



Working to restore & enhance our rivers

River Restoration News

Issue 42 June 2013

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RRC 14th Annual Network Conference



£24.5 million of catchment scale restoration

Catchment Restoration Fund



Rivers and Fisheries Trusts of Scotland (RAFTS)

Barrier Prioritisation and Removal



JBA Trust

River Restoration Workshop

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Natural Enterprise and Newport Rivers Group

Medina River Enhancement Project



Eden Rivers Trust, the EA and Natural England

Award Winning River Petteril Project

RRC 14th Annual Network Conference

Allan Frake
Wild Trout Trust



Photo: RRC

For only the 5th time in the illustrious history of this event, this year's bash decamped from the occasionally spartan like facilities of traditional University conference life to the somewhat sumptuous surroundings of the Whittlebury Hall Hotel and Spa in Northamptonshire. Naturally unaccustomed to such luxury, old river dog and RRC conference veteran **Allan Frake from the Wild Trout Trust** managed to tear himself away from the spa treatment room, mingle with the crowd and partake in the plethora of sessions crammed into just two days – and here gives his personal take on the events.

Three hundred and twenty delegate packs and badges being put together for this year's annual RRC conference

Gosh!! - **over 300 delegates** - I thought we were supposed to be in a bit of a recession and money was tight - where did they come from? - what did they all do? - would I get trampled underfoot to get to the coffee? A cursory glance at the delegate list during Martin's introduction revealed the usual suspects,

dominated by the EA and shed loads of private contractors and consultants, but an encouraging sprinkling from academia and NGO's and at long, long last a good number from the River Trusts (where have you been? – keep coming please!).

Andy Gill kicked off with a quick but comprehensive scurry through the idiosyncrasies of how RRC functions and what it can do for you; a good introduction for the newbie's to RRC and a timely reminder to those who far too often take RRC very much for granted or don't take advantage of their enormous expertise. His intro stirred those of us who were not quite *compos mentis* from an early start by concluding with a cacophony of noise as he invited delegates to introduce themselves to their conference neighbours.



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RRC 14th Annual Network Conference June 2013 *River Restoration* NEWS



Bjørn Otto Dønnum, Oliver Burke, Heather Ball and Kenneth MacDougall at the question panel

I always look forward to the Keynote address, there have been some cracking ones in past RRC events; and their delivery sets the underlying tone, summarizes the core theme and message and is frequently inspirational and thought provoking. **Dr. Paul Leinster, Chief Executive of the EA** stepped up to the mark and gave a presentation which included the usual rhetoric of 'this is what we do' including restoring sustainable abstractions, 6000 km channel habitat improvement via the Catchment Restoration Fund, the catchment approach and partnership delivery etc etc etc - at which point I was just about beginning to tie this in to the conference theme of **Scaling up our Aspirations on River Restoration**. However the real message summarily popped up and was more of how we consider proceeding in the future in a financially constrained arena. Partnership delivery for sustainable solutions inevitably crept in including the concept of developing the developers, and for me the intriguing key questions posed by Dr. Leinster included the need to review the measurement of success; is river restoration a good investment? And how do you convince others to invest?



All delegates gathered in the Brooklands suite

Session 1 presentations were all very different and included a very practical example from Northern Ireland on a 'once in a lifetime' opportunity to improve habitat and hydro morphology and accommodate flood alleviation. A useful restoration and flood risk management screening tool for Scotland was also described and **Jerry Gallop** 'cantered' through the mechanism and outcomes of the £28 million CRF fund.

Potentially split **session 2 on Ecosystem Services** was going to be my 'bête noire', knowing it to be incredibly important but currently believing this dark art not to be very far removed from witchcraftHubble bubble, toil and Mark Everard! It was incredibly reassuring to hear from the EA speakers that it's not well understood by a lot of earthlings including a fair number within the EA. Their proposed seemingly robust 'simplified' system to take the mystique out of the process is to be applauded and is very timely.



Lively discussions at one of the workshops



Photo: RRC

Michael Copleston demonstrating river restoration measures in the sand

A further but somewhat risqué simplified explanatory process was on offer by that London rivers stalwart, **Dave Webb**, while emphasizing quite rightly that the remit of WFD is a smidgeon too narrow, hence the need to bolt on Ecosystem Services to tease out multiple benefits, his explanation that WFD processes were equivalent and similar to 'speed dating' opened up a whole raft of tantalizing mental images. Thanks Dave I now understand 'speed dating' a lot more but am not convinced that one could win the passions of the opposite sex by trying to explain WFD in the allocated 5 minutes! **Martin Ross from South West Water** gave one of the most dazzling presentations of the conference. The '**Upstream Thinking Project**' - true inspiration on how to capitalize on a bit of luck, opportunism, with a touch of passion and determination to make a difference at the catchment level - brilliant - and a new all-comers RRC record to boot, of cramming the most slides into 15 minutes!

Session 3 was a triple whammy option - so many good papers - difficult to choose an option so I went for more WFD punishment, and it didn't disappoint. Presentations from Ben Smith from Kings College and Garry Whitfield from the EA brought many of us back to planet earth by re-emphasizing the need for appropriate monitoring - a theme which has dominated past RRC conferences and still clearly needs to be high on the agenda as an urgent priority not to be forgotten or overlooked. **The final session on day 1** on Energy Gradients was a veritable mixed 'hydro morphological bag' from Scottish burns to the flatlands of East England and onto the stunning rivers of

Western Norway, the latter being particularly interesting to us 'piscicentric' folk who admired the ambitious plan in a high energy river to provide salmonid habitat mitigation for hydropower, an increasingly emotive and technically challenging issue in this neck of the woods - UK plc take note!

The day wrapped up with the **RRC Olympic Challenge Awards**, great fun, entertaining but on the serious side some very worthy projects emphasizing that river restoration is often not for the faint hearted, and can be quite, well...err...challenging!

An excellent evening dinner created further opportunity for good banter and networking, suitably interjected by yet more demands on the now somewhat tired brain cells by the inclusion of Ian's infamous quiz... yes, and there was even a single question on rivers!



Photo: RRC

Helen Dangerfield receiving a Golden Welly in the 'Marathon' projects category

The **second day** dawned bright and sunny, less so for the 3am 'in the bar discussion group' whose liquid intake the night before may have been a bit of a hindrance in being fully participatory in the 9am kick off for the **Workshop Sessions**. Having no guilt complex about having to tell the boss 'it's not just a conference we had to work you know', I opted for the field excursion. Gentle interrogation of the workshop attendees however revealed that they were considered an excellent format, good mix of presentations and discussion opportunities and above all, informative.



Delegates considering the pros and cons of removing St James End weir on the River Nene

Photo: RRC



Delegates discussing the various structures on the River Nene at Duston, Northampton

Photo: RRC

The **field trips** also offered good opportunities for some very thought provoking discussion and indeed some hopefully useful feed back to the project managers themselves who showed us around. Certainly on the **River Bure in the centre of Bicester**, the new channel seemed a trifle raw and desperately needed some relatively inexpensive aftercare and TLC to maximise visual, amenity and ecological value.

Session 6 offered another triple choice of presentations. Opting for the **Community Engagement and Delivery session** there were 3 excellent presentations all with significant national implications. Defra's 25 catchment based pilots have really focused a lot of minds attempting to deliver catchment plans within an unbelievably challenging timescale, to the credit of those which succeeded and some useful learning outcomes for the future. To my mind the second presentation, the **Pontbren Project** is a superb example of farmer led collaboration with some pretty robust monitoring and some outstanding results from simple measures such as shelter belts to reduce runoff, and is probably severely underestimated in terms of its transferability of the concept to other areas. The **Catchment Sensitive Farming** initiative was another 'biggy' involving activity on over 11,000 farms. Although there are some generic water quality improvements evident in those catchments monitored, some good case history examples would help spread the message.

The **final session** outlined the importance of **European Funding**. Inevitably funds such as INTERREG are providing a valuable resource for many UK projects with the various Rivers Trusts being particularly adept at extracting funds and maintaining a good dialogue of techniques and catchment scale approaches with our European partners.

So were there any clear messages which came out of this year's conference? For me, clear themes were a tad more elusive than in previous years where issues such as monitoring and evaluation came to the fore, but I took away a couple of messages primarily from the early papers, namely the need, difficult as it may be, to **quantify benefits of river restoration including financial aspects**. Without this information it is going to be difficult to convince particular funding streams and partners to invest or support and capitalise on funding leverage. This inevitably leads to questions of how to address monitoring and evaluation and how to define and measure that for ever elusive outcome - 'success'.

And so ends another excellent RRC extravaganza, brilliantly organized with military precision by all involved at 'Team RRC' but particular thanks must go to Ian and Tracy for shouldering much of the organisational burden, it was much appreciated, recognising that conference organization at this scale takes a lot of blood, sweat and tears to get spot on....and it was. Difficult to see how it can be improved, networking opportunities are always one of the most beneficial elements and the current conference format seems to hit the spot....perhaps a few more presentations from overseas as they are always stimulate river restoration thought processes, occasionally on a shock and awe scale. Look forward with great anticipation to the **15th Annual Network**...maybe a couple of workshop sessions on Ecosystem Services and speed dating could be a real winner and attract even more delegates!

Photo: RRC



Delegates networking and enjoying the sun outside the conference venue

£24.5 million of catchment scale restoration

Jerry Gallop
Environment Agency

Photo: Jerry Gallop

Society needs water for life. To provide this, **we need to reduce pollution** that comes from the way land is used and improve the landscape through which water flows.

The Department for Environment, Food and Rural Affairs (Defra) created the **Catchment Restoration Fund (CRF)** to support this aim. A £28 million fund, providing between £8 million and £10 million for three years ending in 2015, was allocated for projects to be delivered between September 2012 and March 2015. The Environment Agency is administering the CRF to support third sector groups to bring forward projects that will at a catchment level:

- restore natural features in and around watercourses
- reduce the impact of man-made structures on wildlife in watercourses
- reduce the impact of diffuse pollution that arises from rural and urban land use.

How is the CRF administered and how was funding awarded?

By the end of May 2012, we at the Environment Agency received **131 applications for over £54 million of work** during two rounds of bidding to the fund.

A national panel chaired by the **Environment Agency**, with representatives from **Defra** and **Natural England** considered technical assessments and local priorities in recommending grant awards, with the **River Restoration Centre** acting in an advisory capacity.

Forty-two projects were approved, with a combined value of £24.5 million. Approval was given to those projects which were of a high priority within their catchment as assessed by liaison panels, and where the technical experts in the Environment Agency, Natural England and the River Restoration Centre had high confidence in delivery. Many of the successful bids embraced partnership funding, collaborative working and in some cases also supported innovation.

Anticipated impact of the successful applications

As a result of these projects, **over three hundred water bodies** will receive habitat improvement, improved access for fish or reductions in diffuse pollution, making significant steps towards more waters at good status as well as providing wider benefits to society and the environment.

These funds also bolster the contributions from hundreds of partners in local communities, led by charitable organisations such as **river trusts, wildlife trusts**, the **Royal Society for the Protection of Birds** and other **local action groups**.

Is there a deadline for further bids?

At this stage there will not be a further round of CRF bidding within the current Spending Review period (up to March 2015). This is due to the need to accommodate some increased financial pressures from some projects and from **delays caused by the bad weather in 2012**, leaving less flexibility in the fund than previously thought. In addition, there has been a continued need for Defra to manage spending in order to address a wide range of important environmental issues whilst living within its available funding.

We are aware that there are many organisations that had been looking to a third round. Indeed there are many projects that did not receive funding in rounds 1 and 2 anticipating a third round too. The Environment Agency is actively pursuing and advising on alternative sources of funding for strong project proposals.



Photo: Jerry Gallop

Burley Mill weir half in flood. Fish passage at this weir on the River Aire is being addressed in one of the CRF projects



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Catchment Restoration Fund June 2013 *River Restoration* NEWS

Barrier Prioritisation and Removal

Rob Mitchell

RAFTS Project Management Officer

Photo: RAFTS

Formed in 2005, **Rivers and Fisheries Trusts of Scotland** (RAFTS) is a leading independent freshwater conservation charity representing Scotland's national network of rivers and fisheries Trusts and Foundations. During 2012 and the first part of 2013 RAFTS has made significant strides in terms of the refinement and inception of a barrier prioritisation process, streamlining of the funding application process to the **Scottish Environmental Protection Agency** (SEPA) **Water Environment Fund** (WEF), and undertaking actual physical works to ease or remove disused weirs and impoundments.

Barrier prioritisation process

The barrier prioritisation process is designed to highlight manmade barriers no longer in use that impact the **ability of salmon and other species to migrate**. Historic and often unused dams and weirs not only pose a problem for migrating fish and other species, but they interrupt the essential continuity associated with river systems. The restorative options available can be **split into two types**; the removal or partial removal of the barrier to allow access through it, and easement of the existing structure by way of rock ramps or the installation of a fish-pass.

RAFTS is a key partner for SEPA in terms of **removing barriers to fish migration**. In this context RAFTS works to help fisheries trusts in Scotland to identify priority barriers and produce evidence-based applications for



Photo: RAFTS

River Evelix before and after (above) barrier removal

works to enable barrier easement or removal. The emphasis is on **collaboration**, with the trusts providing vital biological and ownership information and local liaison, and RAFTS taking on the management of funding applications, engineering surveys and physical works.

Streamlining of the funding application process for the Water Environment Fund

The public funds within the WEF must be utilised cost effectively, and each application submitted to SEPA **must clearly illustrate the benefit** of the proposed actions. As such, the funding application process developed in 2011 has been further refined so that it is evidence-based, clear and effective without becoming over-complicated. An easily-understood **scoring system based upon the passability** (i.e. the level of physical barrier posed by the structure) of each barrier and its relative value in terms of habitat potential has been formulated. Passability scores are calculated using either the fish stock status above and below



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each structure or **Scotland & Northern Ireland Forum for Environmental Research (SNIFFER)** 'barrier porosity' assessment. This tool is a coarse resolution, rapid-assessment methodology to estimate the passability of obstacles to fish migration. Habitat potential is calculated by combining the biological quality of upstream habitat and the physical area of habitat potentially available to fish upstream. The resultant overall score can be compared to any barrier across the country, effectively producing a prioritisation listing.

The **results of barrier classification** are discussed with trusts and candidate barriers for further action are identified based on the results of prioritisation and the obtaining of landowner consents. Information from the prioritisation process, SEPA classification, and initial engineering assessment including cost estimates is used to produce funding applications to the WEF.

Post-approval, RAFTS produces tender documents, sets deadlines and invites appropriate firms to tender for specified contracts. Standard terms and conditions, tender workshops and a tender scoring system all produce an **open and fair procurement process**. RAFTS manages the design or physical works contracts that have been awarded.

Barrier easement and removal – Case Studies

An important target in 2012 was to carry out physical works. It is therefore pleasing to report that between September and December 2012, **four barrier removal projects and one easement project** were completed at different locations in Scotland.

The barrier requiring easement was at **Linn Potts on the River Isla**, a tributary of the Deveron. A specialist contractor was employed for this work, as the barrier lies beneath a footbridge on land owned by the Strathisla Distillery. The pool below the significant and steep leap is sufficiently deep to allow fish to gain appropriate speed for the ascent, however a notch cut in the concrete barrier of only 1-2 feet was too narrow and ensured that **many fish missed the notch**, hit the concrete and fell back into the pool below. This has been evidenced by the fisheries board via a remote camera focused on the barrier. The physical works involved cutting through (and carefully disposing of) the remaining concrete lip, widening the notch across the entire width of the barrier (around six feet) and enabling fish to clear the barrier with far greater ease.

Photo: RAFTS



Cutting through a concrete lip to widen notch for fish passage at Linn Potts on the River Isla



Photo: RAFTS



Photo: RAFTS

Before (right) and after (above) removal of gabion basket for fish passage on the Black Burn
Photos – RAFTS



Photo: RAFTS

The **River Evelix in the Kyle of Sutherland** has historically been impounded at a loch outflow on Skibo Estate land in order to control flow and draw salmon from the lower river upstream in times of low water, so that the estate laird could be sure of fish in the upper river. The barrier was a very large structure and presented some interesting challenges, not least an otter 'couch' situated at its base. During the works the otter couch was carefully removed under licence and then replaced in the same spot using GPS coordinates. New visitors to the site today would probably be totally unaware that a large dam wall was present only a few months ago.

The **Black Burn** (a tributary of the River Lossie) presented two gabion-basket weirs which significantly impaired the ability of salmonids to reach the excellent spawning grounds above. A particular problem was the lack of depth in the pools immediately below each barrier, making the ascent more difficult. The physical works took place with significant input from the Director of the Findhorn, Nairn and Lossie Fisheries Trust, who was able to assist the contractor in utilising material removed from the weirs to create useful riffle/pool sections where the barriers used to be.

Lastly, on to 2013 and what will prove to be a very exciting year for the barrier prioritisation process and barrier removal/easement. RAFTS is currently involved in some very complex applications including catchment-based approaches tackling groups of barriers on the the **Rivers Almond** (Edinburgh/West Lothian) and **Tyne** (East Lothian). The national roll-out whereby all Scottish fishery trusts are taken through the prioritisation process is due for completion by the end of September 2013, and a first-stage national prioritisation will then be available. However, by its very nature this is a living process and 2013 will see merely the first phase of a project that has plenty of potential for growth. Importantly for RAFTS and the trusts, the prioritisation process will deliver evidence-based applications to the WEF in the future. In this way RAFTS can help to ensure that member trusts are able to utilise the WEF efficiently and in a way that effects the greatest improvements in terms of fish migration and river connectivity.

JBA Trust River Restoration Workshop

Ulrika Åberg
River Restoration Centre



In May 2012, the **JBA Trust** and the **University of Gloucester** organised a workshop to **review current river restoration techniques** with a key focus to establishing the state of river restoration for different river systems. **Four main topic areas** were discussed: dealing with barriers, river naturalisation, urban restoration and river-floodplain restoration. **Jenny Mant from the River Restoration Centre** was invited to attend and help to facilitate the meeting. The key outputs are outlined below and were compiled from individual's experience which range from academics, NGOs, agencies, consultants and contactors.

It is hoped that the information will allow potential restoration plans to be contextualised based on the experience database that was collated.

Dealing with barriers

Barrier removal is recognised by all the UK's national agencies as a **major obstacle to achieving good ecological status** or potential as required by the Water Framework Directive (WFD). However, there is still a technical reticence to remove barriers. Redistribution of contaminated sediments, potential bank erosion

and destabilisation issues upstream and perceived increased flood risk are often stated as reasons not to carry out removal. Conversely, reducing flood risk, improving water quality and removing a health and safety risk were all stated within the workshop as good reasons for barrier removal. Currently, however, it is **not only the technical feasibility that prevents barrier removal**, social and economic issues play an equally important part with conflicting interest groups, landowner approval, local perception, funding and potential changes in maintenance all culminating in a reluctance in removing these manmade barriers.

The most successful schemes have been those that focus on fish passage and can demonstrate a decrease in a resultant maintenance cost. Other drivers such as improving natural processes (morphology and flow regime in particular) tend to be seen as of secondary importance even though this can be instrumental in improving sediment continuity and achieving catchment scale WFD benefits. There was a **strong steer towards increasing the knowledge base** of the benefits for barrier removal from a multiple criteria perspective.



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JBA Trust River Restoration Workshop June 2013 *River Restoration* NEWS

River naturalisation

Understanding the interactions between ecology, geomorphology and hydrology are generally cited as key aspects of river naturalisation.

Schemes that aim to achieve this scenario, it was argued, should ideally be able to support natural processes and dynamics, improve connectivity, be self-sustainable and increase biodiversity potential. The foci that have been used to achieve such objectives have included improving flow conveyance, increasing sediment dynamics, enhancing habitat heterogeneity and reconnecting rivers to floodplains. However, whilst these may be good principles to adopt from a practical point of view, there are often obstacles to achieving a fully functioning river with morphological conditions appropriate to current hydrological and sediment regimes. Some important factors to consider with regards to this question were highlighted:

- ensure that your restoration design is appropriate for the river type. You must work with the existing river processes not against them
- recognise natural opportunities from physically researching your catchment
- be aware of and work with knock-on effects
- promote good relationships with stakeholders and community engagement
- plan your work and set up a long-term monitoring scheme to increase the much needed evidence of technique success and reasons for failure

The dynamic and complex systems supported within rivers, means that often attempts to naturalise a river will require some **adaptive management** simply because most rivers have been severely degraded and altered. Even with the most detailed modelling and expert judgement the likelihood is that some unpredicted change may occur, and therefore, **resilience needs to be built in to allow for natural adjustment**. The problems occur when you don't understand the specific river processes within your catchment context, including those associated with sediment and water contamination and invasive species. Working in project isolation may result in the need for unplanned post project adaptation.

Currently, it was argued, more projects are funded to the point of completion but not beyond. The only way we can improve our understanding of technique appropriateness is to **ensure that funding extends to monitoring of outcomes**. Other issues that need to be considered further were identified as problems with contamination and invasive species, conflicting interests and timing of projects within short operational windows.

Urban river restoration

The constraints imposed by local conditions in urban areas are often significant and include flood risk, access, health and safety perception, problems with water quality and immovable objects. In this workshop session there was, however, a strong steer to look to achieve urban river restoration and improvements to biodiversity despite these constraints. Often in these situations **aesthetics, and health and safety, become the drivers** and we need to recognise that these

can provide the potential to achieve much wider benefits. Any opportunities for urban restoration through development can often provide big social, economic and amenity value gain along habitat enhancement. Ensuring that these developments are identified early on is essential to capturing opportunities.

Perhaps of most concern was the voiced opinion that urban river restoration does not generally seem to be a priority within WFD planning, that they are 'too difficult and costly' and that the opportunity to forge links between WFD and natural flood risk remained unresolved.



Photo: JBA



Photo: JBA

Where urban naturalisation schemes have been successful they nearly always require local community engagement. This generates attentiveness and establishes a closer **connection between nature and society**. Using volunteer interest groups is an important and much underestimated way of ensuring long-term monitoring which is a necessity for adaptive management and to verify any project success.

River-floodplain restoration

Here the workshop attempted to synthesise approaches and lessons learned to date from integrated river-floodplain restoration. However, due to their complicated nature in terms of understanding sediment and flow dynamics such approaches are presently limited. In practice, projects identified under this category tended to focus on creating reedbeds and pools, improving and raising to gravel beds, flood-bank removal or reconnection of channels to improve connectivity with floodplains reflecting a **widespread failure to consider rivers and floodplains as a functional unit**.

Overall there seemed to be a reticence to carry out large scale river and floodplain projects. The reason for this was generally seen as that with larger more dynamic and diverse projects the uncertainty of change may increase. Whilst in reality this should not necessarily be an issue, especially when trying to achieve a more natural river course, public perception and nervousness when it comes to impacts on flood risk often prevent such designs being carried out without technical intervention. **Sharing examples of successes perhaps from other countries would significantly help to address this issue.**

Key messages from the workshop

Some of the key issues that came out of this workshop revolved around the **reticence to carry out river restoration work in situations where there was not a track record of success**. The workshop highlighted that most river naturalisation works have been commissioned for passive single-thread river types followed by active single-thread rivers. This situation seemed set to continue since planned projects were mainly identified as likely to occur in passive and active single-thread rivers. Overall the workshop identified the following key points:

- the need to understand how to **define success** through long-term monitoring, as well as a lack of specific expertise, communication and public engagement
- river naturalisation projects need to make sure that they are **flexible** enough to cope with any unforeseen matters and delays
- the main recognised gaps for urban river restoration projects were the **lack of monitoring** and post-project appraisals, as well as timing issues
- a key concern with large-scale river-floodplain restoration projects is how to **deal with complexity** and uncertainty. It was argued that, for example, flood risk impacts can be effectively communicated, at the right level, through visualisations at workshops

Further detail on the findings of the workshop can be found at

<http://www.jbatrust.org/riverrestorationworkshop/sessions>

Medina River Enhancement Project

Claire Hector Natural Enterprise

The aptly named **Medina River** bisects **the Isle of Wight**, rising in Chale in the south of the Island and running north through the county town of **Newport** to meet the Solent at Cowes.

After severe flooding in the 1960s, the Medina was heavily modified through Newport and forced into a densely-packed series of weirs and channels, leaving it with little habitat value and rendering it almost impassable to migratory fish.

In 2011, a local partnership, the **Newport Rivers Group**, administered by **Natural Enterprise** and the **Island 2000 Trust** and supported by the Environment Agency (EA), was awarded £90,000 from the Sita Trust for a two year project restoring and enhancing this canalised, concreted stretch of the river. **The Sita Trust's Enriching Nature Programme** is a landfill tax fund specifically earmarked for biodiversity-related projects. Enrolled bodies such as the Newport Rivers Group were able to make applications for funds up to £120,000 per funding round.

Phase 1 of the project was to work on the critical 3km of main river from the tidal limit of the Medina in the centre of **Newport upstream to Blackwater**, to create in-stream and bankside habitats of the necessary quality and extent to support target UK BAP (biodiversity action plan) fish species, the brown/sea trout and the European eel. Other BAP species such as the water vole and the bullhead will also benefit from the improvements. An ambitious **Phase 2**, improving fish passage by tackling the weirs head-on, so to speak, will be carried out by the EA in the near future.

Macrocarpa trees over shading and covering the Medina River

Photo: Natural Enterprise



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Removing *Macrocarpa*, but leaving a line of alder trees, provides a better balance between light and shade on the river

Below: in-channel improvements by Wessex Land & Water

Elver passes

Work began with the EA's installation of elver passes at all the main weirs – these simple tubes with built-in 'pipe' brushes help elvers travel upstream bypassing the weir obstructions and will **help to reintroduce eels** in greater numbers to the upper catchment of the Medina. One of the pipes will eventually be fitted with a camera which should provide hours of riveting film!

River-lightening

The next stage was to begin our programme of **tree coppicing and felling** along the river banks. This extensive tree work has brought to the river the pattern and diversity of light and shade, warmer glades and cooler overhangs that have such a direct benefit on river health and habitat. **Already this spring, meadowsweet, loosestrife and yellow flag iris** are making the most of the opportunity to take a stretch in the new sunlight. The felling, although superficially quite brutal has also helped to ensure the health of the coppiced trees, many of which had been left unmanaged for decades and had become unstable and in some cases dangerous. A mammoth task completed despite torrential rain earlier this year was to **remove around 30 huge *Macrocarpa***, a gargantuan screen of trees that had kept the Medina at Blackwater in darkness for years.

In-channel work

Natural Enterprise teamed up with Hampshire-based **Wessex Land & Water** (WLW) who came up with designs for a series of in-channel improvements, bank stabilisation and habitat creation for the project reach, taking as natural an approach as possible to coax the river back to health.



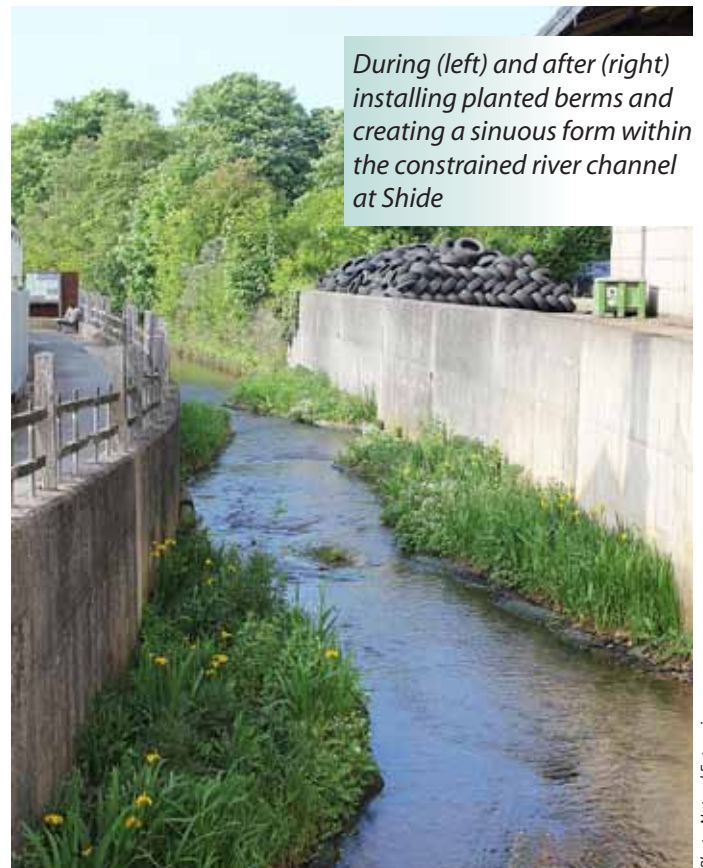
Photo: Natural Enterprise



Photo: Natural Enterprise



Photo: Natural Enterprise



During (left) and after (right) installing planted berms and creating a sinuous form within the constrained river channel at Shide

Photo: Natural Enterprise

Tackling canalisation and creating variations in water flow was an essential part of returning the river to a more naturalised and fish-friendly state; at a steep-sided concrete channel at Shide, WLW achieved this by **installing planted berms over the concrete** to mimic the curves and roughness of a real riverbank. Recently, evidence of **water voles** was found, and it looks like voles are now visiting this former concrete channel for food. Oak battens in herring bone pattern were fixed to the channel base with gravel substrate laid in between; within hours of the gravel being installed, **bullheads** were spotted nudging the stones! The gravel has since moved due to the unprecedented high flows this year but interestingly sediment is naturally accreting between the battens and *Ranunculus* has taken hold. Some work however has had mixed results, a **woven in-channel 'island'** failed to establish – a combination of again unseasonable high flows and duck damage meant that it has had to be rebuilt.

Further upstream, where the river channel runs in artificially straight lines along the borrow-ditch of the former railway track, the banks were luckily concrete-free and a simpler approach of installing **large wood** was taken. Pinning logs securely at angles along the

uniform river banks, copying the way trees or their branches naturally fall into the river, now helps the water to run more naturally, with eddies, riffles and slow and fast moving spots all part of a natural diversity of flow. The logs fixed in-channel were **sourced from trees felled nearby** as part of the river-lightening work, so really just giving nature a controlled and helping hand. In time, river plants will also establish themselves in amongst the logs creating an even more naturalised riverbank.

Weaving a new island



Photo: Natural Enterprise

Engagement

Alongside the delivery of the river restoration, Natural Enterprise has encouraged public and local engagement in the project, talking through plans with residents from the very start and working with them to ensure everyone was well-informed and happy. Pan Mill Meadows, a fen SINC (site of importance for nature conservation) that sits alongside the river within minutes of Newport town centre, has been **transformed by volunteers** of all ages (even the local probation service have helped clear brash); a new bridge and circular footpath has opened up the area to walkers, improving anti-social behaviour in the area and creating a **real sense of local pride** in this small but wild spot on the edge of town. Natural Enterprise linked with Portsmouth University who brought students to study WLW's work; the channel at Shide will be the focus of a study by a PhD student. Links to other projects such as Hedgerow Harvest and Natural Wight, have also helped to raise the profile of the river and river restoration among

new audiences from families to NEETs (not in employment, education or training) with a series of walks, river-inspired art workshops and edible hedge planting programmes. New interpretation and a specially commissioned sculpture of an eel will add a final flourish. Fittingly, the riverside path was recently upgraded to become a part of the cross-Newport link of National Cycleway 23, running from Cowes to Sandown, bringing the Medina's river restoration to a wider and increasingly appreciative audience.

More information

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Meet the project partners

Natural Enterprise

Natural Enterprise has a passion for making a positive impact. As a company, we provide a wide range of services, both locally and regionally; from our environmental consultancy service, economic development work, extensive project delivery, through to managing European Funding Programmes.

Our team combines expertise in ecology, sustainable development, climate change adaptation, supporting business, project management, communications with the depth and range of experience to deliver practical solutions for our clients and partners. Natural Enterprise bridges the different perspectives of the public and private sectors, the economy and the environment and similarly, we can draw upon our partners to ensure that in all our work there is a clear focus on delivering the value and requirements for our clients.

Based on the Isle of Wight and as part of the **Island 2000 Trust** charity, Natural Enterprise's profits are reinvested for the sole benefit of the Isle of Wight, its communities and countryside. We will continue to make a positive difference to the communities we live and work in, contributing our resource and expertise.



Newport Rivers

The **Newport Rivers Group** is a **partnership of organisations and individuals** who share a common goal of improving and enhancing the three rivers that flow through Newport for people and wildlife alike. Linking the local authority, the parish council, community leaders, local residents and businesses, the Group is an invaluable mechanism for the delivery of the Environment Agency's Newport Rivers Project, a regional flagship programme which aims to "conserve, enhance and re-create the wetland capacity of catchments as part of our contribution to rebuilding biodiversity on a landscape scale".

The rivers in and around Newport – the **Medina**, the **Lukely** and the **Gunville** catchments – have been heavily modified in recent history, leaving them with a limited value both to native wildlife and as an amenity for local people. The Group delivers a **wide range of improvements** to public spaces in town and in the wider riparian countryside, ranging from large scale engineering projects such as the restoration of Towngate Pond to smaller initiatives such as school projects, walks and tree-planting.

The Newport Rivers Group endeavours to bring lasting benefit to the Island in all that it undertakes. Over the years, it has been the driving force behind the transformation of many of the Newport's most overlooked riverside sites – turning them into amazing green places that we all appreciate daily and at the same time ensuring an all-important breathing space, even in the most urban areas, for Island nature and wildlife.

Award Winning River Petteril Project

Alison Reed

River Petteril Project Officer
Eden Rivers Trust

Photo: Eden Rivers Trust

The **River Petteril** was once a wild trout fishery of significant value. The river itself was known locally as the '**Jewel in Eden's Crown**' and there are many accounts of the quality of fishing it provided up until the late 1960's. However, agriculture, infrastructure, pollution and neglect have all taken their toll. **In 1968 a tanker containing phenol overturned** on the A6. The then fire brigade washed the phenol into the Petteril, in effect killing the river. Since that time the recovery of the river has been 'checked' by a series of body blows in the form of diffuse and point source pollution events.



Photo: Eden Rivers Trust

In 2009 Eden Rivers Trust commenced a funded programme of improvements to address many issues facing the river and once again return it to its former glory. In 2011 efforts on the river were given a considerable boost through the delivery of the **Petteril Evidence and Measures Project**.



Photo: Eden Rivers Trust

Before and after (above) pinning wood to the river bank
Photos – Eden Rivers Trust

At the start of the project, problems with the river were identified by people coming together to share their knowledge about the river and solutions were sought from all involved. The Department for Environment, Food and Rural Affairs and the Environment Agency's (EA) Evidence and Measures Project identified **numerous factors impacting Water Framework Directive water-body status on the River Petteril**. Extensive background research complimented with stakeholder workshops were undertaken to identify causes of these impacts and consider what measures could be put in place to address these issues. This resulted in a number of measures being agreed upon and recommended by the steering group, for example, to reduce diffuse and point source pollution, including improvements to farm infrastructures and river bank habitat improvements.

Eden Rivers Trust, the EA and **Natural England's Catchment Sensitive Farming Scheme** has been working together with local farmers on the project for the last three years. **The key players are the farmers themselves**, and finding out what will benefit them as well as the river has been the key factor in making changes happen.



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River Petteril Project June 2013 *River Restoration* NEWS



Before (right) and after (left) improving farm infrastructure – concrete track with drains - to reduce runoff



It is necessary to minimise the impact of some farming practices, for example by reducing the volume of slurry produced by the farm. This saves the farmer time and money as well as reducing pollution in the river. Fencing river banks and planting trees is another way of improving the condition of the river for its wildlife.

Achievements

So far in the project we have worked with 30 farms, carried out 15 projects to improve infrastructure around these farms, fenced over 11.5km of river and planted 3,240 trees. The farmers themselves have also invested their funds and labour in the projects, which has enabled us to achieve a lot more and much more is planned before the current funding for the project ends in 2015.

Many people are convinced that we are making a difference. For the first time in years **salmon, trout and grayling** are being found in the river again and

aquatic insects are indicating an improvement in water quality. This is not solely down to the Petteril Project but is a good indication that the condition of the river is moving in the right direction.

Awards

This major collaborative project was also recognised by **winning the Wild Trout Trust Conservation Awards Professional Category in 2012.**

The approach used in the River Petteril Project has been **hailed as such a success** that a film has now been made to show case the idea across the country and to other organisations.

**For more information
and to watch the River Petteril film**

Please go to:
www.savetheeden.org.uk



Silage pit before roofing was installed – above
The same silage pit shown after roofing – right

