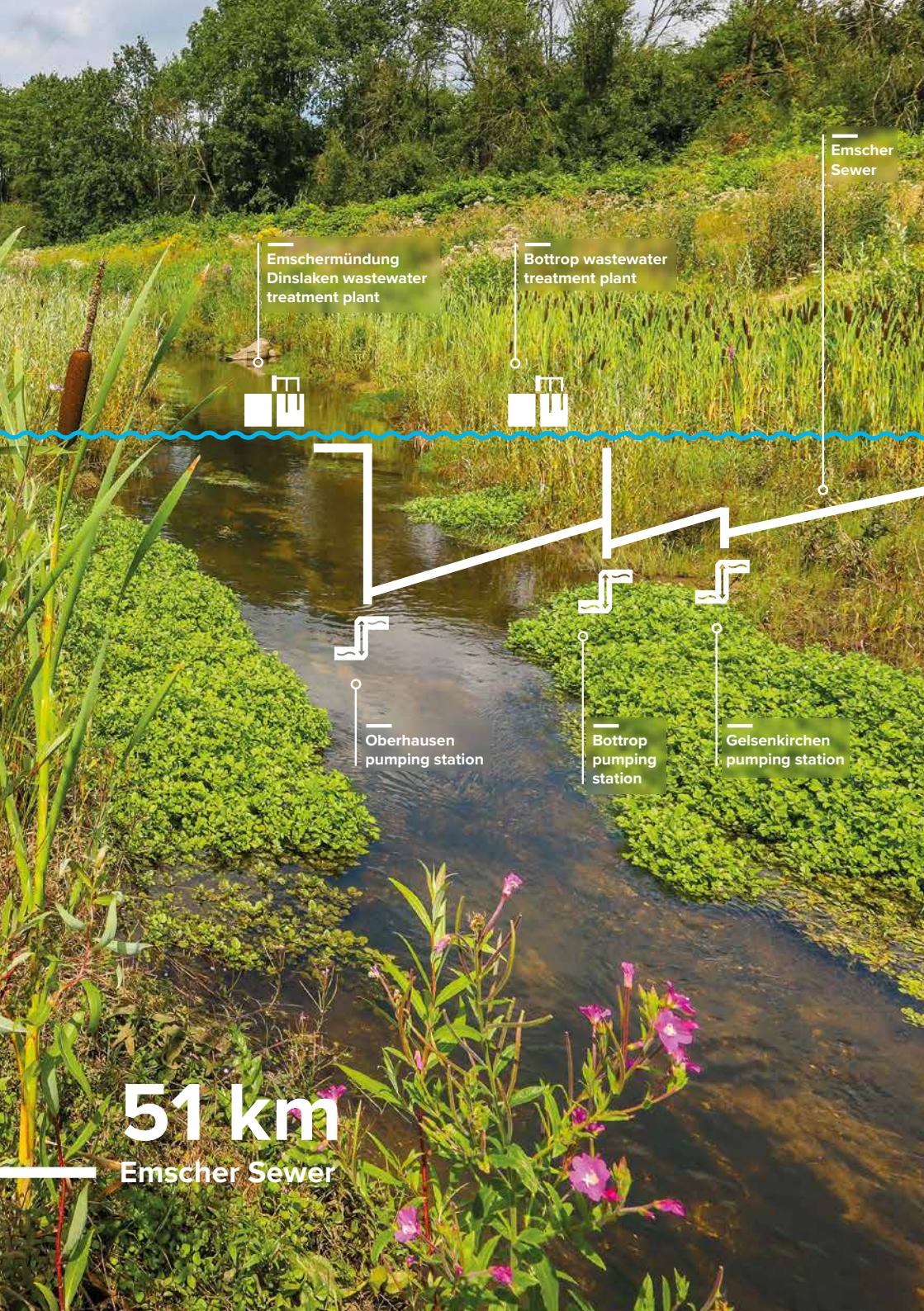
The new Emscher is coming

Emschergenossenschaft


Emscher Sewer
Emschermündung Dinslaken wastewater treatment plant
Bottrop wastewater treatment plant
Oberhausen pumping station
Bottrop pumping station
Gelsenkirchen pumping station
51 km
Emscher Sewer

Return of a river system

Our region is once again characterised by idyllic river landscapes. Blue rivers with green banks – lined with inviting cycle paths along which to experience the new blue-green infrastructure in the heart of the Ruhr area. These new leisure areas have been created over the past 30 years or so in the course of the Emscher conversion project.

Today crystal clear water once again flows through meandering streams, where for decades the landscape was dominated by open wastewater channels, which had became necessary as a result of industrialisation.

The Emscher conversion is ensuring the revitalisation of the central river system in the Ruhr area. The basic requirement for this is now scarcely visible above ground: the Emscher Sewer is 51 kilometres long, and runs at depths of up to 40 metres. It replaces the Emscher as the wastewater collection channel for the region.

This intergenerational project goes beyond water management, creating added value for humans and nature – and areas best avoided have become local recreation areas.

85 km
Emscher

329 km
Ecological improvement

The Emschergenossenschaft and the Emscher conversion intergenerational project

The face of the Emscher region is changing. It is more than a hundred years since a sparsely populated meadow landscape was transformed into an industrial metropolitan area, and the unbounded Emscher became a man-made system of open wastewater channels. With the decline of mining, a further structural change has set in, with traditional heavy industry making way for new sectors such as services and science. These developments are reflected in a changing Emscher.

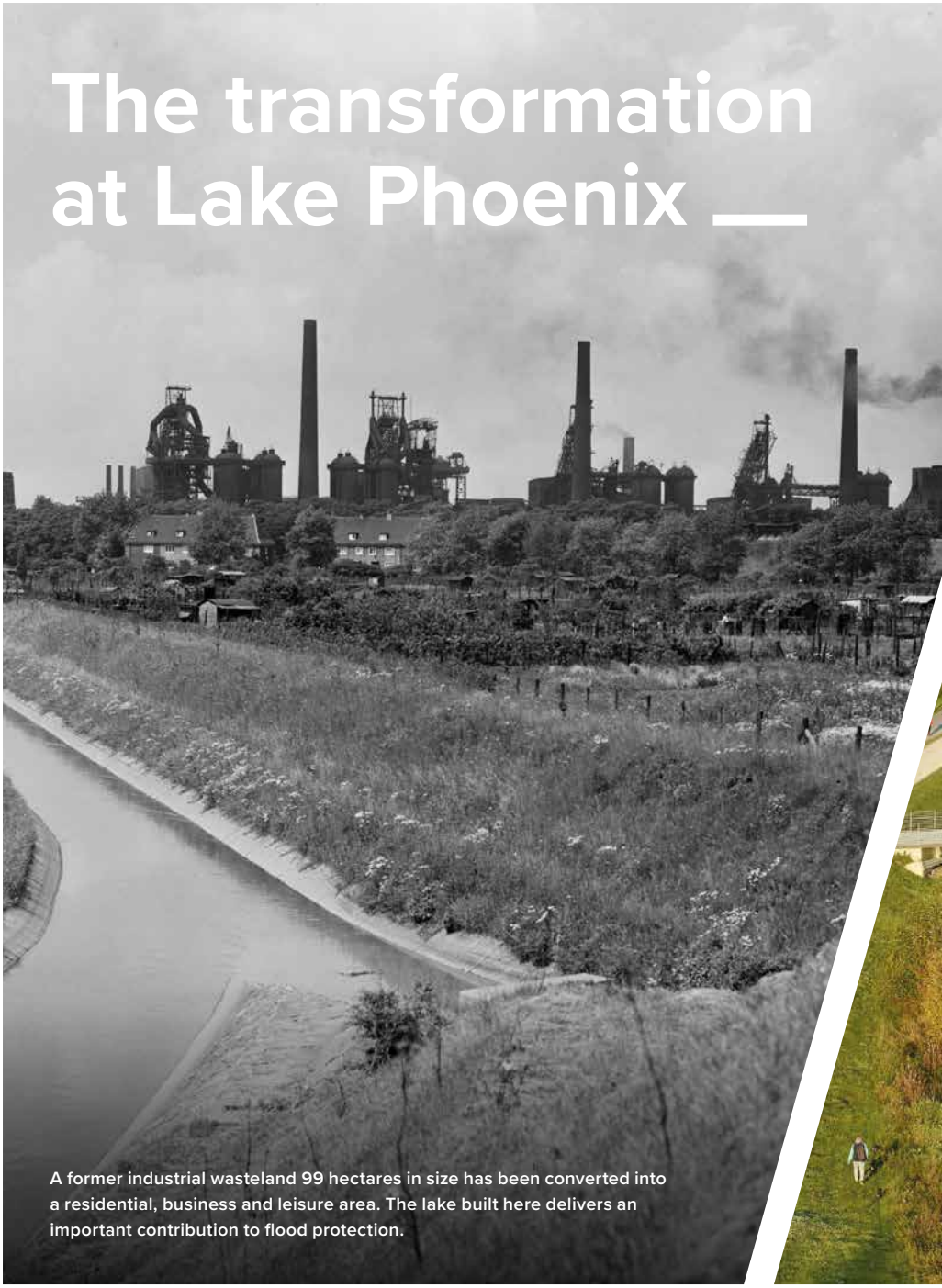
Wastewater will be removed in closed sewers, and the river and its subsidiary waterways are progressively being restructured into near-natural waterways. The conversion of such a large river system is an intergenerational project, and is about a great deal more than transforming spaces people previously avoided into attractive recreational areas.

The aim is to decisively enhance the quality of the Emscher region through projects that extend far beyond the waterway.

The Emscher Conversion is more than restructuring a body of water – its vision is a New Emscher Valley. This is about defining a new outdoor space, which extends far beyond the banks of the river and the open expanses of the Emscher Landscape Park.

The New Emscher Valley incorporates the housing developments, infrastructure, business parks and industrial plants of the region: spaces where the urban development of the waterway conversion acts as a catalyst for stakeholders outside the Emschergenossenschaft.

The transformation at Lake Phoenix



A former industrial wasteland 99 hectares in size has been converted into a residential, business and leisure area. The lake built here delivers an important contribution to flood protection.

Besides the economic driving forces of steel and coal, our metropolitan area as we know it today owes its very existence to a functional wastewater management system.

1899-1992
Consequences of industrialisation

Flooding was a feature of everyday life

Human regulation of the waterways

The Emschergenossenschaft is a public sector water management company, and operates in the public interest without any profit motive.

It was founded in 1899 as the first organisation of this kind in Germany, and has since been responsible amongst other things for the maintenance of the Emscher, wastewater disposal and purification, and flood protection.

Mining subsidence in the Ruhr area meant that it was not previously possible to build underground sewers, as they would have been damaged by the mining subsidence. As the central river in the Ruhr area, the Emscher and its subsidiary streams were therefore used as open wastewater channels.

Things have changed, however, since the late 1980s and early 1990s. Since the northwards migration of the mining industry, mining subsidence need no longer be feared, meaning that underground sewers can now be built.

Open, concrete-lined wastewater channels

Wastewater flowing outside the front door

from 1992
Structural change in the region

Ecological improvement of the Hellbach system in Recklinghausen

Boye renaturalisation north of the A2, Bottrop/ Gladbeck

2021
Ecological improvement and district development

Nature is returning to the waterways

The Rüpingsbach just upstream of where it joins the Emscher, Dortmund-Schönau

The Emschergenossenschaft has been planning and implementing the Emscher conversion since 1992. Each waterway has an underground counterpart for draining wastewater to the wastewater treatment plants. The streams above ground are therefore wastewater-free, and can then be restructured to a near-natural state: the concrete linings are removed, and the embankments are redesigned to be more diverse. Where space allows, the once artificially straightened rivers are restored to a more winding route.

A total of 436 kilometres of sewer are being laid, and just under 329 kilometres of waterways have been ecologically improved.

Laying the Emscher Sewer in Oberhausen

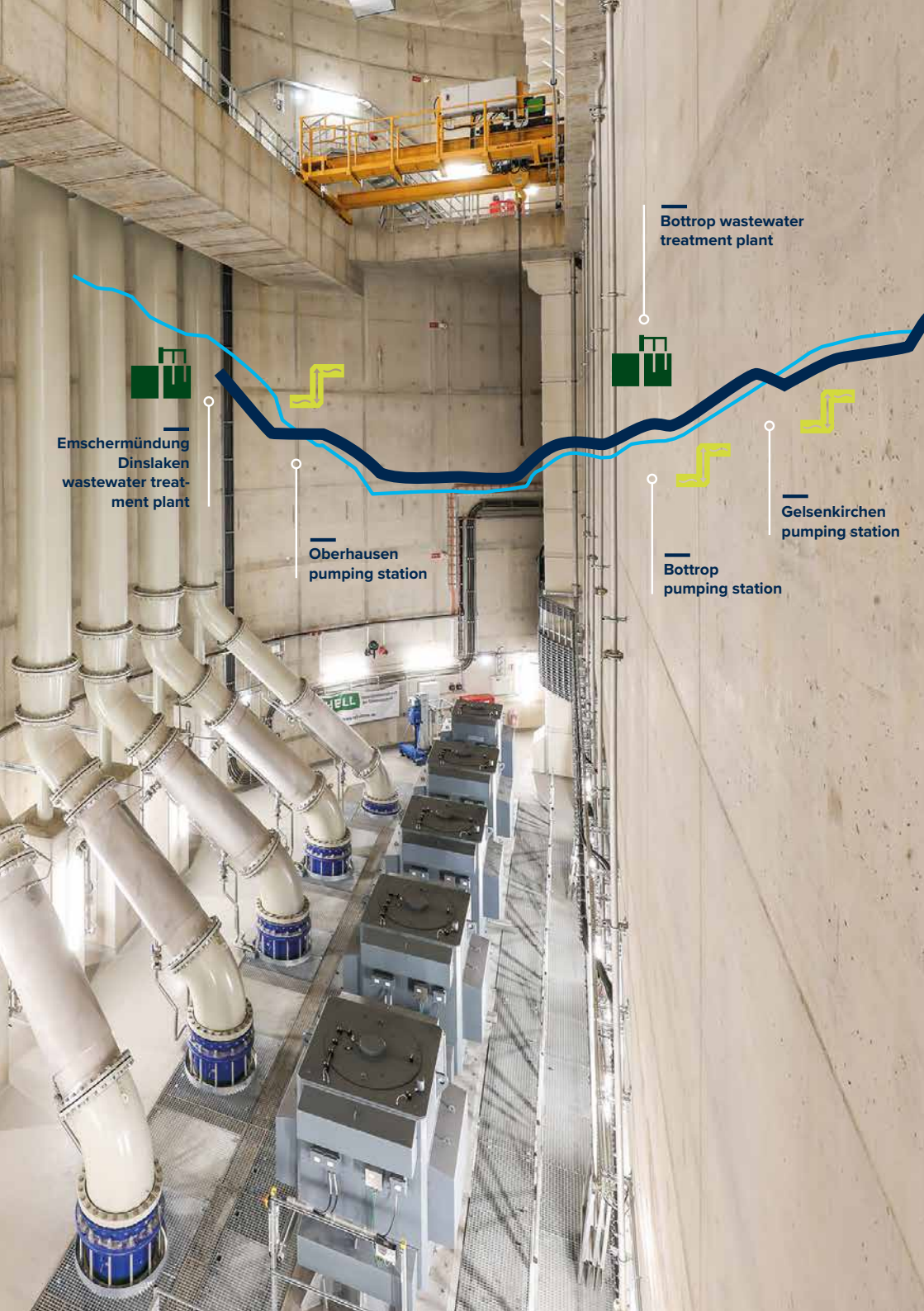
Ecological improvement of the Hellbach stream in Recklinghausen, from the A2 to Dunantstraße

Dorneburger Mühlenbach stream - a tributary of the Hüller Bach stream

Lake Phoenix in Dortmund

Waterways and sections of waterway renaturalised by the Emschergenossenschaft by the end of 2021:

the entire upper reaches of the Emscher in Holzwickede and Dortmund, including all subsidiary waterways, which includes among others the Deininghauser Bach stream in Castrop-Rauxel, the Hellbach system in Recklinghausen, the Ostbach stream in Herne, the Resser Bach stream in Herten, the Hofsteder Bach stream in Bochum, all waterways in Gladbeck, the Kirchschemmsbach stream in Bottrop, the Borbecker Mühlenbach stream in Essen, the Läppkes Mühlenbach stream in Oberhausen, and the old branches of the Emscher in Duisburg – and there is more to come!


Bottrop wastewater treatment plant
Emschermündung Dinslaken wastewater treatment plant
Oberhausen pumping station
Bottrop pumping station
Gelsenkirchen pumping station

The Emscher Sewer

The main artery of the region's future wastewater management infrastructure is the Emscher Sewer, which extends 51 km from Dortmund to Dinslaken.

The Emscher Sewer consists of reinforced concrete pipes with internal diameters of between 1.6 and 2.8 metres. At a depth of up to 40 metres, the wastewater flows at a speed of four kilometres per hour. This requires a gradient of 0.15%. If the sewer ran in a straight line at this gradient, it would be 80 metres deep by the time it reached Dinslaken – too deep for the wastewater to

Emschermündung wastewater treatment plant in Dinslaken

Bottrop wastewater treatment plant

Bottrop pumping station

Oberhausen pumping station

Gelsenkirchen pumping station

Dortmund-Deusen wastewater treatment plant

Photo on previous page: Powerful pump plant at the Oberhausen pumping station

51 km

Emscher Sewer from Dortmund to Dinslaken

40 m

Depth

then be pumped up to the Emschermündung wastewater treatment plant between the three cities of Oberhausen, Duisburg and Dinslaken.

The gradient is balanced out by three gigantic pumping stations: in Gelsenkirchen, Bottrop and Oberhausen. The plants in Gelsenkirchen and Bottrop were started up in September 2018 already, and the Oberhausen pumping station followed in August 2021.

To ensure that the Emscher Sewer – "the underground Emscher highway" – flows all the way to Dinslaken, the system requires its own proverbial beating heart: the Oberhausen pumping station. Germany's largest wastewater pumping station is located in the Biefang district.

A total of ten powerful pumps are required to lift the wastewater from a depth of around 40 metres – with a maximum pumping capacity of 16,500 litres per second.

436 km

Sewers

Sewer pipes

The Emschergenossenschaft has laid thousands of pipes since 2011 for the construction of the Emscher Sewer. The internal diameter ranges from 1.6 to 2.8 metres, and at first they all had one thing in common – they were round.

Along the western Emscher, however, it was a different story. There the water management association was laying box profiles, which means the sewer pipes have a rectangular cross-section: 2.45 metres high, 2.25 metres wide.

But why? Quite simple: for space reasons! A single box profile takes up less space than two round sewer pipes, which need to be a certain minimum distance apart.

Moreover, two other things were different in this final construction phase: The sewer was not tunneled out underground, but dug out and laid from the surface. And also, the Emschergenossenschaft worked counter to the intended direction of flow!

Today we are facing tremendous challenges in terms of environmental policy. Besides the fight against climate change, above all we face issues relating to sustainable use of our water resources.

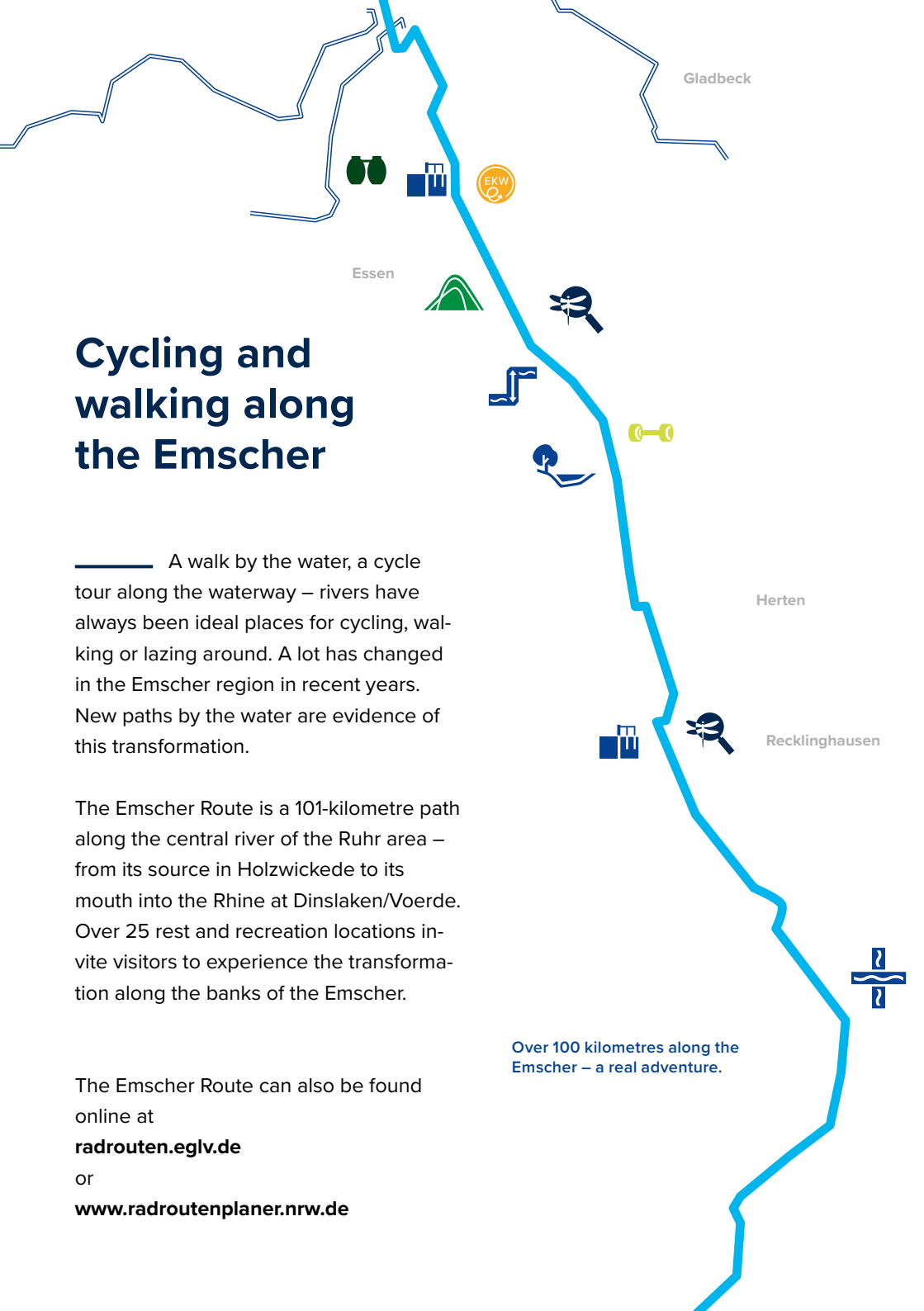
Prof Dr Uli Paetzel

Blue-green infrastructure

Urban planning effects

The urban planning effect of the Emscher conversion can also be seen today in the numerous former industrial routes along the waterways, which have been opened by the Emschergenossenschaft and expanded into what are now busy cycle paths. Around 130 kilometres of cycle paths have been created in this way, since the idea is to make the new blue-green infrastructure of the Emscher enjoyable and accessible – like at the Castrop-Rauxel water intersection, where the Emscher passes under the Rhine-Herne Canal. This is where the Emschergenossenschaft and its municipal partners are building a nature and water adventure park, with the renaturalised Sudwicher Bach stream, the restructured Emscher – and vineyards! The urban development of the area is complemented by the construction of the 412-metre-long bridge, “Leap over the Emscher”! Above and beyond this, the Emscher Conversion has inspired numerous urban development projects carried out by the municipal administrations in the city districts.

The project is bearing fruit!



Cycling and walking along the Emscher

A walk by the water, a cycle tour along the waterway – rivers have always been ideal places for cycling, walking or lazing around. A lot has changed in the Emscher region in recent years. New paths by the water are evidence of this transformation.

The Emscher Route is a 101-kilometre path along the central river of the Ruhr area – from its source in Holzwickede to its mouth into the Rhine at Dinslaken/Voerde. Over 25 rest and recreation locations invite visitors to experience the transformation along the banks of the Emscher.

The Emscher Route can also be found online at
radrouten.eglv.de
or
www.radroutenplaner.nrw.de

Over 100 kilometres along the Emscher – a real adventure.


Emscher Route (101 km)
City Trail in Bottrop and Gladbeck, Berne Route in Essen
Source
Mouth
Wastewater treatment plant
Pumping station
Water junction
Extraction system
Dyke
Hybrid power plant
Stormwater retention basins
Blue classroom
Farm facilities
'Hands-on at the river'
Ecological improvement
Nordsternpark
Artificial hill
Gasometer Oberhausen
Emscher Art Trail
Location

Initiator

for regional climate impact adaptation

Over the past 20 years, the Emscher Conversion has probably had the greatest influence on the region's adaptation to the impact of climate change. At the start of the millennium, the Emschergenossenschaft was already calling for the sustainable management of stormwater.

This was needed on the one hand to prevent flooding after heavy rainfall, and on the other to prevent already renaturalised waterways from drying out during hot spells.

The Ruhr Conference project "Climate-resilient region with international appeal" is currently focussed on a range of measures all aimed at disconnecting at least 25 percent of paved areas from the sewer system by 2040 and increasing the evaporation rate in the region by ten percentage points by 2040. The Emschergenossenschaft

is thus continuing what was already successfully started in 2004 with joint projects like the "Future Agreement for Stormwater" and the future initiative "Water in the city of tomorrow" (now renamed Klima.Werk - i.e. 'Climate. Works'). Here too, the State of North Rhine-Westphalia, the municipal administrations and the Emschergenossenschaft are working closely together.

+ 25 %

Stormwater separation

Increasing biodiversity

Biodiversity

1990
170 species

2021
500 species

Tripling the number of verification points

3

Growth in biodiversity from 1990 to today in percent

294

By the end of 2021, the Emschergenossenschaft has not only completely freed the Emscher of wastewater. Numerous sections of the Emscher, but also of subsidiary waterways, had been restored to a near-natural state and were already wastewater-free. Idyllic river landscapes have been created there.

Over the course of the renaturalisation process, biodiversity in and around the waterways has almost tripled since the early 1990s (around 170 species); today around 500 species have returned to the Emscher region. There have been trout, bullheads and sticklebacks in the Emscher again for a long time now.

The kingfisher is an indicator of excellent water quality, and now also feels at home again along the banks of the Emscher and its subsidiary waterways, as do the grey wagtail and the blue-winged damselfly known as the ‘beautiful demoiselle’ – the Emscher conversion is what made it possible!

Biodiversity


ADVENTURE
FOREVER

‘Hands-on at the river’!

We want to give the waterways back to the people, and ‘Hands-on at the river!’ gives them an opportunity to join in and learn, as well as the change to be involved in further developments.

Together with the people of the region, we are actively involved in a variety of long-term projects, educational activities and events.
www.machmitamfluss.de

Crowdfunding
A connecting bridge between the associations, the people, and us: the Emscher-Lippe crowd. With this platform, we give all creative and committed people in the Emscher and Lippe region the opportunity not only to present their own ideas and projects, but also to implement them with the support of many others.

We at EGLV participate in financially supporting these projects if they meet our catalogue of criteria:
www.emscher-lippe-crowd.de

The fragile paradise

The Emschergenossenschaft's contribution to "Fragile Paradise" exhibition in the Oberhausen Gasometer represents the concept of hope, in the sense of a tangible utopia. It not only shows how a river that once meandered wildly through the landscape was concreted into a wastewater channel, but also shows its transformation back into a new blue-green space full of possibilities. This change goes hand in hand with a considerable improvement in quality of life and leisure time for the people of the Ruhr Area.

The New Emscher – it's coming!

Celebrate with us, and experience the Emscher afresh!

NEW EMSCHER CELEBRATION YEAR

We have reached the home stretch of the Emscher Conversion intergenerational project, and in 2021 we fulfilled our promise: in the midst of Germany's largest urban metropolis, we continue creating liveable green and near-natural spaces for people, animals and plants.

In doing so, we have also been responsible for the largest European water management infrastructure project for near-natural urban development.

We invite you to join us in enjoying many events, experiences, competitions and the New Emscher.

You can find more information online at **www.dieneueemscherkommt.de**

EGLV

Emschergenossenschaft

Kronprinzenstraße 24
45128 Essen
Telephone (0201) 104-0
www.eglv.de

Imprint —— Publisher: Emschergenossenschaft, Kronprinzenstraße 24, 45128 Essen, T 0201 104 - 0, www.eglv.de _ Editors: Ilias Abawi, Anne-Kathrin Lappe

Version dated June 2022 —— Photos: Rupert Oberhäuser, Rupert Oberhäuser, EGLV-Archiv, Henning Maier-Jantzen EGLV-Archiv, EGLV-Archiv, EGLV-Archiv, Rupert Oberhäuser, Rupert Oberhäuser, Rupert Oberhäuser, Henning Maier-Jantzen, Rupert Oberhäuser, Rupert Oberhäuser, Rupert Oberhäuser, Henning Maier-Jantzen, Rupert Oberhäuser, Rupert Oberhäuser, Rupert Oberhäuser, Henning Maier-Jantzen, Rupert Oberhäuser, Rupert Oberhäuser, Markus Greulich, Klaus Baumers, Henning Maier-Jantzen, Andreas Fritsche, Markus Greulich, Henning Maier-Jantzen, Rupert Oberhäuser, Henning Maier-Jantzen, Markus Greulich, Rupert Oberhäuser, Ute Jäger, Rupert Oberhäuser, Klaus Baumers, Illustration: Eberhard Reimann, Oliver Hasselluhn, Bernhard Klug, Bernhard Klug, Rupert Oberhäuser