

EA REC + NAV Box 2

Conservation, Access and Recreation Annual Report 1998/99



ENVIRONMENT AGENCY



ENVIRONMENT AGENCY

EA-FRCN

NATIONAL LIBRARY &
INFORMATION SERVICE

HEAD OFFICE

Rio House, Waterside Drive,
Aztec West, Almondsbury,
Bristol BS32 4UD



Contents

Introduction	2
Summaries	
Conservation	3
Recreation	4
Navigation	5
Fisheries	6
Examples of projects	
Anglian Region	8
Midlands Region	10
North East Region	12
North West Region	14
Southern Region	16
South West Region	18
Thames Region	20
Environment Agency Wales	22
 Regional Information	 24
Site Information	25
National Information	26
Leaflets and Publications	28
Management and contacts	30

ENVIRONMENT AGENCY



025192





Introduction

I am pleased to present this third annual report of the Environment Agency's activities in conservation, access and recreation.

As the Agency's profile grows, expectations for a better, more accessible environment increase. With limited funds, these can only be addressed through an ever greater emphasis on collaboration and co-operation with external partners. The pooling of knowledge and resources which results, can deliver projects more effectively and more efficiently using a nucleus of Agency funding to underpin the work. In many cases collaboration can also support bids for European or Lottery funding and some of these are outlined in this report. I am grateful for the contributions from all our partners in our work to improve the environment and hope that these will expand in future years.

The year itself has been extremely busy with the move towards greater integration of our activities and a broadening of appreciation of environmental issues. Several Government reviews were announced, including a Review of Navigation, consultation on Access to the Countryside, and the Fisheries Review. National initiatives included the Memorandum of Understanding between the Agency, the Countryside Agency and Sport England; collaboration on boat licensing with British Waterways; agreement with English Nature on the prioritisation of sites under Habitats Directive; and promotion of salmon conservation measures.

The projects outlined in this report are only a selection of those completed during the year but serve to illustrate the breadth and depth of the work carried out within each of the Agency's eight regions. They indicate a high degree of commitment in the areas of conservation and recreation and the benefits of a multifunctional and partnering approach with an ever increasing list of environmentally conscious organisations.

These discreet and focussed projects are the visible demonstration of continuing and underlying improvements in the quality of the environment resulting from the everyday job of the Agency.

For the first time, this report will be available on the internet through the Agency's own web site. This will give wider access to our information and greater understanding of the work which needs to be carried out. I hope this can be developed in future years.

My thanks go to all our partners for their continued support and encouragement.

Ed Gallagher
Chief Executive





Conservation summary

In 1998/99 conservation continued to increase its profile within the Agency. A Board sub-committee on conservation was established, to ensure that policy and major operational issues are on the agenda at the highest level in the organisation.

The Biodiversity Action Plan

We are now lead partner or contact point for 37 species and contact point for four habitats under the UK Biodiversity Action Plan. All together we have over 400 separate actions assigned to us, covering 140 species and habitats plans. Our main focus for delivering these actions is through regulation (for example controlling pollution and water abstractions), making sure our operational activities (such as flood defence) take full account of our conservation responsibilities, and by developing and promoting best environmental practice. We also support numerous projects to help enhance biodiversity at the local level, collaborating with a variety of national and local organisations.

The Habitats Directive

As a competent authority under the EU Habitats and Species Directive we have important obligations, notably to review all our existing authorisations to see if they are having an adverse impact on the wildlife interest of sites of European importance. If they are, we need to consider how to modify or revoke them. We also have to make sure that any new authorisations, or the results of our own work, are Natura 2000 compliant, that is, they will not have an adverse impact on Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). To make sure we comply with our statutory obligations, we developed (through a secondment to English Nature), procedures and criteria for the initial stages of screening our authorisations. These procedures were launched at a joint workshop held in Harrogate in November 1998, involving Agency, English Nature and Countryside Commission for Wales (CCW) operational staff plus invited guests from Department for the Environment Transport and Regions (DETR), Scottish Environmental Protection Agency (SEPA) and the RSPB. We can now determine which statutory obligations need to be looked at more closely and pay special attention to existing conditions looking at how they might need changing. Together with English Nature and CCW we have started to develop conservation criteria for the detailed appraisal stage. Our programme for reviewing existing authorisations is due to finish by March 2004, but this is a huge task, involving many thousands of consents, licences, authorisations and other permissions and we are dependent upon conservation objectives produced by English Nature and CCW.

A particular benefit of the European-level importance of SPAs and SACs has been the high priority given to them in the National Environment Programme for alleviating problems of sewage pollution and over-abstraction for public water supply. More than 40 wetland and estuary sites appear in the environmental improvement programme for water companies agreed by ministers as part of the Periodic Review of Water Prices (AMP3). Improvements at these sites during 2000-2005 will have significant benefits for wetland wildlife.

Collaborative projects

We were involved in three major bids for European LIFE funding of wetland projects. With English Nature as lead partners, we submitted proposals for improving the management of candidate SAC rivers in the UK, and for dealing with valuable freshwater grazing marshes threatened by sea-level rise along the Norfolk coast. We are also involved with the RSPB as lead partners in a bid that aims to demonstrate the benefits of wise use of wetlands in integrated catchment management, particularly with an eye on the future implementation of the EU Framework Directive on Water Policy. We are pleased that all project bids were successful.

We were successful in attracting Heritage Lottery Funding of £3.75m for our "Wetlands for Wales" project, which will regenerate wildlife interest in a number of sites in the north-west of the province. This was a major achievement and provides sound recognition of the hard work put in by our conservation staff in Wales.

Publications

We produced our own internal handbook on species and habitat management as a companion volume for our Conservation Directory. We were involved in a supporting role in joint publications on chalk river management (with English Nature), a water vole handbook (with WildCru based at Oxford University) and an advisory leaflet on shad (with CCW). We also published, with SEPA and The Environment and Heritage Service (Northern Ireland), the first national report on river habitat quality. We believe this is the first of its kind worldwide. Using our river habitat survey (RHS) method will enable us to set targets and report on quality for habitat as well as water quality and water quantity in future. SEPA is contributing to the implementation of RHS in Scotland and we also made significant progress in developing an educational CD-ROM using our RHS database.





Recreation summary

Staffing and training

As a result of restructuring during 1999, the Environment Agency was able to appoint a number of new full-time regional recreation officers. Each region now has an officer committed solely to providing recreation expertise, which should help us deliver a consistent service in this area across the whole of England and Wales, in a way that was not previously possible. As well as these dedicated recreation officers, there are many other staff within the Agency who, along with their main responsibility, for conservation or fisheries for example, are also responsible for delivering recreational facilities. In order to bring all these staff up to a similar standard of expertise and understanding of recreational management, an in-house, Agency-led recreation training course has been developed. Two such courses have now been held and others are planned. When a basic level of skills and competencies has been established, further training will be provided on specific issues such as risk assessment and recreation law.

Consultation

The Agency continues to respond to consultations on a variety of proposals from the Government, Government agencies and sports governing bodies. Perhaps most important was the DETR consultation on access to open countryside. Here we took the opportunity to promote the value of our wide knowledge and experience of managing the water environment, by suggesting that we should be consulted and involved in any proposals that could be brought forward in relation to access to water and watersides.

Strategies

In order to plan their work better, each Agency region is producing a recreation strategy. During the year a number of interim action plans were produced, and work continued on others. A research project was also initiated, to assess methods for collecting supply and demand data for water-related recreation. The results of this work can be used to inform the strategies, and help recreation staff make informed decisions on where their efforts and resources can be best targeted.

Research and development

An important study researching the recreational use of flood banks was completed within this review period. The flood defences that the Agency manages are often used for a variety of recreational activities including walking, cycling, fishing and horse-riding. Some of these have the potential to damage the banks and need careful management. Through the exploration of 12 case studies, the research identified "best practice guidelines" for the provision of recreational facilities without compromising the operational integrity of the flood banks. The results are now being used to promote these guidelines, while still allowing increased recreational use of flood banks to be encouraged.

Site management

Building upon our site management planning methodology, we have been working closely with internal Agency staff in the Estates Department and the National Centre for Risks and Options Appraisal, to develop a comprehensive project evaluation technique. This work, which has been undertaken in collaboration with the Royal Institute of Chartered Surveyors, aims to provide a way of assessing the environmental value of land and land management options, which can then be considered alongside more conventional valuations. When applied practically, this technique will help us deliver integrated estates management on Agency landholdings, a process of estate management which demonstrates best environmental practice whilst allowing appropriate recreational use. In this way we will be able to take a lead in integrating recreational use with sound land management.

Partnerships

In April 1998 the Chairmen of the Environment Agency, the Countryside Commission (now the Countryside Agency) and the English Sports Council (now Sport England) signed a joint Memorandum of Understanding. This document recognises that these three organisations must all work together to develop and promote sport and recreation in the countryside, as well as overseeing sound management of these activities, whilst following the principles of sustainable development. It set out joint objectives, and an action plan listing initiatives on which they will work together. This is resulting in the organisations working more closely together at a national and regional level, to their mutual benefit.

The Agency has also been working with the cycle charity Sustrans. We have been able to facilitate the development of a number of routes on Sustrans' National Cycle Network. In order to simplify future collaboration between the two organisations, a Memorandum of Understanding is also being developed. We also continue to work closely with water recreation interest groups. Formally this is done through the Central Council for Physical Recreation's Water Division and informally through contacts with governing bodies at both national and local levels, as well as with those who enjoy the water environment for informal recreation.



Navigation summary

DETR Review of Navigation and partnerships

The beginning of this review period brought an announcement from the then Waterways Minister, Alan Meale, on the result of the DETR Review of Navigation, which had been ongoing for a number of years. The decision was to leave the management structure of British Waterways and Environment Agency navigation responsibilities unchanged, recognising the benefits each organisation gave to the process of an integrated approach to river-basin management. In addition, both organisations were encouraged to work more closely together, to ensure a consistent and efficient service to waterway customers.

One key area of such collaboration was a joint arrangement for boat licensing. This would allow boats access to both British Waterways and Agency navigations, through the purchase of one licence. Work on this scheme will continue and it is hoped will be available during 2000. Other partnership projects with British Waterways will continue throughout 1999/2000.

Alongside this partnership, the Agency continues its support and significant involvement with the Association of Inland Navigation Authorities (AINA). As a member of AINA's steering team, we played a key role in the preparation of AINA's national strategy for inland navigations, titled "Steering a Fresh Course", launched in February 1999. The Agency has now adopted this strategy and is working on a number of projects to help fulfil the actions outlined within it.

Research and development

One key area of investigation was to assess customer satisfaction on our waterways through a number of consumer research projects. The most comprehensive of these surveys was a joint project with the British Marine Industries Federation and the Broads Authority to help the development of the hire-boat industry. A survey of those who hired boats was followed by feedback to the hire trade, both on a one-to-one basis and via a series of successful group seminars. We continue our involvement in this matter through a trade group, which is taking the results of the research forward to develop and promote the hire-boat industry.

The Agency's own survey assessed levels of customer satisfaction with our navigations. The results gained from this were very positive, especially with respect to the service provided by staff. However this research was also useful in identifying services and facilities in need of development, such as overnight moorings, water points and better riverside information. It is planned to take these initiatives forward as part of our current waterway business plans.

Managing our assets

As well as investigating future issues, the current funding of the maintenance and replacement of our navigation assets continues to cause concern. With boat traffic figures in decline and boat licence charge increases remaining close to inflation, raising the additional income required to invest in the navigation infrastructure continues to be difficult.

We are now using a nationally consistent asset management plan to prioritise projects. New impetus has been put into finding external funds from other sources, with success in Anglian Region where there is access to European funding for waterway projects. Work in this area is continuing.

Thames Region has begun a review on the River Thames, which includes assessing the economic and social benefits the navigation brings to the local area. This review reported late in 1999, and will be used to help in planning the future management and funding of the river.

Promoting our waterways

We continue to produce River Views, our six-monthly newsletter, which again proved to be a successful and popular way of communicating with our customers and those with an interest in waterways.

Attending the major boating and waterway shows also continued to be an important way of meeting our customers and promoting the Agency's navigation work. Shows attended in 1998/99 included the National Waterways Festival held in Salford, the London Boat Show and the International Canoe Exhibition held at the NEC in Birmingham.

We also attended and sponsored a holiday-based show, Destinations '99 at Earls Court. At this event we promoted waterways holidays to a much wider range of potential customers.

To promote affordable, environmentally friendly river cruising, during 1998 the Agency, in conjunction with the British Marine Industries Federation, co-sponsored the Riverboat 2000 competition. It had a number of categories, and the top prize in the family cruiser section, "The Landau 20" was on view at the 1999 London Boat Show. This proved very popular, with several orders taken.

Conferences were also an important part of the Agency's commitment to promoting navigation. One such initiative held in both Thames and Anglian Regions was a workshop called "The Future of River Boating". This debated the future of inland boating and how the trade, local government and navigation authorities could take initiatives forward. Again, work with the hire trade followed these events and will continue in the future. With all the ongoing initiatives and projects planned, 1999/2000 will continue to be busy and productive for the Agency's navigation teams.





Fisheries summary

Under the Environment Act 1995 Section 6 (6), the Environment Agency has responsibility for the maintenance, development and improvement of salmon, freshwater fish and eel fisheries in freshwaters, estuaries and coastal waters in England and Wales. This involves both regulatory and operational aspects. In certain areas we act as a Sea Fisheries Committee under the terms of the Sea Fisheries Regulation Act 1966, where we have powers to regulate sea fisheries within three miles of the coast.

Wider environmental duties also apply to all our functions, such as taking account of features of special interest, and the need to further their conservation when carrying out water management functions.

Our vision for fisheries is that all waters of England and Wales will be capable of sustaining healthy and thriving fish populations and everyone will have the opportunity to experience a diverse range of good-quality fishing.

Funding

Direct expenditure on fisheries management by the Agency was approximately £23 million, of which about two-thirds was raised by licence duties from anglers and netmen. Rod fishing licence duties were reviewed during 1998/9, and Ministers approved a £2 increase for both salmon and coarse and trout licences, to take effect from 1 April 1999. The proposals drew only 23 objections from interested parties.

Following competitive tendering, a new contract was awarded to Post Office Counters Ltd. to sell rod licences in England and Wales. Licences for the 1999/2000 season went on sale at 17,000 post offices from 18 March. Of these 1,730 are open all day Saturday and 1,135 are also open on Sundays. For the first time rod licences are also obtainable through a telephone sales service. There are also 300 fisheries and other agencies selling licences, most of which have extended hours.

Year-on-year licence sales were slightly down, primarily as a result of the severe flooding during the early part of the year.

The football World Cup was also considered to have impacted on annual licence sales, especially at the beginning of the season. Licence income is vital to fund the important work the Agency does to protect and improve fisheries, so the marketing and enforcement campaign continued.

We continued to clamp down on those who cheat their fellow anglers by failing to buy a licence. We have built up information on where and when we can expect unlicensed anglers to fish using computerised data from post office sales, and it proved very successful in targeting areas. Two three-day blitzes in the early season were followed by a week of licence checking from 16 to 22 June to coincide with the start of the coarse fishing season on rivers, with the usual enforcement activity continuing at other times. Licence evasion dropped, mainly because of the improvements in licence distribution by using the Post Office, as well as the introduction of one-day licences, advertising and the enforcement campaigns. Prosecutions for fisheries offences resulted in fines totalling £173,000.

£1 million fisheries programme to benefit the angler

Rod licence income funded a £1 million national programme of projects to develop and improve fisheries. The programme continued the Agency's work of restoring fish habitats in rivers, including improvements to spawning and nursery areas.

The money was in addition to the Agency's routine expenditure on fisheries in England and Wales. We often follow habitat improvements with a stocking programme. During the year 1.5 million fish were stocked. The projects restored fish populations to over 100 km of previously fishless or low-value fisheries.

These projects also benefited anglers, encouraging the young in particular and, wherever possible, catering for the disabled.

On many projects we worked in close partnership with angling clubs, local authorities, conservation groups and others to make the most of available resources. A Scouts' angling proficiency badge was launched, in partnership with the Scout Association, in a nation-wide campaign to increase environmental awareness among young people.

Strategic initiatives

During 1998/99 we reported on research into the economic value of fisheries in England and Wales. We continued to implement the Fisheries Action Plan, published in 1997, consulted on the second draft of the Coarse Fish Strategy, published in September 1999, and began development of the Brown Trout Strategy. Salmon action plans were developed for 12 rivers during the year.

A "good practice guide" highlighting Freshwater Fisheries and Wildlife Conservation was also published during the year. This major new guide provides game and coarse fishery managers, and anglers, with valuable guidance on how, through sound fisheries management, they can improve the wildlife conservation value of the fisheries. A leaflet aimed specifically at anglers accompanied the guide.

Record decline in salmon catches/ new by-laws on salmon fishing

An assessment of salmon stocks carried out by the Agency revealed that salmon catches in England and Wales in 1997 were amongst the worst on record, with the overall level of spawning well below that needed to maintain healthy sustainable salmon fisheries. Particular concern was expressed about stocks of multi-sea winter salmon (the older, larger salmon that tend to return to rivers from the sea earlier in the year). It was, therefore, recommended that immediate action be taken to reduce significantly the exploitation of these fish in 1999. As a result, the contracting parties to the North Atlantic Salmon Conservation Organisation (NASCO), including the EU, not only reduced the quotas in the Greenland and Faroes sea fisheries, but also agreed to examine further measures to protect stocks in their home waters. Acting upon NASCO advice, MAFF asked us to take forward proposals for possible measures for England and Wales to conserve stocks of spring salmon. Following consultation on what form these national measures should take, new by-laws were advertised that proposed to reduce exploitation of spring salmon by:

- delaying the start of the net fishing season;
- introducing mandatory catch and release of salmon in the early season;
- restricting the use of natural baits;
- restricting the number and size of hooks.

The by-laws (excluding the hook restrictions) were confirmed by Ministers and apply from 15 April 1999 for 10 years. Some net fisheries were granted an exemption to fish for sea trout, provided that all salmon caught are returned.

Review of fisheries legislation

The Government's independent review of salmon and freshwater fisheries in England and Wales provides a unique opportunity to shape future policy. We look forward to the prospect of freshwater fisheries management being developed to offer the best possible fishing opportunities, whilst ensuring the sustainability of our natural fish stocks.

During the year we co-operated fully with the review process and provided large amounts of information, including the submission of 17 papers in evidence. Whilst not wishing to prejudge the conclusions, there are a number of general principles we would like to see underpinning our work, including:

- a clearly stated objective for fisheries management in England and Wales;
- a management policy that supports sustainable salmon and freshwater fisheries, actively contributing to economic and social benefits, natural biodiversity and the conservation of rare species;
- greater integration of fisheries with other water management activities;
- a simplified distribution of management roles;
- a solid funding base with reduced dependence upon grant-in-aid (core funding should be drawn from those who impact on fisheries and those who benefit from their protection and improvement);
- greater and more active involvement between the Agency and the private/commercial sector, particularly with regard to river restoration and the provision of angling opportunities close to urban centres;
- a clear link between authority and accountability, and a simpler distribution of responsibilities, powers and duties.

We look forward to the publication of the review findings later in 1999.



Anglian Region

The River Ancholme Initiative



Suspension Bridge on the River Ancholme

The River Ancholme Initiative was a multifunctional Agency project incorporating the expertise of both recreation and conservation staff within the Agency. It had funding input from flood defence and was carried out with the aid of external partnerships with North Lincolnshire Council, the Countryside Agency and Glandford and Scunthorpe Countryside Service. The objectives of the project were to improve public access on foot and bicycle, improve the landscape of the area and promote the river valley through interpretation and education. Particularly significant aspects of the scheme undertaken by the Agency include various restorations. Examples of these include South Ferriby Lock, Harlem Hill Lock, the restoration of listed bridges on the River Ancholme and the dredging of the river through Brigg. The South Ferriby Lock is a Scheduled Ancient Monument, designed by Sir John Rennie and constructed between 1842 and 1844. The Environment Agency as the Navigation Authority on the River Ancholme, is responsible for its upkeep. The lock is essential for the passage of vessels from the Humber into the Ancholme and vice-versa. The lock gates (four pairs in total) were replaced as part of the scheme, and additional restoration work was carried out to the lock structure. The Harlem Hill Lock was a previously derelict structure, which has been sympathetically restored by the Agency to allow craft to cruise the full length of the Ancholme Navigation, an additional 4km. There are seven bridges over the River Ancholme outside the town of Brigg. Built between 1840 and 1890, six of them are listed Grade II and Horkstow is listed Grade II*. The bridges are of various construction types and

include a suspension bridge and an inverted suspension bridge. All are timber decked. Horkstow Bridge is an outstanding structure, being a fine example of an early suspension bridge, built by Sir John Rennie in 1834. It is the only known example of this type of bridge by Rennie and one of the earliest unaltered suspension bridges in the country.

It is therefore of international importance.

The Old River Ancholme through Brigg is a slow-flowing loop off the "new cut" which runs to the west of Brigg and now forms the main river. The loop was heavily silted, which restricted the access of boats into the town centre.

A combination of dredging and installation of mooring rings on the river wall in the town will encourage river boats to use the old river loop, moor and use local town facilities.



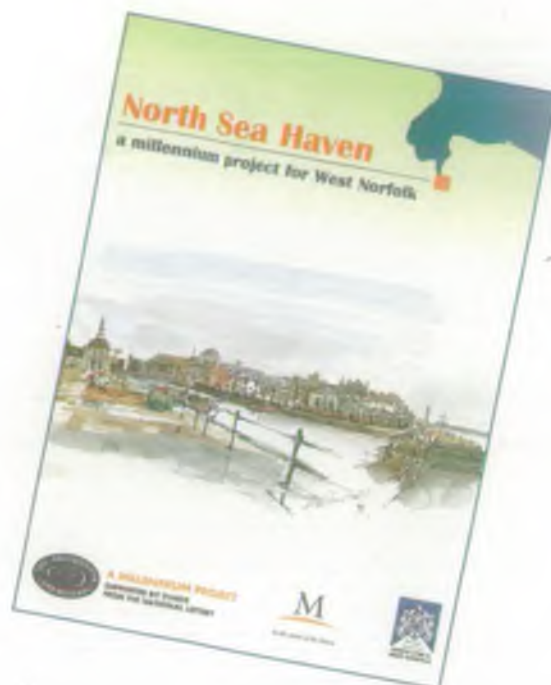
The Harlem Hill Lock after restoration

The North Sea Haven Millennium Project

This project took place through the co-operation and partnership of the following organisations: King's Lynn and West Norfolk Borough Council; the RSPB; English Nature; Norfolk County Council; and the Norfolk Museums' Service. It aimed to refocus the town towards its recreational use of the river and connections with the sea and make the most of the environment for the pleasure and education of its residents and visitors.

Another important feature of this project is the development of Marriotts Warehouse into an exhibition centre dedicated to the natural environment of the Wash. Planned to open in July 2000, it will include an aquarium, audio-visual displays and a café. Other components of the North Sea Haven Millennium project are:

- the transformation of the outer Purfleet by dredging, restoring water to it and reducing siltation through the installation of a barrage. Boats will then be able to moor on the quayside for the first time in nearly 30 years;
- the removal of the floodwall in King Statehouse Square and the making of a large public space with a covered concert platform which will be built where the silos once stood;
- along the South Quay there will be sheltered seating, plus road and pavement resurfacing;
- the installation of a boardwalk in West Lynn to create a link between the Nar Valley and Peter Scott walks. A new ferry pavilion and car park will improve facilities for people using the ferry and the walk.



The Easton Valley water-level improvement scheme

The Agency is part of a partnership of organisations that are receiving a £1.5 million grant from the European Union LIFE-Nature programme, specifically aimed at restoring reedbeds for the benefit of the elusive bittern. This money is being matched pound for pound by the partnership organisation of English Nature and the EU LIFE project team. Thirteen sites in the country will benefit, and Easton Broad in north-east Suffolk is where the Agency is leading the enhancement project. Easton Valley forms part of the Benacre to Easton Bavents Site of Special Scientific Interest (SSSI). The reedbed in this valley is one of the largest in the country, covering approximately 121 hectares. It is in private ownership, and English Nature manages part of the site that lies within Benacre Estate National Nature Reserve. Over the past decade the number of bitterns on the site has decreased and although bitterns have been heard "booming" in the valley they do not breed here. A water-level management plan drawn up in 1996 highlighted that water levels are too low in the spring and summer months to sustain a breeding population.

In an attempt to entice bitterns to breed in Easton Valley, a new control structure has been installed by the Direct Services Group. This new sluice will allow flexible management of the water levels. This includes access for the reed cutters in early spring, the potential to maintain water levels in the summer for the benefit of the adjacent grazing marshes, and should create the

optimum habitat for bitterns to breed. However it is not only the bitterns that will benefit from the improved reedbed. The area itself supports five to six nests for marsh harriers, 24-28 breeding pairs of bearded tit, and savi's warblers are occasionally found. The nationally scarce marsh sow thistle is also to be found growing amongst the reeds.



Reedbed restoration on the Easton Valley



Midlands Region



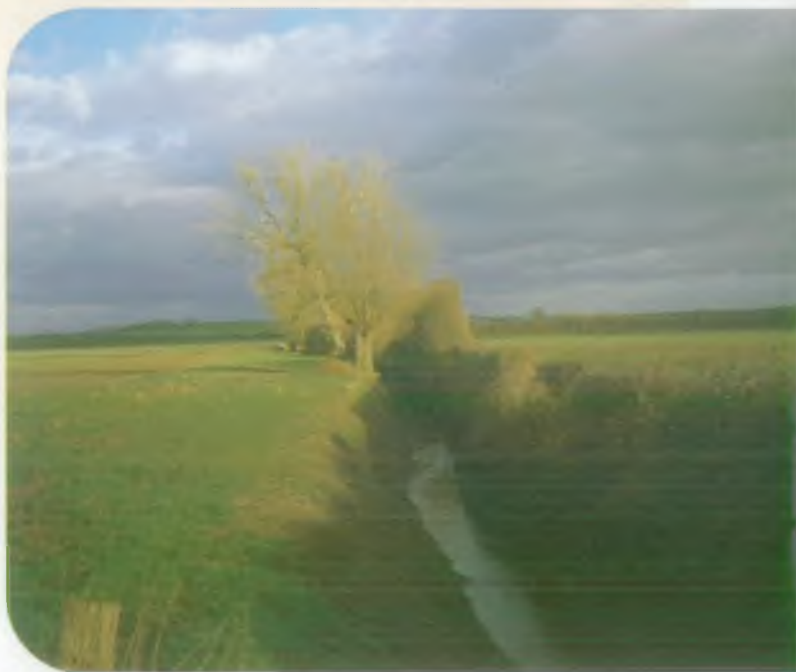
Estate worker clears pine and birch scrub, which had invaded old drained peat cuttings on Fenn's Moss

Lowland raised bog restoration

To celebrate World Wetlands Day on 2 February 1999, Upper Severn Area provided funding and practical assistance to help English Nature and the Countryside Council for Wales restore part of Fenn's, Whixall and Bettisfield Mosses National Nature Reserve. Straddling the Shropshire - Wrexham border near Whitchurch, the Mosses are a Site of Special Scientific Interest (SSSI) as well as being part of a Ramsar site designated for its international importance as a Wetland habitat. They are also recognised as a candidate European Special Area of Conservation. Intensive drainage for commercial peat cutting, agriculture and forestry has permitted tree and scrub invasion to occur on a massive scale. Agency flood defence staff worked closely with English Nature's estate workers to clear pine and birch scrub which had invaded old drained peat cuttings on Fenn's Moss. This area can now be re-established as a semi-wetland habitat to encourage bog wildlife to spread again. The funds also enabled damming materials and erosion-control piping to be purchased. This support is all part of the Agency's ongoing commitment towards maintaining the biodiversity of the Meres and Mosses.

Wetland re-creation in the Severn and Avon Vales

In Lower Severn Area, the first phase of the Severn and Avon Vales Wetland Project identified target sites in the Severn and Avon Vales Natural Area suitable for large-scale wetland re-creation. A seminar to launch the re-creation project, in collaboration with English Nature and the RSPB, was arranged. This led to the Longdon and Eldersfield Marshes Re-creation Feasibility Study, a pilot study of one of the highest scoring target sites from Phase 1, to develop site-specific proposals for wetland re-creation in the former marshes (currently intensively farmed agricultural land) in the context of hydrological, ecological and socio-economic factors. The Agency is already working on a number of wetlands within the Natural Area, including the creation of a 19-hectare reedbed at Brandon Marsh near Coventry.



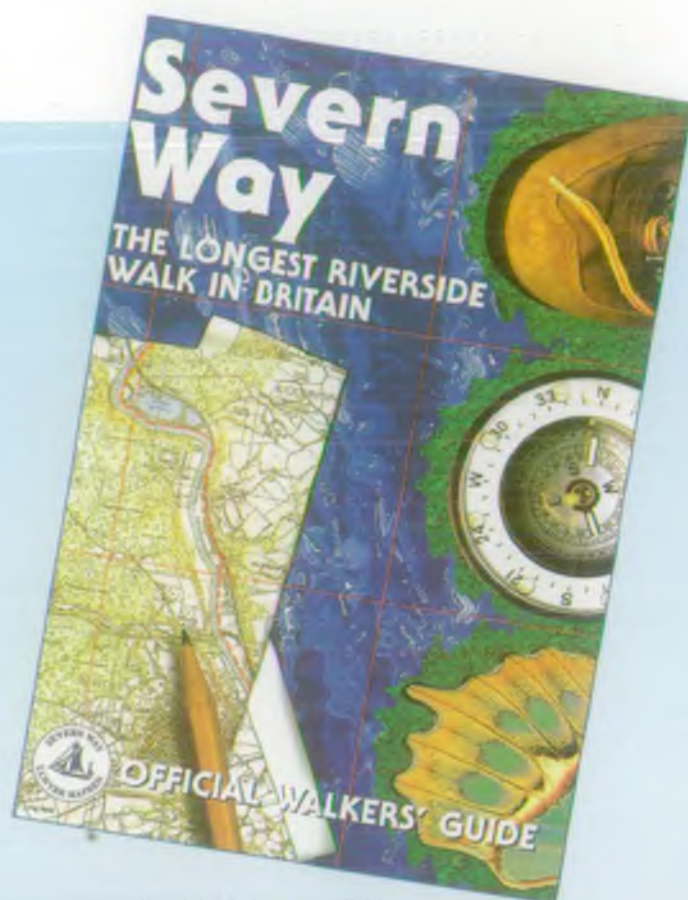
Longdon Marsh, a possible site for wetland re-creation

Riverside footpaths

Work to increase footpath access alongside Midlands rivers has provided a focus for many projects during the year. The Severn Way, a 350km riverside footpath from source to sea continues to gain in popularity. We have published, with the aid of our local authority partners, a Severn Way Walkers' Guide that describes not only the route but also some of the sites, history and culture of this world-famous area.

A major obstacle to the continuity of the Tame Walkway was removed when an underpass was constructed under a large railway bridge that crosses the river near Birmingham.

A whole-route survey was also commissioned to guide further work next year. We continued to input to the "Corridors to the Countryside" partnership project in Nottinghamshire, which included access improvements to the River Leen.



The Severn Way Walkers' Guide is now available through the Agency's Shrewsbury office

Dirtness pumping station bat roost

The Environment Agency's pumping station at Dirtness near Crowle in Lower Trent Area was recently discovered to be home to a large summer roost of Daubenton's bats. The discovery was made when an electrical control box was inspected, with a view to replacing and updating the equipment. The bats had managed to get into the control box by following an electrical cable through the floor of the building and had adopted this as a roost because it was heated. The Flood Defence Department of the Environment Agency, was therefore faced with a major problem. Left as they were, the bats could have shorted the pumping control circuits, rendering them inoperative and resulting in possible flooding if the adjacent drainage ditches were unable to be pumped. In order to replace the electrical control gear, the bats needed to be removed and a new home constructed. With the help of Sergeant Fox, the local Police Wildlife Liaison Officer and licensed bat worker, the Agency designed and built a new centrally heated bat box. This was a complex design, approved by English Nature, comprising three "woodcrete" (a mixture of concrete and wood) bat boxes and a series of wooden vanes. The box was finished in time for the breeding season and it is hoped that an inspection planned for the summer will reveal that the bats have adopted it as their new home.



Daubentons Bat, © Phil Richardson, the original roost housed 30 bats in the pumping station electrical switchgear



North East Region

The Tanfield Lea Marsh Local Nature Reserve

The Tanfield Lea Marsh Local Nature Reserve lies on a stretch of the Houghwell Burn which was canalised through coal shale many years ago. Along with the other partners in the project, Derwentside District Council and the Acorn Trust, (whose volunteers completed much of the physical work), the Environment Agency was able to contribute £5,000 towards the £20,000 project, which improved access to the site for visitors and local people of all abilities, as well as creating new habitats for wildlife. At the east end of the site, routes had already been created which link the nature reserve to existing footpaths alongside the Tanfield steam railway. The volunteers created a feature with seating and picnic facilities at the point where the nature reserve is linked to the Sustrans C-C cycle route. Local schoolchildren also contributed work about the history, fauna and flora of the site, which will be incorporated into interpretation signs for the reserve once all the major works are complete. Channel works on the burn to improve habitat diversity for wildlife in general, and for water voles in particular, was completed by our in-house workforce in the summer of 1999. It is hoped that the re-profiling of the banks will increase the opportunities for local people to observe the wildlife in the burn as its water quality and natural diversity improves.



Volunteers at work on Tanfield Lea Marsh Local Nature Reserve

Houghton Pond



Pond creation to enhance wildlife alongside the River Dearne

RJB Mining and Miller Mining in collaboration with Barnsley Metropolitan District Council, created a pond on Agency-owned land. Connected to the River Dearne, the 110m x 30m pond is intended to benefit water voles, otters and fisheries, amongst other wildlife. The water quality of the River Dearne has improved significantly in recent years, with associated improvements in fisheries, and odd sightings of otters have recently been reported from the Dearne valley. Water voles are also found on many stretches of the Dearne.

The opportunity arose to create a pond when RJB Mining proposed to opencast near the river, partly on a narrow riverside strip of Agency land. The 80m of land nearest the river was not to be excavated for mining purposes, but was suitable for excavation to create a pond connected to the river. The Minerals Planning Officer from Barnsley Metropolitan District Council approached RJB Mining on our behalf, and reached agreement with RJB and their contractors, Miller Mining, to create the pond at the direction of Agency staff.

An ecologist and a fisheries officer drew up rough plans for the machine drivers to use in the pond creation exercise. The initial excavation was carried out using opencast mining equipment, which is obviously huge, and there were some concerns that pond would turn into a very deep lake. However, the machine operatives were excellent, and took all our comments on board about variation in depths and subtle changes in slope. The final job was to connect the pond to the river, without it flowing backwards, an event featured for five seconds on local TV. The pond has subsequently filled, marginal vegetation has taken well and the banks are grassing over. There are plans to do more planting, and to ensure that the pond is fenced off from surrounding grazing land. We hoped that the 200 metres of new bankside will attract water voles, which are already present in the adjacent banks of the River Dearne. As the upper end of the pond has a very shallow slope, and water levels will drop as river levels fall over the spring and summer, exposing muddy, flat areas, it is hoped that these habitats will attract wading birds. The pond will allow fish to enter to spawn away from the river, and as bankside cover establishes it may even form an additional holding-up area for those elusive otters.



Tree planting scheme at a caravan park near Whitby

The Heritage Coast Project

The Environment Agency has been a funding partner for the Heritage Coast Project since it was set up in 1996/7. Led by the North York Moors National Park, the project originally received Objective 5B funding up to the year 2000 but this has since been extended to 2001 to give a total of £101,500 over the five years. This funding has been, and will be, matched by funding from the North York Moors National Park, English Nature, Scarborough Borough Council, North Yorkshire County Council, the Countryside Agency and the Environment Agency to give a total project cost of £203,000. Over the five years the Agency will have contributed £10,600.

The outputs from the project, including the proposed extension, are:

- implementing environmental enhancements from village appraisals;
- establishing a recreation database as a basis for making management decisions;
- undertaking assessments of recreational access points to identify those with recreation potential, develop and implement management proposals from these assessments;
- identifying, develop and implement proposals to minimise the impact of three caravan sites;
- undertaking landscape assessments of four areas identified in the heritage coast strategy and develop management proposals from these assessments;
- developing a management mechanism for Robin Hood's Bay sensitive marine area;
- developing a programme of events to raise awareness and understanding of the Heritage Coast for visitors and local people at five locations;
- developing opportunities for involving local communities in implementing heritage coast work;
- establishing a research database providing a directory of survey information to facilitate heritage coast management.

To date, the project has been successful in:

- setting up a sensitive marine area forum to develop a management plan for Robin Hood's Bay;
- conducting a sublittoral dive survey of the marine area;
- providing plans for interpretive material to be included in the development of the old marine laboratory building in Robin Hood's Bay, which is due to be converted to a coastal visitor centre by the National Trust and North York Moors National Park.

A comprehensive database of recreational resources and activities along the Heritage Coast has been established by the project. This will be used when considering future management of recreational facilities.

Five assessments of recreational access points to the coast have been carried out. These looked at issues such as access, conservation, educational opportunities, local, social and economic needs, site capacity studies and action plans for future management. Improvements to access as a result of these assessments are planned over the next two years.

The completion of four landscape assessments has led to the development of various schemes including the creation of open water bodies, traditional field boundary restoration, tree and scrub planting, creation of conservation headlands and field margins, recreation of species-rich meadows and restoration of traditional farm buildings. The assessments have been undertaken in the Staithes to Runswick Bay, Kettlewell to Goldsborough, Cloughton to Scalby and Hawsker to Whitby areas, as identified in the Heritage Coast Strategy.

The Project Officer has worked with all the local leader groups that carried out parish appraisals along the Heritage Coast, and schemes have been implemented in the villages of Staithes and Robin Hood's Bay.

We have developed a £4,000 scheme to screen a number of caravan sites and improve the visual amenity and landscape of the coast. Despite the exposed conditions, the planting scheme has been very successful. A series of events has also taken place to highlight the Heritage Coast and its natural beauty.



North West Region



A gathering at the start of a farm visit as part of the Sustainable River Management Project

The Sustainable River Management Project

The Sustainable River Management Project had a very successful first year, and is continuing the success into a second year.

The aim of the project is to provide a mechanism for influencing farming practices on a catchment scale. To do this the Agency is collaborating with the Farming and Wildlife Advisory Group (FWAG) as a conduit into the farming community. FWAG visits farms in the target catchments and produces a farm-wide report called Landwise. This report highlights farming practices that may be affecting the river, and suggests better alternatives. FWAG also assists with grant applications and explores alternative funding to ensure there is uptake of best practice advice. To drive the message home, promotional events such as workshops and farm walks have been organised. More than 50 farmers have attended these events and they have proved an excellent way of getting the message across.

In the first year, the catchments targeted were the Ehen in Cumbria, the Weaver in Cheshire and the Ribble in Lancashire. The success of the project was impressive and over £1 million was invested throughout the region for on-the-ground improvements.

In 1999 the Weaver in Cheshire was still being targeted. Collaboration with Cheshire County Council ensured that all the

farms owned by the County Council, on the catchment, would also be audited and encouraged to farm in an environmentally sensitive manner.

In Lancashire, habitat restoration works on the rivers Ribble and Hodder have progressed. In particular, we completed improvement work at two sites on Smithies Brook in collaboration with the local landowner. Restoration advice has been provided to the landowner on Wigglesworth Beck after this beck was illegally straightened. A tree planting scheme was completed on the Hodder at Burholme farm and the Agency monitored the progress of other habitat projects completed in 1997. In Cumbria the Sustainable River Management Project is targeting the Ellen, whilst still maintaining contact with farmers on the Ehen. The response from the farmers on the Ellen has been excellent, with many attending the launch and requesting visits from FWAG.

River Darwen improvements, Witton Country Park

The first phase of a three-year improvement project on the River Darwen has been completed. The project will establish a 1300m-long surfaced path on one side of the River Darwen where it runs through Witton Country Park in Blackburn. Although the river runs through the centre of the park, it was not a feature. The Agency wanted to make a more interesting and attractive river corridor for people to enjoy. The river had in the past been over-widened and straightened and there was a need to restore some of the habitats and river features that had been lost. The first phase consisted of both recreational/amenity works and habitat improvements.

To improve the amenity and recreation aspect of the site, we laid out a surfaced path from the main entrance down to a viewing area by the river. A bench and interpretation board was also located here. The path, which is suitable for wheelchair users, continues to the first bridge, and in future years will be extended to run the full length of the park.

The footpath will pass some of the habitat improvements we have made. The remnants of the old river course were still evident in the middle of the park in a small field by the river, grazed by cattle, so we were able to excavate the old river arm in this area. By reconnecting it to the main river channel we created a backwater, which we planted with aquatic plants.

Topsoil was stripped off the surrounding land, which was then seeded with a wet meadow wild flower mix that will be managed, once it is established, by allowing cattle to graze there after flowering is over. This will give people a flavour of the beautiful and diverse lowland wet meadows that would once have existed on this site.

Just downstream on the opposite bank a wet ledge has been created by lowering an existing berm and extending it slightly into the river to narrow the over-wide channel. This area has been stabilised with coir logs, matting and aquatic plants. The surrounding banks were also stripped of topsoil and sown with a collection of vigorous and competitive wildflowers that will persist without management.

Agency partners in the project included the landowners, Blackburn with Darwen Borough Council and the Darwen River Valley Initiative. The project so far has received praise from park users and attracted media interest with newspaper and radio coverage.

Manchester Airport Runway 2 Development

The Agency continues to be closely involved in the Runway 2 project via a project team set up in 1997. Close liaison with all parties has enabled us to influence all relevant stages of the construction process. The revised deadline for completion of Runway 2 is 22 May 2000, extended from 28 January 2000. The structure of the Bollin Tunnel is now complete except for stone facing of the portals and the mammal corridor of logs which will run along the access way. Earth has been placed across the tunnel to fill in the valley on both sides of it. Bat boards have been placed in the roof at both entrances to the tunnel and lighting alongside the Bollin Valley Way has been installed. The water through the tunnel is still artificially high but will drop to its intended level when the weir downstream is removed during 2000.

Downstream of the tunnel approximately 800m of the River Bollin will be rehabilitated by the creation of three new meanders. This is part of the mitigation package associated with the Runway 2 development. The design is well under way, and work will begin at the end of March 2000. Before earth was excavated, a variety of surveys were commissioned so that the future success of the work could be monitored. These include invertebrate samples, River Habitat Surveys, a geomorphological study, records of aquatic plants and a fisheries survey. Sugar Brook, a tributary of the River Bollin, has been diverted into its new channel. A wildflower seed mix has been sown on the banks and marginal plants placed along the channel edges. At the confluence of Sugar Brook with Woodend Lane Bk. a reedbed has been planted.



The River Bollin diverted through a tunnel as part of construction work for Manchester Airport

Under the new runway a drainage system is being installed so that all water from the surface of the runway can be contained in large balancing and settlement lagoons. Uncontaminated drainage will be discharged to the River Bollin. Water not achieving the necessary high standard for any reason will be diverted for treatment by North West Water Ltd. Temporary settlement lagoons currently take site drainage and treat it, before discharging through consented outfalls to the nearest watercourse.



Southern Region

SeaSearch

The Sussex SeaSearch Project began in 1992, and by the end of 1997 over 200 local diving enthusiasts had participated in it. The main aim of the project was to determine the interest and relative nature conservation value of the near-shore shallow sea-bed off the whole length of the Sussex coast (approximately 140 km), from Chichester Harbour in the west to Rye Harbour in the east. The project is supported by the Environment Agency, English Nature, the County and District Councils, the Booth Museum, Chichester Harbour Conservancy, SCOPAC, the Sussex Downs Conservation Board, the Sussex Sea Fisheries Committee, the Sussex Wildlife Trust, JNCC and the Worldwide Fund for Nature. The project is run by the Marine Conservation Society on behalf of the partnership.

The project asks divers to record what they see during their dives, concentrating in particular on obtaining accurate descriptions of sea-bed types. This involves assessing how much of the sea-bed that they see is of rock, how much is of boulders, cobbles, pebbles and sand and what characterising species of plants and animals are associated with that particular type of sea-bed. Records are made during the dive and transferred to a standard recording form once back on dry land. Information from the forms is entered onto a database.

As a result of the survey, the database is able to provide information on the sea-bed types off the Sussex coast, as well as the distribution of individual species. An important spin-off of the project has been the identification of 12 marine sites of nature



Diving off the Sussex coast as part of the SeaSearch Project

conservation (mSNCIs) off Sussex. The sites are selected as being the best examples of their type on this coastline. Another output was the publication of an identification guide for divers off the Sussex coast entitled "Sussex Marine Life". A video outlining the SeaSearch Project in Sussex was produced in order to raise awareness of the project, as was a colour poster explaining the interest below the waves. A six-year summary of the project has been produced.

Management in order to treat the outbreak with the herbicide 2,4-D Amine under approval by the Agency and under consent from English Nature. Treatments were carried out using a knapsack sprayer, applying the herbicide to the leaves of the plant. This was carried out at approximately fortnightly intervals throughout the summer, although we were often hampered by wet or windy weather. The early indications were that the plant was indeed susceptible to the herbicide, which very quickly caused to yellowing of the leaves, closely followed by dieback. This was the case when a survey was undertaken in early August. August and September are the most vigorous growing months for this plant, however, it quickly grew back across the channel to about the same degree as in previous years. Whilst this was disappointing, after all the effort of treating it, we now have valuable information about the growth of the plant and clues to possible future treatments. Dr Newman is continuing to trial treatments, both in the field and on specimens in glasshouses, and is investigating other means of control. He is also carrying out DNA analysis of the various specimens of floating pennywort from around the country to try and establish the relationships between them. The excessive growth at the end of the season coupled with heavy rain during October led to the blockage of floodgates, causing localised flooding. An emergency operation was required to keep the gates operating effectively. We are now working towards a solution to ensure that flooding does not occur in the future. In the meantime we shall continue to raise awareness of the plant and its disastrous effects on the Levels. Indeed, the Levels problem was featured on the BBC programme "Countryfile".



BBC Countryfile highlighting the problems of floating pennywort

Floating pennywort

The invasive, non-native aquatic plant floating pennywort (*Hydrocotyle ranunculoides*) has become an increasing problem on the Pevensy Levels SSSI and Ramsar site in recent years, infesting a 12-km stretch of a main drainage channel across the Levels. The problems posed by this plant include threats to flood defence, amenity, angling, to the native conservation value of the area and a risk of livestock drowning. The plant has the potential to damage the Levels severely if left unchecked.

During the spring and summer we engaged the help of Dr Jonathon Newman of the Centre for Aquatic Plant

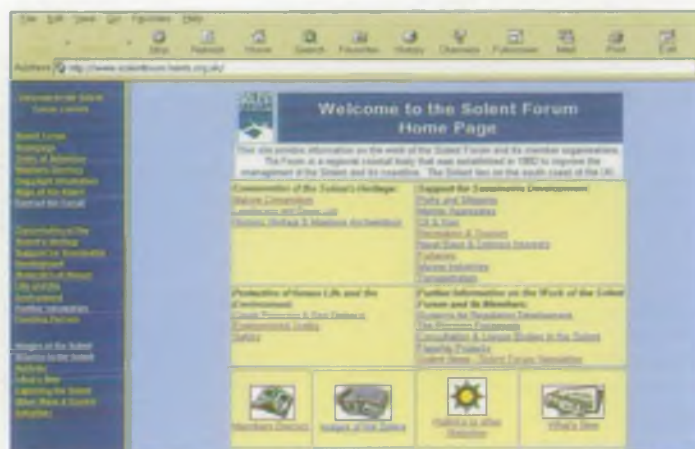
The Solent Forum Project

The Solent is one of the most important coastal zones in England. It is the UK's most popular sailing area, with nearly 25,000 moorings, and the venue for international events such as Cowes Week. At the same time, the Solent is home to Britain's leading naval base and two of the nation's major commercial ports. About one million people live in the region.

In spite of these pressures, long stretches of the coastline remain undeveloped and parts of the landscape have been designated as Areas of Outstanding Natural Beauty and Heritage Coast. The Solent's unique combination of open water, harbours and estuaries forms a complex biological system which is internationally important for wildlife, particularly for waders and wildfowl. It is also one of the richest areas for maritime archaeology in the country.

The Solent Forum was established in 1992, to improve the management of the Solent waters and coastline. Southern Region has become a key player in the Forum whose membership comprises more than 50 organisations. Since 1996, the Agency has part funded the Solent Forum Officer, whose role has been to co-ordinate the production of strategic guidance for the Solent, covering a wide range of issues from conservation to pollution prevention.

The Forum has developed five flagship projects to assist it in the implementation of its strategic guidance. One of these projects, the Solent Information Network, has established a website about the Solent. The website can be found at www.solentforum.hants.org.uk and acts as a data source and signposting service for information about the Solent.



The Solent Forum Home Page



Rehabilitation of Preston Marshes at Newnham Mainstream

Preston Marshes

The Environment Agency and the National Rivers Authority (NRA) before it, have worked to improve Preston Marshes. During 1994, the NRA, and English Nature carried out a jointly funded programme of habitat rehabilitation works on the Site of Special Scientific Interest (SSSI) with the aim of restoring the marsh. Works included raising water levels, re-establishing dyke management, providing a small pond and removing a large area of willow scrub.

During 1998-1999 the Agency, English Nature and the Kentish Stour Countryside Project, joined forces to continue the rehabilitation of the marshes. Raising water levels has allowed the expansion of the reedbeds into new areas. Willow scrub was restricting further development of the reedbeds. This scrub was removed to allow further spread of reedbed and reinstatement of dyke management. An artificial otter holt was also constructed from large pieces of felled willow and areas of high ground have been created to provide refuge for water voles.

The rehabilitation works have increased the size and diversity of the wetland habitat for wildlife and contributed to the objectives of the Kent Biodiversity Action Plan. Species Action Plans, that have benefited include those for the bittern, otter and water vole. A Water Level Management Plan for Preston Marshes has been agreed by the Agency and English Nature. The plan will ensure that rare and vulnerable plants and animals have a better chance of survival on the marshes.



South West Region



Interpretation board at the start of the Purbeck Way Walk

Focus on chalk rivers

This project was drawn together with the multifunctional input of both recreation and conservation staff. The UK Biodiversity Action plan lists chalk rivers as a key habitat to conserve in a European context. Action has been taken to conserve the finest examples of this habitat in South Wessex, including significant lengths of the Rivers Avon, Frome and Upper Moors.

A consenting protocol has been produced for the River Frome Site of Special Scientific Interest (SSSI), in partnership with English Nature, which aims to simplify consent authorisation between the two organisations. It will establish the responsibilities of each organisation with regard to the river, and clarify procedures for determining authorisations.

This protocol has been identified by the Agency and English Nature as the trial agreement, which if successful, will be extended nationally. A river conservation strategy has also been drawn up to promote joint working objectives between the Agency and English Nature in the conservation of the River Frome. The River Allen in Wimborne and the River Frome at Wareham and Dorchester were chosen as locations to help the public celebrate chalk river heritage in their towns. Information boards and leaflets explain the rich wildlife associated with the river and how it is managed. For example, wildlife paintings by illustrator Gill Howard are the inspiration for a new interpretative display board at Wareham. The board was produced by Purbeck Heritage with support from the Environment Agency to help raise awareness of the international importance of Purbeck's rivers and reedbeds. Other interpretative display boards at Dorchester have been produced to help raise awareness of the importance of the wildlife of the Mill Stream, in partnership with Dorset County Council and West Dorset District Council.

Conservation of the triangular club-rush

The Agency has been working in partnership with English Nature (who part-funded this project) and others, including the Royal Botanical Gardens, Limerick University and Plymouth City Council, to protect and enhance populations of an aquatic plant, the triangular club-rush (*Schoenoplectus triqueter*). A research and development project has been undertaken to investigate and monitor introductions of triangular club-rush. Initial work has been on the River Tamar, which is considered to be the location of the last remaining population of this species in the UK.

Plants have been specially bred at the Royal Botanical Gardens in Kew and planted in the Tamar estuary. By the end of the planting programme it is hoped that there will be a viable population covering 15 metres square.

In addition, genetic studies at Kew and research on the Irish populations found on the Shannon are also being supported. Further work will expand the project to include the Arun and Medway catchments, where the species was located historically and where hybrid populations have recently been recorded.



Paul Smith Conservation and Recreation officer planting triangular club-rush

Disabled water skiing event on the Exwick



Disabled water skiing on the Exwick

In September 1998 the Agency-owned Exwick flood relief channel in Exeter was the venue for a weekend of water skiing activities for disabled people. Debbie Graham from Exmouth and Roger Jackson (from the Exe Power Boat and Ski Club) planned the event with agreement from the Agency to use the site. Water ski participants with varying disabilities, aged between 14 and 68, were given the opportunity to experience this exciting sport.

Instructors from the British Disabled Water Skiing Association helped the day run smoothly. This was a great success with both participants and spectators enjoying the event and we hope that it will become an annual event.

The Lytes Cary project

Lytes Cary Estate is about six miles north of Yeovil, in Somerset, and owned and managed by the National Trust. The Agency has been working in partnership with the Trust to enhance the River Cary, which forms part of the estate, for wildlife and people alike, making this a joint recreation and conservation-based project. Habitat improvements have been undertaken, including the provision of low-level berms and boulder weirs and reed and tree planting. Bat and bird boxes, for grey wagtails and dippers, have also been installed.

A buffer strip has been instigated along the river channel to form part of a circular route along the river from Lytes Cary House, to enable visitors and local people to enjoy the river environment. Lytes Cary Estate receives about 10,000 visitors a year. It is expected that about a fifth of these visitors and school groups by arrangement will use the newly created path.



Thames Region



Visitors at the newly re-established Days Lock campsite

Re-establishment of Days Lock campsite

Thames Path users now have a place to stay overnight, on the Days Lock house island near Dorchester on the Thames in Oxfordshire. Days was one of the River Thames' lock sites where limited informal camping had happened on an adhoc basis over many years. Unfortunately, in more recent times it had fallen in to disuse because of lack of facilities.

The creation of Thames Path National Trail, however, meant that the site needed to be re-established and brought back into use, not just for Thames Path walkers, but also for people travelling the river in camping skiffs. Therefore, in support of the National Trail, the region has spent around £11,000 re-establishing a site that can accommodate five tent pitches. As part of that work, a redundant relief lock-keeper's mess room was converted into a shower/toilet block; site signage/interpretation was introduced; and grounds maintenance improvements were put into effect.

The region has also instituted a long-term site management plan at Days Lock in order to realise the whole site's full potential for local informal recreational use and ecological enhancement.

Duke of Northumberland's River – riverside path

The Duke of Northumberland's River is an urban artificial channel adjacent to Heathrow Airport. It was constructed in the 18th century to provide a reliable source of water to the fountains in Syon Park, part of the Duke's estate, on the west bank of the River Thames opposite Kew Gardens. The river provides an attractive riverside walk for local people, and a valuable refuge for wildlife.

Recreational improvements to a 1 km stretch of this Agency-owned landholding have been phased over two years, and take into account the needs of disabled people, young families and wildlife alike. Local people were consulted on the proposed access improvements through a public meeting and preparation of a questionnaire. The contents of the Agency-produced site management plan were discussed at the meeting, ensuring that the interests and concerns of the local community were addressed, before work started.

Phase 1, completed over a three-month period at the end of 1998/99, included footpath resurfacing together with passing places for wheelchair and pushchair users, regrading of access points, and the installation of two vandal-proof benches and motorcycle barriers. It also included thinning and pollarding of willows in order to improve public access to the river corridor, and to enhance its amenity and wildlife value.

The improved riverside walk now provides a safe and accessible route for pedestrians, wheelchair users and families.

Phase 2, to complete the 1 km section, will also link the path to the existing public rights of way network, and will be completed by March 2000.



Footpath restoration alongside the Duke of Northumberland's river - After



Before restoration

Tidal Thames archaeology survey

Since the 19th century thousands of ancient artefacts have been recovered from the River Thames. The finest examples of these provide the centrepieces of displays at both the Museum of London and the British Museum. Until the inception of the Thames Archaeological Survey (TAS) in 1996, however, no attempt had been made to provide a context for these finds by identifying and recording the archaeological materials exposed on the foreshore at low tide. Over a three-year period, from 1996/7 to 1998/9, the TAS team (supported by the Museum of London, English Heritage, University College London and numerous local archaeology groups), carried out a baseline archaeological survey of the tidal Thames from Teddington to Rainham and Erith, a distance of 60 kilometres. The survey methodology incorporates various linked levels surveys, ranging from primary reconnaissance identifying the approximate locations of features, to detailed studies including "carbon 14" dating and dendrochronological studies. Information from the survey is being compiled on Geographical Information System (GIS) and is proving invaluable to the Agency and planning authorities when commenting on the impacts of proposed foreshore and riverside developments.

Already TAS has shown that the river is constantly eroding numerous archaeological sites from the foreshore. These sites are vital to the study of the river's development, from both a landscape and an ecological point of view, as well as providing information on the maritime history of one of the busiest and most profitable waterways in Europe. An example of this is where the city now stands: the river was once over a kilometre wide, with several islands located on the south bank. The stumps and branches of woodland that which grew on these islands, around 5,000 years ago, are currently exposed and eroding out of the Southwark and Bankside foreshores. This information has been used to help recreate historic habitats such as the alder woodland at the World Wildlife Trust Barn Elms Centre, and gives an insight to changing sea levels and the impacts of river encroachment. Discoveries include the well-preserved remains of prehistoric forest and marshland, medieval fish traps, jetties (including those serving the Tudor's royal palaces at Richmond and Greenwich), wharves, flood defences, stairs, causeways, landing stages and hulks of ships. These finds illustrate the diversity of activities that took place along the Thames over thousands of years and thus demand a truly collaborative and multidisciplinary approach. This approach has been achieved by the partnership of the Environment Agency, the Museum of London and the TAS team, who have jointly created a unique and innovative community-based project which is already making an outstanding contribution to the archaeology of the Greater London area. The project has also increased public awareness through an educational CD ROM, "London's Thames", about the living and working river, "Low Tide London", an activity event on the foreshore, and the Museum of London's "Archaeology" exhibition, on the ecology and archaeology of the Thames. As a result, there has been increased participation of local people undertaking the surveys and a greater general interest in the Thames.



Remains of a 19th century leeboard barge at Rotherhithe



A Neolithic "beater" c.3000 BC found on the foreshore at Chelsea – possibly used for clubbing fish



Environment Agency Wales

The Freshwater Pearl Mussel Survey

In 1997 surveys of a number of rivers were undertaken by the National Museum of Wales for the Countryside Council for Wales, to determine the status and distribution of the freshwater pearl mussel (*Margaritifera margaritifera*) in Wales. The results of this survey showed that the only significant viable population was that in the Afon Eden, the other rivers having few individuals and no evidence of recruitment. The survey of the Tywi yielded no living mussels.

Surveying associated with the Site of Special Scientific Interest (SSSI) notification in late 1997 yielded a freshly dead mussel, and in February 1998 the area Conservation Recreation & Navigation Officer discovered a live specimen washed up on a shoal soon after flooding, together with a number of empty shells. This information indicated that further investigation would be merited. A collaborative study involving Environment Agency Wales, the Countryside Council for Wales and the National Museum and Galleries of Wales was initiated, to provide baseline data on the status of *Margaritifera* on the River Tywi and to determine whether or not viable populations survived in the river. The survey concentrated on river habitats considered suitable for the species. Searching was carried out by wading in the river wearing drysuits and aided by the use of glass-bottomed boxes. The survey, which attracted considerable media attention, confirmed that the lower end of the Tywi above Carmarthen supports a small population of mussels. Unfortunately only 30 living individuals were located, all very large adults considered to be at least 60 years old. The absence of any individual less than 100mm long suggested that there had been no recruitment for at least 40 years. The prospect of survival of this senescent population would appear to be very limited.



Surveying for freshwater pearl mussels on the River Tywi using glass bottomed boxes

The Talgarth Trust Project

A collaborative project involving Environment Agency Wales, Brecon Beacons National Park, Brecknock Wildlife Trust and the local interest groups of Talgarth is enabling Talgarth Trust to improve the once industrial heart of Talgarth. The project area, known as the "Rocks", is a wooded site at the meeting of the rivers Ennig and Ellwye. This conservation area is home to kingfisher, dipper and otters, fossil relics, 400-year-old volcanic "ash" and the remains of a mill leat trench that once powered Talgarth's Mill. The project aims are to manage the woodland for wildlife, ensure public safety, restore the course of the old mill leat and provide information on the area's natural history, geology and industrial past.

Environment Agency Wales has helped fund the first steps of the project by meeting the costs of tree management needed to make the site safe and by providing bird and bat boxes for the site which the children from Talgarth Primary School helped erect.

The Afon Ogwen Rehabilitation Project

In its upper reaches the Afon Ogwen is a high-energy mountain river. It flows through the Nant Ffrancon valley in the Snowdonia National Park and is part of the Glydeiriau Site of Special Scientific Interest (SSSI). The river is the main outflow from Llyn Ogwen, from which it flows northwards over Rhaeadr Ogwen (Ogwen Falls) into a flat-bottomed U-shaped glacial valley 100m below. Downstream sediment transport is limited as upstream material is deposited in the lake.

In the 1960s the river in this area was dramatically changed in a general programme of works designed to improve the drainage of the flood-plain farmland. The river was dredged using two draglines, and boulder riffles, cascades, fords and stepping stone obstacles were removed and used to create levees. As a result of these works, all in-stream and immediately adjacent riparian habitats were destroyed. This in turn badly affected the brown trout fishery, salmon recruitment and populations of in-stream plants and animals, including the rare freshwater pearl mussel (*Margaritifera margaritifera*). The beauty of the valley, which is internationally recognised for its glacial history, was spoilt by piles of rubble on both banks. Subsequent drainage works carried out on the flood-plain lowered the water table, which damaged the high-quality (SSSI) mire habitats and caused the loss of a large wintering population of whooper swan (*Cygnus cygnus*). In early 1997 a partnership was developed between the Environment Agency, the River Restoration Centre (RRC), the National Trust and the Countryside Council for Wales to promote a restoration project on the upper section of the river in the Nant Ffrancon valley. A "vision" document was prepared, which identified three river reaches for rehabilitation within a 4km section of the river valley flood-plain area.

The first reach to be targeted for rehabilitation was a 990m length of river downstream of Rhaeadr Ogwen. The river here was cutting down into the flood-plain sediments and there was evidence of high rates of river-bank erosion. Rehabilitation work started in summer 1998, with the Agency as the main funding partner.

The rehabilitation involved:

- careful excavation to reveal the historic river banks;
- sorting debris on the river banks which had previously been dredged from the river channel and carefully returning it to the river to raise the bed level by an average of 1m (up to 2 m in places);
- recreating boulder riffles, cascades, gravel features, stepping stones, islands and a ford in the river, according to historical records of their location.

The works on the river have been integrated into a wider habitat management plan for the flood-plain. A key component of this plan is a series of measures to reduce erosion of the river banks and surrounding land. These include agreements between the Countryside Council for Wales, land tenants and the National Trust as landowner on the position of fencing relative to the river, hill slope drainage ditches, woodland regeneration and limiting stock access to the river banks.



Freshwater pearl mussel (*Margaritifera margaritifera*)

Alien weed control on the Gwent Levels

Attempts on the Gwent Levels to control floating pennywort, an alien weed which can grow up to a foot in one day, appear to be having an effect, following work by Environment Agency Wales and other environmental bodies. If action had not been taken, the weed threatened to smother some of the nationally important wildlife found in the Levels' network of ditches, which are unique in Wales. This species, native to North America, was discovered in Broadway and Drenewydd reens, or ditches, near St Mellons around four years ago. Many of these ditches are Sites of Special Scientific Interest for the plants and animals found in the ancient drainage system. Since the floating pennywort was discovered, Environment Agency Wales has worked with the Countryside Council for Wales and the Caldicott and Wentlooge Levels Drainage Board to eradicate it from the ditches.

As its name suggests, the floating pennywort grows as free-floating colonies. Fragments of the plant with their round leaves can easily break away and establish in new areas. Following well-planned boat and bankside surveys to identify the extent of the affected area, this year ditches were cleaned of the weed before being sprayed with an appropriate herbicide and monitored. This seems to have controlled its rapid expansion.



Floating pennywort – an alien weed under control on the Gwent Levels



Regional Project Information

The following tables highlight

1. The number of recreation and conservation projects undertaken by each region

Project Information	No. of Recreation Projects completed	No. of Conservation Projects completed
Anglian	11	25
Midlands	11	64
North East	3	32
North West	5	16
Southern	16	55
South West	15	54
Thames	18	47
Wales	8	21
Total	87	314

Project Information	No. of new Agency capital work schemes incorporating Recreation work	No. of new Agency capital work schemes incorporating Conservation work
Anglian	3	8
Midlands	70	34
North East	7	21
North West	5	11
Southern	25	32
South West	2	4
Thames	12	22
Wales	2	3
Total	126	135

2. The number of new initiatives undertaken incorporating recreation and conservation as part of capital works schemes

3. The number of recreation and conservation projects undertaken in collaboration with external organisations

Project Information	No. of completed Recreation Projects involving external collaborations	No. of completed Conservation Projects involving external collaborations
Anglian	11	25
Midlands	11	61
North East	3	25
North West	5	16
Southern	16	55
South West	18	57
Thames	11	46
Wales	7	19
Total	82	304



Regional Site Information

The following tables highlight

1. The number of recreation sites in use and those with potential for development

Site Information	Recreation Sites in use	Recreation Sites Future use
Anglian	167	263
Midlands	43	11
North East	204	233
North West	18	12
Southern	42	31
South West	45	1
Thames	57	10
Wales	25	2
Total	601	563

Site Information	Conservation Sites In use	Conservation Sites Future use
Anglian	75	367
Midlands	24	7
North East	136	329
North West	35	2
Southern	35	35
South West	38	11
Thames	40	17
Wales	7	9
Total	390	777

2. The number of conservation sites in use and those with potential for development

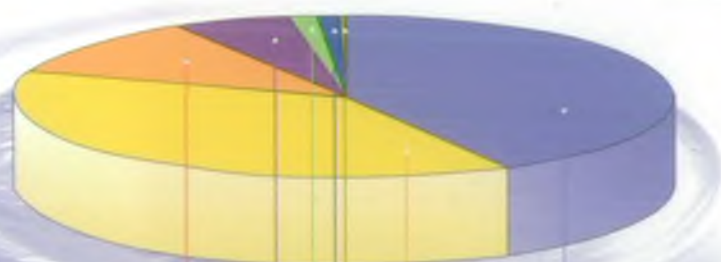
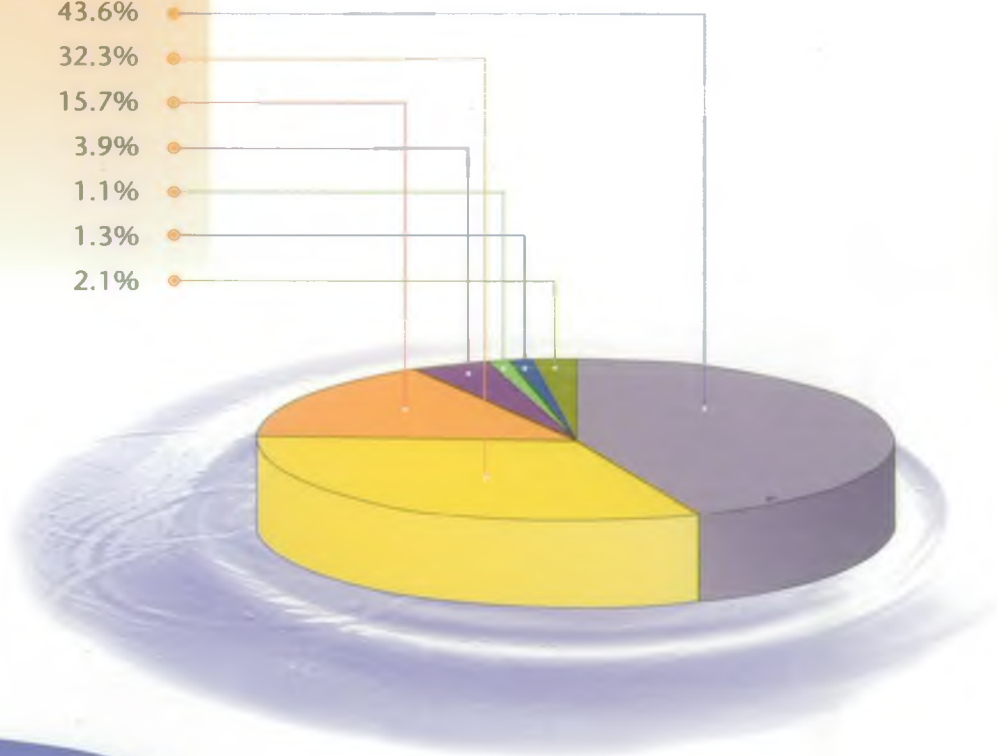
3. This final table indicates the number of planning applications and capital works programs screened for recreation and conservation plus completed River Habitat Surveys

Screenings	No. Planning applications, Agency consent applications and capital works screened for recreation implications	No. Planning applications, Agency consent applications and capital works screened for conservation implications	No. River Habitat Survey Sites completed
Anglian	1,968	2,250	592
Midlands	3,803	3,803	6
North East	1,929	2,537	29
North West	959	2,726	177
Southern	4,087	2,326	219
South West	1,694	4,087	208
Thames	187	2,304	65
Wales	2,173	2,753	290
Total	16,800	23,056	1586



National Information

National Information	Agency Expenditure
Flood Defence	43.6%
Environmental protection	32.3%
Water Resources	15.7%
Fisheries	3.9%
Navigation	1.1%
Conservation & Recreation	1.3%
Other Items	2.1%



National Information	Staff levels	
Environmental protection	4,027	42.0%
Flood Defence	3,608	37.6%
Water Resources	1,138	11.9%
Fisheries	548	5.7%
Conservation	135	1.4%
Navigation	97	1.0%
Recreation	43	0.4%



National Information

The following tables provide information about the facilities and designations on Agency owned sites

Rights of Way on Agency Sites	
Public Footpaths	344
Bridleways	39
Permissive Paths	114

Designations on Agency Sites	
National Trail	44
Regional Trail	32
Country Park	4
National Park	11
AONB	29
Heritage Coast	2
SSSI	128
SNCI	85
NNR	7
LNR	11
RSPB Reserve	2
Ramsar Site	29
Country Trust Reserve	17
SPA	29
SAM	8
SSAI	6
SIHI	1
Listed Buildings	5

Amenities and Facilities provided on Agency Sites	No. of sites where each facility can be found	Those sites suitable for disabled use
Footpaths	477	67
Car parks	71	14
Picnic Facilities	22	9
Information/Visitor Centres	8	4
Interpretation Boards	45	22
Toilets	40	12
Viewpoints	15	7
Playgrounds	2	0
Cycle Trails	18	3
Campsites	13	1
Fishing Lodges	1	0
Fishing Platforms	238	42
Clubhouse	9	1
Nature Trails	7	1
Bird Hides	12	3
Boat hire	2	0
Slipways	18	0
Moorings	177	18



Leaflets and Publications

Head Office

Conservation

River Habitats in England & Wales – River Habitat Survey, Report No.1, March 1996
A Guide to Identifying Freshwater Crayfish in Britain and Ireland
Guidance for the Control of Invasive Plants near watercourses
Conservation Action Plan
Phytophthora Disease of Alder
River Life (from Source to Sea)
Hormone Disruption in Wildlife
Pond Heaven: Creating a pond
Conservation, Access and Recreation Annual Report 1997/1998

Fisheries

Fisheries Management booklets:
Water Plants
Useful Information for Angling Clubs
Stillwater Coarse Fisheries
Fisheries habitat improvement
Environments for fish
Desilting Stillwaters
Freshwater Fisheries & Wildlife Conservation
National Rod Licences leaflet (1998 –1999)
REEL Life – magazine for Anglers
Catch and Release – Your Guide to Stocking Fish
Fisheries Action Plan
Buyer Beware – Handling & Purchase of Salmon and Sea Trout
Anglers and the Agency
Angling and Wildlife Golden Rules
Coarse Fish Strategy
The Salmon Angler

Navigation

Navigation Newsletter – Riverviews
Navigation Function Action Plan
The Environment Agency Navigations
A Boater's Guide to navigation signs on Agency navigations

Recreation

Have Fun, Have a Care – information for river canoeists
Recreation Action Plan
Conservation, Access and Recreation Annual Report 1997/98
Agreeing Access to Water for Canoeing

Anglian Region

Fisheries

Fisheries Byelaws
Your Complete Guide to Fishing in the Anglian Region – Rivers & Stillwaters (produced with Angling Times)
Angle: A magazine for anglers

Conservation

Conservation in Anglian Region
East Anglian Salt Marshes
Rivers Environmental Database System
Coastal Wildlife Survey

Recreation and Navigation

Waterways – A code of conduct
Navigation in the Anglian Region
Navigation – The Anglian Experience
Map –Navigation in the Anglian Region

North East Region

Conservation

Understanding River Erosion – from a Conservation perspective
Tees Estuary present & future
Conserving the Hills & Uplands

Fisheries

Angling Guide for North East Region
Catch – A magazine for anglers
Fisheries Byelaws – North East Region

North West Region

Conservation

Sustainable Rivers
Rural Land Use
Conservation in the North West
River Valley Initiatives
Conservation and Recreation Annual Report 1997
Conservation and Recreation Annual Report 1998
Fisheries Annual Report 1998

Fisheries

Catch – A Magazine for Anglers
Fisheries Byelaws summary
Fisheries in the North West

Midlands Region

Conservation

Conservation work in the Midlands region

Fisheries

A Guide to Rod Fishing Byelaws
Fisheries News
Fishing Guide – Midlands Region
River Soar and Wreake Angling Guides

Recreation

The Severn Way
The Severn Bore and Trent Aegir 1998
Recreation Sites –Midlands Region
Hafren Forest Walks



Leaflets and Publications

Southern Region

Fisheries

News Reel for Anglers newspaper
Fisheries Information leaflets – 19 various subjects

Recreation and Navigation

Guide to the Medway Navigation
The Medway Navigation
Harbour of Rye
Guide to the Harbour of Rye
Rivers of the New Forest
River Hamble fact file
River Arun fact file
Cuckmere River fact file
River Adur fact file
River Darent & Cray fact file
Pevensey Levels fact file
Pevensey Newsletter
Recreation Action Plan
Guidelines for Navigators & Anglers

South West Region

Conservation

Safeguarding Somerset Levels and the Moors
Preventing the spread of crayfish plague in the South West
Teffont Stream – How you can help your local river.
Enhancing the River Otter
The Huntspill River National Nature Reserve
Somerset Levels and Moors water level management action.

Fisheries

Angling Guide – Get Hooked
The River Tone and the Riverside Development (Hankeridge Farm)
Hum Weir Fish Pass

Recreation

Enjoy your garden

Thames Region

Conservation

Pinkhill Meadows Nature Reserve
Invertebrate Animals of the Tidal Thames
River Ash Enhancement Project
The Mink and the Water Vole – Analyses for conservation
Rat Control and Water Vole conservation
Water Vole Recovery Project – Guide for Landowners
Thames Regional fact file – Conservation

Fisheries

Fisheries Byelaws 1998
Angling Guide
Newscast – Fisheries Magazine
Fisheries Byelaws
Thames regional Fact file – Fisheries
Fish Found in the Tidal Thames

Navigation

A User's Guide to the River Thames
Cruising on the River Thames – A Boating Guide
Locks and Weirs on the River Thames – how do they work?
Narrowboats on the Thames – useful hints and tips
Thames Navigation Byelaws
The Thames Navigation General and Licensing
Byelaws – An Introduction
The Royal River Thames
Thames Region Fact file – Navigation

Recreation

Beane Valley Walk
Ver Valley Walk
Hill's Meadow Riverside Trail
Thames Down Link
England's River: the attractions
England's River: the sporting and leisure life of the river
Camping beside the River Thames
Discovering the Marshes (Crayford)
Investigating the River Ravensbourne

Environment Agency Wales

Conservation

Freshwater Fisheries and Wildlife Conservation – A good practise guide (with CCW and English Nature)
Allis and Twaite Shad – A conservation message
Tryweryn Otter Trail

Fisheries

Glas-Y-Doran (regional fisheries magazine)
Environment Agency Salmon and Trout Catch Statistics (1997)
Catch and Release – A Guide to Careful Salmon Handling
Rod Fishing Byelaws – A Guide to Anglers
Angling Guide for the Rivers Dee and Clywd 1996–1997
Maerdy Salmon Hatchery
Stocking of Trout Waters – guidelines for angling clubs and fisheries owners
Freshwater Fisheries and Wildlife Conservation guidelines
Fisheries Habitat Improvement (series of 6 booklets)
Fishing Wales – Collaboration with Wales Tourist Board
Welsh Coarse Fish Strategy – Implementation Plan

Recreation

Canoeists guide to the River Wye
Calendar of major events of the River Wye

CONTACTS:

THE ENVIRONMENT AGENCY HEAD OFFICE

Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS32 4UD.
Tel: 01454 624 400 Fax: 01454 624 409

www.environment-agency.gov.uk
www.environment-agency.wales.gov.uk

ENVIRONMENT AGENCY REGIONAL OFFICES

ANGLIAN

Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: 01733 371 811
Fax: 01733 231 840

SOUTHERN

Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: 01903 832 000
Fax: 01903 821 832

MIDLANDS

Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel: 0121 711 2324
Fax: 0121 711 5824

SOUTH WEST

Manley House
Kestrel Way
Exeter EX2 7LQ
Tel: 01392 444 000
Fax: 01392 444 238

NORTH EAST

Rivers House
21 Park Square South
Leeds LS1 2QG
Tel: 0113 244 0191
Fax: 0113 246 1889

THAMES

Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: 0118 953 5000
Fax: 0118 950 0388

NORTH WEST

Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653 999
Fax: 01925 415 961

WALES

Rivers House/Plas-yr-Afon
St Mellons Business Park
St Mellons
Cardiff CF3 0EY
Tel: 029 2077 0088
Fax: 029 2079 8555



ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

0845 933 3111

ENVIRONMENT AGENCY FLOOD LINE

0845 988 1188

ENVIRONMENT AGENCY EMERGENCY HOTLINE

0800 80 70 60



**ENVIRONMENT
AGENCY**