CatchmentCARE
Community Actions for Resilient Ecosystems

newsletter

Newsletter, Spring 2020 - Issue 3

CatchmentCARE funding supports 17 Community based projects

Young people from local schools help Friends of the River Callan on a community litter pick event along the banks of the River Callan.

Projects funded under the CatchmentCARE Community Incentive Scheme (CIS) have now commenced with support and guidance from the local Catchment Officers on the ground.

17 projects across the three catchments were funded in the autumn of 2019, three each in the Arney and Finn areas, and eleven in the Blackwater*. Examples of projects supported in this round of funding included: practical water-quality improvement projects, education and awareness campaigns, access to loughs and rivers for local communities, volunteer training, specialised equipment, community river trails, bio-blitzes, citizen science projects and interpretation and signage.

Department of Agriculture, Environment and Rural Affairs
www.daera-ni.gov.uk

Interreg
Northern Ireland - Ireland - Scotland
European Regional Development Fund

An Roinn Tithíochta, Pleanála agus Rialtais Áitiúil
Department of Housing, Planning and Local Government

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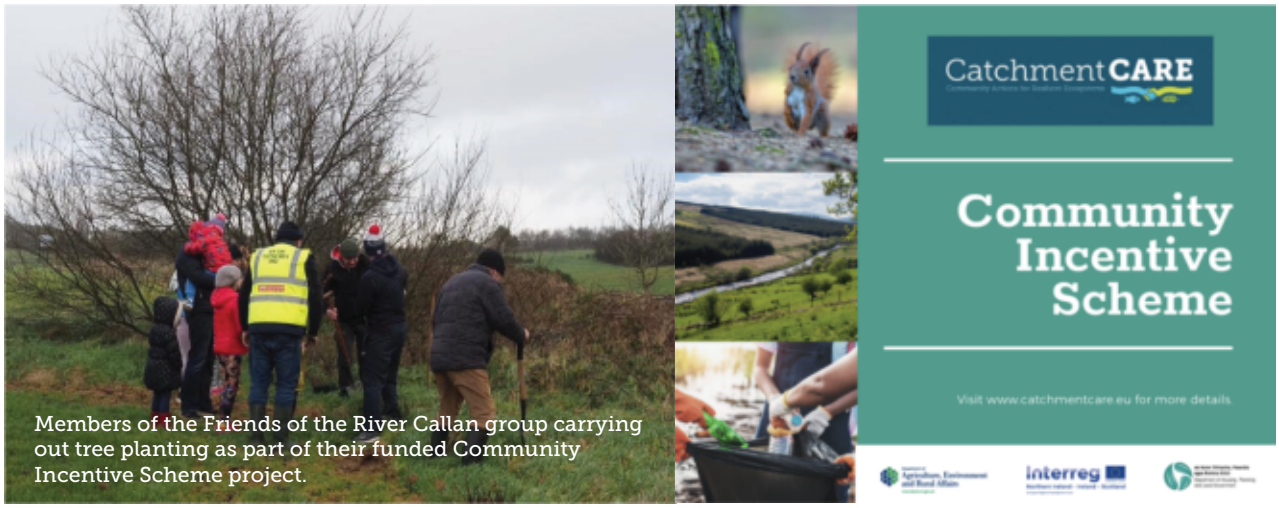
The Community Incentive Scheme has been designed to help local communities contribute to the improved management of their river catchments and was open to a wide variety of organisations including volunteer groups, community groups, NGOs, schools and third level education organisations, youth groups and sports clubs, not for profit organisations and farming groups. Funding of up to €25,000 was available to help connect communities with their local rivers.



Members of the Friends of the River Callan group carrying out tree planting as part of their funded Community Incentive Scheme project.

*Groups funded: **Arney Catchment**: Kiltyclogher Heritage Centre, McNean & District Anglers and Cleenish Angling Club, Speleological Union of Ireland.
Blackwater Catchment: Armagh Fisheries Ltd, Callan River Wildlife Group, Edenderry Rod & Gun Club, Emyvale Tidy Towns, Friends of the Callan River, Tidy Towns / Castle Leslie, National Trust (Argory Mosses), River Blackwater Catchment Trust (2 projects), South Tyrone Farmers Group, Torrent River Enhancement Association.
Finn Catchment - Coiste Sli Taobh an Mhuilinn, River Finn Anti-Pollution Project, Ballybofey and Stranorlar Integrated Community Company (BASICC).

A Word from the Project Manager

Welcome to the latest CatchmentCARE Project's Newsletter. At the time of writing this (mid April 2020) we find ourselves in challenging and difficult times which will affect progress on some elements of the project. Unfortunately the further development of the very successful Education Programme from last year which was procured and ready to go at this time with the selected schools has been put on hold for now.

2020 was set to be a very different year for the project with much of the earlier scoping and planning work due for delivery. Story maps reflecting the project scoping and also catchment characterisations for the Arney, Blackwater and Finn catchments can be viewed on http://www.catchmentcare.eu together with further information regarding the project.

Since the previous Newsletter, the project has successfully rolled out our Community Incentive Scheme (CIS) with seventeen community groups granted approval to date, with eleven of those located in the Blackwater and three each in the Arney and Finn catchments. CatchmentCARE's three Catchment Officers, Lisa Doyle (Arney) Sean Gallanagh (Finn) and Tom Woods (Blackwater) are currently working with the groups to procure the delivery of some very interesting community led projects. The CatchmentCARE Project plans to open the CIS scheme again in 2020.

In March CatchmentCARE, in conjunction with Afbi and Teagasc, hosted a very successful conference at Dundalk to gauge stakeholder interest in the use of SRC (short rotation coppice) willows as an intervention for both point and diffuse sources of pollutions.

Looking forward, the CatchmentCARE Project's midterm conference has been scheduled for the 22nd October 2020 in Monaghan, and will reflect progress across the partnership and from the communities involved.

Understanding springs and how they influence our rivers and lakes

Springs are locations where groundwater flowing beneath the landscape emerges at the land surface and becomes surface water (Figure 1). Springs are important features of the Irish landscape as they can be a source of drinking water and can account for a significant amount of the water flowing in our rivers and lakes. Springs can also be the start of our rivers, such as the River Shannon, which rises from the Shannon Pot Spring, just south of the Arney Catchment. As groundwater is hidden from view, springs can carry a sense of mystery and some springs are considered sacred, such as St. Patrick's Holy Well, just outside Belcoo, in County Fermanagh (Figure 2).

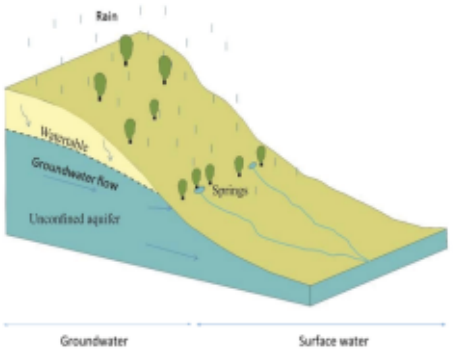


Figure 1 A simplified diagram of a spring, showing how springs emerge where the water table intersects the ground surface, and groundwater becomes surface water.

Some of the bedrock underlying the Arney catchment is pure limestone, which forms a unique type of aquifer called karst. Karst is a landscape that arises when the underlying rock is soluble. Famous karst landscapes in Ireland include the Marble Arch Cave Geopark.
To understand what part groundwater plays in the Arney catchment, a spring monitoring programme is underway. Monitoring springs is a good way to find out about the aquifer the water flows through underground before emerging at the spring. Measuring water chemistry and quality provides information about the catchment feeding the spring, both above and below ground.

Figure 2 St. Patrick's Holy Well, Co. Fermanagh

Figure 3 Cascades Spring – a karst spring in the Arney Catchment

Figure 4 A data logger being installed in a spring

Measuring water chemistry and quality provides The CatchmentCARE Groundwater Team has been recording areas where surface water sinks underground and where it emerges. Data loggers have been used to measure water temperature, water levels and how much dissolved solids are in the water (Figure 4).

The groundwater-monitoring network within the Arney catchment will eventually comprise 10 to 15 spring sites. These will be monitored for flow volume (discharge) every month, and two to four springs will be chosen for continuous monitoring of groundwater discharge to reveal more important information about the aquifer that feeds the springs.

To find out more, keep an eye on http://www.catchmentcare.eu.

What is a Groundwater Monitoring Borehole?

The CatchmentCARE project will be drilling groundwater monitoring boreholes. This article explains what they are, why they are needed, how they are constructed and what is done with them.

A groundwater monitoring borehole is a hole that is drilled in to the ground, normally 5 to 12 inches in diameter. They can be drilled to a depth of only a few metres to over 100m below the ground surface. They have a number of purposes:

- To collect samples of groundwater to test water quality
- Determine how much water there is underground and flowing through it
- Measure levels of the water table using sensors, which can help with water resource planning and understanding the effects of climate change.
- To trial new technologies or to better understand groundwater processes, helping us to protect the environment

There are large quantities of groundwater resources that we use for water supply and keep our rivers, lakes and wetlands alive. It is vital that we understand and look after them. Groundwater monitoring boreholes allow us know how they operate and what their status is.

They are constructed using a drilling rig, supervised by a qualified hydrogeologist who collects samples of the ground as it brought up to the surface. The top of a borehole is finished preferably above ground and will often look like a vertical pipe sticking out of the ground, but they can also be finished below ground in a protected chamber.

Once completed, they can be surveyed using the likes of downhole cameras or by carrying out pumping tests. The hydro geologist will use this information to calculate useful values that can then be used to model groundwater systems and make future predictions. These tests help in determining whether water quality is improving or deteriorating.

Boreholes can be used by researchers from universities and institutes in the future to carry out research that will help us use and look after our groundwater resources better.
Two groundwater monitoring boreholes have already been drilled by the Catchment CARE project in Stranorlar.

Looking Underground without Digging a Hole

The Catchment CARE project is drilling Groundwater Monitoring Stations but one of the challenges in deciding where to install them is not knowing what is underground before drilling starts. Even with excellent geology maps, there is still a lot of uncertainty and you may not be able to get the type of borehole that you want - this is where Geophysics comes in!

We have joined with another INTERREG funded project 'Source to Tap' in the Derg Catchment (Donegal and Tyrone), which will allow us to understand how the herbicide – MCPA, is getting into local rivers. Two groundwater-monitoring stations will be installed in the region, but the type of geology there makes it difficult to know where would be a good place to drill the boreholes.

Using Geophysical surveying to determine underground Geology.

British Geological Survey and geophysicists from AECOM employed geophysical techniques to help identify ideal locations to site the boreholes. This was achieved by applying a very low voltage electrical current to the ground. Electrodes along a cable detect the received current which can be used to determine how conductive or resistive the ground is enabling different zones to be found within the rock.

Overall, the geophysics survey has proved extremely helpful when deciding where to drill the boreholes. This should mean that there will be much less nail biting during the drilling. The proof is in the pudding however and we will not fully know how effective these surveys have been until the boreholes are drilled, completed and tested. There are plans to carry out other geophysical surveys on some of the other proposed Catchment CARE groundwater monitoring station sites using other techniques such as magnetics and micro-gravity.

Trapping an Invasive Predator

CatchmentCARE recorded its first mink caught through a conservation trapping programme funded by the Community Incentive Scheme. The negative effect this invasive predator was having on local native species was reported by many concerned stakeholders. Consultation with National Parks and Wildlife Services and Ulster Wildlife helped hone our scientifically robust conservation programme with animal welfare at its heart. A licence was issued to CatchmentCARE staff on the 28th February 2020. All data collected will be shared with the relevant agencies.

In March, traps were set in small clusters in areas of known mink activity and monitored closely. Within a week, a large dog mink managed to take the bait from two of the traps but was soon captured and removed.

Remains of the endangered indigenous white clayed crayfish and the upper torsos of native frogs littered the trail of destruction left by the mink.

Closer examination showed that the mink was a mature dog between 4 – 6 years old, about 40 cm in length and in very good condition. Guidelines for humane treatment were implemented at all stages.

Conference highlights how Willow plantations can contribute to a more sustainable environment

Pictured (l to r) are: Barry Caslin (Teagasc), Con McLaughlin (Donegal County Council) & Chris Johnston (Agri-food & Biosciences Institute) at the CatchmentCARE "Willow Planting for Water Quality Protection" event in Dundalk on 5th March 2020.

With river catchments throughout Ireland suffering from increasing levels of pollution, a recent cross border seminar explored the benefits of using nature-based solutions for Water Quality Protection. The event, which was held in Dundalk in March, explored the benefits of Short Rotation Coppice (SRC) Willow Planting and aimed to assess stakeholder interest & commitment to the principle of SRC, how this might fit with national strategies and address future environmental challenges.

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The event was organised by Donegal County Council, the Agri-food and Biosciences Institute (AFBI) and Teagasc, as part of the CatchmentCARE project.

The event largely targeted those involved in policy, water, utilities, catchment management, energy, climate change & local authorities with an interest in exploring the potentials of using willows, mainly as landscape interventions and mitigation of runoff pollution but also how that can contribute to the sustainable energy, bioresources and climate change challenges.

The event confirmed the understanding that biomass crops, if implemented properly in our agricultural landscape, can not only provide sustainable waste management and environmental protection, but can also contribute significantly to a more bio-diverse and net zero carbon future while underpinning rural biomass supply chains, agricultural diversification and SME development & employment benefits.

River Works begin in Blackwater Catchment

One of the main outputs of the CatchmentCARE project is to deliver a range of riparian and in-stream works aimed at helping improve existing water quality across the project's three catchments. These measures have been explored and refined during the initial 'scoping' phase of the project and have been designed to support current Water Framework Directive (WFD) objectives.

In recent months, the Blackwater Catchment Officer, Tom Woods has been working hard to develop and deliver riparian and in-stream works around the Ballygawley area, which suffers badly from silt deposition / runoff and excessive nutrient loading – this sub catchment of the main Blackwater is classed as Moderate status in the current NIEA classification.

Tom has been networking with local landowners and farmers to draw up agreements for accessing river sites on private land, as well as contacting statutory agencies such as DEARA to ensure a partnership approach is agreed for all works.

'Ballygawley Phase 1' will entail a range of measures being implemented, including:

- Installing fencing along rivers to help decrease erosion of banks by cattle
- Supplying and installing livestock drinkers for local farmers
- Installing field gates and stiles to provide access for farmers and local user groups.
- Planting native species of trees and riverside vegetation to help stabilise riverbanks and create a buffer strip between the river and agricultural land.
- Installing bank revetments and other in-stream works such as rubble mats and flow deflectors (to create a more diverse flow and habitat in the river channel). This work will take in partnership with DEARA Fisheries.

The work will entail a range of traditional and new techniques such as using a mixture of hard and soft engineering for in-stream works and bank side revetment. This will be an interesting learning experience for the project, as we will be working on a highly modified system such as the Blackwater.

There are high hopes that these actions will lead to an improvement of the water quality on that stretch of the main River Blackwater. Further phases of the work are being developed and will be delivered in 2020.

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

Community based Training Programme

An exciting new initiative will be taking place throughout 2020 with the rollout of a community based training programme for local groups across the three catchment areas.

The demand for the training programme came from the community groups themselves through the CIS scheme. Many of the groups indicated that they would benefit from training in standardised river / water assessment and survey techniques, to produce baseline evidence and to target action plans for the improvements of rivers and water bodies in their local area.

The planned programme of training will be:

- Water & Flood Awareness Safety Training - to introduce individuals to water safety and allow them to operate safely and competently within or near a water environment.
- Non-Native Invasive Plant Identification and Control Options training - this will provide candidates with the opportunity to be hands-on with common terrestrial and aquatic invasive species across Ireland.
- Habitat / Invertebrate Scoring Training Course - to train those who are interested in small streams / small rivers on how best to monitor and characterise these water bodies.
- Fisheries Habitat Assessment – this will help participants identify catchment pressures and allow them to use these skills to undertake essential 'health' assessments on rivers and lakes in their catchment.

Citizen scientists and local involvement are essential to a water quality directive; empowering people with these skills will provide a lasting legacy to the CatchmentCARE programme. Local volunteers are the eyes and ears on the ground in the effort to maintain and enhance water quality.

Participants in the programme will therefore gain the knowledge and skills to make informed assessments of their catchment water bodies, thus increasing their engagement and investment in the local area. They will also be able to go back to their own groups and train more individuals on the techniques learnt, thus maximising the reach of the training programme throughout the catchments. All being well, the training programme will be finalised by the end of 2020.

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CatchmentCARE Project Partners

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)