

Work placement with Lough Carra LIFE

By Mark Morley, 2nd Year Student, ATU Mayo.

Introduction

My name is Mark Morley, and I am a second-year student at the Atlantic Technological University, Castlebar, Co Mayo. As part of my degree course in History and Geography, I completed a five-week work placement with the Lough Carra LIFE Project which is being coordinated by Mayo County Council. This Project is unique as this is the first time in Ireland a LIFE project has been led by a Local Authority.

Work placement

The work placement ran from the 30th of May to the 29th of June, and during this time I was able to take part in a range of the project team's tasks. My role was as a general assistant for the team. This allowed me to shadow team members and assist them wherever possible.

Week one

On the first day of my work placement, I met with Kieran Flynn, the Project Manager, and discussed the project, and the plan for the coming weeks' work placement. I then spent the rest of the day with Padraig Kelly, the Groundwater Officer. I learned about preparing for dye tracing, which is the process in which a non-toxic dye is poured into the streams, rivers, or karst features, to help map the flow of the groundwater. We went to various sites at rivers and streams, collecting water samples and placing either a ball of wool, or charcoal in nylon

tights, into the middle of the streams or rivers would later be removed and checked for the presence of the dye after it had been poured.

Below: Lough Carra LIFE's Groundwater officer Pádraig Kelly and Geological Survey Ireland's sub-contractors out and about dropping the woollen balls into a spring well and then pouring the (harmless) non-toxic dye into the river.



The next day I attended a team meeting and was introduced to the other team members: Siobhan Ward (Agricultural Officer), Leo Brogan (Surface Water Officer), and Damian Jordan (Community Officer). I also met Samirah Blaauw, PhD student from South East Technological University, who was there to give a talk on otters to the local schools. I attended the last of these talks at Belcarra National School. Later I went with Siobhan Ward (Agricultural Officer) on a farm visit to a local farmer who was signing up to the Lough Carra LIFE Project Agri-environment Scheme. At the visit, various initiatives the farmer would have to undertake were discussed such as: drain management and riparian buffer zones. Siobhan explained how payments would be made in receipt of the actions and initiatives the farmer carries out on the instructions of the LIFE project's Agri-environment schemes requirements. I also learned about other agricultural schemes such as ACRES (Agri-Climate Rural Environmental Scheme) and the basic payment scheme, and how the farmer we were visiting had recently moved his farm from beef farming to a dairy enterprise.

On Thursday, I accompanied Leo Brogan on his day and assisted in completing kick samples. This is the process of agitating the bed of a stream or river with your feet to disturb it and then collecting the resulting cloudy water with a net. This allowed us to see the quality of the water by looking at the invertebrates in the stream or river. From this, I learned about life in the rivers, the process of the kick samples, and how the streams were scored. Later I attended one of the dye tracing sites where the dye was poured into the stream before entering the groundwater. After this, we visited another kick-sampling site and found a small trout in the sample.



Left: Surface water officer Leo Brogan getting ready to do kick sampling. Net and white trays in tow. White trays are used because they provide a much better backdrop so we can better see what we pick up from the river.

Week two

I learned about how the LIFE Project uses social media, such as Facebook and Twitter, to create public awareness. I also looked at the Project website and watched some educational videos about the lake and its habitats. I also learned about the Lough Carra Catchment Association (LCCA), a local volunteer group set up in April 2018. Their main aim is to restore, protect, and conserve the ecological integrity of Lough Carra and its lake shore habitats. One of the ways they've set out to achieve this mission was, with the help of a paid Environmental consultant they applied to the European Union for LIFE funding. The success of this application resulted in the Lough Carra LIFE project. I should point out that LIFE is an acronym of the French words L'Instrument Financier pour l'Environment. It is, as the French suggests, a financial instrument/fund for projects around the continent of Europe that are trying to help in regard to Environment, Climate Change and nature restoration or preservation.

I spent Wednesday with Siobhan Ward, Agricultural Officer, creating the RBPS farm plans, tailored to each farmer. During this process, I learned about land types, such as grazing and woodlands, and the Agri-environment results-based payments scheme (RBPS). I also learned about Geographical Information System (GIS) mapping, and I was able to use GIS while mapping out one of the farms. I also assisted in inputting some of the information into the farm plan.

On the third day, I worked with Leo Brogan, the Surface water Officer. I assisted in collecting samples around the catchment area and discussed the dry weather problems, which affected the dye tracing showing up as there had been no rain for about a week at this stage.

Below: Leo Brogan taking a sample of water from the stream, and myself in the second picture holding a sample bottle with the location, time, and date. These samples are then taken to the laboratory for analysis. Looking in particular for any increased levels of nitrates, phosphates.



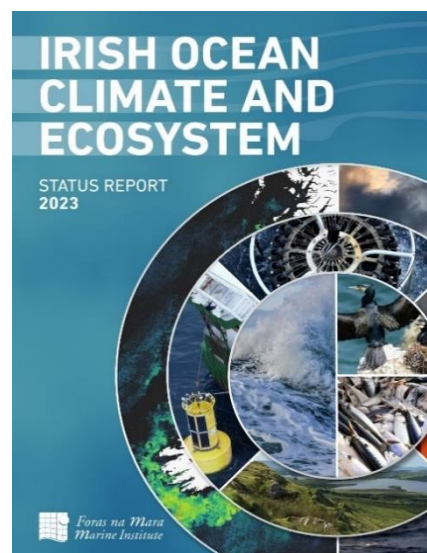
Week three

I started off the week, groundwater sampling in the rivers and streams south of the catchment and around the river robe. It had rained the weekend before, so samples had to be done regularly to find traces of the dye. But one site couldn't be tested due to a lack of rainfall.

On Wednesday and Thursday, I attended an online EPA water conference. The first topic discussed was Water quality and policy and had speakers such as Minister for State Malcolm Noonan TD, Mary Gurrie Programme Manager at the EPA, Dr Matt Crowe Chairperson An Foram Uisce and Kevin Motherway Regional Coordinator CARO Cork County council. The

next topic was Agriculture, and this saw speakers such as Bill Callanan Chief Inspector Department of Agriculture, Dr David Styles Associative Professor in Agricultural Sustainability, National University Galway and a discussion panel with farmers and environmental activists. This completed the first day of the conference. On Thursday, the topics of discussion revolved around health, water, and emerging issues. This had speakers such as Stephen McCarthy Inspector of Environmental Enforcement EPA, Dr Liam Burke Assistant Professor in Bacteriology National University of Galway and Dr Roisin Nash Senior Lecturer and Researcher ATU and discussed a range of such issues such as verocytotoxigenic E. Coli (VTEC) in the groundwater, and microplastics in the waterways. The last theme of the conference was the future of water which had speakers such as Dr Caroline Cusack Ocean Observation Team Leader at the Marine Institute, Maria O'Dwyer Head of Asset Management Uisce Eireann and Dr Aoibhinn Ni Shuilleabhain Chairperson of the Citizen's Assembly on Biodiversity loss. She went over the findings and outcomes and the process of a citizen's assembly.

Below: Minister Malcolm Noonan TD giving his opening address to the EPA Conference, and the Irish ocean and climate status report 2023.





Above: A panel of experts discussing the issues faced by agriculture and river's pollution.

Week four

I met with Kieran and discussed the plan for the last two weeks. After the meeting, I looked over the website and took notes on possible issues and improvements that could be made.

On Wednesday, I went to an unimproved grassland by Lough Carra with a fellow ATU student. They were being tasked with surveying the site's vegetation, which I assisted in. This site had a wide range of flora and fauna. First, we walked the field before arriving at the point for a vegetation survey. I learned about the study process and identified plants and insects where I could within the *quadrats.

*Quadrats – An area marked out and defined by the surveyor. Usually a 1m x 1m square, to take their survey from. Especially used in fields or large areas to methodically survey and evaluate findings.

Below: A sample of the plants myself and my fellow ATU student found in the grassland.



On Thursday, I was in the office and assisted by proofreading documents—this involved reading and commenting on any issues found in the process and sending on my notes that I had taken about the website.

Week five

At the start of my final week, I found myself out in the field with Leo Brogan for another round of surface water sampling on various streams and rivers. Some sites were easy to access and had good walk-in areas with marshlands. Others were not. This, as Leo put it, is sometimes the reality of sampling out in the field. You may not always have straight forward access to your sampling points. The water was first collected in a bucket, and a device would be placed in the bucket to give us the temperature and oxygen levels in the sampled waters. This was then recorded on a sheet for all eight sites. My role was to use the device and record this data. In this process, I learned about the various plants in the habitats, such as vetch and yellowworts.



Above Left: Our equipment which included: a bucket with a rope attached to the handle, a clean empty plastic carton for the water sample and the device for measuring the temperature and oxygen in the water.

Above Right: Leo Brogan casting the bucket a distance and then dragging it back through the water to collect the sample.

On my last two days, I was in the project office, where I was tasked with writing up a report of my work placement and adding photos I had taken. This report is to be published on the project website. My work placement culminated in a meeting with Kieran Flynn, Project Manager to discuss the final report and the work placement details.

Mark Morley, ATU Student, June 2023.