

North West recreation, biology & conservation annual report 2001/02

North West Recreation, Biology & Conservation
Annual Report 2001/02



ENVIRONMENT
AGENCY

Published by:
Environment Agency
Richard Fairclough House
Knutsford Road
Warrington
WA4 1HG

Tel: 01925 653999
Fax: 01925 415961

ISBN 1844320529

© Environment Agency

All rights reserved. No part of this document may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the Environment Agency.



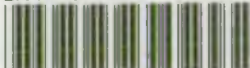
ENVIRONMENT AGENCY

NATIONAL LIBRARY &
INFORMATION SERVICE

NORTH WEST REGION

Richard Fairclough House
Knutsford Road
Warrington WA4 1HG

ENVIRONMENT AGENCY



111828

NORTH WEST CONSERVATION, BIOLOGY AND RECREATION REPORT 2001/2

Contents

Agency ecology and recreation staff	2
Introduction	3
Regional overview	4
North Area	8
Central Area	27
South Area	36
Appendix:	45
Conservation Resources in the North West	

AGENCY ECOLOGY AND RECREATION STAFF 2001/2

Regional FER

FER Manager – Mark Diamond
Regional Ecologist – Karen Williams
Regional Biologist – Keith Atkinson
Regional Landscape, Heritage Officer – Dermot Smith
Regional EIA Co-ordinator – Cath Sanders
Regional Fisheries Officer – Miran Aprahamian
Regional Recreation Officer – Lindsey Powell
Planning and Performance Manager – Dave Nelson
Technical Support Officer – Ken Watson
Habitats Directive Co-ordinator – Sarah Peet

North Area

Acting Fisheries, Ecology and Recreation Manager: Steve Garner

Area Habitats Directive Officer - Mike Harrison

South Cumbria

Team Leader Fisheries and Recreation - Liz Black
Acting Team Leader Ecology (Area Conservation) - Judith Bennett
Ecologist Level 1 - Brian Ingersent, Neil Coates
Ecologist Level 2 - Rhian Thomas

North Cumbria

Team Leader Fisheries and Recreation - Keith Kendall
Team Leader Ecology (Area Biology) - Ray Prigg
Ecologist Level 1 - David Scott, Liz Oliver, Rachel Harding
Ecologist Level 2 - Gary Rushworth

Central Area

Team Leader Fisheries and Recreation – Steve Whittam
Ecology Team Leader - Neil Guthrie
Ecology Scientist - Ed Mycock
Ecologist Level 1 - Helen Hamilton (until Jan 2002), Jeremy James (Until 12/01), Anna Dunstan (from Aug 2001) Alice Steventon(from Aug 2001), Bernadette Lobo, Derrian Luty (on secondment), Kate Cox (until June 2001), Kath Charles (until Oct 2001) Paul Thomas (from March 02)
Ecologist Level 2 - Georgina Kearsley, Derrian Luty (when not on secondment)
Area Habitats Directive Co-ordinator - Sarah Pemberton

South Area

West Team Leader - Graham Fitzgerald
L1 Andy Goodwin, Rob Mc Hale, Nicki Rushton
L2 Ecologist – Christie Webster
Fisheries scientists in team are Jon Hateley and Katherine Causer

East Team Leader - Gill Dent

L1 Gary Morris, Paul Breslin
L2 Mark Wiseman
Fisheries science Dawn Grundy and Chris Harrod
Habitats Directive Co-ordinator – Nicola Lord

INTRODUCTION

This report provides a brief overview of the work and major issues in the Region over the 2001/2 financial year. The regional overview that follows this introduction gives an outline of the key work areas of national or regional significance. Later sections provide details of some projects undertaken to benefit the wildlife and people of the North West.

For operational purposes, the North West Environment Agency is structured along functional lines to deliver the aims and duties which underpin our environmental responsibilities. The conservation function is incorporated with biology into ecology, with fisheries and recreation being separate. The Fisheries, Ecology and Recreation, (FER), teams deliver this service locally on the ground. The FER function works closely with other Agency functions such as Water Resources, Flood Defence and Environmental Protection to ensure that conservation and sustainability duties are furthered and this collaboration provides many benefits. For example, ecologists will advise flood defence engineers on the possible impact of flood defence engineering works and ways to incorporate features that will enhance wildlife and promote recreation. The same is true of water resources work. Because conservation and recreation work in the North West region is funded mainly by recharge to other Agency functions, there is little capital money for improvements.

It is therefore very important that features that will enhance conservation and / or recreation are incorporated into other Agency project plans at an early stage in the planning of such projects. Such co-operation is possible because the duty to promote conservation and recreation goes across all functions.

We hope that you find the report interesting and informative.

The Agency also produces a Fisheries Annual report that highlights some of the work done by fisheries staff to maintain, improve and develop fisheries in the North West region. Copies may be obtained from the address below.

The Agency would welcome any comments and suggestions that could be used to further improve the report.

Please address any queries or suggestions for improvement to:

The Regional FRCN Manager
Environment Agency
PO Box 12
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653999

REGIONAL OVERVIEW

Conservation

In the region we continue to be heavily involved in Local Biodiversity Action Plans for Cumbria, Lancashire, North Merseyside, Greater Manchester, Wirral and Cheshire. These are being implemented through technical groups, with Agency representation. Groups are supported by the North West Biodiversity Forum through co-ordinators meetings arranged by English Nature to share best practice and promote consistency with national action plans. New projects for 2001/2, to support Agency BAP actions include those for natterjack toad, crayfish, and ponds. Many other actions have been supported through operational activities and ongoing projects such as the pilot National Biodiversity Network, Record and Meres and Mosses Conservation Plans.

The Agency in the region, with its regional partners, has successfully influenced the Regional Planning Guidance to strengthen the role of biodiversity and improve protection for non-statutory sites. As we move towards a risk-based approach to dealing with applications, promoted in the planning green paper, we will be making further use of our constraint maps and standing advice being prepared, for example, on ponds.

Towards the latter end of the year the Agency, with regional partners helped to set up a pilot facilitation service with regional partners aimed at increasing the uptake of England Rural Development Plan grants from DEFRA, specifically in the area of 'protection of the environment' and 'agricultural water resources'. The 'Best Farming Practice' techniques are being promoted to landowners through this project.

It is important to note that much project work in Cumbria and Lancashire had to be suspended during 2001/2 due to Foot and Mouth disease. Advice on the safe disposal of disinfectant was given for many licences.

Recreation

During 2001/2, we achieved significant successes in securing partnership funding for a number of recreation projects. Our key theme has been to work with various partners to improve access and interpretation throughout the region. We have contributed to a number of projects including interpretation boards at local nature reserves and restoration of multi-user access paths. In addition to this, funding has been used for the construction of angling pegs and interpretation boards around the Region's fisheries. We have also funded work to identify opportunities for sustainable recreation and improving quality of life for urban communities, within river corridors. We continue to have a good working relationship with our major partners and are currently working with British Waterways on a number of projects. The Agency has contributed towards a visitor and education trip boat on the Anderton Boat Lift. The craft will have both interpretation and multi-lingual headphones available to tell the story of the Lift, and its relationship with the Weaver Navigation. Agency staff are playing a key role in the transformation of Manchester for the Commonwealth Games. We are helping local communities get reacquainted with their local facilities by promoting urban fisheries, cycles routes and waterside walks. We are also supporting British Waterways' Aquafest 2002 programme and are producing a leaflet with the Manchester Waterways Initiative, to try and encourage people down to the waterside and raise the profile of water based recreation.



Castlefield Basin, Manchester - Where the River Medlock becomes canalised



Cotteril Clough boardwalk project

The aim of the project was to improve access throughout this SSSI site by replacing rotten boards and extending the existing path



After the completion of works



Sale Water Park

Agency owned flood storage basin, used for many activities including water-skiing, sailing, windsurfing and walking. Currently leased to Trafford Borough Council



Sale Water Park



Arrowe Country Park – Before and after access improvements

The aim of this project was to provide more fishing pegs and increase the quality and quantity of access around the lake. Agency funding was used in conjunction with LA21 money to fund the works.



A part of the Cheshire Signage project

Recreation funded a number of interpretation boards throughout the county. The recreation function has an important role of increasing public awareness of recreation benefits through interpretation and liaison with external partners. For many members of the public, the only way they come into contact with our activities, or improvements we make, is through recreation.

EIA, Landscape and Heritage Overview

- Summer time is always a busy period as many of the capital flood defence schemes that require work are usually programmed to be built then. It is assumed that these months will be drier than the winter. However, last year the Foot and Mouth outbreak meant that large capital schemes in Littleborough and at Preston were delayed which meant having to work later in the year than planned when the weather is less kind.
- Head Office produced a new set of guidelines for the production of Environmental Impact Assessments and these have undergone a wide consultation with significant comments made by North West Region. Further to this we have played a key role in revising these drafts. The final guidelines will be issued shortly.
- The FMD outbreak also occurred just when some fieldwork on the Tame, Goyt and Etherow Archaeological survey was due to be finished and we had to delay the work for almost a year. We now have a complete archaeological survey of the main rivers in this catchment as well as the Mersey Bollin that was carried out just a couple of weeks earlier.
- When carrying out tree planting it is essential to carry out weed control around the base of newly planted trees. Transplanted trees will have suffered some shock when transplanted and lost much of their root system. When planted into an existing grass sward they find it very difficult to compete with the grass and

many die, while others hang on but do not grow. There should be a three-year weed control programme to maintain a 1 metre square around the base of each tree until it is established. We use either physical mulch like wood chips or chemicals whichever is the most appropriate. However, FMD meant that several of our schemes that required chemical application could not be done.

Biology

Biological work is at the core of the Agency's integrated approach to environmental monitoring and assessment. Although much of this work is currently focussed on aquatic systems, national and international commitments (e.g. the European Union's *Habitats Directive*), may require the Agency and its associates to develop atmospheric and terrestrial monitoring programmes.

In terms of aquatic monitoring, biological work can be divided into two types: routine and non-routine. Routine work is largely driven by national and international commitments (e.g. *Urban Waste Water Treatment Directive*) and government requirements (e.g. *The State of the Environment* reports). Non-routine work is generally driven by the need to respond to local problems (e.g. pollution investigations).

In the next four years the European Union's *Water Framework Directive* will put ecological assessment at the heart of the Agency's monitoring programme and help channel investment into further improving the quality of our inland and coastal waters. Work is currently underway to translate the Directive's environmental objectives into 'real, measurable standards'. As part of this process the Agency has produced a consultation document for all interested parties (*The Water Framework Directive: Guiding Principles on the Technical Requirements, June 2002*). Responses will feed into a second 'technical issues paper' to be published next year. The Directive is due to be transposed into domestic law in 2003.

The past year has seen the continuation of *Catchment Abstraction Management Strategies* (CAMS) which are measures to manage water resources more effectively. Implementation of these strategies will require assessments of:

- macro-invertebrates (e.g. mayfly larvae & shrimps);
- aquatic plants;
- fish; and
- physical characteristics of watercourses.

These four components are assessed in relation to their water flow requirements, to help determine sustainable levels of water abstraction. The CAMS teams are in the process of producing consultation documents, and supporting technical documents (available on request as a CD-ROM or as hard copy from your local Agency office). The specific publication dates for these documents are provisional and are listed below:

- Sankey and Glaze (South Area office)- early to mid-September 2002
- River Douglas (Central Area office)- early October 2002
- Rivers Leven & Crake (North Area office)- early October 2002

The next round of CAMS assessments will include: the rivers Tame, Etherow and Goyt in South Area; the River Lune in Central Area; and the River Kent in North Area.

Key achievements for biology in 2001/2002 included:

- North-West sites were put forward for the European inter-calibration exercise for the *Water Framework Directive*;
- New version of the national biology database successfully released and new reporting systems developed for North-West Region; and
- First round of postgraduate research (by the University of Manchester) into serious blue-green algae problems at Hollingworth Lake, Greater Manchester was completed.

NORTH AREA

CONTENTS

	Page No.
FOOT AND MOUTH DISEASE	9
<ul style="list-style-type: none">• Involvement in regulatory activity to protect the environment• Impact on fieldwork programme and routine monitoring• Biological quality of Cumbrian rivers when monitoring resumed	
HABITATS DIRECTIVE	10
<ul style="list-style-type: none">• Review of consents• Marine SACs Update• Hydrological assessment of raised mire SACs in Cumbria• Spawning site characteristics and distribution of sea lamprey in the River Eden• River Lowther Smolt trapping• LIFE River project• SIMCAT modelling	
BIODIVERSITY	17
<ul style="list-style-type: none">• Natterjack toad pond improvements• Ladyhall – new Natterjack Toad Pond• Cumbria BAP – Small Contingencies Fund• Great Crested Newt Project• Fish passage improvement schemes• Captive breeding of Bassenthwaite vendace	
FLOOD DEFENCE/WATER RESOURCES ISSUES	20
<ul style="list-style-type: none">• CAMS• Kent Estuary Study• Temple Sowerby Weir• Crayfish Rescue	
PARTNERSHIPS	23
<ul style="list-style-type: none">• Melmerby Pond• Crofton Lake enhancement	
PROMOTION	23
<ul style="list-style-type: none">• Participation in Groups• Public Information on Crassula problems• Arts in Trust Project• Introduction to angling in partnership with Cumbria Outdoors	
RECREATION AND ACCESS	26
<ul style="list-style-type: none">• Furness Greenways and Quiet Roads Feasibility	

FOOT AND MOUTH DISEASE

Involvement in regulatory activity to protect the environment

The Agency was first notified of foot and mouth disease (FMD) in Cumbria on the 28th February 2001. An incident room was set up and dedicated officers assigned to deal with FMD issues. The main role of Ecology during the first 8-10 weeks of the incident was in the risk assessment procedure for carcass disposal.

In North Area the Agency received 508 requests from DEFRA to undertake assessments for disposal of carcasses and ash on infected farms and premises. Under the Groundwater Regulations (1998) the Agency was required to undertake prior risk assessment of the disposals, authorise or refuse the disposal and put in place any necessary surveillance. The key role was to determine the risks to surface waters, ground waters and conservation sites.



Watchtree Fmd Mass Burial Site At Great Orton

Each request from DEFRA was usually accompanied by a map and grid reference showing the proposed disposal site and land ownership boundaries. Each site was checked on the GIS constraints maps for proximity to designated sites. A technical judgement was then made on any potential impact on sites with conservation importance. The method of disposal and numbers of carcasses to be disposed of as well as the conservation interest were taken into account in this assessment. If disposal was considered to be a potential issue with a statutory designated site eg SSSI/cSAC/SPA, EN were consulted. During the height of the incident English Nature staff worked at the Agency office in Penrith to reduce the turn around time and prevent any unnecessary delays. At other times the consultation was via phone and fax with EN providing office cover to match the Agency's 7am to 7pm, 7 day a week cover. In general the responses were rapid to fit in with the 3hr turn around target, though where problems were highlighted this process obviously took a little longer to reach a practical agreement. If concerns with respect to any designated site were raised by ourselves in Ecology or the local EN team every effort was made to remove or minimise the risk.

The risk to any designated site was dependant upon the features of interest for the site and the proposed method of disposal. For example, peatland sites were likely to be more threatened by atmospheric pollution from a burn site, whereas the riverine sites were more at risk from surface or ground water pollution which could potentially come from a burial site. In some cases the risk was considered too high and resulted in the animals being taken for render, in other cases burial was of less risk to the conservation interest than burn or vice versa.

The foot and mouth incident built on an existing good working relationship with our local EN team in Cumbria. Although there is limited information as to the impact of FMD on biodiversity it is hoped that the impact on designated sites and the wider countryside was minimised due to the input of the ecology department into the risk assessment process.

Once the initial requirement for emergency quick response had ceased, the ecology role was targetted to the disposal of disinfectant. Disinfectant disposal authorisations were also subjected to a risk assessment process. Ecology input involved highlighting designated sites and requesting buffer zones to protect these sites. 'Phase one' habitat maps were also checked for land use to enable us to highlight areas which may have good invertebrate populations, such as unimproved grassland, which may be adversely effected by disinfectant disposal.

Impact on fieldwork programme and routine monitoring

In general the FMD outbreak affected operational duties due to restrictions on access and the Agency's restrictions on staff movements in the affected areas. All routine biological sampling was withdrawn during the outbreak, as were any site visits associated with consents and licences. Some consents and licences were put on hold while others had to be refused as no assessment of impact could be made without a site visit.

A number of programmed ecology surveys and projects had to be postponed or cancelled due to FMD restrictions eg. water vole survey, West Cumbria otter survey.

Biological quality of Cumbrian rivers when monitoring resumed

Biological water quality monitoring activity was only resumed at selected locations from late October 2001 onwards, to bring up to date our knowledge of the quality of our rivers after the enforced break in monitoring, and particularly to document the state of our SAC designated rivers, and to address concerns about possible effects of disposal, disease control and disinfection procedures on river quality.

We reported on 102 river sites with a well documented history of biological quality recording based on macroinvertebrate samples, and did not find any evidence for any general or widespread decline in the biological quality of Cumbrian rivers coincident with the epidemic of Foot and Mouth disease.

Although there were 27 reported incidents of suspected pollution of surface waters with disinfectant between 12/3/01 and 19/9/01, and 16 documented reports of suspected pollution due to slurry spills between 26/3/01 and 14/9/01, we considered that our failure to subsequently pick up biological quality decline at monitoring sites implied that any impacts from these events were limited, localised and/or transient.

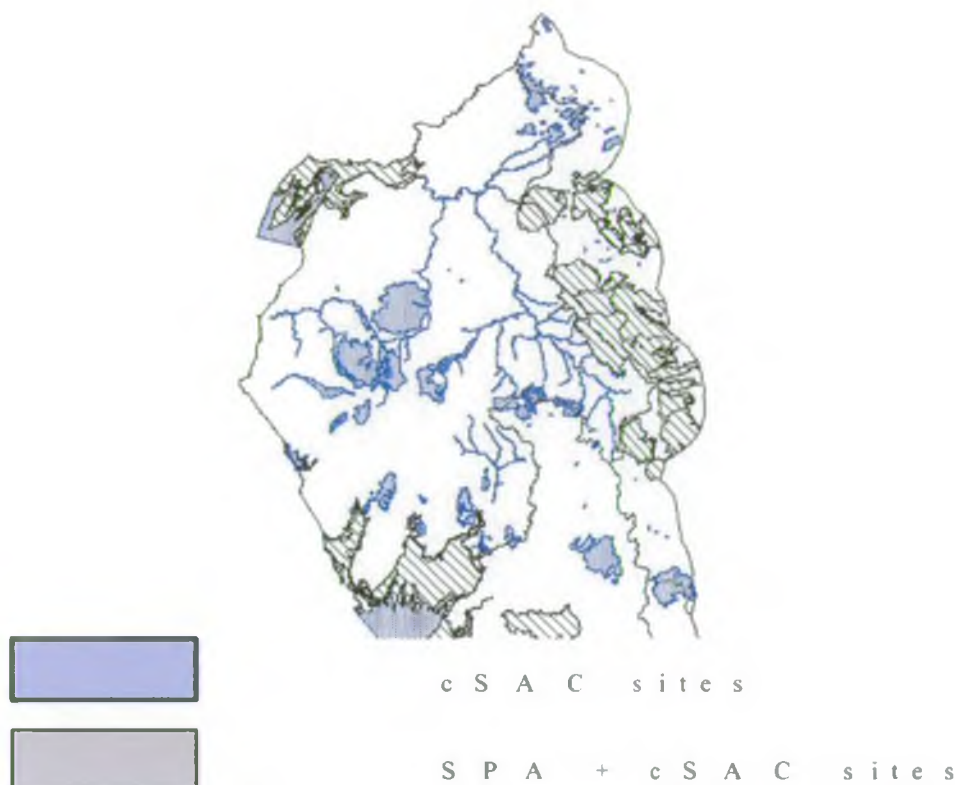
HABITATS DIRECTIVE

Review of consents

The work to review all existing Agency consents started in earnest this year. This process involves checking all the relevant consents and permissions that the Agency issues to third parties to make sure that they are not impacting on sites designated under the European Habitats and Birds Directives.

North Area has 33 such designated sites including several of the major river systems and all the estuaries from the Solway to Morecambe Bay. Consequently this is a huge task for the area and involves every function. To co-ordinate this process and ensure it moves along to timetable in a consistent way a new post was created within the area ecology team. Preliminary assessments have been undertaken on 15 of the sites including all those considered to be high priority.

As is required by the legislation these assessments have been passed to English Nature for consultation. Several of these assessments have been agreed with English Nature and signed off by both parties. Where necessary the Agency can now move forward to undertake more detailed site assessments where our consents could be having an effect on the wildlife features of interest.



THE ABUNDANCE OF NATURA 2000 SITES IN NORTH AREA

In addition to reviewing all relevant consents the Agency must ensure its own activities are not adversely affecting the designated sites. This mainly involves reviewing our flood defence activities and this work has also begun.

In many cases the Habitats Directive introduces new environmental requirements and these need careful consideration. To help fill gaps in knowledge and inform the review process the area has funded and managed a number of projects to the tune of around £150,000. The projects have included the construction of complex water quality models, investigations into the timing of salmon migration in relation to river flow patterns, hydrological investigations of raised bogs and tidal modelling of the River Kent estuary. These have been invaluable in helping us move forward in protecting these important wildlife sites.

Other initiatives this year include provision of training to area staff to ensure all those who need it have a basic understanding of the Habitats Directive and all it means for the Environment Agency. In addition the area has representatives on a number of national groups that are considering Habitats Directive issues and has been successful in influencing important policy areas.

Marine SACs Update

On 25th May 2001 English Nature issued their formal Regulation 33 advice for the Duddon Estuary European Marine Site, and the draft scheme of management was issued on 1st April 2002. The Agency has 21 management actions in the plan and are the lead authority for 8 of these.



Duddon Estuary SPA/Ramsar/SSSI

The Agency contributed to the first Relevant Authority Annual Report for the Solway Firth European Marine Site Management Scheme which was produced in draft in February 2002. The Agency has reported back for the first year of official reporting on actions in the management schemes.

Hydrological assessment of raised mire SACs in Cumbria

To comply with the requirements of the Habitats Directive the Agency needs to ensure that its own activities are not adversely affecting the features of nature conservation interest on Special Areas of Conservation (SACs)



Plastic Sheet Piling To Control Surface Water Movement On Meathop Moss

The Agency undertakes maintenance of some watercourses to reduce the risk of flooding to agricultural land, and maintain drainage standards. Some of these watercourses in Cumbria are in close proximity to important raised mire SACs. The mires require high water tables all year round in order to maintain the important bog vegetation and there is a question as to the impact of the drainage regime on this habitat.

To help answer this question the Agency has engaged consultants to assess the impact the drainage is having on the hydrology within the mires. This involves extensive fieldwork to measure flows from the mires into the maintained drains both as surface water and groundwater and assess whether this is significant in the overall hydrology of the sites. If there are impacts, the study will look at the Agency activities to see if the regime can be altered to protect the SAC while minimising the impact on land drainage of adjacent farmland.

Spawning site characteristics and distribution of sea lamprey in the River Eden

The River Eden is a candidate Special Area of Conservation and there are a number of species listed under this designation including all three lamprey species native to the Eden, the river lamprey (*Lampetra fluviatilis* L.), brook lamprey (*Lampetra planeri* B.) and sea lamprey (*Petromyzon marinus* L.). However, we have very limited information on these species either within the Eden or elsewhere. The purpose of this pilot study was to gather information on the spawning distribution of sea lamprey in the Eden and nest (redd) site characteristics.



Sea Lamprey Creating A Redd And, Inset, Close Up Of A Sea Lamprey

The majority of sea lamprey redds were found in the lower Eden and were concentrated between the villages of Wetheral and Warwick Bridge. However, small numbers of redds were observed as far upstream as Eden Lacy, more than 40 km upstream of the tidal limits of the Eden. Ten redds were examined to identify the typical conditions in which lamprey redds are constructed. Redds were created on areas of riffle at water depths of 32 to 62cm (mean 42.6cm) and water velocities of 0.5 to 0.8m.sec⁻¹ (mean 0.66m.sec⁻¹). Future studies will address the spawning distributions of lamprey species in the rivers Eden and Derwent (also a cSAC for lamprey species) and look in greater detail at the siting, structure and dimensions of these redds.

River Lowther Smolt trapping

In the spring of 2001 a rotary screw trap of North American design and manufacture was installed on the River Lowther. This device catches a proportion of descending salmon smolts (fully-silvered juvenile salmon) as they migrate downstream to sea and allows the Agency to estimate smolt production from this part of the catchment. In addition, this study was carried out to define the environmental requirements and timing of smolt emigration from the Lowther system, so that in the future water releases from Wet Sleddale and Haweswater and flow regimes on other streams can be established and targeted to facilitate this emigration.



Rotary Screw Trap On The River Lowther

A total of 5,972 salmon smolts were captured during the 2001 trapping study, the trap being deployed from March to September. A series of mark-recapture studies were carried out to determine trapping efficiency (i.e. the proportion of smolts captured in the trap against the proportion passing around the trap) and thus provide an estimate for the total smolt emigration for the River Lowther. The total number of salmon smolts emigrating from the River Lowther in 2001 was estimated at 18,837 fish. The data suggest that an increase in flow is important in stimulating smolt migration. In addition to salmon smolts we also captured salmon parr, juvenile and adult trout and sea trout smolts, lampreys, bullheads, minnows, eels, stoneloach and chub.

LIFE River project

The LIFE in UK rivers is a four year partnership project aimed at looking at ways of conserving rivers protected as Special Areas of Conservation (SAC) under the European Habitats Directive. The project is funded from the European LIFE-Nature fund and involves English Nature, Countryside Council for Wales, Scottish Natural Heritage, the Environment Agency and Scottish Environmental Protection Agency.

The project is aimed at setting in motion the actions needed to ensure that rivers designated as SAC's are safeguarded and managed in a sustainable way. The project covers five main areas:

- Determining the requirements of freshwater species and habitats
- Refining the techniques for monitoring SAC rivers
- Developing techniques to address the key conservation issues
- Producing SAC river conservation strategies
- Raising awareness and disseminating results

The River Eden is one of the seven rivers across England, Scotland and Wales chosen to represent different riverine habitats. The Agency have been contributing to the Strategy process by involvement in sub-groups set up to discuss the issues.



Ranunculus Flowering

The protocols and monitoring methodologies are being worked on this year due to the FMD restrictions in 2001. The main areas being looked at within the Eden are the crayfish survey and monitoring protocol, Water crowfoot community status and silt monitoring protocol.

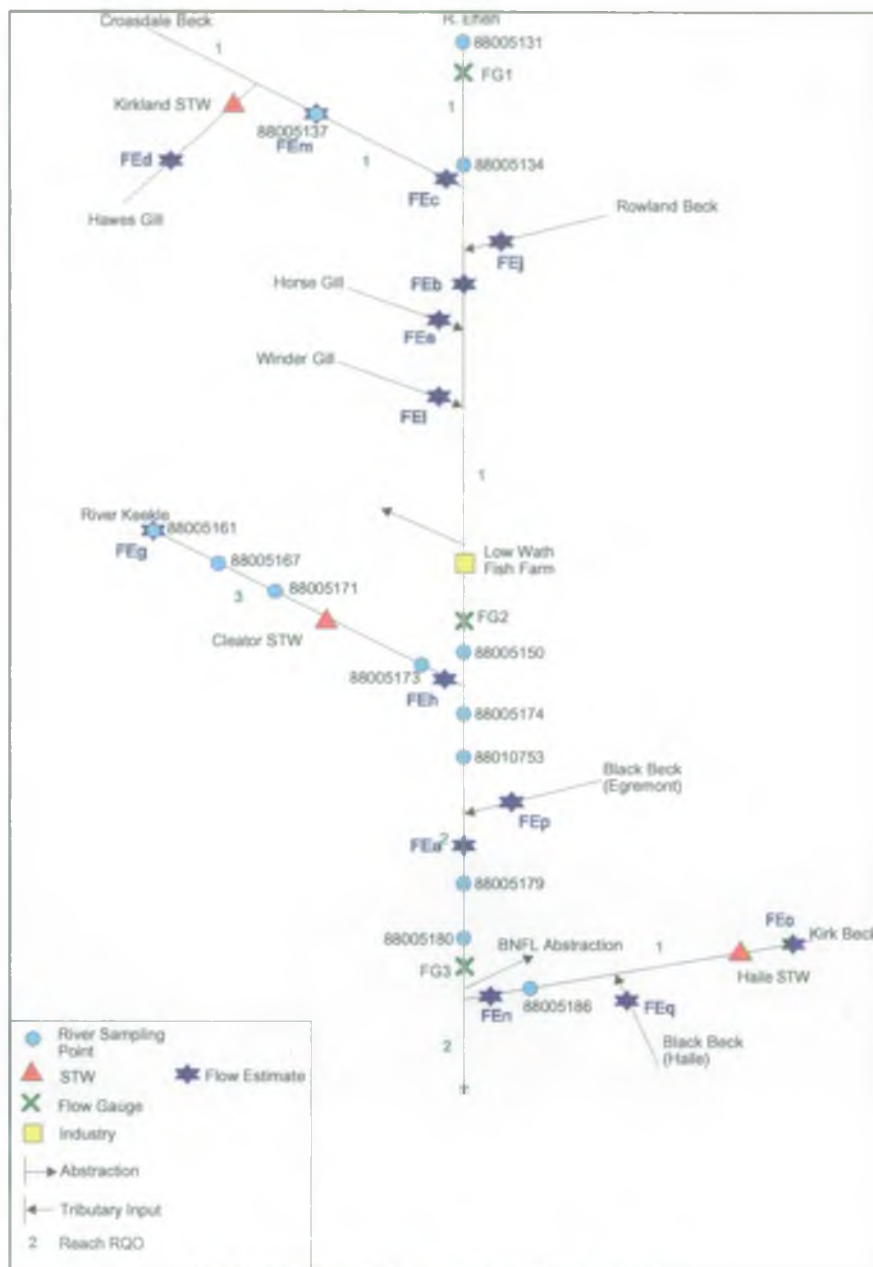
SIMCAT modelling

SIMCAT is an Environment Agency software tool which offers significant insight into catchment behaviour based on the use of existing routine monitoring of river and effluent quality for continuous discharges. SIMCAT is designed to produce stochastic results with identified confidence levels for comparison against water quality standards and planning criteria.

Funded by the Habitats Directive project, North Area (North West Region) commissioned SIMCAT projects for each of our four cSAC designated rivers, the Eden, Derwent, Kent and Ehen. These models are to be used primarily for the Habitats Directive Review of Consents (RoC) for Water Resources Act (1991) discharge consents, as not only can the model reproduce the current river flow and quality, it can simulate alternative scenarios: the so-called 'what-if' models.

For the RoC this is an essential tool, as it allows the Agency to predict the effects of, for example, all current permissions discharging at their consented volumetric and quality limits. The model can also be used to derive new consent limits for discharges to river stretches that are either failing currently or would fail if discharges were at their consented limits.

The figure is a schematic diagram of the River Ehen SIMCAT model, showing the data used to construct the model and the discharges included.



In the future the Agency will update and amend the SIMCAT models to include new permissions and water quality data, so that the impact of all new discharges can be assessed at both a local and catchment scale.

BIODIVERSITY

Natterjack toad pond improvements

The natterjack toad has suffered a substantial decline in numbers and range during the 20th century due to reductions in its habitat (heathland, sand dune and upper saltmarsh). The Cumbrian coast remains the stronghold for the species nationally.

They need open, unshaded land with extensive areas unvegetated, or with short grass, for hunting. They need to be able to burrow, usually into sand, to escape the midsummer sun and winter frosts. To breed successfully they need unshaded, temporary pools with shallow, gradually shelving margins and little or no competition from other toads, frogs and newts and their tadpoles. They are vulnerable, even then, to predatory insects such as water beetles, dragonflies and water-boatmen.

Two sites on the coast of north Cumbria were becoming seriously overgrown with evidence that the natterjacks were disappearing. At Mawbray Banks there are about 20 hectares of coastal dunes with numerous pools. In 1992 there were 1000s of toadlets and even as recently as 1998 100s of tadpoles were recorded. However by 1999 the main pond was seriously overgrown by sea clubrush and the smaller ponds and terrestrial habitat were also becoming overgrown to the extent that only one male was recorded in 1999. A similar situation prevailed at Silloth-on-Solway Golf course. Here about 100 hectares of coastal dune & dune heath, mostly developed as a golf course had several breeding ponds. Again in 1992 there were 1000s of toadlets at this site, dropping off to low levels of spawning activity as recently as 1998. In 1999 there was only one female seen at the golf course and one nearby at Beckfoot.



Removal Of Sea Club-Rush

As a result of foot and mouth restrictions impacting some of the Agency's river maintenance work, the Flood Defence section were able provide men and machinery for nearly 2 weeks at Mawbray and about 3 weeks at Silloth, to help these rapidly declining natterjack populations.

At Mawbray a whole series of minor pools were successfully cleared of encroaching vegetation, and then the machines and men moved on to the golf course. Here the aim was to clear the dense gorse & willow scrub from the area between the 2nd and 4th holes and reinstate it to dune grassland and open slack, whilst not changing the view from the golf greens. Both initiatives were approved by English Nature and the site owners.

Hopefully this spring, on warm, damp nights between dusk and midnight the loud chorus of male natterjack toads characteristic rolling croak will be heard again. On a quiet night this can carry for over a kilometre! Spawning is often triggered by rain after a dry spell and volunteer surveyors will monitor the ponds to assess the success of the project looking for strings of spawn from April onwards. With luck, thousands of tadpoles will result and if they metamorphose safely these 2 sites populations of natterjacks will be secured.

Ladyhall - new Natterjack Toad Pond

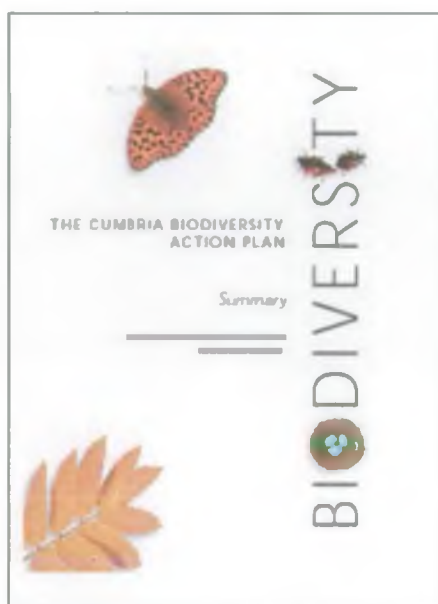
Following high tides and coastal flooding, emergency embankment repairs at sites round Morecambe Bay cSAC/SPA/Ramsar were required.

Rapid assessments as to the impact of works on the features of interest of the designated site were carried out and working methods agreed with EN.

Whilst the Agency machines were on site at Ladyhall, Flood Defence/EWU staff created a new pond to enhance Natterjack Toad habitat within the Duddon Estuary.

Cumbria BAP – Small Contingencies Fund

The Cumbria Biodiversity Partnership is formed from a wide partnership of organisations whose aim is to aid the Biodiversity Action Planning process. A Small Contingency Fund has been set up with money provided by the Agency and other partners to promote completion of actions within the Cumbria BAP by giving small scale financial support to individuals or groups.



Great Crested Newt Project

The Great Crested Newt is declining throughout its European range, but has a stronghold in the UK, despite drastic declines over recent decades. In Cumbria, it is not known what level of decline the species has undergone. Existing sites were surveyed in 1999 and potential new sites in South Cumbria in 2000. Due to FMD restrictions in 2001 the continuation of the survey was not possible but the aim is to complete the rest of the county over the next 2 years with the Eden and Solway being the target for 2002.

The information will be used by the Agency when checking environmental constraints for Section 30 fish introductions. A systematic survey of Cumbria to establish current population status and distribution of the great crested newt is one of the required actions in the Local BAP for which the Agency is a partner.

Fish Passage Improvement schemes

The Agency, under the Water Resources Act 1991, has a duty to maintain, improve and develop fisheries.

Since the early 1980s, decreases have been observed in the number of glass eels (the juvenile form of the European Eel *Anguilla anguilla*) caught at several locations around the European coast and a decrease in the number of elvers caught as they enter rivers. In 1993, a meeting of the European Inland Fisheries Advisory Commission (EIFAC) Working Party on Eel focussed on the widespread concern in Europe of the effects of poor recruitment, especially the impact on eel fisheries.



Belasit Gauging Weir

Suggestions as to the factors causing a decrease in the numbers of glass eels and elvers approaching and entering European rivers include :

1. Natural variations in oceanic conditions affecting the transport of leptocephali from the Sargasso Sea
2. Commercial Overfishing
3. Loss of riverine habitat through the effect of barriers on the upstream migration of juvenile eels
4. Chemical contamination of eels at various life-history stages
5. The effect of the swim-bladder parasite *Anguillicola crassus* (Nematoda) on the migration of silver eels to the Sargasso Sea.

To this end the Fisheries Function in North Area has investigated point 3 above and implemented improvement works at various sites throughout South Cumbria to maximise habitat availability for juvenile eels. Schemes already constructed include Lowick Weir on the River Crake, Backbarrow Fish Counter Weir on the River Leven, and Belasit Gauging Weir on the River Bela .

Plastic crawling medium has been fixed to the apron of the Belasit gauging weir in order to provide a route for elvers as they migrate upstream. This site had previously been assessed in an internal Fisheries report as a significant obstruction to upstream elver migration due to the laminar flow and lack of marginal vegetation or wet zones for the elvers to use to surmount the weir.

Captive breeding of Bassenthwaite vendace

Following a series of years of poor recruitment by vendace in Bassenthwaite, thought to be caused at least in part by siltation of spawning grounds, a project was undertaken to collect eggs by stripping and rear them in captivity, prior to their subsequent release in the lake as yearlings. Subsequently, an additional objective was added to examine the diet of ruffe collected as a by-catch

The project was carried out jointly by CEH Windermere and the Agency with support from Lakeland Smolt Ltd.



Vendace

A variety of netting methods were employed, seine nets, gill nets and fyke nets. Disappointingly, although not entirely surprisingly, only 4 vendace were captured, 3 of which were females and 1 male. The male gave no milt and examination showed that the gonads were not fully mature.

A sample of 46 ruffe were examined. It was found that vendace eggs formed a percentage of the stomach contents, which would indicate that some vendace spawning had taken place.

FLOOD DEFENCE/WATER RESOURCES ISSUES

CAMS

The management of water resources is changing and Catchment Abstraction Management Strategies (CAMS) are being developed for various catchments. In North Area, the CAMS process has started with the Leven and Crake catchment. In the CAMS strategy, there is a need to assess the environmental sensitivity of rivers to abstraction and an environmental weighting (EW) system within the Resource Assessment and Management (RAM) framework has been developed. The EW system requires information on physical characterisation, fisheries classification, macrophyte scoring and macro-invertebrate scoring.

Advice/assistance was given on identifying 17 Assessment Points for the Leven and Crake catchment and fisheries and macro-invertebrate information was supplied for the EW system. In particular, the macro-invertebrate information given involved a significant time commitment as this involved calculation of historic observed and expected LIFE Scores for each Assessment Point. The need for suitable macrophyte surveys has been identified for future CAMS work and this is being addressed in next years work programme.

Kent Estuary Study

The Flood Defence Operations and Strategic Planning teams have been carrying out a preliminary study on potential realignment of flood defences on the Kent Estuary.



Aerial View Of Kent Estuary Near Arnside

The purpose is to assess the feasibility of realigning tidal defences on the estuary upstream of the railway viaduct, for saltmarsh habitat recreation. The study is a recommendation of the Kent Estuary Shoreline Management Plan produced in 2001, and has involved liaison with English Nature, South Lakeland District Council and Railtrack.

The initial study has examined legal, planning, environmental, hydraulic and land drainage issues to determine if there are any notable aspects that would prevent realignment of flood banks on the Kent Estuary at an early stage. If the study concludes that realignment is a possibility then further detailed research on the subject will be carried out in full consultation with English Nature, and through EN's Lifescapes project, all other interested parties.

Temple Sowerby Weir

The Environment Agency plan to construct a bed check control weir at Temple Sowerby Gauging Station. The weir is required to improve the accuracy of low flow monitoring along the River Eden. Temple Sowerby Gauging Station is the only flow measuring station between Great Musgrave and Great Corby, a flow distance of over 50km. Accurate low flow monitoring at this site is essential because of the many water abstractors in the reach upstream to Appleby.

The River Eden is designated a candidate Special Area of Conservation, (cSAC) and is considered to be one of the best areas in the United Kingdom for the following interest features: Alder woodland on floodplains, White-clawed crayfish, Bullhead, River, Brook and Sea lamprey, Atlantic salmon, clear water lakes with poor to moderate nutrient levels, floating vegetation of *Ranunculus*.

An appropriate assessment of this development was carried out under the Habitat Regulations. An environmental impact assessment, geomorphology report and a river corridor survey were also undertaken.

These reports concluded that there will be no interruption to fish spawning as the work is taking place outside the spawning season. The flows in the immediate area of the weir will undoubtedly increase but these velocities will not cause problems to salmon migration especially as it has been shown that for more than 95% of flows the water level will be greater than 10cm above the weir crest.

The weir will include fish passes. These will take the form of three sections on the downstream side of the weir where large boulders/cobbles will be permanently set into a concrete apron. This will provide flow disturbance and a refuge for Lampreys and Bullhead which may be moving upstream. A Lamprey survey will be carried out immediately before the work commences. This will consist of a visual habitat assessment and a Lamprey rescue if necessary. The geomorphology report concluded that the weir would not effect Lamprey migration.

There are unconfirmed reports of Water voles in this area. A water vole survey will take place in May 2002. There will be some willow and hazel planting upstream of the hut, where the bank is currently unstable.

Crayfish Rescues

An application for Land Drainage Consent for silt/gravel removal from the River Kent upstream of Staveley Mill weir was granted in 1999 before the river was designated a cSAC. Land Drainage Consents are valid for three years and it was not until June 2001 when the work was carried out. With native white-clawed crayfish being one of the designated interest features of the site, it was necessary to undertake crayfish rescues before and during the works. The working area was approximately 50m x 20m and a total of 2908 native crayfish were caught and relocated upstream. Visually the works had a major aesthetic impact with a well-used public footpath (which remained open during the foot and mouth epidemic) along the top of the left bank. In addition, the newly opened outdoor terrace at "Wilf's Café" on the right bank immediately downstream of the weir afforded a grandstand view of the operation and our involvement!

Not only did the crayfish rescue minimise the impact of these works, it provided an opportunity to promote our work and educate the public. A number of people commented that the great efforts made to save the crayfish were much appreciated and to some extent had re-assured them despite the obvious disruption during these works.



Crayfish Rescue

Two further crayfish rescues were carried out on the Kent as a result of a bridge deck replacement and the decommissioning of a gauging station. A total of 335 native crayfish were caught and relocated. Also on the Kent catchment, a tributary of Natland Mill Beck dried up in a section through a housing estate resulting in calls from the public. Although at least a couple of hundred crayfish died, some 362 were rescued and relocated further downstream where the beck was flowing.

Assistance was also given on the IEEM (Institute of Ecology and Environmental Management) workshop "The Conservation of White-clawed Crayfish" held in Kendal during the Summer.

PARTNERSHIPS

Melmerby Pond

The Agency has provided a financial contribution to the Ponds for People-Ponds Conservation Trust towards the consultation, preparation and construction of a pond on Melmerby village green on the Pennine side of the Eden valley. The project is progressing and construction is due to commence in the summer of 2002.

Crofton Lake enhancement

Crofton Lake is situated approximately 5 miles west of Carlisle and is run as a fishery by Carlisle and District Coarse Anglers (CDCA). The fishery was created in the late eighties in a joint enterprise between the angling club and the Agency's predecessor. Over the past 10 years CDCA have invested considerable time and effort into encouraging youngsters to take up angling as a pastime. The success of this work has been such that there has been increasing pressure on Crofton as a fishery, with greater numbers of anglers fishing.

To increase the number of fishing locations on Crofton there was a need to deepen several areas of the lake whilst leaving sufficient shallow areas for other wildlife. The Agency provided an excavator and driver whilst the angling club provided manpower to create fishing platforms and access. The result has been the creation of 15 locations which are now producing sport.

PROMOTION

Participation in Groups

Agency staff continue to build closer working relationships with other organisations through representation at various groups including:

- CWT Wildlife Sites project
- Cumbria FWAG Steering Group
- Solway Firth Partnership
- Morecambe Bay Partnership
- Barrow Wildlife and Countryside Group
- Warcop Conservation Group
- Eden Rivers Trust

Public information on Crassula problems

Australian Swamp stonecrop (*Crassula helmsii*) is now found in at least 3 of the Lake Districts lakes – Derwentwater, Bassenthwaite Lake and Coniston Water. The Environment Agency have supported The Lake District Park Authority in the production of a leaflet to publicise the problem and advise visitors and lake users on how to prevent its spread. There has been a high level of publicity associated with the launch of this leaflet including 3 regional TV reports.

HELP STOP The Alien Invasion!

Because New Zealand pigmyweed can be spread by footwear, fishing tackle, boat propellers and boat trailers you need to take precautions to help stop its spread.

PLEASE:

Remove any plants or plant remains from your equipment before you leave a lake.

If you discover plant remains on your equipment at home, destroy them - by burning - before you use the equipment again.

Thank you for your help.



The National Park Authority is working with other conservation organisations to contain and possibly eradicate New Zealand pigmyweed.

Please note that New Zealand pigmyweed is also known as Australian stonecrop. Its scientific name is *Crasula helmsii* - it is sometimes wrongly labelled in garden centres as *Tillex helmsii* or *Tillex recurva*.

For further information, please contact:

Lake District National Park Authority,
Murley Moss, Overholme Road, Kendal, Cumbria LA9 7FL,
Tel: 01539 724555 Fax: 01539 740822 Minicom: 01539 731203
Email: hq@lake-district.gov.uk Website: www.lake-district.gov.uk
Publication Number 63/02/04 Designed & Produced by Designworks.



Supported by the Environment Agency

ALIEN INVASION *threatens wildlife!*

- An alien plant (New Zealand pigmyweed - from New Zealand and Australia) is threatening the Lake District's wildlife.
- It's a tough invader, which can grow all year and out-compete our native plants.
- It grows rampantly on damp ground, lakeshores, in shallow and deep water.
- It's hard to kill and a 1 cm piece can grow to dominate a wetland.
- It's already causing damage in Derwentwater, Coniston Water and Bassenthwaite Lake.

A New Zealand pigmyweed 'lawn', dominating the lakeshore



We have also contributed to an article in Spring 2002 issue of the Agency's free "CATCH" magazine for anglers in the North, highlighting the environmental damage that can result from the spread of this invasive weed, and how anglers can ensure they don't inadvertently spread the problem from fishery to fishery through carriage of plant fragments on tackle and wet gear.

Arts in Trust Project

North Area staff participated in the second annual Arts in Trust project, "In The Green Field", at the National Trust's Acorn Bank Gardens and Watermill, near Penrith. This was a joint initiative between the Agency and the National Trust that involved 12 professional artists and took place over three days in June. Approximately 700 children from 27 schools in Carlisle, Eden and the rural areas in North Cumbria attended the event, which helped them to understand the need to protect and enhance the environment. Evaluations from teaching staff following the event were very positive.



In The Green Field

Introduction to angling in partnership with Cumbria Outdoors

Fisheries officers from the West Cumbria team led by Denis McCartan assisted Cumbria Outdoors run a course designed to encourage youngsters with behavioural problems to take up fishing as a pastime. Denis and his team provided not only knowledge and expertise but also the opportunity for the youngsters to experience all aspects of angling, including boat fishing for pike and roach on Bassenthwaite and carp fishing at a local fishery. The group visited Keswick hatchery where they had chance to learn something of the life cycle of salmonids.



Emphasis was placed on the importance of the enforcement role of fisheries officers in protecting fish stocks, a trip on the Agency fisheries patrol boat out of Maryport demonstrated practical methods of enforcement and provided the opportunity for the group to experience sea angling.

RECREATION AND ACCESS

Furness Greenways and Quiet Roads Feasibility

In 2001/02 the Agency contributed £5000 towards this £120K two year feasibility study which was finally completed in March 2002. The study identified a network of "greenway" routes in the Furness peninsula which could be jointly used for cycling, walking and horse riding for leisure purposes as well as commuting to work, shops etc. The greenways also have links into long distance routes outside of the Furness Peninsula and are expected to generate considerable economic and health benefits (eg through tourism) as well as helping reduce vehicle journeys. Many of the routes follow the coastline, one follows the Ulverston canal and others link existing fishing ponds.



The Agency sits on the Furness Greenways Working Group as well as being a member of the Steering Group on which in excess of 40 public, voluntary and private groups are represented. A pilot Greenway was completed on Walney Island in 2000. The final network is planned to cover in excess of 62 Km and implementation should commence in 2002/3 with substantial funds committed by Cumbria County Council and promised by the North West Development Agency. Other funding partners are being sought. The implementation phase is expected to last for 7 to 10 years and cost in excess of £5 million.

CENTRAL AREA

CONTENTS

	Page No.
BIODIVERSITY	28
• Ribble Crayfish Rescue	
• Cockerham Natterjack Toad Project	
• Farleton and Claughton Becks	
• River Yarrow	
PARTNERSHIPS	32
• Lomeshaye Marsh Improvements	
• Gibfield School Pond Improvements	
RECREATION AND PROMOTION	33
• Liverpool Park Lakes	
• Platt's Lodge, Accrington	
• Haslam Park	
• Promotion & angling events	

BIODIVERSITY

Ribble Crayfish Rescue

During the summer of 2000 Crayfish plague was identified in the upper Ribble by a researcher studying crayfish on behalf of the Agency and English Nature. The initial identification of the plague was soon enough after introduction to allow a rescue of uninfected crayfish to be organised.

The Agency arranged for a rescue to be mounted and for temporary housing for the rescued crayfish. Agency staff from the Central Area FER department collected crayfish from two separate populations in tributaries which were isolated from the main river infection. (See photo below). These two rescued populations have been kept separated from each other in tanks, using uninfected water supplies. Approximately 800 crayfish of varying size were captured. Some of these had eggs (berries).

The Agency is now working in partnership with English Nature and Paul Bradley from Sheffield University on the long-term future of the crayfish and the re-introduction strategy. Various options for re-introduction have been considered but the autumn floods and restrictions to prevent the spread of Foot and Mouth Disease have prevented survey to assess the present status of the crayfish on the Ribble and the progress of the plague.

The crayfish were initially held in two separate populations in different set ups. One of these was a series of small (approx. 450mm x 300mm x 300mm) tanks with 10 15 crayfish in each, and artificial crevices to hide in. The tanks were connected to a filtered re-circulating water system and air pumps. The second population (about 80 crayfish) were kept in cattle water troughs outdoors with running spring water.

The larger population (about 700 crayfish) fared well until the autumn of 2001 when we suffered a large mortality. The smaller population, although suffering from mortalities was not as badly affected. Since then a new outdoor facility has been constructed with large 2m circular tanks to provide as natural a situation as possible whilst retaining an isolated population.

Some of the females in captivity developed berries but none went on to hold them, but we hope to improve on this with the new facility and create a breeding population for re-introduction.

The new facility is expected to help maintain the present captive population until re-introduction can take place. A strategy for re-introduction is still being worked on, and survey work on the River Ribble is planned to investigate the full impact of plague on the river system.



Cockerham Natterjack Toad Project

The natterjack toad (*Bufo calamita*), is one of our rarest amphibians, protected under the Wildlife and Countryside Act 1981 and the Natural Habitat Regulations 1994. The natterjack toad has a restricted distribution in Britain, present here at the north-western edge of its biogeographical range. Unfortunately its distribution has declined further since the beginning of the 20th Century, mainly due to the loss and degradation of their dune slack and saltmarsh habitats.

Historically Lancashire supported a breeding colony of natterjack toads at a saltmarsh site near Cockerham. The toads were first discovered there in 1969, and the site was designated as a SSSI in 1979, solely for its breeding colony of the species. Unfortunately 23 years ago less was known about the habitat requirements of natterjack toads and local flood defence works carried out in 1981 severely impacted the sites hydrology. The vegetation and hydrological changes that resulted from the resulting lack of tidal flooding, reduced the sites suitability. Recorded numbers of natterjacks at the Cockerham Marsh site have dwindled, and have not been recorded there since 1990. Due to this local extinction the sites status as a SSSI became threatened, highlighting the need for restoration works at the site.

Fortunately the site was highlighted for potential as part of the Herpetological Conservation Trust's plan of natterjack re-introductions across the country. The site at Cockerham is considered to be crucial as it forms a link between the successful natterjack breeding sites at Ainsdale to the south and Cumbria to the north.

The site required remedial habitat management works, and initial translocation of spawn into breeding pools, to give it a chance of supporting a viable population of natterjack toads again. The project was discussed and agreed as a partnership between the Environment Agency, English Nature, The Herpetological Conservation Trust and the landowner, and £5000 of multifunctional project funds were successfully obtained in order to carry out the necessary works.

The Environment Agency's contribution to the project involved the initial restoration of the site in order to ensure its suitability for the re-introduction of natterjack toad spawn. This included:

- Cutting back rushes across the whole site, especially around pond margins
- Control of gorse on the site by cutting, treating cut stumps with herbicide.
- Construction of two lined pools using heavy-duty butyl liner, to act as the re-introduction pools
- Erection of sheep proof fencing around these new ponds
- Re-deepening and re-profiling of the existing 6 pools
- Creation of natterjack hibernation sites – with stone, bricks and sand areas around pool edges as refugia for emerging toadlets.

The above works are designed to ensure the site satisfies the habitat needs of the natterjack toad, to help ensure a successful re-introduction of the species.

Toad spawn is to be taken from Sandscale in Cumbria using methods proved to be successful in other areas of the country and introduced to Cockerham Marsh site in Spring 2002. This will finally return this rare species back to its Lancashire site.

The Lancashire Natterjack toads will be the 'last link in the chain' of re-introductions needed to help restore the national distribution of the species.

If successful this project, through restoration works, will result in the re-establishment of a sustainable natterjack population at Cockerham Marsh SSSI. This will safeguard the sites SSSI status and satisfy the objective of the Lancashire BAP for natterjack toads which is to "re-establish the natterjack toad as a breeding species in Lancashire".

**The first translocation of natterjack toad spawn and tadpoles from Sandscale
Haws SSSI to Cockerham Marsh SSSI, 29th April 2002**



Pond 1 (foreground) and Pond 2



Plastic tubs used for the transport of the spawn and tadpoles beside pond 2



Spawn, freshly hatched tadpoles, and tadpoles (reared by Pete Burton)



Toadlet

Farleton and Claughton Becks

Two of the habitat improvement schemes that the Agency was involved in were on tributaries of the River Lune. Some consider the Lune to be the second best salmon river in England. Whilst the numbers of salmon continues to rise in some areas, there are many where numbers have fallen or where numbers could be much higher. Two of the limiting factors for sustainable salmon populations are habitat availability for juvenile fish and availability of loose, clean gravel for adult fish to spawn on. A simple way to improve these two requirements is the erection of fencing along stretches of the main river itself or along its tributaries, which are often the spawning and juvenile nursery grounds.

Fencing helps to improve the river habitat in many ways. Cattle can be excluded from the river except in areas set aside for 'cattle drinks'. This reduces the level of impaction of gravel and leaves looser gravel that is more suitable for adult fish to spawn on. The exclusion of cattle and sheep also allows the regeneration of riparian and marginal plants along the length of the river. This plant regeneration then provides cover and food for fish, birds and other animals associated with rivers. Two such schemes were undertaken on Claughton and Farleton Becks near Hornby where a total of 39,051 metres of fence were erected in partnership with the Middleton Hatchery Group using money (£16150) from the EA, Middleton Hatchery Group, Lancaster City Council and the Millennium Fund. Initial surveys have given positive results with good numbers of juvenile salmon and trout being found. The appearance of the becks has been the most noticeable immediate result, with the rapid natural regeneration of riparian plant life.



River Yarrow

Last year saw the formation of the Friends of the River Yarrow (FrY). A community based group FrY was formed in order to identify and address issues that impact upon the environmental quality of the River Yarrow and its surroundings and to take action to remedy identified problems. FrY aims to improve water quality, improve wildlife habitat, encourage the development of sustainable fish populations by controlling erosion, buffering pollution and removal of in-river obstructions to wildlife and to raise awareness of river issues and to identify opportunities for education. There are 25 members of FrY and the group has already completed approximately 2.1km of fencing for habitat improvements and reinstated 600m of previous habitat improvements between Eccleston and Croston. Future schemes aim to carry on similar work and continue to improve the Yarrow catchment as a whole.

FrY's Action Plan Summary:

1. Bankside habitat improvements (fencing/planting). Key species including water vole (UK Biodiversity Priority Species – BAP) will benefit and ultimately it is hoped that river habitat would be suitable for otter re-colonisation.
2. Removal of barriers to the movement of fish including wild trout, sea trout and salmon.
1. Organising events, displays and identifying educational opportunities which link with Key Stages of the National Curriculum.

The project will benefit the wider community by improving the quality of their environment in a sustainable way, improving educational opportunities in relation to environmental issues, improve recreational aspects, reducing diffuse agricultural pollution into the river Yarrow, controlling erosion (hence silting of spawning areas) of river banks

The Agency provides ongoing technical advice to the FrY Committee. Measures have been put in place to create a working partnership with the EA, by means of a "Memorandum of Understanding" with a view to carrying out a jointly agreed Action Plan. Liaison with local county councils also occurs on a regular basis especially where rights of way issues arise.

A strong reference point for the project was the River Yarrow Salmonid Improvement Scheme (Environment Agency 2001), which reports on fish stocks within the Yarrow and identifies possible habitat improvements

FrY also links with the Wild Trout Trust, (WTT), who sponsored a survey of the Yarrow and its tributaries.

Links have also been established with the Douglas and Yarrow Valley Action Group (River Valley Initiative) and with the Mersey Basin Campaign.

Involvement of schools and school children is also being encouraged Further it is intended to involve the children directly in the project by organising riverside walks and working parties for activities such as tree planting.

PARTNERSHIPS

Lomeshaye Marsh Improvements

The site of an old Sewage treatment works on an industrial estate has over the past ten years been regenerated in to a wetland. The Environment Agency has worked in conjunction with numerous organisations, including the Lomeshaye Marsh preservation group, River Enhancement East Lancashire (REEL) and Heritage trust to the Northwest (HTNW) during the restoration of this site.

Lomeshaye marsh is now one of a few wetlands in the Pendle Water Catchment, in recognition of its ecological value as a wetland it has been declared a Local Nature Reserve and a county Biological Heritage site.

Although a lot of work has been done to restore the site over the past decade until this year there were limited facilities explaining the history of the marsh, the lay out of the paths across the marsh, and the species found at the marsh. The marsh is a relatively small area however it is used daily by many people working on the adjacent industrial estate and local residence and as such it is an important recreational resource as well as a valuable ecological resource. During 2001 and 2002 the Agency together with other bodies such as REEL and HTNW improved the path network across the site and provided interpretative panels showing the history and lay out of the marsh together with identification aids to some of the species found at the site.

Gibfield School Pond Improvements

Central area Ecology staff were approached by a teacher of Gibfield School, Colne, in November 1999 for advice on their existing pond. The pond was on-line to a small watercourse and had become silted up and too dangerous to use. After site visits by Ecologists and the Regional Landscape and Heritage Officer, drawings and costings for improvements were put together.

The work was approved for funding from the multi-functional project fund in 2000 and work started on the pond in January 2001. Contractors were bought in for the initial heavy work of restructuring the pond. A planting scheme for the pond and surrounding area was developed by the Ecologists to create a stimulating environment for the children, with a variety of colours, smells and textures, which would also attract insects, birds and other wildlife. The scheme included planting for various habitat types, including aquatic, emergent, marsh, and woodland flora. The first planting took place in March 2001 when locally sourced native trees were planted to create a woodland area beyond the pond. Then later in May native wildflowers were ordered and delivered from a company specialising in British wildflowers and plants. With help from the pupils and teachers of the school all planting was completed in May 2001. Since the completion of the project the school has given extremely positive feedback, including the drawing by some of the children, and it would seem that the pond and gardens are providing a great deal of both enjoyment and education for the pupils and teachers alike.

Gibfield School is a school for children from four to 16 years old with moderate learning difficulties. The school is keen to develop an interest in the environment amongst its pupils and the pond is in an existing nature area of the schools grounds. A boardwalk has been installed over the pond so that it is accessible to all pupils of the school, including those in wheelchairs. An outdoor classroom is also proposed with seating adjacent to the wildlife area. There is also the potential for other schools to use the resource with the agreement of the school.

RECREATION

We have continued to develop the recreation role and work with many partners to achieve the goals of improving angling recreation opportunities, whilst promoting best practice in terms of sustainable fisheries and improving biodiversity at improved sites. Under the heading of 'Urban Fisheries' we have worked with partners such as Liverpool City Council, Wigan Borough Council, Preston Council and Hyndburn Council to continue the development of high quality, sustainable, urban angling recreation opportunities.

Through involvement and partnerships with landowners, angling clubs and conservation trusts and groups, the Agency has successfully implemented many riverine enhancement schemes. Many of the schemes are relatively simple, often being based around education and improvement of farming practices. Physical works can be as straightforward as erecting fences along stretches of river to reduce livestock based erosion. Schemes such as these not only benefit fish stocks but also help to improve wider biodiversity through improved riparian habitat.

An important aspect is the continued close involvement and support of angling based groups such as habitat trusts and consultatives. Through regular contact with these groups the Agency has been able to continue promoting best practice, generating partnership schemes, disseminating information and in turn is able to maintain an up to the minute knowledge of current issues from all over the area via feedback from some of its key stakeholders.

Liverpool Park Lakes

The Agency continued to work closely with Liverpool City



Council on the Liverpool Park Lakes Project. Many of Liverpool's Victorian parks contain lakes set in formal park grounds. Lakes such as these were originally



designed with informal recreation in mind but have become valuable assets both in terms of recreation and conservation. Fisheries such as these often face problems with algal blooms and fish densities which are too high. The fisheries department embarked upon a programme of lake surveys in order to ascertain current stock levels, which then enables detailed management plans to be drawn up with recommendations for future management. Surveys were carried out at Croxteth Park, Walton Hall, Calderstones Park and Greenbank Park.



These surveys revealed very high fish stock densities, which can lead to fish health problems such as disease outbreaks. Other problems can also be exacerbated such as poor water quality, algae blooms and reductions in aquatic plant densities. Excess fish stocks have already been transferred to other similar fisheries where fish stocks were found to be low, for example a large number of fish were transferred to Platt's Lodge Fishery in Accrington where improvement works were planned in partnership with Hyndburn Council (see below).



Three of the Liverpool Park Lakes have already received improvement works from the Agency and Liverpool City Council. Stanley Park, Calderstones Park and Larkhill gardens have all seen considerable improvements both in terms of fish stock management and site improvement. Extensive physical improvement works have been undertaken at Larkhill gardens with the resulting fishery now supporting balanced fish stocks and a wide variety of aquatic and marsh plants where the original fishery supported little and consisted largely of unnatural concrete banks.

The close relationship, which has been developed between the Environment Agency and Liverpool City Council, has continued with further improvements and development of the fisheries being planned for the future, to ensure provision of a valuable recreation resource with a high degree of ecological value.

Platt's Lodge, Accrington

Platt's Lodge Reservoir is situated in the heart of Accrington, almost hidden amongst industrial buildings. The lodge offers peace and tranquillity and could be considered a wildlife haven, along with the provision of informal recreation and angling.

Over the years the lodge had become an urban dumping ground and the quality of angling had declined. Working in partnership with Hyndburn Council the Agency organised and part funded 'clean up' work with the removal of many tonnes of waste being achieved.

The fish stocks were boosted with excess fish that had been removed from Liverpool Park Lakes. The next phase of the works involved improvements to access with the refurbishment of a circular access path and provision of eleven angling platforms constructed from recycled plastic. The angling platforms were sited in a way that allowed the provision of a quiet 'wildlife' area and help to make the fishery a safer place for anglers.

Haslam Park

Haslam Park Lake is situated near to the centre of Preston and had developed a reputation as a high quality urban fishery. Problems such as the build up of urban debris, lack of riparian plants, increasing levels of silt and declining fish populations were highlighted to the Agency.

Working with Preston Council the Agency organised a considerable enhancement scheme. The fishery was drained and the fish stocks removed to a safe holding facility. Once the debris from around the lake was removed a desilting operation was carried out to return the lake to its former depth. A programme of shrub and tree planting was carried out before refilling the fishery. Fish will soon be restocked. The results of the work are now becoming apparent with the site now returned to its former glory as a 'green jewel' in the park.

The importance of fisheries such as those in Liverpool, Accrington and Preston has been shown to be great, not only from a recreation/angling aspect but also in terms of improving community 'quality of life'. These fisheries are often the ones where young people first become interested in angling and wildlife. Studies have even shown that where urban fisheries are available, juvenile crime figures fall.

PROMOTION

The Agency provides regular support to a variety of key stakeholder groups. Across the Region various angling based groups exist such as the Lancashire Consultative Association which meets quarterly to discuss angling issues in Lancashire. Other groups such as the Friends of the River Yarrow, Middleton Hatchery Group and The River Lune Habitat Group meet regularly to discuss issues relating to a specific fishery. The groups often raise money for environmental improvement schemes, either themselves through fundraising events, or through instigating partnership schemes with local councils and the EA. The groups themselves usually consist of a collection of anglers or a collection of angling club officials and represent a wide variety of angling and often conservation interests across the region.

By supporting and working with such groups the agency is able to better target its audience, gain a better understanding of the catchments, increase the number of partnership schemes it participates in and disseminate national and regional information more successfully.

Angling Events

In recent years the Agency has become involved in organising angling events. The events are usually aimed at attracting newcomers (often juveniles) to angling. Much work has been carried out by the agency in 2000-2001, not just in terms of actual angling events, but also in behind the scenes work. Work has included the identification of how to organise successful angling events which, ensures the continued development of new anglers and production of detailed health and safety guidance to ensure the safety of all people involved in events. This guidance work is not only useful to agency lead events but has also been disseminated to angling groups who also organise events.



During 2000-2001 the Agency attended Burnley's SPLASH Angling day to instruct juveniles on fishing techniques and how to treat fish with care. The Agency also organised 2 angling days with

Groundwork Blackburn at Whitebirk and Feniscowles. This was to introduce juveniles between 8 and 17 to angling, coaching on water safety, techniques and how to handle fish with care.

Wherever possible it is likely that such angling days will take place at urban fisheries where improvement schemes have been completed in the future.

SOUTH AREA

CONTENTS

Page No.

HABITATS DIRECTIVE

37

- Review of consents
- New applications
- Research & Development

BIODIVERSITY

38

- National Biodiversity Network
- Biodiversity Strategy

WATER QUALITY

39

- Endocrine disruption in the Mersey and sub-catchments
- Urban Waste Water Treatment Directive, (UWWTD), Surveys
- Surveying the Mersey Estuary

FLOOD DEFENCE WORKS

41

- Maintenance works to repair collapsing banks on Keckwick Brook, Runcorn

PARTNERSHIPS

42

- River Medlock, Clayton Vale
- Commonwealth Games: some environmental "spin-offs"

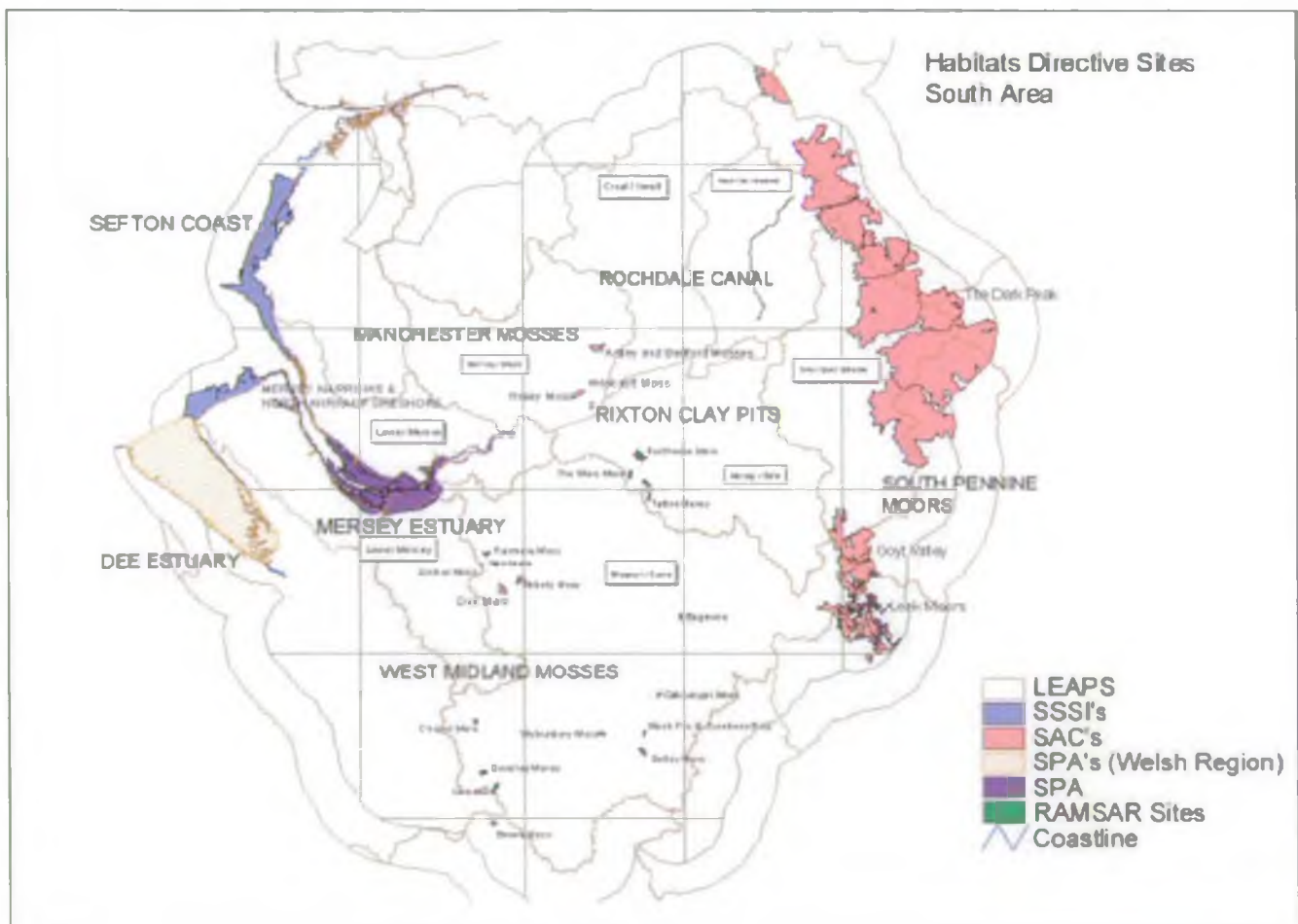
HABITATS DIRECTIVE

Review of consents

South Area completed Stage's 1 and 2 of the Habitats Directive Review of Consents by the nationally set March 2002 deadline. This process involved checking all the relevant consents and permissions that the Agency issues to third parties to make sure that they are not impacting on sites designated under the European Habitats and Birds Directives. In addition to reviewing all relevant consents the Agency must ensure its own activities are not adversely affecting the designated sites. This mainly involves reviewing our flood defence activities.

South Area has 9 such designated sites including 6 candidate Special Area's of Conservation (cSAC's) and 3 Special Protection Areas (SPA's). This includes the Mersey Estuary SPA, which requires a review of relevant authorisations within the entire hydrological catchment of the estuary to be considered. Because of the extent of the work required for this site the Stage 1 and 2 pro-formas will be completed by October 2002.

As is required by the legislation these assessments have been passed to English Nature for consultation. Most of these assessments have now been agreed and signed off by both parties. Where necessary the Agency can now move forward to undertake more detailed site assessments where our consents could be having an effect on the wildlife features of interest (Stage 3 assessments).



New applications

In addition to reviewing all existing consents the Agency must ensure that any new applications will not have an adverse effect on any of the Habitats Directive sites. Staff responsible for issuing new authorisations must follow the Habitats Regulations and consult English Nature over likely impact upon sites.

To ensure Agency officers are aware of the requirements placed upon them by the regulations, the Habitats Directive Co-ordinator and Ecology Team leader presented a series of training sessions to South Area staff. The training was well received, with over 120 staff attending the sessions in total.

Training has also been delivered on the use of the Habitats Directive Database which has been developed nationally to assist in the sharing of best practice regarding the completion of pro-formas, and to maintain an audit trail of decisions made.

Because of the number of discharge consent applications received by South Area with relevance to the Mersey Estuary, officers have developed a methodology that enables them to be progressed through the Habitats regulations in a more efficient way. The approach reduces the time that both the Agency and English Nature need to spend on a consent application, without compromising compliance with the Directive. At present the approach applies to just one tributary of the Mersey (the River Gowry), but this is to be extended to cover additional tributaries during 2002-3. The approach utilises data already obtained from Habitats assessments at sites downstream of a new application site.

Research and development

Funding was allocated during 2001-2002 for an investigation into the distribution and abundance of benthic invertebrate communities on the Mersey Estuary SPA. The results of the study are now available, and will be used to inform the Review of Consents at the site.

The area has also secured £40k for 2002-3 for a project to develop a water quality model for the Mersey Estuary SPA. This will be an essential tool in determining the impacts of both existing and new discharge consents on the estuary.

BIODIVERSITY

National Biodiversity Network - England Cheshire Pilot Local Record Centre - A partnership to create a one-stop shop for biodiversity species distribution data.

Biodiversity is at the heart of the Agency's remit. The conservation of biological resources is a key test of sustainability and a major task for all of the Agency's functions. This is driven by a wide range of legislative and policy requirements, notably the 1995 UK Biodiversity Action Plan (BAP), Environment Act (1995) and the Habitats Regulations (1994). All of these task the Agency with a range of environmental commitments. However, meeting current and future biodiversity requirements needs accurate biological data on which to base decisions.

The National Biodiversity Network (NBN) is an initiative aimed at creating a new network of Local (Biological) Records Centres (LRCs) with consistent standards and tools, allowing Internet access to biological data. The NBN is run by a Charitable Trust whose sole aim is to facilitate the development of the network.

The first national 'pilot' Cheshire LRC, known as RECORD, is predominantly within South Area, NW Region. The Cheshire LRC will collate all biological distribution data in Cheshire, Halton, Warrington and Wirral. This data will be collected from a wide range of professional and voluntary organisations and individuals and the data will be subject to quality and access standards. The Agency is likely to be a data 'provider' and 'user'.

RECORD is still within an initial establishment stage of its development. However, the centre has set itself up much more rapidly than envisaged and is already able to supply biodiversity data services to the Agency. This has been completed to date through a Service Level Agreement (covering multi-functional work areas) between the two bodies.

The project is based at Chester Zoological Gardens, Cheshire.

The Agency became a funding partner in April 2001. It is hoped that there will be a continued involvement between the Agency and the local pilot NBN as determined by an annually reviewed Service Level Agreement (SLA).

The NBN is a major collaboration with relevant environmental organisations in Cheshire. The working group includes the following funding / collaborative partners: Esme Fairburn Trust, Warrington Borough Council, Joint Countryside Advisory Service, English Nature (North West and Midlands Regions), Wirral Metropolitan Borough Council, Greater Manchester Ecology Unit, Environment Agency, The Wildlife Trusts, North West Naturalists' Union, Congleton Borough Council, Vale Royal Borough Council, Cheshire Wildlife Trust, Mersey Forest, Cheshire County Council, Halton Borough Council, National Trust, RSPB, National Museums & Galleries on Merseyside, Lancashire Wildlife Trust, Chester City Council.

These partnerships are providing £178,000 approximately of the funding for the pilot NBN centre. The Agency contribution is £5000.

Supply of accurate biodiversity data is a pre-requisite to meeting the Agency's requirements to protect and enhance biodiversity. This duty effects all functions. A multi-functional group (including Water Resources, EP, FER, Customer Services) met with representatives from the NBN in late 2000 to discuss potential applications of the LRC to the Agency's work. The group identified a wide range of areas where the NBN pilot link in Cheshire could provide a biodiversity data 'service' to the Agency.

Biodiversity Strategy

The primary function of the document is to:

- Provide a summary of the distribution data for each of the habitats and species associated with South Area's biodiversity actions;
- Identify where distribution data gaps limit the Agency from completing biodiversity actions; and
- To provide cost estimates for gathering the necessary data to fill these gaps.
- A separate Microsoft Access database has been produced for use in association with the report. The database contains a comprehensive list of actions for these species and habitats together with an overview of distribution data and links to the Agency vision and Frameworks for change documents.

WATER QUALITY

Endocrine disruption in the Mersey and sub-catchments

This is primarily a project to further our knowledge of pollution problems in South Area, (now the gross organic pollution has started to be addressed). One of the main justifications for the project is addressing the potential spawning problems which may inhibit salmon returning to the Mersey and therefore not producing a naturally self-sustaining population. This will also affect mammals, fish and invertebrates.

Partners include Plymouth University and the Freshwater Biological Association.

This project was initiated to assess whether endocrine disrupting chemicals have had ecological significant impacts on invertebrate populations (and wider ecology) in the Mersey catchment.

The project involved taking invertebrates from the Mersey catchments, then using analytical biochemistry techniques to establish whether disruption was present. A series of tests were used to identify the extent of any effects that occurred. A PhD studentship was awarded at Plymouth University and was a joint venture between Plymouth University, Environment Agency and the Freshwater Biological Association. The project was a vehicle to establish presence/absence of endocrine disruption, (ED), in South Area and to try and prioritise the severely disrupted areas. Future planning would involve feeding back any information gleaned into the Water Quality Asset Management Process, (AMP), so ED could be prioritised with the gross organic pollutant discharges to have improvement works completed. Biodiversity and sustainability are important as an issue, as expenditure is spent on the AMP improvements to sewage treatment works. Endocrine disrupters could influence the ability of

the Mersey as an ecological resource to recover from the historic pollution, and hence, should be prioritised accordingly within the AMP programme. Potentially the research if acted on could improve the ecological fitness of species in the wider Mersey catchment including the Mersey estuary SPA.

Urban Waste Water Treatment Directive, (UWWTD) SURVEYS

The macrophyte and diatom surveys in tandem with chemical analysis are tools utilised to assess and report nationally the trophic status of rivers. Under the European (UWWTD, 91/271/EEC) eutrophic stretches are designated as "sensitive areas" and Effluent Treatment Works (ETW's) are upgraded to remove the nutrients that cause eutrophication.

After several years of unsuccessful surveying and no designation of sensitive areas in South Area a new proactive approach which involved regular liaison with Environmental Planning was undertaken. The new approach also involved a change of monitoring strategy and paid immediate dividends with the Irwell being put forward as a sensitive water. The Secretary of State recently rubber stamped the decision with four qualifying discharges (ETW's) on the Irwell being upgraded for nutrient removal.

A similar approach has been undertaken in 2001 on the River Tame, with five qualifying discharges (ETW's) being monitored and potentially upgraded in the next UWWTD assessment process. The Tame, Dane and Glaze will all be monitored in the current survey period 2002 – 2005, recent results also appear to reinforce the suitability of the current approach for UWWT surveying.

Surveying The Mersey Estuary

During 2001/02 South Area ran a project aimed at carrying out a baseline biological survey of the Mersey



Estuary. The project was funded via a national pot of money earmarked for Habitats Directive related projects and was intended to inform the forthcoming Section 50 Review of consents for the Mersey Estuary Special Protection Area, (SPA). Work carried out as part of the project included a comprehensive desktop review of all available existing datasets relating to the Estuary, a wide area biological survey of the estuary (comprising almost 60 sites and covering the whole of the SPA), the production of an interpretative report linking the biological and physicochemical data back to the interest features of the SPA and the production of a

metadatabase of references/data sources for the estuary. Most of the work was carried out by the Consultancy, Young Associates, however sampling was done in house using the Agency's own hovercraft (above) and the survey vessel 'Coastal Guardian'. This not only helped to give the Agency staff involved a greater feel for the nature of the estuary but also provided experience that will be invaluable for the planning and implementation of a future routine monitoring programme.

The results of the survey work showed an impoverished benthic



invertebrate fauna throughout the estuary, although there were areas containing a more typical estuarine community, notably on the mud flats of the inner estuary. Even in these areas the greater part of the biomass was made up of oligochaete worms, typical of polluted water, although there were also other common estuarine species present, eg the ragworm *Nereis diversicolor* (right).



The desktop review revealed that the populations of waders and waterfowl in the estuary, the main interest feature of the SPA, are in a relatively healthy condition. Populations

of all species except pintail are now above citation level with some species, eg shelduck and dunlin, increasing in the Mersey Estuary against a backdrop of national decline. Other species, such as turnstone (left), have exceeded their international importance thresholds since citation. We believe that increases in bird numbers are mainly attributable to improving water quality and serve to emphasise the importance of the Mersey Estuary as an international wildlife site.

The project highlighted the large amount of data relating to the Mersey Estuary that is available, but also pointed to a number of future research needs and short to medium term objectives. Chief among these was the need to develop a good quantitative understanding of the interrelationships between water and sediment quality, invertebrate fauna and higher trophic levels, eg birds.

FLOOD DEFENCE WORKS

Maintenance works to repair collapsing banks on Keckwick Brook, Runcorn

Keckwick Brook in Runcorn supports a good breeding population of water voles along much of its length. Flood defence identified a 200m stretch of eroding and collapsing bankside in need of repair, not as yet supporting water voles. The dual aim of the maintenance works was to repair the collapsing banks in this well used amenity area, using sympathetic revetment techniques, whilst enhancing the existing riparian habitat for the water vole population found upstream of the works.

Toe boarding was restricted to the outside of meanders, with holes cut into the boards at specific intervals to allow water vole access. While the steep banksides were re-profiled in the toe boarded sections. Marginal plug planting and low maintenance grass/wildflower seeding was also added to enhance the bankside and marginal habitat, whilst providing additional scour protection.



Photo 1



Photo 2



Photo 3

Photo 1 – before works

Photo 2 – during works / bank reprofiling and minimal use of toe boards

Photo 3 – during works / geotextile matting to aid establishment of vegetation and holes cut into the toe boarding for water vole access.

PARTNERSHIPS

River Medlock – Clayton Vale

Studies were first carried out in the early years of the NRA, to investigate the possibility of river rehabilitation work to a 1.4km long section of the River Medlock within an area of informal public open space in east Manchester known as Clayton Vale. Owned by Manchester City Council, previous land use included a print works, a hospital and a location for tipping in the 1930's-1960's - in recent years the buildings have been removed, the tipped areas have been landscaped and planting has been carried out. However the depth of this tipping has effectively separated the river from its natural floodplain, its meanders replaced by straightened channels of concrete, stone or wooden revetment. The fact that an unregulated mixture of domestic and industrial waste lay behind the river engineering was a further restriction, as was found during attempts to excavate a backwater, when oily seepage was uncovered. These constraints and their implications for funding were perhaps the reason for the time taken until a scheme for Clayton Vale came to fruition. In addition to the Agency's programme to enhance or restore the environmental value of watercourses, the City Council aims to create amenity access and improve habitat along its rivers and, in the case of Clayton Vale, to encourage responsible usage of this extensive "inner city fringe" open space and through greater usage, to increase the sense of security felt by its users.

The scheme's objectives were therefore to improve the river corridor for conservation and recreational purposes, to encourage increased public access and educational use of the river corridor and to increase habitats for wildlife by:

- Formation of fish passes at weirs within this section
- Creation of Pools and Riffles
- River channel planted with marginal aquatic plants in coir logs
- Creation of backwater and reed beds
- Creation of shallow pond with dipping platform for educational use
- Formation of new footpaths with view over wooded valley
- Removal of unsightly brick walls and creation of berms
- Lowering of unsightly steel sheet piles and replacement with revetment works
- Provision of footbridge across the river downstream of the visitor centre

Partnership support was obtained from Manchester City Council, the Groundwork Trust and the Medlock / Tame RVI (River Valley Initiative). Manchester City Council Leisure Services Department confirmed that they would take on future maintenance and, in addition, would allow tipping, from the works, on their land. In addition to statutory consultation, strenuous efforts were made to involve the local community and interested parties, so as to promote wide acceptance of the scheme.

The total project cost was £250k; contributions of £150k were obtained from the Mersey Basin Trust who obtained Landfill Tax Credit funding from The Onyx Environmental Trust, an Environmental Body, registered with Entrust. The Agency provided funding of £100k.

North West Water Ltd recently carried out an extensive programme of works to the local sewerage system, substantially reducing the number of spills of sewage into the river, and there is also potential for increased tourist use of the Medlock valley up to Clayton Vale. A strategic network of green routes is planned for the City of Manchester based upon river valleys, canals and parks; as part of this network, Clayton Vale will be a key link in the Medlock Valley Linear Park. It also lies near to the principal site of the 2002 Commonwealth Games, an additional impetus to such improvements in north and east Manchester.

Works took place from September 2001 to March 2002, and after allowing some time for planting to show effect (and the weather hopefully to improve) the scheme's launch took place on 10 May. The Lord Mayor formally opened the footbridge and groups of children from neighbouring schools enjoyed pond-dipping, a Duck Race along the Medlock from the Vale entrance to the footbridge, entertainers "The Curious Eyebrows" and displays of pond invertebrates through microscope/TV monitors. While vandal-proof durability was one factor that had to be considered in design of (eg) the footbridge and seating at viewing areas, early signs are good for the future positive use of Clayton Vale.



January 2001 – Existing Sheet Piles



Nov 2001 – Sheet piles replaced by natural stone revetment



January 2001 – Old Print Works Wall



Nov 2001 – Landscaping following removal of wall



October 2001 – Planting Wild Flowers



November 2001 – Culceth pond before renovation



Dec 2001 – Newly renovated angling pond



Nov 2001 – Installation of "Hurn" weir

Commonwealth Games: some environmental "spin-offs"

After Agency rehabilitation work on the River Medlock at Clayton Vale, plans are afoot to tackle an even more demanding legacy of Victorian river engineering, immediately downstream. In 1857, floods caused coffins to be washed into the river where the meandering, eroding River Medlock ran between a cemetery and Philips Park. The solution was a mile-long, hemispherical cross-sectioned brick channel, with the adjacent bank margins similarly walled-in. Ecologically, it's quite barren, and parts are deteriorating structurally, so solutions are being sought to these problems. Costs are likely to be considerable, and there's also an argument to consider for some retention on heritage grounds (it's certainly a dramatic, log-flume-like structure). Depending on what options prove feasible, channel habitat could be created to form a fish-friendly link between the rehabilitated section of Clayton Vale and a similar stretch downstream of the Park, to take advantage of improving water quality.

Together with rubble-removal from inner-city sections of the Medlock channel, the possibilities shown by Philips Park are an example of environmental improvement triggered by the current regeneration of East Manchester. Contaminated land remains a great problem: the Commonwealth Games stadium carpark overlies the 9m-deep culvert of the River Medlock, where it runs under land-fill, between former mine-workings and a gas works. In an ideal world, less money could perhaps be spent at other sites to greater environmental effect. Funding streams are however often linked to regeneration and future development of a site, as is the case where riverside scrapyards near the stadium were cleared for amenity landscaping, but will subsequently be developed into a tram station and depot. Subject to these constraints, local people will at least be able to enjoy their riverside location.



APPENDIX

CONSERVATION RESOURCES IN THE NORTH WEST

DID YOU KNOW ?

- There are 409 Sites of Special Scientific Interest (SSSIs) in the Region.
- There is over 534km of Cumbrian river designated as SSSI. This includes the Derwent and Cocker, Eden and Eamont, Ehen and Kent river systems.
- Only 38% of the Region's rivers can be classed as being in a 'semi-natural' condition, as determined by the Agency's River Habitat Survey work in the Region.
- There are 9 internationally recognised and protected wetlands classified as Ramsar sites under the international Ramsar Wetlands Convention.
- The Region has approximately 250 000 Ha of land designated, or about to be designated, as internationally important for conservation under EU Directives. This includes 22 candidate Special Areas for Conservation (SACs) under the EC Habitats Directive (1992); and 10 Special Protection Areas under the Birds Directive (1979).
- There are 3 National Parks. The whole of the Lake District, and parts of the Peak District and Yorkshire Dales National Parks.
- There are 4 Areas of Outstanding Natural Beauty (AONB): the Forest of Bowland, Solway Coast, Arnside and Silverdale, and the North Pennines. These cover approximately 1700 square kilometres in the Region.
- There is a Heritage Coast site at St. Bees Head in Cumbria.
- Hadrian's Wall in Cumbria is a World Heritage Site
- It includes parts of the North Peak and South West Peak and the whole of the Lake District Environmentally Sensitive Areas (ESAs).
- It contains two Community Forests: the Mersey Community Forest and the Red Rose Community Forest.
- There are over 1000 Scheduled Ancient Monuments (SAMs).
- The Region is important for the following internationally important species and habitats covered by the EC Habitats Directive:
 - (i) Habitats Dystrophic, oligotrophic, and mesotrophic lakes, rivers with water crowfoot vegetation, coastal dunes, estuaries, transition mires and quaking bogs, large coastal bays, mudflats and sandflats, raised bog, blanket bog, coastal shingle vegetation, coastal marshes, and hard water springs.
 - (ii) Species Yellow marsh saxifrage, narrow-mouthed whorl snail, otter, freshwater crayfish, allis shad, twaite shad, salmon, river, brook and sea lamprey, bullhead, and great crested newt.
- The Region contains important resources of the following priority habitats and species listed under the UK Biodiversity Action Plan for which the Environment Agency has special responsibilities:
 - (i) Habitats Reedbed, coastal and floodplain grazing marsh, mesotrophic lakes.
 - (ii) Species Water vole, Otter, Bittern, Sand lizard, Allis and Twaite shads, Vendace, Netted carpet moth, Sandbowl snail, Medicinal leach, Freshwater pearl mussel, Depressed river mussel, Slender naiad, Yellow marsh saxifrage, Natterjack toad, Marsh fritillary, Freshwater crayfish, Harbour porpoise, Great crested newt, Petalwort, River jelly lichen and Floating Water Plantain.

CONTACTS:

THE ENVIRONMENT AGENCY NORTH WEST REGIONAL HEAD QUARTERS

PO Box 12, Richard Fairclough House, Knutsford Road, Warrington WA4 1HG
Tel:01925 653 999 Fax:01925 415 961

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

NORTH WEST REGIONAL OFFICES

NORTH AREA

Environment Agency
Ghyll Mount
Gillian Way
Penrith 40 Business Park
Penrith
Cumbria CA11 9Bp
Tel: 01768 866 666
Fax: 01768 865 606

CENTRAL AREA

Environment Agency
Lutra House
PO Box 519
South Preston
Lancashire
PR5 8GD
Tel: 01772 339 882
Fax: 01772 627 730

SOUTH AREA

Environment Agency
Appleton House
430 Birchwood Boulevard
Warrington WA3 7WD
Tel: 01925 840 000
Fax: 01925 852 260



For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

**ENVIRONMENT AGENCY
GENERAL ENQUIRY LINE**

0845 933 3111

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

**ENVIRONMENT AGENCY
EMERGENCY HOTLINE**

0800 80 70 60



**ENVIRONMENT
AGENCY**