiments
- Further promotion of the River series of programmes with associated teacher notes, activity sheets and curriculum links



- Signposting for schools to an online education platform developed by Edenderry Club in Armagh as part of a separately funded Community Project
- Signposting for schools to local environmental organisations that can help deliver river-based education programmes as a legacy to CatchmentCARE work post 2022/2023.
- Development & Delivery of final online 'Ask the Experts' webinars to take place before end of June 2022

Riparian Works in Arney Catchment

A number of riparian works projects have been progressed over the past year in the Arney catchment. The aims of these works are to reduce the pressure on the river from agricultural practices while allowing the river to naturally restore through vegetation growth in the riparian zone. Works projects have recently been completed on the Arney River, Co. Fermanagh and the Roo River, Co. Cavan.

The projects have included:

- Fencing to prevent livestock from entering the channel and causing bank and instream erosion. The fencing has also allowed vegetation to grow, which stabilises banks and creates habitat and shading in the river channel.
- Planting of native trees has taken place to encourage biodiversity.
- Livestock drinkers have been supplied and installed for landowners. A range of alternative water sources for drinkers has been explored. This has involved supplying and installing solar pumps, pasture pumps and rainwater harvesting systems. These have all been a success and a great example of alternative methods of acquiring water for livestock.

Fig. 1 Arney River before fencing



Fig. 2 Arney River after fencing



Fig. 3 Rainwater Harvesting System on Roo River



Fig. 4 Solar Pump on Arney River



- Installing field gates and stiles to provide access to the river. These access points can act as
 - welfare gates to retrieve livestock that may be caught in river channel
 - provide access to the river for anglers or canoeists
 - provide access for locals to enjoy and take ownership of their local river

Scientific monitoring of the rivers is continuing to assess the impact of the riparian works measures that have taken place.

Blackwater Catchment River Works Update

River improvement works in the Blackwater Catchment are continuing apace. The Blackwater Catchment Officer, Tom Woods has pushed on with developing and delivering some successful schemes which will see an improvement in local water quality in the coming years.

One of the schemes of work completed in late 2021 was the 'Ballygawley Water Phase 2' project. A range of works took place which included installation of fencing along river banks, planting native species of trees and riverside vegetation, and supplying and installing livestock drinkers for local farmers.

The new drinkers are fed from a 100-year-old 15,000 litre rainwater collection tank backed up with a gravity fed well - a truly environmentally friendly way of supplying water to this 500-acre farm.

Work is also underway on the headwater feeder streams of the Ballygawley water. A group of 12 farmers came together to address livestock accessing these small streams. They applied for grant aid through the EFS scheme and fenced off and supplied drinkers to 4km on their own land.

CatchmentCARE has recently provided funded works to continue this initiative, where we are supplying fencing, planting trees and supplying drinkers to an extra 4km of small streams which were not covered under the original EFS funding. Work will also be starting on 3km of the Callan River in Armagh during June 2022; this will include revetment, instream works, fencing, livestock drinkers and planting.

For more information on this and other Blackwater catchment works please contact Tom Woods on thomas.woods@armaghbanbridgecraigavon.gov.uk



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Lead Partner: Donegal County Council (DCC)

Partners:

Agri-Food & Biosciences Institute (AFBI)
Armagh City, Banbridge & Craigavon
Borough Council (ABC)
British Geological Survey (BGS)
Geological Survey Ireland (GSI)
Inland Fisheries Ireland (IFI)
Loughs Agency (LA)
Ulster University (UU)