New Faces in RRC

At the AGM in spring this year the Centre ‘said goodbye’ to three stalwart Board members Brain Smith, David Sear and Nick Haycock. Everyone at RRC is grateful to all of them for their unstinting service that spanned our development from RRP to RRC. Special thanks are due to Nick for his professional chairmanship of RRC since its inception. All three will still continue to work with RRC but not as Board members; their departure is part of the planned process within RRC of rotating Board members to ensure new blood continues to refresh the management at the highest level.

The Board now has five new members, and also a new chairman - Richard Vivash. Richard was the RRP General Manager and was responsible for ensuring the delivery of the LIFE demonstration projects on the Cole and Skerne. He has been a member of the Board since 1997 and has a wealth of management experience as well as expertise in river restoration.

The New Faces

Chris Soulsby. Chris is Professor of physical geography at Aberdeen University and combines expertise in hydrology, geography and engineering for practical river restoration. He has been actively involved with the production of an excellent new publication ‘Watercourses in the Community - A Living River by the Door’ produced by SEPA’s HEI project (see page 3).

David Gilvear. David is a senior lecturer in hydrology and geomorphology at Stirling University and is a respected geomorphologist who has worked with RRC before on a number of issues. He was a key member of the team that prepared the superb publications that launched WWF’s Wild Rivers Project in Scotland, and has been on its Advisory Committee since its inception in 1997.

Allan Snape. Allan works for Northumbrian Water and therefore brings with him a very important ‘water industry and business perspective’. In recent years he has added to his civil engineering background with business management, environmental assessment and a whole host of other qualifications. He was a key member of the Skerne Project Board that successfully completed that project for RRP and its partners.

Geraldene Wharton. Geraldene is a lecturer in physical geography and environmental science at Queen Mary and Westfield College, London. She is a geomorphologist who is active within the British Hydrological Society and has had several PhD studies closely linked to river restoration. A current case studentship is evaluating the appraisal procedures used following completion of river restoration projects.

RRC’s Corporate Members

Corporate members are those that subscribe a minimum of £1k per annum to support RRC, and also for securing the services of the Centre to help their own activities. From the outset, Northumbrian Water has been a corporate member.

Recently another water company, Thames Water, joined and we have also attracted corporate membership from Entec. RRC is most grateful to all of these, and all other members of RRC.

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In April, RRC held its first annual Network Conference in Manchester. Over 150 people came from across the whole of the UK, as well as attracting participation from Israel. The meeting had been a long-term aspiration of the RRC in its bid to provide a forum for participants in river rehabilitation to get together and hear about the range of activities in this field. It is also seen as a vital contribution to RRC’s ability to increase the network of its contacts, as well as facilitating networking between individuals.

A series of more than 30 quick-fire papers were given in ‘themes’ covering such areas as ‘tools for effective river restoration’, ‘urban river rehabilitation’, ‘flood defence and river restoration’, etc. leading to discussions of these topics. Following the meeting a site visit was made by over 50 delegates to the nearby Sugar Brook which had been restored following its diversion in 1999 as part of the works associated with the building of Manchester Airport (see Issue 5).

Mark Diamond, from the Environment Agency, kicked off by providing simple definitions of ‘Restoration’ and ‘Rehabilitation’ (the former is likely to be aspirational), always address causes of the problem not symptoms, and return form and function to the river by working in a total catchment context. The latter is what most projects can realistically achieve as even catchment-based projects can only focus on a few factors, and the most holistic reach-based projects may only partially restore elements of form and function. He sparked considerable debate by asking delegates to consider what their rationale was for allocating limited resources for river rehabilitation in potentially conflicting areas. For example, improving some of the best rivers may be a better investment in terms of biodiversity but for sociological benefits rehabilitation of some of the worst urban rivers may be far more desirable for the local community. By the end of the conference the jury was still out, with good arguments given to support both.

Malcolm Newson outlined how geomorphology should contribute to river restoration and sound watercourse management. Its greatest strengths were helping to determine ‘where’ and ‘what’ to restore, and then contributing to the design process by advising on the stability of any desired features and predicting the extent of their adjustment due to river processes. “With the EA spending around £30m annually to remove sediment in watercourses, we should know as much about river processes as the water utilities know about their network of pipelines” he said.

A constantly repeated message was the importance of local community participation. This means more than ‘consultation’, but fully embracing involvement of local people, businesses, industry, recreational interests and those responsible for planning schemes. Engaging participation of the full ethnic range of urban communities was important and may not happen unless efforts are made to include them and help them understand the value of their interest in their river. The same is true for rural schemes where FWAG and others help integrate farming and river rehabilitation activities and aspirations. Several contributions stressed the importance of understanding catchment influences, and also the preference to minimise disturbance, but do enough to assist natural recovery.

The success of the meeting will ensure that RRC will organise a similar gathering next year. In the meantime, we would like to help facilitate, with others, smaller workshops (see Issue 5) on specific aspects of river rehabilitation (geomorphology and the design of river rehabilitation works was suggested). If you are interested in participating, or helping organise, such a workshop contact RRC.

Joining the River Restoration Centre
If you are not a member of RRC, and wish to continue to receive the Newsletter, know more about the activities and outputs of the Centre, and also contribute to widening the Network of sharing experiences and knowledge, please contact us.
Regular readers of this newsletter will be aware that the Scottish Environment Protection Agency (SEPA) embarked on the Habitat Enhancement Initiative (HEI) in the summer of 1998. The initiative was launched at a conference in Glasgow in April 1999, at which RRC’s Nigel Holmes gave a well-received presentation on River Restoration Issues.

As well as having access to the RRC Manual of Restoration techniques, which forms a chapter of the internal SEPA Natural Heritage Handbook, approximately 100 staff from SEPA and Scottish Natural Heritage attended joint river rehabilitation and restoration training days in November 1999. Since this time awareness and understanding within SEPA of habitat issues has been promoted through a basic awareness-training programme throughout Scotland in January 2000. This training focused on the importance of aquatic habitats and the opportunities available to protect and enhance these habitats by working with others.

SEPA staff are also being encouraged to work in partnership with the development of demonstration sites. Such demonstration sites are an important way of exemplifying current best management practices and can be used to show actual benefits accrued from practical work that is undertaken. In 1999/2000 SEPA provided support to 29 habitat enhancement schemes across Scotland many of which are available for use as demonstration sites for HEI. A programme of site visits will be developed to enable SEPA staff and others to gain practical information on the management and techniques for habitat enhancement.

Informal meetings with Environmental Protection Officers, Planning Liaison Officers, Hydrologists, HEI Staff and Biologists from SEPA with Local Authority planners, developers and other environmental organisations are proving a successful method of incorporating habitat issues into new developments in Scotland. Further advice for those involved with works that may impact upon aquatic habitats, including planners and developers, will be available in the form of guidance documents that highlight opportunities for habitat enhancement and promote current best management practice. Already ‘Ponds, Pools and Lochans’ and ‘Watercourses in the Community’ are available, the latter launched at the ICE Millenium Link conference in June. In 2001 ‘Tidal Waters’ and ‘Fisheries Habitat’ will be available. A second tier of more practical training, to accompany the provision of these guidance documents, will increase knowledge and understanding of the key habitat issues.

The guidance and advice provided by HEI highlights the need to incorporate habitat issues into SEPA’s core business and to encourage developers to consider habitat enhancement in the early stages of planning. SEPA’s Annual Plan for 2000/2001 has committed staff to developing five habitat enhancement projects each year in each of its three regions. HEI will continue to encourage and support the development of such targets and policies to enable staff involvement in projects that promote good habitat management practices.

The Habitat Enhancement Initiative has an award scheme to reward the work of those involved with habitat enhancement projects. National winners are presented annual trophies, and applications are welcomed from any projects that have achieved measurable improvements to the aquatic environment in Scotland.

For more information contact Kiri Walker or Jennifer Learmonth at SEPA on 0131 449 7296. (518)
The Hermitage Stream was considered by the River Restoration Project as its urban project site for the EU LIFE river restoration demonstration project undertaken in 1995-7. The degree of degradation, and risk, were considered too great for such a pioneering project then. Here, Lawrence Talks, the Area Fisheries, Ecology and Recreation Manager of the Environment Agency (EA) for Hampshire and Isle of Wight, tells us about how the EA has undertaken major rehabilitation works in the past 18 months. RRC is delighted the Project has recently been awarded a Millennium Marque award for environmental excellence.

The Environment Agency, together with Havant Borough Council, have recently transformed almost a kilometre of the Hermitage Stream from a concrete channel to a natural stream in the centre of Leigh Park, Havant near Portsmouth in Hampshire.

The work has been carried out with the active support of the local community, local schools, Hampshire County Council and Portsmouth City Council. The engineering consultants appointed to the project were Scott Wilson Kirkpatrick. The work was carried out by the Environment Agency’s Direct Work Force.

It is one of the country’s largest river restoration projects which has had to face the challenges of working in an urban environment, with a constricted green corridor, no flood plain, flows that vary from a trickle to a raging torrent, and the inevitable constraints of available finance.

When Leigh Park was built in the 1950’s it was said to be the largest post war housing estate in Europe. It was built to accommodate the many hundreds of people displaced from Portsmouth after the war. In common with other large housing estates Leigh Park has its share of urban problems, not least vandalism. To control the risk of flooding the tortuously meandering Hermitage Stream was turned into a concrete channel in the early 1970’s.

The aims of the rehabilitation project were to:

- ensure that the existing level of flood defence was maintained;
- restore/improve the stream to a more natural river environment;
- create a green and pleasant place for all to enjoy for recreation, amenity, education and wildlife;
- carry out the works within a previously identified 1.5 kilometre stretch of the stream.

Critical to the success of the project was gaining public support. To raise awareness of the project amongst local people, a leaflet was produced that incorporated the project’s logo, ‘Hermi the hedgehog’, which was itself developed by local school children. A newsletter was produced, a press release issued and a public launch followed discussion meetings held at the local Community school in 1997. Whilst the project gained overwhelming public support, it wasn’t until 1999 that the works got underway.

Fundamental to the acceptability of the scheme was the requirement to maintain the
existing levels of flood defence, which ranged from an estimated 1:100 year to 1:500 year flood protection level. A hydraulic model was developed for the stream using long term records from a downstream gauging station and spot gauging. The predicted 1:500 year flood was put at over 24 cubic metres per second (cumec). The summer flow is less than 0.1 of a cumec. To accommodate these extremes in flow a two-stage channel was proposed.

A further requirement was to design the re-engineered stream in such a way that it was safer than a smooth concrete channel. This was particularly important as the fence along the stream was going to be removed to open it up for public access, and bring it back as a feature of the green open space, not a blot on the landscape to be hidden. Here the gradient of the banks were considerably reduced and gravel was added to the streambed.

Other design challenges included protecting and safeguarding the labyrinth of underground services that exist in the area, which include two main sewers that run parallel to the stream. This was essential so as to minimise the risk of future costly bank protection work. The low bank gradient has reduced the opportunity for lateral erosion and it was decided to keep the concrete bed of the channel intact to protect against downward erosion. For the project team this was at first a great disappointment - however this potential eyesore has been overcome by placing gravel over the concrete which is kept in place by oak timber beams. The beams have also been used to create cells for planting marginal plants and to secure coir matting - which has helped to stabilise the bankside soil and gives the marginal planting a chance to get established. The plants not only help to protect against bank erosion but they provide habitat diversity, colour and variation in form.

Maximising the benefits of the project for recreation, education and amenity have been promoted through working with the community. The local secondary and primary schools (the Park Community School and Barncroft Junior School) together with the British Trust for Countryside Volunteers and local volunteers have actively been involved in planting trees and waterside plants and a major spring cleaning event. Here the emphasis has been upon involving local people so that they become interested in their stream and begin to look after it for present and future generations.

Two cycle-way/footpaths have been constructed that are regularly used and provide access to local shops and the town centre and a children’s play area has been rebuilt. The Hermitage Stream is much more than a river restoration project - it is about urban renewal and improving the quality of people’s lives.

During the restoration of the Hermitage Stream in 1999, over 700m³ of concrete were removed and recycled. Now the stream is a green and pleasant place for all to enjoy - a genuine patch of countryside in a densely populated urban setting.
The chalk rivers and streams of Southern England are historically one of the most intensively ‘man-managed’ river systems in the U.K. Since the ‘wild-wood’ era of 3000 years ago, they have undergone a series of incredibly dramatic changes to meet the needs and demands of an ever-changing society. The watercourses have experienced radical manipulations to meet the needs of milling over several centuries; modified to create extensive water meadow systems during the 17th century; widened and deepened to deter German invasive forces, while at the same time draining the land to improve agricultural productivity for the ‘War-Ag’ effort.

In the post war era river engineers perpetuated the philosophy of the need for channel ‘improvement’ by combining the needs of land drainage with flood prevention resulting in extensive dredging and regular ‘channel maintenance’. If physical degradation of the channel was not enough to contend with, present day issues of water quality and quantity have added to the list of potentially detrimental influences culminating in the symptoms ascribed to the condition known as ‘chalk stream malaise’. Precise causative agents of the disease are elusive and undoubtedly it is a complex combination of factors, but remedial action and occasional surgery at least keeps the patient stable!

True chalk stream river restoration (i.e. the restoration of a system to a pre-impacted condition) is therefore probably unachievable and even partial restoration aspiring to an era sometime in the past when ‘things were better’ is equally beyond serious consideration. Given that the criteria for true river restoration are perhaps intangible, then the only viable option is river rehabilitation or ‘habitat enhancement’. Deciding what habitats to improve, how to achieve it, and what opportunities are appropriate for a particular river reach is the main challenge for chalk river rehabilitation.

Over the years river keepers and angling interests, together with some ‘river menders’, have leaned towards habitat enhancement primarily for fish and fishing interests, mainly for salmonid species. Many of the more progressive practitioners have recognised the need to ensure that other components of the ecosystem upon which trout depend also receive equal consideration and careful management.

The adoption of the more holistic principle has not been without pain and controversy. In reality the last few years have been a period of remarkable transition with a clearer understanding and recognition of the various different interests, largely as a result of positive dialogue, negotiation, and compromise. Conservation and fisheries objectives have now become much more integrated and show many similarities in terms of interests and ultimate goals. Within the South Wessex Area, which includes the Hampshire/Wiltshire Avon and the Dorset Frome & Piddle catchments, there has been something approaching 30 separate rehabilitation projects of various size and form carried out over the last few years on chalk rivers.

Clearly the majority of projects have been opportunistic, involving relatively short reaches of river of a few hundred metres at most. The diversity of approaches have resulted in a fairly rapid evolution
The use of natural materials such as brushwood and in the form of ‘faggots’, to create structures that manipulate in-channel flows, has proved highly successful. They have been used extensively to create new habitats, revet eroding banks, form the foundations of new islands and anglers access points, as well as providing the stimulus for aquatic plant growth, fish shelter, etc. Where channels are over-wide and relatively shallow (often a result of cattle poaching) the original ideas of simple river channel narrowing are largely being superseded by the inclusion of more complex structures which improve diversity of flow and habitat. In-channel improvement using ‘faggotry’, willow logs and underwater mattresses to improve channel flow characteristics for flora and fauna has been accompanied by the investigation of equally exciting initiatives to replace gravel previously dredged out for land-drainage purposes and to thereby restore riffle/pool sequences.

Compacted gravel groynes are simple and cheap to construct - after winter high flows they still create the flow diversity shown above, yet they lose their visual intrusion.

How to get the gravel from the dredged material on the bank back into the river has been an intriguing challenge and involved some innovative lateral thinking. Hundreds of hessian sacks have been filled with gravel and dumped in the river to create new riffles; large scale redistribution of gravel within the channel has taken place; and some interesting negotiations with gravel companies has provided sources of ‘new’ gravel material. Simple and unobtrusive structures are however often the most effective. The installation of ‘riffle groynes’, using chalk and gravel in relatively uniform channelised sections to diversify flow and let the river create its own new areas of scour and deposition with the associated improved habitats, has been most successful.

So what for the future? Small-scale projects initiated by fishing interests with sponsorship from various organisations will undoubtedly continue. This approach may be contrived as a ‘quick fix’, however it does increase basic knowledge and collectively contributes to the tool-box for others to replicate or develop further. There is, however, a need for more critical evaluations of projects, clearer objectives, and for more consistent pre- and post-scheme monitoring to ascertain true ‘ecological and financial cost benefit’ and the real (rather than perceived) value for both fisheries and fishing. There will be a need for a more detailed understanding of species/habitat requirements for a range of fisheries and conservation interests so that rehabilitation techniques can be refined and focused to be effective in creating the mosaic of habitats which form an integral part of chalk stream systems.

This will ultimately have to be linked to an integrated strategic plan for rivers, on a catchment scale, based on a requirement to define perceptions of favourable status of species and habitats of chalk stream and the means of achieving a balanced approach considering all other influences and interests. Ultimately river rehabilitation should be driven by need, rather than opportunity; the order of magnitude of need demands funding on a large scale but inevitably will focus on considerations of a combination of social, economic and environmental factors.
**News and Events**

**ECRR Conference**
Holland hosted the European Centre for River Restoration’s first, and very successful, conference in May. Over 100 delegates were present from over 30 countries and four continents. For more information on this, and the European Centre, visit [http://www.ecrr.org](http://www.ecrr.org)

**River Restoration Training in Scotland - 30 November 2000**
In the past, the emphasis of river management has focused on the problems of water pollution. Whilst there is still much to be done, interest is growing in techniques for improving and restoring the physical features and functions of rivers. Conversely, some routine river management activities aimed at habitat improvement can sometimes fail to meet the desired objectives. Using practical case studies, this workshop aims to introduce local authorities, conservation bodies, fisheries boards, engineers and land owners to the principles of river restoration. Organisers: SNH in association with RRC & SEPA
Cost: £50 (including lunch). For more information contact Lorna Brown, Tel 01738 444177 e-mail: Lorna.Brown@SNH.gov.uk

**CIWEM Environment Group Conference**
CIWEM is to hold a conference on December 5th in London entitled ‘The use of vegetation in river and coastal engineering’. This will provide an opportunity for recent advances in the use of plants for stabilizing of river banks, and in the construction of flood protection and coastal defences, to be discussed and presented by an audience of practitioners. For more information about participation, contact King Environmental, Tel: 01932 589911 or mail@king-env.co.uk.

**Phosphorus and River Ecology – Tackling Sewage Inputs**
English Nature and the Environment Agency have just produced this excellent document that outlines environmental problems associated with phosphorous enrichment, their causes, methods of control and the costs and benefits of reduction methods. For more information contact EN at Northminster House, Peterborough.

**Environment Agency’s Millennium Projects**
Millennium celebrations are continuing throughout the year 2000 with a series of Environmental Festivals and Challenges being held across England and Wales. The activities are designed to make individuals more aware of their effect on the environment and to demonstrate how simple behavioural changes can lead to identifiable improvements in our natural surroundings.

With part funding from the Heritage Lotteries Fund, the Environment Agency will host an environmental celebration in each of its 26 local areas throughout the summer. Working with local utilities, private sector organisations and NGOs, the Festival programme is designed to involve communities and businesses to enhance and protect their local environment. Activities include pond restoration, water based activities for schools and disability groups, river clean ups and river rehabilitation projects. For details see the web site [http://www.environment-agency.gov.uk/](http://www.environment-agency.gov.uk/) or contact Angela Howarth: Tel: 020 7664 6732. Fax: 020 7664 6976.

**River Restoration Workshop - Lowland Rivers**
The Environment Agency (Thames Region) and the University of Hertfordshire in conjunction with the River Restoration Centre are planning to hold a meeting to discuss the Restoration of Lowland Rivers. The meeting will be at the University of Hertfordshire, Hatfield, on 22/23 January 2000. If you are interested please contact RRC for further details.

**Riversymposium 2000**
The third International River Management Symposium will be held in Brisbane from 6-8 September 2000. This also includes the award of the Riverprize won last year by the Mersey Basin Campaign. [www.riverfestival.com.au](http://www.riverfestival.com.au)

RRC is most grateful to all those who have contributed text or photos for this Newsletter.