

Updating the Manual of River Restoration Techniques

Project Summary SC110027

Introduction

The River Restoration Centre manual of techniques has been updated. It is now available on line and includes 64 examples which can be easily downloaded as PDFs. The case studies are from England, Wales, Scotland & Northern Ireland.

This manual will help river managers identify potential restoration techniques for use in river restoration and sustainable river management. The term **river** is used here, but this manual is also relevant to **drainage channels**.

How was the manual updated?

17 new examples were added to the 47 existing ones which were updated explaining how they have performed and how the site evolved. The manual is available electronically from the [River Restoration Centre's webpage](#).

Who's it for?

It is aimed at river/land drainage engineers, managers, environmental practitioners and planners.

What techniques does it include?

Case studies cover the following techniques:

- Restoring meanders to straightened rivers
- Enhancing redundant river channels
- Enhancing straightened river channels
- Revetting and supporting river banks
- Modifying river bed levels, water levels & flows
- Managing overland floodwaters
- Creating floodplain wetland features
- Providing public, private and livestock access
- Enhancing outfalls to rivers
- Using spoil excavated from rivers
- River diversions
- Mitigation for barriers (e.g. weirs)

How do I use it?

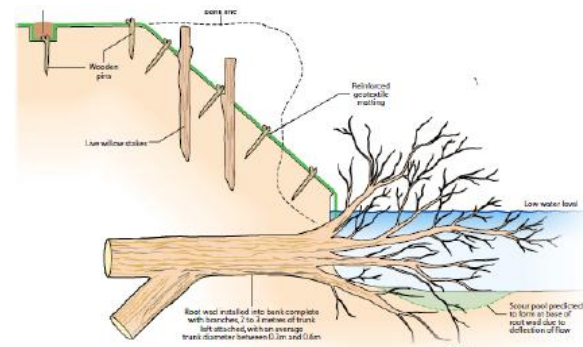
The case studies can be found by interrogating an interactive map, or they can be viewed by site classification, by restoration technique or by Water Framework Directive (WFD) mitigation measure. You can download case studies from the [webpage](#).

Each case example:

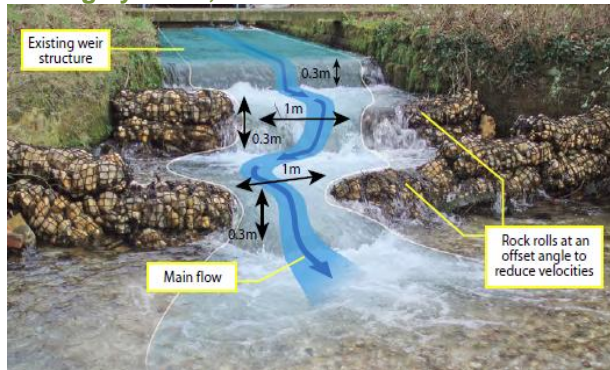
- Includes a drop down box that identifies which WFD mitigation measure(s) the restoration technique addressed at that site (the restoration technique has the potential to deliver a much greater range of mitigation measures).
- Indicates whether the river has any environmental designation (e.g. Special Areas of Conservation, Special Protection Areas, Ramsar site and Sites of Special Scientific Interest).
- Describes how a project was planned/developed
- Shows what the completed works included and how the technique worked

The case studies range from large-scale civil engineering projects through to small-scale interventions using local labour and equipment. They include details of the specific restoration technique(s) used illustrated with engineering sections (see below), diagrams and photographs.

Bank protection using large wood, River Dulais, Carmarthenshire



Pool & traverse fish easement using rock rolls, Babingley River, Norfolk



This summary relates to information from project SC110027, reported in detail in the following output(s):

- **Webpage:** http://www.therrc.co.uk/rrc_manual.php
- **September, 2013**
- **Project manager:** Lydia Burgess-Gamble, Evidence Directorate.
- **Research Contractor:** The River restoration Centre (rrc@cranfield.ac.uk)
- **Research Collaborator:** [Northern Ireland Rivers Agency](#), [SEPA](#), [SNH](#), [EU RESTORE](#).

This project was commissioned by the Environment Agency's Evidence Directorate, as part of the joint Environment Agency/Defra Flood and Coastal Erosion Risk Management Research and Development Programme.

Email: ferm.evidence@environment-agency.gov.uk.

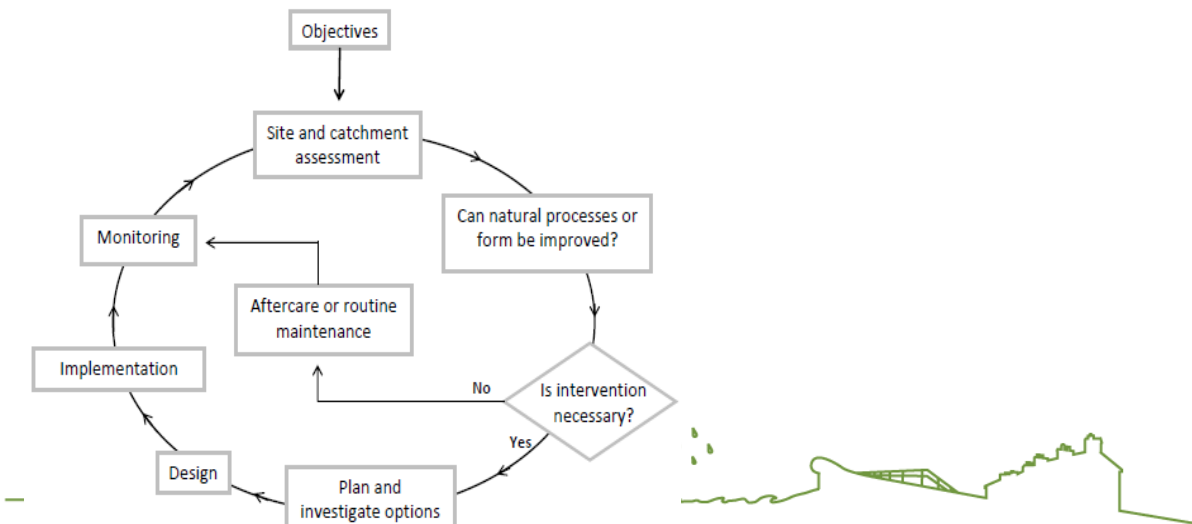
© Environment Agency.

Not all techniques will be appropriate in all situations, you must first establish if they are appropriate in the context of your site and its catchment including:

- natural environmental processes (hydrological, geomorphological, ecological);
- existing development, land ownership and future development plans;
- functional uses (e.g. conservation, amenity, flood risk management, angling, etc.);
- local site conditions (existing flora & fauna, river flows & levels, sediment movement, geotechnical); and
- relevant policies, strategies, designations and/or regulations.

The techniques in the Manual may be used on a range of different scales. Whatever the scale or type of restoration works, there is a sequence of activities to plan, design, implement and subsequently manage the restoration works. This sequence is defined in the figure below which shows a generic 'management cycle for river restoration works.'

Management cycle for river restoration works



Flood and Coastal Erosion Risk Management R&D Programme

