



Restoring River Connectivity

Martin Janes

Director, River Restoration Centre (RRC), UK

Chairman, ECRR





RRC's Vision and Purpose

The River Restoration Centre – UK's NGO 'expert adviser and information provider'.

RRC champions the view of 'better rivers' and promotes the natural capital and social benefits of restoring our river systems for a sustainable future.

Vision

Naturally functioning, wildlife-rich river systems, valued by people

Purpose

To actively promote the re-establishment of natural processes, features, habitats and biodiversity of a river system, to support others to achieve this by collating knowledge, information and evidence to share best practice throughout the river and catchment management community.

Implementing the concept

Restoring Rivers

Understanding the catchment characteristics.

How our management impacts on the river and its ecology.

*Restoring natural function requires a catchment-wide plan
(e.g. England SSSI plans and IUCN report).*

Restoration techniques/measures

Tailored and targeted intervention and management changes

- *Natural process-focussed.*

River Restoration and Biodiversity

Nature-Based Solutions for Restoring the Rivers
of the UK and Republic of Ireland

Stephen Addy, Susan Cooksley, Niki Dodd, Kerry Waylen,
Jenni Stockart, Anja Byg and Kirsty Holstead

*Copies available
from the
RRC stand*



**9 Government agencies
SNH, NE, NIEA, NRW
EA, SEPA, DFI Rivers,
IFI, OPW & RRC, IUCN.**

UK approach to river connectivity

Different approaches across England, Scotland, Wales and Northern Ireland. *Drivers are WFD, Habitats and Floods directives. Identifying priority barriers.*

- **Scotland** – morphology focus with new legislation, barriers and natural function of rivers. Pre-existing salmonid fish passage legislation.
- **England** – WFD & fisheries progress with partnership working & national ‘SSSI rivers’ programme. Also sustainable abstraction, landscape, floods.
- **Wales** – Connectivity addressed if constrains Sustainable Management of Natural Resources (SMNR), fisheries ‘projects’ focus to barriers (removal to passes). Plans for salmon rivers. 90 WFD barriers
- **N. Ireland** – Flood risk and Drainage - interest in barrier removal, but early stages. Fisheries led projects.

Scotland – a focus on morphology

- Water Environment and Water Services (Scotland) Act 2003.
 - RBMP II, morphology supplementary plan: [Improving the physical condition of Scotland's water environment: a supplementary plan for the river basin management plan](#) – 309 **waterbodies**.
 - Priority and pilot catchments (morphology, flooding, diffuse agricultural pollution, barriers)
- Policy integration.

A common understanding to deliver Scotland's objectives for:

 - the water environment, through the RBMPs;
 - managing flood risk, through the flood risk management strategies and local flood risk management plans;
 - decision-making in the marine environment, through a national marine plan and regional marine plans;
 - sustainable development, through local authority strategic development plans and local development plans;
 - conserving biodiversity through the refreshed biodiversity strategy.

Scotland - fish barriers

Improve access for fish migration in **369 water bodies**.
Funds available, support. Migratory salmonids focus.



Table 2: Summary of actions to improve fish passage

Issue	Action	Responsibility
Prioritising action on barriers	Identification and prioritisation of barriers to fish migration and identification of proportionate mitigation options. A report on this methodology will be published during 2013, and the lists will be subject to full consultation.	SEPA / fishery boards and trusts / operators / Fish and Fisheries Advisory Group
Restoring fish passage at weirs and dams in use	Develop asset to allow fish passage in line with CAR authorisation.	Owner or operator
Restoring fish passage at weirs and dams not in use	Discussions with landowners about how barriers to fish migration can be addressed. Support landowner with application for CAR licence and applications for funding.	Fishery boards/trusts
	Provision of funding to support scoping studies and engineering works required to provide for fish passage.	SEPA
	Where voluntary approach has not been successful, SEPA will require the provision of fish passage using restoration notices or licences as appropriate.	SEPA
Restoring fish passage at bridges and culverts	Prioritised asset investment by business or organisation responsible for the asset.	Asset owner
	Where voluntary approach has not been successful, SEPA will require the provision of fish passage using restoration notices or licences as appropriate.	SEPA

Table 1: Summary of pressures affecting Scotland's surface water bodies⁹

	Total number of surface water bodies
Surface water bodies in Scotland (excluding groundwater)	3233
Surface water bodies at less than good ecological status / potential	1261
Water bodies at less than good ecological status / potential because of physical changes (including changes to beds and banks, and fish barriers)	830
Water bodies at less than good ecological status / potential because of changes to physical condition of beds and banks	546
Water bodies at less than good ecological status / potential because of barriers to fish migration.	375

Collating evidence

Page 1 of 3073 pages, displaying 1-10 of 30723 results



riverobstacles

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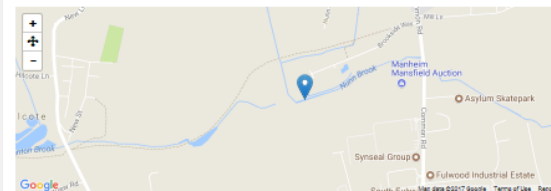
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[Results map](#)

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Obstacle details

Record ID: 126255



Images



Date	15-06-2017
Site name	Nunn Brook downstream of brookside industrial estate
Country	England
Grid Reference	446319.380512843 357980.516854122
Origin	Man made
Obstacle type	Weir
Obstacle sub-type	Stepped
Height (m)	1
Step height (m)	0.4
Length (m)	N/A
Water height	Low
Natural bed	N/A
Full width	N/A
Bridge present	N/A
Fish pass present	No
Fish pass operational	N/A
Fish pass state	N/A
Passable by salmon	None
Passable by trout	None

Helping to improve the connectivity of
our river network

England - SSSI River restoration programme

44 rivers in England (2500 km), legally protected Sites of Special Scientific Interest (SSSI).

The best remaining examples of different river types and associated habitats and species.

- Published physical restoration plans and implementation of projects since 2011.
- Long term (50yrs+) objectives with a catchment focus and SAC/SPA funding.
- Learning from these) to help the wider river network.
- 2011-17 - £23M for £89km of river

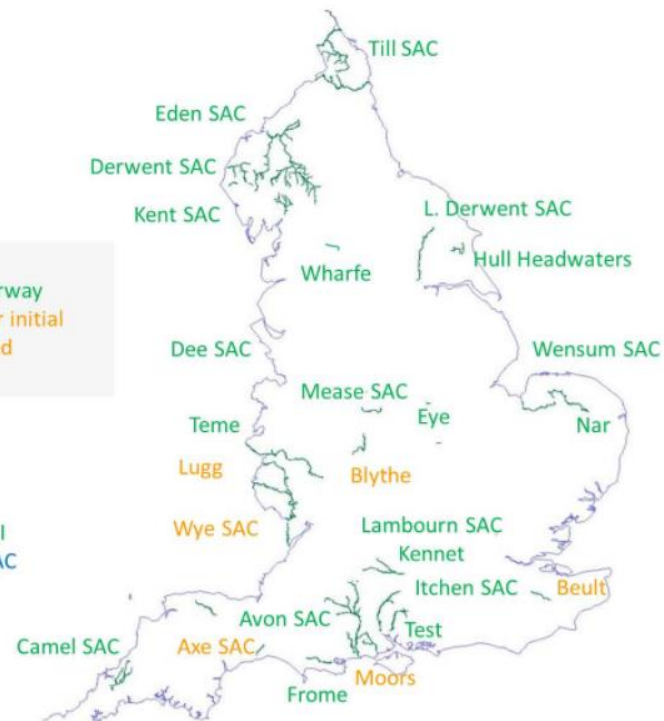
Click the names on the map to see what information is available for each designated river, projects are planned or have taken place.

Key

- Remedy/measure underway
- Plans in development or initial implementation required
- Future

River Units

- R. Dove in SAC
- Long Preston Deeps SSSI
- Hamps & Manifold in SAC
- Lathkill in SAC



England – Wider river network

108 local ‘host’ organisations managing a catchment plan for a wide partnership of stakeholders (Trusts, volunteers, etc).

[Trusted friendly local charitable organisations, *not a government body.*]

e.g. River Improvement Fund £6M

Over 4 years delivered:

- 146 multi-fish species barriers eased, passed or removed
- 87 eel barriers eased, passed or tidal flap valves installed
- 88 riparian habitat improvements
- Over 130 waterbodies with increased ecological potential
- 44 feasibility studies for further improvement work
- 2,800 km of rivers with improved ecological potential

Process and consents

- Weir removal/modification Feasibility Appraisal.
- Planning Permission application (16/0459).
- Impoundment Licence application (NW/076/0006/005).
- Environmental Permit application (EPR/RB3396JX).
- Consultation and formal agreement with weir owners.
- Consultation with local community groups, interest groups and Councillors.
- Consultation with Local Authorities and other relevant statutory agencies.
- Appropriate survey and mitigation for otters, bats, trees, crayfish, fish and invasive species.
- Design and tender of ground works.
- Health and Safety requirements.
- Construction Design and Management Regulations.
- Pollution control measures.
- Archaeological Watching Brief (Carleton Hall only, before and during works).
- Monitoring.
- Publicity – advising people of the planning permission etc



© Natural Resources Wales Breach in the weir on the left looking downstream from within the previous impoundment – 2011



© Natural Resources Wales Demolition of the remainder of the weir continued once the upstream impoundment had been de-watered – 2011



© Natural Resources Wales Line of jumbo sandbags channelling the flow through the initial breach allowing the remainder of the weir and material built up behind it to be removed – 2011



© Natural Resources Wales Looking upstream with the weir completely demolished. The drop in water level is evident on the left bank – 2011

Drivers and 'barriers'



For..

- Wider ecosystem benefits.
- Natural flood management.
- Sometimes funding available, but not for all!
- Relinquish maintenance of historic structure (owner's liability).

Against..

- Ownership and multiple owners, lost owners, cost & liability.
- Hydropower vs removal – 2 Gov't departments, both with targets...

Guidance

Fish barrier assessment tools

Barrier recording phone Apps

Guide for planning, appraisal, design, construction and maintenance for fish passes, screens, etc.. (draft)

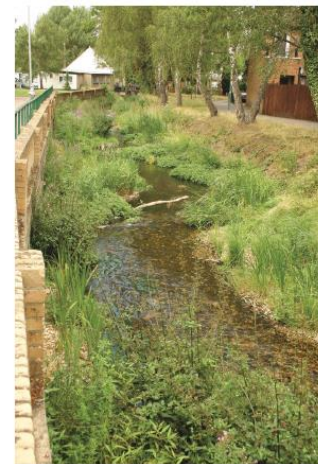
CIRIA *River weirs – Design, maintenance, modification and removal (C763)*

Many good case study examples.

Local ‘champions’ and experienced ‘trusted’ NGO’s.

River weirs

*Design, maintenance
modification and removal*





Summary

Good work progressing at different speeds & effectiveness across the UK countries.

Depends on river, designation, funding, priorities & opportunities.

E.g. River Irwell, Manchester – 17 weirs removed in 2 years
Photos - EA



E.g. Wye and Usk Foundation – Rivers Trust, 1995 to 2017

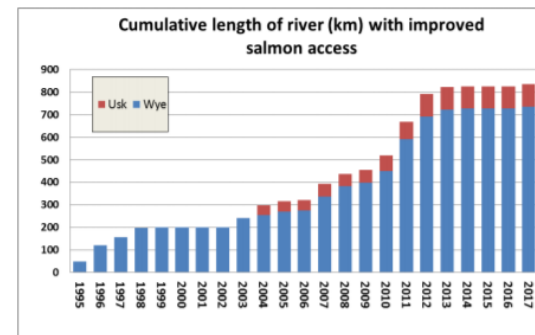
Fish Access

No. of streams with obstructions to migration eased/removed

103

Cumulative length of river made available

825km



Benefits - Increasingly understood by managers, local authorities (similar duties) and public.

More examples and information, coordinated messages of experts and NGO charity organisations.