



Restoring Europe's Rivers

The RESTORE project is made possible with the contribution of the LIFE+ financial instrument of the European Community



and works in partnership with



River Restoration Best Practice LIFE+ 'RESTORE'

Martin Janes

Managing Director

The River Restoration Centre (UK)

[RESTORE West Region Lead, ECRR Board Member]

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rrc@therrc.co.uk

01234 752979

www.therrc.co.uk



the River Restoration Centre (RRC)

Working to restore and enhance our rivers

***Independent, impartial, specialist, not-for-profit
River restoration expert advisers since 1994***

- Supporting projects/programmes - expert advice
- Making available knowledge & understanding
- Delivering training & technical workshops
- Building the UK evidence base for 20 years
- Publishing best practice technical guidance
- A UK forum for the exchange of knowledge
- Represent UK on the ECRR Board





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EU LIFE+ RESTORE Project [information & communication]

Sept 2010 to Dec 2013



RIVER

RESTORE



- Communicating RR across Europe
- Extension of RRC's successful UK role
- Expand European River Restoration Centre network
- Objectives
 - *Supporting river restoration practices across Europe*
 - *Build up existing river restoration network capacity*
 - *Promote effective river restoration knowledge transfer*
 - *Establish long term river restoration knowledge sharing*
- AfterLIFE..... Hand on to ECRR and its network
 - ECRR, [RESTORE] web pages and RRC website

www.restorerivers.eu

www.ECRR.org

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Principles

- Work with natural processes
- Delivering multiple benefits
- Based on good science
- Assessing success
- Sharing of experiences
- Presenting work and lessons
- Evidenced based learning

good science & best practice for river management and restoration implementation

The network for best practices of river restoration in Greater Europe

ECRR
European Centre for River Restoration

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River Restoration | What is river restoration?

What is river restoration?

- ▶ How to do river restoration
- ▶ Why restore rivers?
- ▶ Meeting EU directives
- ▶ Regional and national policies
- ▶ Economics
- ▶ Flood risk management
- ▶ Habitats and biodiversity
- ▶ Hydropower
- ▶ Agriculture and Forestry
- ▶ Social benefits of river restoration
- ▶ Spatial planning
- ▶ Fisheries
- ▶ Urban River Restoration

What is river restoration?

2005

River restoration refers to a large variety of measures and management practices that aim to improve the natural state and functioning of the river, its biodiversity, recreation, flood management and development.

By restoring natural conditions, river restoration improves the river systems and provides the framework for the multifunctional use of estuaries, rivers and floodplains. It is an integral part of sustainable water management and is one of the main aims of the Water Framework Directive, and its associated management policies.

Technical measures that help to bring rivers back to a more natural state include the creation of fish passes and weirs. At the other end of the spectrum are zoning regulations



Information & Communication: Advice, Learning and Sharing of Best Practice





RiverWiki

Search for projects

Create a new case study

Help guide

Select language

800+ case studies from 31 countries

Restoring Europe's Rivers Environment Agency Wetlands International BYKE

Page Discussion

RESTORE partnership
RESTORE web site

Wiki navigation
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Main Page

Welcome to the river restoration case studies **RiverWiki**. This tool is for sharing best practices and lessons learned. This is an interactive source of information on river restoration schemes from around Europe! Up to now, the database holds 818 river restoration case studies from 31 countries

HAVE YOUR SAY, we are happy to receive any suggestions for improvements to the site please contact us

The RiverWiki has been developed by the RESTORE partnership for sharing knowledge and promoting best practice

| Latest updated case studies | Modification date |
|---|--------------------------|
| Minsterley Brook Abandoned Metal Mines | 12 November 2014 04:51:3 |
| Whit Beck River Restoration Project | 11 November 2014 12:23:1 |
| Peatland restoration project: Rivers Alport and Ashop | 6 November 2014 15:28:15 |
| Little Waltham Meadows Back Channel creation | 31 October 2014 15:52:20 |
| Craigton Riparian and NFM Orchard Planting | 30 October 2014 08:56:14 |

Map of case studies

Map showing case study locations across Europe, including France, Germany, Italy, and others. Pins are numbered 1 through 33.

What you can do:

- You can search the database to find case studies by using the different categories: country; monitoring or implementation
- Please also add your own river restoration scheme to the database: [click here to create a new case study](#).
- Provide us with your feedback: [click here to take the survey](#) or add to the discussion pages.

River Restoration Techniques

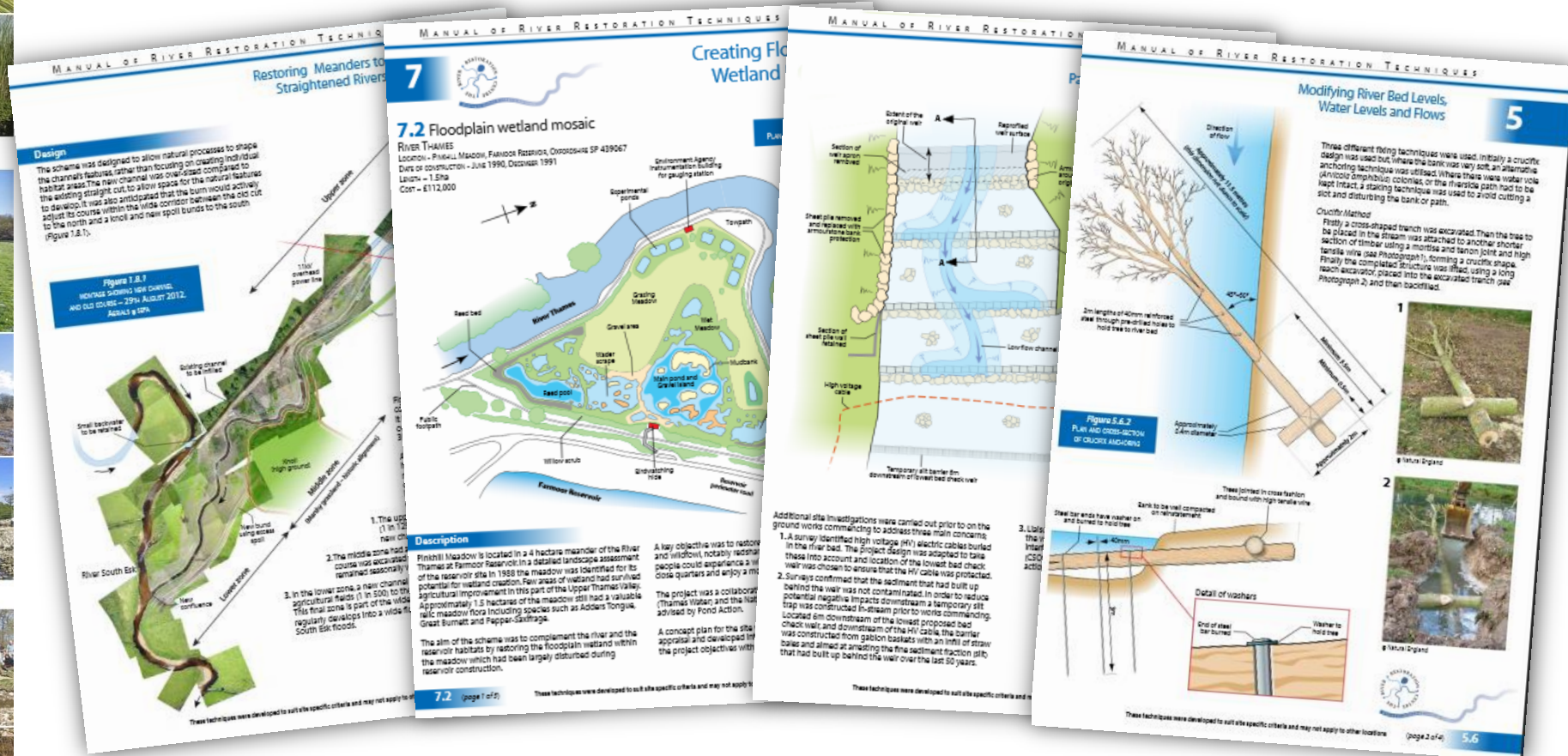
Top 10 techniques used in UK and Europe-wide river restoration

| <u>River restoration techniques</u> | No. of UK projects (RRC) | No. of EU projects (Wiki) |
|---|--------------------------|---------------------------|
| River narrowing to increase velocity (by adding structures) | 404 | 21 |
| Lakes, ponds, wetlands restored or established | 324 | 61 |
| Obstructing structure replaced/removed | 293 | 57 |
| Bank re-profiling/hard bank removal | 292 | 50 |
| Riparian/floodplain vegetation (planting/management) | 283 | 52 |
| Re-meandering or restoring sinuosity | 206 | 69 |
| Daylighting/culvert removal | 156 | 7 |
| River-floodplain reconnection | 129 | 15 |
| Long section habitat enhancement (pool/riffle sequences) | 154 | 53 |
| Backwaters and pools established/reconnected | 137 | 9 |

ALL primarily '**Physical modification**', the most frequently reported 'pressure' across Europe

the Manual of River Restoration Techniques

http://www.therrc.co.uk/rrc_manual.php



- 64 examples, 37 projects, £6M of projects
- Design, application and WFD mitigation measures

▶ [Environmental improvements & case studies](#)

▶ [What is the WFD?](#)

▶ [Why environmental improvements are needed?](#)

▶ [Information on environmental improvements](#)

▶ [Working near water - consents \(England & Wales\)](#)

▶ [Glossary](#)

Healthy Catchments

Managing water for flood risk and the Water Framework Directive

The Water Framework Directive (WFD) is a European directive which aims to protect and improve the water environment. Flood & Coastal Erosion Risk Management (FCERM) can have a big impact both positive and negative on the water environment.



The WFD is implemented through River Basin Management Plans (RBMPs). These plans identify a series of mitigation measures (referred to here as **environmental improvements**) which need to be implemented to improve the ecology of water bodies by a specific deadline. This section of the RESTORE webpage explains

what the WFD means to FCERM managers and provides case study examples of how to include the WFD in your day to day work.

The case studies will show you that implementing the WFD need not be complicated. Instead, we can deliver exciting integrated solutions to improve the environment for people and wildlife.

Guidance / References

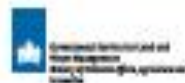
- [The River Restoration Centre Manual of River Restoration Techniques](#)
- [The EU Water Framework Directive](#)
- [Environment Agency - Introduction to the Water Framework Directive](#)
- [Natural Resources Wales - The Water Framework Directive](#)
- [Scottish Environment Protection Agency - Water Framework Directive](#)
- [Northern Ireland Environment Agency - Implementing the Water Framework Directive](#)
- [Scottish & Northern Ireland Forum for Environmental Research \(SNIFFER\)](#)
- [United Kingdom Technical Advisory](#)



Rivers by Design

Rethinking development and river restoration

A guide for planners, developers, architects and landscape architects on maximising the benefits of river restoration



Restoring Europe's Rivers



RESTORE: Impact, Findings and Recommendations



RESTORE impact over 3 years

- Stronger European network of River Restoration
- 36 seminars and conferences in 20 countries
 - 66 events for 5791 people
- *RiverWiki* web based river restoration tool
- *Rivers by Design* guide
- *Manual of River Restoration Techniques* partner
- Web guidance & resources for river restoration
- A final conference (with ERRC 2013)
- Articles, bulletins, papers, talks.....
 - 9548 contacts

continues through ECRR



Specific restoration challenges

- Flood Risk Management
 - Reconnecting floodplains, making space, linking floods directive and spatial planning..
- Spatial planning
 - Change in communication with planners and developers..
- Economics
 - Better cost information. Effective tool vs ‘nice to do’..
- Hydropower
 - Some good technical evidence, but not natural processes..
- Habitats and Fisheries
 - Resilience, but competing interests and small scale work..
- EU Policy delivery
 - Stronger support base – knowledge, guidance, sharing..

Recommendations

- Scale - sufficient for ecosystem function
- Integration with development and policy (GI)
- Multiple benefits with realistic targets
- Policy making reflecting multiple sectors
- Work at the level of local interest and capacity
- Better knowledge sharing and networking
- Integrate better with developments in science
- Monitoring should be a policy requirement.

Working with Green Infrastructure

“The underlying principle of Green Infrastructure is that the same area of land can frequently offer multiple benefits if its ecosystems are in a healthy state”

http://ec.europa.eu/environment/nature/ecosystems/index_en.htm

Natural Water retention measures:

- 1. Sustainable Forestry Practices:** e.g. CCF, riparian forests, afforestation
- 2. Sustainable Agriculture Practices:** e.g. buffer strips, crop practices, grasslands, terracing, green cover
- 3. Urban Measures:** e.g. Sustainable Drainage Systems (filter strips, swales), Green Roofs)
- 4. Measures for Increasing storage in catchment and alongside rivers:** wetlands, floodplains, lake, basins and ponds, re-meandering, natural bank stabilization
- 5. Other Measures for Increasing Groundwater Recharge**