

Project

“Enhancement of Green Infrastructure in the Landscape of Lowland Rivers”

(ENGRAVE, LLI-291)

Summary report of study visit to the United Kingdom

September 25 – September 29, 2018

Deliverable T.1.7.1.



09.2018 (updated 10.2018)

Content list

Introduction	3
1. List of participants.....	4
2. The agenda of study visit	4
3. Visit of Greater Manchester	5
4. Visit of Peak District National Park	10
5. Visit of Liverpool City Region	14
Conclusion.....	17
Annexes.....	18

Introduction

The study visit to the Manchester and Liverpool regions in North West England was organised in the frame of the LAT-LIT ENGRAVE project (T1 action) from September 25 until September 29, 2018.

The main goal of the study trip was to increase the capacity of the project team by learning on planning approaches, cooperation with different stakeholders and the practical river restoration activities in the United Kingdom. Study trip was hosted by Mersey River Trust, Peak District National Park Authority and Moor for the Future Partnerships.

During the study visit four rivers and their catchment areas were visited surrounding of Liverpool and Manchester cities. Several river restoration sites and implemented improvements of river ecosystems were visited by project partners (see chapter 3 and 5). Additionally, was visited the Peak District National Park, to see green infrastructure objects of River Mersey and learn more about landscape and green infrastructure planning and conservation issues in oldest national park in England (see chapter 4). There was organised also one meeting with a goal to learn more about green infrastructure and nature capital strategy development on Great Manchester in the frame of LIFE Nature Course project (see chapter 3). Detailed programme of the study visit tour see in chapter 2 and route of the tour see in Annex 1.

PP2 Baltic Environmental Forum-Latvia in cooperation with LP and PP7 organised this Study trip. PP2 Landscape expert consulting with PP2 Senior landscape planner and PP2 Senior water management expert prepared the content agenda, planned the route, time table, communicated with the representatives from various institutions who hosted the project team during the Study trip. Report of study trip was prepared by PP2 Baltic Environmental Forum-Latvia (general editing and Day 2), PP5 Rundāle Local Municipality (Day 2), PP8 Directorate of Zagare Regional Park (Day 3), PP6 Birzai district municipality administration (Day 3) and LP Zemgale Planning Region (Day 4).



Participants of the study trip at the Moorland Centre (Author: Rebecca Cassidy)

1. List of participants

The group consisted from 14 persons in total, representing different project partner organisations from Lithuania and Latvia:

Name, Surname	Represented Institution
Evija Ērkške	Zemgale Planning Region
Valentīna Mengote	Zemgale Planning Region
Dana Prižavoite	Baltic Environmental Forum - Latvia
Dace Strigune	Baltic Environmental Forum - Latvia
Ingars Rozītis	Jelgava Local Municipality
Dace Platonova	Bauska Local Municipality Council
Laura Ārente	Rundāle Local Municipality
Jurga Bagamolovienė	Biržai District Municipality Administration
Kęstutis Baronas	Directorate of Biržai Regional Park
Danutė Kondrotienė	Directorate of Biržai Regional Park
Rasa Zakrienė	Directorate of Biržai Regional Park
Inga Tručinskienė	Directorate of Biržai Regional Park
Modesta Bielskienė	Directorate of Zagare Regional Park
Giedre Rakstienė	Directorate of Zagare Regional Park

Full signature list of participants see in added Annex 2.

2. The agenda of study visit

25.09.2018	Day 1: Arrival day to Manchester
26.09.2018	Day 2: Manchester – Greater Manchester (Merseyside) –Manchester
<i>Experience exchange with Catchment-Based Approach partnership, Nature Course and Manchester Ship Canal Aeration project. Focus on green infrastructure, river restoration and stakeholder involvement issues.</i>	
9:00 -17:00	<p>Departure from hotels: ibis Manchester Centre 96 Portland Street → Premier Inn Manchester Central → ibis budget Manchester Salford Quays</p> <p>Visits of Mersey River and its tributaries with Mike Duddy and Caroline Riley from Mersey River trust http://healthywaterwaystrust.org.uk/ and Mark Turner from Greater Manchester Combined Authority http://naturalcourse.co.uk/ https://naturegreatermanchester.co.uk/</p> <ul style="list-style-type: none"> * Visit of Kersal wetlands http://www.kersaldale.com/ * Restoration of River Irk in North Manchester * Walk along the River Irk and green infrastructure sites <p style="text-align: center;">Lunch at Salford (<i>on own costs</i>)</p> <ul style="list-style-type: none"> * Aeration project in Salford Quays <p>Arrival to hotels in Manchester</p>

27.09.2018	Day 3: Manchester – Edale - Hathersage – Manchester
<i>Experience exchange with Moors for the Future partnership and Peak District National Authority. Focus on landscape planning and green infrastructure issues in nature parks.</i>	
9:00 – 18:00	<p>Departure from hotels: ibis Manchester Centre 96 Portland Street → Premier Inn Manchester Central → ibis budget Manchester Salford Quays</p> <p>Visit of Peak District National Park with Rebecca Cassidy and Chris Fry from Moors for the Future http://www.moorsforthefuture.org.uk/ and Jane Newman and Dave Watts from Peak District National Park Authority http://www.peakdistrict.gov.uk/home</p> <ul style="list-style-type: none"> * Meeting in revamped MoorLand Visitor Centre with Rebecca Cassidy * Walking tour of Hathersage with Jane Newman Lunch at Hathersage (<i>on own costs</i>) * Cycle trails in the Peak District with Dave Watts * Field visit a top of Snake Pass with Chris Fry <p>Arrival to hotels in Manchester</p>
28.09.2018	Day 4: Manchester – Liverpool – Manchester
<i>Experience exchange with Catchment-Based Approach partnership. Focus on river restoration, flood management and water quality.</i>	
9:00 – 17:00	<p>Departure from hotels: ibis Manchester Centre 96 Portland Street → Premier Inn Manchester Central → ibis budget Manchester Salford Quays</p> <p>Visit of estuary of Mersey River around Liverpool with Paul Corner and Caroline Riley from Mersey River trust http://healthywaterwaystrust.org.uk/</p> <ul style="list-style-type: none"> * Visit of Liverpool Waterfront * Walk around Albert Docks Lunch at Albert Docks (<i>on own costs</i>) * Crossing the River Mersey by ferry or by driving through the tunnel under the river * Visit of the River Park * Visit a project site at Rivacre Brook <p>Arrival to hotels in Manchester</p>
29.08.2018	Day 5: Departure day from Manchester

3. Visit of Greater Manchester

During the second day of the study visit – September 26, 2018 – ENGRAVE project team visited Mersey River and its tributaries around Manchester, hosted by representatives of [Mersey Rivers Trust](#). The Mersey Rivers Trust is a charity working in partnership with all those interested in

improving the local rivers and waterways. As a member of the national Rivers Trust movement, it is the Rivers Trust for the River Mersey and its catchment. The main target of Mersey River Trust last 25 years has been to recover the Mersey River basin as a resource of recreation for local citizens, as well as a solution to decrease impact caused by floods – draining and absorbing rainwaters. The Trust has succeeded bringing together the city administration, business sector nature research organizations. Ms. Caroline Riley, senior project expert, from Mersey Rivers trust not only hosted the project ENGRAVE team during the visit (day 2 and day 4) but also invested a lot of time and great support to PP2 with the content preparation of this visit.

Visit of River Irk

Mike Duddy and Caroline Riley from Mersey Rivers trust welcomed the project team and gave a short overview on river Irk: is a river in North West England that flows through the northern suburbs and towns of Greater Manchester. It rises to the east of Royton and runs west past Chadderton, Middleton and Blackley before merging with the River Irwell in Manchester city Centre. The River Irk and its surrounding green space was once open countryside, with rolling green hills, a fast-flowing river, which supplied clean water to the villages it passed through. But the banks of the Irk in Manchester at the height of the city's industrial excess and following the advent of the industrial revolution that image changed radically. Only 10 years ago Irk river was the most polluted river in England caused by industrial pollution, chemical leaks in addition to the mill seats upon the River Irk, its tributaries were culverted, where it became convenient, allowing urban developments to expand. The most notable culverted section flows underneath Manchester's Victoria railway station into a cavernous brick tunnel at Ducie Bridge ending its journey at the Irwell basin beneath the railway viaduct. But – since 1998 several projects, initiatives and campaigns were realized with the aim not only to improve the water quality and biodiversity, raise fish stocks and invertebrate numbers, restore river banks and ensure the rejuvenation of the green space for the benefit of the community through a process of environmental developments, community involvement and sensitive habitat management.



Mike Duddy introducing with river Irk and restoration actions (Author: D.Prižavoite)



The faggots (bundles) along river Irk helps to prevent river bank erosion (Author: D.Prižavoite)

Project team had a walk by the river Irk banks and had an opportunity to see, evaluate and discuss the measure implement and planned by the trust. Particular attention was paid to the number of inhabitants' awareness campaigns organized and river rescue campaigns involving large number of volunteers. About 15% of total river recovery works has been done by volunteers, including water pollution monitoring. To detect level of water pollution, no expensive chemical analyses are needed. It is enough to monitor the river morphology and habitats regularly. The monitoring

sheets are available to download on Trust's web page; thus, volunteers can freely reach them and use. Our delegation visited river Irk banks restored by volunteers. The latter will help to recover the ecology of river, promote the development of natural feed chain and fish migration. Now the previously dead river Irk has succeeded and the life in river slowly and gradually returns. Detailed information about the river Irk status quo and suggested activities available [here](#) and river Irk restoration plan is available [here](#).

Visit of Kersal wetlands

Visit to Westland flood basin presented the joint solutions to existing flood problem. The basin has been established on 2006, helping to drain excess water to specifically established protection area. Usually water lays for 3-4 days during the floods until the river can absorb it. Project team visited the Salford Flood Basin – recently (on February 2, 2018) unveiled. A £10 million flood scheme which will protect almost 2,000 homes and businesses, hold more than 250 Olympic-sized swimming pools of water during a flood and includes more than 5 hectares of urban wetland habitat, has been officially completed. Across from Kersal Dale, the area that was formerly Salford University sports pitches has been transformed into a wetland area, with 2.5 kilometers of pathways straddling the embankments, ten hectares of wildflower habitats, incredible artwork by Kelzo and panoramic views of wading birds. The Salford scheme delivers on a long-held vision to not only create a flood storage basin in Salford – to reduce the risk of flooding from the River Irwell – but also to provide a boost to local wildlife populations by including a high-quality urban wetland habitat.



River Irwell (Author: D.Prižavoite)



Info board on River Irwell (Author: D.Prižavoite)



Salford Flood Storage basin (Author: D.Strigune)

The new defense is an 'offline' storage basin that will work in tandem with the existing flood storage area at Littleton Road, completed in 2005. To create the storage capacity ground was excavated from the site and then reused to build a raised embankment around the periphery to form part of the defense system. The embankment's south-west corner features an inlet to allow the controlled spill of water into the basin when river levels are high. Water is then stored in the basin during a flood and released by two outlet pipes back into the river once the water level has dropped. Making the most of every design aspect, the flood embankments have been planted with 10 hectares of wildflower habitat, to attract pollinating species such as lady birds, moths, butterflies and bees – whose population has dramatically declined across the county in recent

years. The scheme not only brings flood risk and wildlife benefits, but also leisure and amenity benefits to the local community.

Within the basin area, several multi-use sports pitches have been given improved playing surfaces and better drainage systems, making them more resilient to flooding than the pitches that were in place before the scheme.



Flood storage basin as a multi-use sports pitch (Author: D.Prižavoite)



Lock system at Kersal wetlands (Author: D.Prižavoite)

As a longer term, economic benefit, the scheme will help Salford Council's regeneration plans by enabling development in areas previously not viable. More than 90 hectares of development land has been protected as a direct result of the scheme which will allow increased opportunities to develop land within the river corridor.

Wetlands provide many benefits to society and help us to be more resilient to the effects of our changing climate. They provide multiple benefits such as slowing the flow of water, reducing flood risk, filtering water and capturing carbon. Their importance is increasing as a result of climate and land use change.

Walked along the Salford Quays

Mark Turner from Greater Manchester Combined Authority introduced the project team with the Salford Quays - an area of Salford, Greater Manchester, England, near the end of the Manchester Ship Canal. Previously the site of Manchester Docks, it became one of the first and largest urban regeneration projects in the United Kingdom following the closure of the dockyards in 1982.

Built by the Manchester Ship Canal Company, Salford Docks was the larger of two that made up Manchester Docks; the other being Pomona Docks to the east. They were opened in 1894 by Queen Victoria and spanned 120 acres (49 ha) of water and 1,000 acres (400 ha) of land. At their height the Manchester Docks were the third busiest port in Britain, but after containerization and the limit placed on vessel size on the Manchester Ship Canal, the docks declined in the 1970s. They closed in 1982.

In 1983, Salford City Council acquired parts of the docks covering 220 acres (90 ha) from the Manchester Ship Canal Company with the aid of a derelict land grant. The area was rebranded as Salford Quays and redevelopment by Urban Waterside began in 1985 under the Salford Quays Development Plan. Faced with major pollution issues from quality of the water in the ship canal, dams were built to isolate the docks, after which water quality was improved by aerating it using a compressed air mixing system. Within two years the quality was enough to introduce 12,000

coarse fish, which have thrived in the environment. Water quality is monitored fortnightly by scientists from APEM, the Manchester University Aquatic Pollution and Environmental Monitoring Unit, and the improved habitat has been recognized by the Angling Foundation and the Institute of Fisheries Management.

Between 1986 and 1990, the infrastructure of the docks was modified to create an internal waterway network. Roads and bridges were built and a promenade along the waterfront constructed and landscaped. Moorings and watersports facilities were provided, and a railway swing bridge moved to cross Dock 9. A hotel, cinema, housing, offices were built on Piers 5 and 6 followed by more developments on Pier 7. Public funding and private investment totaled around £280 million by the early 1990s.

Some of the first developments in Salford Quays were residential, initial builds consisting of traditional low-rise flats and town houses. As the area prospered, more high-rise buildings were constructed to increase housing density on the limited pier space.

Early in the planning stages for redevelopment of Salford Quays in 1988, potential was recognized for a landmark arts venue, the Salford Quays Centre for the Performing Arts, which became known as the Lowry Project in 1994.



Salford Quays operation tower (Author: D.Prižavoite)



Salford Quays system (Author: D.Prižavoite)



Salford Quays exploration with Caroline Riley (Author: D.Strigune)

Development was very intense and nowadays this area is used not only for business needs but also for wide range of leisure, sport and tourism activities. project team was impressed by the fast development of this area and importance of correlation between nature resources quality improvement and development of the part of the city.

The first day of study visit gave the opportunity to project partners to focus on various examples green infrastructure elements and of river restoration aspects, flood prevention and control measures and innovative solutions, water quality improvement targets, indicators and measures, importance of biodiversity improvement, invasive species control and management solutions, water aeration examples and long term planning results, stakeholder and public involvement in volunteering activities and educational issues. Also, it was a great opportunity to get the basis on local situation, river management system in UK, approach towards the water management.

4. Visit of Peak District National Park

The 3rd study visit day started with the visit of Peak District National Park where the Mersey River begins together with Rebecca Cassidy and Chris Fry and Mollie Hunt from Moor for the Future and Jane Newman and Dave Watts from Peak District National Park Authority. Park team and experts shared their experience on principles of landscape and spatial planning in nature conservation areas, green infrastructure management issues in nature parks, measures of wetland restoration and flood control in the national park. The ENGRAVE team met with Rebecca Cassidy in revamped Moorland Visitor Centre that is the start of visit the spectacular area of the Peak District National Park. After the walking tour of Hathersage with Jane Newman followed the visit of Cycle trails in the Peak District with Dave Watts discussing the path management issues by involving volunteers from local surroundings and communities. During the walk in the High Peak with Chris Fry and Mollie Hunt showed the implemented measures for the restoration of blanket bog on the moors.

Visit of revamped MoorLand Visitor Centre

Day started with the meeting in revamped MoorLand Visitor Centre. Located in Edale, this flagship centre is a home of the Moors for the Future Partnership and provides a national focus for moorland research and an inspirational experience for visitors to the Peak District National Park. Edale is at the start of the Pennine Way and the Peak District National Par Authority's experienced team is there to help the visitors make the most of their visit to this spectacular area. Peak District National Park Authority's experienced team at the Moorland Centre working to protect their natural environment. Also, Moorland Visitor Centre is built to have as little impact on natural environment as possible. During our visit of this Centre we understood that its shape allows wind to flow over it instead of through it and it helps to reduce heat loss. The position of the building with windows that face south and west helps to capture more heat and light from the sun. The trees in front of the windows provide shade in the summer, but let the sun through when the leaves fall in autumn. They also shelter the building from wind. Liquid-filled pipes and a pump bring earth's molten core heat into the building of the Centre. This is the way there to heat the water. Good insulation keeps the heat inside the building. A plant-covered roof and a thick floor prevent the building's heat from escaping. Moorland Visitor Centre is also recycled. The walls are made from re-used stone. Since no new stone has been dug or processed, it saves local wildlife and reduces carbon emissions. Also use of local stone reduces pollution from vehicles transporting it here. All these features help to reduce the use of fossil fuels, which add to pollution and climate change. The Peak District National Park's Moorland Centre in Edale was opened in August 2006 both as a visitor centre and the UK's first moorland research base.

Our project team had a chance to have a look around and also inside the building. We found there lots of useful information for visitors, plenty of attractive souvenirs to buy.

Representatives of our project team Evija Erkske from LP Zemgale Planning Region and Dana Prižavoite from Baltic Environmental Forum Latvia presented ENGRAVE project and its main activities. All other team members and project partners also shortly presented main activities. Rebecca Cassidy was more interested in Birzai and Zagare Regional Parks as protected areas of Lithuania. Representatives of Zagare Regional Park presented Zagare as famous town for its own

special kind of cherry tree – Zagare Cherry which flourishes due to the dolomite present in the soil there. The main activity of ENGRAVE project in Zagare – enhancement works in the Cherry garden of Zagare which started to plant in the spring of 2011. But it is bad situation of walking paths at the moment in the garden, part of the territory is still abandoned, there are no other kinds of trees, bushes or garden flowers there. After the implementation of ENGRAVE project in Zagare, tourists and visitors will have access to Zagare Cherries. Every year special event takes place in Zagare – Zagare Cherry Festival. Symbol of it, of course Zagare Cherries and also scarecrows. Enhanced Cherry garden will be attractive area for the events of Zagare Cherry Festival.

Rebecca Cassidy also shared the experience of the publicity purposes in Peak District National Park Authority. The most interesting publicity tool in the Park – special vehicle called Moor in a vehicle with special floor in it where you can feel like walking on a box, which is often going to various territories around and presents the importance of preserving moors for local residents and visitors. Peak District National Park Authority has many volunteering opportunities – not only children or students but also retired people help to do various activities.



Exploration of Moorlands Visitor centre (Author: D.Prižavoite)



Discussion on ENGRAVE project with Rebecca Cassidy (Author: Valentina Mengote)

Walking tour of Hathersage

Peak District National Park Authority specialist Jane Newman presented that The Peak District National Park was designated a national park for its very special qualities. These qualities include a rich diversity of natural and cultural heritage, enjoyed by residents and visitors alike. No element of the national park landscape is untouched by past or present human activity. However, new technologies, more people and changing lifestyles mean that our potential to change the environment and the appearance of the landscape is far greater now than in any previous generation. Park's Authority works with a range of people and partners to give the national park a sustainable future and it is our collective responsibility to be aware of our impact so that the national park continues to be here for everyone in the years to come.

As we were told by Jane Newman there are 15 National Parks in UK. Peak District National Park was the first one designated in the UK. This national park has a population of 38 000 inhabitants. Every year more than 10 million visitors come to this National Park. In the 1930-1950, the number of inhabitants in national parks grew significantly. Now the development of houses in parks is severely restricted. The Peak District National Park Authority issues only 10 building permits during one year. According to Jane Newman, there is always balance between population needs and

needs of the park it is rather more declarative because any economic activity is highly regulated. During our walking tour we understood that UK is similar to for example Lithuania, where the day-to-day activities of people living in heritage areas are under control and any external alteration of the house must be coordinated with the responsible authorities. Also, publicity and communication are very important because the goal is to influence people to do the right things, to convince them to do all in a right way.



Conversation with Jane Newman on planning issues in Peak District National Park (Author: Valentina Mengote)



Walking tour of Hathersage (Author: Valentina Mengote)

Cycle trails in the Peak District National Park

As we have found during the meeting with Dave Watts – one of the Peak District National Park Authority’s specialist, cycling in Peak District is very popular nowadays. It is a simple way to explore the spectacular countryside of the Peak District going by bicycle. Visitors can enjoy pretty villages, superb views, interesting history, fascinating wildlife and geology. It is said that the Peak District has routes to suit whether a mountain biker or a ‘roadie’, cycle tourist or family/leisure cyclist. Dave Watts told us that he together with his college supervise 2 cycling trails. Their responsibilities are to cut the grass, trees and bushes near the trails, collect the litter. There are also 13 car parks along cycle trails under their supervision, toilets, private cycle centres and other important infrastructure. Volunteers also play an important role in supervision of cycle trails in Peak District which are all connected in one system.



Discussion on Peak District management issues with Dave Watts (Author: Valentina Mengote)



Dave Watts showing cycling trail maintenance and building up principles (Author: Valentina Mengote)

Modesta Bielskiene from Directorate of Zagare Regional Park asked the question whether using bike paths is payable. Dave Watts explained that everybody can use cycle trails here free of charge but usually people come by cars, leave them in the car parks and then go by bicycles. They have to pay for the car parks so this is their way to earn money and then use them for the improvement and maintenance of the cycle trails. We also shared our experience about visitor's ticket of Regional park which we have in Lithuania since 2015.

Field visit a top of Snake Pass

The 3rd day of the study trip the project team finished by visiting impressive moorland territory called Snake Pass. During the walk in the High Peak with Chris Fry and Mollie Hunt we were told that moorland or moor is a type of habitat found in upland areas in temperate grasslands, savannas, and shrublands and montane grasslands and shrublands biomes, characterised by low-growing vegetation on acidic soils. Moorland nowadays in UK generally means low-lying wetlands. The United Kingdom is home to an estimated 10–15% of the world's moors.

Moors for the Future is a partnership of public and private organisation to protect and promote moorland in the United Kingdom. Based in Edale in the Peak District National Park, much of the work carried out by Moors for the Future is in the National Park. The organisation works to promote the moors to the public for recreational use, as well as to raise important issues (such as ground nesting bird disturbance and moorland fires) that are associated with recreational use of the moors. Moors for the Future was launched in 2002 and is a partnership project. It is funded by the Peak District National Park Authority, the National Trust, Natural England, United Utilities, Severn Trent Water, Yorkshire Water, Environment Agency, Derbyshire County Council and Moorland Owners.



Chis Fry introducing with Moor restoration (Author: Valentina Mengote) Walking to Snake Pass (Author: Valentina Mengote)

There is a team of researchers who look at the science of moorland restoration and its benefits. For example, peat is a huge store of carbon, so, if the moors degrade, the carbon could be released into the atmosphere. They also look at the effect climate change will have, and how much extra carbon can be locked up by a healthy growing peat bog. Since 2003, Moors for the Future have been working to reverse more than 200 years of damage that left large areas of these uplands bare of vegetation caused by industrial revolution. One of the solutions to the moor restoration is the planting of appropriate flora and the installation of plastic dams. Plastic dams are impermeable gully blocks constructed from sheets of plastic piling that lock together. Plastic piling can hold considerable volumes of water, creating large, deep pools. They only work effectively where the

base of the piling is on peat, not the mineral soil beneath. As a result of industrial revolution more than 200 years ago no any kind of flora were growing in the moors. The way to protect the moors from extinction was also to plant special kinds of flora there. Specialist, volunteers started to plant sphagnum in the moors. Sphagnum mosses grow in cool, damp places. Like other mosses sphagnum are small, low growing, non-vascular plants that thrive in wet, low nutrient environments. Sphagnum is a key species of blanket bog habitat. It helps maintain healthy, resilient wet bogs and creates an environment for other wildlife to survive. According to these types of solutions to protect moors seems we can finally see the results of this huge work. Swallows, red grouse or curlew coming back for nesting in the moors, only small areas at the moment is not covered by sphagnum or other types of flora in the moors.

5. Visit of Liverpool City Region

The last study trip day started with visit of estuary of Mersey River in Liverpool with Paul Corner and Caroline Riley from Mersey River Trust. They provided us with exhaustive information on the historic significance of the river in the industrial revolution and its impact on the Mersey River, industrial town Manchester and port town Liverpool. The project team visited the wide catchment area of the Mersey River: Liverpool Waterfront, Albert Docks, crossing the River Mersey by driving through the tunnel under the river on the other side of Mersey River, Port Sunlight River Park and the Rivacre Brook. Paul Corner and Caroline Riley focused on river restoration, planning principles, flood management and water quality issues, problems and solutions for improving water quality, environmental awareness raising people's enthusiasm and taking care of preserving natural resources.

Visit of Liverpool Waterfront

Day started with the visit of Liverpool's Waterfront that is breath-taking and picturesque site to walk along. Liverpool Waterfront runs along the River Mersey, including the canal link and a network of historic docks. Liverpool is the place where the Mersey River reaches the Gulf of Liverpool and enters the Irish Sea after a total course of 70 miles (110 km). The docklands and several areas of the historic centre of the city collectively were designated a UNESCO World Heritage site in 2004.



Walk along river Mersey and Waterfront (Author: Valentina Mengote)



Conversation with Caroline Riley and Paul Corner on river Mersey and Catchment Based Approach partnership (Author: Valentina Mengote)

During visit we looked back to the history of industrial revolution and its impact on the quality of water in the Mersey River and environmental pollution in the port city of Liverpool. The Mersey River served as the main route of freight transport from Liverpool to Manchester during cotton industry revolution, where thousands of ships crossed the river each day. The thriving cotton industry in Manchester was built on slave-grown cotton from the West Indies. This cotton was subsequently woven into textiles and it was major export item for traders via Liverpool port to USA and other countries. Liverpool started to collect taxes for 'cotton' transport that came from Manchester in order to build new docks for ships in Liverpool port. The Chemical industry in Liverpool also caused the chemical effect of the main area near the Mersey River. As a result, the Mersey became one of the most polluted rivers in Europe.

As the result the Mersey Basin Campaign was established in 1985 by Michael Heseltine who said that this river needs 25 years programme to be cleaned after impact of the Industrial Revolution. Its primary goal was to repair the damage done by industrialisation and to improve environment and water quality in the river. Efforts like the Mersey Basin Campaign, joint work of government, different engineers, scientists, and volunteers as well as various types of implemented activities on improvement of river water quality have succeeded in cleaning up one of the most polluted rivers in Europe. And those main species seen hundreds of years ago have returned to the Mersey River, such as salmon, squid and cuttlefish, that is the main indication of the water quality improvement.

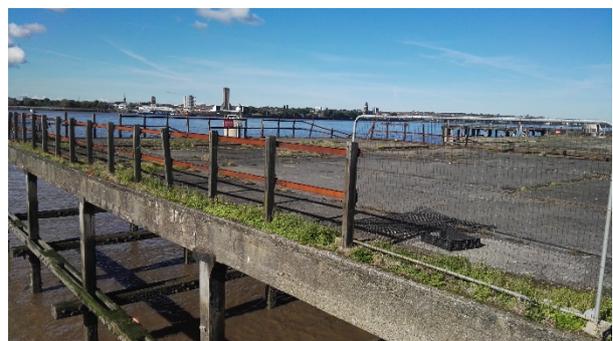
Walk around Albert Docks

Royal Albert Dock is a complex of dock buildings and warehouses in Liverpool that is situated in an enviable location on the banks of the River Mersey and locaton Liverpool's Waterfront. It was built entirely of cast iron, brick and stone with no structural wood and it was opened in 1846. The Albert Dock design allowed ships to be loaded and unloaded directly from the large warehouses. However later a fully working dock was closed in 1972, then underwent a huge restoration programme and was reopened for visitors.

Nowadays the working docks of Liverpool sit on both banks of the River Mersey outside the city approximately one mile away from Liverpool city centre.



Albert Docks (Author: D.Prižavoite)



Old docks (Author: D.Prižavoite)

Our host Paul Corner shared the experience of the construction of a new stadium at the Bramley Moore dock that is located in North on the Banks of the River Mersey. He emphasized that project is running for several years as there are specific rules and different regulations of construction works at World Heritage Site that must be strictly followed.

Visit of the Port Sunlight River Park

As we have found out during the visit, Port Sunlight River Park has been transformed from a closed landfill site to a 28-hectare park providing a popular community space with an array of walkways, wildlife, wildflowers and a wetlands area.

Paul Corner from Mersey River trust explained that, the park, which opened in 2014, provides visitors with a scenic waterfront and a variety of walks offering visitors nice views across the Merseyside to Liverpool's iconic waterfront. A section of wetland to the north of the site, along with River Mersey mud flats is already an important site for large populations of water birds and is a site of special protection.

The park is made up of a few areas of land. The main area of the park is the surface of the former landfill and in addition – land between the landfill site and the River Mersey. The former landfill site is a mound of household and industrial waste that has built into a 37 metre high hill following years of landfill, which provides nice views. Under the soils is a capping protection layer which immediately overlies a low permeability plastic cap. Under this plastic is another plastic cap protection layer and under this the waste. The landfill site has been capped and restored with soil between 1-3 metres deep.



View from Port Sunlight River Park (Author: D.Prižavoite)



Info board on Port Sunlight River Park (Author: D.Prižavoite)

Ingars Rozitis from Jelgava local municipality asked the question regarding the last period when the waste have been carried there. Paul Corner from Mersey River trust explained that, the site stopped taking new waste in 2006 and since then has been capped and the soil tested for safety. There are a number of physical barriers between the waste and the soil we walked on and the gas and run-off produced by the waste is collected by underground pipes and treated.

Visit of the project site at Rivacre Brook (Rivacre Valley – Local Nature Reserve)

This Nature Reserve was founded 50 years ago. As Paul Corner from Mersey River trust explained, Rivacre Brook is heavily modified water body, there are no fish living in the water except an aquatic animal – the eel. In the nature park big problem are invasive species – signal crayfish (*Pacifastacus leniusculus*), Himalayan balsam (*Impatiens glandulifera*). To fight them they would need to spend 20 million GBP. Currently they fight Himalayan balsam by mowing and weeding that do mainly the volunteers. Ingars Rozitis from Jelgava local municipality asked about the asphalt pavement that goes through the reserve. Paul Corner explained that by UK legislation if the nature territory is not too hilly there is mandatory requirement to provide an asphalt pavement for disabled people. The reserve is located between residential area and highway in the band of 0.5 mile. By creation of

willow fences in many places the leakage of nitrates has been prevented from the hills. From the slopes the pollution runs to the wetland and after to the Rivacre Brook.



Paul Corner introducing with leaky dams system (Author: D.Prižavoite)



Paul Corner introducing with Rivacre Valley - Local Nature Reserve (Author: D.Prižavoite)

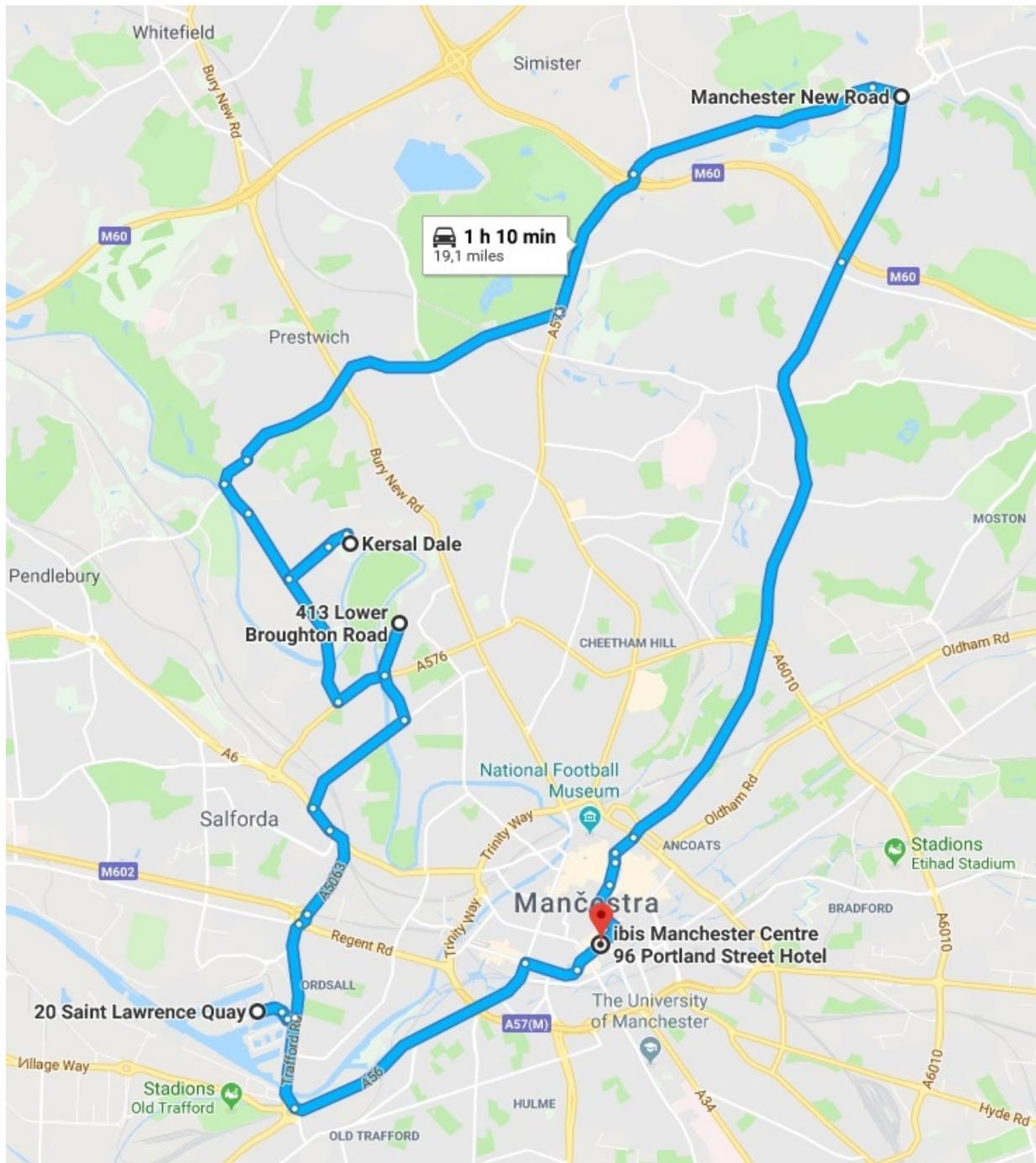
Conclusion

During the study tour the participants saw several solutions and best practises for river restorations and water health providing reaching the objectives of Water Framework Directive and improvements of flood risk management. Trust and partnership organisations are working together to seek cost-effective solutions to improving water quality across urban and rural landscapes. Different approaches and ways how to manage waterways at North West England together with involvement of stakeholders and volunteers were appropriated. The group of participants discussed on UK and Baltic legislation differences on landscape and green infrastructure planning issues, collaboration of partnership organisations and their management issues and the best options of flood management and river restoration. The study tour served as positive evaluation of project progress and enabled to gather useful basis of information for further developments in the Baltic region.

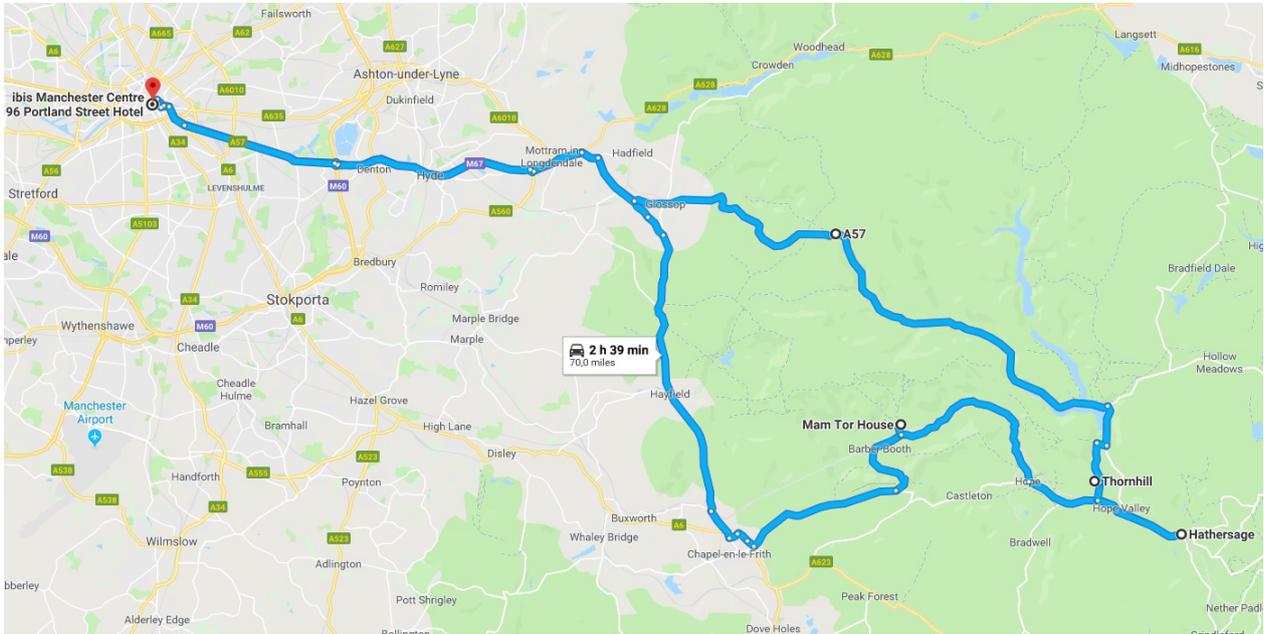


Study trip participants in Liverpool with Caroline Riley and Paul Corner from Mersey River Trust (Author: Valentina Mengote)

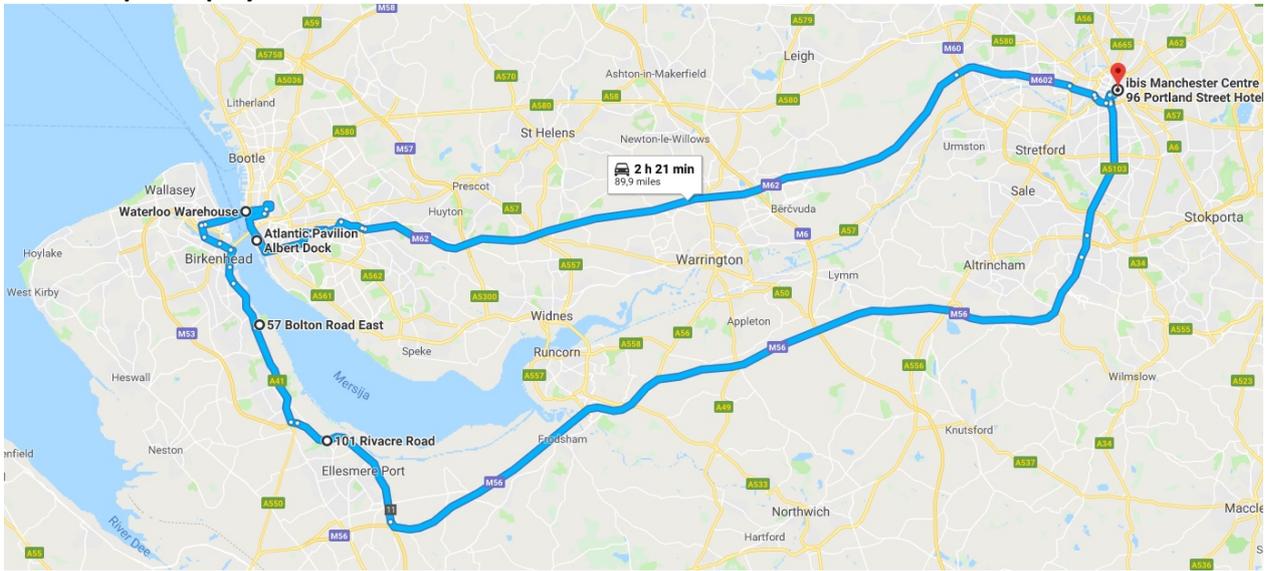
Route map



Route map of trip by Greater Manchester



Route map of trip by Peak District National Park



Route map of trip by Liverpool City Region