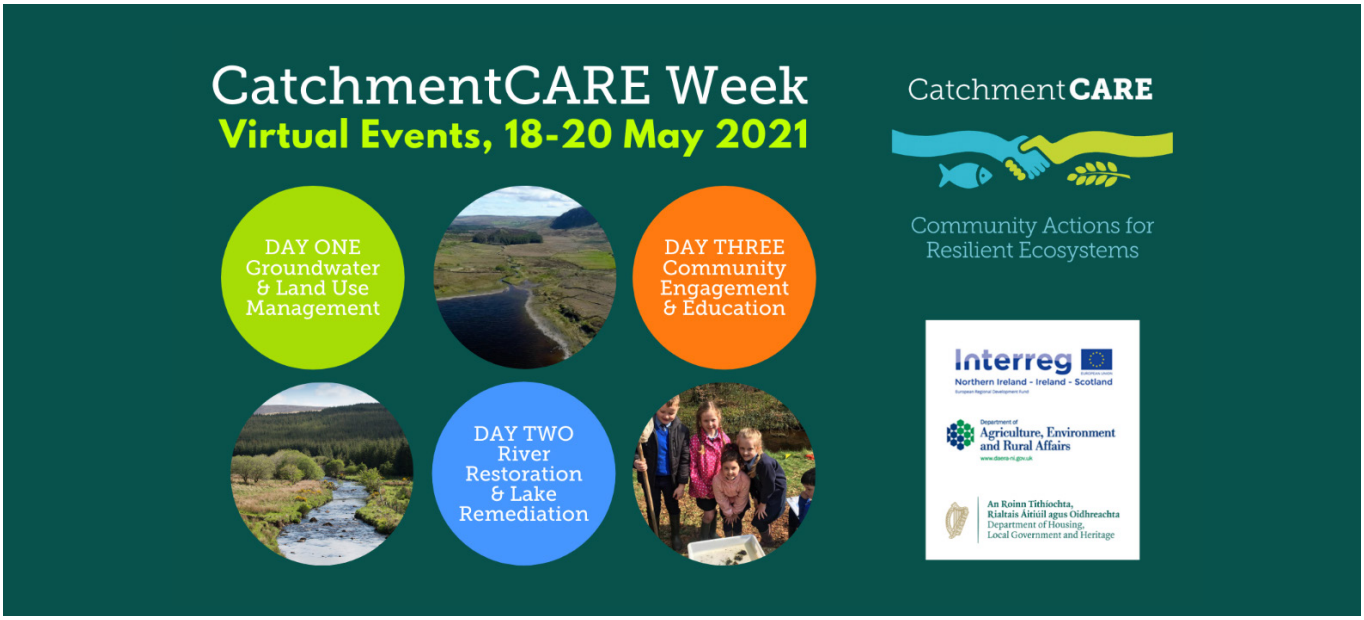
CatchmentCARE
Community Actions for Resilient Ecosystems

newsletter

Spring 2021 – Issue 5

# 'CatchmentCARE Week' Mid Term Conference Taking Place Online




"CatchmentCARE Week", the CatchmentCARE mid-term conference, is taking place virtually from Tuesday 18th May to Thursday 20th May. The event format is six short webinars that explore integrated approaches to the protection, improvement and sustainable management of our water environment.

The webinars will be an opportunity to catch up with the work which has been taking place across the Arney, Blackwater and Finn catchments. Attendees will get a flavour of the work of the project's eight partner organisations and will also hear of some interesting community-led projects which the CatchmentCARE Project is supporting.

**Topics covered in the webinars include:**

• ***Bringing Groundwater to the Surface*** – Find out how monitoring of wells and springs is helping us better understand the role groundwater plays in keeping river catchments healthy.

• ***Sustainable Management of Point & Diffuse Source Pollution*** - This webinar will outline the CatchmentCARE work being carried out to mitigate nutrient loss from point and diffuse sources in the catchments.

***Continued overleaf***

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

Inside this Issue

• ***Going with the Flow - Restoring Our Rivers*** - In this webinar we explore the river restoration works that have already taken place and examine what measures have been introduced across these very different river systems.

• ***Recovery and Remediation of Eutrophic Lakes*** - This webinar outlines the recovery and remediation work being carried out by CatchmentCARE in eutrophic lakes in Ireland's border region.

• ***Community Engagement*** - Where the Rubber Meets the Road - This webinar examines how Catchment-CARE has been inspiring and supporting local communities to take action to protect local rivers and other water bodies.

• ***Learning Outside (and Inside) the Classroom*** - Connecting young people to their local environment is key to developing the next generation of sustainably minded citizens. In this webinar we explore how local schools have been using CatchmentCARE's environmental education programme both inside and outside the classroom.

To find out more, and book your place on CatchmentCARE Week, visit -

***https://www.eventbrite.ie/o/catchmentcare-32631537935***

# A Word from the Project Manager

## Welcome to the latest CatchmentCARE Project's Newsletter.

The Covid pandemic has continued to impact our ability to tackle all works we had planned; however, we are making progress where at all possible.

In-stream and riparian works are progressing to varying extents in the three catchments (Arney, Blackwater and The Finn) with some of the Blackwater works being done in conjunction with DAERA.

The Groundwater Team has completed some drilling for the groundwater monitoring stations with more to follow. Flow monitoring and water quality analyses will follow. We mentioned previously the related dye tracing work which involved a community group with inputs from various project partners – a short but very interesting video with both drone and cave footage are worth a mention and can be found at

***https://www.catchmentcare.eu/2021/03/12/video-demonstrates-dye-tracing-on-arney-river/.***

Phase 2 of the popular and successful Community Incentive Scheme (CIS) generated some excellent community projects, which will be delivered now over the coming months.

Unfortunately, our planned midterm conference was once again postponed. However, we have decided to host a virtual conference - 'CatchmentCARE Week' instead. This will include a series of six short webinars over three mornings on 18th – 20th May 2021. Details are included separately in this Newsletter and also on the Project website. We are hoping the range of short webinars and the programme in place for each will attract good interest and we are looking forward to seeing you all then.

*Check out more on* ***www.catchmentcare.eu***

# The River
# CatchmentCARE's online education programme


In the previous issue of this Newsletter we reported on how CatchmentCARE's education programmes had been disrupted by Coronavirus.

In response to schools not allowing visitors into the classroom or running off-site trips during the pandemic, we have been busy working in partnership with the River Blackwater Catchment Trust educators in developing a series of online education programmes for use by schools and teachers. "The River" is a fun and informative look at rivers and is packed with activities, crafts, interviews and experiments to help young people understand more about their local rivers.

There are five episodes in the first series, each accompanied by a teacher's pack and teacher notes. The programmes are linked to the NI curriculum at KS2 (P5 – P7) and the ROI curriculum (Classes 3, 4 and 5). The five episodes are as follows:

***Episode 1 - "The River– Where it all begins" https://youtu.be/1ThVYoyF42c***
***Episode 2 - "How to build a river" https://youtu.be/Y1jBcBb2lvg***
***Episode 3 - "Creatures of the River" https://youtu.be/TRtHcrZDGto***
***Episode 4 - "The Magic Moving River" https://youtu.be/q5P4h7O5WCY***
***Episode 5 - "All my fault!" https://youtu.be/SRv2Ddu6W0U***

A promotional video for 'The River" can be viewed on our You Tube channel at:
***www.youtube.com/watch?v=QgLntTEUYsk&feature=youtu.be***

Series 2 of 'The River" is already being produced and will be sent to schools as soon as it is finalised. Keep a look out on our website and social media pages for details of its release.

# Derg Catchment Groundwater Monitoring Stations Completed

Installing a groundwater monitoring borehole is like sending a rover to Mars. Both are a voyage of discovery into the unknown, both drill holes into the surface of a planet and both go where no human has ever gone to collect scientific information to learn about an undiscovered world. However, the data that comes back to the surface of the earth from a groundwater monitoring borehole can directly affect how we choose to live on this planet, now.

The first set of CatchmentCARE project Groundwater Monitoring Stations (GWMS) in Northern Ireland were successfully installed and completed. Three stations in the Derg Catchment containing eight boreholes were designed and supervised by Hydrogeologist, Paul Wilson, from the British Geological Survey and drilled by Dullea Drilling. Up to three boreholes make up each station, each targeting a different groundwater horizon.

In the Derg Catchment, the ground is made up of very hard and old rocks that are meant to contain very little groundwater. However, during the drilling, this was not the case. The yields from the boreholes have not yet been properly tested but one of the boreholes drilled to 102m is estimated to comfortably produce more than 10,000 litres of water per hour from multiple fractures encountered at different depths.

Groundwater level and temperature loggers were installed immediately after the boreholes were completed with the first results already coming in. A round of sampling to test the baseline chemistry of the groundwater has already been carried out with the results due shortly.

One of the boreholes has already had an innovative sampling system installed that is enabling a sampler working for the "Source to Tap" INTERREG funded project to collect a sample of groundwater weekly to test for the herbicide component MCPA.

# CatchmentCARE Gets Creative with Online Videos

CatchmentCARE has produced a range of videos for people to learn about the project and to understand the actions needed to look after our important river systems. All videos can be viewed on the CatchmentCARE You Tube Channel at the links below.

**Caring for River Catchments – 'Pressures & Solutions'**

To coincide with river works in the Blackwater Catchment, ABC Council has produced a 15 minute video to help local communities, landowners, farmers and other stakeholders understand the pressures that the Blackwater faces and the actions that the CatchmentCARE project is undertaking to address these problems. The video can be viewed at
***https://www.youtube.com/watch?v=hR4jUv1IEK8***

**Sheep Dip Information Video**

CatchmentCARE, in partnership with Teagasc and Loughs Agency, has produced an informative video looking at the correct use and disposal of Sheep Dip. 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=AGLOgeMmA5g&t=106s*** and
***www.youtube.com/watch?v=_LEQzJV WIxc&t=617s***


**Bioblitz Videos for Local Communities**
Four new videos have also been produced by local wildlife expert Karl Hamilton from Mantella Environmental Education. Karl ran two Bioblitz events for Glaslough Tidy Towns and Wildlife Friends of the Callan. The planned community training days however couldn't take place due to Corona Virus lockdown.

Karl got creative and filmed a series of online educational videos exploring local wildlife.

The videos aim to educate families within each community area on how important our rivers and associated habitats are. They can be viewed at -

- Woodlands in autumn -
***https://www.youtube.com/watch?v=cRSvWBYLvxo***
- Woodland invertebrates –
***https://www.youtube.com/watch?v=9WVxSTRZM68***
- Blanket & raised bogs –
***https://www.youtube.com/watch?v=_Ia87vdslIA***
- Aquatic invertebrates –
***https://www.youtube.com/watch?v=62kOTqbK_b8***

**Arney Dye Tracing Video**

As part of the Arney Catchment's Community Incentive Scheme projects, the Speleological Union of Ireland (SUI) has been carrying out a project to help understand where the Karst springs in the system come from, and travel to. The water tracing project focuses on quantifying groundwater contributions at karst springs within the limestone catchment of the Arney River.

Fluorescent dye is added to upland streams that sink underground into the limestone aquifer. Detection occurs at karst springs using two logging fluorimeters.
The video documenting the work can be viewed at:

***www.youtube.com/watch?v=022Wb5Werko&feature=youtu.be***

# South Tyrone Farmers Group Tackle Water Quality

Over the past two years, 23 community projects have been supported in the Blackwater Catchment through CatchmentCARE's Community Incentive Scheme (CIS). One of the recent successful Blackwater projects was carried out with the South Tyrone Farmers Group (STFG) and took place on the headwaters of both the Fury and Mountain water rivers. The project was funded to develop farmer engagement and address the build-up of MCPA (chemical used to treat rushes).

Run-off of this chemical into nearby water courses has serious knock on effects to water quality, local wildlife and is expensive and time consuming to remove from drinking water plants. The project encouraged farmers in the area to move away from traditional boom spraying of rush, which is less accurate and leads to excessive runoff and wind drift, to a more targeted method of weed wiping which is applied directly to the rush using a quad drawn weed wiper.

In Phase 1 of the project, 128 hectares of rush has been treated on 25 farms and results have been very promising. A lot of interest has been generated in this work and it is envisaged the scheme will be extended to cover a larger area and more farms in Phase 2.

# Finn Catchment Groundwater Monitoring Stations Installation

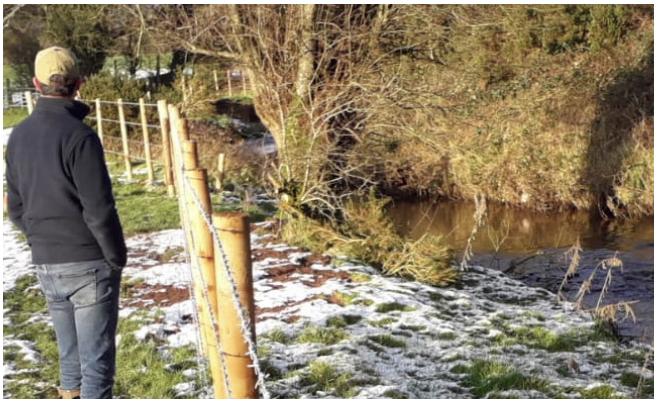
As in the Derg catchment, the CatchmentCARE Groundwater team has been exploring the rocks, and the groundwater that they contain, below our feet!

Adding to the first CatchmentCARE Groundwater Monitoring Station (GWMS) at St Columba's College in Stranorlar, Co. Donegal, two more GWMSs were successfully installed and completed in the upper Finn catchment. The boreholes were commissioned and designed by Geological Survey Ireland (GSI) hydrogeologist Taly Hunter Williams, and supervised at the rig-side by hydrogeologist Conor McCabe from CDM Smith, who is supporting this part of the project. Dullea Drilling from Co. Donegal drilled the boreholes.

Three boreholes of different depths (shallow, medium and deeper) were drilled near the top of a hill between two lakes. This GWMS allows us to understand the groundwater system at the top of a catchment. The second GWMS has two boreholes (shallower and deeper) and is sited at the side of Lough Finn. This will help us to understand the relationship between groundwater and lake water levels and chemistry.

Groundwater level and temperature loggers were installed shortly after the boreholes were completed and are able to transmit the data in real-time. The groundwater levels will be available for everyone to see on GSI's website www.gwlevel.ie. Unfortunately, COVID restrictions have meant that we didn't have time to measure exactly how high above sea level the boreholes are. This means that we can't include the real-time information on our website just yet, but we are very keen to get out and do this ground survey! A round of sampling to test the baseline chemistry of the groundwater has already been carried out, with another one scheduled when COVID restrictions allow.

# Blackwater Catchment River Works Progress



In the previous issue of the Catchment CARE Newsletter we reported on the excellent water quality improvement works that had been undertaken in the Blackwater Catchment during autumn 2020.

The Blackwater Catchment Officer certainly hasn't been idle over the winter months and has pushed on with a new scheme, the 'Upper Blackwater Improvement Scheme', which entails a range of works along a 4.2km stretch of the main Blackwater channel near Clogher, in Co. Tyrone. Works that have been taking place include

- *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).*
- *Installation of 2 bridges*

Other works planned for 2021 include improvements on the Callan River, Tynan River and Mountain Water. For more information on this and other Blackwater catchment works please contact Tom Woods on

***thomas.woods@armaghbanbridgecraigavon.gov.uk***

# Interpretive Panels Developed for Local Community Groups

As part of CatchmentCARE's Community Incentive Scheme (CIS), eleven groups have been allocated funding to erect interpretive panels at agreed sites. The panels have been produced in both English & Irish and contain a variety of information to help users understand the local area, landscape, history, wildlife and water quality issues within the appropriate catchment. 10 panels were installed in the Arney Catchment, 10 in the Blackwater and 3 in the Finn.

### *Case Study – Arney Catchment*

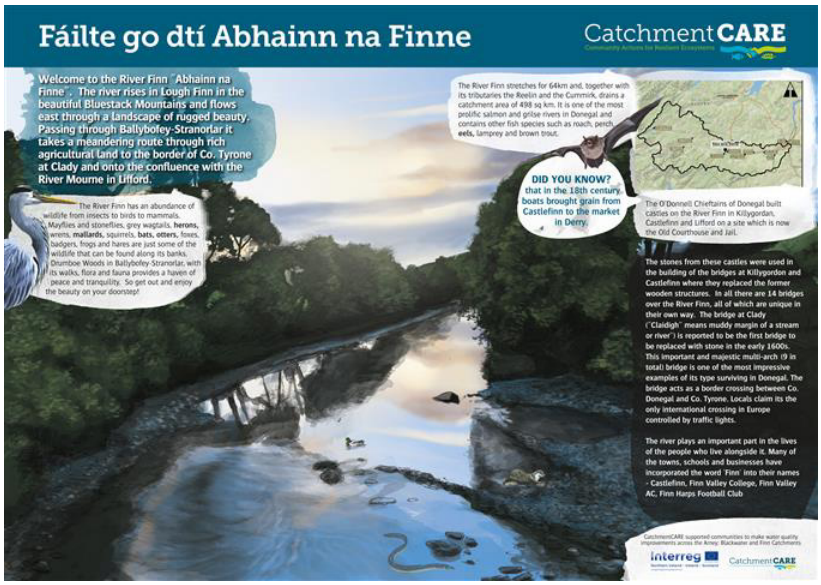
Kiltyclogher Heritage Group were funded for a project entitled 'Corracloona Link'. Eight panels have been developed and installed to help inform local people and visitors about the natural, built and cultural heritage of the area. The panels cover local wildlife, bogs, underground cave systems and local river systems.

### *Case Study – Blackwater Catchment*

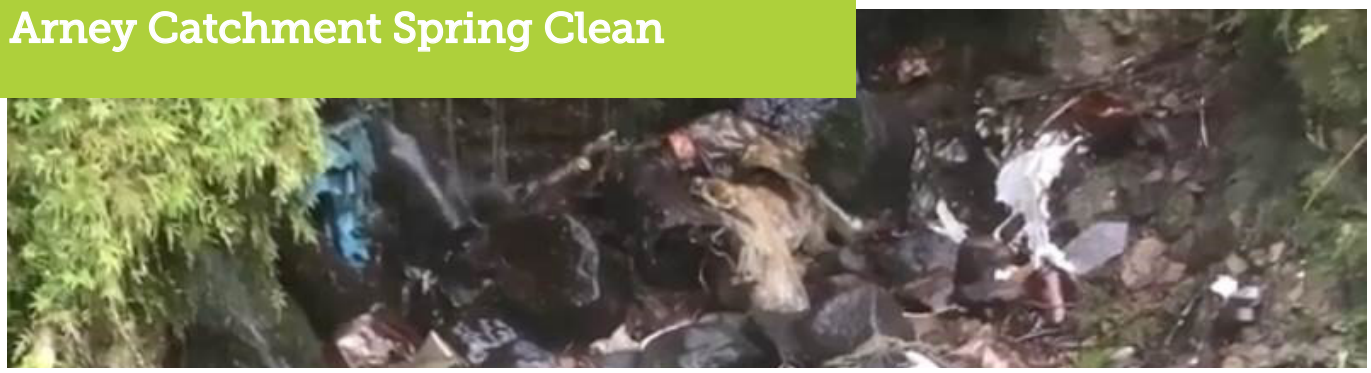
Torrent River Enhancement Association in Newmills, Co. Tyrone, were funded for its 'Torrent Riverwatch' project. The information panel installed as part of the project gives information about the Torrent River and its industrial heritage, which gave Newmills its name. It also details many of the creatures that live in, on and close to the river including dippers, grey wagtails, otters, damselflies as well as pipistrelles and Daubenton's bats

### *Case Study – Finn Catchment*

Finn group, BASICC (Ballybofey and Stranorlar Integrated Community Company) were funded for its 'Finn through the Lens' project. As part of the project, two new interpretive panels were installed which give information about the Finn Catchment and river, as well as the history and wildlife of the area.




## Arney Catchment Spring Clean



As water levels drop and floods subside, debris clings to the banks, branches and shorelines of the Arney water bodies. The unsightly dumping of waste into our waters reduces water quality and contaminates the habitats of many species living there. This year however, the local community has decided to join forces to tackle the issue with support from the CatchmentCARE's Community Incentive Scheme.

The Belcoo Men's shed, with assistance from Belcoo and Blacklion GAA clubs, are rolling up their sleeves and pulling on their wellies to clear litter from accessible locations along the Lough MacNean shoreline. Help is also at hand from Gortatole and the Cleenish Anglers, who will take to the water for those harder to reach places.

On the Upper Lough, Portora Boat Club will be teaming up with the MacNean and District Anglers to patrol the water for pollution. Kiltyclogher Heritage Centre will lead the ground troops and welcome any willing volunteers.

The far-reaching skills of the Speleological Union of Ireland (SUI) will climb through caves and descend steep ravines to rid groundwater and streams of accumulated rubbish. A major clear out of Pollnagossan Cave is planned for June. An online presentation and live Q&A session with caving experts will be held in advance for anyone interested in having a go themselves.

This holistic spring clean is hoping to involve as many local groups, families and individuals as possible to target their own patch in a co-ordinated, catchment wide event. Support from local Councils in Cavan, Fermanagh and Leitrim will provide litter pickers, gloves, bin bags and skips.
If you would like to take part, or know of any blackspots, please contact Lisa (lisa.doyle@fisheriesireland.ie 00 353 87 720 5255).

For further information on caves and groundwater, visit
***https://youtu.be/022Wb5Werko***
***https://www.youtube.com/watch?v=qPt1SsRijtw***

## Willow Weave Walls on the Cummirk

During late 2020 the Loughs Agency team carried out instream bank improvement works at two sites on the Cummirk River, north of Cloghan in the Finn Catchment. There were signs of significant bank erosion at these sites, thought to be as a result of historical upstream modifications and subsequent changes to the hydromorphology of the river.
In order to stabilise the eroding banks and restore the habitat, the CatchmentCARE Team from the Loughs Agency used "green", or "soft", engineering techniques which allow the river to behave in a more natural way. Erosion at the sites was countered by installing willow spilling on the receiving banks. Willow spilling softens the impact of the water on the receiving bank whilst also collecting sediment in this area. The natural materials of the structure also provide habitat for fish species as well as macroinvertebrates.

The works included the pinning of woody material, and installation and pinning of brushwood fascine and brash against the receiving banks. A live willow weave wall was incorporated onto the outside face; this means the willow will sprout and form a living barrier for the river bank, protecting it from erosion. Willow is very flexible so it will bend in strong currents and is resilient to destruction from flood events.

The willow weave wall will create a rough finished surface which will slow the flow of the river, allowing deposition of sediment such as silt and mud which further adds to bank protection. As time progresses the live willow will stabilise the riverbank and create habitat for biodiversity.

## New Blackwater Projects Officer Digs for Answers

The CatchmentCARE team at ABC Council is pleased to introduce their new 'Blackwater Projects Officer', Alan McCabe. Alan has recently taken up the role which will see him perform a variety of tasks, including monitoring work, soil and water quality sampling, stakeholder engagement and mapping work. Alan is already out and about and collecting soil samples from farmer's fields close to the Upper Blackwater River Scheme.

One of the main outcomes of the CatchmentCARE project is to provide local farmers with detailed nutrient management advice to help them understand the balance of the soil on their land. As part of this work Alan, along with Blackwater Catchment Officer Tom Woods, has been busy taking soil samples from numerous farms in the Blackwater Catchment.

After the samples are collected, they are sent to be independently analysed. Arising from this, detailed reports are compiled and passed onto each farmer taking part in the scheme. The reports contain information on Soil pH, Phosphate (P) Nitrate and Potassium (K) levels in the soil as well as trace element such as Magnesium (Mg) and Sulphur(S).

This work will provide a long term legacy for the CatchmentCARE project by refining farm nutrient management advice and engaging the local farming community in managing and protecting local water bodies.

# Mud Glorious Mud

Water quality is declining in many lakes around Ireland due to nutrient enrichment. To investigate the causes of this, Ulster University and AFBI are undertaking research on Upper and Lower Lough Macnean (found in Counties Fermanagh, Cavan and Leitrim), in the Arney Catchment.

These two lakes are large and shallow which means that, in stormy conditions, the sediment which contains nutrients and chemicals introduced into the lake are remixed throughout the lake leading to a reduction of clarity of the water. The research involved placing a sediment trap into the lake during storm conditions. The sediment from the trap is then dried and weighed and wind data used to measure the relationship between the amount of sediment collected and the wind direction and speed. The sediment is also analysed to see how much phosphorus it contains, as this nutrient is one of the main causes of nutrient enrichment in lake water bodies.

Initial results show that, even when external catchment inputs from agriculture, wastewater treatment works etc. are excluded, storm activity can impact on lake water quality and lakes can remain enriched for extended periods. So, what is the timescale for recovery, if we assume that all external inputs of phosphorus cease?

To address this, two 1m cores were taken from each lake and from these we hope to find out how long the phosphorus in the lake sediment will continue to recycle back into the lake water. The core slices were sent for dating analysis which gives us an insight into the recent, and longer term, history of the lakes. Significant world events, such as the Chernobyl disaster in 1986, are even identifiable as faint signals in the chemical record of the sediment and, in fact, are used as key dating tools in the analysis.

From all this work we hope to be able to quantify the impact of storm events on the lakes, and also derive a timescale for improvement in lake status.

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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)