

Case study

KNOWLEDGE EXCHANGE – The cornerstone of LIFE



LIFE Dee River, 4 Rivers for LIFE and LIFE R4ever Kent project teams meet up in the Lake District

When

Autumn 2023

Where

River Dee catchment, River Kent catchment

Background

The LIFE Programme is the EU's funding instrument for the environment and climate change, and is managed by the European Climate, Infrastructure and Environment Executive Agency (CINEA). There are currently over 1,000 LIFE projects on the go, of which 46 are in the UK. For further information, just visit the [CINEA website here](#).

Whilst each project has its own specific and bespoke objectives, one deliverable that LIFE Programme projects have in common is networking with similar projects in order to share knowledge and best practice, and help refine restoration techniques. As the aim of our LIFE R4ever Kent project is to restore the River Kent Special Area of Conservation so that the river and its species are more resilient to environmental pressures, projects we were keen to network with were the LIFE Dee River and 4 Rivers for LIFE.

What we did

Visiting the LIFE Dee River project

Based in north Wales, the [LIFE Dee River project](#) is a five-year project that aims to improve agricultural and forestry land practises, remove constraints to fish migration, restore riverine processes and initiate conservation measures for freshwater pearl mussels, all while supporting local communities. The Dee catchment is highly regulated and encompasses areas renowned for water

Case study

sports, and areas of farming and abstraction. In addition, it includes the World Heritage Site, Pontcysyllte Aquaduct & Canal, and is also designated as a Special Area of Conservation. It is no small challenge, therefore, to conduct restorative works on this scale, with every user of the water to be considered!

Despite this, three-and-a-half years into the project, these habitat improvements have already proven to be effective, and we were really keen to see the progress for ourselves. As such, we headed down to north Wales on a two-day trip to meet up with the team, who really demonstrated the value of reconnecting rivers and restoring areas of natural habitat.

During our trip, we had the opportunity to visit several sites along the catchment where such works have been undertaken or were currently being implemented. Joel Rees-Jones, the LIFE Dee River Project Manager, talked us through the processes of removing (and partially removing) unnatural barriers such as weirs to facilitate movement of fish up and downstream, introducing gravels and boulders to provide natural habitat for both spawning and juvenile fish and pearl mussels, as well as planting trees such as black poplar to stabilise banks.

Joel highlighted the unique challenges faced working at each site. For example, removing parts of weirs affects water levels, which is significant considering that large parts of the river are used by kayakers and rafters. In the town of Llangollen, instead of removing two weirs, which would have made water levels considerably lower and would have had negative implications for water sports, the team worked with local rafting companies to create notches (gaps) in both weirs, in addition to building a new egress point for kayakers and rafters to enter and exit the water safely.

Establishing positive relationships with local businesses, landowners and members of the public has been pivotal in gaining support for the works being completed and ensuring long-term success of the project. These relationships have also enabled large sections of river to be fenced off from livestock to create buffer zones. In these areas, solar pumps have been installed to provide the animals with drinking water, whilst reducing the impact of erosion, grazing, nutrient input and sedimentation that is associated with their access to the river.

On our second day, we visited Chester, where Joel explained how notches have been installed into a large weir in the lower part of the catchment to enable smolts (juvenile Atlantic salmon and sea trout) to pass the structure during their downstream migration to the marine waters in the spring, as well as enabling their return upstream to spawn as adults. At this location, salmon, sea trout, sea lamprey and river lamprey are also captured by a fish trap situated on the weir.

As the River Dee is an 'index' river for salmon and sea trout, the fish trap allows Natural Resources Wales (NRW) staff members to collect biological information (such as age/sex/size) and tag individuals to estimate the annual run size. It also gives the LIFE Dee River team the opportunity to acoustically tag salmon, sea lamprey and river lamprey to observe individual fish movements and current range. This level of monitoring helps to understand the factors affecting migration and survival of each species.

Improving fish passage through weir removal or the creation of fish passes allows the population of Dee salmon to utilise the whole of the catchment ensuring that the population is more connected

Case study

and therefore more resilient to future changes – an aspect that aligns with the purpose of our LIFE R4ever Kent project.

A return visit in the Lake District

Of course, it would only be fair to reciprocate such hospitality and so, a couple of weeks later, LIFE Dee River came up to visit us in the Lake District for a couple of days.

They were also accompanied by the [Four Rivers for LIFE](#) project team and staff from the River Restoration Centre, which is an Associated Beneficiary on both projects. These projects are both in Wales, with [LIFE Dee River](#) in the north working to transform the River Dee and its catchment by restoring the river and its surroundings back to their natural state. Similarly, Four Rivers for LIFE are working to protect, enhance and help restore the south Wales rivers: Teifi, Tywi, Cleddau and Usk, improving river habitats and conditions for migratory fish – most notably Atlantic salmon, sea and river lamprey, bullhead and shad.

On the first day, we gave presentations about the LIFE R4ever Kent project while some team members also visited the now famous James Rebanks' farm with the eminent Pete Leeson from the Woodlands Trust. Firstly, Dr Louise Lavictoire (Head of Science at the Freshwater Biological Association) talked about how the project came to be in the first place, while Morgan Barrie, Project Manager, provided a general overview on aims and progress. Next, Ben King (Pearl Mussel Officer) spoke on the specifics of the freshwater pearl mussel studies being undertaken during the project. Later, we showed our guests around the Freshwater Biological Association's Species Recovery Centre, which is where the populations of freshwater pearl mussels are being captively bred. The day ended here with Louise giving a mussel tagging demonstration, showing how we tag our mussels for monitoring once released into the river system. Makers of dental cement – did you know it has an alternative use of protecting glass tags on freshwater pearl mussels?

On day two, we went out with South Cumbria Rivers Trust to look at different sites on the river where the project is completing works. The day started with a special guest appearance from one of our own Governance Board, Pete Evoy, from South Cumbria Rivers Trust, who is fascinating to listen to as a storyteller of a project's winding journey.

We then went on a whirlwind tour across four different sites across the Kent catchment to look at leaky dams, fencing, tree planting, large woody debris and a weir removal undertaken so far. A Catchment Management Adviser from Natural England was on hand to talk about the land management aspect of our work, and a team member from the Environment Agency joined us for the morning to answer questions, too.

Being late autumn, the light was soon fading fast as our guests left for their journey home, but what a great time we'd had sharing our knowledge and experiences. We believe that, in our shared landscapes of rivers surrounded by rain, slate and sheep, we have shared experiences that help all our LIFE projects learn, develop, and ultimately create better rivers, better protected sites, and a better chance for the species within them.

Case study

Outcomes and Learning

Our trip to north Wales highlighted all the efforts that go into a project of this scale, and it was inspiring to learn of their successes. If our juvenile pearl mussels are to survive in the river, then these restorative works are essential to provide the type of habitat that they need to successfully become reestablished in the catchment.

It was our first opportunity to show our work and engage in discussions about the similarities and differences of the obstacles we face and opportunities we have found. All three LIFE projects cover different areas, are on differing scales and have different partners bringing their own expertise and advantages unique to each, but there is much in common in our work: renaturalising our watercourses, reducing nutrient input, battling invasive species, and protecting our species.

Next steps

Like the River Dee, the River Kent is a principle Atlantic salmon river for its spawning grounds and is also home to critically endangered freshwater pearl mussels. As part of the LIFE R4ever Kent project, we are working on a captive breeding programme to produce a population of juvenile freshwater pearl mussels that will inhabit the River Kent in the near future.

Freshwater pearl mussels are an important keystone species that require a specific set of habitat requirements to survive (highly oxygenated, oligotrophic waters) and have an obligate parasitic stage on salmonids as part of their complex lifecycle. Therefore, also like the LIFE Dee River, the LIFE R4ever Kent team are presently working with landowners to undertake habitat improvements such as tree planting, creating buffer strips and removing revetments and embankments to provide suitable habitat for these species (amongst others).

Contact us

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